Colorado Department of Public Safety

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Annual Report to the Joint Budget Committee

on the

Colorado State Patrol's
Computer Aided Dispatch (CAD), Records Management System (RMS), Mobile Data Computers (MDC), and Maintenance

Executive Summary

This report describes past, current, and projected expenditures by the Colorado State Patrol (CSP) in the areas of Computer Aided Dispatch (CAD), Records Management System (RMS), Mobile Data Computers (MDC) and their Maintenance, from FY 2021-2026. The CSP utilizes a variety of technology platforms to deliver dispatch services, perform records management, and provide mobile situational awareness capabilities. As these technologies continue to evolve and mature, they require ongoing upgrades, maintenance, and replacement to ensure viability.

During FY 2021, the CSP accomplished technological upgrades to existing equipment in several areas. CSP completed transition to Next Generation 911 (NG911) at our three CSP dispatch centers that provide 911 services. Additionally, at every center, CSP transitioned to Motorola Premier One Computer Aided Dispatch (CAD) version 4.4. CSP also fielded GPS technology for handheld PACSET radios, which will display officer location information on the dispatcher's CAD screen. This is especially critical for ensuring officer safety during foot patrols around the Capitol Complex area, and when officers are dismounted / away from their vehicle / pursuing suspects on foot. Finally, technological upgrades began at the two non-911 communications centers (Denver and Pueblo) to eventually bring them into the NG911 architecture and assume a 911 capability. This will ensure all Centers keep pace with next-generation information technologies, ensure greater interoperability, and ensure better continuity / redundancy of service and support for our three 911 centers. Also in 2020, the State Patrol upgraded the NicheRMS to Version 6.01 and added the new DR3447 Crash Report to the NicheRMS. District 1-5 troopers began field acceptance of the myColorado Digital ID. Finally, over 100 MDCs were replaced with newer models of the Panasonic CF-33 Toughbook.

To ensure uninterrupted public safety communications service, each CSP Communications Center requires a redundant network and phone infrastructure path. Lack of this redundant path frequently results in extended outages (up to 48 hours) when the single path is compromised or severed. These repeated long duration outages at several locations throughout the state necessitated further exploration of how to mitigate the challenge. This project, currently in the technological planning phase, would ensure fewer long duration outages.   Planning also began for a mobile CAD handheld capability for Troopers, to enhance operations and public safety.

Computer Aided Dispatch

The CSP recently upgraded to the Motorola Premier One Computer Aided Dispatch (CAD) system version 4.4. This system is an essential element of the Communications Branch's emergency communications suite and:

- Logs all incoming requests for service from both citizens and partner agencies
- Electronically dispatches resources to fulfill requests for service
- Tracks people, resources, events, and incidents
- Logs abandoned vehicles and motorist assists processed by Troopers

- Retains historical data on services and actions for fee for service billing and records

Using this system, the CSP Communications Branch is able to provide Computer Aided Dispatch services for several divisions within the Department of Public Safety, and a large and wide variety of federal, state, county, and local public safety partners. In total, the CSP Communications Branch provides communication services for 59 agencies (Federal, State, and Local) in Colorado.

In FY22, the CSP will migrate to version 4.6, as part of the existing service and maintenance contract with Motorola. This upgrade brings significant improvements to mission functionality, including enhanced Geographic Information System (GIS) data, additional data storage, and audio and visual cues to the communication officer. Additionally, CSP plans to procure and field a handheld / wireless CAD capability for officers, improving their situational awareness when out of the vehicle, improving their ability to interact with the public using e-Colorado apps, and aid in the efficient collection and dissemination of photographic evidence.

Records Management System

The CSP currently utilizes Niche for our Records Management System (RMS). First implemented in 2018, the Niche system serves as a central records management tool that records the following in its database:

- Traffic stops initiated by CSP Troopers
  - o Collection of this data satisfies statutory requirements for racial profiling data collection and reporting
- Traffic crashes investigated and reported by CSP Troopers
  - o The collection, reporting, and transmission of this crash data to the Colorado Department of Revenue (DOR) satisfies statutory requirements and provides important data for statistical analysis that leads to strategic planning and resource deployment decisions
- The first phase of the Niche RMS implementation established the following:
  - o The development and use of the electronic crash form (currently the DR2447), to include an approval workflow mechanism
  - o The development and use of the traffic stop form
  - o The development and use of a fully functional interface with DOR to electronically transmit crash report data
  - o The creation and use of the interface from Computer Aided Dispatch (CAD) to Niche – enabling the RMS to receive incident data that has been entered into CAD
  - o The creation and use of a data warehouse into which Niche feeds its data
    - ▪ The creation and use of statistical reports is then pulled from the data warehouse, as Niche itself cannot generate statistical reports

- The next phase of the Niche RMS is intended to incorporate the following in FY20/21:
  - A new version of the Colorado Department of Revenue (DOR) crash report

- Latitude/longitude data for increased accuracy and use in crash mapping. This advancement will create a visual tool for Troopers and supervisors to more appropriately deploy resources
- The ability for Troopers to scan driver licenses and vehicle registrations into the Niche RMS via a new CF-33 mobile data computer platform (MDC). Scanning is anticipated to save time, increase accuracy, and allow Troopers to scan the new MyColorado App mobile driver's license

The Department of Revenue, in conjunction with the State Traffic Records Advisory Committee, has recently developed a new crash reporting form, identified as the DR3447. The new form adds additional required data points, to be consistent with new National Highway Traffic Safety Administration (NHTSA) Model Minimum Uniform Crash Criteria (MMUCC) guidelines. Law enforcement agencies had until approximately October 1, 2020 to begin submitting crash information on the new DR3447 form. This necessitated a complete redesign of the crash form by Niche RMS. Testing, development of a new Niche to DOR interface, agency-wide training, and full deployment all needed to be completed prior to this date.

The data gathered from the current and future crash reporting forms are analyzed for intelligence-driven resource deployment and enforcement strategies. The accurate and timely collection and interpretation of crash data allows the CSP and other data users at the local, state, and federal levels to address changes to the traffic safety environment, with the ultimate goal of saving lives on our highways. Incorporating these advanced technology options will improve, and better inform, resource deployment decisions and traffic safety initiatives.

In 2020 the State Patrol upgraded the NicheRMS to Version 6.01 and added the new DR3447 Crash Report to the NicheRMS. The Records Data Warehouse (RDW) was updated with new fields and the DRIVES interface to submit DR3447 Crash Reports to the Department of Revenue (DoR). The last update to the crash report was in 2006 and much had changed. The build added fields and selections to help account for a growing number of non-motorists, increased distractions due to mobile phones and electronic devices, autonomous vehicles emerging on the roads, and Colorado's legalization of marijuana. There is a continued trend across the United States to gather a more uniform set of crash data and this build helps the State meet this requirement. This build added search fields in support of Colorado Senate Bill 20-217 to enhance law enforcement integrity. The build also added a visual media identifier field to support Records in identifying visual media captured at the crash site.

Additionally, in early 2021, CSP added fields to support the reporting requirement of SB20-217, Enhanced Law Enforcement Integrity; added a visual media identifier field for Central Records to identify the increased types of visual media captured at a Crash Site; and developed an incident Mapper (IM) app with OIT to improve the accuracy of location-based data into the RMS system.

On October 30, 2019, Governor Polis signed Executive Order B 2019 013 and released the myColorado mobile app with Colorado Digital ID. The app's "contact-free" Digital ID feature enables Coloradans to set up a secure electronic version of their driver license or state identification card on their cell phone as legal proof of identity, age, and address within the state. The executive order encourages, but does not require, "local law enforcement agencies to accept Colorado Digital ID by November 30, 2020, to allow for cross-jurisdictional use of Colorado Digital ID and Mobile Driver License in law enforcement and public safety situations." myColorado is a collaborative project between the Governor's Office, Office of Information Technology (OIT), Department of Revenue (DOR), Division of Motor Vehicles (DMV) and Colorado Department of Public Safety. OIT has been refining a process for law enforcement to use when a Colorado driver presents a Digital ID on their cell phone

within the myColorado mobile app instead of a physical driver license. The Law Enforcement Portal is accessed via the trooper's mobile digital computer (MDC). On November 30, 2020, District 1-5 troopers begin field acceptance of the myColorado Digital ID.

Mobile Data Computers

 The CSP's MDC program currently utilizes the Fujitsu Q704 tablet and the Panasonic CF-33 Toughbook tablet. The Fujitsu MDC's are at their end-of-shelf life, are all out of warranty, and are no longer in production.   The Panasonic CF-33 Toughbook is a modern, ruggedized device that addresses the concerns identified with the Fujitsu tablet. The CF-33 Toughbook also has an internal modem, which will allow Troopers to use the device in a fully connected state outside of its in-car docking station. This flexibility will enable greater functionality of the units as Troopers complete their duties/investigations at other venues; such as within correctional facilities, hospital emergency rooms, towing yards, etc.

In October 2019, the CSP took delivery of 212 new Panasonic CF-33 Toughbook's and complementing hardware (in-car docking stations, power supplies, wiring harnesses, etc.). This allowed the decommissioning of some of the Fujitsu MDC's currently in service. In subsequent FY's, the CSP plans to acquire the remaining required CF-33 Toughbook's, until all 575 Fujitsu MDC's have been replaced.

Since October of 2019, we have continued to replace the Fujitsu MDC's with the Panasonic CF-33 Toughbook's and associated hardware. We currently have 163 Fujitsu MDC's in the field to cycle out as the cars are replaced and have projected the final replacement to occur in August of 2022.

Maintenance

Maintenance requirements include computer hardware and server reliability for both CAD and Niche RMS, maintenance of MDC's, generator maintenance to ensure reliable back-up power, and the repair/replacement of ancillary devices, and universal power supplies.   CAD specific software and hardware maintenance is covered in the current upgrade contract for a period of five (5) years, and can be extended. This maintenance contract covers 24/7 software technical support and 24/7 hardware technical support from HP and Motorola. Niche RMS software and system support are covered under a maintenance agreement which is funded from the CSP Information Technology (IT) budget. MDC hardware is supported through manufacturers' warranties. Software technical support for MDC's is provided through OIT desktop support resources embedded within CDPS.

Mission Critical Equipment and Interfaces

Mission critical equipment to connect and provide services from CAD, RMS, and MDCs far CSP exceeds the narrow list on which this budget line item focuses. The list includes: Mobile Radios, Handheld Radios, and Communications Center Radios (and encryption capabilities); 911 and Administrative Phones; the CAD systems

ancillary information technology equipment, hardware, and software; facilities for dispatching; and primary and alternate power supplies. Other critical equipment, not owned or maintained by CSP, include the voice communications, internet, and wireless networks provided by commercial vendors, the Digital Trunked Radio (DTR) system provided by the Office of Information Technology (OIT), and CDPS servers and network, managed by OIT. Critical technological interfaces include the following: the MDC / NetMotion interface; the RMS / CAD interface; the MDC / CAD and RMS interfaces; Automatic Number Indicator / Automatic Location Information (ANI/ALI) provided by commercial phone vendors; interfaces with the Colorado Department of Revenue (DOR) for driver's license and registration scanning; interfaces with the Colorado Department of Transportation (CDOT) for traffic camera feeds; Reverse 911; the Integrated Public Alert and Warning System (IPAWS); Active 911; and the telephone/radio digital voice recording system at each Center. Additionally, the primary interface for all CSP Communications Centers is Building 690 at the Lakewood/Kipling campus. This building houses all CDPS servers, and is the sole access point to communicate with E-Fort. Additionally, Building 690 and the Denver Communications Center share a common primary and alternate power supply.

Projects Completed in FY 2021

- Each of the five regional communications centers (Denver, Pueblo, Alamosa, Montrose, and Craig) and the Executive Security Unit (ESU) communications center received upgraded network switches, CAD computer stations, and ancillary devices supporting the fielding of Motorola Premier One CAD version 4.4.

- Maintenance contracts for all systems were continued to ensure a stable and dependable operating platform for each system. Additionally, an annual review was conducted for equipment replacement life cycles. This helped ensure the CSP is prepared to replace equipment before it fails, but not before it is needed.

- Initial technology upgrades were completed to set the foundation for the eventual transition to NG911 capabilities at all three Public Safety Answering Point (PSAP) dispatch centers operated by the Colorado State Patrol.

- GPS technology was added to all handheld PACSET radios, which will display officer location information on the dispatcher's CAD screen.

- Encryption and interoperability by other agencies has emerged as an unplanned challenge. As partner agencies in the Denver Metro area procure different radio encryption technologies, the Patrol, to maintain mission critical communications interoperability with partner agencies must consider procuring common encryption technologies and upgrade radios to ensure uninterrupted communication abilities.

- The second of three phases of CF-33 MDC laptop replacements have been purchased and have been fielded.

- A new contract that includes an upgrade and continued maintenance and support of the Niche RMS system is in progress. This contract will support new development and enhancements trough v5.05 and v6.0, as we transition to the development of the new DR3447 crash report, and we are currently in the beginning stages of this development with a deployment scheduled in FY 2020.

- Handheld CAD devices for all Troopers will be purchased and fielded.

Information Technology Asset Maintenance	FY 2021 Budgeted Dollar Amounts
CAD / Motorola Premier System Maintenance	401,209.00
Server Equipment and Mx	50,000.00
Computer Equipment	25,000.00
Computer Software and Licensing	10,000.00
Hardware Repair	10,000.00
CAD Printer Cartridges	10,000.00
CAD Printers	20,000.00
GIS Software Refresh - ESRI	25,000.00
Licensing / Insight	2,000.00
DSS Voice recorder Maintenance / Equature	50,743.00
UPS - Hardware Maintenance and Batteries / Various	10,000.00
Generator Maintenance / Various	25,000.00
Desks and Accessories Repair / Replace	25,000.00
CAD SysAd Travel	2,000.00
RMS / Niche	211,400.00
Easy Street Draw	12,500.00
MDC Replacement and Keyboards	180,000.00
MDC Mobile Printers	25,000.00
Printer Cartridges	4,000.00
Cell Phone / Modem / MDC	330,000.00
Phones / Centers / Network	30,000.00
GPS for PacSets (Display in CAD)	100,000.00
Denver / Pueblo 911 capable	500,000.00
HVAC 2nd Floor Server/Circuit Closet Bldg 700	50,000.00
Redundant Comm Path for PSAPs (COMCAST/Mammoth)	100,000.00
Handheld Device with Mobile CAD and Net Motion	680,000.00

TOTALS	2,888,852.00

Projects, both underway and planned for FY 2022

- Migration to CAD version 4.6.

- The third of three phases of CF-33 MDC laptop replacements will be purchased and fielded.

- Maintenance contracts for all systems will be continued to ensure a stable and dependable operating platform for each system.

Information Technology Asset Maintenance	FY 2022 Projected Dollar Amounts
CAD / Motorola Premier System Maintenance	400,000.00
Server Equipment and Mx	50,000.00
Computer Equipment	25,000.00
Computer Software and Licensing	10,000.00
Hardware Repair	10,000.00
CAD Printer Cartridges	10,000.00
CAD Printers	20,000.00
GIS Software Refresh - ESRI	25,000.00
Licensing / Insight	2,000.00
DSS Voice recorder Maintenance / Equature	50,743.00
UPS - Hardware Maintenance and Batteries / Various	10,000.00
Generator Maintenance / Various	25,000.00
Desks and Accessories Repair / Replace	25,000.00
CAD SysAd Travel	2,000.00
RMS / Niche	211,400.00
Easy Street Draw	12,500.00
MDC Replacement and Keyboards	180,000.00
MDC Mobile Printers	25,000.00
Printer Cartridges	4,000.00
Cell Phone / Modem / MDC	330,000.00
Phones / Centers / Network	30,000.00
GPS for PacSets (Display in CAD)	100,000.00
Denver / Pueblo 911 capable	500,000.00

Redundant Comm Path for PSAPs (COMCAST/Mammoth)	100,000.00
Handheld Device with Mobile CAD and Net Motion	282,000.00
TOTALS	2,438,900.00

Planned Projects for FY 2023

- Maintenance contracts for all systems will be continued to ensure a stable and dependable operating platform for each system.

- Niche RMS will continue to be further developed and enhanced as needed, to include research and development into an eTicket capability for the CSP.

Information Technology Asset Maintenance	FY 2023 Projected Dollar Amounts
CAD / Motorola Premier System Maintenance	400,000.00
Server Equipment and Mx	50,000.00
Computer Equipment	25,000.00
Computer Software and Licensing	10,000.00
Hardware Repair	10,000.00
CAD Printer Cartridges	10,000.00
CAD Printers	20,000.00
GIS Software Refresh - ESRI	25,000.00
Licensing / Insight	2,000.00
DSS Voice recorder Maintenance / Equature	50,743.00
UPS - Hardware Maintenance and Batteries / Various	10,000.00
Generator Maintenance / Various	25,000.00
Desks and Accessories Repair / Replace	25,000.00
CAD SysAd Travel	2,000.00
RMS / Niche	211,400.00
Easy Street Draw	12,500.00
MDC Replacement and Keyboards	180,000.00
MDC Mobile Printers	25,000.00
Printer Cartridges	4,000.00
Cell Phone / Modem / MDC	330,000.00
Phones / Centers / Network	30,000.00
GPS for PacSets (Display in CAD)	100,000.00
Denver / Pueblo 911 capable	500,000.00

Redundant Comm Path for PSAPs (COMCAST/Mammoth)	100,000.00
Handheld Device with Mobile CAD and Net Motion	282,000.00
TOTALS	2,438,900.00

Planned Projects for FY 2024

- Maintenance contracts for all systems will be continued to ensure a stable and dependable operating platform for each system.

- All audio recording equipment in our communication centers will begin to be replaced, as the current equipment life cycles start to expire.

- Niche RMS will continue to be develped and enhanced as appropriate and required.

Information Technology Asset Maintenance	FY 2024 Projected Dollar Amounts
CAD / Motorola Premier System Maintenance	400,000.00
Server Equipment and Mx	50,000.00
Computer Equipment	25,000.00
Computer Software and Licensing	10,000.00
Hardware Repair	10,000.00
CAD Printer Cartridges	10,000.00
CAD Printers	20,000.00
GIS Software Refresh - ESRI	25,000.00
Licensing / Insight	2,000.00
DSS Voice recorder Maintenance / Equature	50,743.00
UPS - Hardware Maintenance and Batteries / Various	10,000.00
Generator Maintenance / Various	25,000.00
Desks and Accessories Repair / Replace	25,000.00
CAD SysAd Travel	2,000.00
RMS / Niche	211,400.00
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MDC Replacement and Keyboards	180,000.00
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Printer Cartridges	4,000.00
Cell Phone / Modem / MDC	330,000.00
Phones / Centers / Network	30,000.00

GPS for PacSets (Display in CAD)	100,000.00
Denver / Pueblo 911 capable	500,000.00
Redundant Comm Path for PSAPs (COMCAST/Mammoth)	100,000.00
Handheld Device with Mobile CAD and Net Motion	282,000.00
TOTALS	2,438,900.00

Planned Projects for FY 2025

- Maintenance contracts for all systems will be continued to ensure a stable and dependable operating platform for each system.

- We will continue our annual review of the plan for equipment replacement cycles. To include MDC connectivity, replacement, installation, and maintenance.

- A new, yet-to-be-developed MDC replacement plan, will be in its first phase of purchasing a deployment, if said plan continues on a three-year cycle, which has yet to be determined.

- Niche RMS will continue to be develped and enhanced as appropriate and required.

Information Technology Asset Maintenance	FY 2025 Projected Dollar Amounts
CAD / Motorola Premier System Maintenance	400,000.00
Server Equipment and Mx	50,000.00
Computer Equipment	25,000.00
Computer Software and Licensing	10,000.00
Hardware Repair	10,000.00
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Handheld Device with Mobile CAD and Net Motion	282,000.00
TOTALS	2,438,900.00

Planned Projects for FY 2026

- Maintenance contracts for all systems will be continued to ensure a stable and dependable operating platform for each system.

- We will continue our annual review of the plan for equipment replacement cycles. To include MDC connectivity, replacement, installation, and maintenance.

- A new, yet-to-be-developed MDC replacement plan, will be in its second phase of purchasing a deployment, if said plan continues on a three-year cycle, which has yet to be determined.

- Niche RMS will continue to be develped and enhanced as appropriate and required.

Information Technology Asset Maintenance	FY 2026 Projected Dollar Amounts
CAD / Motorola Premier System Maintenance	400,000.00
Server Equipment and Mx	50,000.00
Computer Equipment	25,000.00
Computer Software and Licensing	10,000.00
Hardware Repair	10,000.00
CAD Printer Cartridges	10,000.00
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TOTALS	2,438,900.00

Conclusion

These plans and projects reflect the CSP's continued commitment to enhance the mission critical technologies that give our agency the ability to stay relevant and responsive to our customers so we continue to make travel on our highways safer for our residents and visitors. We will continue to strive to balance the requirements to stay technologically relevant and interoperable within the constraints of our fiduciary duty to taxpayers, and appreciate the continued engagement, support and commitment to Public Safety by the Joint Budget Committee.