ALAMEDA-CONTRA COSTA TRANSIT DISTRICT

STAFF REPORT

MEETING DATE: 1/26/2022 **Staff Report No.** 22-002

TO: **AC Transit Board of Directors**

FROM: **Michael A. Hursh, General Manager**

SUBJECT: **Major IT Projects and IT Strategic Plan Annual Report**

BRIEFING ITEM

RECOMMENDED ACTION(S):

Consider receiving the Department of Innovation and Technology's Major Projects and IT Strategic Plan Annual Report.

STRATEGIC IMPORTANCE:

Goal - Convenient and Reliable Service
Initiative - Service Quality

The IT Strategic Plan and major projects are essential to ensure that the priorities and resources of the Department are aligned with the District's Strategic Plan. The IT Strategic Plan is used as a guide for department projects, resources, and initiatives.

BUDGETARY/FISCAL IMPACT:

There is no fiscal impact in receiving this report.

BACKGROUND/RATIONALE:

The Board of Directors approved the District's Strategic Plan on April 10, 2019. In response, the Department of Innovation and Technology developed an IT Strategic Plan, presented to the Board on Oct 28, 2020. The IT Strategic Plan is based on feedback from a survey of executives, stakeholders, and managers. It included a road map for ensuring that the Department of Innovation and Technology (IT) set priorities, projects, and resources in alignment with the District's initiatives.

The IT Strategic Plan is a guiding document that contains the following strategic pillars for the Department's use, Data, Security, Resiliency, Collaboration, Customer Focus, Efficiency, High-Performance Workforce, and Innovation. The District's continued investment in technology is essential to achieving its strategic business objectives and meeting customer expectations.

This staff report provides an update on the Department's major projects that correspond to that plan over the past twelve months.

A. Annual IT Diagnostic Survey:

In early 2021, an IT Diagnostic Survey was conducted by a third-party company, InfoTech Research Group, an independent IT research and advisory firm, using industry benchmarks, guidelines and tools. The primary purpose of this diagnostic was to gauge the effectiveness and alignment of IT initiatives with the overall District goals and objectives. The Survey included customer satisfaction measurement, asked for customer feedback, and performed qualitative and quantitative performance analysis. Measurement of the business stakeholder satisfaction, once a year, enables the Department to take a step back from day-to-day operations and look at the big picture. It helps understand the key stakeholder's satisfaction with IT and develops a path in reshaping the strategy. The Diagnostic Report provides the following key advantages:

1. Measure Business Stakeholder Satisfaction
2. Highlight the Business Impact of IT Constraints
3. Prioritize Key Issues and Create an Improvement Roadmap
4. Build Action Plan to Manage Critical Stakeholders

Enabling the District with reliable, secure, cost-effective and innovative technology solutions and satisfying stakeholders is the mission of the IT department. The purpose of this annual diagnostic survey is to collect and present stakeholder feedback. The scorecard report contains the following information:

1. Overall Stakeholder Satisfaction
2. Capacity Satisfaction
3. Satisfaction by the Department

This scorecard is the first step in the stakeholder management process. It helps IT connect with individual stakeholders to understand their needs, ensuring ongoing communication, ways to improve services delivery, and build transparency.

The major findings of this annual diagnostic results are as follows:

Benchmarks	Results	Industry Average
IT Satisfaction	80%	5% above industry average
IT Value	78%	4% above industry average
IT Staff	1.8% as % of Users	2.9% below industry average
IT Budget	3.1% as % of Revenue	1.4% below industry average

Here are some of the quotes and feedback from key stakeholders:

"IT has been incredibly flexible with our ever-evolving learning management system. Training calls upon staff often as some reports do not perform in the manner they were originally designed. IT is always accepting of the challenge to improve the inquiry processes."

"I would like to see a quicker response time or a better line of communication."

"The biggest opportunity is to be transparent about the library of applications available to employees. Employees need to know what tools are available to help make their work more efficient. It would be neat if the IT department could issue an email each week highlighting the features and the availability of an application in the library. It would also be good to provide employees with more training and education information so they can help themselves."

"The main thing is to think about how a hybrid workforce will be accommodated when we return to the office. Will new conference rooms be needed and how will hybrid meetings be accommodated in the conference rooms. How will staff be able to communicate both in person from their desks as well as with staff working from home and how do they do that without bothering all of their in-office neighbors."

"Over the last 12+ months, the IT Department have responded very well to the evolving priorities and needs of the District. As we move post-pandemic, the workforce set-up and environments inevitably shift to a more remote work space for most of non-frontline employees. Conducting an IT assessment focused on this particular area would be ideal."

B. Executive Summary of Accomplishments

AC Transit has always been a leader in deploying new technologies and adopting cutting-edge solutions, primarily for our riders to continue relying on safe, reliable, and sustainable public transit. The IT Department carried out numerous projects that support the IT strategic goals. Here is a high-level summary of the department's accomplishments and activities. A detailed update on each of these projects and initiatives are included in Attachment 2 of this report.

1. Embracing Digital Transformation albeit Pandemic Challenges:

COVID-19 has had drastic impacts on ridership, caused significant disruptions in daily routine, and created economic hardships for many of the communities we serve. However, this pandemic brought Information Technology into the spotlight, accelerated the digital transformation journey, and forced the District to realign business priorities towards sustainable recovery. The District has never faced these kinds of daunting challenges with keeping the critical transit systems operational and providing a swift and quick response to the Shelter-in-Place challenges. The Innovation and Technology Department Staff have done a remarkable job working around the clock and weekends to make sure the network is secure, computers are working, data is flowing, email messages are delivered, operator log-on is working, mechanics are generating work orders, and fiscal staff is processing timely payroll. During the last two years the District invested in various Innovative Technology Solutions to meet the unique challenges arising from COVID-19. In this "new normal" world, we needed to collaborate and share information with our riders and employees in real-time, improve service delivery, and maintain safe social distancing. Due to the pandemic and rapidly changing environment, new IT solutions are being deployed to alleviate operational pain points, enhance interactive planning, and improve rider convenience.

The IT Department continued to respond to the District's needs during the COVID 19 crisis. For example, the IT department supported the urgent need for a work-from-home computer infrastructure by provisioning more than 500 laptops, expanding remote meeting capabilities, and implementing cloud-based security measures.

The District is in the process of implementing a resilient hybrid cloud infrastructure model for server and data hosting. State-of-the-art Hyper-convergence technology was installed in our data centers to host virtual servers and store data needed for easy and secure access by all users on all devices. The new resilient IT Infrastructure enables the Public-Private Hybrid Cloud infrastructure model and significantly improves the availability of critical application servers and sensitive operational data. Additionally, the District has been fully utilizing various cloud-based collaboration and team sharing platforms like Office 365 SharePoint, Teams, and ZOOM for business continuity.

2. *Cybersecurity Framework:*

Cybersecurity is no more only an IT issue; it is a business risk and requires constant education and user training. In addition, work-from-home conditions have drastically increased the cybersecurity risks due to new cyberthreat vectors like - Home Wi-Fi, untrusted networks, personal devices, and Cyberattacks by State Actors. While the District has made progress in building a Cybersecurity practice, the threat landscape is continuously evolving due to rapid technological changes. For example, in a recent FBI report, the number of cyber-attacks has increased four times since the onset of COVID-19. As a result, IT has been developing a comprehensive cybersecurity roadmap for the short-term and long-term needs to address these existing and new cyber challenges. Most of the projects and initiatives are currently in the design phase and will be implemented soon to bolster our cybersecurity posture.

Service reliability depends on the availability of mission-critical IT systems, and the safety of operators and riders is ensured when all technology platforms are operating without any disruptions. As many of these IT systems are interconnected and use various computer hardware and software, protecting these digital assets from cyberattacks requires comprehensive security practices and controls. The District aligns cybersecurity strategy with the Critical Security Controls (CSC) published by the Center for Internet Security (CIS). The CSC is a prioritized set of best security practices, complying with multiple cybersecurity policy, regulatory, and legal frameworks.

3. *Data Governance:*

A Data Governance plan is now being implemented because data continues to be a District strategic asset. Since October 2020, the IT Department has been working with all the key stakeholders to help define the structure of Data Governance Committee that shall guide the District's investment in new data centric technologies such as the zero-emission bus project.

The data-driven decision-making initiative requires significant resources so that information is available across the District. Staff resources are assigned to 1) improve data quality; 2) improve reporting capabilities; and 3) implement an enterprise business intelligence platform.

4. *TEMPO IT Systems and Fiber Optic Network Infrastructure:*

The mission-critical communications systems installed, tested, and accepted as part of the Tempo Bus Rapid Transit line require 24/7 fiber network monitoring, maintenance and support. The first operational year of the Tempo line relying on the fiber optic communication network has affirmed the network design and reliability. On-going issues related to operations and maintenance are being handled in coordination with city and state

partners.

The network engineering and project management staff in the IT Department played a key role in completing the communication systems, network infrastructure, and rider-facing technologies of the Tempo Bus Rapid Transit (BRT) corridor. The in-house expertise and support required to monitor and manage the complex communications systems supports the IT Department's commitment to service availability and reliability.

5. Department of Innovation and Technology Project Management Office:

The Innovation and Technology Project Management Office (ITPMO) was created to provide structure and governance to IT related Projects that require the expenditure of department budget or staff resources. The ITPMO has been established to facilitate the delivery of the value promised to our business in support of the District's strategic vision via disciplined, performance-based project portfolio management (PPM).

The IT PMO is now establishing the methods, templates, and diagrams to:

- Manage project scope, design, development, testing, and acceptance, for new and existing projects;
- Create and Manage a Digital Dashboard for management of Department project budget resource allocation, project status and track department wide priorities;
- Provide data analytics and improved project tracking for continued improvements.

6. Enterprise and Business Critical Applications:

Computer Aided Dispatch/Automated Vehicle Location System

The Clever Devices Computer Aided Dispatch and Automated Vehicle Location (CAD/AVL) system, now in operation on all District vehicles, has entered Phase II, which is focused on deployment of Secure Bus Technology (SBT), continuous improvement in the performance and resiliency of the voice communication system, integration with Badge ID system for seamless operator logon, and enhanced data collection capabilities. The Secure Bus Technology (SBT) guarantees only authorized employees can operate a bus to help ensure safety of employees, passengers, and the public. This technology will validate an employee based on the data in Peoplesoft and HASTUS scheduling system to confirm both employee and route assignment respectively once their badge is swiped. Only after the successful validation certain components on the bus are enabled for safe vehicle operation.

Enterprise Asset Management System (Ellipse and Worklog)

IT staff successfully upgraded Ellipse in 2020 to the latest version of Ellipse 9, to mitigate the risk of Flash ending support at the end of the 2020 calendar year. Adobe first announced in 2017, that it would discontinue its Flash product at the end of 2020. All Ellipse 8 versions were dependent upon Adobe Flash technology for the browser-based user interface.

Ellipse Warranty Recovery project was successfully implemented to move AC Transit from a legacy Access Database to the Ellipse Warranty Recovery Module. The Implementation project accomplished 1) Automation of manual Warranty Recovery processes 2) Elimination of all paper-based warranty processes 3) Provide the ability to document additional Warranty Recovery Types that were not tracked 4) Clearly defined Warranty Recovery roles and responsibilities for repeatable, sustainable, and scalable Warranty.

AC Transit's mobile asset management web application supports maintenance staff by daily tracking work in the field. Bus stop teams use a built-in work order system to manage bus stop changes, while other departments use Work Log to report bus stop issues. New upgrades inform maintenance staff about facility repair work requests. All of this is connected directly to our primary asset management system. New features are being added to track daily work performed by platform and IT staff to meet the FTA requirement for our TEMPO line and platforms. Checklists and multi-team workflows will enable the many needs of our mobile staff, including analytics for reporting.

PeopleSoft

IT staff successfully implemented the mobile-friendly Peoplesoft Supplier Contracts and Strategic Sourcing modules to manage procurement contracts. These modules will better track contract records, associated spending, responsible parties, and timelines for renewal. Which also provides straightforward navigation, data search capabilities, and extensive information access for core users and vendors. To improve the decision-making process, IT will continue to advance the Enterprise Resource Planning System, PeopleSoft. To decentralize, automate, and control purchasing, IT plans to partner with the procurement department to implement the PeopleSoft e-procurement module.

HASTUS Daily

Hastus Daily software module was launched company-wide on October 17, 2021. Bus Operator pay is calculated in PeopleSoft based on information from Hastus software application instead of the District's legacy Operator Timekeeping System (OTS). The Hastus Integration Operations Project (HIOPS) was completed over a seven-years and cost $3.17 M of District operating funds. The IT Department was integral to each phase of the project by supporting over 12 software releases and three computing server environments while supporting user workstations and data accuracy and reporting capabilities.

This final phase of the project was preceded by improvements to the Hastus scheduling software, implementing Hastus BID and BIDWeb, updated network infrastructure and computer hardware at the divisions and training new Hastus users.

Restroom Finder App

During the pandemic, to meet OSHA regulations and because restroom closures were common, the administration features in the inhouse Restroom Finder App, received a significant upgrade. For example, Transportation Supervisors can input new restrooms or edit existing restrooms inside the app, while administration can curate and merge these findings into the central restroom database. Daily Feedback Reports were expanded to include issue tracking data to improve the accuracy of restroom availability for staff.

Rider-Facing Innovations

The mobile application "AC Transit Official" is available inside Apple and Google App Stores. Many new features were added to provide better and critical information to riders, such as quick favorites, emergency notifications, quick links to our innovative trip planner, website and Token Transit for paying fares. AC Transit launched a revamped website in February 2021. We continue to improve the AC Transit Website, such as better real-time passenger load information (PLI), Maps and Schedules, including better accuracy for the online map and a more streamlined notification system.

ZEB Data Integration and Management Environment (DIME)

On June 23rd, the District published the Zero Emission Transit Bus Technology Analysis (ZETBTA) a comprehensive analysis that compares conventional fleets to battery electric bus (BEB) and fuel cell electric bus (FCEB) technologies. The analysis is the first ever true, side-by-side evaluation of Zero Emission Bus (ZEB) technologies operated by the same agency, in the same service environment, with ZEBs from the same bus manufacturer and compared to conventional fleets.
To support ZEB program growth and expansion, the District is investing in and implementing secure and scalable IT infrastructure for the purpose of ZEB communication, security, and data management. For ZEB program, the District is going to leverage the Data Integration and Management Environment (DIME), including data collection automation, data ingestion, real-time data ingestion, data processing, data warehouse design, integration, reporting and analytics. Data originating from various systems including vehicles, charging stations, utility usage, fuel stations, maintenance applications, financial systems, and other sources, will be collected and stored into this new data platform resulting in intelligent analysis.

C. Industry Engagement and Leadership

IT department's leadership believes in learning and sharing knowledge and experience. The IT leadership fully engages in various professional organizations and institutions at all levels such as national, state and regional to consider fresh ideas and new approaches for addressing the challenge of serving their communities with better and more efficient mobility systems. While continue performing day-to-day job duties, IT leadership participate and engage in this fast-paced technology landscape with other transit industry leaders seeking best practices and sharing that common bond. AC Transit CIO is a Chair of CTA IT Committee consisting of IT leadership from various Transit Operators from all over the State, as well as a Member of Transit CIO Consortium, Bay Area Transit CIOs, UC Berkeley Skydeck Board, and Bay Area CIOs Council. AC Transit's IT Director of Systems and Software Development is a Chair of APTA Research & Technology Committee, Chair of APTA Innovation and Technology Peer Exchange, Member of APTA Mobility Recovery Taskforce Innovation Group, and Member of Cal State East Bay Big Data Advisory Board. AC Transit IT Cybersecurity Manager is a Member of the Transit Chief Information Security Offices (CISO) Council, a body consisting of Cybersecurity Experts in the Transit industry. With the growing number of transportation innovations such as safety technology, business processes, Mobility as a Service, fare media, automation, and accessibility, other transit agencies' experiences and observations offer invaluable insight to AC Transit.

ADVANTAGES/DISADVANTAGES:

The Innovation and Technology Department's Strategic Plan provides the decision framework for the department's priority setting, resource allocation and also ensures those efforts support the District's mission and strategic goals. The IT Department's Strategic Plan also directs investment in new technologies and data collection capabilities important to the District's key performance indicators.

There is no disadvantage to receiving this report.

ALTERNATIVES ANALYSIS:

This report does not require an alternative analysis

PRIOR RELEVANT BOARD ACTION/POLICIES:

Staff Report 20-122 - IT Strategic Plan

ATTACHMENTS:

1. Presentation Slides
2. IT Major Projects and Strategic Plan 2021 Annual Report

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