

Guam Waterworks Authority Water Resources Master Plan (WRMP) Journey

Fact Sheet

Project Vision

We will work as a cohesive team to develop a master plan that sets GWA on an aggressive path to be a reliable, efficient and effective utility for our customers.

Project Driver

On June 05, 2003, GWA entered into a Stipulated Order Agreement with US EPA to undertake a number of initiatives to improve the reliability of the water and wastewater systems and protect Guam's environment. The WRMP project is one of the 47 action items required by US EPA.

Project Team

Prudencio Aguon will lead the effort for GWA as the project manager. Eassie Miller of Brown and Caldwell will lead a multidiscipline consultant team consisting of, Duenas and Associates, Winzler & Kelly, D&E Consulting, BEP Comptroller Services, Hunter Water Australia, Katz and Associates, Morikawa and Associates, Mink and Yuen, IIS, MGD Technologies, and Process Applications.

Project Scope

Besides the development of a WRMP the project includes, collecting information on installed equipment (assets), developing a Geographical Information System (GIS) library of installed water and wastewater piping, transferring skills and knowledge to GWA staff, and developing Information Technology (IT) tools to assist in future planning decision making.

The project has been organized into three phases. The major tasks of each phase are:

Phase I – Develop tools for data collection. Begin the process of digitizing the water and wastewater system drawings. Assess the integrity of the potable water resources.

Phase II – Begin collection of water and wastewater system equipment information. Complete GIS development of water and wastewater system. Evaluate the wastewater facilities performance. Develop water and wastewater system hydraulic models.

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Phase III – Develop and prioritize water and wastewater system improvement alternatives. Develop financial models to fund OM&R and CIP. Develop tools to determine equipment replacement scheduling.

In addition to the technical and financial aspects of the WRMP, engage GWA staff to be part of the process, share, teach and empower staff to accept ownership of their utility and WRMP.

Project Schedule

Phase I was started on May 06, 2004, Phase II begins on October 01, 2004 and Phase III begins on October 01, 2005. The project is scheduled for completion 630 days after the Phase I Notice to Proceed.

Measure of Project Success

GWA staff acquires the necessary skills and knowledge to use the tools created for the WRMP and takes on ownership of the decision-making tools to implement the WRMP.

Guam Waterworks Authority Water Resources Master Plan Frequently Asked Questions June 3, 2004

What is the Water Resources Master Plan (WRMP)?

Master planning is a normal process for water and wastewater utilities that defines capital, operation and maintenance, and other resource needs required for reliable water and wastewater service, usually for at least the future 20-year timeframe. As with any typical master plan, the WRMP will examine GWA's existing water and wastewater system assets and describe what needs to be built here in Guam during our 20-year planning period so we can continue to provide reliable water and wastewater service to residents and businesses on the island. It will also identify methods GWA can use to pay for the associated facilities. The WRMP will set GWA on an aggressive path to be a reliable, efficient, and effective utility for our customers.

Why is GWA doing the WRMP?

In addition to the reasons mentioned previously, such as planning for the future and improving operational performance now, the WRMP will help GWA meet the various milestones established by the agreement we signed with the U.S. Environmental Protection Agency (EPA). This agreement is known as the "Stipulated Order" and it requires GWA to make specific improvements or submit specific information to EPA on a prescribed schedule.

Don't we already have a master plan?

We do have an old master plan completed in 1994, but it was not implemented and is now out of date. The WRMP effort will examine our existing systems and consider current infrastructure condition, up-to-date population trends and water demand needs to develop a plan for the future.

How is the WRMP different from the previous master plan – and how can we be sure this one will be implemented?

The WRMP is different in several ways, all of which contribute to our confidence it will be implemented. First, GWA has already begun to make improvements in our water delivery system and is committed to becoming a reliable, efficient and effective utility for our customers. Also, it is probable that the Stipulated Order will lead to a regulatory roadmap we must follow. In addition, the WRMP is taking a "team" approach to develop this master plan. GWA staff and consultants are working together as an integrated project team to gather data and recommend asset management and capital needs. This effort will also involve working with the entire GWA staff during the data gathering phase, as well as providing information about the WRMP to the community and obtaining input from them.

Who is on the WRMP "team"?

Prudencio Aguon is the GWA project manager and Eassie Miller, a consultant with Brown and Caldwell, is the project manager of the consultant team. Prudencio can provide you with a list of the GWA staff who are participating on the project team, as well as the other individuals on the consultant team.

What will the consultants be doing?

Throughout the project, the consultant team will be doing actual and extensive field work. You have probably seen some of them at your work sites recently. They are working with GWA staff to collect data about all the facilities, pipelines and other assets in GWA's water and wastewater system, as well as develop the geographical information system (GIS) portion of the plan. They will also analyze population projections and water demands and recommend facilities needed to meet that demand. The consultant team will also look at GWA's financial planning and recommend appropriate ways to fund our future capital program, as well as examine the current condition of various facilities and suggest ways to improve our maintenance or operational efforts.

How should I work with the WRMP project team?

The best way for each GWA employee to work with the WRMP project team is to provide them with honest and forthright answers to questions about the system. We all know the old saying "Garbage in, garbage out." Well, we want to be sure the WRMP is a "garbage free zone" and the only way to do that is for us to give the team accurate information.

Is the WRMP actually part of the privatization effort?

No. The driver for the WRMP is the Stipulated Order we signed with EPA. More importantly, the WRMP offers us an opportunity to take a good look at our system, make the technology improvements that will help us identify system problems and make needed repairs, and address our current and future water supply and wastewater needs.

What's in it for me?

The WRMP offers all of us a real opportunity to participate in improving our utility today and developing a roadmap for GWA to make sure we provide the best water and wastewater service to meet the needs of our children and grandchildren. It's also a way for each of us to learn some new techniques and skills that will help us do our job even better.

When will the WRMP effort begin?

It officially started on May 6 when we signed a contract with the consultant team. Consultant team members have been here for the past week to formally "kick off" the WRMP effort – and that is one of the reasons we are meeting with staff today. This first phase of the effort is expected to conclude in October 2004. Phase II would begin in October this year and Phase III, in October 2005.

Will GWA staff get updates on the WRMP progress?

Yes. Communication is an important part of the WRMP effort, and that means communicating with GWA staff and our customers. You will get updates in Pipeline, as well as learn about WRMP milestones from your supervisors or in staff meetings.

Who can I contact if I have questions or some input I want to provide?

Prudencio Aguon is the GWA project manager for the WRMP. He can be reached at 647-2607 or prudencio@guamwaterworks.org.

Village Input Summary

Wastewater	Water	Management	Planning	Outreach	Other
Talofofo 10/29/2004					
Need sewer system in Ipan area	Inadequate reservoir due to typhoon	Have seen some improvements since Mr. Craddick came on board	Unplanned development for the future and the infrastructure	Don't mind the rate increase but would like to know how much would it benefit the people	
No sewer system from SDA church to Ipan area	Need approximately 5 booster stations to accommodate the area of Baza Gardens		Rectify the location of meters to the proper residence		
From Lucas area no sewer system	Project that has not been implemented to help bring water in areas within the village (Notre Dame High School area)		Landfill that will cover eight (8) water areas would be detrimental to our water		
Old pipes in the municipality					
Sewage station located at John Taitague street is a problem (Lujan always pumping) needs to be upgraded	Millions of gallons of water within the area between Talofofo and Malojoj area that could be put to use		A development that was not allowed knowing that water supply would be insufficient to supply to the residents		
Leak on an abandoned line					
	Water in low and high areas affected by the suction				
	Surface water is okay but ground water could also be helpful				
	Elevated reservoir				
Barrigada 10/14/2004					
	Water pressure reliability - down system from Route 8	If GWA is making progress - should we be privatizing it - especially if the rate payers fund the improvements and upgrades? It belongs to the people of Guam	There are fire hydrants in Barrigada that do not have water	Yigo and Dededo are the fastest growing parts of the island - right over our ground water aquifer - why?	
	Can we develop more water in the South?		There are large parts of Barrigada that do not have sewer	Andersen AFB has been well funded - will they share the water from their developing system with the rest of the island?	

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Dededo 10/13/04					
	Upgrading lines in Chalan Kotda to get better water pressure		Under the SO when would the Master Plan be implemented		
Santa Rita 9/30/2004					
Santa Rita sewer system is inadequate	Distribution upgrades bring water from Ugum reliably		Will there be more surface water development?		
Keep the sewer system adequate to catch the water system	Why are there areas in Santa Rita without water? Any why some areas have it?		We need to update the water system maps		
	Namo Falls and run-off water as an alternative source		Build more reservoirs		
			Design an affordable catchment system for homeowners to use as backup water source		
			Acquire the property near Naval Magazine (Federal transfer), Topu Nga Nga river. An abundant source of water		
Yona 9/28/2004					
Coordinate line replacement with DPW projects, such as Route 4			What is in the Master Plan will guide what is done under Privatization, or as a Utility	Privatization does not provide better service	
			Land Use Planning - Green Belt, protecting the watershed	Privatization will cost more	
Hagatna 9/8/2004					
Sewer areas without a sewer system, to protect the groundwater			Coordinate with Hagatna Redevelopment Committee		

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Agana Heights 9/29/2004					
Include unfinished sewer projects into the Master Plan (1992-1993)	Improve water infrastructures in Chalan Macajma and high elevated areas. Include fire protection (fire hydrants)		What happened with the proposed reservoir in Ulloa-Untalan Street (1994)?		Master Plan Team should meet with each Mayor on a one to one basis
What happened to funds for this?		What happened to the previous master plan?			
			Projected 200-300 homes in the next 15-20 years. Provide adequate infrastructures to rural areas to simulate this growth		
		Why \$6 million for this Master Plan?			
			Replacement of asbestos pipes throughout the system		
			What happened to eminent domain? (unfinished projects)		
Merizo 9/27/2004					
Want a working sewer system...no more pop-ups when you drive down the road	Lead in water pipes in Malesso	1 tank in Belen (Inarajan middle school) area was never connected to water line. Displays negligence. Installed without anyone checking to see if it is connected	Start up water dams and stop depending on distribution from Talofolo and Malojloj	Merizo, Umatac and Inarajan never experienced water outages until installation of tank in Talofolo. Southern villages have many springs and rivers to use as source	1 million gallon tank in Malojloj, what is the purpose?
Sewer disposal at Toguan (Umatac & Merizo Txt. Plant) to be fixed	Water is dirty. Filters are dirty		Generators needed for each pump...why doesn't GWA order the necessary emergency generators?	EPA only cuts you off... never develops a solution to the problem	Employees need in-service training. Need everything combined, the employees, system, etc.
Concern about sewer line connections. Sewer line down in Malesso is very old. This project is only good for 20 years. Health hazards from not hooking up to sewer system	Breaks in lines. Who is responsible for flushing lines?		Keep Ugum clean... muddy Ugum results from erosion caused by bare hills from fires	Ugum could use a filter to reduce time to fill tank...Out of water from 9:00 am to midnight...too long when Ugum is muddy	Ensure parts availability. Maintain at least 2 spare parts for equipment in operation

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Tamuning 8/19/2004					
Sewer over-flows on Marine Drive near Ben Franklin	Slow response time to water leak repairs			Would a larger distribution line be included in the WRMP?	Storm water as an alternative water source
Address low water pressure in high elevated areas				Who pays for system development?	
Asan, Maina, Piti 8/18/2004					
Past CIP Plan requesting for sewer lines and fire hydrants for village of Maina - currently none			Decrease response time to reported leaks, etc. - improved maintenance		
Inconsistent water pressure - increase pressure at higher elevations			Improvement/ Development of Asan Spring		
	Water line sizing for fire protection		Development of recently acquired military land - near Nimitz Hill		
Inarajan 8/17/2004					
	Condition of the Ugum Water Treatment Plant. Uninterrupted supply of good water.		Start developing other water sources for southern residents - Ugum may not be sufficient to support other villages (Windward Hills, Apra Hts, etc.) Consider former Inarajan dam	Ugum River not too critical...Other alternatives (Fred Castro GEPA Comments to media) Explain....	
Summary of wastewater system for the south	More water storage facilities		Ija subdivision will be increasing upwards to 300 families	Would like to hear "expert vision" of water for south to be reviewed by residents for further input and comment	
Upgrade sewer systems (should be a priority) in Inarajan and Malojloj to prevent contamination of southern water sources			Prior survey of Malojloj 6-8 years ago for sewer system	GWA step up to the plate re: possible landfill in DanDan and make position known to GEPA to protect southern water source	
Talofofa falls restroom facilities...Where is waste going...check if going towards Ugum			Look up past stats on water sources available in Umatac and Merizo	Protect southern wetlands	

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Inarajan 8/17/2004 (continued)					
			Look into possibility of wells for southern water	Rural , small retails, cultural center, etc. - country-side atmosphere	
			Storm drains - run-offs and damages to the water sources and beaches	Relationship of pollution occurring on beaches due to wastewater, mountains?	
Mangilao 9/20/2004					
		Customer service, response time	Price Street sewer line going in place and will do well	Reduce (if not eliminate) areas of low pressure in GCC area, Pagat, etc. - chronic complaints	
				Songsong area (going down Mariano road) - project started 3 years ago, not fully complete. Mainline put in place, however, no laterals... There are a lot of leaks with complaints of flooding	
				Adacao Elementary school (near Latte Hts.) and high school in Pagat...(18 months)	
			1990 Master Plan...A sewer line from Latte Hts down to Route 15 (in conjunction with road project) estimated at \$15 million... would like to see it happen		
Yigo 9/22/2004					
Sewer-existing plan that village can refer to... northern Guam has been cited for holding the major water lens for island, is there anything being done to ensure more residents hook-up to the sewer system... no major sewer projects other than housing developments	Chalan Nanao (behind Yigo Post Office/ Yigo Pump Station) - repeated overflow during heavy rainfall, flows down to Marianas Terrace	Land Management - TLUC permits should only be granted upon advising village mayors and ensuring infrastructure can accommodate development	Replacement of lines to meet development, for example installation of 2" lines for too many homes creating low water pressure (West Gayinero Rd.)	Greater involvement of GWA in the development of different areas in village-enforce greater authority re: availability of water lines prior to development (behind Payless, Anao Point).	Customers must pay for installation of lines in excess of 1000 ft. in order to connect to public line...Need to bring lines to reach customers

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Community Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Yigo 9/22/2004 (continued)					
	Agafa Gumas area - old water line and old water system... difficulty trying to find shut-off valves for repairs, etc... knowledge of where lines are (updating maps)	Waterworks needs to demand and enforce residents to hook-up to sewer system wherever it is available within specific time frame	Relocation of meters - bringing it closer to the home. Costs for relocation	Military systems - they will be self-contained? Andy South wells...will they be serviced by underground power?	Del Rosario property subdivided...Residents are being assessed to install lines on government easement
	Old lines run directly under buildings			Chamorro Land Trust property development	Although Y-15 was upgraded and GPA maintaining power generator there, if the water system goes off, GPA's obligation to switch over to generator power...GPA will not turn on until island wide power. GPA is responsible to refill with diesel...GWA electrician is responsible to switch back to island wide power. GWA must maintain their own generator...not GPA
	Ensure safety of drinking water			Need to show community that upgrade and increases will protect their community	
	Old Air Force 2" line now reduced to 1/4" pipe on back road - through West Gayinero all remain on old 2" lines...Low water pressure			Oppose privatization to protect northern water supply, but doesn't mind privatizing certain parts of management system	
	Y-15 - Gayinero up to Lupoc are all affected. Need another well source to support area				
Northern has largest aquifer...need proposal to protect aquifer...More than 2000 families coming in putting in septic tanks... increase potential of contamination. Data needed for sewer infrastructure for Dededo...what is the percentage connected to sewer system to protect northern water					
Agat 9/17/2004					
Wastewater pump on Route 2 near Tun Leon St - not suitable for population in that area. Sewer system in Finile area	Consistent water service despite Navy service - water/storage tanks to avoid loss of school days (7 schools in Agat & Santa Rita villages)	Efficient meter reading	Need to identify what is currently available... village proper developed in the 1940's	Lack of control over development in any community - existing system cannot accommodate growth - Pagachao, hillside... system is not suitable for development, to support current needs	Satellite office - payments, concerns, etc.
Infiltration into system					

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Agat 9/17/2004 (continued)					
Not all areas are connected to sewer system (Finile, Santa Ana, Old Agat)	Alternate water source for Santa Rita & Agat - Umang River, Finile River, Amagosu springs	Improved customer service	Agat has potential for development of hotels. Prior plans for hotels and golf courses couldn't go through because of infrastructure	Impact of privatization, borrowing and master plan development	
		Properly trained techs - updated on technology	Land trust units, Hyundai subdivision, Santa Ana all developing...need to have sewer system to meet those needs	Data accessibility on-line with system information	
			New system and back- up system - keep water running even if something goes down	Privatization is dangerous - sole source of water, rates will go up. Government agency can be controlled	
			Master plan for flood water	Follow BOT as opposed to privatization	
			Electronic detection system for leaks, system problems	Water tank in every school	
			Identification of funding for development/ implementation of master plan	Get all other agencies involved and talk with each other - Civil Defense, Public Works, etc...	
				Provide greater support to village mayors - "utilities coordinator"	
				Bill 244 - excluded funding for the south	
				Communications between residents and GWA. Automated services are frustrating	

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Umatac 9/16/2004					
Sewer connections needed (Mayor's office not connected) - Agat - Umatac Road sewer line project (and waterlines)	Storage tanks - transmission & distribution lines for water service sustenance		Development of Umatac Subdivision towards Merizo and hillside properties	Bolanos Spring-put in operation for emergency purpose (kept water running in Umatac in past- Alternate Water Source [GWUISW?].)	1994 Study re: LaiLai Springs (look up)
Galvanized pipe replacements			Fire protection-update (several built in 1980's) and expand	Environmental protection	
	Umatac Watershed Committee...availability of water during heavy rain...erosion, wild fires, damages to watershed for area		Stand-by pumps & motors	Institute Fire prevention awareness education	
			Alternative sources for low pressure, etc. (current needs)		
			Inclusion of Guam Fire Department in the development of a master plan for protection against soil erosion and damage to water shed		
			Development/Protection of surrounding properties when upgrading various water/wastewater systems		
Mongmong-Toto-Maite 9/23/2004					
			Before embarking on any major plan for major plan of water system, embark on major plan to address leaks	Before embarking on any major plan for major plan of water system, embark on major plan to address leaks	
			Need a plan to fix leaks as they happen. Invitation to see leak at Guma Arot	Near Town House, large leak spewing out around 4:30pm (fire hydrant). 1.5 hours (later still leaking) of leaks, waste of resources, negligence & waste of taxpayers money	

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Village Input Summary (continued)

Wastewater	Water	Management	Planning	Outreach	Other
Mongmong-Toto-Maite 9/23/2004 (continued)					
				Guma Arot, leak in main line going on for 2 years ...another in the middle of frontage of Guma Arot ...Going on for 10 days, still there	
Privatization...proposed privatization plan to be presented. What are major items in the proposed privatization...concern, what will happen to the resource that belongs to Guam? Will we put the water resource into private hands? It is similar to land. Land and water are all we have here.					
				Unsure of how Fena landed solely in the hands of the Navy. The Navy's mission is to take care of the Navy. When large activity occurs, they shut out the community	
			These concerns should be taken into consideration in the preparation of the privatization plan		
Sinajana 9/24/2004					
Finish out the sewage connections to areas not connected in Afame	Looking forward to reliable water supply (Good Water Always)	Enforce metering of water, stiffer penalties for theft	Utility meters should be grouped together, Water Power, etc.		Standardize equipment used in the system, and train staff to maintain repair
	Agana spring as a backup water source	Keep better records of field jobs, and reporting	System development charge needs to be implemented - pay for service.		Water meter should not be reading air
	Insufficient water pressure for second floor	No estimating of consumption			Meter readers are not re-closing meter boxes
Sinajana is expanding, 200 more homes in the next 10 - 20 years - need water and sewer					
		What is the emergency response plan for chlorine leaks? Is there a designated safe area?			
		Road repair following water line repairs need to restore the road quality			

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