COIT
Budget & Performance Subcommittee

Regular Meeting
March 1, 2019

1 Dr. Carlton B. Goodlett Place, City Hall, Room 305
San Francisco, CA 94102

Agenda

- Call to Order by Chair
- Roll Call
- Approval of Meeting Minutes from February 1, 2019
- Department Updates and Announcements
- FY 2019-20 & FY 2020-21 Enterprise Department Technology Overview & Project Requests
- FY 2019-20 & FY 2020-21 General Fund Requests Overview
- Public Comment
- Adjournment

Action Item

3. Approval of Minutes

4. Department Updates & Announcements

5. FY 2019-20 & FY 2020-21 Enterprise Department Requests

Municipal Transportation Agency

Simplify-Standardize-Optimize

IT Innovation and Operations to support the
SFMTA Strategic Plan and San Francisco Transportation

Vision

Premier provider of technical services enabling the Agency to provide excellent transportation choices for San Francisco.

- Sound Integrated Infrastructure
- Premier client-centric support and relationship management
- Manage data as an asset to support the Agency's strategic goals

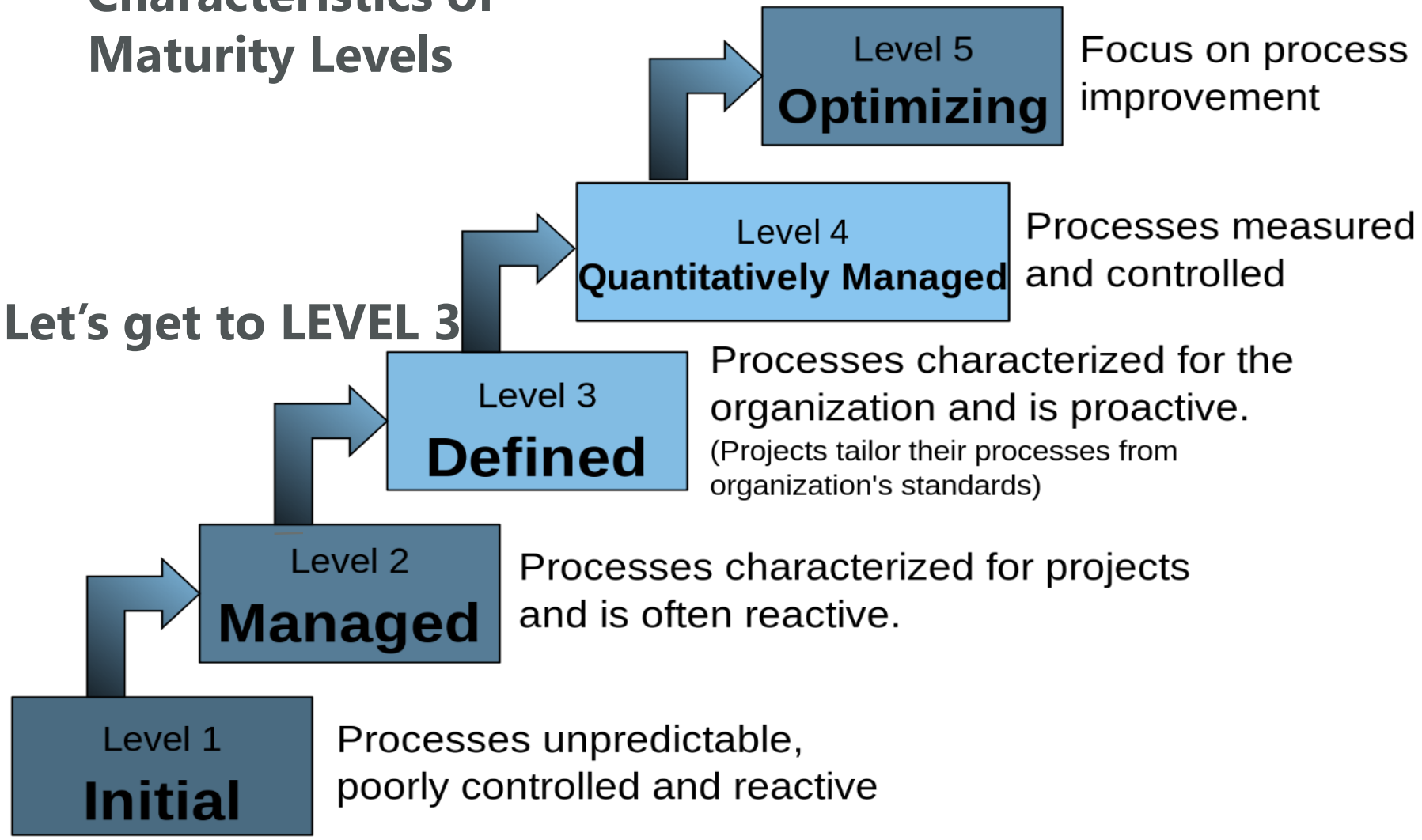
Mission

IT Services reports to the SFMTA's Chief Technology Officer and is part of the Finance and Information Technology Division.

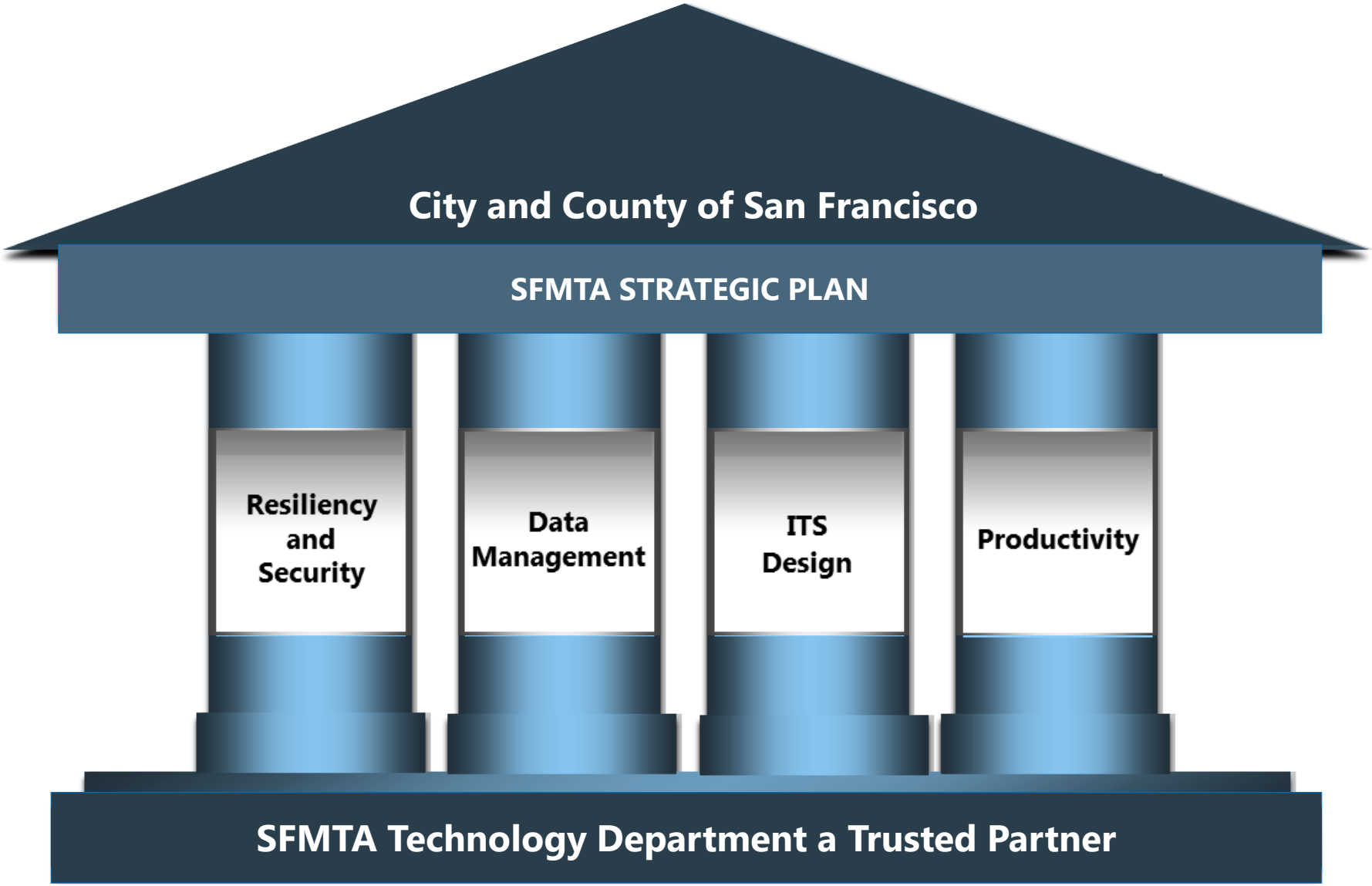
- IT Services is committed to **service delivery and support** of the SFMTA's mission and priorities by being a Client Centric organization that enables data driven decision making.
- IT Services will achieve **timely and measurable results** using a client-centric approach and a system of effective IT governance.
- Innovation is achieved with **pro-active collaboration** and **forward-looking planning**, and supported by **transparent communication**.

IT at the Right Level

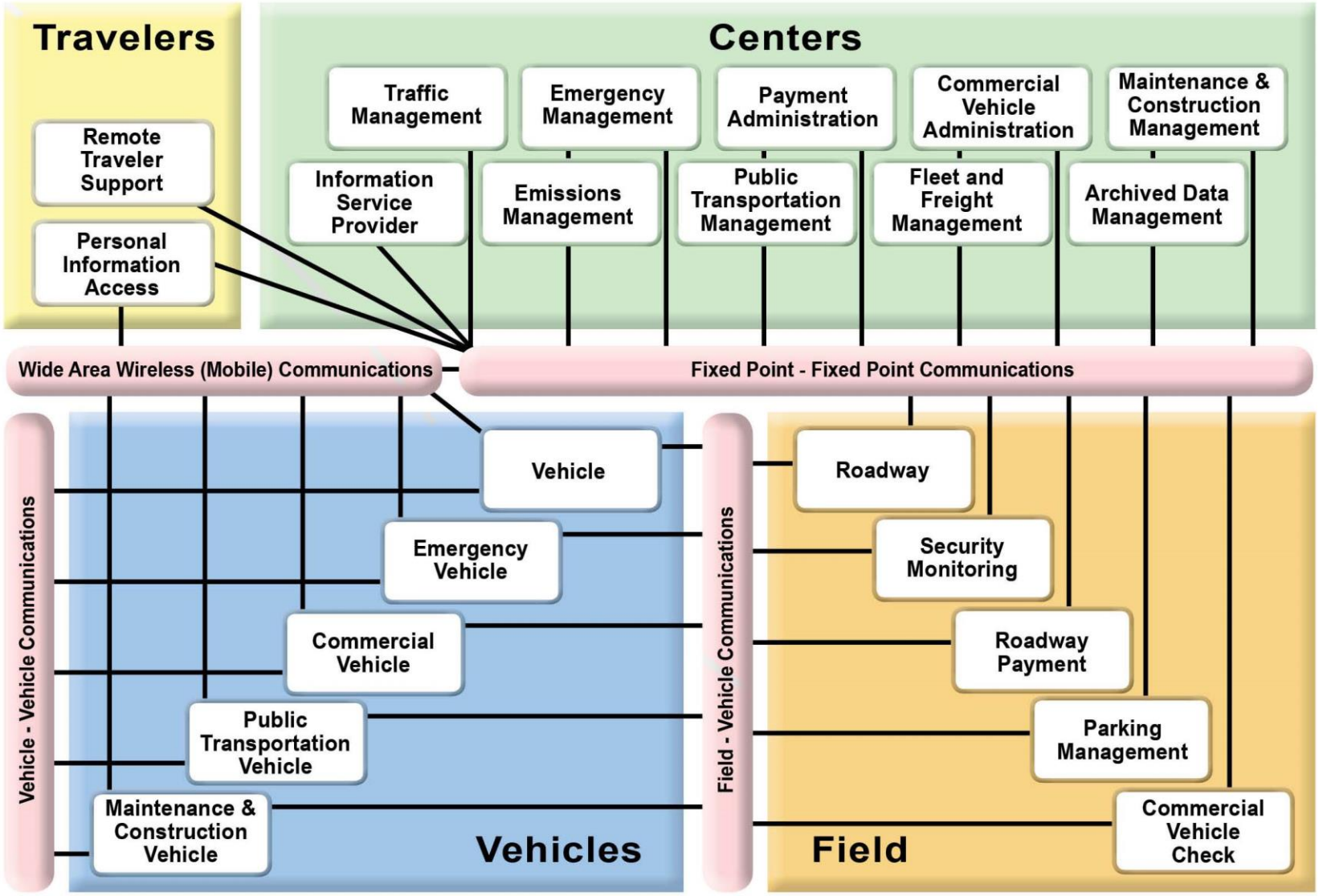
Characteristics of Maturity Levels



Supporting Pillars



Data Bridges to Informed Decisions



Introduction – ITS Architecture

- The National ITS Architecture 8.2 contains 139 Services in 13 Service Areas
- ITS Architecture Working Group has determined applicability of the service for SFMTA and whether a Service is already provided by SFMTA
- This resulted in a baseline SFMTA Service Inventory of 74 Services (53% of total)
- Services not included are mainly in the areas of Commercial Vehicles, Highway Management, and Weather
- Large coverage was found in Parking Management, Public Transportation, Traveler Information, Data Management, Support, Public Safety, and Vehicle Safety
- Next steps:
    - Adopt Reference ITS Services as part of SFMTA ITS architecture
    - Complete Inventory with unique SFMTA Services (e.g. Curb Management)
    - Define Enterprise, Functional, Physical, Communication, and Security layers making up the Services
    - Socialize with Divisions

Why do we care?

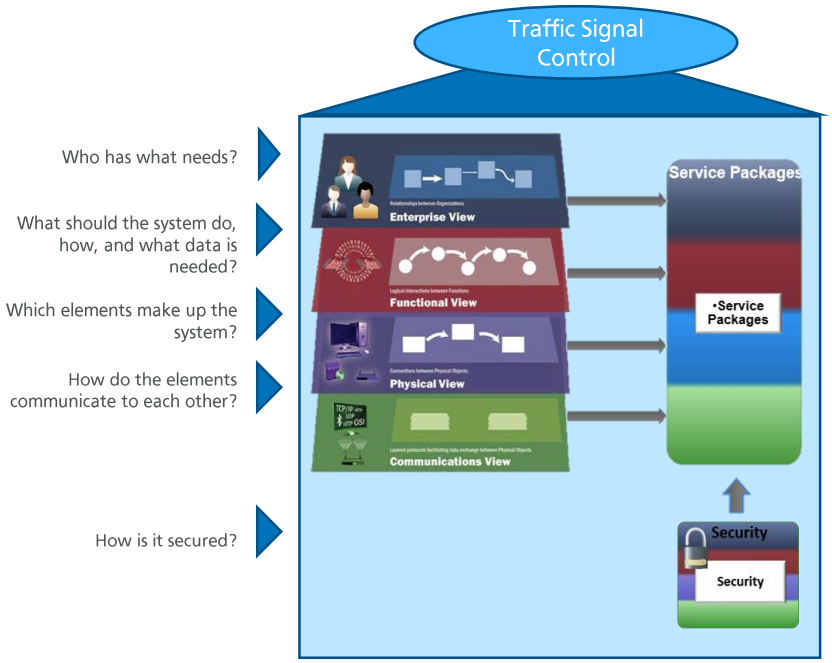
ITS provides for the integration of advanced computing and communications technologies into the transportation infrastructure.

- Elimination of transportation related deaths and injuries.
- Increased transportation choices via integrated multimodal transportation networks.
- Better real-time traveler information.
- More data for efficient management of transportation networks.
- Remote sensing/diagnostics of transportation infrastructure.
- Centralized warehousing of data.
- High-speed data services for customers.

DoT Reference ITS Architecture

- Developed for the U.S. Department of Transportation
- Provides a mature common framework for planning, defining, and integrating Intelligent Transportation Systems (ITS)
- ITS is defined as
  - the electronics, communications or information processing in transportation infrastructure and in vehicles used singly or integrated
  - to improve transportation safety and mobility and enhance productivity
- The architecture describes 139 Services in 13 Service Area
- The ITS Architecture Working Group has evaluated all Services on fit and need

Example ITS Service

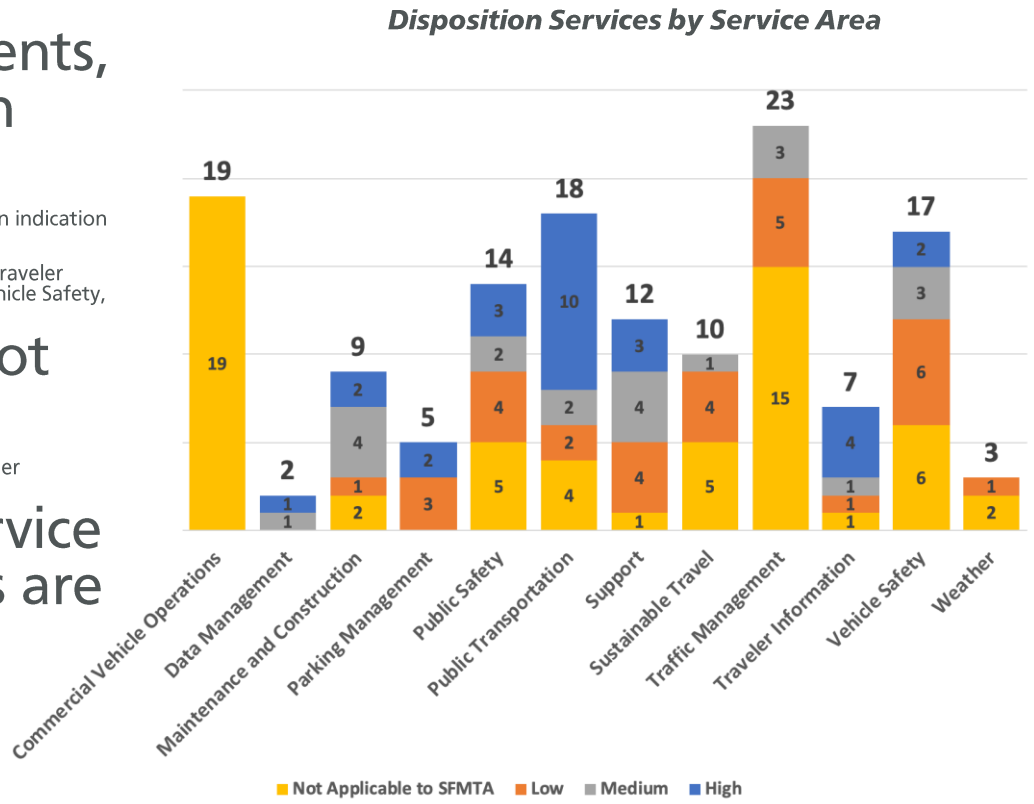


Complete Reference ITS Architecture can be found here

ITS Refence Services Disposition

Work Group assessment results

- ITS Architecture Working Group has evaluated all 139 Reference Services in 13 Service Areas
- 74 Services are delivered by SFMTA directly to the residents, workers, and travelers, or in support of other Services
  - 34% (27) have high fit, 27% medium, and 39% a low fit. This is an indication how much adjustment is required to match SFMTA Services
  - Concentration in Parking Management, Public Transportation, Traveler Information, Data Management, Support, Public Safety, and Vehicle Safety,
- 60 Reference Services are not provided by SFMTA
  - Mainly in Commercial Vehicles, Traffic Management, and Weather
- To complete the SFMTA Service Catalog, additional Services are to be defined, e.g. Curb Management



SFMTA Overview Service – Draft Mapping

Based on Reference ITS Architecture

Public Transportation Services - Vehicle Operations

Public Safety
- Disaster Response and Recovery
- Mayday Notification

Public Transportation
- Dynamic Transit Operations
- Integrated Multi-Modal Electronic Payment
- Transit Fare Collection Management
- Transit Fixed-Route Operations
- Transit Passenger Counting
- Transit Pedestrian Indication
- Transit Traveler Information
- Transit Vehicle Tracking
- Vehicle Turning Right in Front of a Transit Vehicle

Sustainable Travel
- Eco-Approach and Departure at Signalized Intersections
- Emissions Monitoring

Weather
- Spot Weather Impact Warning

Public Transportation Services - Vehicle Maintenance

Maintenance and Construction
- Maintenance and Construction Vehicle Maintenance

Public Transportation
- Transit Fleet Management

Support
- Vehicle Maintenance

Public Transportation Services - Traveler Information

Traveler Information
- Broadcast Traveler Information
- Dynamic Ridesharing and Shared Use Transportation
- Infrastructure-Provided Trip Planning and Route Guidance
- In-Vehicle Signage
- Personalized Traveler Information
- Travel Services Information and Reservation

Public Transportation Services - Infrastructure

Maintenance and Construction
- Infrastructure Monitoring
- Maintenance and Construction Activity Coordination
- Maintenance and Construction Vehicle and Equipment Tracking
- Roadway Maintenance and Construction
- Work Zone Management
- Work Zone Safety Monitoring

Public Safety
- Disaster Traveler Information
- Transportation Infrastructure Protection
- Wide-Area Alert

Public Transportation
- Route ID for the Visually Impaired
- Transit Security

Foundational Service

Data Management
- ITS Data Warehouse
- Performance Monitoring

Support
- Center Maintenance
- Connected Vehicle System Monitoring and Management
- Core Authorization
- Data Distribution
- Location and Time
- Map Management
- Object Registration and Discovery
- Privacy Protection
- Security and Credentials Management

Traffic Management
- Infrastructure-Based Traffic Surveillance
- Vehicle-Based Traffic Surveillance

Street Management Services

Parking Management
- Loading Zone Management
- Parking Electronic Payment
- Parking Space Management
- Regional Parking Management
- Smart Park and Ride System

Public Safety
- Emergency Call-Taking and Dispatch
- Emergency Vehicle Preemption
- Incident Scene Pre-Arrival Staging Guidance for Emergency Responders
- Routing Support for Emergency Responders

Public Transportation
- Intermittent Bus Lanes
- Transit Signal Priority

Support
- Field Equipment Maintenance

Sustainable Travel
- Eco-Traffic Signal Timing
- Electric Charging Stations Management
- Low Emissions Zone Management

Traffic Management
- Connected Vehicle Traffic Signal System
- Roadway Closure Management
- Speed Warning and Enforcement
- Traffic Incident Management System
- Traffic Information Dissemination
- Traffic Signal Control

Vehicle Safety
- Automated Vehicle Operations
- Autonomous Vehicle Safety Systems
- Intersection Safety Warning and Collision Avoidance
- Pedestrian and Cyclist Safety
- Restricted Lane Warnings
- Traffic Code Dissemination

Next Steps

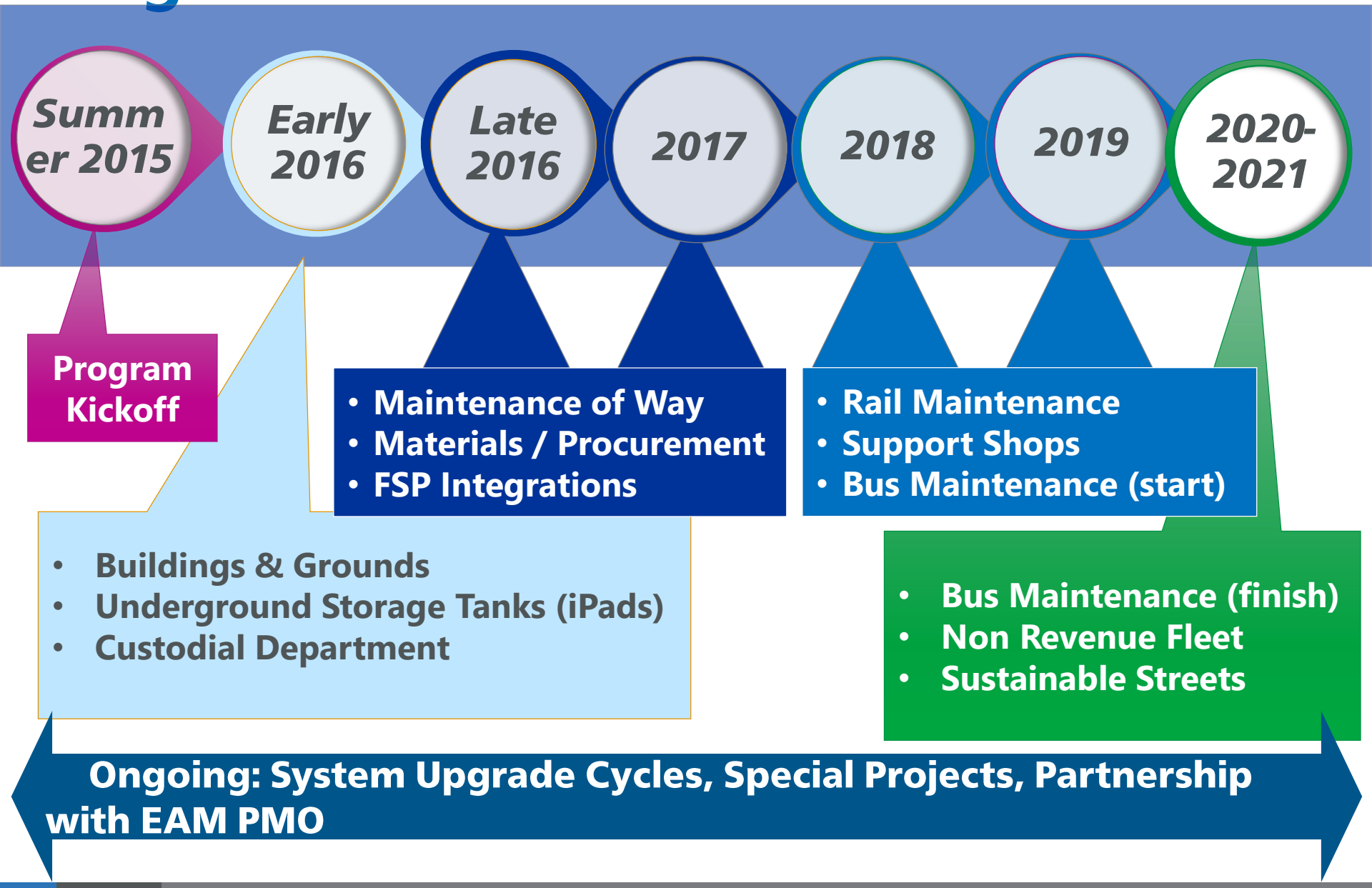
- Adopt Reference ITS Services as part of SFMTA ITS architecture
  - Define SFMTA specific Enterprise, Functional, Physical, Communication, and Security layers making up the Services
- Complete Inventory with unique SFMTA Services (e.g. Curb Management)
- Socialize with Divisions
- Create ITS Services Roadmap for SFMTA

What is EAMS?

EAMS is a cloud-based asset management software system that creates a single data repository to track the inventory, maintenance, compliance, and all related procurement/cost activities of SFMTA's transit/key assets and its associated above and below ground infrastructure.

- Asset Inventory
- Preventive Maintenance
- Corrective Maintenance
- Regulatory Compliance
- Materials Management
- Mobile Work Management
- Customized Reporting
- Predictive Analytics
- Cost Management

Program Timeline



Video Platform Modernization Project Purpose & Scope

The SFMTA Video Modernization Project will consolidate and upgrade the enterprise video surveillance system for the SFMTA.

- Non-Mobile video and infrastructure
- Dashboard
- Mobile video
- Concept of operations
- Genetec – Video management and analytics software

Total Number of Cameras: 14,000

Pilot Purpose & Objectives

To test the Genetec video management system software at selected sites in the non-mobile video production environment prior to full deployment.

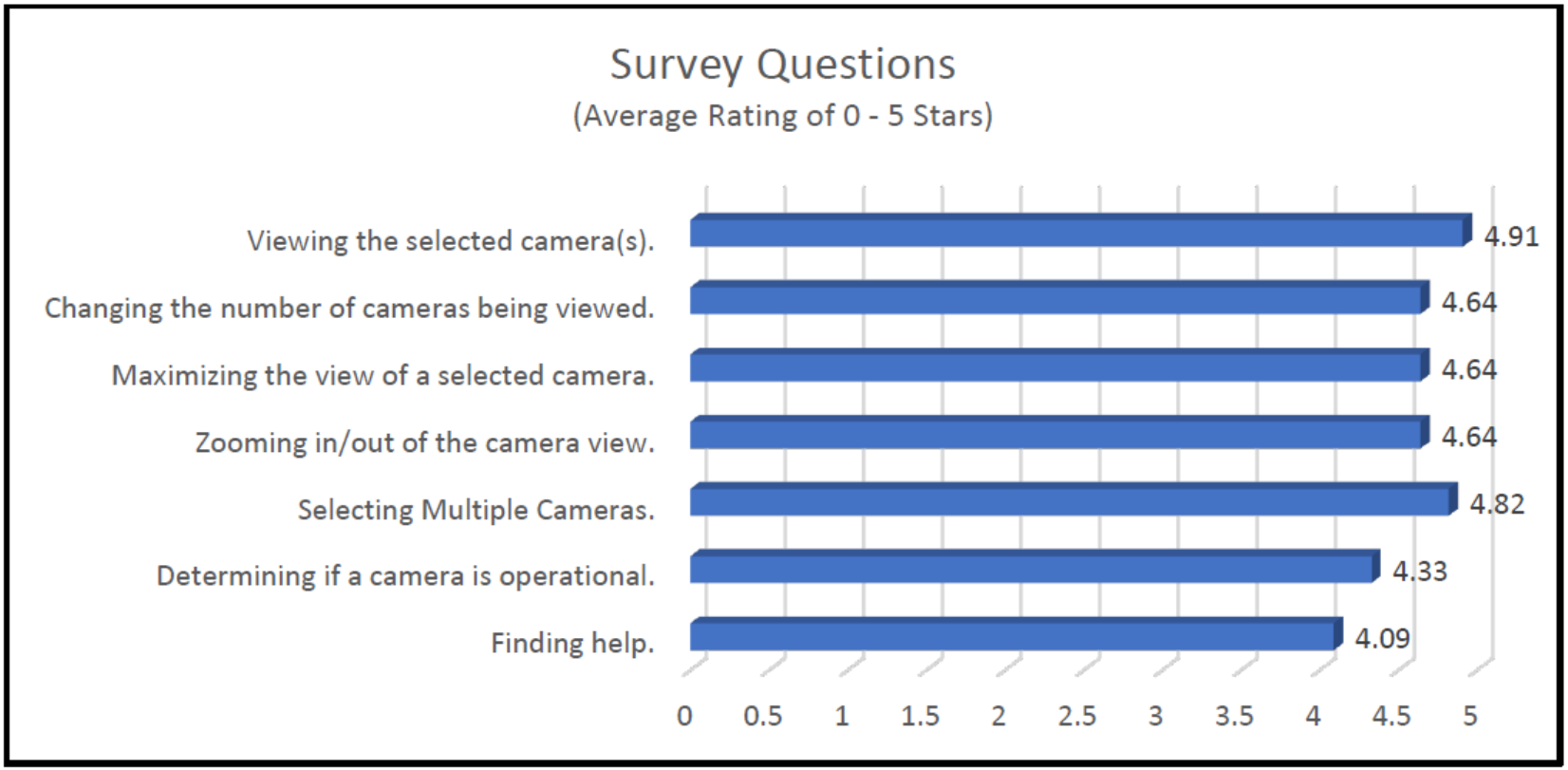
- Assure proper functioning of Genetec with the existing infrastructure
- Optimize the video quality streaming from the field cameras
- Assess user experience

Pilot Process

- Pilot Implementation Plan was developed and distributed to affected SFMTA managers and staff
- Three sites – SFgo, St. Mary's Garage & Civic Center Station
- Training provided to 72 personnel in 12 sessions tailored for their individual needs. Additional ad hoc training provided as requested
- Pilot period for each site was a minimum of two weeks
- Help Desk provided a conduit from end users to Confluence team for any issues
- On-line survey for feedback was made available to the end users (see next slide)

Survey Results

See *Pilot Summary Report* for user written comments



Pilot Details

- SFgo results
  - 75 cameras cutover
  - Zero issues reported to the Help Desk/Confluence
- St. Mary's Garage results
  - 21 cameras cutover
  - Zero issues reported to Help Desk/Confluence
- Civic Center Station results
  - 65 cameras cutover
  - Zero issues reported to Help Desk/Confluence

Current Status

- Non-mobile video deployment
  - Started in February 2019.
  - Schedule has been developed and vetted with SFMTA project representatives and the Video Technical Advisory Committee (VTAC)
  - Coordination for full deployment with sites in progress
    - Deployment in 8 stages; each stage covering 5-9 sites
    - Total of 14000 cameras included
    - Deployment expected to complete in mid 2019.
- Mobile POC
  - Cellular connection to two buses completed and being monitored for performance
  - Design of WiFi connectivity in buses in progress

Project Description

ITS Radio System Replacement

Replace the antiquated radio communications system for both revenue and non-revenue vehicle fleets with a modern radio and data communications system. The existing Motorola Metrocom system is 30 years old and at the end of its useful life.

This replacement project will add additional technology to the radio system including an Automatic Vehicle Location/Global Positioning System to accommodate better schedule tracking, expedited emergency response, and passenger data collection

Current Status

- All construction components completed
  - Base Stations
  - Tunnel System
- Final Cut over of Rubber Tire – January, 2018
  - Running for over one year
  - CAD/AVL – Computer Aided Dispatch and Automated Vehicle Location
- Cut over of Historics – December, 2018
- Cut over of LRV 2/3 – March, 2019
  - Data Cutover completed 2/21/2019
  - Targeted Voice cut over 3/3/2019
- Central Subway Design - Underway

Additional Planned Benefits In Progress

- SFMTA Radio System - PSVRN Public Service Voice Radio Network will serve as a backup radio system to the City agencies Base Stations
  - DEM
  - SFPD
  - SFFD
  - SFSD
  - PW
- Have worked collaboratively with DEM/DT

Next Up

- Central Subway
  - Design
  - System Integration
  - System Testing
- Metro
  - CAD/AVL Enhancements
    - Headway
    - Paddle Updates
    - Polling updates

Customer –What's Coming Next

- Customer Information System
  - RFP Closed 2/29/2019
  - Phase 1
    - Replacement 1-1
    - Backend Software Platform
    - System Integration
- Customer Service Program
  - Muni Customer Service
    - Integration and Collaboration 311
  - Continued digitization of Services

Departmental Projects - January

ACTIVE PROJECTS DASHBOARD – January 2019									
TAPI R #	PROJECT NAME (Active Only)	Division	PM %FTE	Dev %FTE	Phase	Complexity	Cost	Estimate Completion Date	Estimate Total Cost
51	PARCS	SSD	50	40	Implementation	Medium	$725,000.00	Q1, 2019	$900,000.00
110	Transit Request to Transform Data for Analytical Use	Transit	10	60	Testing	High	$280,000.00	3/31/2019	$350,000.00
330	Payroll Data ETL	HR	0	15	Design	High	$1,500.00	4/15/2019	$20,000.00
333	Develop Data Feeds for Emerging Mobility	SSD	15	20	Testing	High	$44,900.00	3/31/2019	$60,000.00
337	Taxi Trip Data	Taxi	25	80	Requirements	High	$55,000	2/28/2019	$95,000.00
351	Implement Stnless Emerging Mobility Services API's	SSD	15	15	Testing	High	$15,000	1/20/2019	$20,000.00
364	CP&C Workflow Updates	CP&C	10	5	Go Live Planning	Medium	$5,600	2/28/2019	$7,500.00
376	Snapshot of SHOPS	FIT	0	15	Requirements	Medium	$1,500	2/28/2019	$10,000.00
377	Intelex Integration with SFMTA Systems	System Safety	20	0	Requirements	High	$3,000	7/1/2019	$80,000.00
381	ODAS Poles Program SharePoint Approval Workflow	FIT	10	25	Requirements	Low	$500	3/31/2019	$5,000.00
	Kronos	HR	80	50	Development	Medium	$529,000.00	7/28/2019	$630,000.00
	SFpark	SSD	40	100	Implementation	High	$0.00	On-going support	$0.00
Total			275	425			$1,661,000.00		$2,177,500.00

Technology Strategy | March 2019

Airport Mission | *We provide an exceptional airport in service to our communities.*

IT Vision | *To be the most technologically empowering airport in North America.*

- Empowering:
  - **Passengers**: Travel experience control & choice.
  - **Tenants**: Revenue growth and exceptional services delivery.
  - **Commission**: Efficient, effective and secure management of Airport resources & assets.
  - **Concessions**: Growth, development and promotion of businesses.
  - **Community**: Meaningful engagement with our wider Airport community.
- Goals:
  - **Secure:** Secure, cyber-secure and be safe.
  - **Connect:** Connect people, data and information.
  - **Integrate:** Create value from disparate data sources.

Situation | Our analysis of the Airport's situation.

Theme	Description
Persistent Security Threats	Professional technology services and solutions for a safer and more secure Airport.
Asset Utilization	Recognize Airport's virtual assets as a viable source of revenue and value alongside our physical asset base.
Resource Optimization	Use automation to promote better workforce efficiently and effectiveness.
Modern Service Model	Airport as platform for tenant & concessionaire technology services, including Common Use replacement.
Disruptive Innovative	Working with tech innovators to find and harness the next wave of disruptors.

Actions | Our policies direct our technology priorities.

Theme	Description
Persistent Security Threats	Upgrade core security systems. Procure SMS, **mobile P.139** and Notice of Violation solutions. Achieve international cyber-security standards accreditation (ISO27001).
Asset Utilization	Establish Airport Data Portal, the **exchange hub** for all **Airport data with airlines** and partners. Implement airfield vehicle and terminal asset tagging. Roll-out flow analysis, way-finding, multi-lingual and accessibility support.
Resource Optimization	Airport Building Information Management. Landside services automation (TNC, Taxi, Shuttle Bus). Implement Single Sign-On, **Airport Operations App (SFO CoPilot)** and Document Management System.
Modern Service Model	Expand and improve SFO FREE WIFI, Operational Wi-Fi, core tenant fiber (SONET) network. Upgrade Common Use 2.0 in International Terminal Building (ITB) and deploy in Terminal 1. Implement **Airport Data Hub** and Microservices Platform. Pilot **Advanced Security Lanes (ASLs), biometrics** and **RFID bag tag**.
Disruptive Innovative	Secure academic research partnership. Reaching for Number One (R4N1) Committee to **identify sources of disruption**. Partner with Silicon Valley leaders to prototype new solutions.

Projects Previously Approved | Actions including the following projects

Description			
8968	Network Security	**11157**	Single Sign On Implementation
9134A	IT Security Mitigation	**11217**	Managed Security Upgrade
10674	Airport Information Integration Solution (AIIS)	**11222**	SFO Data Storage Program
		11158	Data Analytics Compute Processing
8399A	Property Management and Billing System (PMBS) Phase 2	**10401**	CIP Programmatic Support
8411A	Sharepoint ERP Phase 1, Integrated Time and Labor Accounting (ITA) Program	**10501**	Contract Management Compliance System (CMCS)
		10535	Capital Planning System (CPS) Phase III
9044	Document Management System (DMS)	**11104**	Virtual Design & Construction Implementation Program
9051	Operating Budget System (OBS)	**11161**	Building Information Technology Upgrade
8410	Distributed Antenna System (DAS)	**10622**	Operational WiFi Improvements
8590	Telecommunication Infrastructure Airport Wide -- *New*	**10648**	Long Term Parking Guidance and Security System
9169	Network Expansion	**10678**	Avaya Communication Manager Upgrade 7.0
9170	Network Improvements	**11139**	Dense Wavelength Division Multiplexing (DWDM) Transport
9304	Public WiFi – Terminals	**11149**	Access Layer Refresh 10 Gbps
9304A	Public WiFi – Rental Car Center -- *New*	**11153**	Internet Hardware Upgrade
10674	Airport Information Integration Solution (AIIS)	**11155**	Mobile Application Development and Delivery
9171	Network Monitoring & Management	**11154**	ITIL/ISO Certification
11130	Multi-Use Flight Information Display Upgrade -- *New*	**11156**	Comprehensive Support Plan
11132	Digital Signature Software System Enhancement -- *New*	**11211**	Terminal Management System Upgrade
		11216	ISO27001 Information Security Management System

Projects in Red indicates that it is part of the Airport's Strategic Plan.

New Projects | Actions including the following projects

Description		FY 2019-20 Costs	FY 2020-21 Cost
8590	Telecommunication Infrastructure Airport Wide	$387,441	$285,000
9304A	Public WiFi – Rental Car Center	$1,700,000	$0
11130	Multi-Use Flight Information Display Upgrade	$0	$2,500,000
11132	Digital Signage Software System Enhancement	$0	$400,000

Thank You

SFPUC COIT IT Project Submissions

March 1, 2019

Projects

All potential projects at this time…

1. Asset Management Improvements
2. Northern California Network and Internet Performance Upgrades
3. Internet based / Microsoft O 365 Unified Telephony / Communications
4. Managed Security Operations Center (SOC) / C0-Manged SIEM
5. Smart City Controllers
6. Stormwater Flow Cost Allocation
7. System wide rationing / Drought Surcharge / SB 814

Asset Management Improvements

SFPUC Strategic Plan Goal 1:

"Reliable Service and Assets"

Maximo system

- The SFPUC IT Steering Committee ask
  - $300k / year – 5 year cost is $1,500,000
- Expand mobile
- Expand user groups from Water Transmission, Hetch Hetchy, All Wastewater, Power, to Natural Resources and Water Quality
- Build out City Distribution Division

5 year cost $1,500,000

Northern CA Network and Internet upgrades

SFPUC in 7 counties – upgrades for outside SF

- Provides additional bandwidth between offices & Internet
- Redundancy
- Essential for cloud incl. O 365, apps & phones
- Moccasin CA datacenter stranded

5 year cost $4,270,000

Internet based telephone

- Leverages what we own
  - Integrated Office 365 Teams telephony improves productivity
  - Pilot underway
  - 1200 Cell Phones
- Cloud based
- Supports continuity of operations
- Very low cost - Working on business case
- Transfers Cybersecurity, upgrades and support issues

5 year cost $1,537,000

Managed SOC / Co-managed SIEM

Managed Security Operations Center (SOC) / C0-managed Security Incident & Event Management

Sends our threat intelligence proactively to the third party to detect and decipher Cybersecurity issues. Catch and remedy issues sooner

Capitalizes on industry knowledge

5 year cost $460,540

Smart City Controllers

Started with streetlight controls

- anyCOMM offers
  - Streetlight monitoring, controls, and power metering
  - Cameras, mics, strobe lights, Wi-Fi, cell phone repeater, Linux, USB, GPS, accelerometer, IoT / Zigbee
- In pilot
- Enormous potential for City Departments

$19,020,000 5 year cost, potential for revenue

Cybersecurity – Multi-factor Authentication (MFA)

MFA - step change in Cybersecurity protections

- MFA essential protection for cloud access and remote access to SFPUC hosted systems
- Single Sign On (SSO) ups the ante
- For O365, use included MFA capability
- MFA rolled out to administrators
- Implementing paid MFA for all system administrators & for all Citrix (remote) users (600)

$2,269,052 5 year cost if we include all 2800 PUC users. Cost is to go to O 365 G3 + SPE

System wide rationing / Drought Surcharge / SB 814

San Francisco always in a drought cycle

- Be prepared for the next drought
- Rationing
- Surcharges: Water conservation reduces revenue
- Significant changes to our Customer Care & Billing system
- SB 814 – comply with excess water use legislation

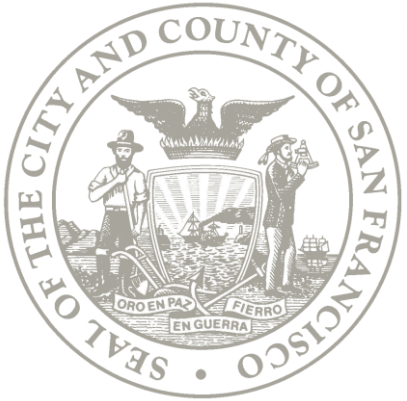
$2,000,000 5 year cost

Storm Water Flow Cost Allocation Phase 2

SFPUC treats rainfall as well as sanitary flows

- SFCA phase 1 complete – Customers without Water accounts
- Phase 2
  - Calculate rain runoff of properties and charge accordingly.
    - Lot size
    - Permeability
- More fair way to bill

5 year cost $9,194,028 -



Port of San Francisco

A/MM:
Asset/Maintenance Management

Port of San Francisco

Jerry Burdick

A/MM

Project Objectives

- Retire Oracle EBS
- Cost-by-Facility reporting
- Integrate/interface with PeopleSoft

Primary Users & Major Stakeholders

- Maintenance, Engineering > Department wide

A/MM

Primary Performance Measure

- [Initial]: Retirement of Oracle EBS in FY20.
  - Elimination of risk
  - Cost savings
  - Functional Ownership/technical stewardship

A/MM

Recent Accomplishments

- Offload of ~ 60% of time entry and 25% of requisition entry into PeopleSoft
- Project Manager identified
- Champion/Sponsors engaged
- Planning for Working Group

A/MM

Strategy & Planning

- What problem(s) are we trying to solve?
- Not an IT project, but an enterprise technology effort
- Elephant in the corner… PeopleSoft, Infor, Maximo
- Tie-in with Technology Strategic Plan

A/MM

PHASE	DATES	DESCRIPTION
Assessment	03/2019 - 08/2019	Review/refine processes, define requirements, explore technology solutions.
Implementation	11/2019 - 12/2020	Select application & partner, implement technology solution.
Production	FY21	Post go-live support, historical reporting/archiving, transfer to operational practices
Post-Project	Ongoing	Continuity – training, process alignment, etc.

A/MM

Project Budget	FY 2019-20	FY 2020-21
Number of FTE	1	1
FTE Classifications	5502	5502
Salary & Fringe	$200,000	$200,000
Software	$200,000	$700,000
Hardware	-	-
Professional Services	$800,000	$900,000
Materials & Supplies	-	-
Total Project Cost	**$1,200,000**	**$1,800,000**

6. FY 2019-20 & FY 2020-21 General Fund Requests Overview

Major IT Projection

	FY 19-20	FY 20-21
GF Requests	26.4	22.6
Major IT Allocation	22.5	24.7
Difference	**(3.9)**	**2.1**

Note: Monetary figures in $ millions.

Current Major IT Projects

General Fund Supported

- Public Safety Radio Replacement ($74.0M)
- Property Assessment & Tax System ($72.5M)
- Telecom Modernization ($21.1M)
- Computer Aided Dispatch Replacement ($37.1M)

Non-General Fund

- Electronic Health Records ($203.7M)

Annual Allocation Projection

	FY 19-20	FY 20-21
Number of GF Requests	57	43
GF Requests	40.7	31.2
Annual Allocation	7.9	15.5
Difference	**(32.9)**	**(15.6)**

Note: Monetary figures in $ millions.

COIT Budget Calendar

DATE	EVENT
March 1	B&P - Enterprise Department Presentations
March 15	B&P - General Fund Departments Presentations
March 29	B&P - General Fund Departments Presentations
April 12	B&P - General Fund Departments Presentations
April 18	COIT – Review B&P Recommendations
May 3	COIT - Final Review & Approval

March 15 Schedule

- DT – Mainframe Retirement
- DT – JUSTIS 5-Year Roadmap Implementation
- DHR – Hiring Modernization
- POL – Foundational Network Systems
- HOM – ONE System

March 29 Schedule

- COIT – Initiation Budget Recommendations
- DT – Network Modernization
- DT – City Telecom Modernization
- DT – SF Cloud Expansion
- CON – Budget, Performance Measurement, Projections & Reporting
- CON – SF Learning Citywide Rollout

April 12 Schedule

- DSO – Citywide Web Project
- 311 – CRM Gap Mitigation and Modernization
- Member Requested Projects
- COIT – Final Recommendations

7. Public Comment