

History of Augusta's Waterworks

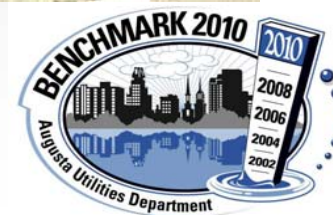
Presented for

AUD Leadership Training



**Drew Goins, Interim Director
Augusta Utilities**

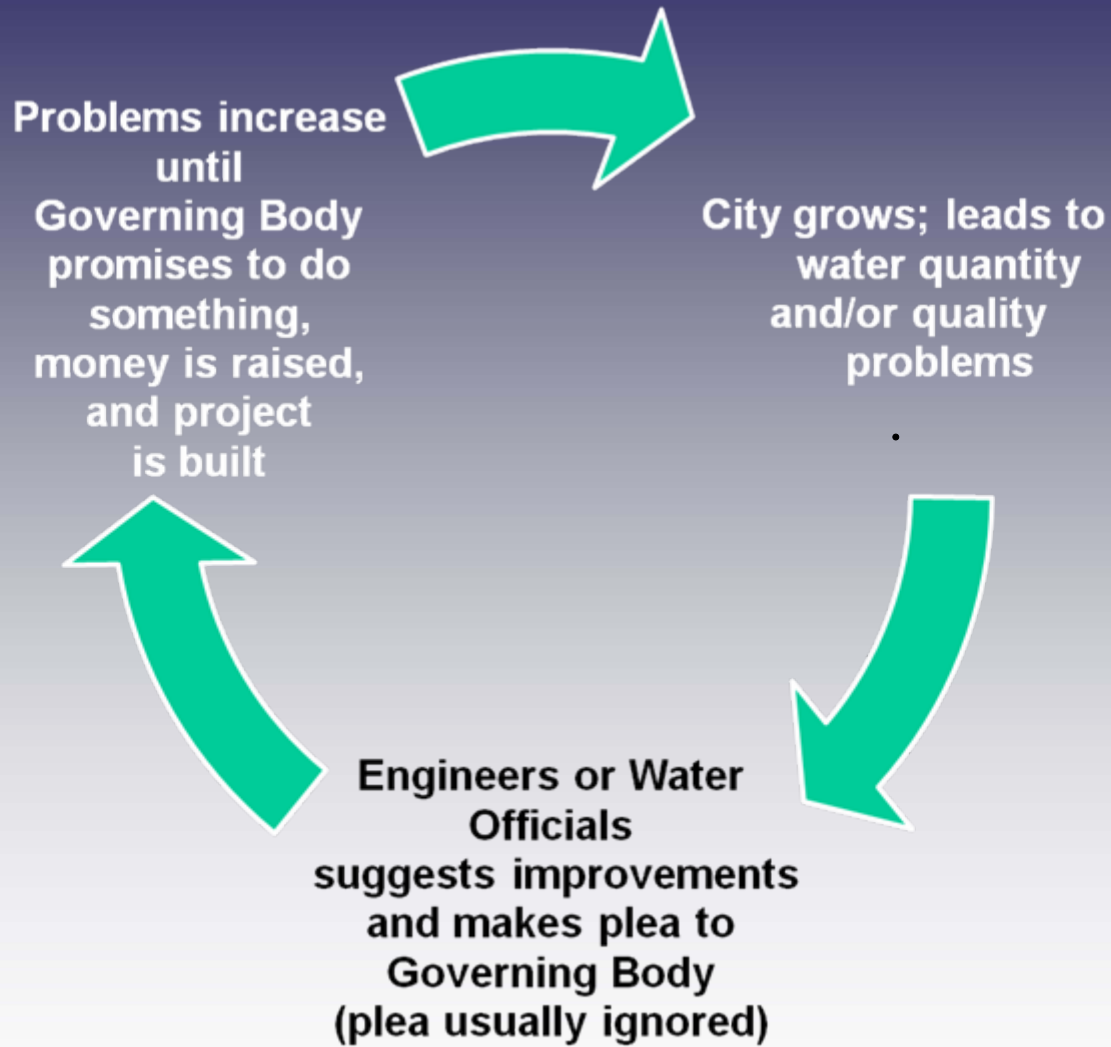
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**Waterworks, like cities, are seldom,
if ever, completed.**

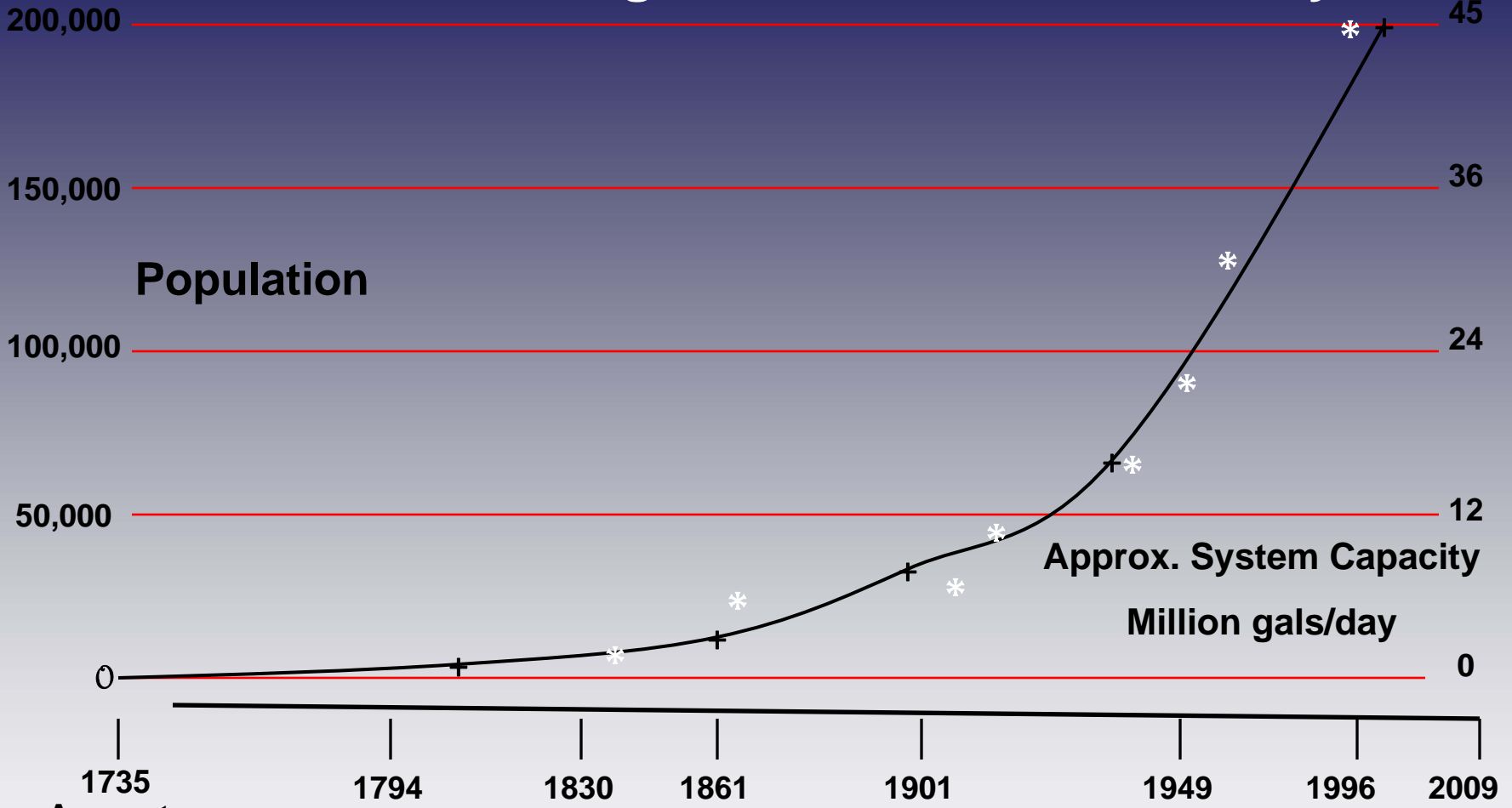
William Phillips,
Augusta City Engineer 1865



Timeline of Augusta's Waterworks History

Population

Approx. System Capacity
Million gals/day



1735
Augusta
Founded

1794

1830

1861

1901

1949

1996

2009

4 Eras:

Wells, Pumps,
Cisterns

Turknett
Springs

Canal

Savannah River &
Wells systems

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Wells, Pumps, and Cisterns – 1794-1830

Augusta population: ~ 1,500 to 5,000



1794 – first public supply well in Augusta
Typical well: 20-40 feet deep, brick & mortar
with hand pumps

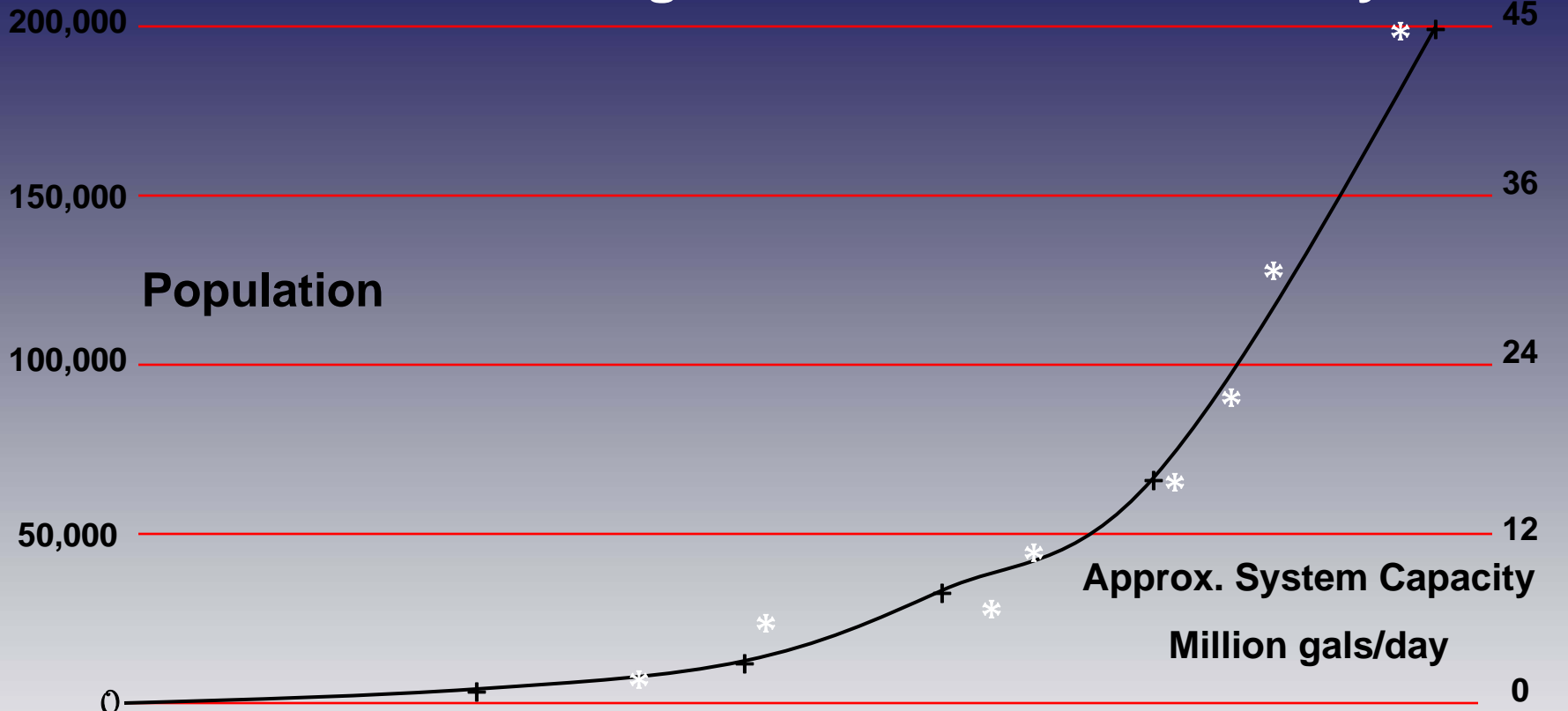
Brick cisterns used to collect rainwater
(recent past discovery – 10' x 20' x 10' deep)

By 1875 there were 116 wells with pumps
and 24 cisterns in Augusta

Water from wells and cisterns used primarily
to fight fires and suppress dust

System decline: high cost to maintain and
need for more capacity with population
increase

Timeline of Augusta's Waterworks History



1735 Augusta Founded
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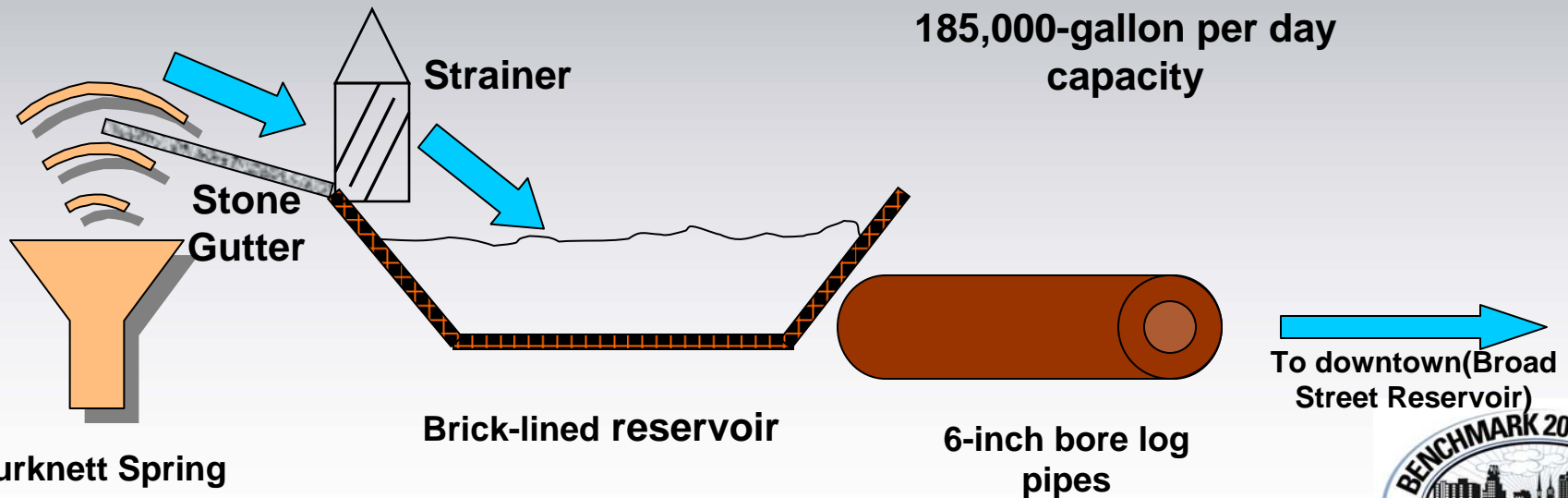
Turknett Springs System 1830 – 1861
Augusta population 5,000 to 13,000



Turknett Springs System 1830 – 1861

Augusta population 5,000 to 13,000

- 1820's – City paid engineers George Towers and Joseph Eve to study alternate water sources and transmission materials
- Results: Turknett Springs and 15,840 feet of log pipe
- Estimated cost of \$8,109; completed in 1830

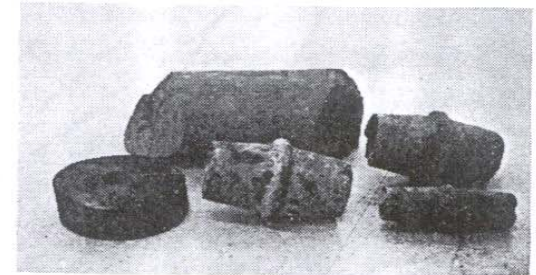
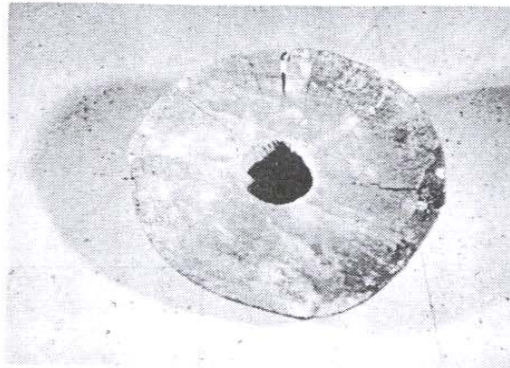
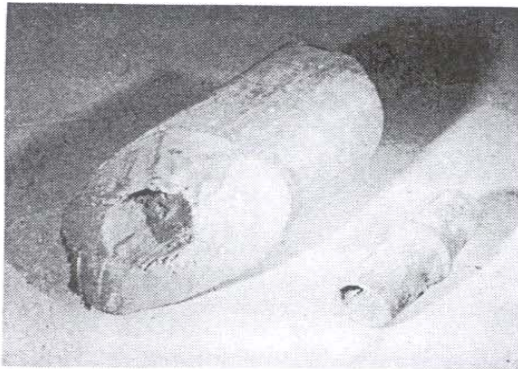


Turknett Springs System 1830 – 1861

Augusta population 5,000 to 13,000

- 1829 – Samuel Hale, Mayor, took over operation of water system (charged \$12/year for water service) – Hale is “Father of Augusta’s Waterworks”
- 1840 – Hale sold system to City for \$18,000
- 1852 – Log pipes had extended from 1st to 15th Streets and Laney Walker Blvd. to River
- System decline: over time log pipes leaked and contaminated wells led to suspicion of poor water quality in spring
- By 1877 Turknett Springs system was all but abandoned

WATER PIPE AND FITTINGS (1828)

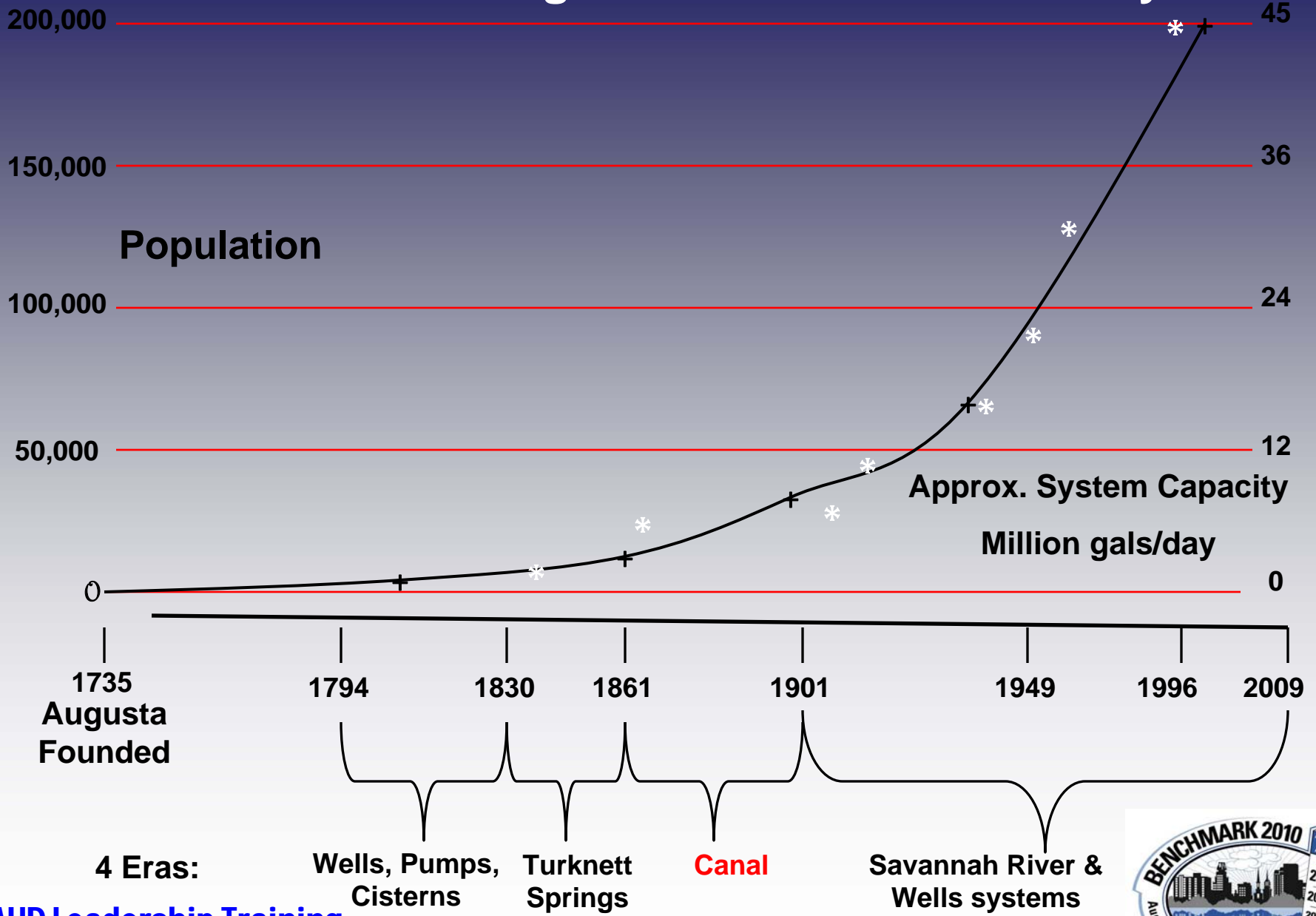


(courtesy of Augusta Richmond County Museum)

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THE GEORGIA OPERATOR—Spring 1977

Timeline of Augusta's Waterworks History

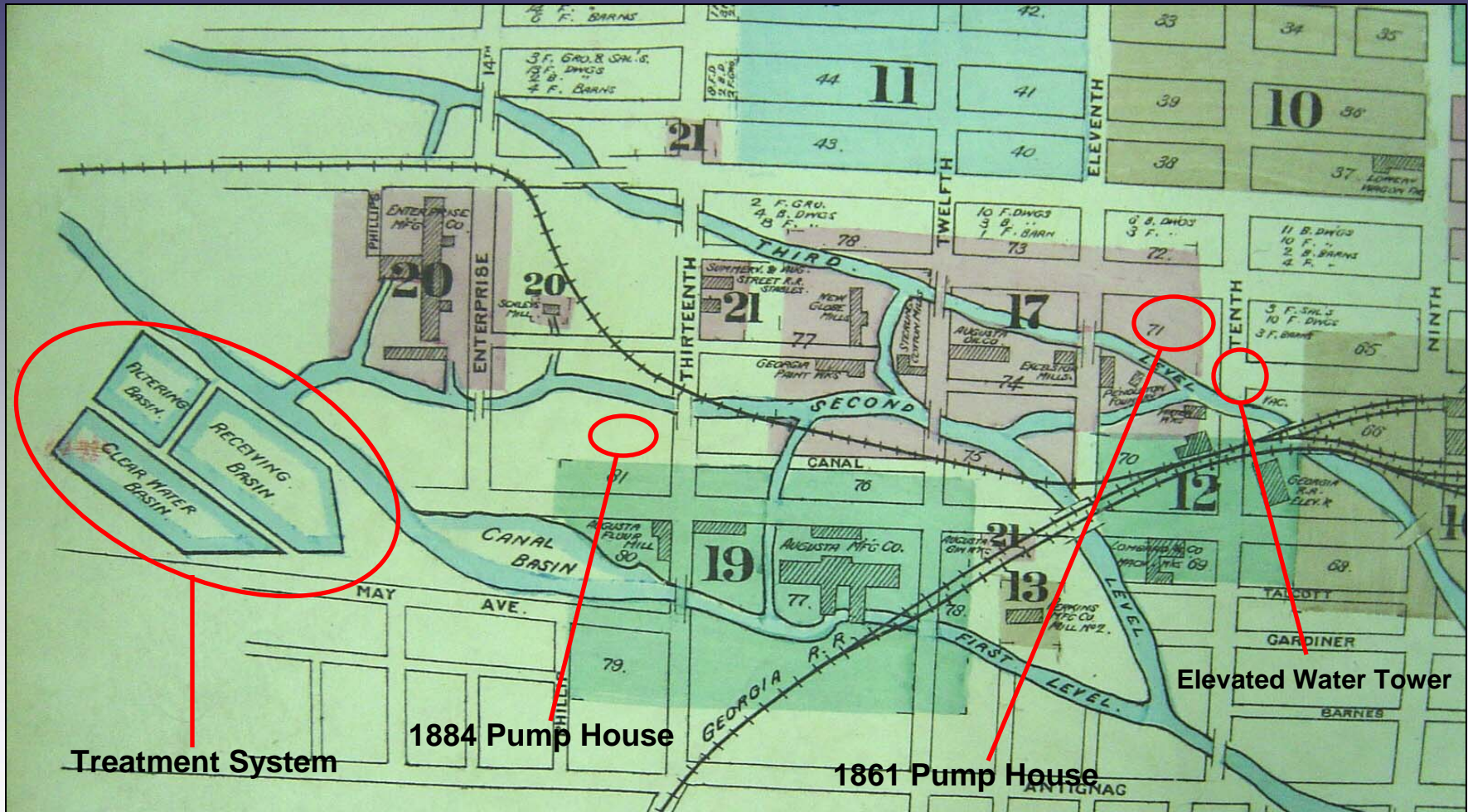


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Canal System 1861 – 1901

Augusta Population 13,000 to 40,000



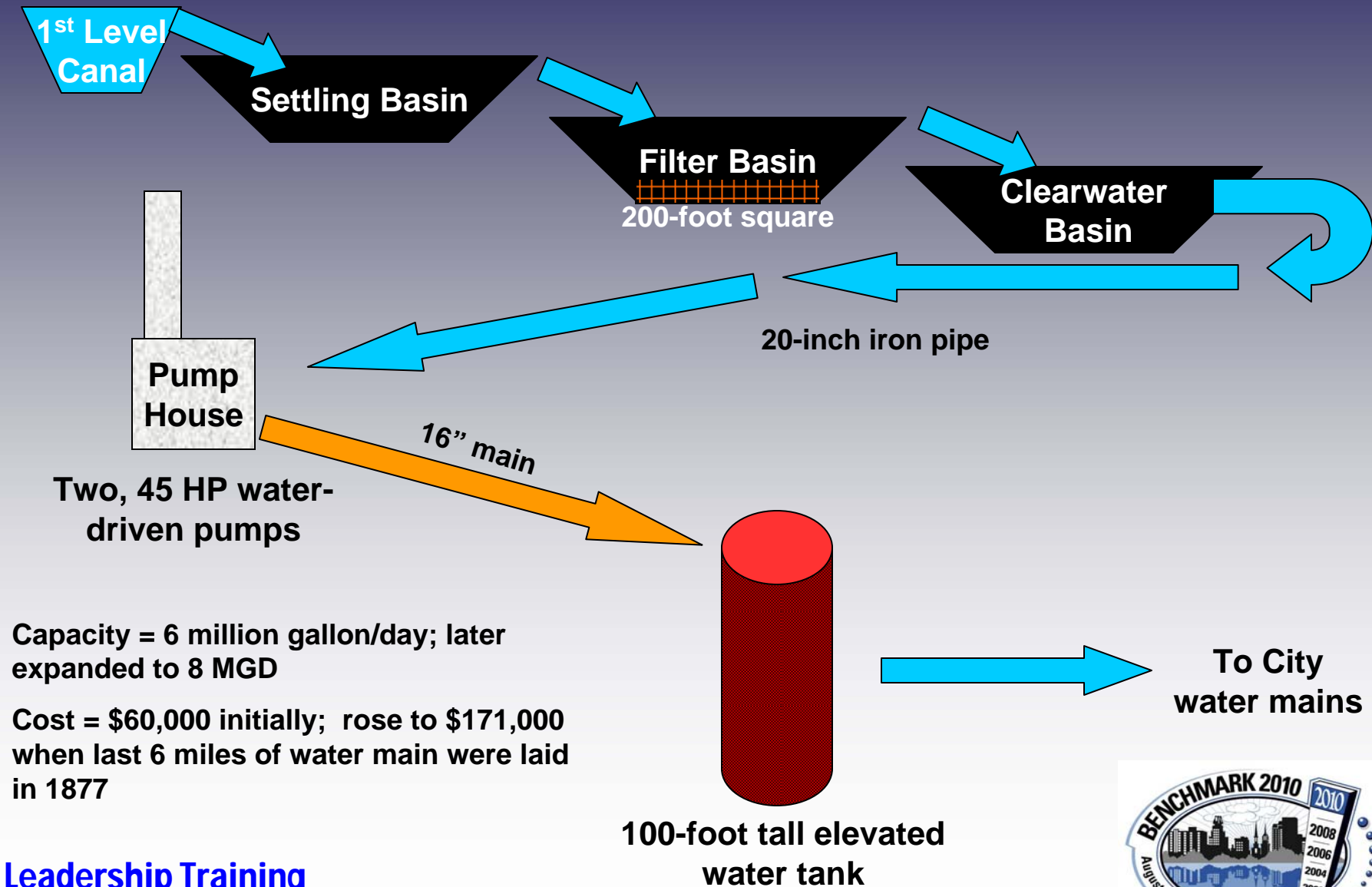
Canal System 1861 – 1901

Augusta Population 13,000 to 40,000

- By 1846 first canal level was operational
- 1850 – Second and third levels operational
- Canal was promoted to bring in new industry (mills, factories, powder works)
- Three attempts at new waterworks on canal:
 - 1851 City paid \$250 to William Phillips, chief canal engineer, to design system (council voted it down)
 - 1857 Mayor George Evans hired NY Waterworks president, A.W. Craven (too expensive)
 - 1859 Mayor Foster Blodgett promoted plan in acceptance speech (city approved it with Phillips as the lead designer)
- Canal waterworks constructed from 1859-1861

Canal System 1861 – 1901

Augusta Population 13,000 to 40,000



Canal System 1861 – 1901

Augusta Population 13,000 to 40,000



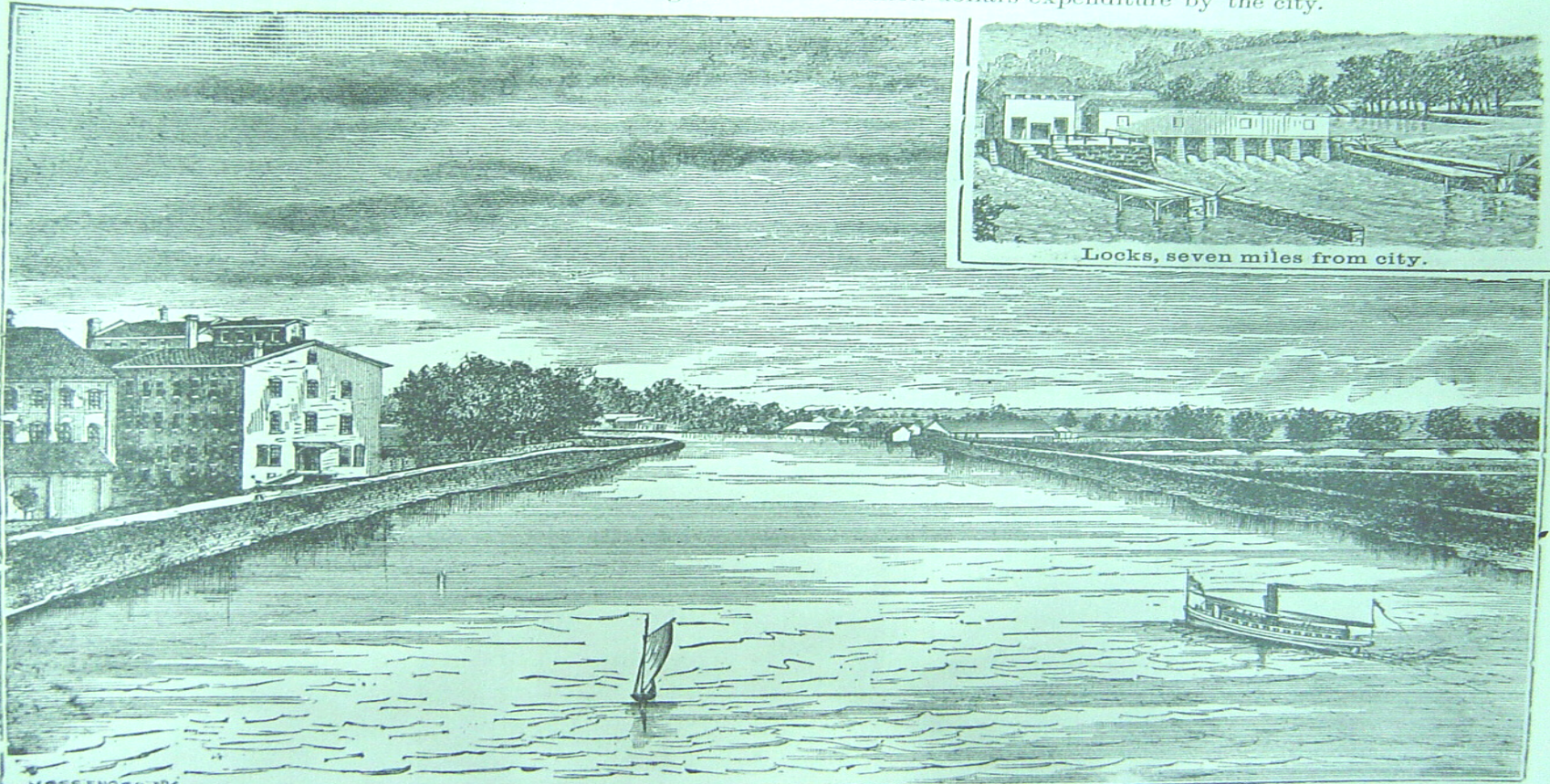
Canal Basin & 1884 Pump House

Canal System 1861 – 1901

Augusta Population 13,000 to 40,000

Augusta the great manufacturing centre of the South. The city, drained by the river and its tributaries, is a region of

requiring an expenditure of more than a million dollars by the city.



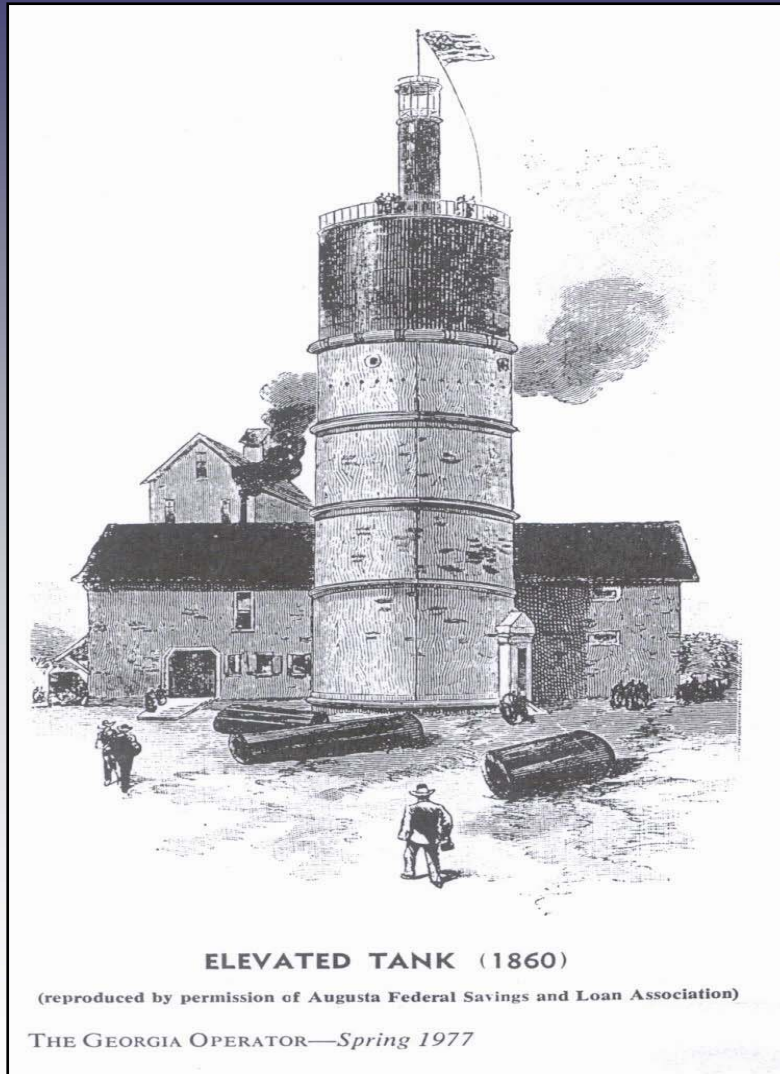
Locks, seven miles from city.

View of Augusta Canal from High Bridge, showing Water Supply Basins on right.

Treatment Basins

Canal System 1861 – 1901

Augusta Population 13,000 to 40,000



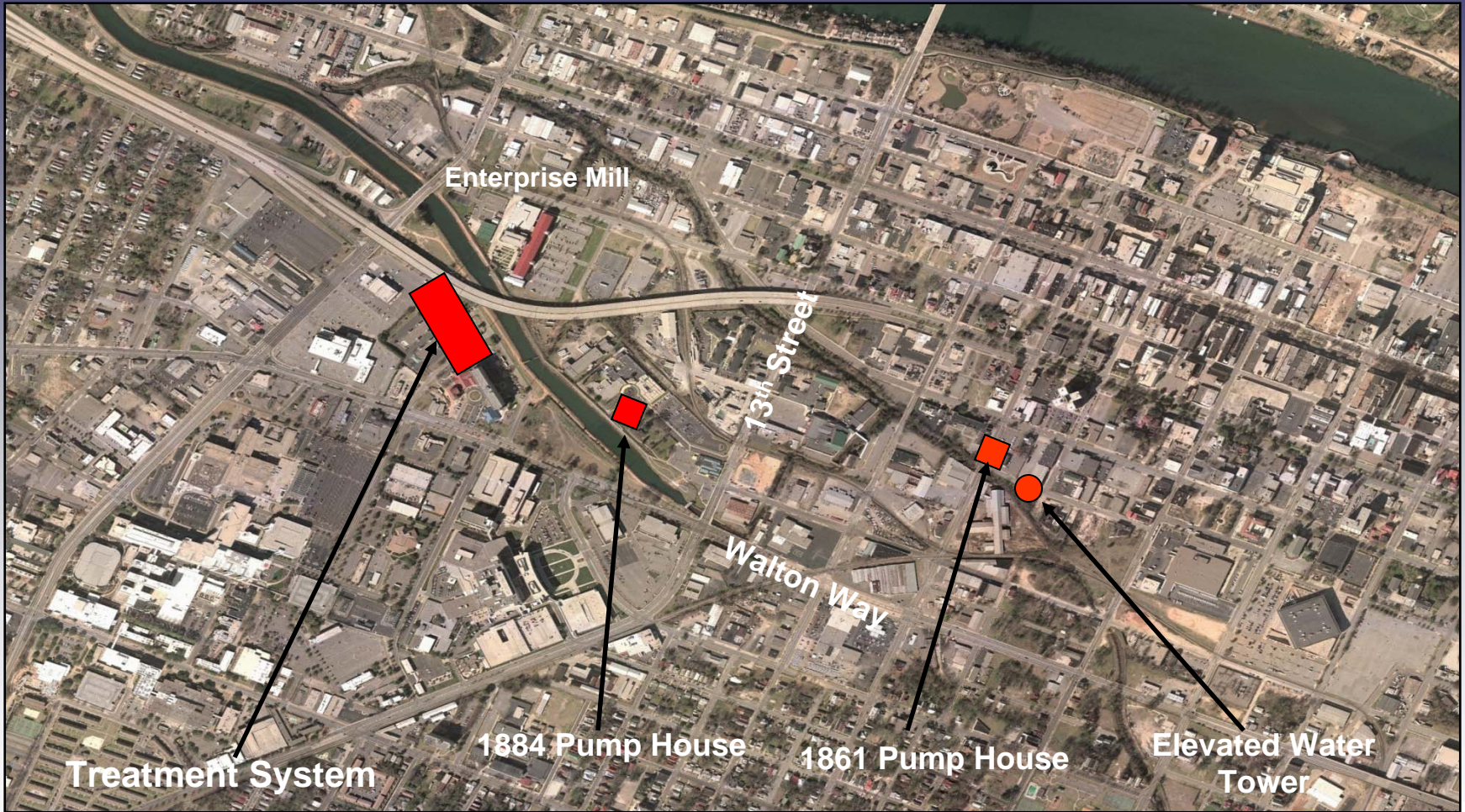
Canal System 1861 – 1901

Augusta Population 13,000 to 40,000

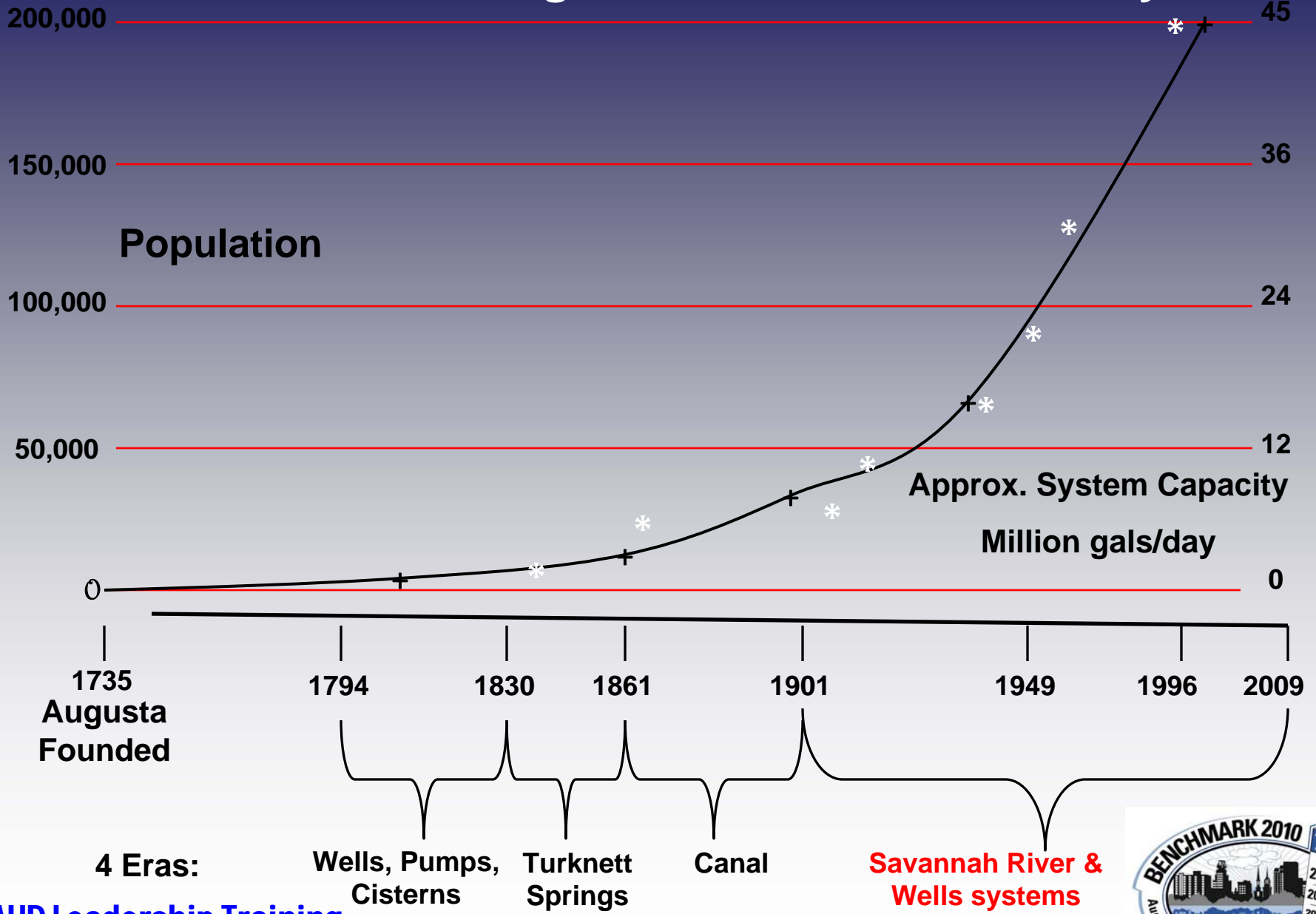
- Third system in U.S. to employ a settling basin in its design
- Cast iron pipe installed in 1861 still in service over 100 years later
- System decline: Due to war economy, filter media and expansion basins were never installed; result was poor water quality
- System never saw full potential and was abandoned in 1902; basins replaced with Allen Park

Canal System 1861 – 1901

Augusta Population 13,000 to 40,000



Timeline of Augusta's Waterworks History



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Savannah River System 1901 – 1996
Augusta Population 40,000 to over 200,000



Goodrich St. Pumping Station



Filter Plant on Highland Avenue

Savannah River System 1901 – 1996

Augusta Population 40,000 to over 200,000

- Early 1900's Augusta population exploded due to tourist industry and expansion of mills along the canal
- Post-war economic depression prevented expansion of water system
- 1860-1870 all three previous water systems were in place and over time not able to meet capacity and quality requirements
- “Muddy drinking water” during floods and no fire water at times
- A new system was needed to serve all of Augusta's needs



Savannah River System 1901 – 1996
Augusta Population 40,000 to over 200,000

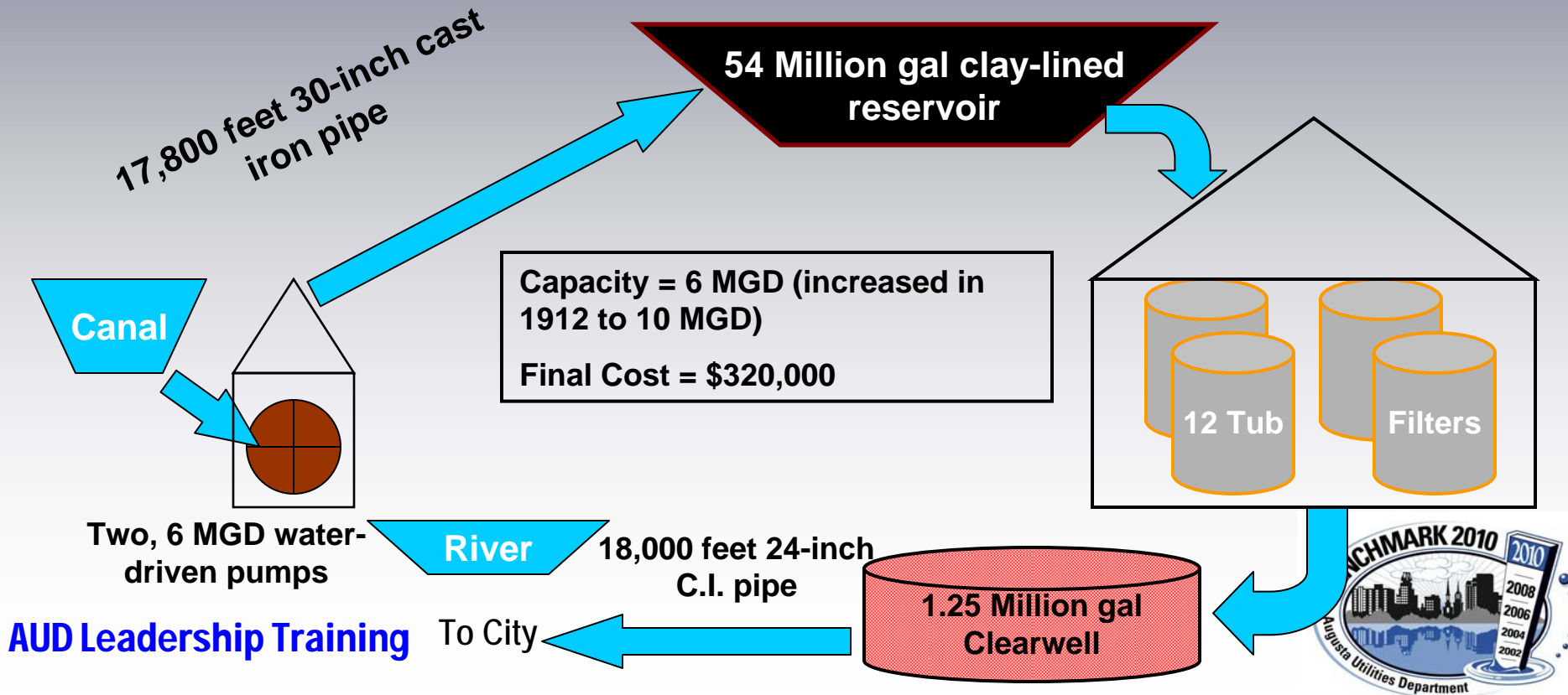


First Filter Plant on Highland Avenue

Savannah River System 1901 – 1996

Augusta Population 40,000 to over 200,000

- 1897 – Mayor William Young hired Nisbet Wingfield for \$1,000 to study and design a new system
- Selected canal as water source and high point in Summerville for the plant (current location); 325 feet above Broad Street
- Construction completed on March 29, 1901



Savannah River System 1901 – 1996

Augusta Population 40,000 to over 200,000



1937 Filter Plant on Highland Avenue



Major Plant Expansions

1899

1928

1937

1942

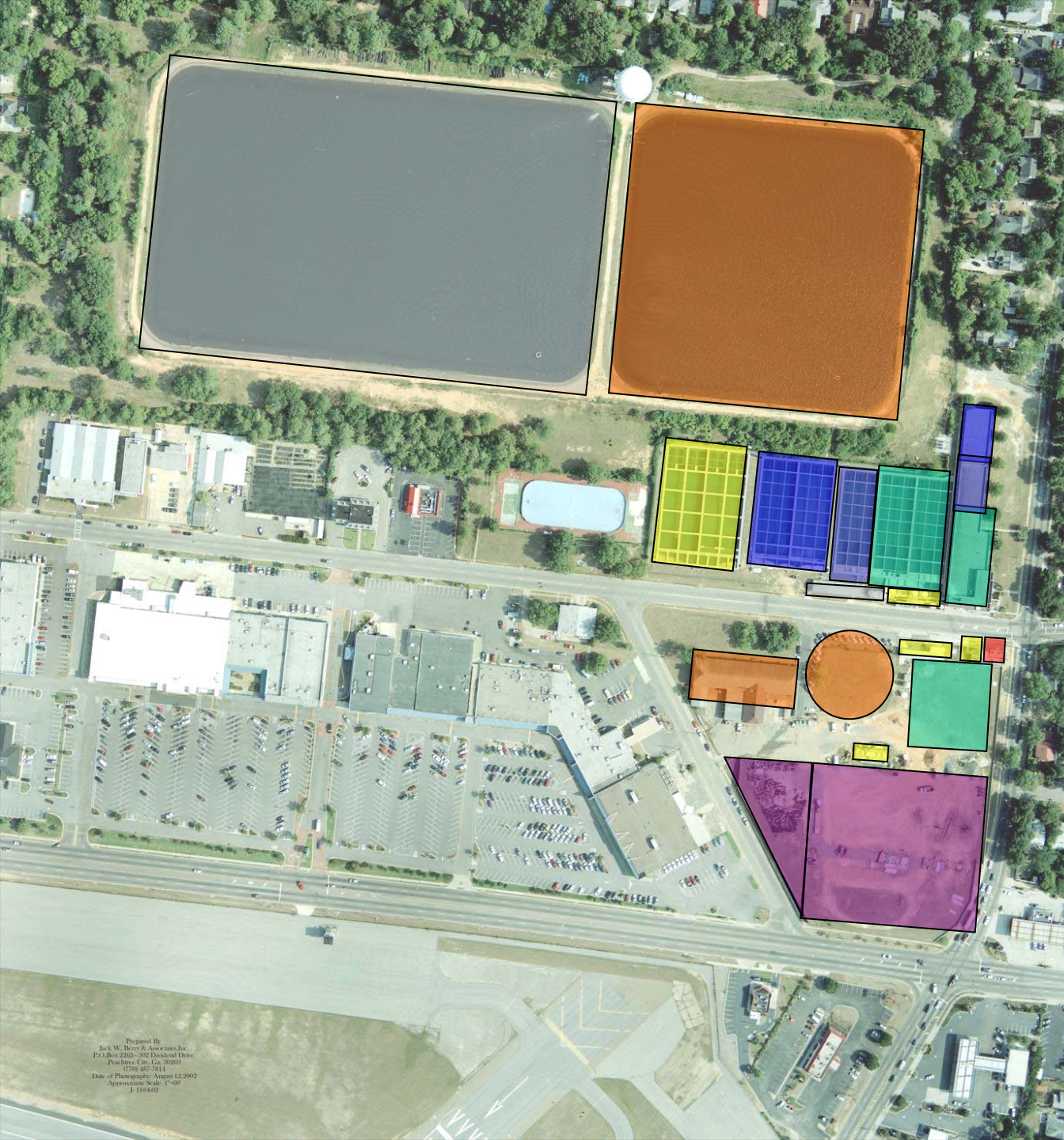
1949

1952

1972

1987

1999

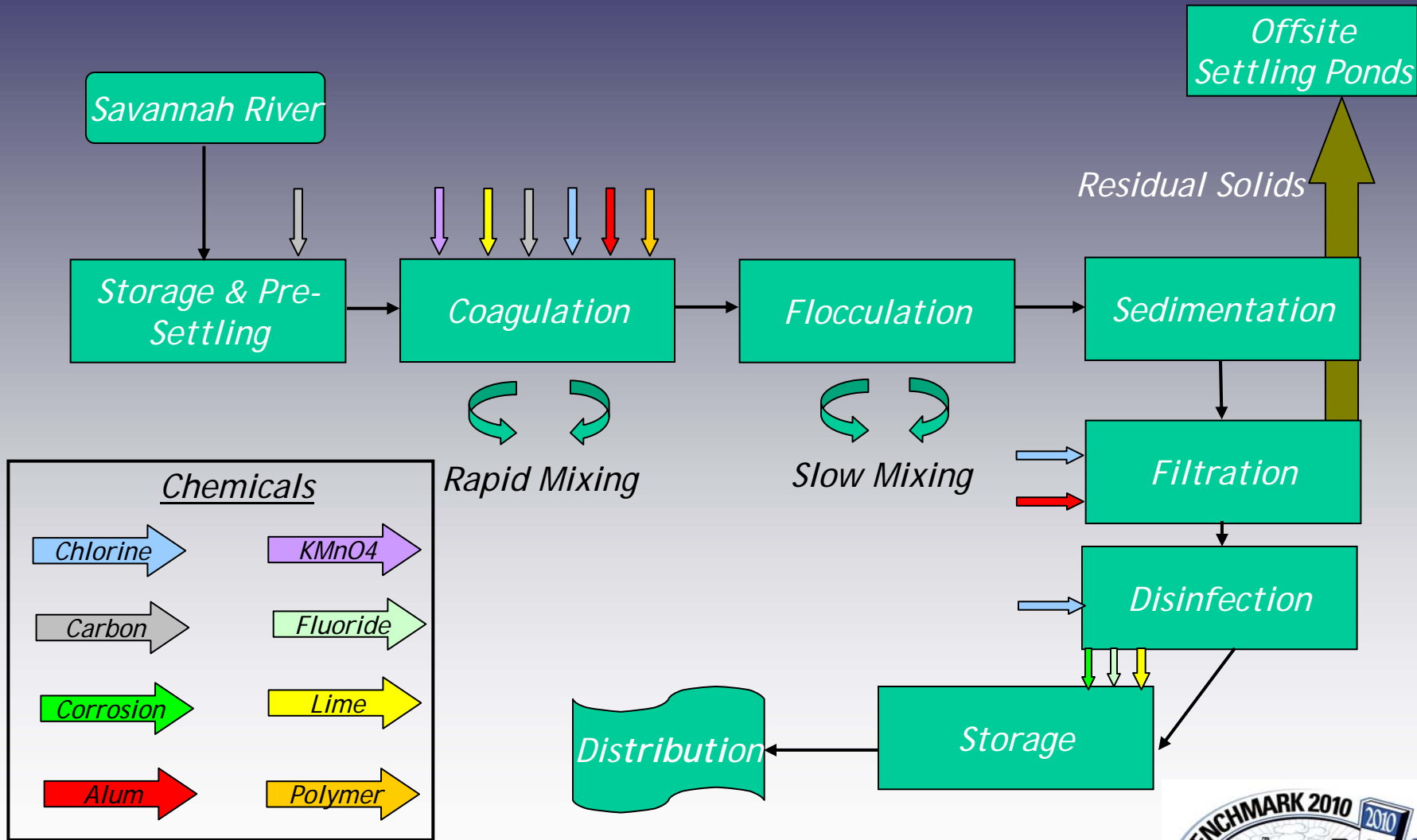


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Date of Photography: August 12, 2002
Approximate Scale: 1"=50'
J-116442



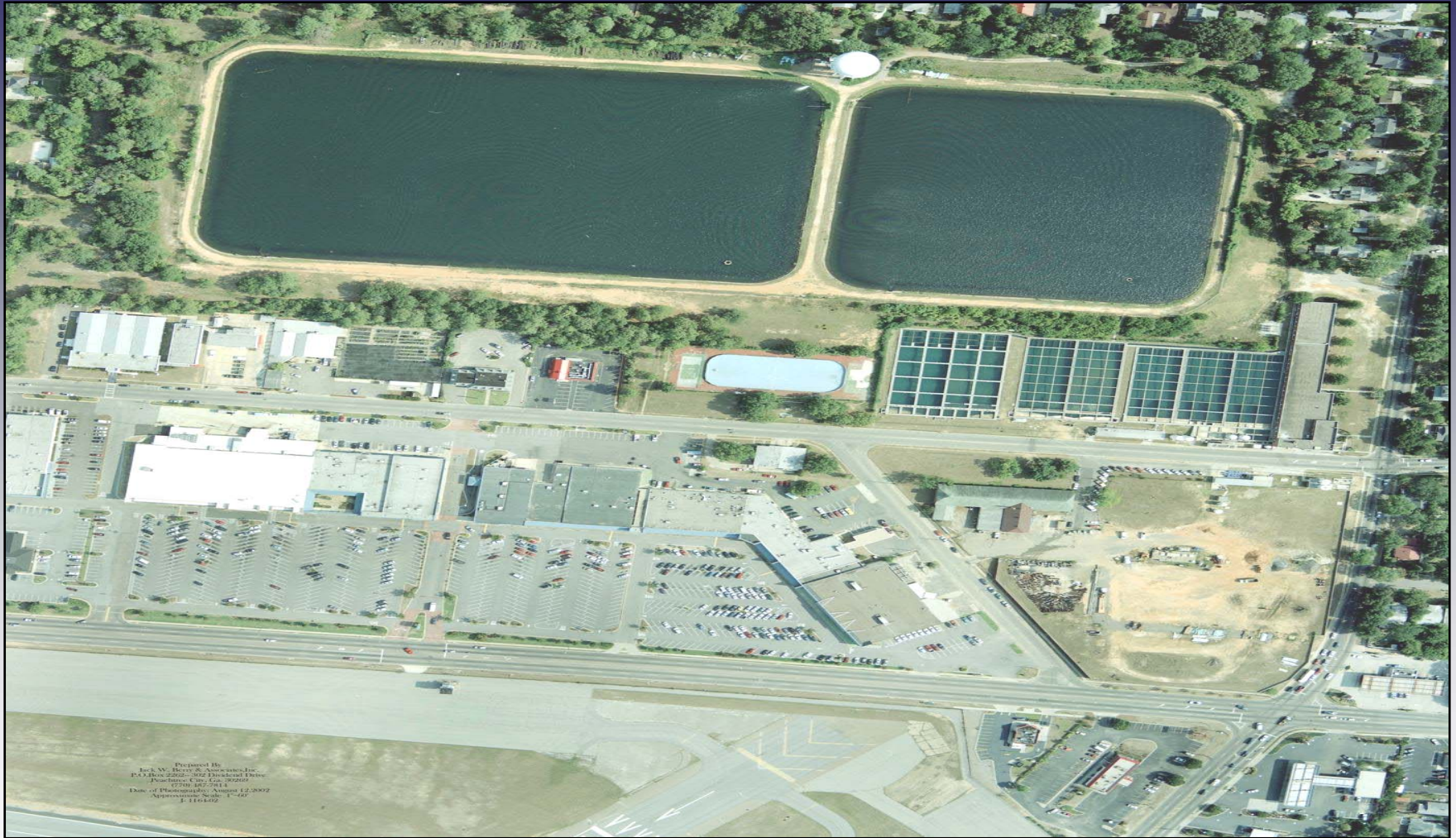
Savannah River System 1901 – 1996

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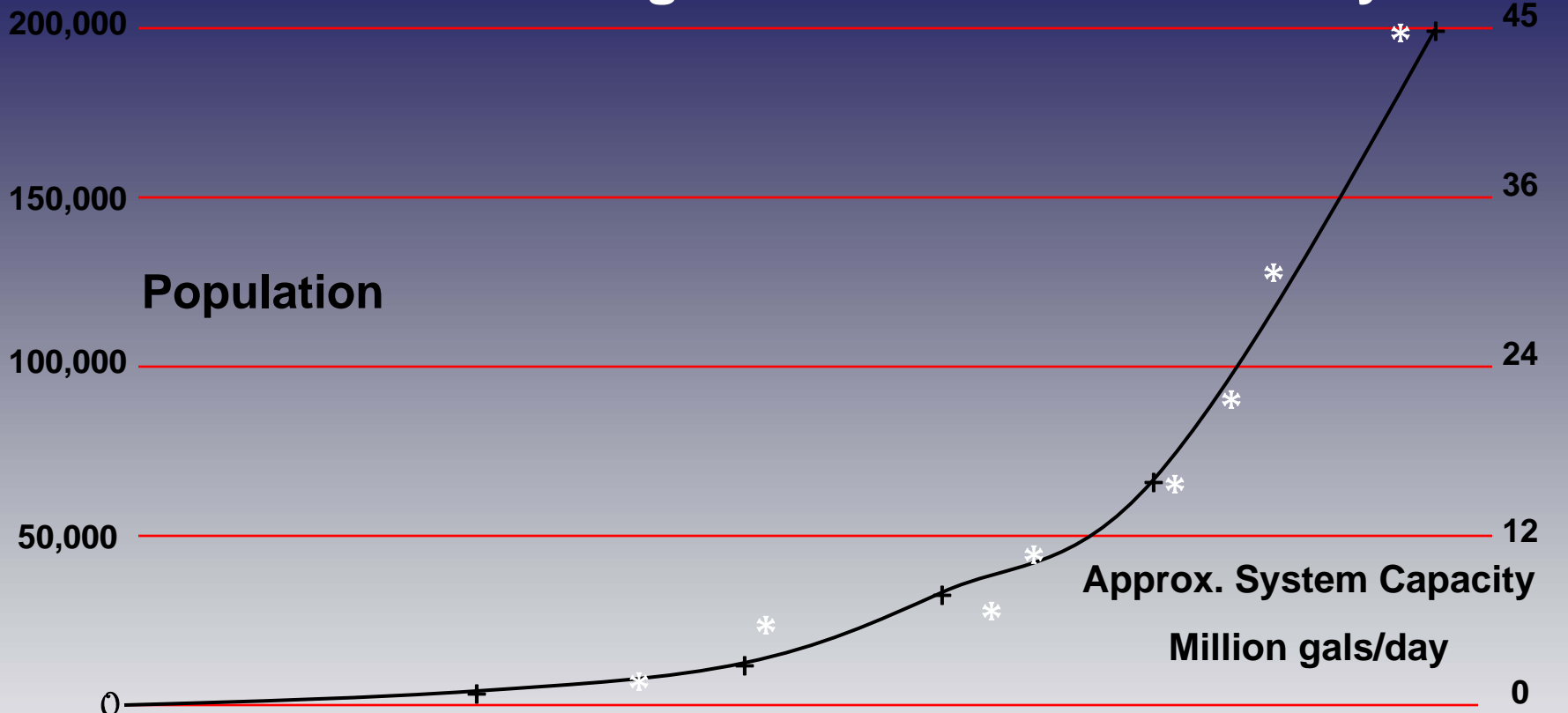
Savannah River System 1901 – 1996

Augusta Population 40,000 to over 200,000



Aerial Photo prior to Current Construction

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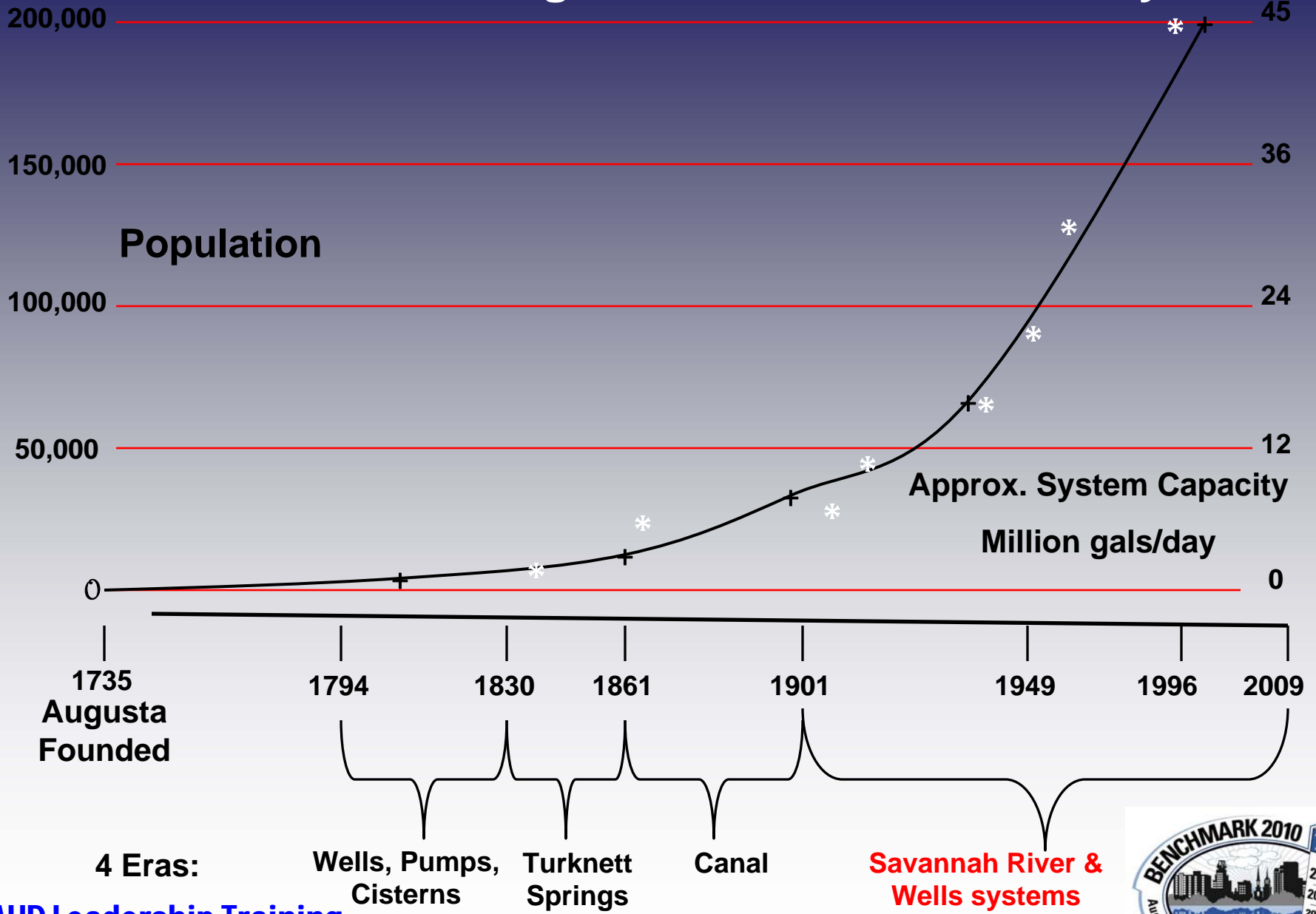


Richmond County System 1949 – 1996

- Prior to government owned water system, private water system create by Peter Knox and E. J. Richards established in 1948
- 1951 – Fleming Heights Water Company conveyed to Richmond County Commission
- 1956 – Major distribution improvements connected City of Augusta system to Peach Orchard Rd. site
- 1967 – First Water Treatment Plant (Plant No.1) constructed on existing site at Peach Orchard Rd.
- 1970 – Major distribution improvements expanded to Tobacco Road area
- 1972 – Pine Hill Water System established
- 1978 – Plant No. 2 constructed near Bush Field Airport on Four-H Club Rd.
- 1980 -1986 – Pine Hill Water System integrated into Richmond County water system
- 1990 -1996 Richmond County attempted to build surface water treatment plant upon the urging of Ga Environmental Protection Division
- 1996 – City of Augusta and Richmond County governments consolidated



Timeline of Augusta's Waterworks History



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Augusta Utilities Department 1996 – Present

Augusta population over 200,000

- 1996 – City of Augusta and Richmond County governments consolidated
- 2003 – Plant No. 3 constructed on Old Waynesboro Rd in area of original Pine Hill Water system
- 2005 – N. Max Hicks Water Surface Water Treatment Plant constructed on Tobacco Road near Augusta Regional airport.
- 2009 – Highland Ave Surface Water Treatment Plant goes through major expansion.



Augusta's Progressive Waterworks

- One option studied by George Towers in 1820's involved pumping from the river, sedimentation, and filtration; first ever proposed treatment scheme in U.S.
- 1830 - Turknett springs log pipe system was first piped water system in GA and one of first in U.S.
- 1861 – Canal waterworks was third system in the U.S. to employ use of settling basin technology
- 1899 Tub filters were one of first such installations in the U.S.
- 1937 Filter plant made use of cutting edge technology in the midst of a depression



History of Augusta's Waterworks

William Phillips (1804-1877)

- Born in Beaufort, SC
- 1840 began work as civil engineer in Augusta
- 1848-1853 Chief Canal Engineer (\$1,500 annual salary)
- Major accomplishments were: canal system waterworks (including elaborate O&M program) and 1877 map of the city and utilities system
- His position was destroyed in late 1860's by the political unrest
- Died destitute and in disgrace



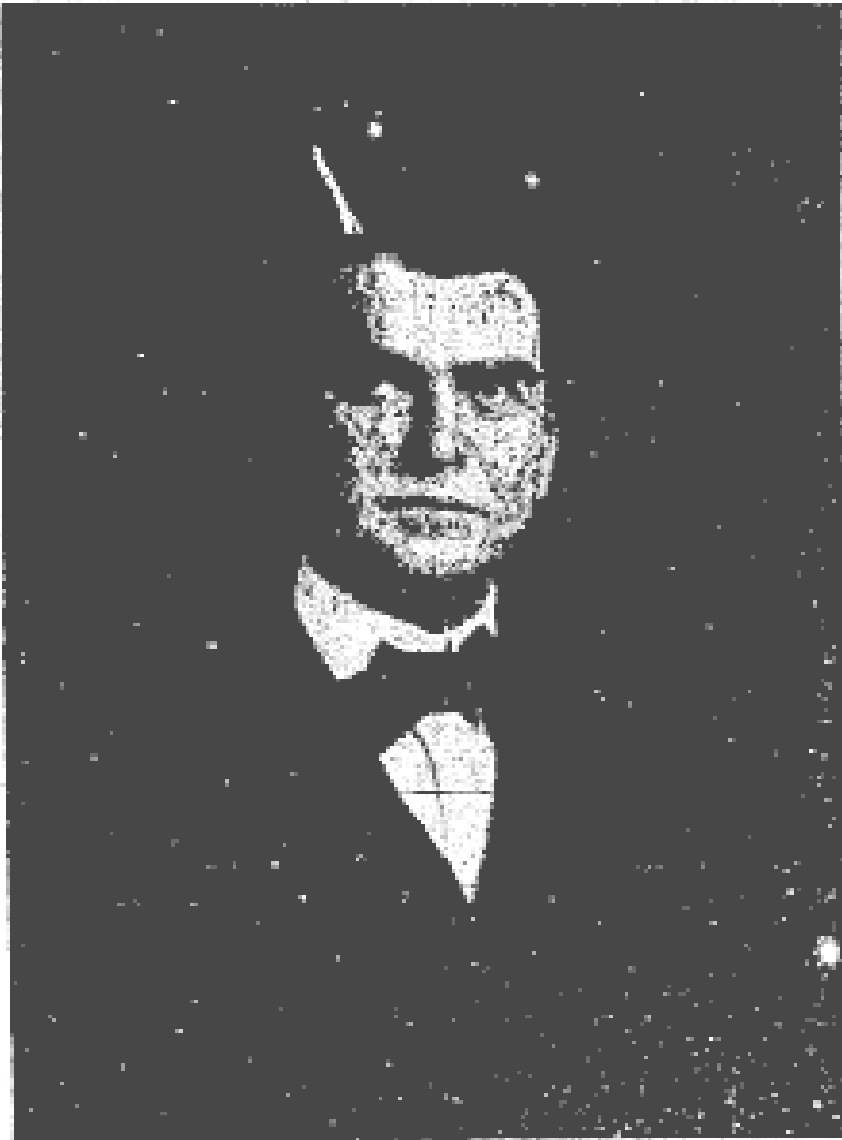
History of Augusta's Waterworks

Nisbet Wingfield (1861-1928)

- Born in Dade County, GA
- Degreed Civil Engineer
- Initial experience in RR and bridge design
- 1895 started a consulting engineering firm in Atlanta
- Premier engineer in southeast for waterworks design

Major Accomplishments

- First Commissioner of Public Works in Augusta
- Designed 1899 waterworks
- Designed and oversaw construction of levee system
- Designed Archibald Butt Bridge



QUESTIONS ?

