EXHIBIT 1

Baltimore Police Department Technology Resource Study

June 2018

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Introduction

Purpose of this Study

Following the death of Freddie Gray while in police custody and the subsequent riots, unrest, and protests, the U.S. Department of Justice (DOJ) Civil Rights Division conducted an investigation into the Baltimore Police Department (BPD) and released a report of its findings in the summer of 2016. On April 7, 2017, the City of Baltimore and the DOJ entered into a consent decree that would address what DOJ deemed were BPD patterns and practices that violated the First, Fourth, and Fourteenth Amendments to the U.S. Constitution and provisions within federal statutory law.[1] Requirements of the consent decree focus on "building community trust, creating a culture of community and problem-oriented policing, prohibiting unlawful stops and arrests, preventing discriminatory policing and excessive force, ensuring public and officer safety, enhancing officer accountability and making needed technological upgrades."[2]

Specifically, this Technology Resource Study applies to Paragraphs 267 through 278 of Case 1:17-cv-00099-JKB, Document 2-2: Consent Decree. The purpose of the Study is to inform the development of a Technology Resource Plan that will guide BPD in executing technology and business process improvements needed to satisfy requirements of the Consent Decree as well as modernize the department. In particular, this resource study will fulfill requirements under Paragraph 268, which reads:

> "268. Within the first year of the Effective Date of the Agreement, BPD will complete a comprehensive study of the Technology (the "Resource Study") necessary to satisfy the Material Requirements of this Agreement. The design, objectives, and deadline for completion of the Resource Study shall be set forth in the Monitoring Plan."[3]

This resource study aims to inform the resource plan, which will fulfill requirements under Paragraph 269, reading:

> "269. BPD will develop a resource plan ("Resource Plan") for adopting the Technology necessary to satisfy the Material Requirements of this Agreement. The deadline for the Resource Plan shall be set forth in the Monitoring Plan."[4]

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[1] City of Baltimore. (2018). *City of Baltimore Consent Decree.* Retrieved from
https://consentdecree.baltimorecity.gov
[2] City of Baltimore, *City of Baltimore Consent Decree.*
[3] United States of America v. Police Department of Baltimore City, et. al., (D. Md. 2017). Retrieved from
https://www.justice.gov/opa/file/925056/download
[4] United States of America v. Police Department of Baltimore City, et. al.

Methodology

The National Police Foundation (NPF), in partnership with BPD, assembled an assessment team including a subject matter expert with extensive experience in law enforcement information systems and technology to produce this Study.[5] From September 2017 through March 2018, BPD staff and the NPF team conducted interviews and observed business processes, reviewed departmental policies and other process documentation, inventoried information systems, and examined open source media related to BPD and their use of technology. Based on the analysis of this comprehensive body of information, the assessment team developed the technology inventory and observations contained in this report. A full detailed methodology can be found in Appendix D of this report.

Baltimore Police Department (BPD)

The Baltimore Police Department (BPD) has served as the primary law enforcement agency for the City of Baltimore since 1784.[6] The Draft Mission Statement for the BPD as of June 2018, which is subject to change, reads, "The Baltimore Police Department is dedicated to upholding the Constitution and enforcing laws in a fair, impartial and ethical manner. We commit to creating and maintaining a culture of service that builds trust and legitimacy in all communities, values the sanctity of human life, and provides for the well-being of all."[7]

Staffed by almost 3,100 sworn and civilian personnel, BPD is the 8th largest municipal police department in the U.S.[8] The department is organized into nine geographical districts, most recently separated into Area East (Central, Southeastern, Eastern, Northeastern, and Northern Districts) and Area West (Northwestern, Western, Southwestern, and Southern Districts).[9] Challenged by high levels of crime, BPD continues to work to move forward on meeting Consent Decree requirements.

Since April 2016, the BPD has undergone multiple organizational changes including four changes in leadership. In May 2018, Gary Tuggle became the Interim Police Commissioner.

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[5] Full bios of assessment team members can be found in Appendix D.

[6] City of Baltimore. (2017, March). *Chief, Data and Technology*. Retrieved from https://humanresources.baltimorecity.gov/sites/default/files/Chief%20Data%20Technology%20Police%20031717.pdf

[7] Draft Mission Statement. Retrieved June 8, 2018 from https://www.baltimorepolice.org/0000-draft-mission-statement

[8] City of Baltimore, *About The Department.*

[9] Baltimore Police Department. (2018, May 15). *Baltimore Police Department Organizational Chart*. Retrieved from https://www.baltimorepolice.org/sites/default/files/General%20Website%20PDFs/BPDOrgChart.pdf

Figure 1. BPD Organizational Chart
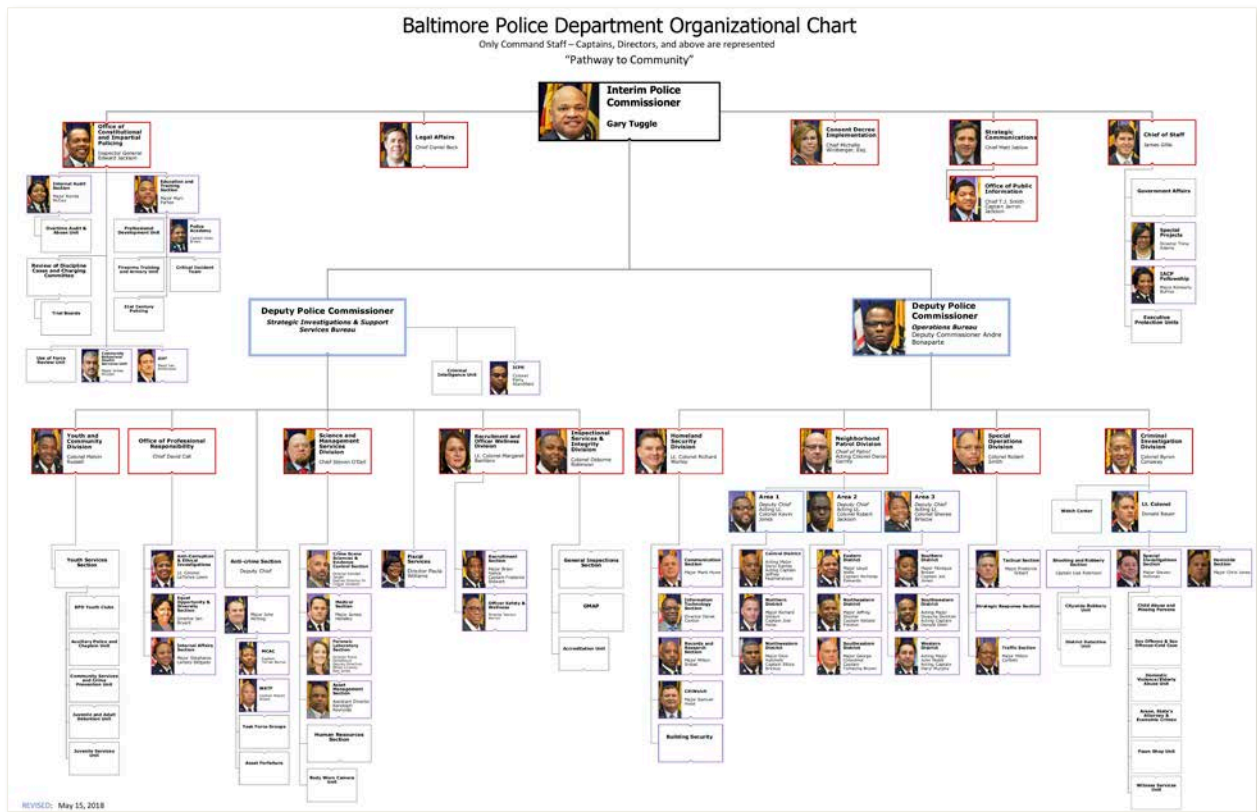
In February and April 2018, under the previous commissioner, Darryl De Sousa, BPD conducted a major reorganization of its units, which Interim Commissioner Tuggle has changed slightly by separating the city for patrol into three sections instead of two and by making some reassignments. The Strategic Investigations and Support Services Bureaus are overseen by the Commissioner. The Operations Bureau consists of the Neighborhood Patrol Division, the Special Operations Division, the Criminal Investigation Division, which includes all investigative units, and the Homeland Security Division, which includes communication, records and research, CitiWatch, building security, and information technology. The Strategic Investigations and Support Services Bureau consists of the Youth and Community Division, the Office of Professional Responsibility, the Science and Management Services Division, which includes crime scene sciences and evidence control, the laboratory, medical, asset management, human resources, and the body worn camera unit, Fiscal Services, the Recruitment and Officer Wellness Division, and the Inspectional Services and Integrity Division. The Office of Constitutional and Impartial Policing, Legal Affairs, Consent Decree Implementation, Strategic Communications, and Chief of Staff report directly to the Commissioner.[10]

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[10] Baltimore Police Department, *Baltimore Police Department Organizational Chart*.

BPD Information Technology Structure and Systems

The Information Technology Section employs 34 staff (some of whom are contractors) and supports hundreds of functions within BPD.[11] Staff is centrally located at BPD Headquarters. Since 2017, the structure of BPD IT has changed three times. In late 2017, the role of information technology (IT) within BPD was elevated within the organization from the Information Technology Section (ITS), led by a Director, to the Data and Technology Division, led by a Chief. As part of the change, many IT staff members who had previously worked as contractors were incorporated as City employees. In early 2018, the reorganization of BPD placed the Data and Technology Division back to the Information Technology Section within the Homeland Security and Training Division, under Homeland Security. As of May 2018, the BPD Information Technology Section (ITS), which supports the information technology, policing data collection and storage functions of the BPD, resides within the Homeland Security Division of the BPD.

ITS supports most of BPD's IT-related needs, including major information systems relied upon for critical business processes. Although ITS maintains these major systems, different sections within the department have purchased other discrete systems in an effort to meet their needs. The lack of policy and procedure to regulate purchases and implement software solutions, coupled with a shortage of professional staff, resulted in the proliferation of stand-alone third party applications that wasted time, money, and personnel resources. IT staffing will be addressed as part of the Technology Resource Plan.

Below is a list of the current positions within ITS.

Table 1. ITS Positions.

Position	Vendor Name /City Employee	RACI - Application/Systems Responsibility
DIRECTOR	City Employee	IT Director for BPD
LT.	Sworn	Deputy IT Director
P/O	Sworn	Wiring, wagon inspections, and general PC support
P/O	Sworn	Wiring, wagon inspections, and general PC support
P/O	Sworn	Mobile Device Configuration (phones and tablets)
OAIII	City Employee	General Admin and Timekeeping
NETWORK/PC SUPPORT STAFF	ComTech/TCS	Help Desk (Tier 1 & 2)
NETWORK/PC SUPPORT STAFF	ComTech/TCS	Help Desk (Tier 1 & 2)
NETWORK/PC SUPPORT STAFF	ComTech/TCS	Help Desk (Tier 1 & 2) - Evenings

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[11] Current as of March 28, 2017.

NETWORK/PC SUPPORT STAFF	TriGyn	Help Desk (Tier 1 & 2)
NETWORK/PC SUPPORT STAFF	TriGyn	Help Desk (Tier 1 & 2)
ANAL PROG II	City Employee	Application Development and Support - RMS, Crystal reports
ANAL PROG II	City Employee	Application Development and Support
COMM ANALYST II	City Employee	Desk phones, mobile phones, and mobile tablets maintenance
COMPUTER OPERATOR	City Employee	1st shift
COMPUTER OPERATOR	City Employee	3rd Shift
COMPUTER OPERATOR	City Employee	2nd Shift
DEVELOPER	ComTech/TCS	SharePoint Developer
DEVELOPER	TriGyn	Application Development and Support (PL/SQL)
LAN ADMINISTRATOR	ComTech/TCS	NCIC administrator
Network Engineer	TriGyn	Network Engineer
Network Engineer	TriGyn	Network Engineer
SYSTEM ADMIN	TriGyn	System Administration (Novell), MDM
SYSTEM ADMIN	TriGyn	System Administration (Novell), MDM
ORACLE DBA	TriGyn	Oracle DBA
PROJECT MANAGER	TriGyn	LPR, Gunshot detection (ShotSpotter), CCTV, Carfax Investigations, RMS, Vidsys, 360 Cameras
PROJECT MANAGER	ComTech/TCS	Voice Over IP, Strategic Decision Support Center (SDSC), SOP's, Verizon cell numbers, Network Upgrade
PROJECT MANAGER	ComTech/TCS	SAN upgrade, Crime Lab, Organization-Wide Software List, Procurement Database/SharePoint, UPS Maintenance, IAPro
PROJECT MANAGER	City Employee	Timekeeping, BPD website, Mobile Data Computers, eResource Planner
WEB DEVELOPER	TriGyn	Drupal Web Developer
SUBJECT MATTER	Self	Lotus Notes Developer
SUBJECT MATTER EXPERT	ComTech/TCS	Application Development and support (GIS)
SYSTEM PROGRAMMER III	City Employee	Mainframe Application Development and Support
COMPUTER REPAIR	ComTech/TCS	Hardware repair

Separate from ITS, the Baltimore City Office of Information & Technology (BCIT), formerly known as the Mayor's Office of Information and Technology (MOIT), oversees most major software purchases for City departments, except those that are police department-specific.[12] BCIT supports multiple departments in the City and maintains major citywide information

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[12] IT staff person, interview with assessment team, October 3, 2017.

systems. In early 2018, BCIT released for public comment a draft 5-year strategic plan for the City, *2018-2023 Inclusive Digital Transformation Strategic Plan*. Part of the Strategic Plan is to consolidate IT across the City and for IT employees within agencies to become BCIT employees, while still being housed in the agencies they serve. At the time of this Study, the Strategic Plan had not been finalized, but can be found here: https://indd.adobe.com/view/f5148fa0-7de7-4768-a6b5-ae38fb0e5e7a.

BCIT staff are working closely with BPD ITS to support the technology requirements of the Consent Decree.

Challenges:
- During the course of the assessment, the team found it notably challenging to track down disconnected information on departmental processes that may differ from place to place within the organization. For example, each patrol district commander prepares statistics differently for Comstat every week, pulling information from varying databases, and compiling statistics that may differ from BPD's database of record, InPursuit.
- Many units within the department have similarly become silos in which individuals have developed business processes that may or may not use certain information systems as intended, or have created workarounds to complete analysis that the existing systems cannot do. Alternatively, some units have purchased new systems in an effort to meet their needs.
- The ITS has not historically been provided the priority or resources necessary for a strong, centralized approach to building IT infrastructure and systems in BPD. For example, the many applications (discussed below) of Lotus Notes is used instead of one robust enterprise records management system.
- The Information Technology Director is not a member of the BPD Executive staff. This creates a void in the ability of the section to compete for scarce resources, and to align priorities with those created by the top level of the department.
- The approach to ITS in BPD has, to this point, been driven primarily by the user (specifically, sworn BPD staff). While the BPD ITS has done well at providing users with quick access to systems and functions to support specific needs, the lack of a centralized IT strategy, driven by the high-level mission of the BPD, has contributed to IT systems that have been cobbled together based on the individual needs and desires of various users.
- Technology projects have historically been partially rolled out, and then due to various reasons, stopped and scrapped.
- IT Training is virtually non-existent. For deployed mobile data computers, IT provided 'train the trainer' type training to district representatives for them to return and train the rest of the officers in their districts. However, that process translated into those representatives handing officers a printed-out PowerPoint presentation to review independently as training.
- BPD lacks IT policies and procedures. Where they do exist, policies and procedures are often not followed nor enforced. This includes a lack of database standards and database documentation that has contributed to grossly unreliable databases of questionable utility.

- BPD lacks a process for communicating IT information to BPD personnel, and no way to gather input into IT needs from BPD staff. While a 'help desk' type service does exist, it does not track user input or needs into systems.
- BPD lacks the staff capacity to implement the technology and statistic requirements of the Consent Decree.

BPD IT Structure and Systems, Major Functional Business Processes, Work and Data Flows

Each of the following sections will explore major functional business processes along with work and data flow graphics. Process and system challenges are summarized at the end of each section. A comprehensive list of applications and databases can be found in Appendix A.

Calls for Service

Calls for emergency service from the community, and response by BPD officers, mark an essential initiating function for the police department. The 911 phone and the Computer-Aided Dispatch (CAD) systems aid the process of receiving and prioritizing calls for service from the community and dispatching officers to the scene. The Baltimore City Fire Department (BCFD) oversees the City's 911 system. 911 operators are BCFD employees and transfer calls to either BCFD or BPD depending on the emergency. BPD, Baltimore City Fire Department (BCFD), Baltimore City Information Technology (BCIT), and the Department of Public Works (DPW) share the CAD technology. BCIT is responsible for its maintenance.

Radio Consoles and Portable Radios[13]
System Name:
- Gold Elite

Vendor:
- Motorola Systems

Date of inception:
- 1999

Size of the system / number of records in the system:
- 45 consoles

Uses:
- Hardware for communications system between police officers, other public safety departments and dispatch.

Who is responsible for its maintenance or what available support does it have:
- Baltimore Police Department

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[13] Acting Director, Public Safety & Service Emergency Communications, BCIT, communication to assessment team, April 24, 2018.

Operated by:
- Motorola Solutions

System Challenges:
- Radios are end of life and will not be supported past December 2018. Motorola has submitted quotes to replace the portable radios and consoles, however replacements are said to NOT be funded in the FY19 budget (Unconfirmed). This is a public and officer safety issue.

For Portables

System Name:
- XTS/XTL 5000

Vendor:
- Motorola

Date of inception:
- 2010

Size of the system / number of records in the system:
- Over 5,000 units

Uses:
- Mobile communication for Public Safety and Public Service personnel. Interoperability with other agencies

Who is responsible for its maintenance or what available support does it have:
Operated by:
- Motorola Solutions

System Challenges:
- Model is end of support December 2018. Not capable of updated features

911 Phone System

The 911 Phone System falls under the purview of the Baltimore City Fire Department. Due to security concerns, they renounce releasing certain information regarding the system.

System Name:
- Motorola/Airbus

Vendor:
- Carousel

Date of inception:
- September 2017

Size of the system / number of records in the system:
- N/A

Uses:
- 911 call receiving and forwarding
- Geocoding technology for calls

Who is responsible for its maintenance or what available support does it have:
- Baltimore City Information Technology

Operated by:

- Baltimore City Fire Department

System Challenges:
- No challenges; system is Next Generation ready.

Computer Aided Dispatch (CAD) System

System Name:
- Tiburon Total Command CAD (TC CAD) since 1999, originally was on Tiburon Stratus CAD.

Vendor:
- TriTech (formerly Tiburon)

Date of inception:
- March 3, 2015

Size of the system / number of records in the system:
- According to BPD data from July 2016 through June 2017, the CAD system holds data for approximately 1.2 million calls for service annually.

Uses:
- Calls for Service / Officer Dispatch
- Incident Information

Who is responsible for its maintenance or what available support does it have:
- BCIT

Operated by:
- The CAD system is primarily shared between Baltimore Fire Service and BPD, as well as with BCIT (311) and Baltimore Department of Public Works (BDPW).
- System infrastructure and network is responsibility of BCIT (formerly MOIT) (along with hardware, servers, local work stations, software) who works directly with vendors.
- Baltimore Fire Service maintains Fire Data; BPD ITS maintains BPD CAD data.
- Data warehouse servers reside in various locations, and data is replicated in a disaster server.
- Real time duplication of CAD information is sent to RMS and auto updates as record changes between beginning/end of call.

System Challenges:
- Communication regarding CFS is conducted through the radio only, with the exception of new Mobile Data Computers that now allow officers to view call queue and identify themselves. Officers cannot assign deployments to themselves through the MDCs.
- According to assessment team conversations with Communications staff, 'CAD has redundancy issues.' This statement, however, was not validated by the team.
- The computer network that supports BPD's CAD system has been vulnerable to hacks before, including in March 2018.[14]

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[14] Reuters. (2018, March 28). Baltimore's 911 emergency system hit by cyberattack. *NBC News.* Retrieved from https://www.nbcnews.com/news/us-news/baltimore-s-911-emergency-system-hit-cyberattack-n860876

Figure 2. Sample incident entry screen in CAD.

911 Intake

911 Operators are employees of BCFD and are housed at the Baltimore Public Safety Answering Point (PSAP) in the BPD Headquarters building. They receive calls originating in the Baltimore region.

911 Operators manually enter information from the caller into the CAD system through the CAD entry window, and some information auto-populates. When receiving a call, the 911 operator enters information from the caller regarding the incident, the caller, and victims and suspects as applicable. Much of the information comes from pull down boxes, such as incident codes (for all police, fire, EMS).

Once operators determine if calls are police, fire, or medical related, they forward them to the appropriate dispatch. Information regarding police calls is entered into CAD manually in the CAD entry window. Fire and EMS calls are entered into CAD through ProQA software using Emergency Fire Dispatch and Emergency Medical Dispatch protocols.

The 911 phone system is FCC Phase I and Phase II E911 compliant. Therefore, wireless service providers are required to provide PSAP with the caller's telephone number and the cell site or base station location transmitting the call. Providers are also required to provide PSAP with the

latitude and longitude of the caller, accurate to within 50 to 300 meters depending on the type of location technology being used.

Cell phone caller locations are triangulated by the cell carriers using cell towers and are sent to the 911 phone system. This information is not exact and only accurate within a few meters. Occasionally cell carriers do not send location information and 911 re-transmits the signal, essentially asking the cell phone carrier to give a closer location if available. If a location is not sent, 911 will work with the cell carrier to provide the closest GPS location, while working with the responding units to help locate the caller. Operators can also type the address and select it in the options. This occurs more frequently with prepaid cell phones and uninitialized phones that are able to call 911 but lack a phone number and do not provide PSAP with locations. Greater accuracy of 911 callers is expected with the implementation of NextGen 911. Landlines are based on verified street addresses from the phone carrier/provider.

The State of Maryland, including 23 counties and the City of Baltimore, are continuing to work towards development of NextGen 9-1-1 (NG911), which will bring major enhancements and improvements in the way 911 calls are made and received. As part of the statewide effort, the City of Baltimore has already upgraded its 911 system and is NextGen-ready.

BPD Dispatch

Calls can be forwarded to BPD and BCFD Dispatch separately or simultaneously, and dual agency responses are pre-programmed. BPD and BCFD employ their own dispatchers. The CAD system automatically sets the code for priority depending on the call type.[15] A dispatcher can raise the priority of a call but cannot lower it.

Verbal notice of a call is then given to an officer via radio for a response. CAD will also send a notice to the MDC if available, and officers/supervisors who have MDC in their cars are able to view the call log in real time. The dispatcher computer will suggest who is to respond, but the dispatcher can override this suggestion depending on additional information.

Officers then respond verbally via the radio when they are en route and on site. Officers still need to send a verbal code with dispatch, even with MDC. When reviewing calls for service data, the Police Foundation team noticed that some of on-site arrival times (1023) were missing. PSAP staff thought that this could be due either to the officer neglecting to call upon arrival, or the dispatcher neglecting to enter the information into CAD.

Dispatch provides a CAD number for each call to the officer for incident reporting, discussed in the next section. Fire and police are provided different numbers.

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[15] Baltimore Police Department Call Types and Oral Codes, provided to assessment team, February 26, 2018.

Once entered into CAD, information is duplicated in RMS in real time (through a skeleton report). At the completion of call, the system sends updated information into RMS. When CAD sends calls via XML to the RMS, the original XML file is overwritten with the updated information. No duplicates are created. Each CAD call has a unique CAD number. Multiple CFS to same address are linked together. The Police Foundation team was informed by the Communications Center staff that they can no longer exclude duplicates or canceled calls in the system. They say that this causes problems when compiling aggregate numbers. This statement, however, has not been verified by the team.

For citizen contacts/stops, officers call in (call type) to CAD to inform dispatch of the stop. They generally provide no details. Officers are required to call in all citizen contacts/stops. However, contact receipts and Field Interview calls to CAD do not link up.

Radio Consoles

Radio Consoles at Dispatch will be at the end of support in 2018. Portable radios are also at the end of support in 2018 and the ability to readily get parts for any repairs will not be available. While Motorola will make every effort to continue to support the portable radios and consoles, turnaround time will be critically increased.[16]

Process Challenges:
- Little coordinated cross training with 911 and Dispatch exists that would allow more flexibility with staffing within the department.
- Communication between agencies could be better; checks and balances are needed.
- Police and Fire interfaces – The future plan is to increase system resiliency to address disaster recovery and high availability. Communications staff reports that they are still working to acquire funding.
- CAD and interfaces should be more resilient. There have been two-three outages since 2015, which compromises data integrity. Staff has to resort to manual processes while still receiving calls. An estimated 2 weeks is needed to clear backlog.
- 911 location has to be entered in order to enter a call.
- BCIT (formerly MOIT), GIS, and BPD GIS layers are not all merged. BPD lacks a designated GIS Administrator to coordinate GIS issues.
- The business process for validating location needs to be completed. If 911 cannot find an address, it is immediately verified/identified manually.
- Could not identify who manages CAD data warehousing within BPD.
- Upgrading radios should be addressed as soon as possible.

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[16] Acting Director, Public Safety & Service Emergency Communications, BCIT, communication to assessment team, April 24, 2018.

Incident Reporting

For approximately the last 20 years, BPD has used a version of InPursuit as its Records Management System (RMS). InPursuit is the database of record for the department, holding millions of records with information on arrests, bookings, calls for service, incidents, BPD employees, stolen items, suspects, training, and more. As an early beta test site for InPursuit, BPD had many InPursuit modules built around their needs at the time of initial implementation. As the BPD organization and business process needs have changed over the years, and additional systems have been incorporated into department use, many modules have either never been used or are no longer in use. As an addition to InPursuit, BPD uses Packet Writer for data entry of Part II crimes and Crystal Reports for generating reports. The Records and Research Section is challenged with maintaining data entry for Incident Reports, while lowering their backlog of pedestrian stop tickets.

Records Management System (RMS)
System Name:
- In Pursuit

Vendor:
- Intergraph d/b/a Hexagon Safety and Infrastructure (Oracle Based)
- Front end of system is Delphi

Date of inception:
- Approximately 1998

Size of the system / number of records in the system:
Uses:
- Records Management for storing, tracking, and reporting crime reports, arrest summary (not actual report), stop receipts, and field interviews.
- Stores all in-service training records from approximately mid-2014 to 2017.
- Stores fleet management since spring 2018.

Who is responsible for its maintenance or what available support does it have:
- BPD has an annual support contract, with Hexagon that covers client software and server software support for their application. There is no service contract for the server.
- No training is provided to users. However, a Users' Manual/SOP does exist.
- ITS developed Crystal Reports to extract data for reports.
- ITS added Packet Writer for data entry. Due to glitches, it is no longer used for entering Part I crimes.

System Challenges:
All records are input manually by RMS clerks.
- The RMS is an 'End of Life' system that is not supported with system updates.
- The existing system is used to meet mandated report requirements such as UCR; however, because the system does not contain NIBRS compliant fields, it currently would not comply with NIBRS reporting, which will be required in the next few years.
- Does not provide a user-friendly interface.

- RMS Unit uses Packet Writer to input Part II crime data and then Packet Writer imports into RMS.
- InPursuit has many unused modules, or modules that have been used and abandoned. Lotus Notes and other applications were developed at the request of end users either unfamiliar with InPursuit, or for needs not met by InPursuit. Therefore, InPursuit does not have all records in one place, and does not interface with other databases used by department personnel, such as Lotus Notes.
- Booking and arrest information to/from State system is incomplete. Relationship with State in this is difficult.
- Unclean, inconsistent data in this system does not match with data kept in Lotus Notes and other systems.
- Stop receipt/field interview input and Part II Incident Reports, are extremely backlogged. System cannot link stop information to any other collected information (even manually) until well after the stop is made.
- Training Academy module functionality not nearly robust enough for what the Academy needs. For more, see the below section, *Training Academy, In-Service & Firearms Training.*
- There are layers upon layers of data entry, review, and data validation – only to still have data with considerable spelling and other errors and inconsistencies that create query issues. Number and words not formatted properly or with some level of standardization will not come up in queries.
- The system does not support Comstat reporting in an efficient, complete and user-friendly way. Staff required to pull together Comstat reports are created by their own aggregating and querying several different databases.

Figure 3. Packet Writer Incident Information Entry.

Figure 4. InPursuit Entry Screen

Figure 4. InPursuit Entry Screen

Figure 5. Type of contacts and associated forms, in BPD Policy 1112. *Note that Policy 1112 was under revision during the study and this chart is subject to change.*

TYPE OF CONTACT	LEGAL REQUIREMENTS		MINIMUM FORMS REQUIREMENT		
	Reasonable Articulable Suspicion	Probable Cause	Citizen/Police Contact Receipt	Form 309	Incident Report
Field Interview			X		
Vehicle Stop	X		X		
Investigative Stop	X			X	X
Weapons Pat-Down	X			X	X
Searches		X		X	X
Arrest		X			X

Incident Reports

Incident Reports are required for investigative stops, weapons pat-downs, searches, and arrests. BPD personnel are involved at every step of the incident reporting process, including quality control checks. Beginning with an incident that is reportable, CAD generates a written skeleton report for the call in InPursuit that includes a central complaint (CC) number, date, time, and location. Separately, an officer responds to the incident, and if it is a reportable incident, writes a report while in the field or on a computer in their district. Supervisors collect these written reports, review them, cross check them against a list generated from CAD of incidents, and, following approval, forward them to the Records and Research Section. Each district has officers referred to as the District Auditors who hand delivers daily a packet containing the list of incident reports queried from CAD and hardcopies of associated Incident Reports and Citizen/Police Contact Receipts (Stop Tickets). The delivery is memorialized in a sign-in sheet.

In the Records and Research Section, a clerk scans the hardcopy reports to create a temporary file for each, and cross checks the reports against the CAD list to ensure that all reports were submitted. The reports are then distributed by the Data Entry Supervisor to the Data Entry Operators (DEO). The DEO starts a workflow module in InPursuit and separates the reports into Part I and II crimes and sends to Staff Review for UCR coding.

If the report does not meet UCR reporting requirements, it is sent back in paper form to the originating officer via courier to their District for correction. The officer is responsible for

making the correction and returning it to the Records and Research Section via the District Auditor.

Once a report is deemed complete by Staff Review and assigned a UCR code, the report is sent back to a DEO for entry into InPursuit for Part I crimes and through Packet Writer for Part II crimes. Once entry is complete, DEOs will place their initials, sequence number, date, and time on all reports they entered.

For quality assurance and quality checks, Approvers verify the following information: central complaint number (CC#); case status/UCR disposition; status; start and end dates; time; supervisor sequence #; names of victims, witnesses, or suspects on report; and any injuries associated with those names. At the end of the Approver's shift, a Data Entry Status Report is produced for an accurate count total approvals. When everything is validated, the Approver enters their sequence # and date. Additionally, every Sunday, Data Entry Supervisors generate reports (Incident, Stolen Vehicles, Offense Code, Occurred Date, and Victims without Offense Codes) for Part I crimes.

Part I crime reports are given priority and entered within 24 hours of being received. Every month, the Records and Research Section is responsible for required federal and state UCR reporting and pulls information from InPursuit. Reports include federally mandated Part I crimes and clearances, and state-mandated carjacking numbers. By running RECSYS, an external executable, the Research and Records Section can pull aggregate data from InPursuit and then double check the numbers to verify that the totals in each tab are equal to each other. If there is a discrepancy, the record causing the discrepancy must be identified in InPursuit and fixed.[17]

Prior to a change in process made in 2017, if the report met UCR reporting requirements, approvers ensured that the needed data was entered into the appropriate InPursuit form through Packet Writer (an interface for InPursuit) and checked the workflow as complete. Using Packet Writer, an individual would enter a summary of the incident narrative and update the full incident record in the skeleton form. Through Packet Writer, the information would be entered into InPursuit, where it is validated and geocoded, and a full UCR incident code is established. Due to break downs with Packet Writer, in 2017, the Section returned to entering information directly into InPursuit. Although time-consuming and less user-friendly than Packet Writer, entering information directly into InPursuit is more reliable, which is critical for BPD records management of Part I crimes to meet federal and state reporting requirements.

Reports for Part II crimes are separated into priority Part II and regular Part II. Priority Part IIs are entered similarly to Part I crimes but may take longer to be entered into InPursuit because of their prioritization level. For regular Part IIs, approvers are continuing to enter data into Packet Writer instead of directly into InPursuit, with a note that it still needs staff review for

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[17] Records and Research Section employee, interview with assessment team, January 18, 2018.

quality assurance, since the backlog is high and Packet Writer, while less reliable, is faster to enter data into.

Citizen/Police Contact Receipts (aka Stop Receipt or Ticket)

Per current Policy 1112 Field Interviews, Investigative Stops, Weapons Pat-Downs, and Searches and Policy 808 Criminal and Civil Citation Procedures, Citizen/Police Contact Receipts are issued to individuals subjected to Field interviews and vehicle stops, and when individuals are issued traffic, criminal, and civil citations. It should be noted that at the time of this Study's publication, Policy 1112 is a part of the Stops, Searches, and Arrests suite of policies and was still in the Collaboration Period of the First Year Monitoring Plan, due to end July 25, 2018. Policies and associated BPD tickets/reports/receipts are subject to change.

Figure 6 is a copy of a Citizen/Police Contact Receipt. Although "Action Items" include Arrests and Primary Reasons for Contact include "Weapons Pat-Down," officers are required to complete Incident Reports for those actions. This sometimes creates confusion or a duplication of information. As with Incident Reports, Citizen/Police Contact Receipts are reviewed by supervisors; however, review and delivery are not as timely as Incident Reports, nor is entry into InPursuit. Citizen/Police Contact Receipts are delivered to the Research and Records Section daily, weekly, and at times monthly. Receipts are sent from the districts to the Records and Research Division to be manually

Figure 6: Citizen/Police Contact Receipt

entered. If the tracking number used is a CAD number and not a CC#, the receipt cannot be compared to a CAD list of outstanding tracking numbers. Officers are incentivized to submit Citizen/Police Contact Receipts to have proof of work conducted and to have evidence in the chance that an individual files a complaint. As of May 2018, BPD had a backlog of approximately 41,000 pedestrian receipts (32,000 from 2017 and 9,000 from 2018). Entries for vehicle receipts are prioritized over pedestrian receipts to meet annual State vehicle reporting requirements.[18]

Field Interviews

Current Policy 1112 defines Field Interviews as "consensual face-to-face communication with a person under circumstances in which the person does not have to respond to questions and is free to leave."[19] Thus, officers may initiate consensual field interviews, for instance, by questioning a witness on their observations or asking an individual their name, address, and purpose for being at a certain location, but the individual is free to end the interview at any time, refuse to answer questions, and must be permitted to leave. Refusal to answer cannot be taken as a reason to escalate the encounter into an investigative stop, pat-down, or search. Officers must complete and issue all field interview participants a citizen-police contact receipt.

Traffic Stops

A traffic stop is not considered a field interview since vehicles are stopped with reasonable suspicion, making the operator not free to leave until the stop's completion; however, all drivers must still be issued a Citizen/Police Contact Receipt, as with field interviews.[20] BPD policy does not explicitly instruct officers to call dispatch when making a traffic stop, but it is the practice of many BPD officers.[21] Thus, traffic stops are generally tracked by CAD, but officers may not always note the number of people in the car who were stopped, or other relevant information.[22]

Traffic Citations (Maryland Uniform Complaint and Citation)

Officers may stop a vehicle and issue the driver a Maryland Uniform Complaint and Citation—a traffic citation—when they observe the driver committing a traffic infraction. This form is a State-issued form. Officers are required to write and individuals are provided a copy of a traffic citation for each offense charged, per Maryland law, and one Citizen/Police Contact Receipt for BPD recording purposes. Five copies of the citation result from a traffic violation: copy 1 to be submitted to the court, copy 2 is for the district, copy 3 to be retained by the officer, copy 4 for

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[18] Records and Research Section tour, observed by assessment team, October 4, 2017.

[19] Baltimore Police Department. (2017, August 26). *Policy 1112: Field Interviews, Investigative Stops, Weapons Pat-Downs & Searches*. Retrieved from https://www.powerdms.com/public/BALTIMOREMD/documents/51035

[20] Baltimore Police Department, *Policy 1112.*

[21] Baltimore Police Department draft data matrix, provided to assessment team, March 13, 2018.

[22] Comstat Unit sergeant, interview with assessment team, January 18, 2018.

return to court, and copy 5 for the defendant.[23] If an officer needs to document a narrative, they are instructed to write it on the back of the citation and/or Citizen/Police Contact Receipt. Traffic citations are not entered into InPursuit at BPD and are instead sent to the State[24]. The accompanying Citizen/Police Contact Receipt is entered. As with other reports and citations, in some districts, traffic citations are tracked internally such as in a Lotus Approach database.[25]

Traffic citations differ from crash investigation and reporting, which are tracked using the Maryland-required Automated Crash Reporting System (ACRS). ACRS is not interoperable with InPursuit. Instead Records staff prints and scans ACRS reports into InPursuit and uses the scanned copy for redaction for when individuals request an accident report. BPD uses Lexis Nexus to make accident reports available to individuals in a timely manner.[26]

Criminal/Civil Citations

As with Traffic Citations, Criminal and Civil Citations are State-issued forms. Officers can issue individuals Criminal or Civil Citations for appropriate offenses that do not rise to the level of arrest as outlined by Policy 808. For all criminal citations, officers must fill out an Incident Report along with the citation form with a statement of probable cause for the State's Attorney. Civil citations do not require Incident Reports unless evidence is recovered or seized and a written civil citation is required for the City/Court.[27] With citations, BPD officers also issue Citizen/Police Contact Receipts.

On a daily basis at each district, an administrative staff member and/or property officer collects all citations and records them on a transmittal form to deliver to the Records and Research Section. The staff member is directed to make a copy of every criminal and civil citation to forward as appropriate. For civil citations, "City/Court" copies of civil citations are delivered to Records and the courts. For criminal citations, criminal citations are delivered to Records and a copy of the incident report, contact sheet, City/Court copy, and State's Attorney copy are forwarded to the State's Attorney.[28] In addition, in some districts, traffic citations are tracked internally such as in a Lotus Approach database.[29]

Since 2015, staff in the Records and Research Section record Criminal and Civil Citations in the "CrimCivCitations" application in Lotus Notes.[30] Prior to 2015, BPD used the Citation module in

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[23] Baltimore Police Department, *Policy 808.*

[24] Baltimore Police Department draft data matrix, provided to assessment team, March 13, 2018.

[25] Central District employee, interview with assessment team, March 1, 2018.

[26] Records and Research Section tour, observed by assessment team, October 4, 2017.

[27] Baltimore Police Department. (2016, August 1). *Policy 808: Criminal and Civil Citation Procedures*. Retrieved from https://www.powerdms.com/public/BALTIMOREMD/documents/66357

[28] Baltimore Police Department, *Policy 808.*

[29] Central District employee, interview with assessment team, March 1, 2018. A more detailed description of Lotus Approach can be found in the Recruitment Section of this study.

[30] Baltimore Police Department draft data matrix, provided to assessment team, March 13, 2018; Lotus Notes Subject Matter Expert, comments to assessment team, January 4, 2018.

InPursuit[31]. BPD began using Lotus Notes because it contains a feature that generates a form letter addressed to individuals who citations have been waived.

Process Challenges:
- BPD's records management process is based entirely on manual data entry, requiring an extraordinary amount of time and staffing.
- The manual process of gathering data, validating, checking accuracy, summarizing information and data entry is exceptionally inefficient.
- The records process is highly driven by the need to report on mandated information for UCR, Comstat and various other requirements and is not tailored to the needs of the department to compile and use data to inform other business processes and areas of focus.
- The combination of these strained factors has led BPD to fall significantly behind in developing electronic records for Part II crimes, stop receipts, and other non-federally or state mandated reporting requirements.
- The Records Section has thousands of reports backlogged for data entry and hundreds of reports that are returned to officers for corrections every month.
- BPD does not have a records retention policy, paper and digital records have accumulated with no plan for future disposal.
- Generating clean reports from InPursuit is challenging as errors often occur and it is time consuming to have to compare the numbers to find the errors before finalizing incident reporting to the state or federal government.
- Currently, there is no way to validate that the officer turns in the correct number of stop tickets for their shift. At end of shift, stop receipts are handed to supervisors and then he/she reviews, signs, and packages to send to RMS. However, there is not a list from CAD to crosscheck stop receipts as there is for incident reports.
- Stops receipts can take up to a month to be delivered to the Records and Research Section.

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[31] Chief, former Data and Technology Division, comments to assessment team, January 4, 2018.

Arrests

Figure 7: Basic Arrest Process Flow
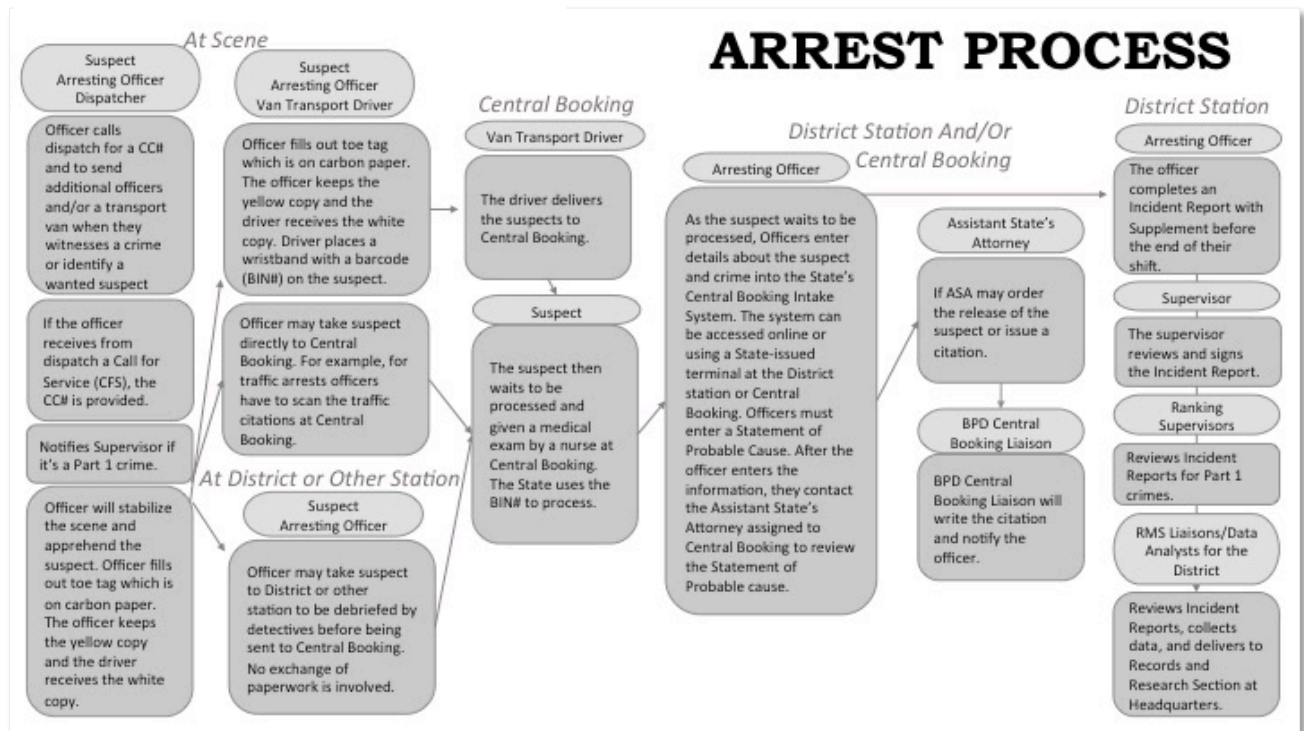
BPD officers are currently required to record arrests in two records: the Incident Report with Supplemental narrative, which is either handwritten or typed at the district and sent to the Records and Research Section for data entry into InPursuit and the State of Maryland's Offender Case Management System (Booking Site), which is managed by the State. Central Booking in Baltimore City is also under the purview of the State.

Upon arrest, a wristband is placed on the suspect with a barcode (BIN). This barcode is connected to the officer's entry into the Booking Site, which is either done at the district if the suspect is taken to Central Booking by van or at Central Booking if an officer takes the suspect directly there. Upon the suspect's arrival at Central Booking, the arresting officer enters into the Booking Site a Statement of Probable Cause. The officer can enter this information remotely if the suspect is transported by van. The State provides computers for the district, but they are oftentimes inoperable. Some officers use the

Figure 8 Sample Wristband
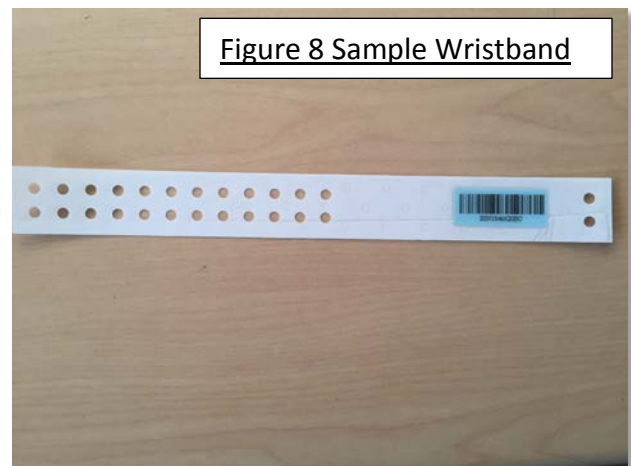
URL for the State of Maryland's Offender Case Management System to enter information from another computer, but have to enter the "terminal id number" assigned to one of the State-issued computers. An Assistant State's Attorney, not a BPD employee, assigned to Central Booking then reviews the Statement and decides if the suspect will remain or be released. The officer will then complete an Incident Report for BPD's records, which contains much of the same information including the Statement of Probable Cause. In addition to the arresting officer's paperwork, the van driver also must fill out a Charge Information Form. This information is also entered into the State system.

Once the initial booking is completed, a close-to-real-time transfer of data is made to InPursuit. Information includes dates, names, addresses, mug shots, and summaries of the arrest. However, in many cases, the original arrest information is changed by staff with the Maryland Department of Public Safety and Correctional Services, and there is no process for receiving updates into InPursuit from the State system. Sworn BPD officers and some analysts with role-based access can view, track, and/or analyze arrest data from InPursuit for UCR reporting, crime analysis, Comstat preparation, and investigations. InPursuit holds approximately 25 years of arrest history.[32]

At the same time, as a result of InPursuit not receiving updated information, many of these personnel access the information through another database, ArrestViewer, the State's Central Booking SCHEMA. It mirrors the Central Booking Site with information about arrests. Arrest Viewer predates InPursuit and attempts to improve information exchanges thus far have failed.[33]

Since 2001, Lotus Notes has also held arrest information from the Booking System. An alert can be sent to relevant BPD detectives and personnel when an individual who has a BOLO issued for them is arrested.[34] The arrests database and archive in Lotus Notes have over 400,000 records as of January 2018.[35]

Additionally, some patrol district personnel track arrest information separately from the rest of the department such as by creating their own Excel spreadsheets with arrest information from the last 7-days. By tracking the arrests internally, they can query or manipulate data for analysis and avoid relying on InPursuit or Arrest Viewer information that may not be as quick or reliable as they require.

ITS is responsible for the import of data from the Offender Case Management System into InPursuit. The Records and Research Section is responsible for internal validation of records in

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[32] Chief, former Data and Technology Division, comments to assessment team, January 4, 2018.
[33] Project Manager, ITS, interview with assessment team, October 3, 2017.
[34] Lotus Notes Subject Matter Expert, ITS, interview with assessment team, October 3, 2017.
[35] IT spreadsheet

accordance with the incident reporting process.[36] The State of Maryland is responsible for the Offender Case Management System.

Figure 9 Offender Case Management System: Statement of Probable Cause Screen
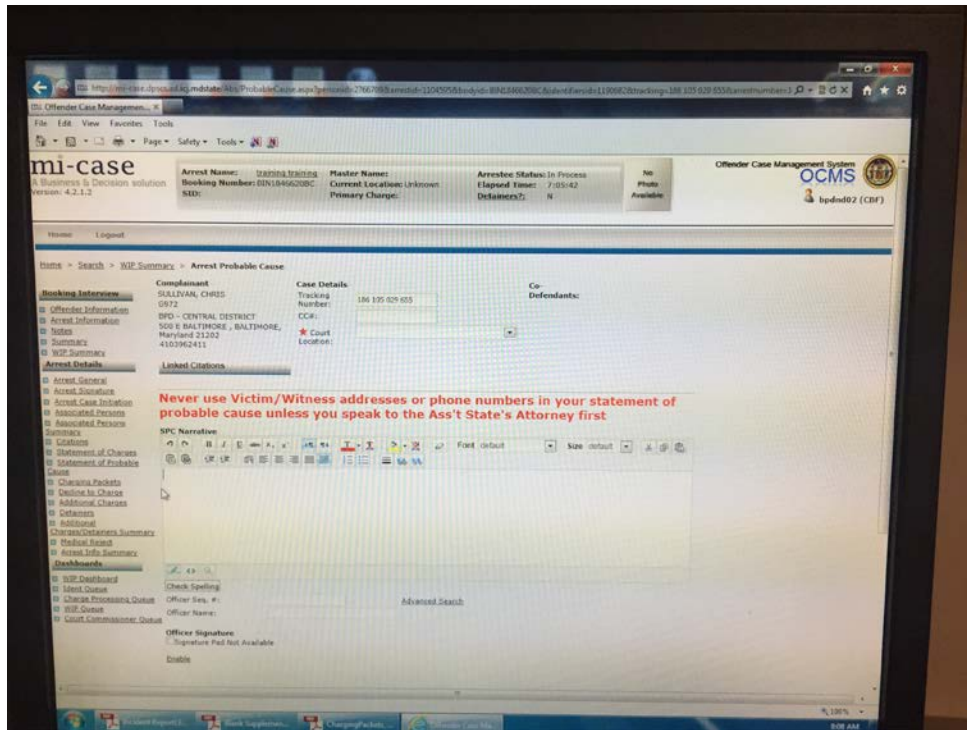
Process Challenges:
- BPD personnel do not have access to updated information on arrests. This has compounded a distrust of formal tracking mechanisms, which has led some districts to track arrest and other information separately.
- The electronic feed of Releases without Charges does not contain a description of the Assistant State's Attorney's reasons such as lack of probable cause or released based on identity issue.
- Officers have to handwrite or type Incident Reports and Supplements that are sent to the Records and Research Section. This is not an effective use of officers' time.
- There is no automated chain of review or alerts for supervisors to review Incident Reports.
- There is a considerable amount of duplication of work. Officers enter the same information into the Central Booking site that they would include on the Incident Report.
- The Charge Information Form that van drivers fill out regarding arrest charges is also handwritten.
- Department arrest data and statistics is different across systems.

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[36] Chief Herman/Shannon additions to spreadsheet

Case Management (Criminal Investigations)

BPD uses Lotus Notes as its main detective Case Management System (CMS) as well as for tracking criminal investigations and a variety of other types of information throughout various areas in the department.[37] Predating BPD's acquisition of InPursuit, as different versions of RMS were introduced without case management modules, Lotus Notes was first implemented at BPD in the early 1990s with databases for shootings and robbery. Lotus Notes has since expanded to 147 database applications plus additional archive databases, which includes 26 different databases for criminal investigative information. Although some Lotus Notes modules are integrated with InPursuit in some capacity, many records are not in sync. Data entered in one system is too often not entered or otherwise reflected in the other, which complicates federal and state mandated reporting, crime analysis, and other critical BPD functions. While not wholly uncommon, the extent of data mismatch placing undue burden on staff to manage records as best they can, is notable.

Lotus Notes
System Name:
- Various Names

Vendor:

Date of inception:
- 1996

Size of the system / number of records in the system:
- Millions

Uses:
- Approximately 150 applications/databases build to address the specific needs of various BPD personnel/units.

Who is responsible for its maintenance or what available support does it have:
- BPD ITS staff builds and maintains these databases with one part-time staff member.

System Challenges:
- There are approximately 150 siloed databases that do not share data and must be accessed separately.
- Only one BPD member knows Lotus Notes and has written all 150 applications.

Over the years, as multiple units within the department have had ITS develop Lotus Notes applications specifically for them and customized for their business needs, Lotus Notes has become the main CMS used by departmental personnel. BPD has only one person responsible for programming and maintaining all Lotus Notes applications.

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[37] A full list of Lotus Notes applications can be found in Appendix B: BPD IT Inventory Spreadsheet.

When a Part I crime occurs, and the report is forwarded to investigators, supervisors make case assignments in Lotus Notes within the appropriate database.[38] For example, within the Criminal Investigations Bureau, investigators of each crime type use a different Lotus Notes database.[39] After being assigned a case, detectives are responsible for adding and updating their case information in Lotus Notes.[40] Case information may include a CC number, victim and suspect information, and case notes. At the same time, detectives continue compiling and using paper case folders.[41] Depending on the unit and the detective, the appropriate Lotus Notes database and/or hardcopy case folder system may or may not be up to date, and the systems may or may not match.[42]

In certain areas, Lotus Notes databases may offer interconnectivity with other information systems. For example, the homicide database has been updated to connect with the crime lab's trace analysis database. When the crime lab has updated information on a bullet or other evidence, the information is automatically sent to the related incident in the Homicide Lotus Notesdatabase where the detective can view the update.[43] At the same time, while some information between Lotus Notes and other information systems like InPursuit are connected, not all changes in one may automatically be reflected in the other. Thus, as detectives update case information in Lotus Notes, and use other information systems in the course of their investigation, numbers on cleared cases may not match in different systems. Additionally, while some databases have automated field validations for entries like addresses, others do not have any quality control process for data entry, which may lead to difficulties with searching fields for specific names, or even incident numbers, among other items. The siloed nature and lack of quality control checks of the different databases within Lotus Notes create difficulties in matching, verifying, or searching information.

Process Challenges:
- Disparate and siloed systems are used simultaneously and contain conflicting data about the same case.
- Case information is diverged from continued use of two systems for case management (paper and Lotus Notes) making information vulnerable to inconsistencies.
- Disparate data and lack of standardization can make query/download of information difficult, if not impossible.
- Limited interoperability between modules and with other information systems exists.
- Since information in Lotus Notes is not necessarily complete or updated, it presents challenges for internal statistics, Comstat, and crime analysis (next section).

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[38] Project Manager, ITS, interview with assessment team, October 3, 2017.
[39] Major, Special Investigations Section, interview with assessment team, October 3, 2017.
[40] Major, Special Investigations Section, interview with assessment team member, September 28, 2017.
[41] Baltimore Police Department Plan to Improve Sex Offense Unit Case Management, provided to assessment team, November 22, 2017.
[42] Major, Homicide Section, interview with assessment team, October 3, 2017.
[43] Lotus Notes Subject Matter Expert, ITS, interview with assessment team, October 3, 2017.

Internal Statistical Reporting/Comstat/Crime Analysis

BPD personnel make concerted efforts to collect, review, and use crime, personnel and other statistical data to make departmental decisions. Main systems used for internal statistical reporting, Comstat, and crime analysis include InPursuit, Lotus Notes, and CAD. i2 Analyst Notebook is also used by the WatchCenter for investigations and intelligence analysis.

i2 Analyst Notebook

System Name:
- I2

Vendor:
- IBM

Date of inception:
- Early to mid-2000s

Size of the system / number of records in the system:
- 15 user licenses and 1 Designer license

Uses:
- Intel Analysts/ Investigators use I2 to display relationships between people and places, etc.

Who is responsible for its maintenance or what available support does it have:
- ITS funds the maintenance.

Comstat

BPD's Comstat Unit uses data from RMS and CAD to develop a Comstat packet each week. After the Records and Research Division advises the Comstat Unit that the Part I data is entered, the Unit uses one computer capable of pulling data. The Unit queries data from the last 28-day period and devotes 2-3 days generating a 600-800-page report. The Comstat Unit also develops a daily report for the commissioner using data from InPursuit, CAD, Lotus Notes, information sent in a PDF from Homicide, and a War Room Gun Arrest Access Database. The Unit is currently working with ITS to determine if an ITS server is available instead of a computer to save time.

Figure 10: Comstat Weekly Report Flow Chart
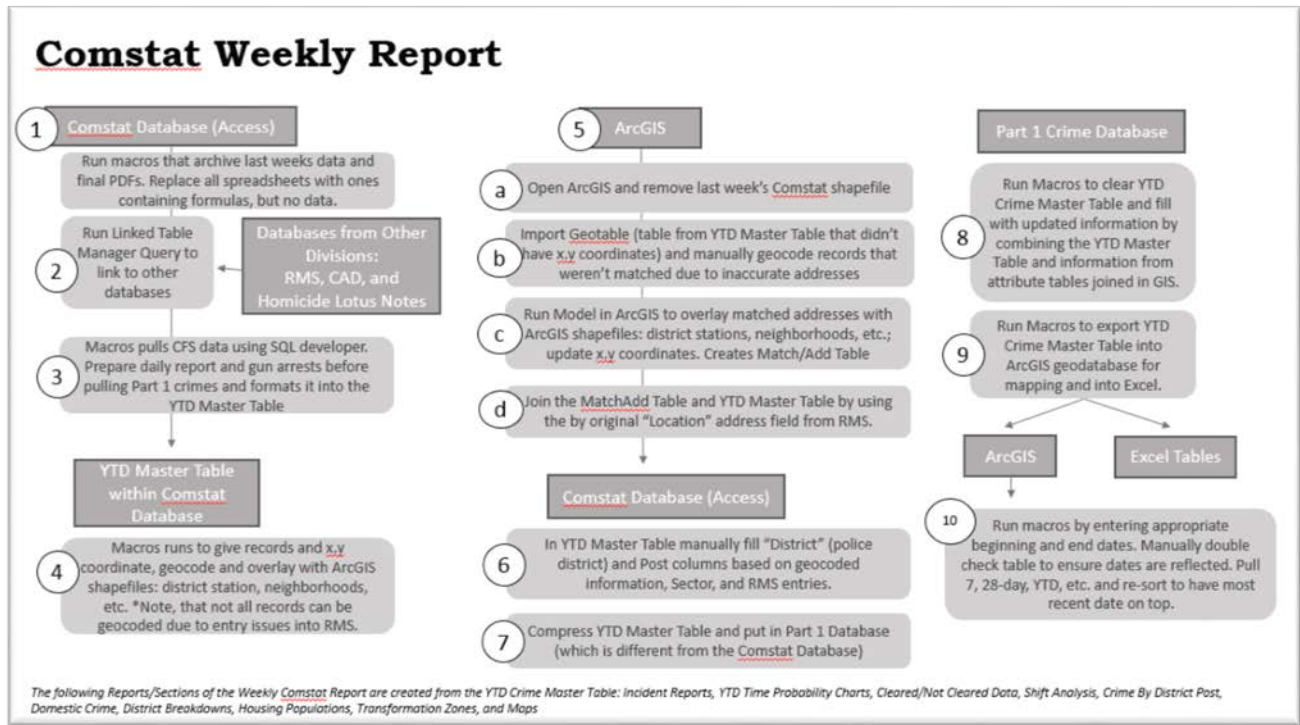
Figure 11: Comstat Weekly Report: Gun Arrests
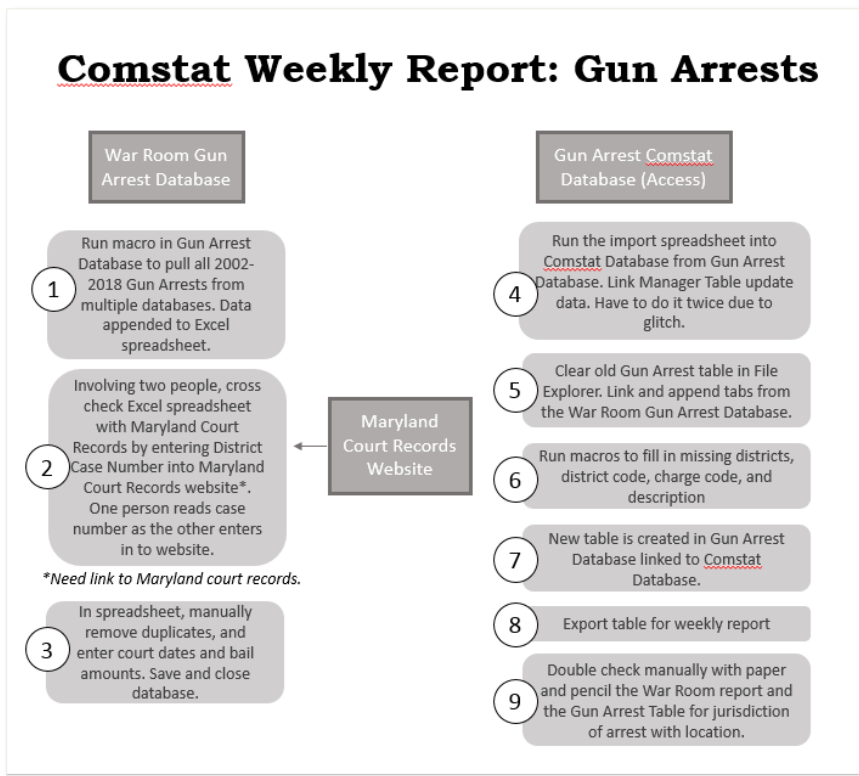
Figure 12: Comstat's Commissioner's Daily Report
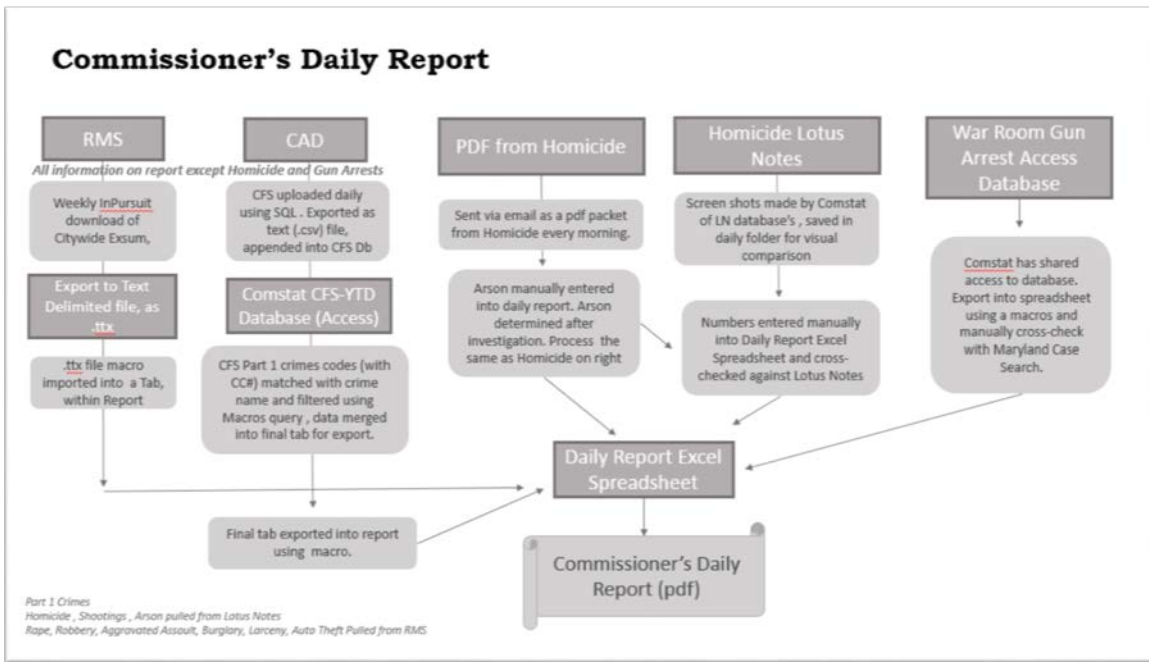
WatchCenter

A team of seven BPD crime analysts staff the Watch Center. Six are assigned either one or two districts and one analyst focuses on social media and open source analysis. Each district is also assigned an intel officer who develops in-house processes to track information in a timely and customized way. Depending on their district commanders needs, the intel officers use information from Lotus Notes, InPursuit, and other databases. Some districts have created their own Lotus or Excel databases to develop maps, compile aggregate data, and generally keep their districts apprised of occurrences.

i2 is used daily in the Watch Center to show connectivity between 11 different entity types: Address, Documents, Events, Gun Ballistics, Organizations, Persons, SID#, Social Media, Telephone, Tip, and Vehicles. All of these entities can be visually represented by links in the chart based on the documented data within specific databases BPD uses.

Process Challenges:
- Crime data is not reported consistently throughout the department and across the city. Each district has its own unique way of reporting and can self-report crime based on its own method (which may not be consistent with BPD Headquarters or other districts).
- It can be time consuming to query and pull data from Lotus Notes in a clean format as the system sometimes downloads with field headers out of place.
- Some redundancy of efforts related to crime analysis, mapping, and report creation exist.

- Producing and reviewing weekly reports for Comstat that are hundreds of pages long is time consuming.
- The disparate, complicated process leaves little room for crime analysts and other staff to conduct innovative, proactive analysis to support crime fighting and violence reduction in Baltimore.
- Challenges related it i2:
  - Cannot process many records at one time despite a recent upgrade;
  - BPD has a limited number of licenses; and
  - Limited training.

Third Party and Other Custom Applications

In addition to major systems used in the department, the BPD also uses several third-party data applications. Over the years, BPD has purchased the use of multiple 3rd party applications that have supported other business process areas, including IAPro and Blue Team for internal affairs and early intervention.

Applications include:
- External ms-sql databases accessed via dblinks;
- Custom developed BPD mobile web applications;
- Other custom developed applications;
- External data applications; and
- Third party data applications (such as IAPro, E-Time, ESoph; ComStat Data Export, Judicial Dialogue, HRIS, CCTV Data; Safety Dynamics/Shot Spotter; Axon Body Worn Camera Data Lexis Nexis Subscription service for incident report provision to the public, Power DMS, and Microsoft suite applications).

Challenges:
- While all police departments have some level of customized and third-party applications in use to meet user needs, the BPD's distribution, support and maintenance of these applications is not governed under a strong central IT Section. ITS, for example, was not able to provide the assessment team with a comprehensive list of these applications, nor the requirements that the applications service. Therefore, this list may or may not be comprehensive.

Misconduct, Use of Force Assessment, and Early Intervention

IA Pro / Blue Team

System Name:

- IA Pro version 7.1.62 (as of May 2018 the most recent version was 7.1.70/ Blue Team version 5.3.20 (the most recent version as of May 2018)

Vendor:

- CI Technologies

Date of inception:

- June 2010

Size of the system / number of records in the system:

- BPD was not able to provide this information.

Uses:

- IAPro is software designed for Internal Affairs and Professional Standards units. [44] BlueTeam is the interface of IAPro that allows officers and supervisors to enter and manage incidents from "the field"– including use-of-force, field-level discipline, complaints, vehicle accidents and pursuits –and routed through the chain-of-command with review and approval at each step.[45]
- Used largely by the Office of Professional Responsibility, Use of Force Assessment, and the Early Intervention System (EIS) Unit. Other units such as Accident Investigation Unit, Special Investigation Response Team (SIRT), and the Equal Opportunity and Diversity Office have access to IAPro but the use is minimal due to lack of training and their ability to manage caseloads using other systems.
- Secure data storage to track officer complaints and disciplinary action. IAPro can also be used for commendations, but that feature has not been fully utilized.

Who is responsible for its maintenance or what available support does it have:

- BPD Information Technology Section

System Challenges:

- The IAPro system operates on an Oracle platform, limiting functionality. IAPro is no longer designed for Oracle and is solely designed for SQL servers. Upgrades cannot be done at time of rollout due to additional configurations needed for an Oracle server. BPD waits for multiple upgrades to be released.
- Related to Oracle Platform, BPD is exploring a note taking and performance evaluation system by CI-Technologies, MakeNOTE, that will allow supervisors to track performance and yearly evaluations. However, system cannot function on Oracle Platform.
- It is a standalone system with minimal interface with InPursuit (RMS).
- IAPro is has been described as "not intuitive" and requires training to understand and fully utilize.

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[44] IAPro website http://www.iapro.com/products/iapro/

[45] IAPro website http://www.iapro.com/products/blueteam/

- For Use of Force Reviews, Supervisors in the field with access to BlueTeam but not IAPro have limited access to view case locations in the review chain and identify delays. They also need to call the Use of Force Unit for delinquent numbers.
- BPD currently has a sworn member proficient in IAPro from OPR and is an unofficial administrator. Although he responds to questions and provides training to user groups, their primary duties are with OPR.

IAPro and its related interface software, BlueTeam, are used in multiple capacities throughout the department including the Office of Professional Responsibility (OPR), the Office of Constitutional and Impartial Policing's Use of Force Review Unit, and the Strategic Investigations and Support Services Bureau's Early Intervention Unit (EIU) within Officer Safety and Wellness for case tracking. Permanent rank supervisors have access to BlueTeam, but not IAPro. Divisions with access to IAPro have access only to the modules relevant to their line of work. For example, the Use of Force Review Unit does not have access to EIU or OPR modules. Also, those with access to IAPro, such as OPR, can enter complaints directly into IAPro without using BlueTeam. However, Use of Force uses BlueTeam because it comes with a "Clickable body image" report to identify where the person was struck.

Since BPD's IAPro runs on Oracle instead of SQL Servers, BPD's version may not necessarily have features that other departments with the software have updated access. This has led to unique complications for tracking and data analysis that other police departments may not encounter.

Office of Professional Responsibility

The Office of Professional Responsibility is an investigative division of BPD assigned to allegations of wrongdoing by police officers and civilian employees. To fulfill their investigatory duties, OPR uses Blue Team and IAPro to manage complaints. As complaints[46] are received and Intake Detective enters it into IAPro directly or releases it from BlueTeam and classifies the complaint based on allegation. The Intake Member prints a form of the entry and delivers it to the Sergeant for review and approval of determination. Cases are then assigned to detectives in specific investigative units or Area Squads based on classification. Throughout the review process, as more information on the complaint is gathered, it is added into separate paper and virtual case folder. At the end of the investigation, information regarding the case is either entered into or attached to the case in IAPro. As a result, IAPro is only used for case management, not tracking.

Retrieving data or generating reports in IAPro is possible, but due to free-form and/or non-mandatory data fields, information is not easily searched or missing. For example, the central complaint (CC) number or street names are free form. This is to allow CAD numbers to be

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[46] Complaints can be received by Agency Member, Anonymous, CRB (citizen review board), Department of Corrections, Email via BPD Website, Ethics, Fax, Internet/Social Media, KGA, Lawsuits, Media, other agency, phone call, Public Defender's Office, State's Attorney's Office, US Postal Mail, and by Walk-In at a BPD District or OPR Office.

entered in lieu of CC numbers, but the system cannot impose standards for entering those numbers. Sometimes CC numbers are entered with hyphens, making searching difficult. Street names are free form instead of attaching a master city street name list for drop down options to allow entries of streets outside of Baltimore City. However, this allows misspellings to occur unchecked. Examples of non-mandatory fields are race and ethnicity despite being drop down menu options. Currently mandated fields include: First name, last name, gender, Incident Type, and District.

Use of Force Assessment

Figure 13: Level II Use of Force Assessment Data Flow Chart
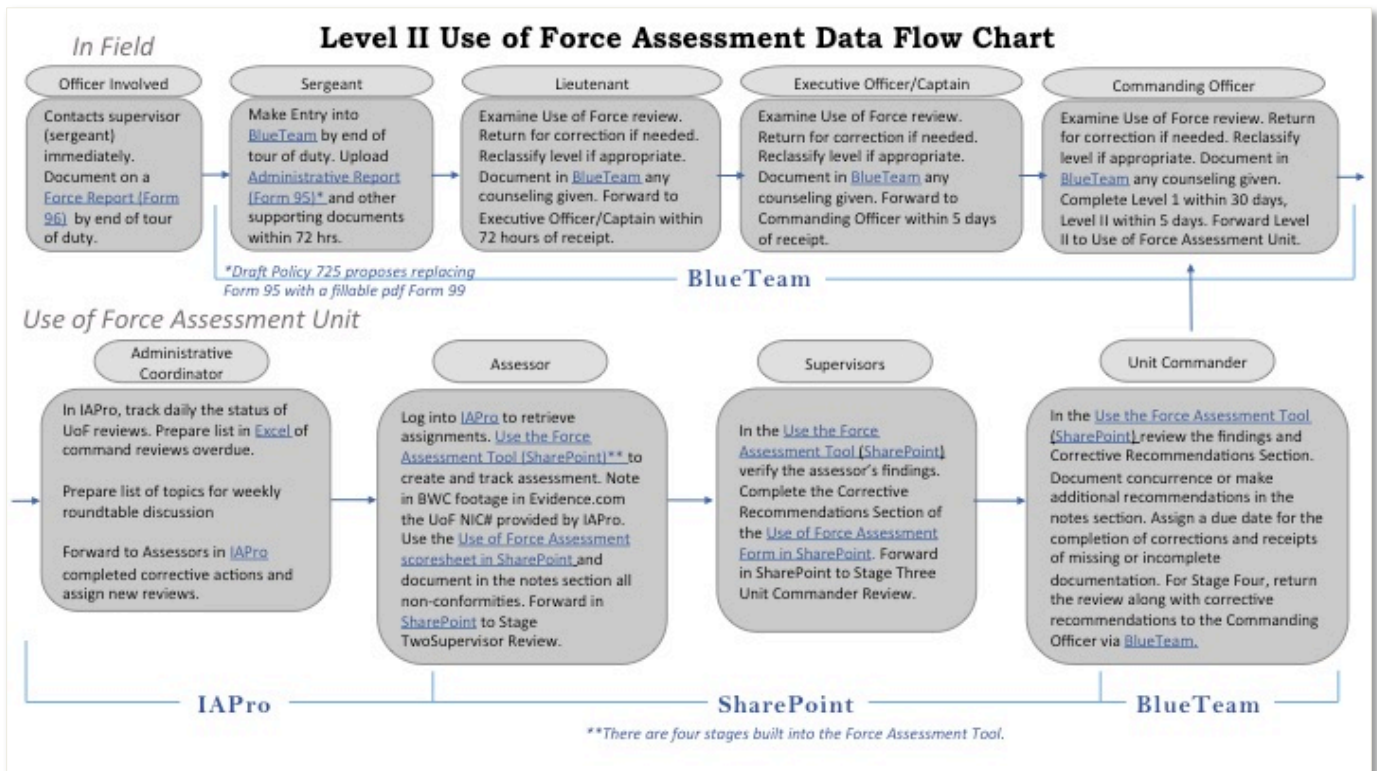
The Use of Force Review Unit screens all reported use of force incidents and assesses all Level II uses of force using IAPro, BlueTeam, and SharePoint. Officers are expected to self-report uses of force, by contacting their supervisor who conducts an initial review for conformity with policy and training. The supervisor manually documents this in Blue Team and approves the paper copy of the officer's report. The BlueTeam entry is forwarded up the chain of command for review. Supervisors have limited access to view the cases location in the review chain and identify delays. To identify delinquent reports, supervisors need to call the Use of Force Unit to find out the delinquent numbers.

At the Use of Force Review Unit, a coordinator screens all uses of force, makes the final decision to close a Level I use of force review, and processes the Level IIs. Since the coordinator needs to be able to query the list easily, the coordinator regularly creates her own separate spreadsheet to do this. The coordinator downloads the data from IAPro into Excel each week and creates pivot tables to develop counts for each unit and district. The counts are sent to commanders weekly. The coordinator also develops lists of the late submissions that are sent to commanders daily. Assessments for Level II Uses of force are completed in SharePoint. To review any incident requires multiple screens that require multiple login attempts (Evidence.com for body worn camera video, IAPro/Blue Team for the report and attachments, and SharePoint for the review).

Process Challenges (Use of Force and Officer of Professional Responsibility):
- Some data fields are free form or non-mandatory, so entries are not uniform or validated, does not provide true counts or easy searches based on those field.
- In BlueTeam, supervisors who have made an entry are unable to identify who is reviewing it beyond the first person to whom they submitted.
- Difficulties querying in the system have led individuals to create their own standalone tracking mechanisms to complete their work. Training is needed for staff to learn how to use the system fully.
- There may be some discrepancies between paper and electronic case files in OPR.
- BPD runs IAPro on an Oracle server, which limits BPD's ability to update more regularly.
- IAPro is described as "not intuitive" and requires training. Some of the process challenges identified by users may be due to lack of training.

[Early Intervention Unit](#)[47]

Figure 14: Early Intervention System Data Flow Chart
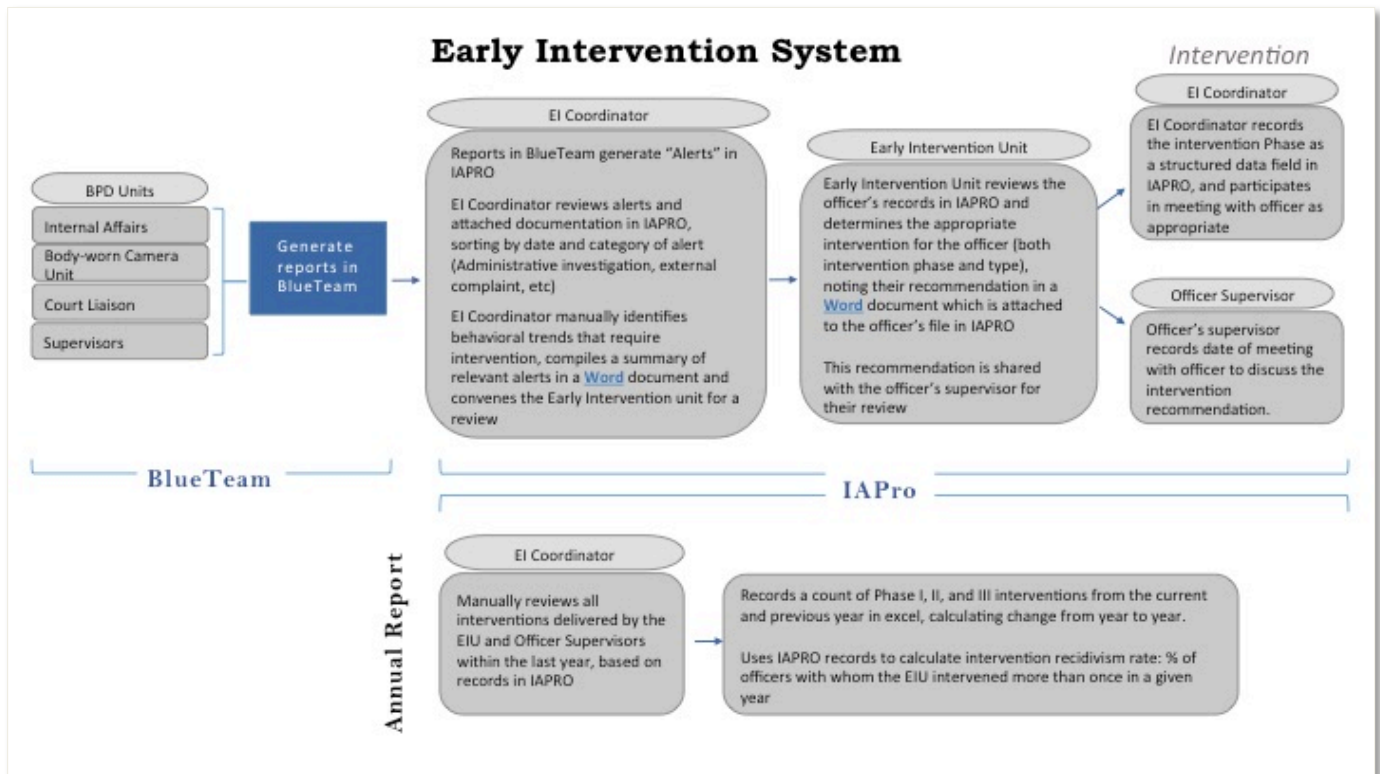
General Business Process

The Early Intervention Unit (EIU) is an integral part of the Officer Safety and Wellness Section. The EIU's function is to identify members whose performance exhibits potential problems, intervene to correct those problems, and avoid future adverse behavior. The EIU manages the Early Intervention System (EIS), which identifies incidents involving members, conducts interventions through a three-phase process, and evaluates results to address members' potentially problematic behavior before it escalates. The EIS is not a disciplinary tool, rather, it is meant to support members to help them improve and prevent adverse incidents in the future. As part of support and guidance, the EIU also refers members to outside resources upon request. The referral process is confidential and voluntary. The EIS does not override the disciplinary process where there are violations of policies or laws.

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[47] All information in this section is derived from Joaquin Carbonell's interviews with the Early Intervention Unit, February 13, 2018 and February 22, 2018, Draft Policy 1707 Early Intervention System revised date May 15, 2018, and Draft SOP revised date May 15, 2018.

EIU resides within the Officer Safety and Wellness of the Recruitment and Officer Wellness Division and is overseen by a Director. EIU manages an EIS that utilizes a combination of IAPro and Excel to track individuals and their performance improvement plans. Although the EIU is not responsible for generating data on member behavior, it uses the IAPro database to query member behavior incidents. The units or parties most commonly inputting behavior incidents into the database are Internal Affairs, the Body-worn Camera Unit (typically for failure to activate a camera), the Court Liaison, and member's Supervisors. The IAPro database contains incidents and allegations associated with individual members since 2010. Although information related to member behavior exists in other BPD databases (HR data, secondary employment information, etc.), it is not readily accessible to the EIU when reviewing alerts.

The operational processes of the unit can be mapped onto these functions:

Early Intervention Identification Process

Entries into IAPro generate an alert prompting the EIU to review the incident or allegation. Per Policy 1707, EIU reviews the incident's narrative and documents, as well as the member's past behavior to determine whether a referral for intervention is appropriate. An accumulation of three or more EIS alerts, or the severity of one alert within a twelve-month rolling period triggers a referral for intervention. Because IAPro is not an Early Intervention-specific system, the thresholds possible in the system do not meet the needs of the EIU. Therefore, the EIU reviews all entry alerts.

Entries can be organized by date, BPD member, and incident. Detailed, unstructured data include the time and circumstances of the incident, other parties involved, what behaviors were alleged about the member, whether an Internal Affairs investigation is open, the findings of closed IA investigations or body-worn camera audits, supervisor comments, and related documents (PDFs of written citizen statements, for example).

EIU takes the following steps in reviewing the alerts and associated information in IAPro to identify members for intervention:
- The EIU opens and reviews each entry under the alert (including supporting documentation) associated with the member, and notes the behavior documented in the narrative. The incident type field is not precise enough to signal the nature of the issue documented. With such a low alert threshold, the EIU determines whether each alert has merit or not. They make this determination based on the following criteria:
    - The result of the investigation of the unit or supervisor that generated the entry
    - The EIU's own reading of the incident using the same policies and standards as the unit that generated the entry (a form of double checking)
    - Number of other entries associated with that member, including whether the member has had an intervention previously.
    - Patterns of behavior - consistency with other issues that the member has had in the past

- In cases where it is deemed that intervention is not appropriate at the time of review, the EIU may still offer support and guidance including helpful resources to a member
- Upon reviewing the members alert history, they either recommend the member for intervention or note that the alert has been reviewed and cleared. Alerts without merit are closed by EIU and the date and closing member's initials are noted in the text field of the alert titled "Action Taken."

There are three phases of intervention and each involves a performance improvement plan (PIP).

Intervention Phases

The EIU has three different phases of intervention[48]:
Phase One
1. An accumulation of three or more EIS alerts within a twelve-month rolling period triggers a referral for intervention.
2. Notification of intervention referral is made by EIU to the member's first-line supervisor and entire chain of command. EIU notifies supervisors by sending a letter that is sent via IAPro to BlueTeam. Supervisors are notified by email that they have a message.
3. The first-line supervisor will review the incidents relative to the alert(s) and other documents relevant to the member's behavior and performance.
4. The supervisor will then meet with the member within 5 days or as soon as practicable, to discuss the incident(s) related to the alert(s) and any behavior of concern.
5. First-line supervisors will review relevant policies with the member and suggest a useful PIP to include strategies to correct, improve, and amend the identified member's behavior and/or issues.
6. Upon approval by the first-line supervisor, he or she will monitor the member for a period of 30 days and report in writing to EIU, via official channels, on the member's progress and/or success with the Performance Improvement Plan.

Phase Two
A Phase Two Intervention can follow two tracks:
1. A member may be referred by EIU directly to Phase Two Intervention based on a single alert depending on the severity of the incident; or
2. A Phase Two Intervention may be required if a member experiences additional incidents within a twelve-month rolling period after a Phase One Intervention.
3. During a Phase Two Intervention, the following actions shall be taken:
   3.1. The member and the first-line supervisor will be required to meet with EIU to create a PIP to correct, improve, and amend the identified member's behavior and/or issues.

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[48] Draft Policy 1707: Early Intervention System May 15, 2018

3.2. The first-line supervisor monitors the member for a period of 30 days and reports in writing to EIU regarding the member's progress/success with the PIP.

For Phase I and II interventions, the EIU will meet with the member and their supervisor to discuss the intervention recommendation then records the recommendation in IAPro in an unstructured, free form text field. The EIU also records when it intervenes with a member – the date of intervention, the incidents that formed the basis for intervening, the performance improvement and monitoring plan proposed by the supervisor, and the resources provided to the member, if applicable (ex: trauma therapy). There does not appear to be structured data kept on what intervention services are used, this exists as unstructured data. EIU captures its statistical data on an Excel spreadsheet in a shared drive because the reports offered within IAPro do not contain the information field that they want to capture.

Phase Three
1. The goal of a Phase Three Intervention is to permanently resolve any persistent issues that the member has continued to display. Any additional incident that occurs within a twelve-month rolling period following a Phase Two Intervention may result in a Phase Three intervention.
2. A Phase Three Intervention consists of a meeting attended by the Director, EIU, the member, and his/her entire command to include the Division Chief. During this meeting, it is clearly communicated to the member that he/she must improve problematic behavior.
3. A final PIP is developed and agreed upon by all present, which includes timelines and expectations for the member.
4. As in Phase One and Two, the first-line supervisor will monitor the member for 30 days and return a final report to EIU via chain of command.

Figure 15: Early Intervention System Intervention Flow Chart

EARLY INTERVENTION SYSTEM FLOW CHART

BALTIMORE POLICE DEPARTMENT

Identify Complaints → Determine if there is a Nexus between Complaints and Officer Performance → If Yes, **PHASE I** INTERVENTION

After an Officer receives three complaints within a 12-month period, a Phase I notice is generated to the Officers' Commanders.

If NO, Continue to monitor future alerts

Supervisor identifies strategies to reduce complaints and improve and monitor performance → Subsequent Complaints **PHASE II** Intervention → Subsequent Complaints **PHASE III** Intervention

Early Intervention Unit, Director, Sergeant and Officers' Sergeant are involved in strategy process.

Early Intervention Unit, Director, Sergeant and Officers' Sergeant, Lieutenant, Captain, Major and Chief are involved in strategy process.

Sergeant is required to monitor the Officer's performance for a period of at least 30 days.

Like PHASE I, PHASE II Sessions, a 30-day monitoring and reporting system is required.

Result, Police Officer Performance Improves

Result, Police Officer Performance Improves

Result, Police Officer Performance Improves

*Intervention phase may vary based on severity and frequency of allegations against an officer.
*Intervention may be required as part of a disciplinary action.

Assess whether interventions led to behavioral improvement

Through IAPro, the EIU keeps a comprehensive record of all interventions, as well as the outcomes and recommendations of Internal Affairs investigations. The EIU's most important indicator of success is their recidivism rate, defined as the percentage of BPD members who, after receiving an intervention from the EIU, go on to require an additional intervention. Additionally, the EIU reports on the number of Support and Guidance Sessions that are provided to members each year, which is a category of support that is separate from interventions in the EIS. Since Support and Guidance Sessions are a relatively new support offering referred to and the Officer Safety and Wellness Division, there does not appear to be an official policy that outlines the criteria used to determine which officers participate in these sessions. Generally, these sessions are targeted towards officers who have been involved in traumatic incidents. It is unclear how the effectiveness of this service offering is evaluated.

Process Challenges for EIU:

- *Data entry / incident coding*: Incident coding is not descriptive enough for EIU's purposes. Have to read narratives for more details.
- *Compiling incident histories:* Alerts do not consistently link to all other member-associated alerts in the last 12 months, which forces the EIU to do additional search queries for member-associated alerts to ensure that they are reviewing a complete alert history. This is another time-consuming process of double-checking information in IAPro when the standard system functionality should enable consistent viewing of a member's full alert history.
- *No ready access to other BPD databases*: The EIU does not have easy access to HR, training, Police Academy, secondary employment, CAD, and other data to complement entries in IAPro.
- *Combined alerts*: For a single alert that alleges problematic behavior by more than one member, separate narratives are created for each member rather than having a single entry that is associated with all relevant members. One incident with five members could generate 10-15-30 or more alerts. Reading similar narratives is time-consuming, but EIU does not want to assume the narratives are exactly the same. It is seen as a "necessary evil" of the process, because each member should have an individual record.
- *Lengthy load times:* when IAPro loads all un-reviewed alerts or whenever the EIU uses the search bar to make a search query, there are significant load times (exceeding 2-3 minutes in some cases) resulting in delays in the EIU's work.
- *Alert Triage*: Although IAPro offers thresholds for alerts, there is no way to meaningfully triage alerts for EIU purposes. For EIU, alert triage is mainly an issue due to classification and data entry error. For example, a domestic victim may have an alert for a Command Investigations case which is generally a lower priority, but something EIU wants to examine. As a result of not effectively triaging alerts, every entry in IAPro triggers an alert that the EIU has to investigate, such that the EIU is manually reviewing alerts that they deem lack merit for intervention. Additionally, every time a case is reopened, it generates another alert as though the member was involved in another incident.
- *Time-stamping*: There currently is a glitch causing multiple alerts to appear days or weeks after the incident has been entered, but appear as though they were there the entire time. The lack of consistent timestamping and structured fields for recording the EIU's review likely results in duplicative effort/wasted resources in the EIU (re-reviewing alerts) and an inability to systematically analyze what kinds of alerts are typically being reviewed and dismissed or flagged by the EIU. IAPro has been made aware of this issue. Additionally, this may also be a process issue because BlueTeam entries are not entered into IAPro in a timely matter.
- *Intervention justification*: IAPro does not provide templates for form letters. The EIU has to type up a brief summary of a member's alerts and cause for intervention. They have to manually transcribe the time, date, and incident type and develop a brief description of the incident for all of the alerts that have been generated by the member targeted for intervention.

- Overall EIU feels IAPro is designed more for disciplinary action. CI Technologies recently released EIPro, which EIU has not had the opportunity to test.

Personnel / Human Resources

BPD uses two systems for personnel data: InPursuit and the City's Human Resources Information System (HRIS) run by the company ADP. Since it is the City system, the BPD's Human Resources Section uses HRIS as the database of records to complete employee payments and benefits. The section also uses a personnel module in InPursuit that allows everyone in the department to access basic information such as photos of employees, assigned locations, and rank. By using InPursuit, BPD can conduct internal tracking for security access and rank, assignment, and some training information.[49]

In addition, staffing and scheduling for employees are done through E-Resources, managed by the Chief of Patrol. E-Resources was rolled out to help manage patrol and is being slowly implemented in other divisions but most of the staffing and scheduling is still done on paper roll books.[50]

BPD currently uses paper Change of Status forms that need to be approved by the appropriate people and can take two weeks to make their way to HR to be entered officially. The process creates delays in updating InPursuit and HRIS. In addition, HR does not have a formal system for general performance management, nor do they use HRIS/InPursuit for that purpose. Certain parts of performance management are done using Excel spreadsheets.

Process Challenges:
- BPD employee numbers differ from City employee numbers, employees are assigned two numbers causing translation issues when the City and BPD share personnel information.
- Delays in updating staff assignments through the paper process.

Crisis Response Team
Vendor:
- OpenLattice, Inc.

Date of inception:
- October 27, 2017

Size of the system / number of records in the system:
- Approximately 338 Behavioral Health Reports

Uses:
- System is used to electronically capture Behavioral Health Reports

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[49] Chief, former Data and Technology Division, comments to assessment team, January 4, 2018.
[50] Director and Lieutenant, Human Resources, interview with assessment team, October 4,2018.

Who is responsible for its maintenance or what available support does it have:
- OpenLattice, Inc. provides all required maintenance and customer support

Operated by:
- OpenLattice, Inc. and BPD Crisis Response Team

System Challenges:
- None

Purpose/Goal of using the system?
- Enable the BPD CIT officers to more effectively capture, store, and analyze behavioral health information.

Who enters information?
- BPD Crisis Response Team officers and supervisors

How is the information used? Are reports generated periodically for review?
- The information is used to assist with follow up visits, identify chronic consumers, and assist with data analysis. Reports will be generated periodically for review.

Special Investigation Section

System Name
- Offender Watch

Vendor
- Watchsystems LLC

Date of Inception
- April 23, 2013

Size of the system/number of records
- 3500 records locally

Uses
- Comprehensive national sex offender management database

Do other systems feed info into it and vice –versa, if so which ones
- No

Who is responsible for its maintenance or what available support does it have
- This is a SaaS. Watchsystems LLC maintains the software and the police department owns the data. They have a 24-hour help desk

Operated by
- SIS/Sex Offender Registry Unit

System Challenges
- None

Training Academy, In-service & Firearms Training

The Training Section uses and has used multiple systems for tracking and reporting, most recently using InPursuit and PowerDMS.

PowerDMS
System Name:
- PowerDMS

Vendor:
- PowerDMS

Date of inception:
- 2016

Size of the system / number of records in the system:
- More than 300 documents a day are entered in the system.[51]

Uses:
- Used by the Best Practices Unit to distribute policies.
- Since 2017, used by the In-service Training Unit for testing records.

Who is responsible for its maintenance or what available support does it have:
- PowerDMS.

System Challenges:
- None noted.

Figure 16: Academy Training Records Unit

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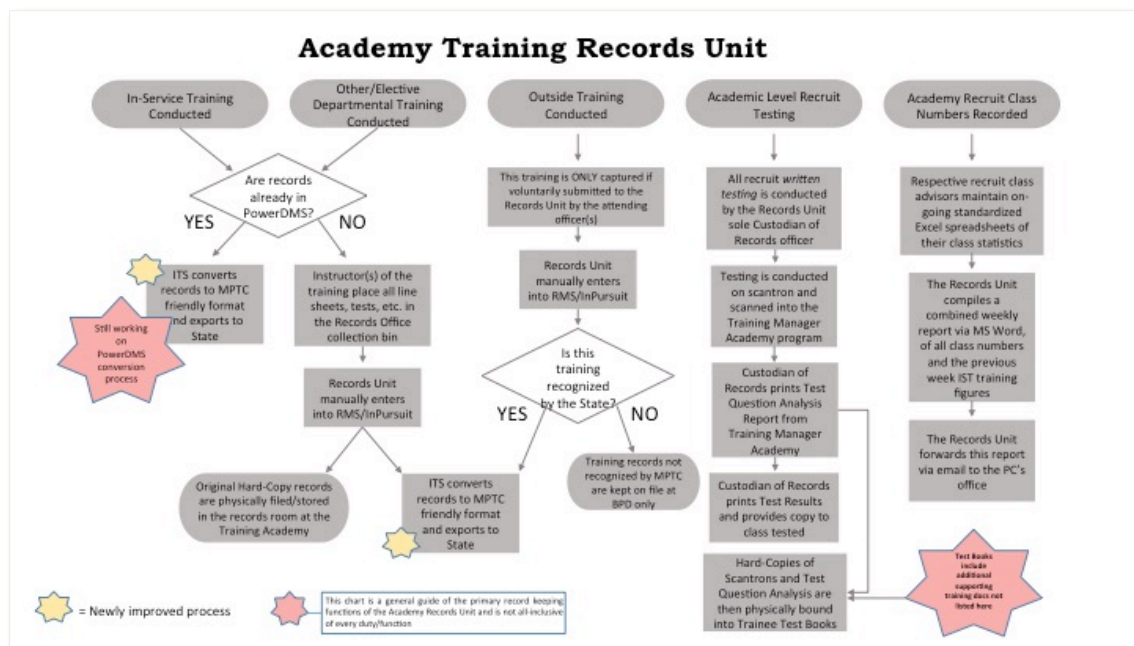
[51] Lieutenant, Best Practices Unit, interview with assessment team, October 4, 2018.

The Training Academy Records Unit tracks In-service, recruit-level, and other training records. Prior to 2014, the Training Academy's main databases were Training Manager Academy (TMA), which stored entry level training records, and Skills Manager (Skills), which stored in-service training records. Both were stored on a local computer hard disk drive. Technical support for TMA ended around 2014 and a decision was made to cease updating BPD's licensing for both TMA and Skills with no alternatives for documentation. As an interim solution for in-service training, the Training Section began utilizing InPursuit. Although support for TMA ended, recruit-level records continued, and still continue, to be entered into the software. Additionally, because InPursuit and PowerDMS are not designed to work as dynamic scheduling software, neither is suited for recruit training records. Systems for recruit training records require components that track trained objectives by individual and output individual specific assessments based on the training objectives that recruits still need. All the while, the software must also be capable of managing recruit training class rosters and account for which person was in which entry level training class (not individual courses, but whole academy sessions).

In short, testing, managing individual state mandated training objectives, and tracking academy sessions are not functions of these software packages to our knowledge.

With the exception of firearms qualification records that are still entered into Skills by Academy Range Staff.

With no current license for TMA, any troubleshooting has to be done by the Training Academy or ITS. Issues with TMA have progressed over the last two years from minor glitches to an inability to control various functions. In recent months, TMA experienced a critical error where the records could no longer be accessed at all. ITS was able to assist in creating a backup of the hard disk drive so that the Training Section was able to recover about 95% of the records and re-install the software. The lost records (which were also the most current) had to be re-entered from hard copies that are also kept on file.

Similarly, BPD has stopped being able to automatically notify the State of completed mandated department training records prior to 2015 because of the issues with TMA and Skills. Since the Maryland Police and Correctional Training Commissions (MPCTC) uses the same software, prior to the issues, records could be automatically sent. Records must be sent to MPCTC to show compliance of mandated training each year. Once BPD converted to using InPursuit for Training, a .txt file export had to be sent to MPCT and one of their certification officers would convert the file on the State's end to an importable format. In 2017, that MPCTC officer retired and the knowledge of his conversion process has been lost. ITS and MPCTC's ITS is continuing to attempt to address the issue.

In addition, in-service training stopped utilizing Scantron testing in 2017 because of its relatively time-consuming nature to fill out and process and has since began trialing PowerDMS as a potential replacement. Using PowerDMS, officers can complete testing on their department-

issued smartphones, making it easier for officers to access and Training staff to manage. Training that is not a test administered in in-service training is still entered into InPursuit. The Training Section is working with PowerDMS to determine how to export records in an acceptable format for MPCTC, similar to current issues with InPursuit.

Process Challenges:
- Challenges presented by the databases and limitations of the alternate databases to perform the same necessary functions have grossly added to the Academy staff's workload.
- Reliance on multiple database systems and paper records increase the time it takes for staff to complete administrative tasks.
- Challenges regarding interoperability with the State training requirements system unnecessarily complicate BPD's process to show proof of compliance. This remains the Training Record Unit's greatest concern and priority.

Recruitment

BPD officer recruitment has historically been tracked through Lotus Approach. In addition to Lotus Notes, BPD also has 10 Lotus Approach databases that have been added from 1999-2010, many of which are no longer in use. BPD also has some Oracle applications, some of which were originally designed to replace related modules in Lotus Notes, which support some internal tracking functions.

As of October 2017, the Recruitment Section was tracking progress for officer candidates through the initial phases of the hiring process in Lotus Approach. The section was implementing eSOPH, a case management software by Miller Mandel Inc., to help track and manage the background investigation part of the hiring process.[52] With this new software, the Recruitment Section hopes to help be able to track and analyze where individuals are dropping out of the hiring process.

In 2017, the Recruitment Section purchased eSOPH to support tracking functions.

Lotus Approach
System Name:
- Lotus Approach

Vendor:
-

Date of inception:
- 1999

Size of the system / number of records in the system:
- Approximately 3.5 million

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[52] Major, former Recruitment and Staffing Section, interview with assessment team, October 5, 2018.

Uses:
- Tracks the following:
    - ExParte/Protective Orders
    - Criminal Summons
    - Incident Index – Name Search
    - Commissioner's Compliant
    - Commissioner's Office Overtime
    - Crime Watch Program
    - Medical
    - Fugitive/Detainer Database
    - Personnel – Recruitment Tracking
    - Southern District Complaint Database

Who is responsible for its maintenance or what available support does it have:
- Every night, 8 exports and 4 imports are automatically executed:
    - Exports:
        - Guns, BOLOS, DNA, ExParte, KeyW, Pri Warrants, Major Crimes GORA
    - Imports:
        - Personnel, Gangs, RWOC, Juvenile Arrests

System Challenges:
- Personnel information is extremely outdated - BPD claims it is not updated at BCIT (formerly MOIT); BCIT (formerly MOIT) claims it is updated, but BPD has different data

eSOPH (Recruiting Tracker)
System Name:
- eSOPH

Vendor:
- Miller Mandel, Inc.

Date of inception:
- 2017

Size of the system / number of records in the system:
- BPD was not able to provide information.

Uses:
- Used by the Recruitment Unit.
- BPD Applicant data is stored, and system is used to track their information, and where they are in the process. It does not hold data after the recruitment/hiring process is finished.

Who is responsible for its maintenance or what available support does it have:
- BPD was not able to provide this information.

Process Challenges:
- eSOPH will not be used to track recruits from initial application through hire because of its cost. It is also unclear whether it will be able to connect with other information systems like InPursuit.

Cameras

BPD provides officers with body worn cameras (BWCs) and maintains CitiWatch cameras throughout the City and van transport cameras.

Body Worn Cameras (BWC)

System Name:
- BWC

Vendor:
- Axon
- Stored on Evidence.com

Date of inception:
- Deployed in Spring 2016

Size of the system / number of records in the system:
- All have been deployed (over 2,000)
- As of April 16, 2018, BPD has uploaded 1,482,597 videos totaling 293,829.12 hours and 545245.07 GB to Evidence.com. BPD uploads an average of 1,801.45 videos totaling 357.02 hours and 662.51 GB every day.[53]

   Uses:
- All patrol officers.
- All DAT Squad members.
- The BWC Unit conducts audits of footage and flags video for OPR to review, including Uses of Force

Who is responsible for its maintenance or what available support does it have:
- Contract with Axon

System Challenges:
- BPD Policy 824, under Collaboration Period at the time of this Study, covers Body Worn Camera policy, and officers are aware of the policy.

BPD completed issuing BWCs to all officers, sergeants, and lieutenants with police powers, with over 2,200 issued by June 2018. All sworn personnel with a BWC are directed to tag their recordings in the field on department-issued cell phones.[54] Training is a four hour course that consists of technology and policy. All officers who have a BWC are required to have the training.

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[53] Director, ITS, Axon video summary provided to assessment team April 16, 2018.

[54] Baltimore Police Department. (2018, January 1). *Policy 824: Body Worn Camera*. Retrieved from https://www.powerdms.com/public/BALTIMOREMD/documents/51027

Van Transport Cameras

System Name:

- TVC System

Vendor:

- Point Blank Enterprises

Date of inception:

- November 2016

Size of the system / number of records in the system:

- 20 Transport vehicles, do not know how much has been downloaded

Uses:

- Record van transport of people in custody

Who is responsible for its maintenance or what available support does it have:

- BPD ITS

System Challenges:

- Downloads have to be done offsite from District station where the van is assigned.
- Inspections conducted using paper forms and filing system

CitiWatch Cameras

System Name:

- CCTV – Public Surveillance Cameras

Vendor:

- FLIR Systems (formerly DVTel) for Video Management System. Red Hawk Fire & Security for maintenance and installation

Date of inception:

- April 2005

Size of the system / number of records in the system:

- 750 cameras – video is stored for 28 days

Uses:

- Public safety, force multiplier

Who is responsible for its maintenance or what available support does it have:

- Maintenance contract with Red Hawk Fire & Security

System Challenges:

- Funding for operations and expansion

Baltimore maintains CitiWatch, its Closed-Circuit Television (CCTV) camera network throughout the city. About 750 cameras are set up around the city to date, with a goal of having roughly 1,000 up by the end of 2018.[55] The cameras are primarily viewed at CitiWatch, a 24/7 operation where retired police officers monitor camera feeds. The video management system is FLIR Systems, formerly known as DVTel.[56]

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[55] CitiWatch employee, interview notes referred to assessment team, March 13, 2018.
[56] Project Manager, ITS, comments to assessment team, April 12, 2018.

CitiWatch is also connected to BPD's automated gunshot detection technology system, currently Safety Dynamics, which receives alerts when a gunshot happens in the city. GSD sensors with video equipment have been placed in historically high gun violence areas in the city. Data from Comstat and crime trends help staff to project and focus on certain areas and cameras. One sworn member on admin duties is assigned to the unit and performs daily camera checks by viewing each camera feed to ensure all cameras are functioning properly. Another sworn member performs data entry for the unit by compiling statistics for camera related arrests, initiated calls for services, searches, and handgun arrests in an excel spreadsheet.[57]

License Plate Recognition

System Name:
- Leonardo Elsag

Vendor:
- Selex US

Date of inception:
- 2011

Size of the system / number of records in the system:
- 40 mobile units, 4 portable trailers, 5 fixed site locations (PO in process for five more)
- All reads are transmitted to the Maryland Coordination and Analysis Center

Uses:
- Reads license plates and compares to list of stolen vehicles, stolen and other flagged tags (amber alerts, silver alerts, missing persons, vehicles involved in a crime, vehicles that are part of an investigation, wanted persons, etc.). Can be used for investigations.

Who is responsible for its maintenance or what available support does it have:
- Selex US

System Challenges:
- Training – all users must be trained, not having access to our own data.

Through grant funding, the BPD will receive 25 mobile license plate readers and 24 gunshot detection sensors. BPD also has 5 fixed site camera locations, 4 speed sign trailers, and 19 additional car system license plate readers.[58]

VIDYSY, a Public Safety Information Management system, is also used for situational awareness. Currently, it incorporates all of the City's different camera systems along with some state cameras (i.e. CHART, MVA, and DOT). BPD intends to add CAD, gunshot detection, and LPR to it in the near future. It will be used primarily for Preakness and then again for Fleet Week in October.

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[57] CitiWatch employee, interview notes referred to assessment team, March 13, 2018.; Project Manager, ITS, comments to assessment team, April 12, 2018.

[58] Project Manager, ITS, comments to assessment team, April 12, 2018.

Equipment Inventory

For technology, phones are tracked through the Verizon portal and the BWC's are tracked through the Axon/Evidence.com portal. It is BPD's intention that eventually all of assigned property will be part of the employees' record.

Smartphones[59]
System Name:
- Smartphones

Vendor:
- Android (mainly Samsung Galaxy S7) and iOS devices (iPhone 6, 6s, 6Plus, 7, 7plus, and 8s – primarily for members of command).
- Additionally, use AirWatch MDM (or Workspace One – whichever label VMWare is using.

Date of inception:
- On-going (smartphones available for every member of the agency)

Size of the system:
- N/A

Uses:
- Smartphones are available for every member of the agency. Everyone issued a BWC is also issued a phone.
- Databases and apps available: *PowerDMS Mobile, Baltimore 311, Mobile Com Live BPD, BPD Remote Desktop, Interact Mobile, Delta Plus, Quick Link Mobility, Linx, Pocket Cop, Maryland Judiciary Case Search, Evidence.com, Maryland Criminal Justice Dashboard, Blue Team*

Who is responsible for its maintenance or what available support does it have:
- BPD ITS

System Challenges:
- The portal through Verizon to add, suspend, or delete accounts goes off line from time to time. And, some applications do not work on newer models of phones.

Mobile Data Computers (MDCs)
System Name:
- MDC

Vendor:
- Novell provides the software
- Dell provides the hardware

Date of inception:
- 2017

Size of the system:

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[59] Director, ITS, smartphone information provided to assessment team April 8, 2018.

- In 2017, BPD ordered approximately 400 MDCs mobile data computers (MDCs) and mounts for patrol cars to equip officers with the ability to view a mobile CAD list for directions and a call list. The MDCs would also enable officers to access the network, email, and PowerDMS.[60]
- BPD is in the process of rolling out MDCs in all districts. 257 MDCs have been installed in marked patrol vehicles 2015 or newer. There are 400 available MDC for mounting. The remaining 143 mounts/docks have recently arrived. They were being held in anticipation of newer patrol vehicles delivery.[61]

Uses:
- Officers with MDCs will be able to view their call list and directions.
- Dispatch would be able to track where patrol cars are.

Who is responsible for its maintenance or what available support does it have:
- ITS

System Challenges:
- Does not have field-based reporting interface. Some officers will type the report in the pdf and email it to themselves to print at the district station.
- Does not come with printers or ID card swipes.
- Lack of training. Officers were provided with print-out of screen shots and instructions.

Figure 17: An Officer using an MDC
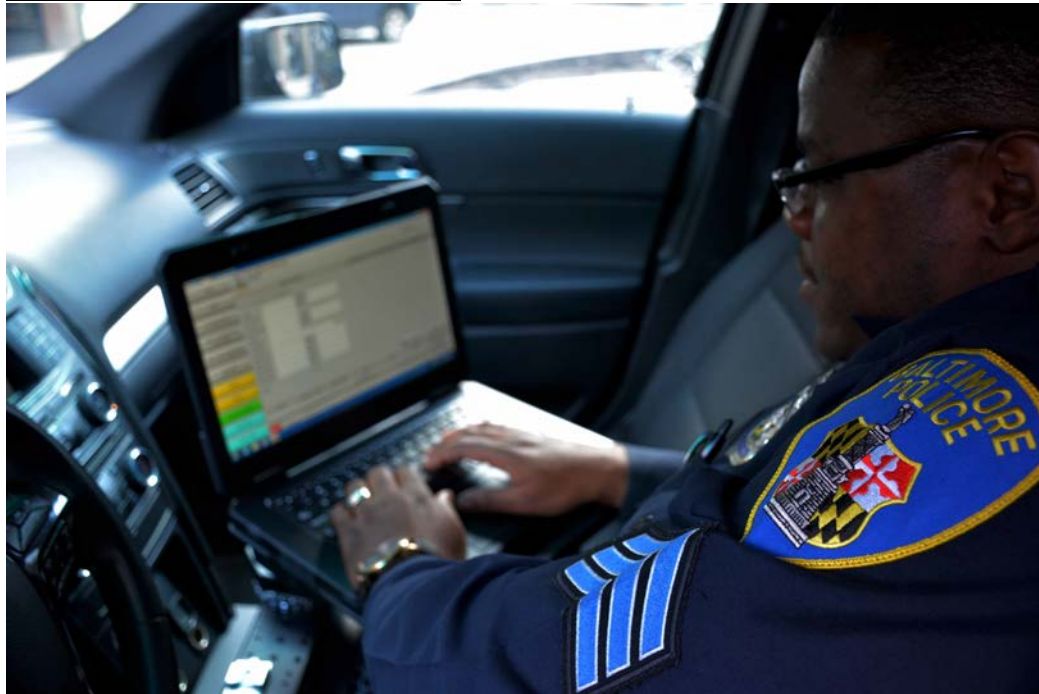
Figure 18: An Officer using an MDC

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[60] Former Deputy Commissioner, interview with assessment team, October 3, 2017.
[61] Current as of April 16, 2018.

Ω

Website

The Baltimore Police Department's website is internally designed and maintained. The website is hosted by the same vendor hosting the City of Baltimore's website. The Information Technology section is responsible for design and maintenance, while content is centrally managed by a content management group within the agency comprised of the head of Homeland Security (Sworn LTCOL), the head of the Best Practices Unit (Sworn LT), and the aide to the Deputy Commissioner of the Strategic Investigations and Support Services Bureau (Sworn LT). When any edits to the website are requested they must first be approved by the content management group before being put into production. Updates to information that are routine in nature are usually completed by the webmaster. The website is designed on the Drupal 7 platform using php, html5, mysql database, and css3.

Applications and Websites for Community Reporting

Figure 19: Screenshot of the Baltimore Police Department App

Baltimore Police Department App
In January 2017, BPD launched the Baltimore Police Department App which is available for Android and iPhones. The app is a connective app that provides links to other apps and websites such as Crime Stoppers, BPD's Instagram page, and BPD's phone directory. The app is free to the public and provides access to the latest news, live streams, photos, videos, alerts and crime information. Additionally, the application allows two way communications using Twitter, Facebook, and a special feature for submitting anonymous tips to the Department. Approximately 11,000 people have downloaded the app.

Watch Center's Metro Crime Stopper tip app:
The Watch Center took over this tip app on 1/1/2017. BPD manages these tip through an external website managed by Metro Crime Stoppers of Maryland. From January 2017 to May 7, 2018, Metro Crime Stopper has provided approximately 1,700 tips.
http://metrocrimestoppers.org/submit-a-tip/

The Watch Center also receives tips through the BPD's "Submit a Tip" app within the BPD App.

Office of Professional Responsibility
For commendation and complaints
https://www.baltimorepolice.org/commend-and-complain

Open Data

The City of Baltimore through BCIT maintains an open data portal to release data to the public, including on BPD Part I crime incidents, arrests, and calls for service.[62] The portal is available at https://data.baltimorecity.gov/.

Open Data Portal
System Name:
- Open Data Portal / "Open Baltimore"

Vendor:
- Socrata

Date of inception:
- Unknown

Size of the system / number of records in the system:
- Millions

Uses:
- Provide open data to the public.

Who is responsible for its maintenance or what available support does it have:
- BCIT is responsible for the maintenance of Open Baltimore, with support from Socrata.

System Challenges:
- None noted to date.

Forensic Laboratory Section and Evidence Control

The Forensic Laboratory Section uses multiple systems, including for evidence control and laboratory information management.

Evidence Control
System Name:
- WinAce

Vendor:
- Software Techniques

Date of inception:
- 1994. It has been updated twice with the most recent update approximately five years ago.

Size of the system / number of records in the system:
- 15DB / 1,562,112 (Only Property)

Uses:
- Tracks evidence

Who is responsible for its maintenance or what available support does it have:

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[62] Baltimore Police Department. (n.d.). *Open Data*. Retrieved from https://www.baltimorepolice.org/crime-stats/open-data

- Santucci, Raymond/David Kan and Software Tech. support

System Challenges:

- Due to a high rate of staff turnover in the Unit, staff members rarely receive comprehensive training and use a Lotus Notes system along with WinAce due to distrust in the WinAce system.
- Data fields are free-form and not pre-set. For example, rape kits are referred to as SAFE (Sexual Assault Forensic Examiner) Kits. Entries have been made multiple ways: S.A.F.E. Kits, SAFE KITS, Safe Kits, Rape Kits, etc.
- The WinAce system currently used by BPD does not have a disposition component. To dispose of an item, the Evidence Control Unit (ECU) must have the authorization of the responsible officer. This can be cumbersome because it requires sending an email to the officer and awaiting a response that may or may not arrive.
- The WinAce system currently used doesn't have the capability to send alerts, "ticklers", when items have been kept past the legally required time.[63]
- Winace lacks management tools necessary to adequately recall information.
- The last update was approximately four years ago, and discussions with Software Techniques have shown that there are no plans to upgrade WinAce's capabilities that would bring it up to current best practices standards – without significant expense.[64]
- Current technology is not capable of complying with the best practices under the International Association of Property and Evidence (IAPE).
- Does not allow for multiple filters without contacting the vendor
- Does not allow for access by other official agencies such as the State's Attorney's Office to view items location, forensic services performed, and chain of custody
- Does not allow for limited public access online to see the status of their items
- Does not connect to the Laboratory Information Management System

The Evidence Control Unit (ECU) is the repository of evidence and property collected at crime scenes, or during searches and seizures. WinAce is the evidence tracking software used by BPD's ECU. Items are brought to the ECU counter and all case information is submitted with a Form 56 (Property Receipt) paper form and the information is entered into WinAce. This half paper, half electronic system not only creates the potential for error in entry, but also presents the possibility for loss of original documents because there has been no method of digitizing and storing hard copies with the electronic records.

ECU has in its custody approximately 3,000,000 items of evidence. WinAce, however, contains roughly half of this information. The other half are contained on a Microsoft Excel Spreadsheet because of historical items and a full external audit and inventory that was conducted approximately ten years ago.

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[63] Evidence Control Unit information provided to assessment team, April 12, 2018.
[64] Memo on the Replacement of ECU's Evidence Tracking Software (Ace, WinAce), provided to assessment team, April 16, 2018.

Laboratory technicians will retrieve items for testing and enter them into LIMS.

Laboratory Information Management Systems (LIMS)

System Name:
- LIMS

Vendor:
- Starfruit Technologies

Date of inception:
- 2002 in the Drug Analysis Unit, July 2016 in the Latent Print Unit, and January 2017 in the Forensic Biology Unit

Size of the system / number of records in the system:
- Latent Print Unit:
    - LIMS: 1.5 GB, 8107 request records, 8107 property records
    - LRI: 16,434 requests, 15,366 ident, 111,114 latent
- Drug Analysis Unit: 380,461 records, 50 GB
- Forensic Biology Unit: 3,283 records

Uses:
- Latent Print Unit: Limited case tracking and workflow; however due to limitations, many cases require handwritten notes or reports.
- Drug Analysis Unit: Drug analysis request, case tracking, workflow, and reporting.
- Forensic Biology Unit: Case tracking.

Who is responsible for its maintenance or what available support does it have:
- David Kan and Data Unlimited International

System Challenges:
- Starfruit is not comprehensive as a LIMS so multiple separate databases are currently being used to track one item of evidence as it moves through the lab for analysis.[65]
- Starfruit is not internally customizable to change the way certain statistics are calculated or to add a field for analysis, so changes would have to be made with an additional fee from the vendor.

Starfruit has been used with a chain of custody as entries are all connected to a CC# and changes made to evidence entry are tracked through a discrepancy report. For example, if an officer types in that 10 bags of a green leaf-like substance were found, but there were 11 bags, the technician can correct that in the system and a log of the change is kept.[66] To supplement the existing Starfruit Technologies system, the Forensic Laboratory Section uses Microsoft Access Database, Microsoft Excel, Veripic, D-Base, Lotus Notes, and WinAce for various tracking functions.[67]

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[65] Forensic Laboratory Section "LIMS" Overview, provided to assessment team, April 12, 2018.
[66] Tour of LIMS, notes provided to assessment team, April 12, 2018.
[67] Forensic Laboratory Section "LIMS" Overview.

Future Applications

The BPD has several systems currently in the planning and implementation phases:

Kronos Telestaff

System Name:
- Workforce Timekeeper Bundle – Includes, Workforce Timekeeper, Workforce Manager 1:10 Ratio, Workforce Employee, Workforce Integration Manager, Workforce Mobile Employee, and Workforce Mobile Manager.

Vendor:
- Kronos Incorporated

Date of inception:
- This project is still in the planning phase

Size of the system:
- Up to 3,300 Police Department users

Uses:
- Timesheet, Scheduling, Reporting and Analytics.

Who is responsible for its maintenance or what available support does it have:
- As the system is a Cloud based application all system maintenance, patches and upgrades will be handled by the Vendor (Kronos). The system comes with several support options through Kronos and the City of Baltimore Police department will have trained administrators capable of making configuration changes as needed.

System Challenges:
- This is a new system, so the primary challenge will be to ensure full user training and adoption.
- Implementation, policy, and training, adoption and usage
- Conversation of decentralized to centralized overtime management system

WebRMS

System Name:
- WebRMS

Vendor:
- Hexagon

Date of inception:
- TBD

Size of the system / number of records in the system:
- TBD

Uses:
- Records management, field-based reporting, and case management. It contains other features such as asset management that BPD may or may not use.

Who is responsible for its maintenance or what available support does it have:
- BPD ITS

System Challenges:
- Unknown at this time. Charter identifies data migration and user acceptance as challenges for implementation. To address user acceptance, focus groups comprised of end users were formed to see Hexagon's presentation and ask questions.

Strategic Decision Support Center (SDSC)

In 2018, the Department established the Strategic Decision Support Centers (SDSC) in the Eastern and Western Districts to enhance Districts with technology and staffing resources. The mission of the SDSC is to gather and analyze intelligence, deploy resources and enforcement strategies, and coordinate response to criminal activity to better serve and protect the community. At the time of this Study, the SDSCs were not fully outfitted. By the end of May, SDSCs were developing plans to use ESRI for logging incidents and conducting spatial analysis, ShotSpotter (description below) for gun detection, CityWatch feeds, and KGA. BPD had not yet acquired predictive policing software at the time of this Study.

ESRI

In lieu of real time data, BPD employed the assistance of ESRI to design a Survey 123 platform for the District Reporter App (survey) for data entry and a dashboard for analysis. Officers in the field complete Incident Reports as usual, but a data analyst at the district will enter the information into the app. Using the dashboard, the ESRI mapping system will display spikes and/or clusters of crime. There are a few basic analysis tools built into the dashboard that allow the districts to observe crime distribution across shift, day, and post. The system is still a work in progress and BPD is currently in partnership with ESRI programmers to add additional features, like editing our incidents, and to develop a plan to send and receive information to InPursuit. BPD also has to develop a transition plan once a new RMS is deployed.

Figure 20 is a screen shot of the App. Depending on "Crime Type," the survey will prompt specific questions related to the crime type.

Figure 20: District Reporter App from ESRI (still in development in June 2018)

Roles and Responsibilities (Per Draft SOP as of May 2018. Subject to Change)

The SDSCs are under the command of the Criminal Investigative Division at Headquarters, and directly by Major/District Commander. Generally, SDSCs are staffed by a Lieutenant, two (2) Sergeants, and a civilian crime analyst.

All Shifts/Members:
- Monitor KGA, CitiWatch, and ShotSpotter to provide district patrol with real-time situational awareness and dispatch.
- Log incidents and event numbers.
- Ensure information is collected during the shift, and shared with shift supervisors before roll-call of the following shift.

Lieutenant/SDSC Coordinator:
- Serves as the daily coordinator ensuring intelligence is collected and presented at a Daily Intelligence Briefing, at a reoccurring time, for the District Commander,
- Place-based missions are produced with input from Sergeants and the analyst utilizing trends and available intelligence,
- Review the results of the missions and provide feedback during the Daily Intelligence Briefing. Organize follow-ups on missions,
- Function as the contact for specialized units within the Department and external partners,
- Ensure that all daily activities performed by SDSC personnel during the tour are properly documented on SDSC logs,
- Collect best-practices and share with other Department SDSC Coordinators and CID generally.

Sergeants

SDSC Sergeants report directly to the SDSC Coordinator, monitor situational awareness technology, and compile intelligence into a Daily Intelligence Briefing for shift supervisors and SDSC. During all shifts, SDSC Sergeants shall:
- Conduct face-to-face relief with the on-coming SDSC staff,
- Coordinate with district patrol via KGA to respond to incidents, including:
- Monitor and access CitiWatch cameras for situational awareness and/or to assist a call.
- Prepare the Daily Intelligence Briefing
- Prepare the Weekly Intelligence Briefing PowerPoint presentation to include:

Civilian Crime Analyst
- Provide crime analysis for the District and advise the SDSC Coordinator.
- Provide input and analysis for Daily Intelligence Briefings and Weekly Intelligence Briefings.
- Communicate with CID where appropriate and requested.
- Analyze crime patterns and trends in the District.
- Synthesize crime, arrest reports, and criminal histories when creating analytical products for command staff and supervisors.
- Combine "human intelligence (HUMINT)" with data to better understand crime in the District and develop missions.
- Advise in the creation and continuous update of templates used in the SDSC, and share with other SDSC analysts. When possible, the Civilian Crime Analyst may translate information into actionable intelligence.

Shotspotter

System Name:

- ShotSpotter

Vendor:

- ShotSpotter, with funding from Bloomberg Philanthropies

Date of inception:

- 2018

Size of the system:

- Unknown

Uses:

- System will not be connected to CitiWatch cameras
- Intended to identify when and where gunshots are fired.
- Analysts in the SDSCs will be responsible for calling gun shots detected into CAD. BPD is looking into having CAD notified automatically

Who is responsible for its maintenance or what available support does it have:

- ShotSpotter

System Challenges:

- None listed as of May 2018.

Overall Findings & Conclusion

A Technology Inventory is the first step in evaluating a department's IT and data environment and the viability of those systems to meet business needs. Access to timely and accurate data is a critical factor when assessing any police organizations performance. Data is used to determine policing priorities, missions and issues including call management, staffing, performance issues, training, equipment, records management, case management, and critical services. However, it is essential for organizations to thoroughly define functional processes and business rules that ensure a high degree of viability.

The assessment team reviewed several key information systems on- and off-site to assess if systems met functional business requirements and if timely and accurate information was available. During this process, significant issues were identified that need to be addressed before BPD can implement an IT environment that can support reliable, timely, and accurate information across the board. The data challenge BPD faces is determining how to design, implement and manage a data governance process in the midst of an IT environment that lacks governance, including but not limited to data collection standards, system documentation, database quality control and assurance, data sharing, data integration, and effective/measurable end-user training. There is a significant use of personnel resources to manually process, review and track reports that can be eliminated with the implementation of appropriate IT solutions. The spirit and dedication of the BPD personnel we encountered was commendable—if equipped with proper software and hardware resources, they are sure to excel.

The following findings and recommendations are based on three separate site visits that focused on critical functions and systems. Although BPD needs a significant infusion of funds to upgrade, replace, or integrate existing systems, there are issues that can be addressed through policy and with minimal funding.

Finding 1. BPD does not have a central authority that can advocate for sound IT decision making throughout the department. As a result, BPD has had a habit of reacting to opportunities that are unit commanders perceive to help individual units rather than examining opportunities from a department or city-wide perspective.

Recommendation 1.1. Establish a single authority for managing IT requests for services.

Recommendation 1.2. Establish a single authority for data table maintenance.

Recommendation 1.3. Establish a single authority for user data needs and requests.

Recommendation 1.4. Create CIO and CDO positions of sufficient rank and authority.

Recommendation 1.5. CDO and CIO shall ensure detailed documentation is written for each system and database. This documentation should include the reason the system/database was implemented. The business requirements it does/does not address.

Recommendation 1.6. Build on the resource study (which has been started) to map all business processes in all job functions and conduct a detailed efficiencies study.

Finding 2. Silo systems have created disparate information and difficulty integrating data sets, both within the department and with City and State systems. In some cases, congruent with Finding 1, employees are unaware of what systems may be available to them for use, encouraging the proliferation of more disparate information systems. Ingenuity of officers has created work-arounds, such as with an Excel spreadsheet in EIU and Access in Comstat, but these should not replace the need for information systems that can support business process functions. Systems that better support business process functions could potentially reduce staff time required to perform duties.

Recommendation 2.1. ITS and other appropriate personnel with BPD should coordinate closely with BCIT to establish IT and data governance rules.

Recommendation 2.2. Implement online real time geocoding of all addresses entered into any database using MOIT online address file.

Recommendation 2.3. Establish a data sharing agreement with Maryland regarding the state Offender Case Management System. BPD should retain a copy of all cases submitted to Maryland and receive real time updates to Maryland's database as a case moves through the justice system and is adjudicated.

Recommendation 2.4. Develop data exception reports for every database. The exception report identifies record entries not in compliance with data requirements or missing required data. Establish data proprietors that are the subject matter experts at a given unit. The data proprietor's liaison with system users and the CDO. The CDO collaborates with the CIO to resolve any issues, data fixes, enhancements and new requirements.

Recommendation 2.5. Implement database audits to be performed by a person/unit that is not the data proprietor.

Recommendation 2.6. All RFP's should require vendors to include online data exception reporting, data dictionaries, table maintenance and updates.

Recommendation 2.7. Ensure all system databases are replicated onto an integrated data store that is electronically updated as source system transactions occur. This integrated database would be the "single source of truth" for all management reports, data analytics and real time crime analysis, Comstat, and so forth.

Recommendation 2.8. Acquire mobile report writing software that electronically frontloads RMS/BKG/FI/Stop data and allows for electronic document review, approval and processing. Ensure any RMS/RFP requires compliance with IT/data governance policies. Any new RMS should also automatically produce any mandated reports such as UCR and NIBRS.

Recommendation 2.9. Conduct an internal review of the databases to determine redundancy, if they are meeting end user business requirements and if the data ought to be included in a data take-on plan that should be developed to aid in the ongoing maintenance of siloed databases and migration to the "to be developed" IT/data schema.

Recommendation 2.10. Review current Comstat process to streamline and minimize staff required to support and process to generate reports.

Finding 3. IT initiatives have suffered from a lack of funding that may affect hardware.

Recommendation 3.1. BPD should ensure that foundational systems such as servers and routers are supported.

Finding 4. Training is lost over time creating distrust in systems, such as with WinAce and InPursuit.

Recommendation 4.1. Implement online Learning Management Systems for every application. This allows management to easily identify personnel trained and if recurrent training is needed.

Finding 5. BPD lacks a data retention policy.

Recommendation 5.1. Establish a document and data retention policy for all forms, documents and databases. Establish an electronic library of all archived documents that allows for easy retrieval and download. BPD now maintains a massive hard copy file system that requires significant space.

Finding 6. Over time records management functions and crime analysis were centralized, but since district commanders still seek updated and easily accessible information, some functions may be replicated.

Recommendation 6.1. Assess decentralizing data entry and crime analysis staff and functions to the nine districts. This may facilitate improved service delivery.

Appendix A: BPD IT Inventory Spreadsheet

Due to the size of the full BPD IT Inventory Spreadsheet, a condensed version of the spreadsheet's information is provided below. The spreadsheet was primarily used to capture information on databases used by BPD; thus, hardware and other technologies are largely excluded from the list. Information was populated from multiple sources, primarily with information from current and former BPD IT staff, among interviews with other BPD personnel.

InPursuit

InPursuit: Application Module Name	Used?	Notes	Database? Check if Yes.	What data is stored?	Purpose	Is data validated? (Yes/No)	If Yes, is it automated? (Yes/No)	Is it table validated? If so, what standards are followed? (i.e. NCIC).	Database Administrator (if not IT specify who)
ACCIDENT	No			Currently empty. Developing input from state as they collect this data. BPD data on traffic is held in incident module.	Nothing at this time				
ALARM	Not sure			Not sure, might be vendor who captures alarm info					
Registration	Not sure								
Alarm Events	Not sure								
Billing	Not sure								
Configuration	Not sure								

ARREST	Yes	(Same process as with Booking information). Arrest information goes in the state system >> Oracle >> Some gets back to BPD but there is no process for receiving updates from the State system so BPD's records are not the most current.		Arrest data	UCR, anaylsis, comstat, investigations	it depends, names are validated and addresses	depends. Address is but names are not. Charge codes are automated	some NCIC standards, depends on the table. For example all codes for CJIS are standard. But table structure is not	IT for inport, Records does the validation. Arrest data come from officers but they are entering into state system which gets back into ours
ASSET MANAGEMENT	Not sure			Unsure if this is kept in InPursuit. BPD to confirm. Epps may use another program					
Fixed Assets	Not sure								
Inventory Items	Not sure								
Order Requests	Not sure								
Issue Requests	Not sure								
BOLO (APB)	No	Kept in Lotus Notes and is emailed out regularly.		In Lotus not in InPursuit					
BOOKING	Yes	(Same process as with Arrest information). Arrest information goes in the state system >> Oracle >> Some gets back to BPD but there is no process for receiving updates from the State system so BPD's records are not the most current.		See arrest info					
BUSINESS	Not sure			Not sure if BPD uses. Will check					

CALLS FOR SERVICE	Yes	Data from CAD is imported into InPursuit.		All calls	analysis	no		none	MOIT runs CAD app and then IT imports it into InPursuit
CASE MANAGEMENT	No	Lotus Notes is used for case management.		none					
CITATION	Yes			traffic, criminal, civil and juv. Citations.	analysis	no			Records
COMMUNITY POLICING	No	Technically a dataset but it does not have entries. BPD was a beta test for InPursuit so a lot of the modules were built around BPD at the time of implementation. As such, the community policing modules were designed around a unit that no longer exists.		none					
COURT DOCUMENTS	Yes			warrants, civil body attacments,	warrant service & anaylsis	yes	no; done by Records	none	ITS for app; Records for data
CRIME LAB REQUESTS	No			none					
CRISIS MANAGEMENT TEAM	No			none					
EVIDENCE	Yes	Used but only in conjunction with criminal cases. Chief of Science and Management Services has his own evidence control system.		none					

FIELD INTERVIEW	Not anymore	Used to be used but is not anymore. Citizen contact receipts are currently in the Citation application. In addition, there is a backlog of many FI forms (seen on site visit 1).		Citizen Contact Receipts (Fis, Vehicle stops) but they are in the Citation application, not this application, which is problematic					
FLEET MAINTENANCE	No	Has never been used.		BPD to check					
GROUP TRACKING	No	Has never been used.		none					
GUN PERMITS / REGISTRATION	No	Has never been used.		BPD to check					
IMPOUND	No	Has never been used.		BPD to check					
INCIDENT	Yes			Crime data	analysis and reporting	yes	no	CJIS	ITS for app; Records for data
JAIL MANAGEMENT	No	BPD gets jail information through the state system as part of their booking.		Central Booking & Juvenile Booking are state operated					
Inmate Tracking	No			Import from arrests					
Jail Facilities	No			none					
Jail Incidents	No			none					
Medicaiton Dispense Schedule	No			none					
JUVENILE BOOKING	No	BPD gets jail information through the state system as part of their booking.		Import from state contacts (see above)					
JUVENILE CONTACTS	No	BPD gets jail information through the state system as part of their booking.		see above					
JUVENILE COURT DOCUMENTS	No	BPD gets jail information through the state system as part of their booking.		see warrants					

LINEUPS	No			BPD to check					
MASTER LOCATION INDEX	Yes	Yes but end master tables don't link up. BPD is working on cleaning.		Yes, by the refrecing record					
MASTER NAME INDEX	Yes	Yes but similar problems to the master location index. This would be more difficult to clean.		Yes, by the refrecing record					
MASTER VEHICLE INDEX	Yes	Yes but similar problems to the master location index.		Yes, by the refrecing record					
MISCELLANEOUS SERVICES	Not sure			BPD to check					
MISSING PERSONS	No	Use Lotus Notes.		BPD to check but likely in ACERS					
PAWN SHOP	No	Use a vendor (regional system).		old data, new data goes into another system					
PERSONNEL	Yes/No								
Applicant Tracking	No			none					
Early Warning System	No	Could be used to work but no one has been using or cleaning the databases up to date. With data drift, this wouldn't work in a useful way.		none					
Master Employee Index	Yes			yes, includes some training records	internal tracking for security access and rank, assignment and training tracking	yes but not timely	no	none	Personnel & Academy
Position Tracking	No			none					

PROPERTY ITEMS	Yes	Tracks stolen items. Each should link to an incident (and arrest if applicable).		yes, table linked to incident					
STOLEN VEHICLES	Yes	Same as Property Items		yes, table linked to incident					
SUSPECT	Yes	Used for demographics.		yes, table linked to incident					
TIME AND ACTIVITY	No	Was meant to track how much time people spend on a case. It takes too much time to enter info > not used.		none					
TRAFFIC STOP	No	Use CAD for traffic stops.		Any stop with vehicle is in the Citation application.					
TRAINING	Yes	Information is uploaded to the State.		See above for training; linked to personnel app					
Facilities	Not sure								
Institutions And Facilities	Yes			only track classes taught at BPD.					
Courses And Certifications	Not sure			BPD to check					
Training Classes	Not sure			BPD to check					
Class Blocks	Not sure			BPD to check					
VEHICLE PURSUIT	No	Use IAPro.		none					
DISCIPLINARY TRACKING	No	Use IAPro.		Use IAPro					
Associated Names	No	Use IAPro.		Use IAPro					
Internal Complaints	No	Use IAPro.		Use IAPro					
Internal Cases	No	Use IAPro.		Use IAPro					

Lotus Notes

Lotus Notes: Application Name (archives = there is also an archive database as well)	Date Added	What data is stored?	Purpose	Primary Business Group / Use	# of records as of Jan 2018	Does database interface with other information systems? (Yes/No)	If Yes, note how and with what systems?	List all other databases that store this data and why.	Notes
abs.nsf	2001	Arrests from the City Arrest Booking System. Also the Oracle Importer/Exporter.	BOLO Alerts when a person is arrested. Also used to exchange data with Oracle.	MIS BOLO Alerts	56,000	Yes	Works with BOLOS to generate alerts. Works with Oracle to exchange data.	Arrest Viewer	Imports Arrests all day
absARCHIVE.nsf	2001	Arrests from the City Arrest Booking System	Archives	Archives	370,000	No		Unknown	
aggasslt.nsf	2000	Agg Assaults Case Management	CID Case Management	CID - Case Management	116,000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Yes - See Notes	Victims and Suspects are sent to Oracle every night.
aggassltarchives.nsf (archives)	2000	Agg Assaults Case Management Archives	CID Case Management	CID - Case Management	500,000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
AnimalCruelty.nsf	2015	Animal Abuse Case Management	CID Case Management	CID - Case Management	300	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
ArmInv.nsf	2002	Armory Inventory	Tracking the weapons available in the armory	Armory	500	No		Unknown	
Armory.nsf	2000	Armory Weapon Assignments	Tracks what officers have what weapons	Armory	50,000	Yes		Unknown	

Arson.nsf	2001	Arson Case Management	Arson Case Management	CID - Case Management	40,000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
AssetFunds.nsf	2006	Assets Funds data	Tracks how Asset Funds are used	Fiscal - Track Asset Funds	25,000	Yes		Unknown	
BallisticsTracker.nsf	2010	Ballistics Test Results	Ballistic Test Results	CID - Case Management	32,000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
BH.nsf	2017	Behavior Health of selected Officers	Identify troubled Officers	CID - Track troubled officers	300	Yes		Unknown	
Bolos.nsf	2000	BOLOs	Tracking BOLOs, and generating and email and text when a BOLO person is arrested.	CID - Track People of Interest.	2000	Yes	Integrated with other Case Management, Searches and Statistics Databases. Connects to the ABS database to look for arrests.	Unknown	Data sent to Oracle every night
BolosArchive.nsf	2000	BOLOs	Archived BOLOs	CID - Track People of Interest.	30000	Yes	Integrated with other Case Management, Searches and Statistics Databases. Connects to the ABS database to look for arrests.	Unknown	
BPDAccidents.nsf	2003	Tracks accidents with BPD Vehicles	To review and investigate vehicle accidents	Central Records - tracks who has vehicle accidents.	10000	No		Unknown	
BPDDRIVERECS.NSF	2003	Tracks BPD Employee Driving Records	To review and identify potential dangerous drivers	Central Records - Identify dangerous drivers.	4000	No		Unknown	

Name	Year	Description	Purpose	Use	Records	Archived	Integration	Oracle	Notes
BPDFleet.nsf	1999	Tracks all of the BPD's Vehicle	To track the status of all BPD Vehicles.	Fleet - track the status of all vehicles and other related equipment	3000	No		Unknown	
BPDShield.nsf	2016	BPD Shield Training and Contact List	Track BPD Shield Training and associated people	Track training classes and personnel	400	No		Unknown	
Burglary.nsf (archives)	1998	Burglary Case Management	Case Management for Burglary Cases	Track Burglary Cases	500000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
cars.nsf	2001	Vehicle Seizures	Track vehicles that have been seized as part of an investigation	Central - Track seized vehicles	35000	No		Unknown	
CaseManagementArchive.nsf	2005	Various Case Management Images and large data	Holds images so they do not take up room in the live databases	CID - Part of Case Management	8000	Yes	Integrated with Case Management	Unknown	
CasinoDistrict.nsf	2015	Crimes against Casinos	Track Casino Crimes	CID - Case Management	100	No		Unknown	
CCAdmins.nsf	2015	Cold Case Administration	Track Cold Cases	CID - Track Cold Cases	300	No		Unknown	
CellPhones.nsf	2006	Departmental Cell Phones	Hold departmental cell phones and who is assigned to them	UNK - database has been locked, used for reading only	3000	No		Unknown	
CentralArch.nsf	2017	Archive for older Central Records database records	Offload older data from the live databases	Central Records - Archives for several of their live databases	280000	No		Unknown	

CheckAndFraud.nsf	2009	Economic Crimes Case Management	Case Management for Economic Crimes	CID - Track Economic Crimes	20000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
ChildAbSurvivors.nsf	2015	Child Abuse Survivors Case Management	Case Management for Child Abuse Survivors	CID - Track Cases	1000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
ChildAbuse.nsf	1998	Child Abuse Case Management	Case Management for Child Abuse Cases	CID - Track Cases	150000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
ChildAbuseArchive.nsf	2012	Child Abuse Case Management Archived Cases	Archived Child Abuse Cases	CID - Track old cases	100000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
CIBHELP.nsf	1999	Help and Support Database	Provided help and support to all Notes users	Notes Users - Get help and support. Also reports when a Case Management Database has Case Number issues.	3000	Yes	Integrated with all Notes Database via the 'Help' button.	Unknown	
Cibstats.nsf	1998	Generate statistics and reporting for Case Management	Run reports against various Case Management Databases	CID - COMSTAT	5000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
ClassRosters.nsf	2017	Classes and Student Lists	Track BPD Training	E&T - Traing Classes	130	No		Unknown	
corrections.nsf	2005	Corrections /Updates to Incident Reports	Track changes that are made to Incident reports	Central - Track when changes are needed on incident reports	22000	No		Unknown	

CrimCivCitations.nsf	2015	Tracks Criminal and Civil Citations	Track different types of citations that are issued	Central Records - Maintain a list of citations	2000	No		Unknown	
CrimHistory.nsf	2006	Criminal History Requests	Track who made requests for criminal history listings	Central Records - Maintain a list of all Criminal History Requests from Lawyers and citizens	24000	No		Unknown	
CWMissPersons.nsf	2015	Additional Case Info for Missing Person Cases	Follow-up reporting for Missing Person Cases	CID - Track additional info on Missing Person Cases	6000	No		Unknown	
CWShootingOT.nsf	2015	Citywide Shooting Detective Overtime Tracking	Tracks overtime for Shooting Detectives	CID - Track OT	6000	No		Unknown	
DDSTracking.nsf	2014	Tracks inventory and items	Tracks who is assigned to various DDS Items	CID - Track Inventory	100	No		Unknown	
DDUOverTime.nsf	2008	Tracks overtime for the DDU Unit	Track Overtime	CID - Track Overtime	22000	No		Unknown	
Debriefing.nsf	2008	Tracks Debriefing Interviews	Track Interviews	CID - Track Debriefing Interviews	65000	No		Unknown	Victims and Suspects are sent to Oracle every night.
DistrictReturns.nsf	2006	Tracks changes to Reports that were returned for corrections	Tracks reports that are modified	Central Records - Tracks what reports have been returned for corrections	700	No		Unknown	

DNACaseTracker.nsf	2010	Tracks DNA Test Results and Associated cases	Links Case Management to DNA Results	CID - Track DNA Test Results	4500	Yes	Integrated with Case Management	Unknown	Data sent to Oracle every night
dnacold.nsf	2002	Case Management for DNA Cold Cases	Case Management	CID - Track old DNA Cases	20000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
DOMV.nsf	2017	Family Crimes Unit Case Management	Case Management for Domestic Violence	CID - Track DV Cases	45000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
domviol.nsf	1998	Domestic Violence Cases from 2010-2016	Archived Case Management for Domestic Violence	FCU - Arched Cases	275000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
DrugOrganizations.nsf	2015	Track Drug Crews and Gangs	Track Drug Activity	CID - Track Drug Crimes	100	No		Unknown	
DVArchive.nsf	1998	Domestic Violence Cases from 2005-2009	Archived Case Management for Domestic Violence	FCU - Arched Cases	500000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
DVArchivePre2004a.nsf	1998	Domestic Violence Cases from 1990s - 2004	Archived Case Management for Domestic Violence	FCU - Arched Cases	300000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
DVProtectiveOrders.nsf	2009	Protective Orders issued by the DV Unit	Track the status of Restraining Orders	FCU - Track Orders	20000	No		Unknown	
ECUGuns.nsf	2002	Counts of weapons recovered and in ECU	Track weapons that are stored in the ECU	ECU - Track Weapons	5000	No		Unknown	
EDDDUovertime.nsf	2014	Track Overtime in the ED DDU Unit	Overtime Tracking	ED DDU - Track OT	1000	No		Unknown	
EEOC.nsf	2004	EEOC Case Management Archive	Tracks EEOC Cases	Not Used	1000	No		Unknown	ARCHI9VE DATABASE. WAS REPLACED BY IAPRO

expunge.nsf	2007	Expungement Request Processing	Track the Expungement Process	Central Records - Track the Expunge Process	250000	No		Unknown	
ExpungeJuvi.nsf	2014	Expungement Request Processing	Track the Expungement Process	Central Records - Track the Expunge Process	100	No		Unknown	
expungeRWOC.nsf	2007	Expungement Request Processing	Track the Expungement Process	Central Records - Track the Expunge Process	70000	No		Unknown	
Extort.nsf	2000	Extortion Case Management	Track Extortion Cases	CID - Track Cases	500	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
FacilityServiceTracker.nsf	2011	Track service requests	Track Service Requests	Maintenance - Track service requests in the buildings	200	No		Unknown	
FormsRWOCs.nsf	2007	Process various Forms for Central Records	Process Forms	Central Records - Process Forms	600000	No		Unknown	
Gaming.nsf	2002	Track Gaming and Gambling Applications	Process Gambling Applications	Central Records - Process Forms	1000	No		Unknown	
gangtrack.nsf	2011	Lookup tables of gangs and members	Lookups in various other Notes applications	Other Notes DBs and searches	1000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Yes - See Notes	Oracle exports the latest Gangs info to Notes every night
GTTF.nsf	2007	Process GTTF Case Management for GTTF Cases	Process GTTF Cases	GTTF - Track Cases	55000	No		Unknown	
gunold.nsf	1997	Archive for older Crime Lab Gun cases	Archive for old cases	Crime Lab - Archive	150000	No		Unknown	

Name	Year	Description	Function	Department	Count	Flag	Integration	Flag2	Notes
GunReg.nsf	2008	Monitoring for Registered Gun Offenders	Track Gun Offender	CID - Track Registrations	200000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Data sent to Oracle every night
GunRegARCHIVE.nsf	2008	Monitoring for Registered Gun Offenders - Archives	Track Gun Offender	CID - Track Registrations	70000	No		Unknown	
GUNSEARCH.NSF	2004	Utility Database to search for a weapon	Searching for weapons	CID - Find a weapon	10	Yes	Searches other Databases	Yes - See Notes	Searches data from Crime Lab
guntable.NSF	1997	Table Lookups for the Crime Lab Database	Table Lookups	Crime Lab - Lookups	7000	Yes	Integrated with Gun Tracking for table lookups	Unknown	
GunTrack4.nsf	1997	Crime Lab Gun Tracking	Track weapons tests in crime lab	Crime Lab - Track tests of weapons	100000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Data sent to Oracle every night
HateCrimes.nsf	2016	Case Management for Hate Crimes	Tracks Hate Crime Cases	CID - Track Cases	100	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
HO.nsf	2016	Homeless Outreach	Track the Homeless Outreach Process	CID - Track Homeless Outreach Progress	10	No		Unknown	
homepage.nsf	1998	BPD Notes Menu System	Menu System for all of the Notes Databases	All Users - access Notes Databases	10	Yes	Menu System to all Notes Databases	No	Menu System
Homicide.nsf	1997	Case Management for Homicide Cases	Track Homicide Cases	CID - Track Homicide Cases	220000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
HotDeskCallTracker.nsf	2008	Maintain a list of Hotdesk Calls	Monitor Hotdesk activity	Central Records - Monitor Hotdesk	610000	No		Unknown	

ibiscasetracker.nsf	2010	Case Management for the IBIS Unit	Track IBIS Cases	CID	2200	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
IIDGeneral.nsf	2006	Archived IID Cases	Archived IID Cases Lookups	IID - Old case lookups	140000	No		Unknown	
Initiatives.nsf	2015	Various CID Initiatives and Crime Plans	Track Police Initiatives	CID - Track initiatives	3000	No		Unknown	
IntelMenu.nsf	2008	Intel Unit Menu and Internal Database	Navigate Intel Databases, track internal status	Intel - Track internal workings	20000	Yes	Integrated with other Intel Databases	Unknown	
JaneDoeCases.nsf	2008	CID Cases with unknown victims	Track special cases	CID - Track Cases	2000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
JuviArrests.nsf	2003	Track Juvi Arrests in Central Records	Juvi Arrests	CR - Track Arrests	30000	No		Unknown	
K-9Training.nsf	2017	K9 Training Certifications	K9 Training processes	CID - Train K9s and Tests for them	3000	No		Unknown	
Kidnappings.nsf	2000	CID Case Management	Case Management	CID - Case Management	400	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
larceny.nsf	2000	CID Case Management	Case Management	CID - Case Management	100	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
LeadSheets.nsf	2008	CID Lead Sheets for Cases	Lead Sheets	CID - Lead Sheets	7000	No		Unknown	
LEOSA.nsf	2011	Intel LEOSA Sheets	LEOSA Sheets	Intel - Track internal workings	1000	No		Unknown	
lsexoff.nsf	2000	CID Case Management	Case Management	CID - Case Management	200	Yes	Integrated with other Case Management, Searches and	Unknown	

							Statistics Databases		
MedTrack.nsf	2017	Officer Medical History	Central Records	Track Med History	100	No		Unknown	
MissingPersonCards.nsf	2003	Missing Person Cards	Central Records	Track Missing Persons reports	80000	No		Unknown	
missper.nsf	2000	CID Case Management	Case Management	CID - Case Management	90000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
MissPerCold.nsf	2000	CID Case Management	Case Management	CID - Case Management	1500	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
MULPUnit.nsf (Pre2015, 2015, 2016, 2017)	2014	Crime Lab	Track MULP Information	Crime Lab - Track MULP Cases	100000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
NDInitiatives.nsf	2015	ND Initiatives	Track Initiatives in ND	CID Northern District Track Initiatives	10	No		Unknown	
NEDDDUovertime.nsf	2013	NED Overtime	Track OT	CID NED Track OT	3000	No		Unknown	
notessup.nsf	1998	Notes Help & Support	Tech Support	All BPD - Help and Support	2500	Yes	Integrated with other Databases for Help and support	Unknown	
ODTask.nsf	2016	CID Case Management	Case Management	CID - Case Management	2000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
OfficerStatus.nsf (1314, 1516, 1718)	2000	Office Performance	Track Officer Performance	Supervisors - Track officers	1000000	No		Unknown	
OfficerStatusSpecial.nsf	2000	Office Performance	Track Officer Performance	Supervisors - Track officers	60000	No		Unknown	

offinv.nsf	2000	CID Case Management	Case Management	CID - Case Management	2000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
OPSCases.nsf	2016	CID Case Management	Homicide OPS Cases	CID - Case Management	9000	No		Unknown	
OPsShooting.nsf	2016	CID Case Management	Shooting OPS Cases	CID - Case Management	100	No		Unknown	
OtherCrimes.nsf	2000	CID Case Management	Case Management	CID - Case Management	200	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
OTSchedule.nsf (archive)	2006	Overtime Scheduling	OT	All BPD - OT Schedule	1000000	No		Unknown	
PatrolDetail.nsf	2016	Patrol Details	Patrol Details	Patrol	100	No		Unknown	
pending.nsf	2000	CID Case Management	Case Management	CID - Case Management	50000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
PropForf.nsf	2003	Property Forfeiture	Track Seized Property	Intel - Track Property	50000	No		Unknown	
qarson.nsf	2000	CID Case Management	Case Management	CID - Case Management	12000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
RecoveredItems.nsf	1998	Central Records - Stole/Recovered Items	Central Records - Stole/Recovered Items	Central Records - Stole/Recovered Items	50000	No		Unknown	
Relocation.nsf	2008	Intel - Relocation of Witnesses/Victims	Relocation Info	Intel - Relocation of Witnesses/Victims	5000	No		Unknown	
reportrequests4.nsf	2008	Requests for Incident Reports	Track Requests	Central - Track requests	200000	No		Unknown	

Returns.nsf (Archive)	2005	Reports that have been returned	Track Returned / Corrected Incident Reports	Central - Track requests	12000	No		Unknown	
Robbery.nsf	2000	CID Case Management	Case Management	CID - Case Management	160000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
RobberyArchive.nsf (4 of them)	2000	CID Case Management	Case Management	CID - Case Management	600000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
SARs.nsf	2016	Track SARS Cases	Case Management	Central - Track SARS Cases	100	No		Unknown	
searcher.nsf	1998	Search for People	Case Management Searcher	All BPD - Searches	100	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
secemp.nsf	2002	Secondary Employment of Officers	Track other jobs	Central - Track jobs	10000	No		Unknown	
SelfInfl.nsf	2000	CID Case Management	Case Management	CID - Case Management	15000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
sexoff2.nsf (archive)	2000	CID Case Management	Case Management	CID - Case Management	130000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
Sexreg.nsf	2000	CID Case Management	Case Management	CID - Case Management	12000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.
Shooting.nsf (archive)	2000	CID Case Management	Case Management	CID - Case Management	380000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	Victims and Suspects are sent to Oracle every night.

SISOvertime.nsf	2016	SIS OT Tracking	OT Tracking	SIS - Overtime	15000	No		Unknown	
srchnam.nsf	1998	Searcher Database	Search all Notes DBs	All BPD - Searches	0	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
StateMCitations.nsf	2016	Citations	Track Citations	Central - Track Citations	600	No		Unknown	
StolenVehicles.nsf	2003	Stolen Vehicles and Tags	Track Stolen Info	Central - Track Stolen Cars and Tags	110000	No		Unknown	
streets.nsf	1998	Streets Table	Address Info	All BPD - Address Lookups	11000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
SuspectPhones.nsf	2007	Phone Numbers	Track Phone #s	All BPD - Lookup phone numbers	3000	No		Unknown	
SWDArrests.nsf	2017	Arrests	Track SWD Arrests	Arrests	1200	No		Unknown	
SWDOvertime.nsf	2016	SWD OT	Track SWD OT	SWD - Track OT	500	No		Unknown	
swops.nsf	2015	SW Operations	Track SW Operations	SWD - Track Operations	2000	No		Unknown	
TaserTraining.nsf	2016	Taser Training Records	Track Training	CID - Track Training Classes	2500	No		Unknown	
TaserUploads.nsf	2016	Taser Data Upload Tracking	Track Taser Uploads	CID - Track Taser Info	6500	No		Unknown	
Teletypes.nsf	2007	Teletypes Issued by Central Records	Track Teletypes	Track Teletypes	600	No		Unknown	
Thefts.nsf	2000	CID Case Management	Case Management	CID - Case Management	500	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	

ThreatsOnPolice.nsf	2000	CID Case Management	Case Management	CID - Case Management	1000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
TopTen.nsf	2006	CID Top Ten Wanted	CID Posters	CID - Track Wanted People	1800	No		Unknown	
TowedVehicles.nsf	2003	Track Tows	Towed Vehicle Info	Track Tows	90000	No		Unknown	
TraceBiologyUnit.nsf	2012	Trace Biology analysis	Record test results	CID - Crime Lab	4000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
TRBOARD.nsf	2002	Trial Board Generator	Create Trial Board Lists	Legal - Generate Trial Boards	500	No		Unknown	
TrueTestWarrants.nsf	2009	Track Warrants	Warrants	Track Warrants	1500	No		Unknown	
UDOT.nsf	2016	Unit Detective OT	Overtime Tracking	Track OT	50	No		Unknown	
VCIDCases.nsf (archives)	2012	CID - Case Management	Track VCID Cases	CID - Case Management	3000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
VCIDThreatAgainstPolice.nsf	2008	CID - Case Management	Case Management	CID - Case Management	1000	No		Unknown	
VCSearcher.nsf	2010	Searcher Database	Search Specific crime databases	CID - Search crimes	250000	Yes	Integrated with other Case Management, Searches and Statistics Databases	Unknown	
VWContact.nsf	2017	Victim / Witness Contacts	Track contacts	CID - Track contacts	3500	No		Unknown	
WarrantEntry.nsf	2007	Warrants	Track Warrants Issued	Central - Track Warrants	50000	No		Unknown	
WDDDUOvertime.nsf	2015	WD DDU Overtime	Track OT	WD Track Overtime	500	No		Unknown	

Database Name	Date Added	Notes		What data is stored	# records				
writtendirectives.nsf (archives)	2015	Track the Written Directive process	Directives	Track the Directives Process	2000	No		Unknown	
							Integrated with other Case Management, Searches and Statistics Databases	Unknown	
Eleven (11) LIMS databases	2002	LIMS Test Results PDFs	LIMS Reports	All BPD - LIMS PDF Reports	1000000	No		Unknown	
Exparte	2003	Track Expartes	Expartes	All BPD - Expartes	250000	No		Unknown	Syncs nightly with a copy on the BPDDomino server
Officer Performance (Personnel)	1998	Personnel Assignments	Personnel	All BPD - Lookups		Yes	Integrated with other Case Management, Searches and Statistics Databases		Import from Oracle every night. Syncs nightly with a copy on the BPDDomino server

Lotus Approach

Lotus Approach: Database Name	Notes	Date Added	What data is stored?	Primary Business Group / Use	# of records as of Jan 2018	List all other databases that store this data and why.
Exparte/Protective Order Tracking	Decided at the time that BPD didn't want to mix orders with warrants.	1999	Exparte, Protective Orders, & Peace Orders	Warrant Section	Unknown	
Criminal Summons		2002	Court Summons	Warrant Section	Unknown	
Incident Index - Name Search	Database is read-only. This is an old historical file.	2001	Historical Offense Data 1987 - 1999 (CC#,Vict. Name, Inc. Date, Inc. Code)	RMS - Hot Desk	3,306,617	

Commissioner's Complaint	Not sure if database is being used.	1996	Commissioner's Office Project/ Request Tracking	Commissioner's Office	Unknown	
Commissioner's Office Overtime	Not sure if database is being used.	2001	Commissioner's Office Overtime Tracking	Commissioner's Office	Unknown	
Crime Watch Program		2003	Crime Watch participants	Comm. Collaboration Div.	17,942	
Medical	Database was originally designed for sworn personnel tracking, with emphasis on LOD injuries, but through the years, it's being used to track civilians, as well.	2003	Employee Medical Tracking	Communications Unit	37,873	Medical Database-Oracle Forms & Reports
Fugitive / Detainer Database		2006	Fugitive & Detainer Tracking	WATF	Fugitive-5,090; Detainer-9,797	
Personnel-Recruitment Tracking		2008	Recruitment Tracking	HR-Recruitment	54,413	
Southern District Complaint Database		2010	Southern District Complaint Tracking	Southern District	Unknown	
The following are not databases or are not in use:						
Warrant Inventory	**DISCONTINUED.** Dead database, was moved to InPursuit.					
Overtime	**DISCONTINUED**					
DRUG666	**DISCONTINUED**					
Comm. Tech Work Orders	**DISCONTINUED**					
Staffing Analysis	**DISCONTINUED**					
Bicycle Registration Database	**DISCONTINUED**					
Vehicle Hold Database	**DISCONTINUED**					
Special Alert Crime Analysis	**DISCONTINUED**					
Cell Phone Tracking Database	**DISCONTINUED**					
Admin Bureau Tracking System	**DISCONTINUED**					
Camera Stats Database	**DISCONTINUED**					
Citywide Light Towers	**DISCONTINUED**					
ECU Tracking Database	**DISCONTINUED**					

Suspensions Database-Patrol	**DISCONTINUED**					
Suspensions Database-Admin	**DISCONTINUED**					
Separation Database	**DISCONTINUED**					
Patrol Quality of Service	**DISCONTINUED**					
Survey Database	**DISCONTINUED**					
Radio Database	**DISCONTINUED**					
Risk Management Database	**DISCONTINUED**					
Cadets Database	**DISCONTINUED**					
Victim Assistance Survey Database	**DISCONTINUED**					
ARR 2002.apr	UNKNOWN DATABASE					
ARR 2003.apr	UNKNOWN DATABASE					
ARR 2004.apr	UNKNOWN DATABASE					
ARR 2005.apr	UNKNOWN DATABASE					
ARR 2006.apr	UNKNOWN DATABASE					
ARR 2007.apr	UNKNOWN DATABASE					
Arrest Data From Comstat Run 2008.apr	UNKNOWN DATABASE / using as a code table					
Arrest Data From Comstat Run 2009.apr	UNKNOWN DATABASE					
Arrest Data From Comstat Run 2010.apr	UNKNOWN DATABASE					
Arrest Data From Comstat Run 2011.apr	UNKNOWN DATABASE					
Arrest Data From Comstat Run 2012.apr	UNKNOWN DATABASE					
Arrest Data From Comstat Run 2013.apr	UNKNOWN DATABASE					
Arrest Data From Comstat Run 2014.apr	UNKNOWN DATABASE					
Network Recidivist Database.apr	UNKNOWN DATABASE					

Other

Type	Application/ Database Name	Used?	Database? Check if Yes.	What data is stored?	Where is the data stored?	Primary Business Group / Use	Database Administrator (if not IT specify who)	Does database interface with other information systems? (Yes/No)	If Yes, note how and with what systems?
External ms-sql databases accessed via dblinks:	JDDCT	Yes		State	State	State of MD	State of MD		
External ms-sql databases accessed via dblinks:	PD51_Data (Court Summons)	Yes		State	State	State of MD	State of MD		
External ms-sql databases accessed via dblinks:	Police_CivilCitations	Yes		We use a link to pull Police Civilcitations from the MOIT DB	MOIT	Baltimore city	Baltimore City		
External ms-sql databases accessed via dblinks:	WarRoom								
External ms-sql databases accessed via dblinks:	Finance_parking fines	Yes		Police Officer Summons	MOIT	Baltimore City	Baltimore City		
External ms-sql databases accessed via dblinks:	BaltimorePD_	Yes		Ibase app data	BPD	BPD	BPD		
External ms-sql databases accessed via dblinks:	Police_sheriffWarrants			Sherriff Warrants	MOIT	Baltimore City	Baltimore City		
External ms-sql databases accessed via dblinks:	DWLIVE			CAD DATA	MOIT	Baltimore City	Baltimore City		
External ms-sql databases accessed via dblinks:	Command_DWLIVE (CAD Data) Warehouse)								

External ms-sql databases accessed via dblinks:	Parole and Probation							
External ms-sql databases accessed via dblinks:	RCAS / LINX							
Custom Developed BPD Mobile Web Applications	GANG TRACKER							
Custom Developed BPD Mobile Web Applications	FIELD BASED REPORTING							
Custom Developed BPD Mobile Web Applications	UCR ARRESTS							
Custom Developed BPD Mobile Web Applications	CAD UNIT ACTIVITY							
Custom Developed BPD Mobile Web Applications	CAD MANPOWER							
Custom Developed BPD Mobile Web Applications	HOMICIDE WATCH BALTIMORE							
Custom Developed BPD Mobile Web Applications	FLEX CRIME MAPPER (Using ArcGIS Server)							
Custom Developed BPD Mobile Web Applications	G.O. POLICIES							
Custom Developed BPD Mobile Web Applications	VISUAL LANGUAGE ASSISTANT							
Custom Developed BPD Mobile Web Applications	LANGUAGE ID CARD							
Custom Developed BPD Mobile	Custom Apps in SharePoint							

Web Applications								
Other Custom Developed Applications	Adult Arrest Viewer							
Other Custom Developed Applications	Juvenile Arrest Viewer							
Other Custom Developed Applications	Incident Image Query							
Other Custom Developed Applications	Arrest Six Pack Viewer							
Other Custom Developed Applications	CBIF Arrest Identification							
Other Custom Developed Applications	Nickname Search from Arrests							
Other Custom Developed Applications	Parole and Probation							
Other Custom Developed Applications	Warrant, Parole, Sex Offender Search							
Other Custom Developed Applications	Court Scheduler Query							
Other Custom Developed Applications	Citation Image Query							
Other Custom Developed Applications	Warrant Service Attempts							
Other Custom Developed Applications	Patrol Daily Overtime							
Other Custom Developed Applications	Calls For Service Query							
Other Custom Developed Applications	Case Management Query							
External Data Apps	LINX							
External Data Apps	Digital Info Gateway (federated							

	search of BPD sources)							
External Data Apps	InterAct's Mobile Cop							
External Data Apps	InterAct's Pocket Cop							
External Data Apps	MD Case Search							
External Data Apps	MD State Dashboard (DPSCS)							
External Data Apps	Mobile CAD Web Query (CAD Reports)							
External Data Apps	Clear							
External Data Apps	NCIC							
External Data Apps	METERS (MD)							
External Data Apps	LIMS	Yes	Yes	Lab records	Starfruit Technologies	Laboratory	Starfruit Technologies	
	WinAce	Yes	Yes	Property records	Software Techniques	Evidence Control	Software Techniques	
External Data Apps	Maryland Image Repository System (MIRS)							
External Data Apps	Offender Watch (Sex Offenders)	Yes	Yes	Sex offender information	Watchsystems LLC	Special Investigations Section's Sex Offender Registry Unit		No
External Data Apps	GangNet							
External Data Apps	RAPID (MD state pawn)							
External Data Apps	Quest (juvenile warrants)							
3rd Party Data Applications	ArcGIS Desktop & Server							
3rd Party Data Applications	I2 linking software using the Ibase intel database	Yes	No			Intel Analysts / Investigators to display relationships between people and places.		

3rd Party Data Applications	IAPro & Blue Team for IAD	Yes	IAPro has a database. Blue Team is like the interface and data entered into it is stored in IAPro.	Use of Force, Complaints	IA Pro. Blue Team provides an interface for IA Pro.	Everyone can use - different levels of access and view. Use of Force unit to track force. OPR to track complaints.	Must use multiple systems at the same time, close and reopen systems, re-login, etc.	Yes	Manual. Data is looked at through multiple layers of manual reviews.
3rd Party Data Applications	E-Time (Finance)								
3rd Party Data Applications	ComStat Data Export								
3rd Party Data Applications	Judicial Dialogue								
3rd Party Data Applications	HRIS (Human Resources Information System)	Yes	Yes	Personnel Data		HR tracking of personnel data for City		No	
3rd Party Applications	Microsoft Office	Yes							
3rd Party Applications	Microsoft Outlook	Yes							
3rd Party Data Applications	E-Resources	Yes							

3rd Party Data Applications	eSOPH (Recruiting)	Yes	Yes	Applicant data to track their information/where they are in the process. Does not hold info for later parts of the process. Not sure if it can connect to InPursuit.	eSOPH	Recruitment			
3rd Party Data Applications	CCTV Data	Yes		CCTV footage for 28 days	FLIR Systems	CitiWatch			
3rd Party Data Applications	Shot Spotter (Safety Dynamics?)	Yes							
3rd Party Data Applications	BWC Data (Axon)	Yes	Yes	BWC video	Evidence.com	Patrol		No	
3rd Party Data Applications	PowerDMS	Yes	Yes	Training records, policies	PowerDMS	Department-wide for Best Practices Unit, Training Unit			
3rd Party Service	Lexis Nexus	Yes							
3rd Party Data Applications	Biometric Timekeeping	Yes	Yes	Timekeeping information	Kronos	To be deployed department-wide	Kronos		
	Tiburon Total Command CAD	Yes	Yes	Calls for service		Calls for service, officer dispatch	BCIT	Yes	InPursuit
	OpenLattice	Yes	Yes	Behavioral health reports	OpenLattice	BPD Crisis Response Team	OpenLattice		

Appendix B: BPD Data Matrix

The Data Matrix, completed under the first-year monitoring plan will "(1) inventory Consent Decree's express requirements related to data and information; (2) inventory the data and information substantially implicated by the Consent Decree's substantive requirements; (3) inventory the specific requirements of the Outcome Assessments (¶ 459); (4) inventory the requirements of the required Early Intervention system (¶317)."[68] As a living document, the matrix is subject to change over time. A version of the data matrix from March 13, 2018, was referenced in this technology study.

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[68] BPD Monitoring Team. (2018, February 16). *First-Year Monitoring Plan*. Retrieved from https://www.baltimorepolice.org/sites/default/files/General%20Website%20PDFs/FirstYearMonitoringPlan2-16-18.pdf

Appendix C: Methodology Detail

The National Police Foundation, in partnership with BPD, assembled an assessment team including a subject matter expert with extensive experience in law enforcement information systems and technology to produce this study.[69] The assessment team, comprising subject matter experts in law enforcement and technology, developed a comprehensive methodology to document and review BPD's use of technology.

The assessment approach involved two means of information gathering and collection: (1) on-site data collection and (2) off-site data collection and resource material review. Each method is described in more detail below. Based on the analysis of this comprehensive body of information, the assessment team developed the technology inventory and observations contained in this report.

On-Site Data Collection

The assessment team conducted three site visits in 2017 and 2018: October 3-5, 2017, January 16-19, 2018, and February 26-March 2, 2018. During these site visits, the assessment team conducted semi-structured individual interviews and observations of business processes and technologies used. The following are schedules from the site visits.

	Tuesday, October 3	Wednesday, October 4	Thursday, October 5
9:00	**Director and Project Manager**, ITS	**Director, Lieutenant, and others**, Human Resources	**Project Manager**, ITS
10:00		**Lieutenant**, Best Practices	**Major**, Recruitment & Staffing Section
11:00	**Lotus Notes Subject Matter Expert**, ITS	**Major, Lieutenant, Lieutenant, and others**, Records Management Section	**Lieutenant**, Body Worn Camera Unit
12:00			
13:00	**Director, Captain, and Sergeant,** Police Training Academy		

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[69] Full bios of assessment team members can be found in Appendix F.

14:00	**Major and Sergeant**, Homicide	**Major**, District Detective Section	
15:00	**Major**, Special Investigation Section	**Chief**, Forensic Science & Evidence Management Division	
16:00	**Deputy Commissioner**, Strategic Services		

	Tuesday, January 16th	**Wednesday, January 17th**	**Thursday, January 18th**	**Friday, January 19th**
9am	**Captain, Lieutenant, Lieutenant, Coordinator,** Use of Force Assessment Unit			**Supervisor and Crime Analysts,** WatchCenter
10am			**GIS Supervisor,** Mayor's Office of Information Technology	
11am		**Major,** Crisis Intervention Team	**Sergeant,** Comstat Unit	
12pm		**Chief,** Data and Technology Division		
1pm (13:00)	**Chief and others,** Office of Professional Responsibility		**Comstat Observation**	
2pm (14:00)		**Major,** Special Investigation Section	**Chief,** Data and Technology Division, **Major and others,** Records Management Section	
3pm (15:00)			**UCR Reporting Observation**	

	Monday, February 26th	**Tuesday, February 27th**	**Wednesday, February 28th**	**Thursday, March 1st**	**Friday, March 2nd**
8am					**Violence Reduction Initiative Meeting**
9am					
10am	**CAD Administrator and CAD Tech and PC Specialist,** MOIT, **Acting 911 Director,** Baltimore City Fire Department, and **Lieutenant,** BPD	**Northeastern District**	**Northern District**	**Central District**	**Project Manager,** ITS
11am	**CAD Demonstration** with Dispatch				**Eastern District**
12pm	**RMS Tour and Update**				
1pm (13:00)			**Western District**	**Director,** Officer Safety and Wellness Office, **Sergeant and Analyst,** Early Intervention Unit, **Officer,** Best Practices Unit	
2pm (14:00)		**Southeastern District**			
3pm (15:00)	**GIS Supervisor and Chief**			**Deputy CIO and others,**	

	Data Officer, MOIT			MOIT, **Director,** ITS	
4pm (16:00)			**Southern District**		
5pm (17:00)					

Off-Site Data Collection and Resource Review

The assessment team collected and reviewed relevant BPD policies, procedures, data, reports, and other documents provided by BPD. Each resource was reviewed to better understand BPD technology and information systems. Materials reviewed included the following:

- Departmental policies, procedures, memos, and requests for proposal
- System user guides and other related documentation
- List of database applications and information on their use
- Department and ITS organizational documentation
- Sample field reports
- Sample database-generated tables for reporting
- Sample Comstat packets and district preparation materials for Comstat

Appendix D: About the Assessment Team

As part of a Ford Foundation Technical Assistance grant, the National Police Foundation provided support, technical guidance, and collaboration with BPD to develop this technology study.

The National Police Foundation is a national nonmember, nonpartisan, nonprofit organization that has been providing technical assistance and conducting innovative research on policing for over 45 years. From its inception, the National Police Foundation has understood that in order to flourish, police innovation requires an atmosphere of trust; a willingness to experiment and exchange ideas both within and outside the police structure; and, perhaps most importantly, a recognition of the common stake of the entire community in better police services.

National Police Foundation Assessment Team

Wendy Harn, Subject Matter Expert, provided technical expertise and guidance throughout the duration of this study. Ms. Harn spent more than 30 years with the Los Angeles County Sheriff's Department, last serving as Chief Data Officer for the Los Angeles County Sheriff's Department from 2015 to 2017. During her time with Los Angeles County, Ms. Harn developed the Sheriff's Department crime analysis program.

Blake Norton, Vice President and Chief Operating Officer, provided high-level strategy and coordination. Ms. Norton oversees the daily operations of the Police Foundation in its mission to improve American policing and enhance the capacity of the criminal justice system to function effectively. Prior to joining the Police Foundation in 2014, Ms. Norton was the Division Director for Local Government Initiatives at the Council of State Government's Justice Center. Before joining the Justice Center, she spent more than 19 years with the Boston Police Department, where her last position was as the Director of Public Affairs and community Programs. Ms. Norton helped shape the agency's reentry efforts and successfully worked with citizens and faith-based organizations to advance consensus-based strategies for improving public safety. She designed and managed the police department's community affairs activities, including programs for court-involved and at-risk youth. She received her B.A. from the University of Massachusetts and her M.Ed. from Boston University.

Jennifer Zeunik, Director of Programs, provided overall project structure and oversight. She worked with project staff in driving toward goals and deliverables and coordinated activity for the assessment team on- and off-site. She also served as a writer, editor, and quality control manager on the final report, ensuring report cohesion and clarity. Ms. Zeunik has 20 years of public sector and nonprofit program management experience, working closely with all levels of government. In her career, Ms. Zeunik has provided strategic management expertise to international, federal, state, and local criminal justice clients focused on justice policy research, business development activities, program management, strategic planning, training and

technical assistance management, and development of strategic communications. She served as a lead writer on numerous published reports throughout her career, including the *IACP National Policy Summit on Community-Police Relations: Advancing a Culture of Cohesion and Trust* report as well as the COPS Office-funded National Police Foundation *Collaborative Reform Initiative: An Assessment of the St. Louis County Police Department*, the San Bernardino Terrorist Shooting critical incident report, *Bringing Calm to Chaos*, and the incident review of the Orlando Pulse Nightclub shooting response, *Rescue, Response & Resilience*.

Joyce Iwashita, Project Assistant, provided on- and off-site project support as well as document writing, review, and editing. She supports projects such as Collaborative Reform, Critical Incident Reviews, and the Police Data Initiative. Before joining the Police Foundation, Ms. Iwashita supported the Herbert Scoville Jr., Peace Fellowship, and interned with the U.S. Senate, U.S. Department of Veterans Affairs, and National Criminal Justice Association. A Harry S. Truman Scholar, Ms. Iwashita received her B.A. in Economics from Lewis & Clark College in 2015 and is pursuing her M.A. in Security Studies from Georgetown University's School of Foreign Service.