



MAYOR & COUNCIL COMMUNICATION

DATE: November 17, 2015

REGULAR

ITEM # 8

AGENDA ITEM: Inwood Water Tower (No. 4) – Preliminary Design Update

SUBMITTED BY: Chad Isakson, Project Engineer

THROUGH: Clark Schroeder, Interim City Administrator

REVIEWED BY: Jack Griffin, City Engineer

SUGGESTED ORDER OF BUSINESS:

- Introduction of Item..... City Engineer
- Report/Presentation..... City Engineer
- Questions from Council to Staff..... Mayor Facilitates
- Public Input, if Appropriate..... Mayor Facilitates
- Call for Motion Mayor & City Council
- Discussion..... Mayor & City Council
- Action on Motion..... Mayor Facilitates

POLICY RECOMMENDER: Engineering.

FISCAL IMPACT: None.

SUMMARY AND ACTION REQUESTED:

The City Council is respectfully requested to receive an update on the preliminary design recommendations for the Inwood Water Tower (No. 4) and to provide input and direction as may be deemed appropriate. No formal action is required.

LEGISLATIVE HISTORY/BACKGROUND INFORMATION:

The City retained an engineering design consultant (SEH) to complete a preliminary design evaluation for the Inwood Water Tower (No. 4), including recommendations for the storage volume requirements and to evaluate the capital and life cycle costs for the two most common elevated tank styles.

The size of the water tower was evaluated based on current and projected water use in the high pressure zone water system and including its interaction with the south intermediate pressure zone near Keats and Hudson Boulevard. Water use projections were reviewed to determine the water demands on the system

including current and projected average day demand, maximum day demand, and peak hour demand. In addition, fire flow storage was evaluated for a fire event of 3 hours at 3,000 gallons per minute. Water tower size requirements were then calculated using guidelines and practices from the American Water Works Association (AWWA) Manual of Water Supply Practices.

This analysis confirmed the capital improvement program need to construct a 1.0 Million Gallon (MG) elevated water storage tank. The final design phase will further investigate the potential need for mixing systems to address the interim low water use condition until the high pressure zone is built out.

At a size of 1.0 MG there are two cost effective elevated water tower styles that are typically constructed. The attachments provide a visual comparison of the two styles of tanks for reference.

Style of Tank	Capital Cost	Lifecycle Cost (60 Year)
Composite Style	\$2,400,000	\$450,000
Fluted Steel Column Style	\$2,500,000	\$1,000,000

The composite style tank matches Water Tower No. 2 near the Public Works building. With the lower anticipated capital cost and lower lifecycle cost it is the recommended style of tank. Composite style tanks have become more popular as the relative construction costs have equalized or become less than the Fluted Steel Column Tank and as tank repainting costs have significantly increased. Other composite tank highlights and advantages include:

- One of the most common and most economical style tanks in the 1,000,000 gallon range.
- A cost efficient, low maintenance and durable structure combining an efficient use of reinforced concrete for the support pedestal and welded steel for a watertight storage tank.
- No coating system required for concrete shaft and thus less long-term maintenance (reduced surface area for painting).
- Some believe it is an aesthetically pleasing design. Architectural Rustications highlight the concrete column. These rustications are placed vertically and horizontally at the edge of concrete forms to blend concrete appearance and hide construction joints.
- Interior ladders and piping protects against weather and vandalism and easily allows for pipe insulation.

With confirmation from the council regarding these two recommendations, the final design phase will proceed forward and will include meetings with Public Works and City Officials to consider how to best utilize the site and position the tower for potential future use by telecommunication companies. These additions and design considerations will be brought forward to Council in December or January for presentation and approval.

RECOMMENDATION:

Staff recommends that the Final Design proceed forward for a 1.0 Million Gallon (MG) Composite Elevated Water Storage Tank. This tank would be similar in style to the existing City Water Tower No. 2 located at the Public Works facility. No formal action is required.

ATTACHMENT(S):

1. Exhibit – Example Composite Elevated Storage Tanks.
2. Exhibit – Example Fluted Steel Column Elevated Storage Tanks.