



CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

GWA RESOLUTION NO. 33-FY2017

**RELATIVE TO APPROVAL OF FUNDING MATCH COMMITMENT FOR BUREAU
OF RECLAMATION GRANT AS IT RELATES TO GWA DISTRICT METERING
PROJECT GRANT APPLICATION**

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities (“CCU”) has plenary authority over financial, contractual, and policy matters relative to the Guam Waterworks Authority (“GWA”); and

WHEREAS, the Guam Waterworks Authority (“GWA”) is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA is submitting a distribution main metering grant proposal (See EXHIBIT A) to the Department of Interior, Bureau of Reclamation, Water-Smart Program, wherein the project intends to install district meters at 14 closed water subset-systems at various locations to allow the Agency to record and analyze quantity supply and quantity consumed; spikes in supply without a corresponding spike in consumption may indicate a water line break for that specific closed system being metered, thus narrowing the area for leak detection, thereby reducing water loss and O&M costs; and

WHEREAS, some critical aspects of the project are installation of related equipment & infrastructure for power and communication which will allow the district meters to have AMI capabilities; and

WHEREAS, the GWA Engineering acknowledges that the intended purpose of the proposed project is to reduce real water loses and increase water savings; and

1 **WHEREAS**, the estimated total grant proposal project cost is Two Million Dollars
2 (\$2,000,000.00) which includes design and construction with a fifty percent (50%) matching
3 requirement of One Million Dollars (\$1,000,000.00) from GWA of total eligible project costs;
4 and

5
6 **WHEREAS**, all grantee's submitting proposals to the Department of Interior, Bureau of
7 Reclamation, Water-Smart Program are required to include as part of the grant application
8 financial and legal commitment from its board of directors; due within thirty (30) days of grant
9 submittal; and

10
11 **WHEREAS**, the General Manager & Chief Engineer advocates the implementation of
12 the proposed grant project and intends to set aside One Million Dollars (\$1,000,000.00) in
13 matching requirement to be provided from bond proceeds applicable to the project such as PW
14 05-06 Master Meters, PW 12-01 Water Audit Program & Water Loss Control Plan; and

15
16 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities
17 does hereby approve the following:

- 18 1. The recitals set forth above hereby constitute the findings of the CCU.
- 19 2. The CCU finds that this project's intent will assist in water loss reduction by
20 making line break detection more efficient and tracking of quantity of supply
21 data more reliable in those subset water system metered sectors and
22 recognizes water and costs savings.
- 23 3. The CCU hereby supports the management of GWA to enter into a grant or
24 cooperative agreement with the Department of Interior, Bureau of
25 Reclamation, for the purposes of the WaterSmart grant program.
- 26 4. The CCU hereby further authorizes the management of GWA to commit to
27 the legal and financial obligations associated with the fifty percent (50%)
28 matching requirement per Department of Interior, Bureau of Reclamation,
29 Water-Smart Program in the amount of One Million Dollars (\$1,000,000.00).

30 //

31 //

1 **RESOLVED**, that the Chairman certified and the Board Secretary attests to the adoption
2 of this Resolution.

3
4 **DULY AND REGULARLY ADOPTED**, this 22nd day of May, 2018.

5
6 Certified by:

Attested by:

7
8 
9 **JOSEPH T. DUENAS**
Chairperson


J. GEORGE BAMBA
Secretary

10
11
12 **SECRETARY'S CERTIFICATE**

13
14 I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as
15 evidenced by my signature above do hereby certify as follows:

16 The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular
17 meeting by the members of the Guam Consolidated Commission on Utilities, duly and
18 legally held at a place properly noticed and advertised at which meeting a quorum was
19 present and the members who were present voted as follows:

20
21 AYES: 4
22 NAYS: 0
23 ABSTENTIONS: 0
24 ABSENT: 1



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27 ///

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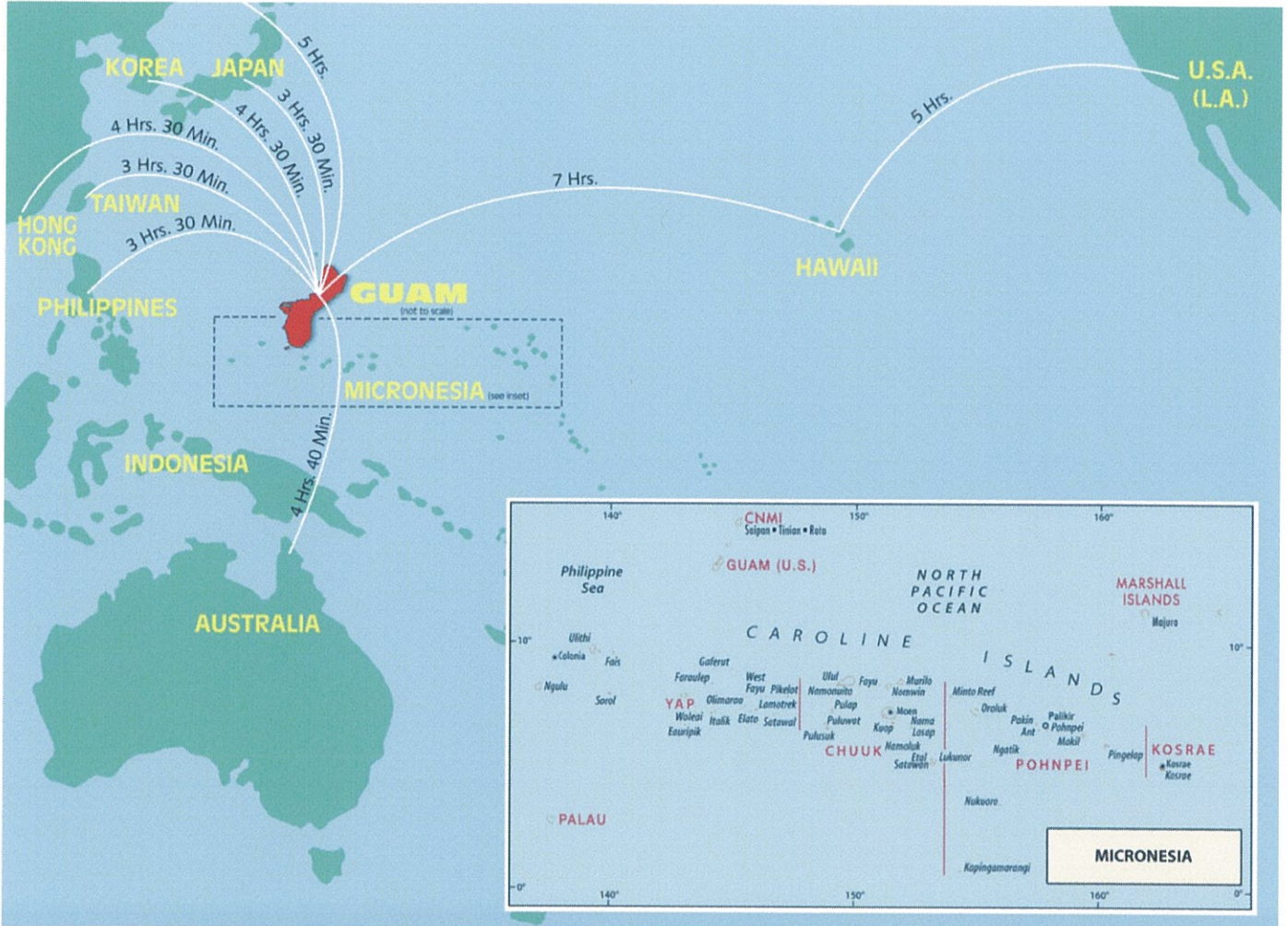
EXHIBIT A



GUAM WATERWORKS AUTHORITY

“Better Water. Better Lives.”

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Guam Waterworks Authority Distribution Main Metering Project Grant Proposal

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Appendices

Appendix A - Guam Waterworks Authority FY 2017 Financial Highlights Report (Apr. 24, 2018)

Appendix B – Letter of Endorsement – Madeleine Z. Bordallo, Congresswoman, U.S. House of Representatives (May 9, 2018)

Appendix C – Resolution – Consolidated Commission on Utilities (Forthcoming)

Appendix D – Memorandum of Understanding - GWA – GPA MOU relative to Smart Grid Network Usage (Jul. 9, 2015)

Project Summary

The Guam Waterworks Authority (GWA) is submitting this application on May 10, 2018 Guam Pacific time to be considered for the Department of Interior (DOI), Bureau of Reclamation (BOR) 2018 WaterSmart Program, catalog of federal domestic assistance (CFDA) number 15.507, funding opportunity number BOR-DO-18-F006. Total project cost is estimated at \$2,000,000 and is expected to take 3 years from the time funding is approved. The GWA will contribute 50% of the total project costs estimated at \$1,000,000 and will be paid out of its existing revenue bonds. The requirement of the governing board resolution funding commitment will be forthcoming within 30 days of our submittal, a meeting is scheduled later this month.

The proposed BOR project is one component of GWA's Water Loss Program, it aims to install distribution main meters within fourteen key locations within the water system. Included in the project will be the architecture and engineering design analysis of each of the fourteen sites, design & construction of concrete meter vault boxes, design & construction of power and communication infrastructure (to allow remote reading). The proposed BOR project will compliment other on-going and in-progress GWA projects that are part of the Water Loss Program. These projects are:

- Production Metering Project (60 identified deep well sites),
- Water Hydraulic Modeling Refinement Project,
- Replacement of Customer Meters Project (21,000 balance of 44,000),
- Pressure Zone Realignment and District Metering,
- Line Replacement Program Project (3rd year),
- Leak Detection & Response Unit Creation & Implementation.

The GWA's water loss rate/non-revenue water is pegged somewhere between 50-58% based solely on sales and production. Note this is still up for discussion due to questions surrounding the validity of production well data. The GWA pumps approximately 38 million gallons of water per day through its deep wells. Because the proposed project aims to install remote reading distribution meters, GWA will be alerted to specific narrowed areas of potential water distribution main breaks, therefore improving response time, thus saving vast sums of water. Note that it is the intent of this proposal to identify water savings, it also acknowledges that production meters at the deep wells have flaws which the on-going deep well project aims to correct or validate. Although GWA has a number projects currently on-going to support water loss, the proposed BOR project will immediately aid in controlling water loss by alerting GWA to specific narrowed areas where distribution main meters are located by providing metering data in real-time, thereby improving response time in leak detection and repair. An ancillary benefit of the project will be the opportunity to allow customer meters in those areas to be read remotely. Currently, the GWA reads its customer meters via Automatic Meter Read (AMR); although, they are also equipped for Advanced Metering Infrastructure (AMI). If initial cursory review assumptions are correct, the transition to AMI will have minimal costs.

The GWA, Engineering Department & Grants Planning Section, have no knowledge of any previous grant funding from the Department of Interior, Bureau of Reclamation to this date and believes this is the GWA's first application to DOI, BOR. The GWA has earned the designation of "low risk auditee" status from the independent auditor Deloitte and Touche, LLP in FY 2016 & FY 2017. Congressional endorsement has been obtained and can be found in Appendix B.

Background_ About Guam Waterworks Authority

The island of Guam is located in the western Pacific Ocean approximately 3,800 miles west-southwest of Honolulu, Hawaii, 1,550 miles south-southeast of Tokyo, Japan and 1,600 miles east of Manila, Philippines. The island, which is the western most Territory of the United States, is approximately 30 miles long and ranges from 4 to 9 miles wide with a total land area of approximately 212 square miles. The Guam Waterworks Authority (GWA) system provides water to all of the civilian population of Guam and sewer service to a large percentage of the civilian population, Andersen Air Force Base and several Navy facilities.

The GWA has over 42,000 water service connections and approximately 26,000 wastewater service connections to a civilian population of approximately 180,000 on the island including tourists and military. The GWA manages three drinking water systems across the island, producing approximately 42 million gallons per day (MGD) of drinking water from about 120 deep wells, military purchases and a surface water treatment plant. Of the 42 MGD, GWA purchases water from the U.S. Navy 4 MGD. The system includes 23 in-service storage water tanks/reservoirs, over 100 chlorination stations, 25 water booster pump stations, and over 500 miles of island-wide water distribution lines. On the wastewater side, GWA owns and operates seven wastewater treatment plants that can treat an average total flow rate of about 14 MGD of sewage, 78 wastewater pump stations and ejectors, and approximately 300 miles of sewer collection lines and conveyance lines. Additionally, there are currently two major military installations, Andersen Air Force Base and Naval Base Guam, which occupy large areas on the island. Andersen AFB has its own water system and wastewater collection system; however, it does not have a separate wastewater treatment plant; it discharges its wastewater into GWA's Northern District wastewater system.

The Guam Organic Act of 1950 is the United States federal law that designated the island of Guam as an unincorporated territory of the United States. Among other things, it created the Government of Guam and conveyed all water rights to it. The GWA operates as an Autonomous Agency of the Government of Guam, more specifically a "state-operated" Government Public Corporation. The GWA is governed by the Consolidated Commission on Utilities (CCU), a five-member non-partisan board, with members elected individually in a general election to a four-year term. The CCU is also charged with oversight of the Guam Power Authority (electrical power). The CCU makes decisions regarding policy, management, budget and finance of the Authority's operations.

Upon taking office in January 2003, the original members of the CCU were faced with more than \$25 million in debt and pending federal lawsuits for violations of water quality and environmental standards that had accumulated over the previous several decades. Since 2003, a number of changes have been made to move the Authority operations towards a self-supporting economic model and environmental compliance. Currently, both the CCU and the GWA management and staff are focused on meeting the requirements of a 2011 Court Order resulting from the federal lawsuits, by refurbishing and/or upgrading facilities to improve reliability, to implement operational systems and procedures consistent with current utility practices, and to meet regulatory standards, i.e. Safe Drinking Water Act/Clean Water Act, American Water Works Association (AWWA) standards. The Authority has made great strides in improving fiscal management, and in obtaining external funding through the bond markets to fund its

Capital Improvement Program (CIP), including projects identified in the court order. To date it has borrowed and implemented approximately \$500 million in infrastructure improvements mainly in water tanks, configuration of transmission lines, and wastewater treatment plants. An important accomplishment by GWA is its recent investment grade credit designations by Moody's, Standard & Poor's, and Fitch rating agencies, and also obtaining a low risk designation by auditors related to federal grants for years 2016 and 2017.

The Water System

The GWA's water supply system primarily consists of 120 wells, the Ugum Water Treatment Plant, the Tumon-Maui well(leased military deep well), 25 water booster pump stations, 23 in-service tanks/reservoirs which contain an active maximum volume of about 30 million gallons, approximately 586 miles of water distribution pipelines, and roughly 3,814 fire hydrants.

Guam's primary water source is from groundwater, with additional supplies drawn from a single surface water source and two springs, all of which are replenished by rainfall throughout the year on Guam. The largest amounts of rain for the island come during the months of June through December. The annual rainfall can average 80 inches in central to northern areas, and in the southern areas as much as 110 inches. Guam's geologic features divide the island into distinct northern and southern areas. The northern part of the island is primarily flat, limestone plateau, where the island's groundwater occurs, while the southern part of the island has a more mountainous, volcanic geology and contains the majority of rivers and surface water. The north's limestone plateau, with steep cliffs, slopes gently southwesterly from an elevation of 600 feet to less than 100 feet above mean sea level at the middle of the island. The main groundwater source is located under the plateau. Guam's rainfall percolates through the limestone and forms a freshwater "lens" that floats at sea level above dense brackish and salt water. Studies have shown that Guam's aquifer can provide a water supply of up to 80 million gallons per day.

The Wastewater System

GWA's wastewater system serves primarily all of the civilian population of Guam, as well as for Andersen Air Force Base and some U.S. Naval facilities in the northern end of the island. However, there is a significant portion of the civilian population in the north that is not served by GWA's wastewater system. The system includes wastewater treatment plants, sewage pump stations and extensive collection systems in each of its 7 districts. GWA's wastewater collection system consist of an estimated 314 miles of gravity sewers and force mains that collect sewage from the various communities served and transport it to the respective wastewater treatment plant in that district.

The Institutional Capacity Building & Project Introduction/Background

The Guam Waterworks Authority has recently undergone several key upgrades towards operating its systems. Significant efforts have been expended towards decreasing expenditures, improving leak repair times, implementing a meter replacement program, and launching a computer maintenance management system as part of a comprehensive asset management program and committing vast time and resources to develop and continuously improve its Water and Wastewater Hydraulic Models and developing a GIS. GWA continues to work diligently in

making needed improvements to both the water and wastewater systems, including upgrades required in the 2011 Court Order, projects to accommodate growth in the island's population centers, as well as normal renewals, and replacements. As part of our efforts to achieve operational improvements and readiness, GWA is implementing asset management principles and improved maintenance management practices within the four Operations divisions responsible for operating and maintaining the island's water and wastewater infrastructure.

Currently GWA has contracted with a national engineering firm to update its Water Resources Master Plan (WRMP) and is currently undergoing the comment period with the public and all interested stakeholders for the draft report. Note that the existing firm has also been responsible for completing the 2006 WRMP report. A copy of the draft WRMP report and/or 2006 WRMP report can be made available to anyone interested in receiving a digital copy. The 2018 draft WRMP report objectives were to summarize the condition of GWA's water and wastewater system facilities and outline improvements needed over the subsequent 20 years to achieve regulatory compliance and improve the reliability of GWA's infrastructure and services. Specifically, the draft WRMP currently in the public comment period assesses GWA's progress towards achieving the recommendations outlined in the 2006 WRMP and further develops a capital improvement plan for the next 20 years, through 2037, to meet acceptable levels of service and maintain compliance with drinking water standards and clean water regulations.

Both the 2006 WRMP and the 2018 draft WRMP identifies key recommendations specific to projects that the utility could do to help stem GWA's arguably water loss rate/non-revenue water pegged at 50%-59%. Although this is an astounding number given that 42 million gallons are produced daily, and which it implies we are losing approximately 50 percent; GWA is cautious when using this number. Aiding in resolving this data validity issue are steps being taken now by the GWA, demonstrated by initiating projects such as the production deep well meter project, and other projects as part of the Water Loss Program listed earlier. Difficulty in understanding the system is said to be the manner it was constructed. For the most part the water system was constructed piece mill over the decades since post World War II (WWII) Guam. GWA's water system is described as a "legacy system" originally built by the U.S. Navy during the post WWII reconstruction of Guam that went well into the 1960s and 1970s. Most of that system is still in place and used and the newer/recent improvements have mostly been extensions on top of the older legacy system. GWA Management understands the importance of resolving this long-standing issue and has plans to incrementally replace the system.

It is in addressing non-revenue water which GWA is putting forth for this grant proposal through design and construction of distribution main meters, including various AMI components to allow for real time reading. The GWA views two types of distribution main meters, 1) pressure zone meter, and 2) district meters/distribution main meter which is a subset of the pressure zone meters. The project aims mainly to meter large housing tracks or clusters of commercial buildings to obtain real time consumption data; data from these meters will provide better analysis of the quantity of water losses in real-time for a controlled specific area. Data will be used to compare to the consumption for those areas. Currently, all GWA customer meters are read via AMR, although they are AMI capable. Therefore, the project has a dual benefit in that it intends to provide residential customers meters that are currently being read through AMR technology to switch to AMI technology along with the district meter for the specified area of

study. This will allow immediate analysis and notification when there are substantial irregularities in those areas making leak detection much more efficient and effective. Other benefits of the project include better data for non-revenue water accounting, and in refining the water system hydraulic model. Information provided by the proposed project will help in removing some of the assumptions the model may have relied on due to the absence of data.

Both the 2006 WRMP and the 2018 draft WRMP reports outline key tasks to perform in order to reduce water losses including apparent and real. To date GWA has performed the following as recommended in WRMP reports:

1. Revenue enhancement- Replaced thus far 20,000 customer meters; in progress to address the balance of 42,000
2. Revenue enhancement- Line Replacement program in progress
3. Continuous testing of meters- Purchased meter test bench & constructed a Meter Test Bench facility, staffed meter testing program
4. Quantifying Production - in contract to design and construct production water well meters
5. System/Pressure Zone Meters – in contract design to reconfigure zoning according to best engineering design practices
6. Leak Detection study- performed (2) contracted whole water system sweeps
 - a. Currently performing tactical leak detection tasks internally
 - b. Currently in process of obtaining equipment and more staffing to accommodate 2 crews

Technical Project Description

This project proposes to design and construct complete in place including installation of distribution main meters at fourteen locations throughout the island. It will include underground vaults, valving and miscellaneous piping, excavation, backfill, restoration of pavements and connection to island power and communication grid. All work related to the proposed project will be located on government easements or utilities right of way. The proposed project will install meters within the existing water system, therefore all work will occur on previously disturbed areas, rights of way or utility easements.

The Guam Power Authority (GPA), a sister company of the GWA both report to the Consolidated Commission on Utilities Board. The GPA currently has successfully constructed a fully functional AMI network used for its power customers throughout the island. There is a memorandum of understanding to allow the GWA to utilize its network for AMI purposes eliminating a portion of upfront costs associated with the AMI infrastructure. Within the MOU the GWA & the GPA agreed to share in the cost of implementation of specific AMI components such as the expansion of the data control center, and the expansion of the routers/collectors within the network to increase coverage. It is the intent of this project to utilize the GPA AMI infrastructure either fully or partially for the use of the distribution main meters. It will depend on the conditions that will be revealed during the design phase of the project. Customer's water meters in the metered tracks although not directly related to the project could potentially be able to utilize the AMI network. The initial cursory review by the GWA & GPA engineering department suggests that minimal costs will be involved, as GWA's customer meters are already AMI capable. Additions

to the AMI infrastructure may include expanding the number of routers and collectors. Once more information is obtained during the design phase and it appears to be viable to bring on its customer meters with little or no additional cost, the GWA may provide funding and/or request DOI, BOR for approval to amend project scope; provided that it will be within established budget thresholds.

The project will allow GWA to determine real water losses for a specific customer track or rather isolated areas related to the water system. Fourteen housing/customer tracks have been identified as good candidates by the GWA Water Engineering Section and the GWA Water Operation sections due to having one or two water supply lines feeding it; allowing the capability to meter water supply at entry points and/or exit point. With meters at the entry/exit point leading into the customer track, the GWA will be able to validate the quantity of supply. The GWA Operations sometimes refer to this as a closed system. Data from the distribution main meters (supply) will be compared to data coming from the customer meters (demand). Data will be reviewed and analyzed by the GWA System Control Center (SCC) unit, they are a 24-hour data call center and highly skilled in water & wastewater system operations than a typical dispatcher. Any variations from normal operations from the data comparison may prompt the SCC personnel to cut a workorder for the Leak Detection Unit to investigate for possible breaks. Any leaks identified will be reported to SCC to cut a work order for repair crews to immediately address the leak.

Below are specific projects locations for each of the fourteen identified sites where the distribution main meters will be constructed. As stated earlier in the introduction of the project, GWA's rate of non-revenue water is roughly 50-59%. This number is considered rough at this point due to the inability to obtain hard data or inability to valid data at this time. All projects in the Water Loss Program including the proposed BOR Distribution Main Metering project will aid in validating information related to non-revenue/water loss rate. Water loss/ non-revenue ranges depending on the source. The 2017 single audit describes GWA water loss at 59%, the draft WRMP (Brown & Caldwell) reported it to be 49% and the GWA Water Accountability section pegged it at 38%. Therefore, for the analysis related to water saving assumed that each of the fourteen housing track locations identified for distribution main meters construction have a 59% water loss rate. Furthermore, GWA is confident that it will be able to track and reduce this rate be at least 40%. Below you will find project location in relation to Guam, customer consumption in acre feet for those locations and water savings from the reduction of 19 percentage point for each of track housing.

The 36-month project schedule is shown in Table A, and a breakdown of major tasks is shown in Table B.

Water Main & Distribution System Meters Installation:
 A Component of the GWA Water Loss Program

Table A. Project Schedule

Task No.	Timeline Major Project Tasks	FY 2018		FY 2019				FY 2020				FY 2021				FY 2022	
		Quarters		Quarters				Quarters				Quarters				Quarters	
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
1	Grant Application	■	■	■													
2	Project Design Procurement				■	■	■										
3	NEPA Compliance				■	■											
4	Project Design						■	■	■								
5	District Meter Installation							■	■	■	■	■	■	■	■	■	■
6	AMI Data Center Configuration									■							
7	Performance Monitoring			■	■	■	■	■	■	■	■	■	■	■	■	■	■

Water Main & Distribution System Meters Installation:
A Component of the GWA Water Loss Program

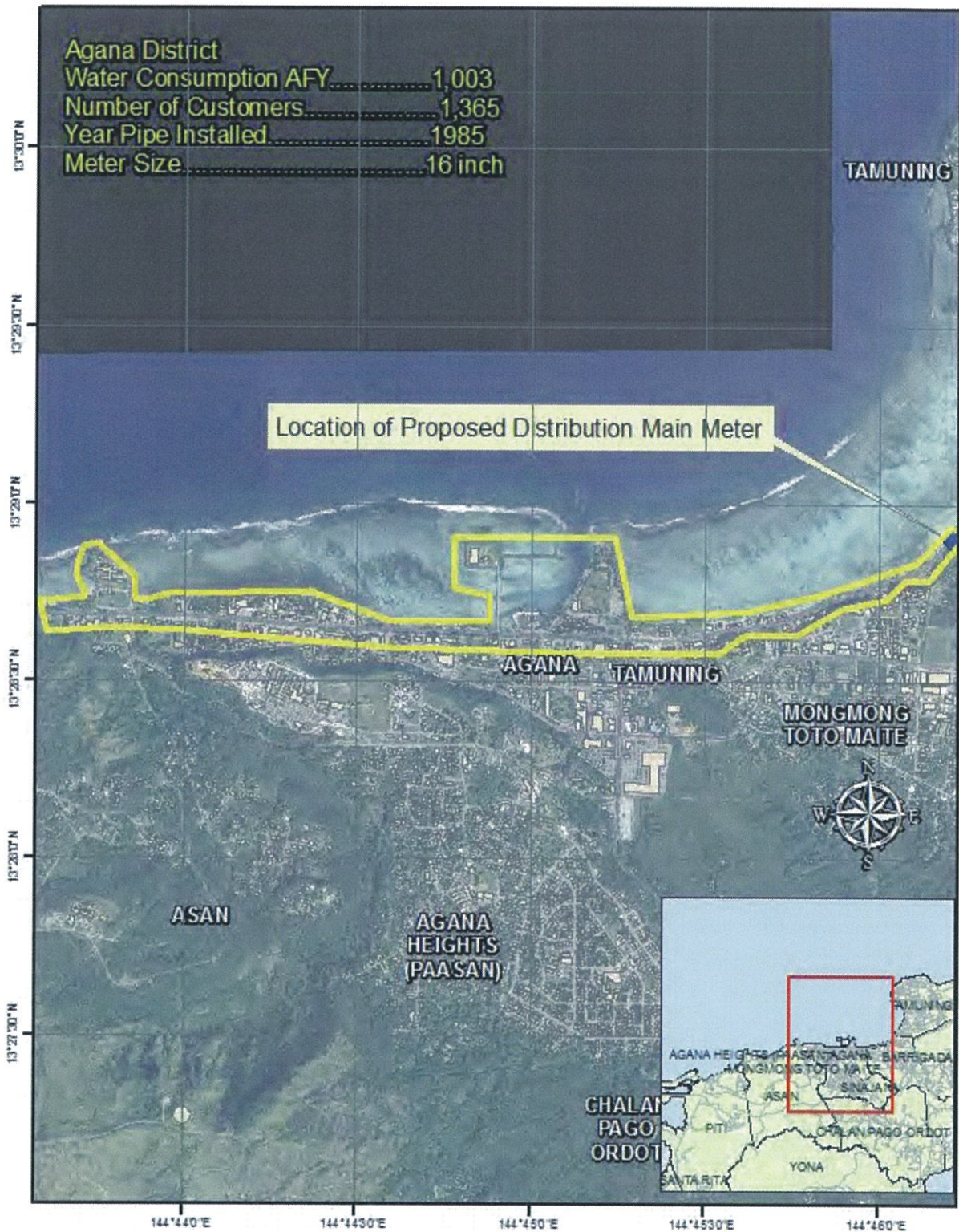
Table B. Project Task Breakdown

Main Task	Date Start	Duration (Days)	Duration (Months)	Duration (Years)	Date Complete
<i>Subtask Description</i>					
Grant Application	5/1/2018	244	8.1	0.7	12/31/2018
<i>Grant application draft and submittal</i>					
<i>Evaluation and selection of grant application</i>					
<i>Grant award and kickoff meeting</i>					
Project Design Procurement	1/1/2019	211	7	0.6	7/31/2019
<i>Document assembly for design services competitive bid</i>					
<i>Advertise design bid and collect packages</i>					
<i>Bid package opening, evaluation, short listing</i>					
<i>Design firm interviews</i>					
<i>Final evaluation and selection</i>					
<i>Fee negotiation</i>					
<i>Consolidated Commission on Utilities notification</i>					
<i>Contract processing</i>					
<i>Certification of funds</i>					
<i>Notice to proceed issued</i>					
National Environmental Policy Act Compliance	1/1/2019	180	6	0.5	6/30/2019
<i>Environmental consultation with local agencies</i>					
<i>Submit agency responses to Bureau of Reclamation</i>					
<i>Review of documentation</i>					
<i>Issuance of Categorical Exclusion</i>					
Project Design	8/1/2019	183	6.1	0.5	1/31/2020
<i>Design kickoff meeting</i>					
<i>Field survey of district meter sites</i>					
<i>Selection of meter and communication equipment</i>					
<i>Project plan drafting</i>					
<i>Design review and acceptance</i>					
Distribution Main Meter Installation	2/1/2020	699	23.3	1.9	12/31/2021
<i>Procure equipment and materials</i>					
<i>Acquire clearances and permits</i>					
<i>Meter installation and testing</i>					
AMI Data Center Configuration	7/1/2020	91	3	0.3	9/30/2020
<i>Procure data center vendor services</i>					
<i>Configuration and testing of existing data center to receive meter data through AMI</i>					
<i>Training for GWA staff</i>					
Total Project Duration	1/1/2019	1095	36.5	3.0	12/31/2021

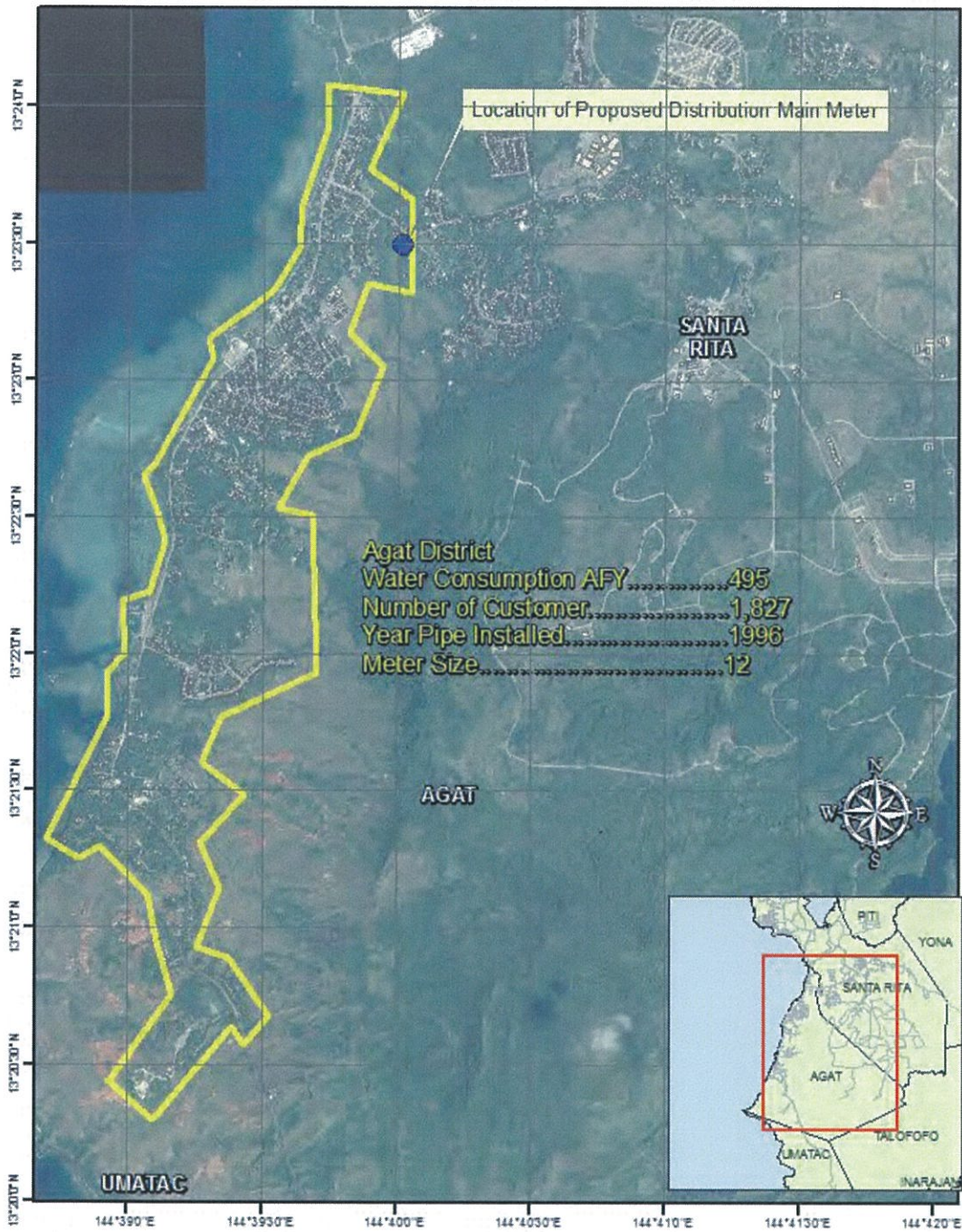
Project Location & Unique Information

Maps are presented in the following pages.

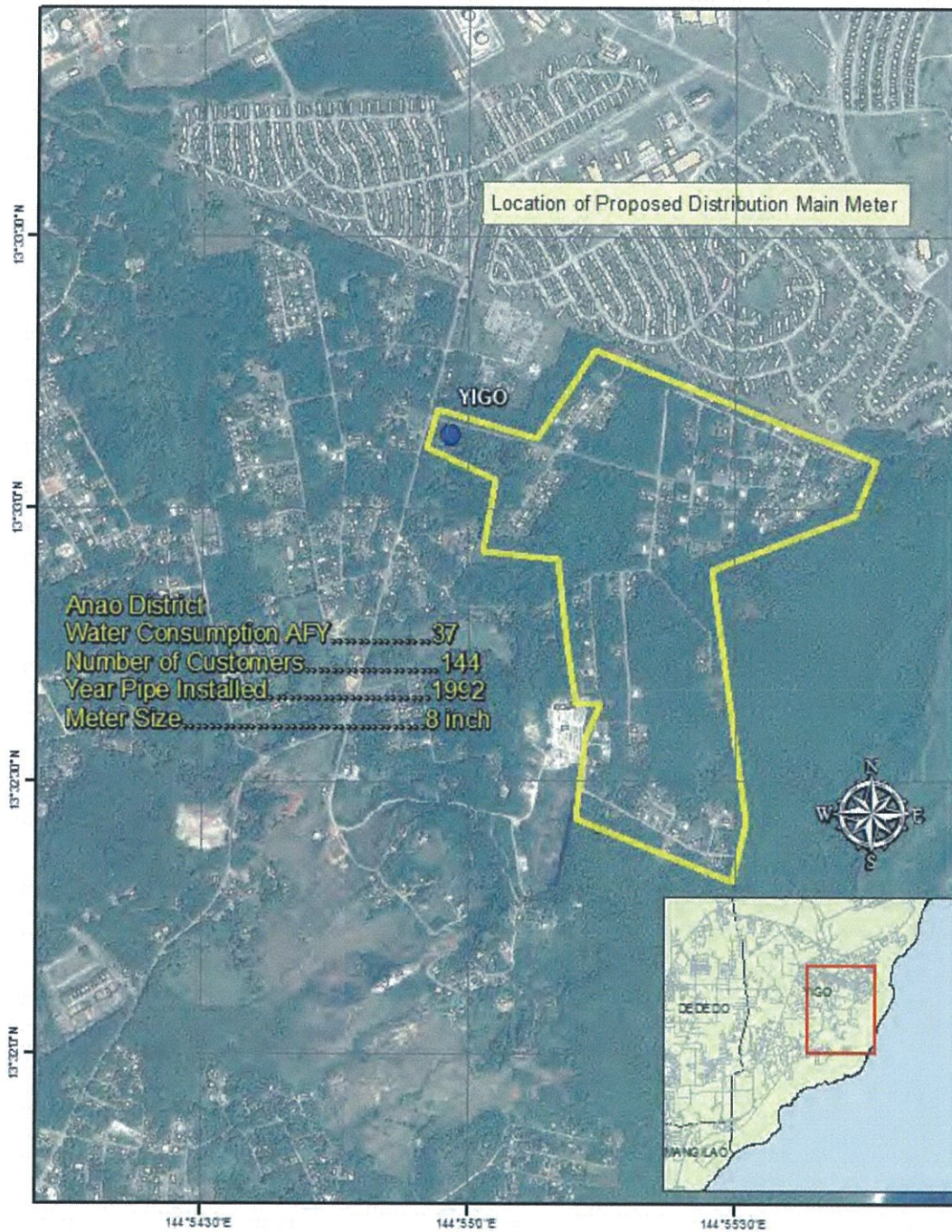
Water Main & Distribution System Meters Installation Agana District



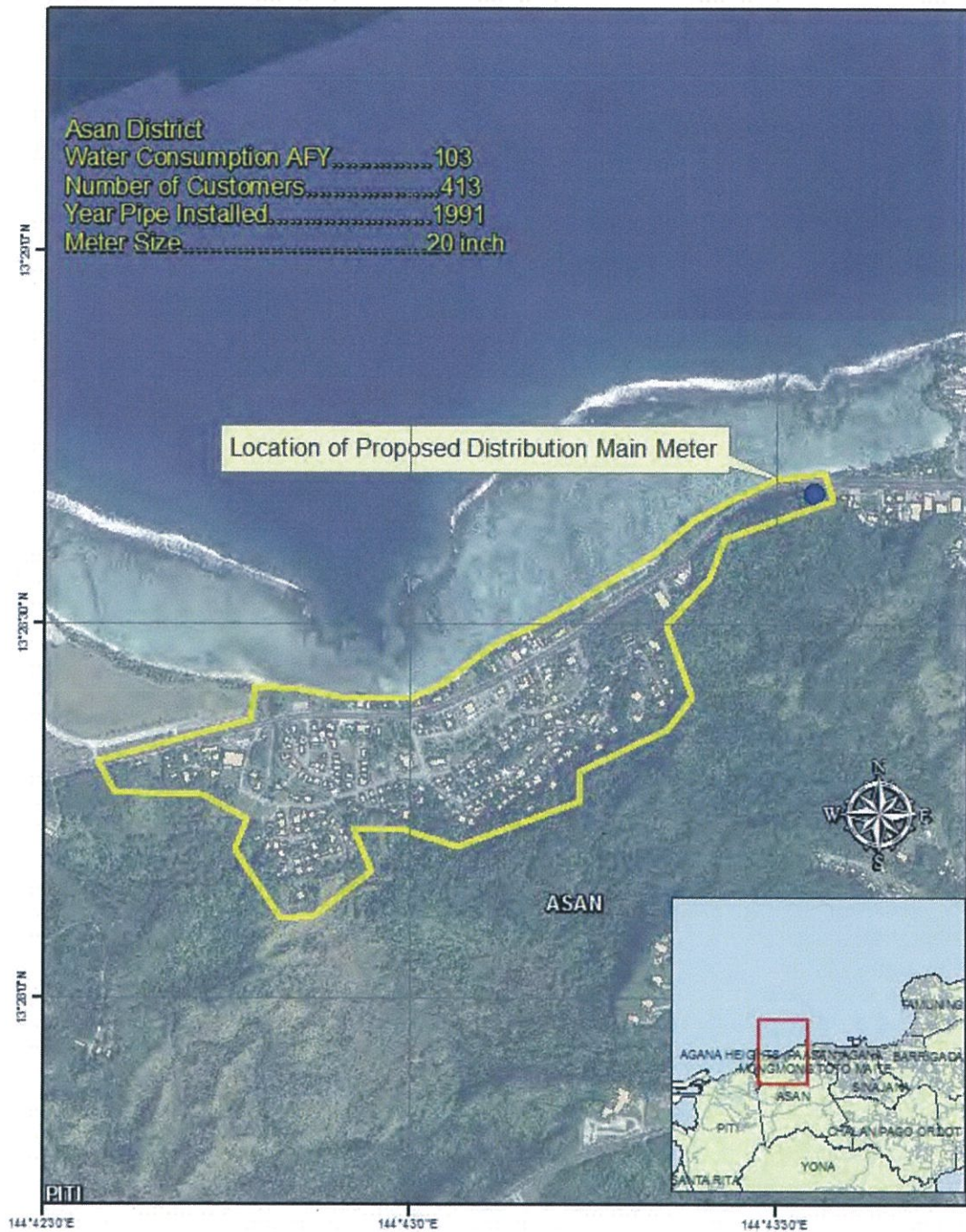
Water Main & Distribution System Meters Installation Agat District



Water Main & Distribution System Meters Installation Anao District



Water Main & Distribution System Meters Installation Asan District



Water Main & Distribution System Meters Installation Baza Gardens District

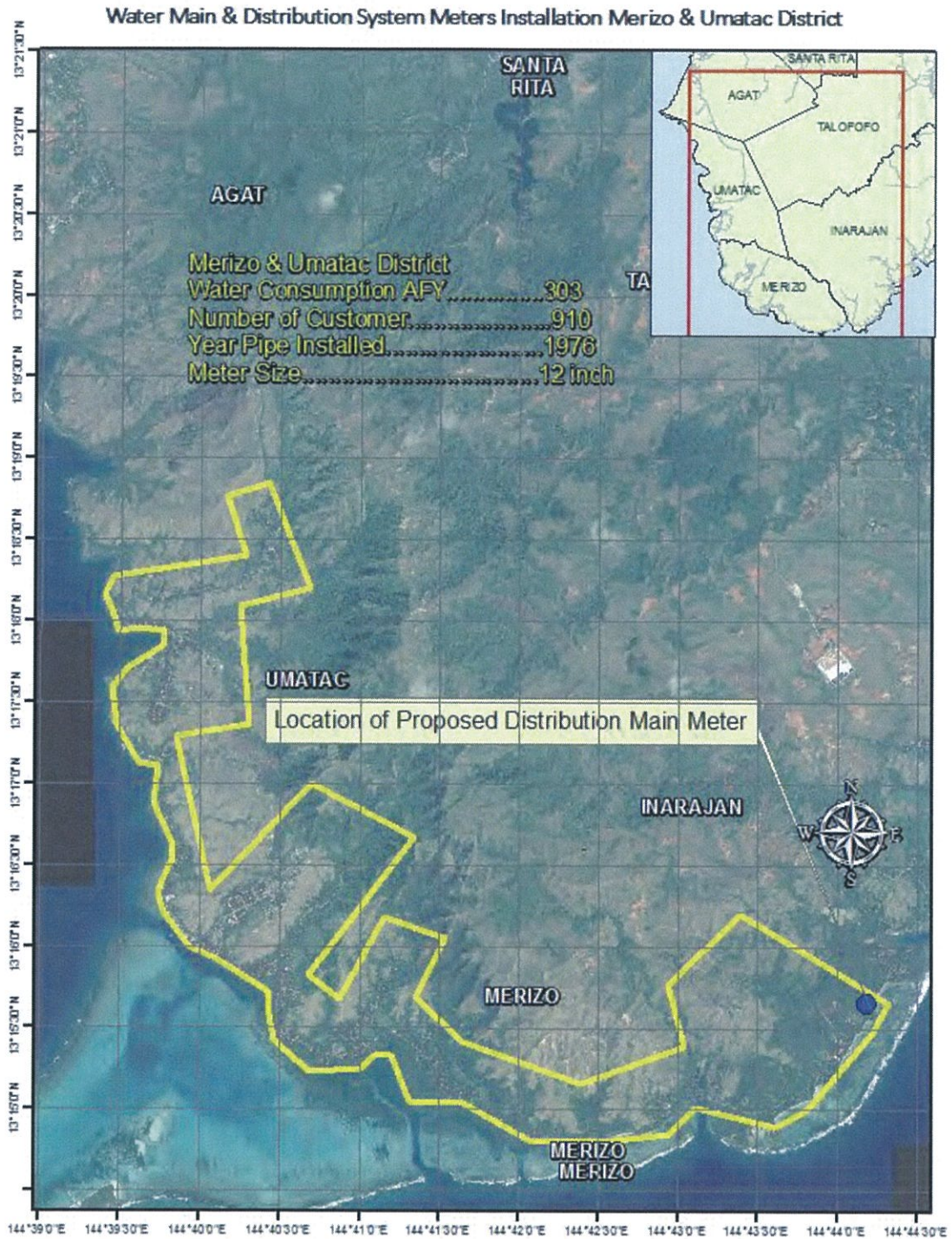


Water Main & Distribution System Meters Installation East Gayinero District

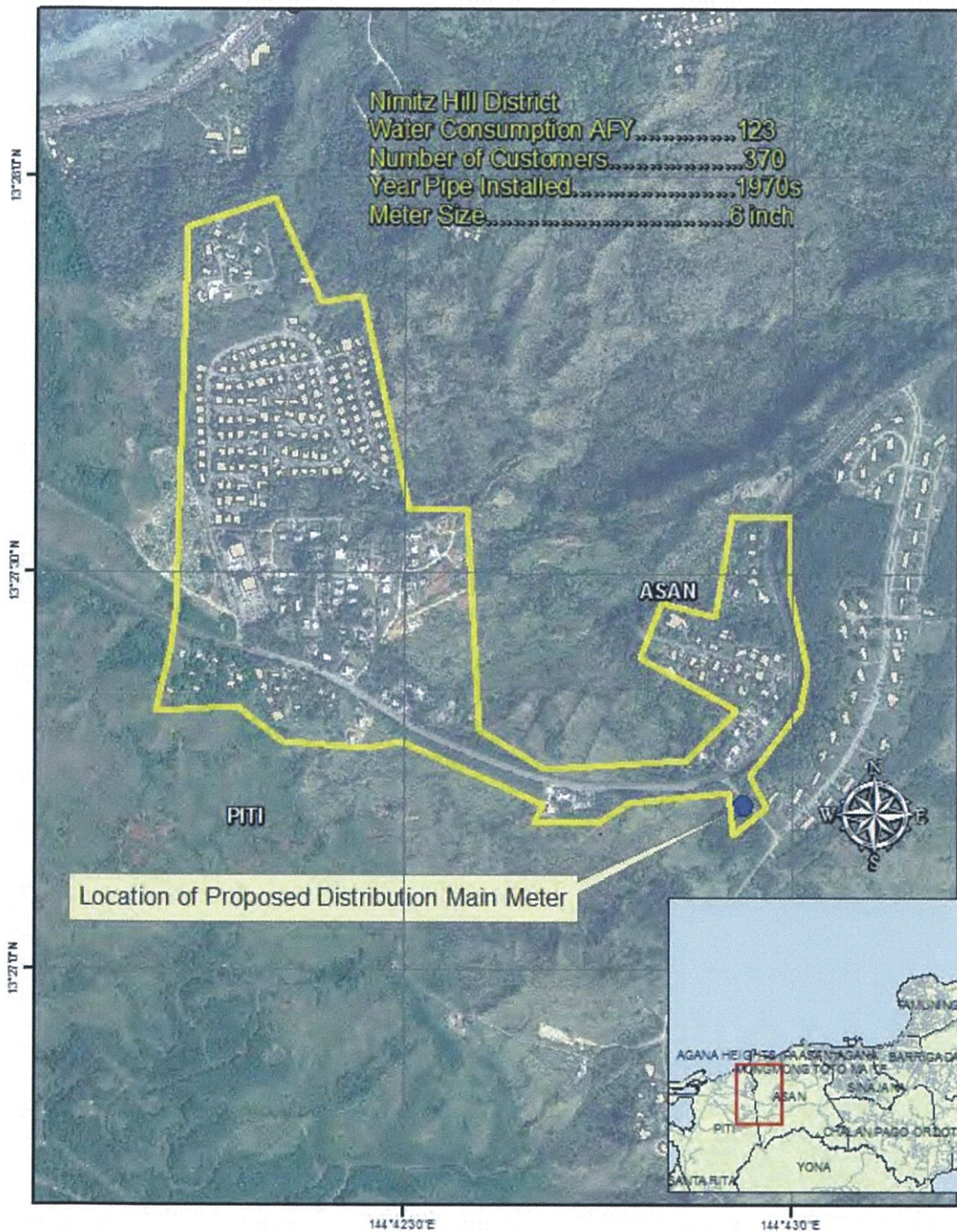


Water Main & Distribution System Meters Installation Ipan District

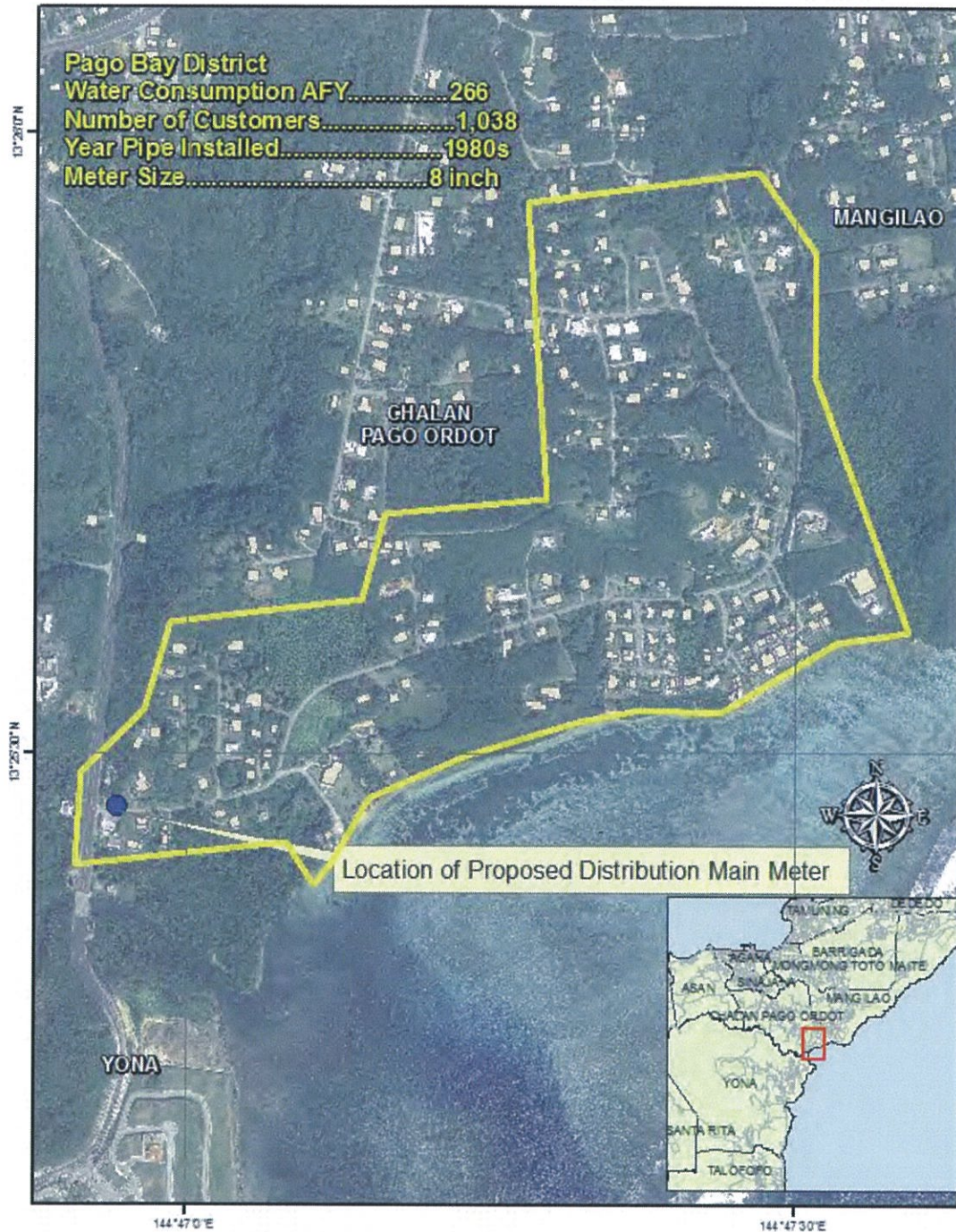




Water Main & Distribution System Meters Installation Nimitz Hill District



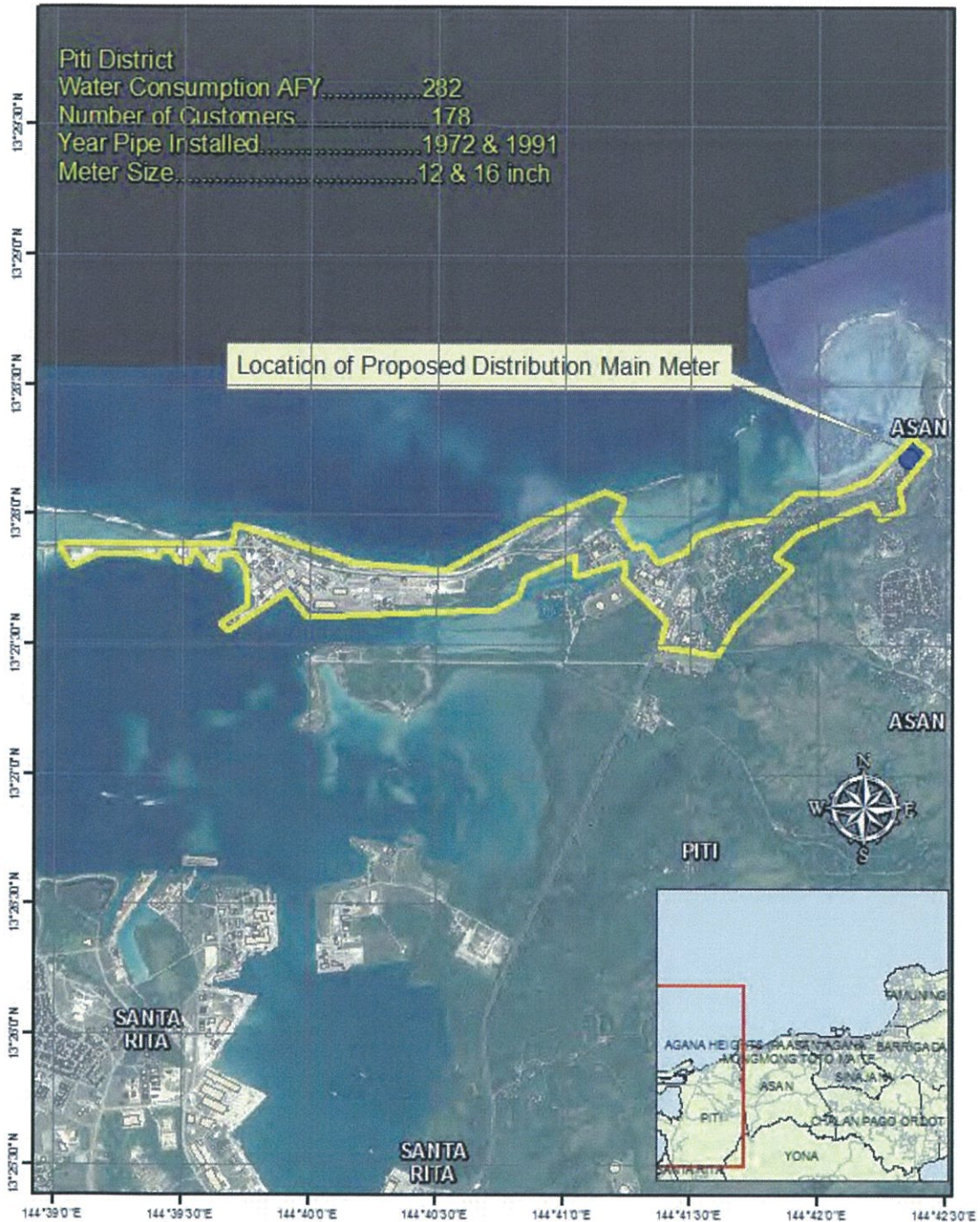
Water Main & Distribution System Meters Installation Pago Bay District



Water Main & Distribution System Meters Installation
Paradise Estates District



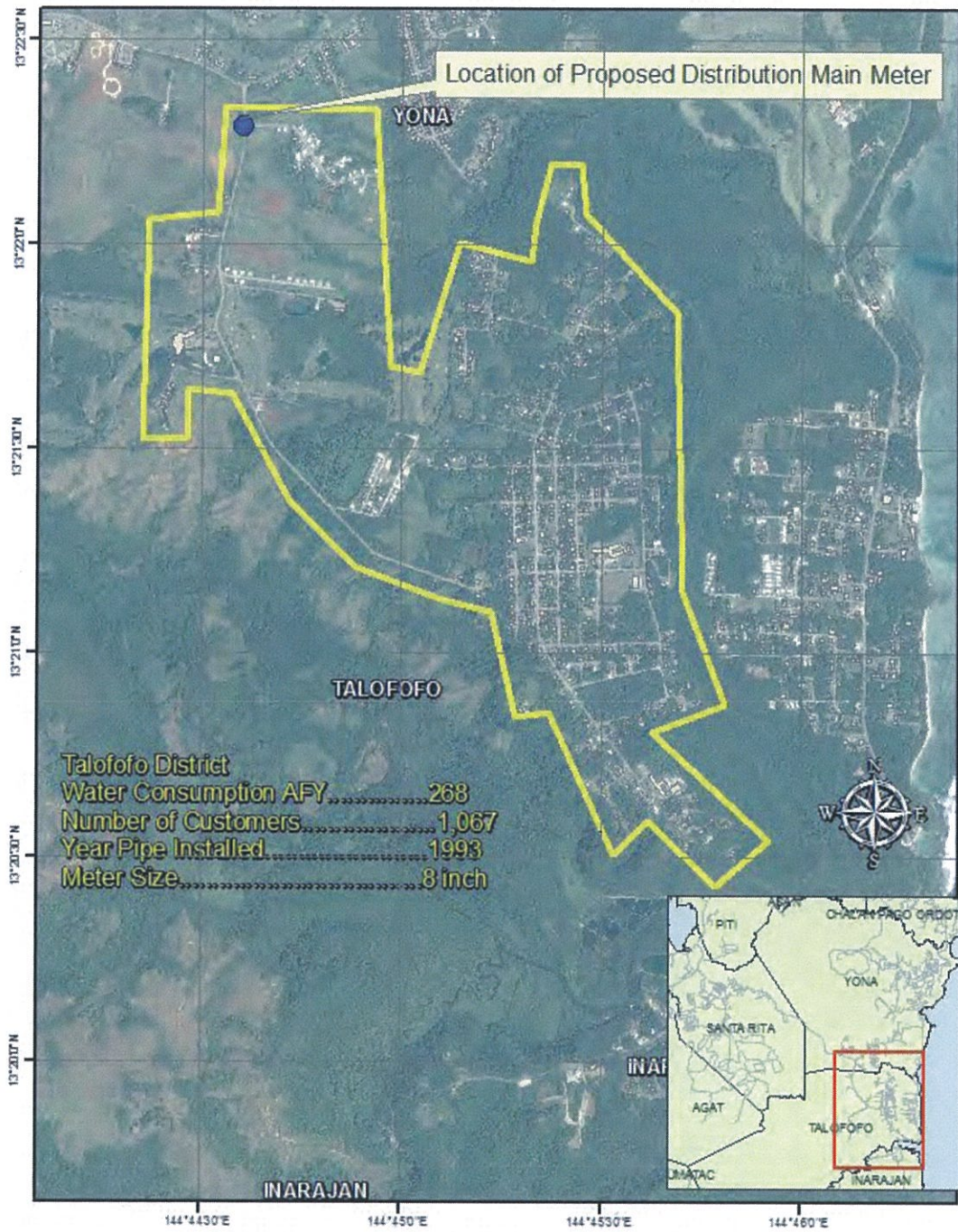
Water Main & Distribution System Meters Installation Piti District



Water Main & Distribution System Meters Installation Talo Verde Estates District



Water Main & Distribution System Meters Installation Talofof District



Evaluation Criteria

Evaluation Criteria A - Quantifiable Water Savings

MUNICIPAL METERING

A. How has the estimated average annual water savings that will result from the project been determined?

The percentage of water loss fluctuates, but it had been pegged at 59% in a recent GWA audit report. Given that GWA does not yet have any system meters in place, an assumption has to be made that the loss value is an average for all locations. An assumed district total volume received and assumed loss can be calculated by:

$$\text{Assumed District Total Received} = \text{Metered Consumption} / 0.41$$

$$\text{Assumed District Loss} = \text{Assumed District Total Received} - \text{Metered Consumption}$$

Based on this, the 14 project districts have a total assumed loss of 5,871.54 AFY. With an effort to reduce water loss to a minimum of 40% using leak detection and repair, a water savings is calculated by:

$$\text{Water Savings} = \text{Assumed District Loss} - (\text{Assumed District Total Received} * 0.40)$$

Thus, a total water savings of 1,890.84 AFY can be achieved.

Project District Totals	
Metered Consumption (gal/yr)	1,329,544,793.00
Metered Consumption (gal/day)	3,640,170.00
Metered Consumption (AFY)	4,080.22
Assumed District Total Received (gal/yr)	3,242,792,178.05
Assumed District Total Received (gal/day)	8,878,463.43
Assumed District Total Received (AFY)	9,951.76
Assumed Loss (gal/yr)	1,913,247,385.05
Assumed Loss (gal/day)	5,238,293.42
Assumed Loss (AFY)	5,871.54
Assumed Leak Rate (gpm)	3,637.70
Water Conserved Upon Meeting Yr1 Target Loss Goal	
Water Conserved Upon Meeting Yr1 Target Loss Goal (gal/yr)	616,130,513.83
Water Conserved Upon Meeting Yr1 Target Loss Goal (gal/day)	1,686,908.05
Water Conserved Upon Meeting Yr1 Target Loss Goal (AFY)	1,890.84
Annual Cost Savings	
Annual Cost Savings	\$ 903,740.24
Daily Cost Savings	
Daily Cost Savings	\$ 2,474.36

B. How have current distribution system losses and/or the potential for reductions in water use by individual users been determined?

The potential for reductions in water use by individual users has not yet been determined. Current distribution system losses have been determined by calculating the difference between the metered water production and metered water consumption. GWA's water system is large and it is difficult to target the locations of where the loss occurs without district and/or pressure zone meters.

C. For installing individual water user meters, refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.

Not applicable.

D. If installing distribution main meters will result in conserved water, please provide support for this determination (including, but not limited to leakage studies, previous leakage reduction projects, etc.). Please provide details underlying any assumptions being made in support of water savings estimates (e.g., how leakage will be reduced once identified with improved meter data).

Installation of distribution main/district meters will not directly result in conserved water. However, it will allow GWA to calculate the actual water loss for that area. Given the water loss threshold (40%) for a metered district, leak detection and repair crews can focus their work in a zone until losses meet or drop below it.

E. What types (manufacturer and model) of devices will be installed and what quantity of each?

Makes and models of meters will be determined during the design phase of the project. However, the preferred metering technologies are electromagnetic and ultrasonic, and it must be capable of transmitting data through the Badger/Orion AMI environment. A total of 16 meters will be required for the 14 project sites; five 6", three 8", five 12", two 16", and one 20".

F. How will actual water savings be verified upon completion of the project?

Data collection for metered consumption and production is ongoing on a monthly basis. As the distribution main meters go live, GWA will be able to transition the districts from assumed losses to actual, calculated losses using metered water received and metered consumption data, creating a baseline. GWA will then produce a simple monthly water audit of each district, and this report will be submitted to operations and management. It is expected that district imports will be reduced as water loss is addressed and will be reflected in successive reports.

Evaluation Criteria E - Department of the Interior Priorities

This project does not appear to fit under any of the established Department of the Interior priorities. However, Guam is under the administrative oversight of DOI as per Executive Order 10077.

Evaluation Criteria F - Implementation and Results

GWA does not have a Water Conservation Plan and/or a System Optimization Review in place.

Evaluation Criteria G - Nexus to Reclamation Project Activities

This project has no connections to any existing Reclamation project activities.

Evaluation Criteria H - Additional Non-Federal Funding

GWA's non-federal cost share of 50% meets the minimum requirement as follows:

A. Total Project Cost =	\$2,000,000 (100%: B+C)
B. Local Non-Federal Cost Share =	\$1,000,000 (50%: B/A)
C. BOR Grant Request =	\$1,000,000 (50%: C/A)

Program Questions: Environmental and Cultural Resources Compliance

Question:	Yes/Explanation	No
1. Will the proposed project impact the surrounding environment(soil,[dust], air, water [quality and quantity], animal habitat)?	Earthmoving will be limited to previously disturbed areas on existing right of way.	
2. Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?		X
3. Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “waters of the United States?” If so, please describe and estimate any impacts the project may have.		X
4. When was the water delivery system constructed?	Much of the water system was constructed between 1970 through 1990. The newest project site was constructed in 2007.	
5. Will the project result in any modification of or effects to, individual features of an irrigation system (e.g. head gates, canals, or flumes)?		X
6. Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?		X
7. Are there any known archeological sites in the proposed project area?		X
8. Will the project have a disproportionately high and adverse effect on low income or minority populations?		X
9. Will the project limit access to a ceremonial use of Indian scared sites or result in other impacts on tribal lands?		X
10. Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?		X

The project involves work that will be accomplished on exiting and disturbed land, specifically on the government rights of way; therefore, minimal environmental impact is expected. It is anticipated that the project will be eligible for a categorical exclusion. The GWA will consult environmental and historic agencies (below) concerning the project, although a letter authorizing the GWA to initiate the National Environmental Policy Act (NEPA) and Section 106 process on behalf of the Bureau of Reclamation is required. The GWA expects to be able to forward

consultations with no significant affects to the Bureau of Reclamation, the Planning and Grants section has performed dozens of consultations for its EPA Safe Drinking & Clean water programs.

Agencies that will be consulted for a record of environmental consideration as applicable:

- Guam Department of Agriculture, Fish and Wildlife Division
- Guam Department of Agriculture, Forestry Division
- Guam Environmental Agency, Water Quality Division
- U.S. Fish & Wildlife
- Parks & Recreation, Guam Historic Preservation Office

Required Permits or Approvals

All work will be competitively procured abiding by the Government of Guam Procurement Code. Architectural and Engineering contracts awarded will follow the standard contracting documents established by the Engineers Joint Contract Documents Committee (EJCDC) and as an addendum pertinent grant requirement included. Engineering firms and construction firms doing business with the GWA is contractually required to obtain all required municipal building permits. All building permits require that it runs through a process similar to NEPA & section 106. Having performed NEPA prior to the project start date will ensure a smooth municipal building permitting review and approval. All construction work will be on contract. The GWA will intervene in the process in special cases where it is beyond the control of the firm or construction contractor; and it deems it is in the best interest of GWA and the project to do so.

Letters of Project Support

Guam Congress Delegate, the Honorable Madeline Z. Bordallo's endorsement letter can be found in Appendix B.

Consolidated Commission on Utilities Official Resolution

The GWA is unable to submit an official board resolution with this application, because of the timing of meeting. Later this month on May 22, 2018 a meeting is scheduled and GWA expects the resolution to pass in approving this project and obligating the GWA to cover the cost of its share of the match of \$1,000,000 or 50 percent of total project costs.

Key Management

Miguel C. Bordallo P.E., General Manager was selected by the CCU effective January 4, 2016. Mr. Bordallo has over 25 years of experience in environmental/mechanical engineering and construction in California, Guam and Micronesia. Prior to joining GWA, Mr. Bordallo was a consulting engineer providing design and design-build services for water and wastewater infrastructure projects and was also vice-president of a large construction company on Guam. Mr. Bordallo holds a B.S. in Mechanical Engineering with honors from Marquette University in Milwaukee, Wisconsin, and is a licensed professional engineer on Guam.

Greg P. Cruz, CPA has served as Chief Financial Officer for GWA since his appointment in July 2007. He has over 25 years of experience in the accounting profession, including 15 years in management capacity. He has held positions in the telecommunications industry, public

accounting and various Government of Guam agencies. Mr. Cruz earned a B.A. in accounting from Western Washington University in Bellingham, Washington, and is a Certified Public Accountant and licensed to practice in Guam.

Paul J. Kemp, Assistant General Manager, Compliance and Safety has 56 years of experience in management related to water quality and chemistry for natural waters, drinking water, water for industrial applications, ultra-high purity water, wastewater treatment, water recovery for reuse, and environmental and safety compliance and training. Prior to joining GWA in 2003, he has held engineering and management positions in private laboratories, research and manufacturing companies as well as teaching and research positions in higher education. Mr. Kemp was trained as an analytical chemist specializing in spectroscopic methods and water analysis and received a B.S. in chemistry from Iowa State University and an M.S. in Analytical Chemistry from Oregon State University.

Budget

Funding Plan and Letters of Commitment

1. How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).

The entire project cost is \$2,000,000. We respectfully request funding from the BOR in the amount of one million dollars. GWA's cost share towards the project is \$1 million in cash from GWA's Revenue Bond funds. The local cost share of the project is 50% and the BOR funding is 50%. Funding from BOR will support the entire three-year project period.

2. Describe any donations or in-kind costs incurred before the anticipated Project start date that you seek to include as project costs.

There are no costs incurred before the project start date that are included as project costs.

3. Describe any funding requested or received from other Federal partners.

The proposed project does not include Federal partners. See Table C.

Table C. Summary of Non-Federal and Federal Funding Sources

Funding Sources	Amount
Non-Federal Entities	
Guam Waterworks Authority	\$ 1,000,000.00
Other Federal Entities	
None	\$ -
Requested Reclamation Funding	\$ 1,000,000.00
Total Project Cost	\$ 2,000,000.00

4. Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

There are no pending funding requests.

Budget Proposal

Table D. GWA Distribution Main Metering Project Budget Proposal

Budget Item Description	Computation			Total Cost
	Qty	Unit	Unit Cost	
Salaries and Wages				
<i>Personnel costs are not included in the scope of the grant application.</i>				\$ -
Fringe Benefits				
<i>Not Applicable</i>				\$ -
Travel				
<i>Not Applicable</i>				\$ -
Equipment				
<i>Not Applicable</i>				\$ -
Supplies and Materials				
Meter Field Verification Device	1	EA	\$ 4,000.00	\$ 4,000.00
Contractual/Construction				
Project Design	1	LS	\$ 500,000.00	\$ 500,000.00
Installation of 6" Distribution Main Meter	5	EA	\$ 30,840.00	\$ 154,200.00
Installation of 8" Distribution Main Meter	3	EA	\$ 40,000.00	\$ 120,000.00
Installation of 12" Distribution Main Meter	5	EA	\$ 60,000.00	\$ 300,000.00
Installation of 16" Distribution Main Meter	2	EA	\$ 121,000.00	\$ 242,000.00
Installation of 20" Distribution Main Meter	1	EA	\$ 193,000.00	\$ 193,000.00
Site Electrical and Communications Installation	14	EA	\$ 31,200.00	\$ 436,800.00
Orion Data Center Software Configuration	1	LS	\$ 10,000.00	\$ 10,000.00
Environmental Review				
<i>Equal to approximately 2% of total project cost</i>	1	LS	\$ 40,000.00	\$ 40,000.00
Other				
<i>Not Applicable</i>				\$ -
Indirect				
<i>Not Applicable</i>				\$ -
Total Estimated Project Costs				\$ 2,000,000.00

Budget Narrative

1. Salaries and Wages

Total BOR Request: \$0

Personnel costs (salaries and wages) for the project are not included in the project budget to facilitate ease of GWA's reporting to BOR. Personnel costs will be provided by GWA outside of the grant scope. Design, construction, and installation components of this project will be procured through competitive bids.

2. Fringe Benefits

Not applicable.

3. Travel

Not applicable.

4. Equipment

Not applicable.

5. Materials and Supplies

Total BOR Request: \$0

The costs for the materials and supplies portion of the project will go towards a meter verification device. It will allow the distribution main meters to be verified on site without interruption of water service. This tool is necessary to ensure that meter readings are accurate within the manufacturer's specified tolerances.

6. Contractual

Total BOR Request: \$960,000

This grant request includes the costs of the materials and installation of the distribution main flow meters. The make and models of meters and isolation valves are to be determined during the design phase of the project. It is anticipated and recommended that the distribution main meters will be compatible with the Badger/Orion automated metering infrastructure (AMI) environment as all current GWA service meters are AMI-capable. Work to be conducted at each site includes equipment mobilization, erosion control, traffic control, pavement removal and restoration, excavation, vault installation, pipe work, meter installation, backfilling, and testing and inspection of the distribution main meter.

GWA will be responsible for the costs of all the remaining project activities in the Contractual category, and these include:

- Project design
- Electrical site improvements
- Communications installation and setup
- Data Center application configuration

Upon completion of the project, the customer meters within the established districts may be migrated over to a fixed network operation mode which would allow GWA the ability to perform a district water audit at a moment's notice. This task is outside the scope of the project and costs will be incurred by GWA.

Costs for the Contractual category were based on past GWA projects with similar scope.

7. Environmental and Regulatory Compliance Costs

Total BOR Request: \$40,000

The project will be evaluated for NEPA compliance during Year 1 of the project, and it is expected that the project will be designated a Categorical Exclusion for NEPA because it will result in minor construction activities and will utilize existing facilities. Therefore, the total project budget includes costs of approximately 2% (\$40,000) of the total project cost to cover GWA's staff time to prepare, submit, and coordinate environmental documents, and Reclamation's cost to review the documents.

8. Other Expenses

Not applicable.

9. Indirect Costs

Not applicable.

10. Total Costs

The cost of the entire distribution main metering project is \$2,000,000, of which \$1,000,000 is requested from the Bureau of Reclamation, and \$1,000,000 is Guam Waterworks Authority's cost share. Project costs stated herein are estimates and may be adjusted upon work contracting. A breakdown of costs is shown in Table E.

Water Main & Distribution System Meters Installation:
A Component of the GWA Water Loss Program

Table E. Budget Cost Breakdown

Budget Item Description	Computation			Total Cost
	Qty	Unit	Unit Cost	
Project Design	1	LS	\$ 500,000.00	\$ 500,000.00
6" Electromagnetic Flow Meter	5	EA	\$ 4,000.00	\$ 20,000.00
6" Isolation Valve	10	EA	\$ 1,500.00	\$ 15,000.00
Vault for 6" Meter	5	EA	\$ 4,000.00	\$ 20,000.00
Site Work for 6" Meter	5	EA	\$ 19,840.00	\$ 99,200.00
8" Electromagnetic Flow Meter	3	EA	\$ 5,000.00	\$ 15,000.00
8" Isolation Valve	6	EA	\$ 2,500.00	\$ 15,000.00
Vault for 8" Meter	3	EA	\$ 7,000.00	\$ 21,000.00
Site Work for 8" Meter	3	EA	\$ 23,000.00	\$ 69,000.00
12" Electromagnetic Flow Meter	5	EA	\$ 10,000.00	\$ 50,000.00
12" Isolation Valve	10	EA	\$ 5,000.00	\$ 50,000.00
Vault for 12" Meter	5	EA	\$ 8,000.00	\$ 40,000.00
Site Work for 12" Meter	5	EA	\$ 32,000.00	\$ 160,000.00
16" Electromagnetic Flow Meter	2	EA	\$ 15,000.00	\$ 30,000.00
16" Isolation Valve	4	EA	\$ 14,000.00	\$ 56,000.00
Vault for 16" Meter	2	EA	\$ 13,000.00	\$ 26,000.00
Site Work for 16" Meter	2	EA	\$ 65,000.00	\$ 130,000.00
20" Electromagnetic Flow Meter	1	EA	\$ 25,000.00	\$ 25,000.00
20" Isolation Valve	2	EA	\$ 24,000.00	\$ 48,000.00
Vault for 20" Meter	1	EA	\$ 20,000.00	\$ 20,000.00
Site Work for 20" Meter	1	EA	\$ 100,000.00	\$ 100,000.00
AMI Data Collector/Network Gateway	14	EA	\$ 6,000.00	\$ 84,000.00
Outdoor Broadband Wireless Mesh Router	14	EA	\$ 6,000.00	\$ 84,000.00
AMI Fixed Network Endpoint	14	EA	\$ 200.00	\$ 2,800.00
Pressure Transmitter	14	EA	\$ 2,000.00	\$ 28,000.00
Communications Setup and Testing	14	EA	\$ 2,000.00	\$ 28,000.00
Electrical Site Improvements	14	EA	\$ 15,000.00	\$ 210,000.00
Environmental Review	1	LS	\$ 40,000.00	\$ 40,000.00
Meter Field Verification Device	1	EA	\$ 4,000.00	\$ 4,000.00
Orion Data Center Software Configuration	1	EA	\$ 10,000.00	\$ 10,000.00

Grand Total \$ 2,000,000.00

Appendix A

Guam Waterworks Authority FY 2017 Financial Highlights Report

April 24, 2018



Guam Waterworks Authority FY 2017 Financial Highlights

April 24, 2018

For the second consecutive year, the Guam Waterworks Authority (GWA) qualified as a low-risk auditee. No findings pertaining to federal funds were identified in fiscal year (FY) 2017. Independent auditors Deloitte and Touche, LLP rendered an unmodified “clean” opinion on GWA’s financial statements and compliance over major federal programs. GWA closed FY 2017 with a significant increase in net position (net income) of \$40.4 million (M), primarily due to the \$21.8M in federal capital grants, compared to the 27.2M in net income the prior year. The 2016 financial statements were restated due to the implementation of the Governmental Accounting Standards Board (GASB) Statement No. 73.

GWA Capital Improvement Plan, Debt Service, and Future Borrowings

In FY 2017, capital assets increased by \$72.0M. The increase is attributable to on-going major capital improvement projects associated with the 2011 Federal Court Order and GWA’s five-year Capital Improvement Plan (CIP). CIP project costs were estimated at \$450M-\$500M. On-going construction projects included replacement of wastewater treatment plant, transmission lines, booster pump upgrades, sewer line rehabilitation or replacements, deep well rehabilitations, acquisition of mechanical and electrical equipment, and general plant improvements. GWA is currently working with Guam contractors on the H-2B visa issue due to the industry’s decreasing availability of foreign workers. This poses a conundrum for the local construction industry and has already led to construction delays, escalating costs, and fewer bidders for GWA projects due to the size and complex nature of GWA’s project.

In fall 2016, GWA was awarded \$55.3M in grants from the U.S. Department of Defense Office of Economic Adjustment. This was to initiate projects associated with the design and construction of improvements needed to bring the Northern District Wastewater Treatment Plant (NDWWTP) to full secondary treatment capability as required by the new National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency. GWA is on schedule to complete the NDWWTP upgrades by December 2021. In late 2017, GWA received an additional grant totaling \$117.9M for construction of wastewater improvements related to the build-up.

GWA had a long-term debt outstanding of \$515.0M in FY 2017. This is a \$7.9M decrease from the \$522.9M in FY 2016. In December 2017, GWA refinanced the 2010 revenue bond series.

Decrease in Operating Revenues and Increase in Operating Expenses

GWA’s total net position (net income) increased by \$40.4M from \$182.5M in FY 2016 to \$222.9M in FY 2017.

Operating revenues totaled \$104.4M or a 1% decrease compared to \$105.4M in the prior year. The decline was primarily due to a 2% or \$645 thousand (K) decrease in water and wastewater revenues. Of GWA’s \$104.4M operating revenues (net of bad debts expense), water revenues (\$66.6M) accounted for 64% and wastewater revenues (\$38.7M) accounted for 37%. The residential (48%), commercial (21%), and hotel (20%) sectors continue to account for 89% of water revenues. While hotel water revenues increased by \$383K, residential water revenues decreased by \$650K.

Operating and maintenance expenses increased by \$3.5M from \$68.8M in FY 2016 to \$72.4M in FY 2017. The top two contributing factors were increases in depreciation expenses and water purchases. Navy water purchases increased due to a combination of approximately 17.6K additional kgal of water purchases and a 15% increase in the Navy's tariff. As a result, operating income was \$32.0M compared to \$36.5M, a decline of \$4.5M.

Unaccounted Water

Historically, one of GWA's most challenging problems is the amount of unaccounted for (non-revenue) water. In FY 2017, approximately 59% of water produced annually is not consumed or contributing to GWA's revenue due to water losses (leaks or breaks) and unauthorized or unbilled consumption. Leaks, for the most part, account for the largest source of unaccounted for water. GWA has engaged in a water loss prevention program that includes leak detection to help reduce non-revenue water.

FY 2016 Financial Statements Restatement

In FY 2017, GWA implemented GASB No. 73, which aligns the reporting of pensions, ad hoc cost-of-living adjustments (COLA) and supplemental annuity payments. The implementation of this statement had a material effect on GWA resulting in the restatement of its FY 2016 financial statements. GWA's FY 2016 salaries, wages, and benefits increased by \$1.4M and beginning net position was reduced by \$9.8M. This resulted in an \$11.2M decrease in total net position from \$193.7M to \$182.5M for FY 2016 and corresponding increase in net pension liability by \$12.7M to \$50.9M.

As of FY 2017, GWA's net pension liability of \$49.2M includes its proportionate share of the Government of Guam's (GovGuam) pension, ad hoc COLA, and supplemental annuity payments. Of the \$49.2M, \$8.9M was for the ad hoc COLA/supplemental annuity plan for Defined Benefit retirees and \$1.6M was for ad hoc COLA plan for Defined Contribution Retiree System retirees. Pension expense amounted to \$4.6M in FY 2017 and \$5.8M in FY 2016.

Other Post-Employment Benefits (OPEB)

GASB No. 75 (Post-Employment Benefits Other than Pensions) is effective and will be recorded in GWA's FY 2018 financial statements. This pertains to post-employment medical, dental, and life insurance benefits to retirees, spouses, children, and survivors. Upon implementation, it is anticipated that GWA will record an additional \$36.4M liability as of FY 2017 arising from other post-employment benefits.

Reports on Compliance and on Internal Control and Major Federal Programs

GWA received an unmodified "clean" opinion on the Report on Compliance and Internal Controls and on major federal programs. The auditors did not identify any findings in FY 2017. In addition, the Management Letter identified seven deficiencies pertaining to internal control over information technology environment.

The Letter to Those Charged with Governance identified two deficiencies pertaining to: 1) Construction in Progress projects not timely transferred to the fixed assets account, and 2) Inactive Accounts Receivable balance increased due to failure to timely disconnect meters and terminate accounts for non-payment.

For more details, refer to the Management Discussion and Analysis in the audit report at www.opaguam.org and at www.guamwaterworks.org.

Appendix B

Letter of Endorsement

Madeleine Z. Bordallo, Congresswoman, U.S. House of Representatives

May 9, 2018

MADELEINE Z. BORDALLO
GUAM

ARMED SERVICES COMMITTEE

RANKING MEMBER, SUBCOMMITTEE ON
READINESS

SUBCOMMITTEE ON
SEAPOWER AND PROJECTION FORCES

NATURAL RESOURCES COMMITTEE

SUBCOMMITTEE ON INDIAN, INSULAR,
AND ALASKA NATIVE AFFAIRS

SUBCOMMITTEE ON WATER, POWER AND OCEANS



Congress of the United States
House of Representatives

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HAGÄTÑA, GUAM 96910
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<http://www.house.gov/bordallo>

May 9, 2018

The Honorable Brenda Burman, Commissioner
Bureau of Reclamation
U.S. Department of the Interior
1849 C Street NW, Mail Code #91-00000
Washington, DC 20240

RE: Guam Waterworks Authority's Application for WaterSMART Grant

Dear Commissioner Burman:

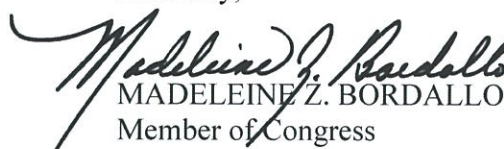
I write in strong support of the Guam Waterworks Authority's grant application under the Bureau's WaterSMART Program. In 1986, Congress made Guam and the other Insular Area territories eligible "Reclamation states" (Public Law 99-396). To date, Guam has never received, or to my knowledge applied for, Reclamation grant funding. I therefore urge you to give all due consideration to the Guam Waterworks Authority's application and, ultimately, approve this critical grant funding for our island's *only* public water utility.

As noted in the application, the Guam Waterworks Authority intends to use this WaterSMART grant, if approved, to install remote-reading district meters (also called "system" or "pressure-zone" meters) to address unaccounted for water loss, estimated at an alarming 58 percent. This will allow the Guam Waterworks Authority to better detect leaks, focus waterline repairs where they are needed most, and capture lost revenue. This would complement the Guam Waterworks Authority's very substantial investment in our public water system, which serves both civilian households *and* U.S. military bases on island, financed by a recent revenue-bond offering.

The Administration has committed publicly to supporting economic development in the U.S. territories and making federal investments to modernize our infrastructure. I hope that the Bureau will do its part to meet that commitment, in full, by approving the Guam Waterworks Authority's application for this WaterSMART grant. Given legacy systems and limited territorial resources, much-needed upgrades like installing meters to account for significant water loss across our waterlines are unlikely to happen without federal support.

Please do not hesitate to contact me to discuss further the importance of the Guam Waterworks Authority's continued modernization efforts and the need for this Reclamation funding. For additional information, your staff may contact my Legislative Assistant, Iain Hart. Thank you for your leadership and for considering my views in support of this application under the WaterSMART Program.

Sincerely,


MADELEINE Z. BORDALLO
Member of Congress

Appendix C

Resolution

Consolidated Commission on Utilities

(Forthcoming)

Appendix D

Memorandum of Understanding

GWA-GPA MOU relative to Smart Grid Network Usage

July 9, 2015



GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, Guam 96913

MEMORANDUM

Date: July 9, 2015

To: Samuel Taylor, Acting Interim General Manager
Guam Waterworks Authority

John M. Benavente, Interim General Manager
Guam Power Authority

From: Thomas F. Cruz, P.E., Chief Engineer, GWA *Thomas Cruz*

Cc: Mark Miller, Interim General Manager, GWA
Greg Cruz, Chief Financial Officer, GWA
Victor Torres, IT Manager, GWA
Barbara Cruz, P.E., Senior Engineer Supervisor, GWA

Subject: GWA - GPA MOU relative to Smart Grid Network Usage

Guam Waterworks Authority
GM's Office
Received By: *Silvana B. Cruz*
Date: 7/9/15
Time: 2:45 pm

GUAM WATERWORKS AUTHORITY
BUDGET OFFICE
Josephine D. Evangelista
JOSEPHINE D. EVANGELISTA, PMBA
BUDGET OFFICER
ACTING MA IV
DATE: 07-10-15 TIME 4:57 PM

Engineering requests your approval for GWA to enter into an agreement with GPA to allow GWA to have joint use of GPA's Smart Grid Network for GWA SCADA system, Standby Generator Control, AMI, CCTV and other future applications.

A MOU agreement between GPA and GWA, re-executed on June 2009, covers any type of work to be performed by GWA for GPA or vice versa, and remains in effect indefinitely. Enclosed are the specific terms and conditions relating to the GWA-GPA consolidated usage of the Smart Grid Network for your review and approval.

GWA's Estimated Budget Amount:

Estimated budget amount for GWA to carry out this agreement is provided in the table below. The estimated budget is based on estimated costs provided in the GWA SCADA Master Plan.

However, the estimated budget only includes GWA SCADA System and Standby Generator Control. The estimated budget for other applications is not available at this time.

PHASE	BUDGET AMOUNT
Phase A-1	\$ 200,000
Phase A-2	347,000
Phase A-3	347,000
Phase B	332,000
Phase C	35,100
TOTAL	1,261,100

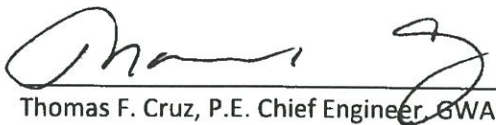
OFFICE GWA FINANCE & ACCOUNTING ADMINISTRATIVE
RECEIVED BY:
JUL 10 2015
BY: *[Signature]*

GWA is only ready to certify funding for Phase A-1 in the amount of \$200,000 using 2013 Bond Funds under CIP EE 09-08. Other requests will follow when funding is available.

Source of Funds:

Source of funds for Phase A-1 will be 2013 Bond Funds under CIP EE 09-08 in the amount of \$200,000.

Recommend Approval by:


Thomas F. Cruz, P.E. Chief Engineer, GWA

Date: 7/9/15

Budget Review:


Greg Cruz, Chief Financial Officer, GWA

Date: 7-20-15

Approved by:


Samuel Taylor, Acting Interim General Manager, GWA

Date: 7/10/15


John M. Benavente, Interim General Manager, ~~GWA~~
GPA

Date: 7/23/15

Attachments:

1. Memorandum of Understanding between the Guam Waterworks Authority and the Guam Power Authority for Services Rendered, June 23, 2009
2. Terms and Conditions | Relative to Joint Usage of the Smart Grid Communications and Network Infrastructure