

Technology Services

2023 Budget Submission

Mission: to improve city performance

Waste Collection Services

- Denver is to expand its services to offer 110k+ customers weekly compost and recycling collection to reduce the amount of trash it sends to the landfill.
- Optimizing solid waste pickup routes
- Storm drainage and waste collection payment systems

Economic Recovery and Development

- Denver has plans to reinvigorate the downtown area. Modernizing Accela will make it easier for customers to expeditiously apply for permits and licenses.

Housing and Homelessness Data Management

- Denver continues to increase affordable housing options, homeownership among communities of color, and supportive housing.
- HOST is deploying a technical solution (NavAPP) to improve data collection and service delivery for homeless encampments

Public Safety

- New commissary system for jails
- Introduced a Massage Parlor license in Accela

Optimizing Resources

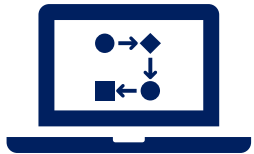
- Automation and self-service technologies can help address staffing gaps and challenges across city agencies.





Cybersecurity

- Protect and secure data against compromise
- Maintain a supported and compliant technology portfolio
 - PCI Compliance, Cyber Insurance, CISA Directives, ADA Compliance
- Confront outside threats that are evolving and increasingly dangerous



Innovation Demands

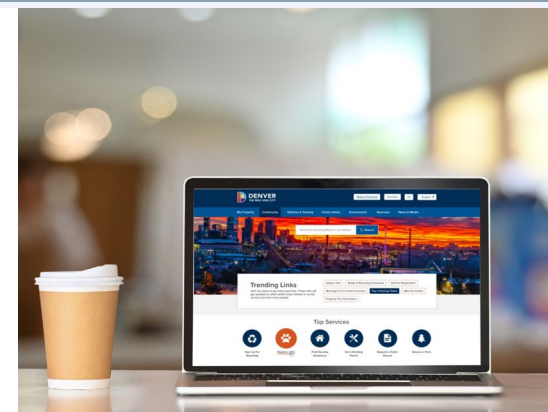
- City Priorities
- Opportunities to increase digital services and automation
- Risk return to Shadow IT



Equity Considerations

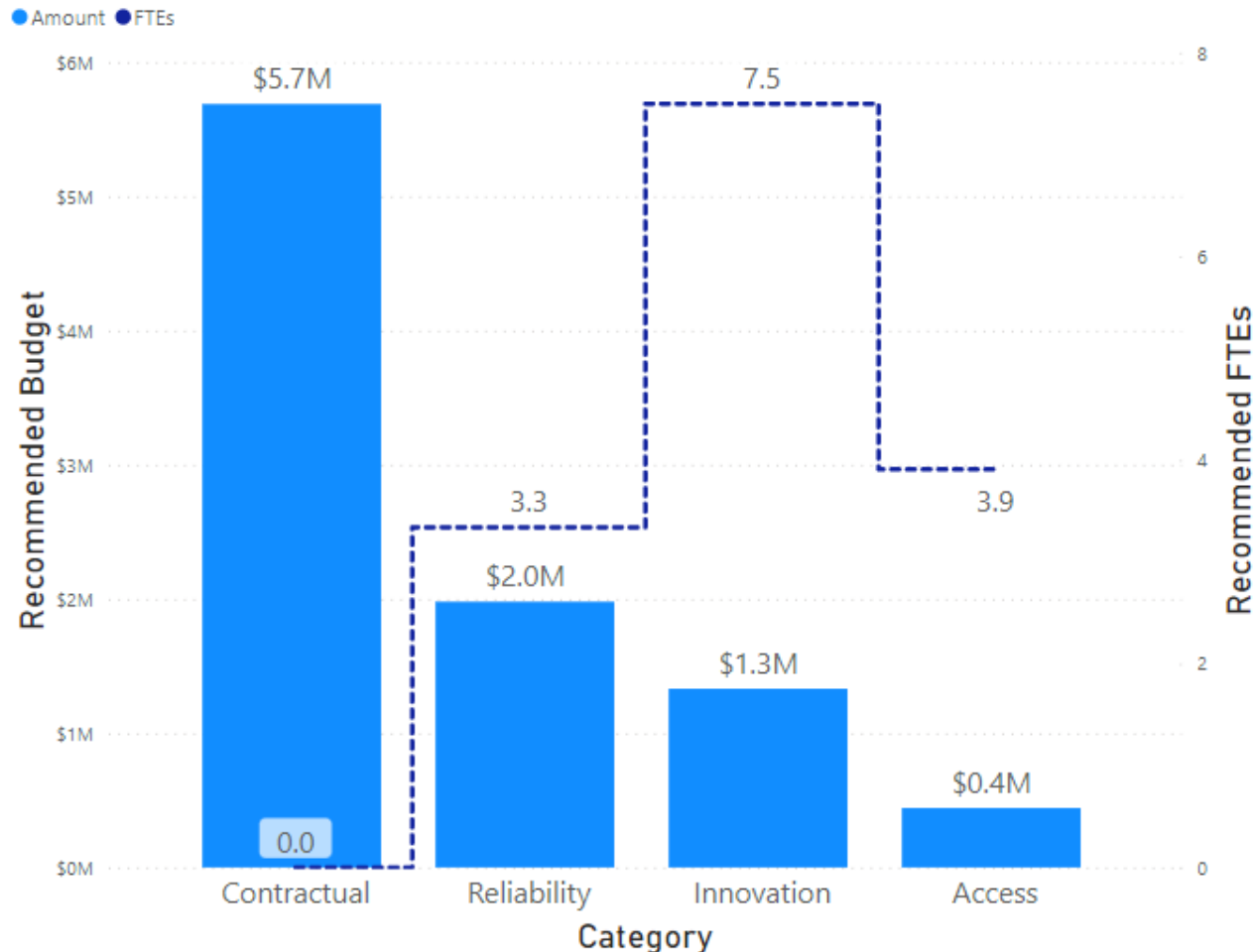
Equity Priorities

- Our ability to reach residents and provide them with an easy-to-access website and user experience means more resources and services get to the residents who need them most.
- By making more meetings and services accessible online, we are breaking down barriers and making it easier for all communities to get involved and access city services.
- We recognize that bias exists in data and will continue efforts to identify where it occurs and educate those who are leveraging it to make decisions that may unintentionally be causing harm.
- Our expansion of oversight through data protection tools and resources increases our ability to protect the sensitive and regulated data we collect and maintain on the most vulnerable and marginalized populations in Denver.



Recommended Budget Summary

2023 Recommended Budget by Category



Contractual:

Investment required to meet negotiated software contractual obligations

Reliability:

Investment that ensures technology works as expected

Innovation:

Investment that improves operational performance

Access:

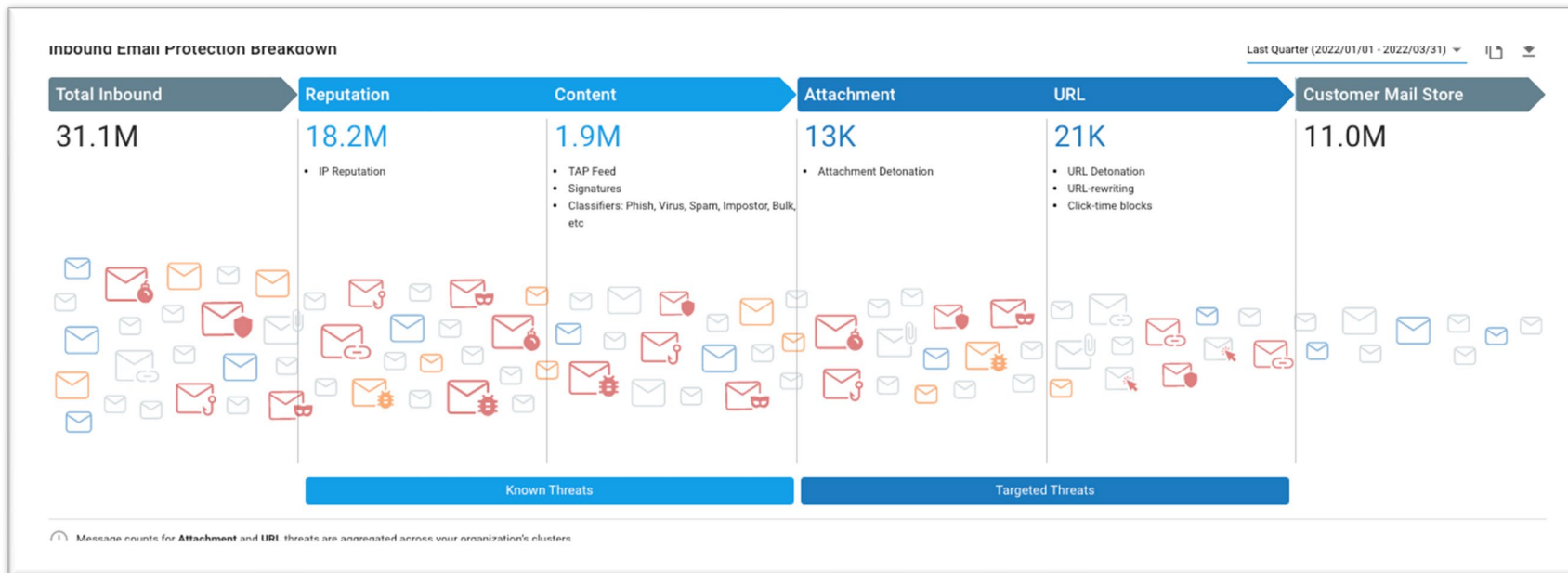
Investment that connects customers to information and services

2023 Budget Investment

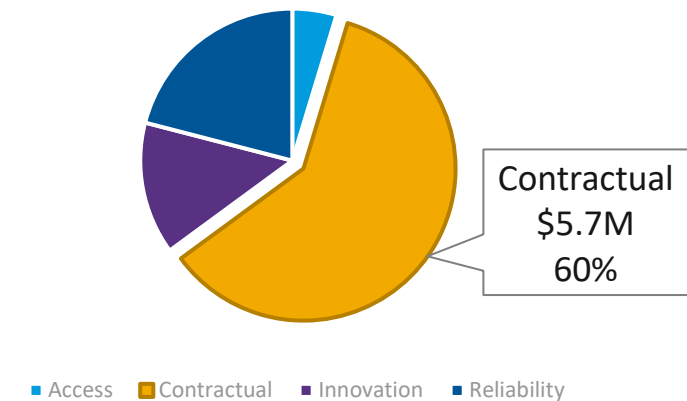
\$5.7M

0.0 FTE

Contractual increases to the maintenance costs associated with the software used for cybersecurity, enterprise applications, cloud services, site connectivity, and data storage. All these technologies and services are required to meet our compliance obligations (PCI, CJIS, etc.) and reduce risk.



Recommended Budget by Strategic Priority



2023 Budget Investment

\$2.0M

3.3 FTE

Lifecycle Management Program

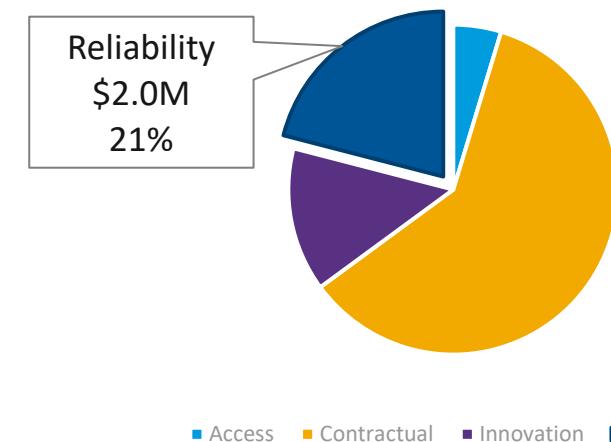
The use of unsupported software is dangerous and significantly elevates risk to national security, economic security, and public health and safety. This will ensure proper lifecycle management practices, continue modernization of our technology portfolio, and lowers our cyber risk and liability. It will also maintain adherence with Dept of Homeland Security/Cybersecurity and Infrastructure Security Agency (CISA), PCI and CJIS directives that prohibits the use of unsupported technologies.

CISA Bad Practices:

1. *Unsupported Technology*
2. Use of Default Passwords
3. Access without Multi-Factor Authentication



Recommended Budget by Strategic Priority



2023 Budget Investment

\$1.3M

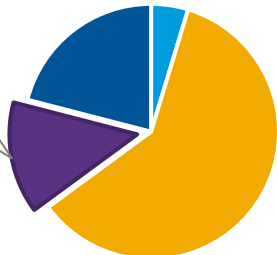
7.5 FTE

Innovation refers to the use of technology to improve operational performance. Innovation tactics strive to effectively manage resources, modernize and consolidate the application portfolio, automate standard work, and coordinate, amplify, and support other department's priorities.

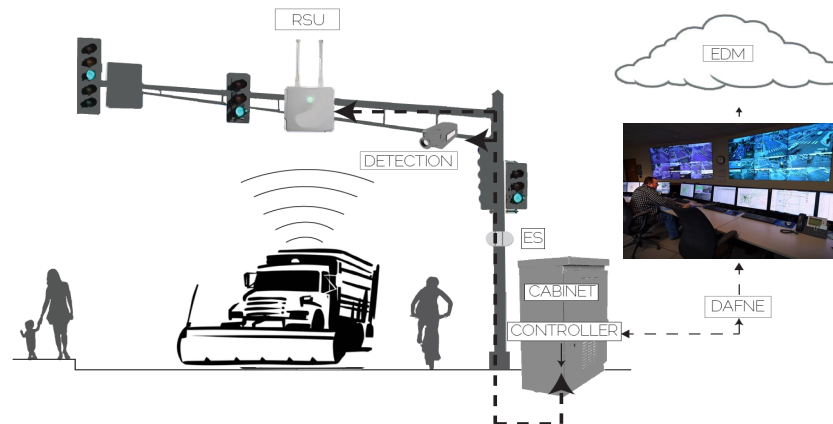
- Salesforce Resource Expansion
- Quality Assurance Resource Expansion
- Project and Change Management
- Increase Application Support Capacity
- Increase Business and Systems Analyst Capacity
- Increase Automation Capacity
- Increase Program Administrator Capacity

Recommended Budget by Strategic Priority

Innovation
\$1.3M
14%



■ Access ■ Contractual ■ Innovation ■ Reliability



2023 Budget Investment

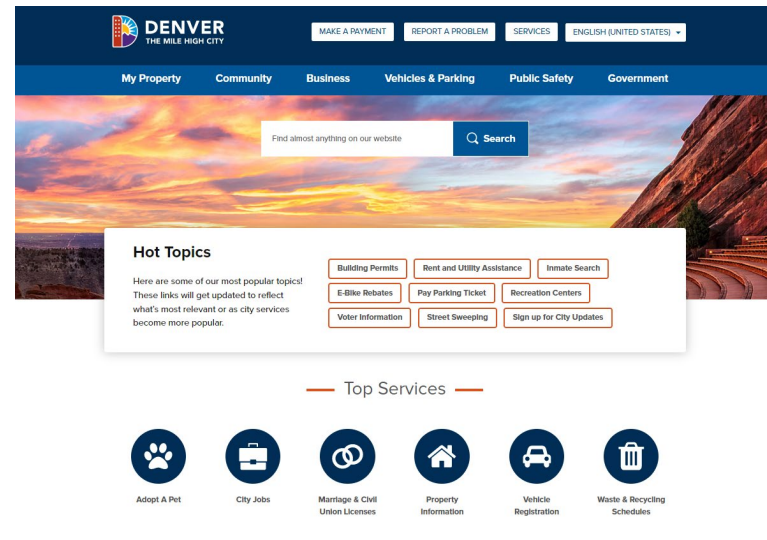
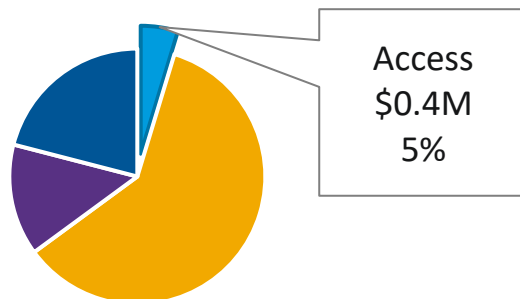
\$0.4M

3.9 FTE

Access is connecting customers to information and services. This investment will ensure our services are easily accessed by residents, meet accessibility requirements, and are adequately supported by staff. We are also investing in Denver Community Media, providing additional staff to support this resident facing program.

- Accessibility Resources
- Denver Community Media
- Increase Site Connectivity

Recommended Budget by Strategic Priority



American Rescue Plan Act Recovery

Round One: Update

| Program Name | Status | Amount Spent | Amount Remaining | Program timeline |
|---|----------------|--------------|------------------|------------------------|
| ARPA Revenue Loss – Technology Services | Implementation | \$2,475,093 | \$178,685 | May 2022-December 2023 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Vacancy Rate

8.5%

Time to Fill

40.5 Days

Turnover

11.78%

* Data as of Sept 1, 2022

Retention

- Hybrid work options
- Pay Equity
- Market Compensation Analysis
- Training Opportunities
- Focus on direct supervisor/employee relationships
- Engagement Efforts

Recruitment

- Hybrid work options
- Leveraging the Professional Diversity Networks for all recruitments along with posting on LinkedIn, Glassdoor, Indeed.
- Leveraging “total compensation” to attract top talent
- Creating a pipeline of talent that reflects the community we serve

EDI

- Hiring managers and interview panelists trained in inclusive recruitment guidelines and practices
- Engaged EDI team working on continuous education and process improvement
- Actively recommending Race & Social Justice Academy participation for all employees
 - 42 employees have completed
 - 13.42% of TS employees



Appendix

Other General Fund Expenses

| Expenditures | Reason | FTE | Duration |
|--------------|--|------|-----------|
| \$425,600 | Services restored through ARPA moving to the General Fund | 0.00 | Permanent |
| \$77,153 | Positions moved from other departments to Technology Services as a part of XO-18 alignment. There was a net increase of 1 FTE to accommodate these moves and department needs. | 1.00 | Permanent |

General Fund Expansion Summary

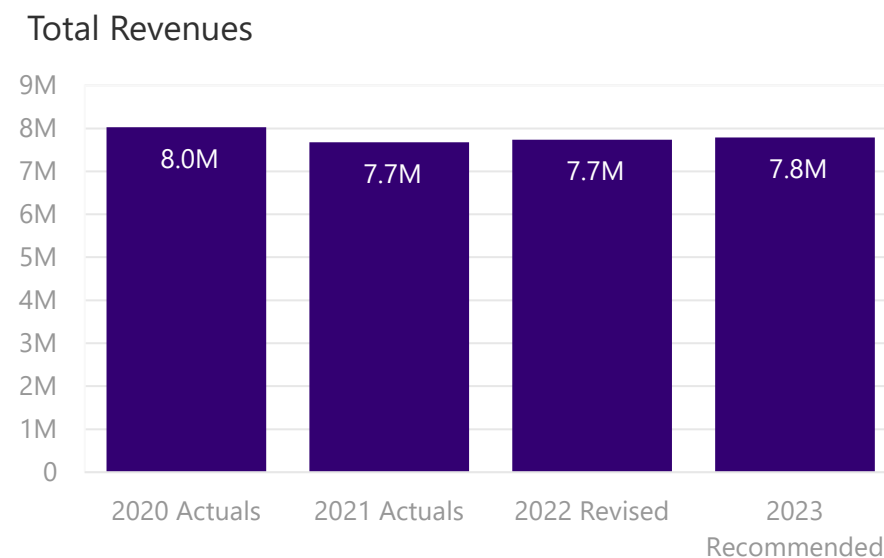
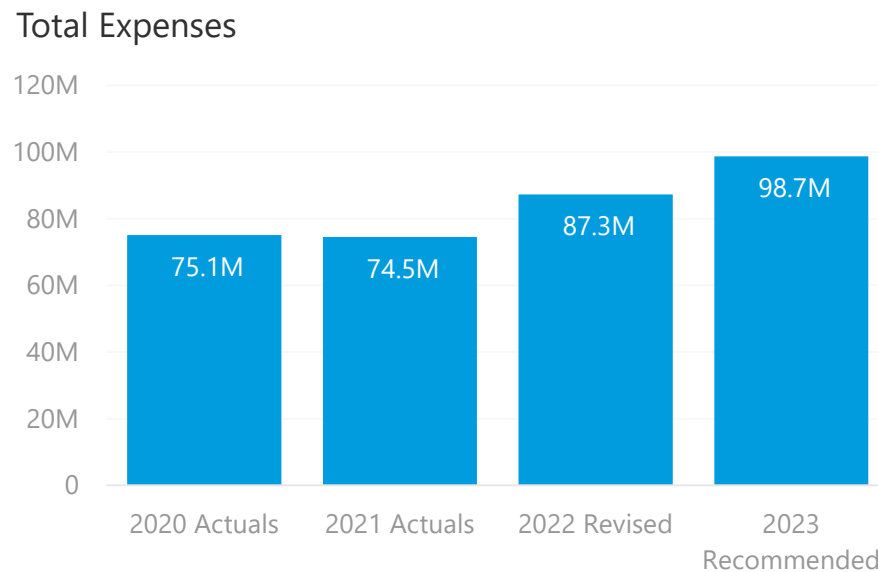
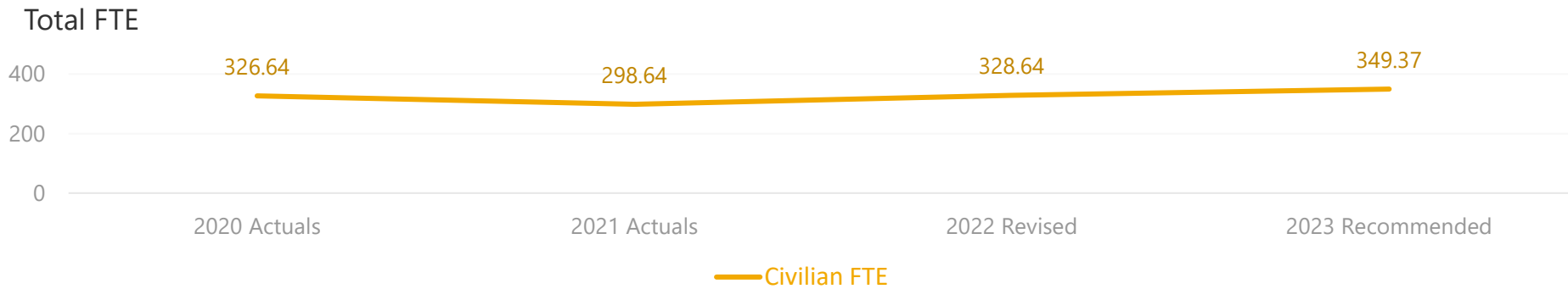
| Account Category | Permanent | One-Time | Total 2023 |
|----------------------------------|--------------------|-----------------|--------------------|
| Personnel | \$1,964,547 | \$0 | \$1,964,547 |
| Services and Supplies | \$6,086,370* | \$3,900 | \$6,090,270 |
| Capital Equipment | \$0 | \$15,860 | \$15,860 |
| Internal Services | \$0 | \$0 | \$0 |
| Transfer to TS Capital Project** | \$1,500,000 | \$0 | \$1,500,000 |
| Grand Total | \$9,550,917 | \$19,760 | \$9,570,677 |

**\$5.7M of the Services and Supplies requested is for existing contract increases*

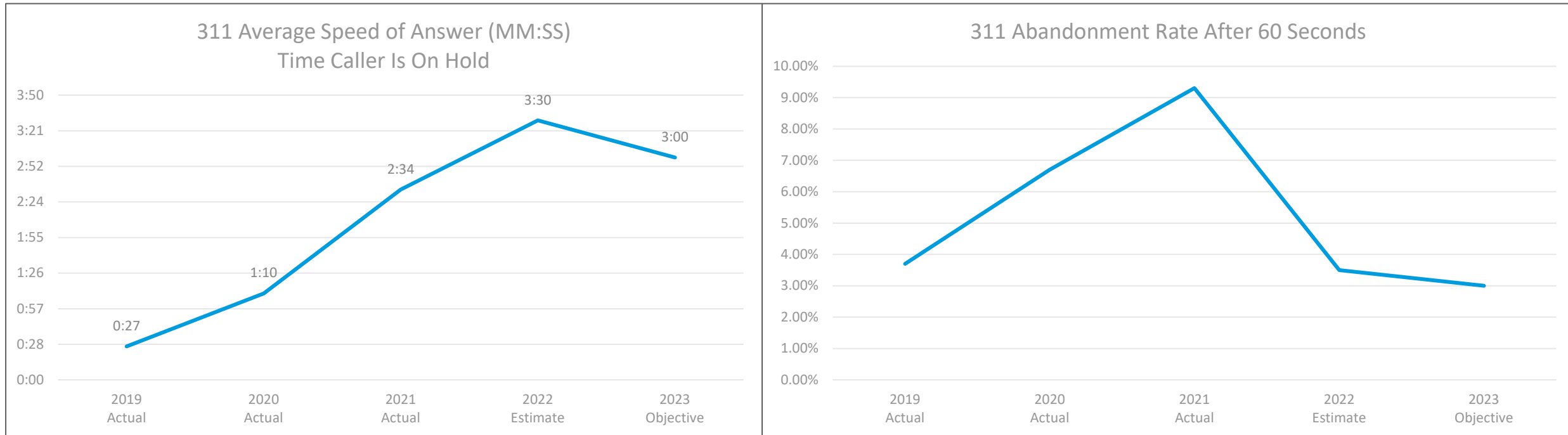
***\$1.5M for 3 years*

| Permanent FTE | On-Call/Limited FTE | Total 2023 FTE |
|---------------|---------------------|----------------|
| 15.75 | 0.00 | 15.75 |

Technology Services General Fund Expenses, Revenues, and FTEs

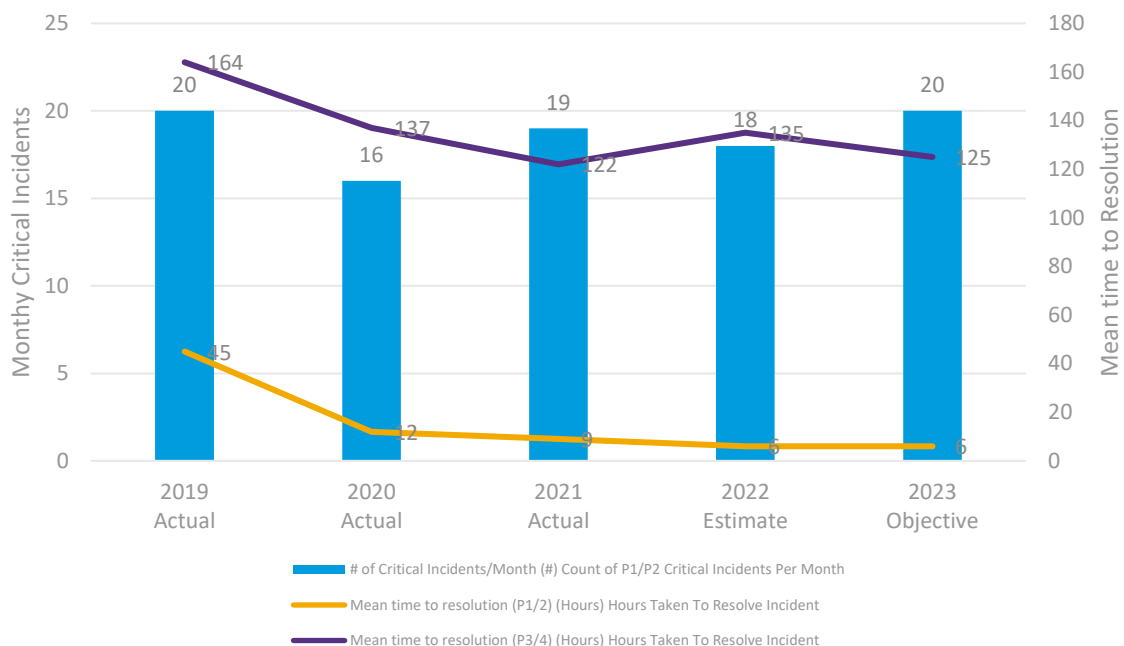


Key Strategic Metrics

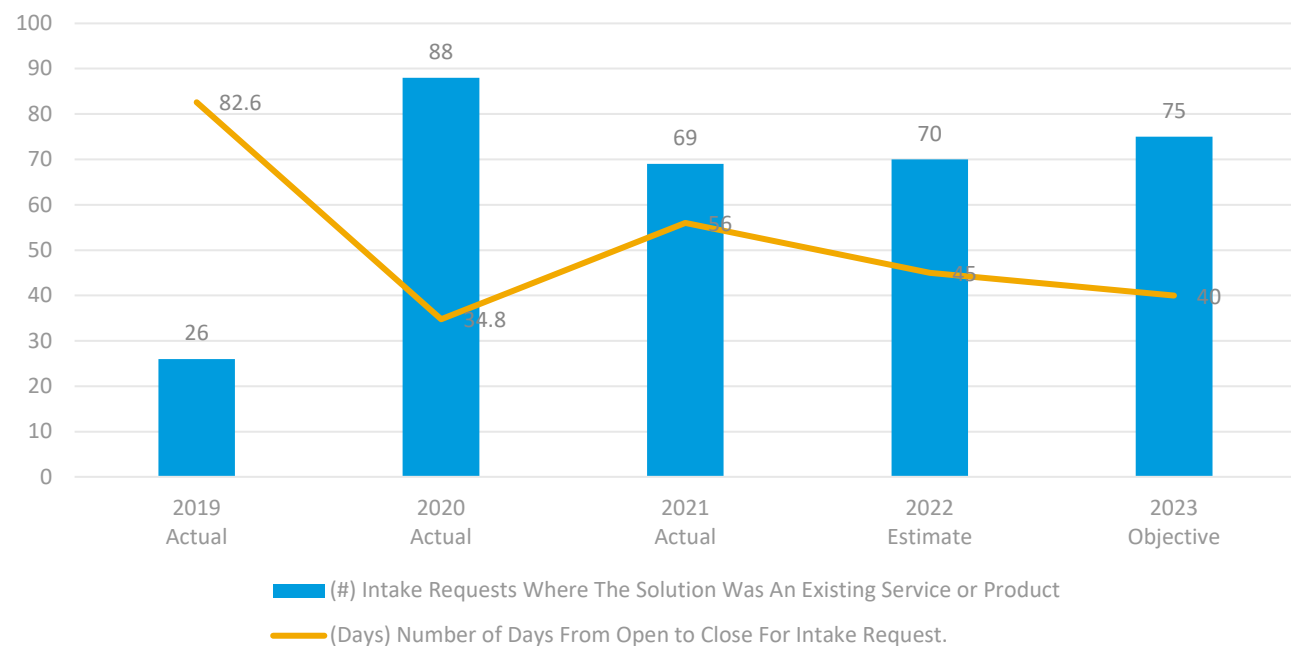


Key Strategic Metrics

Critical Incidents

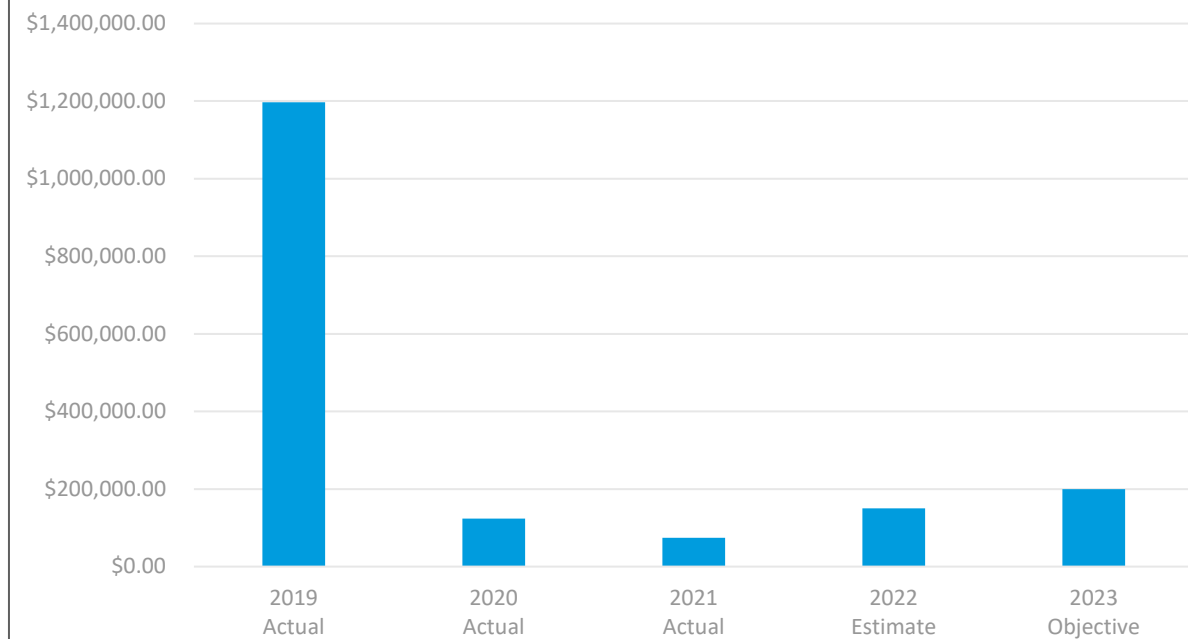


Intake Solution Reuse

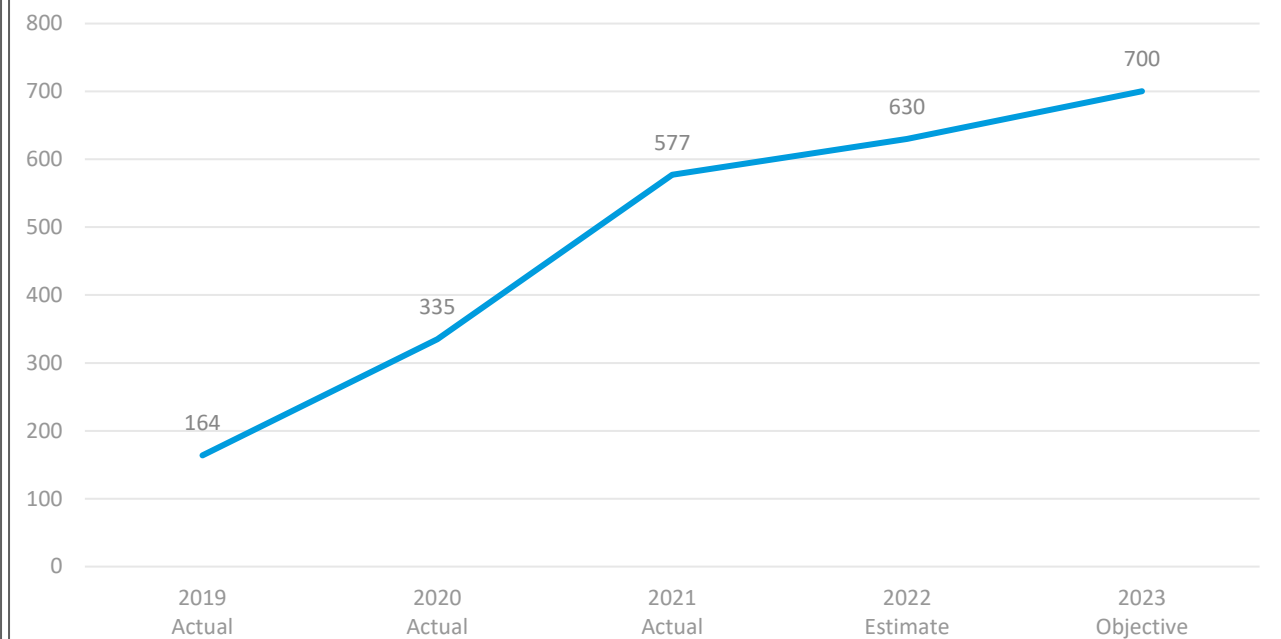


Key Strategic Metrics



Realized Savings from Peak A3 Forms



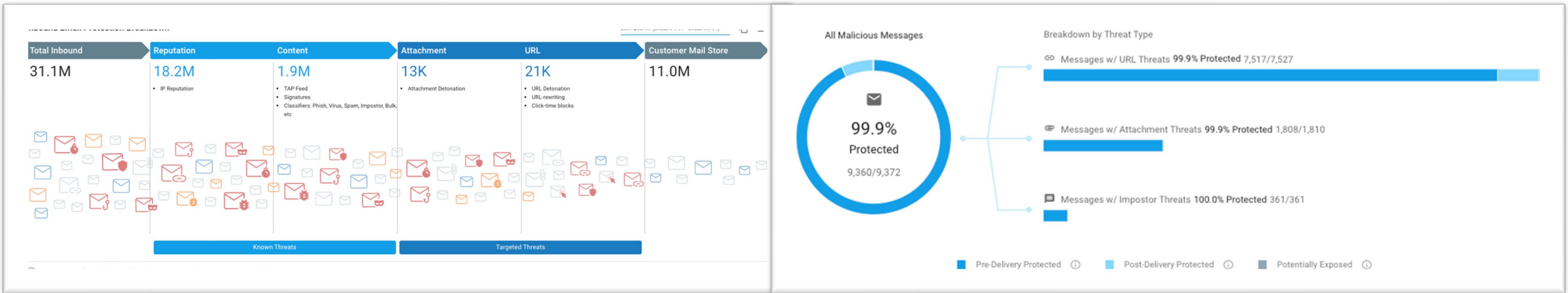
Data Visualization/Business Intelligence Service Requests







Core Contractual Obligations

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--------------|--|-----|-----------|
| \$5,688,570 |     | N/A | Permanent |

Contractual increases to the maintenance costs associated with the software used for cybersecurity, enterprise applications, cloud services, video surveillance, site connectivity and data storage. This increase is primarily driven by the addition of micro-segmentation to our data center, managed cyber detection and response (MDR) services, operationalized iFund projects and technology priorities we inherited from agencies (DOTI - Rubicon). All these technologies and services are required to meet our compliance obligations (PCI, CJIS, etc.) and reduce risk.



Lifecycle Management Program

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|---|--|--------------------------|-------------------------|
| \$2,147,310 Personnel: \$647,310 Prof Svcs: \$1,000,000 Licenses: \$500,000 |     | 5 Permanent FTE - Scaled | Temporary and Permanent |

The use of unsupported (or end-of-life) software is dangerous and significantly elevates risk to national security, economic security, and public health and safety. This investment will ensure proper lifecycle management practices, continue modernization of our technology portfolio and lowers our cyber risk and liability. It will also maintain adherence with Dept of Homeland Security/Cybersecurity and Infrastructure Security Agency (CISA), PCI and CJIS directives that prohibits the use of unsupported technologies. This budget recommendation contains permanent General Fund FTEs, in addition to a temporary 3-year increase of the ZI908 capital transfer of \$1.5m annually.

CISA Bad Practices:

1. *Unsupported Technology*
2. Use of Default Passwords
3. Access without Multi-Factor Authentication



Salesforce Resource Expansion

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|--|----------------------------------|-----------|
| \$358,364 Personnel: \$186,124 Prof Svcs: \$169,800 Cap Equip: \$2,440 |   | 1.5 (2 employees starting Q2) | Permanent |

Through this initiative we are seeking to increase capacity of the Salesforce team to address roadmap and enhancements. With current staffing the applications team will only be able to commit to maintenance/enhancement items and a single large project at a time in 2023. The ability to advance the program into new technology or service offerings is dependent on these additional resources. Without them we will continue to operate in the same rut we've been in for a time, focusing on enhancements and single projects. This translates to maintaining the enhancements and DOTI Storm Billing. There will be limited capacity to start DOTI Sewer Billing or additional HOST projects without additional contingencies in place.

Sample Enhancements

- Elections Ballot Tracking
- Routing Pocketgov Encampment Calls
- Workday Integration
- Case sharing

Sample Projects

- CASR Certifiably Green
- PAYT Affordability
- STAR Program Community Engagement
- Excise and Licensing Short Term Rental integration

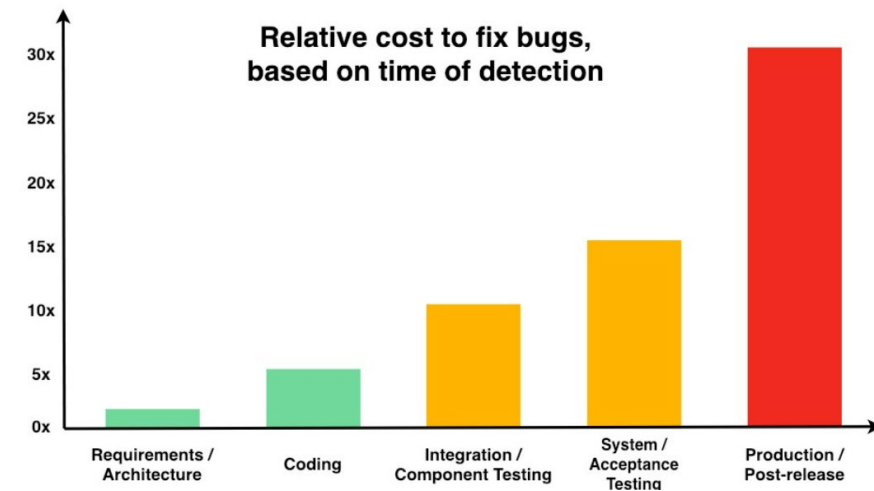
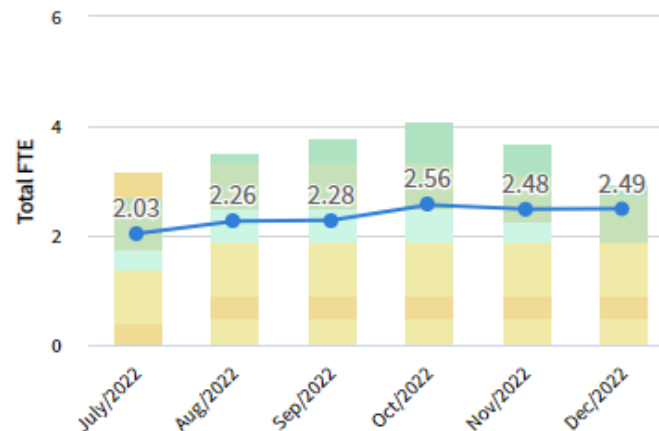


Quality Assurance Resource Expansion

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|---|---|-------------------------------|-----------|
| \$273,182 Personnel: \$93,062 Prof Svcs: \$178,900 Cap Equip: \$1,220 |  | 0.75 (one FTE starting Q2) | Permanent |

This budget recommendation will create a new QA Specialist positions and provide professional services to focus on performance testing, automation, and more technical tasks such as API, webservices, and database testing. Current demand exceeds available resources, and the lack of QA capacity has limiting effects on project initiation and completion. The three types of testing these positions will perform are crucial to ensuring the reliability (performance, scalability, availability) of critical applications and integrations such as Accela, RMS, and webservices (through Mulesoft).

2022 QA FTE Availability (Blue) v Pending PRJs



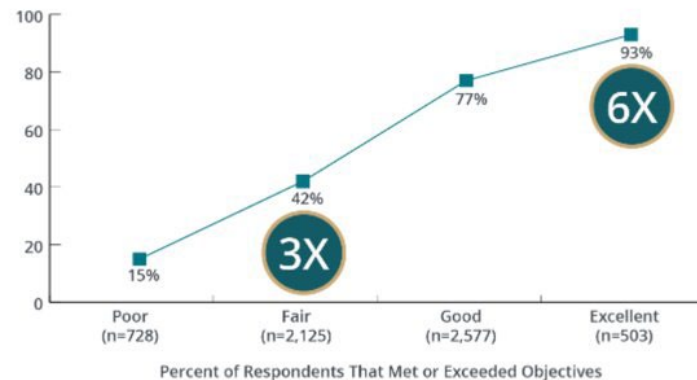
Project and Change Management

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|---|-----------------------------|-----------|
| \$88,295 Personnel: \$86,775 Prof Svcs: \$300 Cap Equip: \$1,220 |  | 0.75 (1 FTE starting Q2) | Permanent |

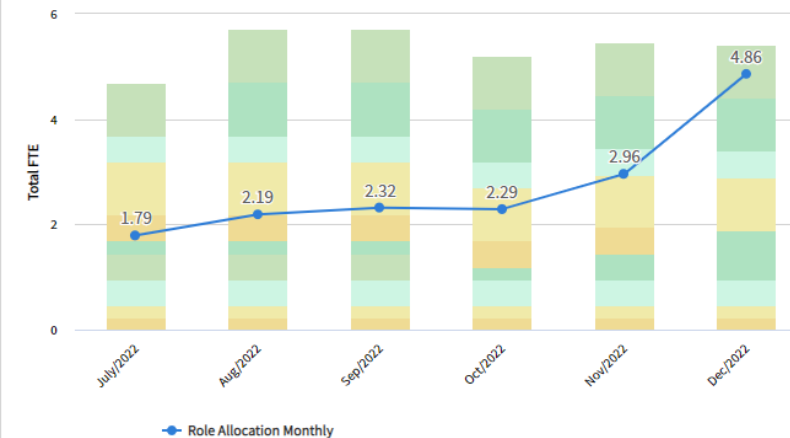
Projects of all sizes can execute more successfully when formally led by a project manager. Currently, smaller to medium size projects are not afforded a project manager, and consequently, take longer to execute and drain more resources than if properly managed through the PMO's methodology. This budget recommendation will help ensure Project Manager oversight over less complex/shorter duration technology initiatives/projects, which will allow TS to deliver more solutions for our customers annually.

Organizational Change Management (OCM) helps facilitate and address the process of requiring workers to learn new skills, reallocating responsibilities and priorities, or investing in new technology or software. We are recommending \$200,000 in Professional Services to introduce formal organizational change management practices to our project delivery.




Figure 5.1 – Correlation of change management effectiveness with meeting objectives



2022 PM Availability (Blue) v Pending PRJs

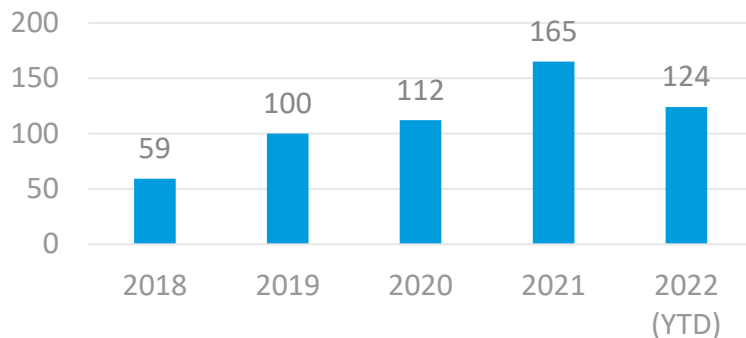


Increase Site Connectivity

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|--|-----------------------------|-----------|
| \$94,582 Personnel: \$93,062 Prof Svcs: \$300 Cap Equip: \$1,220 |    | 0.75 (1 FTE starting Q2) | Permanent |

The Sr. Cable Design engineer ensures that the connectivity and video needs within city facilities is designed and implemented per city standards and policies. There has been a 3x increase in requests from city agencies for this work. This is due to several factors that include: increased volume of projects due to the pandemic and recovery sites, modification of work locations to support hybrid work, new facilities and locations, new standards/policies/regulations requiring an update to existing infrastructure, and technology to increase the ability for consumption of services (Equity).

Average Days To Complete
Work Order



Growth Facts:

- Average 20 Intake Demands per month for connectivity and video
- 485% projected increase in volume over 2021

Increase Application Support Capacity

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|--|----------------------------|-----------|
| \$181,432 Personnel: \$174,013 Serv & Supp: \$600 Cap Equip: \$2,440 |   | 1.5 (2 FTE starting Q2) | Permanent |

The Application Service Management team supports over 300 business applications, including Salesforce and enterprise cashiering systems.

Current support for Salesforce has seen a 46% increase in monthly ticket volume compared to the prior year and demand is expected to increase further once Pay as You Throw is implemented. Expanding the use of Salesforce citywide, including the DOTI initiatives, is consistent with TS priorities around application reuse. However, application support capacity has not kept pace with application growth resulting in delays and a focus exclusively on keeping the lights on (KTLO). With additional resources, the team will have increased capacity to be more proactive and seek out solutions and upgrades that improve overall performance and decrease support needs.



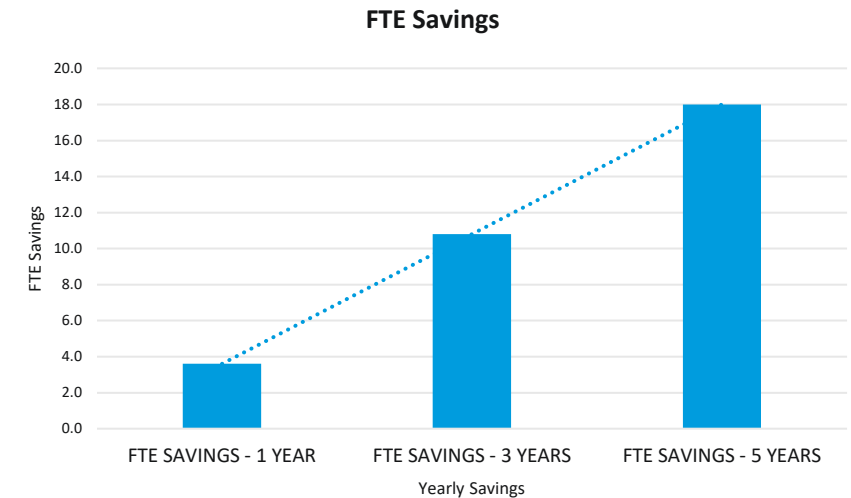
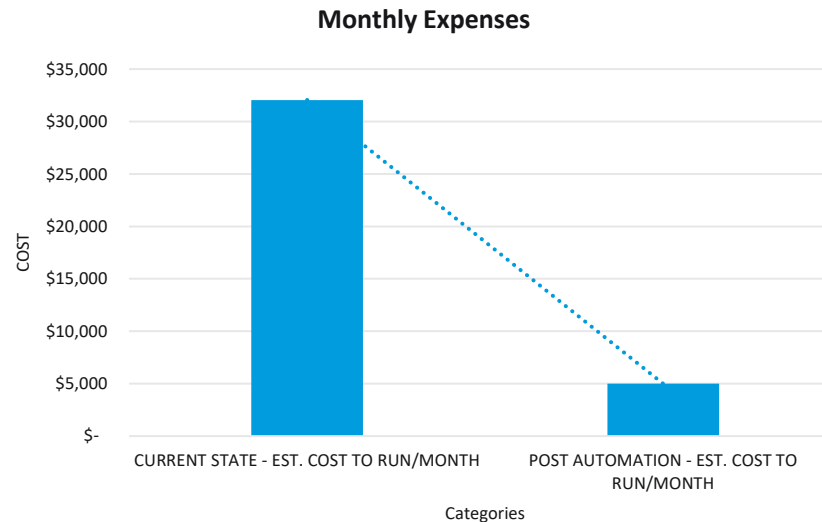
Increase Automation Capacity

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|--|-----------------------------|-----------|
| \$116,634 Personnel: \$115,114 Serv & Supp: \$300 Cap Equip: \$1,220 |     | 0.75 (1 FTE starting Q2) | Permanent |

This budget recommendation will add an additional FTE to automate routine IT tasks. Automation will decrease the amount of time that a city agency must wait for service to be delivered including middle of night and on holidays without intervention. Automation reduces risk of human error by performing work exactly as configured. Automation creates capacity for IT teams to spend more time on complex tasks.

Automation Priorities:

- Restore File/Folder
- Virtual EOC Creation
- RMS Password Changes
- HALO Camera on/off
- Remove stale computers
- Server Decommission



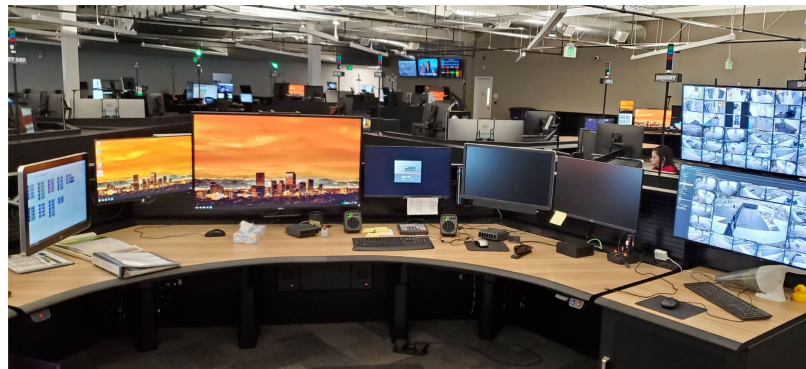
Increase Program Administrator Capacity

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|--|----------------------------|-----------|
| \$223,520 Personnel: \$220,480 Serv & Supp: \$600 Cap Equip: \$2,440 |   PARTNERSHIP RELIABILITY | 1.5 (2 FTE starting Q2) | Permanent |

This budget recommendation will create two new Program Administrator positions to support billing/payment processing and safety programs. Having these two positions will allow for oversight of the products that support payment processing services (Zuora/ECS/Citybase) and Safety services (ATIMS/RMS/etc). Currently, each product within the Safety program and that support payment processing are siloed (separate Project Managers and separate project teams). Having these positions would allow for "big picture" oversight of each program.

Core Safety Technologies

- CAD
- MDS
- 911 Call Handling Equipment
- Mobile Data Computers/Tablet Functionality
- Fire RMS
- Police RMS
- Electronic Patient Care Reporting
- Existing and Desired Interfaces
- High-level System Architecture
- Disaster Recovery Capabilities
- ATIMS



In 2021, **18%** of agency driven project intake requests came from Safety agencies. In the first half of 2022 the share of Safety intake requests increased to **37%**.

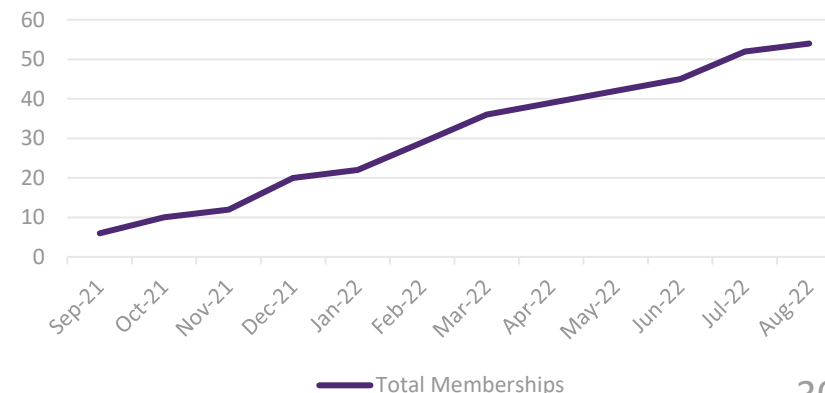
Denver Community Media

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|---|----------------------------|-----------|
| \$181,432 Personnel: \$178,392 Prof Svcs: \$600 Cap Equip: \$2,440 |    INNOVATION ACCESS PARTNERSHIP | 1.5 (2 FTE starting Q2) | Permanent |





This budget recommendation will begin stabilizing the "P" and "E" in the city's PEG (public, educational, government) media operation and help reduce the dependency on decreasing funds collected through cable franchise agreements. PEG fees collected from cable subscribers can only be used for capital needs and those funds are declining year-over-year. An investment in FTE and operational support will help offset the P&E budget deficit and allow the G (Denver 8 TV) to continue providing the same level of support to the city as it does now.



Denver Community Media Memberships



Red Rocks Video Production

| Expenditures | Strategic Plan Alignment | FTE | Duration |
|--|--|-----|-----------|
| \$50,000 |     | N/A | Permanent |
| <p>Red Rocks bookings continue to increase year-over-year, requiring additional demand for on-call video production services for concerts, Yoga on the Rocks, graduations, and other events. This is an offset from Arts and Venue. Increased expenditures 100% offset by revenue.</p> | | | |

