

TO: James L. App, City Manager
FROM: Brad Hagemann, Water Resources Manager
SUBJECT: Water and Sewer Master Plan Update
DATE: February 15, 2005

NEEDS: For the City Council to consider procuring services to prepare aerial topography mapping for the Water and Sewer Master Plans update.

- FACTS:**
1. The City's current Water and Sewer Master Plans were prepared in 1993.
 2. The Water and Sewer Master Plans are being updated for consistency with the 2003 General Plan.
 3. In May 2004, the City Council authorized staff to engage the services of Boyle Engineering to assist with the Water and Sewer Master Plans update.
 4. A critical component to the Plan update is current and accurate vertical and horizontal measurements/mapping. The City's current water and sewer atlas map data is inadequate:
 - The relative vertical elevation (vertical control) of pipes do not have a common elevation control point. This leads to significant design errors. In addition, flow line elevations for manholes and pipelines vary city-wide.
 - City limit lines are not plotted accurately (lack of horizontal control). This can result in pipeline misalignment by as much as 50 to 100 feet.
 5. Aerial topographic mapping is a phase of the Master Plan update outside the scope of Boyle's contract.

**ANALYSIS
AND**

CONCLUSION: In order to effectively model, plan, and design the water and sewer system, a city-wide map with accurate vertical and horizontal control is essential. Accurate aerial mapping will additionally benefit other departments and has the potential to be utilized as part of a master mapping effort for use by all departments.

Aerial topography mapping is the best method of collecting the required data. Aerial topography requires the use of specialized high capital cost equipment. The California firms with the appropriate equipment and skills were requested to submit proposals to complete the aerial mapping. Two of the three firms submitted proposals:

Golden State Aerial Surveys	\$ 97,900
Ground Control Service (John Wallace)	16,000
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	\$ 113,900

Aerial Photomapping Services	\$ 106,500
Ground Control Service	20,000
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	\$ 126,500

Once complete, the City would have a final product as follows:

- Accurate vertical information throughout the City, based on a consistent elevation datum.
- An accurate horizontal base map, with City limit lines tied to correct physical locations. This will also be useful in General Plan implementation (such as the “purple belt” study to determine how to preserve properties for agricultural use).
- The mapping data will be formatted such that it will provide an essential component that will feed into an Emergency Services project to electronically locate all fire hydrants.

POLICY

REFERENCE: Adopted General Plan

FISCAL

IMPACT: City Council has adopted the following budgets to update the Water and Sewer Master Plans:

601.310.5224.756 (Sewer)	\$ 300,000
600.310.5224.760 (Water)	\$ 300,000

There are adequate funds for the aerial base mapping work within these adopted budgets.

- OPTIONS:**
- a. Authorize staff to execute and contract for aerial topographic mapping with Golden State Aerial Surveys and John Wallace Group.
 - b. Amend, modify, or reject the above option.