

DATE ISSUED: February 12, 2001

REPORT NO. 01-029

ATTENTION: Land Use and Housing Committee  
Agenda of February 14, 2001

SUBJECT: Alternative Funding Proposal for Enhancement of the City of San Diego  
Geographic Information System (GIS) Base Map

REFERENCE: Manager's Report 95-148, dated June 23, 1995

### SUMMARY

Issue - Should the Land Use and Housing Committee refer the funding for the City's Geographic Information System (GIS) Base Map utilizing General Fund, gas tax or transnet funds to the City Manager for consideration in the Fiscal Year 2002 Proposed Budget?

Manager's Recommendation - Refer the matter to the City Manager for consideration in the Fiscal Year 2002 Proposed Budget.

Other Recommendations - None.

Fiscal Impact - The total project need is \$3,742,000.

### BACKGROUND

On September 26, 2000, Councilmember Byron Wear, Chairman of the Land Use and Housing Committee requested the City Manager explain the use of \$1.6 million of System Improvement Charge funds to settle an arbitration award to Serion International for work performed to enhance the GIS Base Map of the City of San Diego (Attachment 1). This inquiry is related to concerns that the Building Industry Association (BIA) raised during Fiscal Year 2001 Budget deliberations. The BIA was particularly concerned that the costs related to updates of the GIS system (Base Map funding) are borne solely by customers of the development review process even though the mapping information benefits other City departments as well as users of the regional geographic information system SanGIS. Staff was requested to develop alternatives for equitable funding of this work for the Committee's consideration (Attachment 2). In addition, on December 15, 2000, the City and BIA entered into a tolling agreement regarding certain building permit and plan check fees based upon the City's agreement to explore solutions to concerns raised by the BIA, such as the issue of Base Map funding.

### DISCUSSION

**History of the Base Map Project** - During the recession of the early 1990's, the Mayor and City Council were concerned about the strength of the local economy and the effects of the permitting process on the ability of a business to start or expand in San Diego. The Economic Development Task Force was established to address these and other issues, and in 1991 recommended potential solutions to make San Diego more business-friendly. As part of Citywide restructuring efforts in Fiscal Year 1995, the Development Services Department was created to place management of the majority of the land and building development review process from seven separate departments under one department. A goal of reducing permit processing time on average by 50% was achieved through this reorganization and through certain process improvements such as automation of mapping and other tools used by the Department for plan review. In Fiscal Year 1996, the department was converted to full cost recovery under an enterprise fund structure, eliminating subsidies of projects and creating a net benefit to the General Fund of \$1.5 million for that fiscal year. The conversion of the development process to full cost recovery has resulted in a total benefit in savings to the General Fund of \$11.4 million through Fiscal Year 2001.

The department has successfully launched a computer mapping application (called Cabrillo) and has created more than 30 GIS data layers City-wide (such as Coastal Overlays, Geologic Hazard Zones and the MSCP Sensitive Vegetation Buffer) and enhanced additional layers in order to publish a total of more than 100 layers for use by staff in the development process (Attachment 3). However, the processing of a current view of zoning City-wide requires more extensive research. This research is required to confirm changes to zoning that have occurred since the early 1980's, the last time for which the City's paper map records were consistently and regularly updated. Currently paper files must be researched before a final zoning determination can be made in many areas of town.

In 1995 the department developed a solution to the zoning map problem by creating an automated methodology for mapping rezoning actions. Using this GIS method would result in

two major benefits over the previous method of manually updating paper maps:

1. The input of data to a map format (GIS) would result in a higher degree of accuracy and currency of zoning data, enabling better tracking and faster updates of future zoning changes. Completion of this project would benefit both the department and the public interested in current zoning.
2. Creation of a subdivision map layer in the GIS system (which is used to process the current view of zoning) will also result in an electronic Base Map of greater accuracy, with an average error of +/- 0.5 foot. The current Base Map has errors of five to ten feet or more, with some errors in excess of 50 feet. A more accurate Base Map would benefit other City departments, especially those that rely upon accurate Base Maps to manage their infrastructure.

City staff has successfully piloted the alignment of the Base Map, including current zoning, in

four areas of the City, representing 12% of the City's area and 5% of its tax parcel base. Staff's estimate for the work to rebuild the Base Map is based upon their experience with the recent pilot project. The completion of subdivision map boundaries as a part of this rebuilding effort has enabled the department to utilize the GIS system to produce a zoning layer with a high degree of speed and accuracy in the pilot areas. Without this subdivision layer, verification of current zoning requires manual research by staff which is subject to a greater degree of error and takes more time.

In July 1996, a contract in excess of \$3 million was established with Serion International to provide data conversion services and develop software to rectify the existing Base Map. Due to the failure of Serion's initial pilot conversion program and continued failures on subsequent conversion efforts, the contract was terminated in March 1997. A subsequent arbitration award of approximately \$1.6 million in favor of Serion for the value of work performed up to the date of termination of the contract was entered into in May 1999.

**Work Program to Enhance Base Map** - The SanGIS Base Map was originally acquired from SDG&E in 1987. The City spent an additional \$1 million to format the Base Map to City standards. It is currently published to an average accuracy of 10 feet. The proposed Base Map alignment process would result in an accuracy in the order of +/- 0.5 foot. In addition, boundary conflicts existing in current land records (such as overlapping and abutting subdivision maps) would be identified and corrected under the guidance of a professional land surveyor as a part of this process. This would enable production of maps to meet National Map Accuracy Standards at scales typically used by the City. The enhanced mapping would also be more effectively and reliably utilized when overlaid with existing aerial photographs and mapping of grades and topography. These are powerful tools for analysis of development proposals, drainage and grade issues from a City-wide perspective, and it forms the base parcel map for City utility and street systems, including police and fire emergency dispatch.

Staff has identified six major processes necessary to create a more accurate Base Map:

Project Management & Technical Consulting - Includes project management, supervision, and technical support.

Develop & Maintain Supporting Infrastructure - Information sources and computer technologies which are required to complete the production phase of Base Map conversion. One example is software to compile the data into a new Base Map.

Document Research - Determination of which land record documents are required to produce the Base Map and how they interrelate and connect to the geodetic control network. This provides the groundwork for the map conversion and compilation stages.

Document Imaging & Processing - Conversion and management of the engineering index imaging database in which the land record images are stored. These steps assist greatly in the map conversion and compilation stages.

COGO Conversion - COGO is Coordinate Geometry data entry. This is a labor-intensive

entry of the mathematical boundary information into a digital mapping environment on a map-by-map basis (proposed to be performed by an outside contractor).

Assembly - Compilation of the individual maps entered through COGO data entry into a final Base Map layer which is tied to the geodetic control network. Identification, evaluation and interpretation of land records having boundary conflicts are also addressed during this stage.

The preferred strategy from both a cost and time perspective is to rely upon both in-house resources (City and SDDPC staff) and contracting. The key tasks of researching the land records and compiling electronic documents will be performed in-house, including the utilization of licensed land surveyors on City staff. The most labor-intensive component, data entry of the mathematical boundary information, is proposed to be performed by an outside contractor. SDDPC has a proven track record with several private firms qualified in data conversion. Based upon a three year work program, staff estimates a total project budget of \$3.742 million. A more detailed project estimate is provided as Attachment 4.

### **Expenditure Summary for Base Map Enhancement**

	FY 2002	FY 2003	FY 2004	TOTAL
Project Management & Technical Consulting	\$215,000	\$227,000	\$198,000	\$640,000
Develop & Maintain Supporting Infrastructure	\$291,000	\$163,000	\$141,000	\$595,000
Document Research	\$46,000	\$15,000	\$128,000	\$189,000
Document Imaging & Processing	\$12,000	\$12,000	\$16,000	\$40,000
COGO Conversion	\$376,000	\$1,081,000	\$379,000	\$1,836,000
Assembly	\$117,000	\$157,000	\$168,000	\$442,000
<b>TOTAL</b>	<b>\$1,057,000</b>	<b>\$1,655,000</b>	<b>\$1,030,000</b>	<b>\$3,742,000</b>

**Alternative Funding Proposals** - In a June 6, 2000, letter to Councilmember Byron Wear, the BIA noted the benefits an enhanced Base Map would have in providing “greater and more efficient service to the development community.” The BIA indicated they believed it was unreasonable for customers of the development process “to pay for and maintain a system that is clearly a general benefit to the greater community.”

However, City staff cannot complete the Base Map enhancement project and zoning update in a timely fashion without the commitment of additional resources. Current progress on this project is limited to the ongoing maintenance program, with funding provided by applicants of the development process whose projects result in changes to the Base Map. Because the Base Map represents the core asset of the GIS system, its value extends to all users of geographic resources,

which increases in value as departments and users expand the use of this technology.

Development Services previously received Gas tax funding in Fiscal Years 1997-98 towards efforts to enhance the Base Map and from the General Fund in years past. Based upon the calculation of 46.7% of this project related to road network and other right-of-way data, the City Council could allocate as much as \$1,747,000 over the next three fiscal years towards funding this project as this amount of the work (46.7%) qualifies for that type of funding. The remainder of the funding (\$1,995,000 over the next three years) would need to be allocated from General Fund dollars or the Development Services' enterprise fund or a combination of both. Allocation of General Fund dollars would be in competition with other General Fund needs in the budget process.

**Recommendation** - In conclusion, the issue of equitable funding to complete this project has been raised. Staff was requested to propose funding alternatives for the Committee's consideration. The City Manager is evaluating the availability of gas tax or transnet funds to fund this project in part. It is not anticipated General Funds will be available for this project. The City Manager recommends the gas tax/transnet funding consideration for this project be referred to the Fiscal Year 2002 budget deliberations for the Council's consideration.

ALTERNATIVES

1. Refer other funding options to the City Manager for analysis and recommendation.
2. Do not refer the proposal to the City Manager for budget consideration and continue Base Map alignment based upon the availability of funds in the Development Services' enterprise fund.

Respectfully submitted,

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Tina P. Christiansen, A.I.A.....Approved: George I. Loveland  
Development Services Director... Senior Deputy City Manager

CHRISTIANSEN/SMH

- Attachments: 1. \*September 26, 2000 Memorandum from Councilmember Byron Wear  
....2.\*October 13, 2000 Memorandum from Stephen M. Haase, Development \*Review Manager  
(excludes attachment)  
....3.\*Data Layers Created by Development Services  
....4.\*Land Base Rebuild/Enhancement Project Estimate

\*NOTE: Attachments not available in electronic format. Copies of the attachments are

available for review in the Office of the City Clerk, (619) 533-4000.