



GUAM WATERWORKS AUTHORITY

Better Water Better Lives

CAPITAL IMPROVEMENT PLAN

2015-2020

October 27, 2015

CAPITAL IMPROVEMENT PLAN 2015-2020

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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 update includes approvals to re-allocated 2013 Bond funds in the CIP based on recent project information and experience with project implementation in order to better utilize the funds in completing outstanding projects.

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

Table 1. Summary of Project Type (x1000):

	2015	2016	2017	2018	2019	2020	TOTAL
Potable Water	36,679	60,354	50,944	32,678	34,250	10,000	224,905
Wastewater	5,174	78,333	32,374	39,700	1,000	-	156,581
Electrical Engineer	692	3,952	2,750	2,650	-	-	10,044
Miscellaneous	1,311	5,725	3,100	1,200	1,200	-	12,536
Total	43,857	148,364	89,168	76,228	36,450	10,000	404,067

Table 2. Summary of Funding Source (x1000):

	2015	2016	2017	2018	2019	2020	TOTAL
2010 Bond Series	6,600						6,600
2013 Bond Series	24,489	67,607	11,433				103,529
2015 Bond Series		40,878	49,844	37,728			128,450
2018 Bond Series				27,000	35,250	10,000	72,250
State Revolving Fund (SRF)	8,330	27,879	7,891				44,100
System Development Charge (SDC)	2,800	2,000	500	500			5,800
GRANTS	1,638						1,638
Internally Funded CIP		10,000	19,500	11,000	1,200		41,700
Total	43,857	148,364	89,168	76,228	36,450	10,000	404,067

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

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. The CIP covers a six-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, 2013 Bond reallocation, 2015 Bond Update 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 and 2013 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. 2013 Bond Reallocation

On July 23, 2015 GWA received approval from the CCU via Resolution 38-FY15 to reallocate \$48.2M of 2013 Bond proceeds for the Agat Santa Rita WWTP Improvements Project. The PUC subsequently approved the bond reallocation request on September 24, 2015. 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 2013 Bond Reallocation

CIP No.	Name	2013 Bond Reallocation Request	
		Additional Funds (x1000)	Reduction of Funds (x1000)
PW 05-06	Water Booster Pump Station		\$ 4,139
PW 05-07	Meter Replacement Program		\$ 501
PW 05-08	Barrigada Tank Repair/Replacement		\$ 1,013
PW 05-09	Leak Detection		\$ 80
PW 05-10	Potable Water System Planning		\$ 576
PW 05-13	Deep Well Rehabilitation		\$ 250
PW 05-14	New Deep Wells at Down Hard		\$ 1,190
PW 05-16	Master Meters		\$ 3,116
PW 09-01	Ugum Water Treatment Plant Intake		\$ 18
PW 09-03	Water Distribution System		\$ 1,549
PW 09-04	Pressure Zone Realignment		\$ 569
PW 09-10	Water Reservoir Internal/External		\$ 800
PW 09-11	Water System Reservoirs 2005 Improvements		\$ 4,122
PW 11-02	Ugum Water Treatment Plant Reservoir		\$ 6,910
PW 12-04	Agana Heights & Chaot Tanks		\$ 1,220
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo#1		\$ 1,895
PW 12-06	Tank Replacement Piti & Hyundai		\$ 8,000
PW 14-01	Fire Hydrant Replacement Program		\$ 1,000
WW 05-04	Wastewater System Planning		\$ 149
WW 09-01	Lift station upgrades		\$ 1,054
WW 09-06	Wastewater Collection System Repl/ Rehabilitation		\$ 2,920
WW 11-04	Facilities Plan/Design for Umatac-Merizo WWTP		\$ 527
WW 11-08	Agat/Santa Rita STP Replacement	\$ 48,200	
WW 12-03	Agana WWTP Interim Measures		\$ 827
WW 12-07	Umatac Merizo Replacement		\$ 1,000
EE 09-03	Electrical Upgrade - Water Booster		\$ 323
EE 09-08	SCADA Improvements - Phase 3		\$ 927
EE 09-09	SCADA Improvements - Phase 4		\$ 1,200
MC 05-01	Laboratory Modernization		\$ 327
MC 05-02	Land Survey		\$ 1,998
		TOTAL	\$ 48,200
			\$ 48,200

Project Funding Requirements

- Agat/Santa Rita STP Replacement (WW 11-08) – Fund reallocation required for the phase II construction for a new treatment plant to be located new the Tipaola SPS. The treatment plant's main secondary treatment components are the headwork, oxidation ditches, clarifiers and disinfection.

C. 2015 Bond Update

Due to the \$48.2M bond reallocation for the 2013 Bond Fund, the 2015 Bond funded CIP breakdown required updating to reflect where funds from the 2015 Bond issuance were redistributed. Table 4 below delineates the funding additions of active and new CIP projects as well as identifies the recommended source from which the required additional funds can be obtained.

Table 4: GWA 2015 Bond Update

CIP No.	Name	2015 Bond Request	
		Addition Funds (x1000)	Reduction Funds (x1000)
PW 05-06	Water Booster Pump Station	\$ 4,139	
PW 05-07	Meter Replacement Program	\$ 501	
PW 05-08	Barrigada Tank Repair/Replacement		\$ (87)
PW 05-09	Leak Detection	\$ 80	
PW 05-10	Potable Water System Planning	\$ 876	
PW 05-13	Deep Well Rehabilitation	\$ 250	
PW 05-14	New Deep Wells at Down Hard	\$ 1,190	
PW 05-16	Master Meters	\$ 3,116	
PW 09-01	Ugum Water Treatment Plant Intake	\$ 18	
PW 09-03	Water Distribution System	\$ 1,049	
PW 09-04	Pressure Zone Realignment		\$ (259)
PW 09-08	Mechanical/Electrical Equipment	\$ 100	
PW 09-10	Water Reservoir Internal/External	\$ 800	
PW 09-11	Water System Reservoirs 2005 Improvements		\$ (2,900)
PW 11-02	Ugum Water Treatment Plant Reservoir	\$ 6,410	
PW 12-04	Agana Heights & Chaot Tanks	\$ 1,220	
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo#1	\$ 1,895	
PW 12-06	Tank Replacement Piti & Hyundai	\$ 5,500	
PW 14-01	Fire Hydrant Replacement Program	\$ 1,000	
WW 05-04	Wastewater System Planning	\$ 349	
WW 09-01	Lift station upgrades	\$ 1,404	
WW 09-06	Wastewater Collection System Repl/ Rehabilitation	\$ 2,920	
WW 11-04	Facilities Plan/Design for Umatac-Merizo WWTP	\$ 527	
WW 11-08	Agat/Santa Rita STP Replacement		\$ (38,000)
WW 12-03	Agana WWTP Interim Measures	\$ 827	
WW 12 -07	Umatac Merizo Replacement	\$ 1,000	
EE 09-01	Wastewater Pumping Station Electrical Upgrade	\$ 100	
EE 09-02	Electrical Upgrade - Water Wells		\$ (850)
EE 09-03	Electrical Upgrade - Water Booster	\$ 323	
EE 09-08	SCADA Improvements - Phase 3	\$ 1,177	
EE 09-09	SCADA Improvements - Phase 4	\$ 1,500	
MC 05-01	Laboratory Modernization	\$ 627	
MC 05-02	Land Survey	\$ 1,998	
MC 09-01	General Plant Improvements	\$ 700	
MC 15-01	Information Technology Integration Improvements	\$ 500	
	TOTAL	\$ 42,096	\$ (42,096)

Project Funding Requirements

For clarification purposes the following CIPs have funds added into the line item as a reimbursement for when funds were reallocated out as part of the 2013 Bond reallocation request:

PW 05-06, PW 05-07, PW 05-09, PW 05-13, PW 05-14, PW 05-16, PW 09-01, PW 09-10, PW 12-04, PW 12-05, PW 14-01, WW 09-06, WW 11-04, WW 12-03, WW 12-07, EE 09-03, and MC 05-02.

Given the numerous projects noted in Table 4 requiring additional funding, the following are just a summary of the change in scope and/or why additional funding is required;

- Potable Water System Planning (PW 05-10) – Additional funds required to address unaccounted for water loss study.
- Water Distribution System (PW 09-03) – Additional funds required to continue addressing water line replacement as a means of reducing unaccounted for water.
- Mechanical/Electrical Equipment (PW 09-08) – Additional funds required to purchase needed pumps and motors for water booster stations and/or deep well facilities.
- Wastewater System Planning (WW 05-04) – Additional funding required to continue analysis of I&I at various wastewater sub-basin throughout the island.
- Lift Station Upgrades (WW 09-01) – Additional funding required to address critical improvement projects at various sewer pump stations throughout the island.
- Wastewater Pumping Station Electrical Upgrade (WW 09-01) – Additional funding required to be used towards improving the electrical controls within various Sewer Pump Stations.
- SCADA Improvements - Phase 3 (EE 09-08) – Estimated projected costs have been determined to be more than original budget; therefore additional funds are required to cover project cost.
- SCADA Improvements - Phase 4 (EE 09-09) – This CIP line item is intended to supplement EE 09-08.
- Laboratory Modernization (MC 05-01) - Estimated projected costs have been determined to be more than original budget therefore additional funds are required to cover project cost related to lab equipment.
- General Plant Improvements (MC 09-01) – Additional funds required to be used for improvement projects at the Upper Tumon facility as well as general purchase of equipment needed by water and wastewater operations.
- Information Technology Integration Improvements (MC 15-01) – This CIP is new and therefore required a funding allotment to address the needs of computer replacement, system server upgrades, mobile workforce initiatives, etc.

D. CIP Summary Tables

Table 5. Summary Table Potable Water

CIP #	Project Name	2015	2016	2017	2018	2019	2020	Total
		(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
PW 05-01	Ground Water Disinfection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 05-03	Santa Rita Springs Booster Pump Rehab Phase II	\$ 100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100
PW 05-05	"A" Series Well Transmission Line	\$ 82	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 82
PW 05-06	Water Booster Pump Station	\$ 703	\$ 3,552	\$ 3,000	\$ 1,000	\$ -	\$ -	\$ 8,255
PW 05-07	Meter Replacement Program	\$ 17	\$ 504	\$ 2,000	\$ 2,000	\$ -	\$ -	\$ 4,520
PW 05-08	Barrigada Tank Repair/Replacement	\$ 76	\$ 1,013	\$ 400	\$ -	\$ 6,000	\$ -	\$ 7,489
PW 05-09	Leak Detection	\$ -	\$ 80	\$ 100	\$ 100	\$ -	\$ -	\$ 280
PW 05-10	Potable Water System Planning	\$ 1,750	\$ 2,683	\$ 500	\$ 900	\$ 500	\$ -	\$ 6,333
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	\$ 5,765	\$ 8,815	\$ -	\$ -	\$ -	\$ -	\$ 14,580
PW 05-14	New Deep Wells at Down Hard	\$ 1,321	\$ 2,000	\$ -	\$ -	\$ -	\$ -	\$ 3,321
PW 05-15	Rehabilitation of Asan Springs	\$ 1,532	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,532
PW 05-16	Master Meters	\$ 110	\$ 3,116	\$ 500	\$ -	\$ -	\$ -	\$ 3,726
PW 09-01	Ugum Water Treatment Plant Intake	\$ 8	\$ 518	\$ 500	\$ -	\$ -	\$ -	\$ 1,026
PW 09-02	Water Wells	\$ 1,000	\$ 6,362	\$ 500	\$ 3,000	\$ 4,000	\$ -	\$ 14,862
PW 09-03	Water Distribution System Pipe Replacement and Upgrades	\$ 7,071	\$ 6,550	\$ 8,400	\$ 500	\$ 5,000	\$ -	\$ 27,521
PW 09-04	Pressure Zone Realignment / Development 2005 Improvements	\$ 0	\$ 569	\$ 572	\$ -	\$ -	\$ -	\$ 1,141
PW 09-06	Central Water Distribution System 2005 Improvements	\$ 276	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 276
PW 09-08	Mechanical/Electrical Equipment	\$ 3	\$ 100	\$ -	\$ -	\$ -	\$ -	\$ 103
PW 09-09	Water Reservoir Internal/External	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 09-10	Water Reservoir Internal/External	\$ -	\$ 800	\$ -	\$ -	\$ -	\$ -	\$ 800
PW 09-11	Water System Reservoirs 2005 Improvements	\$ 4,000	\$ 4,000	\$ 28,472	\$ 24,178	\$ 18,250	\$ 10,000	\$ 88,900
PW 11-01	Distribution System Upgrade	\$ 26	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26
PW 11-02	Ugum Water Treatment Plant Reservoir	\$ -	\$ 6,500	\$ -	\$ -	\$ -	\$ -	\$ 6,500
PW 12-01	Water Audit Program & Water Loss Control Plan	\$ 22	\$ -	\$ -	\$ 500	\$ 500	\$ -	\$ 1,022
PW 12-02	Production Plan / Reduce Navy Purchases	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 12-03	Hydraulic Assessment of Tanks	\$ 30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30
PW 12-04	Agana Heights & Chaot Tanks	\$ 3,001	\$ 1,220	\$ -	\$ -	\$ -	\$ -	\$ 4,221

PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1	\$ 7,592	\$ 4,973	\$ -	\$ -	\$ -	\$ -	\$ 12,565
PW 12-06	Tank Replacement Piti & Hyundai	\$ -	\$ 5,000	\$ 5,500	\$ -	\$ -	\$ -	\$ 10,500
PW 12-07	Assessment/Replacement of Malojloj Elevated & Yigo Elevated	\$ 700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700
PW 12-08	Public Water System Asset Inventory/ Condition Assessment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PW 12-09	Public Water System GIS & Mapping	\$ 50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 50
PW 14-01	Fire Hydrant Replacement Program	\$ -	\$ 2,000	\$ 500	\$ 500	\$ -	\$ -	\$ 3,000
	Sub-Total	\$ 36,679	\$ 60,354	\$ 50,944	\$ 32,678	\$ 34,250	\$ 10,000	
	Grand Total for PW Funding	\$ 224,905						

Table 6. Summary Table Wastewater

CIP #	Project Name	2015	2016	2017	2018	2019	2020	Total '
		(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
WW 05-04	Wastewater System Planning	\$ -	\$ 2,203	\$ -	\$ 1,000	\$ 1,000	\$ -	\$ 4,203
WW 09-01	Lift station upgrades	\$ -	\$ 6,166	\$ 5,374	\$ 1,500	\$ -	\$ -	\$ 13,040
WW 09-02	Moratorium	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 09-06	Wastewater Collection System Rep/ Rehabilitation	\$ 17	\$ 17,332	\$ 6,567	\$ 500	\$ -	\$ -	\$ 24,416
WW 09-08	Facilities Plan/Design/interim for Baza Gardens STP Impr.	\$ 101	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 101
WW 09-10	Facilities Plan/Design/interim for Agat-Santa Rita STP Impr.	\$ 0.37	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.37
WW 09-11	WWTP Priority 1 Upgrades	\$ 1,300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,300
WW 11-03	Baza Gardens STP Replacement	\$ 167	\$ 1,475	\$ 9,000	\$ 20,700	\$ -	\$ -	\$ 31,342
WW 11-04	Facilities Plan/Design/Interim for Umatac-Merizo STP Impr.	\$ 693	\$ 629	\$ -	\$ -	\$ -	\$ -	\$ 1,322
WW 11-08	Agat/ Santa Rita STP Replacement	\$ 2	\$ 48,200	\$ 11,433	\$ -	\$ -	\$ -	\$ 59,635
WW 12-01	Northern District WWTP Primary Treatment Upgrades	\$ 1,675	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,675
WW 12-02	Bio Solids Management Plan	\$ 54	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 54
WW 12-03	Agana WWTP Interim Measures	\$ -	\$ 1,328	\$ -	\$ -	\$ -	\$ -	\$ 1,328
WW 12-04	I&I SSES Southern	\$ 350	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 350
WW 12-05	I&I SSES Central	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WW 12-06	I&I SSES Northern	\$ 355	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 355
WW 12-07	Umatac Merizo STP Replacement	\$ -	\$ 1,000	\$ -	\$ 16,000	\$ -	\$ -	\$ 17,000
WW 12-09	Wastewater Facility Back Up Power	\$ 460	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 460
Sub-Total		\$ 5,174	\$ 78,333	\$ 32,374	\$ 39,700	\$ 1,000	\$ -	
Grand Total for PW Funding		\$ 156,581						

Table 7. Summary Table Electrical Engineering

		2015	2016	2017	2018	2019	2020	Total
CIP #	Project Name	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
EE 05-02	SCADA Pilot Project	\$ 8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8
EE 09-01	Wastewater Pumping Station Electrical Upgrade	\$ 520	\$ 100	\$ -	\$ -	\$ -	\$ -	\$ 620
EE 09-02	Electrical Upgrade - Water Wells	\$ 96	\$ 250	\$ 250	\$ 150	\$ -	\$ -	\$ 746
EE 09-03	Electrical Upgrade - Water Booster	\$ -	\$ 325	\$ -	\$ -	\$ -	\$ -	\$ 325
EE 09-04	Electrical Upgrade -Water Booster	\$ -	\$ 350	\$ -	\$ -	\$ -	\$ -	\$ 350
EE 09-05	Electrical Upgrade - Other Water	\$ -	\$ 250	\$ -	\$ -	\$ -	\$ -	\$ 250
EE 09-07	SCADA Improvements – Phase 2	\$ 43	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 43
EE 09-08	SCADA Improvements – Phase 3	\$ 26	\$ 1,177	\$ -	\$ -	\$ -	\$ -	\$ 1,203
EE 09-09	SCADA Improvements – Phase 4	\$ -	\$ 1,500	\$ 2,500	\$ 2,500	\$ -	\$ -	\$ 6,500
	Sub-Total	\$ 692	\$ 3,952	\$ 2,750	\$ 2,650	\$ -	\$ -	
	Grand Total for PW Funding	\$ 10,044						

Table 8. Summary Table Miscellaneous

		2015	2016	2017	2018	2019	2020	Total
CIP #	Project Name	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)	(x1000)
MC 05-01	Laboratory Modernization	\$ 1,001	\$ 627	\$ -	\$ -	\$ -	\$ -	\$ 1,628
MC 05-02	Land Survey	\$ 95	\$ 1,998	\$ -	\$ -	\$ -	\$ -	\$ 2,093
MC 09-01	General Plant Improvements / Water	\$ 215	\$ 2,850	\$ 2,350	\$ 1,000	\$ 1,000	\$ -	\$ 7,415
MC 15-01	Information Technology Integration Improvements	\$ -	\$ 250	\$ 750	\$ 200	\$ 200	\$ -	\$ 1,400
	Sub-Total	\$ 1,311	\$ 5,725	\$ 3,100	\$ 1,200	\$ 1,200	\$ -	
	Grand Total for PW Funding	\$ 12,536						

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

Table 9. Potable Water Funding Table

FS - Funding Source		2015		2016		2017		2018		2019		2020	
		FS	(x1000)	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	B2013	100										
PW 05-05	"A" Series Well Transmission Line	B2010	81.6										
PW 05-06	Water Booster Pump Station	GRANT	703	IFCIP	1,000	IFCIP	1,000	B2015	2,000	B2018	1,000		
				B2015	2,139								
				B2013	413.4								
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			IFCIP	400						
		B2013	71.6	B2015	1013					B2018	6,000		
PW 05-09	Leak Detection			B2015	80								
						B2015	100	IFCIP	100				
PW 05-10	Potable Water System Planning	SRF	1750	SRF	1,783								
				B2015	776			B2018	500				
				B2013	124	B2015	500	IFCIP	400	B2018	500		
PW 05-11	Implement Ground Water Rule												
PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	B2010	1,445										
PW 05-13	Deep Well Rehabilitation			B2013	350								
				B2015	250								

		SRF	5765	SRF	8215								
PW 05-14	New Deep Wells at Down Hard	B2010	1,321	B2015	1190								
				B2013	810								
PW 05-15	Rehabilitation of Asan Springs	B2010	596.6										
		GRANT	935										
PW 05-16	Master Meters	B2010	8.9	B2015	3116								
		B2013	101			B2015	500						
PW 09-01	Ugum Water Treatment Plant Intake	B2010	3.7	IFCIP	500	IFCIP	500						
		B2013	4	B2015	18								
PW 09-02	Water Wells	B2013	1,000	B2013	1,861.5		B2015	2,500	B2018	4,000			
				IFCIP	2,500								
				SDC	2,000	SDC	500	SDC	500				
PW 09-03	Water Distribution System Pipe Replacement and Upgrades	B2010	71	B2015	1,549	IFCIP	7900	IFCIP	500				
		B2013	7,000	B2013	5,000.8	B2015	500			B2018	5,000		
PW 09-04	Pressure Zone Realignment / Development 2005 Improvements	B2013	0.23	B2015	569	B2015	572						
PW 09-06	Central Water Distribution System 2005 Improvements	B2010	276										
PW 09-08	Mechanical/Electrical Equipment	B2013	3.2	B2015	100								
PW 09-09	Water Reservoir Internal/External												
PW 09-10	Water Reservoir Internal/External			B2015	800								
PW 09-11	Water System Reservoirs 2005 Improvements			B2013	4,000	B2015	24,972	B2015	17,378	B2018	18,250	B2018	10,000
		B2013	4,000					B2018	5,000				
						IFCIP	3500	IFCIP	1,800				
PW 11-01	Distribution System Upgrade	B2010	25.8										
PW 11-02	Ugum Water Treatment Plant Reservoir			B2015	6410								
				B2013	90								
PW 12-01	Water Audit Program & Water Loss Control Plan	B2010	22					B2018	500	B2018	500		
PW 12-02	Production Plan / Reduce Navy Purchases												
PW 12-03	Hydraulic Assessment of Tanks	B2010	30										
PW 12-04	Agana Heights & Chaot Tanks	B2013	3,000.9	B2015	1220								
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1	B2010	592	B2015	1895								
		B2013	7,000	B2013	3,078								

PW 12-06	Tank Replacement Piti & Hyundai	-	B2015	5000	B2015	5,500			
PW 12-07	Assessment/Replacement of Malojloj Elevated & Yigo Elevated	B2010 200 B2013 500							
PW 12-08	Public Water System Asset Inventory/ Condition Assessment								
PW 12-09	Public Water System GIS & Mapping	B2010 50							
PW 14-01	Fire Hydrant Replacement Program		IFCIP 1000 B2015 1000		B2015 500	B2015 500			
TOTAL POTABLE WATER PROJECTS (2010)		4,745.0	-	-	-	-	-	-	-
TOTAL POTABLE WATER PROJECTS B2013/FY2014		22,780.8	15,730	-	-	-	-	-	-
TOTAL POTABLE WATER PROJECTS B2015/FY2016		-	27,626	37,144	22,378	-	-	-	-
TOTAL POTABLE WATER PROJECTS B2017/FY2018		-	-	-	7,000	34,250	10,000		
State Revolving Fund (SRF) Grant Funds		7,515	9,998	-	-	-	-	-	-
System Development Charge (SDC)		-	2,000	500	500	-	-	-	-
GRANTS		1,638	-	-	-	-	-	-	-
IFCIP		-	5,000	13,300	2,800	-	-	-	-
		36,679	60,354	50,944	32,678	34,250	10,000		

Table 10. Wastewater Funding Table

FS - Funding Source		2015		2016		2017		2018		2019		2020	
		FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)
WW 05-04	Wastewater System Planning			B2015	349				B2018	1000	B2018	1,000	
				B2013	71								
				SRF	1,783								
WW 09-01	Lift station upgrades			B2013	592.5	IFCIP	1,700	IFCIP	500				
				B2015	1,054	B2015	350						
				SRF	4,519	SRF	3,324	B2015	1,000				
WW 09-02	Moratorium												
WW 09-06	Wastewater Collection System Repl/ Rehabilitation	B2010	16.9	B2013	833								
				B2015	2,920								
				IFCIP	2,000	IFCIP	2,000	IFCIP	500				
				SRF	11,579	SRF	4567						
WW 09-08	Facilities Plan/Design/interim for Baza Gardens STP Impr.	B2010	101										
WW 09-10	Facilities Plan/Design/interim for Agat-Santa Rita STP Impr.	B2010	0.37										
WW 09-11	WWTP Priority 1 Upgrades	SDC	1,300										
WW 11-03	Baza Gardens STP Replacement	B2010	167	B2013	975			B2018	10000				
				IFCIP	500	B2015	9,000	IFCIP	6000				
				-		B2015	4,700	B2015	4,700				
WW 11-04	Facilities Plan/Design/Interim for Umatac-Merizo STP Impr.	B2010	692.7	B2015	527								
				B2013	102.3								
WW 11-08	Agat/ Santa Rita STP Replacement	B2010	2		-	B2013	11,433						
				B2013	48,200								
WW 12-01	Northern District WWTP Primary Treatment Upgrades	B2010	175.4										
		SDC	1,500										
WW 12-02	Bio Solids Management Plan	B2010	54										
WW 12-03	Agana WWTP Interim Measures			B2015	827								
				B2013	500.8								
WW 12-04	I&I SSES Southern	B2010	350										

WW 12-05	I&I SSES Central						
WW 12-06	I&I SSES Northern	SRF 355					
WW 12-07	Umatac Merizo STP Replacement		B2015 1000		B2018 9000 B2015 7,000		
WW 12-09	Wastewater Facility Back Up Power	SRF 460					
TOTAL WASTEWATER PROJECTS (2010)		1,559	-	-	-	-	-
TOTAL WASTEWATER PROJECTS B2013/FY2014		-	51,274.6	11,433	-	-	-
TOTAL WASTEWATER PROJECTS B2015/FY2016		-	6,677	9,350	12,700	-	-
TOTAL WASTEWATER PROJECTS B2017/FY2018		-	-	-	20,000	1,000	-
State Revolving Fund (SRF) Grant Funds		815	17,881	7,891	-	-	-
System Development Charge (SDC)		2,800	-	-	-	-	-
GRANTS		-	-	-	-	-	-
IFCIP		-	2,500	3,700	7,000	-	-

Table 11. Electrical Engineering Funding Table

FS - Funding Source		2015		2016		2017		2018		2019		2020	
		FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)
EE 05-02	SCADA Pilot Project	B2010	8										
EE 09-01	Wastewater Pumping Station Electrical Upgrade	B2013	520	B2015	100								
EE 09-02	Electrical Upgrade - Water Wells	B2010	95.7	B2015	250	B2015	250	B2015	150				
EE 09-03	Electrical Upgrade - Water Booster			B2015	323	B2013	2						
EE 09-04	Electrical Upgrade -Water Booster			B2013	350								
EE 09-05	Electrical Upgrade - Other Water			B2013	250								
EE 09-07	SCADA Improvements – Phase 2	B2010	43										
EE 09-08	SCADA Improvements – Phase 3	B2010	25	B2013	0.64	B2015	1177						
EE 09-09	SCADA Improvements – Phase 4			B2015	1,500	B2015	2500	B2015	2,500				
TOTAL ELECTRICAL PROJECTS (2010)			172		-		-		-		-		-
TOTAL ELECTRICAL PROJECTS B2013/FY2014			521		602		-		-		-		-
TOTAL ELECTRICAL PROJECTS B2015/FY2016			-		3,350		2,750		2,650		-		-
TOTAL ELECTRICAL PROJECTS B2017/FY2018			-		-		-		-		-		-
State Revolving Fund (SRF) Grant Funds			-		-		-		-		-		-
System Development Charge (SDC)			-		-		-		-		-		-
GRANTS			-		-		-		-		-		-
IFCIP			-		-		-		-		-		-

Table 12. Miscellaneous Funding Table

FS - Funding Source		2015		2016		2017		2018		2019		2020	
		FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)	FS	(x1000)
MC 05-01	Laboratory Modernization	B2013	1,000.5	B2015	627								
MC 05-02	Land Survey	B2010	93.3	B2015	1998								
		B2013	2										
MC 09-01	General Plant Improvements / Water	B2010	30.5	IFCIP	2,500	IFCIP	2,000	IFCIP	1000	IFCIP	1000		
		B2013	184.7	B2015	350	B2015	350						
MC 15-01	Information Tecnology Intergartion Improvements					IFCIP	500	IFCIP	200	IFCIP	200		
				B2015	250	B2015	250						
TOTAL MISCELLANEOUS PROJECTS (2010)			124		-		-		-		-		-
TOTAL MISCELLANEOUS PROJECTS B2013/FY2014			1,187		-		-		-		-		-
TOTAL MISCELLANEOUS PROJECTS B2015/FY2016			-		3,225		600		-		-		-
TOTAL MISCELLANEOUS PROJECTS B2017/FY2018			-		-		-		-		-		-
State Revolving Fund (SRF) Grant Funds			-		-		-		-		-		-
System Development Charge (SDC)			-		-		-		-		-		-
GRANTS			-		-		-		-		-		-
IFCIP			-		2,500		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

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		\$134,300				
DoD-02	Route 9/Route 3 Sewer Main Upgrade		\$29,000				
Total			\$163,300				

G. Project Sheets

Project Sheet Water

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Assessment/design/construct	\$100
2016		
2017		
2018		
2019		
2020		
Project Total		\$100

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Construction	\$82
2016		
2017		
2018		
2019		
2020		
Project Total		\$82

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design/Construction	\$703
2016	Construction	\$3,552
2017	Construction	\$3,000
2018	Construction	\$1,000
2019	Construction	
2020		
Project Total		\$8,255

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Replacement	\$17
2016	Replacement	\$504
2017	Replacement	\$2,000
2018	Replacement	\$2,000
2019		
2020		
Project Total		\$4,520

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$76
2016	Design	\$1,013
2017	Design	\$400
2018		
2019	CM/Construction	\$6,000
2020		
Project Total		\$7,489

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning	\$80
2017	Planning	\$100
2018	Planning	\$100
2019		
2020		
Project Total		\$280

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Design Planning	\$1,750
2016	Design Planning	\$2,683
2017	Design Planning	\$500
2018	Design Planning	\$900
2019	Design Planning	\$500
2020		
Project Total		\$6,333

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	CM/Construction	\$0
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)
2015	Design/construction	\$1,445
2016		
2017		
2018		
2019		
2020		
Project Total		\$1,445

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Design/Construction	\$5,765
2016	Construction	\$8,815
2017		
2018		
2019		
2020		
Project Total		\$14,580

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design/Construction	\$1,321
2016	Construction	\$2,000
2017		
2018		
2019		
2020		
Project Total		\$3,321

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Design/Construction	\$1,532
2016		
2017		
2018		
2019		
2020		
Project Total		\$1,532

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Construction	\$110
2016	Construction	\$3,116
2017	Construction	\$500
2018		
2019		
2020		
Project Total		\$3,726

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design/Construction	\$8
2016		\$518
2017		\$500
2018		
2019		
2020		
Project Total		\$1,026

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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 onto 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)
2015	Planning/Design/Construction	\$1,000
2016	Planning/Design/Construction	\$6,3625
2017	Construction	\$500
2018	Construction	\$3,000
2019	Construction	\$4,000
2020		
Project Total		\$14,862

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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 and Internally Funded CIP.

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)
2015	Planning/Design/Construction	\$7,071
2016	Construction	\$6,550
2017	Construction	\$8,400
2018	Construction	\$500
2019	Construction	\$5,000
2020		
Project Total		\$27,521

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$0
2016	Design/Construction	\$569
2017	Construction	\$572
2018		
2019		
2020		
Project Total		\$1,141

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design	\$276
2016		
2017		
2018		
2019		
2020		
Project Total		\$276

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Procurement/Construction	\$3
2016	Procurement/Construction	\$100
2017		
2018		
2019		
2020		
Project Total		\$103

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$0
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

Note: Funds encumbered by construction project.

**GWA Capital Improvement Plan
Project Sheet FY 2015-2020**

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)
2015		
2016	Planning/Construction	\$800
2017		
2018		
2019		
2020		
Project Total		\$800

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Assessment/Planning/Construction	\$4,000
2016	Planning/Construction	\$4,000
2017	Construction	\$28,472
2018	Construction	\$24,178
2019	Construction	\$18,250
2020	Construction	\$10,000
Project Total		\$88,900

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		\$26
2016		
2017		
2018		
2019		
2020		
Project Total		\$26

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Assessment/Planning/Construction	\$6,500
2017		
2018		
2019		
2020		
Project Total		\$6,500

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$22
2016		
2017		
2018		500
2019		\$500
2020		
Project Total		\$1,022

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016		
2017		
2018		
2019		
2020		
Project Total		

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Systems Planning	\$30
2016		
2017		
2018		
2019		
2020		
Project Total		\$30

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Design	\$3,001
2016	CM/Construction	\$1,220
2017		
2018		
2019		
2020		
Project Total		\$4,221

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	CM/Construction	\$7,592
2016	CM/Construction	\$4,973
2017		
2018		
2019		
2020		
Project Total		\$12,565

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning/Design	\$5,000
2017	CM/Construction	\$5,500
2018		
2019		
2020		
Project Total		\$10,500

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Design/CM/Construction	\$700
2016		
2017		
2018		
2019		
2020		
Project Total		\$700

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$0
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

Note: Funds encumbered by Program Management Office.

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$50
2016		
2017		
2018		
2019		
2020		
Project Total		\$50

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
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 2015-2020

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)
2015	Assessment/Planning	\$0
2016	Assessment/Planning/Design	\$2,203
2017		
2018	Assessment/Planning/Design	\$1,000
2019	Assessment/Planning/Design	\$1,000
2020		
Project Total		\$4,203

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning/Design/Construction	\$6,166
2017	Construction	\$5,374
2018	Construction	\$1,500
2019	Construction	
2020		
Project Total		\$13,040

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016		
2017		
2018		
2019		
2020		
Project Total		

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design/Construction	\$17
2016	Construction	\$17,332
2017	Construction	\$6,567
2018	Construction	\$500
2019		
2020		
Project Total		\$24,416

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design	\$101
2016		
2017		
2018		
2019		
2020		
Project Total		\$101

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design	\$0.37
2016		
2017		
2018		
2019		
2020		
Project Total		\$0.37

GWA Capital Improvements Plan Project Sheet FY 2015-2020

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)
2015	Construction	\$1,300
2016		
2017		
2018		
2019		
2020		
Project Total		\$1,300

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$167
2016	Design/CM/Construction	\$1,475
2017	Construction	\$9,000
2018	Construction	\$20,700
2019		
2020		
Project Total		\$31,342

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design	\$693
2016	Construction	\$629
2017		
2018		
2019		
2020		
Project Total		\$1,322

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$2
2016	Design/Construction	\$48,200
2017	Construction	\$11,433
2018		
2019		
2020		
Project Total		\$59,635

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Construction	\$1,675
2016		
2017		
2018		
2019		
2020		
Project Total		\$1,675

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		\$54
2016		
2017		
2018		
2019		
2020		
Project Total		\$54

GWA Capital Improvement Plan Project Sheet FY 2015-2020

Project Number: CIP WW 12-03

Categorization: Project

Name of Project: Agana WTP 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)
2015		
2016	Construction	\$1,328
2017		
2018		
2019		
2020		
Project Total		\$1,328

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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/SSES 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/SSES 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)
2015	Planning/Design/Construction	\$350
2016		
2017		
2018		
2019		
2020		
Project Total		\$350

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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/SSES 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/SSES 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)
2015	Planning/Design/Construction	\$0
2016		
2017		
2018		
2019		
2020		
Project Total		\$0

Note: Funds encumbered by design project.

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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/SSES 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)
2015	Planning/Design/Construction	\$355
2016		
2017		
2018		
2019		
2020		
Project Total		\$355

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning	\$1,000
2017		
2018	Design/Construction	\$6,000
2019		
2020		
Project Total		\$17,000

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		\$460
2016		
2017		
2018		
2019		
2020		
Project Total		\$460

Project Sheet Electrical

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Pilot Project	8
2016		
2017		
2018		
2019		
2020		
Project Total		\$8

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Construction	\$520
2016		\$100
2017		
2018		
2019		
2020		
Project Total		\$620

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning	\$96
2016	Construction	\$250
2017	Construction	\$250
2018	Construction	\$150
2019		
2020		
Project Total		\$746

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Construction	\$325
2017		
2018		
2019		
2020		
Project Total		\$325

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning/Design/Construction	\$350
2017		
2018		
2019		
2020		
Project Total		\$350

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning/Design/Construction	\$250
2017		
2018		
2019		
2020		
Project Total		\$250

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	On-going Design	\$43
2016		
2017		
2018		
2019		
2020		
Project Total		\$43

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Construction	\$26
2016		\$1,177
2017		
2018		
2019		
2020		
Project Total		\$1,203

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
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 2015-2020

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)
2015	Planning/Design/Construction	\$1,001
2016	Construction	\$627
2017		
2018		
2019		
2020		
Project Total		\$1,628

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Research, Survey	\$95
2016	Research, Survey	\$1998
2017		
2018		
2019		
2020		
Project Total		\$2,093

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015	Planning/Design/Construction	\$215
2016	Planning/Design/Construction	\$2,850
2017	Planning/Design/Construction	\$2,350
2018	Planning/Design/Construction	\$1,000
2019	Planning/Design/Construction	\$1,000
2020		
Project Total		\$7,415

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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 programing 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)
2015		
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 2015-2020

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)
2015		
2016	Planning/Design/Construction	\$134,300
2017		
2018		
2019		
2020		
Project Total		\$134,300

GWA Capital Improvement Plan Project Sheet FY 2015-2020

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)
2015		
2016	Planning/Design/Construction	\$29,000
2017		
2018		
2019		
2020		
Project Total		\$29,000

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

Appendix B: CCU Resolution

CCU Resolution No. 05-FY16

Relative to Approving the Guam Waterworks Authority's Updated Capital Improvements Plan for the Purposes of Planning and Executing Projects in the Near Term (Dated October 27, 2015)

1 **GUAM CONSOLIDATED COMMISSION ON UTILITIES**

2 **RESOLUTION NO. 05-FY2016**

3 **RELATIVE TO APPROVING THE GUAM WATERWORKS AUTHORITY'S**
4 **UPDATED CAPITAL IMPROVEMENT PLAN FOR THE PURPOSES OF**
5 **PLANNING AND EXECUTING PROJECTS IN THE NEAR TERM**

6
7 **WHEREAS**, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities
8 (“CCU”) has plenary authority over financial, contractual and policy matters relative to the
9 Guam Waterworks Authority (“GWA”); and

10
11 **WHEREAS**, the Guam Waterworks Authority (“GWA”) is a Guam Public
12 Corporation established and existing under the laws of Guam; and

13
14 **WHEREAS**, on November 23, 2010, GWA closed on the 2010 bond issuance and on
15 December 12, 2013 GWA closed on the 2013 bond issuance that provided net proceeds for
16 capital improvement projects in the final amount of Eighty Seven Million Four Hundred Two
17 Thousand Dollars (\$87,402,000.00), and One Hundred Thirty Nine Million Three Hundred
18 Twenty Five Thousand Dollars (\$139,325,000.00), respectively, for Capital Improvement
19 Projects; and

20
21 **WHEREAS**, GWA has revised the previously approved 2014-2019 Capital
22 Improvement Plan (“CIP” or “the Plan”) dated October 28, 2014, and revisions to the Plan
23 covering FY2015 through 2020 are attached hereto as Exhibit A. This Plan includes capital
24 projects with expenditures coming from the following sources: (a) balance of the 2010 bond
25 funds which is approximately \$6,600; (b) balance of the 2013 bond funds is approximately
26 \$103,529,000; (c) \$128,450,000 from the anticipated 2015 bond issuances; (d) \$72,250,000
27 from anticipated 2018 bond issuance; (e) \$44,100,000 in State Revolving Funds from the
28 USEPA; (e) \$5,800,000 in System Development Charges; (f) \$1,638,000 in grant funding
29 from a variety of federal sources; (g) balance of the revenues for internal CIP fund estimated
30 at \$41,700,000, all resulting in a grand total of \$404,067,000 in capital expenditures over the
31 next 5 years; and
32

1 **WHEREAS**, the 2015-2020 CIP also identifies for planning purposes a \$169,500,000
2 funding need for wastewater infrastructure improvements at the Northern District WWTP
3 northern collection system upgrade as well as the Northern Guam Lens Aquifer (NGLA)
4 monitoring associated with the military buildup; and

5
6 **WHEREAS**, the 2015-2020 CIP identifies existing and new CIP projects that require
7 in most cases design, construction and construction management implementation as well as
8 provides an update to the funding and projects needs for the 2015 Bond issuance ; and

9
10 **WHEREAS**, some of the major projects identified in the 2015-2020 CIP include, but
11 which are not limited to, the following:

- 12 • Water Booster Pump Station Rehabilitation to improve pumping capacity and
13 energy efficiency at critical BPS throughout the island;
- 14 • Island wide sewer collection system improvements to reduce I&I and improve
15 collection system efficiency and WWTP processing;
- 16 • Design and construct the New Agat Santa Rita Wastewater Treatment Plant to
17 replace the existing plant and meet NPDES permit limits;
- 18 • Baza Gardens Wastewater Treatment Plant conversion to a pumping facilities
19 to pump wastewater to the new Agat Santa Rita WWTP ;
- 20 • Umatac-Merizo Wastewater Treatment Plant Upgrades to bring the plant into
21 compliance with the NPDES permit limits;
- 22 • Umatac-Merizo Wastewater Systems which will address required
23 improvements at the treatment plant and collection systems;
- 24 • Water line replacement which will reduce GWA's water loss and improve
25 GWA's power cost, given less water is needed to pump out of the wells;
- 26 • Sewer pump station upgrades which will provide more efficient pumping
27 operations reducing GWA power consumption and improve system reliability
28 to prevent sewer spills;
- 29 • Implement a SCADA system to allow GWA to have real time information on
30 the water and wastewater facilities throughout the island which will allow for
31 better planning and troubleshooting;
- 32

- 1 • Rehabilitate down hard wells and develop new wells for additional source
- 2 water capacity to address the islands natural population growth as well as
- 3 growth related to the military build-up;
- 4 • Replace many of GWA's steel water storage tanks with concrete tanks that
- 5 have a better life cycle cost;
- 6 • Refurbish some of GWA's steel water storage tanks that will give the tanks an
- 7 additional ten to fifteen years of life to allow GWA the ability to replace the
- 8 tanks as necessary; and
- 9 • Replace all existing water meters, manual reads and AMR, that have failed
- 10 with new AMR water meters that were evaluated to have better reliability
- 11 which will allow GWA to maintain revenues projects.
- 12

13 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on
14 Utilities does hereby approve and authorize the following:

- 16 1. The recitals set forth above hereby constitute the findings of the CCU.
- 17 2. The FY2015-2020 Capital Improvement Plan, attached as Exhibit A, is
- 18 incorporated into this resolution in its entirety.
- 19 3. The CCU approves the 2015-2020 Capital Improvement Plan in its
- 20 entirety and accepts the fact that updated information and changing
- 21 circumstances through the year requires GWA to make changes necessary
- 22 and for the betterment of the people they serve.
- 23 4. The FY2015-2020 CIP shall satisfy the requirement that GWA submit its
- 24 capital plan to the PUC annually.
- 25

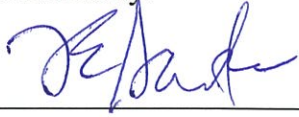
26
27 **RESOLVED**, that the Chairman certified and the Board Secretary attests to the
28 adoption of this Resolution.

29
30 //

31
32 //

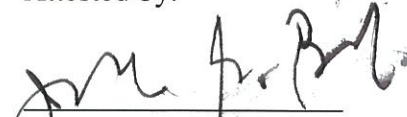
1 **DULY AND REGULARLY ADOPTED AND APPROVED** this 27th day of
2 October, 2015.

3
4 Certified by:

5 
6 _____

7 **JOSEPH T. DUENAS**
8 Chairperson

Attested by:

9 
10 _____

11 **J. GEORGE BAMBA**
12 Secretary

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

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

19 AYES: _____ 4 _____

20 NAYS: _____ 0 _____

21 ABSTENTIONS: _____ 0 _____

22 ABSENT: _____ 1 _____

23 ///

24 ///

25 ///

26 ///

27 ///



Appendix C: PUC Order

PUC Order 15-06

IN RE: Request by the Guam Waterworks Authority to Reprogram 2013 Bond Proceeds

eliminate by-passes at the plant.”¹ According to GWA, Phase I of the project can be completely funded by the 2013 Bond proceeds; however, in order for a contract for Phase II of the project to be executed by December, \$48.2 million in additional funding is necessary.²

The Petition was supported by Resolution No. 38-FY2015 (“CCU Resolution”), issued by the Consolidated Commission on Utilities (“CCU”), which approved the reallocation of funds from the 2013 Series Bonds, and authorized GWA to seek PUC approval for such reallocations.

GWA’s request for reprogramming affects twenty-nine (29) projects, which GWA submitted, can be deferred until a later date.³ Pursuant to 12 G.C.A. §12004,⁴ the PUC is tasked with reviewing and approving all uses of bond proceeds.

GWA’s Petition included the reprogramming of 2013 Bond funds for several potable water projects, which include: Water Booster Pump Station; Meter Replacement Program; Barrigada Tank Repair/Replacement; Leak Detection; Potable Water System Planning; Deep Well Rehabilitation; New Deep Wells at Down Hard; Master Meters; Ugum Water Treatment Plant Intake; Water Distribution System; Pressure Zone Realignment; Water Reservoir Internal/External; Water System Reservoirs 2005

¹ Petition to Reprogram \$48.2M in 2013 Bond Proceeds to Meet the Requirements of the Order of the United States District Court Relative to Incomplete Stipulated Order Projects (“Petition”), p. 1 (Aug. 4, 2015).

² Petition, pp. 1-2.

³ Petition, Exhibit 1, p. 1 (“Issues for Discussion”).

⁴ Renumbered as 12 G.C.A. §12105.

Improvements; Ugum Water Treatment Plant Reservoir; Agana Heights & Chaot Tanks; Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1; Tank Replacement Piti & Hyundai; and Fire Hydrant Replacement Program. The Petition sought to reduce these particular portable water projects by \$36,801,000.

In addition to the potable water projects, GWA also identified six wastewater projects that require 2013 Bond reprogramming. These projects include: (1) Wastewater System Planning; (2) Lift Station Upgrades; (3) Water Collection System Replacement and Rehabilitation; (4) Facilities Plan/Design for Umatac-Merizo WWTP; (5) Agana WWTP Interim Measures; and (6) Umatac Merizo Replacement.⁵ GWA submitted that these projects also may be deferred to a later time. The total proposed reduction of these projects amounts to \$6,477,000.⁶

With respect to GWA's electrical engineering projects, GWA identified four projects that require 2013 Bond reprogramming, namely the Electrical Upgrade-Water Wells, Electrical Upgrade-Water Booster project, SCADA Improvements-Phase 3, and SCADA Improvements-Phase 4.⁷ The budget for these four projects will be reduced by \$2,597,000.⁸

⁵ Petition, Exhibit 1, p. 2.

⁶ Petition, Exhibit 1, p. 2.

⁷ Petition, Exhibit 1, p. 2.

⁸ Petition, Exhibit 1, p. 2.

Finally, GWA's Petition identified two (2) miscellaneous projects that require 2013 Bond reprogramming: the Laboratory Modernization and Land Survey projects, which will be reduced by \$327,000, and \$1,998,000 respectively.⁹

The PUC is tasked with reviewing and approving all uses of bond proceeds pursuant to 12 G.C.A. §12004.¹⁰ Based on the record, GWA is required to complete improvements to the Agat-Santa Rita WWTP.

In particular, the federal Stipulated Order required that GWA complete the Agat-Santa Rita Wastewater Systems upgrade by December 31, 2016, and that GWA "achieve consistent compliance with the Agat-Santa Rita WWTP's NPDES permit, eliminate Bypasses at the WWTP, ensure that solids generated by the WWTP are adequately stabilized and dewatered at the Agat-Santa Rita WWTP, and comply with the sludge and biosolids requirements in 40 C.F.R. Part 503." Amended Stipulated Order, pp. 22-23. In fact, the Amended Stipulated Order required that "by June 30, 2015, GWA shall execute a construction contract and issue a notice to proceed with construction." *Id.* at 23.

On September 22, 2015 the Administrative Law Judge of the PUC Joephet R. Alcantara (the "ALJ") filed an ALJ Report regarding the Petition which included his findings and recommendations based on the administrative record before the PUC.

The ALJ found that the project for which GWA sought approval for reprogramming in its Petition was designed to improve Guam's water and wastewater

⁹ Petition, Exhibit 1, p. 2.

¹⁰ Renumbered as 12 G.C.A. § 12105.

utility infrastructure; to increase their reliability and efficiency; and to comply with the Amended Stipulated Order. Further the ALJ found that, based on GWA's 2014-2019 Capital Improvement Plan ("CIP"), the Agat-Santa Rita WTP Replacement project was originally budgeted at \$58,547,000, which includes planning, design, and construction, and involved funding from 2010, 2013 and 2015 Bond fund sources. As described in GWA's CIP, this project involves the construction of new wastewater treatment facilities that will meet secondary treatment limits, and that the new facilities will improve reliability and facility operations and maintenance activities at the existing facility.

Accordingly, the ALJ found that the reallocations and reprogramming are reasonable and necessary given GWA's need for the expansion and improvement of Guam's wastewater system, as well as compliance with its obligations under the federal Court Order. The ALJ, therefore, recommended the PUC's approval of the Petition.

The Commission hereby adopts the findings made in the September 22, 2015 ALJ Report and, therefore, issues the following:

ORDERING PROVISIONS

Upon consideration of the record herein, the September 22, 2015 ALJ Report, and for good cause shown, on motion duly made, seconded and carried by the affirmative vote of the undersigned Commissioners, the Commission hereby ORDERS the following:

1. GWA's Petition for approval to reprogram \$48.2 million of 2013 Bond funds is hereby GRANTED.

2. However, the approval of the PUC is conditional; before reprogramming the approved amounts, GWA shall obtain a formal, written opinion from its Bond Counsel, the Orrick firm, attesting to the legality of the reprogramming proposed and its compliance with the bond covenants and all terms and conditions pertaining thereto. Furthermore, GWA shall not undertake such programming unless Bond Counsel attests that such reprogramming will not in a manner adversely affect or impact GWA's ability to issue its proposed 2015 bond issuance or negatively impact GWA's bond ratings with the ratings agencies (i.e. S&P, Fitch, and Moody's).

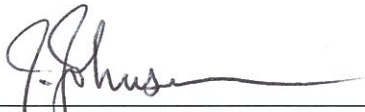
3. GWA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses associated with the instant proceeding. Assessment of the PUC's regulatory fees and expenses is authorized pursuant to 12 G.C.A. §§12002(b), 12024(b) (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]

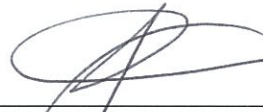
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SO ORDERED this 24th day of September, 2015.



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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