



GUAM WATERWORKS AUTHORITY

Better Water Better Lives

CAPITAL IMPROVEMENT PLAN

2016-2020

January 24, 2017

CAPITAL IMPROVEMENT PLAN 2016-2020

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A. Narrative

Summary of CIP

The Capital Improvement Plan (CIP) has been updated with the best available data to illustrate the current funding available to complete projects which had been identified from the originally submitted CIP.

The following two tables provide an overview of the current funding status:

Table 1. Summary of Project Type (x1000):

	2016	2017	2018	2019	2020	TOTAL
Potable Water	44,421	36,490	55,518	28,250	10,000	174,679
Wastewater	12,335	63,179	12,246	-	-	87,760
Electrical Engineer	3,911	3,150	2,914	-	-	9,975
Miscellaneous	3,200	4,045	1,200	1,200	-	9,645
Total	63,867	106,864	71,878	29,450	10,000	282,058

Table 2. Summary of Funding Source (x1000):

	2016	2017	2018	2019	2020	TOTAL
2010 Bond Series	5,074					5,074
2013 Bond Series	11,922	383				12,305
2016 Bond Series	34,149	63,986	23,378			121,513
2018 Bond Series	-		29,000	28,250	10,000	67,250
State Revolving Fund (SRF) *	3,475	17,000	8,000			28,475
System Development Charge (SDC)**	3,300	5,994	500			9,794
GRANTS	948					948
Internally Funded CIP	5,000	19,500	11,000	1,200		36,700
Total	63,867	106,864	71,878	29,450	10,000	282,058

Note:

* The State Revolving Fund line item includes the funding allotment for the USEPA engineering consultant.

** 2016 SDC funds earmarked for expenditure on various water and wastewater projects which have been delayed due to unknown project conditions (water wells), or deferred due to availability of other funding sources (NDWWTP); use of SDC funds will be revised to future years in a future CIP update.

Developing the Capital Improvement Plan (CIP)

The CIP is GWA's five-year blueprint for creating, maintaining, renewing, and replacing the crucial infrastructure that will support Guam's sustainable and continued growth. This CIP covers a five-year period to account primarily for Court Order projects that have a start time outside of a five-year period from 2015 but which required funding appropriation from the anticipated 2015 and 2018 bond issuances which are reflected in this updated CIP.

This CIP was developed to include a narrative and project description sheets detailing the projects. Other documents, such as the 2007 Water Resource Master Plan (WRMP), GWA's Comprehensive Management Plan, 2006 Stipulated Order, GWA Production Plan, PUC Order, SRF Grant Project list, 2011 Amended Stipulated Order, and the 2012 USEPA NEIC Report "Findings of Significant Deficiencies in the Public Water System" provided valuable information and guidance in the preparation of the CIP. The CIP will continue to be reviewed and updated by the Chief Engineer, General Manager GWA, Consolidated Commission on Utilities (CCU) and the Public Utilities Commission (PUC).

The CIP is an important public communication medium. The CIP gives residents and businesses a view of GWA's direction for capital improvement and a better understanding of the Island's ongoing need for stable revenue sources to fund large or multi-year capital projects.

The CIP is also an important operational document, providing GWA Engineering, Maintenance & Operation (M&O), Finance, and support staff with a blueprint of the overall direction and specific projects GWA plans on implementing to continue improvement for the utility and the Territory of Guam.

Definition of an Engineering Capital Improvement Project

For the purposes of the Engineering CIP, a capital expenditure is an expenditure to acquire and/or replace GWA's capital assets. Major projects are projects with a cost of more than \$50,000 or are listed in the 2006 Stipulated Order and/or Master Plan. Water production facilities, water distribution systems, wastewater collection systems, wastewater treatment plants, and major one-time equipment acquisitions are examples of capital improvements.

Carryover Projects/Fund Balance

Due to the nature of capital projects, the life of a project may span across fiscal years. As funds are received to fund a project, they are accumulated in the appropriate capital fund and expended as projects progress. When the funds are not spent in one year, they remain in the fund balance to be used in the future, often referred to as carryover. As GWA refines the annual CIP, these carryover projects will be redefined into areas of contractual obligation, and ongoing projects may be re-allocated in the following year as financing is re-evaluated to ensure project funding and funding viability. In addition, CIP line items may also be consolidated to another CIP line item; therefore to understand this CIP update, it is important to refer to the previous year's CIP.

Operating and Capital Budget Relationship

The CIP also impacts the operating budget. As projects are completed, operating funds are necessary for routine maintenance and operation costs such as utilities, staffing, repairs, and equipment maintenance.

CIP Organization

This fiscally constrained CIP includes project summary tables, funding source tables, funding anticipated to be committed by the Department of Defense funding, and project sheets.

Bond Spending Status

GWA acquired \$316M in capital construction funding from the Series 2005, 2010, 2013 and 2015 Revenue Bonds to plan, design, and construct capital projects needed to comply with U.S.

Environmental Protection Agency (USEPA) stipulations and court orders and to implement the WRMP 2007. This CIP update reports that the Series 2005 Revenue Bonds have been fully allocated at the amount of \$89,711,419. Under the direction of the CCU, GWA has completed several financial plans over the last few years that have placed GWA on a successful path. With continued financial plans in place and updates to the plans, GWA should be able to allocate current revenue bonds and obtain additional revenue bonds which can further progress projects required by the 2011 Court Order, other compliance requirements and the WRMP 2007.

This updated CIP will continue to ensure GWA provides excellence in water and wastewater services. The development of this CIP was truly a team effort with the combined effort of the interim General Manager, Engineering staff, Operations staff, Grants Section, and Finance Department.

B. 2010, 2013 and 2016 Bond Reallocation Request

It is with this CIP document GWA is seeking to execute a 2010, 2013 and 2016 bond reallocation. This section delineates the additional funding needs of active CIP projects as well as identifies the recommended source from which the required additional funds can be obtained. Project deficits and proposed reallocations to meet deficits are summarized below in Table 3.

Table 3: GWA 2010, 2013 and 2016 Bond Reallocation Request

2010 Bond Reallocation			
CIP No.	Name	Addition Funds (x1000)	Reduction Funds (x1000)
PW 05-05	"A" Series Well Transmission Line		\$ 81.856
PW 05-14	New Deep Wells at Down Hard		\$ 1,134.748
PW 09-03	Water Distribution System		\$ 25.252
PW 11-01	Distribution System Upgrades		\$ 25.840
PW 12-05	Tank Major Repair Yigo#1 Mangilao#2 Agat#2		\$ 500.000
WW 09-06	Wastewater Collection System Repl/Rehab		\$ 45.000
WW 09-10	Facilities Plan/Design for Agat-Santa Rita WWTP		\$ 0.370
WW 11-03	Baza Gardens STP Replacement	\$ 984.947	
WW 17-02	Northern District WWTP Secondary Treatment Upgrades	\$ 1,000.000	
EE 05-02	SCADA Pilot Project		\$ 8.050
EE 09-02	Electrical Upgrade - Water Wells		\$ 95.773
EE 09-07	SCADA Improvements – Phase 2		\$ 43.014
EE 09-08	SCADA Improvements – Phase 3		\$ 25.044
		\$ 1,984.947	\$ 1,984.947

2013 Bond Reallocation			
CIP No.	Name	Addition Funds (x1000)	Reduction Funds (x1000)
PW 05-13	Deep Well Rehabilitation		\$ 350.000
PW 05-16	Master Meters		\$ 100.000
PW 09-03	Water Distribution System		\$ 1,300.000
PW 12-07	Assessment of malojloj Elevetad & Yigo Elevated		\$ 14.883
WW 09-06	Wastewater Collection System Repl/Rehab		\$ 100.000
WW 11-03	Baza Gardens STP Replacement	\$ 2,114.883	
EE 09-04	Electrical Upgrade -Water Booster		\$ 150.000
EE 09-05	Electrical Upgrade - Other Water		\$ 100.000
		\$ 2,114.883	\$ 2,114.883

2016 Bond Reallocation			
CIP No.	Name	Addition Funds (x1000)	Reduction Funds (x1000)
PW 09-03	Water Distribution System Pipe Replacement and Upgrades		\$ 2,000.000
PW 09-11	Water System Reservoirs 2005 Improvements		\$ 14,000.000
PW 11-02	Ugum Water Treatment Plant Reservoir		\$ 6,410.000
PW 12-06	Tank Replacement Piti & Hyundai		\$ 3,090.170
WW 11-03	Baza Gardens STP Replacement	\$ 12,700.170	
WW 12-07	Umatac Merizo STP Replacement	\$ 12,800.000	
	TOTAL	\$ 25,500.170	\$ 25,500.170
	Grand Total (2010, 2013 and 2016 Bond)	\$ 29,600	\$ 29,600

Project Funding Requirements

Given the numerous projects noted in the table above requiring additional funding the following are just a summary of the change in scope and why additional funding is required.

- Baza Gardens STP Replacement (WW 11-03) – Fund reallocation required to complete construction work to convey and pump wastewater from the Baza Gardens facility to the new Agat Santa Rita WWTP to meet Court Order requirements related to Baza Gardens.
- Northern District WWTP Secondary Treatment Upgrade (WW 17-02) – Additional funds required to support ancillary capital improvement ahead of the major upgrade to the treatment plant to secondary capacity as part of the Office of Economic Adjustment.
- Umatac-Merizo STP Replacement (WW 12-07) - Fund reallocation required to fully fund the Design Build construction project to improvement the facility operations and functionality to meet Court Order requirements related to Umatac-Merizo STP.

C. Proposed 2018 Bond Update

This update reflects new information based on a clearer picture of project requirements and an update to Tables 7 to 10 from the previous CIP. GWA is also looking to reallocate 2018 bond to address the

bond reallocation requested on Section B above. This section delineates the active CIP projects that contributed to the reallocation request as well as identifies the recommended source from which the “reimbursement” funds can be obtained. Project deficiencies and proposed reallocations to meet these deficiencies are summarized below in Table 4.

Table 4: Proposed GWA 2018 Bond Update

2018 Bond Update			
CIP No.	Name	Addition Funds (x1000)	Reduction Funds (x1000)
PW 08-08	Barrigada Tank Repair/Replacement		\$ 2,000.000
PW 05-13	Deep Well Rehabilitation	\$ 350.000	
PW 05-14	New Deep Wells at Down Hard	\$ 1,100.000	
PW 09-02	Water Wells		\$ 3,000.000
PW 09-03	Water Distribution System Pipe Replacement and Upgrades	\$ 2,800.000	
PW 09-11	Water System Reservoirs 2005 Improvements	\$ 9,146.000	
PW 11-02	Ugum Water Treatment Plant Reservoir	\$ 5,000.000	
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1	\$ 500.000	
PW 12-06	Tank Replacement Piti & Hyundai	\$ 2,590.000	
WW 05-04	Wastewater System Planning		\$ 1,000.000
WW 09-06	Wastewater Collection System Repl/ Rehabilitation	\$ 100.000	
WW 11-03	Baza Gardens STP Replacement		\$ 7,000.000
WW 12-07	Umatac Merizo STP Replacement		\$ 9,000.000
EE 09-02	Electrical Upgrade - Water Wells	\$ 96.000	
EE 09-04	Electrical Upgrade -Water Booster	\$ 150.000	
EE 09-05	Electrical Upgrade -Other Water	\$ 100.000	
EE 09-07	SCADA Improvements – Phase 2	\$ 43.000	
EE 09-08	SCADA Improvements – Phase 3	\$ 25.000	
	TOTAL	\$ 22,000.000	\$ 22,000.000

Note:

There is no change in scope to the CIP lines items noted above that will “receive” additional funds. The funds amounts shown were previously allotted but were portion of the bond reallocation request as discussed in Section B.

D. CIP Summary Tables

Table 5. Summary Table Potable Water

		2016	2017	2018	2019	2020	Total
CIP #	Project Name	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
PW 05-01	Ground Water Disinfection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 05-03	Santa Rita Springs Booster Pump Rehab Phase II	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 05-05	"A" Series Well Transmission Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 05-06	Water Booster Pump Station	\$ 2,536	\$ 3,000	\$ 1,000	\$ -	\$ -	\$ 6,536
PW 05-07	Meter Replacement Program	\$ 520	\$ 2,000	\$ 2,000	\$ -	\$ -	\$ 4,520
PW 05-08	Barrigada Tank Repair/Replacement	\$ 1,052	\$ 400	\$ -	\$ 4,000	\$ -	\$ 5,452
PW 05-09	Leak Detection	\$ 81	\$ 1,100	\$ 100	\$ -	\$ -	\$ 1,281
PW 05-10	Potable Water System Planning	\$ 439	\$ 2,000	\$ 400	\$ -	\$ -	\$ 2,839
PW 05-11	Implement Ground Water Rule	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	\$ 1,445	\$ -	\$ -	\$ -	\$ -	\$ 1,445
PW 05-13	Deep Well Rehabilitation	\$ 2,250	\$ 3,000	\$ 350	\$ -	\$ -	\$ 5,600
PW 05-14	New Deep Wells at Down Hard	\$ 2,186	\$ -	\$ 1,100	\$ -	\$ -	\$ 3,286
PW 05-15	Rehabilitation of Asan Springs	\$ 1,157	\$ -	\$ -	\$ -	\$ -	\$ 1,157
PW 05-16	Master Meters	\$ 10	\$ 3,616	\$ -	\$ -	\$ -	\$ 3,626
PW 09-01	Ugum Water Treatment Plant Intake	\$ 522	\$ 500	\$ -	\$ -	\$ -	\$ 1,022
PW 09-02	Water Wells	\$ 6,756	\$ 2,660	\$ 500	\$ 1,000	\$ -	\$ 10,916
PW 09-03	Water Distribution System Pipe Replacement and Upgrades	\$ 2,333	\$ 10,260	\$ 3,300	\$ 5,000	\$ -	\$ 20,893
PW 09-04	Pressure Zone Realignment / Development 2005 Improvements	\$ 569	\$ 572	\$ -	\$ -	\$ -	\$ 1,141
PW 09-06	Central Water Distribution System 2005 Improvements	\$ 75	\$ -	\$ -	\$ -	\$ -	\$ 75
PW 09-08	Mechanical/Electrical Equipment	\$ 102	\$ -	\$ -	\$ -	\$ -	\$ 102
PW 09-09	Water Reservoir Internal/External	\$ 646	\$ -	\$ -	\$ -	\$ -	\$ 646
PW 09-10	Water Reservoir Internal/External	\$ 800	\$ -	\$ -	\$ -	\$ -	\$ 800
PW 09-11	Water System Reservoirs 2005 Improvements	\$ 8,485	\$ 4,472	\$ 38,178	\$ 18,250	\$ 10,000	\$ 79,385
PW 11-01	Distribution System Upgrade	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 11-02	Ugum Water Treatment Plant Reservoir	\$ 90	\$ -	\$ 5,000	\$ -	\$ -	\$ 5,090
PW 12-01	Water Audit Program & Water Loss Control Plan	\$ 1,022	\$ -	\$ -	\$ -	\$ -	\$ 1,022
PW 12-02	Production Plan / Reduce Navy Purchases	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 12-03	Hydraulic Assessment of Tanks	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

PW 12-04	Agana Heights & Chaot Tanks	\$ 4,221	\$ -	\$ -	\$ -	\$ -	\$ 4,221
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1	\$ 125	\$ -	\$ 500	\$ -	\$ -	\$ 625
PW 12-06	Tank Replacement Piti & Hyundai	\$ 5,000	\$ 2,410	\$ 2,590	\$ -	\$ -	\$ 10,000
PW 12-07	Assessment/Replacement of Malojloj Elevated & Yigo Elevated	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 12-08	Public Water System Asset Inventory/ Condition Assessment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 12-09	Public Water System GIS & Mapping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 14-01	Fire Hydrant Replacement Program	\$ 2,000	\$ 500	\$ 500	\$ -	\$ -	\$ 3,000
Sub-Total		\$ 44,421	\$ 36,490	\$ 55,518	\$ 28,250	\$ 10,000	
Grand Total for PW Funding		\$ 174,679					

Table 6.Summary Table Wastewater

		2016	2017	2018	2019	2020	Total
CIP #	Project Name	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
WW 05-04	Wastewater System Planning	\$ 308	\$ -	\$ 1,000	\$ -	\$ -	\$ 1,308
WW 09-01	Lift station upgrades	\$ 1,055	\$ 5,050	\$ 1,500	\$ -	\$ -	\$ 7,605
WW 09-02	Moratorium	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 09-06	Wastewater Collection System Repl/ Rehabilitation	\$ 2,950	\$ 13,920	\$ 8,600	\$ -	\$ -	\$ 25,470
WW 09-08	Facilities Plan/Design/interim for Baza Gardens STP Impr.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 09-10	Facilities Plan/Design/interim for Agat-Santa Rita STP Impr.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 09-11	WWTP Priority 1 Upgrades	\$ 1,300	\$ -	\$ -	\$ -	\$ -	\$ 1,300
WW 11-03	Baza Gardens STP Replacement	\$ 3,101	\$ 18,290	\$ 1,146	\$ -	\$ -	\$ 22,537
WW 11-04	Facilities Plan/Design/Interim for Umatac-Merizo STP Impr.	\$ 277	\$ -	\$ -	\$ -	\$ -	\$ 277
WW 11-08	Agat/ Santa Rita STP Replacement	\$ -	\$ 2,936	\$ -	\$ -	\$ -	\$ 2,936
WW 12-01	Northern District WWTP Primary Treatment Upgrades	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 12-02	Bio Solids Management Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 12-03	Agana WWTP Interim Measures	\$ 827	\$ -	\$ -	\$ -	\$ -	\$ 827
WW 12-04	I&I SSES Southern	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 12-05	I&I SSES Central	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 12-06	I&I SSES Northern	\$ 355	\$ -	\$ -	\$ -	\$ -	\$ 355
WW 12-07	Umatac Merizo STP Replacement	\$ 943	\$ 21,300	\$ -	\$ -	\$ -	\$ 22,243
WW 12-09	Wastewater Facility Back Up Power	\$ 220	\$ -	\$ -	\$ -	\$ -	\$ 220
WW 17-01	Wastewater Sewer System Expansion	\$ -	\$ 1,683	\$ -	\$ -	\$ -	\$ 1,683
WW 17-02	Northern District WWTP Secondary Treatment Upgrades	\$ 1,000	\$ -	\$ -	\$ -	\$ -	\$ 1,000
Sub-Total		\$ 12,335	\$ 63,179	\$ 12,246	\$ -	\$ -	
Grand Total for WW Funding		\$ 87,760					

Table 7. Summary Table Electrical Engineering

		2016	2017	2018	2019	2020	Total
CIP #	Project Name	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
EE 05-02	SCADA Pilot Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE 09-01	Wastewater Pumping Station Electrical Upgrade	\$ 620	\$ -	\$ -	\$ -	\$ -	\$ 620
EE 09-02	Electrical Upgrade - Water Wells	\$ -	\$ 150	\$ 96	\$ -	\$ -	\$ 246
EE 09-03	Electrical Upgrade - Water Booster	\$ 325	\$ -	\$ -	\$ -	\$ -	\$ 325
EE 09-04	Electrical Upgrade -Water Booster	\$ 199	\$ -	\$ 150	\$ -	\$ -	\$ 349
EE 09-05	Electrical Upgrade - Other Water	\$ 89	\$ -	\$ 100	\$ -	\$ -	\$ 189
EE 09-07	SCADA Improvements – Phase 2	\$ -	\$ 500	\$ 43	\$ -	\$ -	\$ 543
EE 09-08	SCADA Improvements – Phase 3	\$ 1,178	\$ -	\$ 25	\$ -	\$ -	\$ 1,203
EE 09-09	SCADA Improvements – Phase 4	\$ 1,500	\$ 2,500	\$ 2,500	\$ -	\$ -	\$ 6,500
Sub-Total		\$ 3,911	\$ 3,150	\$ 2,914	\$ -	\$ -	
Grand Total for EE Funding		\$ 9,975					

Table 8. Summary Table Miscellaneous

		2016	2017	2018	2019	2020	Total
CIP #	Project Name	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
MC 05-01	Laboratory Modernization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MC 05-02	Land Survey	\$ 1,893	\$ -	\$ -	\$ -	\$ -	\$ 1,893
MC 09-01	General Plant Improvements / Water	\$ 1,057	\$ 3,295	\$ 1,000	\$ 1,000	\$ -	\$ 6,352
MC 15-01	Information Technology Integration Improvements	\$ 250	\$ 750	\$ 200	\$ 200	\$ -	\$ 1,400
Sub-Total		\$ 3,200	\$ 4,045	\$ 1,200	\$ 1,200	\$ -	
Grand Total for PW Funding		\$ 9,645					

E. CIP FUNDING TABLES

Funding Source Key:

- 2010 Bond B2010
- 2013 Bond B2013
- 2015 Bond B2015
- 2018 Bond B2018
- System Development Charge SDC
- Internally Funded CIP IFCIP
- Grants (DOI, EPA ARRA, etc) GRANTS
- State Revolving Fund SRF

Note:

Text shown in **red** indicate that the 2010 Funding Source for the CIP line item is fully exhausted.

Table 9. Potable Water Funding Table

FS - Funding Source

		2016	2017	2018	2019	2020
		FS (x1000)	FS (x1000)	FS (x1000)	FS (x1000)	FS (x1000)
PW 05-01	Ground Water Disinfection					
PW 05-03	Santa Rita Springs Booster Pump Rehab Phase II					
PW 05-05	"A" Series Well Transmission Line	B2010 0				
PW 05-06	Water Booster Pump Station	IFCIP 0 B2015 2,139 GRANT 387 B2013 9.5	IFCIP 1,000 B2015 2,000	B2018 1,000		
PW 05-07	Meter Replacement Program	B2015 501 B2010 16.8 B2013 2.5	B2015 2,000	B2015 2,000		
PW 05-08	Barrigada Tank Repair/Replacement	B2010 4.6 B2013 34 B2015 1013	IFCIP 400		B2018 4,000	
PW 05-09	Leak Detection	B2015 80 B2013 0.75	B2015 1100	IFCIP 100		
PW 05-10	Potable Water System Planning	SRF 0 B2015 439.1	SRF 500 B2015 1500	B2018 0 IFCIP 400	B2018 0	
PW 05-11	Implement Ground Water Rule					

PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	B2010	1445					
PW 05-13	Deep Well Rehabilitation	B2013	0					
		B2015	250			B2018	350	
		SRF	2000	SRF	3000			
PW 05-14	New Deep Wells at Down Hard	B2015	1190					
		B2010	186.252			B2018	1100	
		B2013	810					
PW 05-15	Rehabilitation of Asan Springs	B2010	596.6					
		GRANT	560.5					
PW 05-16	Master Meters	B2015	0					
		B2010	8.9					
		B2013	1	B2015	3616			
PW 09-01	Ugum Water Treatment Plant Intake	IFCIP	500	IFCIP	500			
		B2010	3.7					
		B2015	18					
PW 09-02	Water Wells	B2013	2,256.0			B2015	0	B2018 1,000
		IFCIP	2,500					
		B2015	0.0	B2015	2,160			
		SDC	2,000	SDC	500	SDC	500	
PW 09-03	Water Distribution System Pipe Replacement and Upgrades	B2015	-	IFCIP	7900	IFCIP	500	
		B2010	0					
		B2013	2,332.5	B2015	49	B2018	2800	B2018 5,000
				SDC	2,311			
PW 09-04	Pressure Zone Realignment / Development 2005 Improvements	B2010	0					
		B2013	0.23					
		B2015	569	B2015	572			
PW 09-06	Central Water Distribution System 2005 Improvements	B2010	75					
PW 09-08	Mechanical/Electrical Equipment	B2013	1.7					
		B2015	100					
PW 09-09	Water Reservoir Internal/External	B2010	646					
PW 09-10	Water Reservoir Internal/External	B2015	800					
PW 09-11	Water System Reservoirs 2005 Improvements	B2013	378.5	B2015	972	B2015	17,378	B2018 18,250 B2018 10,000

PW 11-01	Distribution System Upgrade
PW 11-02	Ugum Water Treatment Plant Reservoir
PW 12-01	Water Audit Program & Water Loss Control Plan
PW 12-02	Production Plan / Reduce Navy Purchases
PW 12-03	Hydraulic Assessment of Tanks
PW 12-04	Agana Heights & Chaot Tanks
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1
PW 12-06	Tank Replacement Piti & Hyundai
PW 12-07	Assessment/Replacement of Malojloj Elevated & Yigo Elevated
PW 12-08	Public Water System Asset Inventory/ Condition Assessment
PW 12-09	Public Water System GIS & Mapping
PW 14-01	Fire Hydrant Replacement Program
TOTAL POTABLE WATER PROJECTS (2010)	
TOTAL POTABLE WATER PROJECTS B2013/FY2014	
TOTAL POTABLE WATER PROJECTS B2015/FY2016	
TOTAL POTABLE WATER PROJECTS B2017/FY2018	
State Revolving Fund (SRF) Grant Funds	
System Development Charge (SDC)	
GRANTS	
IFCIP	

B2015	8,106.6	IFCIP	3500	B2018	14,146		
B2015	0			IFCIP	6,654		
B2010	0						
B2013	90			B2018	5000		
B2010	22						
B2015	1000			B2018	0	B2018	0
B2013	3000.9						
B2015	1220						
B2015	72.86						
B2010	52			B2018	500		
B2013	0.22						
B2015	5000	B2015	2,410	B2018	2,590		
B2013	0						
IFCIP	1000						
B2015	1000	B2015	500	B2015	500		
	3,057		-		-		-
	8,918		-		-		-
	23,499		16,879		19,878		-
	-		-		27,486	28,250	10,000
	2,000		3,500		-	-	-
	2,000		2,811		500	-	-
	948		-		-	-	-
	4,000		13,300		7,654	-	-

Table 10. Wastewater Funding Table

FS - Funding Source

WW 05-04	Wastewater System Planning
WW 09-01	Lift station upgrades
WW 09-02	Moratorium
WW 09-06	Wastewater Collection System Repl/ Rehabilitation
WW 09-08	Facilities Plan/Design/interim for Baza Gardens STP Impr.
WW 09-10	Facilities Plan/Design/interim for Agat-Santa Rita STP Impr.
WW 09-11	WWTP Priority 1 Upgrades
WW 11-03	Baza Gardens STP Replacement
WW 11-04	Facilities Plan/Design/Interim for Umatac-Merizo STP Impr.
WW 11-08	Agat/ Santa Rita STP Replacement
WW 12-01	Northern District WWTP Primary Treatment Upgrades
WW 12-02	Bio Solids Management Plan
WW 12-03	Agana WWTP Interim Measures

2016		2017		2018		2019		2020	
FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)
B2015	308.3								
B2013	0			B2018	1000	B2018	0		
SRF	0								
B2013	0.61	IFCIP	1,700	IFCIP	500				
B2015	1,054	B2015	350						
SRF	0	SRF	3,000	B2015	1,000				
B2013	48.84								
B2010	0.7			B2018	100				
B2015	1,000	B2015	1,920						
IFCIP	1,000	IFCIP	2,000	IFCIP	500				
SRF	900	SRF	10000	SRF	8000				
B2010	0								
SDC	1300								
B2013	2,115			B2018	0				
B2010	985.95			IFCIP	1146				
IFCIP	0	B2015	18,289.7	B2015	0				
B2015	277								
B2013	0.0		-						
		B2013	383.3						
B2013	0	B2015	2,552.7						
SDC	0								
B2015	827								
B2013	0.0								

WW 12-04	I&I SSES Southern								
WW 12-05	I&I SSES Central								
WW 12-06	I&I SSES Northern	SRF	355						
WW 12-07	Umatac Merizo STP Replacement	B2015	942.7	SDC	1500	B2018	0		
				B2015	19,800	B2015	0		
WW 12-09	Wastewater Facility Back Up Power	SRF	220						
WW 17-01	Wastewater Sewer System Expansion			SDC	1683				
WW 17-02	Northern District WWTP Secondary Treatment Upgrade	B2010	1000						
TOTAL WASTEWATER PROJECTS (2010)			1,987		-		-		-
TOTAL WASTEWATER PROJECTS B2013/FY2014			2,164.3		383		-		-
TOTAL WASTEWATER PROJECTS B2015/FY2016			4,409		42,912		1,000		-
TOTAL WASTEWATER PROJECTS B2017/FY2018			-		-		1,100		-
State Revolving Fund (SRF) Grant Funds			1,475		13,000		8,000		-
System Development Charge (SDC)			1,300		3,183		-		-
GRANTS			-		-		-		-
IFCIP			1,000		3,700		2,146		-

Table 11. Electrical Engineering Funding Table

FS - Funding Source

EE 05-02	SCADA Pilot Project
EE 09-01	Wastewater Pumping Station Electrical Upgrade
EE 09-02	Electrical Upgrade - Water Wells
EE 09-03	Electrical Upgrade - Water Booster
EE 09-04	Electrical Upgrade -Water Booster
EE 09-05	Electrical Upgrade - Other Water
EE 09-07	SCADA Improvements – Phase 2
EE 09-08	SCADA Improvements – Phase 3
EE 09-09	SCADA Improvements – Phase 4
TOTAL ELECTRICAL PROJECTS (2010)	
TOTAL ELECTRICAL PROJECTS B2013/FY2014	
TOTAL ELECTRICAL PROJECTS B2015/FY2016	
TOTAL ELECTRICAL PROJECTS B2017/FY2018	
State Revolving Fund (SRF) Grant Funds	
System Development Charge (SDC)	
GRANTS	
IFCIP	

2016		2017		2018		2019		2020	
FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)
B2010	0								
B2013	520								
B2015	100								
B2010	0								
B2015	0	B2015	150	B2018	96				
B2015	323								
B2013	2								
B2013	199			B2018	150				
B2013	89.3			B2018	100				
B2010	0	SRF	500	B2018	43				
B2010	0			B2018	25				
B2013	0.64								
B2015	1177								
B2015	1,500	B2015	2500	B2015	2,500				
-	-	-	-	-	-	-	-	-	-
811	-	-	-	-	-	-	-	-	-
3,100	2,650	2,500	-	-	-	-	-	-	-
-	-	414	-	-	-	-	-	-	-
-	500	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Table 12. Miscellaneous Funding Table

FS - Funding Source

FS - Funding Source		2016		2017		2018		2019		2020	
		FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)
MC 05-01	Laboratory Modernization	B2015	0								
MC 05-02	Land Survey	B2015	1891								
		B2013	2								
MC 09-01	General Plant Improvements	B2010	30.5								
		B2013	26.57								
		IFCIP	0	IFCIP	2,000	IFCIP	1000	IFCIP	1000		
		B2015	1000	B2015	1295						
MC 15-01	Information Technology Integration Improvements			IFCIP	500	IFCIP	200	IFCIP	200		
		B2015	250	B2015	250						
TOTAL MISCELLANEOUS PROJECTS (2010)			31		-		-		-		-
TOTAL MISCELLANEOUS PROJECTS B2013/FY2014			29		-		-		-		-
TOTAL MISCELLANEOUS PROJECTS B2015/FY2016			3,141		1,545		-		-		-
TOTAL MISCELLANEOUS PROJECTS B2017/FY2018			-		-		-		-		-
State Revolving Fund (SRF) Grant Funds			-		-		-		-		-
System Development Charge (SDC)			-		-		-		-		-
GRANTS			-		-		-		-		-
IFCIP			-		2,500		1,200		1,200		-

F. Department of Defense (DoD) Funding

The following tables illustrate CIP projects related to the military relocation that will have an impact on GWA infrastructure. The projects and funding noted are from the 2015 Record of Decision.

Table 13. DoD Wastewater Project Description

Project Location	Project Details	Related GWA CIP
Northern District WWTP	Secondary Treatment Upgrade Capacity 12 MGD	WW 12-01
Collection System Improvements	Route 9/Route 3 Sewer Main Upgrade	WW 05-02
Observation Well	Rehabilitation and New NGLA Monitoring wells	

Table 14. Estimated DoD Funding(x1,000)

CIP	Project Details	2015 (x1000)	2016 (x1000)	2017 (x1000)	2018 (x1000)	2019 (x1000)	2020 (x1000)
DoD-01	Secondary Treatment Upgrade Capacity 12 MGD			\$20,000	\$114,300		
DoD-02	Route 9/Route 3 Sewer Main Upgrade			\$29,000			
DoD-03	Rehabilitation and New NGLA Monitoring wells			\$3,000			
Total				\$52,000	\$114,300		

G. Project Sheets

Project Sheet Water

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-03

Categorization: Project

Name of Project: Santa Rita Springs Booster Pump Rehabilitation, Phase II

Reference Documents:

- a.) Stipulated Order 2006, item 44. Basis of Design Santa Rita Springs Booster Pump Rehabilitation Project, July 2005.
- b.) GWA Engineering Division, Potable Water Production Enhancement Plan, June 10, 2010.

Project Description:

The original construction scope of work for the project intent has been completed. The project now requires completion of incidental work related to the spring impound and facility function controls. It is the intent of this CIP project to be "transitioned" into a project where work is required to address the GEPA pending action related to "Ground Water Under the Direct Influence (GWUDI)". Should GWUDI be designated the project scope will focus on necessary design and improvements to meet GWUDI conditions.

Project Justification:

The original project is identified in the Stipulated Order 2006, Item 44. Relative to the GWUDI project scope there are indications from GEPA that water coming from natural springs has a high probability of being designated as GWUDI. This project intends to meet the GWUDI requirements.

Financing Options & Grants:

The source of funding for the original scope was under 2005 bond. Additional work will be funded with 2013 bond.

Project Staffing Implications:

Contract Administration, Project Management Services, Program Management and Construction Management Services are required.

Results:

Project completed. Project continued due to GWUDI pending action by GEPA.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-05

Categorization: Project

Name of Project: A-Series Well Transmission Line

Reference Documents:

- a) Stipulated Order 2006, Item 38(B), Sinajana Water Transmission Line
- b) Amended Stipulated Order 2011, Item 28, Sinajana Water Transmission Line

Project Description:

Construction of approximately 24,800-feet of 8, 12, and 24-inch water transmission lines between the Chaot and Agana Heights water storage tanks; the connection of 7 existing A-series wells to the transmission line, and chlorination equipment at each of the two storage tanks has been completed. The new pipeline will be a dedicated transmission line to the storage tanks. This project is broken down to 4 phases. Phase 1, Phase 2a and Phase 2b are completed. Phase 3 entails design services and is completed which resulted in the need for a BPS in Agana Heights. Phase 4 will include construction activities that will provide the water service area with the acceptable pressure once the system as intended is put in service and include SCADA controls.

Project Justification:

This project is identified in the Stipulated Order 2006, Item 38(B) and the Amended Stipulated Order 2011, Item 28.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, and 2013 bond if available and necessary.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, Major GIS Support, and Modeling Support are required.

Results:

Phase 1, Phase 2a, Phase 2b, and Phase 3 are completed. Phase 4 entails construction of water storage tanks under PW 12-04 and is ongoing.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$0
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-06

Categorization: Project

Name of Project: Water Booster Pump Station

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-13

Project Description:

The 2005 hydraulic model for GWA's three water systems identified deficiencies in water booster pump capacity to provide adequate supply to areas in the Northern, Southern and Central water systems. The project will include all improvements necessary to address capacity limitations as well as facility functionality such as motors, controls, valves etc. Additional improvements shall include the use of VFD for better energy efficiency and facility functionality.

Project Justification:

This project will provide additional booster pump capacity to ensure adequate supply to affected areas are provided as well as to ensure existing BPS are equipped with efficient pumps, motors, controls, etc. The improvements are to also address the USEPA's "Findings of Significant Deficiencies in the Public Water System"

Financing Options & Grants:

The source of funding for this project will be the grant, 2013 bond, 2015 Bond, 2018 Bond and Internally Funded CIP.

Project Staffing Implications:

Contract Administration, Project Management Services, Program Management and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design/Construction	\$2,536
2017	Construction	\$3,000
2018	Construction	\$1,000
2019	Construction	
2020		
Project Total		\$6,536

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-07

Categorization: Program / Construction

Name of Project: Meter Replacement Program

Reference Documents:

- a) Stipulated Order 2006, Item 14
- b) Amended Stipulated Order 2011, Item 23, Water Meters

Project Description:

The project will continue to replace all GWA customer water (mechanical) meters with AMR (automatic meter reading) meters. This project will replace old, underperforming and broken meters, including production meters. The AMR meters will allow data logging and electronic collection of monthly metering data.

This project will develop a water meter improvement program to ensure that each connection to the three public water systems has an accurate and accessible water meter that is GPS and reflected on the GIS, and asset inventory, read monthly and billed more accurately.

Project Justification:

Currently, GWA's unaccounted water rate is over 50%. It is believed that a portion of this loss is due to leakage and a portion is attributable to metering problems.

Financing Options & Grants:

The source of funding for this project will be the 2010, 2013 and 2015 bonds.

Project Staffing Implications:

Major Field Support, Contract Administration, Project Management, Program Management and GIS Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Replacement	\$520
2017	Replacement	\$2,000
2018	Replacement	\$2,000
2019		
2020		
Project Total		\$4,520

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-08

Categorization: Project

Name of Project: Barrigada Tank Repair/Replacement

Reference Documents:

- a) Amended Stipulated Order 2011, Item 29 (b) (3) Storage Tank/Reservoir, Repair, Rehabilitation, Replacement and Relocation program

Project Description:

This project will replace the 1.0 MG tank that collapsed in 2003 and add new tanks based on modeling studies. The 1.0 MG tank will be located in the same footprint as the previous tank and will include a design analysis for a replacement tank. Additional tanks will be placed as determined by the modeling studies.

Project Justification:

The reduction in storage capacity of the Barrigada reservoirs due to the catastrophic failure of the previous 1.0 MG steel tank has negatively impacted the ability of GWA to effectively supply adequate water source to the villages of Barrigada and Maite. Modeling studies may show requirement for constructing additional tanks.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 Bond, 2015 Bond, 2018 Bond and Internally Funded CIP.

Project Staffing Implications:

Contract Administration, Project Management Services, Program Management and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Design	\$1,052
2017	Design	\$400
2018		
2019	CM/Construction	\$4,000
2020		
Project Total		\$5,452

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-09

Categorization: Program / Assessment

Name of Project: Leak Detection / Line Replacement

Reference Documents:

a) PG Environmental – GWA Master Planning Technical Assessment, January 29, 2010

Project Description:

This project will perform system wide leak detection, line location and mapping, leak repair and inspection, leak analysis and control, and training and technology transfer. Line location will be performed where GIS and model data are incomplete. Leak detection will be performed on 450 miles of system pipe, including use of acoustical surveying and water audits. Leaks and repairs will be inspected, standard operating procedures reviewed/revised and material inventories developed. GWA personnel will receive training in leak detection methods and equipment. Pressure, surge and frequency analysis will be conducted, and recommendations developed for pipeline replacement, system reconfiguration, and other adjustments needed to control leakage. Data from leak detection will be used to set line replacement priorities with a goal to design and construct the replacement of approximately 10 miles of distribution mains annually depending on availability of funding.

Project Justification:

GWA system consists of hundreds of miles of water distribution mains consisting of numerous different pipe sizes and types. Many of these lines are undersized and/or failing due to improper construction, earthquake damage, and/or material failures. Operating personnel average about 5 distribution main breaks per week. GWA management considers any water loss a priority.

Financing Options & Grants:

The source of funding for this project will be the 2015 Bond and Internally Funded CIP.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning	\$81
2017	Planning	\$1,100
2018	Planning	\$100
2019		
2020		
Project Total		\$1,281

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-10

Categorization: Program / Planning

Name of Project: Potable Water System Planning

Reference Documents:

- a) MASTER PLAN, VOLUME 2, CHAPTER 6
- b) GUAM CONSOLIDATED COMMISSION ON UTILITIES RESOLUTION NO. 11
- c) Amended Stipulated Order 2011, Item 28 and Item 29

Project Description:

This project will include long term planning, system planning, and environmental planning. Specific applications will include potable water hydraulic modeling and the potable water bubble map. This will be used to update a portion of the Master Plan. Hydraulic modeling includes the software, hardware, travel and training. System planning includes but not limited to GIS mapping, asset inventory, asset management, asset management software, GIS software, GIS training, asset management training and asset condition assessment.

Project Justification:

Long term planning, system planning, and environmental planning is essential for developing capital improvement programs. Potable Water System Planning ensures that a system approach is used in project development which specifies how specific projects fit into the overall planning goals.

In addition, the 2006 Master Plan requires updating every two years by the Guam Consolidated Commission on Utilities Resolution No. 11 – FY 2007 Relative to Approving the Guam Waterworks Authority Master Plan. The resolution states “The Guam Waterworks Authority is hereby directed to continue refining the Master Plan and every two years from the date of approval of this document to recommend to the Consolidated Commission on Utilities improvements and modifications to the Master Plan and the hydraulic model and to recommend and re-prioritize capital projects resulting from said changes or modifications.”

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond, 2015 Bond, 2018 Bond, SRF Grant and Internally Funded CIP.

Project Staffing Implications:

Major modeling services and GIS support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Design Planning	\$439
2017	Design Planning	\$2,000
2018	Design Planning	\$400
2019	Design Planning	
2020		
Project Total		\$2,839

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-11

Categorization: Program / Construction

Name of Project: Implement Ground Water Rule

Reference Documents:

a) Implementation of the Groundwater Rule GEPA

Project Description:

This project will provide upgrades to the deep wells for the implementation of the Groundwater Rule. This project will install chlorine residual monitors on all GWA wells. The wells will include SCADA equipment to communicate the well chlorine levels to central location.

Project Justification:

The Groundwater Rule requires GWA to install chlorine residual monitors on all GWA wells.

Financing Options & Grants:

This project will be funded from 2010 Bond, 2013 bond and SRF Grant.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required. A control system technician will be required to maintain the monitors and related SCADA equipment.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

Note: Funds encumbered by construction project.

GWA Capital Improvement Plan Project Sheet FY 2014-2018

Project Number: CIP PW 05-12

Categorization: Project

Name of Project: Brigade II (Ugum Lift) BPS Upgrade

Reference Documents:

a) GWA Engineering Division, Potable Water Production Enhancement Plan, June 10, 2010.

Project Description:

A new Brigade II booster pump station is required to fully utilize the surface supply from the south or the Ugum Treatment Plant. A new pump station, located at the Brigade II BPS site, will serve both the Windward Hills Reservoir and the Pulantat Reservoir. To provide this operational flexibility, the new pump station is to be located on the downstream side of Ugum Reservoir and should be able to overcome the pipe head loss plus the elevation difference (139 feet) between the Pulantat Reservoir and the Ugum Reservoir. Property acquisition is likely. Approximately 1100 feet of pipe is required in addition to the pump station. Additionally, the Brigade booster pump station and Windward Hills booster pump station will be upgraded to increase reliability and energy savings.

Project Justification:

Based on GEPA 2009 Annual Production Well Inspection Report, 13 of GWA's wells were required to decrease production due to the chloride levels; and 16 wells were approaching the chloride limit. One approach to supplementing the water supply due to the decrease in production of these 13 wells is to maximize the use of GWA's surface water and ground water. It is estimated that an increase in production of 2 MGD is needed to offset this loss in production. The source water from Ugum WTP is intended to cover the loss in deep well production.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$1,445
2017		
2018		
2019		
2020		
Project Total		\$1,445

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-13

Categorization: Project

Name of Project: Deep Well Rehabilitation

Reference Documents:

a) GWA Engineering Division, Potable Water Production Enhancement Plan, June 10, 2010.

Project Description:

This project will design and construct up to 3 new wells to increase supply and include the design and rehabilitation of seven “down-hard” wells. This project will require a feasibility study to determine the specific approach and cost estimate for each well.

Project Justification:

Based on GEPA 2009 Annual Production Well Inspection Report, 13 of GWA’s wells were required to decrease production due to the chloride levels; and 16 wells were approaching the chloride limit or other contaminants. One approach to supplementing the water supply due to the decrease in production of these 13 wells is to maximize the use of GWA’s surface water and ground water. It is estimated that an increase in production of 2 MGD is needed to offset this loss in production

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond, 2015 bond and SRF.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$2,250
2017		\$3,000
2018		\$350
2019		
2020		
Project Total		\$5,600

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-14

Categorization: Project

Name of Project: New Deep Wells at Down Hard Well Sites

Reference Documents:

a) GWA Engineering Division, Potable Water Production Enhancement Plan, June 10, 2010.

Project Description:

This project will provide wells to increase supply and include new source water by drilling new wells adjacent to existing wells. This cost of these new wells will include casing and the transmission line to tie the wells into the system. This project will require a feasibility study to determine the specific approach and cost estimate for each well.

Project Justification:

Based on GEPA 2009 Annual Production Well Inspection Report, 13 of GWA's wells were required to decrease production due to the chloride levels; and 16 wells were approaching the chloride limit. One approach to supplementing the water supply due to the decrease in production of these 13 wells is to maximize the use of GWA's surface water and ground water. It is estimated that an increase in production of 2 MGD is needed to offset this loss in production.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$2,186
2017		
2018		\$1,100
2019		
2020		
Project Total		\$3,286

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-15

Categorization: Project

Name of Project: Rehabilitation of Asan Springs Ground Reservoir

Reference Documents:

a) GWA Engineering Division, *Potable Water Production Enhancement Plan*, June 10, 2010.

Project Description:

This project will include design and construction work to rehabilitate/upgrade the reservoir, treatment/chlorination facility, pump/motors and electrical controls.

Project Justification:

Based on GEPA 2009 Annual Production Well Inspection Report, 13 of GWA's wells were required to decrease production due to the chloride levels; and 16 wells were approaching the chloride limit. One approach to supplementing the water supply due to the decrease in production of these 13 wells is to maximize the use of GWA's surface water and ground water. It is estimated that an increase in production of 2 MGD is needed to offset this loss in production.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and DOI grant.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$1,157
2017		
2018		
2019		
2020		
Project Total		\$1,157

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 05-16

Categorization: Program / Construction

Name of Project: Master Metering

Reference Documents:

a) The Bubble Map and Water Service Area Map.

Project Description:

This project will provide for the design, installation, and materials for water meters to be installed at major GWA facilities and pressure zones to fully account for water consumption. This project will aid in analyzing and forming a more accurate picture related to leak detection studies and reports. Additionally the hydraulic model will benefit from the data collected.

Project Justification:

The project is needed to perform water audits on water service areas (WSA) as required by US EPA. This project will greatly enhance the data from the current leak detection contract.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 Bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management Services, Program Management and Major Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$10
2017	Construction	\$3,616
2018		
2019		
2020		
Project Total		\$3,626

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-01

Categorization: Project

Name of Project: Ugum Water Treatment Plant Intake Modifications

Reference Documents:

- a) Stipulated Order 2006, item 41, Ugum Surface Water Treatment Plant. Due January 5, 2008.
- b) MASTER PLAN, VOLUME 2, TABLE 9-6
- c) GWA Engineering Division, Potable Water Production Enhancement Plan, June 10, 2010.

Project Description:

This project includes an alternative analysis and a design concept report to refine the extent and cost of this critical project. This project will improve the intake structure of the Ugum Water Treatment Plant to minimize siltation and provide more reliable raw water supply during low river flow conditions. This project also includes master planning for future treatment capacity and projects that increase plant capacity. Additionally vehicles, equipment, software, hardware, training for the planning, engineering, operation and maintenance of the treatment plant are part of the scope. This project will cover all related work that fell under PW 05-04.

Project Justification:

The existing intake is susceptible to siltation and requires frequent maintenance. The project will allow for GWA to efficiently extract the Ugum water even during high silt periods and operate at low river conditions. More importantly the Ugum WTP is a major source of water for supplying the Southern Water System thus continued water supply is necessary.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 Bond, 2015 Bond and IFCIP.

Project Staffing Implications:

Contract Administration, Project Management, Program Management and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$522
2017		\$500
2018		
2019		
2020		
Project Total		\$1,022

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-02

Categorization: Program / Construction

Name of Project: Water Wells

Reference Documents:

- a) GWA Needs Assessment for Anticipated Guam Military Buildup 08/2007 and 08/2009 update.
- b) GWA Engineering Division, Potable Water Production Enhancement Plan, June 10, 2010.

Project Description:

GWA projects a need to construct new production wells to produce an estimated 5-7 MGD for natural growth of the island and pending military development. This project will require studying the aquifer with respect to all production wells, water system demand analysis, and development/construction of new well. It is imperative that the site locations of the new wells are executed with a whole-aquifer perspective. This project also includes addressing replacement of pumps, motors, cables, motor controls, meters, and electrical systems at existing wells to meet GWA's production needs.

Project Justification:

Water demands for all population residing outside military property will be met by GWA sources. This project will ensure water supply can meet customer demands taking into account economic, environmental, health and safety factors.

Financing Options & Grants:

The source of funding for this project will be the 2013 bond, 2015 Bond, 2018 Bond, System Development Charge, and Internally Funded CIP.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, and Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design/Construction	\$6,756
2017	Construction	\$2,660
2018	Construction	\$500
2019	Construction	\$1,000
2020		
Project Total		\$10,916

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-03

Categorization: Program / Construction

Name of Project: Water Distribution System Pipe Replacement

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-7
- b) GWA Engineering Division, *Potable Water Production Enhancement Plan*, June 10, 2010
- c) NEIC Finding of Significant Deficiencies in GWA Water System, April 2013

Project Description:

In addition to specific pipe replacement projects identified through hydraulic modeling, there is an ongoing need to fund pipe replacement to address leaks, failure and age issues. In addition the 2005 hydraulic model identified deficiencies in pumping capacity and pipe size to provide adequate fire flow and pressure, and reduce high velocities and friction losses throughout the island. The basis for this project is to replace 13,500 linear feet of pipe per year through 2015 and 2,000 feet of pipe replacement per year thereafter. Pipe replacement includes but is not limited to replacement of fire hydrants, PRV, valves (isolation valves, air lease valves blow off valves, etc.), vaults, and line segment replacement. In addition these projects include leak detection, leak repair, the mapping and records related to these activities, and valve exercise program.

Project Justification:

Under the current leak detection project sites have been identified where substantial leaks are occurring. This pipe replacement project intends to use the information from the leak detection project in prioritizing pipe replacement. The GWA system also has numerous substandard/undersize pipes which would be address through this project. The improvements are to also address the USEPA's "Findings of Significant Deficiencies in the Public Water System"

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 bond, 2015 Bond, 2018 Bond, Internally Funded CIP, and SDC.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, Major GIS Support, and Major Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$2,333
2017	Construction	\$10,260
2018	Construction	\$3,300
2019	Construction	\$5,000
2020		
Project Total		\$20,893

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-04

Categorization: Program / Construction

Name of Project: Pressure Zone Realignment/Development 2005 Improvements

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-12
- b) Water System Hydraulic Analysis Report, May 3, 2013

Project Description:

The hydraulic modeling of the water system identified areas with inadequate service pressures and flows. Installation of pressure regulating valve and pressure sustaining valve stations is required at strategic locations to facilitate the development of defined pressure zones, and improve circulation of flow from a higher pressure zone to a lower pressure zone. These projects include repairs of existing PRV and PSV to ensure the water system meets services pressure and flow.

Project Justification:

Pressure zone changes needed to improve flow circulation and defined pressure zones.

Financing Options & Grants:

The source of funding for this project will be the 2013 bond, and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, Major GIS Support, and Major Modeling Support are required. The modeling support to achieve this project will be extensive.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Design/Construction	\$569
2017	Construction	\$572
2018		
2019		
2020		
Project Total		\$1,141

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-06

Categorization: Program / Construction

Name of Project: Central Water Distribution System 2005 Improvements

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-10

Project Description:

There is an ongoing need to fund pipe replacement to address leaks, failure and age issues. In addition the 2005 hydraulic model identified deficiencies pipe size to provide adequate fire flow and pressure, and reduce high velocities and friction losses throughout the island. Pipe replacement includes but is not limited to fire hydrants, PRV, valves, vaults and line segment replacement. These projects include leak detection, leak repair, and the mapping and records related to these activities.

Project Justification:

Under the current leak detection project sites have been identified where substantial leaks are occurring. This pipe replacement project intends to use the information from the leak detection project in prioritizing pipe replacement. The GWA system also has numerous substandard/undersize pipes which would be address through this project.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration, Project Management Services, Construction Management Services, GIS Support, and Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$75
2017		
2018		
2019		
2020		
Project Total		\$75

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-08

Categorization: Program / Construction

Name of Project: Mechanical/Electrical Equipment Replacement

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-8

Project Description:

This project will create an equipment reserve for routine mechanical/electrical equipment replacement due to age, capacity, or failure. This reserve includes well pumps, booster pumps, valves, emergency generators and other items associated with the Northern, Central and Southern Water Systems.

Project Justification:

Sufficient funds must be reserved to ensure water system mechanical and electrical equipment is replaced in a timely manner.

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond and 2015 bond.

Project Staffing Implications:

Contract Administration, Project Management Services, and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Procurement/Construction	\$102
2017		
2018		
2019		
2020		
Project Total		\$102

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-09

Categorization: Program / Assessment

Name of Project: Water Reservoir Internal/External Corrosion Assessment Program

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-2

Project Description:

This project will develop and implement a corrosion assessment program for all steel water reservoirs to determine the extent of internal and external reservoir corrosion and necessary course of action to rehabilitate or replace the affected reservoirs.

Project Justification:

The failure of the Barrigada Water Reservoir #1 in June 2005 demonstrated the urgent need to internally inspect and carry out a full condition assessment of all steel reservoirs to determine the degree of corrosion damage and establish remedial action or reservoir replacement as appropriate.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration, Project Management, and Construction Inspection are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$646
2017		
2018		
2019		
2020		
Project Total		\$646

Note: Funds encumbered by construction project.

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-10

Categorization: Program / Construction

Name of Project: Water Reservoir Internal/External Corrosion Rehabilitation Program

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-3

Project Description:

This project will program the rehabilitation of designated reservoirs over a four-year period as a phased project based on the results of the corrosion assessment program for all steel water reservoirs.

Project Justification:

The failure of the Barrigada Water Reservoir #1 in June 2005 demonstrated the urgent need to internally inspect and carryout a full condition assessment of all steel reservoirs to determine the degree of corrosion damage and establish remedial action or reservoir replacement as appropriate.

Financing Options & Grants:

The source of funding for this project will be the 2015 bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Construction	\$800
2017		
2018		
2019		
2020		
Project Total		\$800

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 09-11

Categorization: Program / Construction

Name of Project: Water System Reservoirs 2005 Improvements

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-14 & 15
- b) Amended Stipulated Order 2011, Item 29

Project Description:

This project will construct additional reservoirs that address deficiencies in water storage capacity.

Project Justification:

The 2005 hydraulic model for GWA's three water systems identified deficiencies in reservoir capacity. This project will provide adequate capacity and pressure for fire and customer supply.

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond, 2015 Bond, 2018 Bond, and Internally Funded CIP.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management and Major Modeling are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Construction	\$8,485
2017	Construction	\$4,472
2018	Construction	\$38,178
2019	Construction	\$18,250
2020	Construction	\$10,000
Project Total		\$79,385

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 11-01

Categorization: Program / Construction

Name of Project: Distribution System Upgrades

Reference Documents:

Project Description:

Waterlines from the 2009 Leak Detection Program distribution system upgrades will be identified that are in conformance with the Master Plan but are not scheduled with the current time horizon but need to be repaired sooner.

Project Justification:

Water Distribution System Pipe: GWA's system consists of hundreds of miles of water distribution mains consisting of various pipe sizes and types. Many of these lines are undersized and/or failing due to improper construction, earthquake damage, and/or material failures. Additionally, pressure zone changes are needed to improve flow circulation and define pressure zones.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Major Construction Management, Major GIS Support, and Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$0
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 11-02

Categorization: Project

Name of Project: Ugum Water Treatment Plant Reservoir Replacement

Reference Documents:

- a) Amended Stipulated Order 2011, Item 29

Project Description:

This project will provide a new 2 MG finished water reservoir at the Ugum Water Treatment Plant. The reservoirs will be the sole source of finished water for most of the Southern Water System. Failure of the existing lone reservoir would result in a significant hardship on customers in the system. The new 2 MG reservoir would allow the existing reservoir to be taken off-line and refurbished and ultimately allow for redundancy and maintenance. This may require property acquisition.

Project Justification:

To provide redundancy in storage at the treatment plant that will allow for periodic maintenance. The existing reservoir is damaged, but cannot be taken out-of-service for repair because there is no back-up.

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Assessment/Planning/Construction	\$90
2017		
2018	Construction	\$5,000
2019		
2020		
Project Total		\$5,090

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-01

Categorization: Program / Planning

Name of Project: Water Audit Program & Water Loss Control Plan

Reference Documents:

PUC Docket 09-03

Project Description:

This project will perform system wide leak detection, leak repair and inspection, leak analysis and control. Leak detection will be performed on 450 miles of system pipe, including use of acoustical surveying and water audits. The information resulting from the work completed in the project will be used to update the AWWA M-36 Water Audit which will allow GWA to address PUC STIP 4.c.i, apparent losses: a forensic assessment, Customer Service Meter Inaccuracies, PUC STIP 4.c.ii, apparent losses: including potential outsourcing and Unbilled Unmetered, PUC STIP 4.c.iii, apparent losses: unauthorized consumption.

This project will also address the Tiyan properties returned to the original home owner who are not currently meter. This project therefore will include installation of individual residential meters as well as installation of any water distribution system that will improve GWA's ability to serve these customers.

Project Justification:

This project will develop a water meter improvement program to ensure that each connection to the three public water systems has an accurate and accessible water meter that is read monthly and billed.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and 2018 Bond. Line item MC 09-01 within the any bond issuance shall be an alternative source of funding for projects generated through CIP PW 12-01 if GWA engineering can show the project meets MC 09-01 capital project criteria.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET(x1000)
2016		\$1,022
2017		
2018		
2019		
2020		
Project Total		\$1,022

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-02

Categorization: Program / Planning

Name of Project: Production Plan / Reduce Navy Purchases

Reference Documents:
GWA Production Plan 2010

Project Description:

This project will implement the GWA Production plan which includes but not limited to down hard wells that were rehabilitated, development of new well, rehabilitation of springs, and improvements to the Ugum WTP. This project will also include planning and design of transmission mains to move larger volumes of water to areas supplied by Navy water.

Project Justification:

Navy water purchase is expensive for GWA for resale. The anticipated growth of the island due to the military buildup will have impacts to GWA if additional Navy purchases were to occur.

Financing Options & Grants:

Line item MC 09-01 within the Bond issuance shall be an alternative source of funding for projects generated through CIP PW 12-02 if GWA engineering can show the project meets MC 09-01 capital project criteria.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-03

Categorization: Program / Assessment

Name of Project: Hydraulic Assessment of Tanks

Reference Documents:

- a) Amended Stipulated Order 2011, Item 29 (a)

Project Description:

The hydraulic analysis through the use of hydraulic modeling program shall evaluate each service area to identify deficiencies that impact the short and long term water storage and pressure needs of that service area. The analysis will also include at a minimum defining the zones in the Bubble Map, updating Demand (Population).

Project Justification:

This is a stipulated order project intended to help GWA understand and manage the water storage capacity throughout the island.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-04

Categorization: Project

Name of Project: Agana Heights and Chaot Tank Construction

Reference Documents:

- a) Amended Stipulated Order 2011, Item 28(c)

Project Description:

This project will replace the existing Agana Heights and Chaot steel tanks to concrete tanks. Concrete tank design and construction management will be required.

Project Justification:

Results from internal and external corrosion assessment deemed tanks to be replaced. In addition, this is a Court Ordered project. Additionally, this project completes the Sinajana/Agana Heights Water Transmission line project.

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	CM/Construction	\$4,221
2017		
2018		
2019		
2020		
Project Total		\$4,221

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-05

Categorization: Project

Name of Project: Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1

Reference Documents:

- a) Amended Stipulated Order 2011, Item 29
- b) Duenas, Camacho & Associates (DCA) "Structural Inspection and Assessment of the Mangilao 2 Tank", April 6 2011
- c) DCA "Structural Inspection and Assessment of the Astumbo 1 Tank", April 6, 2011
- d) DCA "Structural Inspection and Assessment of the Yigo 1 Tank", April 6, 2011
- e) Water System Hydraulic Analysis Report, May 3, 2013

Project Description:

This project will replace all deteriorated steel within the existing steel tank for the Mangilao #2 tank. Scope of work includes improvements to the steel floor; steel columns, roof purlins as well as interior and exterior re-coating. This project will also include the replacement of the steel tanks at the Yigo site and Astumbo site with concrete tanks and booster pumps station.

Project Justification:

Results from internal and external corrosion assessment deemed the Mangilao tank to require major improvements. As for the Yigo and Astumbo tanks GWA find it is on the best interest of the public to fully replacement the Yigo and Astumbo Tanks as well as build a booster pump station. .

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 Bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	CM/Construction	\$125
2017		
2018		\$500
2019		
2020		
Project Total		\$625

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-06

Categorization: Project

Name of Project: Tank Replacement Piti & Hyundai Tanks

Reference Documents:

- a) Amended Stipulated Order 2011, Item 29
- b) Water System Hydraulic Analysis Report, May 3, 2013

Project Description:

This project will include the design and construction of replacement tanks for the Piti and Hyundai steel tanks. The new tanks more than likely will be located in the same footprint as the previous tanks however should the tank assessment project (PW 12-03) indicate otherwise the tanks will be located as recommended. This project will include a design analysis for a replacement tank.

Project Justification:

Results from internal and external corrosion assessment deemed tanks to be replaced. In addition, this is a Court Ordered project.

Financing Options & Grants:

The source of funding for this project will be the 2015 bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design	\$5,000
2017	CM/Construction	\$2,410
2018		\$2,590
2019		
2020		
Project Total		\$10,000

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-07

Categorization: Project

Name of Project: Assessment/Replacement of Malojloj Elevated & Yigo Elevated Tanks

Reference Documents:

- a) Amended Stipulated Order 2011, Item 29
- b) Water System Hydraulic Analysis Report, May 3, 2013

Project Description:

This project will include the design and construction of replacement tanks for the Malojloj and Yigo elevated steel tanks. GWA may also assess the abandonment of these tanks and/or replacement with pump stations. The new tanks more than likely will be located in the same footprint as the previous tanks however should the tank assessment project (PW 12-03) indicate otherwise the tanks will be located as recommended. This project will include a design analysis for a replacement tank.

Project Justification:

Results from internal and external corrosion assessment deemed tanks to be replaced. In addition, this is a Court Ordered project.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and 2013 bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$0
2017		
2018		
2019		
2020		
Project Total		\$0

**GWA Capital Improvement Plan
Project Sheet FY 2016-2020**

Project Number: CIP PW 12-08

Categorization: Program / Assessment

Name of Project: Public Water System Asset Inventory/Condition Assessment

Reference Documents:

- a) Work Plan USEPA Region IX – R9 Tracking #11-277 “Water and Wastewater System Improvements

Project Description:

This project includes but not limited to water asset inventory development, asset management planning and implementation, asset management software procurement, asset management training and asset condition assessment. The information gathered will also be integrated with the GWA GIS system.

Project Justification:

This project is intended to provide GWA with data, information and the ability to understand and manage the water system such as the distribution line, booster pump station, section valves, and treatment facility to ensure planning effort to upgrade the system is done effectively and efficiently.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration and Project Management are required. GWA staff training and management of the asset inventory also required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

Note: Funds encumbered by Program Management Office.

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 12-09

Categorization: Program / Planning

Name of Project: Public Water System GIS & Mapping

Reference Documents:

- a) Work Plan USEPA Region IX – R9 Tracking #11-277 “Water and Wastewater System Improvements

Project Description:

This project intends to improve GWA’s GIS data base through improvements with GWA data management system. The improvements will include integration of other data sources into GIS to close the data gaps as well as implement system hardware to ensure use and expansion of GIS is achievable.

Project Justification:

Continued update of the GIS system will allow GWA to understand and manage GWA infrastructure more effectively. Accurate GIS information is vital to new development planning as well as system maintenance.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Major Contract Management for GIS services and GIS support are required

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP PW 14-01

Categorization: Project

Name of Project: Fire Hydrant Replacement Program

Reference Documents:

- a) Guam Administrative Rules and Regulations, Title 28, Chapter 2, Article 1, 2102 (a)(17)
- b) Development Plan for Long-Term Comprehensive Water Distribution System Program, Section 5, Fire Hydrant Exercising, Maintenance, and Replacement Program, April 2013

Project Description:

This project intends to replace old, damaged or out-of-commissioned fire hydrants throughout Guam, in accordance with the Guam Administrative Rules and Regulations.

Project Justification:

Replacement of damaged or out-of-commission fire hydrants will help GWA remain in compliance with the Guam Administrative Rules and Regulations and increase the emergency response capacity of Guam's water system.

Financing Options & Grants:

The source of funding for this project will be the 2015 Bond and Internally Funded CIP.

Project Staffing Implications:

Contract Administration, Project Management Services, Program Management and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Construction	\$2,000
2017	Construction	\$500
2018	Construction	\$500
2019		
2020		
Project Total		\$3,000

Project Sheet Wastewater

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 05-04

Categorization: Program / Planning

Name of Project: Wastewater System Planning

Reference Documents:

- a) MASTER PLAN, VOLUME 3, CHAPTER 4.7.3
- b) GUAM CONSOLIDATED COMMISSION ON UTILITIES RESOLUTION NO. 11-FY2007

Project Description:

Wastewater System Planning will include long term planning, system planning, and environmental planning. Specific application would include wastewater hydraulic modeling and the wastewater skeletal basin map. This will be used to update a portion of the Master Plan. Hydraulic modeling includes the software, hardware, travel and training. System planning includes but not limited to GIS mapping, asset inventory, asset management, asset management software, GIS software, GIS training, asset management training and asset condition assessment.

Project Justification:

Long term planning, system planning, and environmental planning is essential for developing capital improvement programs. Wastewater System Planning ensures that a system approach is used in project development.

In addition, the 2006 Master Plan requires updating every two years by the Guam Consolidated Commission on Utilities Resolution No. 11 – FY 2007 Relative to Approving the Guam Waterworks Authority Master Plan. The resolution states “The Guam Waterworks Authority is hereby directed to continue refining the Master Plan and every two years from the date of approval of this document to recommend to the Consolidated Commission on Utilities improvements and modifications to the Master Plan and the hydraulic model and to recommend and re-prioritize capital projects resulting from said changes or modifications.”

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond, 2015 Bond, 2018 Bond and SRF funding.

Project Staffing Implications:

Major modeling services and GIS support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Assessment/Planning/Design	\$308
2017		
2018	Assessment/Planning/Design	\$1,000
2019	Assessment/Planning/Design	\$0
2020		
Project Total		\$1,308

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 09-01

Categorization: Project

Name of Project: Lift Station Upgrades

Reference Documents:

- a) Performance Management Contract, CIP / PIP Review June 2007

Project Description:

Specific rehabilitation and repair capital projects are needed for the sewage pump stations. These projects include: Health and Safety (e.g. overhead crane repair and fall protection barriers, lock, wet well fencing, fans and basic security), Environmental Protection and Compliance (e.g. high level and overflow alarm systems), Energy Optimization Programs (e.g. upgrading electrical controls and motors, add amp meters, add run time meter), and economically beneficial Asset Replacement (e.g. replacement of a pump for \$9,000 rather than repair it for \$7,600).

Project Justification:

Sewage pump stations require ongoing capital upkeep in order to maintain safety, prevent sewer overflows, maintain environmental compliance and optimize energy usage. Installation of control equipment such as amp meters and alarms help maintenance of the pumps and motors. These improvements are to also address the pending USEPA's "Findings of Significant Deficiencies in the Wastewater System" report.

Financing Options & Grants:

The main source of funding for this project is the SRF funding, 2013 Bond, 2015 Bond, and Internally Funded CIP.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design/Construction	\$1,055
2017	Construction	\$5,050
2018	Construction	\$1,500
2019	Construction	
2020		
Project Total		\$7,605

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 09-02

Categorization: Project

Name of Project: Moratorium

Reference Documents:

- a) Central Guam Sewer Improvements Functional Design Report, January 2009
- b) MASTER PLAN, VOLUME 3, TABLE 9-7, 8, 9, 10, 28, 29, 43, 44

Project Description:

The Moratorium project is a collection of specific wastewater projects within the Tamuning and Agana villages. These projects include upgrades to the Mamajanao, Chaot, and Agana Main Pump Stations.

Project Justification:

The sewer system in the Central Guam catchment along Marine Corp. Drive and Route 4 close to Agana Bay is stressed. The primary sewers in these locations experience periodic overflows with 2008 flows and by 2025 the system could be completely overwhelmed. This problem is exacerbated by the Mamajanao Sewage Pump Station, which under certain operating conditions is unable to cope with the influent flows without surcharging and locally flooding the downstream system.

Financing Options & Grants:

The source of funding for this project will be Short-Term Loan.

Project Staffing Implications:

Major Contract Administration, Major Project Management, GIS Support, and Modeling Support, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 09-06

Categorization: Program / Construction

Name of Project: Wastewater Collection System Replacement/Rehabilitation Program

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-23
- b) Southern SSES Rehabilitation Program, December 2013
- c) Agana (Central) Collection System Rehabilitation Plan, June 2014

Project Description:

Annual recurring design and construction project to replace/rehabilitate 3/4 of the total collection system (~8,600 feet) per year. This would focus on the worst condition pipes not already scheduled for hydraulic related rehab or replacement. Additional work under this CIP includes manhole repair/replacement, manhole collar replacement, and manhole lid seals.

Project Justification:

Replacement/rehabilitation program will upgrade sewer collection system as a proactive activity to mitigate catastrophic system failure. These improvements are to also address the pending USEPA's "Findings of Significant Deficiencies in the Wastewater System" report.

Financing Options & Grants:

The main source of funding for this project will be 2010 Bond, 2013 bond, 2015 Bond, SRF funding and Internally Funded CIP.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, Major GIS Support, and Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$2,950
2017	Construction	\$13,920
2018	Construction	\$8,600
2019		
2020		
Project Total		\$25,470

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 09-08

Categorization: Project

Name of Project: Facilities Plan/Design/Interim for Baza Gardens STP Improvements

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-26
- b) Wastewater Facilities Plan, Baza Gardens WWTP, August 2008
- c) CIP WW 11-03 Baza Gardens STP Replacement
- d) Guam Environmental Protection Agency Requirements meeting minutes, December 19, 2007 and letter, May 13, 2008.

Project Description:

This project includes planning, design and implementation for interim improvements at the wastewater treatment facility to meet permit conditions. Due to strict effluent limits imposed by the stream discharge and difficulty in operating complex treatment systems to reliably meet these limits, an alternative means of disposal should be considered in the Facility Plan. Facility Plan process recommendations will be based on the recommended alternative means of disposal. The new facilities will incorporate provisions for redundancy to improve reliability and facilitate operations and maintenance activities. Design and test the concept of utilization of Underground Injection Wells (UIC) for effluent discharge and design a replacement for the existing wastewater treatment plant with a new Membrane Bioreactor plant at the same location.

Project Justification:

Existing facilities lack redundancy and reliability, are difficult to operate, and require significant repair. Existing disposal requirements cannot be achieved, so a different effluent disposal system must be identified. The current secondary treatment plant cannot meet the stringent nutrient limits in the receiving stream, and the facility has outlived its design life and has severe operational challenges. A new plant is required that discharges to an Underground Injection Well (pursuant to Guam Environmental Protection Agency requirements).

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration, Project Management Services, Program Management and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET(x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 09-10

Categorization: Project

Name of Project: Facilities Plan/Design/Interim Measures for Agat-Santa Rita STP Replacement

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-24

Project Description:

This project includes planning and design for interim improvements at the wastewater treatment facilities to meet existing and future flow capacity and reliably achieve regulatory compliance. The facilities will incorporate provisions for redundancy to improve reliability and facilitate operations and maintenance activities.

Project Justification:

Existing facilities do not have sufficient capacity for current and future flow projections. Existing facilities lack redundancy and reliability, are difficult to operate, and require significant repair.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration, Project Management Services, Program Management and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$0
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvements Plan Project Sheet FY 2016-2020

Project Number: CIP WW 09-11

Categorization: Project

Name of Project: WWTP Priority 1 Upgrades

Reference Documents:

- a) Performance Management Contract, CIP / PIP Review June 2007

Project Description:

Specific rehabilitation and repair capital projects are needed for the sewage pump stations. These include projects: Health and Safety (e.g. overhead crane repair and fall protection barriers), Environmental Protection and Compliance (e.g. grit removal), Energy Optimization Programs (e.g. upgrading electrical controls and motors), and economically beneficial Asset Replacement (e.g. replacement of a pump for \$9000 rather than repair it for \$7600).

Project Justification:

Aging infrastructure leads to environmental impacts, non-compliance, inefficiencies, and safety problems that must be addressed on an annualized basis.

Financing Options & Grants:

The source of funding for this project will be the System Development Charge.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$1,300
2017		
2018		
2019		
2020		
Project Total		\$1,300

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 11-03

Categorization: Project

Name of Project: Baza Gardens STP Replacement

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-26 & 27
- b) Baza Gardens Wastewater System Evaluation, April 2014

Project Description:

Construction of new wastewater treatment facilities that will meet secondary treatment limits. Due to strict effluent limits imposed by the stream discharge and difficulty in operating complex treatment systems to reliably meet these limits, an alternative means of disposal should be considered in the Facility Plan. Facility Plan process recommendations will be based on the recommended alternative means of disposal. The new facilities will incorporate provisions for redundancy to improve reliability and facilitate operations and maintenance activities at the existing facility.

Project Justification:

Existing facilities lack redundancy and reliability, are difficult to operate, and require significant repair. Existing disposal requirements cannot be achieved, so a different effluent disposal system must be identified.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 Bond, 2015 Bond, 2018 Bond, and Internally Funded CIP.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Design/CM/Construction	\$3,101
2017	Construction	\$18,290
2018	Construction	\$1,146
2019		
2020		
Project Total		\$22,537

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: WW CIP 11-04

Categorization: Project

Name of Project: Facilities Plan/Design/Interim for the Umatac-Merizo STP Improvements

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-36
- b) Umatac-Merizo Wastewater System Evaluation Report, December 2013

Project Description:

Phase 1 of this project is a facility planning to meet permit conditions; phase 2 is the design of the interim improvements. Planning and design for interim improvements such as new mechanically cleaned bar screen facilities to improve reliability and facilitate operations and maintenance requirements.

Project Justification:

All interim improvements, including mechanically cleaned bar screens, is intended to improve process performance and reduce O&M requirements.

Financing Options & Grants

The source of funding for this project will be the 2010 Bond, 2013 Bond and 2015 Bond.

Project Staffing Implications:

Contract Administration, Project Management, Program Management and Construction Inspection are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$277
2017		
2018		
2019		
2020		
Project Total		\$277

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 11-08

Categorization: Project

Name of Project: Agat/Santa Rita STP Replacement

Reference Documents:

- a) Agat-Santa Rita Wastewater Systems Evaluation Report, December 2013

Project Description:

Construction of new wastewater treatment facilities that will meet secondary treatment limits. The new facilities will incorporate provisions for redundancy to improve reliability and facilitate operations and maintenance activities at the existing facility.

Project Justification:

Existing facilities lack redundancy and reliability, are difficult to operate, and require significant repair.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and 2013 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Design/Construction	
2017	Construction	\$2,936
2018		
2019		
2020		
Project Total		\$2,936

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-01

Categorization: Project

Name of Project: Northern District WWTP Primary Treatment Upgrades

Reference Documents:

Project Description:

The Project is intended to deliver, as closely as possible and subject to the terms and conditions of the Contract, the requirements of the Stipulated Order as set out in 1.2 above including, but not limited to, the design, build and commission of the interim primary treatment improvements works at the NDWWTP that will bring the NDWWTP back into compliance with the current NPDES Permit for the quality parameters of TSS and BOD and also provide additional flow capacity of 7.5 MGD (monthly average daily flow) while still complying with the NPDES Permit concentration limits for TSS and BOD.

Project Justification:

The assets at the NDWWTP are not in good condition: sludge stream processes are largely inoperable and the treatment process are compromised, as many of the components are in poor condition or are inoperable.

The assets condition significantly impacts the capacity and performance of the NDWWTP and therefore, the NDWWTP cannot consistently meet the treatment standards required by the National Pollutant Discharge Elimination System (NPDES) discharge permit for the Site (the "NPDES Permit").

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and SDC funds.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$0
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-02

Categorization: Program / Planning

Name of Project: Bio Solids Management Plan

Reference Documents:

Project Description:

This project will allow GWA to plan and management the increased generation of sludge from the wastewater treatment plant throughout the island. The initial focus of the plan would be on the management of GWA's bio-solids (and NDWWTP and Agana WWTP being the primary focus), but in keeping with the spirit of the 'One Guam' utility solution, the plan will develop an island wide bio-solids management plan and include the DoN Apra Harbor Plant bio-solids as well (although it is likely that these bio-solids are likely to contain more constituents of concern than that of GWA bio-solids).

Project Justification:

The current cost of bio-solids disposal is becoming a significant financial liability to GWA with the advent of large increase in tipping fees related to GBB management of Ordot and the development of the new landfill. In addition over the coming 5 years there will be a significant increase in bio-solids production volumes.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-03

Categorization: Project

Name of Project: Agana WWTP Interim Measures

Reference Documents:

- a) Amended Stipulated Order 2011, Item 5 and 6
- b) Agama WTP Primary Treatment Upgrades, Preliminary Design Report, September 2012

Project Description:

This project will include process upgrades to include grit removal; fat, oil and grease (FOG) removal; septage handling facility; prevent back flow from the new outfall; bio-solids treatment; and any additional improvements, rehabilitation or improvements, such as the use of chemically enhanced treatment.

Project Justification:

The *Order for Preliminary Relief Re: Deadlines for Outstanding Projects under the Amended Stipulated Order (ASO)*, filed on 11th November 2011, contains requirements to upgrade the Agana WWTP achieves consistent compliance with the WWTP's NPDES permit, and comply with the sludge and bio-solids requirements in 40 C.F.R. Part 503 (**Paragraph 5**).

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$827
2017		
2018		
2019		
2020		
Project Total		\$827

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-04

Categorization: Program / Planning

Name of Project: I&I SSES Southern

Reference Documents:

- a) Amended Stipulated Order 2011, Item 8 (b) and (d)
- b) Southern Sanitary Sewer Evaluation Survey Findings Summary, Technical Memorandum, September 2014
- c) Agana, Agat-Santa Rita, Baza Gardens and Umatac-Merizo WWTP Sewer Basins, I&I and SSES Analyses, February 2013

Project Description:

This project will include a comprehensive I&I/SSSES assessment work to determine the high probable locations where I&I is occurring. The work will include the minor repairs necessary to decrease infiltration and inflow. This will include but is not limited to manhole inspection, manhole mapping, raising manholes, manhole seals, manhole repair to the cover frame, manhole repair to barrel/cone seal, collection line inspection, collection line repair/rehabilitation.

Project Justification:

The *Order for Preliminary Relief Re: Deadlines for Outstanding Projects under the Amended Stipulated Order (ASO)*, filed on 11th November 2011, contains requirements to conduct I&I/SSSES assessment of the southern wastewater system.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-05

Categorization: Program / Planning

Name of Project: I&I SSES Central

Reference Documents:

- a) Amended Stipulated Order 2011, Item 8 (c) and (e)
- b) Agana (Central) Collection System Rehabilitation Plan, June 27, 2014
- c) Inflow and Infiltration (I/I) Study for the Agana (Central) Sewer Basin, March 2014

Project Description:

This project will include a comprehensive I&I/SSSES assessment work to determine the high probable locations where I&I is occurring. The work will include the minor repairs necessary to decrease infiltration and inflow. This will include but is not limited to manhole inspection, manhole mapping, raising manholes, manhole seals, manhole repair to the cover frame, manhole repair to barrel/cone seal, collection line inspection, collection line repair/rehabilitation.

Project Justification:

The *Order for Preliminary Relief Re: Deadlines for Outstanding Projects under the Amended Stipulated Order (ASO)*, filed on 11th November 2011, contains requirements to conduct I&I/SSSES assessment of the central wastewater system.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and SRF funding.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

Note: Funds encumbered by design project.

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-06

Categorization: Program / Planning

Name of Project: I&I SSES Northern

Reference Documents:

- a) Work Plan USEPA Region IX – R9 Tracking #11-277 “Water and Wastewater System Improvements

Project Description:

This project will include a comprehensive I&I/SSSES assessment work to determine the high probable locations where I&I is occurring. The work will include the minor repairs necessary to decrease infiltration and inflow. This will include but is not limited to manhole inspection, manhole mapping, raising manholes, manhole seals, manhole repair to the cover frame, manhole repair to barrel/cone seal, collection line inspection, collection line repair/rehabilitation.

Project Justification:

Continued development in the northern part of the island will contribute to impacts to the existing wastewater collection system. It is the intent of this project is to determine where I&I are occurring and make necessary repairs.

Financing Options & Grants:

The source of funding for this project will be the SRF funding.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$355
2017		
2018		
2019		
2020		
Project Total		\$355

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-07

Categorization: Project

Name of Project: Umatac-Merizo STP Replacement

Reference Documents:

- a) Umatac-Merizo Wastewater System Evaluation Report, December 2013

Project Description:

Construction of new wastewater treatment facilities that will meet secondary treatment limits. The new facilities will incorporate provisions for redundancy to improve reliability and facilitate operations and maintenance activities at the existing facility.

Project Justification:

Existing facilities lack redundancy and reliability, are difficult to operate, and require significant repair.

Financing Options & Grants:

The source of funding for this project will be the 2015 Bond and 2018 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management 23and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning	\$943
2017		\$21,300
2018	Design/Construction	
2019		
2020		
Project Total		\$22,243

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 12-09

Categorization: Program / Equipment

Name of Project: Wastewater Facility Back Up Power

Reference Documents:

- a) Work Plan USEPA Region IX – R9 Tracking #11-277 “Water and Wastewater System Improvements

Project Description:

This project will assess back up power needs at critical sewer pump stations and develop criteria for implementation of back-up power installation. This project is also intended to install necessary equipment as called out in the assessment.

Project Justification:

Sewer pump station are a critical facility that requires continued operations during power outages to ensure there are no wastewater overflows at sewer manholes or the sewer pump station itself. Complete avoidance of overflows is a high priority of GWA.

Financing Options & Grants:

The source of funding for this project will be the SRF funds.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$220
2017		
2018		
2019		
2020		
Project Total		\$220

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 17-01

Categorization: Project

Name of Project: Wastewater Sewer System Expansion

Reference Documents:

Project Description:

Construction of sewer system expansions to accommodate new sewer connections and avoid/reduce use of septic tank/leaching field systems.

Project Justification:

Sanitary sewer systems are necessary to protect the quality of the island's drinking water resources from septic tank/leaching field systems, particularly over the Northern Guam Lens, which provides most of Guam's drinking water.

Financing Options & Grants:

The main source of funding for this project will be SDC funds

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, Major GIS Support, and Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		\$1,683
2018		
2019		
2020		
Project Total		\$1,683

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP WW 17-02

Categorization: Project

Name of Project: Northern District WWTP Secondary Treatment Upgrades

Reference Documents:

Final Guam Water and Wastewater Assessment Report in Support of the Economic Adjustment Committee Implementation Plan

Project Description:

Conduct planning, design and construction of any related ancillary capital improvement ahead of the major upgrade to the treatment plant to secondary capacity as part of the Office of Economic Adjustment. The project also includes land acquisition for property to accommodate the expansion of the treatment process foot print.

Project Justification:

The WWTP will be required to stay operational during the upgrade work and as such any planning or construction work integral to meeting the functionality of the plant which is necessary but needed ahead of the major construction activities is critical to meet OEA grant timelines.

Financing Options & Grants:

The main source of funding for this project will be bond funds

Project Staffing Implications:

Major Contract Administration, Major Project Management, Program Management, Major Construction Management, Major GIS Support, and Modeling Support are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$1,000
2017		
2018		
2019		
2020		
Project Total		\$1,00

Project Sheet Electrical

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 05-02

Name of Project: SCADA Pilot Project

Reference Documents:

Project Description:

This pilot project will procure communication services and install field instrumentation and a Human-Machine Interface (HMI) to support supervisory control and data acquisition (SCADA) of selected water and wastewater facilities. For this pilot GWA will only make functional real time data acquisition for status monitoring and alarming.

Project Justification:

This pilot project is to identify and evaluate proposed solutions and gather information that will be used to develop design standards for the water and wastewater SCADA system.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration, Project Management, Construction Inspection and Technical Support after completion are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET(x1000)
2016		\$0
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-01

Name of Project: Wastewater Pumping Station Electrical Upgrade

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-43

Project Description:

This project will upgrade and standardize the electrical control system at the wastewater pumping stations as recommended in the GWA Master Plan Report. An initial assessment using a standard checklist will be conducted. Project scope will include the reconnection of the electrical service to a grounded WYE system involve replacement of the electrical meter and service conductors. Transient voltage surge suppression will also be installed at the station main service. The level control system will be standardized with a level transducer to provide level indication and communication with the SCADA unit. The back-up will be a float located out of the wet well. Also included are dry well level sensor alarms that are connected to SCADA, where applicable. The motor starters will be replaced with electronic soft start type to reduce mechanical wear.

Project Justification:

It is necessary to improve the electrical reliability at each wastewater pump station and minimize overflows by implementing the recommendations of the GWA Master Plan. Stations that are critical to operations are priority and will be completed first.

Financing Options & Grants:

The source of funding for this project will be the 2013 bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Construction Management, and Technical Support after completion are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$620
2017		
2018		
2019		
2020		
Project Total		\$620

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-02

Name of Project: Electrical Upgrade - Water Wells

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-25

Project Description:

This project will upgrade the electrical system at each of the water wells as recommended in the Electrical Assessment of the GWA Master Plan. First, a standard electrical checklist and guideline will be developed followed by an assessment of the electrical system at each station. Goals are to change the transformer secondary connection and surge suppression, replace the service conductors, correct the voltage unbalance, prevent water conductor entry, replace the meter socket, install transient voltage surge suppression, install electronic motor protection, install electronic motor starter, install power factor correction equipment, integrate voltage unbalance relays in the auto transfer switch control system, interlock the chlorination controls with the well controls, and interlock with well flush controls.

Project Justification:

This project will improve the electrical reliability at each of the water pumping stations by implementing the recommendations of the GWA Master Plan. Stations that are critical to operations and require high maintenance are priority and will be completed first.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Construction Management, and Technical Support after completion are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	
2017	Construction	\$150
2018	Construction	\$96
2019		
2020		
Project Total		\$246

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-03

Name of Project: Electrical Upgrade - Water Booster Pump Stations

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-22

Project Description:

This project is primarily for the electrical upgrade at the Pago Bay, Brigade, and Windward Hills water booster stations by replacing the existing motors with premium efficiency motors, improve the system grounding, install transient voltage surge suppression equipment (TVSS), replace the motor control center, replace instrumentation controls, and add power factor correction. This project includes a detailed engineering assessment and preparation of design engineering plans. The improvement work noted above is also applicable to other booster pump stations that operations and engineering determine are in needs of improvements.

Project Justification:

The original distribution boards and motor controls have reached their useful lives, have signs of corrosion, and are missing parts. Improvements in motor efficiency and control devices reduce energy consumption costs. The voltage and transient surge suppressions reduce voltage surges within the facility while power factor correction help improve voltage stability.

Financing Options & Grants:

The source of funding for this project will be the 2013 bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Construction Management, and Technical Support after completion are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$325
2017		
2018		
2019		
2020		
Project Total		\$325

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-04

Name of Project: Electrical Upgrade -Water Booster Pump Stations

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-23

Project Description:

This project is for the electrical upgrade at the water booster stations by replacing the existing motors with premium efficiency motors, improve the system grounding, installation of transient voltage surge suppression equipment (TVSS), replace the motor control center and main distribution board, replace the instrumentation controls, and add power factor correction, where applicable. Included is a detailed engineering assessment and preparation of design engineering plans and specifications.

Project Justification:

The original distribution board and motor controls have reached their useful lives, have signs of corrosion, and are missing parts. Improvements in motor efficiency reduce energy costs. The application of transient surge suppressions and power factor capacitors reduce voltage surges and improve stability.

Financing Options & Grants:

The source of funding for this project will be the 2013 bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Construction Management, and Technical Support after completion are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design/Construction	\$199
2017		
2018	Construction	\$150
2019		
2020		
Project Total		\$349

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-05

Name of Project: Electrical Upgrade - Other Water Booster Pump Stations

Reference Documents:

- a) MASTER PLAN, VOLUME 2, TABLE 9-24

Project Description:

This project is for the electrical upgrade at the other water booster stations such as Yigo Elevated Tank, Pale Kieran, etc. Project scope includes: replacing the existing motors with premium efficiency motors, improve system grounding, install transient voltage surge suppression equipment (TVSS), replace the motor control center and main distribution board, replace instrumentation controls, and add power factor correction, where applicable.

Project Justification:

Several stations' original distribution board and motor controls have reached their useful life, have signs of corrosion, and are missing parts. Improvements in motor efficiency reduce energy costs. The voltage and transient surge suppressions and power factor correction also reduce voltage surges and improve voltage stability.

Financing Options & Grants:

The source of funding for this project will be the 2013 bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, Construction Management and Technical Support after completion are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design/Construction	\$89
2017		
2018	Construction	\$100
2019		
2020		
Project Total		\$189

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-07

Name of Project: SCADA Improvements – Phase 2

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-45

Project Description:

In Phase 2 of this project, the critical water and wastewater pumping stations are monitored by activating and updating the existing Motorola SCADA system. In this phase of the project, the balance of the pumping stations and the treatment facilities are updated and incorporated into the GWA SCADA System. The treatment facility alarms would be identified and activated to a digital telephone text messaging unit to call key operations personnel related to that specific area. Phase 2 will also continue any master planning efforts not completed in Phase 1.

Project Justification:

This phase is a continuation of this project to improve the efficiency and effective utilization of GWA personnel and performance of the water and wastewater pumping systems.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond.

Project Staffing Implications:

Contract Administration, Major Project Management Services, Construction Inspection and Major Technical Support after completion.

Results

Design work is ongoing however related work will be continued under EE 09-08.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017		\$500
2018		\$43
2019		
2020		
Project Total		\$543

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-08

Name of Project: SCADA Improvements – Phase 3

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-46

Project Description:

In Phase 3 of this Project, improvements in real time data acquisition for status monitoring and process control is expanded at the treatment facilities through the incorporation of Programmable Logic Controllers (PLCs). The data is conveyed to the GWA Central as well as identified engineering and operations personnel for analysis and process optimization through the use of Virtual Private Networks (VPNs) or other available secured technology. Further improvements and updating of the pumping station SCADA monitoring would be expanded using digital communications (the Gov Guam system is scheduled to be updated during this period) and the radio units would require replacement.

Project Justification:

This phase is a continuation of this project to improve the efficiency and effective utilization of GWA personnel and performance of the water and wastewater pumping systems.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 Bond and 2015 Bond.

Project Staffing Implications:

Contract Administration, Major Project Management Services, Construction Inspection and Major Technical Support after completion.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		\$1,178
2017		
2018		\$25
2019		
2020		
Project Total		\$1,203

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP EE 09-09

Name of Project: SCADA Improvements – Phase 4

Reference Documents:

- a) MASTER PLAN, VOLUME 3, TABLE 9-47

Project Description:

In Phase 4 of this project, accounting information such as equipment and parts costs along with the condition data such as equipment operating time and preventive/predictive maintenance programs are to be incorporated into an asset management program. The SCADA system's role will be incorporated into the overall GWA asset management program and the SCADA equipment, hardware, and software will be updated.

Project Justification:

This phase is a continuation of this project to improve the efficiency and effective utilization of GWA personnel and performance of the water and wastewater pumping systems.

Financing Options & Grants:

The source of funding for this project will be the 2015 Bond.

Project Staffing Implications:

Contract Administration, Major Project Management Services, and Major Technical Support after completion.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	\$1,500
2017	Construction	\$2,500
2018	Construction	\$2,500
2019		
2020		
Project Total		\$6,500

Project Sheet Miscellaneous

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP MC 05-01

Name of Project: Laboratory Modernization

Reference Documents:

- a) Criteria and specification for Design of the Renovation and Enlargement of the Dededo Laboratory, 4/12/2007.

Project Description:

The existing lab is about 2300 square feet and work under this project will enlarge the facility to allow for expanded testing capabilities as well as increased office/storage space. The renovation work to the lab will include increasing testing counter space and modernizing all equipment to maintain Guam EPA certification. The renovation work will also include any improvements to ensure the facilities ability to remain open during typhoon weather conditions.

Project Justification:

GWA laboratory tests the quality of the water throughout the water system which is then reported to GEPA and USEPA. The GWA laboratory plays a vital role in ensuring GWA meets the Clean water Act and a modern laboratory is required to do so.

Financing Options & Grants:

The source of funding for this project will be the 2013 Bond and 2015 Bond.

Project Staffing Implications:

Major Contract Administration, Major Project Management, and Major Construction Management are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Construction	
2017		
2018		
2019		
2020		
Project Total		\$0

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP MC 05-02

Name of Project: Land Survey

Reference Documents:

- a) Public Law 22-47, 22-28, 22-18

Project Description:

This project will survey GWA property and property to be deeded to GWA and add these properties to GWA assets. A portion of work to be completed with the current contract for professional services as well as subsequent contracts to complete remaining work.

Project Justification:

GWA has been granted land from the Government of Guam for the purpose of locating water and wastewater system assets such as water storage tanks and water and wastewater treatment plants. The land was granted under the condition that GWA complete a legal boundary survey of the properties.

Financing Options & Grants:

The source of funding for this project will be the 2010 Bond, 2013 bond and 2015 Bond.

Project Staffing Implications:

Contract Administration, Project Management, Major GIS Support.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Research, Survey	\$1,893
2017		
2018		
2019		
2020		
Project Total		\$1,893

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP MC 09-01

Name of Project: General Plant Improvements

Reference Documents:

Project Description:

These capital improvements project will provide GWA with general plant improvements that will enhance operations and maintenance capabilities throughout the utility. The criteria for a project and/or general plant improvement to be considered a capital and eligible for bond funding is the value is greater than \$5,000 and has a life span greater than one year. This line item is general in nature to support Operations and Maintenance Program that meet funding criteria noted above. Work items to support O&M includes: replacing failing pipelines, pumps and refurbish PRV to improve the water system pressure zones. Work related to the replacement of failing pipes and pumps includes but is not limited to PRV, valves, vaults, line segment replacement and equipment such as pump rigs to remove, repair and replace pumps. The General Manager will be responsible to generate and update a list of eligible projects for General Plant Improvements. The "General Plant Improvements List" will be approved by the General Manager with concurrence by the Chief Engineer and Chief Financial Officer and submitted to the CCU by the General Manager in the Monthly Report. Additional projects that may be cover under this project sheet includes leak detection, leak repair, and the mapping and records related to these activities as well as contingency funding needs related to CIP projects.

This funding source can be used to complete any 2011 court order project relative to all capital improvements installed in water and wastewater system. Therefore it is also the intent of this CIP to cover two important aspects of planning, 1) hydraulic modeling and 2) system planning. Work under hydraulic modeling includes but not limited to hydraulic modeling training, planning tool software/hardware acquisition, and travel related to hydraulic modeling training. The system planning work will include, but not limited to, GIS mapping, asset inventory, asset management, asset management software, GIS software, GIS training, asset management training and asset condition assessment, updates to CIS and MWMS software and software and equipment GPS in vehicles.

Project Justification:

Capital improvements project are required to help maintain GWA level of service to its customers, thus the work described above will enhance operations and maintenance capabilities. The water and wastewater system for example consists of hundreds of miles of infrastructure, including facilities that are failing due to improper construction, earthquake damage, and/or material failures. Specifically for the water system GWA needs to change pressure zones to improve flow circulation and define pressure zones.

Financing Options & Grants:

The source of funding for this CIP line item will be the 2010, 2013 and 2015 bonds as well as Internally Funded CIP.

Project Staffing Implications:

Contract Administration, Project Management Services, and Construction Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning/Design/Construction	\$1,057
2017	Planning/Design/Construction	\$3,295
2018	Planning/Design/Construction	\$1,000
2019	Planning/Design/Construction	\$1,000
2020		
Project Total		\$6,352

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP MC 15-01

Name of Project: Information Technology Integration Improvements

Reference Documents:

Project Description:

The capital improvement projects describe herein will improve GWA's ability to obtain real time information for customer request, maintain important customer data history more effectively and improve productive of employees through implementation of emerging technology. The projects identified under this CIP include Mobile Work Force Management Solutions, imaging and document management solutions, Desktop computer Replacement Program, Voice Over Internet Protocol (VOIP) solutions, Network Communication and Security System Improvements, Enterprise Information System Upgrades, Customer Information System Implementation, and Virtual Server and Storage Solutions.

Project Justification:

Information technology integration improvement projects are required to help maintain GWA level of service to customers as well as improve operations functionality. Current technology systems within GWA are becoming obsolete due to the ever changing/improving computer system and programming platform in the industry that for GWA to meet and maintain expectations of the mission of GWA, the CIP initiative

Financing Options & Grants:

The source of funding for this project will be the 2015 bond and Internally Funded CIP.

Project Staffing Implications:

Contract Administration and Project Management Services are required.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016	Planning and procurement	\$250
2017	Planning and procurement	\$750
2018	Procurement	\$200
2019	Procurement	\$200
2020		
Project Total		\$1,400

Project Sheet Department of Defense

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP DoD-01

Name of Project: NDWWTP Secondary Treatment Capacity 12MGD

Reference Documents:

- a. Record of Decision for the Final Supplement Environmental Impact Statement for Guam and Commonwealth of the Northern Marianas Island Military Relocation August 28, 2015.
- b. CIP WW 05-03 and CIP WW 11-07
- c. Evaluation of Northern District Wastewater Treatment Plant Capacity, December 2009

Project Description:

This project will improve/convert the NDWWTP to a facility that treats wastewater to secondary limits with a capacity of 12 MGD for GWA to meet USEPA NPDES discharge requirements. This project will utilize much of the existing plan structures and add major upgrades and modifications.

Project Justification:

This project is a requirement of the Record of Decision for the Final Supplement Environmental Impact Statement for Guam and Commonwealth of the Northern Marianas Island Military Relocation.

Financing Options & Grants:

The Department of Navy is responsible for funding this project

Project Staffing Implications:

A Program management office will be required for the project.

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017	Planning/Design/Construction	\$20,000
2018		\$114,300
2019		
2020		
Project Total		\$134,300

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP DoD-02

Name of Project: Northern Systems Wastewater System

Reference Documents:

- a. Record of Decision for the Final Supplement Environmental Impact Statement for Guam and Commonwealth of the Northern Marianas Island Military Relocation August 28, 2015.
- b. WW 05-02, WW 05-06, WW 09-0, WW 09-02, WW 09-04, WW 09-06, & W 09-09

Project Description:

This project will upgrade the sewer collection system in the Northern District Sewer Basin along Route 9 and Route 3.

Project Justification:

This project is a requirement of the Record of Decision for the Mariana Island Range Complex Final Environmental Impact Statement.

Financing Options & Grants:

The Department of Navy is responsible for funding this project

Project Staffing Implications:

A Program management office will be required for this project

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017	Planning/Design/Construction	\$29,000
2018		
2019		
2020		
Project Total		\$29,000

GWA Capital Improvement Plan Project Sheet FY 2016-2020

Project Number: CIP DoD-03

Name of Project: Rehabilitation and New NGLA Monitoring Wells

Reference Documents:

a. Record of Decision for the Final Supplement Environmental Impact Statement for Guam and Commonwealth of the Northern Marianas Island Military Relocation August 28, 2015.

Project Description:

This project will rehabilitate seven existing monitoring wells and construct 11 new monitoring wells about the Northern Guam Lens Aquifer.

Project Justification:

This project is a requirement of the Record of Decision for the Mariana Island Range Complex Final Environmental Impact Statement.

Financing Options & Grants:

The Department of Navy is responsible for funding this project

Project Staffing Implications:

A Program management office will be required for this project

Project Time Table/Budget:

FISCAL YEAR	ACTIVITY	BUDGET (x1000)
2016		
2017	Planning/Design/Construction	\$3,000
2018		
2019		
2020		
Project Total		\$3,000

Appendix A: Operations Project Nomination Listing

The projects identified in this section are a result of planning efforts between engineering and operations. It is important to understand these nominated projects have the potential to fall under any of the CIP line items noted in the body of this document. The list noted below is also expected to have new project nomination over the coming years.

Water Operations Project Nomination List:

1. Northern Water System Large Valve Replacement
2. Central Water System Large Valve Replacement
3. Southern Water System Large Valve Replacement
4. Back Flow Prevention Program
5. New Water transmission line between Agat and Umatac
6. Ugum WTP Membrane Replacement
7. Ugum WTP Centrifuge/VFD Replacement Project
8. Island Wide Ground Water Monitoring Well Integration with GWA
9. Island Wide Water Distribution System “Looping” Improvements

Wastewater Operations Project Nomination List:

1. Hagatna WWTP Digester Improvements
2. Sludge Bind Protection Shelter – Hagatna and Northern District WWTP’s
3. New Sewer line connection from Sothern HS to the New Agat Santa Rita WWTP
4. Inarajan WWTP Improvements related to Layon Leachete
5. Pago Socia WWTP Conversion to Pump Station
6. Source Control and Pre-treatment Program
7. Bayside SPS Relocation

Appendix B: CCU Resolution

1 **GUAM CONSOLIDATED COMMISSION ON UTILITIES**

2 **RESOLUTION NO. 14-FY2017**

3 **RELATIVE TO REALLOCATION OF 2010, 2013 AND 2016 BOND FUNDS TO**
4 **THE NORTHERN DISTRICT, BAZA GARDENS AND UMATAC-MERIZO**
5 **WASTEWATER TREATMENT PLANTS CIP LINE ITEMS FOR CONSTRUCTION**
6 **PURPOSES AND APPROVAL OF THE UPDATED**
7 **CAPITAL IMPROVEMMENTS PLAN JANUARY 2017**

8 **WHEREAS**, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities
9 (“CCU”) has plenary authority over financial, contractual and policy matters relative to the
10 Guam Waterworks Authority (“GWA”); and
11

12 **WHEREAS**, the Guam Waterworks Authority (“GWA”) is a Guam Public Corporation
13 established and existing under the laws of Guam; and
14

15 **WHEREAS**, GWA currently has a critical Court Order (“CO”) project related to
16 Paragraph 14 and Paragraph 16 of the 2011 Court Order which required GWA to complete
17 improvements at the Baza Gardens WWTP and Umatac-Merizo WWTP, respectively, so as to
18 achieve compliance with the WWTP’s NDPES permit; and
19

20 **WHEREAS**, GWA is currently also engaged with the Office of Economic Adjustment to
21 undertake the Guam Water and Wastewater Infrastructure projects as part of the relocation of
22 Marine Corps forces to Guam, and a critical component of these infrastructure projects is the
23 upgrade of the Northern District WWTP to secondary treatment capacity; and
24

25 **WHEREAS**, Pre-procurement activities for Phase III of the Baza Gardens Wastewater
26 Conveyance and Pump project is on-going and GWA has determined that, to fully execute a
27 contract with the winning bidder by April of 2017, additional funding in the amount of Fifteen
28 Million Eight Hundred Thousand Dollars (\$15,800,000.00) is required under the CIP line item
29 WW 11-03 “Baza Gardens STP Replacement”; and
30

31 //

32 //

1 **WHEREAS**, Procurement activities for the Umatac-Merizo WWTP Improvements
2 Design Build project is on-going and GWA has determined that, to fully execute a contract with
3 the winning bidder by June of 2017, additional funding in the amount of Twelve Million Eight
4 Hundred Thousand Dollars (\$12,800,000.00) is required under the CIP line item WW 12-07
5 "Umatac Merizo STP Replacement"; and
6

7 **WHEREAS**, Planning activities for the Northern District WWTP Upgrade to secondary
8 treatment capability is on-going and GWA has identified that additional property is required
9 adjacent to the current plant location to be able to upgrade and expand the facility under current
10 plans, and to secure sufficient area for future planned improvements, and as such additional
11 funding in the amount of One Million Dollars (\$1,000,000.00) is required under the CIP line
12 item WW 17-02 "Northern District WWTP Secondary Treatment Upgrade"; and
13

14 **WHEREAS**, The funding for the above projects will come from reallocating 2010, 2013
15 and 2016 Bond proceeds from CIP line items which contain a "balance" from either CIP projects
16 already completed under budget, or CIP projects which can be deferred until a later date; and
17

18 **WHEREAS**, GWA management submits for CCU approval the Updated Capital
19 Improvements Plan "January 2017" (See Exhibit A) which includes adjustment to the CIP fund
20 allotments from the 2018 Bond Proceeds to the CIP line items that require funds transferred back
21 into certain line items due to the current bond reallocation requests, as well as any adjustment to
22 other CIP line items that are necessary; and
23

24 **WHEREAS**, the rationale and justification for the bond reallocation is because GWA is
25 intending to execute the contracts for: 1) Baza Gardens Wastewater Conveyance and Pump
26 Phase III project by April 2017; and 2) Umatac/Merizo WWTP Improvements Design Build
27 project by June 2017 and in order to do so all the funds necessary to enter into a contract at that
28 time need to be available to the winning bidder, thus the reallocation is necessary as the 2018
29 Bond issues would not be available; and
30
31
32

1 **WHEREAS**, the CCU has found on occasion, that bond reallocation is necessary to
2 continue to comply with the Stipulated Order for Preliminary Relief (as Amended); and
3

4 **WHEREAS**, GWA management seeks CCU approval to petition the PUC to reallocate
5 the current approved 2010, 2013 and 2016 bond funding limits by Twenty-Nine Million Six
6 Hundred Thousand Dollars (\$29,600,000.00) using the adjusted CIP project amount specified in
7 Exhibit B; and
8

9 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities
10 does hereby approve and authorize the following:
11

- 12 1. The CCU approves Twenty-Nine Million Six Hundred Thousand Dollars
13 (\$29,600,000.00) of available bond funds from the 2010, 2013 and 2016 Series Bonds
14 is hereby allocated to WW 11-03 "Baza Gardens STP Replacement", WW 12-07
15 "Umatac-Merizo STP Replacement" and WW 17-02 "Northern District WWTP
16 Secondary Treatment Upgrade" for purposes related to construction contract
17 execution, design build contract execution and property acquisition, respectively.
- 18 2. The CCU further approves the Updated Capital Improvements Plan January 27 as
19 shown in Exhibit A in its entirety.
- 20 3. The CCU further approves GWA management seek PUC approval for the
21 reallocation of 2010, 2013 and 2016 bond funds in the amount of Twenty-Nine
22 Million Six Hundred Thousand Dollars (\$29,600,000.00) as summarized in Exhibit B
23 and elaborated in Exhibit A.

24 **RESOLVED**, that the Chairman certified and the Board Secretary attests to the adoption of this
25 Resolution.
26

27 //


28 //

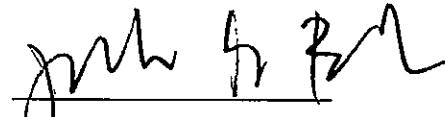
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1 **DULY AND REGULARLY ADOPTED**, this 24th day of January 2017.

2
3 Certified by:

Attested by:

4 
5
6 **JOSEPH T. DUENAS**
7 Chairperson


8 **J. GEORGE BAMBA**
9 Secretary

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

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

16 AYES:	<u>5</u>
17 NAYS:	<u>0</u>
18 ABSTENTIONS:	<u>0</u>
19 ABSENT:	<u>0</u>

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Appendix C: PUC ORDER



BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN RE: REQUEST BY THE GUAM)	GWA DOCKET 17-04
WATERWORKS AUTHORITY)	
TO REALLOCATE \$29.6)	ORDER
MILLION OF 2010, 2013 &)	
2016 BOND PROCEEDS)	
)	

INTRODUCTION

This matter comes before the Guam Public Utilities Commission (the “PUC”) at the request of Petitioner Guam Waterworks Authority (“GWA”) for approval to reprogram projects funded by GWA’s 2010, 2013 and 2016 Bond proceeds, filed with the PUC on February 13, 2017.

On February 22, 2017, the Administrative Law Judge of the PUC Joepheth R. Alcantara (the “ALJ”) filed a report regarding the instant Petition, which included his findings and recommendations based on the administrative record before the PUC. The ALJ found the following.

DETERMINATIONS

A. Reallocation

In its Petition, GWA sought approval to reallocate \$29.6 million of 2010, 2013, and 2016 bond funds to advance the timing of certain capital improvement projects.¹ GWA submitted that these projects are required under the November 10, 2011 Order for Preliminary Relief Re: Deadlines for Outstanding Projects under the Amended Stipulated

¹ Petition to Reallocate \$29.6 Million in 2010, 2013 and 2016 Bond Proceeds to Meet the Requirements of the Order of the United States District Court Relative to Incomplete Stipulated Order Projects (“Petition”), p. 1 (Feb. 13, 2017).

Order issued by the District Court of Guam in U.S. v. Guam Waterworks Authority, Civil Case No. 02-00035 (hereinafter referred to as the “Amended Stipulated Order”).² In particular, GWA intends to execute contracts for the following two major projects: the Baza Gardens Wastewater Conveyance and Pump Phase III by April, 2017; and the Umatac/Merizo Wastewater Treatment Plant (“WWTP”) Improvements Design Build project by June, 2017.³

GWA maintained that the Baza Gardens WWTP project must be substantially completed by April 30, 2018, and that the entire amount of the contract funding must be “in place and available on the date the contract is executed” for the Umatac/Merizo WWTP project.⁴ GWA further maintained that it is required to complete improvements to the Baza Gardens WWTP and Umatac-Merizo WWTP in order to achieve compliance with the WWTP’s [National Pollutant Discharge Elimination System or “NPDES”] permit.⁵ According to GWA, the previous funding outlay for these projects did not account for the “project execution strategies” “being employed,” such as whether the projects were to be completed through phased construction, design-build contracts, or design-bid-build contracts.⁶

The Petition was supported by Resolution No. 14-FY2017, issued by the Consolidated Commission on Utilities on January 24, 2017, which approved the reallocation of funds from the 2010, 2013, and 2016 Bonds, and authorized GWA to seek

² Petition, p. 1.

³ Petition, p. 2.

⁴ Petition, p. 4.

⁵ Petition, p. 1.

⁶ Petition, pp. 1-2.

PUC approval for such reallocation. GWA also filed with the PUC its new Capital Improvement Plan for 2016-2020.

GWA intends to fund the subject projects through reallocating proceeds from the 2010, 2013, and 2016 bonds from “completed” projects that contained an “unspent” balance, or by deferring projects to a later date.⁷ Pursuant to 12 G.C.A. § 12105, the PUC is tasked with reviewing and approving all uses of bond proceeds.

1. Baza Gardens Wastewater Treatment Plant Improvements

The Baza Gardens Sewage Treatment Plant (“STP”) Replacement project involves the construction of new wastewater treatment facilities. GWA needs an additional \$15.8 million to complete the project. According to GWA, this figure is for construction only, and would include a new pumping facility located at the existing Baza Gardens plant, two new equalization basins also at the plant, which are used to buffer flow and loading, and about 1,200 linear feet of pipelines.

2. Umatac-Merizo Wastewater Treatment Plant Improvements

The Umatac-Merizo STP Replacement project also involves the construction of new wastewater treatment facilities. GWA submitted that \$8 million is already budgeted for the project, but that it needs an additional \$12.8 million, for a total of \$20.8 million for the entire project. GWA indicated that \$723,000 is budgeted for project management; \$17.5 million for the design-build contract; \$1.7 million for construction management; and an \$827,000 contingency. The components of this project include the following, among others: upgrade influent pump station, upgrade aerated lagoon, new

⁷ Petition, p. 3.

lagoon effluent pump station, new lagoon effluent pipelines, upgrade overland flow system and recirculation pond, upgrade overland flow system and recirculation pump station, new UV disinfection system, upgrade plant water system electrical power supply and standby generator, plus other facilities.

3. Northern District Wastewater Treatment Plant Secondary Treatment Upgrades

GWA submitted that it needs an additional \$1 million for this project in order to acquire the property adjacent to the existing plant location.⁸ GWA maintained that it requires the addition of this property in order to “upgrade and expand” the facility.⁹ According to a Guam Water and Wastewater Assessment Report prepared by the U.S. Department of the Navy last year, for purposes of land acquisition at the Northern District WWTP, the unit cost per acre is assumed to be at \$85,060, which is the purchase price indicated by available land records.¹⁰ The amount of \$560,000 was the original estimate for the purchase of additional land. GWA, however, intends on obtaining an additional seventeen (17) acres of land for this expansion, at a cost of about \$1.4 million. Accordingly, GWA maintained that \$1.56 million in total should be sufficient to acquire the additional seventeen (17) acres of property.

The PUC is tasked with reviewing and approving all uses of bond proceeds pursuant to 12 G.C.A. §12105. Based on the record, GWA is required to complete improvements to the Baza Gardens WWTP and Umatac-Merizo WWTP. In particular, the

⁸ Petition, p. 2.

⁹ Petition, p. 2.

¹⁰ Final Guam Water and Wastewater Assessment Report in Support of the Economic Adjustment Committee Implementation Plan, Department of the Navy, p. 3-24 (Feb. 2015).

Amended Stipulated Order requires that GWA complete the Baza Gardens Wastewater Systems Upgrade by April 30, 2018. Amended Stipulated Order, pp. 24-25 (Nov. 10, 2011). In addition, the Amended Stipulated Order also requires that GWA complete the Umatac-Merizo Systems Upgrade by December 31, 2018, but that by June 30, 2017, GWA must “execute a construction contract and issue a notice to proceed with construction.” Amended Stipulated Order, pp. 25-26.

Accordingly, the ALJ found that the reallocation in this instance is reasonable and necessary given GWA’s need to comply with its obligations under the federal Amended Stipulated Order. The ALJ, therefore, recommended the PUC’s approval of the Petition. However, the ALJ recommended that GWA submit to the PUC a report detailing updates on its CIP projects that are funded by bond proceeds, specifically projects funded by the 2010, 2013 and 2016 bond proceeds. Where projects have been completed, GWA should indicate that such projects have been completed.

The Commission hereby adopts the findings contained in the February 22, 2017 ALJ Report and, therefore, issues the following:

ORDERING PROVISIONS

After careful review and consideration of the above determinations, the February 22, 2017 ALJ Report, and the record herein, for good cause shown, on motion duly made, seconded and carried by the undersigned Commissioners, the Guam Public Utilities Commission hereby ORDERS the following:

1. That GWA’s request for the reallocation of \$29.6 million of 2010, 2013, and 2016 bond funds to advance the timing of certain capital improvement projects is APPROVED and GWA’s February 13, 2017 Petition is GRANTED.

2. GWA shall submit to the PUC a report detailing updates on its Capital Improvement Projects funded by bond proceeds, specifically projects funded by 2010, 2013 and 2016 bond proceeds, including a timeline of events and deadlines for any outstanding projects, by April 1, 2017. Where projects have been completed, GWA should indicate that such projects have been completed.

3. GWA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses associated with the instant proceeding. Assessment of the PUC's regulatory fees and expenses is authorized pursuant to 12 G.C.A. §§ 12002(b), 12024(b) (renumbered as 12 G.C.A. §§ 12103(b) and 12125(b)), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

[SIGNATURES TO FOLLOW ON NEXT PAGE]

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SO ORDERED this 23rd day of February, 2017.


JEFFREY C. JOHNSON
Chairman
ROWENA E. PEREZ
Commissioner
JOSEPH M. MCDONALD
Commissioner
FILOMENA M. CANTORIA
Commissioner
MICHAEL A. PANGELINAN
Commissioner
PETER MONTINOLA
Commissioner
ANDREW L. NIVEN
Commissioner

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