



SFMTA

San Francisco Municipal Transportation Agency

Improving Project Delivery

San Francisco County Transportation Authority

April 13, 2021

Introduction

When the SFMTA struggles to deliver key agency construction projects on time and on budget, it impacts our ability to provide reliable service for our riders and safety to all street users.

- Knowing this, SFMTA has had a **focused effort on improving project delivery** since and internal assessment 2016.
- The assessment led to the development of the 2016 Project Delivery Framework, a project delivery maturity model and the establishment of the SFMTA's Project Management Office (PMO) in 2017.
- Many of the findings of the recent Controller's Audit confirm prior internal findings and some of the actions the SFMTA has already taken.
- Since the PMO's establishment, several the Project Delivery Framework recommendations have been implemented and reforms introduced.
- The goal is to have an **organizational mindset that focuses on investing in the workforce and constant improvement through lessons learned.**
- These **lessons learned have led to recent project successes** in small project delivery, mid-size project delivery and large project delivery including the Vision Zero Quick Build Program/Projects, the Subway Task Force Projects and the Potrero Modernization Project.

2016 Project Delivery Framework

A key objective and action in the SFMTA strategic plan is to implement constant improvements to the project delivery process.

- In 2016, an internal assessment of all of the project delivery arms of the SFMTA was completed including: infrastructure, street, technology, facility and fleet procurement projects.
- Findings from this assessment led to the development of the 2016 Project Delivery Framework, a plan for investment in our project delivery professionals and constant improvement through lessons learned.

Addressing the SFMTA's Project Delivery Challenges

Based on observations, interviews with project delivery staff, and comments collected from the Executive Team, there are a number of challenges at the SFMTA which impact project delivery and can be addressed by the newly created PROJECT DELIVERY ASSESSMENT.

The data collected including the areas of concerns are attached in detail.

February 2016



August 2016

The Agency's transition to an organization that delivers complete curb-to-curb improvements requires various project delivery disciplines to work in concert.

This matrixed delivery organization requires a clear and consistent management structure, effective tools and processes and a governance structure so problems can be resolved, and critical path decisions made. Weaknesses in these areas can lead to project delays, cost increases or project objectives not being achieved.

August 2016

Project Management Office

One of the recommendations of the framework was that the Agency establish a Project Management Office (PMO) to oversee implementation of improvements.

- The PMO includes participants from all delivery arms of the SFMTA.
- Changes in procedure are considered agency-wide and consider best practices in project delivery implementation.
- General Notices set the standards by which all project delivery professionals should ensure adherence to scope, schedule and budget and successful project delivery.



SFMTA Project Delivery Framework
**Project Management Office
Organization and Implementation**



Adopted
April 14, 2017

April 2017

Project Delivery Framework Implementation

#	Recommendation	Status (as of 3/18/21)
1	Fully implement PDIG Project Delivery Playbook Agency-wide.	In-Process
2	Clearly define and implement the role of Capital Program Manager (CPM) within the SFMTA.	Complete
3	Develop a Project Pipeline Analysis at the Portfolio Level and review with the DOT/Executive Team regularly (recommend quarterly).	In-Process
4	Develop a Project Delivery Staffing Resource Plan and update it regularly (recommend quarterly).	Complete
5	Continue expansion of CPCS to fully integrate Transit Division Projects, and FIT/IT Projects.	Complete
6	Develop an agreed upon standard for data entry in the Capital Project Controls System (CPCS) and implement Agency-wide.	Complete
7	Develop and formalize Project Management Training Program within the SFMTA.	Complete
8	Develop an Apprenticeship program to prepare staff for next level project management roles.	Not Initiated
9	Discuss impacts at project, program and portfolio levels at the Transportation Capital Committee (TCC); add impact to program and SFMTA portfolio as part of recommendations to TCC.	In-Process
10	Develop guidelines and thresholds to guide decisions at the Capital Program and Agency Portfolio levels – i.e. Strategic Plan Impacts, Operational Impacts, Staffing Resources, Divisional Impacts, etc.	In-Process
11	Develop a Communications Plan and process for procedural changes within the Agency.	Complete
12	Establish PDIG Steering Committee as Project Management Oversight Committee/Project Management Office (PMO).	Complete
13	Establish metrics (KPIs) to evaluate SFMTA Project Delivery at the program and portfolio levels.	Complete
14	Conduct an assessment regularly of conformance with the Framework and maturity levels.	In-Process

PMO General Notices Adopted

#	General Notice(s)	Effective Date
2016-001	Management of Project Schedules	December 20, 2016
2017-001	Capital Program Managers	May 15, 2017
2017-002	Management of Project Contingencies	May 15, 2017
2017-003	Programmatic and Early Project Management	August 31, 2017
2017-004	Standardized Data and Automated Reporting	September 4, 2017
2018-001	Interdepartmental Service Agreements	February 5, 2018
2018-002	Construction Mitigation	February 5, 2018
2018-003	Project Cost Estimate Development	October 1, 2018
2019-001	Public Outreach and Notification Requirements	January 1, 2019

PMO Rolling 6-Month Plan through May 2021

ID Initiative

- 1 Develop/implement project closeout process/workflow
- 2 Establish metrics to evaluate project delivery at program and portfolio levels
- 3 Implement contractor reviews per Controller requirement
- 4 Develop tool to be added to standard cost template for cashflow development
- 5 Implement Agencywide project delivery playbook
- 6 Develop project pipeline analysis at the portfolio level
- 7 Develop guidelines/restrictions to guide decisions at capital program and agency portfolio levels
- 8 Project delivery resource management
- 9 Implement TCC member onboarding and annual training
- 10 Conduct an assessment of conformance with framework and maturity levels
- 11 Issue PMO general notice of force account planning and joint-BART Projects

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August 2016

Project Delivery Process – *The Playbook*

A core recommendation of the Project Delivery Framework was to map out standards for the project delivery process.

- SFMTA Project Delivery Phases have been mapped out, to show the various stages, deliverables and requirements.
- This allows for constant review, and refinement, as certain processes need adjustment or additional controls put in place.
- The Project Delivery Playbook is currently in version 2 and will allow anyone starting at the SFMTA to have an initial overview on how to deliver a transportation project in San Francisco no matter the discipline.



July 2019



Draft Still in Revision 2.0

Project Delivery Phases and Required Deliverables

I. INCEPTION

Addition to the Capital Plan and Capital Improvement Program

Identify a Capital Need to include in the 20 Year Plan, and capital project in the 5 Year *Capital Improvement Program and 2 Year Budget

II. PLANNING

Pre-Development Report (PDR)

Further Defining a CIP Line Item as a Project

III. PRELIMINARY ENGINEERING

Preliminary Engineering Report (30% design)

Test Project Feasibility and Engineering it to 30% Design

IV. DETAIL DESIGN

Complete Biddable Package (100% design)

Completing Project Design (100%) Ready for Construction

V. CONTRACTING

Awarded Construction Contract + Notice to Proceed

Produce Bid Packages, Advertise the project, and Select a Project Contractor

VI. CONSTRUCTION MANGEMENT

Constructed Improvement

Constructing the Project as Designed

VII. ADMINISTRATIVE CLOSURE

Capitalized Asset & Closure Report

Completing all the Paperwork to Close the Project

Considering Various Types of Delivery

	Infrastructure	IT Projects	Fleet Projects
INCEPTION	Addition to the Capital Plan and CIP	Scope, Schedule, Budget & Objective	Objective (Fleet Plan/Service)
PLANNING	Pre-Development Report	Requirements Gathering	Requirements Gathering
PRELIMINARY ENGINEERING	Preliminary Engineering Report	<i>Multiple Drafts of Requirements Document</i>	<i>Final Technical Specifications</i>
DETAIL DESIGN	Complete Biddable Package (100% design)	Design	RFQ/RFP Contract+ NTP
CONTRACTING	Awarded Construction Contract + NTP	Deliver/Test	Vendor Designs
CONSTRUCTION MANGEMENT	Constructed Improvement	Quality Assurance	Production/ Delivery/Test Acceptance
ADMINISTRATIVE CLOSURE	Capitalized Asset	Closure	Warranty Closure

Phase/Process Review with Full Deliverables

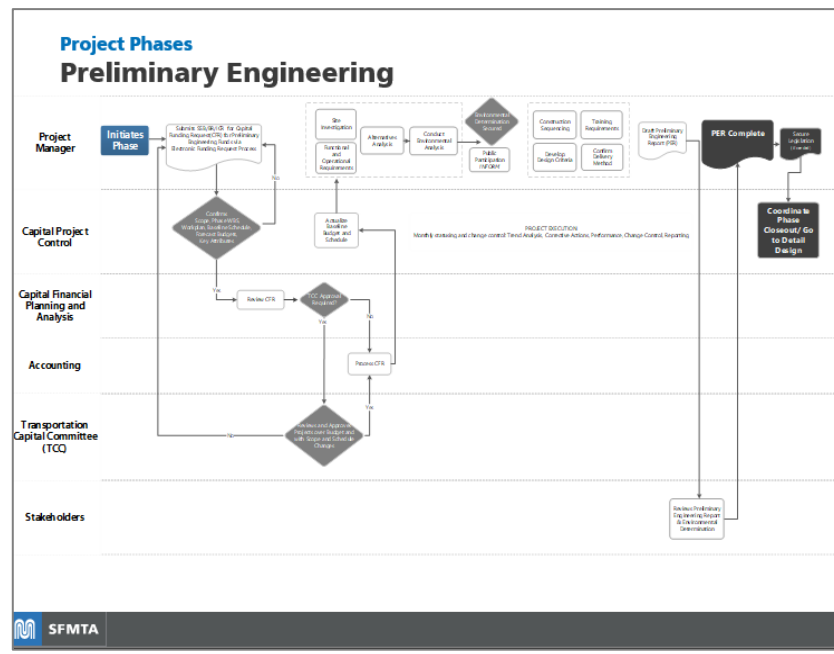
Each phase of work has been clearly identified, in each a detailed process map has been developed, as well as the necessary deliverables, tools, knowledge and support that would be needed for success.

Project Phases

PRELIMINARY ENGINEERING

Deliverables:
Preliminary Engineering Report
With:
Environmental Determination
Legislation (if required)

SFMTA



Tools - Cost Estimate Template

SFMTA		STANDARD COST ESTIMATE			
		Project: Enter Name Here			
ITEM #	ITEM	QTY	UNIT	UNIT COST	TOTAL
1			each	\$ -	\$ -
2				\$ -	\$ -
3				\$ -	\$ -
4				\$ -	\$ -
5				\$ -	\$ -
6				\$ -	\$ -
7				\$ -	\$ -
Subtotal:					\$0
CON Escalation %:					5%
Subtotal (X):					\$0
					ESTIMATED COST
Base Cost & Contingency					
Estimated Contract Costs					X = \$0
Design Contingency					2% of X = \$0
Construction Contingency					15% of X = \$0
Project Contingency					10% of X = \$0
Project Management					2% of X = \$0
Subtotal:					\$0
Planning					
Public Outreach					0.05% of X = \$0
Architecture/Engineering					1% of X = \$0
Engineering Services					1% of X = \$0
Project Management					1.25% of X = \$0
Subtotal:					\$0
Preliminary Engineering					
Architecture/Engineering					20% of X = \$0
Geotech/Surveys					1% of X = \$0
Environmental Services					1.25% of X = \$0
Project Management					3% of X = \$0
Subtotal:					\$0
Detailed Design					
License, Permit & Plan Check					1.75% of X = \$0
Commissioning/Energy Modeling					0.50% of X = \$0
Architecture/Engineering					12.5% of X = \$0
Project Management					1.25% of X = \$0
Subtotal:					\$0
Contracting/Construction Management					
Contracting Costs (City/Atty. Con)					0.05% of X = \$0
Transit Support (Bus, Field, Inspx)					10% of X = \$0
Engineering Support					3% of X = \$0
CM and Inspection Services					12% of X = \$0
Construction Mitigation					1% of X = \$0
Project Management					1.25% of X = \$0
Subtotal:					\$0
TOTAL PROJECT COST (Z):					\$0

In 2018, a standard cost estimating template was developed to support our project delivery professionals generate better initial costs.

- The template requires hard construction costs.
- Adds a tool to include escalation.
- Took the average final costs of a set of completed projects to develop average % for various phases.
- Update and refinement currently in process – revising data and adding additional tool for estimating cashflow needs over the planned project schedule.

Tools – Asset Management Data for Project Prioritization and Development

As part of the FY 2021 & FY 2022 budget Asset Management data was used for the first time as part of the CIP development process.

- Included data on current program backlog by specific asset/location
- Included data on future State of Good Repair investment areas based on useful life.
- Tried to set a standard baseline for future analysis of cost/benefit for the investment in next cycle.



San Francisco Municipal Transportation Agency I. Prioritize Investments by Incorporating CAI Data Analysis

CIP FY21-25 Instruction 2: State of Good Repair Capital Asset Inventory (CAI) Analysis: Fleet

Analysis Context

The 2019 Capital Asset Inventory (CAI) contains the most current information on the Agency's assets, as reported to the State of Good Repair (SGR) data as of August 15, 2019. The CAI data provides information on individual assets and asset classes to help inform project prioritization and investment decisions. The Agency has determined to conduct a 5-year CIP based on the 2019 CAI data.

• Urgent Priorities are budget priorities with a total of \$100,000,000 that are critical to the safety of the system.

• Estimated Needs are estimated future investments of \$100,000,000 required to bring assets to a state of good repair.

Urgent Priorities	Asset Description	Sum of Quantity	Sum of Backlog FY2019	Sum of FY2020	Sum of FY2021	Sum of FY2022	Sum of FY2023	Sum of FY2024	Sum of FY2025
Urgent Priority	Electric Car	40	\$ 176,242	\$ -	\$ 88,121	\$ 1,832,922	\$ 16,234,920	\$ 3,517,382	\$ 412,815
Urgent Priority	Electric Street Car	246	\$ 1,216,740	\$ 1,873,134	\$ 898,185	\$ 1,726,675	\$ 7,706,411	\$ 37,411,841	\$ 61,818,284
Urgent Priority	Light Rail	104	\$ -	\$ 15,468,340	\$ 1,048,893	\$ 46,368,565	\$ 96,368,565	\$ 27,775,512	\$ 77,782,248
Urgent Priority	Light Rail	414	\$ 124,250,792	\$ 42,234,237	\$ 30,625,025	\$ 74,777,770	\$ 280,649,087	\$ 11,843,514	\$ 28,759,248
Urgent Priority	Light Rail	36	\$ -	\$ 41,475,573	\$ -	\$ -	\$ -	\$ -	\$ -
Urgent Priority	Light Rail	36	\$ 35,125,596	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Urgent Priority	Light Rail	24	\$ -	\$ -	\$ 30,026,020	\$ 26,228,813	\$ 87,077,440	\$ -	\$ -
Urgent Priority	Light Rail	24	\$ 46,618,289	\$ 468,244	\$ -	\$ 26,228,813	\$ 87,077,440	\$ -	\$ 138,122,888
Urgent Priority	Light Rail	17	\$ 8,528,220	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Urgent Priority	Light Rail	110	\$ 19,476,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23,688,244
Urgent Priority	Light Rail	6	\$ 2,042,208	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,688,888
Urgent Priority	Light Rail	110	\$ 22,961,889	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,988,888
Urgent Priority	Light Rail	110	\$ 22,961,889	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,988,888
Urgent Priority	Light Rail	110	\$ 22,961,889	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,988,888

San Francisco Municipal Transportation Agency II. Determine the % of Each Project's Budget Attributable to State of Good Repair Spending



- Base responses on the (updated) project scope description.
- Where helpful, use the Cost Estimate tool to differentiate SGR expenses from the rest of the project.
- Calculate SGR spending as a % of total project budget.
- When prompted in the Capital Request Form, enter a whole number between 0-100. If there is no SGR spending associated with the project, enter 0.

Investing in the Workforce

Making tools, providing information and training are key components and priorities for the PMO. Data, tools and trainings are available on internal intranet PMO site. We will expand on these trainings.

Resources include:

- Standards and procedures
- Standard phases and deliverables
- Trainings and information
- Links to Project Controls Systems
- Construction Mitigation Templates

The screenshot shows the SFMTA Project Management Office (PMO) intranet homepage. The header includes the SFMTA logo, the text "SFMTA Project Management Office (PMO)", "PDIG Technical Advisory Committee (TAC)", and an "EDIT LINKS" button. The main heading is "Improving SFMTA Project Delivery". Below the heading is a navigation bar with buttons for "Ecosys", "Fund Request", "Staff Request", "Digital CIP", "TCC", "Capital Plan", "Project Integration", and "POETS". The main content area features eight blue-tinted boxes with white text, each representing a different project management resource: "General Notices and Bulletins", "Playbook", "Phases", "Tools and Training", "Construction Mitigation", "Interim Financial Report", "Capital Resources", and "Pending Budget Revision Log". A sidebar on the left contains links for "PMO Main Page", "PMO Reference Materials", "PDIG TAC Materials", "PDIG Phases", and "Recent", along with an "EDIT LINKS" button.

We are grateful for the insights that the Controller's Office provided us through their audit to further this work.

- Many of the recommendations confirmed our prior findings, and the actions we are taking will move us in the right direction
- We found of particular value the audit's review of inter-divisional collaboration and communication and its impact on project delivery. **This is an area that still needs work.**
- Out of the 16 recommendations included in the audit report, **five have been marked as closed/implemented by the auditors based on actions we have already taken and three have been partially implemented.**

SFMTA Capital Programs Audit Follow-Up

While we work through the findings in the audit, we are also beginning strategic discussions with public and private sector partners to understand best practice approaches to:

- Investing in our **project delivery expertise**, from cost estimating to specialized design to on-site engineering and inspection.
- Driving down costs by **building a better bid environment**, where more contractors compete harder to work for SFMTA contracts.
- Reducing schedule delays by **shifting risk from the agency to our contractors** through new contracting arrangements.

We remain focused on continuous improvement to project delivery within the agency and the work of the audit team and recommendations will help us get there.



There are many areas
of success within our
portfolio of nearly
300 projects.



16th Street Transit Priority Project

Successful collaborative effort involving multiple SFMTA divisions and SFPUC deliver infrastructure upgrades with minimal changes to the contract.



Geary Rapid Project

Delivering this complex complete street project on time and on budget including upgraded traffic signals and streetlights, sidewalk extensions at bus stops and intersection corners, improved median refuges and roadway repaving.



Subway Task Force Projects

The Task Force is modeling new ways of internal collaboration and breaking down internal silos. The projects include an inter-disciplinary approach to fixing the problematic Eureka Curve while minimizing community impact during the COVID-19 subway shutdown.



Vision Zero Quick Build Projects

We have quick-built over 50 miles of our most dangerous streets since 2018, designed to swiftly improve street safety by using low-cost, reversible traffic engineering tools and employing our own in-house designers and skilled trades.



Potrero Modernization Project

This is an \$800 million project advancing the lessons learned from numerous other projects including contract management, outreach and environmental review. The Board of Supervisors approved special legislation in March 2021 supporting the first of its kind joint-development process as an alternate delivery method.



Thank you.