CITY OF PEORIA, ARIZONA
COUNCIL COMMUNICATION

CC: 9C
Amend No. _____

Date Prepared: March 24, 2010 **Council Meeting Date:** April 20, 2010

TO: Carl Swenson, City Manager

THROUGH: Susan K. Thorpe, Deputy City Manager SKT

FROM: William Mattingly, Public Works-Utilities Director WJM

PREPARED BY: Claudia Christo, Civil Engineer CC

SUBJECT: Wastewater Pipeline Inspection Program

RECOMMENDATION:

Discussion and possible action to award a contract (#P10-0033) to Brown and Caldwell for consulting services related to a Wastewater Pipeline Inspection Program for an amount not to exceed $245,025. Payment will be made from the Trunk Sewer Line Inspection (Account 2400-2550-520099-CIPWW-UT00295-SY).

SUMMARY:

The City of Peoria Public Works-Utilities Department is conducting an assessment of the condition of large ("trunk") Wastewater Pipelines. These are sewer lines which are 15-inches in diameter and larger. The project will include video inspection of approximately 75 miles of sewer lines over a two-year period of time. Brown and Caldwell (the Engineer) will use this information to assess the condition of the lines and identify any potential defects. The Engineer will identify any repairs and/ or improvements which may be necessary. The scope of services also includes the collection of field data which will be used to update record information in the existing maintenance management system and the geographic information system (GIS).

The City used a qualifications-based solicitation and selected Brown and Caldwell as the consultant. Work is scheduled to start in May of 2010 and be completed by July 2011.

CITY CLERK USE ONLY:

o **Consent Agenda**
o **Carry Over to Date:**_____
o **Approved**
o **Unfinished Business (Date heard previous:**_____**)**
o **New Business**

ORD. #_____ **RES. #**
LCON# 04010 **LIC. #**
Action Date:

Funding for this project is included in the FY2010 Capital Improvement Program for an amount equal to $245,025. Additional funding for this program has been identified in FY2011 and is subject to Council adoption of the FY2011 Budget. The inspection work will begin using the currently available budget. Staff anticipates allocating an additional $287,440 for this program in FY2011. Pending adoption of the FY2011 budget, a contract amendment will be brought to Council for approval.

Staff recommends the award of a contract (#P10-0033) to Brown and Caldwell for consulting services related to a Wastewater Pipeline Inspection Program for an amount not to exceed $245,025.

FISCAL NOTE:

Funding for this contract is available in the 2010 Capital Improvement Program. Payment in the amount of $245,025 will be made from the Trunk Sewer Line Inspection Project, Wastewater Utility Account 2400-2550-520099-CIPWW-UT00295SY.

ATTACHMENT(S):

Exhibit A- Brown & Caldwell Proposal

EXHIBIT A

CITY OF PEORIA
TRUNK LINE 15-INCH AND LARGER
RISK ASSESSMENT PROGRAM

SCOPE OF WORK

March 2, 2010

The scope of work includes the investigation and assessment for sewer segments 15-inch and larger within the City of Peoria (City). The investigation will include up to 400,000 linear feet (lf) of 15- to 42-inch sanitary sewer pipeline. The purpose of this investigation is to identify the current conditions within the pipelines and recommend future rehabilitation, replacement and reinvestigation needs for the pipeline.

Task 1.0 Project Management

1.1 Project Management. Management of the overall project including staff resources, subconsultants, and client correspondence to assure timely project completion.

- A project schedule will be prepared with milestones agreed to with the City.
- Brown and Caldwell will coordinate the work efforts of the inspection team to ensure that all required permits are obtained and traffic control issues are resolved to facilitate the Closed Circuit Television (CCTV) inspection of the pipelines.
- Detailed monthly invoices will be provided to document all work performed.
- All Project deliverables will be reviewed and edited by Brown and Caldwell for quality assurance prior to submittal to the City.

1.2 Project Meetings.

- A Kickoff Meeting will be held to define milestones, respective responsibilities, and provide for coordination between the City and the inspection team. During this meeting, we will interview City staff to obtain system operational/maintenance information, GIS requirements, data transfer procedures, and requirements for providing updated collection system information.
- Up to four progress meetings will be conducted throughout the project to update the City on the project status and to discuss any issues that may arise during the project execution.
- Meeting minutes will be prepared for all meetings and submitted to all meeting attendees.

1.3 Data Collection. The City will provide the following information, where available, to Brown and Caldwell:

- The existing inventory of the project sewers from the City's quarter section maps and/or GIS database
- Sewer as-built drawings

- Historical CCTV videos
- Maintenance/Repair records
- Historical Manhole inspection logs and photos
- Flow data for the past year for use with field investigations.

1.4 Prioritize Inspections. Using information gathered during the staff interviews and our review of available data and collection system information we will establish the prioritized list for the sewer inspections. We will review the inspection prioritization with City staff and establish a finalized inspection plan. Our inspection team will maintain and provide a 2 to 3 week look-ahead schedule once inspections start to keep the City personnel informed on the location of pending inspections.

1.5 Traffic Control. In general, our inspection team will attempt to access the sewers from manholes requiring minimal traffic control. Where traffic control is needed, the team will obtain all required permits and provide traffic control plans to the City. Traffic control will be performed in accordance with the City's traffic control requirements.

1.6 Field Work Safety Plan. Develop a Field Work Safety Plan (FWSP) for the field inspections to be conducted in accordance with the City's and Occupational Safety and Health Administration requirements. Plan shall include the project summary, key personnel and responsibilities, site specialties, and safety checklists. A copy of the FWSP will be maintained on site with Brown and Caldwell personnel.

Task 2.0 Field Investigation

2.1 Field Reconnaissance. Monthly field reconnaissance investigations will be conducted with the City to review upcoming inspection sites and identify any initial concerns that may impact the completion of the project. During the site visits, manholes will be located and marked with the manhole number. Where buried and/or stuck manholes are encountered, the City shall be responsible for opening and, if required, raising these manholes in order to provide access.

2.2 CCTV Inspections. The CCTV investigations will be conducted by NASSCO PACP certified inspectors to collect data pertaining to the condition of the sewer and identification of specific defects identified. For purposes of this agreement, a total inventory of up to 400,000 linear feet is included.

- The CCTV work will be digitally acquired using Granite XP software using Hansen defect codes and recorded directly to portable hard drives in the inspection vehicles.
- All defects will be identified, viewed and documented in the defect log and photo's will be taken to document defects and general pipeline conditions.
- Any defects that present an eminent danger will be immediately brought to the City's attention within 24 hours of the initial identification.
- The inspection team will attempt to quantify the amount of debris along each pipe segment during the inspections. If there is too much debris in the pipeline to complete an inspection the inspection team will notify the City. The City will be responsible for any cleaning activities required to complete the inspection process.

2.3 Manhole Investigations. The inspection team will provide an initial visual assessment of all manholes used as part of the pipeline investigation. The CCTV camera will also be used to pan the inside of manholes we pass through during the inspection process. Any defects observed within the manholes that present an eminent danger will be immediately brought to the City's attention within 24 hours of the initial identification. Our findings will be summarized in our report.

Task 3.0 Condition Assessment

3.1 Pipeline Condition Assessment. Based on the identified defects, the pipe condition will be assessed using peak and/or total defects. Brown and Caldwell personnel will assign a condition grade for each manhole to manhole segment of sewer pipeline based on a scale of one to five as follows:

Category	Condition	Defect Description	Condition Grade Implication
I	Excellent	Minor Defects	Failure unlikely in the foreseeable future
II	Good	Defects that have not begun to deteriorate	Pipe unlikely to fail for at least 20 years
III	Fair	Moderate defects that will continue to deteriorate	Pipe may fail in 10 to 20 years
IV	Poor	Severe defects that will become Grade 5 defects within the foreseeable future	Pipe will probably fail in 5 to 10 years
V	Immediate Attention	Defects requiring immediate attention	Pipe has failed or will likely fail within the next 5 years

We will make recommendations for additional investigations at the progress meetings which may include sonar and laser if conditions within the pipeline warrant and the additional information is needed to complete rehabilitation recommendations.

3.2 Manhole Condition Assessment We will use the data collected during the pipeline inspections to provide a condition grade for manholes actually viewed. The rating will be based on the following:

Manhole Rehabilitation Rating	Recommended Action
Good	Re-Assess in 5 – 10 years
Fair	Re-Assess in 3 – 5 years
Poor	Rehabilitate in 0 – 5 years

3.3 Identify Rehabilitation Ratings. Brown and Caldwell will develop rehabilitation ratings for each sewer segment inspected. This rehabilitation rating will account for the internal condition assessment and the consequence of failure. The final rating will include a recommendation for rehabilitation/replacement based on the estimated life and potential for failure based solely on observations of the CCTV investigations. We will also make recommendations for future inspections and any operational/maintenance activities that may be required such as root removal and cleaning to remove grease.

3.4 Cost Estimates. Planning level cost estimates will be provided for any future rehabilitation and/or reinvestigation that is recommended as part of the program.

Task 4.0 Technical Memorandum

4.1 Draft Memorandum. A memorandum will be prepared to summarize the results of the condition assessment. The Consultant shall prepare and submit five copies of the draft memorandum for review by the City.

4.2 Review Meeting. The Consultant will attend one review meeting to review City comments for incorporation into the final memorandum.

4.3 Final Memorandum. The Consultant shall incorporate the City's comments and submit five copies of the final memorandum to the City. Copies of all inspection logs, video, and forms will be provided to the City at the completion of the project.

Task 5.0 Data Integration

5.1 Hansen to Granite XP. Brown and Caldwell will work closely with our inspection team to ensure a smooth transition of data between the Hansen Maintenance software and the Granite XP system used to conduct the investigations.

- The inspection team will work directly with City personnel to download the Hansen collection system data to the project hard drive and then upload this data to the Granite XP database in the inspection vehicles. The City will assign work order numbers that will be used by Hansen to track the data.
- At intervals during the inspection to be determined during the Kickoff Meeting the inspection data will be transferred back to the Hansen system.

5.2 Assessment Ratings to GIS. Brown and Caldwell will work closely with the City GIS personnel to ensure a smooth transfer of the condition ratings to the City GIS system.

- Pipeline Condition Grades of 1 to 5 will be assigned for both structural conditions and operational conditions within each segment of pipeline.
- A color code will be assigned to each Condition Grade for display purposes in the GIS system.

Our proposed scope does not include a full manhole investigation, but rather a quick assessment of manholes based upon the view we will have from the CCTV camera located at the invert of the manhole. The cost of a full manhole investigation with complete video of each manhole would cost approximately $67,000.

City of Peoria -- Trunk Line Risk Assessment Program																
Phase	Phase Description	Loendorf, Thayne A	Qualls, Shawntel	Ablin, Ronald L	Espriu, Fernando M	Steed, Harrison T	Wernet, Caren J	Simms, Michael J	Gruber, Allison B	Total Labor Hours	Total Labor Effort	Reproduction	Other Travel	Pro Pipe Cost	Total Expense Cost	Total Effort
		PM	PA	PIC	Field Tech	Engr	WP	GIS	GIS Tech							
010	**Project Management**	121	17	22	44	5	11	4	12	**236**	**38,337**	0	500	0	**500**	**38,837**
011	Project Management	96	16	8	0	0	8	0	0	**128**	21,704	0	0	**0**	**0**	**21,704**
012	Project Meetings	10	0	10	4	4	2	4	4	**38**	6,764	0	200	**0**	**200**	**6,964**
013	Data Collection	2	0	0	16	0	0	0	8	**26**	3,370	0	200	**0**	**200**	**3,570**
014	Prioritize Inspections	12	0	4	16	0	0	0	0	**32**	5,036	0	100	**0**	**100**	**5,136**
015	Traffic Control	0	0	0	8	0	0	0	0	**8**	944	0	0	**0**	**0**	**944**
016	FWSP	1	1	0	0	1	1	0	0	**4**	519	0	0	**0**	**0**	**519**
020	**Field Investigation**	60	0	0	370	0	0	0	0	**430**	**54,520**	0	600	240,000	**240,600**	**295,120**
021	Field Reconnaissance	0	0	0	50	0	0	0	0	**50**	5,900	0	300	**0**	**300**	**6,200**
022	CCTV Investigations	60	0	0	320	0	0	0	0	**380**	48,620	0	300	**240,000**	**240,300**	**288,920**
030	**Condition Assessment**	168	0	22	558	248	0	0	0	**996**	**136,340**	0	110	0	**110**	**136,450**
031	Pipeline Assessment	80	0	12	500	80	0	0	0	**672**	87,608	0	0	**0**	**0**	**87,608**
032	Manhole Assessment	8	0	0	10	8	0	0	0	**26**	3,748	0	110	**0**	**110**	**3,858**
033	Identify Rehab Rating	40	0	2	40	80	0	0	0	**162**	23,648	0	0	**0**	**0**	**23,648**
034	Cost Estimate	40	0	8	8	80	0	0	0	**136**	21,336	0	0	**0**	**0**	**21,336**
040	**Technical Memorandum**	32	0	14	0	56	20	20	100	**242**	**36,648**	500	110	0	**610**	**37,258**
041	Draft Memorandum	20	0	8	0	40	12	20	90	**190**	28,580	250	0	**0**	**250**	**28,830**
042	Review Meeting	4	0	4	0	0	1	0	0	**9**	1,799	0	110	**0**	**110**	**1,909**
043	Final memorandum	8	0	2	0	16	7	0	10	**43**	6,269	250	0	**0**	**250**	**6,519**
050	**Data Integration**	40	0	8	40	0	0	28	40	**156**	**24,580**	0	220	0	**220**	**24,800**
051	Granite XP to Hansen	16	0	4	40	0	0	12	0	**72**	10,764	0	110	**0**	**110**	**10,874**
052	Rating to GIS	24	0	4	0	0	0	16	40	**84**	13,816	0	110	**0**	**110**	**13,926**
	GRAND TOTAL	**421**	**17**	**66**	**1,012**	**309**	**31**	**52**	**152**	**2,060**	**290,425**	**500**	**1,540**	**240,000**	**242,040**	**532,465**

The contract pertaining to this agenda item is on file in the City Clerk’s Office.