

## **CHAPTER 1 – BACKGROUND**

### **1.1 Introduction**

The Guam WRMP has been largely driven by the need to comply with the EPA Stipulated Order issued on June 5, 2003. However, development of a master plan is a prudent activity for any entity responsible for the management of a significant water and wastewater utility. The consultant team led by Brown and Caldwell developed a plan that maximizes interaction with the GWA staff while addressing the Stipulated Order requirements. The plan also integrates asset management best practices with an implementation plan. A combination of related master planning, utility optimization, and asset management experience was important to the development of this plan. A strong emphasis has been placed on both short- and long-term success factors to unlock resources that can be reallocated to meet GWA's most critical needs.

The following sections outline the process used to complete the WRMP and indicate the premium value placed on communication, coordination, empowerment, teaching, capability building and project team dialogue. These factors are critical for making a strong case for procedural, cultural and organizational modifications and to build credibility among the stakeholders.

#### **1.1.1 Project Goals**

GWA is embarking on a path to become a more effective, efficient total water utility. In addition to the 20-year capital plan, financial plan, and analytical tools which are elements of the WRMP, GWA has desired will be positioned to use the master plan findings to help set the utility on a long-term, progressive path to achieve “best in class” performance.

To accomplish this far-reaching objective, the WRMP teamed with GWA personnel to accomplish the following key goals:

- Institute sound asset management and capital planning
- Develop a foundation for sound management operation and maintenance and financial planning
- Engage GWA's customers to achieve the appropriate level of service
- Achieve long-term resource sustainability
- Establish the road map for full regulatory compliance

For each goal, Figure 1-1, WRMP Project Goals and Objectives, describes the objectives GWA needs to meet to achieve the overall objective of significant improvement in utility performance.

#### **1.1.2 Project Approach and Scope**

The WRMP approach provides a road map for GWA to achieve its goal of substantially improving its water and wastewater utility performance. Key project elements are graphically presented in Figure 1-2, Project Approach Diagram, and were developed to meet the objectives of eight program tasks, which are integral parts of the WRMP. The Project Approach Diagram illustrates the flow of the project and relationship of the eight major tasks coupled with the organizational development and communications activities that occurred throughout the entire project.

Figure 1-1 – WRMP Project Goals and Objectives

**Goal 1 - Institute Sound Asset Management and Capital Planning**

- Identify and measure key criteria to achieve appropriate levels of service, utility performance, and regulatory compliance.
- Develop an effective, business-like approach that results in good decisions on capital expenditures and incorporates best practices used by other successful utilities.
- Incorporate assessment of risk and critical need to achieve intelligent asset decision-making.
- Develop key tools to enable improved asset management.
- Identify appropriate levels of automation to achieve better labor and process efficiencies.
- Articulate standards and operating protocols that provide an appropriate level of reliability and protection for critical facilities following natural disasters (i.e., typhoons and earthquakes).

**Goal 2 - Develop Foundation for Sound MOM (Management, Operation and Maintenance) and Financial Planning**

- Develop a detailed short-term, 5-year financing plan that will provide adequate revenues to sustain the utility.
- Work in partnership with GWA to interface with the PUC and public to explain the proposed financing plan.
- Develop a long-term financial plan and tool that enables GWA to identify long-term financial reserves needed to sustain the water and wastewater infrastructure.
- Engage the staff during the Master Plan development to gain ownership for long-term sustainability and to help foster organizational change and improvement.

**Goal 3 - Engage the Customer and Achieve an Appropriate Level of Service**

- Explain the Master Plan process to GWA customers and get their input.
- Identify steps GWA can take to achieve early gains and increase customer confidence.
- Improve customer management processes and public accessibility to pertinent information.
- Identify the best and most efficient ways to achieve the appropriate levels of service and reliability that GWA's customers deserve.

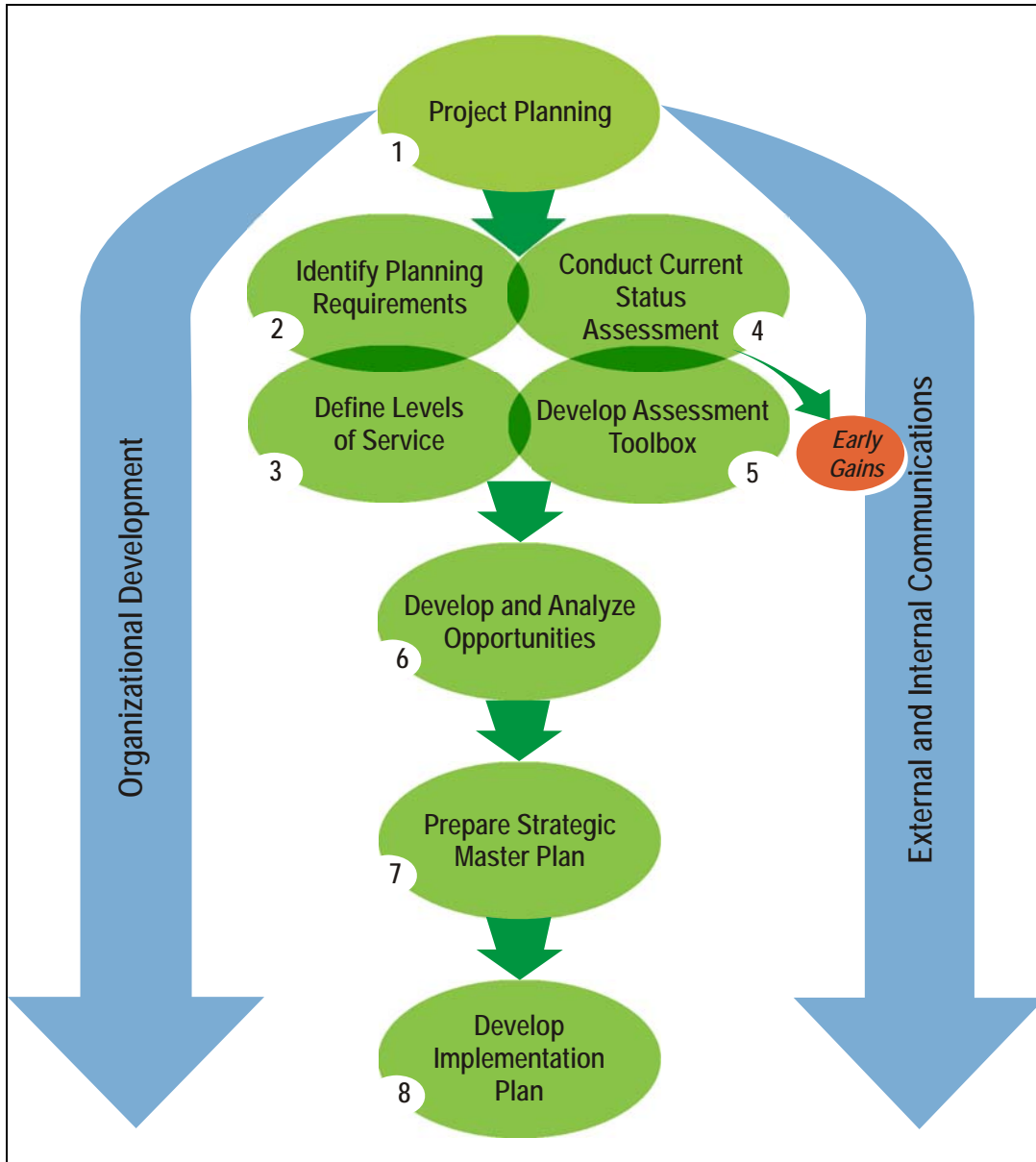
**Goal 4 - Achieve Long-Term Resource Sustainability**

- Develop a 20-year plan with a sound 100-year vision in mind.
- Sustain the island's groundwater resources over the long term.
- Identify the role of surface water and recycled water in meeting long-term needs.
- Protect the island's sensitive coastal waters affected by wastewater operations.
- Develop a responsible biosolids disposal and reuse program.
- Identify an appropriate level of consolidation with military utility systems that enables better resource management, efficiency, and customer service.

**Goal 5 - Establish the Roadmap for Full Regulatory Compliance**

- Identify current regulatory compliance gaps.
- Assess most likely near-term and long-term future regulatory requirements.
- Develop road-map for closing current regulatory gaps with a vision of likely future requirements.

Figure 1-2 – Project Approach Diagram



The project scope, including detailed task descriptions, is presented in Appendix 1A. The overall project was divided into three phases, with Phase II further subdivided into two parts. The following section summarizes the eight major tasks.

**Task 1. Project Planning.** Development of the WRMP provided an opportunity for GWA staff development and building of staff ownership. These are important considerations because GWA staff will be responsible for the master plan’s implementation. This implementation step will be successful when the GWA staff puts into practice the training afforded during the plan development and continues the use of tools for gathering and processing information.

Specifically, Task 1 was a combination of four elements:

- Project planning
- Planning team development
- Organizational development
- Internal and external communication procedures

**Task 2. Identify Planning Requirements.** The major driving force for GWA was compliance with the Stipulated Order issued by EPA in June 2003. A number of elements of the WRMP scope of work addressed solutions for the Stipulated Order requirements. In addition to complying with the Stipulated Order, regulatory requirements are addressed.

**Task 3. Define Levels of Service.** In this task, appropriate levels of service are defined. Level of service links directly to internal and external customer expectations; those delivering the service set the performance measure to ensure that expectations are being met. An inventory and an assessment of the current condition of the existing equipment and facilities are essential for master planning. This task established the foundation for planned repair, maintenance, replacement, purchase, and construction of new equipment and facilities. In this task, appropriate levels of service were defined.

**Task 4. Assess Current Status.** To properly determine necessary input to the WRMP, GWA project staff and the consulting team conducted a comprehensive assessment of the current status of the water and wastewater systems' assets. A structured approach was applied to data gathering and assessment. The use of asset management practices and data collection tools were included in this task.

**Task 5. Develop Assessment Toolbox.** Several Information Technology (IT) assessment tools have been used during the course of the WRMP effort. In each instance, the approach was to combine the consultant's skills in applying the tool with the local knowledge of GWA staff. Each subtask involving a specific tool also included a training element for GWA staff.

**Task 6. Develop and Analyze Opportunities.** This task included the development and analysis of various opportunities for meeting present and future water and wastewater utility needs. The opportunities included the potential consolidation of GWA military water and wastewater systems and facilities. While the focus of the planning is on a 5- to 20-year planning horizon, a longer term vision for beyond 20 years and up to 100 years is also considered.

**Task 7. Prepare Strategic Master Plan.** The preceding tasks, including the facility, system and overall operation and management assessments, provided the key steps in development of the WRMP. The financial plan was included in this task, using input from other tasks to develop the final financial master plan and set the economic direction for the near and far term. The WRMP is a bound document supported by an array of computer programs, supplemental manuals for future updates to models, and other tools. The WRMP includes the strategies for implementation defined in Task 8.

**Task 8. Develop Implementation Plan.** As noted in Task 7, strategies for making the WRMP work are described in this task. They included activities necessary for follow-through by GWA to sustain momentum gained by the planning effort.

### **1.1.3 Key Implementation Steps**

A project of this magnitude requires significant organization and interaction among all the concerned parties, particularly GWA staff and the consulting team members. Key elements for carrying out the project are outlined Figure 1-3.

## **1.2 Plan Development**

In keeping with the concept of staff involvement throughout the planning process, a team was composed of consultant team members and GWA staff. Members of the team participated in kickoff meetings and also held periodic meetings by conference call or face-to-face when members of the consulting team were on-island. The project manager made a number of trips for coordination meetings over the course of the project. Each trip was for three to five days at a time, and coordinated activities with the local consultants and GWA staff. During these visits, meetings were held with the planning team.

### **1.2.1 Project Kickoff Meetings**

The project kickoff meeting for Phase I was held on June 6, 2004, and the meeting for Phase II took place on October 25, 2004, both on Guam. The kickoff meetings served to introduce the next phases of the project and provide for interchange among the participants. About 20 GWA staff members and 25 consulting team members attended each meeting. Goals for the ensuing tasks were presented in conjunction with proposed schedules. Emphasis was placed on target dates specified in the Stipulated Order.

In conjunction with the kickoff meetings, team orientation meetings were held for the Planning Team. In addition, several meetings were held for members of specific task assignments, such as the electrical group, data collection team, communications team, and GIS team.

Monthly contact with local team members has been maintained, either by phone calls or visits by various consultant team members. Since the project began in May 2004, local team members have been in close contact with the GWA staff, and off-island members have been on site for some portion of the month, during 22 of the 23 months between May 2004 and March 2006. An additional coordination meeting was held in Honolulu in August 2006 and was attended by representatives from EPA, GEPA, GWA, and Brown and Caldwell.

### **1.2.2 Selection of Planning Committee**

In addition to the Planning Team, individuals were drawn from GWA staff and the consulting team to form the Planning Committee. Team members are listed below:

Members from the GWA staff were:

David Craddick	Prudencio Aguon	Patrick Lujan	Tony Chargualaf
Paul Kemp	Jude Calvo	Mark Miller	Victor Torres

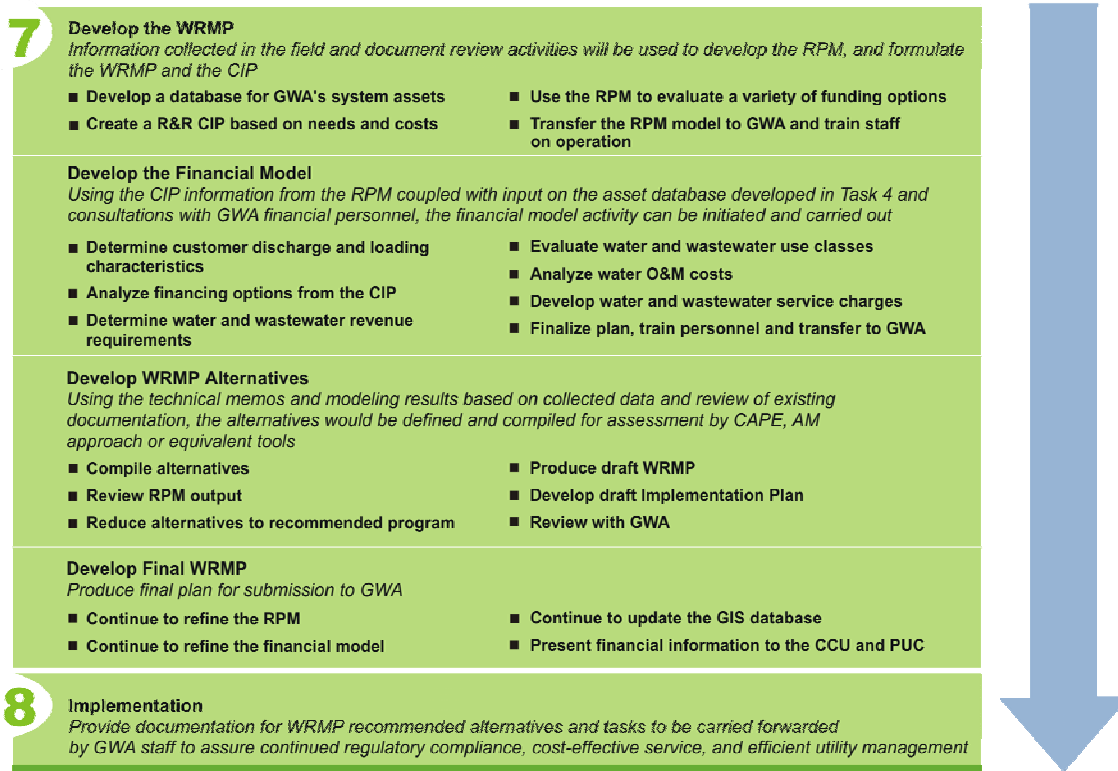
Consultant members were:

Ray Matasci	Eassie Miller	John Mink	John Duenas
Woodie Muirhead	Peter Ono	Jim Keary	Dan Guerrero

Figure 1-3 – Key Elements of WRMP



Figure 1-3 – Key Elements of WRMP (continued)



### 1.3 Conclusions

This chapter presents an overview of five major goals and eight tasks for completion of the GWA WRMP. The master plan completion is an important element of the requirements in the Stipulated Order and will set the course for capital water and wastewater improvements for the next 20 years.