Audit of the Milwaukee Police Department Crime Data System

W. MARTIN MORICS
City Comptroller
City of Milwaukee, Wisconsin

July 2007

Table of Contents

Transmittal Letter....1

I Scope and Objectives....2

II Background....2

III Audit Conclusions and Recommendations....4

A. Summary Conclusions....4

B. MPD Crime Data System Description....5

C. Project Budgeting and Management....8

Recommendation 1: Budget large capital projects with clearly identifiable project accounts....10

Recommendation 2: Utilize a standard system development methodology for IT projects....10

D. System Implementation....11

Recommendation 3: Engage an owner's representative for the remaining system implementation work....16

Recommendation 4: Address IT staffing issues in MPD....16

Recommendation 5: Consult City Attorney on possible contract claims....16

E. System Utilization....16

Recommendation 6: Enhance crime reporting for public officials and outside parties....19

Recommendation 7: Maximize the potential of the MPD Crime Data System....19

Recommendation 8: Develop a comprehensive training plan....20

Appendix 1: MPD Technology Expenditures....21

Appendix 2: Crime Data System Overview....22

Appendix 3: Crime Data System Operational Status....32

Appendix 4: Crime Data System Project Timeline....38

Appendix 5: Audit Request....39

City of Milwaukee

W. Martin Morics, C.P.A.
Comptroller

Michael J. Daun
Deputy Comptroller

John M. Egan, C.P.A.
Special Deputy Comptroller

Craig D. Kammholz
Special Deputy Comptroller

Office of the Comptroller

July 19, 2007

To the Honorable
the Common Council
City of Milwaukee

Dear Council Members:

The attached report summarizes the results of our Audit of the Milwaukee Police Department Crime Data System.

The audit concludes that the core functions of the Crime Data System are implemented and functioning. MPD crime data is being reported to the State timely and within acceptable accuracy limits. However, important system functions are still not operational or are currently underutilized. An "owner's representative" should be engaged to assist the MPD with the remaining system implementation work. Also, MPD needs a properly sized IT staff with the right technical skills for the extensive technology used by the department. MPD should maximize its use of the Crime Data System department-wide, should enhance its crime reporting for public officials and outside parties, and should develop a comprehensive system training plan for its staff. As previously recommended in other audits, large capital projects such as the Crime Data System should be budgeted as identifiable line item budgets and all expenditures should be charged to discrete project accounts, with periodic completion status and financial reporting.

Audit findings and recommendations are discussed in the Audit Conclusions and Recommendations section of the report. A response letter from the Milwaukee Police Department was not available at the time this report was printed and will be issued by the department under separate cover.

Appreciation is expressed to the Milwaukee Police Department for the full cooperation extended to the auditors.

Sincerely,

W. MARTIN MORICS
Comptroller

Room 404, City Hall, 200 East Wells Street, Milwaukee, Wisconsin 53202-3567, Phone: (414) 286-3321, Fax: (414) 286-3281

PACE Local 1-0318

I Scope and Objectives

This is an audit of the Milwaukee Police Department Crime Data System. The audit was requested by 10th District Alderman Michael J. Murphy.

The audit covered all MPD practices and computer systems used for crime data processing and reporting. The objectives of the audit were to:

- Describe the scope and functions of the MPD Crime Data System.
- Assess the effectiveness of CDS project budgeting and management.
- Determine the status of system implementation, including the extent that requested functionality was obtained and made operational.
- Evaluate system utilization by MPD and other users of the crime data.

The audit utilized consulting services from the Police Executive Research Forum (PERF), a national law enforcement research and membership association, to assist the Office of the Comptroller in the audit.

II Background

In the late 1990s the Milwaukee Police Department recognized that its Computer Aided Dispatch (CAD) system was at risk of failing and in need of replacement. According to MPD, this computer mainframe based CAD system was past its useful service life. It had never been upgraded and was no longer supported by its vendor Tiburon, which is also the vendor for the new Crime Data System. The CAD system was running at full capacity due to its old technology. MPD also wanted a new Records Management System (RMS).

The installation of the new systems was coordinated with the construction of a new 3rd District Police Station and Data Communications Center, completed around the end of 2001. The Office of the Comptroller audited this construction project and issued a report in October 2003 titled Audit of the MPD 3rd District Capital Project.

MPD released its Request for Proposals for a new CAD and RMS on October 30, 2001, which stated that,

"The Chief of Police has articulated a vision for the Milwaukee Police Department (MPD) that includes a state-of-the art information and data system to coincide with the new communications and data center facility. The department wants a new, integrated computer aided dispatch (CAD) and records management system that will include a mobile data system with mobile data computers (MDCs)...[and] have Automated Vehicle Location capability...Police Optical Imaging System for records storage and retrieval..."

A contract for these new systems was executed in late 2002 with Tiburon, a subsidiary of CompuDyne Public Safety & Justice, Inc.

The MPD Crime Data System project currently costs about $7.3 million, excluding the cost of MPD staff time which the audit could not identify. The original contract was $6.8 million, with amendments adding $0.5 million. Of the $7.3 million current cost, $3.8 million or 52 percent was funded by Federal law enforcement grants, $3.4 million or 47 percent by City capital budgets and about $0.1 million or 1 percent by MPD department budgets and City special purpose funds. MPD is holding back nearly $1.1 million in contract payments to Tiburon due to incomplete performance by the contractor.

As reported below, important system functions sought and software purchased by MPD are still not operational or are currently underutilized. Significant additional costs will be incurred to make these systems fully operational, including costs to modify MPD processes to meet system requirements, complete the conversion of legacy databases and provide system training throughout the department. The MPD has not estimated the costs remaining for full implementation. Due to the lack of an overall project budget and remaining work schedule the audit does not include an estimate of the remaining cost and time.

MPD has also installed other extensive computer, telephone, radio, and audio/visual technology in recent years. The City has expended $39.7 million to install and maintain this new technology, including the Crime Data System, over the last five calendar years, as indicated in Appendix 1. MPD obtained grant funding for $16.7 million or 42 percent of this overall cost, while the City funded the remaining $23.0 million or 58 percent.

In addition to the extensive technology already installed by MPD, implementation of the following systems is currently underway:

- Pole cameras
- Squad video
- Interrogation video
- Video storage and archiving
- Mobile rapid identification
- Mobile squad data computers (MDCs)
- Automated traffic and accident citations (TRACS)
- Wisconsin Justice Information Sharing (WIJIS)
- Early Intervention Program (EIP).

III Audit Conclusions and Recommendations

A. Summary Conclusions

The Milwaukee Police Department Crime Data System is comprised of four integrated subsystems, the Computer Aided Dispatch (CAD), Corrections Management System (CMS), Automated Reporting System (ARS) and Records Management System (RMS). The core functions for each of these subsystems are implemented and functioning. Since 2005, the MPD crime data reports required by the State have been timely and within acceptable data accuracy limits. The State indicates that MPD is one of the ten largest police agencies in the nation reporting crime statistics in the National Incident Based Reporting System.

The Crime Data System project was not adequately disclosed in City Budgets. Budget authorizations appear to have been distributed to various budget lines over several years. Also, project expenditures were not recorded in discrete project accounts. The audit recommends that all large capital projects, including MPD technology projects, be budgeted as identifiable line item projects. All project related expenditures should be charged to discrete project accounts, with periodic completion status and cost reporting.

MPD encountered significant problems with its implementation of the Crime Data System, resulting in project delays and an initial delay in reporting WIBRS crime data to the State. Important system functions sought and software purchased by MPD are still

not operational or are currently underutilized.

Strong project management and oversight of the Crime Data System project is lacking. Failure to adequately train MPD personnel, update MPD business processes, and implement the planned conversion of existing legacy databases contributed to the delays and incomplete status of certain system functions. The system vendor Tiburon appears to be responsible for some of these implementation problems and delays. Although it is not uncommon to encounter major problems in such an extensive and complex project, MPD was not properly staffed to effectively direct or oversee the project and deal with deficiencies in Tiburon's performance. The project suffered from insufficient MPD commitment of resources during its nearly five year implementation. Despite these limitations the fact that the core system functions are now operational is a significant achievement by the MPD personnel assigned to the project.

The audit makes several recommendations to address these issues. MPD, together with the Department of Administration, should develop a standard system development methodology for MPD information technology projects, including an ongoing project monitoring and reporting component. MPD should contract with an "owner's representative" to assist the department with the remaining system implementation work. The Major and Common Council should address the information technology staffing issues in MPD. The City Attorney should be consulted about possible contract claims against Tiburon. MPD should enhance its crime reporting for interested outside parties, focusing on how the Crime Data System can be best used to meet the needs of aldermen and other public officials. Also, MPD should maximize use of the Crime Data System throughout the department. Finally, MPD should develop a comprehensive training plan to bring all of its personnel to a consistent level of proficiency in the functionality needed for their positions.

B. MPD Crime Data System Description

The MPD Crime Data System is a law enforcement enterprise system that records, processes and reports information on crimes, and also contains substantial information on MPD operations, such as response times and officer activity. The Crime Data System is comprised of four major subsystems, the Computer Aided Dispatch System (CAD), Corrections Management System (CMS), Automated Reporting System (ARS) and

Records Management System (RMS). All four of these subsystems can function independently; however, they are designed to be tightly integrated as they share and exchange data.

The Computer Aided Dispatch System (CAD) acts as both a transaction processing system and as a data capture system on citizen calls for police service and officer initiated activity. The system matches and tracks requests for service with police resources (transaction processing) and records the details and results of these incidents (data capture). CAD data is traditionally used within a police agency to measure workloads by areas, time of day, and nature of call and to evaluate response times. Aggregating call for service data and officer activity information, regardless of whether officers write reports, may assist the Department in fighting crime by identifying criminal activity "hot spots."

Most day to day police activities begin with a call for service from the public. Those calls are answered by Telecommunicators who determine the nature of the call and enter the information into the CAD system, creating a CAD "event". This information is then routed to a Dispatcher who gives the assignment to an officer in the field. Information captured by the Telecommunicator is available to the Dispatcher and if the field unit has a mobile data terminal, significant portions are delivered directly to the patrol vehicle. A large portion of the calls for service processed through CAD resulting in the dispatch of an officer do not result in the creation of a crime report in the ARS. Therefore, not every CAD event becomes a part of a record in the ARS and RMS. Only when an officer requests an incident number for crime reporting will there be an ARS/RMS record linked to the CAD event. Appendix 2 includes further information on the CAD system. Primary CAD users include:

- Communications personnel
- Patrol officers and supervisors
- Crime Analysis section
- Police Administration.

The Corrections Management System (CMS) is used to enter information about those arrested. It serves as the MPD's arrest and booking data capture system and includes information both about the arrest and the arrestee, such as the date, time, type of offense, age, gender, arresting officer, etc. Data is entered by patrol officers and booking clerks. Data is transferred from the CMS to the RMS. Appendix 2 includes further information on the CMS. Primary CMS users include:

- Station "Booker" officers
- Patrol officers and supervisors
- CIB investigators and supervisors
- Identification Division

The Automated Report System (ARS) is the "front end" of the Records Management System (RMS). It is used to capture crime report data including information about specific crimes: how they were committed; the people involved (suspect, victim, witness, arrestee); what method, weapon, or tool was used; who was injured and how; what property was stolen, recovered or seized; and a narrative description of the incident and investigation. The ARS is used to store data until it is reviewed and validated, then added as a "permanent" record to the RMS. Further information on the ARS is included in Appendix 2.

Patrol officers, detectives and some clerical personnel, enter data into the ARS. Although data is currently entered in police stations, the system is designed to allow entry from the field via mobile data computers in squad vehicles. This functionality is not yet operational. Primary ARS users include:

- Patrol officers and supervisors
- CIB investigators and supervisors
- Auto theft entry section
- Central Records/data entry section
- Identification Division

The Records Management System (RMS) is the permanent database of the department. RMS data may be used to generate a vast array of statistical reports on crimes committed in the City. Portions of this data are extracted and sent to the State as part of the Wisconsin Incident Based Reporting System (WIBRS). The RMS represents the collective memory of the department with respect to crime reporting and investigations. Appendix 2 includes further information on the RMS and the related WIBRS reporting process.

Information in the RMS is entered through the CAD, CMS and ARS subsystems. RMS users include:

- Patrol officers and supervisors
- CIB investigators and supervisors

- Police Administration
- Crime Analysis section
- Public (copies of reports/records/ web)
- Courts
- State (WIBRS).

MPD also installed an optical imaging system as part of the project called Intellinetics. This system holds scanned images of written reports on incidents that are not criminal in nature but which need to be documented. Officers prepare hand written reports on non-criminal incidents including fires that are not clearly arson, and deaths and injuries that do not involve crimes. These documents are imaged, indexed and can be retrieved by the Central Records Division. Since this system does not store crime data, it was not examined in the audit.

C. Project Budgeting and Management

The MPD Crime Data System project was not adequately disclosed in City budgets. Budget documents do not identify the cost or funding sources for the project. Budget authorizations appear to have been distributed to various budget lines over several years. Also, project expenditures were not recorded in discrete project accounts nor were payroll expenditures for MPD staff time on the project tracked through payroll codes.

Extensive audit analysis was required to develop the five year summary of MPD Technology Expenditures in Appendix 1. This summary by technology category and funding source was developed through inquiry and detailed review of accounts and expenditure documentation. This information was not summarized in any meaningful way by MPD or in City budgets and their related accounts. Without an adequate Crime Data System project budget or account structure, the budget document failed to reveal the total budget for the project or project life-to-date expenditures.

MPD encountered significant problems with its Crime Data System implementation, resulting in delays in the project and an initial delay in reporting crime statistics to the State. The project timeline in Appendix 4 shows the substantial delays in implementing the project. The project missed its original April 30, 2004 contract completion date, with some system functionality yet to be implemented. The Tiburon contract was amended for

the seventh time in 2007.

The system vendor Tiburon appears to be responsible for some of these implementation problems and resulting delays. The project contract assigned primary responsibility for project management and system implementation to Tiburon, consistent with City RFP Section 3 which states,

> *"The Contractor [Tiburon] will be responsible for all the following requirements...Project Management, System Documentation, System Implementation, System Training, Component and System Level Testing, Data Conversion, System Warranty, Maintenance, and Support."*

A separately executed System Implementation Agreement is included in the Tiburon contract as Exhibit D which states that,

> *"Tiburon shall provide all design, development, installation, consulting, system integration, project management, training and technical services set forth in the Statement of Work attached hereto..."*

RFP Section 3.1 provides that *"Project management shall be the responsibility of the Prime Contractor."* As the Appendix 4 timeline shows, there have been substantial delays in the project. The MPD Chief wrote in a November 16, 2005 letter to the Comptroller that *"In general CompuDyne [Tiburon] has had difficulty keeping this project moving at the pace necessary..."* MPD further indicates that Tiburon did not adequately monitor and report on the status of the project. The project suffered from the turnover of Tiburon project team members. However, MPD also indicates that Tiburon is currently more responsive on system issues.

It is not uncommon to encounter major problems in an extensive and complex project such as the Crime Data System project. Nevertheless, MPD was not properly staffed to effectively direct or oversee this project and deal with the deficiencies in Tiburon performance. The project suffered from insufficient MPD commitment of resources during its nearly five year implementation. While MPD can delegate important project responsibilities to a vendor, ultimate responsibility for the project rests with MPD.

Strong project management and oversight of the Crime Data System project is lacking. The audit indicates that neither Tiburon nor MPD adequately controlled the overall project to minimize delays and adverse project impacts. It does appear that MPD did

considerably more than the vendor to monitor the implementation plan. Beginning in early 2005, MPD began to comprehensively track and report on project activities, personnel assignments, task completion status and project issues. MPD indicates it held weekly project meetings, routinely attended by more than 12 of its personnel. However, there is no indication that MPD or Tiburon sufficiently assessed or reported on how the delays and problems in individual tasks were impacting the overall project schedule and budget. Concise information on whether the Crime Data System project was on schedule and on budget was unavailable to MPD senior management, the Fire and Police Commission, the Major and Common Council. Had such information been available, the City would have been in a better position to take corrective actions on project scope, direction and resources. Similar project management deficiencies for major City projects were previously noted and reported in the 2003 Audit of the MPD 3rd District Capital Project and 2007 Audit of the Department of Public Works Canal Street Project. In spite of these limitations, the fact that the Crime Data System core functionality is now operational is a significant achievement by the MPD personnel assigned to the project.

Recommendation 1: Budget large capital projects with clearly identifiable project accounts

The Department of Administration Budget Office should ensure that all large capital projects, including MPD technology projects, are budgeted as identifiable line item projects in City budgets. All costs associated with a project, including staff salaries, should be tracked and charged to project accounts, with periodic reporting of project status including future cost to complete, total cost at completion, and expected completion date.

Recommendation 2: Utilize a standard system development methodology for IT projects

With the assistance of the Department of Administration Information and Technology Management Division (DOA-ITMD), MPD should develop a standard system development methodology for its information technology projects, including an on-going project monitoring and reporting component with periodic reports of the financial and completion status of the project. It should contain a roll-up capability to provide the

various levels of detail that are appropriate for the different responsibility levels of the project team, department managers and City officials (programmers, systems analysts, project manager, senior MPD management, Fire and Police Commission, Mayor and Common Council, etc.). This methodology should require a comprehensive work plan that provides for all resources needed to complete a project, including City, contractor and vendor personnel, with the use of these resources and the completion of milestone work products reported throughout the life of the project.

D. System Implementation

The MPD Request for Proposals and the project contract identified specific functions to be performed by the new Crime Data System, as outlined in Section III(B) above. Each of the major functions is listed in Appendix 3 along with its current operational status. The audit included a limited examination of these Crime Data System functions, assessing their operational status based on auditor observations and interviews with MPD personnel and other concerned parties. This section describes the current implementation status of the Crime Data System and makes comparisons to what MPD had required in its RFP.

The core functions of the Computer Aided Dispatch System (CAD), Corrections Management System (CMS), Automated Reporting System (ARS) and Records Management System (RMS) are implemented and functioning. Nevertheless, system implementation is incomplete. Important system functions and software purchased by MPD are not yet operational.

Appendix 3 lists the primary functionality for each of the four Tiburon subsystems and its current operational status. The following core functions are now operational:

- Automated 911 call for service processing and squad dispatching in CAD
- Prisoner booking and inmate management in CMS
- Criminal incident reporting in ARS
- WIBRS crime data processing and reporting, arrest record processing, and arrest warrants in RMS.

These Crime Data System functions support the primary mission of responding to citizen calls, processing those arrested, recording the particular details of each crime, and

reporting crime statistics and therefore are essential to MPD operations.

Appendix 3 also indicates the following system functions are not yet operational:

- Mobile data and automated field reporting in ARS
- Crime Analysis and Geographical Presentation Analyst Systems in RMS
- Investigative Case Management in RMS
- Traffic Management in RMS
- Gang Information System in RMS
- Guns and Pawned Property in RMS
- Fleet Management in RMS
- Special Intelligence in RMS
- Bio-metric System Log-on in RMS.

In addition, the following system functions are only partially operational or are substantially underutilized by MPD:

- Automated Vehicle Location System in CAD
- Master Name Index in RMS
- Property subsystem in RMS
- Personnel and Training subsystem in RMS.
- Data Warehouse in CAD, ARS and RMS
- Officer Activity subsystem in RMS.

Some of these non-operational or incomplete functions seem particularly important for crime fighting. Mobile data and field reporting was a key requirement in the MPD Request for Proposals. It allows patrol officers and investigators to access crime data from their vehicles and complete crime reports in the field. The Crime Analysis subsystems have fully integrated access to all crime data in the system, providing enhanced tracking and analysis of crime patterns and trends. The Investigative Case Management module tracks investigator effectiveness. The GPS based Automated Vehicle Location module tracks the exact location of vehicles for incident response and officer safety. The Gang Information, Special Intelligence, Data Warehouse and Officer Activity functionality are also useful for crime fighting.

MPD is in the process of completing the AVL implementation, as well as Traffic Management, Fleet Management, and the Personnel and Training subsystems. MPD did not provide a budget, plan or schedule for making the remaining functionality operational.

If fully operational, the Crime Data System should provide the vast majority of the functionality originally sought by MPD. However, as noted above, substantial work remains. Section 4.2 of MPD's Request for Proposals specified that *"The City desires to obtain a system that requires less than 5 percent custom tailoring to meet 75 to 80 percent of the City's requirements."* MPD was seeking a commercial off-the-shelf system in an effort to control costs. Tiburon in its proposal asserted that its standard applications would meet 79 percent of MPD's requirements. MPD conducted detailed functionality tests on the Crime Data System screens and data integration and found the new system acceptable.

Problems with the legacy data conversion and other technical issues contributed to the delays and an inability to report crime data out of MPD during much of 2005. MPD did not submit required monthly crime data reports to the State and missed the August 2005 deadline for submitting the finalized semi-annual data report. MPD indicates it experienced two major Tiburon CAD system failures in 2004. Some of these implementation problems were reported by the news media, resulting in Alderman Murphy's request for an audit.

RFP Section 3.2 states that *"Documentation is crucial to both the initial and long-term success of this project."* According to MPD staff, Tiburon has not documented the data structure of the MPD databases, which has made it difficult for MPD to develop system queries with the Crystal Reports tool. This is a critical deficiency. Not only does it hinder the development of useful data queries, but it could adversely affect system database integrity and lengthen the time and cost of future system upgrades.

RFP Section 3.3.5 states that *"The Contractor shall install and configure all critical hardware and software in City of Milwaukee facilities."* The Chief's letter indicates that *"The CAD go-live was initially delayed due to software configuration by Tiburon...The RMS go-live was delayed by a number of issues. Tiburon did not size the databases to provide adequate capacity..."*

RFP Section 3.4.1 states that *"Milwaukee will not accept a simple train-the-trainer program."* Tiburon provides an ambiguous response in its proposal, which indicates that *"The proposed training is compliant with this requirement. Tiburon is proposing a mix of train-the-trainer and direct contractor training for the Department's*

implementation..." Nevertheless, MPD states that the train-the-trainer approach was utilized for most data entry and end user training. Direct contractor training was utilized for most system administration functions and for network configuration. Nearly everyone interviewed in MPD for the audit pointed to insufficient training. The lack of sufficient training will keep MPD from realizing the full potential of its Crime Data System.

RFP Section 3.6 states that *"Significant data conversion will be required as part of this project."* RFP Appendix D identifies the legacy MPD data to be converted, including record sizes and the number of years of data to retain. Tiburon responded in its proposal that *"Data conversion will be provided as part of the proposed solution..."* but that further analysis would be needed for the conversion plan and pricing for the conversion tasks. The Chief's letter states that,

> *"The Department had pressed Tiburon for months on data conversion issues, yet there were still issues at go-live. Data conversion took longer than expected...The delay in data conversion also had an impact on incident reporting and crime data reporting...resulting in a 6 month delay of crime data being transmitted to the State of Wisconsin."*

The audit disclosed significant problems with the converted legacy (old system) data. Some data appears to have been transferred from the old to new system without adequate prior validation and formatting, resulting in instances of invalid and corrupt data in the new system and diminished confidence in the system by some MPD users. Duplicate names were not removed, resulting in multiple records for the same individual or officer. In one example, a single officer is recorded with nine different name variations, none of which are linked. The duplicate names and improper conversion have compromised the Master Name Index and possibly other RMS databases.

Given the issues surrounding Tiburon performance, MPD has not yet formally accepted the Crime Data System and is withholding nearly $1.1 million in contract payments to Tiburon. Since the system is not yet accepted, the City is avoiding annual maintenance fees, which has been a substantial savings for the City, somewhat offsetting the incomplete Crime Data System implementation.

Although Tiburon may have been primarily responsible for repeated project delays, MPD was not properly staffed to effectively direct or oversee this complex project and deal with the deficiencies in Tiburon performance. The Crime Data System is an extensive,

data driven, enterprise system affecting essential real time public safety processes throughout MPD, both in central command and in the field. The size and complexity of this IT project required IT skills and training generally unavailable within MPD.

Sworn MPD personnel with little information technology training provided contractor oversight and managed MPD project resources. Most continued to carry other duties besides the Crime Data System project. Retirements and reassignments resulted in a lack of continuity in project leadership. MPD was and is understaffed in terms of both the number of IT personnel and in personnel with appropriate IT training, certifications, and experience. Despite these limitations, the core functions of the Crime Data System are operational and MPD staff should be recognized for its accomplishments.

At the same time that the Crime Data System was being implemented, MPD personnel were also managing the transition to the new 3rd District Communications Center, which required modifications for separate police and fire dispatch operations and a new public records center, as well as extensive new telephone and radio technology.

The original Communications Center plan called for a single CAD system to be shared by both MPD and MFD. As reported in the 2003 Audit of the MPD 3rd District Capital Project, the two departments could not agree on CAD functionality. The Milwaukee Fire Department withdrew from the joint effort and installed its own separate CAD system costing about $6.5 million, plus the cost to modify the building for separate dispatch operations. The 3rd District Audit reports that the Department of Administration Information and Technology Management Division (DOA-ITMD) indicated that any benefits derived from separate CAD systems were outweighed by the financial and technology benefits that would have been achieved with a shared CAD system. The City may have saved millions of dollars had this decision been made by professional IT managers.

Recently, the Chief of Police informed the Common Council Public Safety Committee that MPD is overwhelmed by the pending technology projects listed in the Background section, indicating the Department's ongoing need for IT professionals to implement and manage IT projects.

Recommendation 3: Engage an owner's representative for the remaining system implementation work

An "owner's representative" should be acquired on contract by the MPD as soon as possible. This contractor should prioritize the remaining system implementation work, establish a budget and schedule for this work, and provide oversight through final system implementation, with Tiburon held accountable for its promised work products. This owner's representative should have previous experience managing large and complex IT projects.

Recommendation 4: Address IT staffing issues in MPD

The Mayor and Common Council should address the information technology staffing issues in MPD. The extent of technology now installed in MPD, nearly $40 million during the last five years, as well as projects currently being implemented, require a properly sized staff with the right technical skills. Obtaining individuals with the necessary training will probably require hiring experienced information technology professionals rather than using sworn MPD officers and supervisors. A thorough examination of staffing needs necessary to develop, implement and maintain major MPD information systems should be conducted.

Recommendation 5: Consult City Attorney on possible contract claims

MPD should consult with the City Attorney about possible contract claims against Tiburon before formally accepting the Crime Data System and the payout of contract holdbacks.

E. System Utilization

Since 2005, MPD has submitted timely and accurate crime data reports to the State, which in turn submits the data to the FBI. The RMS is now producing extensive and accurate crime data. The Wisconsin Office of Justice Assistance administers WIBRS

crime reporting statewide and confirmed that MPD's monthly crime data submittals have been timely and are accurate, having an error rate consistently below 1 percent. Both the FBI and Wisconsin require that errors be less than 3 percent. The low error rate in WIBRS crime data for Milwaukee is indicative of the quality of MPD's data validation process. The Wisconsin OJA indicates that MPD is one of the ten largest police agencies in the nation reporting crime statistics in the National Incident Based Reporting System.

The RMS is also being used to provide crime information to the public through the City COMPASS system administered by DOA-ITMD. The City website provides crime statistics and maps showing crime locations city-wide, by aldermanic district and by police districts.

These are significant accomplishments, but the following areas have limited the utility of the Crime Data System:

- Tiburon performance issues, including work products committed to but not provided
- Database conversion issues resulting is some invalid and corrupted data
- Insufficient system training of MPD system user personnel
- Failure to modify and adapt current MPD practices and procedures to take full advantage of the Crime Data System capabilities
- Underutilization of system data, analysis and reporting capabilities.

MPD also provides aldermen with quarterly crime statistic reports, crime density maps and charts on major crimes. However, several aldermen interviewed for the audit expressed a need for more timely crime information, as well as information on more offenses including quality-of-life violations like public disturbances and cruising. These aldermen want to be informed about any spikes in crime and unruly activity on a same day basis as these events occur. The audit indicates that the comprehensive crime information that these aldermen would like is available in the CAD, ARS and RMS system.

Failure to update MPD business processes and convert existing legacy databases, have contributed to the delays and incomplete status of certain system functions.

CIB personnel assert that the Tiburon Investigative Case Management module is not being utilized because it does not support the way CIB handles its cases. The PERF audit

consultants disagree and believe that the case management application could be used effectively by CIB within its current work structure. PERF obtained information from the CIB on how it conducts investigations and compared this information with the features of the Tiburon Investigative Case Management module. PERF concludes that the Case Management module could be used effectively by MPD to track and manage cases, to record the contributions of each detective working on a case, to provide summary case status reports, to establish accountability and to more efficiently allocate overtime.

In 1988 the consulting firm Buracker & Associates conducted a comprehensive study of MPD and issued its report entitled Milwaukee Police Department Structural Analysis, which recommended that,

> *"Information gathering procedures for obtaining investigative personnel activities data should be reexamined and appropriate action taken to insure the collections of accurate, reliable statistics... CIB should design and implement a comprehensive case management system. This system should emphasize a more sophisticated solvability factors model, case tracking procedures and objective measures of individual productivity."*

Apparently, CIB has never used an automated case management application. The audit found no indication that CIB is generating the comprehensive case tracking statistics and investigator activity data recommended by Buracker back in 1988.

The CIB Crime Analysis Section is not using the Tiburon Crime Analysis and Geographical Presentation Analyst subsystems. The Section has developed its own methods of extracting Tiburon data using the ArcView legacy mapping tool and a separate database.

The CIB Sensitive Crimes Division maintains a separate legacy database that duplicates criminal offense information in the Crime Data System, requiring the same criminal data to be entered twice. Property and evidence data is also entered twice, once in ARS incident reports and then again in the separate WinACE property management application.

In addition to retention of certain legacy business practices and databases, insufficient training also contributes the delays and the incomplete status of the system implementation. A lack of training may be the primary reason for the substantial

underutilization of the Crime Data System throughout MPD. As noted above, nearly everyone interviewed in MPD pointed to insufficient training. The original implementation plan called for 40 hours of training for each system user. This was reduced to 24 hours of training, with many MPD personnel receiving even less.

Training in how to query and access predefined system reports is needed department-wide. CIB personnel are aware the system contains useful information, but do not know how to access it. Command staff needs to be shown how to access reports available on the report server. Supervisors need specific training in certain functionality, such as the Officer Activity subsystem. Station clerks have not received any system training.

Recommendation 6: Enhance crime reporting for public officials and outside parties

MPD should enhance its crime reporting for interested outside parties. City aldermen and the Fire and Police Commission are key consumers of crime data. MPD should determine how the Crime Data System can be best used to meet the needs of City public officials. Given the enhanced reporting capabilities of the Crime Data System, aldermen and the Fire and Police Commission should determine the kind of information they would like to receive on crime and MPD performance. If possible, this enhanced reporting should be provided through the City's COMPASS system, so that the reports do not require manual preparation by MPD. DOA-ITMD may be able to assist MPD in developing more timely and comprehensive crime reports.

Recommendation 7: Maximize the potential of the MPD Crime Data System

MPD should maximize use of its Crime Data System department-wide and for its crime fighting strategies. Certain installed modules currently are not being used or are underutilized. The Tiburon Geographical Presentation Analyst module is not being used for crime analysis. Detectives are not using the Tiburon Investigative Case Management module. Some MPD work locations are retaining legacy databases that may be replaceable by the Crime Data System, such as the Sensitive Crimes File Maker Pro database and the WinACE property and evidence database. As reported earlier, some tasks critical to the full implementation of the above functionality were not completed in

the original system implementation, including proper conversion of legacy databases and documentation on the new system table structures. These issues will need to be addressed for the full implementation of these systems.

Once the MPD owner's representative is in place pursuant to Recommendation 2, MPD should develop a written implementation work plan, budget and schedule for completing the department-wide implementation of Crime Data System functionality. This plan should cover the assignment of Tiburon and MPD personnel, and identify any additional hardware, software and equipment needed to complete the project. The plan should be submitted to the Mayor, Common Council and Fire and Police Commission.

Recommendation 8: Develop a comprehensive training plan

MPD should develop a comprehensive department-wide Crime Data Systems training plan. Department users should first complete questionnaires on the extent of their system proficiency. These questionnaires along with input from supervisors would be used to develop the specific training classes needed to bring the various types of users, such as patrol officers, detectives and supervisors, to a consistent level of proficiency in the functionality needed for their positions. The funds required to implement and maintain an adequate training program must be budgeted.

MPD Technology Expenditures

Appendix 1

	Total	2006	2005	2004	2003	2002
Computer Systems						
Grant & Forfeiture	$9,857,351	$492,862	$2,643,928	$414,215	$2,545,213	$3,761,133
City Capital	$3,710,742	$1,008,446	$294,850	$68,296	$437,986	$1,901,164
City MPD Payroll	$6,499,929	$1,211,964	$1,251,042	$1,333,644	$1,401,359	$1,301,920
City DPW Payroll	$2,128,128	$445,397	$454,546	$501,963	$369,915	$356,307
City Other	$331,986	$141,322	$35,559	$23,762	$64,187	$67,156
Total Computer Systems	**$22,528,136**	**$3,299,991**	**$4,679,925**	**$2,341,880**	**$4,818,660**	**$7,387,680**
Telephone Systems						
Grant & Forfeiture	$7,958	$0	$3,346	$3,724	$722	$166
City Capital	$3,951,949	$0	$63,704	$537,480	$1,395	$3,349,370
City MPD Payroll	$65,858	$0	$0	$0	$0	$65,858
City Other	$20,909	$0	$0	$10,265	$4,332	$6,312
Total Telephone Systems	**$4,046,674**	**$0**	**$67,050**	**$551,469**	**$6,449**	**$3,421,706**
Radio Systems						
Grant & Forfeiture	$6,118,304	$2,145,286	$267,000	$24,000	$3,581,282	$100,736
City Capital	$1,529,022	$1,397,911	$97,147	$13,768	$0	$20,196
City MPD Payroll	$3,335,112	$696,960	$722,674	$682,042	$586,531	$646,905
City Other	$421,042	$5,143	$92,587	$74,490	$117,154	$131,668
Total Radio Systems	**$11,403,480**	**$4,245,300**	**$1,179,408**	**$794,300**	**$4,284,967**	**$899,505**
Audio/Visual Systems						
Grant & Forfeiture	$673,790	$486,161	$47,664	$31,769	$98,965	$9,231
City Capital	$108,736	$0	$1,012	$0	$6,200	$101,524
City MPD Payroll	$811,659	$178,051	$174,840	$163,360	$156,958	$138,450
City Other	$105,024	$39,780	$0	$21,777	$24,533	$18,934
Total Audio/Visual Systems	**$1,699,209**	**$703,992**	**$223,516**	**$216,906**	**$286,656**	**$268,139**
Total MPD Technology Costs	**$39,677,499**	**$8,249,283**	**$6,149,899**	**$3,904,555**	**$9,396,732**	**$11,977,030**
Tiburon Crime Data System (Computer Systems)						
Grant	$3,806,010	$0	$31,030	$0	$1,242,441	$2,532,539
City Capital	$2,368,092	$961,112	$269,527	$23,096	$146,896	$967,461
City Other	$35,016	$35,016	$0	$0	$0	$0
Total Project Costs Thru 2006	**$6,209,118**	**$996,128**	**$300,557**	**$23,096**	**$1,389,337**	**$3,500,000**
Project Costs 2007	$24,064					
Tiburon Contract Holdback	$1,075,434					
Project Costs At Time of Audit	**$7,308,616**					

Computer Aided Dispatch System (CAD)

The Computer Aided Dispatch System (CAD) is operated by the Communications Division in the MPD Administration Bureau. The Division has two functional units, Telecommunications and Dispatching. About 600,000 calls for service are received each year, with about half or 300,000 calls resulting in squad dispatches.

Calls to 911 arrive on two SBC trunk lines, one for telephone calls and the other for cellular calls. Telephone calls are routed directly to MPD. Cellular calls are first routed to the Milwaukee County Sheriff's Department, which in-turn transfers the cellular calls to the appropriate municipality. MPD has the technology and would prefer to handle cellular 911 directly, but the State allowed counties to designate a responsible agency and the County Board designated the County Sheriff for cellular 911 calls.

The CAD system routes calls automatically to the next available Telecommunicator. When more than one Telecommunicator is available, CAD routes the call to the one with fewest received calls during that work shift (workload balancing). Telecommunicators enter information on the calls into CAD, including the type of crime and priority. They use two computer screens allowing for display of CAD windows for data entry and location mapping. Each screen can have multiple open windows.

Criminal incidents requiring police squad response are created as assignments in CAD by the Telecommunicators, which are then transferred automatically to the Dispatchers. Telephone calls that do not need squad response, such as vehicle break-ins, are transferred to another Telecommunications Reporting Unit where staff talk directly to the callers by phone and enter the information into the ARS. Non-dispatched calls are identified in CAD as closed without assignment. Calls transferred to the Telecommunications Reporting Unit are identified as such.

CAD has four response urgency priorities, with highest priority colored red on screen displays, then blue, green and black. The goal for the highest priority is to complete the CAD entry and transfer it to the Dispatchers within 30 seconds, with subsequent dispatch to a squad within another 30 seconds. CAD displays the call location in data windows by address, nearest intersecting streets, longitude and latitude. Street maps are displayed showing criminal incident location, type/category of crime, priority by color code, and

squad. The CAD system identifies the seven Squad Districts with each City block further defined as a Reporting District (about 7,000).

Squad assignments awaiting dispatch are queued in CAD. Primary and secondary Dispatchers are assigned for each of the seven squad districts. Dispatchers use three CAD computer display screens and a fourth radio system display screen. CAD recommends squads for dispatch for each assignment. Also, Dispatchers can query CAD for on-duty patrol personnel with specific skills and attributes. For example, CAD could identify a Spanish speaking female patrol officer, certified for administering breathalyzer tests.

New Telecommunicators receive four weeks of classroom training and on-the job training. New Dispatchers first receive the Telecommunicators training, then two weeks actual Telecommunicator experience, followed by four weeks of Dispatcher training. Extensive training and retraining is necessary because of the complexity of the system, the public safety aspects of the job and potential legal liability.

Due to the sophistication of its CAD system, MPD believes that other jurisdictions may want to contract with MPD to provide dispatching services.

Corrections Management System (CMS)

The current arrest processing system uses the Corrections Management System (CMS) which is also a Tiburon product. Each district has officers dedicated to perform the booking process. These "Bookers" handle the data entry, fingerprinting and photographing of arrestees. The arresting officer is responsible for hand writing an arrest form and providing security during the process. To begin a booking, an arrestee is searched and all property is inventoried. A digital check of two fingers is used in an automated search for a positive identification. If a match is found then data for that person is brought forward into the CMS booking screen. This saves considerable data entry and time. If no match is found or the ID system is down, then the Booker must manually enter all the data. If the officer or Booker suspects that the arrestee has had a previous booking, there are search tools that allow the booker to try to find the previous record. Getting data from a previous booking requires several steps and there is not an option to copy the data from a previous booking into a new one. However, the data from

a previous booking can be printed and used to speed the processing of the new booking. Not all Bookers appear to be aware of these shortcuts when the positive ID system is not working. The final steps of the process are usually the photo capture using a system that is integrated with ARS/RMS and fingerprinting using LiveScan. If the arrestee is to be confined and transferred to the custody of the county, much of the data entry and the LiveScan fingerprints and photo are later duplicated by County personnel at the jail. MPD has met with the County in the past to discuss the possibility of an automated transfer of booking data but no progress has been made as yet.

A typical arrest process can take 30 to 45 minutes. If an officer is second or third in line there can be significant idle time while waiting for the booking. It would be ideal for an officer to be able to use the ARS to file a criminal incident report while waiting, if there were easy access to a PC and a place to secure the arrestee. However, this does not appear to be possible with current booking area configurations.

Automated Reporting System (ARS)

The Automated Reporting System (ARS), as well as the other Tiburon subsystems operate in a client server environment with Oracle 8.x as the backend database. With few exceptions, reports that officers create in the ARS begin with a call for service originating in CAD. Once an officer has determined that the call (or "hitch" as referred to in MPD) will require a criminal incident report, the officer informs the dispatcher that a report number is needed. Under current MPD procedures the dispatcher is not allowed to provide the report number over the radio. The auditors were told that the officer must switch to a side radio channel to contact their district console operator and ask that person to telephone the dispatcher for the report number. The district console operator then radios the officer with the report number. The reason for this inefficient practice was not identified but it should be re-examined by MPD.

As there is currently not an option to file a report from the mobile data system (work is underway to support mobile field reporting), the officer must at some point return to the district station and use one of the PCs dedicated for that purpose. Officers enter the criminal incident report into the ARS. Officers are able to pull data from the CAD record automatically to populate some of the data fields for the ARS report. The remainder of the report data must be entered by the officer.

Since the system is designed to report offenses to the Wisconsin Incident Based Reporting System (WIBRS), reports must have specific data entered in prescribed ways. Prior to implementation of the Tiburon Crime Data System, an officer would hand write a report on a form that may or may not have sufficient form fields for the necessary information. In some cases, names of people involved in an incident would be listed in the narrative rather than in a prescribed form field. In other cases, if a property owner had a hand written list of items taken in a theft, that list was simply attached to the original hand written report and forwarded to Central Records. In the new system, there are page tabs on the ARS that are specific to certain types of data. Names must be entered on the names tab and property must be entered on the property tab. Each tab has specific data elements that must be completed and many are new to the officers. There are additional steps that must now be taken to link names to incidents, where in the past, just the role of the person (victim, suspect, witness etc.) and demographic information was required. Specific codes must now be used when describing the offense, property types, relationships between the victim and offender and many other WIBRS crime data elements. These codes are available from "pick lists" that are presented to the officer so they do not have to memorize them. However, all of this additional data entry takes time. A simple report with one suspect and one victim, narrative and no property usually takes an experienced officer 15 to 20 minutes to enter. A complex report with multiple victims, suspects and property can take several hours for an officer or detective inexperienced in the new automated system.

Records Management System (RMS)

Once the officer or detective completes the report in ARS, it is in a status called owner approved. The report is then reviewed by a supervisor. If the report needs corrections it is returned to the originating officer. Once the report is approved by a supervisor, it is "frozen" and transferred to the Records Management System (RMS) by Central Records personnel. Once transferred, the report is validated against the WIBRS crime data rules. These rules (mostly dictated by the FBI) are used to enforce the edits that ensure all parts of an offense are present and properly coded. For example, to report an Armed Robbery there must be a victim, a weapon, and property taken. If a report is submitted with Armed Robbery as the offense and a weapon is not listed, then the WIBRS edits will reject it and it will not be submitted to the State until the errors are corrected. Only the data elements

that are submitted to the State for those reports that contain offenses reportable under WIBRS are transferred to RMS. This makes RMS of limited use compared to ARS which contains significantly more data about any given offense.

At any time there are approximately 1,500 – 2,000 reports pending in the system, including about 600 original reports and the remainder supplemental reports. Supplementals are normally additional pages of data and narrative that are filed after an original incident or "face" report has been submitted. Supplementals are not normally subject to WIBRS validation because they do not stand alone as a report. Supplementals modify the original report, which is then revalidated and resubmitted to WIBRS. The more complex or serious cases handled by the Criminal Investigation Bureau (CIB) usually result in numerous supplementals for each case.

Because of the system design, any pending offense reports (those that have not been frozen, transferred to RMS and WIBRS) are not included in the monthly submission to the State. In the long term this makes little difference since as the pending reports are approved and verified they are submitted along with the latest month's submission. The WIBRS system will allocate the offenses to the correct month based on the date of the crime, regardless of when the data is actually submitted. This does have the effect of making the numbers of offenses reported for a particular month change over subsequent months. This is just the nature of Incident Based Reporting and is not unique to the MPD or the State of Wisconsin. Many agencies in states with Incident Based Reporting have found that their counts for offenses occurring in previous months change with the latest monthly submission.

Incident Based Reporting allows a police agency to update offenses for the submission month back to January of the previous calendar year. This means that a submission of data for the month of September 2006 can include offenses that have occurred anytime since January of 2005. These prior offenses may have been investigated and reported to the State, then subsequently found to be baseless or unfounded in which case a deletion record will be submitted. When the State processes the current data submission, the unfounded cases will cause the count for that type of offense in the month which it occurred to decrease. Also, due to the number of pending reports, it is likely that each monthly submission will contain reports for prior months that were recently approved and moved to RMS. In an agency the size of the MPD, this could result in some noticeable changes in crime statistics every time a new monthly data submission is made. Some

concern has been expressed because the number of offenses appears to be a moving target from month to month. This is normal in the WIBRS environment and should not cause the administration to mistrust the data generated by the system.

WIBRS Validation Process

Interviews were conducted with MPD personnel to examine the procedures used to validate reports submitted to the State under the Wisconsin Incident Based Reporting System (WIBRS). As described earlier, the report process begins with the officer entering the criminal incident report into the Automated Reporting System (ARS). The officer decides when to move the report to the next phase which is where a supervisor checks the report for accuracy and either sends it on to Central Records or rejects it and returns it to the officer for correction. Reports approved by supervisors are reviewed by civilian staff in Central Records who have been trained to check the ARS reports for accuracy and completeness. These employees know how to enter reports in the ARS and through years of experience know the elements required for each crime, probably as well or better than the officers. If the report is acceptable, it is "frozen" by Central Records. Freezing the report essentially locks it in data terminology, meaning that no changes may be made. Once frozen, the data necessary for the WIBRS validation and submission is copied from ARS to RMS. Not all data from ARS is copied to RMS. Only those data elements required by the State to support WIBRS are copied into the RMS.

Errors found by Central Records personnel are normally classified as minor in which case the records clerk will make the necessary correction and then freeze the report, or significant in which case the report is rejected and returned to the officer for correction. The distinction between minor and significant errors is determined by whether the correcting edits would change the report in some substantial way. A typical minor non-substantial correction would be where an officer listed himself as the victim of a crime like drug possession. The WIBRS rule for this offense is that Society must be the victim rather than the officer. Central Records personnel would change the officer's role to the reporting party and list Society as the victim. This change has no significant impact on the original report and does not in any way change the offense or the facts of the incident.

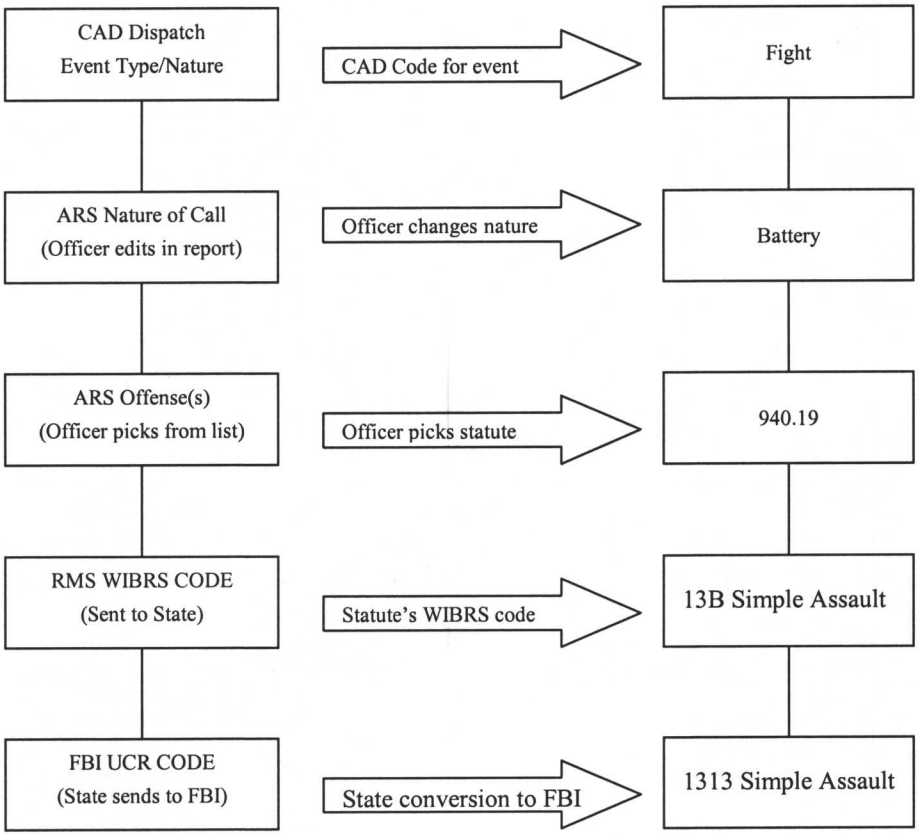
Frozen reports are only editable by persons who have been given specific system security rights. There are currently five users within the department with rights to edit or

"unfreeze" a report and make changes. These actions are tracked by the existing system audit trail showing when the action was performed and by which user. The standard procedure for revising a frozen report is through use of supplemental reports. Should an officer need to make corrections or additions to a frozen report, they complete a supplement which then passes through the same approval process as the original and once approved, is merged with and modifies the original report.

Some reports cannot be readily frozen and validated for WIBRS reporting because they contain confidentiality flags. MPD uses five confidentiality flags to prevent general system users from accessing the flagged reports in ARS. These flags are used by the Professional Performance Division for internal investigation ("I" flag), Homicide ("H"), Sensitive Crimes ("S"), Intelligence ("T") and Vice Control ("V"). Only MPD system users with the appropriate system access rights can view flagged reports. Although the need for confidentiality in some MPD cases is obvious, these flags can result in some crimes not being reported timely to the State and therefore not included in City crime statistics. Central Records personnel responsible for the routine freezing and transferring of reports to RMS for WIBRS processing do not have access to these confidential reports and are not even aware that they exist in the ARS system. The Commanders in Central Records have access to them and continually keep after the units to get their confidential reports freed for WIBRS submission and inclusion in City crime statistics. The auditors were informed that there are usually several hundred confidential reports on-hold in the system. MPD should consider a written directive to these units on the need for timely reporting of essential crime statistic information on these flagged cases. It may be possible to use skeletal reports for timely WIBRS submission and still keep confidential information flagged on supplemental reports for later WIBRS processing after the confidential issues are resolved.

The WIBRS validation process is a program within the Tiburon RMS system which processes each offense report and arrest through a complex set of edits prescribed by the State and based upon rules provided by the FBI. Offenses and arrests are broken into two groups, A and B. Under WIBRS submission rules, only offenses in Group A are reported to the State. Arrests for Group A and B offenses are also reported. According to the WIBRS rules, all Group A arrests must be accompanied by a Group A offense report. Group B arrests may be submitted on their own without an offense report or they may be submitted with a Group A offense report. There are 46 Group A offense codes. Examples of Group A offenses and arrests are, Murder, Rape, Robbery, Larceny, Damage

to Property, Weapons Offenses and Assault. There are 14 Group B offense codes, examples of which are Bad Checks, Peeping Tom, Disorderly Conduct and Trespass. Again, only Group B arrests are reported to WIBRS. As there are only 46 unique Group A offense codes and there are hundreds of commonly used Wisconsin criminal statutes, there is obviously not a one to one match. Therefore, when the MPD offense pick list in the ARS was built it was necessary to assign a Group A or B WIBRS offense code to each offense. This task was further complicated because some Wisconsin statutes could fall under more than one of the WIBRS offenses. The State statute for Sexual Assault on a Child 948.02(1) could be an 11A, 11B, 11C, 11D, 36A, or 90Z under WIBRS offenses. MPD staff chose to use the most serious of the WIBRS offense codes when building its code tables. The code value may be changed during the reporting and validation process should the facts and data indicate one of the other codes is more appropriate, as the following example illustrates.



The actual validation is run as a batch process, selecting offenses and arrests by date range from the RMS side of the data. The validation process may be run for previous

month's data only. WIBRS rules specify existing offense and arrest records may be updated for a period of months from the time the offense and or arrest was first submitted. The beginning date for each month's submission is calculated as the "BASE DATE". This date is usually January 1st of the previous year. So if the validation process is being run in February 2007, to validate the data for January 2007, the base date is calculated to January 1, 2006. Any offense or arrest that either has not been processed or which was modified since that date is subject to validation. This allows for cases that were already submitted and subsequently closed as unfounded to be deleted from the State's counts. It also allows for arrests that occur after the original offense was submitted to be linked and therefore clear the case. It also allows additional data to be submitted that may not have been available in the original submission. Suspects, victims, property and even offenses may be added or deleted. Recovered property is a common reason a previously submitted offense is re-submitted at a later date. Typically, this process causes a delete record to be submitted which removes the original case data from the State's repository and then the updated case is resent in its entirety rather than trying to modify a portion of the record in the State's system.

The selected Group A offenses and Group A and B arrests are processed through the validation edits. System reports listing all offenses and arrests with failed edits along with a description of the expected edit are produced and used by Central Records personnel to correct the items. Approximately 6,000 records are validated each month. Of those, 8 to 12 percent fail some part of the validation. Most of these items are insignificant and are readily corrected by Central Records personnel. Typical edit failures are ones such as "Weapon tool used does not match offense class". This edit will catch an offense where the officer indicated the crime was Simple Assault however the weapon the officer chose was a firearm. In some situations, a victim will say the suspect mentioned a weapon or even threatened to shoot them but only pushed or hit them. The officer may chose a firearm in the weapon/tool used pick list because of what the victim said. The WIBRS edits will flag this case because Simple Assault may not have a firearm as a weapon. Central Records personnel will check the narrative of the original report in ARS and if necessary, correct the weapon/tool used in the RMS data. The ARS data is not changed. If a report fails validation edits and Central Records personnel cannot determine from the original what the correct data should be or if the changes would substantially alter the data from the original report, the officer is notified and asked to submit a supplement to make the corrections.

As repetitive validation edit failures are identified, Central Records personnel notify their chain of command about the specific issues, which are addressed via several methods. If the issues are specific to a particular officer or supervisor, that person is contacted and one on one instruction is provided to correct the issues. If the issues are more general but the reports are coming from a particular Division or District, then training for that specific unit is conducted. This may be by instructional memos or more detailed training at roll calls.

It is worth mentioning that there is a certain degree of confusion about Group A versus Group B OFFENSE reporting. The MPD officers can and do occasionally write reports for Group B offenses. However, these offenses are not submitted to the State. Arrests for Group B offenses are submitted. These arrests are usually based upon issuance of a Municipal Citation. Under normal procedures, data from these citations is captured in the "Muni" system operated by an outside contractor known as "PAM" (Professional Account Management). PAM creates an extract of these arrests which is given to MPD for submittal to the State. Through an agreement with State, some of the arrests in the Muni data are being accepted as Group A arrests even though there is no Group A offense report. Under this agreement, Group A incident records are created automatically by WBIRS using as much data as is available in the PAM submission. Any missing data is defaulted in order to pass the edits. The predominant arrests that are being handled in this manner are minor thefts and minor drug possession. The FBI considers these to be Group A offenses and therefore requires an associated incident report. MPD decided years ago to let the citation for these kinds of offenses serve as the only record of the event. The State, rather than exclude these arrests, decided to accept the data and build the required Group A incident records from available data. Since these arrests/offenses were not reported under the old Uniform Crime Reporting (UCR) system, it is likely that they will be seen as an increase in the number of reported crimes. In reality, they have always been handled this way but were probably not being included in the summary totals sent to the State under UCR.

The core CAD, CMS, ARS and RMS functionality is working and by most accounts resulting in better information. The multi-level approval process along with the WIBRS validation is functioning as it should. State WIBRS administrators informed the auditors that the error rate on MPD data has been below 1 percent each month. This is indicative of the quality of the MPD's crime data validation process and the effort MPD personnel put into checking and fixing any validation edit failures.

Tiburon Computer Aided Dispatch System		
CAD Functionality	**Operational Status**	**Audit Finding**
Receive and route calls	Operational and utilized	Per observation and interviews.
	CAD system routes calls for service automatically to next available MPD Telecommunicator.	
Call processing	Operational and utilized	Per observation and interviews.
	Police Telecommunicators use two display screens for CAD windows providing data entry and location mapping. Each screen can display multiple CAD windows.	
	Police Telecommunicators enter calls requiring dispatch in CAD.	
Squad dispatching	Operational and utilized	Per observation and interviews.
	CAD queues calls pending squad assignment by priority and routes to Police Dispatchers by MPD district.	
	Police Dispatchers use three CAD display screens and a fourth radio system display screen.	
	CAD displays call information in data windows and on street maps showing location, times, color coded priority, squads, etc.	
	CAD recommends available squads to dispatch for each assignment.	
	Police Dispatchers assign squads and can query CAD for specific squad skills, such as Spanish speaking female officer, certified for breathalyzer tests.	
Automated Vehicle Location	Partially operational	Per interviews.
	The location of all AVL equipped radios is displayed on CAD screen maps using GPS.	MPD indicates 130 squads now have mobile radios with AVL, about a third of the fleet. MPD continues to install AVL in all new vehicles, about 75 per year.
	AVL is designed to utilize the MPD radio system.	MPD expects to issue all officers new portable radios with AVL starting in June 2007.
CAD Data Warehouse	Operational but underutilized	Per observation and interviews.
	CAD captures extensive data on all calls, dispatches and squad transactions.	Contract requires recreation of CAD display screens seen by dispatchers at any point in time. Not yet delivered by Tiburon.
		MPD holding back contract payments pending delivery of CAD history screens and bio-metric log-on.
	CAD data can be extracted using the Crystal Reports tool.	Obtained monthly report on response time and time on scene. Some crime analysis queries used, per interviews.
		Audit indicates little use of the extensive CAD data.

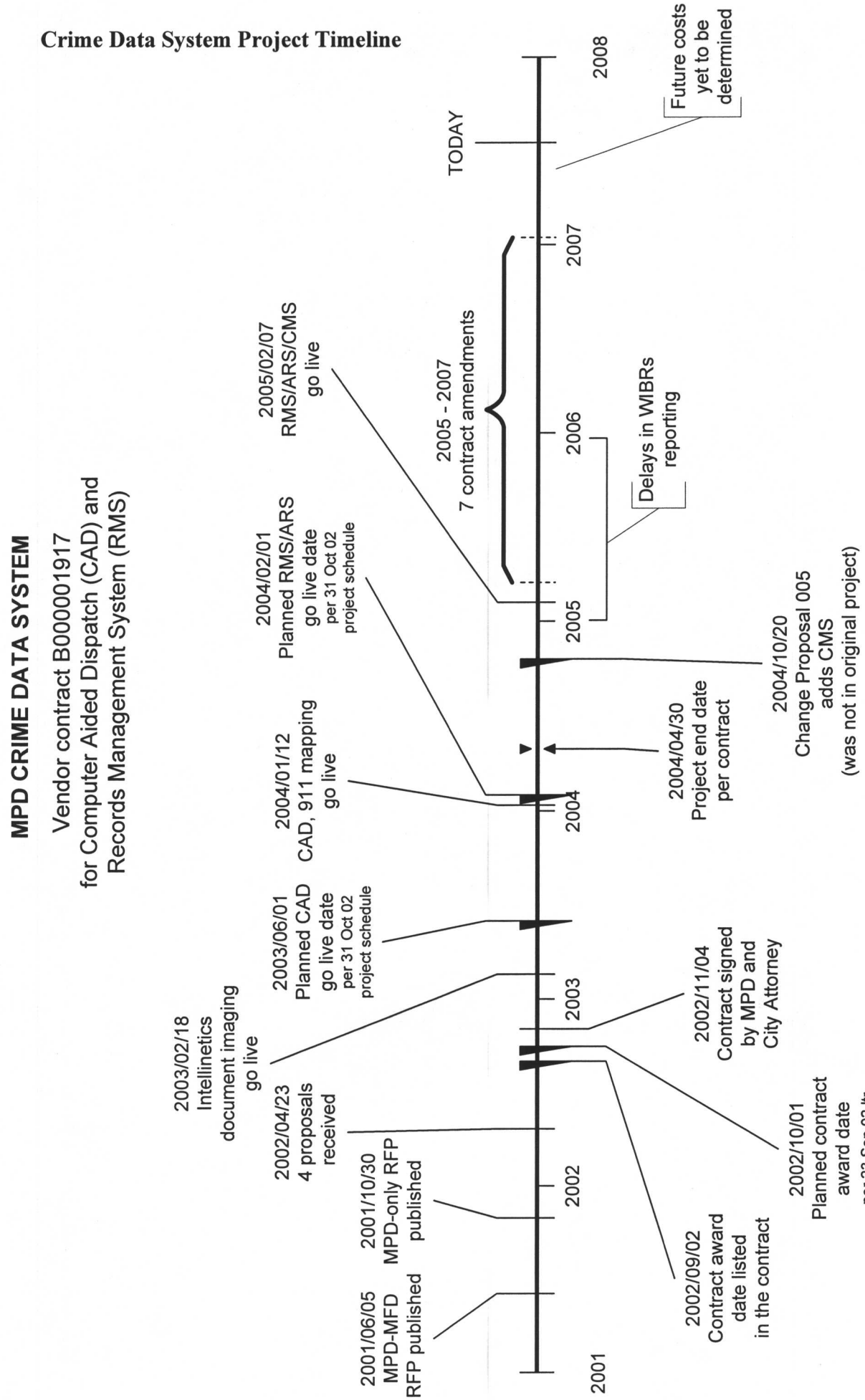
Tiburon Corrections Management System		
CMS Functionality	**Operational Status**	**Audit Finding**
Prisoner booking	Operational and utilized	Per observation and interviews.
	Automated search for identification is conducted by a digital scan of two fingers.	
	If system provides a positive identification, data on that person is loaded into booking system, simplifying booking process.	
	The booker enters booking information into CMS.	
	Prisoner is digitally photographed and fingerprinted.	MPD indicates digital photo system is integrated with CMS/RMS.
		Typical arrest processing takes 30 to 45 minutes. Officers can be idled for substantial time when there are booking backlogs. Delays are generally due to workload, not the CMS system.
		No data interface with County jail. County duplicates data entry, photos and fingerprinting.
Inmate management	Operational and utilized	Per interviews.
	CMS provides functionality to record inmate activities and other custodial information.	MPD indicates much of this functionality not needed for short-term custody. MPD records some info, such as gang affiliation, to separate rival gangs.

Tiburon Automated Reporting System		
ARS Functionality	**Operational Status**	**Audit Finding**
Criminal incident reporting	Operational and utilized	Per observation and interviews.
	The ARS is used by officers to report the details on crimes they are assigned to investigate.	
	CAD data can be downloaded to ARS using the CAD assignment number.	
	CMS data can be downloaded to ARS using the booking number.	
Report workflow and maintenance	Operational and utilized	Per interviews.
	Access to certain ARS reports is restricted to specific MPD work units through system confidentiality flags.	
	The ARS is used by supervisors to approve the criminal incident reports completed by their officers.	
	After reports are approved they are "frozen" and transferred to the RMS for inclusion in WIBRS crime data reported to the State.	State confirms MPD WIBRS data is timely and accurate.
	Data remains in ARS after transfer to RMS. Some data such as narratives is not transferred to RMS.	MPD maintains ARS data for seven years, after which it is purged.
Mobile data and field reporting	Not operational	Per interviews.
	ARS reporting can be done on squad Mobile Data Computers and notebook computers through wireless connections.	MPD expects to implement mobile reporting in the future.
ARS and RMS databases	Operational but underutilized	Per interviews.
	ARS is the primary criminal incident and investigative data repository.	
	ARS and the other RMS subsystems provide substantial query functionality.	Many officers are not familiar with the query functionality and do not use it.
	ARS and RMS data can also be extracted using the Crystal Reports tool	Audit indicates little use of the extensive ARS and RMS data.

Tiburon Records Management System		
RMS Functionality	**Operational Status**	**Audit Finding**
WIBRS crime data processing	Operational and utilized	Per observation, interviews and State contact.
	RMS is the primary crime statistics data repository.	
	Processes criminal incident info transferred from the ARS for State WIBRS reporting.	State confirms MPD WIBRS data is timely and accurate.
Master Name Index	Partially operational	Per interviews.
	The repository of all name information in the RMS (Alpha) system.	In order to prevent errors in criminal history records, all arrest linking is done by the ID Division using fingerprint verification.
	RMS allows the linking of all contacts MPD has with individuals as suspects, arrestees and witnesses, etc.	For this reason, MPD does not to allow its officers to link subject names in their reports to arrest records.
		MPD can query names, but arrest records are not directly linked to any other incidents on the subject.
		The Master Name Index functionality was compromised by inadequate conversion of legacy data.
Master Location Index	Operational and utilized	Per interviews
	The history of all incidents at locations recorded in RMS (Location System).	The Master Location Index functionality may have been compromised by inadequate conversion of legacy data.
Criminal Records	Operational and utilized	Per interviews
	Generates the criminal history on individuals (rap sheets).	
Warrant System	Operational and utilized	Per interviews
	Stores and reports warrants and warrant activity.	Warrants are entered and stored in a separate legacy mainframe system that is accessed by RMS.
		RMS also downloads warrant information from State and Federal warrant systems.
Officer Activity	Operational but underutilized	Per interviews
	Tracks and reports officer activity such as arrests, citations, accident reports, calls responded to and field contacts.	Audit indicates some officers use this functionality to learn about previous shift activity. Many officers are not familiar with this function. No indication that supervisors use it.
Property	Partially operational	Per interviews
	Property and evidence management and reporting.	Used by MPD only to report the property loss values to the State.
		MPD uses another non-Tiburon application called WinACE to manage property and evidence, which it believes is superior.
		Information on property is entered into ARS reports and then re-entered into the separate WinACE application.

Tiburon Records Management System		
RMS Functionality	**Operational Status**	**Audit Finding**
Personnel and Training	Partially operational	Per interviews
	Stores personnel records, employment history, assignment history, special skills and certifications, training, personnel schedules.	Currently, used by MPD only to record assignment of handcuffs and firearms to officers.
		MPD expects that this RMS subsystem will become operational upon implementation of the Early Intervention System and an interface to the PeopleSoft HRMS.
Crime Analysis and Geographical Presentation Analyst Systems	Not operational	Per interviews
	Analyzes crimes for patterns and trends. Also, has an extensive modus operandi capability.	RMS crime analysis systems are not used by MPD.
	GPA system has additional crime analysis, query and reporting capability.	MPD crime analysts developed their own crime analysis techniques, using info from CAD and RMS.
Investigative Case Management	Not operational	Per interviews.
	Management and reporting on investigative cases.	Not used by MPD.
	Reports include: unassigned case log, investigator work load, case closing and aging analysis, investigative activity, crime assignment and clearance analysis.	Audit indicates MPD has never used an automated case management application.
Traffic Management	Not operational	Per interviews.
	Stores info on traffic citations and accidents for analysis. Can report activity by date, time, location, vehicle type and driver information.	Awaiting implementation of the State's digital citation and crash reports system (TraCS).
		MPD expects to interface RMS to TraCS.
Gang Information System	Not operational	Per interviews.
	Stores information on criminal gangs, such as gang name, gang members, locations of activity.	Not used by MPD.
Guns and Pawned Property	Not operational	Per interviews.
	Firearm permits and/or registration are not used under current State law.	Not used by MPD.
	Also, captures details on pawnshop property, including persons involved.	
Fleet Maintenance	Not operational	Per interviews.
	Tracks vehicle information, including vehicle equipment, fuel consumption, and repair and maintenance costs.	MPD expects to interface RMS to the DPW fleet system once the new fuel (Octane) system is operational.

Tiburon Records Management System		
RMS Functionality	**Operational Status**	**Audit Finding**
Special Intelligence	Not operational	Per interviews.
	Can provide investigators with an automated confidential notification each time a specified person or location of interest is involved in an incident recorded in the system.	Not used by MPD.
Bio-metric System Log-on	Not operational	Per interviews
	System log-on by fingerprint.	Required by contract, but not yet delivered by Tiburon.
		MPD holding back contract payments pending delivery of CAD history screens and bio-metric log-on.
Special Flags System	Operational status unknown	Not reviewed for audit.
	Allows setting a caution flag or note about a person or location, which can indicate hazards or danger.	
Other RMS Subsystems	Operational status unknown	Not reviewed for audit.


MPD CRIME DATA SYSTEM
Vendor contract B000001917
for Computer Aided Dispatch (CAD) and
Records Management System (RMS)
2001/06/05
MPD-MFD
RFP published
2001/10/30
MPD-only RFP
published
2002/04/23
4 proposals
received
2003/02/18
Intellinetics
document imaging
go live
2003/06/01
Planned CAD
go live date
per 31 Oct 02
project schedule
2004/01/12
CAD, 911 mapping
go live
2004/02/01
Planned RMS/ARS
go live date
per 31 Oct 02
project schedule
2005/02/07
RMS/ARS/CMS
go live
2002/09/02
Contract award
date listed
in the contract
2002/10/01
Planned contract
award date
per 23 Sep 02 ltr
Tiburon to MPD
2002/11/04
Contract signed
by MPD and
City Attorney
2004/04/30
Project end date
per contract
2004/10/20
Change Proposal 005
adds CMS
(was not in original project)
2005 - 2007
7 contract amendments
Delays in WIBRs
reporting
Future costs
yet to be
determined
TODAY
2001
2002
2003
2004
2005
2006
2007
2008

Audit Request

Appendix 5

Audit Proposed by Attachment MD

MICHAEL J. MURPHY
ALDERMAN, 10TH DISTRICT

City Hall, Room 205
200 East Wells Street
Milwaukee, WI 53202-3570

Phone (414) 286-2221
Fax (414) 286-3456

e-mail: mmurph@milwaukee.gov
website: www.milwaukee.gov/district10

CHAIR:
Finance & Personnel Committee
Milwaukee Arts Board

COMPTROLLER

2005 AUG 23 PM 2:03

MEMBER:
Judiciary & Legislation Committee
Steering & Rules Committee
Zoning, Neighborhoods & Development

August 22, 2005

W. Martin Morics, Comptroller
Room 401 – City Hall

RE: AUDIT OF POLICE DEPARTMENT COMPUTER SYSTEM

Dear Mr. Morics:

As you may be aware, the City of Milwaukee has invested more than $7 million in a new computer system for the Police Department to generate crime data. That new system is still not functional, leaving the department more than 8 months behind in its production of meaningful, comprehensive crime data. MPD had planned to activate the new system in January and complete the conversion by March. In fact, earlier this month, the Police Department missed its deadline to turn in mid-year crime statistics to the state, which then forwards that information to the Federal Bureau of Investigation.

According to the attached *Milwaukee Journal Sentinel* article dated August 6, 2005, upper management police officials blame the delay on "myriad technical problems compounded by human mistakes." While it is reasonable to anticipate some problems shifting from an outdated 16-year-old computer system to this new technology, the Police Department's selection of a standard police crime data system instead of custom-built software and hardware would hopefully preclude these types of glitches from occurring.

I am herewith requesting your office conduct an audit of the Police Department's new crime data computer system to determine the causes and possible resolution of the glitches that have occurred in its implementation, before this situation devolves any further. I do not wish to see the Police Department repeat the cost over-runs associated with the 3rd district communications center project.

Thank you for your assistance in this matter.

Sincerely,

Michael J. Murphy
Alderman, 10th District

MJM:mg

cc: Common Council Members
Mayor Tom Barrett
Patrick Curley
Police Chief Nannette Hegerty
Asst. Police Chief Joseph Whiten
Mark Nicolini
Marianne Walsh