

Five-Year IT Roadmap



Department of Human and Services

Aligning business goals and technology forecasts
July 2019



COLORADO
Governor's Office of
Information Technology
Serving people serving Colorado

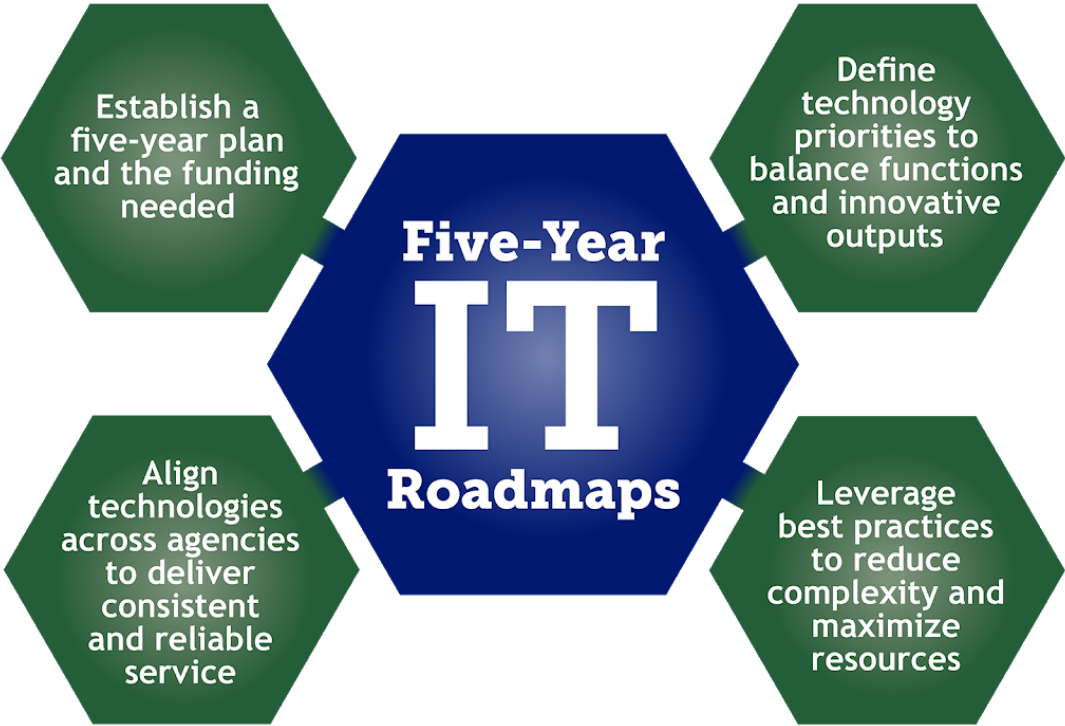
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Introduction

The Governor’s Office of Information Technology (OIT) works in partnership with our customers to create a Five-Year IT Roadmap for each agency we serve. OIT has four primary goals that guide our technology planning to help state agencies receive the most from their technology and related services.

Technology Planning Goals



Assumptions

Agency and enterprise initiatives, timelines and costs within this document operate under the following assumptions.

Environment

- Decisions related to major agency initiatives or projects may alter this plan.
- Infrastructure and security will be maintained to meet state and federal compliance.
- OIT is a cloud-first advocate and, therefore, will look to cloud solutioning for all new service needs. OIT will also seek cloud service capabilities for legacy applications/workloads requiring refresh before targeting on-premise utilizations.
- As it relates to this document, the term “enterprise” is used to define high-impact, IT services utilized by multiple OIT customers.
- CDHS holds a lease to replace desktop, laptop and tablet equipment every 3 years.

Drivers of Cost and Complexity

- Costs are estimates that are based on an initial quote, vendor information or past initiatives and are subject to change.
- It is estimated that overall IT costs will increase by no less than 3% per year.
- Cost allocation for Decision Items are based on OIT’s current Common Policy rates.

Assumed Constants

- Staffing is assumed to remain constant.
- Hardware refresh cycles are assumed to be executed on a three-year lifecycle for desktop computers and a three-year lifecycle for laptops.
- Approximately 20% of the state IT infrastructure is refreshed annually with the intent of completing a full infrastructure refresh every three years. Budget constraints may impact this cycle.

Changes to Roadmap

- This is a living document which will be updated once per year; dependencies, timelines, and cost estimates are subject to change.

Agency Business Objectives

Maximizing technology resources requires that agency business objectives drive technology investments. The objectives below have been identified by the Colorado Department of Health and Safety and submitted to the Governor's Office of State Planning and Budgeting (OSPB) to reflect the agency's current top strategic IT priorities. OIT works with the agency to provide the best solutions to support each objective.

Objective 1

Blueprint for Behavioral Health:

To ensure every Coloradan will have access to the behavioral health services they need, the Department will develop a Blueprint to reform the behavioral health system and delivery in Colorado by June 30th, 2020.

Objective 2

Full Day Kindergarten:

To ensure Colorado children are ready for school when entering kindergarten, the Department will increase the percentage of Colorado Shines eligible programs rated at a high quality level (Levels 3, 4, 5) from 24.41% to 28% (an increase of approximately 141 programs) by June 30th 2020.

Objective 3

Reduce Incarceration for Children:

In an effort to significantly reduce recidivism and incarceration of youth, the Department will increase the number of non-aggravated offender youth released on commitment parole* by 5% by June 30, 2020.

Agency Initiative Roadmap

The graph below shows where agency and enterprise objectives fit into the overall five-year roadmap and plan for scheduled completion. The graph contains three sections. The first presents mission critical technology debt which are either agency or enterprise initiatives that are vital to the functioning of government services. The second section presents new solutions which are requested by the agency or initiatives that OIT has identified as a gap in services or solutions, and the third section presents future innovations which are proposed as solutions that will increase state employee efficiency and improve service to Colorado residents and state visitors.

		FY20	FY21	FY22	FY23	FY24	
Mission Critical Technology Debt	ACSES Modernization	█					
	Application Consolidation and Decommissioning		█				
	Colorado Financial Management System Modernization	█					
	Data Integration Strategy	█					
	Joint Agency Interoperability Project	█					
	Kipling & eFort Firewall Refresh	█					
	Office of Early Childhood (OEC) Salesforce Applications Enhancements	█					
	Remote File Server Firewalls	█					

		FY20	FY21	FY22	FY23	FY24
	Remote Site File Server Refresh	█				
	Replace Domain Controllers	█				
	R-X Trails Operations and Maintenance	█				
	R-04 Crisis System Data and Health IT Infrastructure	█				
	Data Integration Initiative	█				
New Solutions	DYS Desktop Education Initiative	█				
	Mobile Applications & Remote Devices	█				
	Office of Behavioral Health - Mental Health Institute - Case/Incident Management	█				
	Trails Modernization Project	█				

Agency Initiative Details

Mission-Critical Technology Debt

These initiatives are vital to the functioning of normal government services. Delay in pursuing the initiatives will create a need for future efforts and resources that surpass the resources needed if the initiative were carried out proactively.

ACSES Modernization

The Automated Child Support Enforcement System (ACSES) is just starting the last of three stages of modernization. Stage 1 was the migration off the mainframe to a web-based architecture. Stage 2 was the normalization of the data in Oracle. Stage 3 is the rewrite of the user screens throughout the system into a true web application. The project started in 2014 and is expected to continue through 2022. This initiative is funded and the timeline is FY19-22.

Application Consolidation and Decommissioning

At CDHS, there are 33 applications recommended for decommissioning and four recommended to be consolidated with other applications. This will result in the requirement for Enterprise Applications to process decommission and consolidation plans and obtain agency approval to remove data and decommission servers. This initiative is unfunded and the timeline is FY21-24.

Colorado Financial Management System Modernization

Colorado Financial Management System (CFMS) is the payment processing and fiscal repository of CDHS benefit systems for the counties. It aggregates payments to providers and passes through client and provider benefits to the Electronic Benefit Transfer (EBT) system. It performs this functionality through the Oracle E-Business Suite and a single general ledger system. The current version of the Oracle E-Business Suite will no longer be supported, and a transition to a supported environment needs to be planned. This initiative is unfunded and the timeline is FY 20-24.

Data Integration Strategy

With more than 1,000 applications across the state, dependencies on multiple federal group interactions, and a myriad of third-party vendors, there is great magnitude and complexity in managing the exchange of data and information among all the disparate groups. These integrations regularly become a large part of the considerations for any application or major project rollout, and it has become increasingly clear that many of the integrations for new systems are duplicative of those that already exist for others. Not only does this add to the cost of initial implementation, but it also continues to generate duplicative costs and efforts over the span of a program or application lifecycle. To transition from chaotic to orderly, an Enterprise Integration team has been formed with goals of establishing cohesive enterprise architecture, improved scalability, faster delivery, enhanced operational efficiency and streamlined development skills. Facilitating this are standardized enterprise-level integration services platforms including MuleSoft, Automagic ONE Automation, and Ipswitch MOVit DMZ. This initiative is unfunded and the timeline is FY20.

Joint Agency Interoperability Project

CDHS developed an Interoperability Roadmap in 2013 that provides a framework for statewide interoperability of its human services systems. This joint agency planning effort will build off the CDHS approach to interoperability and integration to further develop a more comprehensive Joint Agency Interoperability (JAI) Roadmap with the Colorado Department of Health Care Policy and Financing (HCPF) that will produce: a requirements analysis for planning and implementation purposes including an assessment of HCPF and CDHS systems, data discovery of both agency systems, gap analysis of existing systems and services for interoperability opportunities, update of existing IT assets, cost benefit analysis, development of necessary RFPs and the Implementation Advanced Planning Document (IAPD) that will span both agencies for joint agency interoperability implementation. The initiative is funded with completion scheduled for mid-2020 and is currently awaiting federal approval of the Advance Planning Document and a second round of funding. Thus, this effort is funded for the State match, but it is unfunded for the federal monies at this time. Timeline is FY20-22.

Kipling & eFort Firewall Refresh

Current Juniper firewalls are at least 12 years old. They will shortly be end-of-life. Newer technology, which has been adopted by state security operations, will be used to replace the Juniper firewalls. The newer technology is Palo Alto PA 5250 firewalls. These firewalls permit higher throughput and have more advanced security features. This initiative will be funded from the Technology Advancement and Emergency Fund for the amount of \$418,400.44. This initiative is funded and the timeline is FY20.

Office of Early Childhood (OEC) Salesforce Applications Enhancements

The OEC is seeking a hybrid approach to providing support where OEC is both able to address urgent issues impacting day-to-day system use and also able to plan future releases of small to medium system enhancements. The need for both hotfix support and iterative enhancements is shared across the OEC business units. This initiative will set-up the staff augmentation at OIT for implementation of the app enhancements. This initiative is funded and the timeline FY19-23.

Remote File Server Firewalls

Currently, there are 15 remote file servers which are not protected by a firewall at remote CDHS locations. This matter is a known risk and needs to be addressed. Ten of the remote servers will be moved to existing firewalls, which will leave five remote servers not associated with a firewall. OIT will undertake a review of these servers to assess the scope of the matter and to develop a recommendation for mitigation. Additionally, the server team is currently conducting a pilot test to determine if the CDHS remote servers, or some subset of these servers, can be consolidated on the OIT Isilon device. This initiative is funded and the timeline is FY19-FY21.

Remote Site File Server Refresh

The normal life cycle for hardware housing data is three years. The current file servers are now six years old and need replacement to avoid hardware failure. An annual maintenance contract is in place through June 30, 2018. This initiative is unfunded and the timeline is FY18-22.

Replace Domain Controllers

CDHS has four domain controllers which will reach end-of-life January 14, 2020. These domain controllers are running Active Directory at a 2008R2 functional level. These devices need to be replaced and the software upgraded to the Windows 2016 functional level. It will be funded by a budget request from CDHS. This initiative is currently unfunded and the timeline is FY19-20.

FY20 Mission Critical Technology Debt Decision Items

R-13 Trails Operations and Maintenance

The Division of Child Welfare (DCW) provides technical assistance, oversight and monitoring of counties and service providers to ensure children are protected from harm. TRAILS is Colorado's statewide child welfare case management system and is used by the State, counties and other state agencies to meet the needs of children who must be placed, or are at risk of placement outside of their homes, for reasons of protection or community safety. TRAILS is not currently in compliance with federal and state statutes and regulations. Due to increases in technology costs and to ensure DCW can meet deliverables, CDHS will be seeking \$2,452,920 in FY19-20 and ongoing funding to support and maintain TRAILS. The timeline is FY19-23.

R-04 Crisis System Data and Health IT Infrastructure

CDHS currently manages \$31 million in state funds to operate the statewide Crisis Hotline/text line, and regional mobile response, walk in centers, crisis stabilization units and respite services. Contractors for each of the crisis service modalities report data to the department in aggregate data tables which does not allow the Department to identify service utilization, cost and system outcomes. Additionally, the Department is unable to regionally allocate resources or improve performance outcomes due to disparate data collection and reporting by region. Thus, CDHS will be requesting \$1,118,724 in general funds and 2.0 FTE in FY19-20 and \$1,246,998 in general funds and 5.0 FTE in FY20-21 and ongoing funding to equip the crisis system with the capacity to document in one electronic health record for all services delivered by the hotline, mobile teams and crisis stabilization units. This initiative is unfunded and the timeline is FY19-23.

New Solutions

These initiatives provide new yet fundamental service to agencies. Heightened end-user technical expectations are driving service providers to strengthen system functionality. Delay in implementing these new services in the coming years would exacerbate major inefficiencies and significantly impair the state from meeting citizen expectations.

Data Integration Initiative

This project proposes to integrate data systems tracking mental health services and substance use disorder treatment. Currently client data cannot be tracked and reported across systems. This new application will adapt to changing performance measures and reporting requirements. It will also make real-time data available and reduce administrative burdens.

The request for proposal (RFP) intends to replace selected mature Colorado Client Assessment Record (CCAR) web modules and create a hosted application with interfaces to Colorado substance abuse clinics and providers, judicial probation officers and case workers. The Office of Behavioral Health (OBH) RFP will provide an integrated behavioral health services data collection instrument to address behavioral and physical health service needs, meet mandated reporting requirements and assist all health care providers in achieving better health outcomes for the citizens of Colorado. This initiative is funded and the timeline is FY19.

DYS Desktop Education Initiative

The Division of Youth Corrections (DYC) delivers state of the art education programs and internet access to educational websites allowing youth committed to DYC facilities to continue their education and meet graduation requirements. The project was funded through a FY15 Decision Item and spans through December 2018. This initiative is unfunded and the timeline is FY19-24.

Mobile Applications & Remote Devices

Examine connectivity and perform discovery to ACSES, CHATS and TRAILS via mobile applications. During discovery we will look at leveraging the myColorado mobile app. This initiative will describe the requirements for mobile device access to the cited applications. Further initiative definition and funding assessment will occur during discovery in FY20-22. This initiative is unfunded and the timeline is FY20-22.

Office of Behavioral Health - Mental Health Institute - Case / Incident Management

The Office of Behavioral Health (OBH) at CDHS currently manages patient case files and other supporting health services via manual tracking and paper processes. This project will deliver a modern and standardized solution across CDHS for incident tracking, reporting and analytics for all 24x7 facilities. By automating the incident tracking processes, CDHS will greatly improve the security and integrity of incident reporting by eliminating redundant home-grown spreadsheets, access databases and stand alone incident tracking documents. This initiative is funded and the timeline is FY19-20.

Trails Modernization Project

Colorado Trails is a Statewide Automated Child Welfare System (SACWIS) designed to support casework practice and track clients through all phases of work completed in counties in the delivery of services related to child welfare legislation, policy and practice. The system includes information on foster care and adoption services, child protection tracking, and the licensing and certification of childcare providers. In addition, Colorado Trails has a Division of Youth Corrections module that allows for similar tracking functions for the Youth Corrections clients. The county Departments of Social/Human Services are the major users of Colorado Trails. Case information recorded in Colorado Trails is used by caseworkers for tracking referrals and assessments of child abuse and/or neglect, safety assessments, caseworker provided services, payments to out-of-home service providers and general case management activities. Colorado Trails is also used for caseworker supervision and in the administrative reviews of children who have been placed in out-of-home facilities. This initiative is funded and the timeline is FY18-20.

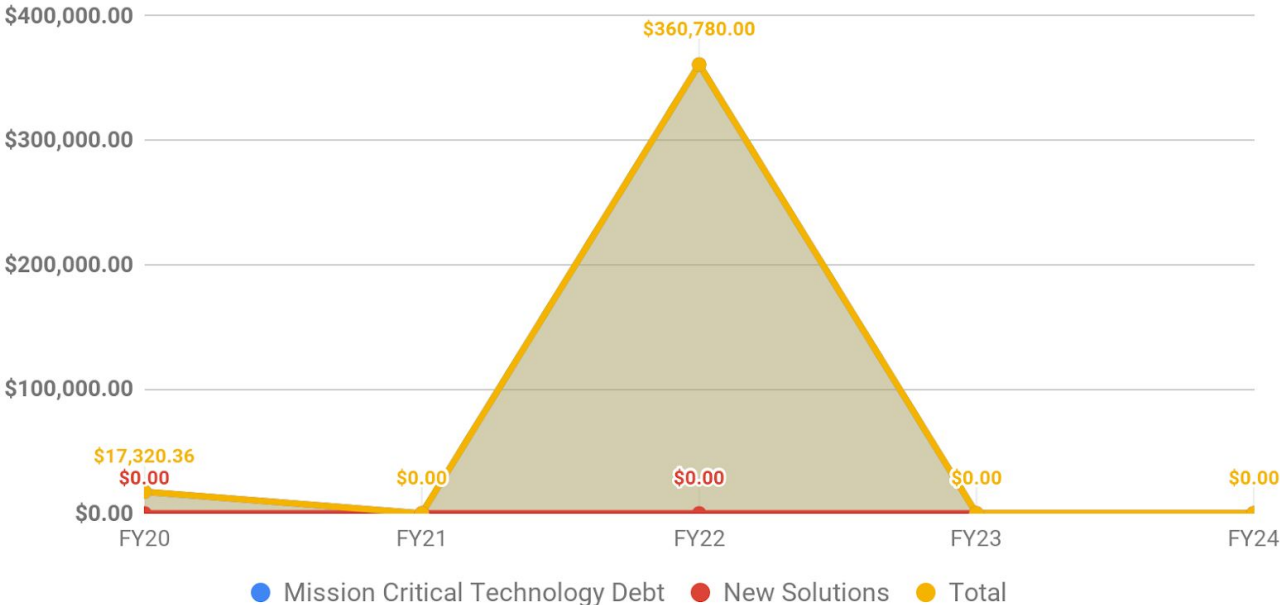
CDHS Unfunded Technology Outlook

The totals below are high-level cost estimates where funding has not been clearly identified. In most cases, for technology initiatives defined as an OIT enterprise initiative, OIT seeks funding through Decision Items. Enterprise initiatives help ensure that the state maintains consistent technology service and is able to take advantage of scalable rates.

For a more detailed breakdown, contact your agency’s IT Director.

	FY20	FY21	FY22	FY23	FY24
Mission-Critical Technology Debt	\$17,320.36	\$0.00	\$360,780.00	\$0.00	\$0.00
New Solutions	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL	\$17,320.36	\$0.00	\$360,780.00	\$0.00	\$0.00

Mission Critical Technology Debt, New Solutions and Total



Appendix A: Enterprise Initiative Roadmap

The timeline below represents OIT’s enterprise initiatives. Enterprise initiatives help to ensure that the state maintains consistent technology service and is able to take advantage of scalable rates. These initiatives are part of OIT’s overall strategic direction and may be mandated or offered to agencies optionally.

This timeline has been included to provide a reference as to how an individual agency’s IT Roadmap correlates to OIT’s enterprise plan. Descriptions of each initiative can be found in Appendix B.

		FY20	FY21	FY22	FY23	FY24
Enterprise Initiatives						
	Application Lifecycle Management					
	CORE NIST File Transfers					
	Clarity PPM (CA PPM or Clarity)					
	Enterprise Infrastructure Refresh					
	HRWorks					
	Mainframe Decommission					
	Network & Infrastructure Refresh					
	Next Generation Colorado					
	OS Server Upgrades					
	Telecom Enhancements (MIPC)					
	Two-factor Authentication					
	Windows 10 Upgrade					
	New Solutions	Content Services Application Consolidation				
Content Services Enterprise Solution Deployment						

		FY20	FY21	FY22	FY23	FY24
	CrowdStrike Deployment					
	Desktop File Cloud Backup					
	MyColorado					
	Optimization of Endpoint Security					
	Privilege Access Management					
	Salesforce Platform Org Strategy					
	Salesforce Lightning Migration					
	Salesforce Release & Environment Management					
	Secure Office Print Ecosystem (SOPE)					
	Technology Accessibility and Mobile Assessment, Testing and Remediation					
Future Innovations	Cloud Access Security Broker					
	Data and Access Governance					
	Cloud Access Security					
	East West Traffic Security					
	Easy Secure Service Excellence - ESSE					
	End-to-End Monitoring and Logging					
	Identity Analytics and Risk Intelligence					
	Server and Deskside Endpoint Management					
	Smart Cities Exploration					

Appendix B: Enterprise Initiative Details

This section provides an overview of each Enterprise Roadmap initiative.

Mission-Critical Technology Debt

These initiatives are vital to the functioning of normal government services. Delay in pursuing the initiatives will create a need for future effort and resources that surpass those needed if the initiatives are carried out proactively.

Application Lifecycle Management

With an inventory of 1100+ applications, a key strategy for OIT is to streamline the application footprint. Through the consolidation of existing and new applications onto standard enterprise platforms, OIT can create a simpler and easier end-user experience, reduce the long-term cost of maintaining duplicative applications, and strengthen OIT's support capabilities. Consolidation efforts completed through FY16 were funded through the Eliminate Redundant Applications Decision Item; with the funding of the Service-Oriented Business System Refresh Decision Item, \$800,700 will be approved for this program in future years. Allocation of the funds will be under the authority of an agency focused governance team. This funded initiative impacts all agencies and the timeline is FY20-23.

CORE NIST File Transfers

The CORE secure file transfer service provides file transfer services between the State (all agencies, Wells Fargo and other external/higher education institutions) and the CORE financial system. The CORE file transfer service was originally implemented during the CORE project as a temporary service. The service compromises regulatory compliance and security of the assets entrusted; has significant risks from process and personnel perspective; Although meant to be a secure file transfer server, this asset is also using for archival of data files and the nature of that use compromises both the asset and the content. Data currently on the CORE secure file transfer server needs to be migrated to the properly structured and organized file storage and appropriate archiving and retrieval processes need to be established. If not executed there will be severe impacts to the CORE system and continued audit findings, it will cause a drain on OIT resources needed to support the current solution and perpetuation of risk due to inadequate business processes and inadequate, costly IT solutions supporting those processes. CORE secure file transfer server replacement will require any current department/agency user of CORE to become a consumer of technology platforms (Automic and MoveIT) providing new CORE integration services. This unfunded initiative impacts all agencies and the timeline is FY20.

Clarity PPM (CA PPM or Clarity)

Clarity PPM is a comprehensive Project and Portfolio Management Tool in use by OIT and other agency customers to track and report on projects, programs and maintenance activities across the State enterprise. In recognition of this, OIT will begin distributing the costs associated with the tool by user license and type. Invoices are received from the vendor on or about July 1 of each fiscal year. OIT will produce a report of all users on July 1 of each year and based upon license type disburse the expense amongst the agencies of the user community. This initiative impacts all agencies and the timeline is FY20.

Enterprise Infrastructure Refresh

This effort includes refreshing infrastructure support equipment (power, HVAC, UPS systems, etc.) for all agencies in order to ensure service uptime is in accordance with our service level commitments. This unfunded initiative impacts all agencies and the timeline is FY20-23.

HRWorks

The Department of Personnel & Administration (DPA) and OIT continue their work to develop an enterprise Human Resource Information System (HRWorks). The HRWorks project is a collaborative effort to consolidate approximately 80 disparate, outdated, and redundant systems into a modern, seamless solution that will eventually integrate with CORE, the state's financial system of record. Development of the system is funded through a DPA FY16 Decision Item. At this time the HRWorks project consists of human capital management (HCM), benefits module, payroll, labor allocation and timekeeping. Work is underway to identify the impact to each agency. Decommissioning of CPPS and related applications will be handled as a separate project. This funded initiative impacts all agencies and the timeline is FY20-22.

Mainframe Decommission

OIT is working to retire the mainframe and associated applications. Integration and data sets must be identified and planned for migration or retirement. This includes determining agency costs. Agencies that still have applications on the mainframe include the Departments of Human Services, Labor & Employment Personnel & Administration, and Revenue. Additionally, with the state payroll system on the Mainframe, all agencies are impacted by this initiative. OIT has identified dependencies amongst other large projects that will prevent the retirement of the mainframe until functionality residing on the mainframe moves to new applications, and will require agency funding to address agency-specific migration and services costs. This funded initiative impacts all agencies and the timeline is FY20-22.

Network & Infrastructure Refreshes

OIT is developing a statewide refresh lifecycle that will annually replace 20% of network and systems infrastructure that is at its manufacturer's end-of-support lifecycle. This will keep the state's technology current and under warranty, which ensures continued support for these critical components. Customers will experience increased IT system performance with decreases in downtime, outages and lost connectivity with the added availability of a secure and stable infrastructure. This is an ongoing effort that will incur some impact to each agency each year. The effort has been funded through the FY16 Infrastructure Refresh Decision Item; however, the funding does not cover all the needed network refreshes, so agencies will need to fund part of the agency-owned network components. The systems infrastructure portion of the refresh initiative includes shared storage and vBlock hosting platforms in the two state data centers; agencies do not pay additional funding outside the Decision Item budget line for this portion of the refresh effort. This unfunded initiative impacts all agencies and the timeline is FY20-23.

Next Generation Colorado

This is a two-part initiative representing Infrastructure and operational improvements as well as data center modernization. Next Generation Colorado is an initiative to develop the automation and operations to support quick service delivery, transparent cost modeling, scalability on-demand, high availability, upgrades and agility of workloads across the enterprise. This effort will also include data center modernization, operational management and hybrid cloud solutioning to span private and public Infrastructure as a Service (IaaS) models. This is a capital-funded initiative from a FY18 Decision Item. Half of the funding was approved for use in FY19 and will support cloud readiness and sustainability, security improvements and data center repairs. The second half of the funding is expected to be approved for use starting in FY20 and will be used to continue our FY19 work as well as automation and service efficiencies. This funded initiative impacts all agencies and the timeline is FY19-23.

OS Server Upgrades

As Windows Servers (2003, 2008 and 2012) reach their end-of-support lifecycles, it is increasingly difficult to find service providers who continue to support these operating systems (OS). To ensure state servers continue to receive appropriate support and reduce risk, OIT will retire and replace all server end-of-support operating systems used by supported agencies. Moving to a newer version will give customers a more secure and supportable OS for their applications. The Enterprise Applications and the Server Admin teams will work together to determine the affected applications in FY19 and migrate the servers to the new OS in FY20 and FY-21. This unfunded initiative affects all agencies and the timeline is FY19-21.

Telecom Enhancements (MIPC)

To keep our phone technology current and consistent, OIT's Telecommunications Team will migrate agencies from their stand alone Cisco VoIP systems to the enterprise Managed IP Communications (MIPC) voice solution. The multi-year initiative is in the planning phase for the four remaining agencies: CDPHE, DNR, DOLA, CDHS/CMHIP. Implementation will occur as the current stand alone Cisco VoIP system approaches end of life in each of the agencies. This unfunded initiative impacts CDHS, CDPHE, DNR, DOLA, DOC and the timeline is FY20-22.

Two-factor Authentication

OIT will enable two-factor authentication (2FA) to add an extra layer of security to the verification process and thus reduce the risk of data breaches and meet data privacy requirements. OIT's internal and statewide Access Control policies require that access to the state's information systems be restricted to just those who need access to perform their jobs, using the principle of least privilege. The implementation to CDHS, CDPHE, DNR, DOLA will be completed by the end of FY20.

Windows 10 Upgrade

Support for the Windows 7 operating system (OS) expires in January 2020. To ensure there is no lapse in support, OIT will upgrade all Windows 7 computers (desktop and laptop) to Windows 10. This is a multi-year effort that spans 17 agencies and more than 28,000 devices. The Microsoft Enterprise License Agreement will cover the upgrade for all agencies except four that will need to cover the cost of the upgrades: CDHS, CDOC, DNR and HC. This is a funded initiative and has a timeline of FY20.

Enterprise New Solutions

These initiatives provide new yet fundamental service to agencies. Heightened end-user technical expectations are driving service providers to strengthen system functionality. Delay in implementing these new services in the coming years would exacerbate major inefficiencies and significantly impair the state from meeting citizen expectations.

Content Services Application Consolidation

Per the findings from a recent audit, Enterprise Content Services (ECS) will strategically assist agencies in transitioning and migrating away from unsupported, legacy content services applications. The goal is to eliminate redundant agency deployed ECM applications, which will dramatically reduce agency hardware and software costs by leveraging our Enterprise License Agreement with Hyland. Furthermore, this will streamline content management applications and directly support the playbook strategy of "Strengthening Colorado's Technology Landscape". We will continue to move the states legacy and/or unsupported applications to our enterprise content services platform, which will reduce the total number of applications. The EDW application is the immediate focus in FY20-FY22 and is used by 14 agencies today. HP Records Manager deployed at CDPHE will also drive forward in FY21-FY22. This initiative is unfunded and the timeline is FY20-24.

Content Services Enterprise Solution Deployment

ECS is continuing to develop enterprise solutions that can be leveraged by all agencies - highly standardized with an ability to customize via embedded non-code configuration will dramatically increase time to value. Agencies will directly benefit with improved operational efficiency, document/information sharing, visibility and cloud infrastructure. This effort ties to many of the agency application modernization efforts. Targeting License, Permitting & Inspections, Contract Management, Electronic Requisitions, Employee File Management, and Travel Requests, Approval & Reimbursement solutions. These solutions will improve business processing times and bring complete visibility to each business lifecycle, saving time and money! Content Services enables us to establish these enterprise solutions, which become standardized products offerings in our solutions portfolio. This initiative is based on the assumption that approximately half of the agencies leverage each of the following solutions:

1. License, Permitting & Inspections - OIT pilot is underway. Standard service offerings are slated for FY20.
2. Contract Management - contract creation through signatories (integrated with DocuSign). OIT project in-flight.
3. Electronic Requisitions - complete processing of funding requests with dump into CORE - already live at OIT.
4. Employee File Management - focus on capturing and managing HR employee files. OIT and CDOT are in-flight.
5. Travel Requests, Approval and Reimbursements - already live at OIT.

This unfunded initiative affects all agencies and the timeline is FY20-24.

Crowdstrike Deployment

Deploy Crowdstrike across all agency systems to provide the very best endpoint security and protection from current threats, for the agency. This is a funded initiative and the timeline is FY20 - FY24.

Desktop Cloud Backup

OIT will be providing expanded backup services across the state in the future. This expanded service will now include providing backups of documents and files that are stored on individual laptops and desktops. This is a funded initiative and the timeline is FY20 - FY24.

myColorado

OIT is leading the effort to create a mobile application that will deliver current and future agency services on a modern and mobile platform. The myColorado app will provide residents, visitors and businesses easy and secure access to services via Federated Identity Management for users engagement through a single interface accessible anytime, anywhere. The solution will provide easy integration for agencies wanting to add a service to the app. It will provide users a protected entry point into state services, and once they establish a profile, it will reduce the need to re-enter that data. Phase 1 is the release of the app through the Department of Revenue in FY19 with the initial services of driver license and vehicle registration renewal as well as the ability to store a digital copy of a vehicle insurance card. It will also include the ability for the Governor's office to provide direct communication to app users. Future phases will include the integration of services provided by multiple state agencies. Phase II, could include state services provided by DNR, DOC, DOLA, DPA, CDPS and CDE. The planning efforts are underway which includes determining costs and funding. This is a funded initiative and the timeline is FY20.

Optimization of Endpoint Security

Assess endpoint security tools to ensure the most effective security while minimizing performance impact. This may result in the lessening or removal of the McAfee endpoint agent, and may incorporate additional tools and capabilities to ensure appropriate anti-virus, encryption, and patching. This is a funded initiative and the timeline is FY20 - FY24.

Privilege Access Management (PAM)

This is an effort to implement a least privilege management solution to oversee enterprise password management over privileged credentials, application password management and session logging and server privilege management to ensure administrator and root security and compliance. The benefits are many and include: a dashboard for operations, management and audit reports; an open standards tool that integrates with ITSM, IDM, Active Directory, etc.; automatic discovery of systems with privileged access; automating the creation of role-based access; assisting in role definition/creation; and secure employee exit de-provisioning which currently relies on manual processes that create security risks and the loss of assets. This funded initiative affects every agency and the timeline is FY20.

Salesforce Platform Org Strategy

Defining a Salesforce Org Architectural Strategy to improve business/IT alignment, platform effectiveness and IT cost savings is part of the Salesforce Program strategic initiatives planned to continue transforming how government innovates, maintains and promotes secure cloud-based agile technology platforms in an enterprise model. This approach will account for the OIT enterprise Salesforce support model and application management best practices. This initiative is unfunded and the timeline is FY20-24.

Salesforce Lightning Migration

Continued migration of existing legacy applications to, and development of, all new applications in the Salesforce Lightning (UI) is an effort to maintain the quality of the platform and accessibility to new product features. This is part of the effort to improve business/IT alignment, platform effectiveness and IT cost savings and is part of the Salesforce Program strategic initiatives planned to continue transforming how government innovates, maintains and promotes secure cloud-based agile technology platforms in an enterprise model. This initiative is unfunded and the timeline is FY20-24.

Salesforce Release & Environment Management

Salesforce Release & Environment Management practices and tools to govern how changes occur between the platform and various environments is an effort to minimize application issues and protect the integrity of existing applications in the multi-use environment when deployed to production. This initiative is unfunded and the timeline is FY20-24.

Secure Office Print Ecosystem (SOPE)

OIT is working with the Department of Personnel & Administration (DPA) on the Secure Office Print Ecosystem (SOPE) project to secure the state's multifunction printers against hackers. This project involves approximately 656 devices managed by DPA's Multifunction Printer Program, which are distributed in 16 executive branch agencies. As members of the SOPE project, OIT's security and desktside teams are helping to upgrade firmware and secure the printer platform and its entry points into the state network. OIT is also providing project management services. DPA is incurring all costs associated with this managed print service solution. This unfunded initiative affects all agencies and the timeline is FY20.

Technology Accessibility and Mobile Assessment, Testing and Remediation

OIT has a statutory obligation to work with executive branch agencies to improve technology access for users with disabilities, including those who are blind and/or visually impaired (see C.R.S. 24-85-101 et seq). To fulfill our duty to improve these services, OIT must provide tools, methods and resources to adequately assess, remediate and maintain the systems for their ability to provide proper accessibility (in conformance to industry standards). This initiative will establish project governance, application testing requirements, standards and training to achieve the goals and mandates of this statute. Any changes needed to address accessibility within an agency will be funded by the agency. The initiative is scheduled for assessment in FY19-20 and remediation thereafter.

Enterprise Future Innovations

The ideas in this section have been proposed as solutions that will allow OIT to grow and discover new and innovative services for state agencies. The solutions in this section will increase state employee efficiency and improve service to Colorado residents and state visitors. These ideas are either unfunded or funded through Decision Item funding. We may see these as new projects in the future.

Cloud Access Security Broker

Cloud Access Security is a software functionality that enables automation of manual processes used to govern the use of and protect sensitive state data in the cloud. As cloud computing continues to grow, OIT needs a way to deliver consistent security across multiple clouds and protect everyone using that data, this is outside of on prem data storage. The solution is scheduled to go active in FY20 with ongoing funding each year thereafter. This funded initiative impacts all agencies and the timeline is FY20-24.

Data and Access Governance

This initiative ensures that sensitive, unstructured data is only accessible to approved users. Funding will be used to implement Data Governance to analyze, approve and fulfill unstructured data access to files, folders, shares across Microsoft NTFS file systems, Network Attached Storage (NAS) devices and SharePoint - on prem storage. The solution is scheduled to go active in FY20 with partial ongoing funding each year thereafter for maintenance. This funded initiative impacts all agencies and the timeline is FY20.

East West Traffic Security

The East West Traffic Security initiative addresses vulnerabilities present within the traffic going to public cloud, traffic between agency-to-agency applications, and traffic from network to servers. These initiatives are the "glue" that helps bind the security infrastructure together, representing agency network upgrades and firewall upgrades and enhancements. They cross the functional infrastructure, Network, Access Control and Security Operations. The solution is scheduled to go active in FY20 with partial ongoing funding each year thereafter for maintenance. This funded initiative impacts all agencies and the timeline is FY20.

Easy Secure Service Excellence - ESSE

The Enterprise Application team is requesting a network solution that will allow all application developers to access the code at any agency in the Executive branch. At this time, firewall rules and servers are set up currently, because each agency has its own network, developers would need remote access to 17 agencies to perform work. This request is being made in hopes that Enterprise Applications will be able to align with Demand Management infrastructure, enabling developers to serve across many domains, working across a multitude of practices. This structure will directly impact the level of service EA is able to provide to the customer. In order for EA to move to a Service Excellence model, this demand must be met. This unfunded initiative impacts all agencies and the timeline is FY21-24.

End-to-End Monitoring and Logging

This initiative will increase the annual budget for this particular activity, which enables OIT to have the management platform to automate, manage and patch more endpoints and at a faster pace. Technical training and incident response retainer are inclusive of this initiative. The anticipated outcome of this initiative is that all agency endpoints would be aligned under a common platform that deploys scripts, patches, and updates for proper security compliance and hardening. In short, agencies can expect to see the number of vulnerable endpoints to be drastically reduced. The solution is scheduled to go active in FY20 with ongoing funding each year thereafter. This funded initiative impacts all agencies and the timeline is FY20.

Identity Analytics and Risk Intelligence

OIT would like to incorporate identity analytics into our security and big data strategy using machine-learning and advanced behavioral analytics that consume and analyze data and will improve our capabilities to detect and respond to risk timely, help with digital change, increase agility and enable higher levels of automation. This funded initiative impacts all agencies and the timeline is FY20.

Server and Deskside Endpoint Management

This initiative will increase the annual budget for this particular activity, which enables OIT to have the management platform to automate, manage and patch more endpoints and at a faster pace. Technical training and incident response retainer are inclusive of this initiative. The anticipated outcome of this initiative is that all agency endpoints would be aligned under a common platform that deploys scripts, patches, and updates for proper security compliance and hardening. In short, agencies can expect to see the number of vulnerable endpoints to be drastically reduced. The solution is scheduled to go active in FY20 with ongoing funding each year thereafter. This funded initiative impacts all agencies and the timeline is FY20.

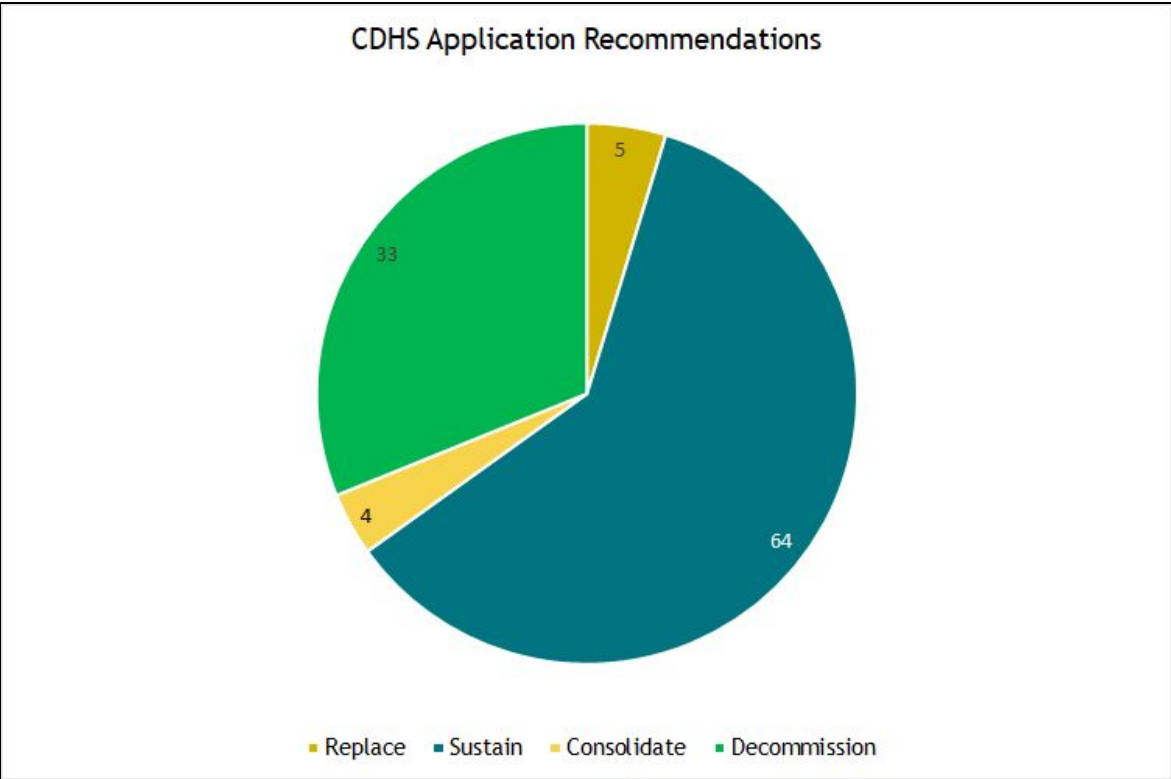
Smart Cities Exploration

A smart city is a designation given to a locality that incorporates information and communication technologies to enhance the quality and performance of urban services such as energy, transportation and utilities to reduce resource consumption, wastage and overall costs. Traditional smart city projects focused on community internet access, smart lighting, transportation and citizen data sharing. State effort around smart cities would be focused around the coordination of infrastructure and standards to enable smart applications that seamlessly transition as residents transition from one locality to another. This unfunded initiative impacts all agencies and the timeline is FY20-24.

Appendix C: CDHS Application Lifecycle Recommendations

The table and chart below show the applications used by CDHS, and the lifecycle recommendation for each application. In future years this will be expanded to include the application lifecycle timeline. The definitions for the recommendations below are as follows:

- **Consolidate:** Recommended when more than one application is being used to perform a single process. The multiple applications should be consolidated to perform the process.
- **Decommission:** Recommended for applications that have a definite plan to be decommissioned.
- **Enhance:** Recommended when an application that needs to be upgraded requires a more significant effort to upgrade than a recommendation to sustain.
- **Replace:** Recommended when an application needs to be replaced with a newer application.
- **Re-Platform:** Recommended when an application has the proper functionality but may be written in an outdated language or database and needs to be moved to a better platform.
- **Sustain:** Recommended when an application is functioning properly and does not require a major upgrade or change.





Colorado Department of Human Services

Five-Year IT Roadmap