Welcome

Welcome to the Historic 8th Avenue Reservoir restoration virtual meeting room. Through this virtual meeting room you will learn how Metro Water Services will preserve, celebrate, and promote the rich history of the 8th Avenue Reservoir.

Use any of the icons to view stories and photos, watch our videos, try our trivia, and listen to learn more:

View Stories and Photos

Watch Our Videos

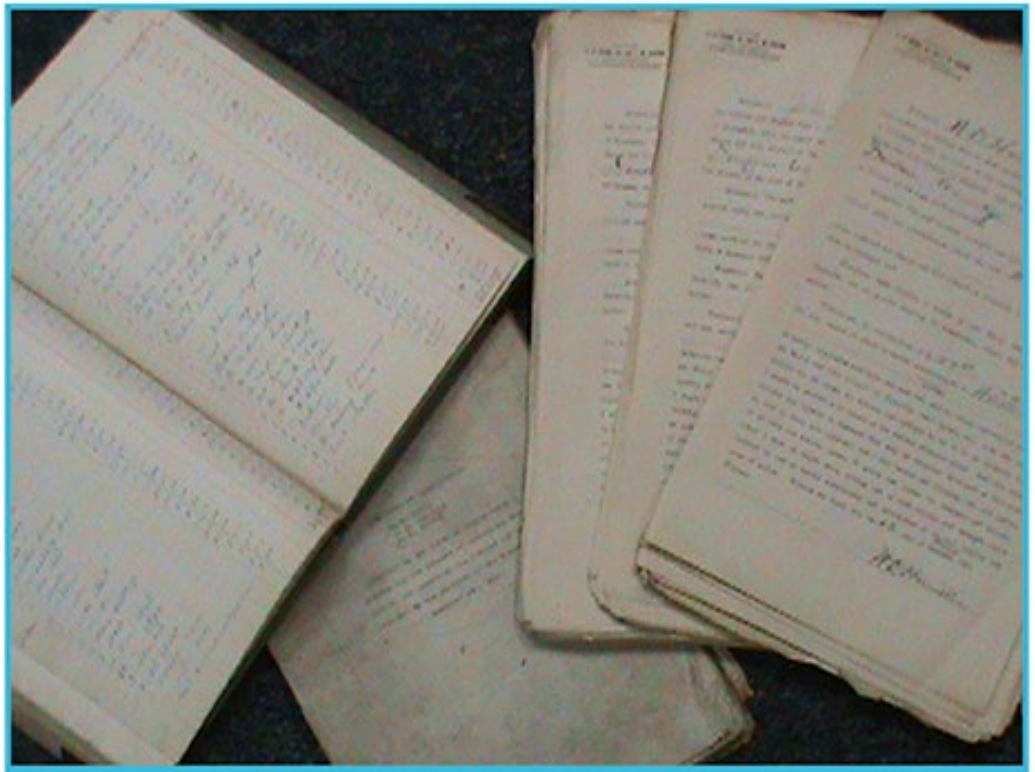
Try Our Trivia

Listen to Learn More

Built for the Public Good

The Historic 8th Avenue Reservoir is the largest of Metro Water Services' reservoirs with a capacity of 51 million gallons.

Although no longer used as a settling basin, the reservoir is still in use today to store clean water for distribution to the Nashville community.



Shown: Original reservoir records.

Built for the Public Good: Audio Clips

Reservoir Construction
The Historic 8th Avenue Reservoir is the largest of Metro Water Services' reservoirs with a capacity of 51 million gallons.

Although no longer used as a settling basin, the reservoir is still in use today to store clean water for distribution to the Nashville community.

Water Storage
The reservoir is divided into two compartments, each with a capacity of 25.5 million gallons. When it was originally built, the water would enter the west basin where it stood while mud from the river settled out of it.

The clear water at the top would flow across a weir into the east basin and from there into the community. Today, the reservoir is no longer used as a settling basin but instead to store clean treated water for distribution to the community.

Rebuilding the Reservoir Today

Take a look at how the reservoir was serviced in the late 1800s.

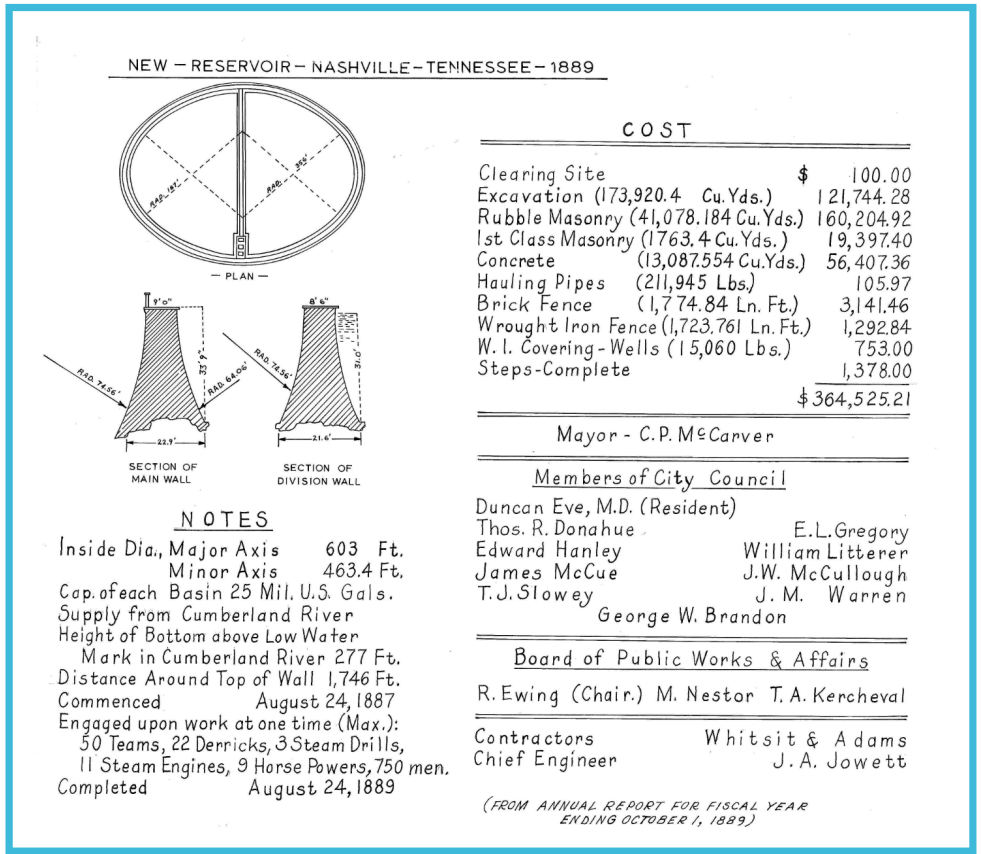
What would rebuilding the reservoir cost in today's dollars?

In the 132 years since the Historic 8th Avenue Reservoir was built, the cost to build has increased by:

2,879%

The original building cost of $364,526.21 would be $10.5 million in today's dollars due to inflation.

$364,526.21	$515,091.38	$2,401,118.30	$10,495,066.19
1889	1933	1977	2021



NEW – RESERVOIR – NASHVILLE – TENNESSEE – 1889

– PLAN –

SECTION OF MAIN WALL

SECTION OF DIVISION WALL

NOTES

Inside Dia., Major Axis 603 Ft.
Minor Axis 463.4 Ft.
Cap. of each Basin 25 Mil. U.S. Gals.
Supply from Cumberland River
Height of Bottom above Low Water Mark in Cumberland River 277 Ft.
Distance Around Top of Wall 1,746 Ft.
Commenced August 24, 1887
Engaged upon work at one time (Max.):
50 Teams, 22 Derricks, 3 Steam Drills, 11 Steam Engines, 9 Horse Powers, 750 men.
Completed August 24, 1889

COST

Clearing Site	$ 100.00
Excavation (173,920.4 Cu. Yds.)	121,744.28
Rubble Masonry (41,078.184 Cu. Yds.)	160,204.92
1st Class Masonry (1763.4 Cu. Yds.)	19,397.40
Concrete (13,087.554 Cu. Yds.)	56,407.36
Hauling Pipes (211,945 Lbs.)	105.97
Brick Fence (1,774.84 Ln. Ft.)	3,141.46
Wrought Iron Fence (1,723.761 Ln. Ft.)	1,292.84
W. I. Covering-Wells (15,060 Lbs.)	753.00
Steps-Complete	1,378.00
	$364,525.21

Mayor - C. P. McCarver

Members of City Council

Duncan Eve, M.D. (Resident)
Thos. R. Donahue — E. L. Gregory
Edward Hanley — William Litterer
James McCue — J. W. McCullough
T. J. Slowey — J. M. Warren
George W. Brandon

Board of Public Works & Affairs

R. Ewing (Chair.) M. Nestor T. A. Kercheval

Contractors Whitsit & Adams
Chief Engineer J. A. Jowett

(FROM ANNUAL REPORT FOR FISCAL YEAR ENDING OCTOBER 1, 1889)

Shown: The Metro Water Services annual report for fiscal year ending October 1, 1889.

Reservoir Then and Now

Take a look at how the reservoir was serviced in the late 1800s.

Shown: Historic photo of 8th Avenue Reservoir gatehouse

Reservoir Leaks, Breaks and Repairs

The stone originally used to build the reservoir was most likely supplied on a “low bid” basis and chosen for its low cost and not its quality or durability. Since 1889 the reservoir has experienced leaks of many kinds and sizes.

Take a look through our Photo Gallery, Video and take the Survey Question.

Reservoir Leaks, Breaks and Repairs: Photo Gallery

When the water was first admitted to the reservoir in 1889 it was found t leak badly, but after working on th joints and bottom for some time it wa finally made pretty tight. However, fron time to time new leaks have developed and there have been some minor leak at all times.

operation and has been filled.) We presume that the stone was supplied on a "low bid" basis as it certainly was not selected for either its durability, or ease of quarrying, for that matter. The stone is shaly, thin to medium bedded, occasionally nodular, poorly resistant to weathering, and certainly not very handsome. The quarrymen apparently could not constantly supply blocks of uniform dimensions, consequently, there is no uniformity to the number of masonry courses from place to place. Obviously, the stone masons had to make-do with what was delivered. The poor resistance of the stone to weathering, especially under the action of smoke acids, frost pry, and wetting and drying, has caused the faces of the masonry blocks to retreat as much as six inches in some places. Also, the intervening mortar has, understandably, weathered differentially. While this differential weathering is unsightly, it has had essentially no effect on the existing structural integrity of the wall. Nonetheless, before too long it will be necessary to consider methods of arresting the continued surface degradation of the stone by weathering processes.

1. Transcript describing how the reservoir has experienced leaks since the beginning of its operations.

2. Transcript describing how the stone originally used to build the reservoir was low bid.

Reservoir Leaks, Breaks and Repairs: Photo Gallery (cont.)

3. Crowd gathers in front of broken reservoir in 1912.

4. Broken reservoir in 1912.

Reservoir Leaks, Breaks and Repairs: Audio Clip, Trivia and Video

Reservoir in the Headlines
Newspaper headline script: Extra, extra! Reservoir wall breaks! Flood of water comes washing homes away and deluging city blocks!

On Tuesday, November 5, 1912, at 12:10 a.m., a large section of the southeast quadrant of the 8th Avenue reservoir broke away.

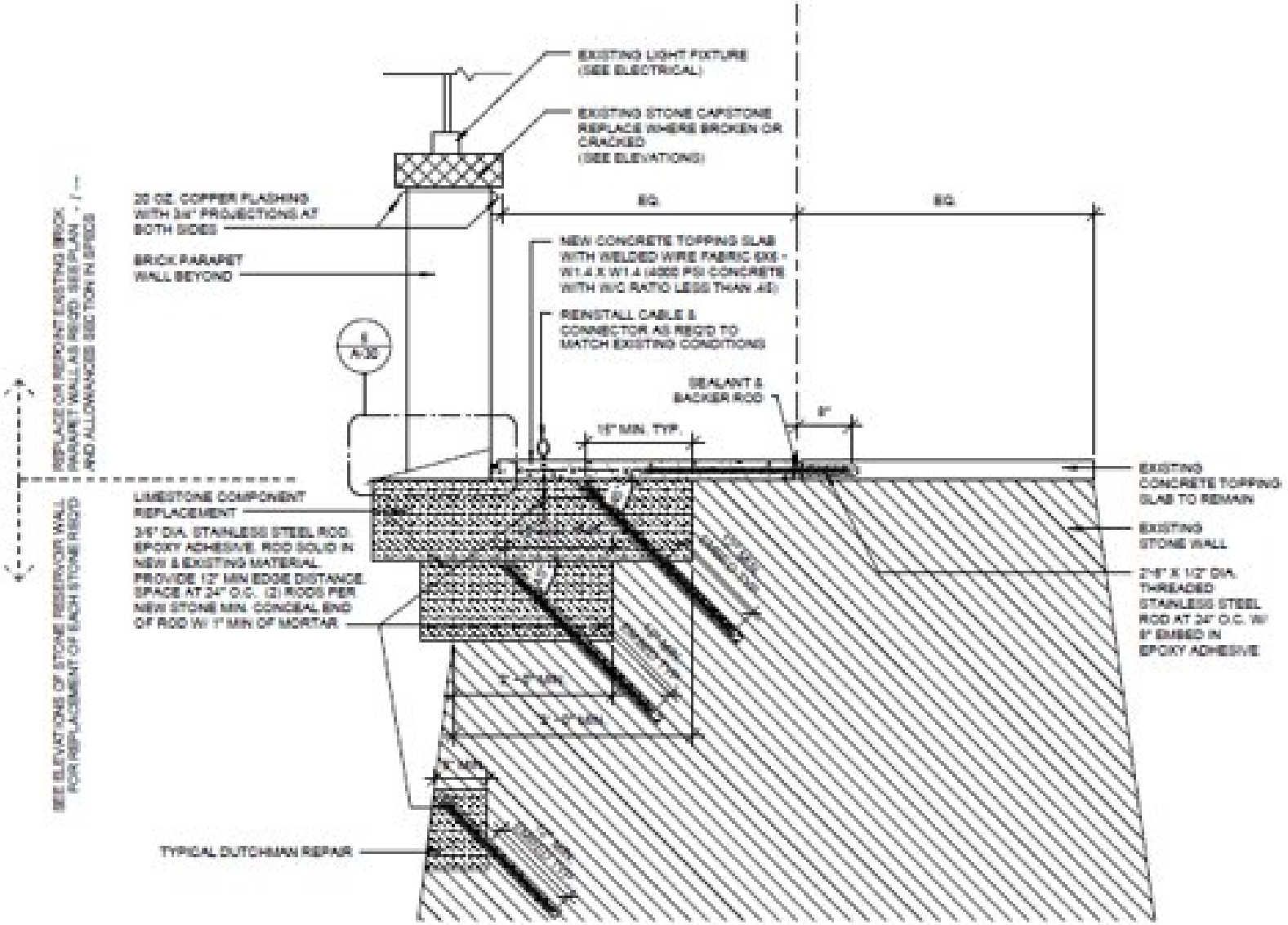
Survey Question 1
How much do you think it cost to repair the 1912 reservoir break?

Answer: The 1912 Reservoir break cost $93,115

Tennessee Crossroads Video
Watch on YouTube here.
Transcript available on slide

Restoration and Preservation

- Select Block Replacement
- Min. depth 8”
- S.S. Anchors



1 SECTION THROUGH BRICK PARAPET AND RESERVOIR WALL WHERE REPLACING FIRST STONE BELOW CONC. TOPPING SLAB - SEE PLAN DETAIL 3 / A-30
3/4" = 1'-0"

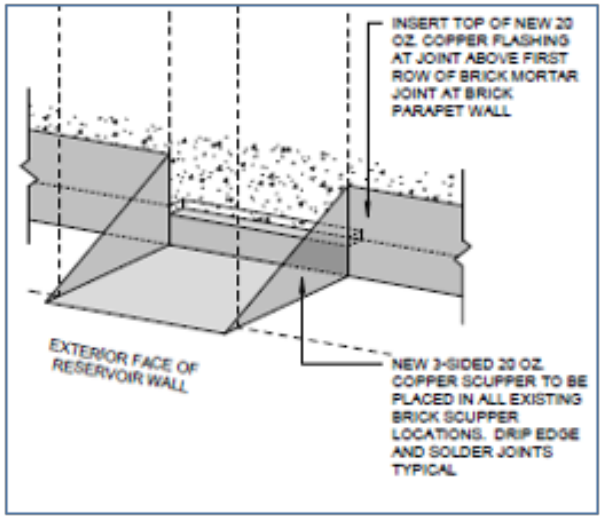
0' 6" 1' 2'

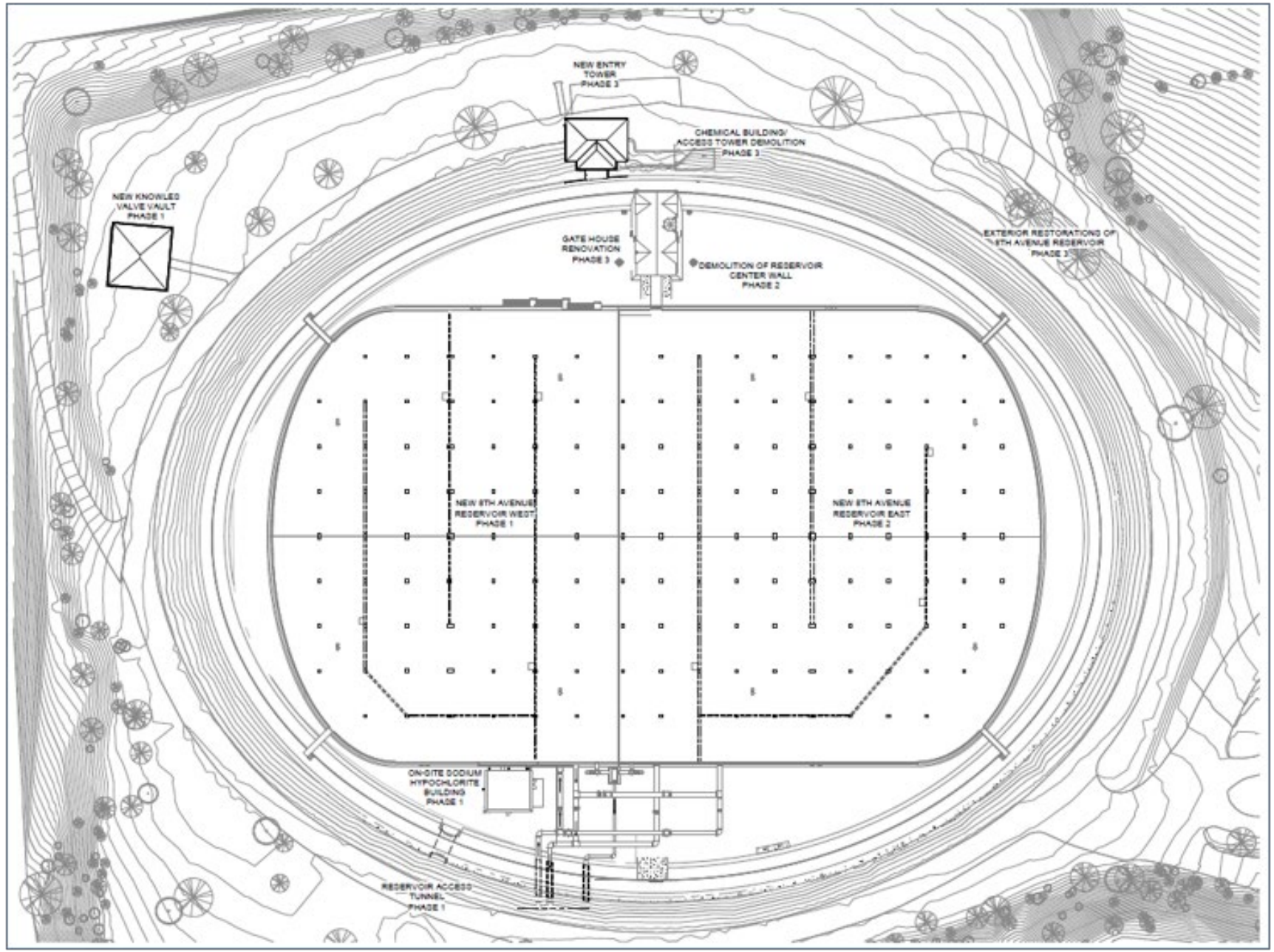
Historic 8th Avenue Reservoir

Reservoir Construction Drawing

Historic Restoration

- Repoint motor
- Replace bricks
- Repair lights
- New scuppers
- Plumb parapet





Historic 8th Avenue Reservoir

Phasing Plan for Construction

Restoration and Preservation: Project Status

- 95% Design – awaiting comments
- Securing funding
- Project divided into 3 phases
- Phase 1: Bid Summer 2018
- Phase 2: Bid Summer 2019
- Phase 3: Bid Fall 2020

Restoration and Preservation: Audio Clip, Trivia and Video

Reservoir Storage
The Reservoir Today. Today, the reservoir accounts for 60% of the total storage volume for the city and 83% of storage in the city's low-pressure zone. The 8th Avenue Reservoir is also the largest of 37 tanks within the city of Nashville.

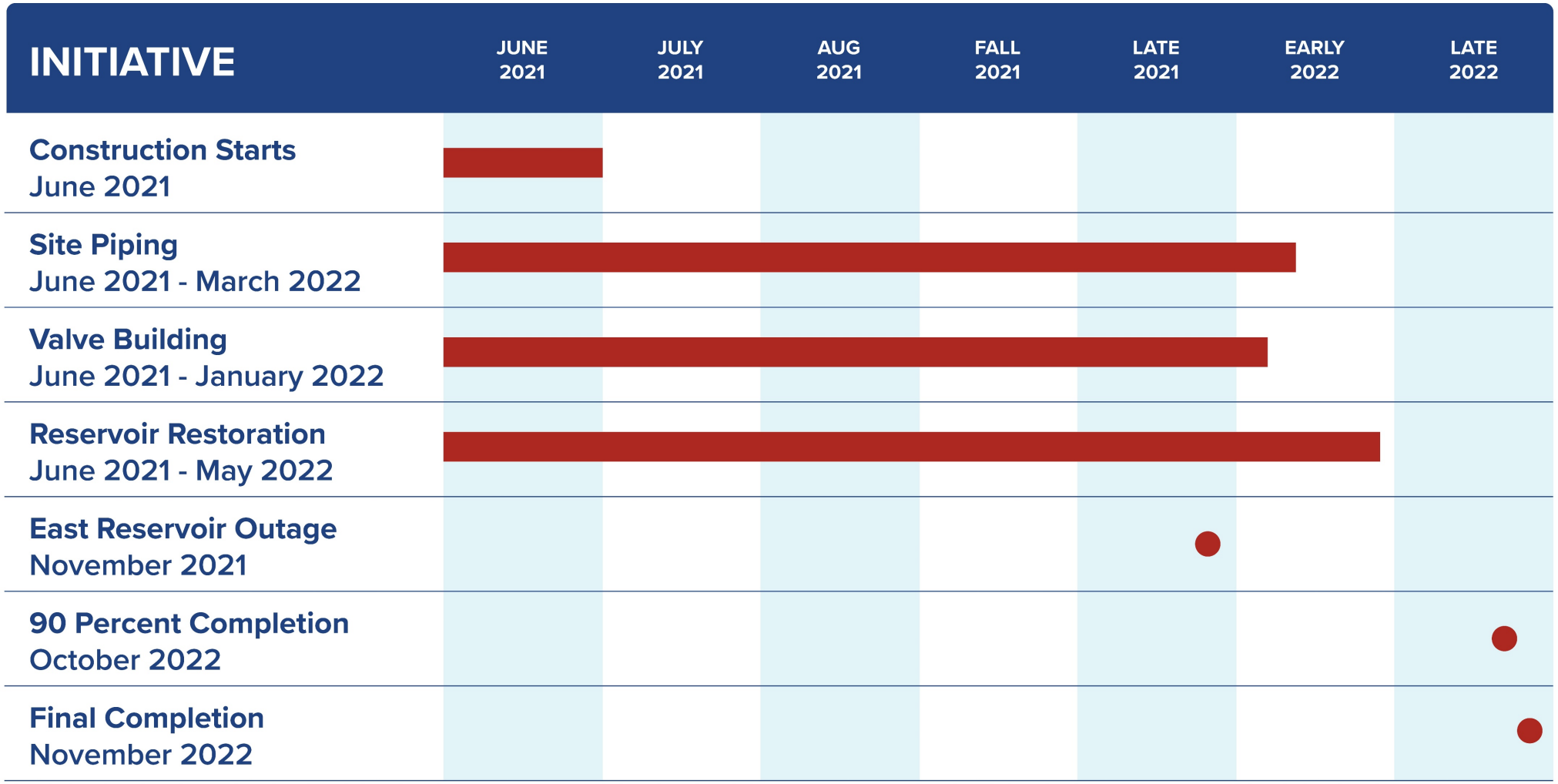
Survey Question 2
What purpose does the reservoir serve today?

Answer: The purpose of the reservoir is to store water.

Tennessee Crossroads Video
Watch on YouTube here. Start at 5:31 mark.
Transcript available on slide

Schedule

View the schedule below.



Phase 1 Details

Typically, all construction activities will occur Monday through Saturday from 7 a.m. to 6 p.m. daily with loud noises no earlier than 7:30 a.m.

Help us, help you.

If you hear construction noise between the hours of 9 p.m. and 6 a.m. or see any extreme dust, gravel, and/or any construction material outside of the construction zone, please let us know so that we can address it.

Submit any observations to Metro Water Service Communications at MWSCommunications@Nashville.gov with the subject “Being a Good Neighbor”.

Take a look through our two Photo Galleries:

1. Maps and Renderings
2. What to Expect in the Neighborhood

Phase 1 Details: Maps and Renderings Photo Gallery

1. Excavation work on the side of the reservoir with construction workers around machinery

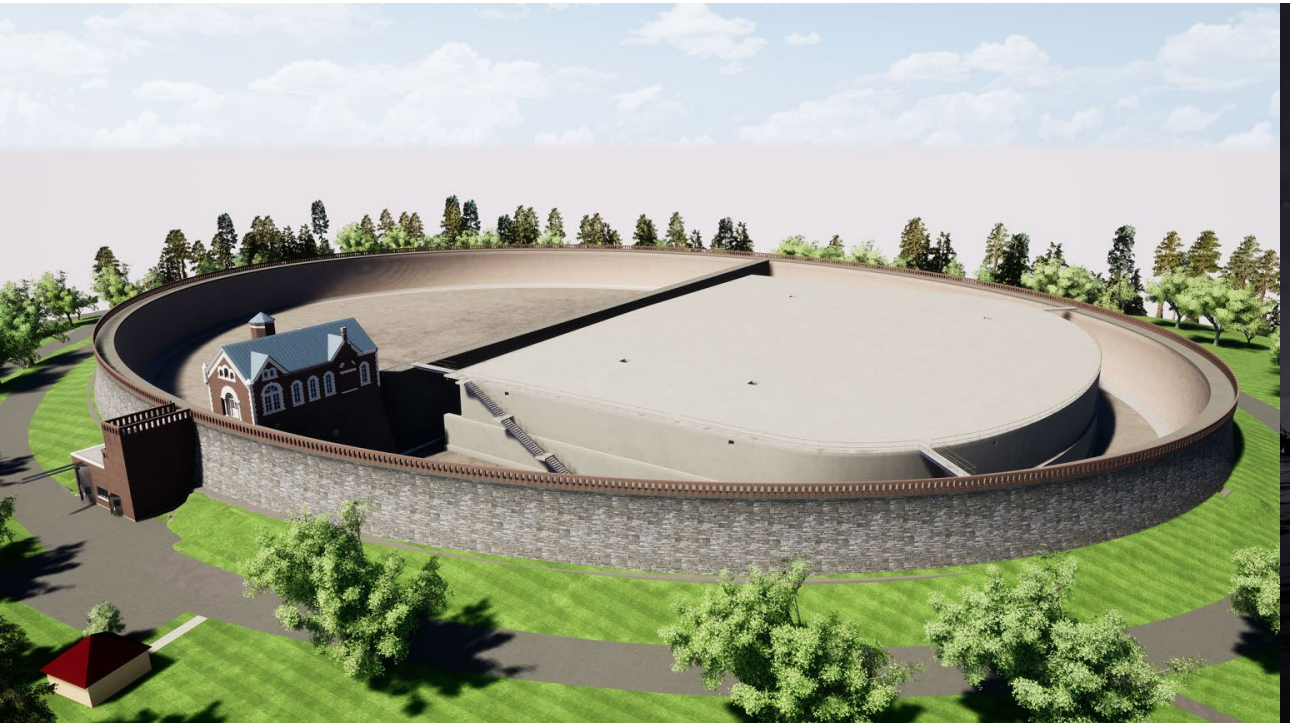
2. Cement pour trucks inside of the reservoir bed

Phase 1 Details: Maps and Renderings Photo Gallery (cont.)

3. Metalwork protruding from doorways

4. Vehicles will be entering and existing from entryways along the reservoir wall

Phase 1 Details: Maps and Renderings Photo Gallery (cont.)



5. Aerial view of the reservoir
6. Nighttime view of the reservoir

Phase 1 Details: What to Expect Photo Gallery

Phase 1 Details: What to Expect Photo Gallery (cont.)

Construction waste & debris

Excavators on construction site

Phase 1 Details: Audio Clip

What to Expect in the Neighborhood
Here are some sounds that you can expect to hear in and around the neighborhood during Phase 1:

Loud drilling and banging noises.

Imagining the Reservoir of Tomorrow

Now that you understand how the reservoir came to be and where we plan to go, we would love to hear your thoughts and ideas.

Click the link below to answer:

What do you look forward to experiencing at the reservoir?

Go to Our Survey

Stay Connected

Stay Connected
We would love to keep you up to date as the project evolves!

Newsletter
Sign up for our quarterly project update newsletter here.

Submit Questions
Submit questions and/or comments to the project team Metro Water Service Communications at MWSCommunications@Nashville.gov.

Community Resources
Learn more about water and wastewater through the Community Education Resource Link and Citizen's Water Academy.

Click to Share

Click to Download Images

Tennessee Crossroads YouTube Video Transcript

Historic 8th Avenue Reservoir

The site of Ft. Nashboro was chosen due to a spring at the eastern end of Spring Street, now called Church St.

Water from the spring was brought into the fort by a wooden trough.

Flow from this spring ceased just before the Civil War and nearby springs were used to provide water to settlers up until 1862 when blasting by Federal troops caused these springs to cease as well.

Nashville's first attempt to establish a public water was to install a pump at the foot of Spring St (now Church St.), pump water into a reservoir that the city had erected on the north side of Church St, just below the present 5th Ave. and extend supply lines from this storage point to the public square.

In April 1826, wooden pipes made of black locust and cedar logs with holes drilled through the center were extended from the reservoir to the square.

After only 3 years of service, misfortune struck. On March 9,

The second water system was complete the fall of 1833. The system supplied the city with water from the Cumberland River by means of a reservoir on the grounds of the old General Hospital Building on Hermitage and a pumping station on the lower bluffs.
The plant functioned satisfactorily for many years but muddy water from the Cumberland River was an ever present quandary. The existing reservoir had acquired a serious silt build-up over the years.

In 1876, the Board of Health determined that sufficient water was being secured but the quality of the water was las than par. A seven person citizens committee was formed to provide recommendations to improve health and sanitation.

The report provided by the committee recommended building a new reservoir with ample dimensions and elevation to provide an adequate supply of water.

Gilbert

What is now known as the 8th Ave reservoir was constructed on Kirkpatrick's Hill, the former site of Ft. Casino, which had been used by the Federal troops during the Battle of Nashville in 1864.

The reservoir, known than as the Main Reservoir, was begun in 1887 and completed in 1889. (Construction actually began in 1886)

J.A. Jowett, the City Engineer prepared the plans and specifications and competitive bids were taken for the construction.

The reservoir is elliptical in shape (603' X 463.4') The ashlar masonry walls are 33' 9" tall and were originally 22.9 feet wide at the bottom and 8 feet wide at the top.

The structure is divided into 2 compartments by a cross wall with the same construction as the exterior wall, each having a capacity of 25.5 million gallons. Raw, muddy water was pumped into the west compartment for settling and then allowed to flow into the east basin through a weir on the cross wall for storage and distribution.

The reservoir was originally built at a total cost of $364,525.00.

The contractor, Whitset & Adams General Contractor reportedly used 750 men, 50 mule teams, 22 derricks, 3 steam drills, 11 steam engines and 9 hoist towers in the construction of the reservoir.

At the top of the reservoir is a nine foot walkway with side rails and a gatehouse which is located at the north end of the dividing wall. The gatehouse housed the valves that controlled distribution and release of water and served as a shelter for the operator....

Tennessee Crossroads YouTube Video Transcript (cont.)

...A new pumping station was also built. Built of handmade bricks, at the "Upper Island" near the natural filtering galleries, it was begun in 1888 and completed in 1889.

A 36" cast iron pipe was installed from the pumping station to the reservoir about 4 miles east of the reservoir in the early fall of 1889.

Both the reservoir and pumping station remain in use today.

Chemical treatment, using alum and hypochlorite of lime, began in 1908. (These agents facilitated settling of particles and sterilization of the water.) Chlorine, replaced the hypochlorite of lime in 1920.

On Tuesday, November 5, 1912 at 12:10 a.m., the Southeast quadrant of the 8th Ave. reservoir broke away. This allowed 25 million gallons of water to flow toward the State Fairgrounds. Estimated property damage was between $75 - $100, 000 and the cost of repairing the reservoir was $100,000.

The former city Engineer, Major Foster, had opposed the location of the reservoir on Kirkpatricks' Hill and had supported locating it on Todd's Knob, near Donelson. His suggestion was rejected for being too far away.

When the reservoir was first completed, the public was welcome. Visitors would stroll enjoying the breeze and views and boys would use the oval as a track for bicycle racing

The reservoir was closed to visitors in 1917 to prevent deliberate contamination of the water supply. A company of home guards, mostly ex-members of porter rifles, guarded the reservoir grounds from dark to daylight.

In 1920, J.N. Chester, a consulting engineer from Pittsburgh, was hired to design a plan to make the reservoir watertight to prevent water from seeping into the foundation. Bids were taken and the project began in 1921.

The waterproofing consisted of a layer of membrane waterproofing covered in concrete on the floor of each basin. A layer of gunite was shot on the interior walls of the reservoir and then covered by a layer of the membrane. Over the membrane was a second coat of gunite and wire fabric to help reinforce the walls.

In 1929, MWS began utilizing rapid sand filtration and both basins of the reservoir were used for clean water storage.

Sonia

The American Water Works Association designated the reservoir as an American Landmark in August 1971.

In order to comply with federal drinking water requirements, plans were made to cover the reservoir in the mid 70's.

Indications of minor deterioration was discovered when the reservoir was drained for cleaning and inspection prior to installation of the cover. As a result, the walls were sandblasted and a wire mash was anchored to the interior walls and then covered with two inches of gunite.

The reservoir was originally covered in 1975 with a floating cover made out of a nylon Dupont product known as Hypalon. The cover was supported by polyethylene foam floats on the surface of the water being stored in the reservoir.

The cover was replaced in 1991 with the same material.