City of Fort Smith

Water and Sewer Operations Efficiency Study

February 2013

Final Report

Volume 2 of 2

Prepared by: HDR Engineering, Inc.

List of Appendices

Appendix A

Fort Smith Business Management Evaluation

Ft. Smith Business Management Evaluation

Attribute	Score	Business Strategy											
		Vision and Mission	Long Term Goals	Annual Business Plan	Service Levels	Business Results	Business Processes	Performance Metrics	Benchmarking	Regulatory Compliance	Risk Management	Change Management	
Optimizing	100												
	90												
	80												
Managed	70												
	60												
	50												
Defined Approach	40												
	30												
Initial	20												
No Defined Processes	10												
Current Score (2)		20	20	20	10	20	10	20	20	30	20	20	

Attribute	Score	Customers								
		Customer Information	Billing and Collection	Meter Reading	Customer Service and Response	Customer Satisfaction	e-Commerce	Customer Education	Permitting	Customer / Neighbor Complaints
Optimizing	100									
	90									
	80									
Managed	70									
	60									
	50									
Defined Approach	40									
	30									
Initial	20									
No Defined Processes	10									
Current Score (2)		30	30	40	30	30	10	20	40	20

Attribute	Score	Planning						
		Growth Needs	Stakeholder Information	Scenario Planning	Rate Structure	Regulatory Interface Management	Funding Policy	Funding Plan
Optimizing	100							
	90							
	80							
Managed	70							
	60							
	50							
Defined Approach	40							
	30							
Initial	20							
No Defined Processes	10							
Current Score (2)		50	40	40	50	40	10	30

Attribute	Score	Engineering																			
		Asset Plans	Short-interval Activities	Long-interval Activities	Life Cycle Costing	Data Management	Design Specifications	Construction Specifications	Facility Drawings	Flow/Rainfall Monitoring	Hydraulic Modeling	Infiltration/Inflow	System Evaluation and Inspection	System Performance Management	Project Management	Project Prioritization	Project Updates				
Optimizing	100																				
	90																				
	80																				
Managed	70																				
	60																				
	50																				
Defined Approach	40																				
	30																				
Initial	20																				
No Defined Processes	10																				
Current Score (2)		10	20	50	10	30	40	40	40	40	40	60	60	60	50	30	40				

Attribute	Score	Communication									
		E-Mail Infrastructure	Web Site	External Communication Plan	Internal Communication Plan	Business Policy Manuals	General Announcements	Strategy Awareness	Enterprise Content Management	Staff Education	
Optimizing	100										
	90										
	80										
Managed	70										
	60										
	50										
Defined Approach	40										
	30										
Initial	20										
No Defined Processes	10										
Current Score (2)		40	30	20	20	20	20	20	10	20	

Attribute	Score	Operation																			
		Operations Reports	Operations Cost	Spill Response	Emergency Response Planning	Safety Program	Facility Security	Emissions Management	Energy Management	SCADA / Automation	Operability and Maintainability	Pretreatment System	Fat Oil and Grease Program	Laboratory Information System	O&M Manuals	Inventory/Stores Management	Bar Coding/ RFID				
Optimizing	100																				
	90																				
	80																				
Managed	70																				
	60																				
	50																				
Defined Approach	40																				
	30																				
Initial	20																				
No Defined Processes	10																				
Current Score (2)		40	20	40	40	50	50	10	10	30	40	30	10	30	30	20	20				

Notes:

(1) Develop appropriate score with Strategy Team

(2) Establish current scores based on interviews

(3) Assume criticality weighing between 1 (low) to 5 (high)

Priority

1 > 100

2 >60, <100

3 < 60

Optimizing	Processes continuously improve and refinements are made with documented standards and procedures
Managed	Processes are managed with quantitative measurements defined and used for setting quality standards
Defined Approach	Most processes organized with defined systems supported with a repeatable approach that is documented and communicated within the organization
Initial	Some organized processes but without a systematic approach
No Defined Processes	Total unawareness of the processes within organization

Ft. Smith Business Management Evaluation

Attribute	Score	Asset Knowledge						Maintenance										Condition Monitoring					Capital							Administration										Financial										Business Information Systems																			
		Asset Detail	Asset Criticality	Asset Categorization	Asset Classes	Asset Hierarchy	Asset Identification	Preventive Maintenance	Predictive Maintenance	Corrective Maintenance	Maintenance Costs	Failure Codes	GIS Interface	Fleet Maintenance	Field Communications	Resource Management	Reliability Analysis	Condition Monitoring Program	Condition Rating and Scoring	Condition Tracking	Maintenance Strategy	Corrective Actions	Capital Improvement Program	Capital Funds	Life Cycle Costs	R&R Planning	Life Extensions	Capital Needs Forecast and Analysis	Project Controls	Human Resources	Organization Chart	Succession Planning	Payroll	Time Keeping	Procurement System	Skills, Knowledge and Competencies	Training Program	Employee Satisfaction	Employee Security	Purchase Requests	Purchasing	Financial Accounting	Financial Reporting	Auditing	Budgeting	Fixed Asset Inventory	Materials Inventory	Cost Forecasting	Information System Plan	Data Collection Tools	IT Operating Costs	Standards and Protocols	License Management	System Integration Plan	Data Warehousing	Intranet Communication	Staff Internet Access	Office Automation Tools	Mobile Access	Data Standards	IT Project Planning Process	Infrastructure Reliability	LAN Reliability	WAN Reliability	Data Backup and Storage	Data Security	Disaster Recovery	Help Desk	User Training	Hardware/Software Acquisition	IT Policy Manual
Optimizing	100																																																																			
	90																																																																				
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Managed	70																																																														
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Defined Approach	40																																																														
	30																																																																		
Initial	20																																																													
No Defined Processes	10																																																													
Current Score (2)		30	10	30	30	30	30	30	20	50	40	40	10	40	30	30	20	20	20	20	20	30	30	30	20	40	20	20	20	30	30	20	20	30	30	10	30	20	30	30	30	40	30	40	40	30	30	20	30	30	40	40	40	20	20	50	40	40	20	10	20	40	40	50	50	50	50	60	20	30	20

Priority

1	> 200
2	>100, <200
3	< 100

Optimizing	Processes continuously improve and refinements are made with documented standards and procedures
Managed	Processes are managed with quantitative measurements defined and used for setting quality standards
Defined Approach	Most processes organized with defined systems supported with a repeatable approach that is documented and communicated within the organization
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Ft. Smith
Business Process Descriptions
HDR Engineering, Inc.

Process Name: CIP and Financial Planning	
Description of Process and Major Functions	• Bond Rating AA- • 250,000 tax base • $63 million for sewer for next 5 years. Sales tax is used with additional funds by rate increases this past year.
Required Process Interactions	• Masterplanning process • City Engineer CIP • Transportation • O&M process
Timing	
Starting Event	• Created for budget cycle October starts in June
Timing	• Annual
Ending Event	• Approval is through the Board or through issuance of bond sales
Input Information and Data	• No asset plans • Masterplan • Long Range Plan • CDM Wastewater Management Plan – 1993 and to be updated 2012 • Water Master plan for Capacity of treatment and transmission lines – 1998
Supporting Tool	• Excel Spreadsheets
Tasks	• Jack gathers data for CIP • O&M feeds some information • There is an informal process for looking at historical data and analysis • A review of all the projects is done • There is an estimate of the project amount • Look at easement through Property Management • Compare to funding • Prioritization is done by committee of 2-3 people • Need to look at impact on rates and staff to manage the project • Water Masterplan used for planning water • Contracts are set up to look at sewer system with reports generated to determine R&R work. • There is a revenue rates CIP that can be used to do emergency project • Readjustments are done as needed based on priorities • Change orders must go back to the board
Success Measurements	• How much was spent or not spent
Problems with the current process	• No funding policy • No risk quantification to help prioritize

	• Limited resources to manage the projects • Don't ask for money that cannot be done • Need resources to do projects so Jack can do long range planning • Need more justification

Process Name: Condition Assessment	
Description of Process and Major Functions	• Manhole inspection • CCTV inspection • Draw down test
Tasks	Manhole inspections • Information store on Lucity • Good fair poor score for manholes • Adds no voice to tape. • Track repairs or water lines. Will look at SCADA • Age and material • Rod cleaning for sewer jet truck. • 10-15 years of inspection 15 • CDM has a report including a sewer model simulation of 10" and above to look at capacity related • RJN is doing basin by basin doing SSES and they will develop a list of projects • Damage report for back-up leads to further investigation, sewer back up vehicle damage or overland. Locations of back-up are tracked but not on a map. There is a policy that homeowner needs to follow in order to process the claim. • Data goes into Lucity • WO created before going into the field. Paper copies used. Dispatch will update Lucity.
Tools	• 1 Track system CCTV rig does 15" up to 48" plus push rods • Lucity
Problems with the current process	• No risk identification • Lucity keeps track of inventory but not linked to finance • Form used to track what was used. Operators assign material to WO • Don't know how many line breaks • Don't track condition of assets on paper • Old cast iron pipe down town is failing. • Contractors cause problems • Need asset tables • No easement clearing program. Tree removal is a touchy issue. • No valve exercise program. Valves on maps but not in GIS • No PACP or MACP • No condition assessment of water lines

Process Name: Customer Complaint	
Description of Process and Major Functions	One person to handle calls. 5 people to handle dispatch. Critical person. Training is done one the job. 96 hours Grade IV water distribution because they are operating the water distribution system. Level of service • 10 gpm at residual • Response time of 40 minutes • Legal does not want to state level of service • Same day response for safety issue • One person on call all day long so response time is 1 hour • Lead person is responsible for communication to customer if more time than intended is going to impact service • Supervisor may be the one to respond to customer • If flushing is needed then lab requires the field staff to do work Communication • Door hanger when crews will be there the next day or when customer is not home. Notice two days before shutdown • Day of shutoff the work is done on the water line and then sample • No customer survey is done • Web site upgrade going on now. Information is pushed out as needed. Typically monthly updates. Construction information will be provided in the future • Steve becomes the public spokes person • No public outreach • Environmental quality is done through the lab with interaction with student such as tours of lab • Citizens academy • Customer complaint may come to Dispatch such as an observation in the field. • Letters of accommodation on bulletin board
Supporting Tool	• Lucity • Phone Recording System
Tasks	Customer calls • Customer complaint are logged in Lucity • Water quality issues go to Lab • Water complaints can come through web site complaint form is generated. Excel spreadsheet. Hotspot issues can be tracked • Wholesale customer typically come to Lab

	• If sampling is done then a report goes back to customer Sewer • Complaint comes in • Logged into Lucity • First responder
Success Measurements	• Complaints can be used a measure of success, but no true measures of complaints other than personal memory o Internal and External o Residential o Rural o Industrial o Commercial – hospital, university
Problems with the current process	• Lots of calls handled that are not utilities • 4 incoming phone lines JEI phone recording system • Educate the public – community meetings, better use of website, citizens academy • PR person? • Education at school systems • No measure of customer satisfaction • No resolution time standards

Process Name: Finance Billing and Collection	
Description of Process and Major Functions	• Billing • Collection • Customer information • Meter installation • Meter reads • Turn on turn off • Meter repair • Some meter calibration • No AMR. Pilot test of AMR is South Sebastian County. They are not working (Itron) • 36,000 meters being read. • No AMI projects in place • 6 people in customer service/billing • 8 meter readers • 5 different phone numbers • 4 window clerks • 1 drop box/lock box • There are 158 book routes. • 75% of billing is for water and sewer • Monthly cycle for read and billing • Rotate of routes to keep up with quality control and learn whole city • Re reads, cleaning of box. Outside of box is owner
Input Information and Data	• 500 disconnects per month • Main city number has IVR • Water quality • After 90 days account is written off goes to collection agency • 122 meters are not billed • 15 wholesale customers are metered
Supporting Tool	• Lucity • UBS - Datatronics • Itron handheld • Excel spreadsheet • Email
Tasks	New Service • Customer comes to main office to ask for service • Will first go to Records coordinator for service address and to determine water tap fee and irrigation meter if needed o $423 water tap o $780 sewer tap will go up to $940 in 2012 and $1,110 in 2014 o A deposit may be held for 12 months then credited to

	account o Checks the customer identity • Tony creates a tap order using an email form • Send order to Bill, Kevin, and John. • Bill sets up an account in UBS o commercial o industrial o residential o irrigation • Set up Reps with rep number • Input Account and information into UBS • Set time to turn on water • Create a work ticket UBS • Water line maintenance does the tap, sets the box and installs the meter. • Water line maintenance supervisor assigns to a crews • Obtains meter from store room clerk o Meter inventory is stored in UBS o There is also another spreadsheet inventory sheet • Assigns meter to the account • Meter service order (MSO)is created on the UBS • Line is tapped and type of pipe is noted • Form is completed in the field • A work order is created in Lucity with labor hours and rate, materials used, main pipe type. • System Control dispatch creates Work Order and then closes. Paper copy is stored in a file. • Meter is set as contractor account, but then the builder can transfer the account to the home owner as active account Meter Read • Rep will verify meter • Rep will set meter read • Activate the account • The meter route is read • Rep synchronizes UBS and Datatronics • A re-read report is done daily from Datatronics • Update corrections as necessary • A MSO (meter service order) is generated as appropriate • If meter is broken by customer there is no charge • Meter is read • Any defects are entered into the Itron with a code • Door hanger is trimming of bushes are needed

	• When sync with UBS a Meter service Order (MSO) is created First response • If there is a leak then on call crew comes to site within 40 minutes. Bill's first-responder will record information in UBS. John's first responder will record information in Lucity. Third first responder in water line maintenance. • First response is a one person crew. • Highway work needs permit and traffic plan • Arkansas One Call may need to be contacted. Emergency locate is 2 hours. 48 hours normal
Success Measurements	• Target is 2 re-reads per day • Codes used to track defects in meter • 1/2 of 1% bad debt ratio is good • Revenue • Number of returned checks
Problems with the current process	• Need ability to test meters. The equipment they have is old. Large meters are important and need to be tested. They do not see any reason to test obsolete meters. Fayetteville has equipment $200,000 for testing meters. That would be a separate building to do the testing. • Waiting too long to turn off a meter. Board does not want to do this. • Need AMI • If add one more crew, could get more jobs quicker. Need to look at aging work orders. Done lots of reactive work. No reports run like that. • No charge for customer requested turn off water or turn on of service • No information is entered into Lucity all data in UBS. If there is an excavation then it will go into Lucity • No call tracking system in CIS or any other system • Limited space for customer service people • Need more service windows • No measures of success

Process Name: Human Resources	

Description of Process and Major Functions	• Human Resources done by the City – 4 people
	  o Training and Safety – 1 person
	  o Works compensation
	  o 3rd party insurance carrier
	  o HR handles accident after safety is involved

Supporting Tool	• Access • DB Squared – looks statewide but • Datatronics is used for HR
Tasks	Adding New Position • Have to have a need • Add position to budget • Make request to board • Add a position • If new position, then there is an adjustment • Look at similar position • Position is created • Look internally • Need to interview the people how apply • Nation job • Only hired recruiter once • May pay relocation • Orientation process through City first on Tuesday • Department defines the specific orientation • City handles CDL drug screen program • Every two years then every five years • Permitted site and non permitted entry – 3 people • Supervisor must sign permit Training • Training log for each person • Separate safety training for supervisors • Safety training is done • Confined space training Church Safety OSHA Performance Review • Performance review process is annually • Some core and some department • The person gets a score • Initial draft is done by employee then modified by supervisor • Preliminary is used only between supervisor and employee

	Training • Chemical training • CPR every two years • No sewer line certification • Water treatment and distribution • Participation is more in state level conventions • CIUs are done through district meetings • Courses are given internally to get CIUs • Time is given to employee • Paid for training and safety
Success Measurements	• Spot observation • Spot observations • Worker comp claims • Claims per year
Problems with the current process	• No HR Metrics • Not enough time for people to do all the training • Need a hands on training facility • Need succession plan • Risk management plan and policy • Most training in on the job and there is not always resources to train people • There is no city wide leadership training • There is no DL programs • No succession plan • No progression path • Need SOPs

Process Name: Maintenance Management Distributed Assets	
Description of Process and Major Functions	• There are separate Sewer and Water crews • Fleet maintenance is at Service Center with adequate space to store the vehicles. There is one fleet maintenance manager and a fleet mechanic to service all the vehicles Maintenance of the liner assets includes: • Water Meters • In-house performed CCTV, typically as part of cleaning • Water line maintenance • Sewer line maintenance • Proactive cleaning list based on customer complaints and known areas of problems. There are 3 cleaning crews. One for CCTV • Field Dispatch with a call center and SCADA operations 24 hours a day. • Data is collected that will help define problems with water service such as the analysis of water quality complaints and tracking of pressure problems. • The condition assessment of the tanks is contracted out. • All sampling and monitoring is done by the laboratory. Lab report are regularly sent to management. • All work is done in house, unless special project is needed. There is no pipe bursting equipment at the moment, but it has been considered. R&R work and repair work has been under the direction of specific projects such as SSES and I/I projects • Planning is done with daily discussions as needed • If more than two sewer pipe sections is in need of repair the work is typically done as a CIP project. • One person is responsible for backflow prevention devices. The commercial customer are set up on a self monitoring program. There are some fees generated, but at first glance it does not appear to cover the cost of the program. Some of the sources of revenue includes the following: • Water meters • Sewer tapping • Backflow permitting • Turn on turn off • Not private service line work • Fire hydrant meter fee • Fees for pretreatment

	Work hours • Weekends have stand-by • Work hours at 7:30 – 4:00 • System controls are 24 hours The crews seem to be adequately staff on the water side, but short staffed on the sewer side Dispatch typically handles the calls and filter them before sending the request to field crews. They use Lucity for recording information from customer. The Water Bill has phone number on it, but there are also additional numbers that the customer could call
Tasks	The following describes the general work order process • Dispatch creates a work order • Paper communication is typically used unless there is an emergency • The Supervisor does the prioritization • Supervisor gives the work order to crew • Crew goes to field to perform the work • Cause codes are used as appropriate • The crew completes the work order in the field using the paper form • Equipment cost and material cost are added as appropriate • A person's specific hourly rate is used to track labor cost • The Supervisor reviews the work order and gives the completed form to Dispatch • Dispatch enters data • The supervisors and managers have access to CMMS to look at reports and historical data
Supporting Tool	• Lucity used for work orders • Datatronic for meter readings • Record system in AutoCAD • Granite CCTV software
Success Measurements	• Aging of work orders • Over time is indicator
Problems with the current process	• Dispatch does all the data • Not all the information needed is in Lucity • Lucity not connected to GIS • Risk management is not a normal protocol • Root cutting is done, but no treatment program for roots. • Root and grease is major cause of SSOs with more residential grease areas popping up especially in multi-family use areas

	• There is no FOG program and no coordination between code enforcement and sewer cleaning activities • There are no know dead zones in the water service, but there are 2 points in the system that are flushed routinely • There are no documented Levels of Service, but the utility targets State requirements. • Not enough people on Sewer side • There does not seem to be enough crews to keep up with the Water Meter Change-out Program. This may be having an impact on revenue and water loss. It is unclear and should be investigated further. • The sewer crews main role is for system maintenance. There is no preplanned condition assessment program of the sewer lines unless it is part of a specific project. PACP and MACP condition codes are not used. The CCTV work that is performed will have a video that is referenced to Manhole number in AutoCAD, not to GIS. • There is no tracking of the condition or documented condition assessment of the water lines. • At the moment there is approximately 14-16% unaccounted for water • Crews will take a coupon of the water line during a tap if larger than 2 inch. It is not clear how the data is used. • There is a limited valve exercise program. One crew typically goes around and chases valves • There is an aging water service infrastructure. The downtown system includes pipes installed between 1880 -1920. It is in a separate pressure zone (90psi) with some sand cast iron pipe. There are no plans to replace the pipes.

Ft. Smith
Business Process Descriptions
HDR Engineering, Inc.

Process Name: Mapping	
Description of Process and Major Functions	• All water and sewer assets in AutoCAD • No plan to move assets into GIS • 100% of sewer and water assets are in the AutoCAD system • Create Maps • Does special maps and drawings as needed.
Tasks	The general process for a new asset is as follows: • A handwritten drawing is prepared by the field crew or it can come as engineering drawing • Tom Adkins creates the manhole in AutoCAD • An 8 digit manhole manhole number is used. The first 4 is letters is the basin with the four as sequential numbers. Sewer lines are identified by the upstream manhole. • Water line is structured by ID 5 digit. • Water valves are numbers with geocoded • Not all valves are geocoded • Tom creates a TIFF image for the map books, mostly horizontal changes • Tom sends a .wdg file to a server shared site for IT to update the GIS • There are typically quarterly updates of GIS The Redlining process in as follows: • Field will use verbal communication for redline updates • Some information will come in from contractors Information is input as follows: • Typically uses State Plan coordinates • Scan and store onto shared file server, O-Drive • Scanner gives a default ID, but it is changed to Plan name • Stored under Records Folder with no data standard • Paper copies are stored in file cabinets with drawer number identified on drawing • ID number is the driver and used for identifying where drawings are stored. CIP projects are entered as a construction layer when the drawings are available. When as-builts come in then the asset ID is stored on shared drive
Required Process Interactions	• IT interaction for GIS • Interaction with Field Crews • Interaction with contractors

	• City Engineer division
Supporting Tool	• ArcGIS 10.2 • AutoCAD 2005 • MapBooks • Plotters HP 4000 • Engineering Copier/Scanner
Success Measurements	• X-Y coordinates in system • QA/QC is done as needed by field crew
Problems with the current process	• Short staffed in updating maps • Limited resources for moving to GIS • Takes time to generate data due to data amounted • No data standards of methodologies for how contractors/consultants send in data

Process Name: Plant O&M Management	
Description of Process and Major Functions	• 24 sewer lift stations • Mechanics 9 including 1 lead, 1 PM and 7 repair (4 needed for plants) • 2 Electrician 2 techs • Water Mechanics 4 • Preventative Maintenance guy takes care of wet wells. • Vactor trucks take to land fill
Supporting Tool	• Lucity • Wonderware SCADA • Schneider PLC • Krohne Magmeters • 2 Sewer Pump Stations with meters. Pump run hours. • Larger stations are variable speed pumps • Thermography

Tasks	Ground Maintenance
	• Mowing and lawncare of Utilities owned property
	• Lawn care
	  o Cemetery within lake Ft. Smith old Becky Wright Cemetery
	  o Lake property is owned by Utilities
	  o Rental property at Lake area. Revenues go to Utilities
	  o Don't mow inside plant grounds
	
	Maintenance
	• Operators will do some maintenance
	• Some equipment still under warranty
	• Peachtree sends hand written work order
	• In some cases, Brian Dispatch will create work order and email to
	• Work order is completed.
	• Brian reviews WO and then takes to dispatch
	• PMs are generated to do calibration and such
	• Keith has a paper copy of PMs.
	  o Check oil
	  o Grease u joints
	  o Sump pump operation
	  o Start stop pump
	  o Some pump stations are visited daily
	  o Assist with PM at plants
	  o Operators of PM at plants
	• If operator needs maintenance, Phone call to electric or mechanical
	• Call out person for after hours
	• Emails are sent for work orders which are paper copies. Excel spreadsheet format.

	• Work order is completed and give to store keeper • Store keeping enters data into Lucity (Marty) • Lucity used for inventory stores • Use of electronic documents if given by vendor • Some work orders are generated based on SCADA alarm • Hours on a work order included • Vehicles have rolling stock • Bruce Rogers (plumbing supply) use of purchase order. Some parts are not priced. No credit cards are not used • Several store rooms, but no accounting for each store room. No reorder points defined at this stage. • Some parts need to be manufactured but not many. There are location machine shops that can do the custom supplies. Procurement • Each department has a different secretary for PO • Person fills out PO • Gets approved Steve Parkes has to sign everything above $750 • Then it goes to City purchaser • Order comes in but not added to Lucity or inventory costs
Success Measurements	• Regular meetings • No measures of work performance • No measures of reliably. There are expected to last a certain time, but don't know when it was installed • Certain brands have better reliability
Problems with the current process	• No data analysis of Lucity is done • Word of mouth used to identify problems • Cause codes are not necessarily used for Wastewater • Some predictive failure analysis • Cause codes not added for wastewater but are added for water • No standard job plans • No critical spare parts list is kept • No idea of the total cost of inventory for mechanical and electrical. Parts for line maintenance are well known. • Run equipment until it reaches failure. Then repair it. There is little estimate of predictive failure • No turn on\off of sewer pump stations. Have to manually reset the equipment • Need people to enter data into the Lucity • If one person over maintenance that would be helpful • Staff feels each plant should have their own electrician. Especially

	drive time. Need electricians to be familiar with the way to plant operates • Odor scrubbers constantly down due to electronic problems • At least one more electronic tech needed dues to more technical parts

Process Name: Regulatory Reporting and Regulator Interface Management	
Description of Process and Major Functions	• Submits DMR reports • Annual Pretreatment Report • Record Keeping • Drinking water regulation • Sample collections – upstream and downstream of outfall locations
Process Outcome or Output	• Reports
Required Process Interactions	• Regulatory agencies • Health department on water • Web site updates with annual water quality report
Supporting Tool	• Scanning of files
Tasks	Water Regulatory • Monthly water report • Summary of compliance • Health department Wastewater Regulatory • DMR – state provided format no electronic signatures allowed. • SSO • Non-compliance activities • No air permitting • Biomonitoring Landfill Regulatory • No permit for Utilities to send to landfill Pretreatment Regulatory • Annual performance require to ADEG and EPA • 17 Significant industrial users 22 non-significant IU • Permits for 5 years are issued, fee is paid that covers 60% of cost • Bills go through normal billing tool
Problems with the current process	• Nutrient pending regulations • No FOG program • Difficult to verify septic haulers • Lab to work with plants to optimize the process • Need LIMS for data access

Process Name: Spill Response	
Description of Process and Major Functions	• SSO response and reporting– Anything leaving the system • Dry weather generally 500 gal per hour times duration
Supporting Tool	• Telemetered rain gauges that come into gauge • Lucity • SSO database tool
Tasks	Spill Response • Dispatch takes call • Work order is created • Rod truck responds • Use Dry weather form or Wet weather form • Take pictures to help define situation • Attempt to clear debris or cause • Work order created to clean line the next day • Overflow form goes to engineering Jimmie 56 in 2011 • Wet weather picture stick rod to look at the height of discharge • Jimmie does the calculation then communities to Leroy • Reports within 24hours to Region 6 and State • Report in a written letter within 5 days with more details. • If there is significant flow or call from citizen such as to receiving water then a sample is collected by environmental. • OERP may require public notice • ¾ inch in 24 hours • Two constructed overflow still to be removed • Several equalization points created • Blending is not allowed
Success Measurements	• No metrics
Problems with the current process	• RJN has done modeling • No notification to health department • No FOG program • SSO database not connected to Lucity (module not used) • No trending of data or analysis of data • No space to put people • Need more people to handle the CMOM program

1.1.1 Customer comes to main office to ask for service

Will first go to Tony for new service address

Tony will get tapping WO through email

$423 water tap

$780 sewer tap will go up to $940 in 2012 and $1,110 in 2014

A deposit held for 12 months then credited to account

Check the customer identity

Set up account

- ***commercial***
- ***industrial***
- ***Residential***
- ***Irrigation***

Input Account and information into UBS

Set time to turn on water

Create a work ticket UBS

Set up Reps with rep number

Rep will verify meter

Rep will set meter read

Activate the account

1.1.2 30 day read

1.1.3 Itron reading system

read route

synch UBS and Datatronics

re-read report daily from Datatronics

update corrections

MSO

meter service order

John Beard

has to update UBS to comment on repairs

1.1.4 Credits

1 month 100%

up to 3 months 50%

1.1.5 5 times a month

monthly cycle

1.1.6 set billing cycle

1.1.7 Dataform

third party bill print

since 2003

1.1.8 Bill goes out

first miss is a disconnect fee

$5

fee from Dataform

Don't charge for 30 days overdue

10% penalty

if don't pay two cycles then $5 fee

reconnect $30

$100 tamper meter fee

insufficient fee

$29

Letter is manually sent

1.1.9 No charge for water shut-off
1.1.10 Bills crew will shut off water

a list shut offs are sent by email.

accounting tech converts UBS Data into Excel and emails the file

1.1.11 In some cases John Beards crew will do the turn off and then information to Bills office
1.1.12 Using new Datatronics System

Datatronics

600-700,000 per year

33,000 accounts

1.2 Process Outputs
1.3 Required Process Interactions
1.4 Location
1.5 Timing
1.5.1 Starting or Precipitating Event
1.5.2 Timing
1.5.3 Ending Event
1.5.4 Schedule Constraints

holidays

1.5.5 Anticipated Frequency

monthly

1.6 Input Information and Data
1.6.1 500 disconnects per month

6 people

$148,000/year

1.6.2 75% for water and sewer
1.6.3 8 meter readers
1.6.4 5 different phone numbers
1.6.5 4 window clerks
1.6.6 1 drop box/lock box
1.6.7 No call tracking system

missed calls and received calls

1.6.8 main city number has IVR
1.6.9 pass to maintenance

water quality

1.6.10 After 90 days account is written off

goes to collection agency

1.7 Supporting Tools
1.7.1 Itron
1.7.2 UBS
1.8 Success Measurements (Metrics)
1.8.1 1/2 of 1% bad debt ratio is good
1.8.2 revenue
1.8.3 no metrics used to track success
1.8.4 returned checks
1.9 Problems with Existing Process
1.9.1 why so long to turn off water
1.9.2 limited space for service people

no more service windows

cannot add people

1.9.3 Not tracking calls in the CIS
1.9.4 No measures of success
1.9.5 Subtopic

Appendix B

Non-Priority Recommendations

Summary of Non-Priority Recommendations – Organizational Structure

- A plan for the future of the customer service center should be identified. Customer service people have very limited space to work. A call tracking system may also be useful. Additional space/personnel could aid in keeping track of information on calls that come in such as number of calls, customer wait time, rings before answering, missed calls, etc. This could lead to increased customer service. Additional space must be provided for additional staff. A plan is required to weigh the pros/cons of expanding the service center or contracting the work out. The initial cost would consist of office space for 3 additional FTEs and their salary, as set by the Utility. The annual return would be quantified by measuring improved service levels and improved customer response time.

Summary of Non-Priority Recommendations – Water and Sewer Operations

Water Operations

- A study could be undertaken to see if adding chloramines, while more expensive at the plants, could limit the amount of sampling and the number of failing tests in the distribution system. Chloramines persist longer in a distribution system than free chlorine, which could reduce the likelihood of failing tests in the distribution system and eliminate the need for repeat tests. Changing disinfectants requires an engineering evaluation to examine plant hydraulics, water chemistry, and other issues. The initial capital cost would be the cost of an engineering evaluation. The evaluation would make a final determination on the feasibility and cost of changing disinfectants. Required equipment would likely cost approximately $75,000/plant. The cost of the chemical will increase the operating costs, which may be accounted for in labor.
- Re-use of filter-to-waste water as well as decanted water from sludge holding tanks could be examined. Recycling the water would reduce water loss and may reduce chemical usage. Evaluate costs during next rehabilitation or expansion of the plant.
- Examine adding one smaller finished water pump to the Lee Creek Plant. The pump would have a smaller motor and operate closer to its optimum efficiency point during periods of low flow from the plant. The pump and motor would likely cost between $150,000 - $200,000. The smaller pump would likely be 10% more efficient, depending on existing and proposed pump curves.
- Pump stations should be rehabilitated with premium efficiency pumps and motors as part of their normal replacement cycle when the existing equipment is beyond its useful life.
- It is suggested that a critical spare parts list be kept at each facility.
- Maximize the use of the Lake Fort Smith Plant during periods of low demands to take advantage of the electrical savings.

Wastewater Operations

- Electrical loads could be monitored through SCADA, and written protocols should be developed for the operation of non-essential equipment during lower usage periods.
- Lift stations should be rehabilitated with premium efficiency pumps and motors as part of their normal replacement cycle when the existing equipment is beyond its useful life.
- Inventory management practices could be improved to quantify inventory, assure critical parts are kept, and avoid unnecessary ordering of parts or expiration from excessive shelf life.
- System controls could be added to the lift stations to reset them automatically in the case of a power outage, and to turn them on and off remotely through SCADA, which is already monitored at the treatment plants.
- The City is already planning on updating their wastewater management plan in 2012; however, at the time of the update it would be prudent to ensure the management plan has the following:
    - Population projections that have considered previous population planning documents the City has already paid for, specifically the Burns & McDonnell report from 2009.
    - Flow projections that account for I&I reduction that has already begun and I&I projects planned for in the near future.
    - Examine current wastewater planning documents (Mickle Wagner Coleman, 2010) and incorporate the significant amount of anticipated flow into the planning document.
- The City should update their Wastewater Master Plan at regular intervals (i.e. every 5 years).

Summary of Non-Priority Recommendations – Planning

- The City should develop a formal, documented capital planning process.
- The City should update their Master Plans at regular intervals (i.e. every 5 years).
- More closely coordinate key assumptions contained within the City's different planning documents.
- The water conservation program could be expanded to reduce long-term water usage. The program does not have to expand with more regulation, but rather, the enforcement of the regulation and public education, so that the regulations already implemented are followed. Once this step is successful, further expansion of the program could occur, and could vary from City ordinances requiring low flow fixtures in public buildings to adjusting billing rates to encourage industry to use less water, rather

than more. Achieving significant metrics from conservation programs in Fort Smith may be somewhat difficult, due to the large amount of flow that is provided to contract customers. Expansion of the conservation program would require further study to identify areas that would provide the most benefit.

- The City may see benefit in standardizing a system peaking factor for projections.

Summary of Non-Priority Recommendations – Financing and Rates

- The City should review the issue of system development charges for the water and sewer utilities. This is a potential funding source for growth-related infrastructure that is commonly used by utilities to have "growth pay for growth".

Appendix C

Chemical and Electrical Usage Data

Lee Creek WTP- Arkansas Valley Electric

2010	Invoice Total	Energy Charge	KWH	Cost per KWH
Sept	$40,552	$17,545	459,900	$0.0882
Oct	$40,733	$16,961	444,600	$0.0916
Nov	$38,627	$17,614	461,700	$0.0837
Dec	$32,895	Note 1	Note 1	Note 1
2011				
Jan	$38,058	$16,858	441,900	$0.0861
Feb	$39,151	$18,301	479,700	$0.0816
Mar	$28,650	$13,150	344,700	$0.0831
Apr	$43,358	$19,434	509,400	$0.0851
May	$33,147	$16,034	420,300	$0.0789
Jun	$45,862	$24,165	622,800	$0.0736
Jul	$59,796	$33,523	864,000	$0.0692
Aug	$44,357	$19,695	507,600	$0.0874
Total/Average:	$485,187			$0.0757

Notes:

1 Detailed information not available; invoice not provided

Lake Fort Smith- OG&E

2010	Invoice Total	KWH	Cost per KWH
Sept	$5,505	74,729	$0.0737
Oct	$7,334	106,204	$0.0691
Nov	$7,366	125,048	$0.0589
Dec	$8,915	153,667	$0.0580
2011			
Jan	$9,226	160,207	$0.0576
Feb	$10,235	156,622	$0.0653
Mar	$7,860	108,304	$0.0726
Apr	$5,978	88,884	$0.0673
May	$6,886	87,404	$0.0788
Jun	$7,669	113,548	$0.0675
Jul	$7,921	112,686	$0.0703
Aug	$8,140	119,683	$0.0680
Total/Average:	$93,035	1,406,986	$0.0673

WTP

CHEMICAL	COMPANY	Lee Creek WTP	Lake Fort Smith WTP
Hydrated Bulk Lime	Arkansas Lime Company	x	x
Chlorine	Brentag Southwest	x	x
Potassium Permagante	Carus	x	x
Soda Ash	Harcros		x
Coagulant Polymer	Klar Water	x	
Liquid Ferric Sulfate	Kemira*		x

Hydrated Bulk Lime- Arkansas Lime Company

Lee Creek	Invoice Date	Invoice No.	Quantity	Quanity Units		Unit Price		Total Price
	21-Sep-10		24.51	TONS	$	189.39	$	5,120.57
	20-Oct-10		23.64	TONS	$	189.39	$	4,938.81
	7-Dec-10		23.26	TONS	$	189.39	$	4,859.42
	1-Mar-11		23.80	TONS	$	189.39	$	4,972.24
	1-May-11		24.25	TONS	$	189.39	$	5,066.25
	25-Jun-11	218158	24.20	TONS	$	189.39	$	5,055.80
	3-Jul-11	218416	24.50	TONS	$	189.39	$	5,118.48
	15-Jul-11	218793	23.02	TONS	$	189.39	$	4,809.29
	22-Jul-11	219040	22.98	TONS	$	189.39	$	4,800.92
	27-Jul-11	219183	23.77	TONS	$	189.39	$	4,965.97
	10-Aug-11	219917	24.08	TONS	$	189.39	$	5,030.73
	23-Aug-11	220053	23.78	TONS	$	189.39	$	4,968.06
	29-Aug-11	220240	25.36	TONS	$	189.39	$	5,405.15
			311.15				$	65,111.70

Lake Fort Smith	Invoice Date	Invoice No.	Quantity	Quanity Units		Unit Price		Total Price
	3-Sep-10		25.10	TONS	$	189.39	$	5,243.83
	1-Sep-10		24.35	TONS	$	189.39	$	5,087.14
	18-Sep-10		24.34	TONS	$	189.39	$	5,085.05
	15-Sep-10		24.66	TONS	$	189.39	$	5,151.91
	7-Oct-10		48.14	TONS	$	189.39	$	10,057.29
	9-Oct-10		24.38	TONS	$	189.39	$	5,093.41
	21-Oct-10		24.70	TONS	$	189.39	$	5,160.27
	26-Oct-10		25.33	TONS	$	189.39	$	5,291.88
	10-Dec-10		25.15	TONS	$	189.39	$	5,254.28
	1-Jan-11		24.69	TONS	$	189.39	$	5,158.18
	1-Feb-11		24.53	TONS	$	189.39	$	5,124.75
	1-Apr-11		23.72	TONS	$	189.39	$	4,955.53
	1-May-11		24.27	TONS	$	189.39	$	5,070.43
	15-Jun-11	217800	24.40	TONS	$	189.39	$	5,097.59
	4-Aug-11	219453	24.99	TONS	$	189.39	$	5,220.84
	3-Aug-11	219412	24.11	TONS	$	189.39	$	5,037.00
	11-Aug-11	219676	23.12	TONS	$	189.39	$	4,830.16
			439.98				$	91,919.54

Chlorine- Brentag Southwest

Lee Creek	Invoice Date	Invoice No.	Quantity	Quanity Units		Unit Price		Price
	4-Nov-10	BSW225217	24000	LBS	$	0.4250	$	10,200.00
	1-Feb-11		24000	LBS	$	0.4250	$	10,200.00
	1-Aug-11		24000	LBS	$	0.4250	$	10,200.00
			72000				$	30,600.00

Lake Fort Smith	Invoice Date	Quantity	Quanity Units		Unit Price		Price
	1-Sep-10	24,000	LBS	$	0.4250	$	10,200.00
	Nov-10	24,000	LBS	$	0.4250	$	10,200.00
	2/1/2011	24,000	LBS	$	0.4250	$	10,200.00
	5/1/2011	24,000	LBS	$	0.4250	$	10,200.00
	7/1/2010	24,000	LBS	$	0.4250	$	10,200.00
		120,000				$	51,000.00

Potassium Permagante- Carus

Lee Creek	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price
	24-May-10	10002934	19845.00	LB	$ 2.6900	$ 53,383.05
	29-Nov-10	10007387	19845.00	LB	$ 3.2500	$ 64,496.25
	28-Jun-11	1011574	19845.00	LB	$ 3.2500	$ 64,496.25
	21-Jul-11	10012100	19845.00	LB	$ 3.2500	$ 64,496.25
			59535.00			$193,488.75

Lake Fort Smith	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price
	15-Feb-10	1000893	6615.00	LB	$ 2.6900	$ 17,794.35
	4-Jun-10	10003246	6615.00	LB	$ 2.6900	$ 17,794.35
	5-Nov-10	10007022	6615.00	LB	$ 3.2500	$ 21,498.75
	18-Jul-11	10012007	6615.00	LB	$ 3.2500	$ 21,498.75
			13230.00			$ 42,997.50

Soda Ash- Harcros

Lee Creek	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price
			None			

Lake Fort Smith	Invoice Date	Invoice No.	Quantity	Quanity Units		Unit Price		Price
	12-Oct-10	60058754	43680	LB	$	0.23500	$	11,028.60
	17-Nov-10	60058964	49260	LB	$	0.23500	$	12,386.43
	14-Dec-10	60059082	47920	LB	$	0.23500	$	12,049.48
	5-Jan-11	60059187	48660	LB	$	0.23500	$	12,235.56
	23-Feb-11	60059452	47040	LB	$	0.23500	$	11,828.20
	17-Mar-11	60059576	47920	LB	$	0.23500	$	12,049.48
	7-Jun-11	60060009	49220	LB	$	0.23500	$	12,376.37
	21-Jun-11	60060089	48100	LB	$	0.23500	$	12,094.75
	11-Jul-11	60060202	48040	LB	$	0.23500	$	12,079.65
	22-Jul-11	60060283	48100	LB	$	0.23500	$	12,094.75
	3-Aug-11	60060345	49980	LB	$	0.23500	$	12,567.47
	25-Aug-11	60060460	48500	LB	$	0.22450	$	11,650.43
			576420				$	144,441.17

PAC - Brenntag Southwest

	Invoice Date	Quantity	Quanity Units	Unit Price	Price
Lee Creek					
	6/29/2011	2000	LBS	0.56	$1,120
	7/6/2011	4000	LBS	0.56	$2,240
	8/10/2011	6000	LBS	0.56	$3,360
		12,000			$6,720

Sodium Hydroxide - Brenntag Southwest

	Invoice Date	Quantity	Quanity Units	Unit Price	Price
Lee Creek					
	1/31/2011	220	GAL	1.85	$407
		220			$407

Coagulant Polymer- Klar Water Inc.

Lee Creek	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price		Lake Fort Smith	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price
										None				
	9-Sep-10	426-44243	43760	lbs	$ 0.287	$ 12,559.12								
	30-Sep-10		44440	lbs	$ 0.287	$ 12,754.28	$ 25,313.40							
	29-Oct-10	436-44358	45600	lbs	$ 0.287	$ 13,087.20								
	9-Dec-10	440-44448	45220	lbs	$ 0.287	$ 12,978.14								
	27-Jan-11	447-44873	45380	lbs	$ 0.287	$ 13,024.06								
	15-Mar-11	458-44923	46120	lbs	$ 0.287	$ 13,236.44								
	14-Apr-11	461-44965	44780	lbs	$ 0.287	$ 12,851.86								
	9-May-11	465-44965	44980	lbs	$ 0.287	$ 12,909.26	$ 25,984.98							
	31-May-11	473-45043	45560	lbs	$ 0.287	$ 13,075.72								
	5-Jul-11	481-45089	41980	lbs	$ 0.287	$ 12,048.26	$ 24,928.82							
	22-Jul-11	484-45268	44880	lbs	$ 0.287	$ 12,880.56								
			492,700			$ 141,404.90								

Polymer S/W 102 - Water Tech, Inc. (Coagulant)

Lee Creek	Invoice Date	Quantity	Quanity Units		Unit Price		Price	
	13-Sep-10	13890	LBS	$	0.514	$	7,139.46	WT
	6-Dec-10	14400	LBS	$	0.514	$	7,401.60	WT
	1-May-11	14400	LBS	$	0.514	$	7,401.60	
	1-Jun-11	9840	LBS	$	0.514	$	5,055.80	
	1-Jul-11	38320	LBS	$	0.514	$	19,694.66	
	1-Aug-11	29970	LBS	$	0.514	$	15,403.94	
		120820				$	62,097.06	

Lake Fort Smith	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price
	None					

Liquid Ferric Sulfate - Kemira

Lee Creek	Invoice Date	Invoice No.	Quantity	Quanity Units	Unit Price	Price
		None				

Lake Fort Smith	Invoice Date	Quantity	Quanity Units		Unit Price per TON		Price
	9/1/2010	206.64	TON	$	159.990	$	33,059.55
	10/1/2010	207.86	TON	$	159.990	$	33,255.04
	11/1/2010	93.54	TON	$	159.990	$	14,964.97
	12/1/2010	139.16	TON	$	159.990	$	22,264.04
	1/1/2011	165.02	TON	$	159.990	$	26,400.92
	2/1/2011	92.18	TON	$	159.990	$	14,747.40
	3/1/2011	138.92	TON	$	159.990	$	22,225.17
	4/1/2011	45.64	TON	$	159.990	$	7,301.78
	5/1/2011	95.28	TON	$	159.990	$	15,243.53
	6/1/2011	186.16	TON	$	159.990	$	29,783.10
	7/1/2011	229.70	TON	$	159.990	$	36,750.19
	8/1/1900	115.65	TON	$	159.990	$	18,502.37
		1715.72				$	274,498.06

Lake Ft Smith WTP

Chemical	Vendor	Annual Quantity[1]	Unit	Unit Price	Annual Cost[1]
Hydrated Bulk Lime	Arkansas Lime Company	440	TON	$189.39 + Service Fee	$91,900
Chlorine	Brenntag Southwest	120,000	LBS	$0.425	$51,000
Potassium Permanganate	Carus	13,230	LBS	$3.25	$43,000
Soda Ash	Harcros	576,420	LBS	$0.235 - 0.2245 (Varies)	$144,400
Ferric Sulfate	Kemira	1,716	TON	$159.99	$274,500
Total Annual Cost:					$604,800

Hydrated Lime	$91,900	15%
Chlorine	$51,000	8%
Potassium Permanganate	$43,000	7%
Soda Ash	$144,400	24%
Ferric Sulfate	$274,500	45%
	$604,800	

Lee Creek WTP

Chemical	Vendor	Annual Quantity[1]	Unit	Unit Price	Annual Cost[1]
Hydrated Bulk Lime	Arkansas Lime Company	311	TON	$189.39 + Service Fee	$65,100
Chlorine	Brenntag Southwest	72,000	LBS	$0.425	$30,600
Potassium Permanganate	Carus	59,540	LBS	$3.25	$193,500
Sodium Hydroxide	Brenntag Southwest	220	GAL	$1.85	$407
Powdered Activated Carbon	Brenntag Southwest	12,000	LBS	$0.56	$6,720
Polymer (S/W 102)	Water Tech, Inc.	120,820	LBS	$0.514	$62,100
Polymer (CF 150)	Klar Water, Inc.	492,700	LBS	$0.287	$141,400
Total Annual Cost:					$499,827

Hydrated Lime	$65,100	13%
Chlorine	$30,600	6%
Potassium Permanganate	$193,500	39%
Sodium Hydroxide	$407	0%
Powdered Activated Carbon	$6,720	1%
S/W 102	$62,100	12%
CF 150	$141,400	28%
	$499,827	

P St WWTP

2010	Dollars	KWH	Cost per KWH
Sept	$27,080	378,100	$0.0716
Oct	$24,435	331,640	$0.0737
Nov	$19,934	340,380	$0.0586
Dec	$21,893	384,000	$0.0570
2011			
Jan	$23,338	415,680	$0.0561
Feb	$21,678	357,340	$0.0607
Mar	$19,600	335,640	$0.0584
Apr	$20,469	359,900	$0.0569
May	$27,362	447,060	$0.0612
June	$22,513	301,960	$0.0746
July	$22,346	335,880	$0.0665
Aug	$23,270	342,040	$0.0680
Total/Average:	$273,918	4,329,620	$0.0636

Massard

2010	Dollars	KWH	Cost per KWH
Sept	$26,702	399,920	$0.0668
Oct	$21,776	335,960	$0.0648
Nov	$23,747	400,720	$0.0593
Dec	$21,913	386,360	$0.0567
2011			
Jan	$22,374	387,160	$0.0578
Feb	$21,634	376,080	$0.0575
Mar	$20,834	364,240	$0.0572
Apr	$22,948	429,440	$0.0534
May	$24,062	458,480	$0.0525
June	$24,799	379,600	$0.0653
July	$25,725	410,120	$0.0627
Aug	$23,733	346,800	$0.0684
Total:	$280,248	4,674,880	$0.0602

WWTPs

CHEMICAL	COMPANY	P St WWTP	Massard WWTP
Quicklime	US Lime Company	X	X
Caustic Soda (NaOH)	Brentag Southwest	X	X
Sodium Hypochlorite	Brentag Southwest	X	X
Chlorine	Brentag Southwest	X	
Sodium BiSufite	Brentag Southwest/Thatcher	X	
Dry Polymer (Clarifloc)	Polydyne Inc	X	X
Sulfuric Acid	Water Tech, Inc.		X
Odor Control Maint.	BioAdd, L.L.C.	X	
Liquid Ferric Sulfate	Kemira Water Solutions	X	

CHEMICAL	COMPANY	P St WWTP	Use
Quicklime	US Lime Company	X	solids stabilization
Caustic Soda (NaOH)	Brentag Southwest	X	assume pH adjustment?
Sodium Hypochlorite	Brentag Southwest	X	
Chlorine	Brentag Southwest	X	disinfection
Sodium BiSufite	Brentag Southwest/Thatcher	X	dechlorination
Dry Polymer (Clarifloc)	Polydyne Inc	X	flocculat (high rate) or solids dewatering?
Odor Control Maint.	BioAdd, L.L.C.	X	headworks odor control
Liquid Ferric Sulfate	Kemira Water Solutions	X	flocculat (high rate)

CHEMICAL	COMPANY	Massard WWTP	Use
Quicklime	US Lime Company	X	solids stabilization
Caustic Soda (NaOH)	Brentag Southwest	X	
Sodium Hypochlorite	Brentag Southwest	X	
Dry Polymer (Clarifloc)	Polydyne Inc	X	
Sulfuric Acid	Water Tech, Inc.	X	

Caustic Soda Use

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
12-Apr-10	3500.00	LBS	$ 0.27	$ 945.00
23-Jun-10	3200.00	LBS	$ 0.21	$ 674.56
19-Jul-10	3200.00	LBS	$ 0.21	$ 674.56
4-Aug-10	3200.00	LBS	$ 0.21	$ 674.56
25-Aug-10	313.72	GAL	$ 1.85	$ 580.39

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
19-May-10	6400.00	LBS	$ 0.21	$ 1,349.12
21-Jun-10	6400.00	LBS	$ 0.21	$ 1,349.12
19-Jul-10	3200.00	LBS	$ 0.21	$ 674.56

Sodium Hypochlorite Use

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
24-May-10	1906.75	GAL	$ 1.25	$ 2,383.44
2-Aug-10	320.00	GAL	$ 1.25	$ 400.00

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
6-Oct-09	2523.03	GAL	$ 1.25	$ 3,153.79
24-May-10	1906.75	GAL	$ 1.25	$ 2,383.44
21-Jun-10	2003.26	GAL	$ 1.25	$ 2,504.08
1-Nov-10	1813.68	GAL	$ 1.20	$ 2,176.42
9-Mar-11	3231.57	GAL	$ 1.20	$ 3,877.88
6-Jun-11	4267.31	GAL	$ 1.20	$ 5,120.77
	9312.56			$ 11,175.07

Polymer Use

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
24-Sep-09	9000.00	LBS	$ 0.97	$ 8,730.00
17-Nov-09	4400.00	LBS	$ 1.59	$ 6,996.00
11-Jan-10	9000.00	LBS	$ 0.97	$ 8,730.00
16-Mar-10	7200.00	LBS	$ 0.97	$ 6,984.00
8-Jul-10	2200.00	LBS	$ 1.59	$ 3,498.00
20-Sep-10	2200.00	LBS	$ 1.59	$ 3,498.00
29-Nov-10	2200.00	LBS	$ 1.59	$ 3,498.00
20-Jan-11	2200.00	LBS	$ 1.72	$ 3,784.00
22-Feb-11	2200.00	LBS	$ 1.72	$ 3,784.00
21-Apr-11	2200.00	LBS	$ 1.72	$ 3,784.00
8/24/2011	3850.00	LBS	$ 2.13	$ 8,200.50
	14850.00	LBS		$ 26,548.50

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
14-Oct-09	7200.00	LBS	$ 0.97	$ 6,984.00
16-Mar-10	7200.00	LBS	$ 0.97	$ 6,984.00
17-Aug-10	7200.00	LBS	$ 1.18	$ 8,496.00
9-Feb-11	7200.00	LBS	$ 1.18	$ 8,496.00
7-Jun-11	7200.00	LBS	$ 1.18	$ 8,496.00
	14400.00			$ 16,992.00

Quicklime Use

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
2-Sep-09	25.02	TON	$ 171.26	$ 4,413.53
11-Sep-09	24.22	TON	$ 171.26	$ 4,272.41
17-Sep-09	23.97	TON	$ 171.26	$ 4,228.31
23-Sep-09	24.50	TON	$ 171.26	$ 4,321.80
1-Oct-09	26.02	TON	$ 171.26	$ 4,589.93
8-Oct-09	24.54	TON	$ 171.26	$ 4,328.86
27-Oct-09	25.94	TON	$ 171.26	$ 4,575.82
29-Oct-09	24.86	TON	$ 171.26	$ 4,385.31
6-Nov-09	26.02	TON	$ 171.26	$ 4,589.93
17-Nov-09	24.19	TON	$ 171.26	$ 4,267.12
25-Nov-09	24.83	TON	$ 171.26	$ 4,380.01
1-Dec-09	24.42	TON	$ 171.26	$ 4,307.69
9-Dec-09	24.61	TON	$ 171.26	$ 4,341.21
14-Dec-09	25.97	TON	$ 171.26	$ 4,581.11
21-Dec-09	24.14	TON	$ 171.26	$ 4,258.30
29-Dec-09	24.63	TON	$ 171.26	$ 4,344.73
8-Jan-10	24.51	TON	$ 171.26	$ 4,323.57
15-Jan-10	24.29	TON	$ 171.26	$ 4,284.76
20-Jan-10	24.07	TON	$ 171.26	$ 4,245.95
27-Jan-10	25.11	TON	$ 171.26	$ 4,429.41
1-Feb-10	24.98	TON	$ 171.26	$ 4,406.47
5-Feb-10	24.98	TON	$ 171.26	$ 4,406.47
17-Feb-10	25.76	TON	$ 171.26	$ 4,544.07
24-Feb-10	25.34	TON	$ 171.26	$ 4,469.98
27-Feb-10	24.84	TON	$ 171.26	$ 4,381.78
8-Mar-10	24.18	TON	$ 171.26	$ 4,265.35
12-Mar-10	25.99	TON	$ 171.26	$ 4,584.64
19-Mar-10	23.90	TON	$ 171.26	$ 4,215.96
30-Mar-10	25.25	TON	$ 171.26	$ 4,454.10
1-Apr-10	24.23	TON	$ 171.26	$ 4,274.17
8-Apr-10	24.59	TON	$ 171.26	$ 4,337.68
13-Apr-10	25.15	TON	$ 171.26	$ 4,436.46
20-Apr-10	24.66	TON	$ 171.26	$ 4,350.03
28-Apr-10	24.89	TON	$ 171.26	$ 4,390.60
6-May-11	24.84	TON	$ 171.26	$ 4,381.78
13-May-10	24.42	TON	$ 171.26	$ 4,307.69
19-May-11	25.20	TON	$ 171.26	$ 4,445.28
25-May-11	24.87	TON	$ 171.26	$ 4,387.07
2-Jun-10	24.69	TON	$ 171.26	$ 4,355.32
10-Jun-10	25.78	TON	$ 171.26	$ 4,547.59
18-Jun-10	25.19	TON	$ 171.26	$ 4,443.52
24-Jun-10	24.95	TON	$ 171.26	$ 4,401.18
7-Jul-10	25.08	TON	$ 171.26	$ 4,424.11
16-Jul-10	24.35	TON	$ 171.26	$ 4,295.34
2-Sep-10	24.31	TON	$ 175.96	$ 4,409.84
8-Sep-10	24.28	TON	$ 175.96	$ 4,404.40
16-Sep-10	25.78	TON	$ 175.96	$ 4,676.50
29-Sep-10	25.35	TON	$ 175.96	$ 4,598.49
6-Oct-10	24.81	TON	$ 175.96	$ 4,500.54
12-Oct-10	25.37	TON	$ 175.96	$ 4,602.12
20-Oct-10	24.57	TON	$ 175.96	$ 4,457.00
25-Oct-10	25.65	TON	$ 175.96	$ 4,652.91
3-Nov-10	24.71	TON	$ 175.96	$ 4,482.40
10-Nov-10	24.71	TON	$ 175.96	$ 4,482.40
17-Nov-10	24.78	TON	$ 175.96	$ 4,495.10
30-Nov-10	24.74	TON	$ 175.96	$ 4,487.84
2-Dec-10	24.89	TON	$ 175.96	$ 4,515.05
10-Dec-10	25.79	TON	$ 175.96	$ 4,678.31
14-Dec-10	24.57	TON	$ 175.96	$ 4,457.00
20-Dec-10	23.77	TON	$ 175.96	$ 4,311.88
22-Dec-10	24.8	TON	$ 175.96	$ 4,498.72
	422.88			$ 76,710.49

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
14-Sep-09	25.56	TON	$ 171.26	$ 4,508.79
30-Sep-09	24.03	TON	$ 171.26	$ 4,238.89
13-Oct-09	24.70	TON	$ 171.26	$ 4,357.08
23-Oct-09	23.81	TON	$ 171.26	$ 4,200.09
3-Nov-09	24.68	TON	$ 171.26	$ 4,353.55
4-Nov-09	24.00	TON	$ 171.26	$ 4,233.60
25-Nov-09	25.15	TON	$ 171.26	$ 4,436.46
9-Dec-09	25.32	TON	$ 171.26	$ 4,466.45
14-Dec-09	25.07	TON	$ 171.26	$ 4,422.35
4-Jan-10	24.20	TON	$ 171.26	$ 4,268.88
11-Jan-10	24.35	TON	$ 171.26	$ 4,295.34
25-Jan-10	24.91	TON	$ 171.26	$ 4,394.13
8-Feb-10	24.18	TON	$ 171.26	$ 4,265.35
12-Feb-10	24.85	TON	$ 171.26	$ 4,383.54
23-Feb-10	24.67	TON	$ 171.26	$ 4,351.79
27-Feb-10	24.22	TON	$ 171.26	$ 4,272.41
12-Mar-10	25.14	TON	$ 171.26	$ 4,434.70
2-Apr-10	25.66	TON	$ 171.26	$ 4,526.43
12-Apr-10	25.20	TON	$ 171.26	$ 4,445.28
16-Apr-10	23.97	TON	$ 171.26	$ 4,228.31
4-May-10	24.38	TON	$ 171.26	$ 4,300.63
12-May-10	24.86	TON	$ 171.26	$ 4,385.31
25-May-10	24.11	TON	$ 171.26	$ 4,253.01
7-Jun-10	24.78	TON	$ 171.26	$ 4,371.19
21-Jun-10	25.16	TON	$ 171.26	$ 4,438.23
7-Jul-10	24.43	TON	$ 171.26	$ 4,309.45
12-Jul-10	25.24	TON	$ 171.26	$ 4,452.34
31-Jul-10	25.88	TON	$ 171.26	$ 4,565.23
9-Aug-10	25.50	TON	$ 171.26	$ 4,498.20
17-Aug-10	24.22	TON	$ 171.26	$ 4,272.41
8-Sep-10	24.56	TON	$ 175.96	$ 4,455.19
27-Aug-10	25.23	TON	$ 175.96	$ 4,576.73
21-Sep-10	25.00	TON	$ 175.96	$ 4,535.00
5-Oct-10	25.66	TON	$ 175.96	$ 4,654.73
20-Oct-10	24.32	TON	$ 175.96	$ 4,411.65
25-Oct-10	24.55	TON	$ 175.96	$ 4,453.37
10-Nov-10	24.28	TON	$ 175.96	$ 4,404.40
19-Nov-10	24.73	TON	$ 175.96	$ 4,486.03
23-Nov-10	25.63	TON	$ 175.96	$ 4,649.29
8-Dec-10	24.14	TON	$ 175.96	$ 4,379.00
20-Dec-10	24.71	TON	$ 175.96	$ 4,482.40
	272.81			$ 49,487.77

Sulfuric Acid Use

P St WWTF	Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
	None				

Massard WWTP	Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
	22-Sep-10	750.00	LBS	$ 0.50	$ 375.00

Odor Control System Service Fee

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
1-Oct-09	1.00	LS	$ 1,250.00	$ 1,250.00
1-Nov-09	1.00	LS	$ 1,250.00	$ 1,250.00
1-Dec-09	1.00	LS	$ 1,250.00	$ 1,250.00
1-Jan-10	1.00	LS	$ 1,250.00	$ 1,250.00
2/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
3/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
4/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
5/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
6/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
7/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
8/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
9/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00
10/1/2010	1.00	LS	$ 1,250.00	$ 1,250.00

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
NONE				

Chlorine Usage

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
1-Oct-09	24,000.0	LBS	$ 0.40	$ 9,552.00
21-Dec-09	24,000.0	LBS	$ 0.40	$ 9,552.00
17-Feb-10	24,000.0	LBS	$ 0.40	$ 9,552.00
3-May-10	24,000.0	LBS	$ 0.40	$ 9,552.00
9/29/2010	24,000.0	LBS	$ 0.43	$ 10,200.00
2/23/2011	24,000.0	LBS	$ 0.43	$ 10,200.00
5/12/2011	24,000.0	LBS	$ 0.43	$ 10,200.00
8/10/2011	24,000.0	LBS	$ 0.43	$ 10,200.00
	96,000.0	LBS	$ 0.43	$ 40,800.00

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
		NONE		

Sodium Bisfulfite Usage

P St WWTF	Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
	12-Oct-09	31,760.0	LBS	$ 0.12	$ 3,855.66
	29-Oct-09	31,900.0	LBS	$ 0.12	$ 3,872.66
	19-Nov-09	32,240.0	LBS	$ 0.12	$ 3,913.94
	21-Dec-09	32,760.0	LBS	$ 0.12	$ 3,977.06
	1/12/2010	30,060.0	LBS	$ 0.12	$ 3,649.28
	2/5/2010	32,100.0	LBS	$ 0.12	$ 3,896.94
	2/26/2010	39,960.0	LBS	$ 0.12	$ 4,851.14
	4/1/2010	32,080.0	LBS	$ 0.12	$ 3,894.51
	4/20/2010	31,980.0	LBS	$ 0.12	$ 3,882.37
	5/24/2010	32,380.0	LBS	$ 0.12	$ 3,930.93
	6/14/2010	31,340.0	LBS	$ 0.12	$ 3,804.68
	7/13/2010	33,160.0	LBS	$ 0.12	$ 4,025.62
	8/12/2010	47,060.0	LBS	$ 0.12	$ 5,713.08
	9/1/2010	27,849.0	LBS	$ 0.12	$ 3,380.87
	10/1/2010	54,551.9	LBS	$ 0.12	$ 6,622.60
	11/1/2010	55,468.8	LBS	$ 0.12	$ 6,733.91
	12/1/2010	54,977.6	LBS	$ 0.12	$ 6,674.28
	1/1/2010	1,949.0	GAL	$ 1.70	$ 3,313.29
	2/1/2010	4,301.4	GAL	$ 1.70	$ 7,312.30
	3/1/2010	2,040.2	GAL	$ 1.70	$ 3,468.32
	4/1/2010	5,849.3	GAL	$ 1.70	$ 9,943.85
	5/9/2011	3,229.6	GAL	$ 1.70	$ 5,490.24
	5/31/2011	1,976.5	GAL	$ 1.70	$ 3,360.00
	6/17/2011	3641.81	GAL	$ 1.70	$ 6,191.08
	7/15/2011	2878.18	GAL	$ 1.70	$ 4,892.91
	7/27/2011	2914.54	GAL	$ 1.70	$ 4,954.72
	8/5/2011	3265.45	GAL	$ 1.70	$ 5,551.27
	8/23/2011	2781.82	GAL	$ 1.70	$ 4,729.09

Massard WWTP	Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
			NONE		
		192,847.3	LBS	$ 0.12	$ 23,411.66
		34,827.7	GAL	$ 1.70	$ 59,207.06

Ferric Sulfate Usage

P St WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
28-Oct-09	47,198.0	LBS	$ 0.11	$ 5,026.59
3-Dec-09	45,139.0	LBS	$ 0.11	$ 4,807.20
1-Feb-10	46,098.0	LBS	$ 0.11	$ 4,909.44
1-Apr-10	46,279.0	LBS	$ 0.11	$ 4,928.61
22-Nov-10	46,319.2	LBS	$ 0.09	$ 4,168.39
28-Feb-11	46,740.0	LBS	$ 0.09	$ 4,206.37
11-Apr-11	45,219.1	LBS	$ 0.09	$ 4,069.39
3-May-11	46,339.0	LBS	$ 0.09	$ 4,170.19
	184,617.2			$ 16,614.34

Massard WWTP

Invoice Date	Quantity	Quanity Units	Unit Price	Total Price
NONE				

Table 4X – P Street WWTP Chemical Quantities and Costs, September 2010 – August 2011

Chemical	Vendor	Annual Quantity[1]	Unit	Unit Price	Annual Cost[1]
Quicklime[2]	US Lime Company	423	TON	$176+Service Fee	$76,800
Caustic Soda[3]	Brentag Southwest	0	N/A	N/A	$0
Sodium Hypochlorite[3]	Brentag Southwest	0	N/A	N/A	$0
Chlorine	Brentag Southwest	96,000	LBS	$0.43	$40,800
Sodium Bisufite	Brentag Southwest/Thatcher	192,847	LBS	$0.12	$23,400
Sodium Bisufite	Brentag Southwest/Thatcher	34,828	GAL	$1.70	$59,200
Dry Polymer (Clarifloc)	Polydyne Inc	14,850	LBS	$1.59-$2.13 (varies)	$26,600
Ferric Sulfate	Kemira Water Solutions	184,617	LBS	$0.09	$16,600
Odor Control Maint.[4]	BioAdd, L.L.C.	2	Monthly Fee	$1,250.00	$2,500
Total Annual Cost:					$245,900

Quicklime	$76,800	31%
Chlorine	$40,800	17%
Sodium Bisulfite	$82,600	34%
Dry Polymer	$26,600	11%
Ferric Sulfate	$16,600	7%
Odor Control	$2,500	1%
	$245,900	

Chemical	Vendor	Annual Quantity[1]	Unit	Unit Price	Annual Cost[1]
Quicklime[2]	US Lime Company	273	TON	$176+Service Fee	$49,500
Caustic Soda[3]	Brentag Southwest	0	N/A	N/A	$0
Sodium Hypochlorite	Brentag Southwest	9,313	GAL	$1.20	$11,200
Dry Polymer (Clarifloc)	Polydyne Inc	14,400	LBS	$1.18	$17,000
Sulfuric Acid	Kemira Water Solutions	750	LBS	$0.05	$375
Total Annual Cost:					$78,100

Quicklime	$49,500	63%
Sodium Hypochlorite	$11,200	14%
Dry Polymer	$17,000	22%
Sulfuric Acid	$375	0%
	$78,075	

Appendix D

Operations Benchmarking Methods

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

Full-Time Equivalent (FTE) in Utility Department

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	1.00													1.00	1.00													1.00	1.00													1.00
Asst. Director of Utilities	1.00													1.00	1.00													1.00	1.00													1.00
Superintendent		1.00										1.00		2.00		1.00										1.00		2.00		1.00										1.00		2.00
Senior Project Engineer	2.00													2.00	2.00													2.00	2.00													2.00
Training and Safety Coordinator	1.00													1.00	1.00													1.00	1.00													1.00
Supervisor: Environmental Manager							1.00							1.00							1.00							1.00							1.00							1.00
Property Manager	1.00													1.00	1.00													1.00	1.00													1.00
Rate and Financial Analyst															1.00													1.00	1.00													1.00
Supervisor			1.00	2.00		1.00		1.00	2.00		1.00	1.00	1.00	10.00			1.00	2.00		1.00		1.00	2.00		1.00	1.00	1.00	10.00			1.00	2.00		1.00		1.00	2.00		1.00	1.00	1.00	10.00
Administrative Coordinator	1.00													1.00	1.00													1.00	1.00													1.00
Cross Connection Technician	1.00													1.00	0.25													0.25	2.00													2.00
Environmental Chemist: Lab Manager					1.00									1.00					1.00									1.00					1.00									1.00
Chief Mechanic						1.00								1.00						1.00								1.00						1.00								1.00
Chief Operator			2.00	2.00										4.00			2.00	2.00										4.00			4.00	2.00										6.00
Chief Process Operator			1.00											1.00			1.00											1.00			1.00											1.00
Chief Solids Operator			2.00											2.00			2.00											2.00			2.00											2.00
Chief System Control Operator																																								1.00		1.00
Electronic Technician													2.00	2.00													2.00	2.00													2.00	2.00
Electrician													2.00	2.00													2.00	2.00													2.00	2.00
Environmental Coordinator							1.00							1.00							1.00							1.00							1.00							1.00
Utility Technician	1.00													1.00	1.00													1.00	1.00													1.00
Water Biologist					2.00									2.00					2.00									2.00					2.00									2.00
AutoCAD Technician	1.00													1.00	1.00													1.00	1.00													1.00
Lab Analyst					1.00									1.00					1.00									1.00					1.00									1.00
Plant Operator			19.00	18.00										37.00			19.00	18.00										37.00			17.00	18.00										35.00
Swing Shift Operator			1.00											1.00			1.00											1.00			1.00											1.00
System Control Operator												5.00		5.00												5.00		5.00												5.00		5.00
Technician									1.00					1.00									1.00					1.00									1.00					1.00
Environmental Technician							2.00							2.00							2.00							2.00							2.00							2.00
Equipment Mechanic Body Repair												1.00		1.00												1.00		1.00												1.00		1.00
Heavy Equipment Mechanic												1.00		1.00												1.00		1.00												1.00		1.00
Leadperson									3.00	1.00				4.00									3.00	1.00				4.00									3.00	1.00				4.00
Utility Service Leadperson								7.00			4.00			11.00								7.00			4.00			11.00								7.00			4.00			11.00
Maintenance Machinist/Mechanic						8.00							4.00	12.00						8.00							4.00	12.00						8.00							4.00	12.00
Records Coordinator	1.00													1.00	1.00													1.00	1.00													1.00
Sampling Technician (Seasonal)							1.69							1.69							0.69							0.69							1.69							1.69
Chief Meter Reader											1.00			1.00											1.00			1.00											1.00			1.00
Equipment Operator III									3.00					3.00									3.00					3.00									3.00					3.00
Grounds Maintenance Leadperson						1.00								1.00						1.00								1.00						1.00								1.00
Lab Technician					3.00									3.00					3.00									3.00					3.00									3.00
Secretary	2.00	1.00										1.00		4.00	2.00	1.00										1.00		4.00	2.00	1.00										1.00		4.00
Senior Maintenance Person									4.00		2.00			6.00									4.00		2.00			6.00									4.00		2.00			6.00
Equipment Operator II			2.00					5.00	2.00	1.00	1.00			11.00			2.00					5.00	2.00	1.00	1.00			11.00			2.00					5.00	2.00	1.00	1.00			11.00
Grounds Maintenance Person						2.00								2.00						2.00								2.00						3.00								3.00
Maintenance Person								9.00	9.00			2.00		20.00								9.00	9.00			2.00		20.00								9.00	9.00			2.00		20.00
Service Person										2.00	4.00			6.00										2.00	4.00			6.00										2.00	4.00			6.00
Meter Reader											8.00			8.00											8.00			8.00											8.00			8.00
Storekeeper		1.00												1.00		1.00												1.00		1.00												1.00
Laborer (Seasonal)			1.00	1.00	2.00	1.00					0.50			5.50			1.00	0.00	2.00	1.00					0.50			4.50			1.00	0.00	2.00	1.00					0.50			4.50
Total	13.00	3.00	29.00	23.00	9.00	14.00	5.69	22.00	24.00	4.00	21.50	12.00	9.00	189.19	13.25	3.00	29.00	22.00	9.00	14.00	4.69	22.00	24.00	4.00	21.50	12.00	9.00	187.44	15.00	3.00	29.00	22.00	9.00	15.00	5.69	22.00	24.00	4.00	21.50	13.00	9.00	192.19

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Water

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	50%													50%	50%													50%	50%													50%
Asst. Director of Utilities	50%													50%	50%													50%	50%													50%
Superintendent		40%										80%		60%		50%										80%		65%		50%											80%		65%
Senior Project Engineer	50%													50%	50%													50%	50%													50%
Training and Safety Coordinator	50%													50%	50%													50%	50%													50%
Supervisor: Environmental Manager							50%							50%							50%							50%							50%							50%
Property Manager	50%													50%	50%													50%	50%													50%
Rate and Financial Analyst															50%													50%	50%													50%
Supervisor			0%	100%		0%		100%	0%		100%	50%	70%	52%			0%	100%		0%		100%	0%		100%	50%	70%	52%			0%	100%		0%		100%	0%		100%	50%	70%	52%
Administrative Coordinator	50%													50%	50%													50%	50%													50%
Cross Connection Technician	100%													100%	100%													100%	100%													100%
Environmental Chemist: Lab Manager					100%									100%					100%									100%					100%									100%
Chief Mechanic						0%								0%						0%								0%						0%								0%
Chief Operator			0%	100%										50%			0%	100%										50%			0%	100%										33%
Chief Process Operator			0%											0%			0%											0%			0%											0%
Chief Solids Operator			0%											0%			0%											0%			0%											0%
Chief System Control Operator																										78%														78%		78%
Electronic Technician													50%	50%													50%	50%													50%	50%	50%
Electrician													50%	50%													50%	50%													50%	50%	50%
Environmental Coordinator							0%							0%							0%							0%							0%							0%
Utility Technician	50%													50%	50%													50%	50%													50%
Water Biologist					100%									100%					100%									100%					100%									100%
AutoCAD Technician	50%													50%	50%													50%	50%													50%
Lab Analyst					75%									75%					75%									75%					75%									75%
Plant Operator			0%	100%										49%			0%	100%										49%			0%	100%										51%
Swing Shift Operator			0%											0%			0%											0%			0%											0%
System Control Operator												78%		78%												78%		78%												78%		78%
Technician									0%					0%									0%					0%										0%					0%
Environmental Technician							0%							0%							0%							0%							0%							0%
Equipment Mechanic Body Repair												50%		50%												50%		50%												50%		50%
Heavy Equipment Mechanic												50%		50%												50%		50%												50%		50%
Leadperson									0%	0%				0%									0%	0%				0%									0%	0%				0%
Utility Service Leadperson								100%			100%			100%								100%						100%								100%						100%
Maintenance Machinist/Mechanic						0%							100%	33%						0%							100%	33%						0%							100%	33%
Records Coordinator	50%													50%	50%													50%	50%													50%
Sampling Technician (Seasonal)							0%							0%							0%							0%							0%							0%
Chief Meter Reader											100%			100%												100%		100%												100%		100%
Equipment Operator III									0%					0%									0%					0%										0%					0%
Grounds Maintenance Leadperson						0%								0%						0%								0%						0%								0%
Lab Technician					75%									75%					75%									75%					75%									75%
Secretary	50%	50%										50%		50%	50%	50%										50%		50%	50%	50%											50%		50%
Senior Maintenance Person									0%		100%			33%									0%		100%			33%									0%		100%			33%
Equipment Operator II			0%					100%	0%	0%	100%			55%			0%					100%	0%	0%	100%			55%			0%					100%	0%	0%	100%			55%
Grounds Maintenance Person						0%								0%						0%								0%						0%								0%
Maintenance Person								100%	0%			50%		50%								100%	0%			50%		50%								100%	0%			50%		50%
Service Person										0%	100%			67%										0%	100%			67%										0%	100%			67%
Meter Reader											100%			100%											100%			100%											100%			100%
Storekeeper		0%												0%		0%												0%		0%												0%
Laborer (Seasonal)			0%	100%	100%	0%					100%			64%			0%	100%	100%	0%					100%			56%			0%	100%	100%	0%					100%			56%
Total water	7.00	0.90	0.00	23.00	8.00	0.00	0.50	22.00	0.00	0.00	21.50	7.70	6.70	97.30	6.75	1.00	0.00	22.00	8.00	0.00	0.50	22.00	0.00	0.00	21.50	7.70	6.70	96.15	8.50	1.00	0.00	22.00	8.00	0.00	0.50	22.00	0.00	0.00	21.50	8.48	6.70	98.68
Total water as % of program	54%	30%	0%	100%	89%	0%	9%	100%	0%	0%	100%	64%	74%	51%	51%	33%	0%	100%	89%	0%	11%	100%	0%	0%	100%	64%	74%	51%	57%	33%	0%	100%	89%	0%	9%	100%	0%	0%	100%	65%	74%	51%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Wastewater

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	50%													50%	50%													50%	50%													50%
Asst. Director of Utilities	50%													50%	50%													50%	50%													50%
Superintendent		60%										20%		40%		50%										20%		35%		50%											20%		35%
Senior Project Engineer	50%													50%	50%													50%	50%													50%
Training and Safety Coordinator	50%													50%	50%													50%	50%													50%
Supervisor: Environmental Manager							50%							50%							50%							50%							50%							50%
Property Manager	50%													50%	50%													50%	50%													50%
Rate and Financial Analyst															50%													50%	50%													50%
Supervisor			100%	0%		100%		0%	100%		0%	50%	30%	48%			100%	0%		100%		0%	100%		0%	50%	30%	48%			100%	0%		100%		0%	100%		0%	50%	30%	48%
Administrative Coordinator	50%													50%	50%													50%	50%													50%
Cross Connection Technician	0%													0%	0%													0%	0%													0%
Environmental Chemist: Lab Manager					0%									0%					0%									0%					0%									0%
Chief Mechanic						100%								100%						100%								100%						100%								100%
Chief Operator			100%	0%										50%			100%	0%										50%			100%	0%										67%
Chief Process Operator			100%											100%			100%											100%			100%											100%
Chief Solids Operator			100%											100%			100%											100%			100%											100%
Chief System Control Operator																										22%		22%												22%		22%
Electronic Technician													50%	50%													50%	50%													50%	50%
Electrician													50%	50%													50%	50%													50%	50%
Environmental Coordinator							100%							100%							100%							100%							100%							100%
Utility Technician	50%													50%	50%													50%	50%													50%
Water Biologist					0%									0%					0%									0%					0%									0%
AutoCAD Technician	50%													50%	50%													50%	50%													50%
Lab Analyst					25%									25%					25%									25%					25%									25%
Plant Operator			100%	0%										51%			100%	0%										51%			100%	0%										49%
Swing Shift Operator			100%											100%			100%											100%			100%											100%
System Control Operator												22%		22%												22%		22%												22%		22%
Technician									100%					100%									100%					100%										100%					100%
Environmental Technician							100%							100%							100%							100%							100%							100%
Equipment Mechanic Body Repair												50%		50%												50%		50%												50%		50%
Heavy Equipment Mechanic												50%		50%												50%		50%												50%		50%
Leadperson									100%	100%				100%									100%	100%				100%									100%	100%				100%
Utility Service Leadperson								0%			0%			0%								0%			0%			0%								0%			0%			0%
Maintenance Machinist/Mechanic						100%							0%	67%						100%							0%	67%						100%								0%	67%
Records Coordinator	50%													50%	50%													50%	50%													50%
Sampling Technician (Seasonal)							100%							100%							100%							100%							100%							100%
Chief Meter Reader											0%			0%											0%			0%											0%			0%
Equipment Operator III									100%					100%									100%					100%									100%					100%
Grounds Maintenance Leadperson						100%								100%						100%								100%						100%								100%
Lab Technician					25%									25%					25%									25%					25%									25%
Secretary	50%	50%										50%		50%	50%	50%										50%		50%	50%	50%											50%		50%
Senior Maintenance Person									100%		0%			67%									100%		0%			67%									100%		0%			67%
Equipment Operator II			100%					0%	100%	100%	0%			45%			100%					0%	100%	100%	0%			45%			100%					0%	100%	100%	0%			45%
Grounds Maintenance Person						100%								100%						100%								100%						100%								100%
Maintenance Person								0%	100%			50%		50%								0%	100%			50%		50%								0%	100%			50%		50%
Service Person										100%	0%			33%										100%	0%			33%										100%	0%			33%
Meter Reader											0%			0%											0%			0%											0%			0%
Storekeeper		100%												100%		100%												100%		100%													100%
Laborer (Seasonal)			100%	0%	0%	100%					0%			36%			100%	0%	0%	100%					0%			44%			100%	0%	0%	100%					0%			44%
Total wastewater	6.00	2.10	29.00	0.00	1.00	14.00	5.19	0.00	24.00	4.00	0.00	4.30	2.30	91.89	6.50	2.00	29.00	0.00	1.00	14.00	4.19	0.00	24.00	4.00	0.00	4.30	2.30	91.29	6.50	2.00	29.00	0.00	1.00	15.00	5.19	0.00	24.00	4.00	0.00	4.52	2.30	93.51
Total wastewater as % of program	46%	70%	100%	0%	11%	100%	91%	0%	100%	100%	0%	36%	26%	49%	49%	67%	100%	0%	11%	100%	89%	0%	100%	100%	0%	36%	26%	49%	43%	67%	100%	0%	11%	100%	91%	0%	100%	100%	0%	35%	26%	49%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

Total water	7.00	0.90	0.00	23.00	8.00	0.00	0.50	22.00	0.00	0.00	21.50	7.70	6.70	97.30
Total wastewater	6.00	2.10	29.00	0.00	1.00	14.00	5.19	0.00	24.00	4.00	0.00	4.30	2.30	91.89
Sum	13.00	3.00	29.00	23.00	9.00	14.00	5.69	22.00	24.00	4.00	21.50	12.00	9.00	189.19
Total	13.00	3.00	29.00	23.00	9.00	14.00	5.69	22.00	24.00	4.00	21.50	12.00	9.00	189.19
Check difference	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total water	6.75	1.00	0.00	22.00	8.00	0.00	0.50	22.00	0.00	0.00	21.50	7.70	6.70	96.15
Total wastewater	6.50	2.00	29.00	0.00	1.00	14.00	4.19	0.00	24.00	4.00	0.00	4.30	2.30	91.29
Sum	13.25	3.00	29.00	22.00	9.00	14.00	4.69	22.00	24.00	4.00	21.50	12.00	9.00	187.44
Total	13.25	3.00	29.00	22.00	9.00	14.00	4.69	22.00	24.00	4.00	21.50	12.00	9.00	187.44
Check difference	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total water	8.50	1.00	0.00	22.00	8.00	0.00	0.50	22.00	0.00	0.00	21.50	8.48	6.70	98.68
Total wastewater	6.50	2.00	29.00	0.00	1.00	15.00	5.19	0.00	24.00	4.00	0.00	4.52	2.30	93.51
Sum	15.00	3.00	29.00	22.00	9.00	15.00	5.69	22.00	24.00	4.00	21.50	13.00	9.00	192.19
Total	15.00	3.00	29.00	22.00	9.00	15.00	5.69	22.00	24.00	4.00	21.50	13.00	9.00	192.19
Check difference	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Utility Administration

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	100%													100%	100%													100%	100%													100%
Asst. Director of Utilities	100%													100%	100%													100%	100%													100%
Superintendent		0%										0%		0%		0%										0%		0%		0%											0%		0%
Senior Project Engineer	100%													100%	100%													100%	100%													100%
Training and Safety Coordinator	100%													100%	100%													100%	100%													100%
Supervisor: Environmental Manager							0%							0%							0%							0%							0%							0%
Property Manager	100%													100%	100%													100%	100%													100%
Rate and Financial Analyst															100%													100%	100%													100%
Supervisor			0%	0%		0%		0%	0%		0%	0%	0%	0%			0%	0%		0%		0%	0%		0%	0%	0%	0%			0%	0%		0%		0%	0%		0%	0%	0%	0%
Administrative Coordinator	100%													100%	100%													100%	100%													100%
Cross Connection Technician	100%													100%	100%													100%	100%													100%
Environmental Chemist: Lab Manager					0%									0%					0%									0%					0%									0%
Chief Mechanic						0%								0%						0%								0%						0%								0%
Chief Operator			0%	0%										0%			0%	0%										0%			0%	0%										0%
Chief Process Operator			0%											0%			0%											0%			0%											0%
Chief Solids Operator			0%											0%			0%											0%			0%											0%
Chief System Control Operator																																										0%
Electronic Technician													0%	0%													0%	0%													0%	0%
Electrician													0%	0%													0%	0%													0%	0%
Environmental Coordinator							0%							0%							0%							0%							0%							0%
Utility Technician	100%													100%	100%													100%	100%													100%
Water Biologist					0%									0%					0%									0%					0%									0%
AutoCAD Technician	100%													100%	100%													100%	100%													100%
Lab Analyst					0%									0%					0%									0%					0%									0%
Plant Operator			0%	0%										0%			0%	0%										0%			0%	0%										0%
Swing Shift Operator			0%											0%			0%											0%			0%											0%
System Control Operator												0%		0%												0%		0%												0%		0%
Technician									0%					0%									0%					0%										0%				0%
Environmental Technician							0%							0%							0%							0%							0%							0%
Equipment Mechanic Body Repair												0%		0%												0%		0%												0%		0%
Heavy Equipment Mechanic												0%		0%												0%		0%												0%		0%
Leadperson									0%	0%				0%									0%	0%				0%										0%	0%			0%
Utility Service Leadperson								0%			0%			0%								0%			0%			0%								0%				0%		0%
Maintenance Machinist/Mechanic						0%							0%	0%						0%								0%						0%							0%	0%
Records Coordinator	100%													100%	100%													100%	100%													100%
Sampling Technician (Seasonal)							0%							0%							0%							0%							0%							0%
Chief Meter Reader											0%			0%											0%			0%											0%			0%
Equipment Operator III									0%					0%									0%					0%										0%				0%
Grounds Maintenance Leadperson						0%								0%						0%								0%						0%							0%
Lab Technician					0%									0%					0%									0%					0%									0%
Secretary	100%	0%										0%		50%	100%	0%										0%		50%	100%	0%											0%		50%
Senior Maintenance Person									0%		0%			0%									0%			0%		0%										0%				0%
Equipment Operator II			0%					0%	0%	0%	0%			0%			0%					0%	0%	0%	0%	0%		0%			0%					0%	0%	0%	0%			0%
Grounds Maintenance Person						0%								0%						0%								0%						0%							0%
Maintenance Person								0%	0%			0%		0%								0%	0%			0%		0%								0%	0%			0%		0%
Service Person										0%	0%			0%										0%	0%			0%											0%	0%		0%
Meter Reader											0%			0%											0%			0%											0%			0%
Storekeeper		0%												0%		0%												0%		0%													0%
Laborer (Seasonal)			0%	0%	0%	0%					0%			0%			0%	0%	0%	0%						0%		0%			0%	0%	0%	0%						0%		0%
Total utility administration	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	13.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.25	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00
Total utility administration as % of program	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Water Treatment Operation and Maintenance

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	0%													0%	0%													0%	0%													0%
Asst. Director of Utilities	0%													0%	0%													0%	0%													0%
Superintendent		40%										0%		20%		40%										0%		20%		40%											0%		20%
Senior Project Engineer	0%													0%	0%													0%	0%													0%
Training and Safety Coordinator	0%													0%	0%													0%	0%													0%
Supervisor: Environmental Manager							0%							0%							0%							0%							0%							0%
Property Manager	0%													0%	0%													0%	0%													0%
Rate and Financial Analyst															0%													0%	0%													0%
Supervisor			0%	100%		0%		0%	0%		0%	0%	0%	20%			0%	100%		0%		0%	0%		0%	0%	0%	20%			0%	100%		0%		0%	0%		0%	0%	0%	20%
Administrative Coordinator	0%													0%	0%													0%	0%													0%
Cross Connection Technician	0%													0%	0%													0%	0%													0%
Environmental Chemist: Lab Manager					0%									0%					0%									0%					0%									0%
Chief Mechanic						0%								0%						0%								0%						0%								0%
Chief Operator			0%	100%										50%			0%	100%										50%			0%	100%										33%
Chief Process Operator			0%											0%			0%											0%			0%											0%
Chief Solids Operator			0%											0%			0%											0%			0%											0%
Chief System Control Operator																																										0%
Electronic Technician													0%	0%													0%	0%													0%	0%
Electrician													0%	0%													0%	0%													0%	0%
Environmental Coordinator							0%							0%							0%							0%							0%							0%
Utility Technician	0%													0%	0%													0%	0%													0%
Water Biologist					0%									0%					0%									0%					0%									0%
AutoCAD Technician	0%													0%	0%													0%	0%													0%
Lab Analyst					0%									0%					0%									0%					0%									0%
Plant Operator			0%	100%										49%			0%	100%										49%			0%	100%										51%
Swing Shift Operator			0%											0%			0%											0%			0%											0%
System Control Operator												0%		0%												0%		0%												0%		0%
Technician									0%					0%									0%					0%										0%				0%
Environmental Technician							0%							0%							0%							0%							0%							0%
Equipment Mechanic Body Repair												0%		0%												0%		0%												0%		0%
Heavy Equipment Mechanic												0%		0%												0%		0%												0%		0%
Leadperson									0%	0%				0%									0%	0%				0%										0%	0%			0%
Utility Service Leadperson								0%			0%			0%								0%			0%			0%								0%				0%		0%
Maintenance Machinist/Mechanic						0%							0%	0%						0%							0%	0%						0%							0%	0%
Records Coordinator	0%													0%	0%													0%	0%													0%
Sampling Technician (Seasonal)							0%							0%							0%							0%							0%							0%
Chief Meter Reader											0%			0%											0%			0%											0%			0%
Equipment Operator III									0%					0%									0%					0%										0%				0%
Grounds Maintenance Leadperson						0%								0%						0%								0%						0%							0%
Lab Technician					0%									0%					0%									0%					0%									0%
Secretary	0%	50%										0%		13%	0%	50%										0%		13%	0%	50%										0%		13%
Senior Maintenance Person									0%		0%			0%									0%		0%			0%										0%			0%	0%
Equipment Operator II			0%					0%	0%	0%	0%			0%			0%					0%	0%	0%	0%			0%			0%					0%	0%	0%	0%			0%
Grounds Maintenance Person						0%								0%						0%								0%						0%							0%
Maintenance Person								0%	0%			0%		0%								0%	0%					0%								0%	0%			0%		0%
Service Person										0%	0%			0%										0%	0%			0%											0%	0%		0%
Meter Reader											0%			0%												0%		0%												0%		0%
Storekeeper		0%												0%		0%												0%		0%												0%
Laborer (Seasonal)			0%	100%	0%	0%					0%			18%			0%	100%	0%	0%						0%		0%			0%	100%	0%	0%						0%		0%
Total water treatment O&M	0.00	0.90	0.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.90	0.00	0.90	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.90	0.00	0.90	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.90
Total water treatment % of program	0%	30%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	30%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	30%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Wasterwater Treatment Operation and Maintenance

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	0%													0%	0%													0%	0%													0%
Asst. Director of Utilities	0%													0%	0%													0%	0%													0%
Superintendent		40%										0%		20%		40%										0%		20%		40%											0%		20%
Senior Project Engineer	0%													0%	0%													0%	0%													0%
Training and Safety Coordinator	0%													0%	0%													0%	0%													0%
Supervisor: Environmental Manager							0%							0%							0%							0%							0%							0%
Property Manager	0%													0%	0%													0%	0%													0%
Rate and Financial Analyst															0%													0%	0%													0%
Supervisor			100%	0%		0%		0%	0%		0%	0%	0%	10%			100%	0%		0%		0%	0%		0%	0%	0%	10%			100%	0%		0%		0%		0%		0%	0%	10%
Administrative Coordinator	0%													0%	0%													0%	0%													0%
Cross Connection Technician	0%													0%	0%													0%	0%													0%
Environmental Chemist: Lab Manager					0%									0%					0%									0%					0%									0%
Chief Mechanic						0%								0%						0%								0%						0%								0%
Chief Operator			100%	0%										50%			100%	0%										50%			100%	0%										67%
Chief Process Operator			100%											100%			100%											100%			100%											100%
Chief Solids Operator			100%											100%			100%											100%			100%											100%
Chief System Control Operator																																								0%		0%
Electronic Technician													0%	0%													0%	0%													0%	0%
Electrician													0%	0%													0%	0%													0%	0%
Environmental Coordinator							0%							0%							0%							0%							0%							0%
Utility Technician	0%													0%	0%													0%	0%													0%
Water Biologist					0%									0%					0%									0%					0%									0%
AutoCAD Technician	0%													0%	0%													0%	0%													0%
Lab Analyst					0%									0%					0%									0%					0%									0%
Plant Operator			100%	0%										51%			100%	0%										51%			100%	0%										49%
Swing Shift Operator			100%											100%			100%											100%			100%											100%
System Control Operator												0%		0%												0%		0%												0%		0%
Technician									0%					0%									0%					0%										0%				0%
Environmental Technician							0%							0%							0%							0%							0%							0%
Equipment Mechanic Body Repair												0%		0%												0%		0%												0%		0%
Heavy Equipment Mechanic												0%		0%												0%		0%												0%		0%
Leadperson									0%	0%				0%									0%	0%				0%										0%	0%			0%
Utility Service Leadperson								0%			0%			0%								0%			0%			0%								0%				0%		0%
Maintenance Machinist/Mechanic						0%							0%	0%						0%							0%	0%						0%							0%	0%
Records Coordinator	0%													0%	0%													0%	0%													0%
Sampling Technician (Seasonal)							0%							0%							0%							0%							0%							0%
Chief Meter Reader											0%			0%											0%			0%											0%			0%
Equipment Operator III									0%					0%									0%					0%										0%				0%
Grounds Maintenance Leadperson						0%								0%						0%								0%						0%							0%
Lab Technician					0%									0%					0%									0%					0%									0%
Secretary	0%	50%										0%		13%	0%	50%										0%		13%	0%	50%										0%		13%
Senior Maintenance Person									0%		0%			0%									0%		0%			0%										0%				0%
Equipment Operator II			100%					0%	0%	0%	0%			18%			100%					0%	0%	0%	0%			18%			100%					0%	0%	0%	0%			18%
Grounds Maintenance Person						0%						0%		0%						0%								0%						0%							0%
Maintenance Person								0%	0%			0%		0%								0%	0%			0%		0%								0%	0%			0%		0%
Service Person										0%	0%			0%										0%	0%			0%											0%	0%		0%
Meter Reader											0%			0%												0%		0%												0%		0%
Storekeeper		0%												0%		0%												0%		0%												0%
Laborer (Seasonal)			100%	0%	0%	0%						0%		18%			100%	0%	0%	0%						0%		22%			100%	0%	0%	0%						0%		22%
Total wastewater treatment O&M	0.00	0.90	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.90	0.00	0.90	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.90	0.00	0.90	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.90
Total wastewater as % of program	0%	30%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%	30%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%	30%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Water Distribution System Operation and Maintenance

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	0%													0%	0%													0%	0%													0%
Asst. Director of Utilities	0%													0%	0%													0%	0%													0%
Superintendent		0%										80%		40%		0%										80%		40%		0%											80%		40%
Senior Project Engineer	0%													0%	0%													0%	0%													0%
Training and Safety Coordinator	0%													0%	0%													0%	0%													0%
Supervisor: Environmental Manager							50%							50%							50%							50%							50%							50%
Property Manager	0%													0%	0%													0%	0%													0%
Rate and Financial Analyst															0%													0%	0%													0%
Supervisor			0%	0%		0%		100%	0%		100%	50%	70%	32%			0%	0%		0%		100%	0%			100%	50%	70%	32%			0%	0%		0%		100%	0%			100%	50%	70%	32%
Administrative Coordinator	0%													0%	0%													0%	0%													0%
Cross Connection Technician	0%													0%	0%													0%	0%													0%
Environmental Chemist: Lab Manager					0%									0%					75%									75%					75%									75%
Chief Mechanic						0%								0%						0%								0%						0%								0%
Chief Operator			0%	0%										0%			0%	0%										0%			0%	0%										0%
Chief Process Operator			0%											0%			0%											0%			0%											0%
Chief Solids Operator			0%											0%			0%											0%			0%											0%
Chief System Control Operator																																								75%		75%
Electronic Technician													50%	50%													50%	50%													50%	50%
Electrician													50%	50%													50%	50%													50%	50%
Environmental Coordinator							0%							0%							0%							0%							0%							0%
Utility Technician	0%													0%	0%													0%	0%													0%
Water Biologist					0%									0%					0%									0%					0%									0%
AutoCAD Technician	0%													0%	0%													0%	0%													0%
Lab Analyst					75%									75%					75%									75%					75%									75%
Plant Operator			0%	0%										0%			0%	0%										0%			0%	0%										0%
Swing Shift Operator			0%											0%			0%											0%			0%											0%
System Control Operator												75%		75%												75%		75%												75%		75%
Technician									0%					0%									0%					0%										0%				0%
Environmental Technician							0%							0%							0%							0%							0%							0%
Equipment Mechanic Body Repair												50%		50%												50%		50%												50%		50%
Heavy Equipment Mechanic												50%		50%												50%		50%												50%		50%
Leadperson									0%	0%				0%									0%	0%				0%										0%	0%			0%
Utility Service Leadperson								100%			100%			100%								100%						100%								100%						100%
Maintenance Machinist/Mechanic						0%							100%	33%						0%							100%	33%						0%							100%	33%
Records Coordinator	0%													0%	0%													0%	0%													0%
Sampling Technician (Seasonal)							0%							0%							0%							0%							0%							0%
Chief Meter Reader											25%			25%											25%			25%												25%		25%
Equipment Operator III									0%					0%									0%					0%										0%				0%
Grounds Maintenance Leadperson						0%								0%						0%								0%						0%							0%
Lab Technician					75%									75%					75%									75%					75%									75%
Secretary	0%	0%										50%		13%	0%	0%										50%		13%	0%	0%										50%		13%
Senior Maintenance Person									0%		100%			33%									0%		100%			33%									0%		100%			33%
Equipment Operator II			0%					100%	0%	0%	100%			55%			0%					100%	0%	0%	100%			55%			0%					100%	0%	0%	100%			55%
Grounds Maintenance Person						0%								0%						0%								0%						0%							0%
Maintenance Person								100%	0%			50%		50%								100%	0%			50%		50%								100%	0%			50%		50%
Service Person										0%	100%			67%										0%	100%			67%										0%	100%			67%
Meter Reader											25%			25%											25%			25%												25%		25%
Storekeeper		0%												0%		0%												0%		0%												0%
Laborer (Seasonal)			0%	0%	100%	0%					100%			45%			0%	0%	100%	0%						100%		56%			0%	0%	100%	0%						100%		56%
Total water distribution system O&M	0.00	0.00	0.00	0.00	5.00	0.00	0.50	22.00	0.00	0.00	14.75	7.55	6.70	56.50	0.00	0.00	0.00	0.00	5.75	0.00	0.50	22.00	0.00	0.00	14.75	7.55	6.70	57.25	0.00	0.00	0.00	0.00	5.75	0.00	0.50	22.00	0.00	0.00	14.75	8.30	6.70	58.00
Total water distribution as % of program	0%	0%	0%	0%	56%	0%	9%	100%	0%	0%	69%	63%	74%	30%	0%	0%	0%	0%	64%	0%	11%	100%	0%	0%	69%	63%	74%	31%	0%	0%	0%	0%	64%	0%	9%	100%	0%	0%	69%	64%	74%	30%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

FTE Allocated to Wastewater Collection System Operation and Maintenance

Position	Year 2010														Year 2011														Year 2012													
	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Director of Utilities	0%													0%	0%													0%	0%													0%
Asst. Director of Utilities	0%													0%	0%													0%	0%													0%
Superintendent		20%										20%		20%		20%										20%		20%		20%										20%		20%
Senior Project Engineer	0%													0%	0%													0%	0%													0%
Training and Safety Coordinator	0%													0%	0%													0%	0%													0%
Supervisor: Environmental Manager							50%							50%							50%							50%							50%							50%
Property Manager	0%													0%	0%													0%	0%													0%
Rate and Financial Analyst															0%													0%	0%													0%
Supervisor			0%	0%		100%		0%	100%		0%	50%	30%	38%			0%	0%		100%		0%	100%		0%	50%	30%	38%			0%	0%		100%		0%	100%		0%	50%	30%	38%
Administrative Coordinator	0%													0%	0%													0%	0%													0%
Cross Connection Technician	0%													0%	0%													0%	0%													0%
Environmental Chemist: Lab Manager					100%									100%					25%									25%					25%									25%
Chief Mechanic						100%								100%						100%								100%						100%								100%
Chief Operator			0%	0%										0%			0%	0%										0%			0%	0%										0%
Chief Process Operator			0%											0%			0%											0%			0%											0%
Chief Solids Operator			0%											0%			0%											0%			0%											0%
Chief System Control Operator																										25%		25%												25%		25%
Electronic Technician													50%	50%													50%	50%													50%	50%
Electrician													50%	50%													50%	50%													50%	50%
Environmental Coordinator							100%							100%							100%							100%							100%							100%
Utility Technician	0%													0%	0%													0%	0%													0%
Water Biologist					0%									0%					0%									0%					0%									0%
AutoCAD Technician	0%													0%	0%													0%	0%													0%
Lab Analyst					25%									25%					25%									25%					25%									25%
Plant Operator			0%	0%										0%			0%	0%										0%			0%	0%										0%
Swing Shift Operator			0%											0%			0%											0%			0%											0%
System Control Operator												25%		25%												25%		25%												25%		25%
Technician									100%					100%									100%					100%										100%				100%
Environmental Technician							100%							100%							100%							100%							100%							100%
Equipment Mechanic Body Repair												50%		50%												50%		50%												50%		50%
Heavy Equipment Mechanic												50%		50%												50%		50%												50%		50%
Leadperson									100%	0%				75%									100%	0%	0%			75%										100%	0%			75%
Utility Service Leadperson								0%			0%			0%								0%			0%			0%								0%			0%			0%
Maintenance Machinist/Mechanic						100%							0%	67%						100%							0%	67%						100%							0%	67%
Records Coordinator	0%													0%	0%													0%	0%													0%
Sampling Technician (Seasonal)							100%							100%							100%							100%							100%							100%
Chief Meter Reader											0%			0%											0%			0%											0%			0%
Equipment Operator III									100%					100%									100%					100%										100%				100%
Grounds Maintenance Leadperson						100%								100%						100%								100%						100%							100%
Lab Technician					25%									25%					25%									25%					25%									25%
Secretary	0%	0%										50%		13%	0%	0%										50%		13%	0%	0%										50%		13%
Senior Maintenance Person									100%		0%			67%									100%		0%			67%										100%		0%		67%
Equipment Operator II			0%					0%	100%	0%	0%			18%			0%					0%	100%	0%	0%			18%			0%					0%	100%	0%	0%			18%
Grounds Maintenance Person						100%								100%						100%								100%						100%							100%
Maintenance Person								0%	100%			50%		50%								0%	100%			50%		50%								0%	100%			50%		50%
Service Person										0%	0%			0%										0%	0%			0%											0%	0%		0%
Meter Reader											0%			0%											0%			0%											0%			0%
Storekeeper		100%												100%		100%												100%		100%												100%
Laborer (Seasonal)			0%	0%	0%	100%					0%			18%			0%	0%	0%	100%					0%			22%			0%	0%	0%	100%					0%			22%
Total wastewater collection system O&M	0.00	1.20	0.00	0.00	2.00	14.00	5.19	0.00	24.00	0.00	0.00	4.45	2.30	53.14	0.00	1.20	0.00	0.00	1.25	14.00	4.19	0.00	24.00	0.00	0.00	4.45	2.30	51.39	0.00	1.20	0.00	0.00	1.25	15.00	5.19	0.00	24.00	0.00	0.00	4.70	2.30	53.64
Total wastewater collection as % of program	0%	40%	0%	0%	22%	100%	91%	0%	100%	0%	0%	37%	26%	28%	0%	40%	0%	0%	14%	100%	89%	0%	100%	0%	0%	37%	26%	27%	0%	40%	0%	0%	14%	100%	91%	0%	100%	0%	0%	36%	26%	28%

City of Fort Smith
Utility Department
DRAFT FTE Assignment Worksheet
February 28, 2012

Total utility administration	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
Total water treatment O&M	0.00	0.90	0.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.90
Total wastewater treatment O&M	0.00	0.90	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.90
Total water distribution system O&M	0.00	0.00	0.00	0.00	5.00	0.00	0.50	22.00	0.00	0.00	14.75	7.55	6.70	56.50
Total wastewater collection system O&M	0.00	1.20	0.00	0.00	2.00	14.00	5.19	0.00	24.00	0.00	0.00	4.45	2.30	53.14
Sum	13.00	3.00	29.00	23.00	7.00	14.00	5.69	22.00	24.00	0.00	14.75	12.00	9.00	176.44
Total	13.00	3.00	29.00	23.00	9.00	14.00	5.69	22.00	24.00	4.00	21.50	12.00	9.00	189.19
Check Difference	0.00	0.00	0.00	0.00	-2.00	0.00	0.00	0.00	0.00	-4.00	-6.75	0.00	0.00	-12.75

Total utility administration	13.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.25
Total water treatment O&M	0.00	0.90	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.90
Total wastewater treatment O&M	0.00	0.90	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.90
Total water distribution system O&M	0.00	0.00	0.00	0.00	5.75	0.00	0.50	22.00	0.00	0.00	14.75	7.55	6.70	57.25
Total wastewater collection system O&M	0.00	1.20	0.00	0.00	1.25	14.00	4.19	0.00	24.00	0.00	0.00	4.45	2.30	51.39
Sum	13.25	3.00	29.00	22.00	7.00	14.00	4.69	22.00	24.00	0.00	14.75	12.00	9.00	174.69
Total	13.25	3.00	29.00	22.00	9.00	14.00	4.69	22.00	24.00	4.00	21.50	12.00	9.00	187.44
Check Difference	0.00	0.00	0.00	0.00	-2.00	0.00	0.00	0.00	0.00	-4.00	-6.75	0.00	0.00	-12.75

Total utility administration	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00
Total water treatment O&M	0.00	0.90	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.90
Total wastewater treatment O&M	0.00	0.90	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.90
Total water distribution system O&M	0.00	0.00	0.00	0.00	5.75	0.00	0.50	22.00	0.00	0.00	14.75	8.30	6.70	58.00
Total wastewater collection system O&M	0.00	1.20	0.00	0.00	1.25	15.00	5.19	0.00	24.00	0.00	0.00	4.70	2.30	53.64
Sum	15.00	3.00	29.00	22.00	7.00	15.00	5.69	22.00	24.00	0.00	14.75	13.00	9.00	179.44
Total	15.00	3.00	29.00	22.00	9.00	15.00	5.69	22.00	24.00	4.00	21.50	13.00	9.00	192.19
Check Difference	0.00	0.00	0.00	0.00	-2.00	0.00	0.00	0.00	0.00	-4.00	-6.75	0.00	0.00	-12.75

City of Fort Smith
Utility Department
DRAFT Budget Assignment Worksheet
February 28, 2012

Full-Time Equivalent (FTE) in Utility Department

Year 2010

Position	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Personnel	$ 943,599	$ 175,368	$ 1,580,151	$ 1,345,229	$ 413,206	$ 703,955	$ 267,087	$ 1,036,557	$ 1,225,502	$ 170,871	$ 808,240	$ 666,674	$ 516,447	$ 9,852,886
Operating	$ 518,809	$ 25,768	$ 1,762,847	$ 2,233,209	$ 238,132	$ 455,765	$ 51,414	$ 609,098	$ 436,105	$ 132,236	$ 296,101	$ 88,149	$ 398,393	$ 7,246,026
Capital Outlay	$ -	$ -	$ -	$ -	$ -	$ 14,337	$ -	$ -	$ 220,000	$ -	$ 43,565	$ -	$ -	$ 277,902
Total	$ 1,462,408	$ 201,136	$ 3,342,998	$ 3,578,438	$ 651,338	$ 1,174,057	$ 318,501	$ 1,645,655	$ 1,881,607	$ 303,107	$ 1,147,906	$ 754,823	$ 914,840	$ 17,376,814

Year 2011

Position	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Personnel	$ 948,862.88	$ 175,503.11	$ 1,572,235.46	$ 1,317,606.91	$ 410,014.96	$ 698,047.25	$ 281,135.89	$ 1,093,660.75	$ 1,216,264.06	$ 147,608.68	$ 862,468.24	$ 669,902.55	$ 535,621.62	$ 9,928,932
Operating	$ 486,673.12	$ 26,062.28	$ 1,263,718.05	$ 2,625,441.96	$ 299,441.92	$ 522,047.61	$ 49,623.28	$ 660,020.85	$ 403,796.08	$ 120,444.81	$ 349,365.50	$ 77,191.54	$ 538,967.00	$ 7,422,794
Capital Outlay	$ -	$ -	$ 388,790.80	$ 18,456.85	$ 33,216.00	$ 69,385.00	$ -	$ 107,796.25	$ 183,440.07	$ -	$ 129,044.19	$ 36,685.37	$ 64,611.28	$ 1,031,426
Total	$ 1,435,536.00	$ 201,565.39	$ 3,224,744.31	$ 3,961,505.72	$ 742,672.88	$ 1,289,479.86	$ 330,759.17	$ 1,861,477.85	$ 1,803,500.21	$ 268,053.49	$ 1,340,877.93	$ 783,779.46	$ 1,139,199.90	$ 18,383,152

Year 2012

Position	5501	5601	5603	5604	5605	5606	5609	5610	5611	5612	5613	5615	5616	Total
Personnel	$ 1,051,900	$ 172,420	$ 1,591,100	$ 1,290,360	$ 432,310	$ 742,400	$ 300,440	$ 1,168,830	$ 1,302,090	$ 183,320	$ 921,430	$ 745,580	$ 621,340	$ 10,523,520
Operating	$ 535,430	$ 31,130	$ 1,638,480	$ 2,648,590	$ 389,740	$ 615,760	$ 70,720	$ 694,200	$ 488,800	$ 163,650	$ 349,350	$ 108,140	$ 491,560	$ 8,225,550
Capital Outlay	$ 21,800	$ -	$ 35,800	$ 49,100	$ 161,800	$ 28,000	$ 56,300	$ 147,100	$ 551,600	$ -	$ 307,200	$ 120,000	$ 91,000	$ 1,569,700
Total	$ 1,609,130	$ 203,550	$ 3,265,380	$ 3,988,050	$ 983,850	$ 1,386,160	$ 427,460	$ 2,010,130	$ 2,342,490	$ 346,970	$ 1,577,980	$ 973,720	$ 1,203,900	$ 20,318,770

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010							Data Year 2011						
MGD water delivered per employee														
Average daily volume water distributed (MGD all plants finished effluent)					26.473							29.523		
Number of FTEs supporting water service	97.30							96.15						
MGD water delivered per employee							**0.27**							**0.31**
MGD wastewater processed per employee														
Average daily volume wastewater processed (MGD influent)														
Average daily volume wastewater processed (MGD P St plant influent)	9.668							9.365						
Average daily volume wastewater processed (MGD Massard plant influent)	7.753							7.954						
Average daily volume wastewater processed (MGD influent)					17.42							17.32		
Number of FTEs supporting wastewater service														
Total number of FTEs supporting wastewater service	91.89							91.29						
Less number of FTEs wastewater collection system construction: Program 5612	-4.00							-4.00						
Number of FTEs supporting wastewater service					87.89							87.29		
MGD wastewater processed per employee							**0.20**							**0.20**
Customer service complaints per 1,000 customers														
Number of active customer accounts					32,887							33,294		
Number of customer service-associated complaints					n/a							n/a		
Customer service complaints per 1,000 customers							**#VALUE!**							**#VALUE!**
Technical quality complaints per 1,000 customers														
Number of active customer accounts					32,887							33,294		
Number of technical quality-associated complaints					n/a							n/a		
Technical quality complaints per 1,000 customers							**#VALUE!**							**#VALUE!**
Residential water bill (7,500 gallons monthly)														
Monthly water base charge					$4.97							$4.97		
Volume charges 0 - 5 CCF (0 - 3,740 gallons)	5.000	CCF @	$2.17	=	$10.85			5.000	CCF @	$2.28	=	$11.40		
Volume charges 5 - 10.027 CCF (3,740 - 7,500 gallons)	5.027	CCF @	$2.82	=	$14.18			5.027	CCF @	$2.96	=	$14.88		
Water sales tax	$30.00	@	9.250%	=	$2.78			$31.25	@	9.250%	=	$2.89		
Monthly safe drinking water fee					$0.30							$0.30		
Residential water bill (7,500 gallons monthly)							**$33.08**							**$34.44**
Residential sewer bill (7,500 gallons monthly)														
Monthly sewer base charge					$1.43							$1.43		
Volume charges 0 - 10.027 CCF (0 - 7,500 gallons)	10.027	CCF @	$3.17	=	$31.79			10.027	CCF @	$3.33	=	$33.39		
Residential sewer bill (7,500 gallons monthly)							**$33.22**							**$34.82**
Drinking water compliance rate (% days)														
Number of days in full compliance					365							365		
Number of days per year					365							365		
Drinking water compliance rate (% days)							**100.0%**							**100.0%**

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010				Data Year 2011			
Distribution system water loss (%)								
Total volume of water distributed for customer use (MG all plants finished effluent)								
Average daily volume water distributed (MGD all plants finished effluent)	26.473				29.523			
Number of days per year	365				365			
Total volume of water distributed for customer use (MG all plants finished effluent)			9,663				10,776	
Total volume of water metered to customers (MG)								
Average daily volume water metered to customers (MGD)	22.851				?			
Number of days per year	365				365			
Total volume of water metered to customers (MG)			8,341				#VALUE!	
Total volume of unbilled authorized water to customers (MG)			0				0	
Distribution system water loss (%)				13.7%				#VALUE!
Water distribution system integrity (leaks per 100 miles)								
Total length of distribution piping (mile)								
Total length distribution mains (feet)			3,594,475				3,594,475	
Total length water services (feet) (number of services x average length per service)	37,205	cnt @ 22.5	837,113		37,697	cnt @ 22.5	848,183	
Feet per mile			5,280				5,280	
Total length of distribution piping (mile)			839				841	
Total number of leaks and pipeline breaks								
Number of leaks and pipeline breaks Program 5610	938				1,017			
Number of leaks and pipeline breaks Program 5613	471				277			
Number of pipeline breaks	0				0			
Total number of leaks and pipeline breaks			1,409				1,294	
Water distribution system integrity (leaks per 100 miles)				167.9				153.9

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010				Data Year 2011			
Water O&M cost per MG distributed (all plants finished effluent)								
Total volume of water distributed for customer use (MG all plants finished effluent)				9,663				10,776
O&M costs								
O&M water treatment personnel: Program 5601	30%				30%			
O&M water distribution personnel: Program 5601	0%				0%			
O&M costs for water and wastewater treatment administration: Program 5601 personnel	$ 175,368	@	30%	$52,610	$ 175,503	@	30%	$52,651
O&M costs for water and wastewater treatment administration: Program 5601 operating	$ 25,768	@	30%	$7,730	$ 26,062	@	30%	$7,819
O&M water treatment personnel: Program 5604	100%				100%			
O&M water distribution personnel: Program 5604	0%				0%			
O&M costs for water treatment: Program 5604 personnel	$ 1,345,229	@	100%	$1,345,229	$ 1,317,607	@	100%	$1,317,607
O&M costs for water treatment: Program 5604 operating	$ 2,233,209	@	100%	$2,233,209	$ 2,625,442	@	100%	$2,625,442
O&M water treatment personnel: Program 5605	0%				0%			
O&M water distribution personnel: Program 5605	56%				64%			
O&M costs for water service support: Program 5605 personnel	$ 413,206	@	56%	$231,395	$ 410,015	@	64%	$262,410
O&M costs for water service support: Program 5605 operating	$ 238,132	@	56%	$133,354	$ 299,442	@	64%	$191,643
O&M water treatment personnel: Program 5609	0%				0%			
O&M water distribution personnel: Program 5609	9%				11%			
O&M costs for water service support: Program 5609 personnel	$ 267,087	@	9%	$24,038	$ 281,136	@	11%	$30,925
O&M costs for water service support: Program 5609 operating	$ 51,414	@	9%	$4,627	$ 49,623	@	11%	$5,459
O&M water treatment personnel: Program 5610	0%				0%			
O&M water distribution personnel: Program 5610	100%				100%			
O&M costs for water line maintenance: Program 5610 personnel	$ 1,036,557	@	100%	$1,036,557	$ 1,093,661	@	100%	$1,093,661
O&M costs for water line maintenance: Program 5610 operating	$ 609,098	@	100%	$609,098	$ 660,021	@	100%	$660,021
O&M water treatment personnel: Program 5613	0%				0%			
O&M water distribution personnel: Program 5613	69%				69%			
O&M costs for metering and transmission line maintenance: Program 5613 personnel	$ 808,240	@	69%	$557,686	$ 862,468	@	69%	$595,103
O&M costs for metering and transmission line maintenance: Program 5613 operating	$ 296,101	@	69%	$204,310	$ 349,366	@	69%	$241,062
O&M costs for metering and transmission line maintenance: Program 5613 meters	$ 43,565	@	100%	$43,565	$ 129,044	@	100%	$129,044
O&M water treatment personnel: Program 5615	0%				0%			
O&M water distribution personnel: Program 5615	63%				63%			
O&M costs for water service support: Program 5615 personnel	$ 666,674	@	63%	$420,005	$ 669,903	@	63%	$422,039
O&M costs for water service support: Program 5615 operating	$ 88,149	@	63%	$55,534	$ 77,192	@	63%	$48,631
O&M water treatment personnel: Program 5616	0%				0%			
O&M water distribution personnel: Program 5616	74%				74%			
O&M costs for water service support: Program 5616 personnel	$ 516,447	@	74%	$382,171	$ 535,622	@	74%	$396,360
O&M costs for water service support: Program 5616 operating	$ 398,393	@	74%	$294,811	$ 538,967	@	74%	$398,836
Less depreciation	$ -	@	100%	$0	$ -	@	100%	$0
Total O&M costs				$7,635,929				$8,478,713
Water O&M cost per MG distributed (all plants finished effluent)				$790				$787
Water O&M treatment cost per million gallons distributed								
Total volume of water distributed for customer use (MG all plants finished effluent)				9,663				10,776
Total O&M costs for water treatment								
O&M water treatment personnel: Program 5601	30%				30%			
O&M costs for water and wastewater treatment administration: Program 5601 personnel	$ 175,368	@	30%	$52,610	$ 175,503	@	30%	$52,651
O&M costs for water and wastewater treatment administration: Program 5601 operating	$ 25,768	@	30%	$7,730	$ 26,062	@	30%	$7,819
O&M water treatment personnel: Program 5604	100%				100%			

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010					Data Year 2011				
O&M costs for water treatment: Program 5604 personnel	$ 1,345,229	@	100%	$1,345,229		$ 1,317,607	@	100%	$1,317,607	
O&M costs for water treatment: Program 5604 operating	$ 2,233,209	@	100%	$2,233,209		$ 2,625,442	@	100%	$2,625,442	
Total O&M costs for water treatment				$3,638,778					$4,003,519	
Water O&M treatment cost per million gallons distributed					$377					$372

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010					Data Year 2011				
Wastewater overflow rate (overflows per 100 miles)										
Total length of collection piping (mile)										
Total length collection mains (miles)				499					499	
Total length wastewater services (feet) (number of services x average length per service)	30,345	cnt @	18.3	555,314		30,464	cnt @	18.3	557,491	
Feet per mile				5,280					5,280	
Total length of collection piping (mile)				604					605	
Total number of sewer overflows (wet weather + dry weather)				373					291	
Wastewater overflow rate (overflows per 100 miles)					61.75					48.10
Wastewater treatment effectiveness rate (% days P Street Plant)										
Standard Noncompliance Day factor defined by AWWA			SND Factor					SND Factor		
Number of daily effluent limit violations	0	@	1	0		0	@	1	0	
Number of weekly effluent limit violations	0	@	7	0		3	@	7	21	
Number of monthly effluent limit violations	2	@	30	60		3	@	30	90	
Number of quarterly effluent limit violations	0	@	90	0		0	@	90	0	
Total number of standard noncompliance days				60					111	
Number of days per year				365					365	
Wastewater treatment effectiveness rate (% days P Street Plant)					83.6%					69.6%
Wastewater treatment effectiveness rate (% days Massard Plant)										
Standard Noncompliance Day factor defined by AWWA			SND Factor					SND Factor		
Number of daily effluent limit violations	0	@	1	0		6	@	1	6	
Number of weekly effluent limit violations	0	@	7	0		4	@	7	28	
Number of monthly effluent limit violations	1	@	30	30		0	@	30	0	
Number of quarterly effluent limit violations	0	@	90	0		0	@	90	0	
Total number of standard noncompliance days				30					34	
Number of days per year				365					365	
Wastewater treatment effectiveness rate (% days Massard Plant)					91.8%					90.7%

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010				Data Year 2011			
Wastewater O&M cost per MG processed (all plants influent)								
Total volume of wastewater processed (MG all plants influent)								
Average daily volume wastewater processed (MGD influent)	17.42				17.32			
Number of days per year	365				365			
Total volume of wastewater processed (MG all plants influent)				6,359				6,321
O&M costs								
O&M wastewater treatment personnel: Program 5601	30%				30%			
O&M wastewater collection personnel: Program 5601	40%				40%			
O&M costs for water and wastewater treatment administration: Program 5601 personnel	$ 175,368	@	70%	$122,758	$ 175,503	@	70%	$122,852
O&M costs for water and wastewater treatment administration: Program 5601 operating	$ 25,768	@	70%	$18,038	$ 26,062	@	70%	$18,244
O&M wastewater treatment personnel: Program 5603	100%				100%			
O&M wastewater collection personnel: Program 5603	0%				0%			
O&M costs for wastewater treatment: Program 5603 personnel	$ 1,580,151	@	100%	$1,580,151	$ 1,572,235	@	100%	$1,572,235
O&M costs for wastewater treatment: Program 5603 operating	$ 1,762,847	@	100%	$1,762,847	$ 1,263,718	@	100%	$1,263,718
O&M wastewater treatment personnel: Program 5605	0%				0%			
O&M wastewater collection personnel: Program 5605	22%				14%			
O&M costs for wastewater service support: Program 5605 personnel	$ 413,206	@	22%	$90,905	$ 410,015	@	14%	$57,402
O&M costs for wastewater service support: Program 5605 operating	$ 238,132	@	22%	$52,389	$ 299,442	@	14%	$41,922
O&M wastewater treatment personnel: Program 5606	0%				0%			
O&M wastewater collection personnel: Program 5606	100%				100%			
O&M costs for wastewater service support: Program 5606 personnel	$ 703,955	@	100%	$703,955	$ 698,047	@	100%	$698,047
O&M costs for wastewater service support: Program 5606 operating	$ 455,765	@	100%	$455,765	$ 522,048	@	100%	$522,048
O&M wastewater treatment personnel: Program 5609	0%				0%			
O&M wastewater collection personnel: Program 5609	91%				89%			
O&M costs for wastewater service support: Program 5609 personnel	$ 267,087	@	91%	$243,049	$ 281,136	@	89%	$250,211
O&M costs for wastewater service support: Program 5609 operating	$ 51,414	@	91%	$46,787	$ 49,623	@	89%	$44,165
O&M wastewater treatment personnel: Program 5611	0%				0%			
O&M wastewater collection personnel: Program 5611	100%				100%			
O&M costs for wastewater line maintenance: Program 5611 personnel	$ 1,225,502	@	100%	$1,225,502	$ 1,216,264	@	100%	$1,216,264
O&M costs for wastewater line maintenance: Program 5611 operating	$ 436,105	@	100%	$436,105	$ 403,796	@	100%	$403,796
O&M wastewater treatment personnel: Program 5615	0%				0%			
O&M wastewater collection personnel: Program 5615	37%				37%			
O&M costs for wastewater service support: Program 5615 personnel	$ 666,674	@	37%	$246,669	$ 669,903	@	37%	$247,864
O&M costs for wastewater service support: Program 5615 operating	$ 88,149	@	37%	$32,615	$ 77,192	@	37%	$28,561
O&M wastewater treatment personnel: Program 5616	0%				0%			
O&M wastewater collection personnel: Program 5616	26%				26%			
O&M costs for wastewater service support: Program 5616 personnel	$ 516,447	@	26%	$134,276	$ 535,622	@	26%	$139,262
O&M costs for wastewater service support: Program 5616 operating	$ 398,393	@	26%	$103,582	$ 538,967	@	26%	$140,131
Less depreciation	$0	@	100%	$0	$0	@	100%	$0
O&M costs				$7,255,393				$6,766,722
Wastewater O&M cost per MG processed (all plants influent)				$1,141				$1,071
Wastewater O&M treatment cost per million gallons processed								
Total volume of wastewater processed (MG all plants influent)				6,359				6,321
Total O&M costs for wastewater treatment								
O&M wastewater treatment personnel: Program 5601	30%				30%			
O&M costs for water and wastewater treatment administration: Program 5601 personnel	$ 175,368	@	30%	$52,610	$ 175,503	@	30%	$52,651

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010					Data Year 2011				
O&M costs for water and wastewater treatment administration: Program 5601 operating	$ 25,768	@	30%	$7,730		$ 26,062	@	30%	$7,819	
O&M wastewater treatment personnel: Program 5603	100%					100%				
O&M costs for wastewater treatment: Program 5603 personnel	$ 1,580,151	@	100%	$1,580,151		$ 1,572,235	@	100%	$1,572,235	
O&M costs for wastewater treatment: Program 5603 operating	$ 1,762,847	@	100%	$1,762,847		$ 1,263,718	@	100%	$1,263,718	
Less O&M costs for biosolids disposal: Program 5603 operating				$ (359,448)					$ (76,000)	
Total O&M costs for wastewater treatment				$3,043,890					$2,820,423	
Wastewater O&M treatment cost per million gallons processed					$479					$446

City of Fort Smith
Utility Department
DRAFT AWWA Benchmarking Performance Indicators Worksheet
March 27, 2012

Annual Performance Indicator	Data Year 2010	Data Year 2011

Notes:

City of Fort Smith
Utility Department
AWWA Benchmarking Performance Indicators Report[1][2]
February 15, 2012

Report Year	Performance Indicator	Sample Category																												Balanced Scorecard Type
		Operations												Region 3: South				Size of Population Served								All Participants				
		Water Operations				Wastewater Operations				Combined Operations								50,001-100,000				100,001-500,000								
		25th Percentile	Median	75th Percentile	Sample Size	25th Percentile	Median	75th Percentile	Sample Size	25th Percentile	Median	75th Percentile	Sample Size	25th Percentile	Median	75th Percentile	Sample Size	25th Percentile	Median	75th Percentile	Sample Size	25th Percentile	Median	75th Percentile	Sample Size	25th Percentile	Median	75th Percentile	Sample Size	
2005	MGD water delivered per employee	0.19	0.28	0.46	67				0	0.18	0.24	0.36	114	0.16	0.23	0.36	66	0.18	0.23	0.36	27	0.20	0.28	0.51	64	0.18	0.25	0.39	181	Internal Process
2005	MGD wastewater processed per employee				0	0.21	0.31	0.47	15	0.14	0.20	0.33	109	0.13	0.22	0.32	54	0.18	0.22	0.41	22	0.18	0.24	0.40	42	0.14	0.22	0.35	124	Internal Process
2005	Customer service complaints per 1,000 customers	1.0	5.9	24.3	53	0.3	1.7	20.5	8	0.7	5.4	32.7	90	0.5	7.0	43.7	53	1.6	8.4	30.4	23	0.5	4.5	50.9	49	0.7	5.7	27.3	151	Customer
2005	Technical quality complaints per 1,000 customers	2.8	6.1	18.5	56	0.7	2.7	12.3	9	2.9	7.6	16.7	100	3.0	9.8	35.9	56	3.1	6.9	10.9	25	2.3	8.6	38.1	56	2.8	7.2	17.4	165	Customer
2005	Residential cost of water service (7,500 gallons monthly)	$17.40	$22.20	$28.30	60				1	$17.60	$21.60	$26.60	113	$16.60	$20.70	$25.60	64	$19.50	$21.40	$26.00	26	$17.60	$20.50	$25.70	62	$17.40	$21.90	$27.40	174	Customer
2005	Residential cost of sewer service (7,500 gallons monthly)				9	$15.20	$19.80	$28.30	14	$18.80	$26.80	$33.00	110	$21.00	$27.40	$33.50	58	$22.80	$27.00	$29.10	23	$17.70	$20.70	$28.30	47	$18.10	$25.70	$32.70	133	Customer
2005	Drinking water compliance rate (% days)	100.0%	100.0%	100.0%	70				0	100.0%	100.0%	100.0%	113	100.0%	100.0%	100.0%	68	100.0%	100.0%	100.0%	27	100.0%	100.0%	100.0%	65	100.0%	100.0%	100.0%	183	Internal Process
2005	Distribution system water loss (%)	5.2%	8.4%	12.6%	43				0	5.8%	9.3%	14.0%	78	5.6%	8.3%	14.2%	48	6.6%	9.6%	13.1%	17	4.1%	7.0%	11.2%	44	5.7%	9.1%	13.4%	121	Internal Process
2005	Water distribution system integrity (leaks per 100 miles)	16.2	36.7	60.0	53				0	24.1	50.8	112.3	99	32.9	63.6	137.7	53	30.2	37.8	57.3	25	27.7	52.1	94.2	51	22.9	43.6	78.7	153	Internal Process
2005	Water O&M cost per million gallons distributed	$849	$1,428	$2,081	66				0	$884	$1,388	$2,025	105	$869	$1,417	$2,023	64	$883	$1,531	$2,088	24	$862	$1,308	$1,989	60	$860	$1,399	$2,053	171	Financial
2005	Water O&M treatment cost per million gallons distributed	$174	$336	$447	66				0	$275	$466	$826	105	$363	$518	$794	54	$315	$602	$816	20	$212	$369	$539	57	$238	$385	$713	171	Financial
2005	Wastewater overflow rate (per 100 miles)				0	3.36	7.61	12.45	15	1.75	4.00	9.25	95	2.45	5.66	10.52	48	1.68	2.26	8.96	19	1.36	3.50	7.35	41	1.8	4.3	9.5	110	Internal Process
2005	Wastewater treatment effectiveness rate (% days)				0	98.0%	99.0%	99.8%	12	98.1%	99.5%	99.7%	66	98.4%	99.5%	99.7%	32	96.4%	99.5%	99.7%	13	98.1%	99.5%	99.7%	30	98.1%	99.5%	99.7%	78	Internal Process
2005	Wastewater O&M cost per million gallons processed				0	$706	$1,053	$1,523	16	$1,119	$1,887	$2,781	105	$853	$1,200	$1,672	19	$1,258	$2,001	$3,003	20	$925	$1,472	$2,284	40	$930	$1,719	$2,621	121	Financial
2005	Wastewater Q&M treatment cost per million gallons processed				0	$501	$715	$783	16	$511	$893	$1,689	105	$540	$838	$1,478	47	$561	$925	$1,552	18	$500	$631	$1,005	37	$508	$759	$1,513	121	Financial
2007	MGD water delivered per employee	0.15	0.24	0.33	57				1	0.19	0.25	0.40	105	0.17	0.24	0.34		0.14	0.19	0.29		0.19	0.26	0.38		0.18	0.25	0.38		Internal Process
2007	MGD wastewater processed per employee				0	0.20	0.27	0.36	14	0.13	0.20	0.33	102	0.12	0.18	0.28		0.14	0.20	0.39		0.15	0.23	0.33		0.14	0.21	0.34		Internal Process
2007	Customer service complaints per 1,000 customers	0.9	5.0	14.5	49	0.1	0.3	0.8	9	0.8	5.2	18.6	85	0.8	7.0	20.3		0.6	3.0	8.2		0.4	3.2	11.0		0.7	4.3	15.6		Customer
2007	Technical quality complaints per 1,000 customers	1.9	4.4	11.2	51	0.3	1.9	5.0	10	2.3	6.2	16.4	95	2.1	8.8	23.1		1.3	3.9	28.3		2.0	4.4	9.0		2.0	5.4	14.0		Customer
2007	Residential cost of water service (7,500 gallons monthly)	$21.44	$26.41	$32.04	59				13	$19.69	$24.39	$32.26	104	$18.75	$24.34	$30.14		$20.89	$23.77	$28.69		$18.77	$23.55	$29.07		$20.01	$24.55	$32.21		Customer
2007	Residential cost of sewer service (7,500 gallons monthly)				59	$18.85	$26.25	$33.25	13	$21.98	$30.61	$38.55	104	$24.75	$29.97	$37.00		$21.00	$28.09	$35.00		$20.10	$26.41	$32.75		$20.54	$29.25	$36.92		Customer
2007	Drinking water compliance rate (% days)	100.0%	100.0%	100.0%	58				1	100.0%	100.0%	100.0%	104	100.0%	100.0%	100.0%		100.0%	100.0%	100.0%		100.0%	100.0%	100.0%		100.0%	100.0%	100.0%		Internal Process
2007	Distribution system water loss (%)	4.9%	8.6%	12.4%	52				0	3.7%	8.5%	13.0%	97	3.8%	8.9%	14.1%		4.0%	8.9%	15.0%		4.0%	7.2%	10.2%		4.2%	8.5%	12.5%		Internal Process
2007	Water distribution system integrity (leaks per 100 miles)	21.7	34.3	56.1	52				0	16.6	41.9	101.2	96	28.2	52.8	103.7		14.8	32.7	69.6		22.1	35.6	60.0		18.6	37.7	71.0		Internal Process
2007	Water O&M cost per million gallons distributed	$1,037	$1,506	$2,310	54				2	$863	$1,431	$2,089	98	$739	$1,371	$1,978		$667	$1,373	$2,286		$994	$1,370	$1,951		$942	$1,459	$2,114		Financial
2007	Water O&M treatment cost per million gallons distributed	$100	$322	$550	54				2	$245	$500	$781	98	$289	$496	$758		$130	$353	$660		$162	$370	$698		$158	$380	$698		Financial
2007	Wastewater overflow rate (per 100 miles)				0	0.87	2.98	5.20	13	1.04	2.73	7.56	101	1.32	3.19	10.71		0.98	2.79	3.91		1.13	2.28	5.35		1.0	2.8	7.1		Internal Process
2007	Wastewater treatment effectiveness rate (% days)				0	99.5%	99.7%	100.0%	11	95.8%	98.8%	99.7%	68	95.8%	99.2%	100.0%		99.5%	100.0%	100.0%		98.2%	99.5%	100.0%		96.7%	99.2%	99.8%		Internal Process
2007	Wastewater O&M cost per million gallons processed				1	$1,067	$1,960	$2,615	14	$1,200	$2,022	$3,044	99	$1,072	$2,058	$2,919		$1,157	$2,165	$3,370		$1,292	$2,039	$2,494		$1,148	$2,022	$2,986		Financial
2007	Wastewater Q&M treatment cost per million gallons processed				1	$622	$924	$1,471	14	$648	$1,006	$1,636	99	$672	$976	$1,804		$687	$892	$2,105		$707	$991	$1,512		$631	$991	$1,630		Financial

Notes:

[1] Angela K. Lafferty and William C. Lauer. *Benchmarking: Performance Indicators for Water and Wastewater Utilities: Survey Data and Analyses Report.* Prepared by Qualserve Benchmarking program (Joint program of the American Water Works Association and the Water Environment Federation) and APQC. Definitions of performance indicators and data. American Water Works Association, Denver, Colorado, 2005.

[2] American Water Works Association. *Benchmarking: Performance Indicators for Water and Wastewater Utilities: 2007 Annual Survey Data and Analyses Report. Prepared by* Qualserve Benchmarking program (Joint program of the American Water Works Association and the Water Environment Federation) and APQC. Definitions of performance indicators and data. American Water Works Association, Denver, Colorado, 2008.

Appendix E

Benchmarking Survey Response Data

Drinking Water Compliance Rate

	South Region	50k-100k Population	100k-500k Population	Combined Utility	All Participants	Fort Smith	Bentonville, AR	Davidson Wtr, Welcome, NC	Fayetteville, AR	Pueblo, CO : Water	Rogers, AR
25th%	100%	100%	100%	100%	100%	100%	100%	100%		100%	100%
75th%	100%	100%	100%	100%	100%	100%	100%	100%		100%	100%
Med	100%	100%	100%	100%	100%	100%	100%	100%		100%	100%
Med-25th%	0	0	0	0	0	0	0	0	0	0	0
75th%-Med	0	0	0	0	0	0	0	0	0	0	0

Distribution System Water Loss (%)

Source	AWWA	AWWA 50k-100k	AWWA 100k-500k	AWWA Combined	AWWA All	Kevin	Mike Bender	Mary/Gregg - received	Rainy	Alan	Tom
	South Region	Population	Population	Utility	Participants	Fort Smith	Bentonville, AR	Davidson Wtr, Welcome, NC	Fayetteville, AR	Pueblo, CO : Water	Rogers, AR
25th%	5.6%	6.6%	4.1%	5.8%	5.7%						
75th%	14.2%	13.1%	11.2%	14.0%	13.4%						
Med	8.3%	9.6%	7.0%	9.3%	9.1%	13.7%	17.5%	16.7%		7.0%	10.8%
Med-25th%	2.7%	3.0%	2.9%	3.5%	3.4%						
75th%-Med	5.9%	3.5%	4.2%	4.7%	4.3%						

								14.8%	Vol Distributed		Vol Distributed
								17.7%			3,127,474,000
							2011	16.7%	Vol Billed		Vol Billed
									3,978,178,500		2,711,982,800
									Vol Unbilled	Authorized unbillled removed	Vol Unbilled
						2008	13%				78,272,859
						2009	24.5%		% Losses		% Losses
						2010	11.4%				10.8%
						2011	21.3%				
							17.5%				

Water leaks/breaks per 100 miles of pipe

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Wtr; Welcome, NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Mike Rogers, AR
25th%	32.9	30.2	27.7	24.1	22.9						
75th%	137.7	57.3	94.2	112.3	78.7						
Med	63.6	37.8	52.1	50.8	43.6	206.9		26.37		181.8	19.1
Med-25th%	30.7	7.6	24.4	26.7	20.7		0				
75th%-Med	74.1	19.5	42.1	61.5	35.1		0				

										Calculation	Calculation	
										182	19.1	
							Miles			Miles	Miles	
							287	26.37485971		577	496	
							breaks				breaks	average of 3 years
												27 is actual 2011, but much lower than previous
							Not tracked - w.o. leaks			49	49.7	2 years
							Not tracked - w.o.			1,000	45	

Direct cost of treatment per MG

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Wtr; Welcome, NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Mike Rogers, AR
25th%	363	315	212	275	238						
75th%	794	816	569	826	713						
Med	518	602	369	466	385	$370	$1,082.42	$522		$401.90	$1,215.04
Med-25th%	155	287	157	191	147						
75th%-Med	276	214	200	360	328						

					Emailed 2/15 for cost to Beaver Lake
	$3,100,000	$1,909,068		$3,793,086	$3,800,000
	$1,082.42	$522		Not including labor	Not including labor
				$401.90	$1,215.04
	MG			MG	
	2,863,952,000	3,657,180,474		9,438,000,000	3,127,474,000
	2,864	3,657		9,438	3,127

Cost of Water - Monthly Residential Bill for 7,500 gallons of usage

17.9%

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Water Utility	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Wtr; Welcome, NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Mike Rogers, AR
25th%	$16.60	$19.50	$17.60	$17.40	$17.60	$17.40						
75th%	$25.60	$26.00	$25.70	$28.30	$26.60	$27.40						
Med	$20.70	$21.40	$20.50	$22.20	$21.60	$21.90	$33.07	$33.28	$32.85	$28.29	$20.69	$21.18
Escalated to 2011*	$24.41	$25.23	$24.17	$26.17	$25.47	$25.82						
Med-25th%	4.1	1.9	2.9	4.8	4	4.5						
75th%-Med	4.9	4.6	5.2	6.1	5	5.5						

2011 rates from code

5.06

18.48

4.75

Technical Quality Complaints per 1,000 customers

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Wtr; Welcome, NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Mike Rogers, AR
25th%	3	3.1	2.3	2.9	2.8						
75th%	35.9	10.9	38.1	7.6	17.4						
Med	9.8	6.9	8.6	16.7	7.2			4.00		0.48	0.07
Med-25th%	6.8	3.8	6.3	13.8	4.4						
75th%-Med	26.1	4	29.5	-9.1	10.2						

		total customers	total customers		total customers	total customers
		16,987	54,283		39,554	28,093
			Technical complaints		19	Technical complaints
	not tracked	**not tracked**	134		**<20**	2
			Above is average of three years			
			2.47		0.48	0.07
			2011 # of complaints			2011 # of complaints
			217			None available
			3.997568299			

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Water Utility	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Wtr; Welcome, NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Tom Rogers, AR
25th%	0.5	1.6	0.5	1.0	0.7	0.7						
75th%	43.7	30.4	50.9	24.3	32.7	27.3						
Med	7.0	8.4	4.5	5.9	5.4	5.7			1.0			
Med-25th%	6.5	6.8	4	4.9	4.7	5						
75th%-Med	36.7	22	46.4	18.4	27.3	21.6						
								total customers	total customers			
								16,987	54,283			
									customer service complains			
								not tracked	55		**no response**	**Not available**
									1.013208555			

Cost per Bill

Source	AWWARF Best Performers	AWWARF All Utilities	AWWARF Water Utilities	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Water; Welcome NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Mike Rogers, AR
25th%									
75th%									
Med	$0.29	$0.29	$0.42	$2.13	$2.49	$0.32		$0.62	$0.43
Med-25th%									
75th%-Med									

				Total Billing Cost	Total Billing Cost	Total Billing Cost	Total Billing Cost	Total Billing Cost	Total Billing Cost
				$843,414	$560,264	$200,000		$231,410	$143,000
				Bills Issued	Bills Issued	Bills Issued	Bills Issued	Bills Issued	Bills Issued
				$396,000	224,991	621,600		477,673	335,360
				$2.13	$2.49	$0.32	#DIV/0!	$0.48	$0.43
				labor @ 50%					
				$349,637			Number of customers		
				O&M	Includes all billings:			Labor cost addt'l	
			From Mitzi's emails	$493,777	finals, rebills, etc.			0.14	
				$843,414					

Bad Debt

Source	AWWARF Best Performer Average	AWWARF All Utilities Average	AWWARF Water Utilities Average	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Mary/Gregg - received Davidson Water; Welcome NC	Rainy - next week Fayetteville, AR	Alan Pueblo, CO : Water	Mike Rogers, AR
25th%									
75th%									
Med	0.36%	0.83%	0.011	0.80%	0.55%	0.28%	0.31%	0.03%	0.38%
Med-25th%									
75th%-Med									

Bad Debt	Bad Debt	Bad Debt	Bad Debt Water	Bad Debt	Bad Debt
$297,707	$52,374	$39,413	$47,013	$7,262	$30,479
Annual Billings	Annual Billings	Annual Billings	Annual Billings	Annual Billings	Annual Billings
$37,033,670	$9,561,805	$14,126,701	$15,161,951	$21,637,933	$8,033,365
% bad debt	% bad debt	% bad debt	% bad debt	% bad debt	% bad debt
0.80%	0.55%	0.28%	0.31%	0.03%	0.38%

water	
47,013.07	

Sewer Overflow Rate

Source	AWWA South Region	AWWA 50k-100k Population	AWWA Sewer Utility	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy - next week Fayetteville, AR	Rogers, AR
25th%	2.45	1.68	3.36	1.75	1.80				
75th%	10.52	8.96	12.45	9.25	9.50				
Med	5.66	2.26	7.61	4.00	4.30	33.00	8.33		4.50
Med-25th%	3.21	0.58	4.25	2.25	2.50				
75th%-Med	4.86	6.70	4.84	5.25	5.20				

		2010		
		6		
2010		2011		
		23		15
	Miles of Pipe		Miles of Pipe	
		276		333

Sewer Treatment Effectiveness Rate

Source	AWWA South Region	AWWA 50k-100k Population	AWWA Sewer Utility	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith: Massard	Kevin Sandy Fort Smith: P St Plant	Mike Bender Bentonville, AR	Rainy - next week Fayetteville, AR	Tom Rogers, AR
25th%	98.4%	96.4%	98.0%	98.1%	98.1%					
75th%	99.7%	99.7%	99.8%	99.7%	99.7%					
Med	99.5%	99.5%	99.0%	99.5%	99.5%	91.8%	83.6%	99.7%		100.0%
Med-25th%	0.01	0.03	0.01	0.01	0.01					
75th%-Med	0.00	0.00	0.01	0.00	0.00					

Direct Cost of Sewer Treatment per MG

Source	AWWA South Region	AWWA 50k-100k Population	AWWA Sewer Utility	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy - next week Fayetteville, AR	Tom Rogers, AR
25th%	$540	$561	$501	$511	$508				
75th%	$1,478	$1,552	$783	$1,689	$1,513				
Med	$838	$925	$715	$893	$759	$518			
Med-25th%	$298	$364	$214	$382	$251				
75th%-Med	$640	$627	$68	$796	$754				

	NACA		Total Cost
	$3,700,000		$8,445,272
	Est City addtl costs		Less depreciation
	$1,000,000		$3,156,000
	Total Cost		Less debt
	$4,700,000		$1,590,000
	MGD		
	1.5	3,033,376,000	Direct Cost
days in a month	30.4		$3,699,272
total days June - Dec	213		
days * 1.5 MGD	319		MG treated
MG	319		2,798,416
	MG		
	1,787		
	Calc		Calc
	$2,629.81		$1.32

Cost of Sewer - Monthly Residential Bill for 7,500 gallons of usage

Source	AWWA Combined Utility	AWWA All Participants		Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy Fayetteville, AR	Mike Rogers, AR
25th%	$17.60	$17.40					
75th%	$26.60	$27.40					
Med	$21.60	$21.90		$33.61	$56.20	$42.47	$40.05
Escalated Media	$25.47	$25.82					
Med-25th%	4	4.5					
75th%-Med	5	5.5					

17.90%

From City Code on-line

10.6	6.28	12.1
45.6	22.99	28.95
	13.2	
56.20		41.05

Cost per Bill

Source	AWWA 100k-500k Population	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy - next week Fayetteville, AR	Mike Rogers, AR
25th%							
75th%							
Med					$1.31		$0.59
Med-25th%	0	0	0				
75th%-Med	0	0	0				

Total Billing Cost	Total Billing Cost
$295,054	$143,000
Bills Issued	Bills Issued
224,991	240,612
$1.31	$0.59

Includes all billings:
finals, rebills, etc.

Bad Debt

Source	AWWARF Best Performer Averag	AWWARF All Utilities Average	AWWARF Water Utilities Average	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy - next week Fayetteville, AR	Mike Rogers, AR
25th%							
75th%							
Med	0.36%	0.83%	0.011	0.80%	0.79%	0.45%	0.50%
Med-25th%							
75th%-Med							

Bad Debt	Bad Debt	Bad Debt	Bad Debt	
$297,707	$84,325	$68,478	$48,228	
Annual Billings	Annual Billings	Annual Billings	Annual Billings	
$37,033,670	$10,620,708	$15,310,528	$9,696,324	
% bad debt	% bad debt	% bad debt	% bad debt	
0.80%	0.79%	0.45%	0.50%	

water	
47,013.07	

Technical Quality Complaints per 1,000 customers

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy - next week Fayetteville, AR	Tom - WW Rogers, AR
25th%	3	3.1	2.3	2.9	2.8				
75th%	35.9	10.9	38.1	7.6	17.4				
Med	9.8	6.9	8.6	16.7	7.2				0.99
Med-25th%	6.8	3.8	6.3	13.8	4.4				
75th%-Med	26.1	4	29.5	-9.1	10.2				

	total customers		total customers
	16,987		20,162
			Technical complaints
not tracked	**not tracked**		20
			0.99
			0

Customer Service complaints per 1,000 customers

Source	AWWA South Region	AWWA 50k-100k Population	AWWA 100k-500k Population	AWWA Water Utility	AWWA Combined Utility	AWWA All Participants	Kevin Sandy Fort Smith	Mike Bender Bentonville, AR	Rainy Fayetteville, AR	Tom - WW only Rogers, AR
25th%	0.5	1.6	0.5	1.0	0.7	0.7				
75th%	43.7	30.4	50.9	24.3	32.7	27.3				
Med	7.0	8.4	4.5	5.9	5.4	5.7				3.2
Med-25th%	6.5	6.8	4	4.9	4.7	5				
75th%-Med	36.7	22	46.4	18.4	27.3	21.6				

total customers	20,162
not tracked	**65**

Appendix F

Planning Tables

Table E-1 – Population Projections in the Long-Term Demand Projections report (2009)

Projection	Projection Type	Projected Annual Growth Rate (for comparison)	Comments (Projections Through)
U.S. Census Bureau National Population Projection	Linear	0.8% - 1.0%	2050
Fort Smith 1993 Water System Master Plan	Linear	1.1%	2040
Decennial Census Data	Linear and Exponential	1.3%	Published in 2002; through 2030
Bi-State Metropolitan Planning Organization	Linear and Exponential	1.6%	2030
Long Term Demand Projections, High Projection	Linear	0.97%	Selected for Demand Study

Table E-2 – Population Projections in the Master Plan for Water & Sewer Service in the Southern Growth Area & Chaffee Crossing (2010)

Projection	Projection Type	Projected Exponential Annual Growth Rate (for comparison)	Comments (Projections Through)
1880-2000 Fort Smith Census Data	Linear	0.73%	2030
Bi-State Metropolitan Planning Organization	Linear and Exponential	1.30% (High); 0.84% (Low)	2025
Updated Bi-State Metropolitan Planning Organization	Linear and Exponential	1.40% (High); 0.83% (Low)	2030

Table E-3 – Service Population. Metered Sales, and Per Capita Usage, 2002-2008 (data from Burns & McDonnell, 2009)

Year	Service Area Population	Metered Water Sales (MGD)	Fort Smith Per Capita Usage Gal/person/day	Contract Customers Per Capita Usage Gal/person/day	Average Per Capita Usage Gal/person/day
2002	139,815	23.05	176.8	148.2	164.9
2003	139,627	25.10	203.2	146.4	179.8
2004	138,538	23.51	185.8	145.9	169.7
2005	143,448	24.29	185.9	146.4	169.3
2006	145,356	23.91	182.6	139.8	164.5
2007	146,106	23.06	171.1	139.6	157.8
2008	149,175	22.81	165.7	136.0	152.9
Average:			181.5	143.0	165.4

Table E-4 – Historical Fort Smith Non-Metered Water Percentage and Peaking Factor, 2002-2008 (data from Burns & McDonnell, 2009)

Year	Non-Metered Water (%)	Maximum Day/ Average Day Factor
2002	20.0%	1.54
2003	8.4%	1.51
2004	12.9%	1.39
2005	15.9%	1.44
2006	14.9%	1.53
2007	8.5%	1.59
2008	3.2%	1.57
Average:	12.0%	1.51

Appendix G

Citizen's Advisory Committee Presentations

ADVISORY COMMITTEE MEETING

Water and Sewer Operations Efficiency Study

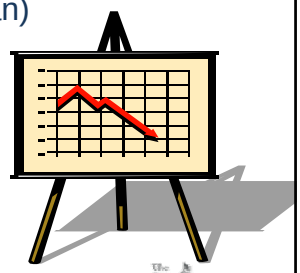
October 18, 2011




Presented by
HDR Engineering, Inc.

Overview of the Presentation

- Introductions – Getting to know us and you!
- Understanding the Advisory Committee's expectations, your areas of interest and role in this study
- Overview of HDR and our experience and qualifications
- Project Scope of Services (Work Plan)
- Overview of the City's water and sewer system
- Next Steps



Key City Project Team Members

- Mitzi Kimbrough, CPA, Internal Auditor
  - (479) 784-2271 mkimbrough@fortsmith.gov

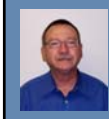
- Ray Gosack, City Administrator

- Alie Bahsoon, Dept. of Finance; Purchasing Mgr.

- Kevin Sandy, M.B.A., Rate & Financial Analyst

Key City Project Team Members

- Steve Parke, Director of Utilities



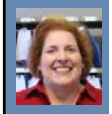
- Jack Dillon, P.E., Civil Engineer / Assistant Director of Utilities

- Steve Floyd, Superintendent

- Leroy Jeremiah, Superintendent

Key City Project Team Members

- Bill Hon, Business Manager



- Kara Bushkuhl, Director of Finance

- Chuck Guillory, Collections Manager

- Jackie Joyce, Assistant Finance Director

Key HDR Project Team Members

- Don Lindeman, P.E. – Project Manager and Task Manager: Planning

- Tom Gould – Assistant Project Manager

- Glenn Dostal, P.E. – Task Manager: Operations

- Scott Bash, Task Manager: Organizational

Key HDR Project Team Members
(continued)

- Chris Sheridan, Operations Specialist

- Priscilla (Cil) Pierce, Task Manager – Finance/Rates

Should other personnel or other areas of expertise be required HDR has significant resources and experts

Advisory Committee Members

- Dave Burrell
  - 452-1400 (H)
  - burrell.dc@gmail.com
- Gary Campbell
  - 459-7314 (W)
  - gwc@garycampbell.com
- Michelle Cernak
  - 646-5151 (W)
  - westarkplumbing@att.net
- Tim Dooley
  - 784-1322 (W)
  - tdooley@okfoods.com
- Matthew Garner
  - 434-8618 (H)
  - mgarner@baldor.com
- Patrick Jacobs
  - 719-5385 (W)
  - pjacobs@carcoint.com
- Bruce King
  - 573-2809 (W)
  - bdking@mosleyabstract.com
- Bill Maddox
  - 452-4173 (H)
  - bilox@cox.net
- Kevin Moran
  - 784-6401 (W)
  - kmoran@sparks.org
- C. Leo Patterson
  - 783-6661 (H)
  - caliban@cox.net
- Lorie Robertson
  - 242-2167 (W)
  - lorie@rightmindsads.com

Role of the Advisory Committee

- Goal: To provide an effective public involvement process during the study
- An Advisory Committee should:
  - Fully participate and have two-way communication (listen and provide input/feedback)
  - Take into consideration differing viewpoints, along with local community values and needs
  - Recognize the challenges of providing safe drinking water and wastewater collection and treatment services in a cost-effective and efficient manner
  - Receive Committee recommendations throughout process
  - Review draft final report and study recommendations

Advisory Committee "Ground Rules"

- Have a fun and enjoyable experience!
- Be on time for meetings; if you can't attend, please let us know
- Be respectful of all opinions and viewpoints
- HDR will manage the discussion of the group to keep the group focused
- All Committee communications should go through Mitzi Kimbrough
  - (479) 784-2271 mkimbrough@fortsmith.gov

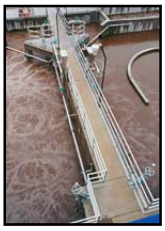
About HDR Engineering, Inc.

About HDR Engineering

- Founded in 1917. Based in Omaha
- Diverse engineering and management consulting firm
- HDR consists of more than 7,800 employees in 165 offices
- Experts in all areas of utility engineering and operations
- Nationally recognized experts in financial planning and rate setting
- Constantly growing and changing to meet our client's ever changing needs

HDR Provides Expertise in Several Areas of Service

- Utility Management Services
- Water Supply and Treatment
- Wastewater Treatment and Disposal
- Pump Stations and Pipelines
- Alternate Delivery
- Construction Services
- Utility Financial Planning and Rate Setting
- Efficiency Studies

HDR's Experience With Other Utilities

- HDR Clients
  - City of Fayetteville AR
  - City of Bentonville AR
  - Rogers Water Utilities AR
  - City of Tontitown AR
  - Hope Water and Light AR
  - City of Clarksville AR
  - City of Jacksonville AR
  - City of Russellville AR
  - City of North Little Rock AR
  - City of Wichita KS
  - City of Salina KS
  - City of Neosho MO
  - City of Charlotte NC
  - San Diego Public Utilities Department
  - City of Branson MO

Key Components of Efficiency

Putting the Pieces of the Puzzle Together

Defining "Efficiency" and the Main Focus of this Study

- Efficiency can be defined in different ways
  - Improvements leading to direct cost savings
  - Improvement to a process leading to improved levels of service, but potentially not significant cost savings
- Main focus of this study
  - Identify those areas where major improvements can be made
    - Not intended to identify all areas, only those with significant potential (i.e. a "sifting" process)
    - City should begin with improvements to those areas with greatest potential
    - "Continuous improvement" and performance measurement should be an organization's culture

Gaining Efficiency – Sources of Cost/Rate Impacts

- Rate impacts are primarily driven by:
  - Regulatory requirements
  - Increasing energy, chemical, fuel prices
  - Bond covenants – need to meet debt service coverage

Costs outside the control of the City

  - Operating costs – electrical usage, chemical consumption, wages/benefits, etc.
  - Growth/expansion
  - Capital improvement plans
  - Utility programs
  - Financial policies

Costs managed and controlled by the City (where major efficiencies may be found)

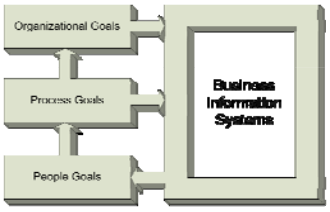
Overview of Technical Approach

- Task 1 – Initial Project Meeting
- Task 2 – Data Collection and Review
- Task 3 – Review of Organizational Structure/Issues
- Task 4 – Review of Water and Sewer Operations
- Task 5 – Review of Planning
- Task 6 – Review of Finance/Rates
- Task 7 – Written Report
- Task 8 – Citizen's Advisory Committee
- Task 9 – Board (Public) Presentation

At the conclusion of the study, the City will have a prioritized list of the specific steps/actions to be taken to gain efficiency in costs and the organization

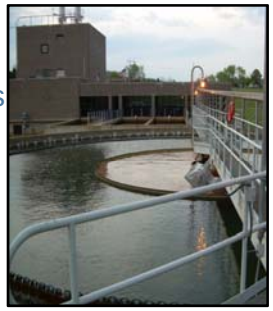
Task 3 – Review of Organizational Structures/Issues

- **Task Objective:** Review the organizational structure to better understand and define the levels of responsibility for Utility's, Finance and other support services at three levels of the utility's performance; strategic, process and people
- Subtasks
  - 3.1 – Strategy (Org.) Review
  - 3.2 – Business Process Review
  - 3.3 – Staff Interviews



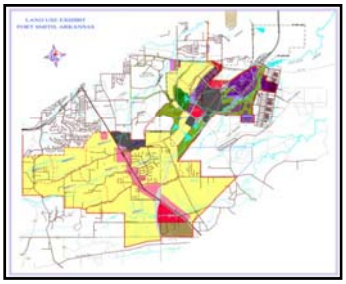
Task 4 – Review of Water and Sewer Operations

- **Task Objective:** Review the key operating costs of the two water treatment facilities and the two wastewater treatment facilities. Key costs typically include staffing, power and chemicals
- Subtasks
  - 4.1 – Review of Staffing for Facilities
  - 4.2 – Review of Power Costs
  - 4.3 – Review of Chemical Costs
  - 4.4 – Review of Residuals Handling and Disposal Costs



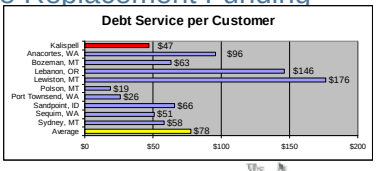
Task 5 – Review of Planning

- **Task Objective:** Review and assess the City's past practices as it relates to water and wastewater master/comprehensive planning. The planning process influences and directly impacts the short and long-term efficiencies of the organization.
- Subtasks
  - 5.1 – Review of Demand Forecasts
  - 5.2 – Capital Planning Process
  - 5.3 – Financial Capability



Task 6 – Review of Finance/Rates

- **Task Objective** – Provide a review of the role of finance and rates in the efficiency process. Identify areas of financial/rate deficiency and specific areas of potential improvement
- Subtasks
  - 6.1 – Benchmarking of Financial/Performance Indicators
  - 6.2 – Review of Current Financial Policies
  - 6.3 – Review of the Financial Planning Process
  - 6.4 – Review of Infrastructure Replacement Funding
  - 6.5 – Review of Debt/Rate Financing
  - 6.6 – Review of Rate Affordability



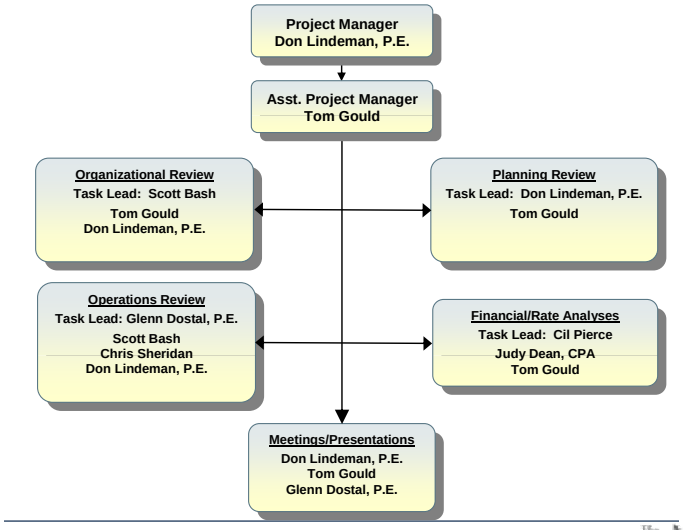
Task 8 – Citizen's Advisory Committee

- **Task Objective –** Provide an effective public involvement process by working closely with a Citizen's Advisory Committee to be formed by the City. Gain input and feedback from the Advisory Committee during the study process
- Assumes up to four (4) meetings
  - Review current operations and purpose of study
  - Preliminary review of organizational structure and planning process
  - Preliminary review of operations and financial/rate review
  - Review draft final report and study recommendations

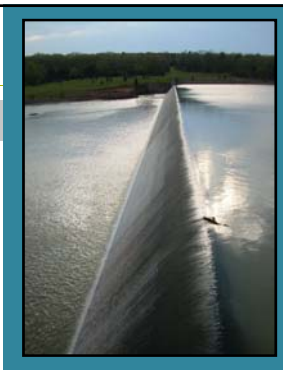
Deliverables from the City's Study

- An understanding of the overall level of efficiency for each utility and supporting functions of other departments
- A prioritized list of potential:
  - Areas for efficiency improvement
  - Policy modifications
  - Financial planning/rate modifications
  - Operational improvements
- Provide a final report documenting
  - Areas needing additional evaluation
  - Potential improvements
  - Clear set of findings, conclusions and recommendations

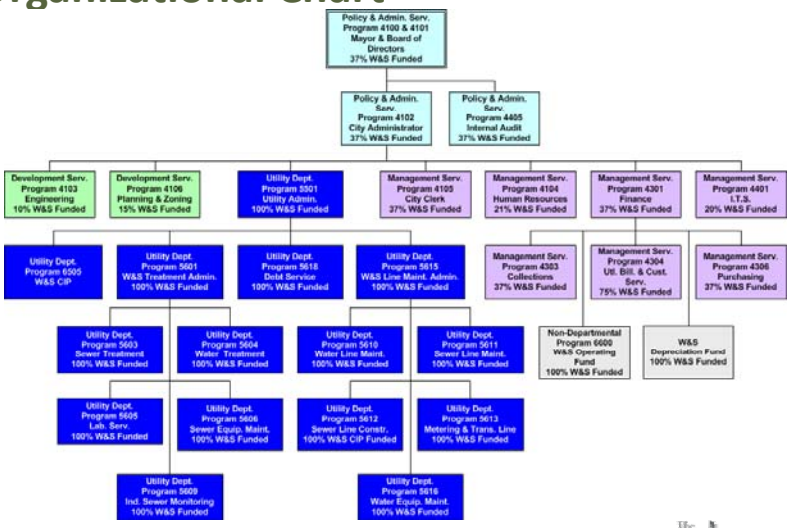
Project Team Organization



Overview of the City's Water and Sewer Operations



Water and Sewer Operating Fund Organizational Chart



Utility Department Interdepartmental Processes

Overview of the City's Water System

- Overview
  - 156,000 Service Population (Includes Wholesale)
  - 9.7 Billion gallons/yr (170gpd/per person)
  - Several Large Industrial Users
- Infrastructure Description
  - Two WTP's – Capacity 63.5 MGD
  - Storage & Pumping – 18 Pump Stations
  - Mains/Services – 680 Miles 1 ½ - 48"
  - Valves/Hydrants
- Regulatory Compliance
  - SDWA
  - Sanitary Survey – ADH
  - Laboratory Certification
  - Operator Certification

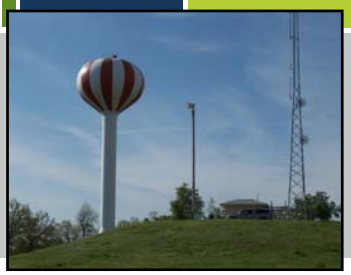
Overview of the City's Wastewater System

- Overview
  - 91,000 Service Population
  - Average Day Treatment – 15 MGD
- Infrastructure Description
  - Two Wastewater Plants – Capacity 22 MGD
  - Collection System
    - Mains/Manholes – 500 miles 6-60"
    - Pumping – 24 Stations
  - Solids Process/Disposal
- Regulatory Compliance
  - Sanitary Sewer Overflows – Wet Weather 65 MGD
  - NPDES Permit
  - Operator Certification
  - Nutrient Limits

Wastewater Costs Are Driven by Regulatory Issues

- Capital Costs
  - Sewer Overflows
  - Nutrient Removal
- Operation & Maintenance Efficiency

Next Steps



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Next Steps

1. HDR has lots of work and research
2. Next meeting will begin to focus on planning and organization
3. Selection of a Chairperson at next meeting

ADVISORY COMMITTEE MEETING

Water and Sewer Operations Efficiency Study

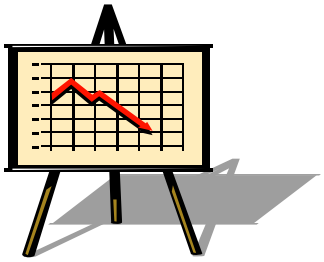
December 8, 2011




Presented by
HDR Engineering, Inc.

Overview of the Presentation

- Review of Last Meeting
- Selection of Advisory Committee Chairperson
- Efficiency Study Topics for Today:
  - Review of Organizational Structures
  - Review of the Planning Process
- Next Steps



Review of Introductory Meeting

- Introduced Personnel
  - Key City Project Team Members
  - Key HDR Project Team Members
- Discussed Advisory Committee Role (will review again)
- Discussed Efficiency and what it means
- Discussed Technical Approach Including:
  - Overview of Organizational Structures
  - Overview of Planning
- Presented the City's Water and Wastewater Systems

Role of the Advisory Committee

- Goal: To provide an effective public involvement process during the study
- An Advisory Committee should:
  - Participate and have two-way communication (listen and provide input/feedback)
  - Consider differing viewpoints
  - Consider local community values and needs
  - Recognize the challenges of providing safe drinking water and wastewater collection and treatment services in a cost-effective and efficient manner
  - Provide Committee recommendations throughout
  - Review draft final report and study

Advisory Committee "Ground Rules"

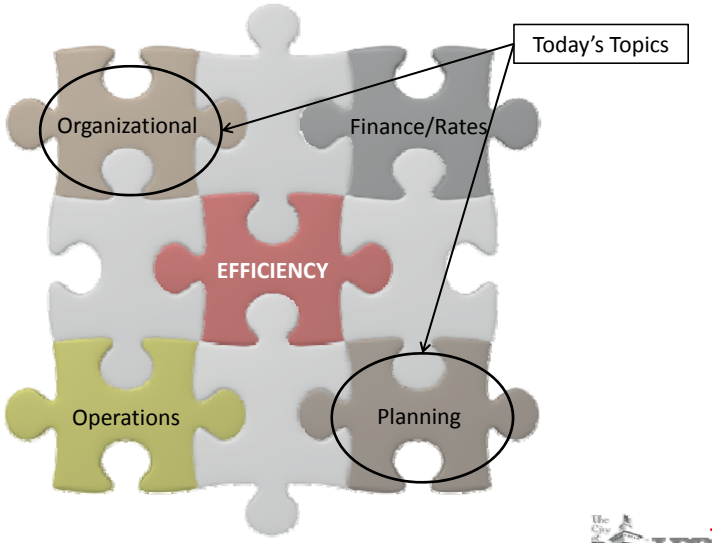
- Have a fun and enjoyable experience!
- Be on time for meetings; if you can't attend, please let us know
- Be respectful of all opinions and viewpoints
- HDR will manage the discussion of the group to keep the group focused

Selection of the Advisory Committee Chairperson

- Roles of Chairperson
  - Responsible for collecting and summarizing Committee's recommendations on the Draft Report
- All Committee communications should go through Mitzi Kimbrough
  - (479) 784-2271 mkimbrough@fortsmith.gov

Key Components of Efficiency

Putting the Pieces of the Puzzle Together



Efficiency Evaluation

Most Efficient

Least Efficient

Capability Maturity Model – Carnegie Mellon

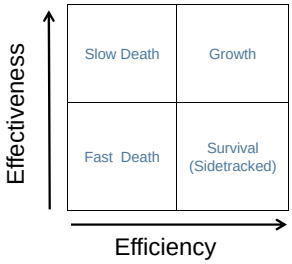
Level	Definition
Optimized	Continual improvement and refinement with documented standards and procedures
Managed	Quantitative measurements are defined and used for business improvement and setting quality standards
Defined Approach	Defined systems supported with a repeatable approach that is documented and communicated within the organization
Repeatable	Reactionary and without a documented approach
Initial	Limited awareness within organization

Efficiency Evaluation

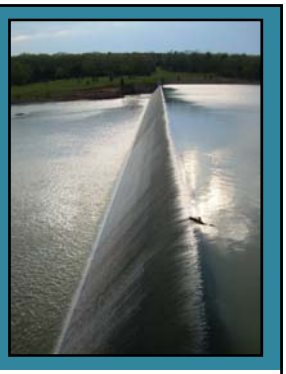
- Evaluations of Cities are subjective
- Reaching "Optimized" level in every category may not always be practical or beneficial
  - Example – Fleet Maintenance of vehicles
    - Changing oil on regular schedule is a “defined approach”
    - Testing the oil to determine a more “optimized” frequency for oil changes will not bring additional value over the manufacturer’s recommendation
- Organizational benchmarking is different than benchmarking chemical or power consumption
- Benchmarking against yourself is more meaningful
  - Establishes a baseline to measure improvement
  - Helps identify strengths weaknesses in the organization
  - Sets up parameters for organizational planning
  - Allows you to see how you have improved as an organization

What are these observations and recommendations based on?

- Interviews with City staff
- Review of documents provided by the City
  - Organization
  - Planning
- Discussed the interview results internally to HDR
- HDR conducted efficiency evaluation



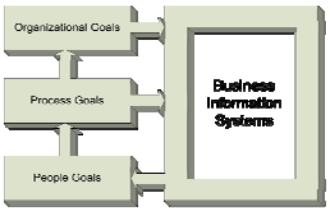
Review of Organizational Structures



Organizational

Task 3 – Review of Organizational Structures

- **Task Objective:** Review the organizational structure to better understand and define the levels of responsibility for the Utility, Finance, and other support services, at three levels of performance; strategic, process and people
- Subtasks
  - Strategy (Org.) Review
  - Business Process Review



Review of Organizational Structures/Issues

- Evaluate the following areas:
  - Strategic Goals and High Level Business Processes
  - Billing/Collection Process Efficiency
  - Operational Business Procedures
  - Critical Business Information Systems
  - Benchmarking
- The study is not complete:
  - This is a preview of what will be explained in the report
  - Efficiency savings have not yet quantified (determined the amount of savings or efficiency)

Strategic Goals and High Level Business Processes

- Examples of Goals and Processes:
  - Vision and Mission
  - Long Term Goals
  - Annual Business Plan
  - Service Levels
  - Performance Metrics
  - Regulatory Compliance
  - Risk Management
  - Organizational Flexibility
- Efficiency Rating
  - Repeatable to Defined Approach

From: Fort Smith Strategic Management Development Plan

Strategic Goals and High Level Business Processes

- Examples of Positive Areas
  - Regulatory Compliance
    - Working on consent decree for wastewater improvements
    - Meeting Water quality requirements
  - Customer Concerns
    - Defined approach for handling customer concerns
- Areas for Improvement
  - Risk Management
    - Risk management plan and policy needed – Current decision process does not include defined risk component
  - Customer Satisfaction
    - No way to quantify – can't tell if improving
  - Human Relations
    - Succession plan would protect utility from personnel losses

Metering/Billing/Collection Process Efficiency

- Finance (Billing and Collection):
  - Activation and deactivation of service
  - Collections
  - Manage 3rd party billing system
- Utility Responsibilities
  - Meter reading/repair
  - Meter replacement
  - New service connection installation
- Efficiency Rating
  - Defined Approach

Metering/Billing/Collection Process Efficiency

- Examples of Positive Areas
  - Defined Protocols
    - Meter reading
    - New service installation
    - First responders
  - Staff levels seem appropriate on the billing side
- Areas for Improvement
  - Additional staff may be required to limit time on work orders
  - No measure of "billing" success
  - Meter readers
    - Least efficient meter reading system (compared to AMI)
    - Further investigation to implement automatic meter reading
    - May free persons to aid in understaffed areas
    - Short-term loss but potentially long-term gain
  - Meter Testing
    - Large meters cannot initially be tested before installed
    - Could help identify lost revenue

Operational/Business Procedures

- Procedures occurring day-to-day, including:
  - Operations and Maintenance of the System
    - Cleaning
    - Responding to Customer Complaints
    - Repairing/replacing old meters
  - Spill Response and Reporting (Sanitary Sewer Overflows)
  - Emergency Response Planning
  - Safety Program
  - Stormwater Management
- Efficiency Rating
  - Defined approach

Operational/Business Procedures

- Examples of Positive Areas
  - Performance reviews are done for City Staff
  - Proactive cleaning lists for sewers
  - Collecting data in areas of poor water quality or low pressure for future study
- Areas for Improvement
  - Interviews indicated more staff was needed in the following areas:
    - Mapping (GIS)
    - Sewer maintenance
    - Water meter change-out
    - CMOM (Capacity, Management, Operation, and Maintenance)
  - Activities are reactive rather than proactive.
  - Programs that could be implemented to limit future maintenance include:
    - Root treatment program (sewers)
    - Fats, oils, and grease cleaning program
    - Sewer preplanned condition assessment
    - Water main assessment
    - Valve exercise program

Critical Business Information Systems

- Key Business Information Systems:
  - Lucity:
    - Program is an asset and maintenance management tool
    - Software allows City to organize and manage data
    - Should be fully integrated with GIS to provide geographical relationships and spatial analysis
    - Can track infrastructure items and produce a history including data on all inspections and work performed
    - Only as useful as the data that is entered into it
  - GIS (Geographical Information System):
    - Geographical based data management system; works as a "data source" with Lucity; very powerful tool
  - Others: AutoCAD, Datatronics billing, MVRS reading, phone recording system, Email
- Efficiency Rating
  - Defined Approach

Critical Business Information Systems

- Examples of Positive Areas
  - Lucity is used to track inventory and condition assessment
- Areas for Improvement
  - City has very powerful management tools, but needs to utilize their full capability to gain efficiency

Critical Business Information Systems

- Areas for Improvement (continued)
  - Lucity needs to be more fully utilized
    - Currently tied to inventory; also needs to be tied to a value
    - Needs to be interconnected to GIS system
    - Some data gaps need to be rectified
    - Sanitary Sewer Overflow locations need to be tied to an asset (need GIS information)
  - Water and sewer assets are in AutoCAD
    - Have not been transferred over to GIS
  - Limited staff for this task
  - Defined Standards for As-Built Drawings should make integration from AutoCAD to GIS easier.

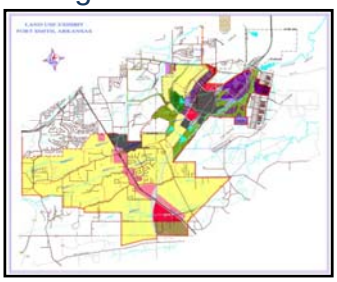
Benchmarking

- Where does Fort Smith want to be?
  - Strategic Goals and High Level Business Processes
  - Billing/Collection Process Efficiency
  - Operational Business Procedures
  - Staff Interviews and Ideas for Improvement
  - Critical Business Information Systems

Review of Planning

Task 5 – Review of Planning

- **Task Objective:** Review and assess the City's past practices as it relates to water and wastewater master/comprehensive planning. The planning process influences and directly impacts the short and long-term efficiencies of the organization.
- Subtasks
  - Review of Demand Forecasts
  - Capital Planning Process
  - Financial Capability



Review of Planning

- We will address the following issues:
  - Water Demand and Wastewater Flow Projection Forecasting
  - Planning Process for Developing the Capital Improvements Program (CIP)
  - Financial Capability of the City
- We have not yet quantified efficiencies (determined the amount of savings or efficiency to be gained)

Water Demand and Wastewater Flow Projection Forecasting

- Verifying Water Demand and Wastewater Flow Projection Data
  - Projecting Water Demands and Wastewater Flows into the future is useful in anticipating infrastructure needs
  - Recent trends in water usage reflect changes in the economy as well as public awareness towards water resources
  - Projecting water and wastewater flows begins with projecting population
    - 2010 Water/Sewer Master Plan by Mickle, Wagner, & Coleman, Inc. discussed three methods of projection
    - Other studies also exist with similar values (Burns & McDonnell, 2009)
    - 0.94% annual growth rate is a reasonable value

Year	Linear Regression	Comprehensive Plan		Bi-State MPO	
		Low	High	Low	High
2000	80,268	-	-	-	-
2025	97,000	99,000	110,300	-	-
2030	100,000	-	-	103,000	121,000
Rate	0.81%	0.93%	1.50%	0.94%	1.69%

Water Demand and Wastewater Flow Projection Forecasting (Continued)

- Population projections are used to make demand projections:
  - Water
    - Currently serve 156,000 customers (including wholesale)
    - Supplies approximately 26.57 million gallons per day (mgd)
    - 170 gallons per person per day (high)
    - Arkansas Average 135 gal/person/d (Qasim et al, 2000).
    - Per capita water usage is likely high due, in part, to large industrial users
  - Current Trends in the Market
    - Per capita water usage is remaining constant or decreasing over time
    - Due to conservation measures
  - Results
    - 170 gallons/person/day is likely to remain constant or decrease (assume it remains constant)
    - At projected growth rate, there will be 186,400 customers in 2030.
    - City would need to produce 31.7 mgd in 2030 (water loss not included)
    - Consistent with Burns and McDonnell report
    - Water Plants current capacity of 63.5 mgd
    - Incentives to Industries to decrease their usage may be beneficial
    - The Utility could undertake other measures to more accurately measure usage, such as assuring the accuracy of meters and working to decrease water loss

Water Demand and Wastewater Flow Projection Forecasting (Continued)

- Water demand projections can be used to make wastewater flow projections:
  - Wastewater
    - Currently serve 91,000 customers
    - City treats approximately 15 mgd on an average day, and has capacity for 22 mgd
    - 165 gallons per person per day (high); would expect value between 100 and 155 gallons/person/day, (M&E, 2003)
    - Potential reasons for higher flows
  - Current Trends in the Market
    - Wastewater trends are more system specific, greatly depends on condition of the system
  - Results
    - At the growth rate indicated, there will be 108,700 customers in 2030.
    - City would need to treat 17.9 mgd in 2030, not considering adding customers from other sewer systems
    - Wastewater Plants have a current capacity of 22 mgd, and will continue to experience issues during wet weather
    - Per capita flow may be reduced through water conservation and system rehabilitation

Water Demand and Wastewater Flow Projection Forecasting (Continued)

- Efficiency Rating
  - Managed
- Examples of Positive Areas
  - Population projections are not unreasonably aggressive
  - Water demand projections have been investigated through the year 2060 (Burns & McDonnell, 2009)
- Areas for Improvement
  - Wastewater capacity (wet weather) will continue to be an issue into the future, sewer system rehabilitation should be examined
  - Water loss is somewhat high 14%-16% for planning and rate calculations (10% considered to be an average amount)
  - Per capita water usage is higher than would be expected
    - Offer incentives to large users to conserve
    - Check accuracy of meters
    - Identify locations of water loss

Planning Process for Developing the Capital Improvements Program (CIP)

- Capital Planning Process (General)
  - Infrastructure improvements should be prioritized based on need
    - "Need" can have several meanings, from failing infrastructure to meeting a government issued consent decree to providing new service
    - Thus, an organized way to assess "need" is required, to properly prioritize projects (the financial aspect of this decision will be discussed next)
- Current Process
  - City has Water and Sewer Master Plans
  - Utilities Department gathers data, reviews historical data and analysis, including O&M, and reviews all projects
  - Projects are then compared to the amount of funding available
  - Committee of 2-3 knowledgeable people then prioritize the projects
- Efficiency Rating
  - Defined Approach

Planning Process for Developing the Capital Improvements Program (CIP)

- Examples of Positive Areas
  - Wastewater Master Plan to be updated in 2012
  - Utility is doing the best with the information and systems available
- Areas for Improvement
  - CIPs are evaluated each year, But should be updated every 5 years
  - Risk Management is needed:
    - Current process does not appear to take into account any risk management
    - Risk management would allow for a transparent process taking into account available knowledge about the system
    - Helpful in justifying project funding
    - Would allow the CIP to include significant maintenance issues

Financial Capability Of the Utility

- A Capital Improvements Program is only useful if it can be funded at reasonable utility rates or with a reasonable amount of debt service
  - Should include the following:
    - Funding Plans
    - Capital Funds Set Aside
    - Rehabilitation and Replacement Funding
    - Maintenance Costs
- Efficiency Rating
  - Defined Approach

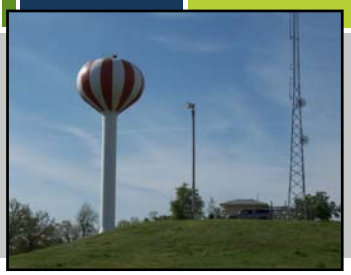
Financial Capability of the City

- Examples of Positive Areas
  - Favorable Bond Rating (AA-)
  - Some renewal and replacement funds
  - Rate and sales tax increases were made to fund the required debt service requirements
- Areas for Improvement
  - It is difficult to identify how prioritization decisions are made
    - Levels of service
    - Criticality of need
    - Risk management planning
    - Asset management planning
  - Resources are limited to manage improvement projects
  - Board sets budget based on their perceived budget constraints rather than clearly identified procedures

Summary of Recommendations

- The Utility is not broken, in fact, it is doing well in many areas
  - Qualified, experienced, and knowledgeable staff
  - Good facilities
  - In the next 20 years, staff will be retiring and equipment will be aging, so the time to plan is now
- Major Recommendations
  - Need to improve the use of information systems the Utility already has to take advantage of the knowledge in the Utility
  - Risk and Asset Management Planning is needed so that decisions (CIP, staffing obligations) are more transparent and based on documented procedures and information
  - Need to prioritize improvement projects based on risk management or service level goals – working hard (which they are) versus working efficiently.

Next Steps



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Next Steps

1. HDR still has lots of work and research
2. Financial quantification of recommendations
3. Board Briefing – January 10, 2012
4. Next meeting:
   1. Water and Sewer Operations
   2. Financing/Rates
   3. January ???????

Fort Smith UTILITY DEPARTMENT

QUESTIONS?????

ADVISORY COMMITTEE MEETING

Water and Sewer Operations Efficiency Study

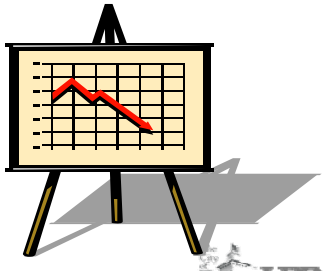
February 13, 2012




Presented by
Don Lindeman, P.E.
Glenn Dostal, P.E.
Tom Gould, P.E.
HDR Engineering, Inc.

Overview of the Presentation

- Review of Last Meeting
  - Review of Organizational Structures
  - Review of the Planning Process
- Efficiency Study Topics for Today:
  - Review of Water and Sewer Operations
  - Review of Finance/Rates
- Next Steps



Review of Second Meeting

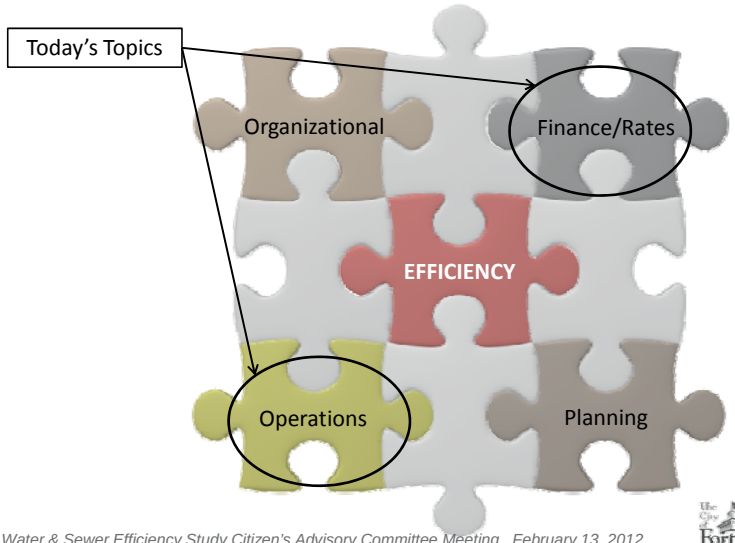
- Discussed Preliminary Findings and Recommendations in the Following Areas:
  - Organizational Structure
    - Need to improve the use of information systems the Utility already has to take advantage of the knowledge in the Utility
  - Planning Process
    - Risk and Asset Management Planning is needed so that decisions (CIP, staffing obligations) are more transparent and based on documented procedures and information
    - Need to prioritize improvement projects based on risk management or service level goals

Advisory Committee Goals

- Goal: To provide an effective public involvement process during the study
- The Advisory Committee should continue to:
  - Participate and have two-way communication
  - Consider differing viewpoints
  - Consider local community values and needs
  - Recognize the challenges of providing safe drinking water and wastewater collection and treatment services in a cost-effective and efficient manner
  - Provide Committee recommendations throughout
  - Review draft final report and study
- All Committee communications should go through Mitzi Kimbrough
  - (479) 784-2271 mkimbrough@fortsmith.gov

Key Components of Efficiency

Putting the Pieces of the Puzzle Together



Efficiency Evaluation

Most Efficient

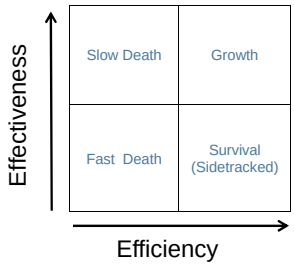
Least Efficient

Capability Maturity Model – Carnegie Mellon

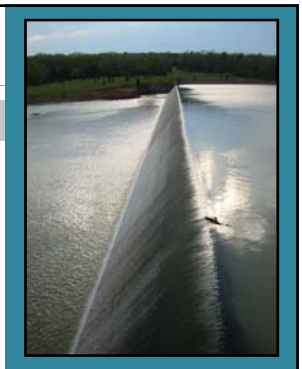
Level	Definition
Optimized	Continual improvement and refinement with documented standards and procedures
Managed	Quantitative measurements are defined and used for business improvement and setting quality standards
Defined Approach	Defined systems supported with a repeatable approach that is documented and communicated within the organization
Repeatable	Reactionary and without a documented approach
Initial	Limited awareness within organization

Efficiency Evaluation

- Efficiency Evaluations of Cities are subjective
  - Based on interviews with City staff as well as documents such as water and wastewater master plans
  - HDR conducted evaluation based on information provided, internal discussions, and professional experience
- Reaching "Optimized" level in every category may not always be practical or beneficial (car oil change example)



Review of Water and Sewer Operations

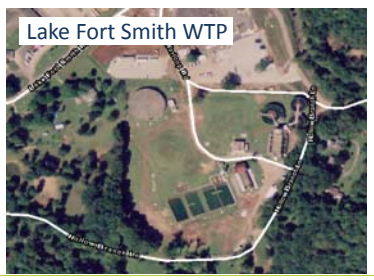


Review of Water and Sewer Operations

- **Task Objective:** Review the key operating costs of the two water treatment facilities and the two wastewater treatment facilities. Key costs typically include chemicals, power, residuals disposal, and staffing.
- Subtasks
  - Review of Power Costs
  - Review of Chemical Costs
  - Review of Residuals Handling and Disposal Costs
  - Review of Staffing for Facilities

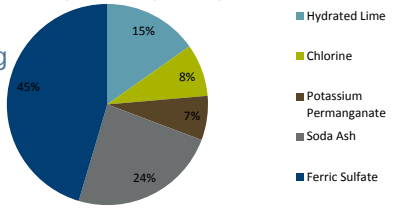
Water Treatment and Distribution

- Two Water Treatment Plants
  - Lee Creek Plant
    - Capacity of 23.5 (15) MGD; Average of 7-9 MGD
  - Lake Fort Smith Plant
    - Capacity of 40 MGD; Average of 15-17 MGD
- Water Distribution System
  - Pumping and Elevated Storage
  - Topography dictates multiple booster stations



Chemical Consumption (Water)

- Both plants use chemicals for treatment (sedimentation, coagulation, and filtration)
- Annual Costs
  - Lake Fort Smith: $605,000
  - Lee Creek: $500,000
- Positive Areas
  - Chemicals are used efficiently; staff has good knowledge of quantities of chemicals used
  - Reverse bidding is resulting in competitive pricing
- Areas for Improvement
  - Quicker response to changing influent conditions (increased in-line monitoring)
  - Plant Water Reuse
    - Filter to Waste



Annual percentage of Chemical Costs (Lee Creek)

Power Consumption (Water)

- Power represents a significant cost to the Utility and is primarily used for pumping
- Positive Areas
  - Staff is aware of electrical costs
  - Operation is adjusted to avoid excessive demand charges
  - Plan in place to prioritize Lake Ft. Smith Plant operation when reservoir levels permit (lower pumping costs)
- Areas for Improvement
  - City aware that "peaking" is costly, examine real-time monitoring of electrical loads
  - Lake Ft. Smith could consider in-line energy recovery
  - Lee Creek could consider smaller high service pump once Lake Ft. Smith Construction is Complete

Electrical Costs (Sept 2010 – Aug 2011)

Facility	Annual Cost	Percentage of Annual Cost
Lake Fort Smith	$93,035	12%
Lee Creek	$444,635	58%
Pumping Facilities	$224,744	30%
Total:	$762,414	100%

Note: 13 pumping facilities; each <5% of Annual Cost

Residual Disposal (Water)

- Residuals are created from the material that settles out or is removed from the water during the treatment process
- City currently landfills materials
- Positive Areas
  - City has conducted recent studies (2008), which determined the current method of residual disposal to be the most cost effective
- Areas for Improvement
  - No recommendations at this time

Residual Disposal Costs (2010 – 2011)

Year	Cubic Yards	Residuals Handling Costs
2010	8,000	$177,100; $22/cy
2011	11,000	$320,120; $29/cy

Staffing (Water)

- Staffing levels were investigated to determine if facilities are significantly under or overstaffed
  - Each Plant has 11.5 FTE assignments
  - Distribution System has 56 FTE assignments
  - Laboratory is versatile and performs many tasks
    - Watershed Monitoring
    - Hydroelectric Operation Limitations
- Positive Areas
  - Staff is attentive and knowledgeable

Staffing (Continued) (Water)

- Areas for improvement
  - Explore the addition of composite sampling to the plants to decrease operator workload
  - Inventory practices, including keeping critical spare parts lists, should be implemented
  - Consider operating the plants over the night shift unattended

Benchmarking Introduction (Water)

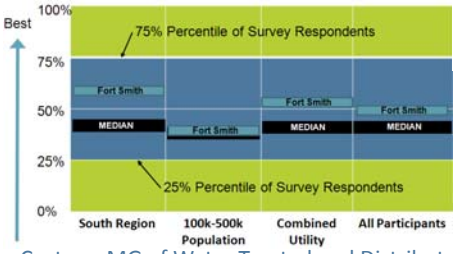
- Benchmarking was conducted in three areas to see where Ft. Smith compared to other Utilities
  - Based on American Water Works Association Standards in three areas:
    - Million Gallons per Day (MGD) per FTE
      - Water produced per employee
    - Cost per Volume of Water Treated
      - Measure of the cost of water treatment alone
      - Cost includes chemicals, power, and labor
    - Cost per Volume of Water Distributed
      - Measure of treatment costs and distribution costs (i.e. line maintenance, system pumping, and the labor required)

Benchmarking - Water (continued)

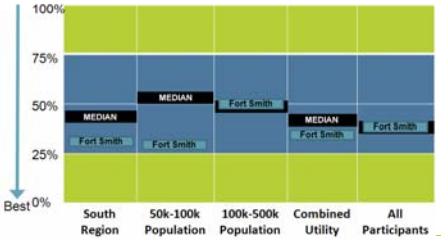
Operations

- Water Benchmarking shows Ft. Smith's staffing levels and costs are reasonable
- "Median" value vs. "Most Efficient" value
- Benchmarking compared to four or five groups of utilities

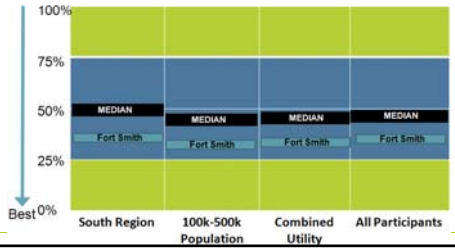
MGD per FTE
(Percentage Range)



Cost per MG of Water Treated
(Percentage Range)



Cost per MG of Water Treated and Distributed
(Percentage Range)



Operations Review - Water

Operations

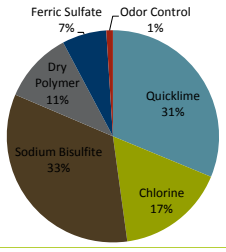
- Overall, Water Treatment Operations appears to be an area in which the Utility is performing well
- Efficiency Rating
  - Defined to Managed Approach
- The Utility has staffing levels and costs that are reasonable when compared to AWWA standards
- Major Recommendation:
  - Improve or take advantage of automation to potentially save staff time, chemical usage, and electrical demand charges

Wastewater Treatment and Collection

- Two Wastewater Treatment Plants
  - P Street Plant
    - Capacity: 12 MGD (83 MGD Wet Weather)
    - Average: 8 MGD
  - Massard Creek Plant
    - Capacity: 12 MGD (20 MGD Wet Weather)
    - Average: 6 MGD
- Collection System
  - 24 Lift Stations

Chemical Consumption (Wastewater)

- Chemicals are used for chlorination/dechlorination as well as coagulation (settling aids)
- Positive Areas
  - Since 2011, Arkansas is allowing disposal of solids without lime treatment, significantly decreasing chemical costs
  - Other chemical usage appears reasonable
- Areas for Improvement
  - Analysis should be done to see if adding a chlorine analyzer could reduce sodium bisulfite quantities



Annual percentage of Chemical Costs (P Street)
September 2010 – August 2011

Power Consumption (Wastewater)

- Like the water system, power represents a significant cost and demand charges are an issue
- Power used for pumping, UV disinfection
- Positive Areas
  - Most pumps in plants controlled by VFDs, which saves energy
  - Staff aware of demand charges and postpone some activities until high demand passes
- Areas for Improvement
  - Aeration blowers could be throttled (P Street)
  - City could review policy on odor control
  - City should examine adding a VFD to the plant water pumps

Electrical Costs (Sept 2010 – Aug 2011)

Facility	Annual Cost	Percentage of Annual Cost
P St WWTP	$273,918	41%
Massard WWTP	$280,248	42%
Lift Stations	$112,451	17%
Total:	$666,617	100%

Residual Disposal (Wastewater)

- Solids are created from material that settles out and from bacteria used to treat the wastewater
- City currently landfills materials
- Positive Areas
  - Lime stabilization no longer required; solids disposal costs are limited to state-required tipping fees and hauling (very cost effective)
  - Current method is most cost effective.

Staffing (Wastewater)

- Staffing levels were investigated to determine if facilities are significantly under or overstaffed
  - Together, the wastewater plants have 30 FTE assignments
  - Collection System has 56 FTE assignments
- Positive Areas
  - Staff is attentive and performs frequent maintenance checks and on-site measurement
  - Staff, in some areas, is shared with the water system, which increases flexibility

Staffing (continued) (Wastewater)

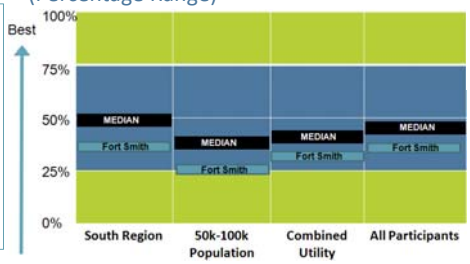
- Areas for improvement
  - Fully utilize the automatic samplers that already are installed at the P Street Plant
  - Consider adding lift station controls to SCADA to be able to remotely start and stop pumps and restart in case of power loss
  - Consider the adequacy of the preventative maintenance plan and its coordination with risk analysis
  - Automation is in place at the P St. Plant to consider operating the plant over the night shift unattended (4 to 8 hours)

Operations Review - Wastewater

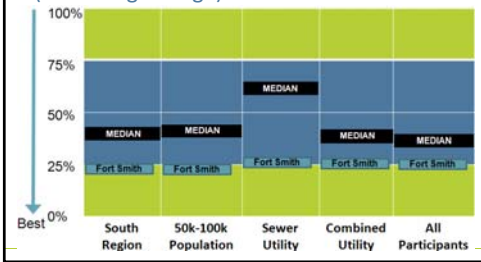
Operations

- Wastewater Benchmarking shows Ft. Smith's staffing levels and costs are reasonable
- MGD per FTE may be lower due to operating two plants
- Cost for wastewater collected and treatment is generally low compared to other utilities

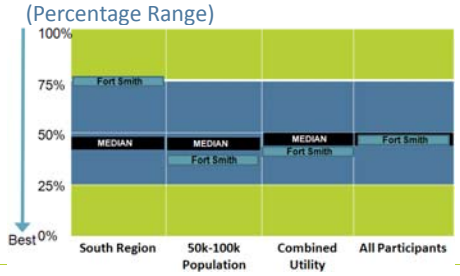
MGD Processed per FTE (Percentage Range)



Cost per MG of Wastewater Treated (Percentage Range)



Cost per MG of Wastewater Processed (Percentage Range)



Operations Review - Wastewater

Operations

- Like Water Treatment, Wastewater Treatment appears to be a relatively efficient area
- Efficiency Rating
  - Defined to Managed Approach
- AWWA benchmarking standards show that staffing levels and costs are generally appropriate
- Overall Recommendations:
  - In general, efficiency could be gained through increased use of the existing automation, this may require employee training
  - There are also minor chemical and power efficiencies that could be obtained, all of which would include some level of capital investment

Review of Finance/Rates

Review of Finance/Rates

- **Task Objective** – Provide a review of the role of finance and rates in the efficiency process. Identify areas of financial/rate deficiency and specific areas of potential improvement
- Subtasks
  - 6.1 – Benchmarking of Financial/Performance Indicators
  - 6.2 – Review of Current Financial Policies
  - 6.3 – Review of the Financial Planning Process
  - 6.4 – Review of Infrastructure Replacement Funding
  - 6.5 – Review of Debt/Rate Financing
  - 6.6 – Review of Rate Affordability

Finance/Rate Review

- Definition and Purpose of Performance Measures
  - Performance measures, or indicators, are a particular value or characteristic to measure outcomes, efficiency or effectiveness
  - Benchmarking compares performance measures across organizations or sectors. Can lead to:
    - Identification of best practices
    - Where organization fits in a set of "norms"
    - Help to establish improvement targets
    - Can measure progress over time
  - Ultimate goal is to verify effective application of utility resources in providing defined level of service

HDR

Finance/Rate Review

- Benchmarking/Performance Indicators
  - HDR and City staff mutually selected 12 measures for survey purposes
  - Intent is to use these measures after the study is completed (continuous measure and improvement)
  - Survey measure results utilize American Water Works Association (AWWA) national, regional and utility benchmark indicators, along with selected and "comparable" surveyed utilities
  - HDR contacted 10 utilities for comparison[1]; 4 provided responses to date. Not all utilities track all needed data. Anticipating more responses soon; verifying data with a few utilities.

[1]From the AWWA 2010 Water and Wastewater Rate Survey

HDR

Finance/Rate Review

1. Utilities selected based on population served, MGD, state and/or southern region

City	Service Population	Participant Status
Dalton, GA	92,000	Too busy, cannot participate
Lancaster, SC	94,000	Never responded
Decatur, AL	98,000	Not participating
Rogers, AR	55,000	Not received yet
Pueblo, CO	108,000	W
Provo, UT	121,000	Not received; Unsure participation
Savannah, GA	133,000	Not participating
Davidson Water Inc. (Welcome NC)	150,000	W
Fayetteville, AR	75,000	Some data received, not complete
Bentonville, AR	35,000	W & S

– All responses not yet received. Some responses incomplete.

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Finance/Rate Review

- Selected Performance/Benchmark Indicators
  1. Drinking Water Compliance Rate (%)
  2. Sewer Overflow Rate (#)
  3. Distribution System Water Losses (%)
  4. Sewer Treatment Effectiveness Rate (%)
  5. Water Distribution System Integrity (leaks and breaks/100 miles of line)
  6. Direct Cost of Water Treatment Per MG ($)
  7. Direct Cost of Sewer Treatment Per MG ($)
  8. Residential Cost of Water Service (Monthly $)
  9. Technical Quality Complaints Per 1,000 Customers (#)
  10. Customer Service Complaints Per 1,000 Customers (#)
  11. Cost Per Bill (Billing Cost)
  12. Bad Debt As a % of Total Annual Billing (%)
  13. Residential Sewer Rate

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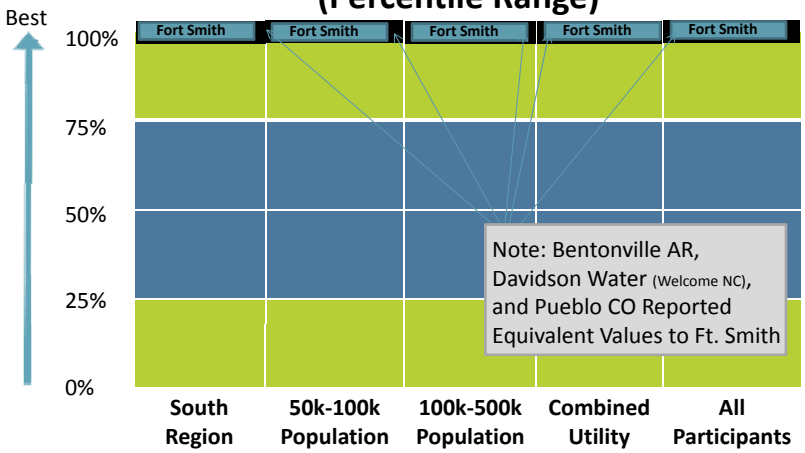
Finance/Rate Review

1. Benchmarking/Performance Qualifying Notes:
   - For water utilities, AWWA Report sample size ranges from 19 to 183
     - Majority in the range of 25 to 56 respondents
   - Sewer utility sample size for all measures was less than number of utilities responding for water (both in AWWA Report and HDR survey)
   - AWWARF sample size for financial measures much smaller: 2 to 15 utilities
   - AWWA and AWARF studies from 2005; Data is not adjusted for inflation. Important for financial data.
   - HDR Survey: All utilities have different data systems; Verified data to degree possible.

33

Finance/Rate Review

Drinking Water Compliance Rate (Percentile Range)



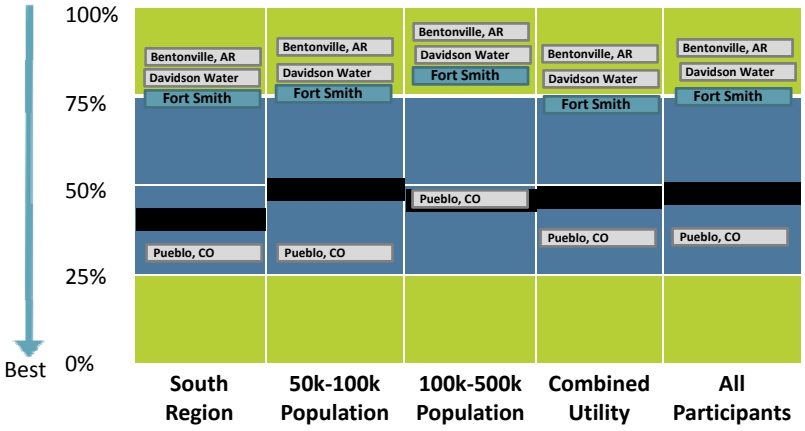
- Metric: $\frac{100 * (\text{number of days in compliance})}{365 \text{ Days}}$

Median Value for Category

34

Finance/Rate Review

Distribution System Water Losses (Percentile Range)



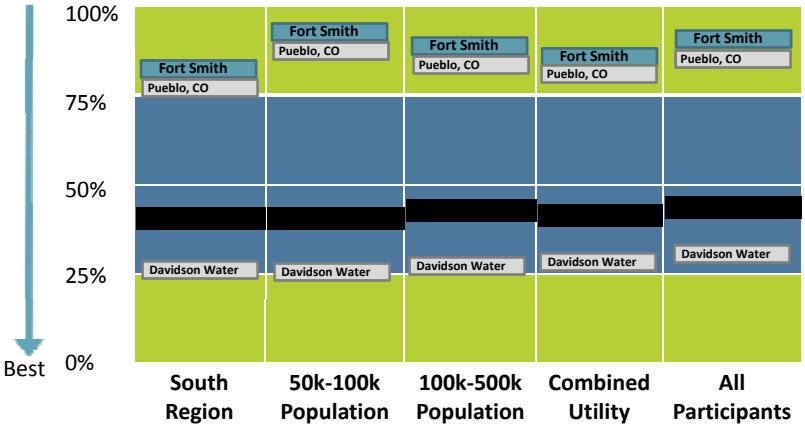
– Metric: 100 (volume distributed-(volume billed + authorized unbilled) / volume distributed

Median Value for Category

35

Finance/Rate Review

Water Distribution System Integrity (Percentile Range)



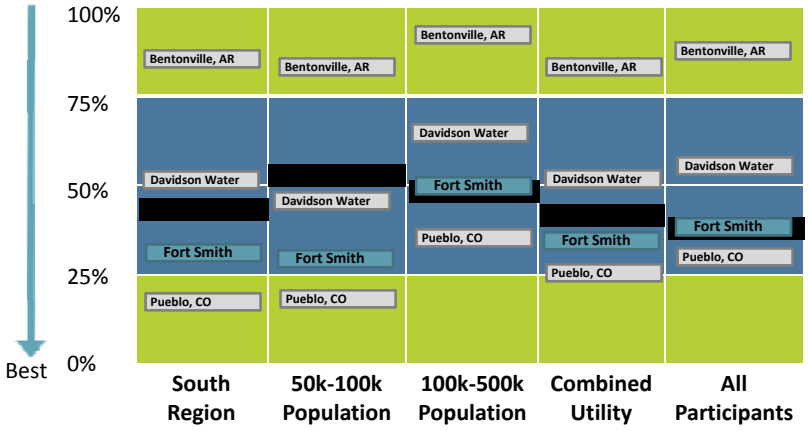
– Bentonville - Not tracked specifically; handled as work order.
– Metric: 100 * (number of annual leaks and breaks) / total miles of distribution piping

Median Value for Category

36

Finance/Rate Review

Direct Cost of Water Treatment per MG (Percentile Range)

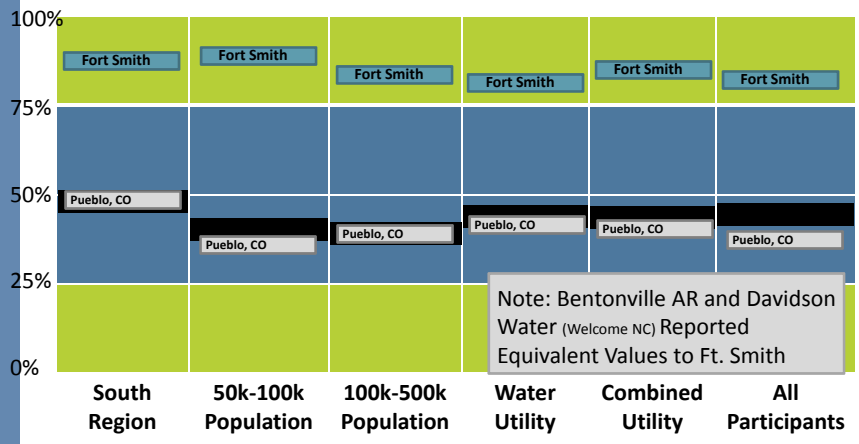


– Metric: Direct treatment costs / MG treated

Median Value for Category

Finance/Rate Review

Residential Water Rate – 2011 Monthly Bill (Percentile Range)



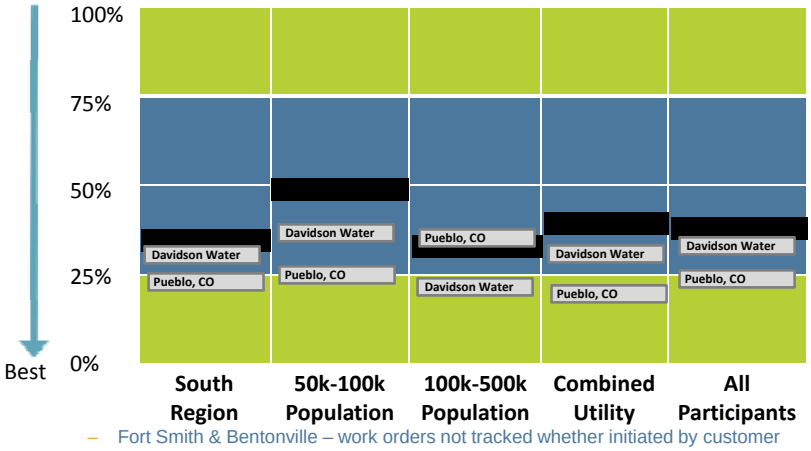
Note: Bentonville AR and Davidson Water (Welcome NC) Reported Equivalent Values to Ft. Smith

– Metric: 3/4-inch meter and 7,500 gallons usage

Median Value for Category

Finance/Rate Review

Technical Quality Complaints/1,000 Customers (Percentile Range)



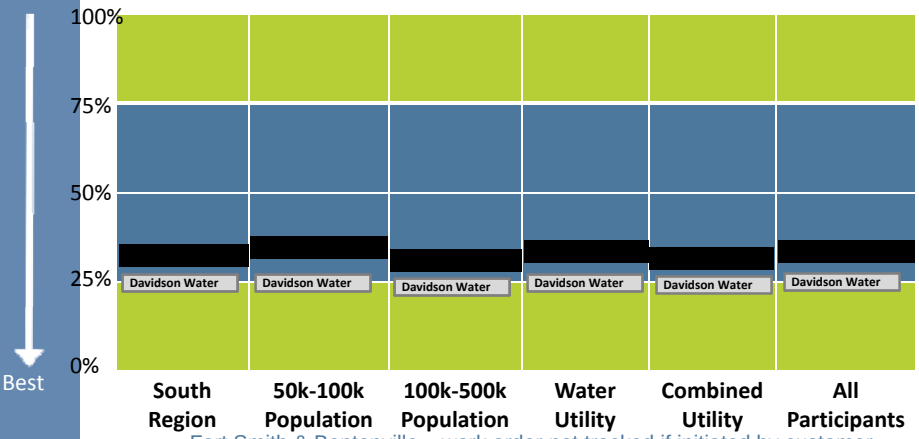
- Fort Smith & Bentonville – work orders not tracked whether initiated by customer complaint or other factor.
- Metric: 1,000 * (number of technical water quality complaints) / number of active customer accounts

Median Value for Category

39

Finance/Rate Review

Customer Service Complaints/1,000 Customers(Percentile Range)



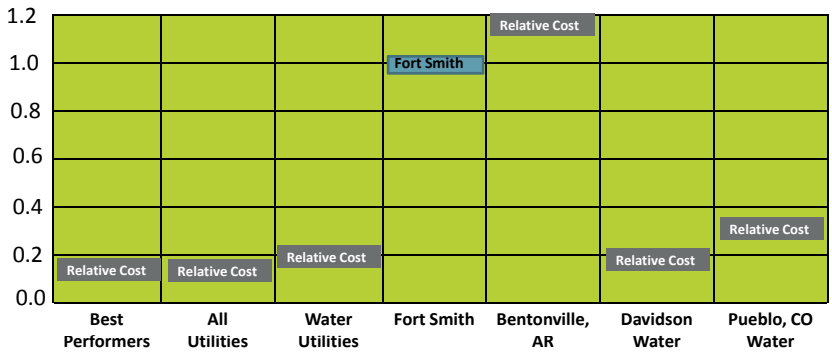
- Fort Smith & Bentonville – work order not tracked if initiated by customer complaint; Pueblo Water did not respond to this item.
- Metric: 1,000 * (number of customer service complaints) / number of active customer accounts

Median Value for Category

40

Finance/Rate Review

Relative Cost Per Bill (Ft. Smith = 1.0)



Best

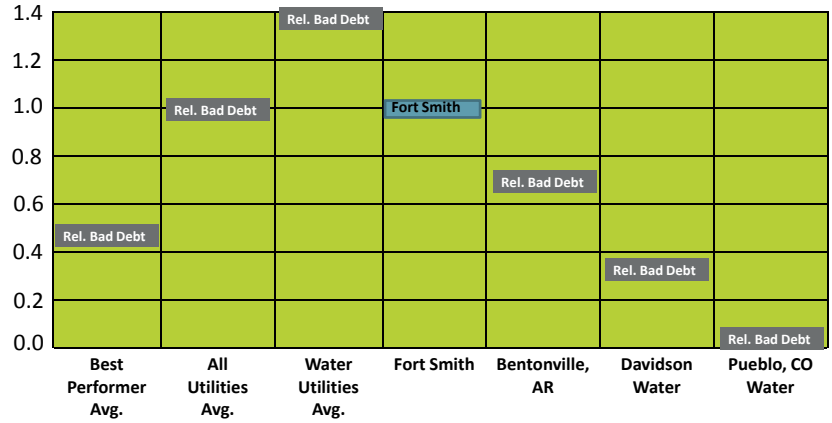
- AWWA reports customer service cost per account, not bill
- Data from AWWARF Benchmarking Water Utility Customer Relations Best Practices, 2006; 15 utilities, 10 water utilities
- Bentonville has all customer service labor costs included
- Metric: total annual cost to issue bills / annual # of bills issued

Median Value for Category

41

Finance/Rate Review

Bad Debt (Ft. Smith = 1.0)



Best

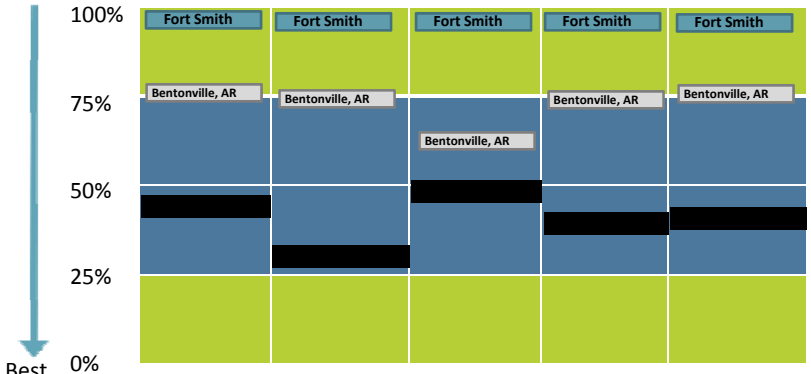
- Not included in the AWWA Benchmarking report
- Data from AWWARF Benchmarking Water Utility Customer Relations Best Practices, 2006; 9 utilities reporting, 6 water utilities.
- Metric: Write-offs / total annual billings

Median Value for Category

42

Finance/Rate Review

Sewer System Overflows per 100 Miles of Pipe (Percentile Range)



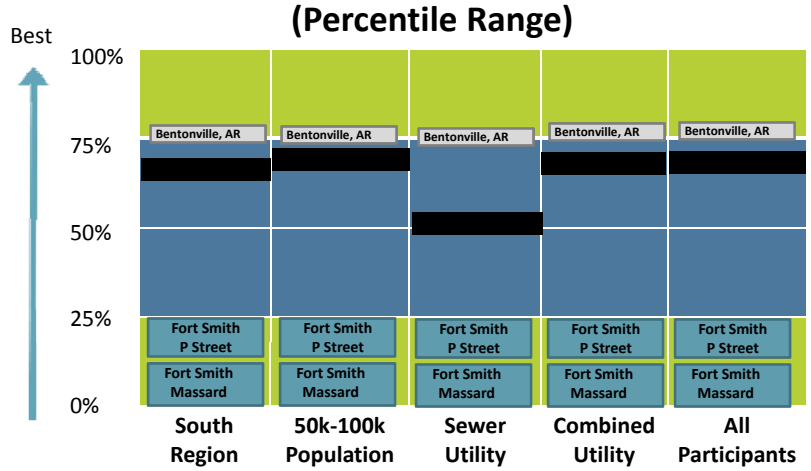
- Fort Smith data 75 overflows.
- Metric: $\frac{100 * (\text{number of overflows})}{\text{Miles of Pipeline}}$

Median Value for Category

43

Finance/Rate Review

Sewer System Effectiveness Rate (Percentile Range)



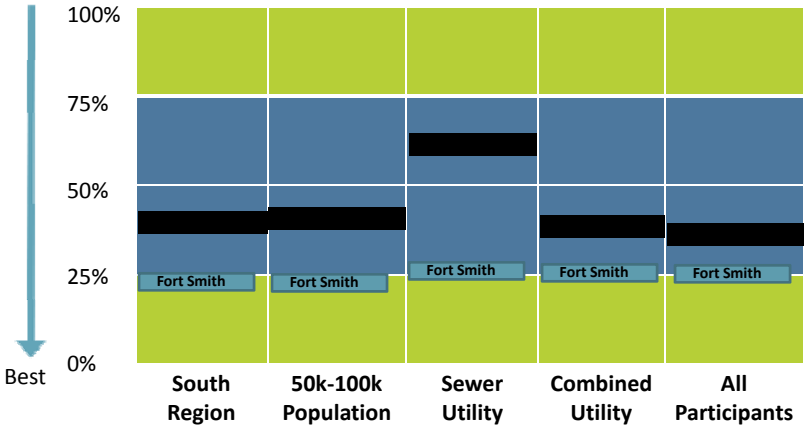
- Metric: $\frac{100 * (\text{number of days in compliance})}{365 \text{ Days}}$

Median Value for Category

44

Finance/Rate Review

Sewer Treatment Cost per MG (Percentile Range)



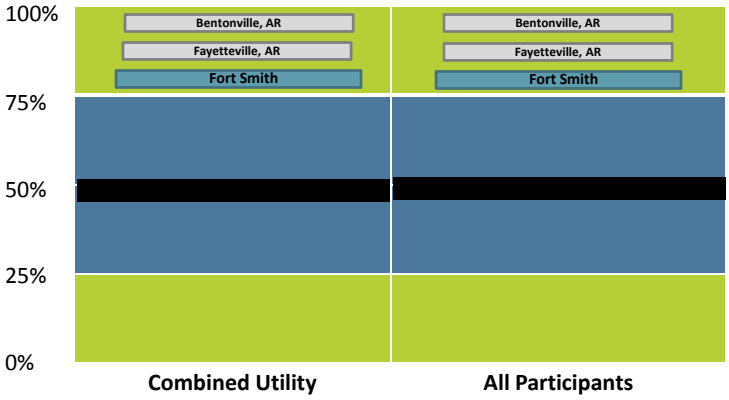
– Metric: Direct treatment costs / MG collected

45

Median Value for Category

Finance/Rate Review

Residential Sewer Rate – 2011 Monthly Bill (Percentile Range)



– Metric: 7,500 gallons usage

46

Median Value for Category

Finance/Rate Review

1. Benchmarking/Performance Summary:
   - Each utility has unique characteristics and methods of measuring costs; some purchase water, some sewer treatment – numerous variables impact results
   - **WATER:**
     - Utility appears to be above in some measures
     - Utility needs to add resources to maintaining distribution system (R&R funding needed?)
   - **SEWER:**
     - City is working to improve sewer utility performance to meet compliance requirements.
   - Separating technical complaints and customer service complaints by utility may be helpful in the future

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Finance/Rate Review (continued)

2. Review of Financial Policies
   - City currently has “City-wide” financial policies
   - Current policies are not well-suited for the utilities
     - At times, too broad and not specific enough for the utilities on certain key financial and rate parameters
   - Benefits from the establishment of utility specific financial/rate policies
     - Board will provide clear policy direction for financial planning and rate setting
     - Demonstrates prudent and sustainable financial planning to the bond rating agencies
     - Creates more consistency in decision-making

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Finance/Rate Review (continued)

2. Review of Financial Policies continued:
   - Example Financial policies:
     - ✓ City policy for debt not to exceed 25% of Operating Revenue:
       - ❖ Utilities have exceeded by 10% last two years
     - ✓ Growth Related policy – "growth pay for growth"
       - ❖ Establish system development charges for new customers to pay equitable share of cost of capacity
     - ✓ Financial planning targets for DSC ratios

➢ Recommendation: Establish utility specific financial policies

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HDR

Finance/Rate Review (continued)

3. Review of the Financial Planning Process
   - City has a financial planning model developed by outside expertise
   - Uses "generally accepted" methodologies
   - Review CIP for a projected 5 year period
   - City may want to develop a financial/rate planning model for a longer term to better understand impacts of future capital and regulatory projects
     - Objective: Potential savings by minimizing rates through time using best combination of funding sources (rates, low-interest loans, sales tax bonds, revenue bonds)

50

HDR

Finance/Rate Review (continued)

4. Infrastructure Replacement Funding
   - The need for adequate and prudent funding to maintain existing infrastructure (renewal and replacement [R&R])
   - No clear financial plan or policy on this issue
     - No asset management plan in place
     - No minimum rate funding policy (e.g. ≥ annual depreciation expense, a % of total plant assets, etc.)
   - Level of rate funding for R&R appears inadequate
     - Water = $286,000 vs. 2010 Dep. Exp. = $5.5 M
     - Sewer = $986,000 vs. 2010 Dep. Exp. = $3.0 M
     - $1 Million CIP Funding in Water ~ 3.8% adjustment
     - $1 Million CIP Funding in Sewer ~ 8.2% adjustment

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HDR

Finance/Rate Review (continued)

6. Benefits of Renewal and Replacement Funding
   - Stronger DSC ratio
   - Reduced reliance on debt
     - ✓ Utilities already exceed the policy of not exceeding 25% of operating revenue for debt by 10%; total 35%
     - ✓ Future year's rate adjustments could be driven by need to meet debt payments and DSC requirements
   - Maintain utility level of service at most effective cost
     - ✓ Reduced water losses/sewer I&I
     - ✓ Replacing assets at optimal time – avoids excessive maintenance costs

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Finance/Rate Review (continued)

5. Debt/Equity Financing
   - City has relied upon long-term debt for funding of major capital infrastructure (not unexpected)
     - Use of sales tax bonds vs. revenue bonds
     - Will the citizens continue to support sales tax bonds?
   - City is beginning to feel the pressure of debt and meeting minimum debt service coverage (DSC) requirements
     - Rates will likely need to continue to increase to meet additional capital infrastructure funding, debt issuance and DSC requirements
   - Over the long-term, City's ability to meet DSC may drive debt versus equity (rate) financing

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Finance/Rate Review (continued)

5. Debt/Equity Financing continued
   - City's current debt to equity ratio is 60%
     - Typical Range – i.e. considered "optimal"

Debt	Equity	
40%	60%	Conservative
60%	40%	Less Conservative

   - City's debt/equity tends is on the high end due to the high level of infrastructure investment from the consent decree
   - Financial planning process can help to define the goals and target debt/equity ratio(s)

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Finance/Rate Review (continued)

6. Rate Affordability
   - Affordability is generally measured on a community-wide basis as a % of median household income
   - Percentage may range from 1.5% to 2.5% of MHI
   - If average monthly residential bill exceeds this measure, the utility's rate may be considered "unaffordable"
   - Current bill compared to a MHI of $36,200
     - ✓ Water – Average Monthly Bill $33.07 = 1.1% of MHI
     - ✓ Sewer – Average Monthly Bill $33.61 = 1.1% of MHI
   - Conclusion: Rates remain affordable and could be increased to address R&R issues
     - ✓ Incorporate affordability test into future Board rate presentations

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Finance/Rate Review (continued)

6. Rate Affordability

City of Fort Smith
Review of Utility Rate Affordability

		Range of Affordability		
		1.50%	2.00%	2.50%
Median Household Income	$36,200			
Annual Bill at Affordability Limit		$543.00	$724.00	$905.00
Monthly Bill at Affordability Limit		$45.25	$60.33	$75.42
Water Utility				
Residential rate: 3/4" meter, 7,500 gallons - 2011 was $23.77				
Average Rate - 2011 - 2015; 5-year period	**$33.07**	Pass	Pass	Pass
Percentage of median household income	**1.10%**			
Sewer Utility				
Residential rate: 3/4" meter, 7,500 gallons - 2011 was $25.51				
Average Rate - 2011 - 2015; 5-year period	**$33.61**	Pass	Pass	Pass
Percentage of median household income	**1.11%**			

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Finance/Rate Review (continued)

- Other Financial/Rate Issues
  - System development charges (capacity fees)
    - Fee for new customers connecting to the City's water and sewer system to "buy into" the City's available capacity (i.e. existing customers paid for the capacity that is available and should be reimbursed for the value of that available capacity
    - City has discussed this type of fee in the past, but felt it would hinder customer growth
    - From 2006 – 2010, the City had 1,129 new residential connections
      - Conservatively assuming a combined fee of $2,000 per new connection for water and sewer, the City could have collected approximately $2.3 million for growth-related capital infrastructure

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Finance/Rate Review (continued)

- Conclusions and Summary Recommendations –
  - For several measures the City compares favorably
    - Focus improvements on leaks and breaks/distribution
    - Adjust data tracking to account for tracking all measures
    - Continue to monitoring progress over time
    - Add new measures as feasible to continue improvements
  - Develop utility specific financial policies
  - Prepare longer-range financial planning/rate forecasts to account for asset renewal and replacement
  - Improve funding from rates for R&R. Transition to funding, at a minimum, annual depreciation expense
  - Consider inclusion of rate affordability test
  - Review policy decision to develop system development charges

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Next Steps

Next Steps

- HDR is working to finalize the draft report
- Next meeting: Draft Report Presentation

Fort Smith UTILITY DEPARTMENT

QUESTIONS?????

ADVISORY COMMITTEE MEETING

Water and Sewer Operations Efficiency Study

November 15, 2012




Presented by
Don Lindeman, P.E.
HDR Engineering, Inc.

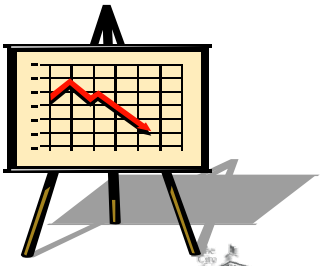
Advisory Committee Goals

- Goal: To provide an effective public involvement process during the study
- The Advisory Committee should continue to:
  - Participate and have two-way communication
  - Consider differing viewpoints
  - Consider local community values and needs
  - Recognize the challenges of providing safe drinking water and wastewater collection and treatment services in a cost-effective and efficient manner
  - Provide Committee recommendations throughout
  - Review draft final report and study
- All Committee communications should go through Mitzi Kimbrough
  - (479) 784-2271 mkimbrough@fortsmith.gov

2

Overview of the Presentation

- Review of Last Two Meetings
- Efficiency Study Topics for Today:
  - Overall Efficiency
  - Recommendations
- Next Steps



3

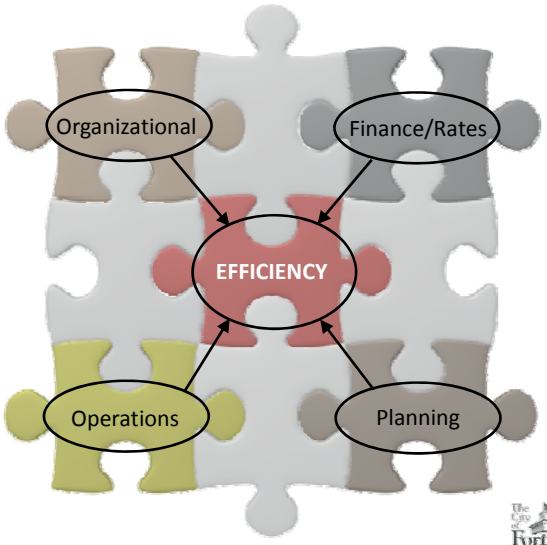
Review of Meetings

- Preliminary Findings and Recommendations:
- Meeting Two – December 8, 2011
  - Organizational Structure
  - Planning Process
- Meeting Three – February 13, 2012
  - Water And Sewer Operations
  - Financing/Rates

4

Overall Efficiency

Putting the Pieces of the Puzzle Together



5

Efficiency Evaluation

Most Efficient

Least Efficient

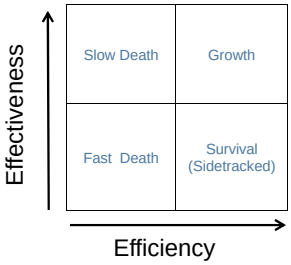
Capability Maturity Model – Carnegie Mellon

Level	Definition
Optimized	Continual improvement and refinement with documented standards and procedures
Managed	Quantitative measurements are defined and used for business improvement and setting quality standards
Defined Approach	Defined systems supported with a repeatable approach that is documented and communicated within the organization
Repeatable	Reactionary and without a documented approach
Initial	Limited awareness within organization

6

Efficiency Evaluation

- Efficiency Evaluations of Cities are subjective
  - Based on interviews with City staff as well as documents such as water and wastewater master plans
  - HDR conducted evaluation based on information provided, internal discussions, and professional experience
- Reaching "Optimized" level in every category may not always be practical or beneficial (car oil change example)



Attribute	Score	Utility Business Practice Category			
		Element A	Element B	Element C	Element D
Optimizing	100				
	90				
	80				
Managed	70				
	60			■	
	50			■	
Defined Approach	40	■		■	
	30	■		■	
Initial	20	■	■	■	
No Defined Processes	10	■	■	■	■

7

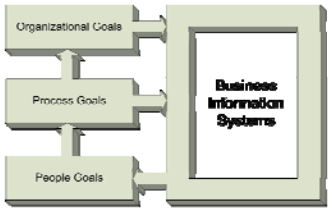
Organizational Structure Recommendations

8

Organizational

Task 3 – Review of Organizational Structures

- **Task Objective:** Review the organizational structure to better understand and define the levels of responsibility for the Utility, Finance, and other support services, at three levels of performance; strategic, process and staffing
  - Organizational Review
  - Business Process Review

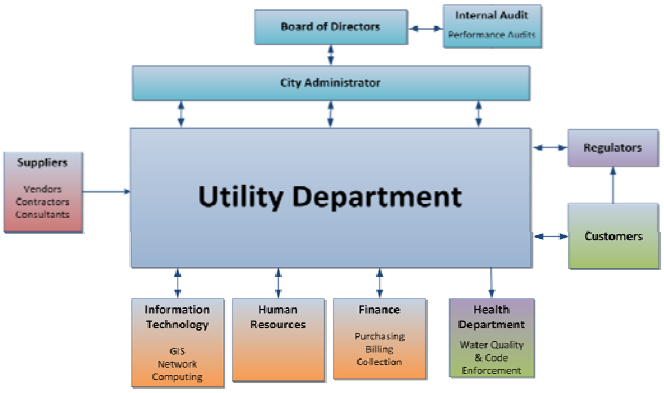


9

Organizational Interactions

Organizational

- Internal Interactions
- External Interactions



10

Strategic

- Business Plans
  - Strategic Management Plan
    - Levels of service – meet regulations
    - Define additional levels of service
    - Managing citizens service expectations
- Master Plans
  - Capital improvement plan
  - System needs analysis

11

Business Process

- Engineering
  - Project Management
  - Collection and distribution systems
  - Condition assessment
  - Data management
  - Inventory
  - Customer complaints

12

Business Process

- Meter Reading/Billing/Collection
  - Utility
    - Customer service
    - Meter reading
    - Meter installation and repair
    - Service termination (2-inch and larger meters)
  - Finance
    - New customer accounts
    - Maintenance requests
    - Service terminations (2-inch and smaller)
    - Collection
  - Data Tronics, Inc.
    - Billing
    - Customer Information
  - Information Systems
    - Lucity – work orders, cost of materials, inventory
    - Arc GIS
    - AutoCAD
  - Procedural documentation

13

Staffing

- Performance
  - Appraisals
  - Training
- Succession planning

14

Efficiency Evaluation

Efficiency Evaluations

- Defined Approach

Major Report Recommendations

Recommendation	Advantage	Investment Required
Develop an Asset Management Plan as part of the Utility Strategic Plan	Efficient and uniform data management; first step towards condition and risk assessments	Funding of an Asset management team for a year = $100,000
Include Asset Management information in the Capital Improvement Plan	Asset management/risk quantification plans allow resources to be assigned on a quantifiable and repeatable process.	Funding the creation of the plans would require significant investment (estimated $700,000); some staffing time

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Efficiency Evaluation (Cont'd)

Recommendation	Advantage	Investment Required
Create Levels of Service and a process for updating the targets as part of the Utility Strategic Plan.	Allows determination of goals for service levels, feedback, and cost comparisons for different service levels	Time and effort would require approximately $20,000
Improve the Utility Billing and Collection Process.	Improvements in efficiency in the meter reading process; provides ability to communicate consumption information	Other AMI studies have indicated capital costs in a range of $450 - $550 per meter; would require evaluation
Create a Succession Plan as part of the Utility Strategic Plan	Limit the strain when key members retire or leave; help to distribute institutional knowledge	Time and effort would require approximately $40,000

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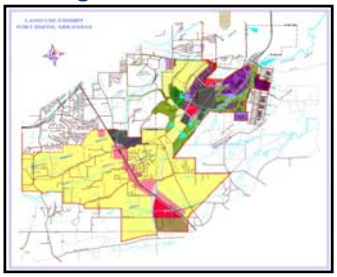
Planning Recommendations

HDR

Task 5 – Review of Planning

- **Task Objective:** Review and assess the City's past practices as it relates to water and wastewater master/comprehensive planning. The planning process influences and directly impacts the short and long-term efficiencies of the organization.
- Subtasks
  - Review of Demand Forecasts
  - Capital Planning Process
  - Financial Capability



The City of Fort Smith

HDR

Forecasting

- Water Demand
  - Population projections
  - Water demand projections
    - Historical demands
    - Future demand projections
- Wastewater Forecast
  - Historical
  - Future

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Forecasting (cont)

- Capital Planning
  - Review historical data
  - Review Master Plan documents
  - Review projects list
    - Current
    - Future
  - Compare needs to available funds
  - Senior staff prioritize projects
- Financial Capability
  - Water/Sewer revenue bonds
  - Sales and use tax construction funds
  - Financial capability testing

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Efficiency Evaluation

Efficiency Evaluations

- Defined Approach

Major Report Recommendations

Recommendation	Advantage	Investment Required
Identify infrastructure at risk to be included as repair and replacement projects in the CIP	Assign resources based on a quantifiable and repeatable process	Once asset management and risk quantification is implemented there is no additional cost to use it in the CIP planning process
Assess project management and staffing needs	Evaluation of project management can confirm if staff is being over/under utilized and if more staff are required	Study can be done in conjunction with performance reviews
Examine unaccounted for water	Detecting faulty meters early prevents the loss of revenue	Previous reports estimated $250/meter in 2003; Error of 1% of high use meters = $58,000 in savings

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Smith HDR

Water and Sewer Operations Recommendations

22

HDR

Task 4 – Review of Operations

- **Task Objective:** Review the key operating costs of the two water treatment facilities and the two wastewater treatment facilities. Key costs typically include chemicals, power, residuals disposal, and staffing.

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Water Operation

Lee Creek/Lake Fort Smith WTPs and Pump Stations

- Chemical Consumptions
- Power Consumption
- Residuals Disposal
- Staffing

24

Wastewater Operation

Operation

P Street/Massard WWTPs and Lift Stations

- Chemical Consumptions
- Power Consumption
- Residuals Disposal
- Staffing

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Efficiency Evaluation

Operation

Efficiency Evaluations

- Defined Approach

Major Report Recommendations - Water

Recommendation	Advantage	Investment Required
Develop a Watershed Control Program and a Combined Filter Performance Standard for an additional 1.0 log credit.	Help the Utility meet the LT2ESWTR regulation, without a capital upgrade. Development of Watershed Control Program is underway.	Cost of turbidity meters for filtration; cost of studies for regulatory approval. (avoids more costly capital expenditures)
Add an in-line raw water monitor for turbidity and/or pH.	Real-time information could be used to more adequately dose chemicals.	A 1% reduction in chemical would result in a savings of $11,000 annually at the water treatment plants.
Investigate a micro-turbine to see if it is cost-effective to take advantage of the head from the Lake Fort Smith Water Treatment Plant.	Makes use of the hydraulic energy already available in the pipeline	Payback would be defined in the study

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Efficiency Evaluation

Operation

Major Report Recommendations - Wastewater

Recommendation	Advantage	Investment Required
Investigate using the in-line chlorine analyzers for sodium bisulfite dosing	Flow pacing bisulfite based on chlorine demand can reduce chemical usage	Requires evaluation of existing equipment and some additional computer programming
The P St Plant could increase electrical efficiency through the addition of VFDs to blowers (if possible with operating conditions) and in-plant water pumps.	VFDs can decrease electrical usage and thus operating costs.	Initial Investment approaches $80,000; a 5% energy savings would result in an annual savings of $6,500/yr/blower and $1,700/yr/pump

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Finance/Rates Recommendations

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Review of Finance/Rates

- **Task Objective** – Provide a review of the role of finance and rates in the efficiency process. Identify areas of financial/rate deficiency and specific areas of potential improvement
- Subtasks
  - 6.1 – Benchmarking of Financial/Performance Indicators
  - 6.2 – Review of Current Financial Policies
  - 6.3 – Review of the Financial Planning Process
  - 6.4 – Review of Infrastructure Replacement Funding
  - 6.5 – Review of Debt/Rate Financing
  - 6.6 – Review of Rate Affordability

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Performance Measures

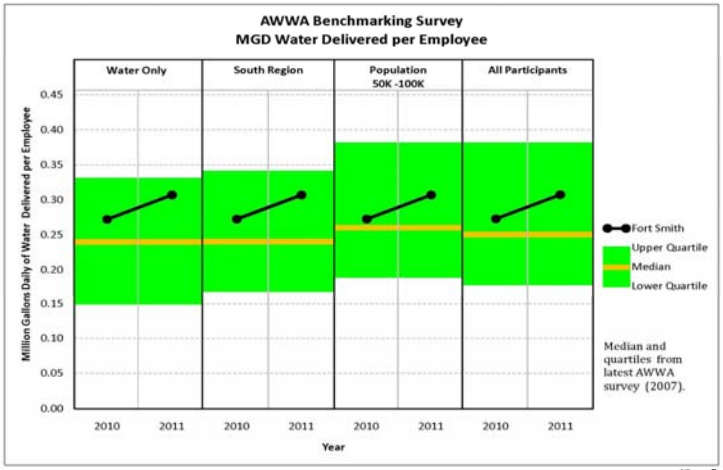
- Selection Process
  - HDR submitted list for City consideration
  - City reviewed 96 performance measures
  - City prioritized 12 measures from AWWA benchmarking report
- Selected Measures
  - Drinking Water Compliance Rate (% Days)
  - Sewer Overflow Rate
  - Distribution System Water Loss (%)
  - Sewer Treatment Effectiveness Rate (%)
  - Water Distribution System Integrity
  - Direct Cost of Water Treatment per MG
  - Direct Cost of Sewer Treatment per MG
  - Residential Cost of Water Service (Monthly for 7,500 gal)
  - Technical Water and Sewer Quality Complaints per 1000 Customers
  - Customer Water and Sewer Service Complaints per 1000 Customers
  - Cost / Bill
  - Bad debt or write-offs as a percentage of total annual billings

30

Water - Performance Measures Benchmarking

Finance/Rates

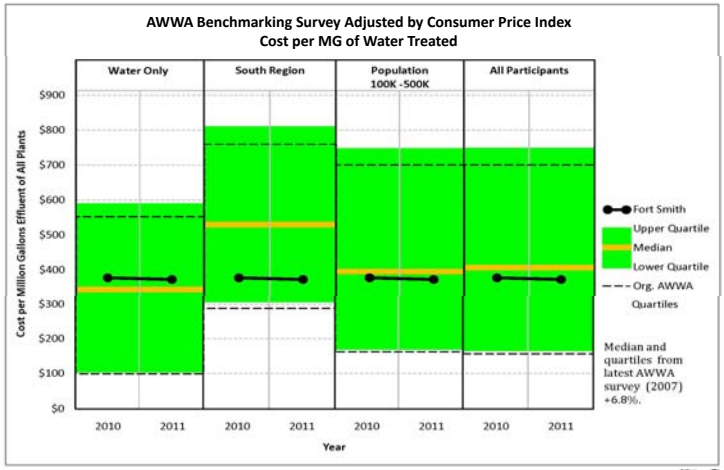
Million Gallons per Day Delivered per Employee



Water - Performance Measures Benchmarking

Finance/Rates

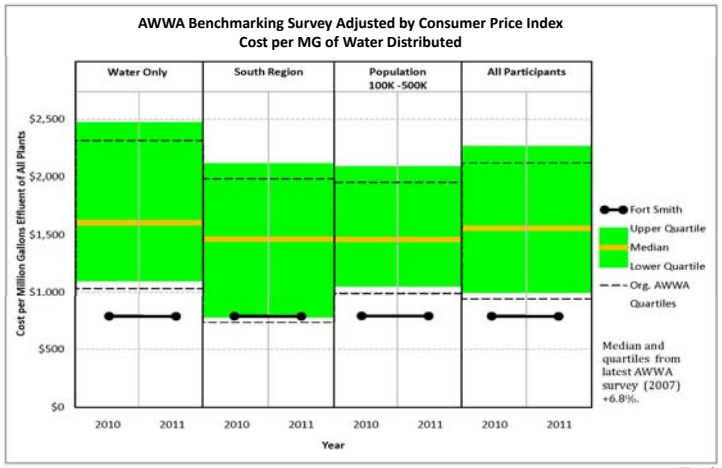
Cost per Million Gallons of Water Treated



Water - Performance Measures Benchmarking

Finance/Rates

Cost per Million Gallons of Water Distributed



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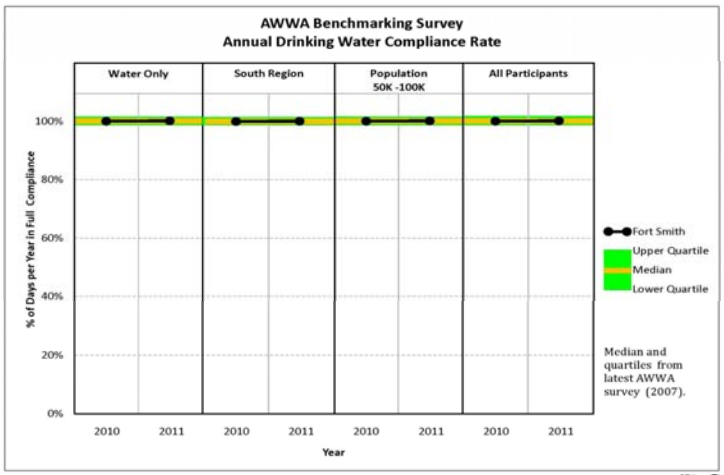
Water - Performance Measures Benchmarking

Finance/Rates

Percentage of Days in Regulatory Compliance



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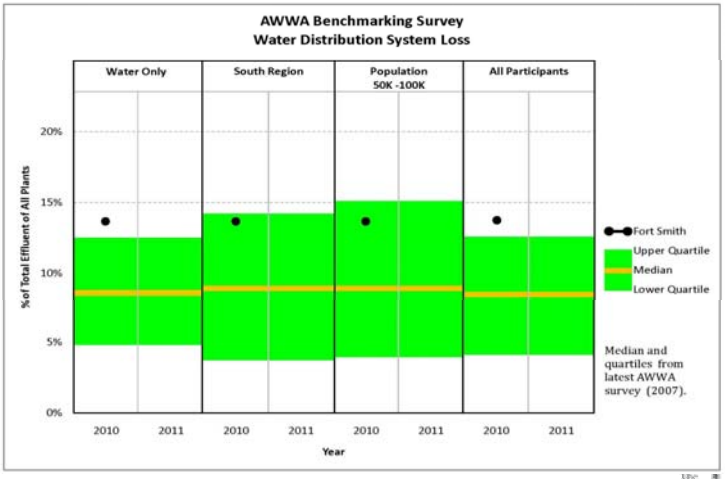
Water - Performance Measures Benchmarking

Finance/Rates

Percentage of Total Distributed Water Lost



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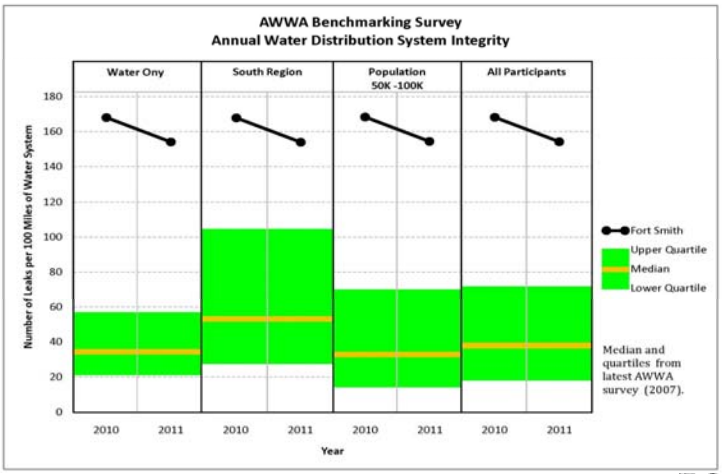
Water - Performance Measures Benchmarking

Finance/Rates

Distribution System Integrity: Number of Leaks and Breaks per mile of line



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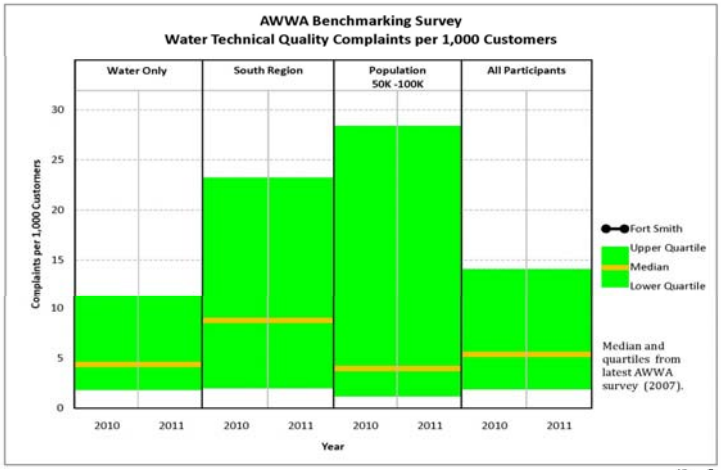
Water - Performance Measures Benchmarking

Finance/Rates

Technical Water Quality Complaints



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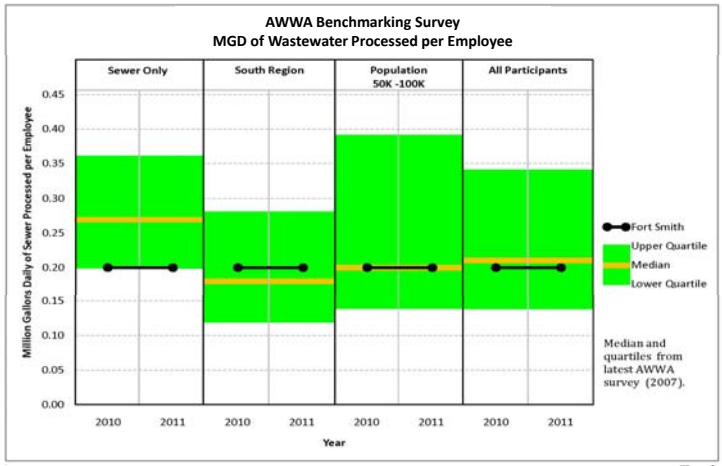
Wastewater - Performance Measures Benchmarking

Finance/Rates

Million Gallons per Day Processed per Employee



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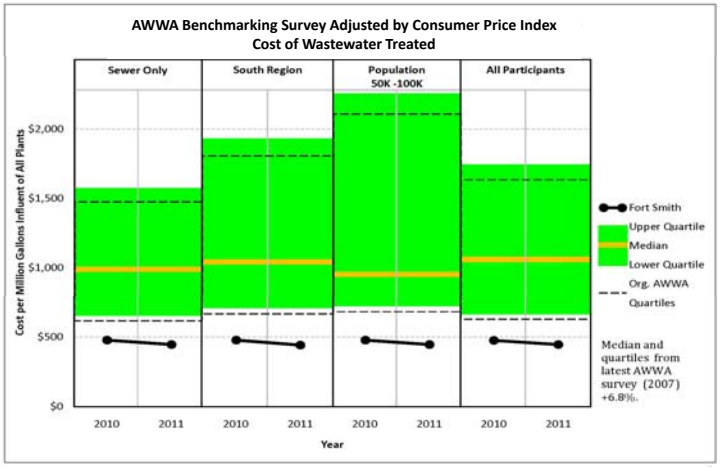
Wastewater - Performance Measures Benchmarking

Finance/Rates

Cost per Million Gallons of Wastewater Treated



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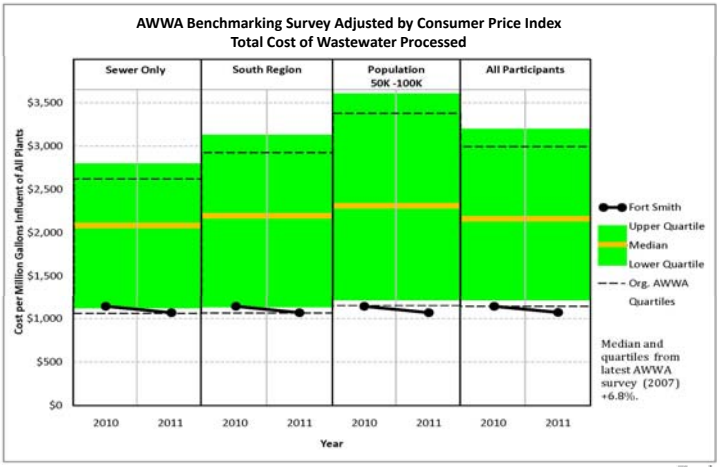
Wastewater - Performance Measures Benchmarking

Finance/Rates

Cost per Million Gallons of Wastewater Processed



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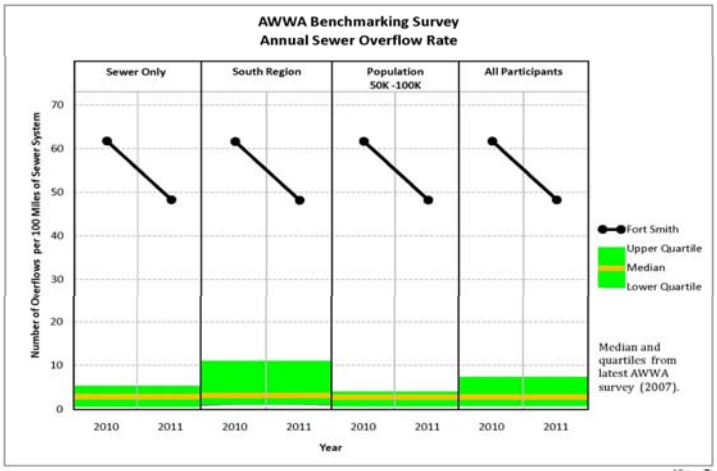
Sewer- Performance Measures Benchmarking

Finance/Rates

Annual Sewer Overflow Rate



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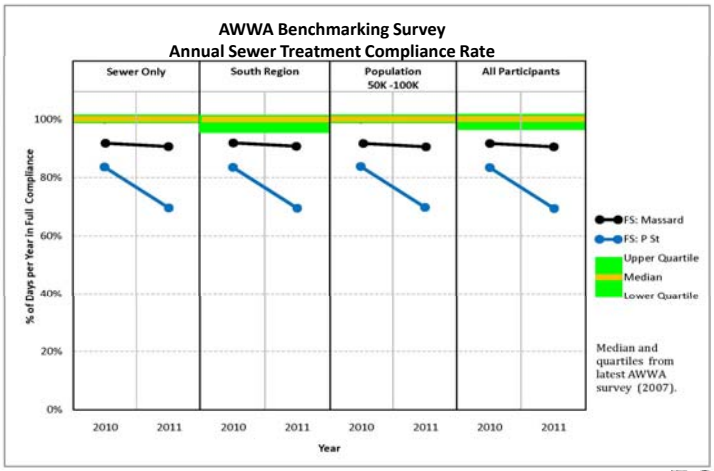
Sewer- Performance Measures Benchmarking

Finance/Rates

Annual Sewer Treatment Compliance Rate



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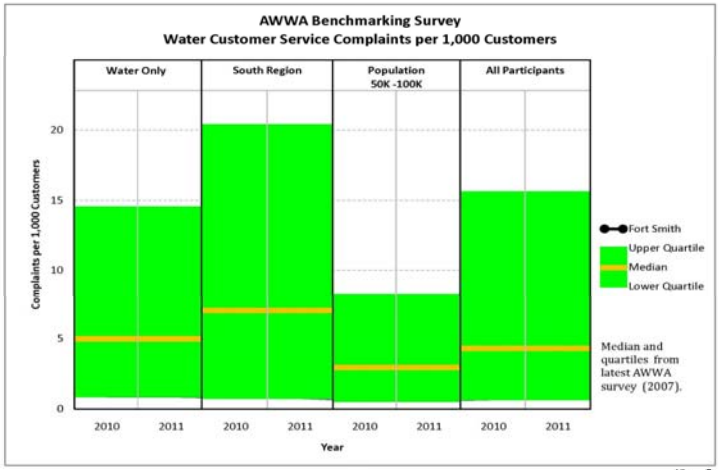
Performance Measures Benchmarking

Finance/Rates

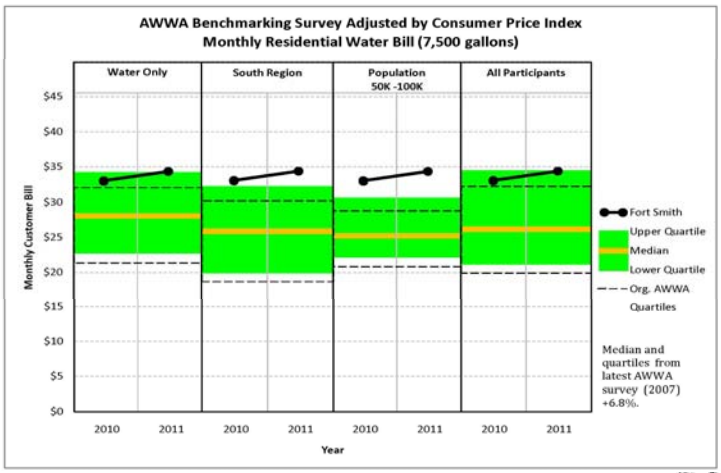
Customer Service Complaints



Water - Performance Measures Benchmarking

Finance/Rates

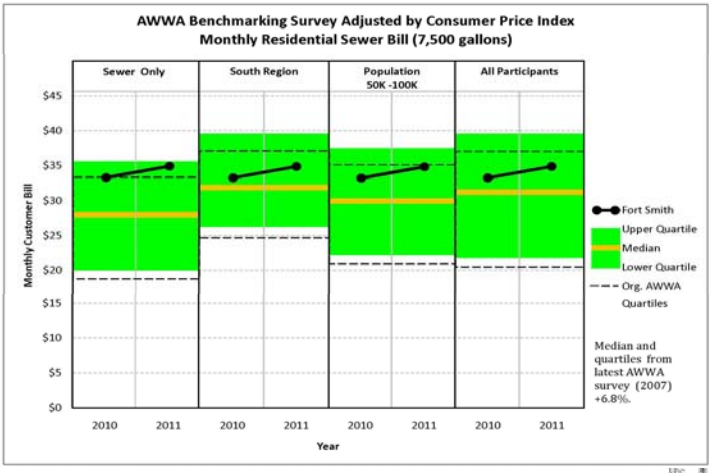
Monthly Residential Water Bill – ¾ Inch Meter



Sewer- Performance Measures Benchmarking

Finance/Rates

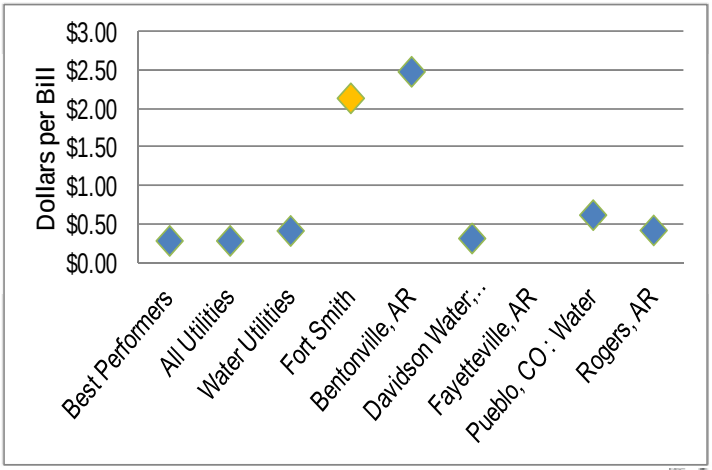
Monthly Residential Sewer Bill



Sewer- Performance Measures Benchmarking

Finance/Rates

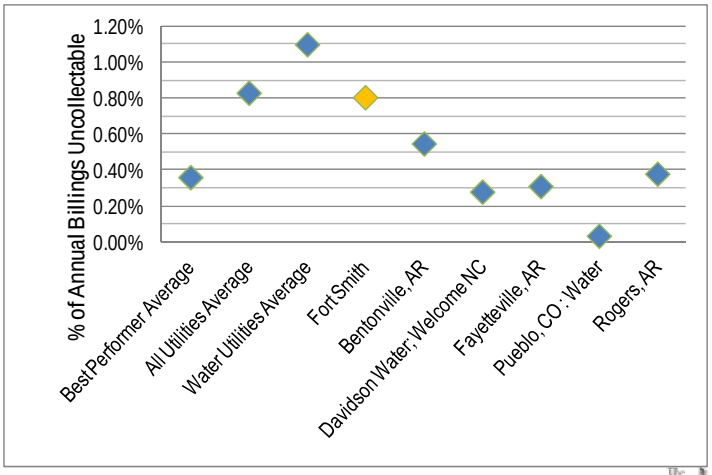
Cost per Issued Bill



Sewer- Performance Measures Benchmarking

Finance/Rates

Percentage of Total Billing that is Uncollectable



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Financial and Rate Setting Policies

Finance/Rates

- Foundation for financial stability
- Decision making framework
- Day to day financial management
- Utility Specific Policies
  - Management of funds
  - Reserve levels
  - Capital funding/financing
  - Renewal and replacement funding
  - Debt financing
  - Rate setting process
  - Affordability
  - System development charges

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Rate Affordability

Finance/Rates

City of Fort Smith
Review of Utility Rate Affordability

		Range of Affordability		
		1.50%	2.00%	2.50%
Median Household Income	$36,200			
Annual Bill at Affordability Limit		$543.00	$724.00	$905.00
Monthly Bill at Affordability Limit		$45.25	$60.33	$75.42
Water Utility				
Residential rate: 3/4" meter, 7,500 gallons - 2011 was $23.77				
Average Rate - 2011 - 2015; 5-year period	**$33.07**	Pass	Pass	Pass
Percentage of median household income	**1.10%**			
Sewer Utility				
Residential rate: 3/4" meter, 7,500 gallons - 2011 was $25.51				
Average Rate - 2011 - 2015; 5-year period	**$33.61**	Pass	Pass	Pass
Percentage of median household income	**1.11%**			

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Efficiency Evaluation

Finance/Rates

Recommendations

- Continue collecting and developing performance measures.
  - The Utility should collect data for the performance measures that have been identified for tracking.
  - The Carnegie Mellon Capability Maturity Model can be used by the Utility to assess performance from year to year.
- The City should develop a set of financial and rate-setting policies to guide the decision making processes for the utilities. Most importantly, at a minimum the policies should address:
  - Reserve funds and minimum target balances
  - Funding renewal and replacement infrastructure projects at a minimum level equal to depreciation expense; gradually implementing this policy to avoid rate shock
  - For financial planning purposes, establish a target DSC ratio, above the minimum required rate covenant
  - Establish debt financing policies and targets, and review debt equity ratios.
  - Consider system development charges (connection charges) for both utilities
- Develop a long-term financial planning model (e.g. 10 – 20 years) to better understand the financial and rate implications of the City's long-term financing strategy and the issuance of debt.
- Continue to pursue outside funding sources for capital projects, grants and low-interest loans, to aide in keeping rates as low as possible.
- The rate model results presented to Council should provide the affordability test to help provide a context as to the appropriateness of the level of the rates.

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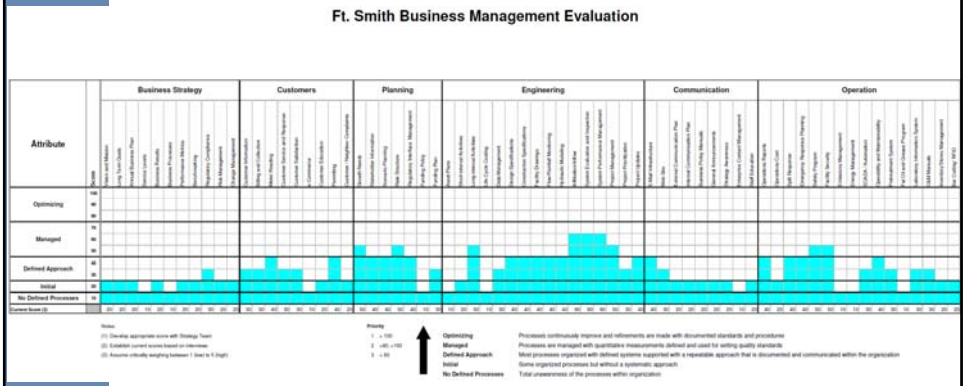
City Self Evaluation Tool



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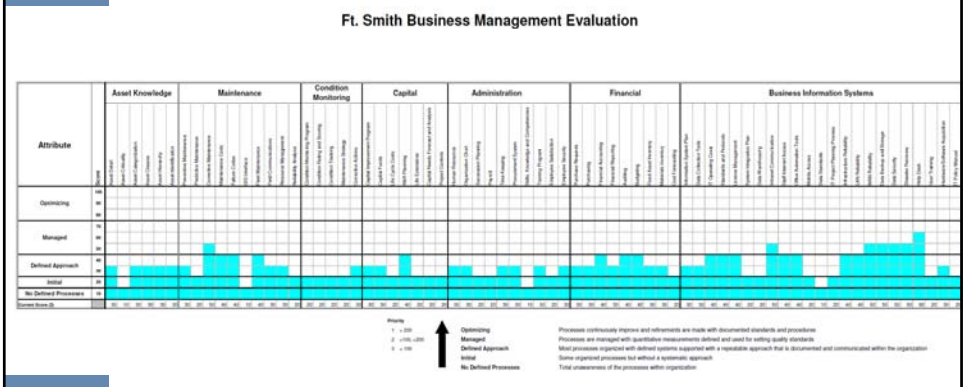
City Self Evaluation Tool



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Summary of Recommendations

Organizational Structure

- Develop an Asset Management Plan as part of the Utility Strategic Plan with demonstrated commitment from management and a system of continuous improvement.
- Include Asset Management information in the Capital Improvement Plan
- Create Levels of Service and a process for updating the targets as part of the Utility Strategic Plan.
- Improve the Utility Billing and Collection Process.
- Create a Succession Plan as part of the Utility Strategic Plan

Planning Process

- Assess project management and staffing needs.
- Examine water loss and better identify areas of unaccounted for water.
- Update Master Plans on regular intervals (i.e. 5 years)

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Water and Sewer Operations

Water Recommendations

- An additional 1 log credit can be obtained for the Lee Creek Treatment Facility by utilizing a Watershed Control Program and a Combined Filter Performance standard, which do not require large capital projects to be undertaken.
- Respond more quickly to changing influent conditions through the addition of in-line raw water monitoring for turbidity and/or pH. These samples are currently lab tested and returned.
- A micro-turbine should be investigated to see if it is cost-effective to take advantage of the head from the Lake Fort Smith Water Treatment Plant.

Wastewater Recommendations

- Further investigation should be undertaken to see if using the in-line chlorine analyzer for sodium bisulfite could reduce the quantity of chemical used.
- The P St Plant could increase electrical efficiency through the addition of VFDs to blowers (if possible with operating conditions) and in-plant water pumps.

56

Finance and Rates

- Continue collecting and developing performance measures.
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  - Reserve funds and minimum target balances
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  - For financial planning purposes, establish a target DSC ratio, above the minimum required rate covenant
  - Establish debt financing policies and targets, and review debt equity ratios.
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- Continue to pursue outside funding sources for capital projects, grants and low-interest loans, to aide in keeping rates as low as possible.
- The rate model results presented to Council should provide the affordability test to help provide a context as to the appropriateness of the level of the rates.

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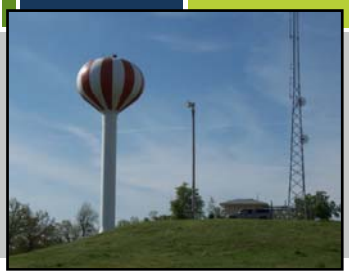
Next Steps



- Committee Feedback
- Recommendations to the Board of Directors
- Finalize Report

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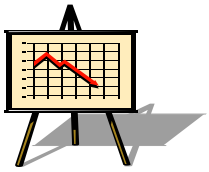
ADDITIONAL QUESTIONS??



Joint Meeting of the Board and Efficiency Study Committee

Water and Sewer Operations Efficiency Study

February 7, 2013




Presented by
Michelle Cernak, Citizen's Advisory Committee
Don Lindeman, P.E., HDR Engineering, Inc.
Tom Gould, HDR Engineering, Inc.

Overview of the Meeting

- Introductions and Purpose of the Study
- HDR Presentation
  - Defining Efficiency
  - Capability Maturity Model
  - Summary Recommendations
- Advisory Committee Discussion
  - Usefulness of the Report
  - Overview of Recommendations
  - Committee Recommendations
- Questions

2

Advisory Committee Members

- Dave Burrell
- Gary Campbell
- Michelle Cernak
- Tim Dooley
- Matthew Garner
- Patrick Jacobs
- Bruce King
- Bill Maddox
- Kevin Moran
- C. Leo Patterson
- Lorie Robertson

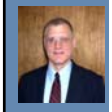
3

Key City Project Team Members

- Mitzi Kimbrough, CPA, Internal Auditor

- Ray Gosack, City Administrator

- Alie Bahsoon, Dept. of Finance; Purchasing Mgr.

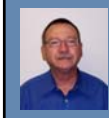


- Kevin Sandy, Rate & Financial Analyst

4

Key City Project Team Members

- Steve Parke, Director of Utilities



- Jack Dillon, P.E., Civil Engineer / Assistant Director of Utilities

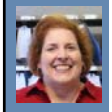
- Steve Floyd, Superintendent

- Leroy Jeremiah, Superintendent

5

Key City Project Team Members

- Bill Hon, Business Manager



- Kara Bushkuhl, Director of Finance

- Chuck Guillory, Collections Manager

- Jackie Joyce, Assistant Finance Director

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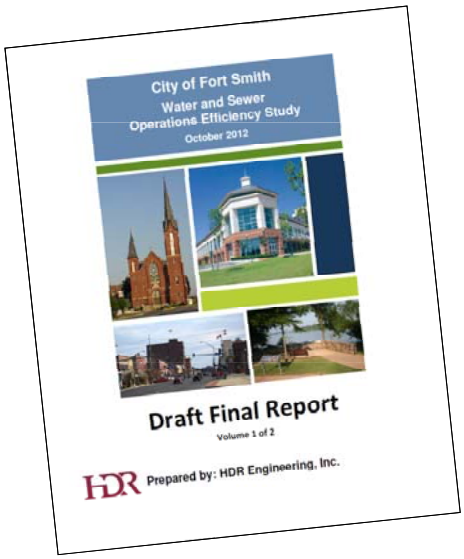
Overview of HDR's Efficiency Study



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Defining "Efficiency" and the Main Focus of this Study

- Efficiency can be defined in different ways
  - Improvements leading to direct cost savings
  - Improvement to a process leading to improved levels of service, but potentially not significant cost savings
- HDR's main focus of this study
  - Identification of those areas where major improvements can be made
    - Not intended to identify all areas, only those with significant potential (i.e. a "sifting" process)
    - City should begin with improvements to those areas with greatest potential
    - "Continuous improvement" and performance measurement should be an organization's culture

8

Gaining Efficiency – Sources of Cost/Rate Impacts

- Rate impacts are primarily driven by:
  - Regulatory requirements
  - Increasing energy, chemical, fuel prices
  - Bond covenants – need to meet debt service coverage

Costs outside the control of the City

  - Operating costs – electrical usage, chemical consumption, wages/benefits, etc.
  - Growth/expansion
  - Capital improvement plans
  - Utility programs
  - Financial policies

Costs managed and controlled by the City (where major efficiencies may be found)

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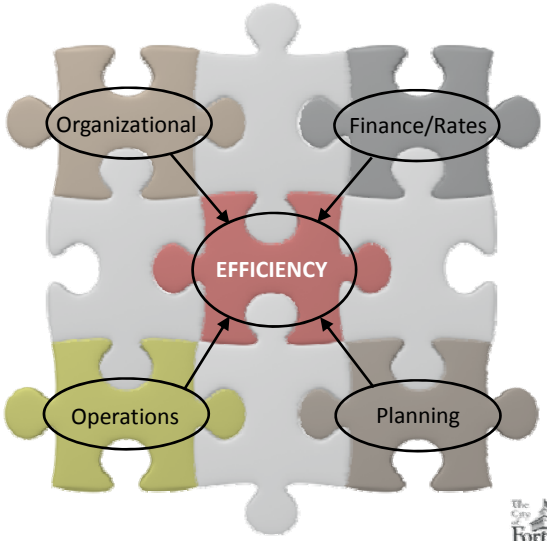
Overall Efficiency

Putting the Pieces of the Puzzle Together



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Efficiency Evaluation

Most Efficient

Least Efficient

Capability Maturity Model – Carnegie Mellon

Level	Definition
Optimized	Continual improvement and refinement with documented standards and procedures
Managed	Quantitative measurements are defined and used for business improvement and setting quality standards
Defined Approach	Defined systems supported with a repeatable approach that is documented and communicated within the organization
Repeatable	Reactionary and without a documented approach
Initial	Limited awareness within organization

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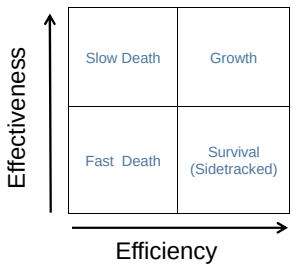
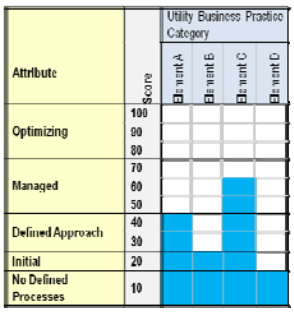
Efficiency Evaluation

- Efficiency Evaluations of Cities are subjective
  - Based on interviews with City staff as well as documents such as water and wastewater master plans
  - HDR conducted evaluation based on information provided, internal discussions, and professional experience
- Reaching "Optimized" level in every category may not always be practical or beneficial





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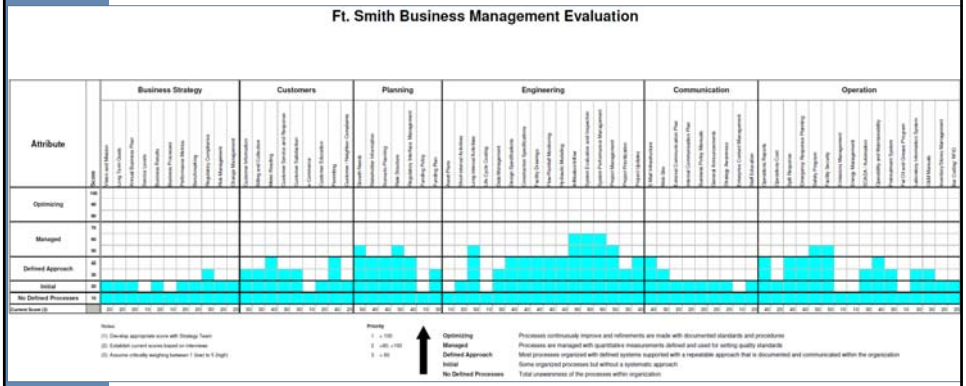
City Self Evaluation Tool



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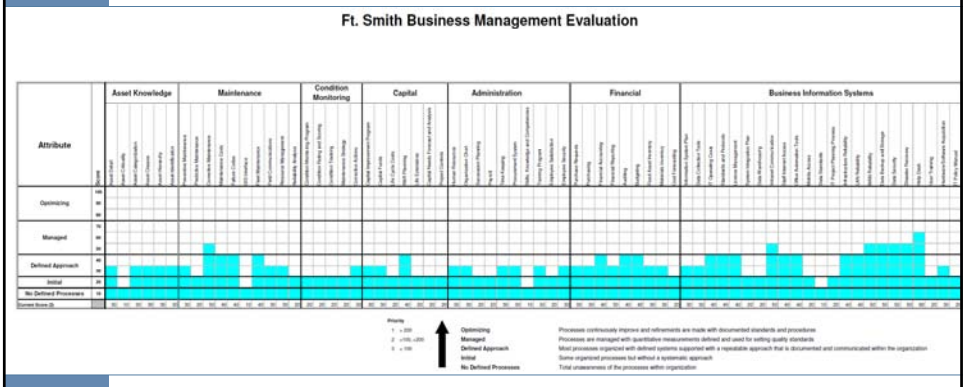
City Self Evaluation Tool



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Organizational Structure Recommendations

Efficiency Objective: Review the organizational structure to better understand and define the levels of responsibility for the Utility, Finance, and other support services, at three levels of performance; strategic, process and staffing

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Efficiency Evaluation

Organizational

Major Report Recommendations - Organizational

Recommendation	Advantage	Investment Required
Develop an Asset Management Plan as part of the Utility Strategic Plan	Efficient and uniform data management; first step towards condition and risk assessments	Funding of an Asset management team for a year = $100,000
Include Asset Management information in the Capital Improvement Plan	Asset management/risk quantification plans allow resources to be assigned on a quantifiable and repeatable process.	Funding the creation of the plans would require significant investment (estimated $700,000); some staffing time

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Efficiency Evaluation (Cont.)

Recommendation	Advantage	Investment Required
Create Levels of Service and a process for updating the targets as part of the Utility Strategic Plan.	Allows determination of goals for service levels, feedback, and cost comparisons for different service levels	Time and effort would require approximately $20,000
Improve the Utility Billing and Collection Process.	Improvements in efficiency in the meter reading process; provides ability to communicate consumption information	Other AMI studies have indicated capital costs in a range of $450 - $550 per meter; would require evaluation
Create a Succession Plan as part of the Utility Strategic Plan	Limit the strain when key members retire or leave; help to distribute institutional knowledge	Time and effort would require approximately $40,000

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Water and Sewer Operations Recommendations

Efficiency Objective: Review the key operating costs of the two water treatment facilities and the two wastewater treatment facilities. Key costs typically include chemicals, power, residuals disposal, and staffing.

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Efficiency Evaluation

Operation

Major Report Recommendations - Water

Recommendation	Advantage	Investment Required
Develop a Watershed Control Program and a Combined Filter Performance Standard for an additional 1.0 log credit.	Help the Utility meet the LT2ESWTR regulation, without a capital upgrade. Development of Watershed Control Program is underway.	Cost of turbidity meters for filtration; cost of studies for regulatory approval. (avoids more costly capital expenditures)
Add an in-line raw water monitor for turbidity and/or pH.	Real-time information could be used to more adequately dose chemicals.	A 1% reduction in chemical would result in a savings of $11,000 annually at the water treatment plants.
Investigate a micro-turbine to see if it is cost-effective to take advantage of the head from the Lake Fort Smith Water Treatment Plant.	Makes use of the hydraulic energy already available in the pipeline	Payback would be defined in the study

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Efficiency Evaluation

Operation

Major Report Recommendations - Wastewater

Recommendation	Advantage	Investment Required
Investigate using the in-line chlorine analyzers for sodium bisulfite dosing	Flow pacing bisulfite based on chlorine demand can reduce chemical usage	Requires evaluation of existing equipment and some additional computer programming
The P St Plant could increase electrical efficiency through the addition of VFDs to blowers (if possible with operating conditions) and in-plant water pumps.	VFDs can decrease electrical usage and thus operating costs.	Initial Investment approaches $80,000; a 5% energy savings would result in an annual savings of $6,500/yr/blower and $1,700/yr/pump

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Planning Recommendations

Efficiency Objective: Review and assess the City's past practices as it relates to water and wastewater master/comprehensive planning. The planning process influences and directly impacts the short and long-term efficiencies of the organization.

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Efficiency Evaluation

Planning

Major Report Recommendations - Planning

Recommendation	Advantage	Investment Required
Identify infrastructure at risk to be included as repair and replacement projects in the CIP	Assign resources based on a quantifiable and repeatable process	Once asset management and risk quantification is implemented there is no additional cost to use it in the CIP planning process
Assess project management and staffing needs	Evaluation of project management can confirm if staff is being over/under utilized and if more staff are required	Study can be done in conjunction with performance reviews
Examine unaccounted for water	Detecting faulty meters early prevents the loss of revenue	Previous reports estimated $250/meter in 2003; Error of 1% of high use meters = $58,000 in savings

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Finance/Rates Recommendations

Efficiency Objective – Provide a review of the role of finance and rates in the efficiency process. Identify areas of financial/rate deficiency and specific areas of potential improvement

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Efficiency Evaluation

Finance/Rates

Major Report Recommendations – Finance/Rates

Recommendation	Advantage	Investment Required
Continue Collecting Performance Measures	Ability to compare performance to other utilities and measure internal improvements	Need to maintain City data in suitable format, gather data from other utilities and develop analyses
Develop a set of written financial and rate setting policies	Provides clear policy guidance to management of the financial planning and rate setting process. Creates a foundation for consistent and logical decisions by the Board.	Time and effort required to establish initial written policies. Could be developed during the budgeting or rate setting process.

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Efficiency Evaluation (cont.)

Recommendation	Advantage	Investment Required
Develop a long-term financial planning model (e.g. 10 – 20 years)	Better understand the financial and rate implications of the City's long-term financing strategy and the issuance of debt	$20,000 to $40,000 depending upon the complexity of the model. May be developed as a part of a comprehensive rate study.
Monitor "affordability" within the rate setting process	Provides the Board and outside regulators with an understanding of the community's "affordability" of capital programs and rates	Minimal

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Efficiency Evaluation (cont.)

Recommendation	Advantage	Investment Required
Review the City's policy on the cost of growth and new connections (i.e. system development charges / connection fees)	Opportunity to review the costs of growth and the sharing of costs between existing and new customers connecting to the system	A system development charge study to determine costs of growth on an equivalent residential unit (ERU) basis would likely be less than $50,000
Evaluate the use of debt and rate financing for capital improvements. Continue to pursue grants and low interest loans to minimize borrowing costs	Clarifies the City's use of long-term debt and the financial/rate impacts of the City's current financing strategy	Evaluation of the use of long-term debt is included within the financial planning/modeling process

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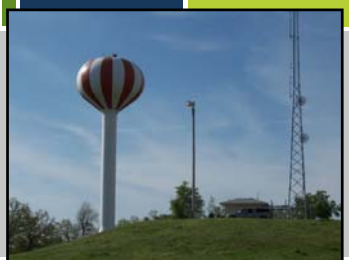
Advisory Committee Summary Findings and Recommendations



- Usefulness of the Report
- Overview of Recommendations
- Committee Recommendations

Advisory Committee Recommendations

- Set timetable to implement review points
- Departmental Report of Achievements
- Identify Board Policy Actions and Timetables

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QUESTIONS??