GUAM WATERWORKS AUTHORITY
SPECIAL WORK SESSION
CCU Conference Room
4:00 p.m., April 10, 2018

AGENDA

1. ISSUES FOR DISCUSSION
   1.1 DRAFT GWA Master Plan

2. ANNOUNCEMENTS
   2.1 Next CCU Meetings: GWA Work Session - 4/17; GPA Work Session 4/19; CCU Meeting: 4/20

3. EXECUTIVE SESSION
   3.1 Litigation Matter
   3.2 Personnel Matter

4. ADJOURNMENT
Water Resources Master Plan Update

Setting New Standards for a Well-run, Sustainable Utility

2006  2018
What is the Master Plan?

An Opportunity To:

• Look at the entire GWA system and make recommendations for capital and organization/procedural improvements
• Review in detail future requirements for the Water and Wastewater Systems including:
  • Provide an assessment of the current condition of pipelines, pump stations, treatment plants, reservoirs, production wells, etc.
  • Make projections for capacity necessary to meet future needs to 2037.
  • Develop projects to address the needs outlined by the condition assessments and capacity analysis.
• Plan also looks into other components of the GWA system to:
  • Define new expectations for utility performance
  • Review population projections, proposed developments and requirements for future water supply.
  • Review water supply sources and availability on Guam
  • Review objectives and set goals for things like Leak Detection and Non Revenue Water
• Develop a list of capital improvement projects for the next 20 years
• Present a financial plan to fund and execute improvements without excessive burden to customers
GWA’s Extensive Infrastructure

**Water System**
- ~47,800 customers
- 580+ miles of distribution piping
- 26 storage tanks
- 22 booster pump stations
- 120 water supply wells
- 1 surface water treatment plant

**Wastewater System**
- ~30,400 customers
- 320+ miles of collection system piping
- 82 wastewater lift stations
- 7 wastewater treatment plants
Why update the WRMP?

- GWA infrastructure has aged 10 years since the first WRMP
- Military relocation brings 5,000 marines to Guam
- New regulations require higher treatment levels for wastewater treatment plants
- Advance GWA goals to continuously improve service from the 2006 levels
A decade of progress is paying off

- Ugum Treatment Plant Upgrade Completed
- Hagåtña and Northern District WWTP Upgrades Completed
- Six Water Storage Tanks Constructed with Capacity of 6 Million Gallons
- Water and Wastewater System Hydraulic Models Significantly Updated
- Navy Water Use Reduced By Over 50 Percent Between 2004 And 2016
- Island-wide Pressure Zone Plan Developed for the Water System
- Island Wide Well Condition Assessments and Well Protection Plan Completed

Percentages based on the number of scheduled projects
New Expectations Set for GWA

New Levels of Service goals set in 2017 Plan

**2006 WRMP**
Limited to 4 fundamental Service Level Goals

- Drinking water quality
- Continuity of water supply
- Wastewater system spills
- Wastewater effluent discharge

**2017 WRMP Update**
Increased to 16 Service Level Goals

- Maintain adequate system pressure
- Improve customer wait times
- Customer complaint response
- Distribution systems integrity
- Critical asset reliability
- Septic tank elimination
- Integration of GWA with DoD

See Volume 1, Section 3 for complete Service Level list
Island-wide improvement projects/programs

• Well Development and Construction - $4.6M every 3 yrs
• Well Rehabilitation - $5.8M every 3 yrs
• PRV Rehabab and Replacement – $1.5M/yr for 5-yrs
• Water Reservoir Inspections - $215K/yr
• Leak Detection Program - $380K every 5 yrs
• Fire Hydrant Replacement $970K/yr for 5yrs, $530k/yr after
• 2-Inch Pipe Replacement -$1.75M/yr
• Asbestos Cement Pipe Replacement -$3.85M/yr (start in 2022)
• Force Main Rehabilitation/Replacement -$1.6M every 3 yrs
• Gravity Sewer Rehabilitation/Replacement - $8.5M/yr
• Lift Station Rehabilitation/Replacement – 5.5M every 2yrs
• I/I and SSES Assessments - $400K every 3 yrs
• Septic/Cesspool System Reduction - $5.2M/yr
Southern villages improvement projects

- Improve water quality and Water System reliability
- Reduce number of water outages
- Replace AC and galvanized steel water lines
- Rehabilitate/replace sewer lines
- Upgrade WW treatment plants/
  Federal Permit compliance
- Reduce wastewater overflows
Central villages improvement projects

- Improve water quality and Water System reliability
- Reduce number of water outages
- Replace AC and galvanized steel water lines
- Rehabilitate/replace sewer lines
- Upgrade WW treatment plants/
  Federal Permit compliance
- Reduce wastewater overflows

Special Work Session - April 10, 2018 - ISSUES FOR DECISION

- Mangilao Pressure Zone Realignment
- Chaot Tank
- Manenggon Hills Tank No. 1 and 2
- Mangilao Pipe Capacity Replacement
- Pago Socio WWTP Conversion to Pump Station
- Groundwater Well Rehabilitation
- Bayside Lift Station Collection Piping
- Tiyan Pump Station Replacement
- HWWTP Repair/Rehabilitation
- HWWTP Secondary Upgrade Design
- HWWTP Influent Pipeline Replacement
- Asan Spring Rehabilitation
- Route 1 Asan Forcemain Replacement
- Route 1 Piping Rehabilitation/Replacement
- Agana Heights Pipe Replacement
- Nimitz Hill Lower BPS
- Nimitz Hill Tank A
- Nimitz Hill Tank B
- Nimitz Hill Upper BPS
- Piti Tank
- Route 1 Pipe Rehabilitation/Replacement
- Hyundai Tank Repairs
- Hyundai Well Piping
- Barrigada Tank
- SCADA at Barrigada Tank
- Barrigada Pump Sta. Pipe Rehabilitation
- Barrigada Pipe Capacity Replacement
- Mangilao Pressure Zone Realignment
- Chaot Tank
- Manenggon Hills Tank No. 1 and 2
- Mangilao Pipe Capacity Replacement
- Pago Socio WWTP Conversion to Pump Station

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Northern villages improvement projects

- Improve water quality and Water System reliability
- Reduce number of water outages
- Replace AC and galvanized steel water lines
- Rehabilitate/replace sewer lines
- Upgrade WW treatment plants/
Federal Permit compliance
- Reduce wastewater overflows
# Capital Improvement Projects Summary

<table>
<thead>
<tr>
<th>Project Category</th>
<th>Number of New Projects</th>
<th>Estimated Cost WRMPU Proposed CIP</th>
<th>Number of Ongoing Projects</th>
<th>Estimated Cost Current/Ongoing CIP</th>
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<tr>
<td><strong>Water System Improvements</strong></td>
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<td>Pipeline Projects</td>
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<td>Storage Tank and BPS Projects</td>
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<td>Other Water System Projects/Studies</td>
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<td><strong>Wastewater System Improvements</strong></td>
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<td>Gravity Sewer Projects</td>
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<td>Force main Projects</td>
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<td>Other Wastewater System Projects/Studies</td>
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<td>Total Wastewater System Improvements</td>
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<td><strong>General Systems Improvements</strong></td>
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<td><strong>Total (rounded)</strong></td>
<td>124</td>
<td>$982,242,000</td>
<td>29</td>
<td>$278,119,000</td>
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Funding needed for improvements

Total Cost of Water & Sewer Projects by Year

- Court Ordered - $109M
- Rehab/Capacity Upgrade - $832M
- System Expansion - $218M
- Reliability/Quality Improvements - $96M

DoD buildup projects
$30-50M/year for first 4 years

Average Annual Funding
$49M/year
How will these funding needs affect service rates?

- Most customers bills will rise from **2.4% to 3.5% MHI**
- GWA is developing a plan to address Lifeline Rate customers

4.0–4.5% for first 7 years

3.0% annual rate increases
How will this affect Your Monthly Bill?

- Non-lifeline residential bill - 7,500 gallons
- Lifeline residential bill - 5,000 gallons

Projected Monthly Bill Increase Per Year 2018 - 2027

- Non-Lifeline $4.04
- Lifeline $2.89
Historic Residential Bills 2009 - 2018

Average Monthly Bill Increase Per Year 2009 - 2018

Non-Lifeline $3.90
Lifeline $2.40
Summary

GWA has spent over 2-years preparing this WRMP Update to plan for a well-run, sustainable utility. The WRMP Update:

- Addresses significant legacy issues such as replacement of small diameter galvanized steel pipes
- Includes regularly scheduled projects to refurbish production wells, treatment plants and pump stations
- Includes projects to refurbish/replace failing and under capacity gravity sewer piping.
- Produces an optimized CIP program to improve our Level of Service with consideration to the impact on service rates
- Provides a realistic combination of projects with a modest impact on our required rates.

GWA is committed to implementing water affordability programs to continue services for our Lifeline customers at reasonable rates.
Access the plan

• Copies of the proposed WRMP Update will be available to view at:
  • All GWA Customer Service locations
  • Agat, Tamuning, and Yigo mayors’ offices

• Interested persons can also visit the GWA website at www.guamwaterworks.org and to learn more, download the plan, and submit your comments
GUAM WATERWORKS AUTHORITY
ATURIDAT KINALAMTEN HANOM GUAN
Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, GU 96913
Phone: (671) 300-6853 Fax: (671) 648-3290

AFFIDAVIT OF KELLY O. CLARK, ESQ.

1. I am over the age of eighteen (18) years and have no disability that would prevent me from rendering testimony;

2. I make this affidavit based on my own personal knowledge of the events and facts stated herein;

3. I attended the special board meeting of the Guam Waterworks Authority (GWA) on April 10th, 2018 and acted as legal counsel for GWA during said board meeting;

4. Based on my oral and written recommendation, and after an affirmative vote of all the members of the Consolidated Commission on Utilities at said board meeting, an executive session was held wherein the following matters were discussed in my presence:
   1. a GWA litigation matter
   2. a GWA personnel matter

5. Affiant further sayeth naught.

Respectfully filed with the Guam Waterworks Authority Board Secretary for the Consolidated Commission on Utilities on this April 10th, 2018.

Respectfully,

[Signature]

Kelly O. Clark
GWA General Counsel