

## Agenda Report

**TO:** CITY COUNCIL

**DATE:** April 17, 2000

**FROM:** City Manager

**RE:** Rehabilitation of the Linda Vista Avenue/Arroyo Boulevard Trunk Sewer:  
Amendment of Contract No. 16,712 with Clarke Contracting Corporation for \$410,000

### RECOMMENDATION:

It is recommended that the City Council:

- (1) Authorize the City Manager to execute an amendment to Contract No. 16,712 with Clarke Contracting Corporation for the rehabilitation of the Linda Vista Avenue/Arroyo Boulevard trunk sewer that will increase the contract "not to exceed" amount from \$680,000 to \$1,090,000 – an increase of \$410,000 – because of the need to put the line in a good state of repair so that it may be relinquished to County Sanitation District No. 2 of Los Angeles County.
- (2) Approve a journal voucher appropriating \$345,000 in Sewer Funds to Budget Account 76523 (Linda Vista Avenue/Arroyo Boulevard Trunk Sewer).

### SUMMARY:

The report traces the history of efforts to place the 77 year old, deteriorated Linda Vista Avenue/Arroyo Boulevard trunk sewer in a good state of repair so that ownership of the line may be transferred to County Sanitation District No. 2 of Los Angeles County pursuant to Relinquishment Agreement No. 16,874. It describes the location of the line, the details of past and present construction projects, the status of the present contract for repair of the line, negotiations with the Sanitation Districts regarding the scope of additional work that must be done in order to complete the relinquishment, the comparative costs and impacts of using conventional pipe replacement construction methods versus alternative trenchless construction methods for carrying out the required additional work, and finally, the estimated annual saving to the City that will result from the relinquishment.

### BACKGROUND:

The Linda Vista Avenue/Arroyo Boulevard trunk sewer is a 77 year old, 5 mile long, 12-inch to 24-inch diameter line that extends from the Foothill Freeway near Devils Gate Dam in the north to the

City's southerly boundary at Arroyo Boulevard and Columbia Street. The line runs down Linda Vista Avenue, crosses the Arroyo Seco Flood Control Channel, runs along Arroyo Boulevard and the bottom and east slope of the Lower Arroyo Seco parklands, and continues along Grand Avenue and Columbia Street to the West Side trunk sewer owned and operated by County Sanitation District No. 16.

The 1994 project for construction of the new Oak Grove Drive sewer included the replacement or rehabilitation of damaged sections of the downstream Linda Vista Avenue/Arroyo Boulevard trunk sewer. With the introduction of wastewater flow from County Sanitation No. 28 - wholly within La Cañada Flintridge - into the new Oak Grove Drive sewer and the downstream Linda Vista Avenue/Arroyo Boulevard trunk sewer pursuant to Reimbursement Agreement No. 13,765 with the City of La Cañada Flintridge, approved by the Pasadena City Council on April 11, 1989 and subsequently amended on July 2, 1991 and March 22, 1994, it was expected that ownership of the trunk sewer would be relinquished to County Sanitation District No. 2.

During construction of the new Oak Grove Drive sewer project, a considerable amount of trunk sewer replacement and rehabilitation work over and above that called for by the original contract documents was done by change order. However, following the completion of construction, the Sanitation Districts advised that transfer of ownership of the trunk sewer would require the City to undertake substantial additional replacement and rehabilitation work.

Plans and specifications for the work required for relinquishment of the trunk sewer were prepared by City staff and reviewed and approved by the Sanitation Districts. They called for the replacement of pipe sections exhibiting structural damage and/or offset joints, the rehabilitations of pipe sections exhibiting leaky joints and/or root intrusion, the installation of a carrier pipe inside the existing cast iron casing that crosses over the Arroyo Seco Flood Control Channel, and the reconstruction of selected manholes. Pipe rehabilitation consists of root fumigation, hydrocleaning and root removal, initial television inspection, joint testing, joint sealing, and final television inspection.

An agreement for the relinquishment of the Linda Vista Avenue/Arroyo Boulevard trunk sewer to County Sanitation District No. 2 of Los Angeles County prepared by the Sanitation Districts was reviewed and approved by the Public Works and Transportation Department, the City Attorney's Office, and the Liability Claims Coordinator. Resolution No. 7711, adopted by the City Council on January 25, 1999, approved Relinquishment Agreement No. 16,874 for the transfer of ownership of the line. The agreement was approved by the Board of Directors of County Sanitation District No. 2 on August 25, 1999 and recorded in the Los Angeles County Recorder's Office on November 2, 1999.

Following competitive bidding, Contract No. 16,712 in the amount of \$680,000 was awarded to Clarke Contracting Corporation on July 13, 1998. Work commenced on August 24, 1998 and was suspended on January 14, 1999 pending the Sanitation Districts' review of videotapes of the sewer sections scheduled for joint testing and sealing. All other work had been completed by that date.

Initial review of the videotapes by the Sanitation Districts in March 1999 found that a significant amount of even more pipe sections needed to be removed and replaced to enable the transfer of ownership to be effected. The net increase in cost based on the contract unit prices was \$502,688.

The City staff's review of the same videotapes divided the observed defects into three categories: major damage, marginal damage, and minimal damage. The net increase in cost based on major and marginal damage was \$344,891. In view of this discrepancy, the Sanitation Districts were asked in April 1999 to reevaluate the need for additional repairs and determine whether there were alternative treatments to pipe replacement that would be acceptable.

In May 1999, the Sanitation Districts replied that new work was needed at four locations, the need for work confirmed at 14 locations, and work deleted at 36 locations. It was also stated that additional pipe rehabilitation was required at 25 manhole-to-manhole reaches. The net effect of the Sanitation Districts' reevaluation was to reduce the construction cost of extra work based on the contract unit prices from the previous total of \$502,688 to \$312,476 - a 38% reduction.

The Sanitation Districts' reply also advised that alternative repair methods, such as cured-in-place pipe liners, spiral-wound lining systems that are grouted in place, or cured-in-place systems, were acceptable. However, because these repair methods were not included in the original contract, it was not known which of them would be the least costly or, because of restricted access and difficult set up conditions along the steep slope of the Lower Arroyo Seco, whether any would be less costly than replacement of the damaged pipe sections.

The reply also advised that five manhole-to-manhole reaches were inadequately inspected because of excessive turbulence or depth of flow. Accordingly, these reaches were recleaned and retelevised in September 1999. The Sanitation Districts' review of this tape indicated the need for the replacement of damaged pipe sections at two additional reaches. The cost of this new work based on contract unit prices was \$73,875 - thereby raising the total cost of the repairs needed to carry out the relinquishment of the sewer, but not included in the original plans and specifications, from \$312,476 to \$386,351.

In November 1999, the City staff asked the Sanitation Districts to provide us with technical specifications for use of the approved alternative repair methods. In January 2000, technical specifications for the installation of cured-in-place pipe liners and stainless steel sleeves were received. Following that, negotiations were conducted with Clarke Contracting Corporation regarding reduced unit prices for additional pipe replacement work as allowed by the project specifications for major bid items in excess of 125% of the original contract quantities versus the cost for the installation of cured-in-place pipe liners supplemented by the installation of short lengths of stainless steel sleeves at three locations.

A comparison of the estimated costs for completing the project using pipe replacement versus alternative methods, including the costs for joint testing, joint sealing, and final television inspection remaining from the original scope of work as well as the cost of additional manhole repairs, is shown below.

	<u>Pipe Replacement</u>	<u>Alternative Methods</u>
Joint Testing, Joint Sealing, and Final Television Inspection (Original Work)	\$ 73,076	\$ 64,159
Manhole Repairs (New Work)	6,196	6,196
Pipe Replacement (New Work)	339,868	
Cured-in-Place Pipe Liner (New Work)		346,198
Stainless Steel Sleeves (New Work)	<u>58,907</u>	<u>18,837</u>
	\$419,140	\$435,390
Contingency Allowance (All Work)	<u>58,907</u>	<u>14,336</u>
	\$478,047	\$449,726
Contract No. 16,712 - Remaining Funds	<u>(40,516)</u>	<u>(40,516)</u>
Contract Amendment Needed	\$437,531	\$409,210

The figures shown for the work remaining from the original contract, principally the joint testing and sealing, are greater for the pipe replacement option than for the alternative methods because of the extent of the repairs provided by each. The pipe replacement option calls for replacing only the generally 2.5-foot long pipe sections with observed defects; the alternative methods provide for manhole-to-manhole repair by installation of the pipe liners, thereby eliminating a greater number of pipe joints to be tested and, if needed, sealed.

A higher contingency allowance is shown for the pipe replacement option than for the alternative methods because of the nature of the different construction techniques involved. Pipe replacement requires excavation, pipe removal, pipe installation, and trench backfill. The cured-in-place pipe liners and stainless steel sleeves, on the other hand, involve non-invasive procedures: the materials are installed in the existing pipes via manholes by the use of specialized equipment. No excavation is required. Accordingly, the contingency allowance for the pipe replacement option has been calculated as 10% for the remaining original work and additional manhole repairs plus 15% for the additional pipe replacement work. The latter percentage matches the original contract contingency allowance and reflects the actual experience with the now-completed original pipe replacement work: extra work costs of \$62,532 for base bid items totaling \$418,561 – an actual contingency ratio of 14.9%. The contingency allowance for the alternative methods, like the pipe replacement option, allows 10% for the remaining original work, but uses a figure of 2% for the alternative pipe repair work due to the trenchless construction techniques involved.

Although the estimated cost, excluding contingency allowances, of completing the project by using the conventional pipe replacement technique is somewhat lower than using the pipe liners and sleeves – \$419,140 to \$435,390 – the likelihood of higher extra work costs associated with underground construction as demonstrated by previous contract work makes the use of the alternative methods the preferred choice. The use of these methods will also significantly shorten the time needed to complete the rehabilitation and relinquishment of the sewer, and will have less impact on the Lower Arroyo Seco parklands traversed by the line.

Approval of the proposed contract amendment and journal voucher will facilitate the completion of construction and the transfer of ownership of the Linda Vista Avenue/Arroyo Boulevard trunk sewer to County Sanitation District No. 2 of Los Angeles County pursuant to Relinquishment Agreement No. 16,874. Relinquishment of the line will free the City from responsibility for its future operation and maintenance. Accordingly, approval of the proposed contract amendment is recommended.

The proposed contract amendment with Clarke Contracting Corporation complies fully with the Affirmative Action in Contracting Ordinance and the rules and regulations promulgated thereunder, as did the original contractor selection process.

It is anticipated that work will resume in May 2000 and be completed in August 2000.

#### FISCAL IMPACT:

The transfer of ownership of the Linda Vista Avenue/Arroyo Boulevard trunk sewer to County Sanitation District No. 2 will eliminate both the costs associated with the continued operation and maintenance of the line and the revenue derived from the sewer use charges collected from the properties directly connected to it.


The estimated annual costs for operation and maintenance, based on 1999 cost data, that will be saved by relinquishment of the trunk sewer have been calculated on the basis on historical data and recent evaluation of the original segments of the line that remain in place. These costs are estimated to be:

<u>Activity</u>	<u>Annual Cost</u>
Linda Vista Avenue Line Cleaning =	\$ 6,600
Arroyo Boulevard/Grand Avenue/Columbia Street Line Cleaning =	1,650
Linda Vista Avenue and Arroyo Boulevard/Grand Avenue/Columbia Street Lines Televising =	600
Lower Arroyo Seco Line Cleaning and Televising =	3,800
Emergency Repairs =	750
System Rehabilitation and Repairs =	<u>35,200</u>
	\$ 48,600

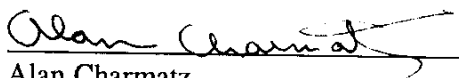
Section 4.52.020A of the Pasadena Municipal Code, states that "Every bill for water use under 'the water rate ordinance' where the customer is served by the sanitary sewerage system of the City shall be subject to a charge...." Once ownership of the trunk sewer is transferred to County Sanitation District No. 2, those properties that are directly connected to it will no longer be served by the Pasadena sewerage system. This consists of the Linda Vista Avenue frontages north of 310 Linda Vista Avenue plus the lots on Grand Avenue between Madeline Drive and Columbia Street and on Columbia Street between Grand Avenue and Arroyo Boulevard - a total of approximately 210 single-family homes, plus the Linda Vista Elementary School at 1259 Linda Vista Avenue. The estimated annual revenue loss based on 1999 data is \$13,100.

Comparison of the above figures shows that relinquishment of the trunk sewer will result in an estimated annual saving to the City of \$35,500: \$48,600 less \$13,100.

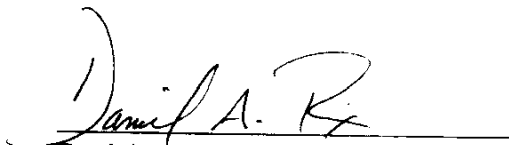
Respectfully submitted,

  
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