

## Water Provider Task Force

May 23, 2018

# **Historical Information**

- Water Commission established in 1947
- Sewer Committee created in 1970
- Water & Sewer Commission combined in 1987
- Commissions abolished in 1991; a Water and Sewer Advisory Commission was created
- Advisory Commission was abolished in 1994; a new Water and Sewer Commission was created

# **Historical Information**

- Ordinance creating new Commission was repealed in 1995 prior to its formation
- Commission recreated in July 1995 by Ordinance 4493

   effective January 1996
- Ordinance 4493 was referred to the people and a referendum election was held November 1995
- Ordinance repealed: 72% residents voted against

## CHS Water and Wastewater Master Plan 2004-2024



#### Excerpt from 2004 – 2024 Master Plan

#### Executive Summary – Page 4

#### WATER SUPPLY

The growth of the City's water system requires that adequate water supply is available. For long-term planning, a utility should look at water supply for a longer period than 20 years. It is typical for a water supply to meet a 50-year demand. Entergy has indicated that the City should review other sources for the long-term water supply. The City of Hot Springs is part of the Mid-Arkansas Water Alliance (MAWA), which is attempting to obtain water allocation rights from Lake Ouachita and Greers Ferry. The City has requested fifteen (15) million gallons daily from the available MGD in Lake Ouachita. That request may be increased based on a recent study for MAWA, which indicated that Central Arkansas Water (CAW) already has more supply available than their projected 50-year demand. Status of the process to obtain Lake Ouachita water is dependent on the Corps of Engineers Study which is not complete at this time. For planning period (2004-2024), the City does not have an adequate supply through the Lake Ricks, Lake Dillon, and Lake Sanderson system and the contract with Entergy for Lake Hamilton water. The City is reviewing all available options to secure the water supply for both the 20-year planning period and a 50-year period, including DeGray Lake via the Ouachita River Water District.

#### Excerpt from 2004 – 2024 Master Plan

#### Executive Summary – Page 5

#### WATER TREATMENT FACILITIES

The water treatment facilities consist of the Ouachita and Lakeside Water Treatment Plants. The plants have a combined output of 25.5 million gallons. The Ouachita plant currently has a maximum rate of 20 million gallons per day. The Lakeside plant can treat up to 5.5 million gallons per day, but is limited due to water supply. The projected water demands will require additional treatment capacity to meet the demands for the planning period. Both plants can be expanded to meet the requirements of the planning period, but only if additional raw water supply is made available. The most logical option is Lake Ouachita. If an increase in raw water supply is not available from Lake Ouachita, the City should consider contracting for DeGray Lake and construct facilities to deliver treated water to the system. Until future water supply has been secured, it is not possible to accurately project the capital costs of water treatment facilities for the planning period.

#### Excerpt from 2004 – 2024 Master Plan

#### Executive Summary – Page 10

#### **GROWTH PROJECTIONS**

The City's existing system limits growth in the southern half of the system due to pressure and storage requirements. The City cannot continue to add customers without adversely affecting the City's current customers. The main components of the existing system are located in its north end. The southern portion of the distribution system is fed from the north end tanks, which creates a situation of low pressure and low volume during peak usage periods in the southern portion.

#### **MID-ARKANSAS WATER ALLIANCE**



#### Northern Working Group

Bayou Two Central Arkansas Water Lonoke Perryville Ward Community Water System Conway Corporation Conway County Regional WDD Grand Prairie Regional WDD Grand Prairie Regional Water Dist. Heber Springs Water & Sewer Jacksonville Lonoke-White Pub. Water Authority Maumelle North Pulaski

#### Southern Working Group

**Central Arkansas Water** 

Saline Water Alliance\*

Hot Springs

**Hot Springs Village** 

North Garland County



\*Benton, Bryant, Haskell, Shannon Hills, Salem Water Users Association, Saline County Waterworks, Sardis Water Association, and Southwest Water Association

MAWA represents 750,000 consumers.

#### MAWA ALLOCATION REQUESTS FROM LAKE OUACHITA

(no Congressional Allocation for Municipal Supply)

City of Hot Springs	8.75	MGD
Saline Water Alliance	8.75	MGD
<b>Central Arkansas Water</b>	1.0	MGD
Hot Springs Village	0.5	MGD
Other	1.0	MGD

Total MAWA Allocation20 MGDADDITIONAL CITY REQUEST7.0 MGD

#### WATER SUPPLY AVAILABLE IN DEGRAY LAKE

(Congressionally Authorized for Municipal Supply)

Total Storage Available152 MGDCentral Arkansas Water120 MGD(Hot Springs Request = 20 MGD from CAW)City of Bryant15 MGDKimzey Water District6 MGDOther11 MGD

#### **Historical Facts and Direction of Study**

- MAWA Comprised of 27
   Water Utilities in 8
   Counties
- USACE Planning Assistance to States Study
   recommended MAWA to
   pursue storage in Lake
   Ouachita (2001)
- In 2004, MAWA requested storage in Lake Ouachita, setting the reallocation study & NEPA process in motion



8 Counties of MAWA

### Water Supply in a Multipurpose Project

Flood Control Storage

Water Supply (North Garland Regional Water District)

#### Hydropower Pool

Sediment

#### Issues

- In May 2006, a risk assessment screening was performed for Blakely Mountain Dam at Lake Ouachita. The screening categorized Blakely Mountain as Dam Safety Action Classification II (DSAC II), which is considered to be "unsafe or potentially unsafe."
- Consequently, the DSAC II classification after the completion of the report makes the flood pool storage reallocation at Lake Ouachita no longer feasible under these conditions.
- MAWA members have requested a hydropower pool reallocation at Lake Ouachita and are no longer seeking a flood pool reallocation.

#### **Reallocation from Hydropower Pool**

#### **Flood Control**

Water Supply (North Garland)

#### Hydropower Pool

Hydropower

#### Existing

#### **Flood Control**

Water Supply (North Garland)

Reallocation

Hydropower Pool

Hydropower

Modified

# When do we need to plan for more water?

 Arkansas Department of Health recommends 80% of the 25 MGD maximum production, or 20 MGD, as a valid planning point for more water



#### Water Supply Storage Reallocation for the Mid-Arkansas Water Alliance (MAWA)

Lake Ouachita, Arkansas

Colonel Jeffrey R. Eckstein Commander, Vicksburg District 28 February 2013



US Army Corps of Engineers BUILDING STRONG.

### **Elements of Reallocation Reports**

- Purpose and background
- Water supply demand analysis
- Alternative water supply sources
- Storage-yield analysis
- Evaluation of impacts
  - Other project purposes
  - Life & safety
  - Environment
- Cost of Storage
- Test of Financial Feasibility



Photo by Dan Valovich

#### Water Reallocation Study - Milestones



### **Key Decisions**

- What water demand(s) will be considered in this reallocation report?
- What is the most likely alternative to supply the demand without reallocation?
- What amount of storage would be needed to meet the requested demand?
- Can we accommodate the request without major structural or operational modifications to the project or seriously affecting other project purposes?
  - How will we assess impacts to hydropower and other project purposes?
- What is the cost of storage to the sponsor?
- Should we permanently reallocate storage at the project for M&I water supply?

#### **Reservoir Simulation Model**

- Corps' Hydrologic Engineering Center program "ResSim"
  - Mathematical simulation of operating Blakely Dam
  - There is no existing model
- Inputs
  - Hydrology
    - Lake inflow provided by MVK database
    - Elevation storage curves for all projects
    - Gage data for Malvern
    - Calculate intervening inflow
  - Reservoir operating rules
    - Releases from Lake DeGray
- Output

#### **H&H** Appendix

#### Hydrologic Analysis

- Sediment
- Spillway Adequacy
- Yield-Storage
- Alternatives
- Frequency
- Duration
- Hydraulic Analysis
- Results
  - Lake Ouachita frequency & duration
  - Ouachita River frequency & duration



#### **DeGray Lake**

- Municipal and industrial water supply added as a project purpose in 1962 (through Congressional action).
- Does not require reallocation study.



#### Lake Ouachita

- Municipal and industrial water supply <u>NOT</u> a Congressionally authorized purpose. May be achieved through Chief's discretion.
- Will require reallocation study.

# Water SUPPLY AND DEMAND: *A Review*



City of Hot Springs



#### **Current situational analysis**

- What is our service area both inside and outside city limits?
- What is our current maximum daily production?
- What are our maximum daily demands?



#### **Current situational analysis**

- How does sprinkler use affect overall water consumption?
- When and why do we need to plan for more water?
- What water management strategies can we employ until the water system is expanded?



#### **Current situational analysis**

- How effective is the AMI metering system?
- Are we reducing water system leaks?

#### HOW LARGE IS OUR WATER SYSTEM?



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#### HOW LARGE IS OUR WATER SYSTEM?



# WATER MANAGEMENT STRATEGY proposed 5-year plan, 2012-2017

**Enhanced Smart Meters** 

Water Main Replacement and Leak Repairs

Water Conservation and Irrigation Management

Plan for New Capacity- Crist Engineers

**Monitor New Connections and Capacity** 

Funding for New Capacity

Maximize Existing Plant Operation

**Expand Public Information** 

# Water Management Strategy 2012-2017

#### Enhanced Smart Meters Sensus Meters with AMI technology

### AMI SYSTEM: INFORMING THE PUBLIC

- Media releases
- News articles
- Dedicated Web page
- Local Cable TV and statewide news reports
- Talk radio program



• Interactive model at Customer Service

# Water Management Strategy 2012-2017

Water Main Replacement Aggressive Leak Repair Strategy

# WATER LEAK STUDY

- Study conducted September 2010 June 2011
- 2.1 MGD of leaks detected
- 14% lost to leaks
- Additional undiscovered leaks
  - Noise from smaller leaks is masked by the noise from larger ones
  - A repair causes stress on the next weak section of pipe



# LEAK REPAIR/LINE REPLACEMENT

- In 2010-2011, 1.3 MGD of leaks were repaired
- Larger leaks were repaired first
- Smaller leak repairs have higher cost/benefit ratio
- In addition to leak study, city staff repairs an average of almost one leak per day
- Follow-up Leak Study conducted in 2013



# LEAK REPAIR/LINE REPLACEMENT

- During the 2017 Water Leak Detection Investigation performed by RJN, 43 leaks and 3 defects were detected
- All identified leaks were repaired in that same year, resulting in a general reduction on production demand
- 2018: Water Leak Detection in progress

# LEAK REPAIR/LINE REPLACEMENT

- 2012-2016 | \$7M+ spent replacing old water mains
- In addition to repairing leaks, main replacements
  - Added fire hydrants
  - Created preventive maintenance
  - Increased volume
  - Implemented overall system improvements
- ~ \$500K invested in ongoing line replacement for 2018

# Water Management Strategy 2012-2017

Water Conservation Irrigation Management

### Water Conservation

- Water Conservation Policy HSC 9-4-12
- Tiered Rates
- 2006 Water Conservation Campaign
- 2011 Water Conservation Campaign
- 2012 Water Conservation Committee
- 2015 Wyland National Mayor's Water Challenge for Water Conservation (2<sup>nd</sup> Place)
- 2018 Wyland National Mayor's Water Challenge for Water Conservation

#### Fix the Leak, Save Resources, and Save Money.....



Large toilet-leak water bills happen to people all the time. Don't wait until you receive one. A leaking toilet is a lot more than just a nuisance. It could be robbing you of a lot of money.

Most toilets work alike. The tank contains two valves: a flush valve and a refill valve. Water can leak continuously from the tanks bottom into the bowl and out the main drain if the flush valve is out of alignment, cracked, or does not seal properly. If the flush valve becomes loose or breaks, water will run out of the tank as quickly as it comes in.

A serious flush valve leak can waste about 3 gallons per minute. If the refill valve does not shut off, water fills the tank until it reaches the opening of the overflow pipe and continues to run into the bowl and out the main drain....about ½ gallon per minute.

#### Flush Valve Leak - Residential

3	Gallons per minute
X 60	Minutes
180	Gallons/hour
X 24	Hours
4,320	Gallons/day
X 30	Days
129,600	Gallons/Month
-	Approximately \$394 per month inside city
	Approximately \$590 per month outside city

#### Refill Valve Leak - Residential

0.5	Gallons per minute
X 60	Minutes
30	Gallons/hour
X 24	Hours
720	Gallons/day
X 30	Days
21,600	Gallons/Month
-	Approximately \$ 64 per month inside city
	Approximately \$ 96 per month outside city

#### How to check your toilets for leaks....

- Remove the toilet tank lid
- Put 10 drops of food coloring in the tank
- Put the lid back on. Do Not Flush
- Wait at least 15 minutes, and then look in the bowl. If you see colored water, you have a leak.





#### Water Conservation

Good for you... good for our community

Water is one of our most valuable resources and is vital to our existence.

What can an individual or family do to help conserve water? By implementing the following water conservation tips, you may also help reduce your monthly water utility bill:

Check faucets for leaks. A slow drip can waste 15 to 20 gallons of water per day.



Put a bit of food coloring in each toilet tank and watch for a few minutes. Color in the bowl would indicate a toilet leak, which in turn could cause a loss of up to 100 gallons per day.



Keep showers to a reasonable length. Five minutes for showering and five inches in the tub are good guidelines to follow.



Water your lawn early or late in the day, rather than in the midday heat. After 10 a.m., evaporation robs the soil of moisture. Therefore, watering after this time does not get absorbed efficiently.



Use a broom instead of a hose to clean driveways, walks, and patios.



Wash your car on your lawn instead of your driveway.

#### Saving water saves all of us money

HOT

A message from the Hot Springs Utilities Department - 623-7483



If you have a sprinkler system, you may want to consider measures to save money on your monthly water bill. That means using your water wisely and selecting plant materials that require less water.

Most of Garland County is in Planting Zone 8. We have a humid, subtropical climate. Summers are typically hot and subject to drought. Winters are short and temperatures may vary from very cold to mild. Here are some suggestions on how to maximize the benefit from the money you spend.

#### Watering Systems

- Adjust your irrigation system with changes in weather. Water only when necessary. If it is raining, do not run the system. Consider a "rain shut-off" device to help.
- If you use a hose type sprinkler, use a timer to avoid running for excessive periods.
- Use soaker and drip irrigation hoses that limit water output.
- Operate your system in early morning hours to reduce evaporation.
- Water deep, but infrequently to encourage deep root growth.
- Keep your sprinkler system well maintained and efficient – check regularly for broken heads, blocked nozzles, leaks and faulty valves.
- DO NOT water driveways, sidewalks and streets.

#### Planning and Design

- Create a practical plan for design. You may wish to consider budget, appearance, maintenance and microclimate aspects such as sun, shade and slope within the area.
- Analyze your soil contact your local county Extension office for directions on collecting soil samples
- Add organic matter to the existing soil to help retain moisture. The City of Hot Springs operates a compost facility. Contact 501-802-1756 <u>http://www.cityls.net/240/Compost</u>
- Select drought-tolerant plants that grow well in this area.
- Consider using native plants that are already adapted to this plant zone.
- Use practical plant materials bermuda and zoysia are the two best types grasses for the hot, dry climate of this area; use ground covers, hardscapes or mulches in shaded areas.

- Try grouping plants together that have similar water needs.
- Use mulch to cover ground around plants to help reduce evaporation and discourage the growth of weeds.
- Prune lightly to shape and direct growth.
- Reduce weeds by hand pulling in the early stages.
- Apply nutrients only when needed and use a slow-release fertilizer.

#### Resources

The University of Arkansas Cooperative Extension Service offers a number of helpful programs and publications. Contact the Garland County, Arkansas Cooperative Extension Service located at 236 Woodbine in Hot Springs, AR 71901 or call (501)623-6841

#### http://www.uaex.edu/counties/garland/

Local nurseries are knowledgeable about plants that grow well in this area. Consult with your favorite garden center about drought-tolerant plants.



City of Hot Springs Municipal Utilities501.321.6200

# Water Management Strategy 2012-2017

#### Monitor New Connections and Capacity

## WHEN DO WE NEED TO PLAN FOR MORE WATER?

 Arkansas Department of Health recommends
 <u>80% of the 25 MGD maximum production</u>, or 20 MGD, as a valid planning point



# Excerpts from ADH letter dated 03/02/18

- "We concur that the maximum sustainable flows are 21 MGD for OWTP and 4 MGD for LWTP based on optimum source water and facility conditions."
- "These factors are the reason that when the usage demands of a water utility exceed 80% of the ADH approved capacity, we strongly encourage the Utility to begin planning for increasing source, treatment and distribution capacity to ensure that current and future water demands can be met and sustained. Delaying this planning may lead to demands out pacing the supply and treatment capacity and result in ADH issuing conservation orders and new extension and connection restrictions."
- "We commend Hot Springs Utilities for consistently ensuring water quality standards are met and diligently working to address the needed water source, treatment and distribution improvements to ensure user demands can continue to be met now and in the future."

#### WATER CAPACITY EXPANSION TIMELINE



# **Other Obligations Considered**

- Current approved subdivisions with unbuilt lots
- Royal Water Public Facilities agreement
- Ongoing requests for service and how we could accommodate without overextending production and putting all users at risk

# **Approved Subdivisions**

- In 2013, there were more than 2,000 approved lots in various subdivisions
  - 1,050 were built upon and a remaining 988 approved connections had yet to be built

## **Royal Water Public Facilities Board**





# IMPROVEMENT DISTRICTS

- Several Water Improvement Districts remain open
- City will honor those agreements
- Obligation to Royal Water Facilities Board
- Improvement District Boundaries







# **POLICY CONSIDERATIONS**

- Size of the system
- Approved subdivision lots
- Obligation to Royal Water Facilities Board
- Open Water Improvements Districts
- Status of Water Capacity and Demand
- Water Capacity Expansion Timeline

- Currently found in HSC 9-5-1
- Ord. 5555 was first ordinance passed in 2007
- Ord. 5931 amended Ord. 5555 in 2013
- Ord. 6170 repealed Ord. 5931 in 2016
- Ord. 6199 amended Ord. 6170 in 2017
- Ord. 6270 amended Ord. 6199 and 6170 in Oct. 2017

Water and wastewater services extensions and connections will continue as usual for the following:

- NEW OWNER OCCUPIED HOMES. Proposed single family or singleowner homes, both inside or outside the city limits.
- NEW BUSINESSES. Proposed new businesses inside the city limits.
- NEW CITY SUBDIVISIONS. Proposed new subdivisions inside the city limits.
- VACANT LOTS IN EXISTING SUBDIVISIONS. Lots in existing subdivisions inside or outside the city limits.
- SUBDIVISIONS IN PROGRESS. When a subdivision inside or outside the city limits has been properly approved by the Planning Commission and CHS Utilities.

- MAIN EXTENSIONS FOR OWNER OCCUPIED HOMES
- ROYAL WATER SYSTEM: The CHS will honor the agreement to provide water connections in the Royal water system
- SEWER IMPROVEMENT DISTRICTS: CHS will honor the agreement to accept wastewater connections in these wastewater districts
- In order to reserve capacity, water and wastewater extensions will not be approved for other projects until funding and capacity issues are resolved.
- Specifically, water/wastewater extensions will not be approved for:
  - New subdivisions or developments outside the city limits
  - Extension of mains outside the city limits to serve single homes or businesses

#### **ADDENDUM TO POLICY**

WAIVER FOR THE SIX MONTH PERIOD FROM NOV. 1, 2013 UNTIL MAY 1, 2014 FOR RESIDENTIAL SUBDIVISIONS WITH LESS THAN 20 LOTS; AND FOR EXTENSIONS TO RESIDENTIAL PROJECTS AND RESIDENTIAL SPRINKLER METERS; FOR ANY CONFLICTS WITH EXISTING POLICY, THIS ADDENDUM SHALL GOVERN.

# 2016 CHS WATER CONNECTION AND EXTENSION ORDINANCE

#### Ord. 6170 of October 2016

- Provided definitions
- Gave administrative approval for connections/extensions to City manager or designee; set application fees
- Provided for single family connections outside city limits for each lot of record
- Provided for commercial connections of one 5/8" water meter and one wastewater connection outside city limits for each lot of record and within adopted ETJ

# 2016 CHS WATER CONNECTION AND EXTENSION ORDINANCE

#### Ord. 6170 of October 2016

- Set additional guidelines for connection eligibility, primarily requiring access from public street or roadway
- Provided for connections/extensions to eliminate health hazards and corrections to non-compliant connections and/or service lines
- Set appeal process

Ord. 6199 of June 2017

 Enhanced provisions for correcting connections/extensions to eliminate health hazards and to non-compliant connections and/or service lines by extending the length of main extensions to 500 ft.

#### Ord. 6199 of October 2017

- Updated definitions
- Added approvals for schools, higher education institutions and state-licensed healthcare facilities
  - Cutter Morning Star School passed mileage in September
     2017 for improvements that would require extensions,
     upsizing, fire hydrants and fire suppression system.

#### **APPLICATIONS FOR WATER SERVICE**

#### April 1, 2013 to April 30, 2018

Commercial Applications	Approved	Denied	Approved
Inside City	159	1	99%
Outside City	72	7	91%
Residential Applications	Approved	Denied	Approved
Inside City	525	4	99%

### BUILDING PERMIT VALUATIONS

YearValuation2018\$49,289,686201721,360,805201616,597,902201519,393,755

### 2017 HOUSING MARKET REPORT

New and Existing Residential Units Sold, December 2017						
County	YTD '17	YTD '16	% Change			
Garland	1591	1459	9.05%			
Values of New and Existing Residential Units Sold, December 2017						
County	YTD '17	YTD '16	% Change			
Garland	\$21,756,606	\$17,768,744	22.44%			
Average Prices of New and Existing Residential Units Sold, December 2017						
County	YTD '17	YTD '16	% Change			
Garland	\$ 189,928	\$ 167,884	13.13%			
2017 Housing Market Report from Arkansas REALTORS® Association						

# **CURRENT STATUS**

- Pursue of Lake Ouachita as the next water supply
  - In May, 2017, CHS signed an agreement with MAWA for 23 MGD storage
- Passed Rate ordinance | November 2017 Bond ordinance | April 2018.
- Crist engineers' work
  - water treatment plant, intake site, design options for raw and potable water transmission mains
- Estimated completion 2022-2023

## **CURRENT STATUS**

- Honor current obligations for water connections
- Continue pursuit of UAW decreases (leak studies, leak repairs and line replacements)
- Continue water conservation program
- Continue to monitor connections and capacity

