**PUBLIC TECHNOLOGY INSTITUTE**

# San Jose SWAT


# Report

January 2005

The technology resource for local government.
**1301 Pennsylvania Avenue NW Washington DC 20004-1793 202.626.2400 Fax 202.626.2498 www.pti.org**

January 5, 2005

Mark Linder
Assistant City Manager
City of San Jose
San Jose, CA

Dear Mr. Linder:

We want to congratulate you and the City of San Jose for its innovative computer aided dispatch system, and thank you for the opportunity to assist the City with such a critical and important service.

Our SWAT engagement found the City's executive and operational leadership with willingness, readiness and the professionalism to help keep San Jose a leading American city. We are confident that the recommendations contained in our SWAT report will help you meet the City's challenges and goals for providing your citizens the best services possible from a 21st Century government.

Public Technology Institute salutes San Jose and we stand ready to continue our assistance with computer aided dispatch (CAD). As you know, our mission is to provide the benefits of technology to local government.

Again, thank you for the opportunity to assist the city and for your partnership in this leading edge and important endeavor.

Very truly yours,

Robert Hicks
Director, Public Safety & Transportation Programs


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## Acknowledgements

PTI wishes to extend its sincere thanks and appreciation to the City of San Jose, and its personnel for their assistance to us during our SWAT technical assistance effort. It is through this spirit of cooperation and dedication that PTI was able to evaluate San Jose's needs and formulate the best possible solution for the City.

Again, thank you.

THE PTI SWAT TEAM

Kent Koehler, Sedgwick County, KS
Alan Komenski, City of Bellevue, WA
Howard Weiner, City of Portland, OR
Barry Whitton, City of Cincinnati, OH
Robert Hicks, Public Technology Institute

# Executive Summary

At its October 19, 2004 Council meeting, the City Council asked the City Manager's Office to conduct a review of the new Public Safety Computer Aided Dispatch (CAD) System. Council action came as a result of problems with the new system that had been identified by the end users, including dispatchers and police officers. This information memorandum is a status report on the review and on the system itself. The Council had three key questions to guide the City Manager's review.

1) Do we have the right CAD system or do we need to start over?
2) What changes do we need to make to the CAD system?
3) What do we need to do going forward to assure that the system works well and to ensure that the community's public safety is protected?

The City Manager's Office contracted with Public Technology Institute (PTI) to conduct an independent review of the new Intergraph CAD system. Public Technology Institute is a national non-profit technology research, development and consulting organization. The mission of PTI is to bring the benefits of technology to local governments. A five member SWAT team visited San Jose on November 22 and November 23. The PTI team members have extensive experience in CAD system installation and operation in comparable systems around the country.

The team reviewed relevant reports, including the Police Officers Association (POA) commissioned ergonomic study of the new system, as well as POA commissioned follow-up study. The team members interviewed over 20 people including police officers, dispatchers, Police and Fire technology managers, the Police Chief, the Fire Chief, the Interim CIO, and representatives from Intergraph. Each team member participated in a ride along with police officers and a sit along with police and fire dispatchers.

The team members provided oral comments to the Assistant City Manager, Police Chief, Fire Chief and Interim CIO.

It was determined that the City did procure the right computer aided dispatch (CAD) system but would have to make some changes in order for the system work as efficiently as possible. An explanation of the specific changes that need to be made and what the City needs to do going forward are cited in the detailed explanation of recommended actions on page 12.

# Background

The City of San Jose implemented a PRC (now a part of Northrop Grumman PSI) CAD, in 1990. In 1995, Public Safety Consultants, Inc. did an evaluation of the PRC CAD system of 1990 and recommended replacing the system at the earliest convenience. According to the consultant, the architecture was becoming outdated and would become more difficult to maintain and keep up with its operational needs.

A couple of years ago, the City identified the need to add mapping to the CAD system among other changes and the city determined that rather than upgrade the existing system, they would purchase a new one. The City Council approved a contract for the new system in October 2002.

San Jose contracted with Intergraph Public Safety and deployed a new CAD system on June 15th, 2004. The SWAT team was given a Council's memo justifying and explaining the evaluation to purchase a new system as well as information citing the Intergraph CAD as the favorite of users and most reliable of those tested.

We became aware that San Jose's budget problem played a major roll in the process. The vendor of the previous CAD commands a premium price for system modifications, which drove the city to consider an off the shelf product. They decided to change they way they do business, rather than commit to build another custom system. The Request for Proposal used to engage the vendor states as much in the first two paragraphs.

The SWAT Team was given the following material as background material to aid in their assessment of the system:

(1) City of San Jose Request for Proposal
(2) Intergraph Public Safety's Response to the City of San Jose's Request for Proposal
(3) Agreement for the Purchase and Installation of a computer-aided dispatch system between Intergraph Public Safety, Inc. and the City of San Jose
(4) San Jose Police Department MDC Usability Analysis
(5) San Jose Police Department MDC Usability Analysis: Initial Audit of Revisions
(6) POA Usability Study
(7) Memorandum from Melissa Albrecht to Chief Rob Davis
(8) Organizational Chart of the Office of the Chief Information Officer
(9) Public Works Comments about Mapping

## Historical Problems with the Implementation

Problems surfaced immediately for the dispatchers and the San Jose Police officers using their in vehicle Mobile Data Computers (MDC). It was reported that on several occasions the emergency dispatch system had sent firefighters to the wrong addresses and made it difficult for police officers to get crucial information. As a result, a number of questions have arisen whether these were a result of human error or a result of the emergency dispatch system.

The City Council had ordered an audit of the newly installed system and at least one member raised the possibility of scrapping the system all together if the problems were not fixed soon.

# Assessment of the Current Conditions

In November 2004, the City of San Jose called on Public Technology Inc. (PTI), a non-profit technology research and development organization that helps government agencies acquire and use technology to provide a third party impartial assessment. PTI put together a team of four subject matter experts from the public sector. We traveled to San Jose for two days of interviews with various city employees as well as the CAD software vendor, which took place Monday and Tuesday, November 22nd & 23rd 2004.

We met with the Assistant City Manager on the evening of November 21, to give the team some background information. Monday morning we briefly met with City Manager Del Borgsdorf. He indicated that the most important goal was to answer City Council's question of whether they should abandon or attempt to salvage the new CAD system.

The interview process exposed a series of problems and missed opportunities that taken together, contributed to the difficulties experienced by the City in implementing a successful CAD replacement project. All interviewees were open and indicated a desire to truly help fix the problems. CAD user interaction was observed during a police ride along and through observations in the communications center.

**Interview subjects**
Assistant City Manager – Mark Linder
Chief of Police – Robert Davis
Fire Chief – Jeff Clet
Captain Walt Tibbet – IT liaison to SJPD Bureau of Technical Services
Cecil Lawson – CIO, SJPD Bureau of Technical Services
Cameron Smith – Communications Center Manager
Tom Bohn – Deputy Director, Fire Department, Bureau of Support Services
Jim Helmer – Interim CIO IT Director
Linda Dittes – MEF union Business agent (represents dispatchers)
Police supervisors Lt Guy Bernardo & Sgt Thomas Navin
Dispatchers Craig Bender, Mary Feccia, Ting Tseng and two others
Training managers Deanna Mateo, Leanne, Heidi
IT staff Robert York, Margie Zamora
Police officer Dale Harris
Alice Dilbeck - Intergraph Public Safety project manager
Five police officers during the ride along

The major themes that evolved over the two days fell across the following main issues:

- Lack of a project manager versed in large scale IT projects and insufficient IT involvement
- Inability to properly train on the new CAD system
- Ineffective or non-existent change management/no process reengineering
- Lack of end user involvement
- Overall lack of communication and clear lines of responsibilities

## Brief Assessment on Recommended Actions Going Forward

(1) Ensure that the implemented emergency dispatch system be realigned with business process and service delivery needs of the City of San Jose's police and fire departments.

(2) Provide large scale IT (information technology) internal and external support for the CAD system.

(3) Make appropriate change management efforts to supplement what already has been accomplished by staff and the contractor (Intergraph)

(4) Establish a mechanism where the concerns of the internal users (dispatchers, police officers, fire fighters) can be addressed, tracked, and reported on.

(5) Address the multi-tasking problem through training and Intergraph software changes that will maximize the capability of the Windows platform.

(6) Continue to address the mapping accuracy issues which has a direct impact on the service delivery performed by the users of the system

(7) Establish a field laboratory approach for testing technology. The Fire Department will be installing 85 mobile units within their fire apparatus. Involve a cross section of users before system goes live.

(8) Contract with Intergraph for at least a year to provide support until there is internal staff expertise to support the system.

SPECIFIC ITEMS TO BE FIXED

- CAD
  - Further "Command Line" functionality
  - Windows functionality versus Intergraph Windows functionality
    - "Modeless" information dialog boxes
      - Error message boxes have to be acknowledged and addressed before being able to execute ongoing commands
    - Allow multiple "Background Windows" to move through the software to achieve information (as opposed to having to go back and type in added commands to get the end results.
    - Inability to split street node (GEO) for unit recommendation on jurisdictional, station, and/or beat.
    - Some window (dialog boxes) when opened (APB) do not allow dispatchers to leave same and move to another window (area) without closing additional window
  - "Cursor Steal" – certain circumstances (yet to be defined or determined) cause the user cursor to get lost to an "unexpected"

window as opposed to remaining (or returning) on the "Command Line" for the sake of consistent workflow.

- Mobile
  - "MDC Monitor" function
    - Near real time Unit Status
  - "Self Attach" functionality
    - Optimizes officer and dispatcher radio "air" time
  - CODE 99 (Emergency Button functionality)
    - This was originally a two keystroke function, unknown status (this was a key issue mentioned in the NY Times article)
  - Incident History and Unit History displays (printouts) confusing to read and interpret
  - Incident Histories recalled to the Mobile are not always (consistently) in the same format (chronological vs. reverse chronological
  - "Auto Update function
    - Solution raises concern over RF bandwidth

## Detailed Explanation of Recommended Actions Going Forward

(1) Ensure that the implemented emergency dispatch system be realigned with business process and service delivery needs of the City of San Jose's police and fire departments.

As the City was moving to a new CAD technology, and as the decision was made to purchase an "off the shelf system", change management, expectation management and process re-engineering became critical components of assuring a successful implementation. These components either were absent or did not receive sufficient attention during the implementation of the project.

Intergraph appears to have gone far beyond their contractual requirements to make the system work. Their commitment has included providing the City with a number of significant enhancements to the system's contracted for, off the shelf functionality, in order to meet the demonstrated business needs of the City. The vendor will be including these enhancements as part of the base system so that the City's initial objective of not having a "customized" system can be achieved.

(2) Provide large scale IT (information technology) internal and external support for mission critical systems like the CAD system.

Many of those interviewed by the SWAT team mentioned that because the city cut so many IT positions, they were left to their own devices and did the best they could under the circumstances. We heard that the new city hall project pulled focus away from a project perceived by some to be nothing more than a SJPD hardware swap out. The message wasn't getting out or getting across that this new CAD was going to be a significant culture shift. A consultant was hired to assist in the needs assessment, but there was no funding to continue those efforts. Command and management staff turnover and organizational changes were contributing factors in the breakdown of communication.

(3) Make appropriate change management efforts to supplement what already has been accomplished by staff and the contractor (Intergraph)

It was not emphasized enough to Dispatchers and Police Officer on how dramatically the "way they did business" would change going from a highly customized, command line, text based system to a windows based, CAD and Mobile System. Although many systems can be highly configurable by a user agency, it does not lend itself to modification in accommodating all of the City's business practices. As a result, some of these processes need to change.

Problems surfaced during the software rollout. The training staff for the dispatchers and the police officers never had a functioning system that matched production ready system with which to test. Geocoding, or address verification is the heart of any CAD system. A dispatcher needs to know “where”, even before “what”. During training and into implementation, the maps were incomplete. This was surprising to the team. We were not able to interview the City’s Public Works group which assisted or provided data to compile the maps. Training staff made attempts to communicate the lack of readiness before going live on the new CAD. Consider that during our visit, five months after cutover, dispatchers were still using a laptop connection to the old CAD to check when verifying locations. Police trained for CAD access via the Mobile Data Computer (MDC) on a desktop LAN, which set an expectation of speed that never materialized in production over the radio frequency network used in the field. An RF bandwidth capacity study was never done to determine the real world requirements to support the automatic vehicle location (AVL) data needed to drive the system. The City’s Fire Department is purposely holding back implementation of MDCs in the fire rigs, other than battalion chiefs, since they don’t know if they are at, or over capacity.

Both groups (police officers and dispatchers) trained in full faith that the system would work once it was in production. Expectations were raised here too since they were told “it will be easy”.

There seemed to be plenty of opportunity for resentment and hurt feelings. Training staff rightfully recognized that moving from a text based system to a graphical user interface was significant. A Windows skills assessment was begun, but halted as some felt insulted that they didn’t presume to have simple Windows proficiency. Some were upset they weren’t included in the site visits to determine how other communication centers use the Intergraph CAD. Again, there were budgetary concerns. IT staff were working out of class and the specific need for administration for IT staff went unheeded. The outgoing chief of police was told that five people for 30 days of support, from people that know nothing of CAD, “wasn’t going to cut it”. The workstations used in the implementation weren’t of a consistent build, some were slower than others.

Every user expected the “normal” issues associated with a software implementation of this size. There were grumblings during stages just prior to cutover, but nothing prepared them for the outcry that followed when the system went live. During the first week, a bug in the mobile software created problems within the radio network. The CAD dispatchers were forced to move into and out of “manual mode”. Intergraph worked to stem the problems, but drew the line at what were regarded as custom modifications. More than once we heard that there was a certain amount of denial about the whole process, and now faced with a system that hindered rather than enhanced their abilities.

The poor job of change control during development, extended to the months following cutover. Officers were given briefings at roll call with little information on bug fixes and workarounds. Dispatchers had no way of reconciling which CAD bugs were reported, and which were fixed. In fact, it was difficult for many to separate what constitutes a bug

from the design issues. This is true with any system of this nature, and will always be a source of disagreement with the vendor. As a result, the City is not experiencing anything that any other implementation has not to deal with. Some staff felt that many issues brought to the attention of the Intergraph project manager were dismissed as "Works as Designed", or WAD. This concept would be in keeping with San Jose's motivating philosophy in obtaining an off the shelf solution.

(4) Establish a mechanism where the concerns of the internal users (dispatchers, police officers, fire fighters) can be addressed.

There is a clear need for a better ongoing process in identifying, tracking and getting feedback with regard to system problems and changes made to fix those problems**.** The City IT staff along with public safety communications should determine who would be best to develop project log and database. Currently, the process needs to be better defined. However some steps have been taken by Public Works to identify mapping problems and by the Police along with IPS staff to interact with the users to obtain their direct input. In the past, Intergraph received direct calls from end users rather than use the desired routing or system problems through the City Project Team**.**

(5) Address the multi-tasking problem through training and Intergraph software changes that will maximize the capability of the Windows platform.

Multi-tasking is a prime requisite of the job of keeping status of police and fire responders in a 911 communications center. A dispatcher's screen can be a blur of motion. A CAD system should excel at facilitating the flow of events in the course of their duties. Simply put, most of the dispatcher CAD interaction involves typing information into a computer, reading the information presented, acting on it by communicating it over a radio, and/or using it to bring up other connected pieces of information. Dispatchers in a busy center like San Jose live in a text based world. Intelligent system design would seek to leverage that notion. In the RFP, the city listed a dozen items used in the evaluation basis. It doesn't state that the criteria are listed in importance, but it could be inferred. The team observed difficulty with the "ease of use regarding operator interaction and integration of modules". We recommend that this design problem be corrected.

Although some issues were raised by the City (trained trainers and end users) in CAD training, the realization that the "new system was less efficient, takes more steps to complete tasks (inhibit multi-tasking which is what makes a good dispatcher) and therefore takes longer to get their jobs completed did not become apparent to the City's Project Team or Police and Fire Administration**.** There was no early indication of the magnitude of the problems that were to occur. They were under the assumption that all was going well.

Lack of basic computer skills (windows, use of a mouse etc.) on the part of the end user was not addressed. Dispatchers (Police) attempted to request information from the users on this and attempted to train these skills but were told that it was demeaning to those who were required to participate. Some users felt they had the basic skills (use of a home PC) when in fact they did not.

(6) Continue to address the mapping accuracy issues which have a direct impact on the service delivery performed by the users of the system

The maps were developed from the City's GIS public works maps. The City did not do adequate validation testing of the maps prior to going live on June 15, 2004. Better accuracy at go live was very important. The vendor (Intergraph) should have anticipated problems in this area and had more input on its resolution. Inaccurate maps and unit recommendations greatly reduced user confidence in the entire system. There is also a need for timely changes or updates to the mapping information when deficiencies are found. While the City has made great strides in this area it was a recurring theme throughout the interview process. Dispatchers and police officers were still complaining about the accuracy of the maps.

(7) Establish a field laboratory approach for testing technology. For example in the near future, the fire department will be installing 85 mobile units within their engines. Involve all of the end users before system goes live.

There was an inability to provide a "production like" test system for training. End users were told that the system would do (or not do) certain things when it would go live, things they not able to demonstrate during training. It was mentioned that some things that were promised, never became reality**.** The amount of training for dispatchers was adequate (40 to 54 hours). Using "in house" personnel for training further perpetuated personnel shortages. Intergraph could have done a better job in providing assistance with the end user lesson plan. The amount of training for the Police Mobile (field) was not adequate. Field (Police) training was conducted on wired PC's which was not representative of the wireless MDC environment.

(8) Contract with Intergraph for at least a year to provide support until there is internal staff expertise to support the system.

This will allow the City time to develop a long-term plan for providing support to this mission critical system as well as time to develop internal staff expertise to support the system.

## Specific Questions Answered by the SWAT Team

Are the issues that remain with system fixable? Is it so bad that the City should not scrap the system?
*Yes, the system is fixable. However, the City needs to continue improving the mapping and "Windows" issues. The team did not have enough information to address every issue.*

Does it not make sense to also have a statement about retaining the Intergraph system and why?
*The City would have likely run into issues with any vendor due to the lack of IT involvement and the lack of changes in business practices. Based on the assessment of the team, the City is over the main hurdles of the system implementation.*

The problem of adequate IT management support continues today. We need your recommended response or change to address this.
*Fund a full time IT staff person who is technically competent to support the emergency dispatch system. Also find out from the Intergraph users group how other systems are being supported after the implementation. It is crucial to have support from someone who is knowledgeable about CAD.*

The Intergraph system has "Windows" issues that need to be addressed. What does this statement mean and what are the PTI proposed solutions?
*Users of the system complained about Intergraph's use of basic Windows functionality. We observed that some of their concerns and problems experienced by the staff are related to a lack of training about how windowing would be expected to perform in a CAD environment. That said, we also observed that Intergraph's use of Windows functionality in some instances did not follow what we believe to be standard windowing conventions. These have caused workflow issues for some dispatch staff that may be able to be overcome through practice and training. The City project team should meet with Intergraph to address whether these windowing issues are imposed by design requirements or whether they are result of programming errors or limitations.*

Is there a governance model for CAD systems that you could suggest for this system?
*Governance models depend on the specific needs of the municipality or county. According to SWAT team members, there is a preferred governance model nationally for CAD systems. The team recommends putting in an organizational mechanism (new or existing) to address all the stakeholders needs. The organizational unit needs to be chaired by the Assistant City Manager and/or Chief Information Officer.*

Did the project deliver what was called for in the specifications? *Yes*

How does the overall functionality of the system as it looks today compare to "best practice" CAD systems?
*According the SWAT Team, the system is comparable in functionality with other tier 1 CAD systems in the country.*

Should there be a dedicated public safety IT division in the City?

*The City needs to explore models of support that meet their needs. However, recognition of the fact that public safety systems, such as CAD are among the most mission critical systems utilized by the City would lead us to recommend a model of support, either within the public safety department or within a central IT structure, that delivers a mission critical level of support.*

What is the best model for maintaining MDCs?

*The City needs to outsource or hire someone internally to specifically deal with this task.*

This appears to be a past issue? Do you feel it has been resolved? Do the standing CAD committee and standing MDC committee resolve this?

*No, the issues have not been addressed or resolved, so the City needs to establish an organizational mechanism to resolve this issue.*

State your sense of the two versions of the Police Office Association ergonomics study of the resolution of the serious issues identified in those reports.

*Although much progress had made, the mapping and routing issues seem to be the most critical item to resolve within the Police Office Association Usability Study. Several other reporting items, event history, cross district borders and command are close to being resolved.*

The statement on the maps appears to reflect a prior problem. The maps are much better now.

*The map's system architecture is an integral and critical part of this system as a result it will have a direct impact on how the system functions.*

Was the procurement process appropriate in the decision to select Intergraph?

*Yes, there was nothing to indicate within the City's procurement process that the selection of Intergraph was inappropriate.*

Did Intergraph comply with the contract requirements?

*Intergraph appears to have gone far beyond their contractual requirements to make the system work. Their commitment has included providing the City with a number of significant enhancements to the system's contracted for, off the shelf functionality, in order to meet the demonstrated business of the City. The vendor will be including these enhancements as part of the base system so that the City's initial objective of not having a "customized" system can be achieved.*

What role does the vendor play in change management as well as proper role for public safety and IT management?

*The vendor should play an integral role in the design review and working on the design requirements and training for the system. Process re-engineering for this project should have resulted from a detailed review of in-place process when compared to the functionality to be ultimately delivered to the City by Intergraph. This part of the process should have occurred long before delivery of the system to the city.*

Was the state grant deadline a non-existent deadline or something that the City may have been able to address in Sacramento?

*The SWAT Team felt this was something that could have been addressed by asking for a formal time extension.*

Has the Pro QA interface been tested sufficiently?

*The Pro QA interface does not work the way the city would like to see it work. The vendor (Priority Dispatch), a third party add on, uses a proprietary technology that cannot be modified by the end user agency. The city was provided with a version of ProQA that had not been released for use by its customers. The product is scheduled for release in mid-January 2005.*

What efforts need to be made to supplement what already has been accomplished by staff and the contractor Intergraph?

*The City needs to take steps re-align the expectation management and process re-engineering that are critical components of assuring a successful implementation. These components were either absent or did not receive sufficient attention during the implementation of the project. Establishing an open line of communication with the users is also related to this.*

*It was not emphasized enough to Dispatchers and Police Officer on how the "way they did business" would change going from a highly customized, command line, text based system to a windows based, COTS CAD and Mobile System. The COTS system does not*

*lend itself to modification in accommodating all of the City's business practices. Some of these processes need to change.*

Has the mechanism that has been established to address the concerns of the users been effective?

*Although the City has an established mechanism since July 2004, it could have been more effective. The information flow and "all" user input were viewed as inadequate. It was also discovered that in the early stages of the project, the Police and Fire Administrations may not have taken invitations to provide input seriously.*

*The end users of the CAD and Mobile software did not have the chance for productive input as to needs, design and implementation of the systems. This input is crucial to end user "buy in" when the system goes on line. While there were committees formed to accomplish this involvement, there were questions as to the composition and the timing of these groups. Both the Communication's Project Team and the Police Administration could have done a better job in this area.*

*There is the need for a better ongoing process in identifying, tracking and feedback with regard to system problems and changes made to fix those problems.*

Although improvements have been made within the mapping process, what else needs to be done?

*Better accuracy at "go live" was very important oversight. Inaccurate maps and unit recommendations greatly reduced user confidence in the entire system. There is also a need for timely changes or updates to the mapping information when deficiencies are found. While the City has made great strides in this area it was recurring theme throughout the interview process. As a result, we still will include it as a key issue.*

*Although an intranet website has been developed to allow users to report errors, many users are unaware of these steps. Also SWAT team members witnessed errors in the field and with dispatchers in the communications center. Therefore, it is important that the Public Safety and DPW jointly development quality control process in addition to the geofile update process.*

What field laboratory testing should have been developed by Intergraph and users which would have also increased the effectiveness of training?

*According to the staff that we interviewed no bandwidth study was conducted on their RF network to determine whether it was over or at capacity. This is something that should have been recommended by Intergraph. Testing should be formatted for both production and training (mirror of live operations).*

# Kent Koehler

Experience

2004 Sedgwick County-Division of Information and Operations Wichita,KS

Senior Project Manager

- Manage numerous technology projects for public safety and non-public safety agencies. This includes computer-aided dispatch system, automatic vehicle location, fire station alerting system, and radio system upgrade.
- Chair of project management team that is developing methodology.
- Responsible for technology portion of new public safety facility (9-1-1, Emergency Management, and Traffic Operations).

2002-2004 Sedgwick County-Division of Information and Operations Wichita, KS

Project Manager

- Managed public safety technology projects.

1997–2004 Sedgwick County Emergency Communications Wichita, KS

Quality Assurance/Tech Support Coordinator

- Managed computer-aided dispatch system.
- Managed technology projects including numerous upgrades to the computer-aided dispatch system and countywide mobile data system.
- Oversaw quality assurance programs for Emergency Communications.

Education

1995 Wichita State University Wichita, KS

- M.B.A., Business Administration

1987 Wichita State University Wichita, KS

- B.S., Administration of Justice

1984 Cowley County Community College Arkansas City, KS

- A.A., Administrations of Justice

**Howard Weiner**
**8200 SW 87th Ave**
**Portland, OR 97223-6915**
**(503) 246-2746**
**howie911@comcast.net**

I have been the Computer Aided Dispatch (CAD) Software Manager for the City of Portland, Oregon since 1997. Working with the other members of the CAD staff, we manage and customize the primary tool used by the Bureau of Emergency Communications operations staff to track incident and unit activity. I was the former product manager for the software vendor, PRC, now a part of Northrop Grumman PSI. We provide CAD dispatch operations to 40 positions on the BOEC operations floor, and CAD access to 900 mobile and 2,000 desktops throughout the City and Multnomah County. BOEC provides emergency communications for six police agencies, four fire agencies, Multnomah County EMS and the 677,000 citizens of Portland and Multnomah County.

**CAD System Improvements**

**Mapping –**
Added a customized mapping system provided by the City of Portland's Corporate Geographic Information Services (CGIS). Dispatch Map mimics a dispatcher's status monitor, turning text into an interactive graphical display of every incident and unit under their control. CAD is also interfaced to Portland Fire & Rescue vehicle computers to providing geo-coded access to pre-plan and inspection data and other digitized map information. CAD utilizes AVL technology to find the closest available ambulance for medical responses. We are currently in the process of incorporating phase II cellular phone location technology.

**Connect & Protect™ –**
Interfaced to Connect & Protect™, a program enabling government agencies, schools and private sector organizations to share sensitive information before, during, and after emergencies. The City of Portland and the Connect & Protect™ program was selected as one of the five finalists for the Mitretek Innovations Award in Homeland Security, sponsored by the Ash Institute for Democratic Governance and Innovation at Harvard's JFK School of Government.

**SmartZone –**
Interfaced to Motorola's SmartZone system providing push-to-talk marquee of unit call signs, emergency signaling, 900 panic alarms.

**Stop Data Collection –**
January, 2001, Portland Police Bureau started a data capture program to provide demographics about the subjects they stop during traffic stops and other police investigations. The program was extended to all police agencies later in 2001.

**Community Justice Enhancement** –
Provides improved communications between street officers and parole & probation officers. When an officer runs a name check, the response is scanned for a corrections client hit and then displays a form on the officer's MDC to fill out information about the nature of the contact. The message is sent to the parole officer via the state message switch, LEDS, providing a near real-time communication path.

**Zetron 6/26 Fire Station Alerting System -**
Provides automatically generated dispatch tones and voice communication to station PA speakers, and a status panel at the fire stations.

**Port of Portland Airport Dispatch Operations –**
October, 2004, the Port of Portland Airport Dispatch Operations moved from a manual system to the BOEC CAD to record and monitor the dispatch operations of the airport's police and fire departments. One of the few instances that provide revenue to BOEC

**Portland Police Telephone Reporting Unit –**
Transformed the Portland Police Telephone Report Unit (TRU) from a manual reporting system to a system using CAD to record non-dispatch related police data. TRU accounts for 5% of all CAD incidents and 10% of all of PPB written reports.

**External Interfaces –**
The BOEC CAD system interfaces with a variety of input data sources and provides real-time flow of unit and incident activity to many external data consumers.

- BOEC's in house Oracle management information system
- Portland Police Data System, a regional police records management system
- Portland Fire & Rescue's in house records management system
- Gresham Police Department Data911™ records management system
- Gresham Fire Department Firehouse™ records management system
- Portland Police Bureau Moose Technologies™ Alarm Management System
- Multnomah County Sheriff in house Alarm Management System
- Lake Oswego CAD to share incident and unit data and exchange messages
- American Medical Response's Tri-Tech CAD providing incident, unit and AVL data
- Paging to provide alpha paging capabilities to multiple paging companies

**Port to Alpha hardware platform –**
Portland is the only Northrop Grumman customer to port their system from VAX hardware to the Alpha platform themselves. Many NG PSI customers extended the lifetime and speed of their CAD systems by contracting with the vendor. Doing the upgrade in-house saved the city $1 million.

**Current Projects –**
Developing a CAD interface for a field reporting software application for the Portland Police Bureau.
Lead agency developing an Enterprise Integration solution for the Portland area communications centers, funded by a grant from the Department of Homeland Security's Urban Area Security Initiative.
Member of a group of city IT technicians developing a pilot Enterprise Application Integration (EAI) project, to create a city-wide enterprise data bus.

**Previous Experience**
Prior to joining the City, starting in 1986, I worked at PRC (now a part of Northrop Grumman), the country's leading vendor of public safety software systems. I worked on a variety of CAD, Record Management Systems (RMS), and message switching systems at communications centers around the country. I assisted the marketing and sales department, helping prepare system proposals and was part of the technical demonstration team. I became the product manager for the COBOL CAD series, coordinating the efforts of 30 technical associates to enhance the base product and fix system bugs. I issued release notes as new versions of CAD software were rolled out, a company first.

Before finding my niche in public safety software, I worked for the Bank of America, as a programmer/systems analyst in their Money Transfer Unit. I was responsible for maintenance and programming of the hub system of an online transaction processing system, transferring 100's of millions of dollars daily.

I worked as a programmer for Mocatta Metals, the world's leading precious metals trading company.
I was part of a team that wrote a back-end office processing system from the ground up.

**Certification / Recognition / Industry**
Multnomah County Department of Community Justice Appreciation award, April, 2004
Emergency Number Professional (ENP), October, 2004.
Finalists for the Mitretek Innovations Award in Homeland Security, sponsored by the Ash Institute for Democratic Governance and Innovation at Harvard's JFK School of Government, September, 2004
Member of the BOEC Police Dispatch, Fire Dispatch and CAD committees
Administrator for the NG PSI User group internet mailing list

**Education**
City University of New York – *Bachelor of Science*, Computer Science/Mathematics

Visit http://www.portlandonline.com/index.cfm?c=31556 for more information about the City of Portland.

**Barry D. Whitton**
**310 Ezzard Charles Drive**
**Cincinnati, Ohio 45214**
**(513) 352-2943 (Work)**
**barry.whitton@cincinnati-oh.gov**
**(513) 598-8030 (Home)**

**Education** 1976 – 1981, University of Cincinnati College of Community Service

Bachelors Degree/Criminal Justice – Psychology

**Summary of Qualifications and Work Experience**

1995 – Present City of Cincinnati, Police/Fire Communications Section

Emergency Services Dispatch Supervisor (Technical)

- CAD (Computer Aided Dispatch) System Administration – Had a lead role in the original CAD implementation in 1991 and an extensive upgrade (hardware/software) in 1998, evaluating contract specifications and making recommendations on matters of system acceptance. Responsible for technology acquisition, maintenance, and repair of all components of the CAD system. Coordinate all file maintenance and updates on the system. Often called upon to assist in the remote diagnosis of computer related problems. Currently involved in the evaluation of RFP responses for a new combined CAD/RMS system.

- Manage inventory and repair logs for Police Department' radios. Currently assigned to the 800 MHz radio committee that is working with vendor in implementing a new digital radio system for Police and Fire. This includes the ordering of new equipment such as portable radios, developing radio talk group configurations and will be responsible for the ongoing management of the radios

- Member of MDT (Mobile Data Terminal) Steering Committee responsible for the implementation of the Countywide Mobile Data System in 1993. Reviewed the contract bids and made recommendations regarding the selection of a system integrator. Assists with the ongoing maintenance of this system and currently serves as the Department's technical liaison to Project COPSMART for the replacement of the MDT's with MDC's (Mobile Data Computers) scheduled for late 2005.

- Actively participates in the training of Communications Section personnel, including supervisors; on new technologies, equipment and processes. This involves reviewing existing work procedures, assisting in the development of

training programs that introduce these new technologies and evaluation of how they will change the operation of the Section.

**1979 – 1995 City of Cincinnati, Police/Fire Communications Section**

Operator/Dispatcher

- Answer E911, Police, Fire, and Centrex phone lines and entered appropriate police and fire incidents in the Computer Aided Dispatch (CAD) system.

- Dispatch and maintain status of police field units using the radio and CAD systems.

- Process inquiry (RCIC, LEAD, NCIC) request from field units. Process wrecker requests for field units. Responsible for entering, modifying, and canceling stolen vehicle records in the RCIC, LEAD and NCIC computer systems. Process incoming/outgoing administrative messages for the Police Division.

**Projects**

- Computer Aided Dispatch System 1991
- Countywide Mobile Data System 1993
- Logging Recorder/Call Check System 1995
- Computer Aided Dispatch Hardware Upgrade 1998
- Cell phone/Pager Project 2000
- COPSMART Police Mobile Data 2000
- 911 Computerized Telephony (CTI) System 2002
- Computer Aided Dispatch/Records Management System 2003
- New Communications Center (new renovated location) 2004

**Profession Memberships**

Member of the Association of Public-Safety Telecommunications Officials (APCO)
Member of the National Emergency Number Association (NENA)
ENP Certified since 2000

# Alan H. Komenski

**Address:** 18208 NE. 21st Street
Redmond, WA 98052

(206) 644 7081 home
(206) 462 2055 work

**Education:** Post Graduate Studies
State Univ. of N.Y., Brockport

BA Political Science, 1973
Oklahoma City Univ., Okla. City, OK

Various Management and
Professional Courses

**Licenses:** F.C.C. General Radio Telephone
Extra Class, Amateur Radio License

**Experience:** Extensive experience in the following areas:

Communications center management and operation, 800 MHz. trunked radio system design, planning and implementation, computer aided dispatching and associated systems, E 911 planning and implementation, communication center consolidation and regionalization, emergency and disaster preparedness planning and coordination.

**Employment:** Emergency Communications Manager
Bellevue Police Department
Bellevue, WA

**1984 Present**

Duties and Responsibilities

Has direct responsibility for the management of the Eastside Regional Emergency Communications Center. This center serves most police and fire agencies in the northern and eastern suburbs of Seattle. Total population area served by the center is 700,000 people, with management responsibility for a budget of $5.3 million dollars.

**1993 - Present** **Operations Manager**
Eastside Public Safety Communications Agency
Bellevue, WA

Duties and Responsibilities

Responsible for planning, implementation project management and operations of the Eastside portion of the King County Regional 800 MHz. radio system for the Eastside Public Safety Communications Agency (EPSCA). Duties include site acquisition and development, contract negotiation, implementation oversight, and responsibility for the day to day management of a six site, Smartzone trunked radio system serving 35 jurisdictions and agencies, with 2500 users radios. Implementation budget for this project was $10 million dollars, with an on-going operational budget of $1.3 million dollars.

**1981 - 1984** **Director of Emergency Communications**
Office of Emergency Communications
Rochester, N.Y.

Duties and Responsibilities

Responsible for planning, budget, personnel, and the day to day management of this county wide, consolidated emergency communications center, serving a population of 850,000. Was responsible of consolidation of the center, and implementation of the CAD system and E 911 into this center.

**1980 - 1981** **Public Safety Communications Manager**
Ramsey County Sheriff's Office
Ramsey County, MN

Duties and Responsibilities

Management responsibility for the communications and records functions of the Ramsey County Sheriff's Department, serving six law enforcement, five fire, and three emergency medical agencies.

**1975 - 1980** **Supervisor of Dispatching Operations**
Department of Public Safety Communications
Monroe County, N.Y.

Duties and Responsibilities

Had direct supervisory responsibility for the dispatching operations for the Department of Public Safety Communications. Also assisted in the planning for the implementation of county wide 911 system. Prepared grant applications and oversaw the implementation of grant funded communications systems and programs.

**1973 - 1975** **Public Safety Radio Technician**
Dept. of Public Safety Communications
Monroe County, N.Y.

Duties and Responsibilities

Communications systems installation and maintenance, department budget preparation, systems planning, and dispatching of public safety vehicles

**Professional Affiliations**

Current Chairman, King County Regional Communications Board (2000 – Present)

Committee Member, Washington State Interoperability Executive Committee (Representing the Association of Washington Cities)

Associate Member, Washington Association of Sheriffs & Police Chiefs

Member, King County 9-1-1 P.S.A.P. Manager's Committee

Associated Public Safety Communications Officers (A.P.C.O.)
NIRC VII, Cyber Security Focus Group Representative (Current)
Member, 9-1-1 Committee (1982 – 2002)
Chairman, National Standing Committee on Automation (1989 -1992)
Member, Ad-hoc Committee on Chapter Services (1983)

Active Member, Northwest Chapter Associated Public Safety Communications Officers (A.P.C.O.)

Active Member, National Emergency Number Association

Active Member and Past Chairman, International CAD Consortium (ICC)

**Professional Activities**

Project Leader, Management Audit - Watcom County Communications (1988)

Project Leader, Management Audit - Kitsap County Communications (1989)

APCO CAD Review Team Member, Charleston, W. Va.

CAD Review, Clark County Regional Communications Center, Vancouver, WA

Chairman - 1984 A.P.C.O. East Coast Regional Conference

A.P.C.O. National Executive Committee (A.P.C.O. Atlantic Chapter 1981 - 1984)

Chairman, A.P.C.O. Automation Committee (1991 -1992)

Chairman, 2000 International CAD Consortium Conference, 1992 A.P.C.O. National Conference Committee (Sub-committee Leader)

National Public Safety Planning Advisory Committee (NPSPAC), Region 43, Sub-Committee Chairman (1989 - 1991)

Presenter at many A.P.C.O. National Conferences and at the British APCO Conference on the subject of 9-1-1, Communication Center Consolidation and Regional Implementation of 800MHz. Radio Systems

# ROBERT P. HICKS, JR.

## SUMMARY OF QUALIFICATIONS

## PROFESSIONAL EXPERIENCE

**06/99–12/02** **Public Technology, Inc. (PTI), Washington, DC**
Director, Research & Strategic Initiatives

- Conducts outreach & education to local elected officials and cultivates relationships with technology private industry leading to strategic alliances and partnerships in support of the organization's broad objectives.
- Coordinates the development of the annual research agenda while ensuring collaboration and across task forces.
- Supervised research program directors and lead cross-organizational teams to raise professional standards and achieve corporate objectives.
- Managed all aspects of communication including marketing, public relations, writing, web site development, publishing, video production, relationships with media and opinion makers.
- Has been the highest revenue generator during tenure at Public Technology, Inc.
- Facilitated partnerships with federal agencies, international organizations, private industry and other associations.
- Served as a member of the strategic management team and contributes to the management direction for the organization by managing limited organizational resources.

**07/94–present** **Public Technology, Inc. (PTI), Washington, DC**
Director, Transportation and Public Safety Programs

- Directs national & international technology policy & research programs for local government executives.
- Nationally recognized leader in promoting innovation and information technology best practices in public safety, homeland security, finance, transportation, planning, environment, infrastructure, procurement and other areas.
- Co-Director, IMPACTS which is a European-North American large city information exchange on transportation, public works, parking management and technology issues.
- Develops transportation & public safety enterprise information technology public/private partnerships for local governments nationwide and internationally.
- Lead efforts to advocate for a national local government voice on policy issues to Congress and federal agencies. Initiated the development of the Local Officials for Transportation (LOT) TEA-21 reauthorization coalition.

**06/92–07/94** **D.C. Department of Public Works, Washington, DC**
Acting Chief, Transportation Policy and Planning

- Representative to the TPB and MWAQ Committees as well as seventeen other boards and subcommittees related to regional planning and policy issues.
- Directed the $3.3 million State Planning and Research budget and reviewed the annual $5.5 million COG/TPB budget.
- Supervised Branch Chiefs and other staff within the Transportation Policy & Planning Division.
- Maintained contact with the U.S. Department of Transportation to ensure District of Columbia highway policies, programs and plans were in compliance with Federal regulations and guidelines.
- Provided direction in the planning, organization, coordination and control of the major components of the inter-modal transportation and highway planning process.

**09/84-06/92** **D.C. Department of Public Works, Washington, DC**
Senior Traffic Engineer

- Planned, developed, and implemented vital engineering programs in the design, operation, implementation, and maintenance of a $43 million, 6 year, computerized traffic signal management system which impacted all traffic within the District of Columbia.
- Communicated with high ranking government officials at local and state levels involved in the approval of various capital projects.
- Provided supervision and review for the dissemination of technical data, contractor's construction schedules, updates and claims.

**07/83–09/84** **Virginia Department of Transportation, Fairfax, VA**
Highway Engineer

- Completed intensive management training program: worked in all areas of the Department such as construction, design, route location and maintenance. Promoted to Highway Engineer.
- Supervised a multitude of construction activities, such as bridge construction, retaining wall construction, and grading operations on the Dulles Access Road Project.

**EDUCATION**
The George Washington University, Washington, DC
Concentration in Technology Management
Masters in Engineering Management

Howard University, Washington, DC
Concentration in Transportation Management
Bachelor of Science in Civil Engineering

**FELLOWSHIPS**
1997 German Marshall Fund of the United States Environmental Fellowship

**AFFILIATIONS & PROFESSIONAL ORGANIZATIONS**

- Transportation Research Board, Transportation Issues in Major U.S. Cities Committee
- U.S. DOT, Committee Member on National Coalition of Transportation Operations
- Co-Founder and Member of the Local Officials for Transportation (LOFT) Reauthorization Coalition
- Mayor's Blue Ribbon Task Force on Congestion Management (District of Columbia)
- Silver Spring Citizens Advisory Board Member, Vice Chair & Chair, Transportation & Pedestrian Safety Committee
- Advisory Board Member of the IMPACTS International Exchange Organization
- National Urban League, Washington, DC Chapter

# Recommendations for the City of San Jose


## Computer Aided Dispatch System

January 2005 Public Technology Institute

# Overview

- Objectives
- Background
- Observations
- Recommendations
- Summary

# SWAT Objectives

- To provide guidance on emergency dispatch system
- To determine whether the City has the right CAD system or is there a need to start over
- To determine what changes need to be made to the system
- To recommend actions that will assure that the system works well in the future

# Background

- The City implemented the PRC CAD system in 1990
- Public Safety Consultants did an evaluation of the same CAD system 1995
- System architecture and mapping were identified as problems with the old system
- The City Council approved a contract for the existing system in 2002
- The current system went live in June 2004

# Observations - Positives

- The employees of the City of San Jose appear to be very dedicated
- Intergraph appears to have gone far beyond their contractual requirements to make the system work
- The system updates appear to have greatly reduced the problems
- Intergraph was the was best choice of the three systems that were proposed
- The issues that still remain are not cause to scrap the system

## Observations - Negatives

- The person assigned as project manager admittedly did not have the necessary experience or skills with the technical aspects of CAD
- The project manager was from the police department even though the system is for police and fire
- The front line police and fire fighters were not originally involved in the definition of requirements, system selection and screen design
- There appear not to be sufficient technical knowledge available to the CAD team. This problem continues today

# Observations - Negatives

- The lack of IT support had a very negative impact on the project
- The change management phase of the project was greatly lacking
- The mapping data was not sufficiently tested prior to going live
- The CAD system that staff trained on did not match the system they went live on


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# Observations - Negatives

- The Intergraph system has “Windows” issues that need to be addressed
- Go-live was rushed to meet non-existent funding deadline
- Pro QA was not sufficiently tested
- The users appear not to have been sufficiently notified that some functionality would be lost due to the fact that of off the shelf technology

# Recommendations

- Make sure the implementation of the computer aided dispatch (CAD) system should be realigned with the City's business process
- Implement large scale IT (information technology) internal and external support needed for mission critical systems
- Implement appropriate change management efforts to supplement what already has been accomplished by staff and the contractor (Intergraph)


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# Recommendations

- Establish a mechanism where the concerns of the internal users (dispatchers, police officers, fire fighters) can be addressed.
- Address the multi-tasking problem through training and Intergraph software changes that will maximize the capability of the Windows platform.
- Continue to address the mapping accuracy issues which have a direct impact on the service delivery performed by the users of the system

# Recommendations

- Plan for improvements and technology enhancements that are desired in the future
- Establish a field laboratory approach for testing technology
- Contract with Intergraph for at least a year to provide 24 hour support for at least a year until there is internal staff expertise to support the system


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