FY 2019-2020 Virginia Beach Budget
Response to Council Questions

Question Number: FY 20 24

Question: Please provide a list of the issues reported by the various public safety departments related to the Integrated Public Safety Project and how each issue is being addressed.

Date Requested: February 26th, 2019

Requested By: Councilmember Wood

Department: Information Technology

Response: Please see the attached document listing Integrated Public Safety issues and the current status of fixes.

Motorola PremierOne CAD Update

Background

At 6:00 AM the morning of February 28, 2018, the City of Virginia Beach made the cutover from a 20-year legacy CAD system to Motorola's PremierOne CAD. As a direct result of this implementation:

- CAD uptime and stability have dramatically improved over the legacy system
- VBEMS and VBFD units are recommended and dispatched for calls based on the real-time location of fire trucks and ambulances, versus a static list of closest stations
- Many previously manual processes have been integrated into daily CAD operations, such as notifications (email and text) for public safety staff, integrated towing, electronic dissemination of "be on the lookout" (BOLO) broadcast information, and many more
- Police Officers no longer need to fight for airtime on busy radios to sign out on traffic stops.
- Automatic aid both to and from the fire departments in neighboring Chesapeake and Norfolk has been expanded
- Dispatchers have been able to streamline initial call triage on structure fires
- Map drive directions and call routing instructions are now available on Mobile CAD
- Officers on a call scene can be tracked, near-real time, using GPS data from their portable radio

Information sharing, situational awareness and responder safety have all been positively impacted by this new system, and these opportunities will continue to grow with new technology and integration capability over the life of this modern dispatch system.

Challenges

While the first year in many ways has been extremely successful, challenges remain. An entire workforce needed to adapt to a new system for the first time in twenty years. Training, procedural, and technical challenges all contributed to the increase in initial stress and frustration.

Both public safety and IT have worked diligently with Motorola, as well as internally over the course of this past year to systematically address these concerns. The major technical hurdles and mitigation strategy for each is detailed in this document. Motorola has addressed many CVB concerns and has integrated new features and fixes into the next version of the application. This version (4.4.1) will be deployed by IT at the end of March.

Over the course of the past year, CVB IT has resolved over 400 CAD help tickets. There are currently 43 active tickets, of which 29 are due to be resolved with the upgrade to CAD 4.4.1.
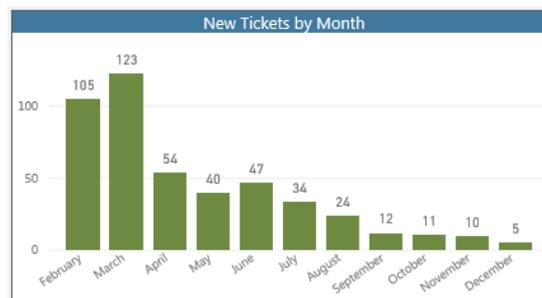
CAD-Specific Tickets from Cutover till December 2018

The overall trend has been positive, and with the upgrade of the system on the horizon, it should only continue.

Below provides a detailed breakdown of each major issue and the current status of those issues:

GIS Routing and Mobile Map Display
Several concerns have been raised by officials in each of the public safety agencies regarding the way the mobile display map functions, and the performance of the routing system.

Issue: Street labels and responding units would "flash" as they updated on the screen

Current Status: Street label flashing can be addressed starting with the implementation of PremierOne (P1) CAD 4.4.1, currently scheduled for the end of March 2019. CGIS is working with Public Safety IT staff and customer agencies to develop map "tiles", which will roll out in a phased approach following the upgrade. There is still room for improvement with these upgrades, but based largely on feedback from Virginia Beach, Motorola has begun completely rewriting their mobile CAD map system from the ground up for a future release.

Issue: The icon for the user's own unit would not remain centered on the map, but drive to the edge and then redraw the entire display

Current Status: Icon centering will be addressed with the implementation of P1 CAD 4.4.1.

Issue: Location and status of other units would not update in a timely manner

Current Status: Unit location settings and update frequency will be addressed with the implementation of P1 CAD 4.4.1.

Issue: Call routing inaccuracies when a business backed up to (for example) the interstate, or a residential structure was closer to a side street than the actual address

Current Status: Routing issues were mitigated by adjusting thousands of address points and business "common place" points in the GIS database. In a separate major effort, drive paths were added to thousands more residences and businesses throughout the city. This was completed in November 2018.

Inter-Agency Cases
Issue: For several operational and technical reasons, VBEMS and VBFD split their CAD configuration into two separate "agencies" to allow each department to make more granular decisions about their own resources independently. These decisions were made very late in the project, and concerns were just beginning to surface in the weeks leading up to cutover about the way the Mobile CAD displayed units from two separate agencies when responding jointly to calls. Users had to click to a separate screen to see the "associated" case details and units, rather than a single integrated view

Current Status: P1 CAD 4.4.1 now displays all units across each agency responding to these joint incidents, both within the incident summary and in a column on the map display.

Logon/Logoff Behavior, Mobile Connectivity & Performance
Issue: VBEMS and VBFD units occasionally report that they arrive at their mobile CAD workstation only to find that it is unresponsive and needs to be rebooted. Upon the reboot, it has been discovered that P1 CAD would often keep the old assigned crew data and added any new members without removing

anyone still logged in before the reboot. This would typically be discovered at shift change, with the ultimate result that the addition of the oncoming shift would display the unit with 7 or 8 firefighters, for example

Current Status: This issue is fixed with a new "crew check" feature at login in Motorola P1 CAD 4.4.1. Users will be prompted to confirm the already-assigned crew members in the system at login.

Issue: Users have reported that P1 mobile CAD was losing its connection to the server

Current Status: Thousands of hours of investigation by Motorola and CVB IT resources have not completely addressed this issue. Verizon Wireless network data, thousands of gigabytes of P1 CAD server and mobile workstation logs, Windows event logs and other data have all been reviewed, but a root cause has not been determined. There is currently little to no visibility into specific connection loss events, although common denominators are often entry into the station bay or lengthy idle time between use. Reports of connection loss dropped significantly over the last six months, but word of mouth continues to hint that the problem exists, and users are no longer reporting it.

Issue: Mobile CAD workstation performance has repeatedly been described as slow. The MW810 workstations in public safety vehicles across the city meet the specifications required by Motorola but are nearing the end of their lifecycle

Current Status: Efforts were made to troubleshoot specific network latency concerns and performance, including upgrading the operating system to take advantage of the additional memory that would become available. The role of mobile connectivity in this issue is difficult to measure. The new CAD system places a higher burden on the system resources of the existing hardware, but the application does continue to run and respond to commands without issue. Extensive performance testing in police cars and fire trucks demonstrate that mobile CAD performance is adequate for daily operations, with the caveat that future hardware upgrades may also improve overall speed

Incorrect Recommendations
Issue: After go-live, the transition to GPS-based dispatching, the new split agency VBEMS and VBFD responses, incorrect ETAs for call recommendations due to routing issues, and a complex set of attributes called capabilities (which are assigned to each unit in the system to distinguish which resources are sent to each call type) all contributed to concerns that the right units were not being recommended to all calls

Current Status: While a significant part of this issue stems from the monumental shock associated with a shift to GPS-based dispatch, improvements to the GIS routing network have had a large impact on the quality of initial call recommendations. Additionally, IT resources working with Motorola were able to identify a bug in P1 CAD that involved unit capabilities being stripped from a logged-on firetruck. Motorola provided a patch to the system that resolved the issue.

Major Features of PremierOne CAD and Mobile CAD 4.4.1
- Proactive recommendations by incident or unit – system will re-evaluate pre-arrival units assigned to the incident against all other units that are available (example: ambulance clears from the hospital and is closer than a unit already responding to a call; system can show the dispatcher the closest unit to proactively improve the response time)
- Skills search (dispatcher can rapidly find a Spanish-speaking officer or crime-scene tech)

- Status monitor profiles saved to user (dispatchers and field units can save their preferred screen setups)
- Entry of latitude/longitude in degrees/decimal minutes (improves interoperability with Coast Guard)
- New distribution options for "hot hits" in NCIC/VCIN/Pistol (improves situational awareness when an officer encounters a wanted suspect or stolen vehicle)
- New options for external notifications
- Interface development for RapidSOS (improves wireless 911 location accuracy)
- Scheduled Road Closure capabilities (also on mobile)
- Ability to tailor the available fields on the login screen
- "Crew Check" at mobile login when other users are already assigned to the unit
- Mobile UI Customization by Role (a fire investigator can have a completely different mobile interface than a battalion chief)
- Map Display changes
  - Associated units/cases
  - Incident Comments beside the map
  - Actionable/Clickable premise hazard records
  - Unit Chevron is centered
- Associated units displayed on incident summary screen
- Automatic Unit Status Changes
  - Uses telemetry and location information
  - Multiple variables (within 100' of jail and static for 5 minutes)
- Extended Mobile Client "Follow Me" Settings
- Tile Mapping