

Fiscal Year 2021-22 Information Technology Request

Judicial R-03 IT Infrastructure

SHORT PROJECT DESCRIPTION

The Judicial Department (department) is requesting a total of \$33.2 million in federal funds the state has received under the American Rescue Plan Act (ARPA) over the next four fiscal years for various information technology (IT) infrastructure upgrades needed to help the department respond to changes in its operations first brought on by the COVID-19 pandemic.

This request includes \$9.1 million, which the department has submitted as a supplemental budget request for FY 2021-22. The Joint Budget Committee (JBC) has asked the JTC to review this portion of the request and provide recommendations back to the JBC as part of the supplemental process. The request also includes \$8.5 million for FY 2022-23, which the JBC has asked the JTC to include in its prioritization process of IT Capital projects for FY 2022-23 (R-03 IT Infrastructure).

The JBC has also asked the JTC to review the department's FY 2022-23 R-02 operating budget request for additional IT staff, which is described in the Additional Project Information section below.

PRIOR APPROPRIATION AND REQUEST INFORMATION

| <u>Fund Source</u> | <u>Prior Approp.</u> | <u>FY 2021-22</u> | <u>FY 2022-23</u> | <u>Future Requests</u> | <u>Total Cost</u> |
|--------------------|----------------------|--------------------|--------------------|------------------------|---------------------|
| ARPA | \$0 | \$9,073,128 | \$8,541,863 | \$15,589,527 | \$33,204,518 |
| Total | \$0 | \$9,073,128 | \$8,541,863 | \$15,589,527 | \$33,204,518 |

PROJECT STATUS

This is a new, never before requested project.

PROJECT DESCRIPTION

The Judicial Department is requesting a total of \$33.2 million in federal funds the state has received under ARPA over the next four fiscal years for various IT infrastructure upgrades. These upgrades are broken down into seven individual project components.

SDWAN. The department plans to implement a technology called Software Defined Wide Area Network (SDWAN), as well as soliciting a secondary internet service provider to provide Direct Internet Access (DIA) to all court locations.

AV infrastructure. The department plans to upgrade the audio/visual (AV) equipment in over 450 courtrooms and proceedings spaces throughout the state. The department plans to upgrade roughly 60 courtrooms per year, prioritizing courtrooms based on need.

Webex. The department has licensed Webex for all of its full-time employees, including a larger capacity of planned audio call minutes.

Network infrastructure. The department plans to obtain necessary hardware to support increased bandwidth. This hardware will include: switches, routers, wireless access points, uninterruptable power supplies, analog to SIP phone gateways, patch cables, and professional services and cabling contractors.

Data center hardware. The department plans to upgrade network routers and firewalls that are end of-life at the department's two data centers (the OIT-maintained Lakewood Data center and the Ralph L. Carr data center onsite). The department also plans to introduce new architecture that will streamline internet edge routing and add more security to the Demilitarized Zone (DMZ) design.

Disaster recovery. This funding would be used to cover the cost for the department to manage its own edge internet access, security controls, and domain name system services, and away from control of department systems by the Governor's Office of Information Technology (OIT).

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Security. The department plans to move towards a “zero-trust” architecture, which, according to the department, is a strategic initiative that will help prevent successful data breaches by requiring all users, whether in or outside the organization’s network, to be authenticated, authorized, and continuously validated for security configuration and posture before being granted or keeping access to applications and data.

PROJECT JUSTIFICATION

According to the department, the COVID-19 pandemic has accelerated the department’s use of remote court hearings, remote probation meetings, working from home, and other operational changes, which has strained the capacity of the department’s IT infrastructure. This request seeks to address these issues. These changes have included virtual court hearings and probation meetings, which the department anticipates will continue after the pandemic since the department has found an increase in the number of people who show up for their hearings and are able to participate due to the ease of participating remotely compared to traveling to a courthouse. Additionally, probation officers are able to see more probationers quickly and more often without the need for travel or difficulties with scheduling.

SDWAN. All of the virtual activities taking place at court and probation facilities rely on adequate internet. However, the department has experienced outages and cessation of court activities on numerous occasions due to saturation in the department’s available bandwidth. Implementing SDWAN allows for network traffic to flow through multiple network connections, providing network backup capabilities and increased bandwidth.

AV infrastructure. The majority of the department’s AV systems statewide are nearly a decade old and do not meet today’s standard lifecycle replacement schedule. These systems regularly break, which creates courtroom outages and delays that result in costly repairs and maintenance, in addition to logistical issues resulting from needing to reschedule proceedings. Currently, the department’s AV demand includes nearly 1,000 hours of video conferences per day, 17,500 video conference meetings per month, and, 130,000 users who either schedule or participate in virtual court proceedings every month. Individuals reliant on adequate AV capabilities include: remote department staff and Judicial Officers; remote party participants including in-custody defendants; remote court reporters and interpreters; exponential growth of video conferencing technologies; increased use of telephones and instant messaging; increased use of digital evidence presentation; online viewings of proceedings by the public; and, need for social distancing and overflow rooms. The current department AV systems and software are too old and outdated to provide the functionality and compatibility that the department requires.

Webex. In response to the department’s increased need for virtual proceedings, the department requires additional Cisco Webex licenses. Given licensing options by Cisco, the department has licensed Webex for all of its full-time employees. The department is also requesting funding to include a larger capacity of planning audio call minutes with these licenses to help support access to justice by allowing participants an optional, cost-free way of using telephone calls to participate in Webex.

Network infrastructure. The department is requesting funding to replace a variety of network equipment across court and probation office locations to help provide connectivity to department online resources and the internet, while also connecting phones, AV systems, digital signage, docket monitors, guest wireless access, public access terminals, and district server infrastructure.

Data center hardware. The department currently uses the OIT-maintained Lakewood data center and the Ralph L. Carr data center to support department applications and networked services. Funding from this request will be used to replace data center components that are nearing end-of-life.

Disaster recovery. According to the department, OIT possesses ultimate control over the Judicial Department’s access to the internet and the department believes it is in its own best interest to take ownership of its domain and internet access. Additionally, OIT does not have the ability to upgrade the department’s data center bandwidth beyond two gigabytes, which restricts the department’s capacity to scale up and meet needed demand.

Security. As a result of the increased reliance on digital technologies to conduct department business, there is an increased need for these digital technologies and services to be secure. The department is experiencing increased network traffic, which has resulted in an increased risk of cyber security incidents. This increased risk necessitates increased network traffic monitoring and security measures. Up to 80 percent of network breaches experienced by the department are due to compromised credentials, resulting in Privileged Access Management (PAM) becoming a fundamental security priority that needs expansion and enhanced protocols to secure the increased network traffic the department is experiencing. The department needs to modernize and upgrade its information security posture at each courthouse and datacenter in order to

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mitigate these risks.

COST-BENEFIT ANALYSIS

The department anticipates that the planned upgrades will save the department and the state money in the future by preventing costly outages and interruptions to department operations.

PROJECT COST INFORMATION

The department provided the following cost estimates for the seven project components over the four phases of the project. Additional cost breakouts can be found in the table included in the Appendix.

- SDWAN Project: \$2,604,170
- AV Infrastructure: \$13,300,000 (approximately 60 courtrooms and proceedings rooms each year at an approximate cost of \$60,000 each)
- Webex: \$1,928,640
- Network Infrastructure: \$5,990,446
- Data Center Hardware: \$3,061,126
- Disaster Recovery: \$1,096,779
- Security: \$5,223,357

Federal COVID relief funds. According to the department, this request proposes using the federal ARPA State and Local Fiscal Recovery Funds that the state received and deposited into the Revenue Loss Restoration Cash Fund created in Section 24-75-227, C.R.S., due to the direct nexus between the pandemic's effects on the department's operations and this request.

Ongoing operating costs. The department anticipates that the upgrades that would be funded with this request would cost an estimated \$7.1 million in ongoing annual costs. The department expects that the Judicial IT Infrastructure Cash Fund will be able to sustain the expected ongoing costs beginning in FY 2024-25 and beyond.

CASH FUNDS

N/A

PROJECT RESEARCH

N/A

ADDITIONAL PROJECT INFORMATION

The department has also submitted an operating budget request (R-02) for \$2,018,556, of which \$936,689 is General Fund and \$1,081,867 is cash fund spending authority from the Judicial Information Technology Cash Fund, to begin planning for a new case management system and for 16.0 FTE IT staff to help support the IT being requested with the capital request and general IT operations of the department.

Case management system replacement. In addition to the 16.0 FTE being requested, the department is also requesting \$1.5 million for the initial discovery phase of a project to replace the department's 25-year-old legacy case management system (CMS). The department's CMS is used to manage all trial court, probation, and appellate court cases. It also serves as a hub for many critical data exchanges with other state and local agencies, such as protection orders, warrants, placement for juveniles in dependency and neglect cases, and many other instance. The system also integrates with other services, including e-filing, public and government data access, paying fees and fines online, court reminder notifications, online docket search, and jury management. Funding for this initial discovery phase will allow the department to begin conversations with system stakeholders to document key system requirements. The department intends to submit future budget requests for the implementation and ongoing maintenance of the new system after these initial phases are completed.

AV staff. The department currently has six AV staff who provide support to over 100 court and probation offices throughout the states. The department is requesting funding for an additional nine AV staff positions, including seven AV engineers, one lead AV architect, and one manager of networking and AV.

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Unified Communications (UC) Engineers. The department's current two UC Engineers do not have capacity for the necessary modernization to its telecommunication infrastructure. Therefore, the department is requesting funding for one additional UC Engineer to help upgrade and improve telecommunication technologies and the integration with AV and video conferencing solutions.

IT support technicians. The department currently has 26 IT support technicians distributed across the state. However, since the start of the COVID-19 pandemic, the department has experienced a huge increase in the number of support tickets for video conferencing issues and the current staff is unable to keep up. The department is requesting an additional six IT support technicians in judicial districts that do not currently have onsite technical support, as well as locations where ticket volume exceeds current capacity or are required to travel long distances.

PROJECT SCHEDULE

| | Start Date | Completion Date |
|----------------|---------------|-----------------|
| Planning | July 2021 | December 2022 |
| Implementation | December 2021 | June 2025 |
| Testing | December 2021 | June 2025 |
| Closing | June 2023 | June 2025 |

QUESTIONS

1. The R-03 IT Infrastructure budget request document indicates that a FY 2021-22 supplemental will be submitted for the FY22 portion of the project. Please explain the urgency behind needing supplemental funding versus waiting until the FY 2022-23 Long Bill for these items. Does the department believe work can get started immediately considering economy-wide supply chain and workforce issues? What would be the impact of delaying the start of this project until July?

Over the span of several weeks during Spring 2020, the Department dramatically increased reliance on virtual proceedings in the trial courts, appellate courts, and probation to maintain access to justice for Colorado's citizens during the COVID-19 pandemic. The Department's generational shift in business operations took place on a network infrastructure that was not fully adequate for the change and with an insufficient number of personnel to sustainably support the change. Despite these challenges, the shift in business operations has been a far better option to promote access to justice than to return to in-person proceedings. Funding is critical to maintaining business continuity in courts and probation while Coloradoans continue to navigate the pandemic for the foreseeable future.

The licensing of Cisco Webex tripled at the onset of the pandemic to support demand for virtual hearings. With the increased usage of virtual hearings and a much larger remote workforce, the Department's network became overloaded and several critical network infrastructure components needed to be upgraded including firewalls, web security appliances (WSA) and increased network bandwidth. Additional Cisco Webex room kits were purchased to support virtual hearings in many courtrooms and the Department upgraded a limited number of A/V systems where a sound system did not exist or there was system failure. The Department was forced to make these IT purchases to sustain court and probation operations and could not wait as the budget cycle did not correspond with the immediate business need. that were a direct result of the COVID-19 pandemic.

Due to the critical nature of the impact on the judicial network, the Department has purchased approximately \$4.5 million in technology equipment during the first half of Fiscal Year 2022. The Department needed to take proactive steps to ensure the courts and probation could operate. These actions are the basis of our supplemental budget request. Critical business operations in the judicial districts depend on IT infrastructure that is no longer sufficient to support increased video and cloud application (i.e., Software as a Service) traffic. The Department is working closely with vendors, along with existing FTE on project schedules to ensure projects are completed timely.

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2. On page 1 of the R-03 IT Infrastructure budget request document, it explains that the lack of available bandwidth has resulted in “outages and cessation of court activity in many instances.” Please provide data on how often these outages have occurred in recent years.

Across several of the districts, the following concerns have been reported to the Department in recent years. Although prior to the pandemic the Department experienced bandwidth issues, primarily in rural jurisdictions, the strain placed on bandwidth capacity by virtual court proceedings, probation appointments, trainings, and meetings over the past two years far exceeded anything the Department experienced prior to 2020.

To preserve available bandwidth, some courts have taken extreme actions such as asking probation staff to not use Cisco Webex so that court proceedings could take precedence. Additionally, some court and probation staff were required to work from home to reduce the usage of the courthouse's bandwidth. Staff engaged in virtual meetings or trainings often need to turn off their cameras to reduce bandwidth usage and increase performance, which results in a less collaborative and effective experience.

Two counties in the 14th Judicial District (Routt, Moffat, and Grand County), which are like many other counties across the state, rely on outdated telecommunications technology using copper analog lines to provide service to members of the public, stakeholders, and parties to cases. In each of these counties, the Department consistently encounters periods of degraded call quality (dropped calls, static, and busy signals), which the telephone service provider has been unable to resolve despite numerous attempts. To truly address this issue, outdated telecommunication lines must be replaced with SIP (Session Initiation Protocol) technology that utilizes reliable internet connections over fiber optic cable instead of copper analog lines. The use of technology for videoconferencing has interrupted and delayed court business in numerous ways:

- Judges, court staff, attorneys, and litigants lack confidence in the availability of Cisco Webex due to internet bandwidth capacity issues. This is creating more situations where virtual appearances are not provided as an option because of concerns regarding reliability. When virtual appearances are not available, it increases the health risk of COVID exposures or delays hearings. When a COVID exposure occurs in a trial, the trial is delayed 10 days from the date of the last positive test. This impacts the personal schedules of jurors serving on the case.
- For some criminal appearances, in-custody defendants have needed to be physically transferred when bandwidth is not available. This delays the hearings for later in the day and increases public safety risks and the number of law enforcement staff needed to hold advisements.
- Required interpreter services are interrupted when interpreters are appearing remotely via video conferencing and a lack of bandwidth makes the video conferencing unusable, creating court hearing delays.
- District court reporters often help other districts that may lack court reporter staff, and a lack of video conferencing reliability greatly affects a court reporter from providing remote services.
- Court reporters currently have the ability to report in a courtroom remotely. However, when the network becomes saturated and access is dropped unexpectedly, the Department's digital court recording software must be used even in cases where it is not ideal, such as criminal cases. The accuracy of the record can become compromised (i.e., audio issues), which makes the appeal process more complicated and more expensive for the parties and/or the Department.
- Probation officers now conduct virtual one-on-one meetings with probationers for check-ins from the office. These meetings will drop resulting in rescheduling or delays for staff and the probationers.
- Virtual court appearances for probation officers will freeze or drop when they are in the office, resulting in a delay or rescheduling of proceedings. At a minimum it is a delay to the hearing, which impacts the lives of the defendant(s), plaintiff(s), and of family members involved in cases. There is also an impact to attorney schedules and increased costs to defendants who are paying for their attorneys to be present. Additionally, this creates a backlog of dockets for future hearings.
- There are mandatory probation assessment trainings and case plan trainings that, because of COVID-19, have moved to be fully virtual. These meetings will drop or freeze and need to be rescheduled, which impacts the schedule of all probation officers.

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3. Has the department encountered any accessibility issues with its use of Webex?

While there are challenges with any software not specifically created for the courts and probation, Cisco Webex has increased accessibility to court and probation proceedings in several ways, including:

- Court participants are more likely to attend proceedings if they do not need to travel to the courthouse.
- Potential jurors are more likely to attend if they can attend the selection process virtually.
- Juvenile participants feel more comfortable virtually than in a room full of people, making it less intimidating than if they attend in person.
- Probation officers can more easily see probationers virtually as it reduces travel for both parties.

Cisco has been working with the Department's IT team to specifically address concerns about product performance. The vendor continues to enhance their Cisco Webex product and it has significantly improved in the past two years as a result of the feedback provided by the Colorado Judicial Department and other judicial departments across the country.

4. Without disclosing any sensitive information, please provide additional information behind the cost estimates for the "Security" portion of the project.

The cost estimates for the Security portion of the project are tied to fourteen (14) critical improvements. These improvements include acquisition of hardware, Platform as a Service (PaaS), Software as a Service (SaaS), Managed Security Service Provider (MSSP), Infrastructure as a Service (IaaS), and additional licensing for current security products. Details for these improvements are listed below.

- Firewalls: required to support operational needs of COVID-19 response and VPN
- Distributed Denial-of-Services (DDoS) and Web Application Firewall (WAF): required to ensure the operational needs of the network and web applications in response to COVID-19
- Multi-State Information Sharing and Analysis Center (MS-ISAC): required for ongoing monitoring and alerting of web-based traffic that increased due to COVID-19 response
- Managed Security Service Provider (MSSP): required to supplement security team in responding to increased alerts due to COVID-19 response
- Application Security Pipeline: required for analyzing software code for vulnerabilities publicly accessible due to COVID-19 response
- Identity and Access Management (IAM), Privileged Access Management (PAM), Role/Attribute Based Access Control (RBAC/ABAC), and SDWAN Security: required for maintaining and building zero-trust architecture needed to secure the new edge due to COVID-19 response
- Vulnerability Assessment and Management (VAM): required for monitoring and maintaining a compliant and secure environment that has drastically changed due to COVID-19 response
- Incident Response (IR) and Risk Management Framework (RMF) planning and building to establish frameworks needed to adjust and better respond to incidents due to COVID-19
- Hardware refresh and licensing to support all listed initiatives and deploy additional security controls on M365 environment required to do COVID-19 response

The improvements will cover security requirements to remain compliant with the Criminal Justice Information Services (CJIS) and statutory requirements. Due to the COVID-19 pandemic and the dispersed workforce, many of the controls that helped maintain compliance to limit activity such as shadow IT, data loss, and vulnerable websites have changed, and new controls must be implemented to limit this activity. Additionally, because of the pandemic new threat vectors have emerged that the Department is not funded to respond to. These costs will be associated with reducing risk, improving functionality of current security tools, and further ensuring continuous access to justice by preventing major technology outages from security incidents.

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5. As background, most capital building and IT projects for Executive Branch agencies and institutions of higher education are funded using the Capital Construction Fund (Section 24-75-301, et seq., C.R.S.). The Joint Technology Committee and Joint Budget Committee may be considering legislation to expand access to the IT Capital budget process and the Capital Construction Fund for the Judicial Branch and the election official departments. Additional information about this idea is outlined in the JBC Briefing document for IT Capital (https://leg.colorado.gov/sites/default/files/fy2022-23_itcapbrf.pdf). During the OSPD's presentation to the JTC, please discuss any perceived benefits and drawbacks from the office's perspective that the committees will want to consider if they decide to pursue this legislation.

The Department (Courts and Probation) would welcome access to the IT Capital Budget Process and Capital Construction Fund for the funding of future Judicial IT projects. However, any statutory change allowing Judicial access must respect the separation of powers between the Judicial and Executive Branches. Any oversight of Judicial requests by OSPB or OIT would not be acceptable.

Appendix A
 Judicial Department R-03 Cost Estimates

Table 1 provides the cost estimates for each of the seven project components across the four years of the project.

Table 1. Project Component Costs

| Project | FY 2021-22 | FY 2022-23 | FY 2023-24 | FY 2024-25 | Total |
|------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
| SDWAN Project | \$1,304,170 | \$650,000 | \$650,000 | \$0 | \$2,604,170 |
| AV Infrastructure | \$2,500,000 | \$3,600,000 | \$3,600,000 | \$3,600,000 | \$13,300,000 |
| Webex | \$482,160 | \$482,160 | \$482,160 | \$482,160 | \$1,928,640 |
| Network Infrastructure | \$2,105,446 | \$1,285,000 | \$1,300,000 | \$1,300,000 | \$5,990,446 |
| Data Center Hardware | \$2,061,126 | \$0 | \$1,000,000 | \$0 | \$3,061,126 |
| Disaster Recovery | \$0 | \$1,096,779 | \$0 | \$0 | \$1,096,779 |
| Security | \$620,226 | \$1,427,924 | \$1,483,739 | \$1,691,468 | \$5,223,357 |
| Total | \$9,073,128 | \$8,541,863 | \$8,515,899 | \$7,073,628 | \$33,204,518 |

The department has estimated that the cost of a single courtroom AV system is approximately \$60,000. Table 2 provides a breakout of that estimate.

Table 2. AV Equipment Cost Estimates

| Item | Low Estimate | High Estimate |
|-----------------------------------|---------------------|----------------------|
| Microphones | \$ 3,547.00 | \$ 3,813.60 |
| Audio Processing | \$ 4,078.00 | \$ 4,197.60 |
| Speakers and Amplification | \$ 2,151.00 | \$ 2,902.13 |
| Assisted Listening | \$ 2,623.20 | \$ 2,623.20 |
| Cabling and Signal Transmission | \$ 3,330.00 | \$ 6,667.00 |
| System Integration and Control | \$ 1,250.00 | \$ 1,800.00 |
| Displays | \$ 6,347.00 | \$ 6,705.53 |
| Video Processing and Transmission | \$10,175.00 | \$ 19,957.20 |
| Labor | \$ 13,000.00 | \$ 15,000.00 |
| Video Conferencing | \$ 7,000.00 | \$ 7,000.00 |
| Total | \$ 53,501.20 | \$ 70,666.25 |

Table 3 provides additional information regarding the cost estimates for the network infrastructure portion of the project. For FY 2021-22, \$2,105,446 has already been allocated to refresh network hardware in eight locations: Ralph Carr Judicial Center, Boulder, Longmont, Pueblo, Fort Collins, Pagosa Springs, Loveland, and Westminster, as well as support temporary moves due to county driven renovations or COVID-19 shutdowns. For FY 2022-23, the network equipment upgrade is scheduled in courthouses located in Mesa, Gunnison, Gilpin, Eagle, Jefferson, Meeker, Del Norte, Akron, and Summit Counties. In FY 2023-24 and beyond, the plan is to replace network hardware at approximately 10 sites per year.

Table 3. Network Infrastructure Cost Estimates

| Category | FY 2022-23 Cost Estimate | FY 2023-24 Cost Estimate | FY 2024-25 Cost Estimate |
|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Edge and Core Switching | \$623,000 | \$628,000 | \$628,000 |
| Wireless Access Points | \$80,000 | \$83,000 | \$83,000 |
| Uninterruptable Power Supplies | \$105,000 | \$110,000 | \$110,000 |
| Analog to SIP phone gateways | \$48,000 | \$45,000 | \$45,000 |
| Patch Cables | \$54,000 | \$54,000 | \$54,000 |
| Pro Services and Cabling Contractors | \$375,000 | \$380,000 | \$380,000 |
| Network Infrastructure Total | \$1,285,000 | \$1,300,000 | \$1,300,000 |