



April 22, 1980

CONNIE MCCREADY
MAYOR

BUREAU OF
COMPUTER SERVICES
LEONARD L. YOON
DIRECTOR

430 S.W. MORRISON
ROOM 420
PORTLAND, OREGON 97204
503/248-4152

MEMORANDUM

TO: Gordon Croell
City Auditor's Office

FROM: Sara Fitzgerald, Deputy Director
Bureau of Computer Services

SUBJECT: ATTACHED ORDINANCE FOR CONTRACT WITH LEVEL ONE, INC.

The attached ordinance is contingent upon an ordinance filed by Jack Horner, Bureau of Emergency Communications. Both ordinances are being filed on April 25, 1980.

The title of Jack's ordinance is:

"An Ordinance transferring \$100,000 from General Operating Contingencies to the Bureau of Emergency Communications, increasing the inter-agency agreement between the Bureau of Emergency Communications and the Bureau of Computer Services, and transferring \$100,000 from Unforeseen Reimbursable Expenditures to the Bureau of Computer Services for the purpose of providing funds for unbudgeted computer services requirements, and declaring an emergency."

If Jack's ordinance is passed, please insert the ordinance number in Section 1, Paragraph 4. If his ordinance is not passed, this ordinance should not be passed because no funds will be available.

If you have any questions, please call me on extension 4152.

Thank you for your assistance.

SF:pw

CONTRACT FOR SERVICES

Entered into between the City of Portland, Bureau of Computer Services (BOCS) and Level One, Inc. This agreement is effective from the commencement date and shall be terminated upon acceptance of completion by the City.

By their signatures below, both parties to this contract acknowledge their mutual agreement with the following provisions.

- 1.) Level One, Inc. will provide the City of Portland with services consisting of performance modifications to the Computer Aided Dispatch (CAD) system as specified in Exhibit A.
 - a.) Level One, Inc. will be responsible for all program documentation.
 - b.) Program coding will be in accordance with the standards currently in effect for the present CAD implementation.
 - c.) Programs must be designed and coded for execution on the UNIVAC V75 minicomputer at Bureau of Emergency Communications.
- 2.) Level One, Inc. will order and install for the City of Portland additional computer hardware for the CAD system as specified in Exhibit B.
- 3.) Cost to the City will not exceed the following:

a.) Performance Modifications in Exhibit A	\$ 39,000
b.) Computer Hardware as defined in Exhibit B	61,000
TOTAL	\$100,000
- 4.) Payment to Level One, Inc. will be:

\$30,500	upon issuance of Purchase Order by Level One, Inc. for Computer Hardware
30,500	upon installation of Computer Hardware
35,100	of Performance Modification upon contract award
BALANCE	of Performance Modification upon acceptance by BOCS

 - a.) Performance Modifications will be tested for acceptance within two working days of notification of completion. Failure to begin an acceptance test within two working days will constitute acceptance of that modification by the City of Portland.
- 5.) Any specifications/program/testing reviews and walk-throughs will be conducted between Level One, Inc. staff and the Bureau of Computer Services.

CONTRACT FOR SERVICES
LEVEL ONE, INC.

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- 6.) Facilities directly available to Level One, Inc. at no expense, are the computer room office, the IBM 029 key-punch machine, and the ADM-3A computer terminal.
 - a.) Bureau of Emergency Communications (BOEC) will provide per shift a responsible person for authorizing access to the V75 system. Such access will be provided on an around-the-clock basis except where said access jeopardizes the effectiveness of the Police Dispatch System.
 - b.) All necessary supplies needed will be provided at no charge by the City. Necessary supplies are defined as: Computer paper, computer ribbons, pencils, pens, computer tape, filing folders, labels, form binders, office stationery, paper clips, and rubber bands.
 - c.) Typing and word processing services will be provided, at no charge, by the BOEC office staff.
- 7.) Compilation and testing will be done on City of Portland's V75 and/or V77 minicomputer systems.
- 8.) Modifications to this contract, or other relevant notices by either party shall be made in writing and approved by both parties.
- 9.) Either party may terminate this agreement without recourse should the other party fail to comply with their contractual performance.
- 10.) The Level One, Inc. deliverables are as follows:
 - a.) Updated Source Modules
 - b.) Purchase Order for computer hardware
 - c.) Computer hardware installation report
 - d.) Performance Modification installation report
- 11.) The City of Portland claims proprietary rights to all programs and related program specifications, documentation, etc.
- 12.) Level One, Inc. will comply with all security procedures required for BOEC employees.
- 13.) Level One, Inc. agrees to hold harmless, indemnify, and defend the City of Portland against all claims arising out of activities in performance of this contract.
- 14.) Modifications to the CAD and MDT software and hardware will not be permitted without express written approval by Level One, Inc. during the duration of this contract.

LEVEL ONE, INC.
Joe Politi
21075 Bank Mill Lane
Saratoga, California 95070
(408) 867-2159

CITY OF PORTLAND
Mayor Connie McCready
1220 S. W. Fifth Ave, #303
Portland, Oregon 97204
(503) 248-4120

CONTRACT FOR SERVICES
LEVEL ONE, INC.

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George Yerkovich
City Auditor

Approved to Form
~~APPROVED AS TO FORM~~

William P. Thomas

City Attorney's Office
~~CITY ATTORNEY~~ LHS

Dated this _____ day of _____, 1980.

EXHIBIT A

PERFORMANCE MODIFICATIONS1. CAD FUNCTION: Unit Status Display

ANALYSIS: This module is normally resident and is responsible for refreshing unit status displays as required. However, when memory resources are exhausted, this module is overlaid by other CAD modules. This module was executed 457 times with module loading occurring 297 times. Additionally, this module is scheduled (loaded) for each unit status display request entered via console commands.

PROPOSED: 1.) Retain module memory resident to eliminate 297 program loads per hour.
2.) Resident version of this module will process both command data entry and automatic refresh requests.
3.) Automatic refreshing for receive only terminals will be scheduled every 20 seconds.

EXPECTED BENEFITS:

1.) Reduce total program loading by 10%

PREREQUISITE: Additional memory - 4KW

2. CAD FUNCTION: Incident Display

ANALYSIS: This module generates the incident display upon request. A request is initiated either by a console command or automatic refreshing. This module was loaded and executed 333 times during the first hour of system monitoring.

PROPOSED: 1.) Retain module memory resident to eliminate 333 program loads per hour.
2.) Resident version of this module will process both command data entry and automatic refresh requests.
3.) Automatic refreshing will occur upon request.

EXPECTED BENEFITS:

1.) Reduce total program loading by 11%

PREREQUISITE: Additional memory - 8KW

3. CAD FUNCTION: Utility Subroutines

ANALYSIS: These three utility subroutines are executed in excess of 100,000 times per hour. The function of each utility is as follows:

- 1.) SSE - Passes parameters between subroutines
- 2.) CBS - Compare Byte String (i.e., compare FLDA to FLDB)
- 3.) MBS - Move Byte String (i.e., move FLDA to FLDB)

- PROPOSED:
- 1.) Install 2KW of Writable Control Store (WCS) on each CAD processor
 - 2.) Perform System Generation (SYSGEN), including all WCS firmware utilities to be utilized by the CAD system software (i.e., SSE, CBS, MBS).
 - 3.) Modify CAD application software to utilize these firmware utilities.

EXPECTED BENEFITS:

- 1.) Execution time for these utilities will be reduced by 70-80%. Estimated as 4% aggregate CPU.

PREREQUISITE: Addition of Writable Control Store (WCS) - 2KW

4. CAD FUNCTION: Update/Dispatch

ANALYSIS: This critical CAD module is resident at all times. There are six supporting overlay subroutines that are loaded for processing as requested. The most frequently used subroutine processes unit status/comment changes and is resident 65% of the time. This routine is loaded only after being overlayed by another less frequently used subroutine. This module executed 447 times with 158 subroutine loads.

- PROPOSED:
- 1.) Retain frequently used subroutines memory resident and MAP into module overlay area as required. This will reduce program loading for this module by 126.

EXPECTED BENEFITS:

- 1.) Reduce total program loading by 4%

PREREQUISITE: Additional memory - 8KW

5. CAD FUNCTION: Incident File

ANALYSIS: This file was accessed 3,238 for update and 9,559 for inquiry, for a total of 12,797 I/O Disk Requests. This file is accessed more frequently than any other CAD application data base file.

- PROPOSED:
- 1.) Allocate memory for resident incident record pool for storing most frequently accessed initiated, pending, and active incident records. This will reduce the I/O requests to this file from 12,797 to 3,878 for a 70% reduction of I/O requests.
 - 2.) Modify module (IREAD) to interrogate the resident pool for desired record prior to issuing an I/O request to disk.
 - 3.) Modify modules (IWRITE) to write updated incident records to resident pool as well as to disk.

EXPECTED BENEFITS:

- 1.) Reduce total Disk I/O Requests by 28%

PERFORMANCE MODIFICATIONS

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PREREQUISITE: Additional memory - 30KW

6. CAD FUNCTION: Unit Record File

ANALYSIS: This file was accessed 1,556 for update and 3,903 for inquiry, for a total of 5,459 I/O Disk Requests. Currently, the unit officer identification numbers, comment, and history pointers are not retained in the memory resident unit status table. Each time this information is requested, the data must be retrieved from disk.

PROPOSED:

- 1.) Allocate memory for resident unit record pool for storing all unit record information. This will reduce the I/O requests to this file from 5,459 to 767 for an 86% reduction of I/O requests.
- 2.) Modify module (UREAD) to retrieve all requested unit record information from resident pool.
- 3.) Modify module (UWRITE) to write updated unit record to resident pool as well as to disk.

EXPECTED BENEFITS:

- 1.) Reduce total Disk I/O Requests by 14%

PREREQUISITE: Additional memory - 8KW

7. CAD FUNCTION: Unit Assignment Selection List (Incident Display)

ANALYSIS: The Incident Display is divided into several categories of information, one of which is the Unit Assignment Selection List (UASL). The UASL displays all units assigned to the incident district of occurrence as well as all units selected via the Alternate District Algorithm Logic.

PROPOSED:

- 1.) The UASL is generated several hundred times each hour and is definitely CPU intensive. Level One recommends the UASL be suppressed at all complaint operator positions and possibly other positions if operationally feasible. This information is provided to assist the dispatcher in selecting units for dispatching, and is not essential information for the creation of new incidents.

EXPECTED BENEFITS:

- 1.) Reduce generation of the UASL approximately 400 times per hour. The actual percent of CPU time saved has not been calculated, but indications are that it is considerable.

PREREQUISITE: None

PERFORMANCE MODIFICATIONS

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8. CAD FUNCTION: Transaction History Recording (THR)

ANALYSIS: The function of this module is to Spool all transaction history records to disk. Another CAD module retrieves the history records from disk and writes to tape. The total disk I/O requests issued by these modules was 2,243.

PROPOSED: 1.) Allocate memory resident buffer pool to queue these THR records and write to tape as applicable. This will reduce the total I/O requests from 2,243 to 100 yielding 96% fewer requests.

EXPECTED BENEFITS:

1.) Reduce total I/O requests by 7%

PREREQUISITE: Additional memory - 4KW

9. CAD FUNCTION: Unit Status Table Search Routine

ANALYSIS: The function of this module is to search the resident unit status table for a specified unit identification number. This search is performed sequentially. This module executed in excess of 4,000 times during the first hour of system monitoring.

PROPOSED: 1.) Level One recommends this module be rewritten to employ a binary search algorithm.

EXPECTED BENEFITS:

1.) Reduce total COUP usage by 1%

PREREQUISITE: None

EXHIBIT B

COMPUTER HARDWARE MODIFICATIONS

<u>DESCRIPTION</u>	<u>QUANTITY</u>
64KW Semiconductor Memory - 660ns Cycle Time	4
MEGAMAP - Memory Management	2
2KW Writable Control Store (WCS) -- 190ns Cycle Time	2
MEGAMAP -- WCS Power Supply	2

ORDINANCE No. 149538

An Ordinance authorizing a contract with Level One, Inc., in the estimated amount of \$100,000.00 to provide services and equipment for the Bureau of Computer Services without advertising for bids, authorizing the drawing and delivery of warrants, waiving performance bond requirements, and declaring an emergency.

The City of Portland ordains:

Section 1. The Council finds:

- 1.) The Bureau of Computer Services requires the services and equipment specified in Attachment A to ensure performance and integrity of the Computer Aided Dispatch (CAD) system at the Bureau of Emergency Communications.
- 2.) As specified in City Contract No. 18115, approved by Ordinance No. 148205 on August 1, 1979, Level One, Inc., has provided recommended changes in CAD software and hardware, which, as major modifications, must be implemented in a separate contract for approval.
- 3.) The particular equipment required for these modifications is unique for use with equipment already owned by the City and must be implemented with detailed coordination by Level One, Inc. to correspond to software changes, and Sperry-Univac, the equipment manufacturer, agrees that it is appropriate to obtain the equipment from Level One, Inc.; it is therefore impractical to obtain competition.
- 4.) Funds have been provided by Ordinance No. **149537** for these services.
- 5.) This purchase has been reviewed and approved by the Purchasing Agent. It is therefore in the public interest for Level One, Inc. to provide the necessary materials and services as set forth above at an estimated cost of \$100,000.00 without advertising for bids.

NOW, THEREFORE, the Council directs:

- a.) The Mayor and the Auditor hereby are authorized to execute a contract with Level One, Inc., for the services described in Attachment A.
- b.) The Mayor and the Auditor hereby are authorized to draw and deliver warrants when demand is presented and approved by the proper authorities.


Section 2. The Council declares that an emergency exists, because delay will impact services required for computer aided dispatch; therefore, this Ordinance shall be in force and effect from and after its passage by the Council.

Passed by the Council,
 Mayor Connie McCready
 Sara Fitzgerald:pjw
 April 21, 1980

APR 30 1980


 PRESIDENT OF THE COUNCIL AND ACTING
 Mayor of the City of Portland

Attest:


 Auditor of the City of Portland

Calendar No. 1468

ORDINANCE No. 149538

Title

An Ordinance authorizing a contract with Level One, Inc., in the estimated amount of \$100,000.00 to provide services and equipment for the Bureau of Computer Services without advertising for bids, authorizing the drawing and delivery of warrants, waiving performance bond requirements, and declaring an emergency.

INTRODUCED BY

Mayor Connie McCready

NOTED BY THE COMMISSIONER

Affairs

Finance and
Administration

Safety

Utilities

Works

BUREAU APPROVAL

Bureau:

Computer Services

Prepared By:

Date:

Sara Fitzgerald

4/21/80

Budget Impact Review:



Completed



Not required

Bureau Head:

Leonard L. Yoon, Director

NOTED BY

City Attorney

City Auditor

City Engineer

THE COMMISSIONERS VOTED AS FOLLOWS:

	Yeas	Nays
Ivancie		
Jordan		
Lindberg		
Schwab		
McCready		

FOUR-FIFTHS CALENDAR

Ivancie	
Jordan	
Lindberg	
Schwab	
McCready	

Filed

APR 25 1980

GEORGE YERKOVICH
Auditor of the CITY OF PORTLAND

By

Deputy