VERMONT

Agency of Digital Services

# Strategic Plan

Jan 12, 2018

# Contents

# 1 Executive Summary

The Agency of Digital Services (ADS) is responsible for supporting the Administration's goals of growing the economy, making Vermont more affordable, and protecting the most vulnerable. To do so, the Agency is committed to proactively providing innovative, enterprise-wide, cost-effective, customer-focused information technology (IT) services and solutions in a secure, reliable and up-to date manner. The following Strategic Plan of the ADS sets forth specific direction for development and deployment of IT services and solutions for the State of Vermont that focus on "government modernization and efficiency, and revitalize our approach to economic development." (Scott, 2017)

The Agency of Digital Services (ADS) brings together technical and business professionals from across the Executive Branch to support the ongoing, statewide transition to digital government. Examples of this work include continuous evaluation and improvement of systems that deliver support to Vermonters and state employees. For example, turning Vermonters feedback into improved and enhanced experiences with government interactions. The agency will also manage strategic investments in technology and manage the timing and pace of digital government enhancements. Benefits of creating this new agency are reflected in its goals and objectives which are still a work in progress. For example, increasing data security, better communication and coordination across traditional boundaries, increased survivability and recovery when faced with disaster, and well informed spending decisions. With this in mind, ADS proposes the following goals that will enable the Administration's priorities to be fulfilled.

In Alignment with Governor Scott's Priorites --- the Agency of Digital Services identifies the following four goals:

1. By 2020, ADS will improve Vermonters' experience with government interactions by increasing online interaction
2. By 2020, ADS will centralize the project management function across the Executive branch of State government
3. By 2021, ADS will increase accuracy of reporting and support creation of a comprehensive Executive Branch IT budget that focuses on cost/benefit.
4. By 2022, ADS will reduce likelihood of unauthorized access and misuse of Vermont data by raising employee and citizen awareness of risks in cyberspace and continuously defending the state data network.

# 2 Executive Order

The creation of the Agency of Digital Services allows for restructuring by centralizing critical capabilities including procurement, decision making, and operations.

The Executive Order outlines in detail what the Agency of Digital Services is expected to achieve.

> WHEREAS, the Department of Information and Innovation and various State agencies purchase information technology (IT) products and services, administer IT programs and provide IT services; and WHEREAS, the existing structure of centralized IT and decentralized IT operating in parallel has made it difficult to (i) share data; (ii) capture comprehensive IT usage metrics, including spending; (iii) develop a comprehensive strategy for funding, procurement and use of IT; (iv) ensure results based accountability; and (v) collaborate on statewide best practices; and WHEREAS, many states

have restructured information technology governance in order to increase efficiency (Exec. Order No. 06-17 page 1, 2017)

The Executive Order, as interpreted by the Agency of Digital Services, sets forth the following strategic priorities for developing, deploying, and administering IT services:

1. Improve data collection and sharing along with other forms of communication among state agency and department technology resources
2. Improve IT governance, with a special emphasis on security and reliability
3. Utilize technology hardware and software and related skills and resources consistently and effectively across departments for increased efficiency and effectiveness of operations to the benefit to all agencies and departments
4. Develop a comprehensive understanding of IT spending to allow for prioritization and economies of scale
5. Support of results-based accountability
6. Realign IT resources to support State priorities; (Exec. Order No. 06-17 page 1, 2017)

# 3 Administration Priorities[i]

Governor Scott, per State of Vermont Executive Order number 01-17, has directed all State Agency Secretaries and Department Commissioners to establish the following as their strategic and operational goals:

- Growing the Vermont economy;
- Making Vermont an affordable place to live, work, and do business; and
- Protecting vulnerable Vermonters.

# 4 Agency Priorities and Goals

| | State of Vermont Administration Governor Phil Scott | Agency of Digital Services |
|---|---|---|
| **Priorities** | Growing the Economy<br><br>Making Vermont an affordable place to live<br><br>Protecting the most vulnerable | Cost and operational efficiency in developing, deploying, and maintaining stable, reliable, and secure technology<br><br>Information security that "protects information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction in order to provide integrity, confidentiality, and availability." |

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|---|---|---|
| | | Innovation and improvement through proactive leadership and effective project management |
| **Goals** | Additional Funding for the Vermont Small Business Development Center to Increase the Number of Business Advisers<br><br>Additional Funding for Downtown Tax Credits to fund Additional Co-Working & Maker Spaces for Start-Up Businesses<br><br>new TIF Tax Benefits to Increase Downtown Development and Job Creation<br>Sales Tax Exemptions to Strengthen the Aerospace and Forestry Business Sectors<br>Protected and Streamlined Telecommunications Permitting to Expand Broadband & Connectivity<br><br>$3 million to the Vermont State Colleges to Stabilize Tuition a New Career-Pathways Focus in the Agency of Education<br><br>New Director of Drug Abuse Prevention Policy Opiate Coordination Council, Dedicated to Prevention, Enforcement, Treatment & Recovery 1st Annual Statewide Substance Use Disorder Workforce Summit<br><br>Launched an ACO Pilot Program to Provide Quality Health Care at Lower Costs<br><br>Strengthened Penalties for Financial Crimes Against Vulnerable & Elderly Vermonters | By 2020, ADS will improve Vermonters' experience with government interactions by increasing online interaction<br>By 2020, ADS will centralize the project management function across the Executive branch of State government<br><br>By 2021, ADS will increase the accuracy of reporting and support creation of a comprehensive Executive Branch IT budget that focuses on cost/benefit.<br><br>By 2022, ADS will reduce the likelihood of unauthorized access and misuse of Vermont data by raising employee and citizen awareness of risks in cyberspace and continuously defending the state data network. |

| | | |
|---|---|---|
| | $48 million in Clean Water Funding Holding Accountable St. Gobain and Fighting for those in Bennington County Impacted by PFOA Contamination<br><br>Alleviated the Burden of the "Benefits Cliff" by Increasing Asset Flexibility<br><br>Defended Civil Liberties & Constitutional Rights by Protecting Personal Information from Compulsory Collection<br><br>$35 million Bond for Affordable Housing-- Creating 550-650 New Housing Units, Supporting Thousands of New Jobs, and Leveraging up to $100 million in Additional Housing Funds<br><br>Priority Housing Project (PHP) Programs to Encourage Housing<br><br>$3.5 million for Child Care for Working Families<br><br>The 1st Time in Memory we have a Budget with NO New Taxes or Fees Stopped Property Tax Increases and Reduced Residential Property Tax Rates | |
| **Strategies** | | 10% increase in online interactions by 2020.<br>Two national-level awards for web services. # of transactions accomplished online when compared to 2017 baseline<br>90% of our online services need to be interactive and responsive by 2020 |

# 5 Agency Guiding Principles

The following guiding principles are a set of established criteria developed by the ADS for use by all agencies committed to the establishment of sustainable technology solutions.

## 5.1 Transform our customer experience

- Deliver measurable value to our partners in state government
- Engage early and often
- Be honest about the scope of our challenges
- Work with agencies to understand their mission
- Invest in Agency and project success

## 5.2 Innovate and Operate effectively, efficiently

- Master the fundamentals to be the best
- Balance the value of developing new capabilities with project risk & cost
- Provide training and empower our employees

## 5.3 Invest in our technology

- Continuous improvement requires continuous education
- Reuse existing technology solutions before buying new, buy before build

## 5.4 Secure Vermont's data

- Security is everyone's responsibility
- Data, not systems, is our most important asset

## 5.5 Develop Strategic Partnerships

Focus efforts on implementing applications used across the Enterprise as preferred to the development of similar or duplicative applications. Utilize, leverage and consolidate application and servicing licenses where and when possible. Collaborate with business groups to identify areas where disruptive technologies will impact the business.

## 5.6 Leverage Cloud Services

Aggressively support and drive the State of Vermont's Software as a Service First and Preferred Cloud services strategies. Where and when possible, technology services (applications, systems, and data) should virtualize resource allocation and leverage cloud computing. Services should abstract resource allocation and avoid the tight binding of its resources to owners of the service.

## 5.7 IT and Business Alignment

Information management decisions are to be made under the business alignment perspective to generate maximum benefits for Agencies and the State as a whole. IT must direct its processes towards the business goals of Agencies and the State. IT architecture must implement a complete IT vision that is focused on business. Application development priorities must be established by

and for the entire state. Application components must be shared among all areas of the Agency and the State when capable.

## 5.8 Federated Support Model (FSM)

An operational framework designed to carry out the State's IT strategy using a federated approach utilizing layers of system administrator roles and responsibilities with strong governance. The Federated Support Model is designed for continuous improvement and flexibility as strategic initiatives evolve. With clarity on roles and responsibilities, reporting structure, and standard policies and procedures, efficiencies will be maximized. The Federated Support Model will be adapted to each new solution and training will be provided to each identified system administrator, specific to their role within the reporting structure of ADS. ADS will develop the capacity to onboard new business units internally thereby reducing the resources needed to contract with external vendors. Resources are required to execute pre-implementation planning activities at an enterprise level, which will include proof-of-concept projects.

# 6 Improve IT Outcomes

To achieve better and cost-effective government, ADS has identified these IT efforts and activities as a focus for resources and priority.

- **Transitioning** internal processes to the new organization and implementing an organizational change management plan. Transitioning activities include aligning technical staff with capabilities under a single Agency and assessing the State's technology maturity with a view to innovation, security, reliability, and growth.
- Acting on **opportunities for improvement**, particularly those that result in process efficiencies and cost savings. ADS will focus on these areas for improvement, streamlining technology procurements and centralizing project management.
- Developing an **application portfolio** that organizes the State of Vermont's IT assets by grouping together applications with similar functions, assessing the application's financial value, and cataloging applications to improve administration. An application portfolio will allow for agencies to share and leverage applications across the State.
- Defining a **service portfolio**, **service programs** and **service catalog** that rationalizes IT services and service level requirements across state government. Introduce more self-service opportunities to end users. A service portfolio will provide agencies and departments professional technical services and support in these areas:
    1. IT Management
    2. Application Support
    3. IT Finance
    4. IT Service Desk
    5. Data Network
    6. Hosting / Data Centers / Mainframes
    7. Security
    8. Telephony & Collaboration

- Establishing a set of **Key Performance Indicators** (KPI's) centered on operational effectiveness and IT spending. Alignment of **IT procurement and IT projects** with State of Vermont budget
- Taking an **inventory of skills** across ADS and creating improved resource utilization practices and opportunities for education
- **Improve security** compliance, posture and responsiveness by strengthening security tools, staffing and partnerships. Implement mobile and Bring Your Own Device (BYOD) policy enhancements and enforcement
- Implementation **of IT governance frameworks** across agencies – support IT and data governance programs throughout State Government
- Preferred **Software-as-a-Service (SaaS)** application acquisitions – preference for cloud-first applications. Drive remaining on-premise applications to the State's high-density private cloud environment.
- Expand and enhance the use of the state's Enterprise Resource Planning (ERP) system through modular application upgrades

| | Ownership | Activity |
|---|---|---|
| **Information Security** | Chief Information Security Officer | Automate security compliance process to optimize cost-effectiveness<br><br>Grow security to encompass all agencies<br><br>Raise security awareness among all employees |
| **Align IT Project Management to the Budget** | Enterprise Project Management Office<br>Chief Technology Office<br>Chief Financial Office | Align all IT Projects with funding and State IT Budget |
| **Preferred Software-as-a-Service (SaaS) Application Acquisitions** | Chief Technology Office / Department of Shared Services | Preference for enterprise-wide applications to be hosted in the hybrid cloud or managed hosted services |
| **Cloud 1st (PaaS, IaaS)** | Chief Technology Office | Platform (OS, DB, WebApp, some elements of IaaS) and Infrastructure (network, security, OS, environments) as a Service<br><br>Data Center Optimizations |
| **IT and Data Governance Programs** | Chief Technology Office<br>Chief Data Office | IT Portfolio / Asset Management<br><br>Support all agency activities concerning Data Governance |

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| | | Optimization of State System of Records Platforms – GIS and Master Data Management |
| **Enterprise Resource Planning (ERP) Optimization** | From ADS: CIO, CTO, CDO, CFO<br>From AOA: Secretary, Deputy | Enhanced capabilities of VISION<br><br>Build out "run-the-business" capabilities for more accurate dashboard finance reporting for Agencies (Leg, ADS, CPO/AOA, BGS – centralized purchasing)<br><br>Implementation of e-procurement<br><br>Grants Management<br><br>IT Asset Tracking<br><br>Financial systems consolidation (STARS/VISION) |
| **Network Optimization** | Shared Services | Track Internet of Things (IoT) acquisitions to the budget |
| **Uniform Reporting for Information Technology** | Chief Financial Office | Statewide accounting practices and methods for IT Spend. |
| **Service Desk Optimizations** | Shared Services<br>Office of Service Management | Optimize Service Desk by introducing more self-service options<br><br>Streamline Service Level Agreements (SLAs) with process improvements among all agencies<br><br>Single Call Center (18-19) |
| **End User Computing Optimization** | Shared Services<br>Desktop Solutions | Acquisition of Data Analyzer for information collection of systems and software used throughout the State |
| **Mobile and Social** | Shared Services<br>Chief Security Information Officer | Implementation of policy-driven mobile device management |
| **Ready and Educated Workforce** | Chief Technology Office<br><br>Department of Human Resources<br><br>Chief Security Information Office | Improve and enhance enterprise-wide educational opportunities through communication plan<br><br>Implement security programs for employees across agencies |

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|---|---|---|
| | Chief Data Office | Enhance and update IT Policies that govern IT; Acceptable Use, Mobile Use<br><br>Shared practices based on IT standards (IT Governance)<br><br>Continuing education<br><br>Promote and encourage paths to professional certification |
| **Vendor Management** | Shared Services<br><br>Chief Technology Office | Facilitate and harmonize integration activities and services among strategic partners |

# 7 Enhance Assets of Government

## *7.1 Information*

Information is a valuable resource and a strategic asset to State Government, its partners, and the public. To ensure that the State of Vermont is taking full advantage of its information resources, departments and agencies must manage information as an asset throughout its life cycle to promote openness and interoperability, and properly safeguard systems and information. Managing government information as an asset will increase operational efficiencies, reduce costs, improve services, support mission needs, safeguard personal information, and increase public access to valuable government information. Making information resources accessible, discoverable, and usable by the public can help fuel entrepreneurship, innovation, and scientific discovery- all of which improve Vermonters' lives and contribute significantly to the priorities of the Governor and the Agency of Digital Services.

For example, decades ago, the Vermont Center for Geographic Information (VCGI) was established to provide strategic governance and deliver high quality geospatial data, services, solutions, infrastructure and expertise to Vermonters. Since then, state government, entrepreneurs and innovators have used these resources to create navigation systems, weather newscasts and warning systems, location-based applications, precision farming tools, and much more.

To move these successes in data stewardship to the broader whole of State of Vermont data and information, the Agency of Digital Services has established the role of a Chief Data Officer who will lead agencies and departments in data management and governance. Information architects, data analysts, and data specialists are needed to help with business process modeling, data modeling, analytics, and data security. ADS embraces the goals of the Chief Data Officer by offering support services across state government. These goals include the following:

1. *Leveraging existing taxonomies and data models including Vermont State Archives and Records Administration and public records statutes* (Marshall)
2. *Aligning IT Lifecycle stages using common meta-data across functional domains, precisely those services that are critical for the operations of state government.*

3. *Revitalizing the role of records stewards to include data stewardship*
4. *Proactively communicate with the business regarding their role and the value of their data*
5. *Enhance and optimize the State of Vermont's Open Data environment for Government transparency.*

## *7.2 Technology Assets*

Given the fiscal climate and budget constraints with which governments must operate, valuable hardware and software technology assets must work at full capacity to fulfill governing objectives. Underutilized, underperforming or inefficient technology must be consolidated or replaced. Costs of excess software licenses must be eliminated.

Under the direction of the Chief Technology Officer, Chief Information Security Officer and the Chief Finance Officer, ADS will implement IT Asset Management. The State has many technology assets that will be leveraged across agencies and departments. IT Asset Management along with Portfolio Management will be implemented. These management frameworks will optimize software licensing, technology procurements, extend system lifecycles and minimize duplicative technologies throughout the State.

Initiatives underway to enhance the value of our technology assets include:

- Ensure that cyber security is effective while not hindering the application of technology
- Capture a total picture of IT investments within centralized tools
- Gather and report information about technology assets on our network, including hardware, installed software and software utilization
- Track software licenses and usage for optimum license management and compliance
- Identify best of breed technologies and practices to be shared across agencies
- Embrace ways to foster technology innovation and reimagination
- Continuous measurement of stakeholder satisfaction with the digital government

# 8 Enable Successful Projects

By statute the State of Vermont created (3 V.S.A. § 2222(a)(9) the Enterprise Project Management Office (EPMO). The EPMO tracks and provides oversight for IT projects with lifecycle costs[1] over $500,000. The table below highlights currently approved technical projects underway across agencies.

| IT Activity* | Total Lifecycle Costs 1000s |
|---|---|
| **Administration** | |
| AOA BGS Print Shop Digital Printing Workflow Solution | $2,011 |
| AOA Enterprise E-Procurement Solution (ERP Phase III) | $5,931 |
| AOA Enterprise Resource Planning Expansion | $17,551 |
| AOA LIB Integrated Library and Resource Sharing System | $1,508 |
| AOA Talent Acquisition Management System | $7757 |
| DHR Learning Management System | $1,087 |
| TAX Capture, Scanning & Imaging | $4,605 |
| TAX eCurrent Use | $1,149 |
| TAX VTax | $57,907 |
| **Administration Total** | **$92,528** |
| **Agriculture** | |
| AGR VAEL LIMS Replacement | $1,789 |
| **Agriculture Total** | **$1,789** |
| **Digital Services** | |
| ADS Mainframe Outsourcing | $13,494 |
| ADS VoIP Implementation | $15,338 |
| **Digital Services Total** | **$28,833** |
| **Education** | |
| AOE Grants Management System Replacement | $2,063 |
| AOE Science Assessment | $3,204 |
| AOE Shared School District Data Management System | $10,607 |
| AOE State Report Card | $1,987 |
| AOE VADR (Longitudinal Data System (SLDS)) | $7,696 |
| **Education Total** | **$25,558** |
| **Human Services** | |
| AHS HIE - Blueprint Clinical Registry | $2,784 |
| AHS HIE - VITL Development | $5,910 |

[1] Lifecycle costs equal the costs of implementing the project plus on-going maintenance and operating costs over the life of the solution.

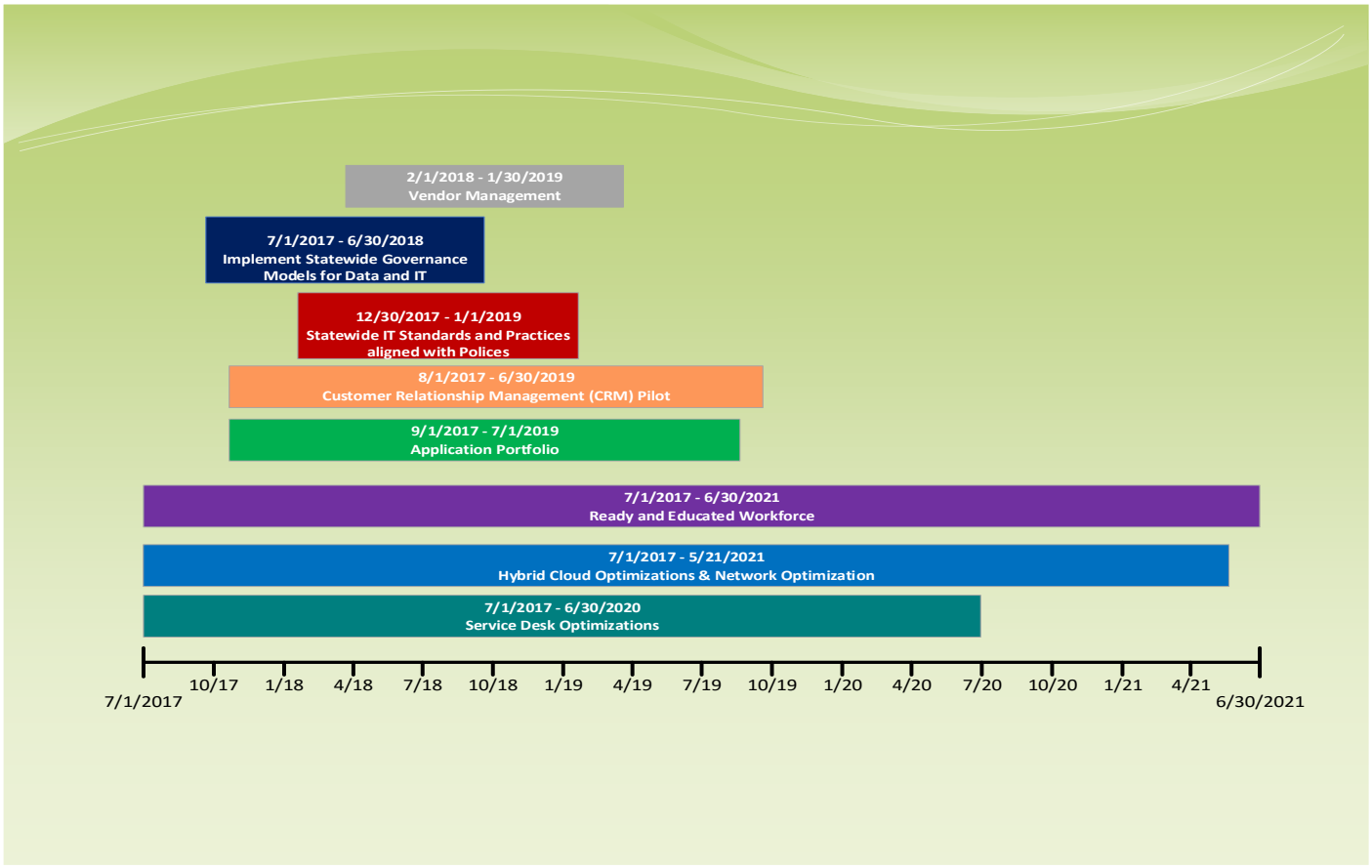
| | |
|---|---|
| **AHS Integrated Eligibility and Enrollment Program** | $164,881 |
| **AHS Learning Management System** | $157 |
| **AHS Operational Regulatory Standardization Development (ORSD)** | $9,026 |
| **AHS Vermont Health Connect (VHC)** | $396,013 |
| **DAIL DVR/ DBVI Case Management System** | $9,294 |
| **DCF FSD Results Oriented Management (ROM) Reporting Tool** | $1,231 |
| **DMH Vermont State Hospital Electronic Health Record (EHR)** | $2,009 |
| **DOC Inmate Healthcare Services Project** | $1,043 |
| **DVHA MMIS - Care Management** | $61,149 |
| **DVHA MMIS - PBM** | $39,658 |
| **VDH Ladies First Integrated Data System** | $613 |
| **VDH Starlims Lab Info System (Deployment and Automation)** | $3,991 |
| **VDH VPMS - Vermont Prescription Monitoring System Online Data (Phase 2)** | $744 |
| **VDH VPMS Online Data System (Phase 1)** | $817 |
| **Human Services Total** | **$699,326** |
| **Natural Resources** | |
| **ANR DEC Records Management System** | $911 |
| **Natural Resources Total** | **$911** |
| **OTHER Executive Branch** | |
| **DLC POS & Central Office** | $13,370 |
| **DPS AFIS System Upgrade - MorphoTrak** | $4,002 |
| **DPS e-Ticket project** | $2,000 |
| **DPS Mass Notification System** | $709 |
| **e911 Replacement** | $11,395 |
| **ODG Public Defense Case Management System** | $1,073 |
| **PUC/PSD Case Management** | $2,873 |
| **SOS Elections Administration** | $3,677 |
| **SOS Next Generation Licensing Platform** | $7,842 |
| **SOS Voter Accessibility** | $1,327 |
| **VDOL Unemployment Insurance Modernization** | $15,475 |
| **VDOL Worker Compensation Modernization** | $5,370 |
| **OTHER Executive Branch Total** | **$69,119** |
| **Transportation** | |
| **AOT Advanced Transportation Mgmt System (NH, VT & ME)/ 511** | $1,946 |
| **AOT Asset Management Information System** | $2,227 |
| **AOT Automatic Vehicle Location System** | $908 |
| **AOT Business Process Management System (BPMS)** | $7,121 |
| **AOT Construction Management System Replacement** | $15,288 |
| **AOT Grants Management Solution Implementation (GHSP)** | $656 |
| **AOT Learning Management System** | $271 |

| | |
|---|---|
| **AOT Mobility On Demand (PPAID, Public Transit)** | $893 |
| **AOT Statewide Property Parcel Mapping (Highway)** | $3,445 |
| **DMV Cashiering System Implementation** | $2,165 |
| **DMV Credentialing Issuing Services Replacement** | $10,483 |
| **Transportation Total** | **$45,407** |
| **Grand Total** | **$963,475** |

The Agency of Digital Services (ADS) will continue to provide rigorous principled oversight of these projects based on tried and tested methods for assessing technical risk.

# 9 Horizon

## Yearly starting 2018



# Appendix A. Towers of ADS IT Functionality

ADS has identified core IT functions associated with the operations of government. ADS will focus on each functional area to ensure agencies have the appropriate capabilities and resources to achieve their expected outcomes and stated business goals.

Ultimately, as agencies and departments grow and mature technically, ADS will seek to improve and enhance the operations of state government by expanding these core functional areas.

| Tower<br><br>(IT Functional Area) | Description<br><br>(What are the costs associated with the Tower?) |
|---|---|
| **IT Management** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things that touch the State network)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset or the purchase of a new software asset.<br>**Contractual Services:** Staff-Augmentation, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Distributed Overhead:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training |
| **Application Support** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Distributed Overhead:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Disaster Recovery / COOP:** includes personnel, hardware, software, contractual services, and Direct Costs. |
| **IT Finance & Administration** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Distributed Overhead:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Disaster Recovery / COOP**: includes personnel, hardware, software, contractual services, and Direct Costs. |
| **IT Service Desk** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Indirect Costs:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Disaster Recovery / COOP:** includes personnel, hardware, software, contractual services, and Direct Costs. |

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|---|---|
| **Data Network** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Indirect Costs:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Connectivity only for Data Network / Telephony:** includes both intra/interconnectivity, transmission cost, data center communication networks which are dedicated systems that are segregated or isolated from the general purpose Local-Area Data Networks (LAN) or WAN<br>**Disaster Recovery / COOP**: includes personnel, hardware, software, contractual services, and Direct Costs. |
| **End-User Computing** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Indirect Costs:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Disaster Recovery / COOP**: includes personnel, hardware, software, contractual services, and Direct Costs. |
| **Hosting / Data Center / Mainframe** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Indirect Costs:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Disaster Recovery / COOP:** includes personnel, hardware, software, contractual services, and Direct Costs. |
| **Security** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Indirect Costs:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Disaster Recovery / COOP**: includes personnel, hardware, software, contractual services, and Direct Costs. |
| **Telephony & Collaboration** | **State of Vermont Employees:** exempt / classified/limited service Employees<br>**Hardware:** laptops, data center equipment, smart boards, computers and storage, IoT (things)<br>**Software:** includes annual costs for software, licensing as well as the repair and maintenance of an existing software asset. Or the purchase of a new software asset.<br>**Contractual Services:** Staff-Aug, XaaS (platform-as-a-service, infrastructure-as-a-service)<br>**Direct Costs:** an overhead cost or expense uniquely associated with a functional tower, service, business unit or division, specific training<br>**Indirect Costs:** any non-Direct Costs or expense such insurance, accounting fees, ERP, occupancy, Administrative cost, mobile device fees, standardized training<br>**Connectivity only for Data Network / Telephony:** includes both intra/interconnectivity, transmission cost, data center communication networks which are dedicated systems that are segregated or isolated from the general purpose Local-Area Data Networks (LAN) or WAN<br>**Disaster Recovery / COOP**: includes personnel, hardware, software, contractual services, and Direct Costs. |

# Appendix B. Challenges and Progress

**Background**

Governor Scott created the Agency of Digital Service (ADS) by Executive Order at the start of his administration. ADS started its work on April 17, 2017 under Secretary John Quinn. Approximately 373 information technology (IT) professionals from across the Executive Branch now report to ADS, and most are embedded with the agencies and departments we serve. The new agency is working through many challenges, and along the way we've spurred efficiencies and economies. With the formation of ADS, the Department of Information and Innovation (DII) was dissolved and the new agency created. The new agency will unify all aspects of the State's IT operations into one Agency to address core technology and project management challenges, provide more efficient support for state employees and deliver better customer service, while enhancing accountability.

**Increasing Value**

By reorganizing the way digital services are delivered, the agency has been able to better appreciate the needs of its partners and find opportunities to more effectively solve business problems. While the work of the agency has found redundancies and opportunities to be more efficient, ADS has also developed new capabilities to better serve its partners in sustainable ways. The structure has allowed for improved communication and collaboration between IT resources across the individual agencies and departments. Some examples of these opportunities are reflected in the table below.

**Challenges**

The work to identify and analyze baseline information, including existing policy and policy gaps, resource inventories, applications and projects, etc. is well under way. These initial baselines will likely be fully documented by the end of FY18, and the work to steadily improve will be continuous. From that perspective, our work will never be complete.

**Accounting - The Numbers**

It will take two years to complete the budget for state IT people *plus* non-people (by non-people we mean software, hardware, etc.). We've completed the process to identify state IT people which are reflected in the FY19 budget submission.

Every day, federal and state priorities are blended, and a mix of funding is used to create and maintain services. As agencies and departments pursue money to support this work, technology costs are often embedded within program budgets and can be difficult to quantify.

To exceed the expectations of Vermonters and the state service providers we support, we must be transparent and comply with requirements of multiple funding entities. To do this, we need to uncover and account for the cost of technology. When technology costs are mingled with program budgets we are less able to control support costs. We must know the cost so we can optimize technology delivery. Our challenge

is to account for technology separately but simultaneously with other program costs. This is a new dynamic for many providers, and we continue to work on the framework.

**New processes – Change is needed**

Governor Scott has challenged us to be more efficient. Efficiencies are often found in cross agency collaboration, which is challenging when you consider our tendency to work in silos. We gravitate to silos because of funding sources and reporting requirements. We are working closely with the Government Modernization and Efficiency Team (GMET) and the Program to Improve Vermont Outcomes Together (PIVOT) to change our culture.

**New Relationships**

Technologists who formerly worked directly for program leadership now report through a technology hierarchy, and we all support those who deliver government services. Though the chain of command is different, the commitment remains. Yet it takes time to build confidence in a new model. The people we serve need to see this won't hurt them. In fact, we have promised improvement. There are many faces to improvement, and the next section includes examples; big and small, complicated and not.

**Progress**

**Process Improvements and Ongoing Activity**

**Procurement**

- We've created a **Procurement Advisory Team (PAT)** to expedite and thoroughly vet information technology (IT) procurement activity. Project procurements are reviewed by a panel of experts including program leaders, security and system professionals, procurement and legal experts and the Chief Information Officer's (CIO's) staff. This process has reduced cycle review time for contract review and signing from months to weeks to currently nine days and has modified procurements that don't align with strategy.
- To improve the quality of responses to Requests for Proposals (RFPs) involving technology, we designed and implemented a comprehensive **vendor response form.** The template encourages standardized responses to technical requirements and allows us to more efficiently compare the vendors' ability to meet our standards for data protection and sharing. It also makes it easier for vendors to describe their systems and services.
- We work closely with the Contracting and Procurement Office to create and **leverage multi-state contracts and consortiums**, e.g. those provided through the National Association of State Procurement Officers (NASPO) and other multi-state partnerships.
- We partner with industry leading IT strategy consultants and routinely incorporate their advice into **procurement and independent reviews**.
- Systems/Contract consolidations

- *Grants* – Completed work includes the Agency of Commerce and Community Development (ACCD) and the Agency of Transportation (AOT or VTrans). Work-in-progress includes the Agency of Human Services (AHS) and the Agency of Natural Resources (ANR)
- *Document and Content Management* – Work in progress includes AHS, ACCD, the Vermont Department of Labor (VDOL), ANR, and the Department of Public Safety (DPS).
- *Asset Management* – Work-in-progress includes AOT, the Agency of Administration (AOA) Department of Buildings and General Services (BGS) and ANR.

**Governance**

- Partner Advisory Council – The Agency of Digital Services (ADS) Partner Advisory Council (PAC) is the primary channel for our business partners to identify technical needs, opportunities for collaboration and to raise the collective understanding on what technology is currently available and where we are going. Monthly meetings focus on:
  - the progression of ADS;
  - awareness of existing service/technology and how it can be applied;
  - reviews of potential projects to find common interest;
  - government modernization and preparing for the future
- Standards-based approaches create efficiency and enhance security
- Standard *and* innovative defensive capabilities are supported by a coordinated state-wide effort to optimize our security infrastructure.
- The ability to dispatch humans *and* software to analyze and solve problems is supported by uniform management of devices.
- Shared Service Change Advisory Board (CAB)
  - The creation of a Shared Services CAB, which includes IT professionals across all of state government, has enabled us to better serve the diverse needs of our user base while maintaining a level of standardization and the associated costs savings for the services we offer.
- Microsoft Office 365 CAB
  - The creation of an Office 365 CAB, which includes IT professionals across all of state government, has allowed us to better share and utilize the existing core technologies included in our current licensing model.

**Security**

During the preceding 12 months (Jan-Dec 2017) the State saw over 4 million malicious attempts to gain unauthorized access across a variety of attack vectors. The top 3 were: Phishing URL's (1,577,284); Brute Force Attacks (1,391,206) and Malware (366,587). Despite this overwhelming number of attacks, we did not suffer a significant data breach in 2017.

| Month | Number of Malicious Attempts |
|---|---|
| January | 412,150 |
| February | 401,820 |
| March | 771,692 |
| April | 613,257 |
| May | 159,950 |
| June | 987,631 |
| July | 80,935 |
| August | 278,817 |
| September | 100,168 |
| October | 269,505 |
| November | 125,451 |
| December | 259,945 |
| | |
| 12 Month total | 4,461,321 |

- Firewall Consolidation. ADS Security has been working to consolidate the unmanaged firewalls across the state into our managed environment. This will give us better visibility into security events when they happen and ensure that all firewalls are configured to meet the state requirements. In the past 12 months we have completed the following:
    - Added a pair of Cisco ASA 5516-X firewalls to DFR's Montpelier office, replacing five unmanaged Netgear firewalls;
    - Retired a Cisco ASA 5505 firewall serving as a Tax DMZ for a public ftp server.
    - Added a pair of Cisco ASA 5525-X firewalls at VPCH, replacing a Cisco ASA 5505;
    - Added a pair of Cisco ASA 5510 firewalls at VVH, replacing an unmanaged Cisco firewall;
    - Added a Cisco ASA 5510 firewall at the Tax Williston office (Harvest Lane).
- Hired a new Deputy CISO.
- Reclassified a position to create an opening for a new Information Security Analyst (ISA) III. Position will be filled in the 1st Quarter of 2018.
- Security Operations Center (SOC). Security is working closely with Networking team and Enterprise Architecture to develop plans for a state-wide security operations center.
- Security Awareness Training. Security Awareness Training is loaded into the DHR Learning Management System and made available to all state agencies and departments.
    - Current Executive branch employees have begun to take the training.
    - New employees are required to take the training as part of their new employee orientation and onboarding.
- Cyber Security Action Team. A public-private partnership of industry experts was created to implement the Governor's plan for a cyber-security action team.
    - First meeting was held in November 2017.
    - A draft of initial recommendations is under development

**Project Management Improvements**

- Hired a Director of the state-wide Project Management Office. This office is known as the enterprise Project Management Office (EPMO)
- Established an EPMO Leadership team made up of lead IT Project Managers, Business Analysts and IT Contract & Procurement professionals across the State of Vermont to begin the establishment of one central EPMO
- Developed a statewide comprehensive IT project list, including active and planned projects

**Project successes**

- Vermont's Integrated Tax System (VTax) - Completion of a four-year effort to consolidate 37 tax types across three tax systems as well as a compliance data warehouse into one Integrated Tax System.
- Voice over Internet Protocol (VOIP) – Replaced outdated analog voice service with a more current digital platform utilizing existing State data circuits.
- Vermont Emergency Management – Ahead-of-schedule completion of a four-month project to move the DPS mass notification system to a new vendor and platform. The project was completed with successful tests of public notification. This project will greatly improve our public notice times and will expand our abilities to notify the public across a broader spectrum of state-wide programs.
- Asset Verification– Financial asset verification system to support eligibility determination.
- Bright Futures Information System (BFIS) – Major system upgrade for improved security and compliance.
- Learning Management System - an Enterprise Learning Management System and business process to consistently deliver role appropriate trainings and auditable participant tracking.
- Vermont State Hospital Electronic Health Record (EHR) - The state of Vermont was charged to “have an EHR in place” as a key requirement for the Certificate of Need established under 18 V.S.A. § 9351 for rebuilding of a new State hospital and integrate physical, behavioral, pharmacy, dietary, billing and lab functions in a single system.
- BGS Print Shop Digital Printing Workflow Solution - Upgraded digital print equipment in the BGS print shop to replace aging/end of life systems.
- Integrated Library and Resource Sharing System - Replaced an unsupported legacy system for sharing library resources among libraries throughout Vermont to equal the standard of service offered by nearly all U.S. states.
- AOT Advanced Transportation Management System - A new regional (New England region) 511 phone and web system that incorporates road and weather information from all collaborating New England states on one website.
- AOT Automatic Vehicle Inspection System – completed implementation of tablet based vehicle inspection system.
- AOT DMV Cashiering System Implementation - Implementation of a commercial-off-the-shelf (COTS) point of sale system.

- ANR Environmental Notice Bulletin - The Environmental Notice Bulletin (ENB) went live on January 2, 2018! Legislation was passed in May 2016 requiring DEC to create the new Environmental Notice Bulletin to allow the public to engage in the permitting/certification process more effectively. The Environmental Notice Bulletin makes it easier for applicants and the public to stay informed of permit activities in their community. The ENB allows users to provide public comments, request public meetings, and sign up to receive email updates which will be sent when an activity that matches their interests are posted to the ENB.

**Communication Improvements**

- ADS Website - A new public facing website was created to provide information and serve our partners outside of state government.
- A new ADS staff-only Intranet site has been created to disseminate information and updates to agency staff from a centralized location.
- Consistent messaging through staff meetings, email and group events
- ADS staff distribution lists include all IT staff across state government, so everyone is kept abreast of the status of IT and associated issues that may arise.
- We have had the first ever All Agency Staff meeting where all IT staff from across the state were invited to attend and participate. Our employees are our most valuable resource and this new model has allowed us to collaborate without the silos of the agencies we serve acting as a potential barrier.

**Better Resource Use**

- Completed identification of IT positions across the Executive Branch - 373
- Staffing - Greater visibility into agency requirements allowed us to reclassify tech vacancies, by matching skills to the need.
    - ADS employees are helping each other out internally, cross agency, offsetting vendor support requirements and related expenses.
- Baseline of current service metrics for ADS customers served by the Shared Services Division
- Evaluating use of central Enterprise Resource Planning (ERP) system to track resources/assets
- Created skillset survey
- Completed PC inventory – 9953
- Completed an application inventory – 1474
- Completed statewide executive branch project inventory - 332

**Statute Changes**

- Developed list of immediate changes required.
- Identified DII to ADS changes required to further enhance transformation and reorganization as well as those previously assigned to the Secretary of Administration

**Costs Saved or Avoided**

| Initiative | Agency/ Department | Amount | Frequency | Comments |
|---|---|---|---|---|
| ArcGIS Pro - Use existing licenses | VCGI | $ 8,910 | Annual | Three concurrent licenses- limits need for more expensive desktop computer & a third analyst |
| Convert to RSA Secure ID Soft Tokens from Hard Tokens | DPS | $ 1,125 | Annual | Minimal training for new solution. Converting from hard Secure ID tokens to Soft token (software version) saves $15 per user. |
| Discontinue contract for Bid Board Site Support | ACCD | $ 25,945 | Annual | Contract awareness and reduce duplication |
| DPS historically relied on a vendor for SQL support services, with an average annual cost of $30K. ADS/DPS staff have developed SQL skills allowing us to save $30K per year. | DPS | $ 30,000 | Annual | Invested in staff training of one employee, to take over SQL system management and eliminate support provided through contract |
| Eliminated KnowBe4 phishing software license | DPS | $ 7,000 | Annual | Downsized underutilized licenses |
| Eliminated development virtual machines | AOT | $ 28,059 | Annual | Infrastructure right-size |
| Fire safety Instructor Scheduling - SharePoint vs vendor developed | DPS | $ 25,000 | One time | Use existing software rather than purchase/learn something new. |

| | | | | |
|---|---|---|---|---|
| Independent review for private cloud refresh and BGS Print Shop | All | $ 35,000 | One time | Savings realized as the Independent Review (IR) was conducted by vendor who has an existing contract. IR done at no additional costs. |
| Insource Project Managers | BGS and DLC | $ 304,000 | Project Life | Assigned State PMs to two large IT Projects instead of vendor PMs. 2000 hours; Vendor - 150.00/hr. State - 74.00/hr. |
| Intelligrants - Hosting | ACCD | $ 3,143 | Annual | Move to cloud |
| McAfee to Windows Defender | AOT | $ 40,000 | Annual | Reduce duplication |
| McAfee to Windows Defender | Shared Services | $ 70,000 | Annual | Reduce duplication |
| Negotiated lower PM rate for VDH using ADS PM Contracts | AHS/VDH | $ 11,000 | Project Life | Contract awareness |
| Purchase of desktops and laptops through ADS HP Contract | DPS | $ 3,000 | Annual | Desktop and laptops purchased through ADS at a lower cost per unit |
| Remove unnecessary redundant circuit from data center | All Branches | $ 54,000 | One time | Wide area network (WAN) analysis and redesign |

| | | | | |
|---|---|---|---|---|
| Replace VSP Mobile laptops | DPS | $ 6,160 | Annual | New, higher capability rugged laptops for law enforcement are $140 per unit less expensive |
| Replace Citrix with Skype for Business (SFB) | All | $ 186,662 | Annual | Reduce license duplication |
| Replace Citrix with Microsoft Direct Access | AOT | $ 77,069 | Annual | Utilize existing Microsoft technology and reduce licensing |
| Upgraded existing PC's to extend their life for a couple of years. | AOT | $ 100,000 | One time | Upgrade PCs to solid state drives |
| Use ADS EPMO for RFP Creation instead of vendor | Agriculture | $ 8,500 | One time | Resource utilization |
| Virtualization of Infrastructure Environment | AOT | $ 20,200 | Annual | Elimination of maintenance associated with these |
| Use Feature Manipulation Engine | VCGI | $ 6,400 | One time | Utilized existing license at AOT |
| Moved ADS personnel back into state owned space | Shared Services | $ 10,000 | Annual | Cancelled external lease |
| Mainframe Outsource | Shared Services | $260,000 | Annual | Contract Pending, Savings would start FY19 |
| In-house IV&V In lieu of Consultant | AHS/CTO | $40,000 | One time | Met CMMS requirement for |

| | | | | |
|---|---|---|---|---|
| for Medicare Card Project | | | | verification and validation |
| Rubrik Data Center Back Up Solution | ADS CTO | $430,000 | One time | FY 18 savings |
| Private Cloud Refresh | ADS CTO | $300,000 | One time | Reduced hardware replacement and maintenance costs |
| Optum Hosting resizing | AHS | $100,000 | One time | Reduced virtual machines |
| | | **$ 2,191,173** | | |

# Appendix C. Million Dollar Report

http://epmo.vermont.gov/sites/epmo/files/Reports/2017%20VT%20Million%20Dollar%20Report.pdf

[i] http://governor.vermont.gov/governor-scotts-blog/governor-scotts-priorities