



CERTIFICATION AND FINANCING PROPOSAL

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

Submitted: October 21, 2020



BOARD APPROVAL TIMELINE

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

Milestones	Date
Public comment period begins (30 days)	9/Oct/20
Public comment period ends	8/Nov/20
Board submittal for initial review	21/Oct/20
Initial Board review ends (21 days)*	No later than: 11/Nov/20
Initial NADB response period (10 days)	No later than: 21/Nov/20
Additional Board review (14 days)*	No later than: 05/Dec/20
Additional NADB response period (7 days)*	No later than: 12/Dec/20
Board voting period (14 days)*	No later than: 26/Dec/20

* Date subject to change if prior deadline is met at an earlier date.

This project proposal is being submitted as part of the materials for the November 12th Board meeting, and the Board will have the option to vote on it at that time.

CONTENTS

EXECUTIVE SUMMARY	1
1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES	3
2. ELIGIBILITY	3
2.1. Project Type.....	3
2.2. Project Location.....	3
2.3. Project Sponsor and Legal Authority.....	4
3. CERTIFICATION CRITERIA	5
3.1. Technical Criteria	5
3.1.1. General Community Profile	5
3.1.2. Project Scope	8
3.1.3. Technical Feasibility.....	9
3.1.4. Land Acquisition and Right-of-Way Requirements	12
3.1.5. Project Milestones.....	13
3.1.6. Management and Operation.....	13
3.2. Environmental Criteria	15
3.2.1. Environmental and Health Effects/Impacts	15
A. Existing Conditions	15
B. Project Impacts.....	15
C. Transboundary Impacts.....	16
3.2.2. Compliance with Applicable Environmental Laws and Regulations.....	16
A. Environmental Clearance	16
B. Mitigation Measures	16
C. Pending Environmental Tasks and Authorizations.....	16
3.3. Financial Criteria.....	17
3.3.1 Sources and Uses of Funds	17
3.3.2. Loan Payment Mechanism	17
3.3.3. Financial Analysis of the Source of Payment.....	20
A. Historical Analysis of the District.....	20
B. Water and Wastewater Affordability Analysis.....	26
C. Financial Projections of the District.....	27
D. Project Debt Service Coverage Ratio (DSCR).....	30

3.3.4. Risk Analysis.....	31
A. Quantitative Project Risks	31
B. Qualitative Project Risks.....	33
4. PUBLIC ACCESS TO INFORMATION	34
4.1. Public Consultation.....	34
4.2. Outreach Activities	34
5. RECOMMENDATION	35

EXECUTIVE SUMMARY

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

Project: The proposed project consists of replacing a non-operational drinking water treatment facility with a reverse osmosis plant, as well as replacing 1,813 water meters in the city of Hebbbronville located in Jim Hogg County, Texas (the “Project”).

Project Objective: The purpose of the Project is to provide additional drinking water treatment capacity and thus reduce human health risks associated with waterborne diseases, especially those related to excess arsenic and total dissolved solids. In addition, the Project will increase the operational efficiency of the utility by providing a more energy efficient treatment process and improving water metering.

Expected Outcomes: The Project is expected to generate environmental and human health benefits, as well as enhance operational efficiency, as a result of the following outcomes:

- Increase water treatment capacity from 0.73 to 1.73 million gallons a day (mgd), thus providing the necessary flows to meet peak demand and comply with the requirements established by the Texas Commission on Environmental Quality (TCEQ) regarding minimum capacity and redundancy.
- Ensure adequate water quality and quantity for 1,813 existing connections.
- Replace of 1,813 water meters.
- Promote efficient water control and billing by accounting for up to 6% of water losses (4,104,000 gallons per year).
- Generate cost savings of up to US\$257,000 during the first year of operations due to a more efficient water treatment process and better water supply control.¹

Population to Benefit: 4,558 residents of the city of Hebbbronville in Jim Hogg County, Texas.²

¹ The Project will be implemented under two performance agreements: (i) a water treatment agreement currently under negotiation and (ii) a metering agreement already executed, both with Schneider Electric, who guarantees financial benefits of US\$155,000 from the metering and US\$102,000 from the water treatment plant.

² Estimate provided by the Sponsor. According to the U.S. census, the county population was 5,192 in 2018. Data results of the 2010 U.S. Census indicate that the population of the county was 5,300, while its county seat, Hebbbronville, was 4,558.

Project Sponsor: Jim Hogg County Water Control Improvement District No. 2.

Borrower: Jim Hogg County Water Control Improvement District No. 2.

Estimated Project Cost US\$4.26 million.

NADB Loan: Up to US\$4.26 million.

Uses and Sources of Funds:
(US\$)

Uses	Amount	%
Water treatment plant	\$ 2,000,000	46.9
Water meters	1,700,000	39.9
Closing costs and contingencies	560,000	13.2
TOTAL	\$ 4,260,000	100.0
Sources	Amount	%
NADB Loan	\$ 4,260,000	100.0
TOTAL	\$ 4,260,000	100.0

Interest Rate: A fixed market-rate in U.S. dollars.

Repayment Period: Up to thirty (30) years.

Repayment Source:

1. An irrevocable first lien on and pledge of the net revenue of the District.
2. Debt service reserve.

Interest Payments: Semiannually.

Principal Payments: Annually.

Debt Service Coverage Ratio (DSCR): The Borrower shall maintain a minimum DSCR of 1.20x.

CERTIFICATION AND FINANCING PROPOSAL

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES

The proposed project consists of replacing a non-operational electro dialysis reversal (EDR) drinking water treatment facility with a reverse osmosis plant, as well as replacing 1,813 water meters in the city of Hebbronville in Jim Hogg County, Texas (the “Project”). The purpose of the Project is to provide additional drinking water treatment capacity and thus reduce human health risks associated with waterborne diseases, especially those related to excess arsenic and total dissolved solids. In addition, the project will increase the operational efficiency of the utility by providing a more energy efficient treatment process and improving water metering. Specifically, the Project is expected to (i) increase water treatment capacity from 0.73 to 1.73 million gallons a day (mgd), (ii) ensure adequate water quality and quantity for 1,813 existing connections, (iii) replace 1,813 water meters, (iv) promote efficient water control and billing accounting for up to 6% of water losses (4,104,000 gallons per year), and (v) generate cost savings of up to US\$257,000 during the first year of operations.³

2. ELIGIBILITY

2.1. Project Type

The Project falls within the eligible category of drinking water.

2.2. Project Location

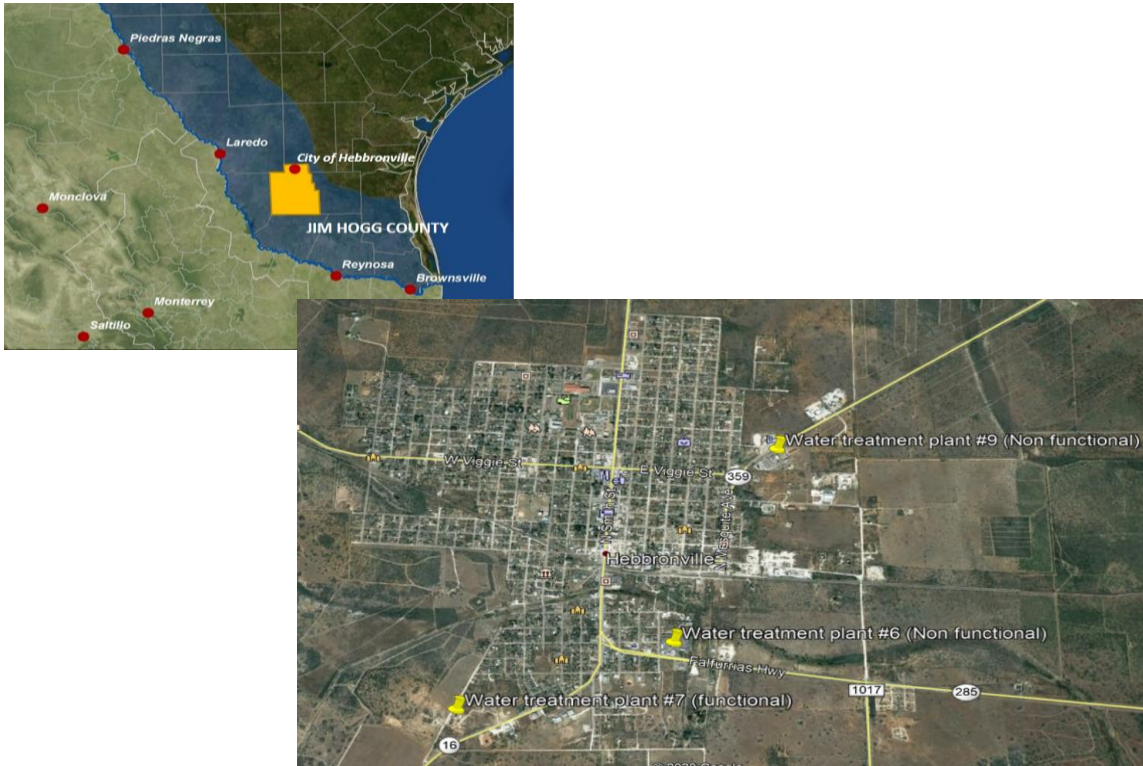
The Project will be implemented in the city of Hebbronville in Jim Hogg County, Texas. Hebbronville is the county seat and largest town in the county. It is located approximately 46.6 miles (75 kilometers) from the U.S.-Mexico border. The closest major U.S. cities are Laredo approximately 50 miles to the northwest and McAllen about 80 miles to the southeast. The geographical coordinates of the city of Hebbronville town center are approximately 27° 18' 26" N

³ The Project will be implemented under two performance contracts: (i) a water treatment contract currently under negotiation and (ii) a metering contract already executed with Schneider Electric, who guarantees benefits of US\$155,000 on the metering and US\$102,000 on the water treatment plant.

and 98° 40' 42" W. Water treatment plant (WTP) No. 9 to be replaced as part of the Project is adjacent to the Hebbronville Border Patrol Station at 34 E. Hwy 359, Hebbronville TX 78361.

Figure 1 shows the location of the community and of the Project.

Figure 1
PROJECT LOCATION MAP



2.3. Project Sponsor and Legal Authority

The public-sector Project Sponsor is the water utility Jim Hogg County Water Control Improvement District No. 2 (JHWCID2 or the “District” or the “Sponsor”). The District was created on February 24, 1964, pursuant to Chapter 51 of the Texas Water Code and the general laws relating to water control and improvement districts to provide water and sewer services to a geographical portion of Jim Hogg County. It has the authority to fix and charge water and sewer rates for those services. It also has the authority to issue debt to fund its capital investment needs. The District owns and manages the water utility for its jurisdiction.

The Public Utility Commission of Texas issued Certificate of Convenience and Necessity (CCN) 12744 to JHWCID2. The CCN grants the holder the exclusive right to provide retail water and/or sewer utility services to an identified geographic area. Chapter 13 of the Texas Water Code requires a CCN holder to provide continuous and adequate service to the area within its CCN boundary. This certificate covers the entire city where the Project will be constructed.

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

According to the 2010 U.S. census, the population of Jim Hogg county was approximately 5,300, with about 90% residing in the city of Hebbronville. Estimates for 2019 indicate that the population has declined to roughly 5,200.⁴

For economic development and analysis purposes, the Texas Workforce Commission divides the counties into several economic regions. Jim Hogg County, along with Webb and Zapata counties, belong to the South Texas Workforce Development Area (WDA). Economic activities in the South Texas WDA include education and health services (30.9%), trade, transportation and utilities (29.9%), and leisure and hospitality (11.2%), among others.⁵

In 2019, the county had a median household income of US\$32,049, which is considerably less than the median household income of US\$59,570 of the state of Texas.⁶ The poverty level for Jim Hogg County was estimated at 25.2%, considerably higher than the 14.9% poverty level estimated for the state.⁷

The following table summarizes the status of public water services coverage by JHWCID2 in Hebbronville.

⁴ Source: U.S. Census Bureau (<https://www.census.gov/quickfacts/jimhoggcountytexas>).

⁵ Source: Texas Workforce Commission. Texas Labor Market Information (<https://texaslmi.com/EconomicProfiles/WDAProfiles>).

⁶ Source: U.S. Census Bureau (<https://www.census.gov/quickfacts/TX>).

⁷ Source: Ibid.

**Table 1
 PUBLIC WATER SERVICES AND INFRASTRUCTURE***

Water			
Coverage:	99%		
Water supply source:	Gulf Coast Aquifer, through 3 wells		
Number of hookups:	1,813 (1,592 residential and 221 non-residential)		
Treatment plants (EDR)**	Plant	Capacity	Status
	No. 6	0.86 mgd	Not operational
	No. 7	0.73 mgd	In operation
	No. 9	1.04 mgd	Not operational
Wastewater Collection			
Coverage:	99%		
Number of connections:	1,813		
Wastewater Treatment			
Coverage:	100% of collected wastewater		
Treatment facilities:	Activated sludge process with capacity: 1 mgd		

* Information provided by Sponsor, 2020.

** According to the Sponsor, the treatment plants at Wells No. 6 and 9 were in operation for 10 years and ceased operating in 2014 due to the recurring failure of the EDR equipment. The EDR treatment plant at Well No. 7 began operations in 2018 and was financed by a grant and loan from the U.S. Department of Agriculture (USDA).

mgd = million gallons a day

Local Water and Wastewater Systems

Water Distribution

JHWCID2 owns and operates the local water distribution system, which serves 1,813 water customers. The water supply source is groundwater from the Gulf Coast Aquifer, which has the highest levels of arsenic in the state of Texas.⁸ Since the quality of the groundwater is not optimal, it requires treatment in order to comply with the applicable standards of the Texas Commission on Environmental Quality (TCEQ). TCEQ has been issuing notices to JHWCID2 since 2013, indicating that the arsenic in its water supply exceeds the maximum contaminant level (MCL) under Texas state regulations.⁹ In 2017, TCEQ notified the District that its water supply exceeded the MCL with an arsenic level of 0.023 milligrams per liter (mg/l). JHWCID2 is expecting to conduct a thorough water analysis by October 2020 to determine arsenic levels and verify compliance with the TCEQ MCL. JHWCID2 has also indicated that total dissolved solids (TDS) are estimated at 1,571 mg/l, thus surpassing the TDS MCL. A raw analysis performed in 2016, confirmed that total dissolved solids are not in compliance with TCEQ standards.

⁸ Source: Texas Commission on Environmental Quality (TCEQ) (<https://www.tceq.texas.gov/drinkingwater/chemicals/arsenic/arsenic.html>).

⁹ Source: TCEQ. The MCL is 0.01 milligrams per liter (mg/l) for arsenic and 1,000 mg/l for total dissolved solids. (https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-346.pdf).

The drinking water system includes a 500,000-gallon ground storage tank, a 250,000-gallon elevated storage tank and three wells, which are paired to three electro dialysis reversal water treatment plants. Two of the plants with a combined capacity of 1.9 mgd are currently non-operational and thus JHWCID2 is unable to provide the minimum volume per connection required by TCEQ regulations (0.6 gallons per minute (gpm)). The only operational water treatment plant has a capacity of 0.73 mgd.¹⁰

Average water consumption during the summer is 0.59 mgd. However, the Public Works office of JHWCID2 mentioned that a few years ago they had seen larger daily demand approaching 0.8 mgd and even 1.0 mgd, which stresses supply. JHWCID2 is currently not able to meet peak demand, nor comply with the TCEQ technical requirement of having at least two operating groundwater supply sources for the district. Additionally, current capacity is insufficient for residential irrigation, which is restricted to certain schedules. The community has been relying on this sole, limited supply source for the last 18 months, posing a high risk for the community should a shutdown occur. Moreover, the operation and maintenance costs of the current EDR technology are high compared to more commercial technologies, such as reverse osmosis.

As for water metering, JHWCID2 estimates that 74% out of the 1,813 existing water meters are underreporting water use, which represents losses in unaccounted water of nearly 6% (4,104,000 gallons per year) of all water losses by the District. Approximately 4.3% of the meters were overreporting water use and 21.7% were accurately reporting water use. Installation of new water meters will address a portion of the unaccounted water losses.¹¹

To address the deficiencies described above, the Sponsor is undertaking the proposed Project which will (i) improve water quality, in particular compliance with arsenic and TDS levels, (ii) provide sufficient installed capacity to comply with the required minimum volume per connection, (iii) ensure proper water billing while reducing unaccounted water losses and (iv) generate additional revenue for the District,.

Wastewater Treatment

The activated sludge wastewater treatment plant (WWTP) has a capacity of 1 mgd and currently receives an average flow of 0.4 mgd. Effluent discharges are in compliance with applicable regulations.

The rejected water from the only operational EDR WTP is conveyed to the WWTP for treatment.

¹⁰ Source: Title 30 Texas Administrative Code (TAC) of the TCEQ, Chapter 290, Subchapter D: Rules and Regulations for Public Water Systems, which requires water systems that serve more than 250 connections to have at least two wells with a total capacity of 0.6 gallons per minute (gpm) per connection.
([https://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=290&rl=45](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=290&rl=45)).

¹¹ According to the Sponsor, implementing this project will increase overall efficiency by 50%.

3.1.2. Project Scope

As described in detail in section 3.1.3, the Project is the result of the measures proposed to JHWCID2 in the two performance contracts negotiated with a qualified vendor selected through an open and competitive procurement process.

The Project consists of replacing one non-operational EDR desalination water treatment plant with a reverse osmosis (RO) plant designed to comply with TCEQ standards for TDS, arsenic and all other MCL, as well as replacing 1,813 water meters. The new treatment plant will also allow JHWCID2 to comply with all TCEQ water capacity and supply requirements.

The Project will be implemented through performance contracts, as the improvements are designed to generate benefits such as increased revenue or lower the overall operation and maintenance (O&M) costs of the system. The following elements will be installed as part of the Project:

- Water treatment plant replacement

The plant will be equipped with a single reverse osmosis membrane system designed to treat up to 1 mgd of water and lower total dissolved solids and arsenic to levels that meet or exceed TCEQ requirements. The volume of brine discharge, estimated at a 20% reject rate, will be similar to the discharge from the current plant and will be conveyed to the wastewater treatment plant. The components of the reverse osmosis system are described below:

- Prefiltration system. A prefilter housing system with five-micron cartridges will be included in the system design.
- High pressure feed pump. A single centrifugal pump will be installed. The pump will be coupled to a 100-horsepower motor. A variable frequency drive will be installed in the system control center to provide soft starting of the pump motor and flexibility over a range of operating parameters.
- Reverse osmosis membranes. Thin-film composite membranes will be installed. Thin-film composite membranes offer higher productivity and less compaction, as well as better salt rejection with lower applied pressure.
- Pressure vessels. Plastic pressure vessels will be used for the membranes. The selected vessels offer high resistance to chemicals and corrosion.
- Piping. All low-pressure piping will consist of polyvinyl chloride (PVC) pipes or thermoplastic tubing. The arrangement of piping and valves has been developed for ease of service and operation.
- Valves. All low-pressure valves will be PVC ball, ball check or butterfly check. All high-pressure valves will be stainless steel ball, butterfly, globe or needle valves.

- System control center. A programmable logic controller (PLC) will be provided for comprehensive control of the unit. The PLC will accept control signals/inputs from the system, evaluate the system inputs and maintain the operation of the system within the design parameters.

The performance contract for this component is still pending execution but the estimated cost of this component is US\$1.97 million and is expected to include: the RO unit and its installation, an automation and control package for remote monitoring, electrical material for interconnection, wiring and hook up, engineering, permitting, project development, construction/project/site management, annual O&M for the RO unit (filters, chemicals and cleaning in place), and payment and performance bonds. The contract will define the activities to be performed, as well as the deliverables and equipment to be provided. The contract will also include the corresponding payment mechanism.

- Water meters replacement

The Project also includes the replacement of 1,813 old water meters with ultrasonic technology and remote reading meters. The new meters will be able to read low flows accurately and will eliminate the need for physical reading, thus reducing maintenance costs. The contract for this component of the Project was designed as an “Energy Performance Contract”, in accordance with Secs. 302.01, Title 9, and 2166.406, Title 10, of the Texas Government Code. Subchapter I, Conservation of Energy and Water, states that in these contracts the estimated energy savings, utility cost savings, increase in billable revenue or increase in meter accuracy resulting from the energy or water conservation or usage measures implemented is subject to guarantee to offset the cost of implementing such measures over a specified period.¹²

The performance contract for this component was executed in March 2020. It provides the scope of work to be performed and the equipment to be provided. Payments to the contractor will be on a monthly basis based on the percentage of completion of the tasks. The cost of this component is US\$1.68 million and includes: advanced metering infrastructure (AMI), tower-based radio equipment to be installed at two locations (water towers), installation of new AMI-compatible ultrasonic water meters with 20-year warranty, 100 new meter box lids, training on system operation and meter replacement, along with testing after construction to prove system performance and supervision.

The cost estimate includes an additional 13% to cover any price escalations, potential change orders and financial and closing costs.

3.1.3. Technical Feasibility

Under Texas Government Code Title 7, Section 791: Interlocal Cooperation Contracts, JHWCID2 issued a request for qualifications for an energy savings performance contract proposal. The

¹² Source: <https://statutes.capitol.texas.gov/Docs/GV/htm/GV.2166.htm#2166.406>

procurement process was implemented through The Interlocal Purchasing System (TIPS) a national purchasing cooperative that offers its membership access to competitively procured purchasing contracts and is managed by the Region 8 Education Service Center (ESC) located in Pittsburg, Texas. Some of the benefits from using a purchasing cooperative like TIPS are:

- Access to competitively procured contracts with quality vendors;
- Savings of time and financial resources necessary to fulfill bid requirements;
- Assistance with purchasing process by qualified TIPS staff; and
- Access to pricing based on a “national” high-profile contract.

The general process for awarding a contract to a vendor through TIPS is as follows: (i) TIPS posts a Request for Proposals (RFP)/Request for Qualifications (RFQ) for a specific product/service with a deadline (date and time) for submission of responses; (ii) TIPS advertises the posting of the RFP/RFQ in a manner that meets the requirements of the State of Texas, as well as in additional formats established by TIPS as beneficial to TIPS members, including two consecutive weeks in the *Pittsburg Gazette* in Pittsburg, Texas, as well as nationally in *USA Today*; (iii) TIPS collects all incoming proposals until the submission deadline; (iv) TIPS staff open and record all of the proposals submitted prior to the deadline; (v) a scoring committee reviews all proposals and scores the proposals based on the criteria established by TIPS (scoring rubric is included in the posted RFP/RFQ documents); (vi) a vendor receiving a score of at least 80 on the scoring rubric is then recommended to the Region 8 ESC Board of Directors at its monthly meeting to receive a TIPS Vendor Agreement (the “Vendor Agreement”) to sell the specified product/service; (vii) the ESC Board of Directors votes to award contracts following the recommendation and discussion of the proposed contracts.

In January 2017, TIPS issued RFQ No. 170103 for the selection of a vendor to implement energy savings performance contracts (the “Performance Contracts”) with proposals due in February 2017.¹³ The purpose of the RFQ was to identify and award an agreement to a highly qualified vendor capable of carrying out Performance Contracts with JHCWID2 through TIPS.¹⁴ Twenty-four companies responded to the RFQ. Evaluation criteria included previous and recent successful experience in the field of performance contracts, adequate staffing, financial strength and project management capabilities, among other qualifications. On March 23, 2017, the Vendor Agreement was awarded to Schneider Electric Building Americas, Inc., an American subsidiary of Schneider Electric, a French global company active since 1836 with more than 135,000 employees worldwide and € 27.2 billion euros in revenue in 2019. Schneider Electric provides leading sustainable, reliable and efficient energy technologies, real-time automation, and integrated solutions for its

¹³ Energy savings performance contracts are defined under Specifications in Texas Local Government Code § 302 and in Texas Education Code § 44.901, as applicable. These contracts are defined as a contract for energy or water conservation measures to reduce energy or water consumption or operating costs of new or existing governmental facilities in which the estimated savings in utility costs resulting from the measures is guaranteed to offset the cost of the measures over a specified period. “Energy savings” means an estimated reduction in net fuel costs, energy costs, water costs, stormwater fees, other utility costs or related net operating costs from or as compared to an established baseline of those costs.

¹⁴ In Texas, energy savings performance contracts must be procured in accordance with the methodology established in Texas Government Code §2254.004 for contracting the professional services of architects, engineers and surveyors.

customers. The Vendor Agreement is renewed yearly until March 23, 2022. All purchase orders are validated, approved and reported through TIPS.

NADB reviewed the procurement process and concluded that it was open and consistent with its Procurement Policies and Procedures. Project start-up was delayed by an outstanding debt that did not allow the District to undertake an additional project.

The first purchase order under the Vendor Agreement resulted in a Performance Contract to develop the water metering component of the Project, which was executed in March 2020. The second purchase order for a Performance Contract to develop the WTP is expected to be signed by October 2020.

Water Treatment Plant

JHWCID2 operates a 0.73-mgd EDR system at one of its water wells. The water produced complies with the quality standards set by TCEQ. Nevertheless, this facility does not have the treatment capacity to comply with TCEQ regulations regarding water volume per connection served. Therefore, JHWCID2 needs to add additional water treatment capacity to its water system.

EDR systems are more expensive overall compared to other systems and are also more complicated to operate as they are designed to remove ions selectively. EDR systems are currently manufactured by Ionics, Inc., which has a monopoly for aftermarket parts & services leading to price and availability issues during operation & maintenance. Existing systems and infrastructure result in overall high costs and an insufficient clean water supply.

A preliminary engineering report of the current drinking water infrastructure system concluded that two of the three EDR WTPs are non-operational. As a result of the review, a reverse osmosis system was proposed to replace the non-operational electro dialysis plant located at Well No. 9, since RO technology is easier to operate than EDR technology. The replaced facility will provide the necessary capacity and redundancy required by TCEQ for water supply systems of more than 250 connections.

The reverse osmosis system uses membrane technology that is more economic and cost effective to operate. Chemical usage for a RO can be minimal compared to an EDR system. Reverse osmosis has been widely accepted for drinking water applications with high TDS levels and is recommended by state regulatory agencies. There are several RO system manufacturers in the industry. Components, such as membranes, pressure vessels, high pressure pumps etc., are readily available and comparatively less expensive to other technologies.

Reverse osmosis is one of the best available technologies to treat high levels of TDS in raw water because of its higher performance (i.e. high quality of water produced), lower maintenance, less downtime resulting in a higher production rate, less chemical usage and low operational cost due to less chemicals and maintenance costs. Additionally, reverse osmosis is very effective at removing all primary contaminants, such as arsenic, nitrates, fluoride, radium, viruses and bacteria. There are several TCEQ-approved municipal RO systems in the state of Texas.

Schneider is proposing that the RO WTP supply 80% of water demand and the existing EDR WTP cover the remaining 20%. This scheme is expected to generate an estimated US\$102,000 in savings during the first year of operation. The brine produced by the upgraded WTP will be treated in the existing WWTP. Since the EDR and RO systems have similar water rejection rates, no additional flow is expected to be sent to the WWTP.

Once the Project is implemented, the system will be able to provide for future residential demand and irrigation needs within the city limits and generate savings for JHWCID2 deriving from a substantial decrease in its operation and maintenance costs. In addition, the system will help the District meet the aforementioned TCEQ regulations in terms of minimum water volume per customer.

The no-action alternative was not considered viable given that the current water system does not comply with TCEQ capacity standards and any failure of the only WTP currently in operation would be critical.

Water meters

A water audit report prepared by the Texas Water Development Board (TWDB) in 2019 indicated that unaccounted for water exceeds 30%, with 6% of those losses related to inaccurate water metering (4,104,000 gallons per year). Based on these findings and on the operational conditions and technical characteristics of the existing meters, new water meters were analyzed and selected for the Project using the following criteria:

- Compatibility with current infrastructure.
- Balance between cost and the number of meters.
- Operation and maintenance cost.
- Remote metering capability.

This component of the Project will generate financial benefits estimated at US\$155,000 during the first year of operation for a cumulative total of US\$2.89 million in year 15 under the Performance Contract.¹⁵

The no-action alternative was not considered viable given the percentage of water losses due to deficient meters.

3.1.4. Land Acquisition and Right-of-Way Requirements

All the construction tasks of the proposed Project will take place within existing county and city rights of ways given that the new meters will replace the current meters. The water treatment components will be installed at Well No. 9 where one of the non-operational EDR WTPs is located. No additional land or right-of-way acquisition is expected to be required.

¹⁵ At the end of the 1st year of operation under the Performance Contract, selected meters will be tested to confirm that the expected benefits under the terms and conditions of the performance guarantee are being met. Should a cashflow shortfall occur, Schneider will either make adjustments to meet the guarantee or make a one-time payment to JHWCID2 to compensate for the shortfall, extrapolated for the 15-year guarantee under the contract.

3.1.5. Project Milestones

Project planning, procurement and contract award to execute the Project, as well as preliminary design for the replacement of the water treatment plant and water meters, have been completed.

Construction of the WTP is expected to take up to 300 days from notice to proceed, once financing becomes available. Since the Project does not entail an increase in the permitted capacity, no environmental assessment is required.

Replacement of the water meters will be carried out concurrently with treatment plant construction. The installation of the water meters is expected to take up to 180 days and will start once the financing is available. Table 2 presents the status of key milestones for Project implementation.

Table 2
PROJECT MILESTONES

Key Milestones	Status
Water meter selection	Completed – March, 2020
Preliminary design of the water treatment plant	Completed – June 2020
Final design of the water treatment plant	Completion expected by the end of October 2020
TCEQ permit amendments	Expected to be submitted by the end of October 2020
TCEQ final authorizations	Expected by November 2020
Construction/installation period (water meters)	Up to 180 days
Construction/installation period (water treatment plant)	Up to 300 days

3.1.6. Management and Operation

The WTP construction contract includes one year of operation & maintenance (O&M) services. After the first year, JHWCID2 has the option to renew the O&M contract or to take over the O&M activities itself. The agreement specifies the tasks to be performed for regular equipment maintenance and optimum plant operation. The scope of the plan includes furnishing filters and chemicals, routine maintenance service, quarterly inspections, 24/7 remote troubleshooting and on-call labor services for the treatment systems installed in the new plant.

The long-term maintenance program will include routine service, along with maintenance that will extend the life of the membranes and other plant components and reduce the frequency of membrane cleanings for less downtime resulting in higher production rates. Additionally, the maintenance program will help JHWCID2 operators optimize system operation by finetuning chemical dosing, while also helping detect early operational issues. The District will ensure that sufficient resources, training, and staff are available for the proper operation and maintenance of the new infrastructure. According to Schneider, the optimal operational ratio for water

production will be 80% supply from the RO WTP and 20% from the existing EDR WTP to meet instant demand at any given time.

To comply with TCEQ requirements, the existing permits for both the water treatment process and discharge permit will have to be updated and amended. The permit for the water treatment process will be upgraded from the current electro dialysis reversal process to a reverse osmosis technology. This amendment is expected to be submitted by the end of October 2020, and the final authorization is expected to be obtained by November 2020. According to information provided by the Sponsor, TCEQ has indicated that since the water source is groundwater from an existing well no small scale pilot study is expected to be required even if the water has primary contaminants, such as arsenic, nitrate or high fluorides. TCEQ will require a Step 1 RO TCEQ application and a Step 2 TCEQ RO application for approval of the design and construction of the RO system, as well as the decommissioning of EDR WTP at Well No. 9.

The discharge permit will be amended based on volumes and quality of reject water from the reverse osmosis system. This amendment is expected to be submitted by the end of October 2020, and the final authorization is expected to be obtained by November 2020. As indicated above, no pilot study is expected to be required by TCEQ based on recent conversations between the Sponsor and state authorities. In any case, TCEQ will confirm this assumption with the issuance of the corresponding permits.

With respect to the water meters, Schneider Electric will install them, and the Sponsor will be responsible for operating them. Training activities for JHWCID2 personnel will be conducted by Schneider Electric and will include measuring and verifying savings, performance assurance services, monitoring and reporting.

Under the Performance Contract, Schneider Electric will be responsible for replacing the meters. Schneider Electric will provide post-installation training and support, including training in measuring and verifying savings and performance assurance services, as well as monitoring and reporting during the first year of operation. At the end of 1st year, selected meters will be tested to confirm that expected benefits under the terms and conditions of the performance guarantee are being met. Should a cashflow shortfall occur, Schneider will either make adjustments to meet the guarantee or make a one-time payment to JHWCID2 to compensate for the shortfall, extrapolated for the 15-year guarantee under the contract. The selection of Schneider as a reliable vendor with proven track record for providing these services, and the selection of high-end water meters with a 20-year warranty that goes beyond the 15-year performance guarantee, provide assurance that the expected benefits will be achieved. After the first year of operation, the Sponsor will be responsible for operating the highly automated metering system.

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

A. Existing Conditions

Two out of the three water treatment plants located in JHWCID2 are non-operational. The only operational water treatment plant has a capacity of 0.73 mgd, and the District does not have a backup plant or system in the event that it fails or has to be shut down. Furthermore, the existing plant does not have sufficient capacity to meet peak water demand nor the minimum capacity required by TCEQ for water supply systems with more than 250 connections.

A recent analysis showed that total dissolved solids in the raw water supply exceed the maximum contaminant level established under TCEQ standards. In 2017, TCEQ notified JHWCID2 that its water supply also exceeded the applicable MCL for arsenic.

Moreover, according to the water audit developed for JHWCID2, 30% of the drinking water produced annually (65.3 million gallons) was not accounted for in 2018, representing a significant loss and putting financial stress on the District.

B. Project Impacts

The Project will address the existing non-efficient water metering and reported issues of exceeding levels of total dissolved solids and arsenic. Specifically, the Project is expected to generate the following outcomes:

- Increase water treatment capacity from 0.73 to 1.73 mgd, thus providing the necessary flows to meet peak demand and comply with the requirements established by TCEQ regarding minimum capacity and redundancy.
- Ensure adequate water quality and quantity for 1,813 existing connections.
- Replace 1,813 water meters.
- Promote efficient water control and billing by accounting for up to 6% of water losses (4,104,000 gallons per year).
- Generate cost savings of up to US\$257,000.00 during the first year of operations due to a more efficient water treatment process and better water supply control.¹⁶

The replacement of the water treatment plant includes installing a reverse osmosis system, a technology suitable for treating high levels of the contaminants regulated by TCEQ, including TDS and arsenic. The proposed Project will ensure that JHWCID2 will be able to supply drinking water in compliance with the applicable standards for public water systems. Moreover, no additional reject wastewater is expected to be generated. Finally, the new meters have no lead content.

¹⁶ The Project will be implemented under two performance agreements: (i) a water treatment agreement currently under negotiation and (ii) a metering agreement already executed, both with Schneider Electric, who guarantees financial benefits of US\$155,000 from the metering and US\$102,000 from the water treatment plant.

C. Transboundary Impacts

No transboundary impacts are anticipated as a result of the Project.

3.2.2. Compliance with Applicable Environmental Laws and Regulations

The Safe Drinking Water Act (SDWA) is the primary law regulating public water systems in the United States. In accordance with the SDWA, the United States Environmental Protection Agency (EPA) has published regulatory requirements setting limits on contaminants allowed in drinking water. In Texas, TCEQ is responsible for monitoring drinking water systems and issuing enforcement actions in those cases where the system is not in compliance. Specifically, the Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems (30 Texas Administrative Code (TAC), Chapter 290, Subchapter F) of the TCEQ, describes the minimum required sampling, levels and public notification for public water systems.

The Project will help the District comply with the above law and applicable regulations.

A. Environmental Clearance

Since the Project does not entail any increase in the permitted capacity, an environmental assessment is not required.

B. Mitigation Measures

The mitigation measures to be implemented during the construction and installation of the Project include:

- Construction will normally occur between 8 a.m. and 5 p.m. to avoid noise disruptions extending into the evening.
- Tune-ups to vehicles will be performed to reduce emissions and noise effects.
- All construction personnel will attend a briefing describing the potential impacts of construction activities and to familiarize workers with the mitigation measures.

By following best management practices, temporary impacts due to construction and installation will be minimized. Moreover, the results from the implementation of the proposed Project will be positive overall. The Project is expected to have a positive environmental impact by protecting the local water supply and public health.

C. Pending Environmental Tasks and Authorizations

No environmental tasks and authorizations for the implementation of the Project are pending.

3.3. Financial Criteria

3.3.1 Sources and Uses of Funds

The total estimated cost of the Project is US\$4.26 million, which includes construction, contingencies and related financial costs. The Project Sponsor has requested financing from NADB to support the implementation of the Project. NADB is proposing to provide a US\$4.26 million loan through the issuance of a revenue bond by JHWCID2. Table 3 presents a breakdown of the estimated Project costs and proposed financing.

Table 3
SOURCES AND USES OF FUNDS
(US\$)

Uses	Amount	%
Water treatment plant	\$ 2,000,000	46.9
Water meters	1,700,000	39.9
Closing costs and contingencies	560,000	13.2
TOTAL	\$ 4,260,000	100.0
Sources	Amount	%
NADB Loan	\$ 4,260,000	100.0
TOTAL	\$ 4,260,000	100.0

The NADB loan will be disbursed into an escrow account and will be drawn down to make partial payments to the contractor once NADB has verified construction progress and gives its no objection.

Additionality

Jim Hogg County is an economically distressed community in Texas with a high poverty level, as described in Section 3.3.1. Since the proposed loan will be structured in the form of revenue bonds, the District must obtain Project financing under the most affordable terms possible, with respect to interest rates and tenor, in order to minimize any potential impact on user fees. This requirement is even more important now, given the context of the economic and financial distress generated by the COVID-19 pandemic.

Given the current state of the U.S. municipal finance sector, NADB financing can provide favorable conditions compared to other alternatives available to the District in terms of length of tenor and borrowing costs. This option is important for small communities such as this one, as it is more difficult for them to access competitive financing due to their unrated credit status. With the proposed loan, the District should be able to reduce the borrowing costs of the revenue bonds compared to other available financing alternatives, thus reducing the impact on the community's average water and wastewater user fees, which will be the ultimate beneficiary of NADB's financing loan terms.

3.3.2. Loan Payment Mechanism

The loan will be made in the form of revenue bonds issued by JHWCID2 and purchased by NADB. The principal and interest of the bonds will be equally and ratably secured by and payable from an irrevocable first lien on and pledge of net revenue. Net revenue is defined as the gross revenue of the system with respect to any period, after deducting system operating and maintenance expenses during such period. The bonds purchased by NADB will be on par with the outstanding senior lien revenue bonds, as well as any additional bond issuances at parity, subject to certain limitations on additional indebtedness as presented in Annex B.

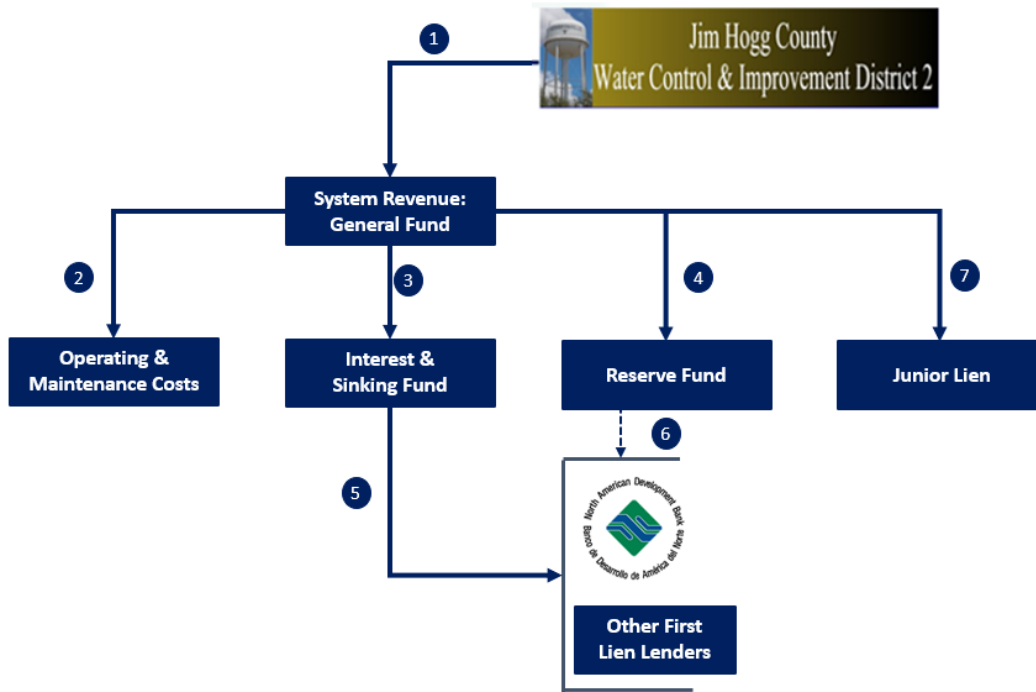
The loan payment mechanism is consistent with the well-established municipal bond market in the United States. The District will service the NADB loan through an enterprise fund—in this case called the General Fund—which will deposit cash to cover debt service into an interest & sinking fund (the “Interest and Sinking Fund”).¹⁷ A debt service reserve fund (the “Reserve Fund”) equal to one (1) year of principal and interest will also be funded to cover any possible cash shortfall. These separate accounts will be exclusively available to cover cash shortfalls for senior debt obligations.

The District has also been granted jurisdiction to levy property taxes, with the limited purpose of funding capital investments needed to improve the water and sewer system. The property tax revenue is already pledged to pay for the debt service of its outstanding tax bonds. As such, only the tax revenue in excess of the debt service on the outstanding tax bond can become part of the General Fund and be used for general purposes, including debt service payment of revenue bonds.

The loan repayment mechanism is outlined below.

¹⁷ The “General Fund” for this District includes a combination of water utility and property tax revenue. For the proposed revenue bond, the District will pledge the net revenue from its water utility services. The property tax revenue is currently pledged to service a General Obligation Bond.

Figure 2
LOAN PAYMENT MECHANISM



1. JHWCID2 agrees that all gross revenue deriving from the system shall be deposited, as collected and received, into the General Fund.
2. Cash deposited into the General Fund will first be applied to the payment of all necessary and reasonable operation and maintenance expenses.
3. After this payment, the General Fund will deposit into the Interest and Sinking Fund an amount equal to the next interest and principal payment on all senior lien obligations at parity, including the NADB loan, through semiannual interest payments and annual principal payments.
4. As long as the Reserve Fund is not fully funded, the General Fund will transfer regular installments to the Reserve Fund until the required level is met.
5. The Interest and Sinking Fund shall be used to pay principal and interest when due.
6. In the event the net revenue deposited into the Interest & Sinking Fund is insufficient to cover debt service, the District will transfer funds from the Reserve Fund to cover debt service obligations.
7. After the payment of debt service and debt service reserve for first lien obligations, net revenue will be used to cover junior lien obligations.

Any remaining net revenue, including any interest income or any released property tax income, may be used to pay other expenses, such as capital expenditures and interfund transfers, as needed, with rest remaining in cash.

3.3.3. Financial Analysis

The purpose of this section is to evaluate the financial viability of the Project by conducting a thorough analysis of the Sponsor and the sufficiency of its principal source of payment for the loan. The analysis considers the Sponsor's existing obligations, as well as the new projected obligations contracted for the Project.

A. Historical Analysis of the District

The audited annual financial statements of JHWCID2 are prepared in accordance with generally accepted accounting principles in the United States of America (GASB standards). For fiscal years 2015-2018, the Sponsor received an opinion from an independent auditor stating the financial statements fairly presented the financial position of the Sponsor. The 2019 audited financial statements are not yet available, so for that period internal financial statements were used in the analysis.

The financial statements distinguish between government-wide statements (Table 4) and governmental fund statements (Table 7). The government-wide financial statements are designed to provide a broader view of the District's finances. The net assets statement presents all the assets and liabilities, and the difference between them (net assets or capital). Increases and decreases in net assets are a useful indicator for assessing the improvement or deterioration of the District's financial position. The statement of activities presents the change in the District's net assets during the most recent fiscal year. All changes are presented on an accrual basis. Governmental fund statements, such as the General Fund and the Debt Service Fund in this case, focus on near-term inflows and outflows of spendable resources, as well as on balances of spendable resources available at the end of the fiscal year, which is useful for assessing the District's near-term financing requirements.

The Government-wide financial statements are summarized in Table 4.

Table 4
JHWCID2 GOVERNMENT-WIDE FINANCIAL STATEMENTS
 (US\$ Millions)

STATEMENT OF NET ASSETS						
	2015	2016	2017	2018*	2019*	
Current assets	\$ 1.77	\$ 2.13	\$ 2.41	\$ 2.06	\$ 2.38	
Restricted current assets	1.30	1.22	3.58	1.36	1.37	
Deferred assets	0.03	0.09	0.18	0.13	0.18	
Capital assets	8.54	8.00	8.02	11.14	10.56	
Total assets	\$ 11.63	\$ 11.43	\$ 14.19	\$ 14.68	\$ 14.49	
Current liabilities	\$ 0.17	\$ 0.22	\$ 0.51	\$ 0.21	\$ 0.35	
Deferred Liabilities	-	0.03	0.02	0.03	-	
Noncurrent liabilities	3.32	3.15	5.98	6.23	6.02	
Total liabilities	3.49	3.40	6.51	6.47	6.37	
Invested in capital assets	5.22	4.85	4.40	4.91	4.53	
Restricted	1.28	1.20	1.24	1.38	1.59	
Unrestricted	1.64	1.98	2.05	1.93	2.00	
Net assets	8.14	8.03	7.69	8.21	8.12	
Total liabilities & net assets	\$ 11.63	\$ 11.43	\$ 14.19	\$14.68	\$14.49	

STATEMENTS OF ACTIVITIES						
	2015	2016	2017	2018	2019*	
Primary government revenue	\$ 1.37	\$ 1.41	\$ 1.38	\$ 2.36	\$ 1.77	
General revenue	0.19	0.31	0.29	0.32	0.36	
Total revenue	1.57	1.72	1.67	2.68	2.12	
Total expenses	1.83	1.84	2.01	2.15	2.22	
Change in net assets	(0.27)	(0.12)	(0.34)	0.53	(0.09)	
Net assets - Beginning balance	8.41	8.14	8.03	7.69	8.21	
Net assets - Ending balance	\$ 8.14	\$ 8.03	\$ 7.69	\$ 8.21	\$ 8.12	

* Unaudited figures

Table 5 provides an overview of the District's financial and operational ratios based on the Government -wide Financial Statements.

Table 5
JHWCID2 GOVERNMENT-WIDE FINANCIAL RATIOS

	2015	2016	2017	2018	2019*
Current ratio	17.68	14.96	11.73	16.35	10.84
Unrestricted current assets/Current liabilities	10.19	9.53	4.71	9.86	6.89
Debt-to-Assets ratio	28.5%	27.6%	42.1%	42.4%	41.6%
Growth in fixed assets	-1.6%	-6.3%	0.3%	38.9%	-5.2%
Working capital	1.59	1.91	1.90	1.85	2.04

* Unaudited figures

The current ratio of the District, including restricted assets, has been above 10x for the past five years, primarily because of the cash balances maintained by the District over the period analyzed in the form of restricted and unrestricted current assets. Restricted current assets consist of cash deposits and temporary investments that can only be used for debt service or certain other purposes (such as planned asset acquisitions, reserves and collateral for short-term financial obligations) and represented 37% of current assets. This line item remained high over the analyzed period, with a reduction in 2017 due to a one-off increase in accounts payable.

Revenue from water and wastewater services increased 17.7% in 2019 because of an increase in water service fees in September 2018. Revenue from property taxes also increased 13.7% in 2019 due to higher property value assessments. Total Revenue reported a compound annual growth rate (CAGR) of 7.8% over the analyzed period, but includes USDA grants of US\$0.90 million and US\$0.06 million, which were recorded as part of primary government revenue in 2018 and 2019, respectively.

Operating expenses grew 3.1% in 2019 and presented a CAGR of 4.9% over the analyzed period. Operating expenses grew because of higher electricity costs associated with fuel surcharges, price increases for chemicals, salary increases, and increased maintenance costs and depreciation, with some expenses expected to persist as equipment ages.

The change in net assets was negative every year, except 2018 when the District received the largest amount of USDA grant funds. Capital investments, along with other expenditures associated with repairing obsolete assets, resulted in this negative change in net assets. Total unrestricted cash balances as of September 2019 were US\$2.04 million, raising the working capital ratio. A bond issuance and grants recorded in 2017 and 2018 provided the resources to continue with system improvements, which explains the growth in fixed assets in 2018.

Leverage has remained consistent the last three years, as evidenced by a debt-to-net assets ratio ranging between 42.1% and 41.6%. Table 6 shows the District's outstanding long-term debt.

Table 6
JHWCID2 LONG-TERM DEBT

Obligation	Lender	Outstanding 2019 (US\$ M)	Maturity	Rate
Senior first lien revenue bonds, paid from the General Fund				
Tax and revenue bond series 2009	USDA	\$ 1.03	July 2049	4.125%
Revenue bond Series 2017A notes	USDA	1.05	2057	2.0%
Revenue bond Series 2017B notes	USDA	1.37	2057	1.375%
Subtotal Revenue Bonds		\$ 3.45		
Senior first lien tax bonds, paid from the Debt Service Fund				
Tax and revenue bond series 1988*	USDA	\$ 0.08	July 2028	6.375%
Tax and revenue bond series 2005**	USDA	1.06	August 2045	4.25%
Tax and revenue bond Series 2017**	USDA	0.49	2057	2.0%
Subtotal Tax Bonds		\$ 1.63		
Subordinated debt, paid from cash available				
2014 bank loan	1st National Bank	\$ 0.95	2020	2.25%
Total Long-term Debt		\$ 6.03		

* First lien both, Revenue Bonds and Tax Bonds.

**First lien Tax Bonds, junior lien Revenue Bonds.

In 2019, the outstanding amount of District’s long-term debt was US\$6.03 million with US\$1.06 million due in the coming year, which includes a US\$0.95 million loan from 1st National Bank. This loan was originally used as interim financing for a portion of capital improvement costs but has been renewed on a yearly basis since 2014 and is therefore recorded under noncurrent liabilities. This loan is not on parity with any of the senior first lien bonds and is only secured by a certificate of deposit (CD). Based on the 2020 note, the outstanding balance was reduced to US\$826,912, matures in April 2021 and is fully collateralized with a CD with a face amount of \$861,572.

As of September 2019, the District had US\$5.08 million in bonds outstanding, of which US\$3.45 million pertained to bond series 2009, 2017A and 2017B, are secured by and payable from a first lien on and pledge of the net revenue of the District, and are being paid out of its General Fund (the “Revenue Bonds”). Tax and Revenue bond series 1988, 2005 and 2017 (the “Tax Bonds”) totaling US\$1.63 million are secured by and payable from a first lien on the District’s property taxes. The 1988 Tax Bond is the only one with a first lien status on both, revenue and taxes (a double-barreled bond). The remaining Tax Bonds are subordinated to the Revenue Bonds at the General Fund level and have priority under the Debt Service Fund, which means that, in the event of a shortfall in tax revenue to cover debt service and after depleting the corresponding Debt Service Reserve, the District would have to transfer its remaining cash, as available after covering all General Fund needs, into the Debt Service Fund, as needed, and vice versa when there is an excess of cash.

All outstanding bonds were financed by USDA and were used to support the District’s infrastructure investment needs. The 2017 series bonds totaling US\$2.91 million were invested in

a project that included among other components: a water storage tank, an EDR water treatment plant and other system repairs. In addition to the bonds, these investments were also funded with a US\$0.90-million and US\$0.06-million grant provided by USDA in 2018 and 2019, respectively.

In accordance with its fiscal year 2021 budget, that began in October 2020, the District is planning to use unrestricted cash to pay off the 2005 Tax Bond with an outstanding balance of US\$1.04 million and the 2009 Revenue Bond with an outstanding balance of US\$1.01 million. In that case, the District will be able to release additional cash flow for the repayment of the NADB loan.

The District’s revenue is comprised of two main components: (i) primary government revenue consisting of the fees collected for water and wastewater services, grants and contributions, which are segregated under the General Fund; and (ii) property tax revenue that has been pledged for the debt service of the Tax Bonds and is segregated under the Debt Service Fund created for that purpose. The General Fund and the Debt Service Fund are consolidated and presented together in the Governmental Funds financial statements. A summary of the annual financial reports from 2015 to 2019 is presented in Table 7.

Table 7
JHWCID2 GOVERNMENTAL FUNDS FINANCIAL STATEMENTS
 (US\$ Millions)

BALANCE SHEETS					
	2015	2016	2017	2018	2019*
Cash and cash equivalents	\$ 2.82	\$ 3.09	\$ 5.73	\$ 3.12	\$ 3.41
Other current assets	0.33	0.27	0.31	0.40	0.54
Total assets	\$3.15	\$3.36	\$6.04	\$3.52	\$3.95
Current liabilities	\$0.31	\$0.27	\$0.59	\$0.41	\$0.54
Total liabilities	\$0.31	\$0.27	\$0.59	\$0.41	\$0.54
Restricted funds	\$1.28	\$1.20	\$1.24	\$1.38	\$1.53
Unassigned funds	1.56	1.90	4.21	1.73	1.88
Total fund balance	\$2.84	\$3.09	\$5.45	\$3.11	\$3.41
Total liabilities & fund balance	\$3.15	\$3.36	\$6.04	\$3.52	\$3.95

* Unaudited figures

STATEMENTS OF REVENUE, EXPENDITURES AND CHANGES					
	2015	2016	2017	2018	2019*
Property taxes	\$0.15	\$0.17	\$0.22	\$0.26	\$0.30
W/WW revenue	1.37	1.41	1.38	1.45	1.71
Other revenue	0.01	0.02	0.05	0.96	0.11
Total revenue	\$1.54	\$1.60	\$1.66	\$2.68	\$2.12
Maintenance and operations	1.05	0.97	1.22	1.48	1.32
Net revenue	\$0.49	\$0.63	\$0.44	\$1.20	\$0.80
Debt service	0.24	0.28	0.26	0.30	0.41
Capital outlays	0.52	0.09	0.79	3.64	0.10
Other financing sources (uses)	0.00	0.00	2.97	0.41	0.00
Net change to fund balance	(\$0.27)	\$0.25	\$2.35	(\$2.33)	\$0.29
Beginning fund balance	\$3.12	\$2.84	\$3.09	\$5.45	\$3.11
Ending fund balance	\$2.84	\$3.09	\$5.45	\$3.11	\$3.41

* Unaudited figures

Since the source of payment for the NADB loan is net revenue, which is accounted for under the General Fund, NADB focused its analysis on the cash flows presented in the Governmental Funds financial statements. This analysis evaluates the capacity of the District to meet its debt service obligations and provides an overview of the District's financial and operational performance. To analyze the specific performance of the District, Table 8 presents the key financial ratios for the General Fund.

Table 8
FINANCIAL RATIOS OF THE GENERAL FUND OF JHWCID2

	2015	2016	2017	2018	2019*
Current ratio	10.24	12.50	10.19	8.58	7.26
Cash balance / operating revenue	5.81	4.90	13.03	2.61	4.27
Days Cash on Hand	541	713	1,258	428	518
Operating margin	31.6%	39.4%	26.5%	44.8%	37.6%
Debt / operating revenue	2.17	2.00	3.71	3.63	3.00
Debt service / operating expenditures	0.23	0.29	0.21	0.20	0.31
Debt service coverage	2.0	2.2	1.7	4.0	2.0
Fund balance as % of revenue	185.0%	193.2%	328.0%	116.4%	160.6%
Cash balance as % of revenue	183.6%	192.9%	345.0%	116.8%	160.8%

* Unaudited figures

The current ratio of the General Fund is high at 7.3 in 2019 and differs from the Government-wide ratio shown in Table 5 because some liabilities not payable during the year are not included in the

General Fund. The cash balance position of US\$3.41 million, equivalent to 160.6% of revenues for 2019, compares favorably with the level of Aa-rated counties with a population less than 100,000, which is at 42.6%.¹⁸ The unassigned fund balance in the General Fund was US\$1.88 million in 2019 and represented 142% of total operating expenses, which is a positive liquidity indicator for the fund. The largest increase in the General Fund occurred in 2017 and is attributed to the issuance of a US\$2.97-million Revenue Bond to USDA. The indicator for Days Cash on Hand also compares favorably with the level of Aa-rated water utilities by Moody's, which average 475 days.¹⁹ The District, therefore, has sufficient cash available to cover operating expenditures for more than a year.

Revenue from water and sewer services accounted for 80.7% of total operating revenue in 2019, followed by revenue from property taxes at 14%. In the latter case, 10 percentage points goes to pay the debt service of Tax Bonds and 4 percentage points is transferred into the General Fund to cover operations. The revenue from water and sewer services increased 17.7% in 2019 and reported a CAGR of 5.6% over the period analyzed.

Maintenance and operation expenses decreased 10.4% in 2019 and reported a CAGR of 5.9% over the period analyzed. Operating revenue totaled US\$0.80 million, resulting in an operating margin of 37.6% in 2019. The District had a positive operating margin throughout the period analyzed, representing at least 1.7 times its debt service payments. Excluding other revenue, the District recorded its highest operating revenue in 2019, with US\$680,000, compared to the five-year average of US\$480,000.

Historically, the District has operated on a budget that relies on revenue from its governmental activities to cover maintenance and operation expenses, as well as debt service, and on other financing sources, such as property taxes and grants to support its capital outlays.

Its debt-to-operating revenue ratio has been at the level of water utilities rated Aa by Moody's. The range of this indicator is between 2.00x-4.00x.²⁰ The highest level was in 2017, the year when the District issued a US\$2.97-million revenue bond to USDA. Despite higher debt in 2018, the ratio declined thanks to an USDA grant recorded as revenue. In 2019, the ratio returned to its historical average due to an increase in service revenue deriving from a 17% increase in user fees.

In general, since 2015, total revenue has increased at a CAGR of 8.4%, while maintenance and operation expenses have increased at a CAGR of 5.9%. It should also be noted that District has never defaulted on the payment of its debt service obligations.

B. Water and Wastewater Affordability Analysis

Current water system information records indicate that the average household consumes 6,300 gallons per month. The District charges a monthly fee of US\$28.00 for the first 3,000 gallons charged and US\$4.50 for every additional 1,000 gallons, plus a fixed sewer fee of US\$17.25, for a total of US\$60.10. The County's water rates were last raised in September 2018. From 2013 to

¹⁸ Source: Moody's Investor Service, Local government – US Medians, May 6, 2019, page 14.

¹⁹ Source: Moody's Investor Service, US Municipal Utility Revenue Debt – US Medians, October 19, 2017.

²⁰ Source: Ibid.

2018, rates have increased 49% for residential customers and 34% for non-residential customers, which is equivalent to an increase of US\$20.75 in monthly billing per customer. With these figures, the average monthly bill currently represents 2.25% of Jim Hogg county’s median household income of US\$32,049.

A regional water and sewer service affordability analysis was performed to review how current the District’s service fees and billing compare to neighboring utilities (“Affordability Ratio”). Table 9 provides the affordability ratio of other water utilities in the same region for purposes of comparison.²¹

Table 9
REGIONAL AFFORDABILITY RATIO

Location	Water & Sewer Bill % MHI
Alice	1.84
Agua SUD	2.20
Jim Hogg	2.25
San Benito	2.57
Roma	2.61
Falfurrias	2.69
Average	2.36

Based on this comparison, the District’s rates fall below the average of these communities. A longer loan tenor and a favorable interest rate will help reduce the magnitude of future service fee increases, making the Project more affordable for the community. The need for higher rates can also be avoided if the targeted improvements in commercial efficiency and cost reductions are implemented, as presented in the next section.

C. Financial Projections of the District

To determine whether the District can meet its obligations associated with the Project, NADB performed a financial analysis based on the information provided by the District. The projections were developed using historical trends and current efficiency levels, as well as the current economic outlook. The main assumptions are:

- *Basis for projections.* Historical financial statements of JHWCID2 and its 2020 and 2021 budgets.
- *Population Growth.* Based on figures by the Census Bureau and local projections.
- *Inflation.* Projections from the U.S. Federal Reserve.
- *Gross Revenue.* Increased based on historical housing and commercial trends. As presented in Table 1, the District has 1,813 customers, 88% of which are residential, and 99% coverage. Therefore, service coverage is assumed to increase by population growth,

²¹ Source: Environmental Finance Center at the University of North Carolina at Chapel Hill (UNC), Texas Water and Wastewater Rates Dashboard (<https://efc.sog.unc.edu/resource/texas-water-and-wastewater-rates-dashboard-0>).

and user fees are adjusted for inflation annually.²² The composition between residential and commercial is assumed to remain the same given the small size of the community.

Additional revenue from unaccounted water and O&M savings in its billing is incorporated based on the performance contract signed with Schneider. An additional US\$155,000 is assumed for the first year, which represents about 9% of service revenue for 2021, and thereafter is updated for inflation. As previously explained, the District entered into a 15-year energy savings performance contract based on the Texas Government Code Section, Sec. 2166.406., which in section (f) requires that *“the state agency finds that the amount the state agency would spend on the energy or water conservation measures will not exceed the amount to be saved in energy, water, wastewater, and operating costs over 20 years from the date of installation.”*²³

Schneider is providing a Performance Guarantee on the recovered billing target at the level of individual customers. After a year of operation, water meters will be tested to confirm that the expected benefits under the terms and conditions of the performance guarantee are being met. Should a cash shortfall occur, Schneider will either make repairs to meet the guarantee or make the one-time payment to JHWCID2 to compensate for the shortfall, extrapolated for the 15-year guarantee under the contract. Any payment under this guarantee will be deposited into the General Fund.

It is important to note that no property tax revenue is included in the projections, as this revenue is pledged for Tax Bonds. This assumption makes the projections conservative, since the 2021 General Fund budget includes transfers-in of US\$80,000, coming from the Debt Service Fund.²⁴

- Operating and Maintenance Expenses (O&M). Increased based on historical O&M and inflation. Although the contractor expects the new water treatment plant to bring an overall cost reduction in treatment, since the contract is still being negotiated, these efficiency gains were not included in the projections. As in the case of revenue, this assumption is conservative since it is understood that Schneider will also guarantee some performance savings.
- Current debt. Based on the District’s outstanding senior lien Revenue Bonds plus the proposed NADB loan. No future bonds issuances are assumed, as a loan covenant limiting additional indebtedness will require that the District demonstrate a debt service coverage ratio of 1.20x in order to issue new debt. The debt service corresponding to the Tax Bonds is also excluded, as those bonds are being paid with property tax revenue pledged for that purpose and deposited into the Debt Service Fund. The Tax Bonds are subordinated to the Revenue Bonds at the General Fund level.
- Debt Service Reserve. One year of average principal and interest payments.

²² Water and sewer fees are generally not increased annually to keep up with the cost of living. Such adjustments may be delayed a couple of years, but are eventually made. The annual escalation assumed in the projections makes it easier to identify the potential need for additional rate increases for the proposed debt.

²³ Source: <https://statutes.capitol.texas.gov/Docs/GV/htm/GV.2166.htm#2166.406>

²⁴ The General Fund performs all O&M for the Debt Service Fund. As such, it is entitled to compensation for expenses. The property tax rate for the District includes US\$0.068915 on each US\$100.00 of assessed valuation for O&M and US\$0.16897 for debt service, which is deposited into its corresponding interest & sinking fund.

Table 10 shows projected cash flows for the duration of the NADB Loan.

Table 10
PROJECTED CASH FLOW
 (US\$ Thousand)

Year	Gross System Revenue	O&M Expenses	Debt Service and DSR	Free Cash Flow	DSCR
2021	\$1,976	\$1,501	\$350	\$125	1.36x
2022	2,012	1,532	401	79	1.20x
2023	2,050	1,565	403	82	1.20x
2024	2,094	1,603	404	87	1.21x
2025	2,140	1,643	403	95	1.23x
2026	2,187	1,683	361	142	1.39x
2027	2,234	1,725	357	152	1.43x
2028	2,283	1,768	360	155	1.43x
2029	2,333	1,812	361	160	1.44x
2030	2,384	1,858	358	168	1.47x
2031	2,436	1,905	360	172	1.48x
2032	2,489	1,953	361	175	1.48x
2033	2,544	2,003	361	180	1.50x
2034	2,599	2,054	360	186	1.52x
2035	2,656	2,107	359	190	1.53x
2036	2,707	2,161	359	187	1.52x
2037	2,759	2,217	362	180	1.50x
2038	2,813	2,275	361	177	1.49x
2039	2,867	2,334	357	175	1.49x
2040	2,922	2,396	357	169	1.47x
2041	2,979	2,459	358	162	1.45x
2042	3,037	2,525	358	155	1.43x
2043	3,096	2,592	359	145	1.40x
2044	3,157	2,662	357	137	1.38x
2045	3,218	2,734	358	126	1.35x
2046	3,281	2,808	358	115	1.32x
2047	3,345	2,885	359	102	1.28x
2048	3,411	2,965	358	88	1.25x
2049	3,478	3,047	357	74	1.21x
2050	3,546	3,131	298	117	1.39x
2051	3,616	3,219	297	101	1.34x

DSCR = Debt service coverage ratio; DSR = Debt service reserve; O&M = Maintenance and operation.

Based on these projections, the District is able to generate sufficient cash to cover service operations and repay its current and proposed debt, along with some capacity to generate additional cash to continue making necessary capital investments.

The funding of the reserves reduces the debt service coverage ratio (DSCR) to the minimum threshold. It is important to note that the base case scenario does not include any of the excess tax revenue paid to the General Fund to cover O&M expenses. According to the approved 2021 budget, this amount represents at least US\$80,000, which is twice as much as the free cash observed in the second year of the projection. It is also important to remember that, in the 2021 budget, US\$1.01 million will be used to prepay the 2009 Revenue Bond, which will free up additional cash.

D. Project Debt Service Coverage Ratio (DSCR)

In accordance with NADB loan policies, the formula for calculating the DCSR for the proposed loan shall be based on the characteristics of the transaction and/or borrower and payment mechanism. For this transaction, the DCSR is defined as the Cash Flow Available for Debt Service (CFADS), which is equal to (Gross Revenue – Maintenance & Operation Expenses) divided by Debt Service (Principal + Interest) for all debt that will be at par or superior to the NADB loan.

Pursuant to NADB loan policies and given the nature of the District’s institutional framework for operating on a balanced budget, the debt service payments have been structured to maintain at all times a minimum DSCR of at least 1.20x in accordance with the following formula:

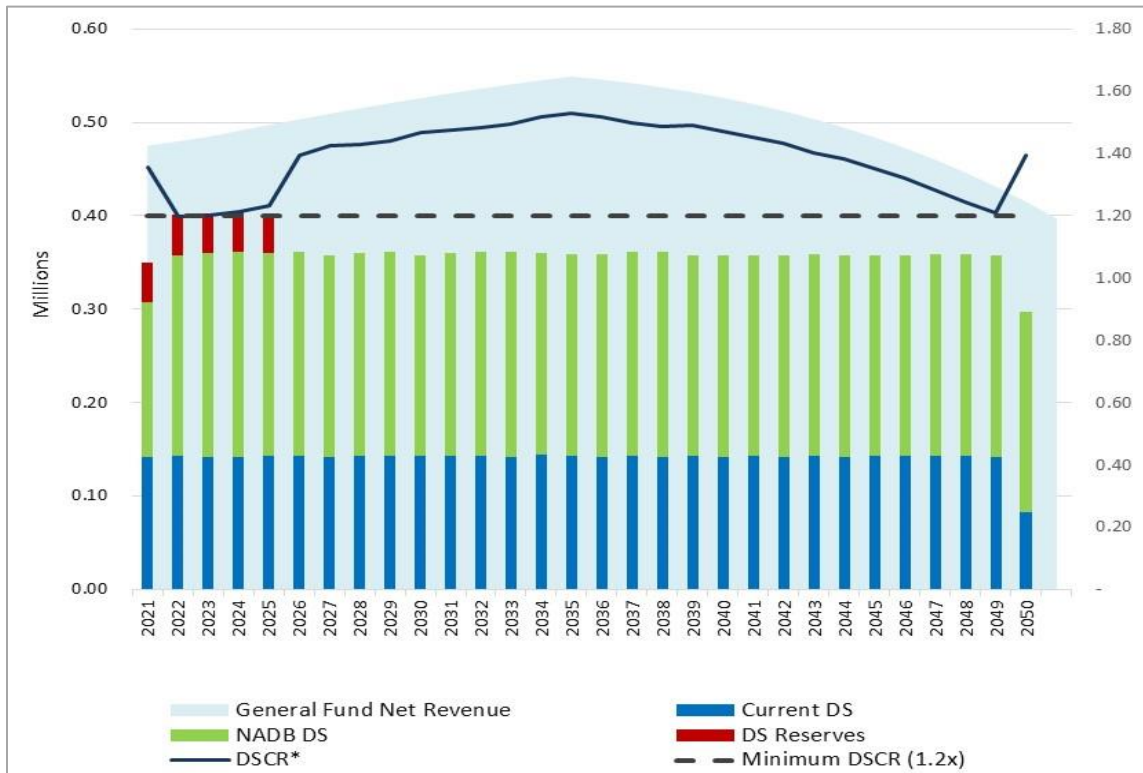
$$DSCR = \frac{(Gross\ revenue - M\ \&\ O\ expenses)}{(Principal + interest)}$$

=

$$DSCR = \frac{Net\ revenues}{Debt\ service}$$

Figure 3 illustrates the projected distribution of Project cash flows.

Figure 3
PROJECTED CASH FLOW ANALYSIS
 (US\$)



DS= Debt service; DSCR = Debt service coverage ratio.

Based on these projections, the District is able to comply with the minimum DSCR of 120% during the first five years of the loan period, when the debt service reserve is funded. Immediately thereafter the DSCR increases, reflecting sufficient cash for capital investments. Then it decreases gradually, because it is assumed that O&M expenses will grow at a slightly faster rate than user fees.

3.3.4. Risk Analysis

The purpose of this section is to assess the District’s ability to address any adverse changes that could impact the repayment of the debt.

A. Quantitative Project Risks

1. Increase in Operating Expenses: Under the base-case scenario, the District is able to generate cash flows to cover the debt service, as well as limited cash flows to fund future capital expenditures. O&M projections already include cost-of-living adjustment and 5% annually in insurance expenses, the typical assumptions in the water sector. The projections are considered conservative as they do not include potential O&M savings

from the operation of the water treatment plant. According to the contactor, Schneider, the Project could save as much as US\$102,000 annually by primarily operating the new plant and reducing the operation of the EDR water plant. The metering component is also expected to generate savings by modernizing service billing. Finally, if the District pays off the 2009 Revenue Bond, cash will be freed up to mitigate potential stress on its debt service coverage ratio.

2. Decrease in Revenue: The current COVID-19 pandemic is expected to have a negative impact due to the increase in the unemployment rate. Since water and wastewater services are basic consumption items, a lesser revenue impact would be expected in the payment of water services.

On the other hand, the Project is intended to correct inaccurate metering and improve operational efficiencies. Based on the water audit, better metering represents a potential 8% to 9% increase in water billing. The water metering contract provides a performance guarantee for the full cost of this Project component in terms of the guaranteed savings over a period of 15 years. In the event that the increased revenue is not achieved at the level of individual accounts, the performance guarantee will make the District a lump-sum payment for the net present value of the missed savings per each account over the 15-year period. This lump-sum payment will be deposited into the General Fund as cash available for any use, including debt service prepayment.

For comparisons purposes, assuming that none of the commercial gains are realized and the District collects the lump-sum payment from the performance guarantee, this sum could be used to prepay the debt corresponding to this Project component, which would cover slightly more than the contract cost of US\$1.68 million. Alternatively, the District could keep the additional cash for future capital investments and raise service rates to recover its coverage ratios. In this case, in addition to the cost of living adjustment, the District would have to increase user fees approximately 11% in 2022, which would push its Affordability Ratio higher than the average of the sample communities presented in Table 9. This rate increase would also be required in the unlikely event that the contractor defaults on its guaranteed obligations.

Because this is a Revenue Bond, the District commits to increase rates at a level sufficient to cover debt service on all its revenue bond obligations as required for the debt service coverage requirements. In its outstanding Revenue Bonds, the District has agreed to establish and maintain rates and charges for facilities and services afforded by the system to produce net revenue sufficient to pay the principal and interest on all senior bonds. Furthermore, it also agrees to produce sufficient net revenue to cover junior lien debt service.

As an additional safeguard against a decline in revenue, the General Fund is entitled to receive transfers-in from the Debt Service Fund to pay for O&M expenses. The current amount of excess revenue from property taxes, after paying the debt service of the Tax Bonds, is US\$80,000 in the 2021 budget, representing 51% of the guaranteed additional revenue for the first year of the Project. Furthermore, as of 2019, the District had a cash

position of US\$2.04 million, which is unrestricted cash that can be used to continue its capital improvement plans, prepay debt to free up future cash flows, fund reserves and compensate for revenue shortfalls as a result of the current economic crisis.

B Qualitative Project Risks

1. *Financial/Administrative*: The District is in adequate financial standing in terms of its charter and other County requirements. Its cash position is strong and able to support more than one year of O&M. It has debt service reserves equivalent to one year of existing debt payments. Its major short-term loan is fully collateralized. It has limited capacity to fund its capital expenses and recently was able to increase water and sewer rates after various years of no increase. Its current debt service coverage is above 1.20.

The District has sufficient trained staff to provide its water and wastewater services at reasonable levels of coverage and quality. However, its limited capacity to generate excess cash for capital expenditures to replace and renovate existing assets has caused a deterioration of its physical and commercial efficiencies, as compared with larger utilities. The main purpose of this Project is precisely to address the following operational problems: increase its commercial efficiency by improving water metering and reduce O&M expenditures in water treatment.

The District has kept its financial information up to date. However, there have been delays in releasing its 2019 audited statements. With the information available (both audited and unaudited), as of 2019, the historical financial position of the District confirms its strong cash position. The District has not defaulted on any debt service payments.

2. *Economic*: The District serves a low-income community with poverty levels among the highest nationwide. Population growth and income levels are expected to remain more or less at the current level, given the small and rural profile of the community. This environment was incorporated into the projections for the purpose of estimating borrowing capacity.

The current economic situation is expected to be as challenging for Jim Hogg County as for any other U.S. community. However, the relatively quicker recovery that the state of Texas is showing in the recent data may prove to be a lesser recession than originally expected.²⁵ Moreover, since water services are a basic need, its consumption may not be impacted as much as other non-essential expenses.

3. *Political/Legal*: The risk associated with changes in administration or government officials would not result in non-payment of the Loan. The District bonds are approved by an ordinance that irrevocably authorizes any necessary rate increase to pay principal and interest on the bonds. The District has demonstrated the capacity to increase rates as required to finance its capital investment. The District has not defaulted on any of its loans.

²⁵ For example, see Texas Economic Indicators, <https://www.dallasfed.org/research/indicators/tei/2020/tei2009.aspx>

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

NADB published the draft certification and financing proposal for a 30-day public comment period that began October 9, 2020 and ended on November 8, 2020, with no comments received.

4.2. Outreach Activities

On September 23, 2019, JHWCID2 held a public board meeting to discuss and take action on the Project. The agenda for JHWCID2 public meetings are posted in advance. A presentation from Schneider Electric was included as part of the agenda.

On February 18, 2020, JHWCID2 held a board meeting to discuss and take action on the Project. A presentation of the findings from the water meter audit developed for the District was included on the agenda, and the board members discussed the possibility of beginning contract negotiations for procurement of the water meters. The meeting agenda also included the next steps for proceeding with the replacement of the water treatment plant.

In addition, JHWCID2 will notify the public with a notice of intent to issue revenue bonds for the implementation of the Project.

NADB also conducted a media search to identify potential public opinion about the Project. No articles were found related to the development of the Project, but two articles were identified regarding water quality in some regions of the state of Texas, including Jim Hogg County:

- *Dallas Observer* (March 15, 2016) – “*Lots of Texas Water Has Lots of Arsenic, but the State Says It’s OK to Drink*” (<https://www.dallasobserver.com/news/lots-of-texas-water-has-lots-of-arsenic-but-the-state-says-its-ok-to-drink-8123582>).
- *Houston Press* (April 6, 2016) – “*Report: There Are 65 Flint, Michigan-Type Water Systems in Texas*” (<https://www.houstonpress.com/news/report-there-are-65-flint-michigan-type-water-systems-in-texas-8296477>).

Opposition to the Project was not detected from the available media coverage. The Project Sponsor has followed all public consultation requirements in order to comply with applicable permitting processes.

5. RECOMMENDATION

Certification Criteria Compliance

The Project falls within the eligible sector of drinking water and is located within the border region, as required under the NADB Charter. The 30-day public comment period ended on November 8, 2020, with no comments received. 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

Considering the Project's characteristics and based on the financial and risk analysis, the proposed Project is financially feasible and presents an acceptable level of risk. Furthermore, the proposed financing meets all the requirements of NADB's loan policies. Therefore, NADB proposes providing a market-rate loan for up to US\$4,260,000.00 to Jim Hogg County Water Control Improvement District No. 2, Texas, in accordance with the terms and conditions proposed in Annex B.

Accordingly, based on the foregoing conclusions as supported and presented in detail in this certification and financing proposal, NADB hereby recommends certification of the project and approval of the proposed Loan.