Subway Renewal

SFMTA

SFMTA's 10-year plan for investment in the subway

For decades Muni Metro has been pushed to its limits. Prior to COVID-19 pandemic, our customers regularly experienced crowded trains and delays due to failures of critical and aging infrastructure, like track or overhead lines, unresponsive train control, failed portal entries or vehicle breakdowns. Together these issues result in chronic congestion in the subway, slow moving trains, as well as bunching and gaps in service systemwide.

SFMTA's vision for the Muni Metro subway is a frequent, dependable light rail service for our customers. Riders will experience short, uninterrupted trips because the system will be free from congestion and delays caused by sub-system and equipment failures. Critical infrastructure that keeps the system moving will be state-of-the-art and routine maintenance will ensure the system is kept in a state of good repair. Modern stations, customer information and amenities will attract riders and increase comfort and safety at all stages of our customers' journey. Finally, the system will be equipped to meet future demands as San Francisco grows.

The Muni Metro subway is the city's greatest transit-dedicated asset with immense potential for improvement. The Muni Metro Subway is critical for providing transit access to downtown, San Francisco neighborhoods and to iconic attractions; is vital to San Francisco commuters, residents and visitors alike; and supports regional connections through BART, Caltrain, regional bus and ferry service, as well as future programs like the Downtown Extension (DTX) and Link21.

Subway Renewal Strategic Plan

The Subway Renewal Strategic Plan outlines SFMTA's 10-year plan for investment in the subway to:

1. Make our system work better by strengthening and replacing our most heavily used infrastructure and addressing our backlog of capital work; and
2. Renew and modernize our rail system by enhancing and expanding critical system components making it possible for us to improve reliability and prepare for increased growth.

The Subway Renewal Program is a foundational step to enable high-reliability and high-capacity Muni Metro service.

FOR CONSIDERATION:

The Subway Renewal Program identifies nearly **$1.7B** in capital improvements across five capital investment categories which are only partially funded at the project level through the CIP.

This requires a significant level of new funding to implement construction phases and deliver our 10-year vision. Fund advocacy will be required at all levels (local, regional, state, federal).

We are seeking SFMTA Board support of Muni Metro Subway Renewal as a priority capital program and input on delivery principles.

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Delivery Principles

The Subway Renewal Program is guided by principles rooted in efficient and effective program delivery. These principles will serve as the priority lens from which to structure our work and hold us accountable of the next decade and beyond.

1. Commit to a lifecycle management approach that results in timely assessment, repair and replacement of service critical assets and keeps the subway in a continual state of good repair.
2. Integrate delivery of improvements to customer-facing amenities with improvements to service critical assets to build public support and foster trust.
3. Build a more resilient subway that addresses known vulnerabilities, builds in redundancy and responds to security and environmental threats.
4. Pair ongoing incremental delivery with strategically planned shutdowns that maximize progress per construction window.
5. Prepare for increased ridership and future growth by creating a more flexible, adaptive system.

LIFECYCLE MANAGEMENT

By focusing on key elements of the subway infrastructure, conducting up-to-date assessments of condition, and sequencing infrastructure replacement and maintenance cycles, SFMTA can prioritize the upgrade work necessary to meet the needs of San Francisco while minimizing impacts to customer experience. This shift to planned and preventative replacement cycles ensure a continual state of good repair, reducing the risk of critical failures and allows SFMTA to strategically deliver service around planned work and provide advance notice to our customers.

Challenges

Adequate funding is the biggest challenge to subway renewal; approximately 25% of the program is funded through the CIP. Construction and project delivery logistics will also be critical to the success Subway Renewal Program. Whenever possible, SFMTA will stage construction around revenue operation. The scale and complexity of this program will demand creative and well-managed closures. The program's impacts to the public may include service disruptions and active construction. A plan to mitigate these impacts will be critical to building trust and support.

Implementation Strategy

The magnitude of investments in this program are highly complex and require significant capital, planning and program management to deliver efficiently and effectively. A comprehensive implementation strategy is required to conduct detailed planning and design, coordinate construction logistics and project sequencing to mitigate impacts to the community, coordinate with major projects, strategic partnerships and organizational resources.

Capital Investment Areas

$1.7B in capital needs across five investment categories:

Subway Renewal Program	$ 1.68 B
Program and Project Planning	$ 23 M
Train Control Upgrades	$ 578 M
Track and Wayside Equipment	$ 229 M
Traction Power Upgrades	$ 499 M
Tunnel Safety, Security, Resiliency	$ 46 M
Station Improvements	$ 303 M

SUBWAY RENEWAL: A CASE STUDY ON SFMTA'S HOLISTIC APPROACH TO STATE OF GOOD REPAIR

SFMTA delivers services through the procurement, maintenance and operation of a range of transportation assets, such as vehicles, track, facilities, signs and signals. Ensuring our diverse assets perform as expected over their useful life requires balancing capital and operating investments. Up front capital investments are needed to build or procure assets while ongoing operating investments are needed to maintain them for the duration of their useful life. Making timely and strategic investment decisions requires understanding the desired level of performance, estimated useful life, condition, maintenance and replacement cost, risk of failure and replacement cost for each piece of infrastructure. Subway Renewal embodies these concepts, understanding the factors above for all transit-critical assets in the subway and sets forth the upfront capital investment required to catalyze ongoing investment in subway state of good repair.

Capital Investment Areas

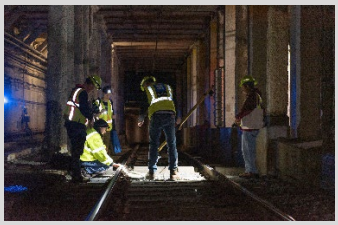
Subway Renewal is comprised of five capital investment categories. Each investment category includes numerous systems and assets that are required to deliver first class subway service. We have made significant progress delivering incremental improvements across these areas during the COVID-19 pandemic, but our work is not over. Investments going forward build upon our successes, continuing to address transit-critical infrastructure and customer-facing improvement – teeing-up once-in-a-generation replacement and upgrades, catalyzing our approach to life cycle management for the next decade and beyond.

ANTICIPATED PROGRAM BENEFITS

+ **Improved**	• Safety and reliability • State of Good Repair • Wayfinding, access and comfort
↑ **Increased**	• Operational efficiency and flexibility • Increased capacity • Emergency preparedness
↓ **Reduced**	• Equipment and system failures • Service disruption • Maintenance needs

TRAIN CONTROL UPGRADES:

- Replace antiquated, 20+ year old system with state-of-the-art communication-based train control system (Train Control Upgrade Project)
- Complete near-term SGR improvements to keep the existing system working.



TRACK AND WAYSIDE EQUIPMENT:

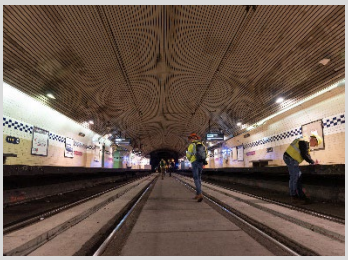
- Replace 40-year-old rail equipment like tangent and curve track, track support structures, switches and machines
- Target replacement and upgrades of key infrastructure

TRACTION POWER:

- Replace critical power delivery components
- Upgrade downtown substations
- Conduct a feasibility study and plan for future implementation of new overhead catenary system (OCS) technology

TUNNEL SAFETY, SECURITY AND RESILIENCY:

- Complete tunnel structural inspection and remediation work
- Replace lighting, portal intrusion and safety systems like fire suppression
- Coordinate with Port-led resiliency work and implement mitigation measures



STATION ENHANCEMENT AND PASSENGER COMFORT:

- Upgrade wayfinding signage at stations
- Conduct facilities condition assessment of all station related systems (electrical, HVAC, agent booths, interiors, etc.)
- Deliver incremental refresh of customer-facing spaces
- Upgrade platform customer information signage and wayfinding