2021 SFMTA 20-Year Capital Plan
Supporting Materials for PAG

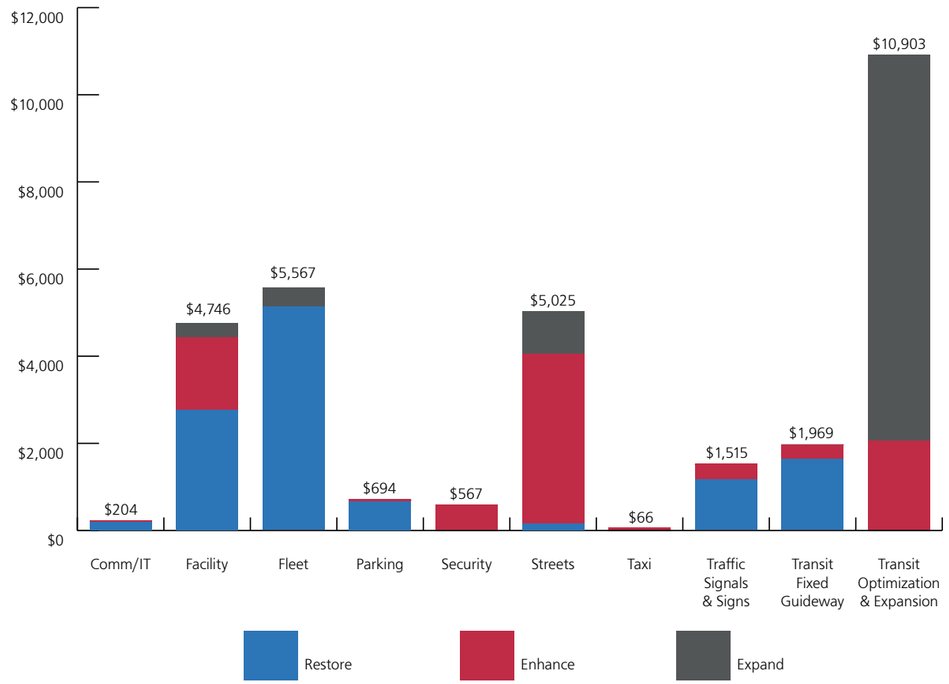
Contents

Capital Needs Summary

Summary of the 2019 Capital Needs vs. 2021 Capital Needs

Capital Program	2019 Total Capital Needs	2021 Total Capital Needs	Percent Change
Communications & IT	$217,800,000	$203,900,000	-6.4%
Facility	$4,598,600,000	$4,746,200,000	3.2%
Fleet	$5,418,900,000	$5,567,100,000	2.7%
Parking	$680,600,000	$693,800,000	1.9%
Security	$556,800,000	$567,000,000	1.8%
Streets	$4,936,100,000	$5,025,400,000	1.8%
Taxi	$65,100,000	$66,300,000	1.9%
Traffic Signals & Signs	$1,487,800,000	$1,514,700,000	1.8%
Transit Fixed Guideway	$1,790,800,000	$1,969,000,000	9.9%
Transit Optimization & Expansion	$10,859,500,000	$10,902,500,000	0.4%
Grand Total	**$30,611,900,000**	**$31,255,900,000**	

Total Cost (in $ millions) of Capital Needs by Capital Program



Capital Need Characteristics

Investment Type

The SFMTA's Capital Needs are categorized into three investment types: Restore, Enhance, and Expand.

- **Restore**
  Includes investments to replace existing assets that are beyond their useful life or normal replacement cycle (such as the Motor Coach Replacement Program). It also features investments that rehabilitate or renovate existing assets to continue the use of the asset, such as major improvements to an asset that extend the useful life (such as the 949 Presidio [Presidio] Facility Modernization).

- **Enhance**
  Includes enhancements to the functionality or quality of SFMTA assets without adding to the total assets owned and operated by the SFMTA (such as Pedestrian Safety). This would include investments that upgrade systems or enhance the features of an existing asset.

- **Expand**
  Includes expansion or acquisition of additional assets that the SFMTA will own and operate as well as investments that augment and increase capacity of the existing system (such as the Light Rail Vehicle Fleet Expansion).

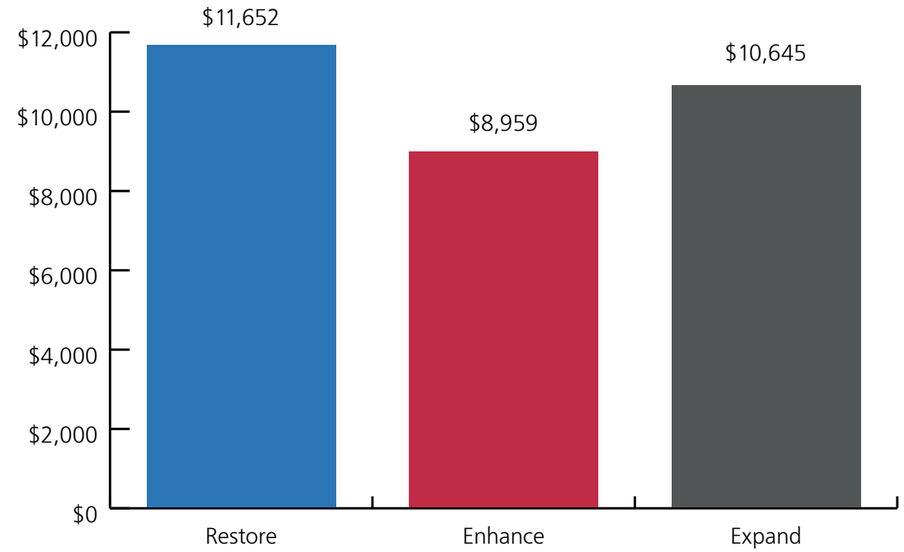
Timeframe

The period of time that the SFMTA currently plans on initiating the project delivery process for this Capital Need. Timeframes include short-term (by FY 2028), medium-term (by FY 2033), and longer-term (by FY 2042). For programmatic Capital Needs, individual projects may be initiated throughout the 20-year timeframe covered by the Capital Plan.

Cost information and calculation methodology

Cost information and calculation methodology for the Capital Needs are listed in the appendix.

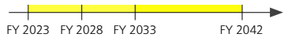
Total Cost (in $ millions) of Capital Needs by Investment Type



Communications & Information Technology Capital Program

State of Good Repair of Management Info Systems (MIS), Information Technology (IT), and Network Systems

Capital Need ID CN-CI01 **Estimated Cost** $174.5M **Timeframe**



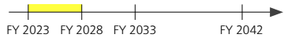
Investment Type Restore

Description State of good repair of MIS/IT/Network Systems. Provides for the replacement of various existing Communications/Information Technology assets, including SCADA, Bus On-Board Video, and the Incident Management/Tracking system.

Justification Providing for the timely replacement of these systems supports a safe and reliable transit system.

Disaster Recover/Continuity plan

Capital Need ID CN-CI03 **Estimated Cost** $3.0M **Timeframe**



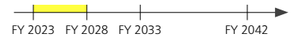
Investment Type Restore

Description Planning and implementation of an IT server site to provide operations in the event of a disaster. This would be approached in two phases, implement and test key systems, then expand the site to support all systems. High Availability is not covered by this site and is already addressed with the agency's existing infrastructure.

Justification The SFMTA currently uses Azaure for disaster recovery. SFMTA plans to uses specialized consultant to develop Disaster recovery plan in the event of a disaster that renders both of its primary data centers inoperable it would not be able to operate any of its IT systems in any capacity. A Disaster Recovery site is required to enable the operation of key systems in the event of a disaster.

Phase 2 Radio Project – platform consolidation

Capital Need ID CN-CI06 **Estimated Cost** $1.5M **Timeframe**



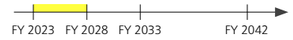
Investment Type Enhance

Description The first phase of the computer-aided dispatch/ automatic vehicle location (CAD/AVL) system, commonly known as the radio system, was completed in Spring 2019. A second phase is needed to consolidate additional vehicle networks. This would utilize the new CAD/AVL system as a unifying technology platform to provide a single network and technology interface on all vehicles. This is important to ensure future technologies onboard vehicles are compatible with one-another, reduce overall network communications costs and deploy future technologies that would utilize communications and networking through the CAD/AVL.
2. Implementing system improvements "detour" and "headway" modes to support multiple modes of service plan changes.

Justification There are currently 11 networks and antennas on vehicles, which limits compatibility and expansion of systems. This will enable the consolidation of systems resulting in cost savings and expansion of future systems will be more cost effective with a single network on vehicles. This will provide more flexibility in service planning and support additional functions to accommodate multiple modes for service plans.

Customer Service Platform Project

Capital Need ID CN-CI07 **Estimated Cost** $2.5M **Timeframe**



Investment Type Enhance

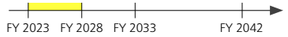
Description Integrate all customer touchpoints and support all mobility permits, fare media, etc. ii. Create supporting business flows and digital transactions to support customer service in parking, taxi, commuter shuttle, traffic, transit, bike and pedestrian requests.

Justification This integration is needed to consolidate systems and applications currently supported in multiple platforms and streamline system management.

Communications & Information Technology Capital Program

Citation and Parking Permits Program

Capital Need ID CN-CI08 **Estimated Cost** $2.5M **Timeframe**



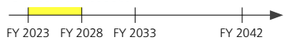
Investment Type Enhance

Description Replace current permit system contracted out to Conduent. Three projects include payment plans for citations, residential and other permit parking, and administrative review.

Justification Customization and cost saving from contracting out the system support

Trapeze Program

Capital Need ID CN-CI09 **Estimated Cost** $8.0M **Timeframe**



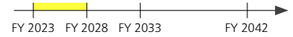
Investment Type Enhance

Description Implement new Trapeze modules.
- Trapeze Timekeeping rules: Construct Improvement to timekeeping rules to comply with new MOU agreement and automate existing Manual activities.
- Absence management and workers comp reporting: Develop an interface between worker's comp management and Transit operating management systems to assist department to obtain latest information of actual worker's comp claims.
- Sign-in terminal: Install and design Trapeze Ops Sign in terminal allowing Transit to streamline communication to each operator at start of their shift.
- Yard management: Improve daily maintenance and operations of transit revenue vehicles.

Justification Application Enhancement based on Transit needs to improve daily operations for transit operators and revenue vehicle management

On-Premise SharePoint Upgrade

Capital Need ID CN-CI10 **Estimated Cost** $1.2M **Timeframe**



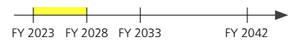
Investment Type Enhance

Description Migration from SharePoint 2010 and 2013 to SharePoint 2019

Justification Support for 2010 and 2013 will no longer be supported.

Digital Street Infrastructure Project

Capital Need ID CN-CI11 **Estimated Cost** $6.1M **Timeframe**



Investment Type Enhance

Description Digitize street and right-of-way infrastructure, regulations and assets in a geographic information / infrastructure design system that supports planning, public outreach and implementation of right-of-way improvements. Re-engineer existing planning and change process to allow greater community insight and collaboration.

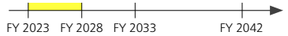
Create data models to facilitate capturing assets and events. Create analytic data models supporting analysis and reporting.

Justification To update existing outdated and insufficient system and support new and ongoing projects in the City's right-of-way.

Communications & Information Technology Capital Program

Project and Fund Management System Replacement

Capital Need ID CN-CI12 **Estimated Cost** $0.5M **Timeframe**



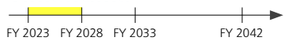
Investment Type Enhance

Description Replace existing CPCS applications with new system that meets the agency's need to support project delivery

Justification Replace current applications with ones that better meet the needs of client and integrate with Peoplesoft

Network Infrastructure Replacement

Capital Need ID CN-CI13 **Estimated Cost** $2.0M **Timeframe**



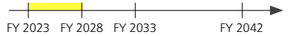
Investment Type Restore

Description Update and replacement of core networking infrastructure to ensure we can deliver the performance and redundancy this agency needs.

Justification Network connectivity is a critical IT service that is essential to SFMTA operations. Our Network core has not been refreshed in many years and a lot of the equipment is approaching end of life. We also need to redesign our network to handle the new demands and to deliver the resiliency this agency must have to support our operations.

Video Camera Refresh

Capital Need ID CN-CI14 **Estimated Cost** $1.5M **Timeframe**



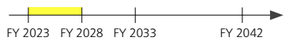
Investment Type Restore

Description Replace outdated surveillance infrastructure at various MTA facilities. Over the years various purchases were made to buy security cameras and much of this equipment is past its useful life. This project will be focused on upgrading the oldest equipment in around 15 locations and about 500 cameras.

Justification During our video modernization project, we have identified a list of sites that have very old surveillance equipment. These sites are using predominantly analog cameras and we want to switch them over to modern IP based cameras for better integration and in most cases higher resolution.

Cybersecurity Modernization

Capital Need ID CN-CI15 **Estimated Cost** $0.5M **Timeframe**



Investment Type Restore

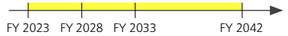
Description Modernization of cybersecurity infrastructure. Cybersecurity threats keep evolving and there is a need to update key infrastructure like our firewalls to keep current.

Justification Cybersecurity threats keep evolving and we need to update key infrastructure like our firewalls to keep current. Part of this project will also include a detailed risk assessment, so we make sure we are investing in the right places to secure critical infrastructure.

Facility Capital Program

SFMTA Facility Condition Assessment Campaign

Capital Need ID CN-FC01 **Estimated Cost** $203.6M **Timeframe**



Investment Type Enhance

Description A series of facility safety improvement projects at all SFMTA facilities, as appropriate. Projects include work like recurring pigeon abatement, safety enhancements, emergency lighting, etc.

Justification These projects improve the safety of the work environment. Investments in safety infrastructure also assist in promoting a culture of safety.

SFMTA Facility Fire Life Safety System Campaign

Capital Need ID CN-FC02 **Estimated Cost** $20.4M **Timeframe**

Investment Type Enhance

Description Implement Fire Safety Improvements at SFMTA Facilities, including new and additional fire protection (sprinklers, alarms, strobes, etc.) to bring buildings into compliance with fire safety regulations.

Justification Remain in compliance with safety regulations.

1201 Mason (Cable Car Barn) Rehabilitation

Capital Need ID CN-FC03 **Estimated Cost** $207.9M **Timeframe**

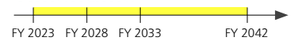
Investment Type Restore

Description Rehabilitate core and shell and major building systems and complete full tenant improvement of the Cable Car Barn, including full overhaul of the electrical system. This historic building houses the full cable car maintenance and operations function, including running repair of vehicles, cable and winding machines, and the Cable Car Museum, which is open to the public.

Justification Maintaining existing cable car facility and fixed equipment in a state of good repair will help ensure safe and reliable transit service.

Operator Convenience Stations Renewal Campaign

Capital Need ID CN-FC04 **Estimated Cost** $12.9M **Timeframe**



Investment Type Restore

Description Includes major rehabilitation, preservation, and improvement of 25 existing restroom facilities at 6 locations, including Operations Central Control (OCC), subway stations, etc. and construction of new operator restrooms.

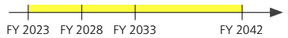
Most were built between the 1980s and early 2000s. Some are nearing the end of their estimated 33 year lifespan. A few are historic - with very old outside facades and newer interiors (Taraval and Judah are two examples)

Justification This project will improve and enhance employee facilities, leading to healthier working environments.

Facility Capital Program

601 25th Street (Muni Metro East) Expansion Project Phase I and Phase II

Capital Need ID CN-FC05 **Estimated Cost** $122.2M **Timeframe**



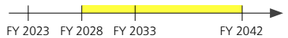
Investment Type Expand

Description Expand the Muni Metro Rail Facility into the currently undeveloped 4 acres to the east of the existing yard, for future light rail vehicle storage, and interim bus maintenance and storage use prior to delivery of the expanded light rail vehicle fleet. Project includes site prep, powered gates and fencing, site lighting, public address system, and traction power/ overhead catenary systems.

Justification Facilities for transit operations, paratransit, SSD shops, etc. are located on short-term leased property and it is in the strategic interest of SFMTA to secure long-term or permanent locations for these activities. The continued growth of transit results in a similar challenge as SFMTA has a need for long-term or permanent locations for transit operations facilities.

Real Property Acquisition for SFMTA Facilities

Capital Need ID CN-FC06 **Estimated Cost** $96.7M **Timeframe**



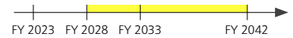
Investment Type Expand

Description Acquisition of real estate property (purchase or long-term lease) for needed Facilities expansion / relocation. This would include using funds to acquire real estate on existing leases where SFMTA holds a "right of first refusal" if the property is to be sold, or a "purchase option" as part of a lease, or other similar contract language.

Justification Facilities for transit operations, paratransit, SSD shops, etc. are located on short-term leased property and it is in the strategic interest of SFMTA to secure long-term or permanent locations for these activities. The continued growth of transit results in a similar challenge as SFMTA has a need for long-term or permanent locations for transit operations facilities.

SFMTA Real Estate Capital (Joint-Use Development)

Capital Need ID CN-FC07 **Estimated Cost** $20.4M **Timeframe**



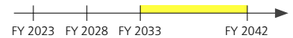
Investment Type Expand

Description The SFMTA has numerous sites in San Francisco that would be appropriate for joint-use development for housing or commercial purposes; however up front capital is sometimes needed for predevelopment and site preparation, or for a capital contribution for concurrent SFMTA operations on-site.

Justification Fully utilizing existing SFMTA properties provides resources to operate and maintain the Muni fleet.

2301 Stockton (Kirkland) Facility Modernization

Capital Need ID CN-FC08 **Estimated Cost** $99.8M **Timeframe**



Investment Type Restore

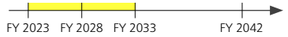
Description Complete rebuild of the Kirkland Division, including addition of full maintenance capacity at the division and improvements to accommodate the change of the bus fleet to battery-electric vehicles.

Justification The division facility is over 60 years old and is obsolete and needs to be replaced. It is too small and is located among non-conforming interests. The resulting improvements will provide safer and healthier working conditions and will ensure that the transportation system is more efficient. Efficient and properly designed facilities are key to maintaining the Muni Fleet in a state of good repair.

Facility Capital Program

2500 Mariposa (Potrero) Facility Modernization

Capital Need ID CN-FC09 **Estimated Cost** $407.2M **Timeframe**



Investment Type Restore

Description Complete rebuild of the Potrero Division - fleet moves to pivot facility to remain in service while rebuild is underway. Three-level structured bus facility to serve 213 buses, centralize and streamline operator training, and centralize Muni street operations. Also includes renovations to accommodate the change of the bus fleet to all battery-electric vehicles. Project reference concept also includes joint development of street level commercial uses and up to 575 residential units.

Justification The division facility is over 100 years old and is obsolete and needs to be replaced. The resulting improvements will provide safer and healthier working conditions and will ensure that the transportation system is more efficient. Efficient and properly designed facilities are key to maintaining the Muni Fleet in a state of good repair.

949 Presidio (Presidio) Facility Modernization

Capital Need ID CN-FC10 **Estimated Cost** $372.6M **Timeframe**

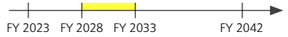
Investment Type Restore

Description Complete rebuild of the Presidio Division - fleet moves to interim facility while rebuild is underway. Two-level structured bus facility with basement currently includes a PW street cleaning unit in the program. Also includes improvements to accommodate the change of the bus fleet to all battery-electric vehicles. Project early concepts are looking into potential for joint development, especially on southern (Geary Blvd) frontage of the site.

Justification The division facility is over 100 years old and is obsolete and needs to be replaced. The resulting improvements will provide safer and healthier working conditions and will ensure that the transportation system is more efficient. Efficient and properly designed facilities are key to maintaining the Muni Fleet in a state of good repair.

1940 Harrison Street (Flynn) Facility Modernization

Capital Need ID CN-FC11 **Estimated Cost** $74.4M **Timeframe**



Investment Type Restore

Description The scope of the proposed Flynn Bus Maintenance Facility Renovation project includes: lift upgrades for all in-ground lifts and hoists, roof improvements, exhaust fan upgrades, mechanical and HVAC replacement, air and diesel equipment replacement including air compressors, generators and fire pumps. Also includes improvements to accommodate the change of the bus fleet to all battery-electric vehicles.

Justification Other than the new Islais Creek Bus Maintenance Facility, the Flynn Facility is the only location that the SFMTA can store and maintain 60 ft. motor coaches. The fleet is currently growing, and this facility needs to be modernized to maintain the new and growing fleet.

Rubber Tire Division Wash Rack Replacement (Sustainability - Water)

Capital Need ID CN-FC12 **Estimated Cost** $20.4M **Timeframe**

Investment Type Enhance

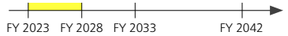
Description Provides new updated wash racks for two Rubber Tire Transit Divisions. Wash racks will be able to handle standard and/or articulated motor coaches depending on the division in which they are installed. Project includes water reclamation system and paving.

Justification This project will result in cleaner buses, with the potential of improving customer satisfaction. It will also improve the working environment by providing more effective and modernized equipment that reduces water resource consumption and efficiently utilizes necessary cleaning chemicals.

Facility Capital Program

Enforcement Headquarters Construction at 1200 15th Street

Capital Need ID CN-FC13 **Estimated Cost** $49.1M **Timeframe**



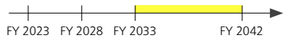
Investment Type Enhance

Description Makes necessary improvements to a new headquarters for the Sustainable Streets Enforcement Sub-Division.

Justification Improves coordination for the Security, Investigations and Enforcement (SIE) Group, and ends the short-term lease of their current facilities. Provides adequate space for SIE group job functions.

Subway Station Rehabilitation Campaign

Capital Need ID CN-FC14 **Estimated Cost** $1,544.3M **Timeframe**



Investment Type Restore

Description Provides for ongoing rehabilitation and improvement projects in the Metro Subway stations. It includes rehabilitation of substructure, superstructure, Heating, Ventilating, and Air Conditioning (HVAC) systems, electrical systems, plumbing systems, restrooms, as well as painting and platform edge detection tile replacement.

Justification Well-maintained subway station facilities will reduce the risk of safety hazards due to deteriorating systems. Timely replacement of assets allows for consistent and efficient station operations, i.e., replaces old systems with energy-efficient ones.

Solar Panel Installation at Multiple SFMTA Facilities (Sustainability - Power)

Capital Need ID CN-FC15 **Estimated Cost** $15.6M **Timeframe**

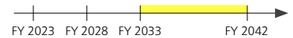
Investment Type Enhance

Description Installation of solar panels at the MME and Green, Facilities. Each facility has open, clear roof space where solar panels could be installed. The resulting electrical generation could be used to power each facility and excess energy could be returned to the power grid.

Justification This project will improve energy efficiency and would result in cost savings. It would also support the agency's sustainability goals by reducing SFMTA's use of non-renewable resources.

1095 Indiana (Woods) Facility Modernization

Capital Need ID CN-FC16 **Estimated Cost** $407.2M **Timeframe**



Investment Type Enhance

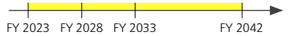
Description Complete rebuild of the Woods Division, including relocation of the fleet to a temporary facility to enable construction. The new bus facility would be a structured operations and maintenance facility with improvements to accommodate the change of the bus fleet to battery-electric vehicles. The SFMTA would purpose potential for consolidation of other SFMTA uses (i.e. paratransit, potentially) and opportunities for housing on the site.

Justification The division facility is over 60 years old and maintenance capacity is limited to 40' vehicles. The layout is awkward and significant investment will be required to transition to battery-electric vehicles. Rebuilding the site to a modern standard if more cost effective for the SFMTA and provides safer and healthier working conditions. Efficient and properly designed facilities are key to maintaining the Muni Fleet in a state of good repair.

Facility Capital Program

SFMTA Facility Elevator Rehabilitation Program

Capital Need ID CN-FC17 **Estimated Cost** $93.3M **Timeframe**



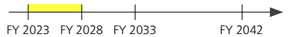
Investment Type Enhance

Description This need focuses on elevators within SFMTA operations and maintenance facilities and supporting shops and includes replacement of several components that are most prone to failure, including door operators, landing doors, cab doors, door tracks, sills and sill angles, thus extending their useful life and improving reliability. These upgrades are especially necessary for ensuring accessibility for seniors and people with disabilities.

Justification The Capital Need will improve the reliability of station elevators and ensure consistent and safe access to stations for persons with disabilities.

Muni Metro Station Escalator Rehabilitation Program

Capital Need ID CN-FC18 **Estimated Cost** $34.8M **Timeframe**



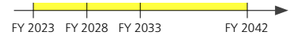
Investment Type Restore

Description This need focuses on escalators within SFMTA Muni Metro transit stations, which will be rehabilitated or replaced to conform with current building codes and incorporate modern safety features. Capital Need includes the escalators that have not been completed or funded.

Justification The project will improve the reliability of station escalators and ensure consistent and safe access to stations for persons with disabilities.

Muni Metro Elevator Expansion

Capital Need ID CN-FC19 **Estimated Cost** $40.7M **Timeframe**



Investment Type Expand

Description This need focuses on elevators within SFMTA Muni Metro stations. Install new ADA compliant street and platform elevators at Muni Metro stations with level changes, including shared BART/Metro stations. Initially, elevators would be installed at stations that currently only provide one elevator, or where a fully ADA compliant elevator is not available. The full build-out would provide at least one ADA-compliant elevator at every Muni Metro access point.

Justification The new elevators will ensure consistent and fully ADA compliant access to the underground Metro stations for people with mobility impairments and others needing the elevator for access to the stations.

Paratransit Facility

Capital Need ID CN-FC20 **Estimated Cost** $137.4M **Timeframe**

Investment Type Enhance

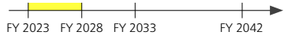
Description Build a paratransit facility on property owned or long-term leased by the City of San Francisco. The current cost estimate assumes the facility would share a location with a separately operated new or renovated SFMTA transit division.

Justification Build a paratransit facility that would be leased to a paratransit service provider. The purpose behind building a facility of this type is to ensure paratransit service is met in SF, which may be problem if available spaces for leasing are not present at a future time.

Facility Capital Program

1 South Van Ness (SFMTA Headquarters)

Capital Need ID CN-FC21 **Estimated Cost** $6.8M **Timeframe**



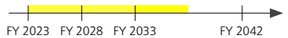
Investment Type Enhance

Description Perform tenant improvements at 1 SVN replacing carpets and workstations to increase capacity and space use with existing square footage. Includes modernization conference and meeting room technology and other minor improvements to conference spaces.

Justification The SFMTA has increased staff at 1 SVN (SFMTA Headquarters), however the Agency is working to optimize existing square footage, rather than purchase or lease additional space in the downtown area.

eBus Facilities Conversion

Capital Need ID CN-FC22 **Estimated Cost** $712.7M **Timeframe**



Investment Type Enhance

Description Convert all SFMTA rubber tire maintenance and operations facilities from existing fleet propulsion technology to battery electric buses. This conversion need includes Woods, Islais Creek, and Flynn, and short-term improvements to Kirkland prior to its full rebuild. This conversion need also includes off-site improvements to the SFMTA power supply to accommodate this transition. Presidio and Potrero are excluded because conversion of these facilities is included in complete rebuild projects (otherwise listed in this Capital Plan).

Justification In May 2018, the SFMTA Board adopted a Zero Emission Vehicle Policy Resolution. Per the ZEV Policy, the SFMTA will begin procuring zero emission buses starting in 2025, with a goal of achieving a 100% battery electric vehicle fleet by 2035. The SFMTA is also mandated to pursue conversion to Zero Emissions buses by California Air Resources Board.

Interim Trolley Coach Facility

Capital Need ID CN-FC23 **Estimated Cost** $35.6M **Timeframe**

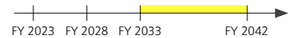
Investment Type Expand

Description Improve the existing bus acceptance facility and storage yard at 1399 Marin to serve as an interim trolley maintenance facility to accommodate fleets from Potrero and Presidio during major facility rebuild.

Justification To enable rebuild of obsolete and deficient facilities but maintain SFMTA's Muni service, the SFMTA needs to complete interim improvements at other sites to accommodate displaced fleets.

Regulated Mobility Inspection Facility

Capital Need ID CN-FC24 **Estimated Cost** $10.2M **Timeframe**



Investment Type Expand

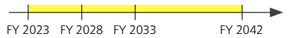
Description Setup and establish an inspection facility for Taxi, Commuter Shuttle, Private Transit Vehicle, Shared Mobility, Regulated Mobility Vehicles or Devices.

Justification Improve public safety by inspecting each vehicle and shared mobility device introduced, involved in an incident, in response to complaints, and on a regular basis. This will require space, infrastructure, and equipment to handle such inspections.

Fleet Capital Program

Cable Car Vehicle Rehabilitation (Program)

Capital Need ID CN-FT01 **Estimated Cost** $42.4M **Timeframe**



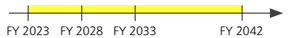
Investment Type Restore

Description This program consists of the accelerated, phased overhaul and reconstruction of the 40 vehicle Cable Car fleet. Given the cultural significance and historical importance of the Cable Car system and Fleet, it is a priority to ensure that the Cable Cars' condition is consistent with the City's pride in our fleet. The expected life of a rebuilt Cable Car is approximately 20 years, with a minor rehabilitation every 5-7 years. This program includes major rehabilitation of 17 Powell Cars and 11 California Cars to like-new condition, and mid-life rehabilitation of 10 Powell Cars and 2 California Cars. This program will ensure the availability of funding for staff and materials to complete needed rehabilitation on a rolling 5-7 year basis.

Justification This program will maintain a high level of system reliability, safety, and productivity, providing quality service to this top tourist attraction.

Historic Vehicle Rehabilitation (Program)

Capital Need ID CN-FT02 **Estimated Cost** $165.1M **Timeframe**



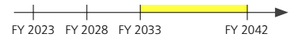
Investment Type Restore

Description The program consists of the systematic rehabilitation of 45 historic streetcar vehicles, featuring an end of life rehab (to like-new condition). A rehab is needed every 15 to 20 years. It includes rehab or replacement of the brake interlock system, backup master controller, electrical system, propulsion, and other systems as well as complete body repair, fare box and radio replacement, and ADA updates.

Justification This program will maintain a high level of system reliability, safety, and productivity, providing quality service to patrons. It is necessary to keep the cars in operation since they are not replaced.

Light Rail Vehicle Midlife Overhauls

Capital Need ID CN-FT03 **Estimated Cost** $537.6M **Timeframe**



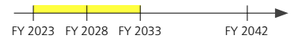
Investment Type Restore

Description Includes the systematic midlife rehabilitation and overhaul of all 264 Siemens light-rail vehicles. This program includes heating ventilating and air conditioning (HVAC), brakes, couplers, pantograph, propulsion, doors, car body, seats, and cab. These figures include cars from the 45-car expansion.

Justification Mid-life overhauls are required to ensure that the vehicles can operate for their full useful lives of 25 years.

Light Rail Vehicle Replacement (Program)

Capital Need ID CN-FT04 **Estimated Cost** $754.4M **Timeframe**



Investment Type Restore

Description Includes replacement of the entire fleet of Breda light rail vehicles when they reach the end of their useful life, with 151 new light rail vehicles (LRVs) that meet the operational and capacity needs of the Metro light rail system. Replacement every 25 years.

Justification This project will provide for the modernization of the existing light rail vehicle (LRV) fleet and will also allow for greater speed, reliability, and comfort.

Fleet Capital Program

Light Rail Vehicle Fleet Expansion

Capital Need ID CN-FT05 **Estimated Cost** $207.9M **Timeframe**

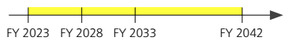
Investment Type Expand

Description Includes the purchase of 45 expansion light rail vehicles to meet anticipated population growth and increased service demand. 20 Vehicle LRV option starting in FY2028

Justification This project will provide for increased service along existing and under construction light rail lines. Expansion of the light rail fleet with modern vehicles should allow for greater speed, reliability and comfort.

Motor and Trolley Coach Midlife Overhaul (Program)

Capital Need ID CN-FT06 **Estimated Cost** $923.1M **Timeframe**



Investment Type Restore

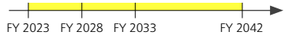
Description Provides for the systematic mid-life overhaul of all 894 vehicles in the motor and trolley coach fleets and new vehicles from confirmed future expansion. The program includes rehabilitation and replacement of engines; transmissions; differentials; suspension systems; wheelchair lifts; passenger and driver seats; glass; and body repair and paint.

Justification The primary focus of this program is to maintain the motor and trolley coach fleet in a state of good repair by replacing key components midway through the vehicle's useful life. Mid-life rehabilitation of the fleets ensure that the vehicles operate in a safe and secure manner, reducing safety hazards and vandalism. In addition, this rehabilitation program will allow each vehicle to reach its full useful life before needing to be replaced. Timely rehabilitation of the motor coach and trolley fleet reduces the number of breakdowns and improves service reliability.

Trolley- 368 overhauls; Motor Coach- 1,389 overhauls

Motor Coach Replacement (Program)

Capital Need ID CN-FT07 **Estimated Cost** $1,901.9M **Timeframe**



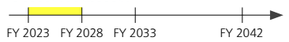
Investment Type Restore

Description Entails the replacement of 564 (616) standard and articulated motor coaches with battery electric buses after 2025. This program seeks to replace the existing fleet and future confirmed expansion vehicles to a state of good repair, replacing old equipment with the latest and most advanced zero-emissions technology available. Replacement every 12 years. Potential further expansion of 110 additional coaches would also require one replacement cycle.

Justification The new coaches will offer greater reliability and safety with enhanced transmission-based brake retarders, composite materials, slip resistant flooring, and better mirrors. As a result, this project will improve agency safety and security, as well as improved transit reliability, on-time efficiency, and customer satisfaction. Replacement vehicles purchased:
66 30-foot vehicles; 657 40-foot vehicles; and 436 60-foot vehicles.

Motor Coach Expansion (Program)

Capital Need ID CN-FT08 **Estimated Cost** $234.4M **Timeframe**



Investment Type Expand

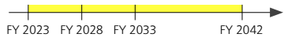
Description Expansion of the motor coach fleet, both in number of vehicles and vehicle capacity, to accommodate projected growth. Expansion after 2018 may include up to 110 additional motor coaches to a total of 674. These expansion vehicles would include those needed to provide expanded service to planned major developments (Parkmerced, Treasure Island, Hunters Point/Candlestick Point Shipyard).

Justification The expansion of the motor coach fleet is needed to meet projected ridership demand. In addition, new fleet procurements will help meet operational needs for larger capacity vehicles and help meet zero emissions targets. Expansion vehicles purchased: 53 40-foot vehicles and 106 60-foot vehicles.

Fleet Capital Program

Trolley Coach Replacement (Program)

Capital Need ID CN-FT09 **Estimated Cost** $498.3M **Timeframe**



Investment Type Restore

Description All trolley coaches will be replaced with BEBs

Justification Timely replacement of trolley coach vehicles reduces the number of incidents and breakdowns from vehicle deterioration and age, contributing to greater reliability and a cleaner and more comfortable experience for the customer and employee. Replacement vehicles purchased: 204 40-foot vehicles and 102 60-foot vehicles.

Paratransit Fleet Replacement (Program)

Capital Need ID CN-FT10 **Estimated Cost** $80.7M **Timeframe**

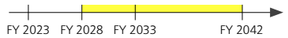
Investment Type Restore

Description The routine, scheduled replacement of large Type B cutaway vans with Type A vans every five years. The capacity of the new Type A cutaway vans will be the same as the Type B vans, at two wheelchair users and twelve seated passengers.

Justification This project will replace the current fleet of vehicles used to deliver ADA and non-ADA paratransit service (e.g. paratransit taxi & group van service), providing for newer, modern vehicles and better access for persons with disabilities who are unable to access the fixed route transit system.

Paratransit Fleet Expansion (Program)

Capital Need ID CN-FT11 **Estimated Cost** $2.6M **Timeframe**



Investment Type Expand

Description Expansion in the number of vehicles in the Paratransit Fleet to accommodate expected growth in service demand. Starting in 2023, five Type A vans will be purchased every five years through 2039.

Justification This project will expand the current fleet of vehicles used to deliver ADA and non-ADA paratransit service (e.g. paratransit taxi & group van service), providing more vehicles and better access for persons with disabilities who are unable to access the fixed route transit system.

Non-Revenue Vehicle Replacement (Program)

Capital Need ID CN-FT12 **Estimated Cost** $110.8M **Timeframe**

Investment Type Restore

Description Consists of the purchase and replacement of non-revenue vehicles, such as specialized maintenance vehicles, as well as light and heavy duty trucks and sedans that are used throughout the agency. This project will replace existing non-revenue vehicles at the end of their useful life. This program assumes vehicle upgrades as the City transitions to a zero-emissions fleet. This program also aligns with expected changes air emissions standards.

Justification On-time replacement or upgrade of non-revenue vehicles ensures that employees can effectively support the operations of the transportation system and efficiently access locations where there are service incidents and perform corrective measures. Many vehicles have significantly exceeded their useful lives and their current condition presents challenges for maintaining effective operations.

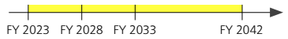
Fleet Capital Program

Replacement of Other On-Board Equipment

Capital Need ID CN-FT13

Estimated Cost $107.9M

Timeframe



Investment Type Restore

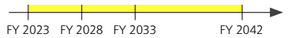
Description Replacement of on-board monitoring and control equipment. Includes replacement of CCTV, automatic passenger counters, radio, and on-board ATCS equipment. Replacement required every five to six years when not provided with a new vehicle.

Justification Replacement of on-board equipment is required to maintain safe and efficient operations. The equipment does not last as long as the vehicles on which it is placed.

Parking Capital Program

Electric Vehicle Charging Stations

Capital Need ID CN-PK01 **Estimated Cost** $5.1M **Timeframe**



Investment Type Enhance

Description Upgrade and expand upon the portfolio of EV chargers in city-owned garages. The current portfolio of about 50 chargers has reached the end of its useful life and is no longer supported by the vendor with replacement parts as of 12/31/2018.

Justification Upgrading existing Level 2 EV chargers and adding additional Level 2 and DC fast chargers will address the growing public demand for EV charging and support the SFMTA's and the city's sustainability goals. Also, the hardware has a five-year life expectancy, and should therefore be replaced four times over a 20-year span.

Implement Parking, Loading, Bicyclist, Pedestrian and Other Mobility Mode Movement and Stopping Detection Technology

Capital Need ID CN-PK02 **Estimated Cost** $29.5M **Timeframe**

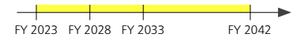
Investment Type Enhance

Description Implement detection technology to measure parking occupancy, loading zone usage, double parking, bicyclist movements and counts, pedestrian movements counts, and other mobility mode user movements and counts. This data will support demand-responsive meter rate adjustments, analysis of requested parking regulation changes, curb management, bicycle and pedestrian planning, engineering, Vision Zero initiatives, and transparency in decision-making.

Justification Improving parking availability, curb management, and bicycle/pedestrian/safety project implementation will help make our streets safer and more efficient.

Parking Facilities State of Good Repair (Program)

Capital Need ID CN-PK03 **Estimated Cost** $366.5M **Timeframe**



Investment Type Restore

Description Restoration of 38 parking facilities that provide nearly 15,000 parking spaces, 90,000 sq. ft. of retail space and generate over $90M in annual gross revenues. Includes major rehabilitation, preservation, and improvement of existing parking facilities to enhance parking infrastructure and improve parking management. Implements improvements to elevators, parking decks/drive aisles, energy efficient lighting, and mechanical systems (e.g., HVAC, sump pumps), CCTV surveillance systems, and bike parking as well as compliance with ADA regulations and various Planning, Building and Fire Codes.

Justification When completed, this project will extend the useful life of major revenue-generating assets, enhance safety of public facilities, as well as help provide better services for those bicycling, carpooling and carsharing.

Parking Meters State of Good Repair (Program)

Capital Need ID CN-PK04 **Estimated Cost** $120.6M **Timeframe**

Investment Type Restore

Description Replaces and modernizes equipment for all 27,000 metered parking spaces. All on-street parking meters were replaced in 2014. This estimate accounts for three additional replacements within the next 20 years. Assumes expansion of number of meters during replacements.

Justification Modernizing existing parking meters will improve reliability and increase driver convenience by accepting non-cash forms of payment. Modernized meters will also allow for demand-responsive pricing.

Parking Capital Program

Parking Access Revenue Control System

Capital Need ID CN-PK05 **Estimated Cost** $45.8M **Timeframe**

Investment Type Restore

Description Upgrade of the Parking Access and Revenue Control Systems (PARCS) software, hardware, ticket dispensers, gate arms, registers, ticket acceptors, ticket readers, and pay stations at 20 SFMTA off-street parking garages.

Justification The PARCS equipment is currently being replaced, to be completed in 2020. The equipment has a 5-7 year expected life, therefore it will need to be replaced about three times over a 20 year span.

Parking Facility Structural and Seismic Upgrades

Capital Need ID CN-PK06 **Estimated Cost** $122.2M **Timeframe**

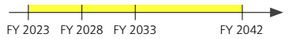
Investment Type Restore

Description Most of SFMTA's parking structures are at least 20 years old (oldest garage was built in 1941). Performing a structural analysis to assess the integrity of the SFMTA garages is the first and necessary step to ensure the viability of SFMTA parking assets. The second step is to implement structural and seismic upgrades, where needed.

Justification Improving the seismic and structural integrity of existing parking structures increases the resiliency of the facilities in the event of a natural disaster.

HDTV Monitoring Cameras for Off-Street Metered Parking Lots

Capital Need ID CN-PK07 **Estimated Cost** $4.1M **Timeframe**



Investment Type Enhance

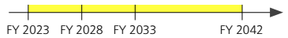
Description SFMTA's 19 metered off-street parking lots throughout commercial corridors in the city are unstaffed. Monitoring cameras will allow SFMTA staff to more efficiently monitor lot operations and provide HD video to assist MTA, PW and PD in following up on security and maintenance issues.

Justification Oversight of the metered lot portfolio currently requires staff to periodically drive around the city to complete inspections. Installation of HD cameras, connected via proprietary city fiber-optic cable back to the MTA Parking Command Center at the TMC will significantly enhance staff's efficiency and effectiveness in managing lot operations.

Security Capital Program

Threat and Vulnerability Assessment (TVA) and Implementation

Capital Need ID CN-SC01 **Estimated Cost** $68.2M **Timeframe**



Investment Type Enhance

Description This capital need addresses two major elements of threat and vulnerability assessment which includes review and mitigation implementation. Capital need CN-SC01 funds biennial or "as-needed" emergency management and security reviews of major threats and vulnerabilities to SFMTA's critical infrastructure, assets, and facilities. Based on these reviews or other sources (such as incident and exercise after-action reports), the capital need covers the implementation of high-priority mitigation and preparedness projects to protect critical SFMTA facilities, assets, and infrastructure. Project represented by this capital need address natural, manmade, or cyber-security threats of the SFMTA with an emphasis on Rail Transit Security.

Justification Improves safety and security for employees and customers by planning for and implementing solutions to reduce impacts of natural, manmade, or cybersecurity disasters. The annual reviews and strategies developed from these reviews ensure the Agency meets its regulatory requirements.

Incident Management Planning and Response

Capital Need ID CN-SC02 **Estimated Cost** $4.8M **Timeframe**

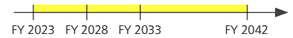
Investment Type Enhance

Description Fund continuous upgrades of emergency communications equipment (satellite phones, radios) and supplies for SFMTA Divisions; interagency common operating picture operations; post-disaster damage and safety assessment. The exact projects are driven by after-action reports from incident response activations and/or emergency management exercises.

Justification Improves the Agency's emergency response capabilities while complying with regulations.

Surveillance, Access Control, and Security System Enhancements

Capital Need ID CN-SC03 **Estimated Cost** $15.3M **Timeframe**



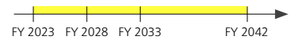
Investment Type Enhance

Description Annual high-priority security enhancement measures such as perimeter security enhancements, surveillance equipment, video analytics and monitoring, employee security access control, equipment, signs, training manuals, and cyber security systems.

Justification Maintains the security of SFMTA facilities as mandated by regulations.

Technology In Transportation Emergency Management

Capital Need ID CN-SC04 **Estimated Cost** $25.7M **Timeframe**



Investment Type Enhance

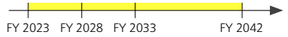
Description Implementation of technology projects from industry best practices to enhance rail system security and employee/customer protection during normal operations as well as to augment response capabilities for all-hazard disasters on the rail system. Systems include emergency command vehicles; disaster, evacuation, and recovery modeling systems; portable digital message boards; intelligent traffic signal management system, and redundant and interoperable communication systems.

Justification Enhances the transportation operations and emergency management capabilities of SFMTA.

Security Capital Program

Subway Tunnel Intrusion Detection and Deterrence Measures

Capital Need ID CN-SC05 **Estimated Cost** $302.6M **Timeframe**



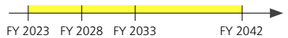
Investment Type Enhance

Description This capital need funds the procurement, installation, and staff training of an upgraded video-based alert system in our subway that actively monitors and detects intrusions into secured areas. This system would monitor our subway stations, tunnels, platforms, and trackside protection assets. This capital need also funds security enhancements related to more traditional methods of intrusion detection and deterrence such as CCTV upgrades/expansion, site hardening, trackside protection reinforcement, lighting, alarms, and upgraded sensors.

Justification This capital need reduces the potential service disruption and protects SFMTA passengers and employees while complying with regulatory requirements. Intentional or unintentional intrusion into our network has been identified as an issue which poses not only a safety and security risk, but a risk to the overall service delivery of the organization.

Market Street Natural Hazard Mitigation

Capital Need ID CN-SC06 **Estimated Cost** $101.8M **Timeframe**



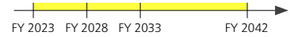
Investment Type Enhance

Description Implementation of the San Francisco Lifelines Council's recommendations outlined in the San Francisco Lifelines Council Interdependency Study to mitigate risks from natural hazards to SFMTA infrastructure assets above and below Market Street. Mitigation recommendations primarily are concerned with earthquake, but also recognize the significant impact of earthquake related flooding and fire as well as long-term needs for mitigation due to sea level rise and climate changes. These mitigation strategies include but are not limited to subway, surface rail, electric sub-station, and trolley bus related infrastructure.

Justification The SF Lifelines Council is a private/public partnership sponsored by the San Francisco Office of Resilience and Recovery. The purpose of the Council is to focus on post-disaster reconstruction and recovery efforts. The "Interdependency Study" identified Market Street Corridor where many major components of many lifeline systems are collocated and interdependent. The corridor also represents an areas of Very High to Moderate risks of liquefaction. The study recommends coordinating post-disaster action plans in coordination with partner Lifeline Council members. SFMTA would work closely with other City agencies as well as BART and other regional transit partners.

Subway Flooding Prevention, Preparedness, and Mitigation

Capital Need ID CN-SC07 **Estimated Cost** $26.3M **Timeframe**



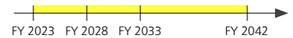
Investment Type Enhance

Description Conduct an all-hazard review of the SFMTA subways to prevent, prepare, and mitigate risks, primarily of flooding. A systemwide review is needed every 5 to 10 years.

Justification Maintains the integrity of SFMTA assets and prevents service disruption in the event of major natural disasters.

Continuity of Operations

Capital Need ID CN-SC08 **Estimated Cost** $6.9M **Timeframe**



Investment Type Enhance

Description Implement measures to ensure that the SFMTA would continue its essential functions after a major disaster. One example would be to set up and/or maintain alternate site(s) for the Department Operation Center for coordinating rail and bus operations in a post-disaster situation. Similar needs also exist for other essential SFMTA functions should the SFMTA headquarters become inaccessible for safe operations.

Justification Maintains essential SFMTA operations in the event of a major disaster.

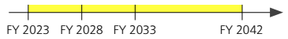
Security Capital Program

Traffic Signal Battery Backup System

Capital Need ID CN-SC09

Estimated Cost $15.5M

Timeframe



Investment Type Enhance

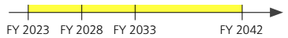
Description Replacement or expansion of traffic signal battery backup system installed in FY17 or earlier. The useful life of the current backup system is about five years at this time.

Justification Maintains traffic safety after a major power outage or natural/manmade disaster. Costs are offset by the otherwise need for PCOs staffing intersections and controlling traffic.

Streets Capital Program

Bicycle and Shared Mobility Parking (Program)

Capital Need ID CN-ST01 **Estimated Cost** $32.4M **Timeframe**



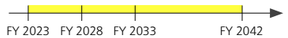
Investment Type Expand

Description Includes the installation of 1,000 bicycle racks per year (e.g., sidewalk racks, on-street racks); wheel stops; bollards; corrals and other measures to facilitate parking for personal bicycles and other shared mobility options at various locations throughout San Francisco. Also includes the installation of 7 bicycle parking stations, one every three years, which are self-service or attended facilities that have controlled access for secure storage of a bicycle; and the installation of 160 bicycle lockers, 8 per year. Secure bicycle lockers provide flexible, shared use, on-demand bicycle parking options.

Justification These facility improvements serve the entire system through the provision of safe, convenient bicycle parking so that cyclists can access desired land uses at the end of their trips. These facilities serve the entire system by providing for bicycle storage needs, making bicycle transportation a safer, more viable, attractive mode in San Francisco.

Protected Bike Lane Network

Capital Need ID CN-ST02 **Estimated Cost** $733.0M **Timeframe**



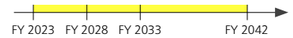
Investment Type Expand

Description Add new protected bike lanes and upgrade existing Class II bike lanes to physically protected facilities to create a safer citywide bicycle network of protected bike lanes suitable for a wide range of users. Specific protected bike lane infrastructure includes transit boarding islands to provide protection from bus passenger loading and buffer paint and traffic delineators. Additionally, implementation of concrete barriers to separate traffic from people bicycling, and signal and sign upgrades improves safety and increases ease of bicycling.

Justification Protected bike lanes improve safety and add to the comfort of bicyclists, making San Francisco's bicycle infrastructure more accessible to a wider range of users. This will help the SFMTA achieve the strategic goal of creating a safer transportation experience for everyone and assist in meeting the Vision Zero goal.

Neighborway Network

Capital Need ID CN-ST03 **Estimated Cost** $230.1M **Timeframe**



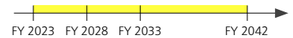
Investment Type Expand

Description Provide a network of safe and comfortable local streets to connect people walking and biking to schools, parks and other local destinations. Specific improvements include new traffic signals and signs to facilitate bicycle travel, and concrete infrastructure like islands, speed humps, and traffic circles to slow down vehicle speed.

Justification Neighborways reduce the speed and amount of automobile traffic on local streets thereby improving user safety and comfort, promoting the residential character of streets and making them more accessible to bicyclists. These facilities will help the City achieve the Vision Zero goal.

Bicycle Network State of Good Repair (Program)

Capital Need ID CN-ST04 **Estimated Cost** $149.7M **Timeframe**



Investment Type Restore

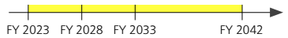
Description Replace signs, striping, green pavement, bike signals, and other bicycle facilities. Includes Spot Improvement upgrades to ensure that bicycle facilities are upgraded to meet evolving best practices.

Justification Rehabilitates the bicycle network, improves safety and comfort, encourages bicycling and maintains the network in a State-of-Good-Repair. These investments contribute to meeting the Bicycle Program goals.

Streets Capital Program

Pedestrian Safety

Capital Need ID CN-ST05 **Estimated Cost** $1,544.5M **Timeframe**



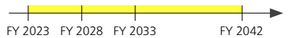
Investment Type Enhance

Description Pedestrian Core Projects will implement the key infrastructure needed to meet the City's Vision Zero goals, using proven pedestrian countermeasures at the highest need locations. The work will be guided on the City's high injury network, and range from intersection improvements such as bulb-outs to major corridor transformations, it additionally includes the costs to maintain existing safety infrastructure such as paint and signage in good condition. This reflects the need to improve 130 miles of San Francisco streets for Vision Zero.

Justification Implementing these projects are the cornerstone of the City's Vision Zero program. The focus in this category on the highest need streets will makes streets safer, more accessible, and more comfortable for all users, specifically vulnerable citizens - seniors, people with disabilities, and children, who are more likely to be severely injured if involved in collisions. The goal of this programming is to fund the needed engineering improvements to get to zero traffic fatalities annually. The projects will reduce injuries and collisions City-wide, but especially in high-risk communities such as the Tenderloin and South of Market.

Pedestrian Walkability and Neighborhood Enhancements

Capital Need ID CN-ST06 **Estimated Cost** $2,234.7M **Timeframe**



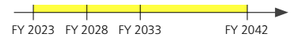
Investment Type Enhance

Description This category enhances the existing pedestrian environment and builds on the pedestrian safety projects by focusing on improving streets to make them more walkable. Projects include walkability improvements on neighborhood connections, such as wider sidewalks and green infrastructure, especially where people already walk. It further builds on local neighborhood corridors to promote walking and economic development, tapping into economic potential. Lastly, this category targets infrastructure deficiencies- locations where there are not high injuries but there are major impediments or barriers to walking, such as highway underpasses, rail crossings or lack of sidewalks in areas experiencing (and targeted for) new growth. This assumes that these improvements are needed on all streets, citywide.

Justification In addition to safety, the SFMTA is committed to making walking a preferred mode choice. The focus on this category is to make key streets more walkable to increase the number of trips made by walking in the City. This is through improving existing streets where people walk, improving local neighborhood shopping corridors and reducing the number of infrastructure real or perceived barriers to walking.

Traffic Calming

Capital Need ID CN-ST07 **Estimated Cost** $90.9M **Timeframe**



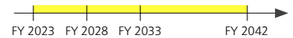
Investment Type Enhance

Description The Traffic Calming Program responds to neighborhood concerns about traffic safety on local streets across San Francisco. Special traffic calming programs additionally address schools, seniors and people with disabilities, populations that have disparately poor outcomes when involved in a traffic collision. Traffic calming devices such as speed humps, pedestrian bulb-outs, traffic circles, median islands are considered and installed at various locations in the city. Some of the more intensive traffic calming projects may include features such as chicanes, traffic diverters, signalized pedestrian crosswalks and street closures. Program is comprised of Application-Based Residential Traffic Calming, and Proactive Residential Area Improvement sub-programs.

Justification These projects will improve pedestrian and bicycle safety and comfort and promote walking and cycling for all school aged children in San Francisco.

Commuter Shuttle Stop and Infrastructure Improvements

Capital Need ID CN-ST08 **Estimated Cost** $8.1M **Timeframe**



Investment Type Enhance

Description Provide funding for the creation and improvement of existing commuter shuttle and private transit vehicle stops, along with associated pedestrian amenities.

Justification Create dedicated CIP program to better track restricted permit fees moved to Capital Programs.

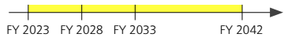
Streets Capital Program

Scooter and Shared Mobility Infrastructure

Capital Need ID CN-ST09

Estimated Cost $2.0M

Timeframe



Investment Type Enhance

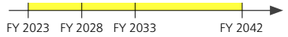
Description Provide funding for the creation and improvement of existing scooter and shared mobility designated parking areas and racks. This would also provide for proportional shared costs of the installation of bike lanes and infrastructure.

Justification Create dedicated CIP program to better track restricted permit fees moved to Capital Programs.

Taxi Capital Program

Accessible Taxi Rebate Program

Capital Need ID CN-TA01 **Estimated Cost** $10.7M **Timeframe**



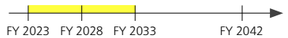
Investment Type Expand

Description Establish a rebate program for new purpose built accessible vehicles purchased by companies or medallion holders to incentivize the purchase of wheelchair accessible vehicles. This program will subsidize costs for one of the more expensive vehicle types in the taxicab fleet which provides arguably one of the most important services. Greater incentives may be provided to operators willing to purchase alternative fuel accessible vehicles.

Justification Improve mobility options for those unable to use other transportation options for some or all trips. The MTA views transportation vehicles as capital investments, the need to offer accessible vehicles therefore is a capital expense as is needed for capital expense to assist the purchase and availability of accessible vehicles.

Increase Taxi Stands

Capital Need ID CN-TA02 **Estimated Cost** $5.4M **Timeframe**



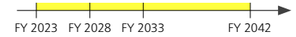
Investment Type Enhance

Description In an effort to increase service to the outer city, additional taxi stands will be established around major hail hubs to better manage and direct taxi flow and utilization. This will also fund major refurbishments of existing taxi stands and improve wayfinding to such stands.

Justification Taxi stands establish locations so that taxis can be easier found throughout the city and aids in movement throughout the city for individuals or groups who chose, or require, taxis as their travel mode.

Taxi Clean Fuel and All Electric Rebate Program

Capital Need ID CN-TA03 **Estimated Cost** $37.9M **Timeframe**



Investment Type Enhance

Description Rebate program to incentivize the purchase of clean fuel and eventually all electric and equivalent (such as hydrogen) vehicles. Greater incentives are provided to operators willing to purchase the cleanest vehicles available. This may also include electrification infrastructure improvements.

Justification In an effort to make a 100% green taxi fleet; the SFMTA offers drivers a rebate incentive for the purchase of a clean fuel vehicle. This incentive is given to offset the increased costs of purchasing a non-clean fuel vehicle.

Taxi and Regulated Mobility Management System

Capital Need ID CN-TA04 **Estimated Cost** $4.6M **Timeframe**

Investment Type Expand

Description Provide funding for the creation and implementation of a permit and fleet management system for taxicabs and regulated mobility vehicles. This system would include the ability to monitor vehicle location, affiliation, insurance and inspection status. There will also be an interface that allows the system to integrate driver information from other databases which will allow staff to track driver history, complaints, and compliments as well as allow staff to issue real-time citations to drivers in the field. There will also be a function that allows drivers and companies to pay fees through various user interface portals.

Justification This project will help streamline taxicab and regulated mobility regulation management by allowing multiple functions to be managed in one database through one system. Currently there are numerous databases and paper files to track activity in the industry including vehicle management, and as the industry expands it is becoming increasingly difficult to manage the growth through paper files and various systems.

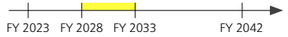
Taxi Capital Program

Taxi Safety Camera Management System

Capital Need ID CN-TA05

Estimated Cost $3.7M

Timeframe



Investment Type Restore

Description Require taxicabs to upgrade their existing individually maintained on-board camera system to one standardized system that can be centrally managed by SFMTA to ensure video footage can be used for safety purposes, are properly preserved, and readily available.

Justification Currently, each vehicles may have a different on-board camera hardware, which is maintained by the vehicle owner or company. Video footage is manually pulled from the SD card upon request, which presents difficulties if the camera is not maintained, the card is not present, a request to provide video is refused, or there is significant delay in providing such footage. A management system selected and managed by SFMTA will allow better and faster access in response to complaints for enforcement for passenger and public safety.

Paratransit Dispatch App

Capital Need ID CN-TA06

Estimated Cost $4.1M

Timeframe

Investment Type Enhance

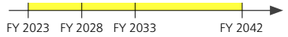
Description Create one standardized app platform for paratransit users to hail paratransit and accessible taxicab vehicles.

Justification Improve mobility options for those unable to use other transportation options for some or all trips. This is to serve an unmet need for an underserved population.

Traffic Signals & Signs Capital Program

Automated Photo Traffic Enforcement

Capital Need ID CN-SG01 **Estimated Cost** $9.2M **Timeframe**



Investment Type Enhance

Description Provides for the replacement of photo enforcement for 23 existing approaches and adding an additional 10 approaches.

Justification Automated Photo Enforcement systems improve intersection safety by improving compliance, reducing the number of vehicle crashes. Established systems include red light photo and illegal turn enforcement. Others, like speed, require state legislature approval.

Signal Infrastructure State of Good Repair (Program)

Capital Need ID CN-SG02 **Estimated Cost** $1,083.3M **Timeframe**

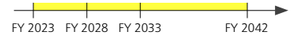
Investment Type Restore

Description Encompass upgrades of existing traffic control devices, including modifications to existing signals that lack a pedestrian countdown feature, mast arms, 12” signals, battery backup systems, accessible pedestrian signals, wireless detectors, or related amenities. The project also includes the upgrade or replacement of signal equipment that is at the end of its useful life (50 years).

Justification Support the Vision Zero program by improving safety, including perceived safety, reducing the number of injuries through improved traffic control (e.g., where pedestrian countdown signals and signal visibility improvements are provided as part of a signal modification effort).

Sign Infrastructure State of Good Repair (Program)

Capital Need ID CN-SG03 **Estimated Cost** $16.3M **Timeframe**



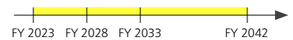
Investment Type Restore

Description Funded sign work in this category includes pavement marking installations and the graffiti program, where existing signs are replaced with signs that have higher reflectivity, and a coating that eases graffiti removal.

Justification Support the Vision Zero program by improving safety though improved visibility of pavement markings and traffic signs.

Traffic Management State of Good Repair (Program)

Capital Need ID CN-SG04 **Estimated Cost** $7.3M **Timeframe**



Investment Type Restore

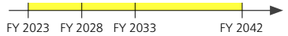
Description This includes street paint marking/ striping, parking control curb painting.

Justification Maintaining existing infrastructure in a state of good repair will help ensure a safe and reliable street network.

Traffic Signals & Signs Capital Program

New Signals & Signs (Program)

Capital Need ID CN-SG05 **Estimated Cost** $112.0M **Timeframe**



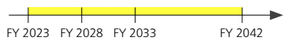
Investment Type Enhance

Description Provides for installation of new traffic signals, signs, pavement markings and related traffic control hardware, with an emphasis on new locations. Over a 20-year period, this program anticipates installing a mix of 10 new signals and/or flashing beacons every other year and 1,500 new signs per year.

Justification Support the Vision Zero project to improve safety, including perceived safety, at crash or other problem locations. This project reduces vehicle delays, travel time and injuries by improved traffic control, often where STOP signs are inappropriate, i.e., due to traffic volumes, intersection configuration, and other such factors.

SFgo (Program)

Capital Need ID CN-SG06 **Estimated Cost** $236.0M **Timeframe**



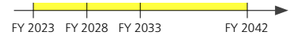
Investment Type Enhance

Description This citywide intelligent transportation management system gathers and analyzes real-time information on current transit and auto traffic flow and congestion; responds to changes in roadway conditions; provides transit priority and emergency vehicle preemption; disseminates real-time traveler and parking information to the public; facilitates the management of special events; and enhances day-to-day parking and traffic operations. It will significantly improve obsolete and deteriorating traffic signal communications facilities, and will implement a number of Intelligent Transportation System (ITS) technologies.

Justification The SFgo Program will expand and replace obsolete and deteriorating traffic signal communications facilities and provide real-time information on current transit and auto traffic to improve transit flow and reliability.

Transit Only Red Lane Replacement

Capital Need ID CN-SG07 **Estimated Cost** $50.7M **Timeframe**



Investment Type Restore

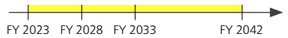
Description This need covers the ongoing replacement and renewal costs of the SFMTA Transit Only Red Lanes. This assumes that 12 new miles of red lanes will be built every five years as well as a 20% contingency of cost escalation every five years.

Justification Transit Only Red Lanes improve transit travel time and reliability for Muni riders. Timely replacement of these transit only red lanes ensures that they may serve their intended purpose.

Transit Fixed Guideway Capital Program

Cable Car Infrastructure State of Good Repair (Program)

Capital Need ID CN-TF01 **Estimated Cost** $276.8M **Timeframe**



Investment Type Restore

Description Covers a wide variety of cable car infrastructure needs. Projects include: upgrades to the cable car barn; turntable rehabilitation at Powell and Market, Victoria Park, and Bay and Taylor; track switch replacement; safety upgrades; tangent track/slot replacement; depression beam replacement; crossover installation at Powell and Market; cable rewinder and holdback replacement; cable propulsion upgrade; and other projects as needed.

Justification To replace track work, machinery, and communications equipment improve overall safety and increase the likelihood of attaining operational performance standards by providing updated and modern equipment which cable cars utilize.

J-Line

Capital Need ID CN-TF02 **Estimated Cost** $193.4M **Timeframe**

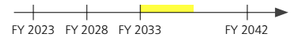
Investment Type Restore

Description Market & Church to 20Th St, 22nd to 30Th, and 30TH/Randall to Ocean/San Jose including boarding islands and special trackwork.

Justification The J-Line is an important part of the Muni transit network. The state of good repair of this railway ensures that trains may continue to run in a timely and efficient manner and provide maximum comfort for Muni customers.

K & M-Lines

Capital Need ID CN-TF03 **Estimated Cost** $162.9M **Timeframe**



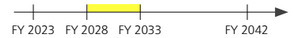
Investment Type Restore

Description One project is to replace approximately 1 mile of worn tangent track, trolley wire and trolley poles for the M-Line from Broad/ Plymouth to San Jose/Ocean including curved tracks located at San Jose/ Broad, San Jose/Farallones, San Jose/Mt. Vernon & Niagara; single crossovers at San Jose/Niagara and at Broad/Plymouth; turnouts at San Jose/Ocean(1), San Jose/Seneca(1), San Jose at Cameron Beach Yard (2); updating 4 low level boarding islands and 1 key stop; construct 1 new key stop; and new street lighting, traffic signals, ADA improvements, water and sewer upgrades. The other project is to replace about a half mile of worn tangent track, trolley wire and trolley poles on West Portal Ave from Ulloa to 15th Ave. Updating 2 boarding islands and street lighting, traffic signals, ADA improvements, water and sewer upgrades will also be encompassed by this project. This scope may change if other locations become a higher priority to be addressed instead of those listed here as informed by ongoing inspection and analysis.

Justification The K- and M-Lines are an important part of the Muni transit network. The state of good repair of this railway ensures that trains may continue to run in a timely and efficient manner and provide maximum safety and comfort for Muni customers.

N-Line Rail Replacement between Arguello/Carl and La Playa

Capital Need ID CN-TF04 **Estimated Cost** $264.7M **Timeframe**



Investment Type Restore

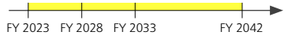
Description This project is to replace 3.5 miles of worn tangent track, trolley wire and trolley poles for the N-Judah LRV line west of Arguello and Carl. Replace special trackwork including: Curved track located at Arguello/Carl, 9th/Irving, 9th/Judah, and La Playa/Judah; Single crossovers at 20th/ Judah, 37th/Judah, 48th/Judah; Turn out track at 30th/Judah; Spur track at La Playa/Judah; Updating 26 boarding islands, street lighting, traffic signals, ADA improvements, water and sewer upgrades will also be encompassed by this project. This scope may change if other locations become a higher priority to be addressed instead of those listed here as informed by ongoing inspection and analysis.

Justification The N-Line is an important part of the Muni transit network. The state of good repair of this railway ensures that trains may continue to run in a timely and efficient manner and provide maximum comfort for Muni customers, including perceived safety.

Transit Fixed Guideway Capital Program

Rail State of Good Repair (Program)

Capital Need ID CN-TF05 **Estimated Cost** $213.8M **Timeframe**



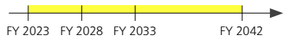
Investment Type Restore

Description Provides for the phased design and replacement of the trackway and related systems serving the light rail lines. Projects under this program include rail replacement, rail grinding, switch machine replacement, special trackwork replacement, track fastener replacement, tunnel infrastructure repairs and replacement, train signal upgrades, other electrical and mechanical improvements, and other work required to maintain non-traction power rail infrastructure. This program includes construction projects and a proactive replace in kind program for smaller projects.

Justification The primary focus of this program is to maintain the light rail and cable car trackways in a state of good repair by replacing components that have reached the end of their useful life.

Muni Metro Station Enhancements

Capital Need ID CN-TF06 **Estimated Cost** $40.7M **Timeframe**



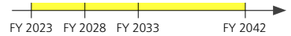
Investment Type Enhance

Description Provides for the replacement of existing signage (wayfinding, station identification, passenger information), new painting, lighting and seating, construction of 15 new station agent booths, and other state of good repair needs.

Justification This project will enhance the customer experience and address critical capital maintenance needs for stations.

Subway System State of Good Repair (SOGR)

Capital Need ID CN-TF07 **Estimated Cost** $90.1M **Timeframe**



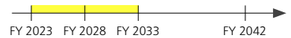
Investment Type Restore

Description Subway systems such as lighting, equipment room upgrades, ventilations, architectural and structural upgrades, Fire Life safety equipment and emergency ventilation system

Justification N/A

Automatic Train Control System Wiring Replacement

Capital Need ID CN-TF08 **Estimated Cost** $60.0M **Timeframe**



Investment Type Restore

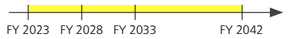
Description Replacement of critical ATCS wiring components. This work includes replacement of ATCS VCC to SCS, axle counter wiring, and intrusion wiring. Wiring upgrades at Van Ness and MMT are occurring but Duboce, Castro, Embarcadero, Montgomery, Powell and Civic Center are still needed.

Justification A proper functioning ATCS is vital to the day-to-day operations of the San Francisco transit system. Without the ATCS trains in the Muni Metro Tunnel would be required to operate manually which increases travel time and reduces overall capacity of the Muni Metro Tunnel and the overall Muni System. Muni Metro travel time reliability is directly reliant on a functional ATCS.

Transit Fixed Guideway Capital Program

Train Control System Upgrade

Capital Need ID CN-TF09 **Estimated Cost** $300.0M **Timeframe**



Investment Type Enhance

Description Design, procure, and install a next generation communications-based train control system for the surface and/or the subway rail network.

Justification With new CBTC systems, the exact position of a train is known more accurately than with current signaling systems, resulting in a more efficient and safe way to manage LRV traffic. A new CBTC system will permit an increase in headways while maintaining or even improving safety. CBTCs can include high-resolution train location determination, independent from track circuits; continuous, high-capacity, bidirectional train-to-wayside data communications; and trainborne and wayside processors capable of implementing Automatic Train Protection (ATP) functions, as well as optional Automatic Train Operation (ATO) and Automatic Train Supervision (ATS) functions.

Overhead and Traction Power System Rehabilitation (Program)

Capital Need ID CN-TF10 **Estimated Cost** $61.1M **Timeframe**

Investment Type Restore

Description Provides for the rehabilitation, replacement, and improvement of all components of the existing Muni overhead catenary system (OCS) and traction power infrastructure to support electrically-powered trolley coaches, light rail vehicles, and historic streetcars. This includes overhead wires, support poles, switches, substations, feeders, related hardware, underground infrastructures, communications, power cables, and SCADA.

Justification The primary focus of this program is to maintain the overhead system in a state of good repair by replacing components that have reached the end of their useful life.

Substation State of Good Repair

Capital Need ID CN-TF11 **Estimated Cost** $228.1M **Timeframe**

Investment Type Restore

Description The substations of West Portal, Laguna Honda, Church, Civic Center, Carl, Bryant, Station J, Judah, Outer Mission, Taraval, and Downtown are close to or beyond their design lives.

Justification This program will update the aging traction power substation to improve the reliability of the system which is important in maintaining Muni rail service in a state of good repair in order to continue to serve our customers. The substations are a critical component of our system as they provide the power to operate the zero-emissions trolley and Light Rail systems.

Cameron Beach Reconstruction of trackwork including pull in and pull outs, and yard grading

Capital Need ID CN-TF12 **Estimated Cost** $77.4M **Timeframe**

Investment Type Restore

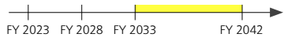
Description This project is intended to raise the elevations of the Cameron Beach Yard, involving major structural, foundation and earthwork; replacing the north and south ladder tracks, tangents tracks, track switches, frogs and closure rails. Traction power and worn OCS trolley wires, poles, foundations, special work, various other OCS components at the Cameron Beach Rail Yard will also be replaced to accommodate the new yard elevations.

Justification This work at the Cameron Beach yard is necessary to provide a more efficient path of travel for train accessing the facility supporting Muni rail service in a state of good repair.

Transit Optimization & Expansion Capital Program

Rail Expansion

Capital Need ID CN-TO01 **Estimated Cost** $8,500M **Timeframe**



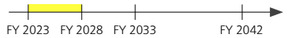
Investment Type Expand

Description The City is currently involved in a city-led, multi-year process to envision, plan, and build a more effective, equitable, and sustainable transportation system for San Francisco's future called ConnectSF. In addition to the 5-minute network and Muni Metro Modernization, the ConnectSF Transit Investment Strategy identifies large rail expansion concepts where smaller-scale transit investments are not adequate to meet projected demand. Transit investments include Geary Rail (connecting to the regional Link21 program), Central Subway Phase 3, and Caltrain System (including Downtown Extension (DTX) and Bayview Station).

Justification Rail expansion supports the City's goals in equity, climate action, safety, livability, and economic vitality, among others. Projects selected as part of the regional effort to improve rail service can move forwarded in a coordinated way to take advantage of regional concurrence in applying for discretionary federal capital monies.

Better Market Street

Capital Need ID CN-TO02 **Estimated Cost** $743.2M **Timeframe**



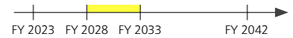
Investment Type Enhance

Description Includes planning, conceptual engineering, environmental review, public outreach and construction of the Better Market Street Project. Scope will include enhancements to urban design of sidewalks and boarding islands, transit facilities and operations, pedestrian facilities (e.g., crosswalks), new traffic signals, and bicycle facilities. The project area is roughly bounded by blocks just north of Market St., Mission St., Octavia Blvd. and Steuart St.

Justification This project will improve safety and comfort, the quality of the public realm and optimize sustainable mobility modes (transit, walking and cycling), so that they are pleasant, reliable, efficient and comfortable for all users.

Historic Street Car Expansion

Capital Need ID CN-TO03 **Estimated Cost** $97.1M **Timeframe**



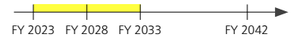
Investment Type Expand

Description Consists of two separate projects. One project creates a northern terminal that consists of an independent E-Line track loop & terminal that allows for operational independence of the F-Line, including layovers, from E-Line service. The second project extends the current terminal west from Fisherman's Wharf to the Fort Mason Center through an abandoned railroad tunnel underneath Fort Mason. The E-Line would likely operate along this extension. The F-Line extension would cost approximately $80M, and the E-Line track loop would cost approximately $10M.

Justification A northern terminal is needed to provide the operational flexibility required for overlapping E-Line and F-Line services. A Fort Mason terminal provides access to Fort Mason and areas to the west, which have limited transit access options.

Geary Boulevard Improvement Project

Capital Need ID CN-TO04 **Estimated Cost** $244.3M **Timeframe**



Investment Type Expand

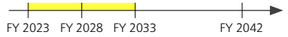
Description The Geary Boulevard Improvement Project would implement transit and safety improvements along Geary Boulevard between Stanyan Street and 34th Avenue, including new transit-only lanes, upgraded bus stops, traffic signal upgrades, and pedestrian safety improvements. Transit only lanes would be installed in a new center-median between Arguello and 28th Avenue, and on the side of the street next to the parking lane between 28th Avenue and 34th Avenue.

Justification This project would increase pedestrian safety, including perceived safety, service reliability, passenger comfort and attractiveness and reduce travel time along the corridor.

Transit Optimization & Expansion Capital Program

Muni Forward Capital Projects

Capital Need ID CN-TO08 **Estimated Cost** $305.4M **Timeframe**



Investment Type Enhance

Description Muni Forward aims to make getting around San Francisco safer and more reliable by creating a Rapid Network, improving reliability, using state-of-the-art technology to make the system run better, and enhancing safety and access to stops and stations. Muni Forward transit priority projects on the Rapid Network may include adding bus or pedestrian bulbs, transit-only lanes, transit signal priority, and other street design changes to reduce delay for transit and enhance pedestrian safety. The first phase of Muni Forward is already underway, with a 10% service increase in place and over 40 miles of transit priority improvements on the way. During the next phase of Muni Forward transit priority projects, priority will be given to lines 1, 5, 7, 8, 22, J, K, M and N, then to lines that have high existing or projected ridership and Equity Strategy lines, such as the 24, 29, 43, and 44.

Justification The improvements result in greater transit travel time reliability and on-time performance. Improved reliability and on-time performance should also result in decreased operational resource needs. Improved safety and comfort.

Bayshore Multimodal Facility

Capital Need ID CN-TO09 **Estimated Cost** $22.4M **Timeframe**

Investment Type Expand

Description The project would construct support facilities to improve transfers near the Caltrain Bayshore Station among Caltrain, the T-Third line, the future Geneva Harney BRT, Muni 8 Bayshore and 9 San Bruno lines, SamTrans bus service, and employee/community shuttle buses and vans. This project would also improve pedestrian/bicycle access to and passenger loading near the Caltrain Bayshore Station. Facilities would include: shuttle/auto passenger loading space and shelters, bicycle parking, bicycle sharing facility, street furniture, landscaping, a plaza, wayfinding signs, information displays and possibly a bicycle/pedestrian path. In the initial stage, the facility would be sited near the Sunnydale Avenue extension east of Bayshore Boulevard being constructed by the Schlage Lock development project. In a potential second phase, this facility could be expanded or even partially relocated to a nearby location to improve Caltrain connections with BRT and T-Third service. In this later phase, vertical and horizontal circulation improvements, ticket/information facilities, and an enclosed waiting area could be added. The project would be closely coordinated with the Schlage Lock and Brisbane Baylands development projects as well as other projects in the area.

Justification This project improves connectivity and enhances transit travel options for residents and employees of southeast San Francisco, supporting major planned transit-oriented development and affordable housing. It would address current limited connections between Caltrain, the T-Third light rail line, Muni bus lines and surrounding neighborhoods. It would also support efforts to increase Caltrain service at this station, which will increasingly serve as a major regional transit connection with planned growth and Caltrain electrification. It will also improve the safety and comfort of the transportation system.

Accessible Light Rail Stops (Program)

Capital Need ID CN-TO11 **Estimated Cost** $31.0M **Timeframe**

Investment Type Enhance

Description Design and construct 20 new accessible light rail stops at 10 locations that have been identified in the Accessible Key Stop Feasibility Study (M679.0), then continue with other feasible, high-priority locations as they are identified. Accessible platform locations on the J Line have been identified as high priority locations (OB platform on San Jose & Nantucket; IB platform on San Jose Ave & San Juan). The program will also replace the wayside lift at San Jose & Geneva with a ramp and platform.

Justification This project will improve passenger access to light rail transit, particularly for people with mobility impairments. It will also improve safety and comfort of the transportation system.

Accessible Stop Spot Improvement Program

Capital Need ID CN-TO12 **Estimated Cost** $2.5M **Timeframe**

Investment Type Enhance

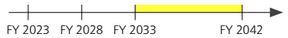
Description Implement small light rail and bus and stop improvements to improve accessibility for persons with disabilities. Improvements could include: repair/replacement of damaged railings, signage and attenuators at Key Stops; installation of NextMuni/Push-to-Talk at transit shelters; improving crosswalks, and installing or upgrading curb ramps adjacent to transit stops.

Justification This project will improve passengers' access, wayfinding, and safety to and comfort at transit stops, particularly for people with mobility impairments.

Transit Optimization & Expansion Capital Program

Transit Stop Boarding Islands and Features (Program)

Capital Need ID CN-TO13 **Estimated Cost** $0.5M **Timeframe**



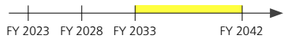
Investment Type Enhance

Description This includes the costs of installing activated beacons, leaning bars, and NextMuni signs at 80 mini-high platforms as they are reconstructed towards the end of their useful life.

Justification Provide a safe and accessible transit system by keeping assets in a state of good repair. Enhance the customer experience.

Raised or protected trackways on Muni Metro light rail surface lines

Capital Need ID CN-TO14 **Estimated Cost** $305.4M **Timeframe**



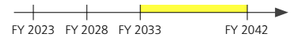
Investment Type Enhance

Description Create semi-elevated or protected rights of way on most surface segments of Muni Metro lines, similar to existing treatments on Judah Street between 9th and 19th avenues, and the T Third line on Third Street to support ConnectSF Transit Investment Strategy's Muni Metro Modernization. Areas for upgrades would include the J Church on San Jose Avenue; the K Ingleside on Ocean Avenue; the M Oceanview on West Portal Avenue and San Jose Avenue; and the L Taraval on Taraval Street.

Justification Existing light rail lines are subject to delay due to mixed traffic operations on the surface portions of their routes. This project would fully separate the routes from traffic, allowing for more reliable transit service on some of Muni's most heavily used lines.

3-car trains in the Muni Metro Tunnel and on the N Judah

Capital Need ID CN-TO15 **Estimated Cost** $81.4M **Timeframe**



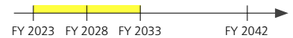
Investment Type Enhance

Description Muni will introduce the use of 3-car light rail trains in the Muni Metro Tunnel between West Portal and Embarcadero, and on the N Judah line to support ConnectSF Transit Investment Strategy's Muni Metro Modernization. Work will entail lengthening existing platforms and other engineering improvements to accommodate longer trains.

Justification This will increase capacity by 50% on the most crowded portion of the Muni Metro network, reducing crowding and supporting increased ridership as travel demand grows in the future.

Muni Metro Subway Enhancements

Capital Need ID CN-TO16 **Estimated Cost** $30.5M **Timeframe**



Investment Type Enhance

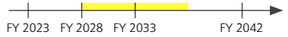
Description This program will implement enhancements to the Muni Metro system that will allow four-car trains to operate from the Embarcadero to West Portal at high frequencies. Program elements will include upgrades to switches, crossovers and other components to increase subway throughput, as well as modifications to subway portals to minimize conflicts that cause delay in the subway. These enhancements will also include surface signaling upgrades that will ensure trains entering the subway are evenly spaced and enter the subway with minimal delay. As a result of these upgrades, Muni will be able to provide greatly increased capacity and reliability throughout the Muni Metro system.

Justification This project will increase capacity in the Muni Metro tunnel and will improve reliability throughout the Muni Metro system by eliminating chokepoints and upgrading infrastructure that allows for improved coordination across the Muni Metro system.

Transit Optimization & Expansion Capital Program

Muni Forward next generation and Five-minute Network

Capital Need ID CN-TO17 **Estimated Cost** $509.1M **Timeframe**



Investment Type Enhance

Description The next generation of Muni Forward transit priority treatments identified as part of the Five-minute Network in the ConnectSF Transit Investment Strategy will build on the success of current improvements to deliver an even higher standard of reliability. Through a range of capital improvements, such as transit-preemption signals and additional dedicated right-of-way, Muni will provide Rapid service that travels between stops with very few if any delays. Improvements will be targeted to the Rapid Network as well as other high-priority lines identified in the Equity Strategy or based on ridership trends.

Justification This project will deliver travel time and reliability benefits above and beyond what has been accomplished to date. Improving these metrics is critical to continuing to attract riders in the future as San Francisco's population grows and other modes of travel increase in availability and affordability.

Transit Signal Priority

Capital Need ID CN-TO18 **Estimated Cost** $29.5M **Timeframe**

Investment Type Enhance

Description Purchase and deploy Transit Signal Priority (TSP) devices and communications equipment for intersections on the Muni Bus and Rail network. The project includes capital equipment and associated costs, including: vehicle detection loops, conduit, cabinets, controllers and electrical wiring (rail); cabinets, controllers, wireless communication and associated hardware (bus).

Justification Transit signal priority has proven to improve travel time and service reliability for Muni riders.

Appendix

Inputs to the Capital Plan

- **ConnectSF Transit Investment Strategy**
  ConnectSF is a multi-agency collaboration process to build an effective, equitable and sustainable transportation system for the next 50 years. The ConnectSF Transit Investment Strategy seeks to make the system work better with aggressive maintenance and restoration, deliver a five-minute network for reliable transit service City-wide, increase speed, reliability, and capacity for a modern rail system, and build rail where bus service is not sufficient to meet demand.

- **SFMTA Strategic Plan**
  The SFMTA Strategic Plan establishes a consistent approach for how state, regional, and local policies are implemented in the city's transportation system. It focuses on the new vision and mission for the agency and the goals and objectives needed to achieve this vision. Specifically, the objectives in the Strategic Plan will guide the agency's planning efforts, the prioritization of Capital Programs and projects, and the development of the operating and capital budgets. Metrics in the SFMTA Strategic Plan are consistent with the criteria in the SFMTA Capital Plan.

- **2019 Bike Program Report**
  The 2019 SFMTA Bike Program Report outlines improvements to safety, comfort, and convenience for those choosing the get around by bike. The document summarizes what the agency plans to implement in the near-to-immediate future and states what is being done to measure and report future progress. It also provides a background on the policies and directives passed since 2013 that influence the agency's work today.

- **2017 SFMTA Facilities Framework**
  The 2017 SFMTA Facilities Framework identifies deficiencies and associated costs as a basis for budgeting and prioritizing improvements as well as assistance in identifying major space planning opportunities and ways to improve processes for facility planning and management.

- **SFMTA State of Good Repair Report**
  The State of Good Repair Report provides an overview of the agency's rehabilitation and replacement needs and investments. It also outlines the agency's project prioritization, planning, and delivery practices related to maintaining a State of Good Repair and institutionalizing the practice of asset management.

- **Vision Zero Action Strategy**
  This Vision Zero Action Strategy lays out the strategic actions for city departments and agencies to reach the city's Vision Zero goal—ending traffic fatalities in San Francisco. The document reaffirms the city's long-term commitment to Vision Zero and expands beyond standard engineering, enforcement, and education actions to be clear about the broader policies and goals needed to achieve Vision Zero.

- **Muni Forward Implementation Workbook**
  The Muni Forward Implementation Workbook lists the full details of every service change and transit priority project currently planned as part of Muni Forward.

- **SFMTA Bus Fleet Management Plan**
  The SFMTA Bus Fleet Management Plan maps out a systematic approach to the ongoing management and planning for rehabilitation and replacement of the SFMTA's rubber tire fleet, as well as discuss the ridership and service growth anticipated in the City.

Relationship to Local and Regional Programs

The SFMTA Capital Plan is used to inform transportation funding priorities for the City and County of San Francisco, including the San Francisco Capital Plan, San Francisco Transportation Plan, and Plan Bay Area.

- **The City and County of San Francisco's Capital Plan (FY 2020-2029)**
  The City and County of San Francisco develops a 10-Year Capital Plan on a biennial basis for all recommended investments to replace, repair, and improve the city's capital infrastructure and to restore healthy levels of investment in the City and County's aging infrastructure. These capital investments represent a practical and fiscally constrained set of improvement projects that address critical Capital Needs in all major City departments. As a City department, SFMTA's needs are included in this citywide Capital Plan.

- **San Francisco Transportation Plan 2050 (SFTP)**
  The San Francisco Transportation Plan, prepared by the San Francisco County Transportation Authority, last adopted by the Transportation Authority Board in 2017, and soon to be updated by the Transportation Authority Board, is the blueprint for San Francisco's transportation system development and investment over the next 30 years. The SFTP brings all transportation modes, operators, and networks together, with a view to improving travel choices for all users. Through detailed analysis, interagency collaboration, and public input, the SFCTA evaluated ways to improve the transportation system with existing and potential new revenues. The SFTP recommends a diverse investment and expansion plan, as well as policy changes, which help generate revenues that fund a significant amount of SFMTA's Capital Needs. It also contains a SF Investment Vision that departs from business as usual and envisions how San Francisco could achieve more with potential bond measures and new sources of local revenue. SFTP will be updated as part of the Connect SF program.

- **Plan Bay Area 2050**
  Last adopted as Plan Bay Area 2040 in 2017 by the Metropolitan Transportation Commission and the Association of Bay Area Governments and soon to be adopted for Plan Bay Area 2050, Plan Bay Area is the long-range integrated transportation and land-use/housing strategy through 2050 for the San Francisco Bay Area. A state-mandated document (to meet the requirement of SB 375 for Metropolitan Planning Organizations, including MTC, to prepare a Sustainable Communities Strategy), it integrates long-range transportation, land-use and housing plans that will support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area. This roadmap is updated every four years to reflect changing conditions and new planning priorities and helps Bay Area cities and counties plan for transportation needs and adapt to the challenges of future population growth.

  As the Congestion Management Agency (CMA) for San Francisco, the SFCTA assists the SFMTA and other local agencies in submitting investment needs to MTC during the Plan Bay Area Call for Projects. Inclusion in the financially constrained project list in Plan Bay Area is mandatory for all projects seeking state or federal funds or a federal action. Three project parameters are used to evaluate projects: project readiness, plan status, and supporting adopted goals. The Capital Plan and CIP are one way that the SFMTA satisfies these parameters. The SFCTA then develops recommendations for project and program priorities within MTC's target budget for the county in consultation with stakeholders. Once approved by the SFCTA Board, the list of recommended investment priorities is submitted to MTC for evaluation in Plan Bay Area. After MTC completes its detailed project evaluation, including environmental review, the final list is adopted by the MTC Commission.

- **Regional Transportation Measure**
  The SFMTA and the San Francisco County Transportation Authority are currently developing a potential new regional transportation revenue measure that would help fund regional and local projects across San Francisco and the Bay Area.

Capital Need Cost Estimates Scopes

The Capital Plan covers the SFMTA's Capital Needs over the next 20 years based on what we currently know and can reasonably predict. We are providing additional information in the following appendix to show how the cost estimates were arrived at for the Capital Needs presented in the Capital Plan. Except where noted, the cost estimates were derived from the 2017 and 2019 Capital Plans with an escalation rate to 2020 dollars.

Capital Need #	Capital Need Name	Cost Information Methodology
CN-CI01	State of Good Repair of Management Info Systems (MIS), Information Technology (IT), and Network Systems	Based on a prior assessment of total agency assets and used a Consumer Price Index (CPI) calculator to estimate the total need in 2019.
CN-CI03	Disaster Recovery/Continuity plan	Based on approximate estimate of current technology costs.
CN-CI06	Phase 2 Radio Project – platform consolidation	Estimate based on past similar work.
CN-CI07	Customer Service Platform Project	Estimate based on past similar work.
CN-CI08	Citation and Parking Permits Program	Estimate based on past similar work.
CN-CI09	Trapeze Program	Estimate based on past similar work.
CN-CI10	On-Premise SharePoint Upgrade	Estimate based on past similar work.
CN-CI11	Digital Street Infrastructure Project	Estimate based on past similar work.
CN-CI12	Project and Fund Management System Replacement	Estimate based on past similar work.
CN-CI13	Network Infrastructure Replacement	• Phase 1 (Consulting and Design review): $500,000 • Phase 2 (Setup Core switches and validate design): $1,000,000 • Phase 3 (Connect Remote)
CN-CI14	Video Camera Refresh	Estimate based on past similar work.
CN-CI15	Cybersecurity Modernization	Estimate based on past similar work.
CN-FC01	SFMTA Facility Condition Assessment Campaign	Costs of the projects based on the information gathered in the Facilities Condition Assessment.
CN-FC02	SFMTA Facility Fire Life Safety System Campaign	Estimate based on past similar work.
CN-FC03	1201 Mason (Cable Car Barn) Rehabilitation	Based on needs identified by the agency's State of Good Repair database and staff assessment.
CN-FC04	Operator Convenience Stations Renewal Campaign	Average cost of each Convenience Station ($500,000), multiplied by 25 units needed.
CN-FC05	601 25th Street (Muni Metro East) Expansion Project Phase I and Phase II	Based on estimate included in the 2017 Facilities Framework.
CN-FC06	Real Property Acquisition for SFMTA Facilities	Based on estimate included in the 2017 Facilities Framework.
CN-FC07	SFMTA Real Estate Capital (Joint-Use Development)	Estimate based on past similar work.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-FC08	2301 Stockton (Kirkland) Facility Modernization	Based on estimate included in the addendum to the 2017 Facilities Framework.
CN-FC09	2500 Mariposa (Potrero) Facility Modernization	Based on estimate included in the addendum to the 2017 Facilities Framework.
CN-FC10	949 Presidio (Presidio) Facility Modernization	Based on estimate included in the addendum to the 2017 Facilities Framework.
CN-FC11	1940 Harrison Street (Flynn) Facility Modernization	Based on the information included in the Facilities Condition Assessment plus approximately $50,000,000 for the battery-electric bus upgrade.
CN-FC12	Rubber Tire Division Wash Rack Replacement (Sustainability - Water)	Based on estimate of similar work; approximate costs are $10M per facility
CN-FC13	Enforcement Headquarters Construction at 1200 15th Street	Based on estimate included in the addendum to the 2017 Facilities Framework.
CN-FC14	Subway Station Rehabilitation Campaign	Based on needs identified by the agency's State of Good Repair database and staff assessment.
CN-FC15	Solar Panel Installation at Multiple SFMTA Facilities (Sustainability - Power)	Approximately $20 per square foot for the base installation (No seismic upgrades required as part of additional weight loads on roof), plus and escalation of 5% per year for 20 years.
CN-FC16	1095 Indiana (Woods) Facility Modernization	Based on estimate of similar work and staff assessment of needs.
CN-FC17	SFMTA Facility Elevator Rehabilitation Program	Based on needs identified by the agency's State of Good Repair database and staff assessment.
CN-FC18	Muni Metro Station Escalator Rehabilitation Program	Based on needs identified by the agency's State of Good Repair database and staff assessment.
CN-FC19	Muni Metro Elevator Expansion	Estimate based on past similar work
CN-FC20	Paratransit Facility	Based on estimate from our partner service provider.
CN-FC21	1 South Van Ness (SFMTA Headquarters)	Based on a cost estimate from the San Francisco Department of Public Works to complete the scope of work to a city-owned building.
CN-FC22	eBus Facilities Conversion	The cost estimate based on the current costs of the eBus Pilot Program, plus a contingency: • $100 million for each of the major facilities (Woods, Islais Creek, and Flynn) • $50 million for Kirkland • $350 million for electrical upgrades, trenching, off-site improvements and cost of internal operational changes.
CN-FC23	Interim Trolley Coach Facility	Based on a cost estimate from the San Francisco Department of Public Works to complete the scope of work.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-FC24	Regulated Mobility Inspection Facility	Estimate based on past similar work.
CN-FT01	Cable Car Vehicle Rehabilitation (Program)	Based on the staff assessments and updated service projections included in the 2018 Fleet Plan.
CN-FT02	Historic Vehicle Rehabilitation (Program)	Includes expanded scope of the 2019 Historic Streetcar Action Plan; based on the staff assessments and updated service projections included in the 2018 Fleet Plan.
CN-FT03	Light Rail Vehicle Midlife Overhauls	Based on the projected mid-life timeline for the Siemens cars, using the per-vehicle overhaul cost.
CN-FT04	Light Rail Vehicle Replacement (Program)	Based on costs from the LRV4 procurement.
CN-FT05	Light Rail Vehicle Fleet Expansion	Based on costs from the LRV4 Phase II procurement.
CN-FT06	Motor and Trolley Coach Midlife Overhaul (Program)	Based on the projected mid-life timeline for the trolley and motor coaches, using the per-vehicle overhaul cost.
CN-FT07	Motor Coach Replacement (Program)	Based on the per vehicle cost of the all battery-electric coaches.
CN-FT08	Motor Coach Expansion (Program)	Based on costs from prior motor coach procurement.
CN-FT09	Trolley Coach Replacement (Program)	Based on the per vehicle cost of the all battery-electric coaches.
CN-FT10	Paratransit Fleet Replacement (Program)	Based on the projected cost of the planned paratransit fleet procurement.
CN-FT11	Paratransit Fleet Expansion (Program)	Based on the projected cost of the planned paratransit fleet procurement.
CN-FT12	Non-Revenue Vehicle Replacement (Program)	Based on the per vehicle cost, assuming the mandated transition to zero-emission vehicles.
CN-FT13	Replacement of Other On-Board Equipment	Estimate based on past similar work.
CN-PK01	Electric Vehicle Charging Stations	Estimate based on past similar work.
CN-PK02	Implement Parking, Loading, Bicyclist, Pedestrian and Other Mobility Mode Movement and Stopping Detection Technology	Procurement Date / Sensor Unit Cost / Number of Sensors / Cost FY 2020 / $ 300 / 30,000 / $ 9,000,000 FY 2028 / $ 250 / 40,000 / $ 10,000,000 FY 2036 / $ 200 / 50,000 / $ 10,000,000 Total / $ 29,000,000
CN-PK03	Parking Facilities State of Good Repair (Program)	Based on a City and County of San Francisco Department of Public Works estimate, using SFMTA State of Good Repair analysis. Adjusted to remove work completed through 2018, then escalated 2019 dollars.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-PK04	Parking Meters State of Good Repair (Program)	Procurement Year / 2021 Unit price / 2031 Unit Price / 2041 Unit Price Single Space Mechanisms / $515 / $592 / $681 Housing / $ - / $ - / $ - Lock / $125 / $144 / $165 Pay stations / $6,600 / $7,590 / $8,729 Total SS / $640 / $736 / $846 Total MS / $6,600 / $7,590 / $8,729 SS procured / 15,000 / 3,000 / - MS procured / 2,418 / 4,080 / 4,560 Subtotal / $25,558,800 / $33,175,200 / $39,801,960 Contingency / $2,555,880 / $3,317,520 / $3,980,196 Sales tax / $2,389,748 / $3,101,881 / $3,721,483 Total cost / $30,504,428 / $39,594,601 / $47,503,639
CN-PK05	Parking Access Revenue Control System	Estimate based on past similar work.
CN-PK06	Parking Facility Structural and Seismic Upgrades	Estimate based on past similar work.
CN-PK07	HDTV Monitoring Cameras for Off-Street Metered Parking Lots	Estimate based on past similar work.
CN-SC01	Threat and Vulnerability Assessment (TVA) and Implementation	Cost estimate is based on similar consultant studies conducted by the City and County of San Francisco.
CN-SC02	Incident Management Planning and Response	Equipment: / Approximate cost: Radios (all SFMTA Divisions) / $250,000 Satellite phones / $10,000 COP / $125,000 Supplies (batteries; power packs, etc.) / $50,000 Project Management / $150,000
CN-SC03	Surveillance, Access Control, and Security System Enhancements	Estimate based on past similar work.
CN-SC04	Technology In Transportation Emergency Management	Cost assumes $20,475,000 from 2015 estimates. It then adds $250,000 for ongoing replacement and overhaul costs.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-SC05	Subway Tunnel Intrusion Detection and Deterrence Measures	Based on preliminary estimates from the Transit Maintenance of Way Team and the SFMTA Video Shop vendors. Estimates assume a useful life of 5 years for hardware and annual renewal of software packages to support the hardware. Cost estimates from vendor proposal for a 2-station pilot study, linearly extrapolated to 9 stations, plus in-house contract and project management and contingency.
CN-SC06	Market Street Natural Hazard Mitigation	Based on estimate of similar work; assumes cost sharing among pertinent departments such as SFMTA, Public Works, Public Utilities Commission, et. al.
CN-SC07	Subway Flooding Prevention, Preparedness, and Mitigation	Estimate of $950,000 to complete a study, with anticipated project costs of: $750,000 for pre-engineering, $1,000,000 for design, $3,000,000 for construction, and $750,000 for project management. Cost estimate to be updated as more information on the extent of vulnerability is determined.
CN-SC08	Continuity of Operations	Based on estimate of similar facility setup costs. Cost estimate to be updated as more information on the location is determined.
CN-SC09	Traffic Signal Battery Backup System	Estimate based on past similar work.
CN-ST01	Bicycle and Shared Mobility Parking (Program)	Bike stations have a unit cost of $1,000,000/station, bike lockers $12,063/locker, bike racks $1,000/rack. 10% contingency added.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-ST02	Protected Bike Lane Network	$4,000,000 per mile based on recent 7th St and 8th St protected lanes. Includes: • 4 transit boarding islands per mile at $100,000 each • 2 signal modifications per mile at $250,000 each • 2 new traffic signals per mile at $1,000,000 each • Signing and striping $600,000 per mile • 20 concrete barriers, islands, and pedestrian refuges per mile at $30,000 each Estimated 180 miles of protected bike lanes

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-ST03	Neighborway Network	$1,675,000 per mile based on Wiggle Green Corridor cost estimates. Includes: • 1 new traffic signals per mile as $1,000,000 each • 1 new RRFB per mile at $200,000 each • 4 concrete islands, diverters, and/or traffic circles per mile at $30,000 each • 8 speed humps per mile at $10,000 each • 4 curb extensions per mile at $50,000 each Signing and striping at $75,000 per mile Estimated 135 miles of neighborways
CN-ST04	Bicycle Network State of Good Repair (Program)	$6,850,000 per year: • 300,000 sq. ft of epoxy green paint per year at $6 per square foot (assumes useful life of 5 years) • 50,000 sq. ft of thermoplastic green paint per year at $16 per square foot (assumes useful life of 5 years) • 400k linear feet of thermoplastic striping per year at $3 per linear foot (assumes useful life of 5 years) • $3M per year for routine upgrades and spot improvements to maintain facilities consistent with evolving industry best practices. Counter maintenance $60,000 per year
CN-ST05	Pedestrian Safety	Estimated at $480,000,000 in 2013 WalkFirst scenario for a 20-year investment, escalated at 4% annually and apportioned costs over 20 years
CN-ST06	Pedestrian Walkability and Neighborhood Enhancements	Estimated at $800,000,000 in 2013 WalkFirst scenario for a 20-year investment, escalated at 4% annually and apportioned costs over 20 years
CN-ST07	Traffic Calming	This assumes current level of approximately $3,000,000 annually spent on TC including application-based, schools, pro-active and NTIP programming. It escalates at 4%.
CN-ST08	Commuter Shuttle Stop and Infrastructure Improvements	Estimate based on past similar work.
CN-ST09	Scooter and Shared Mobility Infrastructure	Estimate based on past similar work.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-TA01	Accessible Taxi Rebate Program	Based on the per unit cost of accessible conversion packages for 100 ramp medallions with a 3-year life cycle.
CN-TA02	Increase Taxi Stands	Estimate of $5,000 for the planning and installation of a new stand, and $2,500 annually to maintain each stand thereafter.
CN-TA03	Taxi Clean Fuel and All Electric Rebate Program	Based on past utilization of the program.
CN-TA04	Taxi and Regulated Mobility Management System	Based on costs of devices and fleet software for tracking and management, as well as back-end internal and public facing web-based systems.
CN-TA05	Taxi Safety Camera Management System	Based on estimate of similar work to integrate devices into agency fleet software for tracking and management.
CN-TA06	Paratransit Dispatch App	Based on approximate cost of development, launch, and promotion for the app.
CN-SG01	Automated Photo Traffic Enforcement	Replacement of photo enforcement for 23 existing approaches ($300,000 per intersection), including an option for an additional 10 approaches.
CN-SG02	Signal Infrastructure State of Good Repair (Program)	<table><tr><th>Type of Signal Work</th><th>Cost</th></tr><tr><td>PCS Contract</td><td>$ 80,000,000</td></tr><tr><td>PCS Contract</td><td>$ 30,000,000</td></tr><tr><td>Signal Mod Contract</td><td>$ 140,000,000</td></tr><tr><td>Corridor Contract</td><td>$ 150,000,000</td></tr><tr><td>Corridor Contract</td><td>$ 75,000,000</td></tr><tr><td>State of Good Repair Contract</td><td>$ 300,000,000</td></tr><tr><td>State of Good Repair Contract</td><td>$ 150,000,000</td></tr><tr><td>Install Conduits & Poles</td><td>$ 80,000,000</td></tr><tr><td>12” Signal Visibility Upgrades</td><td>$ 12,000,000</td></tr><tr><td>Sensys</td><td>$ 6,000,000</td></tr><tr><td>BBS</td><td>$ 30,000,000</td></tr><tr><td>APS</td><td>$ 6,000,000</td></tr><tr><td>Controller Cabinets</td><td>$ 5,000,000</td></tr></table>

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-SG03	Sign Infrastructure State of Good Repair (Program)	<table><tr><th>Work</th><th>Cost Details</th><th>Total Cost</th></tr><tr><td>Graffiti Program</td><td>2000 signs/year at $200/sign over 20 years</td><td>$ 8,000,000</td></tr><tr><td>New Signs</td><td>2000 signs/year at $200/sign over 20 years</td><td>$ 8,000,000</td></tr></table>
CN-SG04	Traffic Management State of Good Repair (Program)	Estimate of 12 corridors per year for 20 years, at $30,000 per corridor.
CN-SG05	New Signals & Signs (Program)	Estimate of installing a mix of 10 new signals and/or flashing beacons every other year and 1,500 new signs per year.
CN-SG06	SFgo (Program)	<table><tr><th>SFgo Infrastructure</th><th>Cost</th></tr><tr><td>Fiber Category Total</td><td>$ 57,900,000</td></tr><tr><td>Network Category Total</td><td>$ 74,000,000</td></tr><tr><td>TSP Category Total</td><td>$ 74,000,000</td></tr><tr><td>VMS Category Total</td><td>$ 13,000,000</td></tr><tr><td>CCTV Category Total</td><td>$ 4,000,000</td></tr><tr><td>Other Category Total</td><td>$ 8,900,000</td></tr></table>
CN-SG07	Transit Only Red Lane Replacement	Based on needs identified by the agency's State of Good Repair database and staff assessment.
CN-TF01	Cable Car Infrastructure State of Good Repair (Program)	Estimate based on past similar work.
CN-TF02	J-Line	Estimate based on past similar work.
CN-TF03	K & M-Lines	Based on the 2017 2-Year Plan with a 5% per year increase to 2019.
CN-TF04	N-Line Rail Replacement between Arguello/Carl and La Playa	Based on the 2017 2-Year Plan with a 5% per year increase to 2019.
CN-TF05	Rail State of Good Repair (Program)	Estimate based on past similar work.
CN-TF06	Muni Metro Station Enhancements	Based on estimate from the SFMTA Maintenance of Way Team.
CN-TF07	Subway System State of Good Repair (SOGR)	Estimate based on past similar work, using Central Subway contract pricing.
CN-TF08	Automatic Train Control System Wiring Replacement	Based on past ATCS Wiring Replacement project updated to include additional years in operation not accounted for plus soft costs.
CN-TF09	Train Control System Upgrade	Estimate based on past similar work updated to reflect increased planning, design, and construction cost for facilities, supporting technology, and system integration.
CN-TF10	Overhead and Traction Power System Rehabilitation (Program)	Based on the 2017 2-Year Plan with a 5% per year increase to 2019.

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Capital Need #	Capital Need Name	Cost Information Methodology
CN-TF11	Substation State of Good Repair	Based on the 2017 2-Year Plan with a 5% per year increase to 2019.
CN-TF12	Cameron Beach Reconstruction of trackwork including pull in and pull outs, and yard grading	Based on the 2017 2-Year Plan with a 5% per year increase to 2019.
CN-TO01	Rail Expansion	Estimate based on past similar work, including contingency. Full estimate is not available for the 2021 Capital Plan. Estimate will be updated after publication of the ConnectSF Transit Investment Strategy.
CN-TO02	Better Market Street	Cost of the SFMTA elements of the scope of work: $ 730,000,000 (Cost of whole project including elements from the Public Utilities Commission and the Department of Public Works: $1,300,000,000).
CN-TO03	Historic Street Car Expansion	The F-Line extension would cost approximately $80,000,000, and the E-Line track loop would cost approximately $10,000,000, plus 6% escalation to 2019.
CN-TO04	Geary Boulevard Improvement Project	Estimate based on past similar work, including contingency.
CN-TO08	Muni Forward Capital Projects	Estimate based on past similar work, including contingency, for over 40 miles of improvements.
CN-TO09	Bayshore Multimodal Facility	Estimate based on past similar work, including contingency.
CN-TO11	Accessible Light Rail Stops (Program)	Estimate based on past similar work; 20 accessible light rail stops at approximately $1,500,000 per stop, plus escalation.
CN-TO12	Accessible Stop Spot Improvement Program	Estimate based on past similar work.
CN-TO13	Transit Stop Boarding Islands and Features (Program)	Estimate based on past similar work.
CN-TO14	Raised or protected trackways on Muni Metro light rail surface lines	Estimate based on past similar work.
CN-TO15	3-car trains in the Muni Metro Tunnel and on the N Judah	Estimate based on past similar work.
CN-TO16	Muni Metro Subway Enhancements	Cost is based on recent experience with Muni Forward projects of a similar scale
CN-TO17	Muni Forward next generation and Five-minute Network	Estimate based on past similar work.
CN-TO18	Transit Signal Priority	Estimate based on past similar work.

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