



City of Woodland

REPORT TO MAYOR AND CITY COUNCIL

AGENDA ITEM

TO: THE HONORABLE MAYOR
AND CITY COUNCIL

DATE: October 21, 2008

SUBJECT: Approve Plans and Specification; Authorize Bid Advertisement;
Authorize Funding and Designate City Manager to Award the
Construction Contract for the Water Tank Replacement Project 07-49

Report in Brief

After the City of Woodland received a study that identified seismic concerns regarding the existing 300,000 gallon tank on Beamer Street, the City selected Brown and Caldwell Consulting Engineers to prepare bid documents for replacing the tank.

The existing multi-column tank is 45 feet in diameter and 115 feet tall. The replacement tank will have a capacity of 400,000 gallons and be approximately 135 feet above natural ground level. The new tank will meet the current building code seismic requirements.

The price of steel has nearly doubled over the last 18 months and staff desires to move the project forward expeditiously to minimize further project cost escalation. Staff believes it is advisable to stay on schedule for the Water Tank Replacement Project in order to facilitate improved City-wide water pressure and to prevent structural failure of the existing tank due to its inability to withstand current seismic loading requirement as contained in the updated building code.

Staff recommends City Council approve the bid documents for the Pedosphere tank, authorize the bid advertisement, authorize revised budget funding in the amount of \$4,830,000 and designate City Manager to award the construction contract in an amount not to exceed \$3,500,000 (105% of engineers estimate) for the Water Tank Replacement Project No 07-49.

Background

In August 2006, an assessment of the City's 300,000 gallon elevated storage tank indicated that the tank does not meet current seismic requirements. This study was done by Brown and Caldwell Engineering. The results of the model also revealed that the City's system is not able to meet the recommended water supply requirements for fire flow and peak hour operational conditions with the present water storage tank height and size. The tank is also in need of repainting.

Discussion

The existing water storage tank is beyond its normal service life expectancy. The tank is too old to warrant major capital repairs, recoating the steel or to be retrofitted for seismic concerns.

The consultant West Yost and Associates has provided hydraulic modeling to evaluate and confirm the appropriate size and height of the new tank. The proposed tank is sufficiently similar in size to the existing tank to allow the replacement work to be classified by CEQA as a facility replacement. The California Environmental Quality Act (CEQA) process allows for exemptions for replacement of facilities; therefore, this project is classified as a replacement project and only a notice of exemption is required. An historical analysis was also conducted, it was concluded that the tank is of no historical significance.

The proposed tank will be located at the former site of the National Guard Armory building site on Beamer Street. Ultimately the site will be developed into a parking lot for the adjacent athletic fields. This is indicated in the attached Appendix 1.

Research was conducted on various options for the tank replacement project and extensively discussed with the City Council Infrastructure Subcommittee. These options are summarized below;

1. The proposed Pedosphere Tank: This tank was selected as the most desired option by the Infrastructure Subcommittee and has an attractive simplistic appearance as shown in the attached Appendix 2. The slender single support column, which does not contain water, securely encloses the access ladders and connecting piping to the tank. The flared base section is accessible only through a lockable trapdoor and provides space for pumps, controls or storage. Since there is no cross bracing, climbing the tank would be very difficult and any graffiti cleanup would likely occur at the easily accessible base of the tank. A wrought iron fence is included in the project. The cost of this option is included in Table 1 below.
2. Multi-Column Tank: The multi-column tank, as shown in Appendix 2 attached, is the style of the existing City's water tower. The tank offers the most economical means of providing elevated water storage capacity. The Infrastructure Committee did not select this tank style because the tank would be significantly more expensive to repaint, the graffiti removal could occur in very difficult-to-access locations, there is a higher potential for graffiti and there are security and safety concerns since the tank could be climbed or vandalized. Standard design includes a balcony and hand rail around the tank with access ladders on the tower column and tank. Usually, the supporting legs are sealed and no corrosion protection is provided inside the support legs. This tank would have a much larger foot print on the future parking lot than the Pedeshpere tank style.
3. Fluted Column/Pillar: The fluted column tank, also referred to as the pillar style tank is available in a wide range of capacities from 250,000 to 2,500,000 gallons. The large diameter, all steel single support column is fluted to combine greater structural rigidity with an architecturally pleasing appearance. This tank style was not selected as it is the most

expensive, has similar benefits as the Pedeshpere and has a greater foot print on the parking and landscaped area.

The design consultant provided a summary update of the various costs for each tank style. It is dated September 2008 and is presented in Table 1 below;

TABLE 1

Tank Style	Capital		Long-term O&M	Total Net Present Value (factors in both Capital and O&M)	
	Cost	\$/gal		Cost	\$/gal
Pedosphere	\$2,350,000	\$ 5.88	\$258,000	\$ 2,608,000	\$ 6.52
Multi-column	\$1,800,000	\$ 4.50	\$ 322,000	\$ 2,122,000	\$ 5.31
Fluted Column/Pillar	\$2,600,000	\$ 6.50	\$ 258,000	\$ 2,858,000	\$ 7.15

Notes

- 1. O&M and Total NPV costs are over 50 years*
- 2. Foundation costs are not included. Foundation costs can vary from 10-15% (about \$200,000), but will be confirmed once the geotechnical analysis is complete.*

The project includes installing additional parallel piping in Beamer Street from the new tank to West Street and also piping to connect to Well No. 4. The combination of this additional piping and the higher tank will increase both the pressure and peak hour flows. Peak hour flows and fire flow capability will increase from the current 2400 gpm to 4200 gpm when the project is completed. This additional flow offsets the need to drill a replacement well. This piping improvements cost is one fourth the cost drilling a new well. This future well drilling cost avoidance offsets most of the project's material escalation costs.

To expedite project development, staff requests the City Council to authorize the City Manager to approve bid award and construction contract within the limits stated in the staff recommendations. Staff will submit a bid summary to the City Manager with a recommendation for bid award. This ability to respond rapidly for the bidding process including contract approval is needed due to dynamics of both the price of steel and the financial market conditions for selling the water revenue bond for this project.

Fiscal Impact

Table 2 and 3 (next page) shows the original and current project budget estimates year by year. The project cost has nearly doubled. The increase in cost is primarily the result of major price increases for steel. The price of steel has almost doubled in the last 18 months. Additional project costs have occurred for the sound wall, the tank's pipeline work to significantly increase fire flows, inspection and testing of pipeline and inclusion of the Armory building demolition. The additional cost also

includes increase in costs associated with construction management, tank’s hydraulic modeling, and tank design and planning.

A summary table of the engineers estimate is indicated in Table 2 and 3 below:

TABLE 2

Project’s Original Estimate				
Budget Item	FY 07/08	FY 08/09	FY 09/10	Total
Project Costs	\$370,000	\$1,646,000	\$250,000	\$2,226,000
Contingency			\$234,000	\$234,000
Total	\$370,000	\$1,646,000	\$484,000	\$2,500,000

TABLE 3

September 2008 Engineer’s Estimate (current)				
Budget Item	FY 07/08	FY 08/09	FY 09/10	Total
Project Costs	\$486,000	\$2,634,500	\$1,140,000	\$4,260,500
Contingency			\$569,500	\$569,500
Total	\$486,000	\$2,634,500	\$1,709,500	\$4,830,000

Originally approved 2008 Funding Budgeted is indicated in Table 4 below:

TABLE 4

Project Name	FY 07/08	FY 08/09	FY 09/10	Total
Water Tank Replacement	\$450,000	\$2,050,000		\$2,500,000

Propose 2008 Revise Funding Budget is indicated in Table 5 below:

TABLE 5

Project Name	FY 07/08	FY 08/09	FY 09/10	Total
Water Tank Replacement	\$486,000	\$2,994,000	\$1,350,000	\$4,830,000

A more detailed summary of the project cost is included as Attachment No. 3.

Staff requests additional funding authorization which will be funded by the Water Revenue Bonds. The debt service payments for the bonds will be funded by Water Enterprise Fund. It is important for the City Council to note that the additional cost for the water tank will require the bond issue to be increased from the estimated \$16.9 million to approximately \$18.5 million which is still below the \$20 million authorized by the Council on September 16. The debt service cost for the bonds will be funded within the existing water rates and will not require an increase in the rates.

The City Council could consider options to reduce costs. The most significant cost reduction option would be to redesign the tank for the multi-column style which could save approximately \$500,000 based on current construction costs. However, the net savings would be affected by additional redesign costs of \$150,000 and the addition of a building to contain mechanical equipment such as piping that is currently planned to go inside the flared base section of the Pedesphere. In addition, staff anticipates that the cost of steel could increase during the approximate three months required to redesign the project.

Public Contact

The Public Works Department held a neighborhood meeting on May 8, 2008 outside the Armory building to present the project and provide community members with an opportunity to ask questions and share any concerns they may have. A meeting notice was mailed to property owners within 500 feet of the project site and the notice was published in the Woodland Daily Democrat. Approximately ten residents attended the meeting. They asked a number of questions regarding the project and the construction of the future parking lot. There were some concerns expressed regarding the visual impact of the tank being at somewhat of a new location. Most concerns expressed related to the future parking lot (not part of this project).

The project has been presented and unanimously approved by the Parks Commission and the Planning Commission. At the June 5, 2008 Planning Commission meeting a review of the preliminary design of the new elevated water storage tank was presented. The Commission unanimously supported (with Commissioner Barzo absent) both designs proposed for the new water storage tank (pedesphere and multi-column).

To minimize impacts and concerns over the use of the ball field at Clark Field, it was decided to move the tank east to be located at the center of the Armory Building site. The Amory Building has been removed at a cost of about \$42,400 and the City is seeking reimbursement from the State for this cost. The estimated cost of construction for the tank, sound wall, and the pipeline work is about \$3,500,000. The bid documents for the pipeline and sound wall work will be submitted to Council at a later date for approval.

To minimize visual impacts of the new location of the propose tank and concerns of the noise of parking traffic around the tank area, a masonry wall will be built between the park and the residences to the south between the Armory site and Walnut Street.

Alternative Courses of Action

1. Approve the bid documents for the Pedesphere tank, authorize the bid advertisement, authorize revised budget funding in the amount of \$4,830,000 and designate City Manager to award the construction contract in an amount not to exceed \$3,500,000 (105% of engineers estimate) for the Water Tank Replacement Project No 07-49.

2. Direct staff to have the tank redesigned for the multi-column tank style as the preferred option in place of the Pedesphere tank style as described herein.

Recommendation for Action

Staff recommends that the City Council approve Alternative No. 1.

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Senior Civil Engineer

Reviewed by: Doug Baxter
Senior Civil Engineer

Reviewed by: Greg Meyer
Director of Public Works

Mark G. Deven
City Manager

Attachments: Appendix 1- Tank location
Appendix 2- Tank Styles Pictures
Appendix 3- Project Cost Summary

Appendix - 1



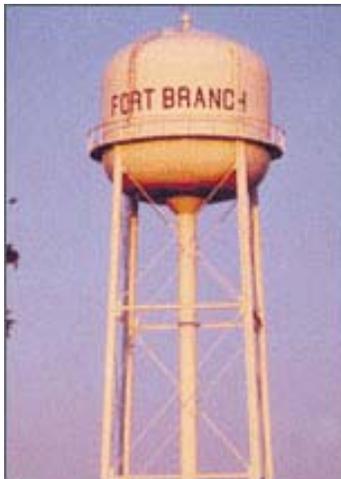
Aerial Source: www.maps.live.com

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Appendix - 2



Pedosphere tank style



Multi-Column tank style



Fluted Column tank style

TABLE 3

October 2008 Engineer's Estimate (current)				
Budget Item	FY 07/08	FY 08/09	FY 09/10	Total
Preliminary Engineering, Design & Hydraulic Modeling	\$486,000	\$427,000	\$25,000	\$938,000
Tank and Pipelines		\$1,974,000	\$851,000	\$2,825,000
Administration and Project Management		\$115,000	\$100,000	\$215,000
Armory Building Removal		\$42,400		\$42,400
Construction Management and Inspection		\$157,600	\$105,000	\$262,600
Contingency		\$278,000	\$269,000	\$547,000
Total	\$486,000	\$2,994,000	\$1,350,000	\$4,830,000