

0.1 Background

The District of Columbia Water and Sewer Authority (DC WASA) published a Water System Facilities Plan dated September 2000 that evaluated the water system and outlined plans to improve the water distribution. The Plan identified a number of enhancements needed throughout all of the service areas, one of which is the creation of a new service area that would improve water distribution east of the Anacostia River in the southern portion of the existing Anacostia First High Service Area. Also, the creation of this new service area will provide optimum pressures during high demand periods to higher elevations in this service area.

Many projects are required to create this new service area, including the installation/replacement of water mains, installation of new pumps to supply water, and a new elevated water storage tower. Pumps to feed water to the new service area are being included in the new Anacostia Pumping Station, which will commence construction at the end of 2006. Construction to install/replace water mains will be under way in early 2007.

Based on the recommendations of the Facilities Plan, DC WASA initiated a successful public outreach program to inform the public of the proposed water system changes and to gain support for the project. Concurrently, regulatory requirements related to approvals required for the new elevated storage tower were investigated. The proposed new storage tower is the first elevated storage tower to be constructed by DC WASA. The most recent elevated storage tower sited in the District was the Boulevard Elevated storage tower, which was erected in 1945.

As the regulatory review processes were identified, DC WASA initiated steps to determine the viability of the proposed Saint Elizabeths storage tower location. Studies were performed to demonstrate the tower's visibility from the area's national parks to show the visual impact to the National Park Service. Additional efforts went into assessing Federal Aviation Administration requirements, historic preservation review requirements, as well as necessary zoning reviews. As visual and aesthetic issues became apparent, work was done to identify compatible tower configurations and shapes, as well as ways to make the facility more aesthetically pleasing and compatible with the surroundings.

Dealings with the Office of Planning identified an issue that was determined to be critical to the siting efforts. The Saint Elizabeths Campus is a National Historic Landmark listed in the National Register of

Historic Places, as well as an individually-designated DC landmark. Therefore, the impact of the proposed storage tower on the site became an issue to consider. Critical to the ultimate approval of the tower is gaining approval under relevant historic preservation reviews, including the Historic Landmark and Historic Protection Act of 1978, as amended. Because of the historic preservation considerations, DC WASA felt it prudent to revisit the recommended siting of the 2000 Facilities Plan to determine if the Saint Elizabeths Campus site was indeed the most appropriate location for the proposed elevated storage tower.

This study, titled Water Tower Siting Study for the Proposed Anacostia Second High Pressure Zone, was prepared to investigate alternate sites to determine the most appropriate location for the proposed elevated water storage tower.

0.2 Proposed Service Area

Plate 1 shows all of the existing water service areas and Plate 2 shows the service areas east of the Anacostia River. The proposed Anacostia Second High Service Area is located within the existing Anacostia First High Service Area, which serves ground elevations between 70 and 170 feet above mean sea level.

Plates 3 and 4 illustrate the proposed Anacostia Second High Service Area. Generally this new service area lies in a north-south direction and extends from W Street, SE between Fort Stanton Park to Martin Luther King Jr. Avenue, SE in the north to the DC/Maryland border approximately between Interstate 295 and Oxon Hill Parkway in the south.

The proposed Anacostia Second High Service Area is predominantly zoned for residential development, most of it for higher density construction. The second most common designation is government owned property. There is some commercial zoning along Martin Luther King Jr. Avenue, SE and South Capitol Street, as well as along major thoroughfares.

0.3 Engineering Requirements

The proposed two million gallon water tower, with an overflow elevation of 310 feet above mean sea level, must be sited at higher ground surface elevations within this new service area. To maintain this overflow elevation, the height of the proposed water tower must be between 145 feet and 170 feet above grade. The overflow elevation was determined by a hydraulic analysis and will raise the hydraulic grade line in the new service area to reach acceptable system pressures. New pumps installed during the replacement of the Anacostia Pumping Station will provide the pressure needed to maintain the new hydraulic grade line. Additionally, once the new tower is in place, DC WASA's water system can then be connected to the existing Saint Elizabeths Hospital Campus distribution system. Currently the Saint Elizabeths system has its own separate pressure zone that draws water from the DC WASA system.

0.4 Alternative Site Selection

Three sites in addition to the proposed Saint Elizabeths site were evaluated. These include:

- ◆ Bald Eagle Recreation Center
- ◆ Camp Simms
- ◆ M. C. Terrell Elementary School

These sites were chosen for consideration because of their elevation -- the higher the site is in elevation, the shorter the tower needs to be and the less the associated tower cost will be. Other considerations included ownership, focusing on sites owned by either the federal or District of Columbia governments. This also is expected to translate into cost savings by generally reducing the costs for transfer of land or easements by using land designated for the good of the general public. Lastly, the sites chosen for evaluation included properties where a tower could be constructed with as little impact as possible, given all relevant considerations.

0.5 Site Comparison Summary

The sites are discussed in detail in Section 4 of the report. The following summarizes the site comparisons:

Every site, except Camp Simms, is publicly owned – St. Elizabeths and Terrell Elementary School by the District of Columbia and Bald Eagle Recreation Center by the federal government. The Camp Simms site is zoned residential and commercial, the Terrell Elementary School site is zoned residential, and the Bald Eagle Recreation Center and St. Elizabeths sites are not zoned. Every site is located on property that is adjacent to a residentially zoned area. With respect to the proposed tower location and actual residential dwellings, the Bald Eagle Recreation Center and St. Elizabeths sites are the furthest removed. Only the St. Elizabeths site is subject to historic preservation review.

Based on the discussions above, a matrix was developed for comparing the alternative water storage tower sites. The matrix is provided with the Tables Section that follows the report and is for providing a perspective for comparison only. The matrix is essentially a numerical summary of key aspects of each site as discussed above and in various sections of this report. As the matrix illustrates, the Saint Elizabeths site was found to be the most appropriate location for the water storage tower that will serve the new Anacostia Second High service area. A brief summary for each location follows.

0.5.1 Bald Eagle Recreation Center

The Bald Eagle Recreation Center has limited but sufficient land area at an elevation that could accommodate the proposed water storage tower. With its purpose being to provide recreational opportunities and with limited outdoor open space to do this, using a large portion of that space conflicts heavily with the facility's purpose. This primary concern, coupled with potential endangered species issues, that could result in substantial delays, and the fact that there is considerably longer pumping distance from the Anacostia Pumping Station, lowers the ranking of this site.



Advantages

- ◆ The property is owned by the Federal Government and has the required ground surface elevation.
- ◆ Relative to Camp Simms and Terrell Elementary School, the Bald Eagle Recreation Center site is well-removed from residential neighborhoods or potential residential development. The nearest residential structure is located approximately 375 feet to the north. To the west of the site is a wooded area that separates the site from light industrial and commercial uses. To the south and east of the site is a heavily-wooded ravine with steep slopes (15-40 degrees) that is administered by the National Park Service (NPS). While this area is not a designated National Park, sale of property administered by NPS to private interests is rare and cumbersome according to NPS officials. The combination of the steep slope and NPS ownership makes it appear unlikely that this area will be developed.

Disadvantages

- ◆ The baseball diamond is in close proximity to the proposed water tower location. A tower located here could be an attractive nuisance if appropriate security measures are not added. The recreational center also hosts a number of activities that could be disrupted by construction activities.

0.5.2 Camp Simms

The Camp Simms site is now privately owned and under development for residential and commercial uses. Construction has already begun and the remaining area for an elevated water storage tower is small. If the tower were constructed at this location, construction staging would be difficult. A new tower would have significant negative impacts on the adjacent new businesses and nearby houses. The new housing development at the lower level of the property would have no visual screening of the tower and the tower would be an imposing presence rising, in very close proximity, over 200 feet above these new houses.



Advantages

- ◆ Site has the highest ground elevation of identified sites, therefore the tower structure at this site would be the lowest.
- ◆ The immediate area will be under construction in the near future. This ongoing construction could mitigate any concerns about the inconvenience and noise created by the water tower's construction.

Disadvantages

- ◆ The proposed tower location is within 200 feet of existing and planned residential uses.
- ◆ The property is privately owned.
- ◆ Visibility from Prince George's County

0.5.3 M. C. Terrell Elementary School

The Terrell Elementary School site has a limited but sufficient footprint and is surrounded by residential neighborhoods. There is limited room for the siting of the tower and, like the Bald Eagle site, the primary purpose for this site is as a neighborhood recreational area in addition to the educational use.

Advantages

- ◆ The property is owned by the District and has the required ground surface elevation.

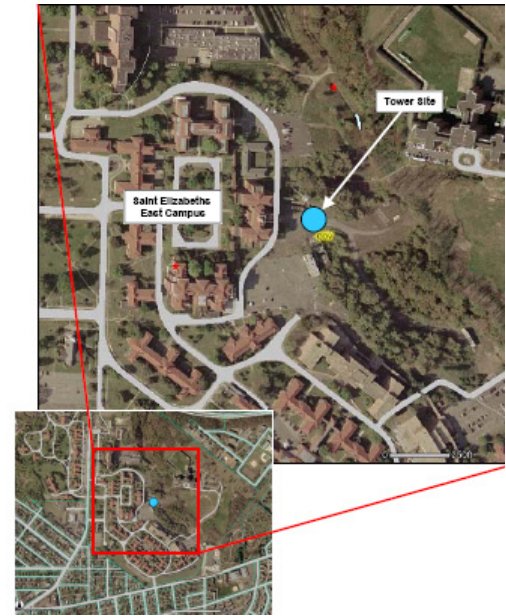
Disadvantages

- ◆ The proposed tower is located on the grounds of an elementary school.
- ◆ The site is surrounded by residential neighborhoods. The proposed tower location is within 100 feet of several residential structures.
- ◆ The new subdivision to the west of the site appears to lack mature foliage, meaning that the water tower would be clearly visible in this area.



0.5.4 Saint Elizabeths Hospital Campus

The Saint Elizabeths site has very few drawbacks from practical and implementation standpoints; the only negative aspect of this site relates to its historic significance. There is an elevated water storage tower on the site, which is part of an antiquated system that is insufficient for the needs of St. Elizabeths Hospital. A new tower on this site will be connected to the St. Elizabeths system, addressing its needs and the needs of the DC WASA system allowing for the removal of the existing tower. The existing water storage tower is visible from various locations on the East Campus and from limited locations on the West Campus. The new larger and the slightly taller (by 48 feet) tower will be visible from the same locations. The site is secure, there is good access and plenty of room for construction, and it is removed from the surrounding neighborhood; the impacts of the new tower would be minimal for all but the resident hospital population.



From a hydraulic and reliability standpoint, this location is superior to the other three sites because the new tower would be centrally located within the service area and no additional distribution work would be required; this central location enhances the tower's usefulness to the service area.

Advantages

- ◆ The property is owned by the District and has the required ground surface elevation.
- ◆ The site is the furthest removed from current or planned residential uses – the proposed tower location is 1320 feet from the nearest residential dwelling
- ◆ It is centrally located within the service area and, for other technical reasons, it is the most advantageous location for the new tower.

Disadvantages

- ◆ The new tower will have more of a visual impact on the historic St. Elizabeths campus than the existing water tower.

- ♦ St. Elizabeths is a National Historic Landmark subject to various historic preservation reviews and approvals.

Based on the discussions above, a matrix was developed for comparing the alternative water storage tower sites. The matrix is provided on the next page and is only intended for establishing a perspective for comparison. As the matrix illustrates, the Saint Elizabeths site compares vary favorably as an appropriate location for the water storage tower that will serve the new Anacostia Second High service area. The matrix is essentially a numerical summary of key aspects of each site as discussed above and in previous sections of this report.

Numerical Comparison Summary

Ranking Criteria	Bald Eagle Recreation Center	Camp Simms	M. C. Terrell Elementary School	Saint Elizabeths Hospital
Airspace Impacts	1	2	2	3
Compatibility with Neighborhood Uses	1	1	1	3
Cost Considerations	1	1	2	3
Distant Viewshed Impacts	2	1	2	2
Historic/Cultural/Archeological Resource Impacts	3	3	3	1
Hydraulic & Other Engineering Considerations	1	2	2	3
Natural Resources Impacts	1	3	3	3
Neighborhood Viewshed Impacts	2	1	1	2
Safety and Security	1	1	1	3
Site Availability	2	1	1	3
Total Score	<u>15</u>	<u>16</u>	<u>18</u>	<u>26</u>

Scoring

1 = Below Average (worse)

2 = Average

3 = Above Average (better)