

CITY COUNCIL MEETING  
OCTOBER 15, 1986

33

PURCHASE OF COMPUTER  
AIDED DRAFTING SYSTEM  
APPROVED

CC-12(d)

Council approved the purchase of a computer aided drafting system - hardware and software from Hewlett Packard/Holguin and appropriated an additional \$7,400 for the subject purchase.



# CITY OF LODI

PUBLIC WORKS DEPARTMENT

## COUNCIL COMMUNICATION

TO:	City Council	<u>Project Data</u>
FROM:	City Manager	Originally Budgeted: 1986/87 Op. Budget
MEETING DATE:	October 15, 1986	Budgeted Fund: TDA-10%; Water/Wastewater COR-25% each
SUBJECT:	Computer Aided Drafting System	Amount Budgeted: \$63,600
		Final Project Cost: \$71,000
		Bid Opening Date: September 19, 1986
		Over-run Funds: Same as budgeted

**RECOMMENDED ACTION:** That the City Council approve the purchase of a computer aided drafting system - hardware and software from Hewlett Packard/Holguin and appropriate an additional \$7,400 from the funds shown.

**BACKGROUND INFORMATION:** This purchase includes computer hardware, software, maintenance and training for a computer aided drafting (CAD) system. The CAD System is to be used by the City of Lodi Public Works Department, Engineering Division to draft maps of City streets, utilities, and miscellaneous features and for general civil and mechanical drafting. The system is planned to be used initially with one terminal and with three terminals in two years. Additional terminals or stand alone workstations may be added by other Departments in subsequent years.

Request for proposals this purchase was approved on August 20, 1986.

The City has received the following 4 proposals for this project:

<u>BIDDER</u>	<u>LOCATION</u>	<u>BID</u>
Engineer's Estimate		\$63,600
Hewlett Packard/Holguin	Sacramento/El Paso, Texas	See Exhibit A
U.S. Geographics	Newport Beach	
VL Systems	Irvine	
Advanced Geographics/Inacomp	Huntington Beach/Sacramento	

Staff evaluated the proposals by:

- 1) reviewing the information furnished in the proposals and in subsequent conversations with the vendors;
- 2) preparing a summary of costs for a three-year period including the addition of two workstations to the system - See Exhibit A;
- 3) reviewing actual operation manuals furnished by three of the four vendors;
- 4) contacting references cited by the vendors (over 20 references were contacted)

APPROVED:

THOMAS A. PETERSON, City Manager

FILE NO.

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Discussion of each proposed system follows. For Council's information, a copy of the City's Request for Proposals (without appendices) is attached.

#### Advanced Geographics/Inacomp

Advanced Geographics, based in Huntington Beach, was set up in 1985 to provide a product called "Accu-Map." It is a combination of a general purpose drafting software package called "Versa-CAD" and an user interface/data base management program. The package runs on IBM PC AT compatible personal computers. Inacomp is a computer retailer located in Sacramento, and proposed the hardware and maintenance in conjunction with Advanced Geographics. The hardware consisted of an IBM PC AT with third party disc drives and controller, graphics cards, monitors, additional memory, and network hardware. In all, over 13 different manufacturers' products were included.

The three present users of the Accu-Map system listed in the proposal were contacted. Of the three, one has not had the system installed yet. Their selection was partially based on the fact that they have some personnel already familiar with "Versa-CAD" and they wanted a stand alone system that would handle 7Building Permit data. Their previous experience with Versa CAD led them to believe it was not the best system to handle mapping the entire City to the degree Lodi intends to accomplish. The other users are doing utility mapping and general drafting with stand alone workstations. Problems with network speed and data management were noted with networked systems.

Staff feels this system will not provide the ease of use, drafting power and overall performance offered by the other systems. The slightly higher cost of the recommended system will be justified in time saved and service provided over the life of the system.

#### U.S. Geographics

U.S. Geographics and its local subsidiary, San Joaquin Valley Geographics Corporation, have proposed a new geographic information system incorporating "TekniCAD" drafting software by Tektronix and Tektronix computers. None of the three references listed in their proposal are using the system. They have discussed possible applications with U.S. Geographics. The RFP describes a drafting system - not a geographic information system and specifically states the system is not intended to replace other City computer systems.

It is felt this proposal does not adequately address the drafting application requested. The lack of users with a similar application to Lodi is also a major factor in not selecting this proposal.

#### VL Systems

VL Systems from Irvine produces a Civil Engineering/Drafting program called VANGO. They write, market and support the software and provide computer drafting service to clients. There are approximately 65 users of their system. The

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majority are civil engineering firms, although a few are doing municipal facility mapping. Software support is by telephone to Irvine and a users group meets in Southern California once a year. The system runs on Digital Equipment Company (DEC) computers with Tektronix graphics terminals. The hardware proposed includes third party disc drives and memory, but is maintainable by DEC.

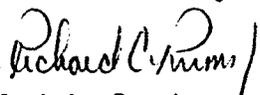
While the system is an excellent one and offers some engineering capabilities not mentioned in the RFP, staff is not recommending it for our particular purpose.

Hewlett Packard/Holguin

Hewlett Packard has proposed a drafting software package written by Holguin & Associates of El Paso, Texas. Holguin is an HP+ vendor which means that HP markets and supports the system as part of its product line. This hardware/software relationship is the closest to a single vendor solution of the four proposals. HP has the lowest maintenance costs and the systems proposed. Software support is provided by Holguin via telephone (800#).

The system is being used by a number of firms and public agencies in Northern California including the City of Modesto and Turlock Irrigation district. There is a local users group, with over 20 members that meets in the Sacramento area. Although it does not have some of the engineering features included in the VANGO system, it has strong drafting features and is relatively easy to use.

The recommended system includes the optional A900 computer which provides much faster operation and will allow the addition of more terminals well beyond the first three included in the analysis. A version of the software that would share map files is available for stand alone workstations (such as an IBM PC AT) which could be used by other departments without the need for telephone lines.

*for*   
Jack L. Ronsko  
Public Works Director

cc: Assistant Finance Director  
Vendors

Attachments

JLR/RCP/cag

EXHIBIT A -- Computer Aided Drafting System -- Proposal Cost Analysis

	HP/Holguin	US Geographics	VL Systems	Adv. Geographics
<b>First Year - One Station</b>				
Software	\$11,400	\$6,000	\$7,000	\$15,500
Training	\$1,400	\$2,400	\$2,400	\$1,500
Train. expenses	\$1,120	\$0	\$1,270	\$920
Soft. Support	\$2,880	incl.	\$1,980	\$1,500
Main computer	\$15,178	\$60,000	\$22,685	\$5,701
	HP A700	Tektronix 6130	DEC PDP 11/73	IBM AT w/adds
Disc w/backup	\$13,165	incl.	incl.	\$4,700
	HP 132Mb	Tek. 190Mb	Fujitsu 161Mb	Maxtor 120Mb
Terminal	\$2,529	incl.	\$3,995	\$5,536
	HP 2397	Tek. CX4107A	Tek. 4207A	Mitsubishi
Digitizer-small	\$559	-	\$895	\$974
	HP 9x11		Tek. 11x11	CalComp 12x12
Printer	\$376	incl.	incl.	\$692
	HP Thinkjet	Tek.	DEC LA100BA	Epson FX286
Plotter *	\$9,804	incl.	\$8,316	\$7,721
	HP 7585B	CalComp 1043*	CalComp 1043*	CalComp 1043*
Add'l *	\$0	\$1,488	\$1,488	\$2,083
Installation	incl.	incl.	incl.	\$750
Hardware Serv.	\$2,349	incl.	\$3,627	\$2,050
Unint. power	not needed	not incl.	not needed	\$1,014
Subtotal:	\$60,791	\$69,888	\$53,656	\$50,640
Sales Tax:	\$3,182	assumed incl.	\$2,663	\$2,680
<b>Total:</b>	<b>\$63,953</b>	<b>\$69,888</b>	<b>\$56,319</b>	<b>\$53,320</b>
<b>Second Year - one additional station</b>				
Terminal	\$2,529	\$4,500	\$3,995	\$4,644
	HP 2397	Tek. CX4107A	Tek. 4207A	IBM AT w/adds
Hardware Serv.	\$3,240	\$7,500	\$4,836	\$3,435
Software Lic.	\$3,800	\$6,000	\$5,000	\$5,500
Software Sup.	\$4,440	incl.	\$4,704	\$1,500
Miscellaneous	\$0	\$0	\$0	\$3,100
				Network
Subtotal:	\$14,009	\$18,000	\$18,535	\$18,179
Sales Tax:	\$380	assumed incl.	\$540	\$795
<b>Total:</b>	<b>\$14,389</b>	<b>\$18,000</b>	<b>\$19,075</b>	<b>\$18,974</b>
<b>Third Year - One additional station</b>				
Terminal	\$2,529	\$4,500	\$3,995	\$4,644
	HP 2397	Tek. CX4107A	Tek. 4207A	IBM AT w/adds
Hardware Serv.	\$3,384	\$7,500	\$4,836	\$3,890
Software Lic.	\$3,800	\$6,000	\$5,000	\$0
Software Sup.	\$5,040	incl.	\$5,448	\$1,500
Miscellaneous	\$0	\$0	\$0	\$0
Subtotal:	\$14,753	\$18,000	\$19,279	\$10,034
Sales Tax:	\$380	assumed incl.	\$540	\$279
<b>Total:</b>	<b>\$15,133</b>	<b>\$18,000</b>	<b>\$19,819</b>	<b>\$10,312</b>

EXHIBIT A -- Computer Aided Drafting System -- Proposal Cost Analysis

Cumulative Totals:	HP/Holguin	US Geographics	VL Systems	Adv. Geographics
1st yr (1 Sta)	\$63,963	\$69,888	\$56,319	\$53,320
2nd yr (2 Sta)	\$78,352	\$87,888	\$75,393	\$72,294
3rd yr (3 Sta)	\$93,485	\$105,888	\$95,212	\$82,607

Additional Costs (Optional)

for computer:	A900	MicroVAX II
Initial:	\$4,962	\$12,614
Annual:	\$36	\$60

Cumulative Totals: (with options)

1st yr (1 Sta)	\$68,952	\$68,978
2nd yr (2 Sta)	\$83,773	\$88,772
3rd yr (3 Sta)	\$99,338	\$109,311

Amount Budgeted (first year): \$63,600

Note:

- \* CalComp plotter does not strictly meet specifications. Additional cost for HP plotter added to provide equivalent comparison.

CITY COUNCIL

FRED M. REID, Mayor  
EVELYN M. OLSON  
Mayor Pro Tempore  
DAVID M. HINCHMAN  
JAMES W. PINKERTON, Jr.  
JOHN R. (Randy) SNIDER

# CITY OF LODI

CITY HALL, 221 WEST PINE STREET  
CALL BOX 3006  
LODI, CALIFORNIA 95241-1910  
(209) 334-5634

THOMAS A. PETERSON  
City Manager  
ALICE M. REIMICHE  
City Clerk  
RONALD M. STEIN  
City Attorney

August 21, 1986

To Prospective Suppliers:

The City of Lodi is requesting proposals for a computer aided drafting (CAD) system. The system is to be used for mapping the City's streets, utilities and miscellaneous features and for general civil and mechanical drafting. The system is to support three to five users, sharing a common database. Proposals must be for a complete, compatible and fully supported software and hardware package. Detailed requirements are contained in the document "Request for Proposals - Computer Aided Drafting System for the City of Lodi" available at the office of the Public Works Director, City of Lodi, 221 W. Pine Street, Call Box 3006, Lodi, CA 95241-1910 (telephone 209-333-6706).

Sealed proposals will be received by the Purchasing Agent at the above address until 11:00 a.m. Friday, September 19, 1986, at which time they will be publicly opened and read in the Council Chambers.

Jack L. Ronsko  
Public Works Director

Enclosure

JLR/RCP/cag

Note: If you have questions or comments concerning the RFP, please contact:

Richard C. Prima, Jr.  
Chief Civil Engineer  
(209) 333-6706

CITY OF LODI  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION

COMPUTER AIDED DRAFTING SYSTEM REQUEST FOR PROPOSALS

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REQUEST FOR PROPOSALS  
COMPUTER AIDED DRAFTING SYSTEM  
for the  
CITY OF LODI

I INTRODUCTION

The Computer Aided Drafting (CAD) System is to be used by the City of Lodi Public Works Department, Engineering Division to draft maps of City streets, utilities, and miscellaneous features and for general civil and mechanical drafting. The system is planned to be used initially with one terminal and with three terminals in two years. Additional terminals or stand alone workstations may be added by other Departments in subsequent years.

II APPLICATION INFORMATION

A. General Background

The City of Lodi has a population of 41,000 within 9.1 square miles (5,800 acres) of mostly developed land (approximately 18,000 parcels).

There are 132 miles of street and roughly 140 miles each of water, wastewater, and storm drain lines. The City has been growing at an average rate of 2% per year over the last 30 years.

The City's present data processing systems consist of the following:

- o IBM S/36 @ City Hall - used for accounting billing, word processing, building permit processing and general database applications
- o IBM S/36 @ Police Department - used for dispatch and incident records and analysis
- o IBM and HP PC's @ Public Works and Engineering - used for various engineering, maintenance and record keeping programs

It is not the City's intent to use the CAD system to replace any of these systems.

B. Application Details

1. Facility Mapping

The primary application of the CAD system is to draft maps of City facilities. Secondary applications include construction details (Standard Plans), special exhibits, location maps and construction plans. Facility maps will include single maps of the entire City with relatively little detail and maps of sections of the City with substantial detail.

It is desired that the system handle all this information in one "drawing" with multiple "layers." It is understood that this may seriously degrade system performance and that sectioning of the City may be more appropriate. The system must use a common data base with true ground coordinate capability. The proposal should discuss this aspect in detail including descriptions of how sectioned drawings/symbols are created, updated, rescaled, combined, and manipulated by the system.

The following table shows most City features and facilities and the way it is intended they be plotted:

<u>Entire City</u>	<u>Sections</u>
Street - Centerlines Rights-of-way Curblines Names	Street width dimensions Lane line and other striping Signs Lot dimensions
Property lines	Easements
Utilities - Water, wastewater & storm drain mains with sizes	Addresses Utility services Valves, manholes, etc.
Misc. facilities - Approximately 30 types such as: Fire hydrants Street lights Traffic signals Parks Major buildings	

Samples of portions of present maps are included in Appendix. (B-1a,b,&c).

The City intends to draft this database using information from record maps, construction plans and special surveys.

## 2. Construction Details

The City prepares "Standard Plans" for use as reference drawings on construction projects. There are presently 65 of these drawings. It is intended to draw these with the CAD system and use them as is or modify them as needed for specific projects. A sample is included in Appendix B2.

## 3. Special Exhibits and Location Maps

The City frequently prepares drawings showing proposed work and its relation to existing facilities. It is intended to extract the appropriate portion of the database, add the proposed work, and create a new drawing.

It is estimated there would be 40 such drawings stored at any given time. See Appendix B3 for an example.

#### 4. Construction Plans

The City prepares roughly 60-24" X 36" construction drawings for civil engineering projects each year. It is intended that the basic street and utility information be extracted from the database and project details be added to create a new drawing.

Although civil design software and surveying/data collection hardware is not part of this purchase, the supplier is encouraged to describe other software/hardware packages compatible with the proposed CAD system.

### III SOFTWARE

#### A. General Requirements

The drafting software shall be fully integrated including drawing creation, editing, and plotting; and system management. The software shall not rely on operator knowledge of the computer's operating system. However, access to the operating system must be easily available in the event the City wishes to use the computer for other programs.

Disc space required for storage of the operating system and CAD program shall be indicated in the proposal. The supplier shall estimate the storage requirements of the drawings indicated in Section II of this RFP.

Systems having optional modules or auxiliary programs shall be clearly identified as to what is included in the proposal. Options and interfaces to other programs/languages shall be described.

The proposal shall include discussion (including applicable costs) of the system's compatibility with other CAD systems and the Initial Graphics Exchange Specification.

#### B. Software Features

The complexity of drafting software precludes listing detailed requirements in this RFP. The proposal shall include sufficient descriptions of the software capabilities and command structure to allow the City to evaluate the system. Suppliers are encouraged to emphasize features applicable to the City's application. It is suggested that a set of actual user manuals be included in the proposal. (The City will return any proposal materials requested by the supplier at the end of the evaluation.)

### C. Software Support

The proposal shall describe software support including the following:

- 1) Help with software questions and problems
- 2) Help with software/hardware interface questions and problems
- 3) User group program
- 4) Software updates and enhancements
- 5) Operating system updates and enhancements

## IV HARDWARE

### A. General Requirements

All system components shall be completely compatible with each other and the CAD software, and preferably made by the same well established manufacturer. All components shall have the following features:

- 1) 115 VAC (nominal) line voltage operation
- 2) Low noise operation
- 3) Attractive enclosures suitable for open placement, in an office
- 4) All hardware shall be movable and fit through 36" X 80" doors
- 5) Meet all Federal and State regulations regarding interference and radiation.

The supplier shall refer to the Application information provided in Section II of this RFP and Appendix C "System Configuration and Staging" for determining hardware requirements. The proposal shall include manufacturer's descriptive brochures for all hardware components.

### B. Specific Requirements

#### 1. Computer (CPU)

For the purposes of this RFP the CPU includes the central processor, power supply, system memory, peripheral controllers, and buses. The CPU design shall incorporate state-of-the-art electronics, and modular, plug-in circuit cards. All input and output shall be properly buffered and interfaced to reduce CPU performance degradation during data transfer or plotting.

The CPU shall utilize a 16 bit word (minimum) and be suitable for multi-user, multi-task operation so that each CRT operator can be viewing different displays or performing different operations while the CAD system is functioning. A hardware floating point processor shall be included. The CPU shall be furnished with sufficient ROM/RAM to quickly and efficiently operate the CAD system (See Appendix C).

## 2. Data Storage

Data storage shall be provided with a Winchester Disc drive and magnetic tape. Formatted capacities shall be a minimum of 120 mb and 60 mb respectively.

Disc controllers shall incorporate an error checking scheme during read/write operations with suitable correction or warning routines.

## 3. Graphics Terminal

All graphics terminals shall be flicker free and provide a sharp display of characters on a screen measuring 12" (minimum, diagonal).

The CRT shall be enclosed in a free standing enclosure for placement on the operator's desk.

The graphics terminal shall include both a separate keyboard with a numeric key pad and a separate command entry and cursor control pad compatible with the CAD software.

The following features are desired:

- o display 8 colors minimum
- o high resolution, minimum 512H X 390V
- o external power switch and brightness & contrast controls
- o tilt & swivel adjustment
- o anti-glare screen
- o silent operation-convection cooled preferred
- o screen saver feature (shut off display after user selected inactive period)
- o automatic degauss
- o 60Hz refresh rate, non-interlaced

## 4. Printer

The CAD system shall include a system printer for hard copy listings of drawings and other system outputs. Graphics printing (screen dumps of drawings) is not required.

The printer shall have a minimum printing speed of 150 cps and utilize perforated tractor feed paper 8-1/2" or 15" wide. The system shall provide output formatting which skips the perforation.

## 5. Plotter

The CAD system shall be furnished with an "E-size" plotter (nominal 36" width X 48' length sheet size). Plotter performance specifications shall equal or exceed those of the HP7585B.

The plotter shall include the manufacturer's normal accessories

plus three pen holders and an assortment of roller ball or ball point, fiber tip and technical drafting pens, and paper and vellum drafting media.

Plotting shall be done in "background mode," i.e. data entry and other mapping work shall be capable of being accomplished while plotting other drawings.

#### 6. Miscellaneous

The system shall be furnished with all data cables and power cords necessary to connect and operate the complete system. All cables shall be shielded. The initial system will be installed in one location; however the cables shall allow the graphics terminal to be located at least 10 feet from the CPU and the plotter 20 feet from the CPU.

All hardware documentation shall be included.

Static and power surge protection as recommended by the hardware manufacturer shall be included.

Power failure protection is not required, however the proposal shall discuss data loss and system integrity in the event of a power failure.

#### C. Hardware Support

The proposal shall include hardware service support for one year. The support level shall be on-site, next day service, all parts and labor included. The support shall be from the hardware manufacturer. The supplier may provide an option for third party support. In each case, the location of the support center shall be indicated. The proposal shall be clear as to the end of manufacturer's warranty period and the beginning of extended support service.

### V INSTALLATION & TRAINING

#### A. Installation

The proposal shall include delivery, installation and testing of all hardware and software. The City can provide non-technical assistance, including the use of hand trucks. (The system is to be installed on the second floor of City Hall.) No cutting or wiring through ceiling or walls will be required.

#### B. Training

The proposal shall include software and hardware training. The training shall include two phases:

- 1) System overview and capabilities - primarily for the system manager (an Engineer) who will supervise overall system use and implementation
- 2) System operation - primarily for system operators (engineering technicians) who will actually use the system

On-line training courses and "help" screens shall be described. The proposal shall indicate the location and duration of all proposed training. All supplier expenses involved in training shall be included.

## VI PRICE AND PAYMENT

The proposal shall clearly indicate the price of the hardware, software, support and miscellaneous items requested in this RFP. Training shall be itemized. The Initial, Year 2, Year 3 and Ultimate prices shall be indicated separately. All prices shall be current. Year 2 and subsequent prices will not be considered binding.

All quotations shall be protected from price increase for a minimum of 30 days. Sales tax on applicable items shall be included.

Upon completion of installation and testing of software and hardware, the City will pay 90% of the purchase price of the items included.

Upon completion of training, the City will pay 100% of the price for training.

During the 30 days following the completion of installation/testing or training, whichever is last, the City will use and test the system. Following satisfactory completion of this test period, final payment will be made.

Payment for maintenance and support will be in accordance with terms agreed to between the City and the supplier.

## VII PROPOSAL REQUIREMENTS

In addition to the items specifically requested in this RFP, the proposal shall include the following information:

- 1) Background description of the software including introduction date, revision history and company background
- 2) List of users of the proposed system, preferably public agencies using the system for purposes similar to Lodi's application
- 3) A copy of the software license agreement
- 4) Availability of demonstrations
- 5) Complete Hardware list for the initial system and the three additional stages (See Appendix C).

- 6) Background description of the hardware (major components - CPU, disc, terminal and plotter) including introduction date, production history, company history, and anticipated support life.
- 7) Delivery time from date of order
- 8) Cost breakdown and total cost with options and "not-included" items clearly identified.
- 9) Name and telephone number of supplier contact person who can answer technical questions about the proposed system.