

# Agenda Report

DATE: August 14, 2000

TO: City Council

FROM: City Manager

SUBJECT: Authorization to enter into contracts with Analytical Surveys and Psomas & Associates for implementation of Phase I of the Geographic Information System (GIS)

## RECOMMENDATION

It is recommended that City Council:

1. Authorize the City Manager to increase the not to exceed amount of Contract No. 16,953 with Analytical Surveys, Incorporated (ASI) by \$481,000, thereby increasing the not to exceed amount of the Contract from \$216,000 to \$697,000 for consulting services for the City's Geographic Information System (GIS) digital land base. Competitive bidding was not required pursuant to Section 1002(F) of the Pasadena Municipal Code, professional or unique services.
2. Authorize the City Manager enter into a contract with Psomas & Associates, for an amount not to exceed \$499,000 to provide consulting services for systems integration. Competitive bidding was not required pursuant to Section 1002(F) of the Pasadena Municipal Code, professional or unique services.
3. Grant these contracts an exemption from the competitive selection process of the Affirmative Action in Contracting Ordinance, pursuant to Section 4.09.060(C), contracts for which the City's best interests are served.
4. Approve a journal voucher amending the FY2001 Capital Improvement Program Budget by appropriating \$689,011 from the unappropriated Building Services Fund balance to Budget Account 71124, Citywide Geographic Information System.

## EXECUTIVE SUMMARY

The departments of Planning and Permitting, Public Works and Transportation, Water and Power, and Information Technology Services Division are collaborating to develop a citywide Geographic Information System (GIS). GIS is a mapping system that works by combining

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computerized maps of feature data (such as streets, administrative or political districts, parcel lines, and water and sewer locations) with textual data, also known as attribute data, (such as maintenance histories, demographic information, tax records, crime statistics, and zoning designations). The result is a way of visualizing, synthesizing, and interpreting information to aid decision-making and planning as well as managing programs and services.

Implementing the GIS will provide analysis not currently available, integrate data and eliminate data redundancy, centralize information for easy access, and provide information and service to the public in a means not currently available. The results will be (but not limited to) increased customer service, staff productivity, inter-departmental communication, and decreased costs. Please see Exhibit A for real-life examples of these GIS benefits.

The GIS project is phased into a three-part implementation plan. Phase I involves necessary core development (digital orthophotography, land base development and integration with the Land Management System (Tidemark)) and will cost \$1,088,500. Phase II is conversion of utility infrastructure data for Water & Power and will cost \$2,969,700. Phase III focuses on application development, and includes development of customized and commercial software to expand system use specific to other City departments and will cost \$1,578,595. The total contract, software/hardware, and training costs for all three phases has been estimated at \$5,636,795.

Additional costs to support GIS internally are 1) Department (non-ITSD) staff – 500 hours per department for research, data entry, and other ancillary participation. 2) ITSD staff (1 new FTE & part time PC&Net) – 3 years at \$91,000 plus 1.5 years at \$15,000; totaling \$303,000. 3) New staff (maintenance/product development) – \$546,000 (3 years cumulative). The total cost for the GIS implementation and continued support is \$6,032,946

Should GIS funding be interrupted or ceased, each phase can stand alone as a tool for service delivery. This report recommends actions for Phase I of the project.

In addition, Parsons Engineering (located in Pasadena) has expressed an interest in partnering with the City on Phase II and/or Phase III of the GIS project. There are potentially many opportunities available for their involvement including project management, system integration, data conversion, and web interfacing. Staff will continue discussions with Parsons as the project proceeds.

## BACKGROUND

Approximately 80% of the City's databases use an address or parcel number as a key that can link to other databases within the City. This data can be mapped and analyzed with a GIS. The City's multiple departments have varying but related needs for geo-related data. Geo-related data can be used for activities such as creating and maintaining City maps, tracking inspection records by address, creating address lists, tracking of water main breaks, road work notification, analyzing crime statistics, etc. The costs for each department to develop their own geo-related data would be unnecessarily duplicated. In fact, some departments are gathering momentum wanting to start building their own systems. Citywide GIS, however, will allow staff to share the same GIS base data layers.

In 1999, the City hired a consultant firm to review and update an initial GIS implementation plan created in 1994. Recommendations from the updated study include:

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- Initiate the creation of a digital land base<sup>1</sup>, in conjunction with the digital orthophoto<sup>2</sup> acquisition currently in progress (under a contract awarded to ASI for aerial photographs which was approved by Council on May 10, 1999.)
- Hire a systems integration consultant for each phase of the project to ensure systems compatibility, data conversion management, and assure that quality assurance / quality control (QA/QC) procedures are in place for all GIS data layers generated for City use.
- Select the same firm to work on the digital orthophotography, digital landbase, and utility data conversion projects.

The 1999 study utilizes a three-phase GIS implementation plan:

- Phase I: Development of the core GIS layers needed for a functional GIS. These layers include digital orthophotography, assessor parcels, building footprints, street centerlines, easements and right-of-ways derived from the Los Angeles County Assessor paper maps; and the integration of these data layers with the City's Land Management System (Tidemark).
- Phase II: Conversion of the City's utility data (Water & Power).
- Phase III: Development of additional customized and commercial software to be integrated with the GIS, for use by additional City departments and the public, such as web-based building permit applications or neighborhood crime statistics.

An executive summary of both the 1994 and updated 1999 GIS Needs Assessment matrix is attached to this Report as Exhibit B.

In 1997, City staff developed a strategic plan for City use of information technology. Since then, most of the projects outlined in the plan have been implemented (such as building an enterprise data network, improving the method of funding central information technology services, and developing City-wide IT standards). Since completion of projects identified in the 1997 plan, most of the City's new activities related to information technology have been focused on readying the City applications for the Year 2000.

In January the Information Technology Committee (made up of directors of departments making significant use of technology) conducted a review and prioritization of post-Y2K technology projects. The Committee looked at a number of factors in prioritizing projects: who would benefit from the project; project cost; available funding; and requirements for staff and consultant support to implement and maintain the project. The Committee's recommended timeline for the technology projects is attached as Exhibit C.

The Information Technology Committee identified the GIS project as a top priority among the

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<sup>1</sup> The digital land base consists of the basic GIS map layers that the City needs to implement the GIS program. These layers will be created from scanning the LA County Assessor maps and converting all of the data contained on these maps into a digital format that the GIS can access. The layers will consist of assessor parcel lots, streets, utility right-of-ways, and easements.

<sup>2</sup> Digital orthophotos are aerial photographs that are electronically adjusted to correct for distance distortion. They are based on ground surveyed, highly accurate measurements between control points and precision photographs. They are scanned into digital format for computer use.

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projects reviewed. GIS technology should provide substantial benefits to the core user departments of Planning and Permitting, Water and Power, and Public Works and Transportation whose activities are heavily location-related. It also has the potential for use across all City departments, and ultimately by members of the public. Further, directors of the core departments have identified available funding sources for the project.

Phase 1 of the GIS projects has been divided into three components:

- Project A: Digital Orthophotography of the city (currently in process)
- Project B: Digital Land Base Consultant Services
- Project C: Systems Integration Consultant Services

### **Project A:**

In March of 1999, the Planning and Permitting Department and the Public Works and Transportation Department issued a joint RFP for Project A and Project B, above. In May of 1999, Council approved a contract with Analytical Surveys, Incorporated (ASI) for work on Project A.

Project A is now approximately 50% completed. The City was flown in August 1999 to take the aerial photographs, which are being used to generate digital orthophotographs for the entire city. Digital orthophotographs are aerial photographs that are electronically adjusted to correct for distance distortion and combined into one seamless photo layer. The City has recently approved the pilot project for the digital orthophotographs and has subsequently received 150 out of 300 digital orthophotos to review. These orthophotographs will be shared with other City departments for various purposes.

### **Project B:**

A consultant firm is needed to provide the City with a digital land base containing the GIS layers necessary for a solid GIS foundation. Parcels will be scanned and converted from paper maps issued by the Los Angeles County Assessor's Office. The GIS parcel layer will link to the attributes contained within the City's Tidemark system. This link will allow City staff the capability to generate a variety of maps of great value to the city. Examples of such maps include land use, zoning, general plan designations, and demographic maps using census tract and block information. The digital land base will also include street centerlines for address matching (pin maps), water features, utility right-of-ways, and easements.

All of the GIS layers proposed for Project B are to be matched with the digital orthophotographs to assure all layers are properly aligned.

Of the thirteen firms that responded to the RFP for Projects A and B, nine contained a proposal for Project B. The proposals were evaluated using the criteria set forth in the RFP, in accordance with the City's competitive selection process for professional services. An evaluation matrix is appended to the Report as Exhibit D. The total points scored for the highest three firms are as follows:

ASI: 376

Psomas: 372

Sanborn Map: 363

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It is recommended that ASI, the firm receiving the highest total points from the evaluation team, be awarded the contract. Additionally, choosing ASI as the digital land base firm corresponds to the 1999 GIS Implementation Study recommendation that the City use the same firm for both the digital orthophotography and the digital land base. This is especially crucial since, as previously stated, all of the GIS layers must match and line up properly. This may not have been as easily achieved if the digital orthophotographs were produced from a different firm than the digital land base.

Because ASI is currently under contract with the City for Project A, it is requested that the current contract be amended to include the additional \$481,000 required for Project B: Digital Land Base Consultant Services. The proposed contract amendment fully complies with the Affirmative Action in Contracting Ordinance and the rules and regulations promulgated thereunder.

### **Project C:**

City departments use a variety of software applications such as the Tidemark permitting application, Questys imaging application, AutoCAD drafting application, and Oracle database application. Contracting with a consulting firm is necessary to assist and guide the City in ensuring that these applications are fully integrated with one another within the GIS. The systems integration firm will also assist City staff in evaluating the digital land base as it is received from ASI. They will establish standards for performing quality assurance and quality control to ensure confidence with the product received. Contracting with a systems integration firm was also strongly recommended in the updated GIS Needs Assessment plan.

Therefore, a Request for Proposals (RFP) was issued in March 2000 for Project C: Consultant Services for Systems Integration. RFPs were sent to 26 firms that had expressed interest. Four firms responded to the RFP. The proposals were evaluated using the criteria set forth in the RFP, in accordance with the City's competitive selection process for professional services. An evaluation matrix is appended to the Report as Exhibit E. The total points scored for these firms, out of 100 points possible, are as follows:

Psomas: 81.43  
System Development Integration: 66.00  
Convergent Group: 62.43  
EI Technologies, LLC: 56.57

It is recommended that Psomas, the firm receiving the highest total points from the evaluation team, be awarded the contract for an amount not to exceed \$499,000. The proposed contract fully complies with the Affirmative Action in Contracting Ordinance and the rules and regulations promulgated thereunder.

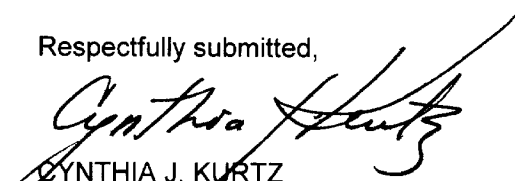
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**FISCAL IMPACT**

The total costs for both Phase I contracts is \$971,472. This action will reduce the unappropriated Building Services Fund reserve balance and increase the appropriation to the FY 2001 Capital Improvement Program Budget Account No. 71124, Citywide GIS CIP by \$689,011. The remaining \$281,989 will be funded through the Citywide GIS CIP Account No. 71125 funded by the Water & Power Department.

While each of the three phases may stand alone without further funding for subsequent phases, the Three Phase cumulative total implementation costs have been estimated at \$6,032,946. A cost breakdown is appended to the Report as Exhibit F.

Respectfully submitted,



CYNTHIA J. KURTZ  
City Manager

Prepared and approved by:

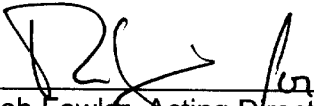


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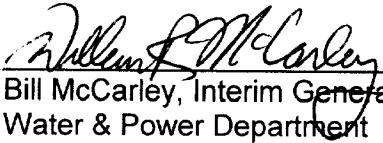
John Pratt, Chief Information Technology Officer  
Information Technology Services Division

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Concurred by:



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Bob Fowler, Acting Director  
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Bill McCarley, Interim General Manager  
Water & Power Department

Reviewed by:



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Jay Goldstone, Director  
Finance Department

Attachments:

- Exhibit A – Application and Benefit Overview
- Exhibit B – Synopsis of 1994 & 1999 GIS Needs Assessment & Project Strategy Report
- Exhibit C - Timeline for Technology Projects
- Exhibit D – Evaluation Matrix for the Digital Land Base Proposals
- Exhibit E – Evaluation Matrix for the Systems Integration Proposals
- Exhibit F – Cost Summary for Three-Phase System Implementation