

# GROVE MUNICIPAL SERVICES AUTHORITY WORK PLAN

MAY 2011

## I. EXECUTIVE SUMMARY

In March 2011, the Grove Municipal Services Authority (GMSA) staff was directed by the its Trustees to prepare a formal Work plan for GMSA. This direction was initiated to document GMSA's plan to operate and maintain its assets. The Work Plan described in this document is intended to be a general plan on how GMSA will operate and maintain its assets to fulfill its mission. Upon approval of the Work Plan, GMSA management, in concert with staff and appropriate stakeholders, will need to develop specific action items to implement the goals, strategies and tasks listed in the Work Plan to support its mission and governing values.

The key components of the Work Plan are presented in the following order:

- Current status of GMSA and its general ability to meet its mission
- Challenges that GMSA faces
- Strategic goals developed to meet its mission
- Action items
- Staffing to meet the challenges

## II. CURRENT STATUS OF GMSA

### ***A. General***

GMSA is responsible for furnishing water, wastewater, and natural gas services for residential, commercial, and industrial customers within the City of Grove. It also furnishes these services to Delaware County residents outside of the city. Currently all utilities are fulfilling its aspect of GMSA's mission.

### ***B. Water Utility***

#### **Water Treatment Plant**

- Located at 1420 South Broadway, the Water Plant was built in 1990 and put on-line in 1991, the design max capacity of; 2.2 MGD...
- The Water Plant was upgraded in 1996 with the addition of a floating Intake Dock, a sedimentation basin and 3 filters, the design max capacity; 4.4 MGD (current)...
- The Water Plant is classified as a conventional Treatment process which uses a 5 step process, it begins at the floating Intake dock which pumps

surface water from Grand Lake to the plant for treatment and as soon as the Raw Water reaches the plant the Treatment process is; (1)Coagulation, (2)Flocculation, (3)Sedimentation, (4)Filtration and (5)Disinfection. At this point, the “Finish” water is directly pumped into the distribution system for consumer use...

- 2010 Total Plant output ; 982,206,000 MG
- 2010 Average Daily flow from the Plant; 2.7 MGD...
- August 2010 yielded a record high daily and monthly flow from the plant... Monthly flow record; 110.867 MG Daily flow record for the month and; 3.876 MGD
- EPA National Finish Water Turbidity Standards; 0.30 NTU
- 2010 Grove Water Plant average Finish Water Turbidity; 0.14 NTU
- 2010 Average Water Plant Turbidity Removal Efficiency; 97%
- Routine daily testing is performed on the Raw water as it enters the plant and the Finish water as it leaves the Treatment Plant and there is a large amount of testing that is performed on a Monthly, Quarterly, semi annually and annually schedule on the Finish water, at the Treatment Plant and within the distribution system to make sure our water is safe and meets EPA’s Drinking Water Standards...
- An annual Consumer Confidence Report (CCR) is published to the public... This report shows the results of our Finish water quality and explains what it means... In 2010, and to date, there have been no violations at the Grove Water Plant...

### **Water Distribution**

- 5 Water Storage Tanks -

All Tanks have either been constructed new or rehabilitated within the last three (3) years. All welded tanks have perpetual maintenance contracts with Utility Services Company.

- 3 Booster Pump Stations -
  - South Honeycreek Booster Pump station updated with new piping and equipment within the last two years.
  - Rural Water Districts either have new pumps or pumps are rarely used.
- 195 miles of Water Main Line
  - 2” to 18”
    - PVC
    - Cast iron and ductile
    - AC
    - Poly
  - Age varies depending on location

- Approximately 5,300 Water Meters read per month
  - Various sizes from ¾” to 6”
  - Various types
  - Age range from late 1950s to present

### **C. Wastewater Utility**

#### **Wastewater Treatment Plant**

- Located on North Cherokee, the New SBR Wastewater Treatment Plant was built in 2004 and put on-line in 2005, the design max flow; 0.98 MGD...
- The Wastewater Plant was upgraded in 2009-2010 with the addition of a third SBR unit, two Belt filter presses for sludge processing and the addition of a Compost Treatment Facility...
- The Sequential Batch Reactor (SBR) is an advanced aerobic biological treatment plant that is designed to produce a very high quality final effluent... this is done in batch treatments versus the continuous flow of a conventional plant...
- There are 5 treatment steps programmed in the SBR controls before the effluent is ready to be decanted and 2 after a decant ... The final effluent is then disinfected and dechlorinated, then it is released from the plant.
- Depending on SBR solids levels, the Waste Activated Sludge (WAS) is automatically wasted from the SBR unit(s) to an aerobic Digester on-site where it is concentrated and oxidized with air before being processed through the Belt Filter Press...
- Once the sludge from the aerobic digester has been processed, it is hauled and stored on the Compost pad for use in the Compost Operation.
- After an accelerated drying process of the sludge, woodchips will be incorporated with sludge and a “COMPOST ROW” is built and the compost process begins... after the compost process is complete, the row is screened, the finished compost product is stored in bins and tested for % solids levels and Specific bacteriological concentrations... When it has been determined by a certified Lab that Bac-T levels are within standards, the Compost qualifies as a “Class A” Biosolids and can be released for public use...
- 100% of all sludge produced at the Wastewater Plant is used in the Compost operation...
- There are several process and quality control test that are performed on the SBR process and the final effluent on a Daily or tri-monthly basis...
- The SBR treatment is very efficient at Biosolids and Nutrient removal from the Influent waste... Our Treatment Plant’s overall removal efficiency is; 98% removal.

#### **Wastewater Collection System**

- 23.5 miles of Gravity Sewer Main
  - 6” thru 18”
    - Clay Tile

- PVC
  - Cast iron and ductile
- Ages range from late 1950s to present
- 24 Miles of Force Main
  - 2” – 10” lines
    - PVC
    - Poly
    - Ductile
  - Ages date from late 1970s to present
- Approximately 2,000 meters read per month
- Approximately 400 Manholes
  - Approx. 125 Brick & 275 Concrete construction
  - Range from late 1950s to present (majority constructed between 1970 & 1990)
- 31 Lift Stations
  - Depth from 12’ to 30’
  - Age from 1960’s to present
  - Mostly submersible Flyght pumps
  - Mostly simple control panels

***D. Natural gas Utility***

- Approximately 575,000 Dekatherms of natural gas purchased per year and delivered to three (3) cities and one (1) rural water district besides GMSA customers from OneOK. Current contract expires June 2012.
- GMSA has one transportation contract and one transportation/storage contract with Southern Star. Current contract could expire on October 1, 2013 with 12 month notification.
- Transmission System
  - 19 miles of 6” steel lines
  - Constructed in 1965
  - MAOP 450#
- Distribution System
  - 26.5 miles of steel main lines
    - 1965
  - 134.25 miles of poly main lines
    - 1960s, 53.5 miles
    - 1970s, 2 miles
    - 1980s, 3 miles
    - 1990s, 35 miles
    - 2000s, 40 miles
    - 2010s, ¾ mile
  - Several district regulation stations
  - Approximately 3,900 services read per month
  - MAOP 60# thru 250#

## **E. Operations**

- 23 Full-Time Employees, Two Part-Time Employees
- Departmental Management
  - Oversees all utility personnel, Projects, Maintenance, and Repairs
- Meter Readers
  - 9650 Water and Gas Meters read monthly
  - Connects/Disconnects
  - Meter change out
  - Re-reads
  - Daily service orders
- Locator
  - Line locates for entire system
    - In 2010 GMSA provided 2,013 locates for OKIE
- New Service Installer
  - Installs new Water and Gas Services
  - 120-135 services per year
- Inventory Clerk
  - Tracts In and Out Inventory
  - Creates Purchase Orders
  - Maintains required documentation
- Water Distribution
  - Repair Leaks, 1 to 2 daily
  - Maintain pump stations and towers
  - Service repairs on meter sets
  - Collects data from leak detection devices
  - Maintain, repair and replace existing lines
- Sewer Collections
  - Maintains lift stations
  - Rods and cleans main lines
  - Cameras and smoke tests main lines
  - Inspects new service connections
  - Provides assistance to customers having sewer problems
- Natural Gas Department
  - Annual Inspections by Oklahoma Corporation Commission
  - Patrol lines checking cathodic protection
  - Take Pipe and Soil readings
  - Test regulators and relief
  - Repair meter sets
  - Perform leak surveys
  - Maintains system
  - Repair leaks
  - Replace existing lines
  - Assist with gas pricing and wholesale customer billing

## **Treatment Plant Operators**

- There are currently 8 Certified Operators working at the Treatment Plants...
- 2 full time Operators at the Water Plant...
- 2 full time Operators and one part time... Operator working at the Wastewater Plant...
- We have one full-time Lab Tech running the Lab at the Wastewater Plant...
- One of the full-time Wastewater's Plant Operator also serve's as a back-up Lab Tech...
- One Lead Operator that is in charge of all the daily operations at both of the Treatment Plants...
- One Treatment Plant Superintendent that is responsible for the entire Operations, Maintenance and staff at both of the Water and Wastewater Treatment Plants...
- All Treatment Plant Operators are cross trained to operate both the Water and Wastewater Treatment Plants and they are in the on-call rotation to operate the Treatment Plants after hours, if needed and on weekends and holidays.

## **III. CHALLENGES, GOALS, AND ACTION ITEMS FOR GMSA**

Several major challenges are identified that have the potential to hinder GMSA's ability to meet its mission. To fulfill its mission, GMSA developed strategic goals for each challenge faced by GMSA. For each of these strategic goals, there are action items to accomplish the stated goals.

These can be summarized as follows:

- A. Safety –GMSA has a commitment to all employees that they will work in a safe environment, and that they will be trained to properly complete the work. GMSA is also committed to providing utilities that will do no harm to the consumer.
  1. 5300' foot of natural gas line needs to be replaced due to lack cathodic protection as determined by the Oklahoma Corporation Commission.
    - a. Comply with existing Oklahoma Corporation Commission Notice of Possible Violation
      - i. Replace 5,300 feet of natural gas and waterlines on Wolfcreek by August 1, 2013 at a cost of \$112,000.
- B. Regulatory Compliance - GMSA's needs to operate its assets in compliance with all federal, state and local regulations.

1. The Stage 2 Disinfectants and Disinfection Byproducts Rule and the Long Term 2 Enhanced Surface Water Treatment Rule are the second phase of rules required by Congress. These rules strengthen protection against microbial contaminants and at the same time, reduce potential health risks of DBPs. Monitoring for compliance will begin in March 2013.
  - a. Water Treatment Plant Expansion Project
    - i. Approve engineering contract for upgrade of GMSA Water Treatment Plant by July 1, 2011 at a cost of \$270,000
    - ii. Design coordination July 1, 2011 to August 1, 2011
    - iii. Preliminary design and preliminary engineering report by September 1, 2011
    - iv. Submit preliminary engineering report to ODEQ by November 1, 2011
    - v. Submit final plans to ODEQ by January 1, 2012
    - vi. Coordinate with ODEQ for final approval by May 31, 2012
    - vii. Advertise for bids June 1, 2012
    - viii. Open bids July 1, 2012 estimated costs of \$4,000,000
    - ix. Notice to Proceed by August 1, 2012
    - x. Plant Online by August 1, 2013
    - xi. Compliance with Phase II DBP by October 1, 2013
  - b. Identify areas of water distribution system that may be “looped”
    - i. Conduct research and develop projects based upon looping waterlines within by January 1, 2012 at a cost of time spent by city staff.
    - ii. Emphasis on areas that will be tested for Phase II DBP will include:
      - a) Intersection of E. 262 Road and S. 620 Road for HAA5\_02
      - b) Intersection of 113<sup>th</sup> Street and US Hwy. 59 for TTHM\_01
      - c) Intersection of E. 320 Road and US Hwy. 59 for TTHM\_03
      - d) 67000 E. 260 Road for DBPMX
      - e) Costs estimated to be \$92,000.
    - iii. Complete GIS mapping of lines, valves and manholes by July 1, 2011 at a cost of \$40,000.
  - c. Implementation of a Flushing Program
    - i. Develop a Flushing Program for the entire GMSA system by July 1, 2012 at a cost of city staff time. Future Flushing Program may cost up to 25% of treated water volume.
    - ii. Flush current THM/HAA5 sample collection sites quarterly beginning July 1, 2011 at a cost of approximately 70,000 gallons per quarter.
  - d. Water Storage Vessel Mixers





- iv. Replace 55,300' of waterlines by July 1, 2021 at a cost of \$1,014,000.
2. Large segments of wastewater collection infrastructure were constructed of obsolete or inferior material(s).
- i. Conduct Inflow and Infiltration studies beginning July 1, 2011 in the following order with completion of each segment occurring every three months at a cost of approximately \$40,000.
    - a) West side of Grove
    - b) Cedar Oaks lift station area
    - c) Megan Coves lift station area
    - d) Industrial Park
    - e) Whippoorwill lift station area
  - ii. Upgrade and repair lift stations by July 1, 2014 at a cost of \$70,000.
  - iii. Replacement of 44,000' of 8" sewer lines and manholes by July 1, 2020 at a cost of \$1,066,000.
3. Long-term replacement of natural gas transmission and distribution infrastructure needs to be planned for both growth and economic development.
- i. Replacement of 68,174' of steel gas lines with poly by July 1, 2020 at a cost of \$527,000.
- E. Sufficient Utility Revenues –GMSA needs to manage its assets cost-effectively in the long term, and to ensure that each utility is properly funded.
1. Current revenues do not supply enough funds to adequately provide for yearly operation and maintenance or long-term capital projects.
- i. Increase revenues to cover costs of year operation and maintenance and capital improvement plan.
    - a) Total revenues generated by increase equals approximately \$875,000 per year.
    - b) Proposed rate structure would increase average residential inside bill by 12% or \$10.32 per month by July 1, 2011.
    - c) Proposed rate structure would eliminate impact fees, which have declined by 43% over the last three years.
    - d) Proposed rate structure would make water and natural gas utilities self supporting.
2. 43% decline in capital budget revenues due to dependence on impact fees which are being affected by downturn in economy and the lack prime residential building lots. Focus on economic development projects to maintain sustainable growth.
- i. Relocate water, sewer and natural gas infrastructure at Har-Ber Pointe Development by January 1, 2012 at a cost of \$142,000.

- ii. Install 2600' of waterline from WTP to Sumac St. by July 1, 2012 at a cost of \$142,000.
  - iii. Install 9000' of waterline and natural gas line adjacent to Baycrest Ave. by September 1, 2011 at a remaining cost of \$32,000.
  - iv. Install 400' of 8" waterlines in the Downtown Phase II Renovation Project by March 1, 2012 at a cost of \$45,000.
  - v. Install water, gas & sewer to newly purchased eastside property of industrial park by July 1, 2013 at a cost of \$145,000.
  - vi. Install new elevated water tower south of Honey Creek Bridge at a date to be determined at a cost of \$2,700,000.
  - vii. Install new water tower in Rural Water District No. 9 at a date to be determined and at a cost of \$1,800,000.
3. Transition from reactive to planned maintenance through by the development of an Infrastructure Work Crew and Water Distribution Foreman.
- i. Infrastructure Work Crew
    - a) Estimated to be four persons
    - b) Personnel will be comprised of meter reading and associated positions and new hire(s) after completion of Automated Meter Reading project
    - c) Crew will be responsible for executing yearly capital infrastructure replacement program
    - d) Costs will be same as current meter reading positions
  - ii. Meter – One individual
    - a) Flushing Program
    - b) Re-reads
    - c) Logger Program
    - d) Meter Replacement Program
    - e) Automated Meter Reading Troubleshooting
    - f) Costs will be same as current meter reading positions

#### IV. ACTION ITEMS SUMMARY

<u>Fiscal Year</u>	<u>Goal</u>	<u>Project</u>	<u>Costs</u>	<u>Funding Source</u>
'11-'12	1	5,300' Water & Gas Replacement – Wolf Creek Dr.	\$ 112,000	Capital
'12-'13	2	Water Plant Upgrade	\$ 4,300,000	OWRB
'11-'12	3	Automated Meter Reading	\$ 2,000,000	OWRB
'12-'13	2	Five Water Tower Mixers	\$ 200,000	Capital
'12-'13	3	Install Master Meters	\$ 50,000	Capital

'11-'12	4	Water, Gas, & Sewer Upgrades @ Har-Ber Pointe	\$ 142,000	Capital
'11-'12	4	2600' 16" Waterline from WTP to Sumac	\$ 120,000	Capital
'11-'12	4	Inflow and Infiltration Study	\$ 40,000	Capital
'11-'12	4	9000' Baycrest Water & Gas Installation	\$ 32,000	'04 Bond
'12-'13	2	Looping of Dead-end lines around testing sites	\$ 92,000	Capital
'12-'13	4	Complete Mapping & GPS (lines, valves, manholes)	\$ 40,000	Capital
'11-'12	4	400' of 8" Water Downtown Revitalization	\$ 45,000	Capital
'12-'13	4	Water, Gas, & Sewer to Industrial Park	\$ 145,000	Capital
'13-'14	4	Water, Gas, & Sewer to West Airport Property	\$ 664,000	Capital
'13-'14	4	Upgrade & Repair Lift Stations	\$ 70,000	Capital
'14-'20	4	34,000' Replacement of 8" Transite Waterlines	\$ 623,000	Capital
'14-'20	4	44,000' Replacement of 8" Sewerlines and Manholes	\$ 1,066,000	Capital
'14-'20	4	13,000' of 12" Water and 4" Gas on N. Cherokee	\$ 343,000	Capital
'14-'20	4	5500' / Water & 7900' / Gas on Redbud	\$ 131,000	Capital
'14-'20	4	55,300' Replacement of 8" Waterlines in Bluff Area	\$ 1,014,000	Capital
'14-'20	4	68,174' Replacement of Steel Gaslines with Poly	\$ 527,000	Capital
TBD	4	New Water Tower South of Honey Creek Bridge	\$ 2,700,000	TBD
TBD	4	New Water Tower In RWD #9	\$ 1,800,000	TBD