

# 2017 Annual State of Good Repair Report



**SFMTA**  
Municipal  
Transportation  
Agency



31BX BALBOA EXP  
31 Financial Dist.

000

8709 K

MTA

1421193



# Executive Summary

---

**State of Good Repair** refers to the condition in which the agency's capital assets are able to operate at a full level of performance. Maintaining a State of Good Repair (SGR) is a fundamental priority in order to provide safe, efficient, and accessible services to San Francisco.

The 2017 San Francisco Municipal Transportation Agency's (SFMTA) State of Good Repair Report is the fifth comprehensive annual report documenting the current state of the agency's programs, projects and campaigns to maintain its assets in a state of good repair.

Additionally, this version of the state of good repair report supplies opportunities for how SFMTA may further ensure that its practices continue to maintain the agency's assets in a state of good repair. This report notes where more information and more investment may assist in ensuring that SFMTA makes strategic investments in the right places to provide quality service to the City of San Francisco.

The SFMTA will continue to publish a State of Good Repair Report annually to reflect the agency's progress in maintaining a State of Good Repair. This 2017 SFMTA State of Good Repair Annual Report gives an overview of the SFMTA and its Asset Management and Capital Planning programs, provides the 2017 State of Good Repair Analysis and Opportunities, and details current State of Good Repair projects, investments and campaigns.



# Contents

<b>EXECUTIVE SUMMARY.....</b>	<b>3</b>
<b>SFMTA STATE OF GOOD REPAIR OVERVIEW.....</b>	<b>7</b>
SFMTA Overview	7
Who We Are	
What We Do	
State of Good Repair Commitment	
Asset Management	8
Capital Planning	9
<b>STATE OF GOOD REPAIR ANALYSIS AND OPPORTUNITIES .....</b>	<b>11</b>
Capital Asset Inventory: Development and Use	11
The 20-Year Capital Plan and State of Good Repair	12
2017 State of Good Repair Analysis	12
Overview	
Total Asset Replacement Value	
Asset Condition Scores	
Total Asset Backlog	
Future State of Good Repair Needs and Planned Investment	21
<b>CURRENT STATE OF GOOD REPAIR PROJECTS AND CAMPAIGNS.....</b>	<b>29</b>
Defining State of Good Repair Investments	29
FY 2017 State of Good Repair Investments	29
Future Steps	37
Improving Asset Management and Project Delivery	
Asset Management Program	
Enterprise Asset Management System	
<b>APPENDIX.....</b>	<b>40</b>
Asset Class - Capital Program Crosswalk	40
SFMTA Transportation Asset Management Policy	41
Select Capital Project Scopes: Capital Improvement Program (CIP)	41



# Table of Figures

Figure 1: Total 2017 Replacement Value by Asset Class	14
Figure 2: Current SGR Backlog By Asset Class	17
Figure 3: Total Asset Value and Current Backlog by Asset Class	19
Figure 4: Total Asset Value and Current Backlog by Capital Program	20
Figure 5: Five Year Outlook: State of Good Repair Needs and Planned Investment	21
Figure 6: Additional Investment Needs 2018-2037	23
Figure 7: Five Year Outlook: Additional State of Good Repair Needs and Planned Investment	25
Figure 8: FY 2017 Investment Dashboard	32
Figure 9: State of Good Repair Expenditures Progress Tracker	33

# Table of Tables

Table 1: Total 2017 Replacement Value by Asset Class	13
Table 2: Age Based Condition Score by Asset Class 2014-2017	15
Table 3: Total Asset Value and Current Backlog by Asset Class	18
Table 4: Total Asset Value and Current Backlog by Capital Program	19
Table 5: Five Year Outlook: State of Good Repair Needs and Planned Investment	22
Table 6: Five Year Outlook: Additional State of Good Repair Needs and Planned Investment	24
Table 7: SGR Investment Level Assumption by Capital Program	31
Table 8: Planned Investments by Capital Program: All Investments FY 2017-2021 CIP	36
Table 9: Percent of Total Assets by Asset Class in each Capital Program	40
Table 10: Percent of Total Assets by Capital Program in each Asset Class	40





**SFMTA  
State of  
Good  
Repair  
Overview**



# The SFMTA State of Good Repair Overview

This section of the 2017 State of Good Repair Report describes what the agency is, what it does, and how it defines and is committed to Asset Management and State of Good Repair.

## SFMTA Overview

### Who We Are

The San Francisco Municipal Transportation Agency (SFMTA), a department of the City and County of San Francisco, is responsible for the management of all ground transportation in the city. The SFMTA was established in 1999 with the passage of Proposition E, which amended the city charter to merge the San Francisco Municipal Railway (Muni) with the Department of Parking and Traffic (DPT), creating an integrated transportation agency to manage city streets more effectively and advance the city's Transit First policy. The SFMTA continued to evolve after merging with the Taxi Commission in March 2009. The agency is governed by a Board of Directors, which is appointed by the Mayor and confirmed by the San Francisco Board of Supervisors. The SFMTA Governing Board provides policy oversight for the agency, including approval of its budget, contracts, and changes of fares, fees, and fines to ensure that the public interest is represented.

### What We Do

Currently, people board the San Francisco Municipal Railway (Muni) system more than 725,000 times every day. We connect people and places using a diverse vehicle fleet across multiple modes, including motor coach, trolley coach, light rail, historic streetcar and cable car. The SFMTA also manages paratransit service for those unable to use fixed-route transit options, regulates the taxi industry, and oversees on- and off-street public parking.

The SFMTA has robust planning, design, and construction functions that support all elements of the city's transportation infrastructure. We provide long-range forecasts for the agency's fleets and facilities, the city's public rights-of-way, and the transportation impacts of proposed land use developments with private developers and other partners. The SFMTA also partners with other local and regional agencies to define long-range transportation, housing and equity goals. By performing these multiple essential functions, the SFMTA directly touches every person who lives, works in or visits San Francisco, and positively impacts regional efforts to achieve California's climate and sustainability goals, quality of life and economic vitality.





# The SFMTA State of Good Repair Overview

## State of Good Repair Commitment

The SFMTA is committed to maintaining its transportation infrastructure in a State of Good Repair (SGR). Because the SFMTA operates in a fiscally constrained environment, the agency must balance SGR needs with operations, enhancement, and expansion priorities.

The SFMTA has committed to investing an average of \$250 million annually on SGR. This commitment was made to the Federal Transit Administration (FTA) in 2010 as part of the full funding agreement for the Central Subway Project.

The agency's \$250 million annual investment goal is intended to ensure that the SFMTA balances its resources effectively between maintaining a state of good repair and continuing to enhance and expand the transportation system.

Since 2012, the SFMTA has invested an average of \$230 million annually on State of Good Repair. This figure does not include dollars currently encumbered in contracts, which is an additional \$218.8 million as of the end of FY 2017. The agency is on track to meet its \$250 million state of good repair expenditure commitment in the coming years. This is further detailed later in this document in Figure 9, the State of Good Repair Expenditures Progress Tracker.

## Asset Management

The SFMTA's Asset Management Program has established a Transportation Asset Management Policy and set forth goals consistent with the Federal Transit Administration's requirements for the National Transit Asset Management System established under Moving Ahead Progress in the 21st Century (MAP-21) and affirmed in the Fixing America's Surface Transportation Act. The establishment of this national effort supports the asset management practices being developed locally at the SFMTA.

The SFMTA's Asset Management Goals are:

1. Develop policies, processes, data, and analytical tools to manage all assets.
2. Systematically and efficiently maintain, renew, and extend the life of transportation assets.
3. Provide the City with a safe, reliable, high performing and cost effective transportation system.

State of Good Repair is defined as the condition in which a capital asset is able to operate at a full level of performance. The agency knows that a capital asset is able to operate at a full level of performance by monitoring its condition, and age, and by setting metrics for each capital asset to gauge





# The SFMTA State of Good Repair Overview

performance. It is important to understand what we have, what condition it is in, and what our needs are, as well as how we can turn those needs into capital projects that improve the state of good repair of our assets.

## Capital Planning

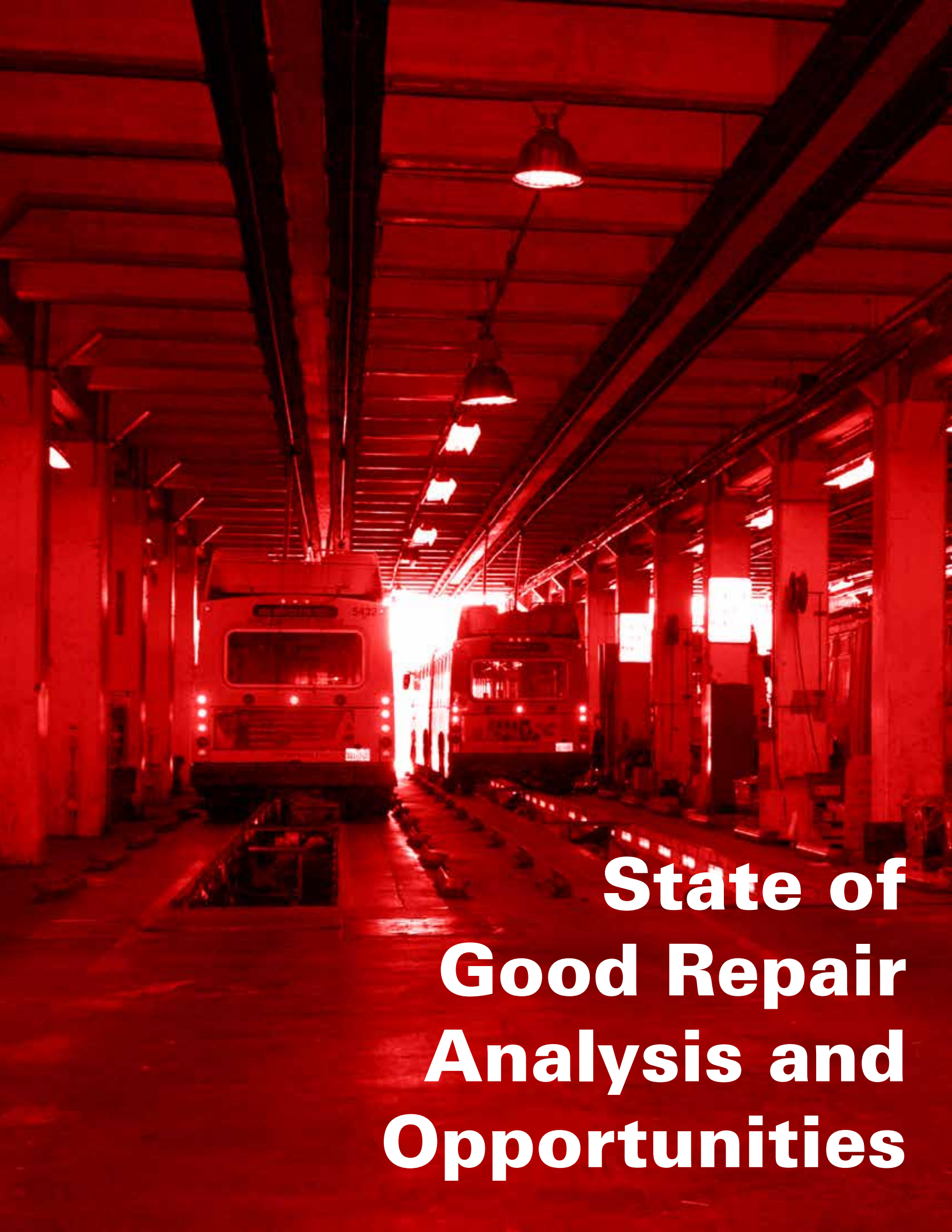
Several documents describe the agency's need for capital investments, most notably the 20-Year Capital Plan and the 5-Year Capital Improvement Program (CIP). These planning documents serve to meet the agency's strategic goals.

The **20-Year Capital Plan** is a needs-based assessment of the SFMTA's anticipated capital needs for the upcoming 20 years. It is a financially unconstrained document, meaning that it includes capital needs for which funding has not yet been identified or committed. The purpose of the Capital Plan is to identify and characterize all of the agency's potential capital investments needed to achieve the city's transportation goals. It also provides the foundation for developing the fiscally-constrained 5-Year CIP and the 2-Year Capital Budget. A Capital Project must be included in the 20-Year Capital Plan to be eligible for inclusion in the CIP.

The most current Capital Plan, which is formally updated every two years, was adopted by the SFMTA Board in August 2017. The current Capital Plan identifies over \$21.9 billion in all potential SFMTA capital investments over the next 20 years.

The agency's **5-Year Capital Improvement Program (CIP)** is a fiscally constrained program of capital projects that is organized into 11 Capital Programs: Communications/IT, Facility, Fleet, Parking, Security, Traffic/Signals, Streets, Taxi, Transit Fixed Guideway, Central Subway and Transit Optimization/Expansion.

The SFMTA is currently implementing the FY2017-2021 CIP which was adopted by the SFMTA Board in July 2016. The FY2017-2021 CIP includes 255 projects for a total investment of \$3.44 billion. This includes infrastructure investments, capital procurements, area plans, and one-time initiatives such as educational programs. Of this \$3.44 billion, \$1.7 billion will be dedicated to SGR investments over the next five years. The FY 2019-2023 CIP is currently under development, and is anticipated to be adopted in the spring of 2018.



**State of  
Good Repair  
Analysis and  
Opportunities**





# State of Good Repair Analysis and Opportunities

This section of the State of Good Repair Report summarizes and presents analyses of the agency's future State of Good Repair needs and presents opportunities to further ensure that the agency's assets remain in a State of Good Repair.

## Capital Asset Inventory: Development and Use

The SFMTA kicked off its Capital Asset Management Program in 2009 with the development of its first comprehensive Capital Asset Inventory to support capital planning efforts. The resulting 2009 inventory reflected an extensive effort that engaged many SFMTA divisions in collecting asset information, including age, replacement cost, and useful life. In total, the agency identified over 3,600 asset items in the 2009-2010 asset inventory process. This included transit-related assets such as track, catenary systems, and rolling stock, as well as non-transit assets such as parking infrastructure, traffic signals, and non-revenue vehicles. The 2009 inventory provided a foundation for the Agency's first State of Good Repair Report in 2010.

Starting in 2014, the SFMTA began the effort to update the Capital Asset Inventory on an annual basis. These annual updates include changes to capital assets, refining replacement costs, and ensuring asset records reflect completed capital projects within the fiscal year. This process was undergone again in 2017.

The Capital Asset Inventory is the best planning level overview of all agency assets available, assisting the agency in enterprise level asset management. Updating the Capital Asset Inventory is an extensive process involving intra-agency outreach and staff time. These updates have to be made manually and there is no automatic mechanism in place to alert planning staff to changes made to sets of agency assets, or updates to the costs or useful lives of these assets.

Past state of good repair annual reports differentiated between "transit service critical" and "other state of good repair" assets. Within this distinction the agency's facility assets were categorized as "other state of good repair." Facility assets however are critical to the system as a whole. As the SFMTA Facilities Framework shows, if we do not prioritize investment in our facilities, we will soon have nowhere to park our growing transit fleet. Deficient facilities impair our ability to keep transit service critical assets in a state of good repair.



# State of Good Repair Analysis and Opportunities

## The 20-Year Capital Plan and State of Good Repair

In addition to the Capital Asset Inventory, the agency has documented its assessment of capital needs including upcoming state of good repair needs in the recently adopted 2017 SFMTA 20-Year Capital Plan. Some capital programs have detailed plans describing needed long term capital investments, such as the Fleet Plan and the Facilities Framework. Similarly detailed plans for other programs may be of assistance in the development of subsequent mid and long range Capital Planning efforts by further outlining the full scope of the agency’s capital needs and thereby advocating for the revenue necessary to fulfill these.

## 2017 State of Good Repair Analysis

### Overview

The 2017 State of Good Repair Report is mainly informed by the agency’s aforementioned 2017 Capital Asset Inventory. The SFMTA uses the Federal Transit Administration’s *TERM Lite* modeling tool to calculate current and future SGR

investment needs that reflect changes in the inventory, including those due to inflation, updated unit costs, and data improvement.

The *TERM Lite* tool is able to determine levels of investment required to maintain or improve asset condition, assess impacts of investment scenarios on asset condition, and simulate future needs determined by age-based asset decay formulas, which show an asset’s condition score deteriorating as it reaches the end of its useful life. The tool also simulates mid-life rehab /replacement events.

The output generated from the *TERM Lite* tool allows the SFMTA to conduct planning level analysis of the agency’s capital needs over the next 20 years. Moving forward, as the SFMTA implements the Transportation Asset Management Plan, the agency will incorporate additional factors into condition scoring, moving beyond age-based condition scoring into incorporating condition assessment conducted by maintenance staff or deriving automated condition scores based on work conducted against an asset over time.

The 2017 State of Good Repair Analysis contains the following items. **Total Asset Replacement Value** is the summarized value of all of the Agency’s assets according to the Capital Asset Inventory. **Asset Condition Scores** show the average condition score by asset class according to the data in the Capital Asset Inventory and how this data is modeled. **Total Asset Backlog** is the set of assets



# State of Good Repair Analysis and Opportunities

currently operating beyond their useful life according to the Capital Asset Inventory.

## Total Asset Replacement Value

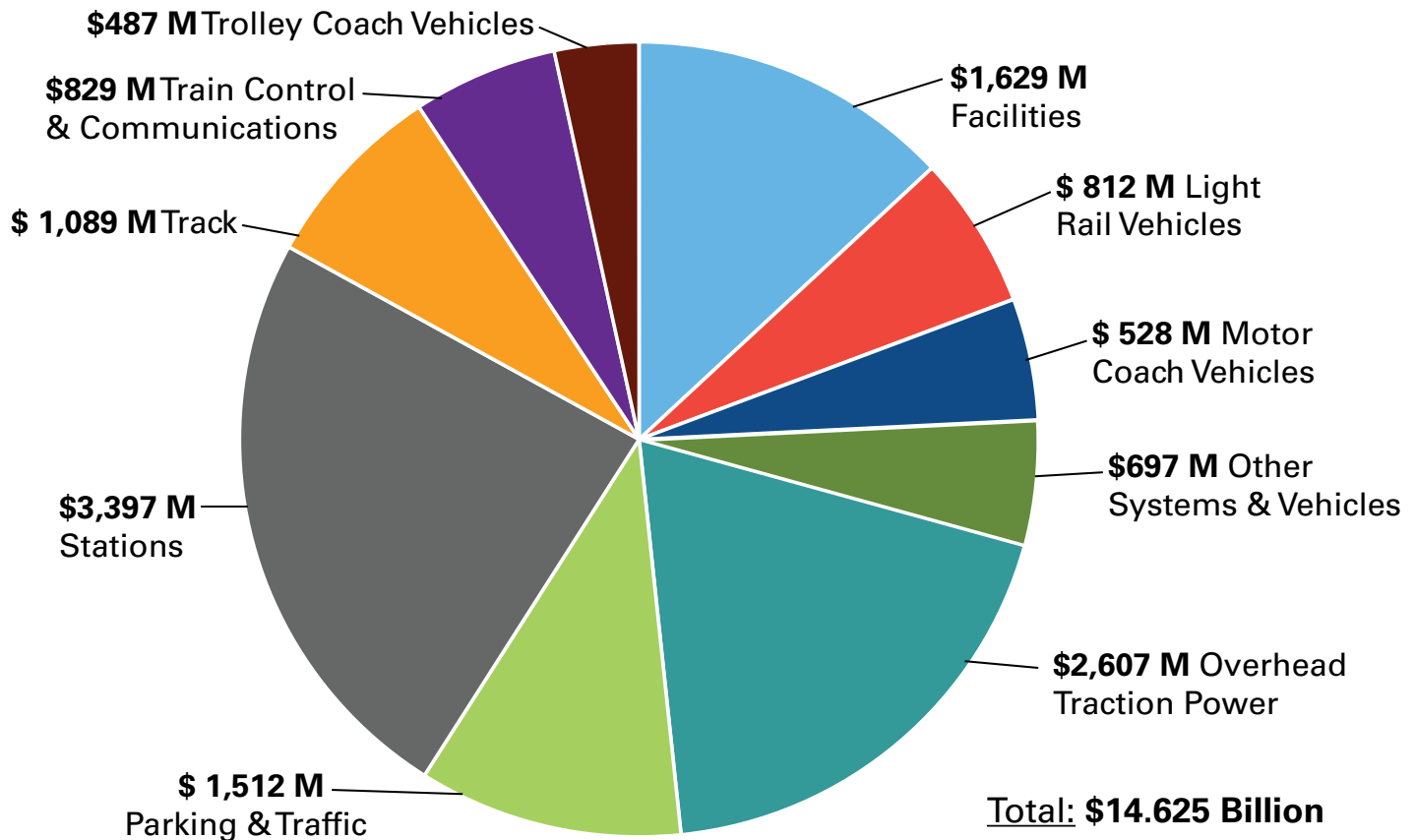
The first step in calculating future investment need is to define the SFMTA's current total asset replacement value detailed by asset class in Table 1 and Figure 1. The 2016 State of Good Repair analysis calculated a total asset replacement value of \$13.59 billion; that value increased to \$14.63 billion in 2017. This increase can largely be attributed to the increase of facility and fleet assets including Islais Creek which has a recorded date built in the Capital Asset Inventory of 2017, operator restrooms, and new revenue fleet vehicles. The additional growth of the total asset replacement value can be attributed to the change in the base year and subsequent inflation from 2016 to 2017.

**Table 1: Total 2017 Replacement Value by Asset Class**

Asset Class	2017	2016	Difference
Facilities	\$ 1,911 M	\$ 1,629 M	\$ 282.2 M
Light Rail Vehicles	\$ 907 M	\$ 812 M	\$ 94.6 M
Motor Coach Vehicles	\$ 724 M	\$ 528 M	\$ 195.9 M
Other Systems & Vehicles	\$ 743 M	\$ 697 M	\$ 47 M
Overhead Traction Power System	\$ 2,781 M	\$ 2,607 M	\$ 173.6 M
Parking & Traffic	\$ 1,564 M	\$ 1,512 M	\$ 51.9 M
Stations	\$ 3,514 M	\$ 3,397 M	\$ 116.5 M
Track	\$ 1,126 M	\$ 1,089 M	\$ 37.3 M
Train Control & Communications	\$ 858 M	\$ 829 M	\$ 28.4 M
Trolley Coach Vehicles	\$ 498 M	\$ 487 M	\$ 10.4 M
<b>Grand Total</b>	<b>\$ 14,625 M</b>	<b>\$ 13,587 M</b>	<b>\$ 1,037.8 M</b>

# State of Good Repair Analysis and Opportunities

**Figure 1: Total 2017 Replacement Value by Asset Class**



## Asset Condition Scores

In addition to calculating current and future investment needs for SFMTA assets, the 2017 *TERM Lite* modeling also produced a "condition score" for all assets in the Capital Asset Inventory. These condition scores are based on the useful life of each asset; they do not reflect specific operating conditions, level of use, or other factors that impact the performance and operating life of individual assets.

The *TERM Lite* condition scores use a scale of 1 (poor) to 5 (excellent), with scores for assets declining as they age. The FTA defines State of Good Repair as maintaining a transportation system in which assets receive a score of

2.5 or better based on these classification rankings.

The Average Condition Score (ACS) for all SFMTA assets has decreased from 3.33 in 2015 to 3.32 in 2016 to 3.30 in 2017. This can be attributed to high value, aging assets that are not often replaced. The increase in ACS from 2014 to 2015 can be attributed to updates made to the Capital Asset Inventory. Table 2 provides a further breakdown of these Average Condition Scores by asset class.



# State of Good Repair Analysis and Opportunities

**Table 2: Age Based Condition Score by Asset Class 2014-2017**

Asset Class	Age Based Condition Score			
	2014	2015	2016	2017
Facilities	3.4	3.2	3.2	3.3
Light Rail Vehicles	3.1	3.8	3.8	3.7
Motor Coach Vehicles	3.2	3.7	3.5	3.7
Other Systems & Vehicles	3.2	3.0	3.1	3.1
Overhead Traction Power System	3.7	3.7	3.7	3.6
Parking & Traffic	2.8	2.8	3.0	2.9
Stations	3.2	3.1	3.1	3.1
Track	3.3	3.3	3.2	3.2
Train Control & Communications	2.9	3.7	3.6	3.5
Trolley Coach Vehicles	2.5	3.4	3.3	3.2
<b>Total Condition Score</b>	<b>3.24</b>	<b>3.33</b>	<b>3.32</b>	<b>3.30</b>

The **Facilities** asset class increased its ACS this year with the addition of the Islais Creek Facility in the capital asset inventory. **Light Rail Vehicles** were adjusted in the inventory in 2015. As the LRV4s are procured and put into service as is planned over the next years, we can expect to see this ACS rise. **Motor Coach Vehicles** had a drop in ACS in 2016 but rose this year due to the procurement of new vehicles while older vehicles were taken out of service. **Overhead, Stations, and Track**, have been steadily declining in ACS over the 2014-2017 period as these asset classes contain high value assets that are not often replaced. **Parking & Traffic** assets had an increase in ACS as data associated with the replacement cost,

useful life, and rehab and procurement of these assets was updated in the Capital Asset Inventory in 2016, just as assets in **Train Control & Communications** underwent a similar update in 2015. **Trolley Coach Vehicles** has been declining in ACS since 2015, but this will change with the planned replacement of these vehicles in 2018 and 2019.



# State of Good Repair Analysis and Opportunities

## Total Asset Backlog

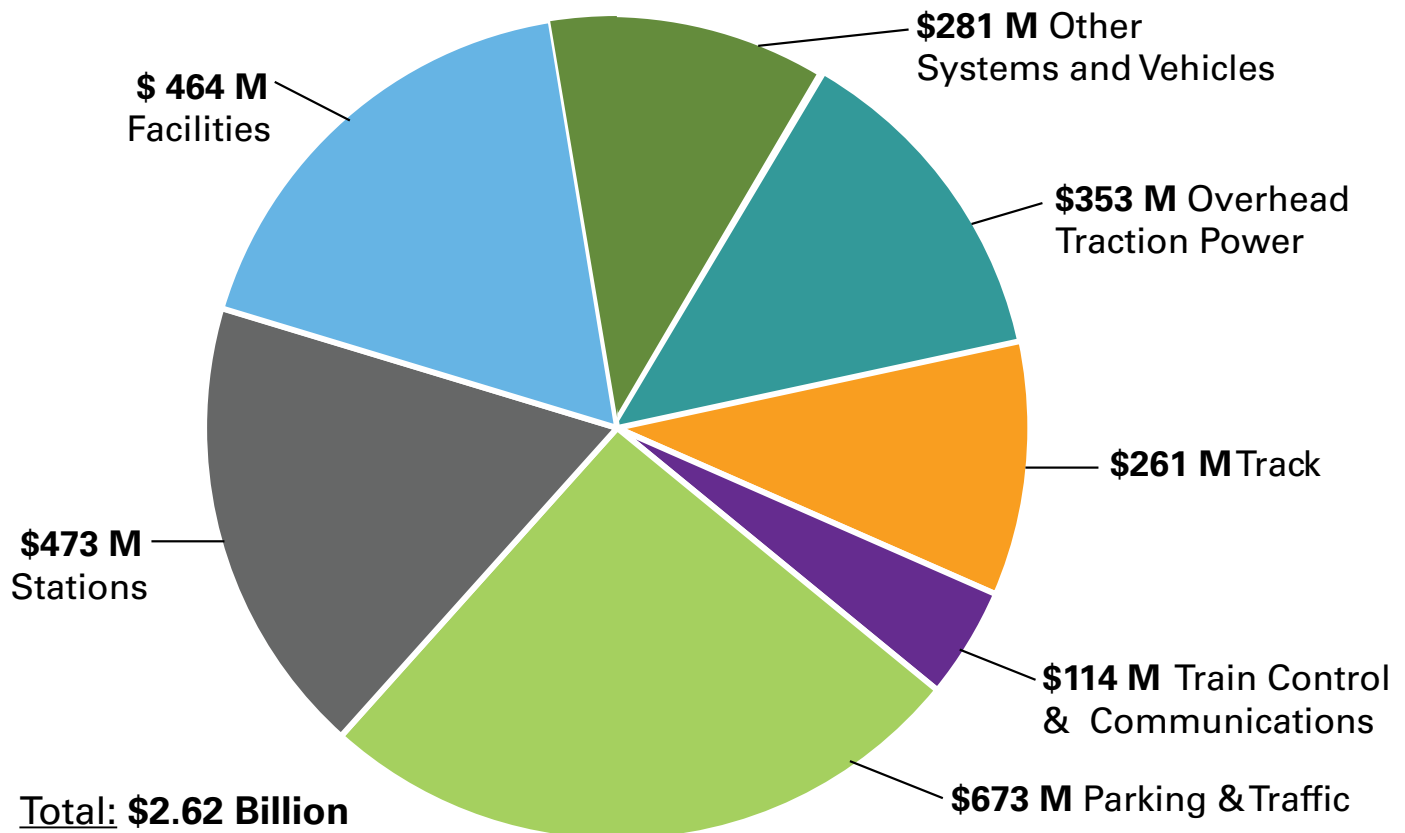
Every asset has an estimated useful life. It is important to note that useful life is an estimate of when an asset should be replaced based on manufacturer recommendations, FTA guidelines, and general transit agency experience. It does not account for specific operation conditions, level of use, or other factors that would adjust the anticipated useful life of an asset. San Francisco's dense urban environment more intensely uses transit and its related capital infrastructure than most transit systems in the United States. Useful life is measured by elevated maintenance costs and disruptions to system functionality caused by an asset that is more prone to failure. The total value according to our Capital Asset Inventory of assets that are still in service but have exceeded their useful life is \$2.62 billion. Figure 2 details this SGR backlog by asset class.

To date, the SFMTA has not had the financial means to fully replace assets as they reach the end of their useful lives. The sum of these deferred replacement and rehabilitation needs represents the current SGR "backlog". In other words, the backlog is equal to the value of all assets that are currently operating beyond their useful lives.



# State of Good Repair Analysis and Opportunities

**Figure 2: Current SGR Backlog by Asset Class**



The size of the backlog decreased from FY 2015 to FY 2016 from \$2.47 billion to \$2.41 billion. This is mostly due to updates in the capital asset inventory that updated or fine-tuned the useful life and costs of assets. The size of the backlog rose from \$2.41 billion in FY16 to \$2.62 billion in FY17. This is a slightly higher percentage change growth in the backlog (8.7%) than the subsequent growth in the total asset replacement value (7.6%). A constant challenge for many transportation operators is that assets age at a faster rate than the agency is able to address them which leads to increased capital assets ending up in the backlog. The importance of this report is to understand the magnitude of our SGR needs and guide agency investment to ensure we can maintain our system expansion over the long term.

The Capital Asset Inventory includes many high value assets within the backlog. In many notable and significant

instances, the age-based modeling used in *TERM Lite* does not fully capture the reality of the asset and how it is maintained or rehabilitated. For example, stations will not be replaced but rehabilitated as needed. The overhead power system is also a major item in the capital asset inventory backlog that is currently generally addressed with spot maintenance rather than replacement. In the Parking & Traffic asset class, the most valuable items are our agency's parking garages. While there is work scheduled to rehabilitate or replace certain systems in these garages, this work is of a much smaller scale than the Capital Asset Inventory suggests. The SFMTA Facilities Framework notes that some of our facilities are in fact outdated and in need of full replacement, and further expresses how this may be done over the coming 20 years and the relative criticality of some of these projects. Full analysis of the State of

# State of Good Repair Analysis and Opportunities

Good Repair of Agency assets should include work with staff responsible for these assets as they are involved in operations and maintenance of these assets and provide engineering experience and inspection data to inform the agency of a more defined scope of our SGR needs.

As the Enterprise Asset Management System eventually goes live throughout the agency, we will have another tool that holistically assesses the scope of SGR needs that may present a different picture than that from the Capital Asset Inventory, and may either provide improved information to the inventory, or serve this functionality itself rendering the Capital Asset Inventory obsolete.

Table and Figure 3 show the amount of assets the agency owns and operates by asset class and the portion of these assets that are beyond their useful life and therefore in the backlog. According to the Capital Asset Inventory, no Light Rail Vehicles, Motor Coach Vehicles, or Trolley Coach Vehicles that are beyond their useful life are in operation.

**Table 3: Total Asset Value and Current Backlog by Asset Class**

Asset Class	Backlog	Total Replacement Value	Percent of Assets in Backlog
Facilities	\$ 464 M	\$ 1,911 M	24%
Light Rail Vehicles	\$ -	\$ 907 M	0%
Motor Coach Vehicles	\$ -	\$ 724 M	0%
Other Systems & Vehicles	\$ 281 M	\$ 743 M	38%
Overhead Traction Power System	\$ 353 M	\$ 2,781 M	13%
Parking & Traffic	\$ 673 M	\$ 1,564 M	43%
Stations	\$ 473 M	\$ 3,514 M	13%
Track	\$ 261 M	\$ 1,126 M	23%
Train Control & Communications	\$ 114 M	\$ 858 M	13%
Trolley Coach Vehicles	\$ -	\$ 498 M	0%
<b>TOTAL</b>	<b>\$ 2,620 M</b>	<b>\$ 14,625 M</b>	<b>18%</b>



# State of Good Repair Analysis and Opportunities

**Figure 3: Total Asset Value and Current Backlog by Asset Class**



Table and Figure 4 show this breakdown of the backlog by Capital Program.

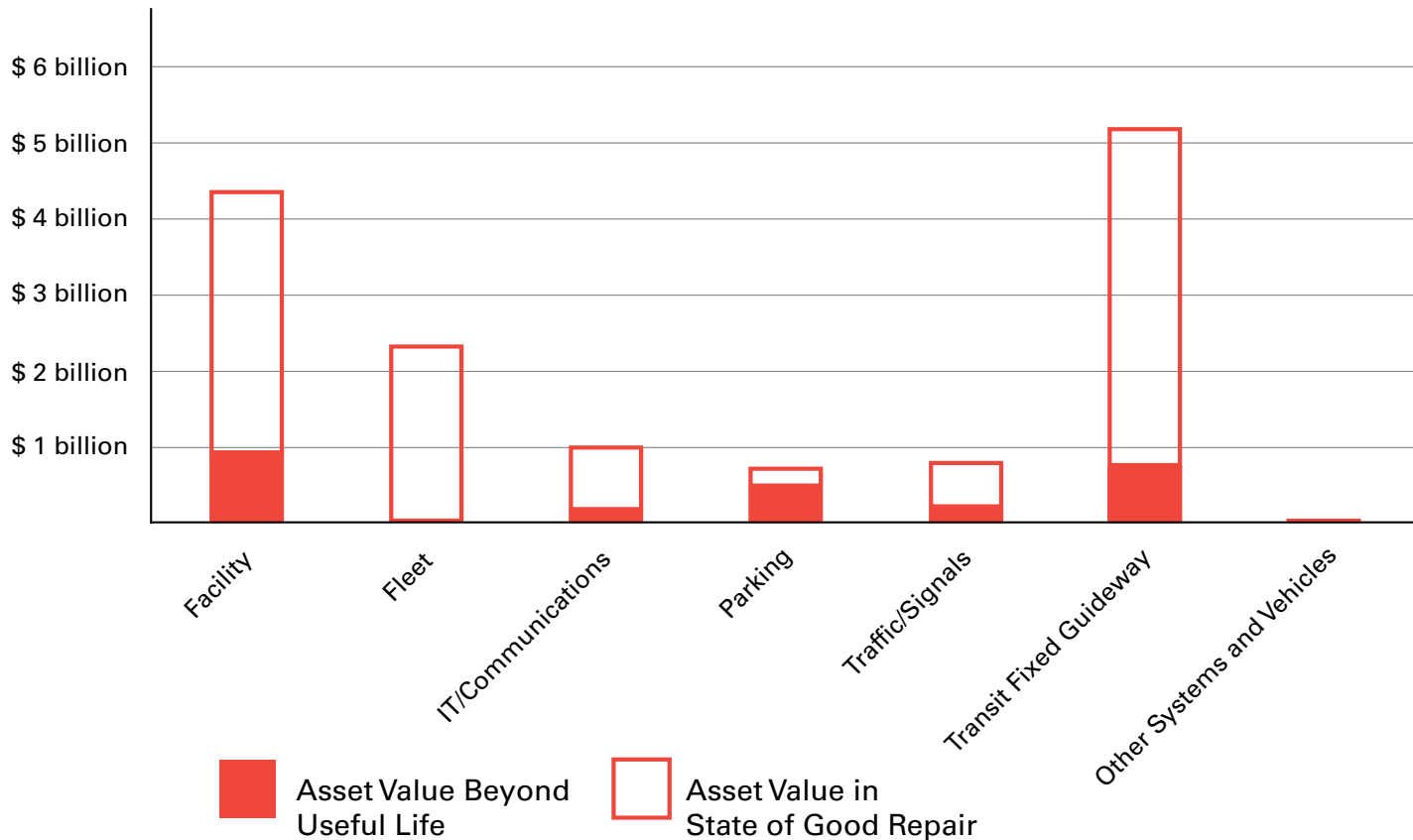
**Table 4: Total Asset Value and Current Backlog by Capital Program**

Capital Program	Asset Replacement Value	Current Backlog	Percent of Assets in Backlog
Facility	\$ 4,393 M	\$ 970 M	22%
Fleet	\$ 2,385 M	\$ 8 M	<1%
IT/Communications	\$ 1,029 M	\$ 177 M	17%
Parking	\$ 745 M	\$ 481 M	65%
Traffic/Signals	\$ 819 M	\$ 192 M	23%
Transit Fixed Guideway	\$ 5,206 M	\$ 756 M	15%
Other systems and vehicles	\$ 48 M	\$ 36 M	74%
<b>Grand Total</b>	<b>\$ 14,625 M</b>	<b>\$ 2,620 M</b>	



# State of Good Repair Analysis and Opportunities

**Figure 4: Total Asset Value and Current Backlog by Capital Program\***



\*Tables 9 and 10 in the appendix of this report provide a crosswalk between asset class and capital program. These relationships are sometimes direct (for example the 'Parking & Traffic' asset class fully encompasses the 'Parking' and 'Traffic/Signals' capital programs), and sometimes indirect (for example the 'Facilities' asset class encompasses multiple capital programs, while the 'Facility' capital program encompasses multiple asset classes).

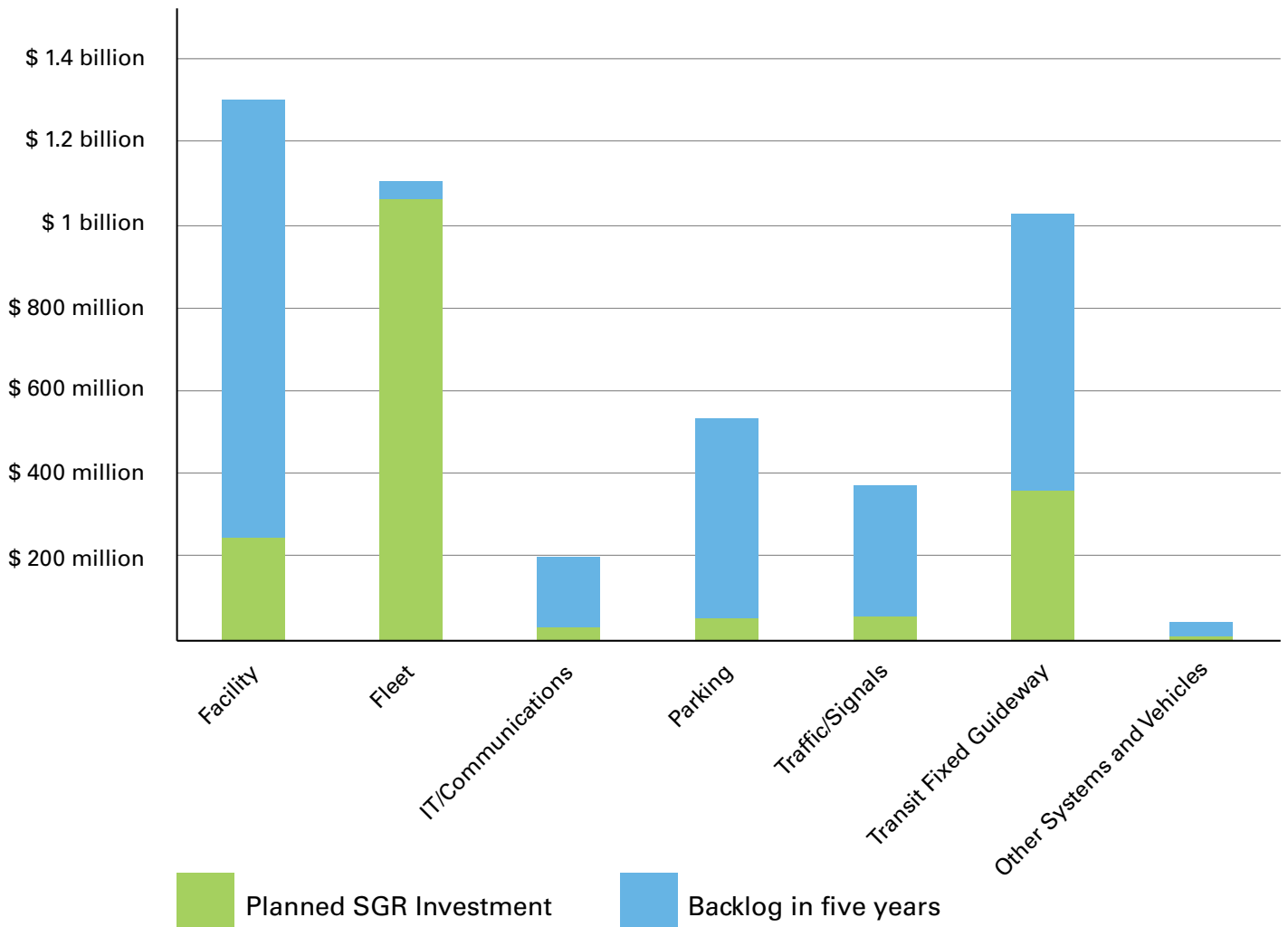
In this edition of the State of Good Repair Report, we have added the following section comparing our projected backlog in five years assuming no capital investment according to the Capital Asset Inventory to projected revenue allocations to SGR capital projects determined by the agency's 5-Year CIP.

# State of Good Repair Analysis and Opportunities

## Future State of Good Repair Needs and Planned Investment

A cross analysis of the backlog by capital program in five years according to the Capital Asset Inventory and planned investment over the next five years according to our five-year CIP has been added to this version of the Annual State of Good Repair report. Tables 5 and 6 and Figures 5 and 7 further detail this.

**Figure 5: Five Year Outlook: State of Good Repair Needs and Planned Investment**





# State of Good Repair Analysis and Opportunities

**Table 5: Five Year Outlook: State of Good Repair Needs and Planned Investment**

Capital Program	Program's total Assets as percentage of total Agency Value	Backlog in five years without SGR investment	Planned SGR Investment per updated digital FY 2017-21 5-Year CIP	Percent of backlog in five years covered by planned SGR investment
Facility	26.4%	\$ 1,298 M	\$ 243 M	<b>18.7%</b>
Fleet	26.5%	\$ 1,108 M	\$ 1,062 M	<b>95.9%</b>
IT/Communications	6.2%	\$ 198 M	\$ 30 M	<b>15.3%</b>
Parking	4.5%	\$ 530 M	\$ 53 M	<b>10%</b>
Traffic/Signals	4.9%	\$ 372 M	\$ 55 M	<b>14.8%</b>
Transit Fixed Guideway	31.3%	\$ 1,026 M	\$ 360 M	<b>35.1%</b>
Non-Revenue Fleet*	0.3%	\$ 42 M	\$ 7 M	<b>17.5%</b>
<b>Total</b>		<b>\$ 4,574 M</b>	<b>\$ 1,811 M</b>	<b>39.6%</b>

\*Non-Revenue Fleet is not a Capital Program, it is a part of the Fleet Capital Program but is identified separately in the Capital Asset Inventory.

The Capital Asset Inventory states that the agency has assets valued at a total of \$14.625 billion. In Table 6 the second column shows what percent of the agency's total assets belong to each Capital Program, for example 26.4% of these assets belong to the Facility program, and 31.3% belong to the Transit Fixed Guideway program. The third column shows the current backlog per program plus what will be added to the backlog over the next five years without capital investment. As the Capital Asset Inventory measures SGR according to asset's aged based useful life and value, it also can show when assets are due to be replaced or undergo mid-life rehabilitation. Figure 6 below shows this information of addition to the backlog

before SGR capital investments per capital program for the next 20 years. The fourth column of Table 6 shows planned SGR investment in these assets per capital program over the next five years according to the CIP. Levels of SGR investment by capital program is typically predicted by taking a percentage of each capital program's total expenditure that we assume will be SGR based on the typical investment patterns of each program (see Table 7 for detail on what these assumptions are). For this analysis these assumptions were not used. These totals were instead developed by looking at each individual CIP project. Finally the fifth column projects what percentage of the backlog will be addressed by planned investment.

# State of Good Repair Analysis and Opportunities

**Figure 6: Additional Investment Needs 2018-2037**

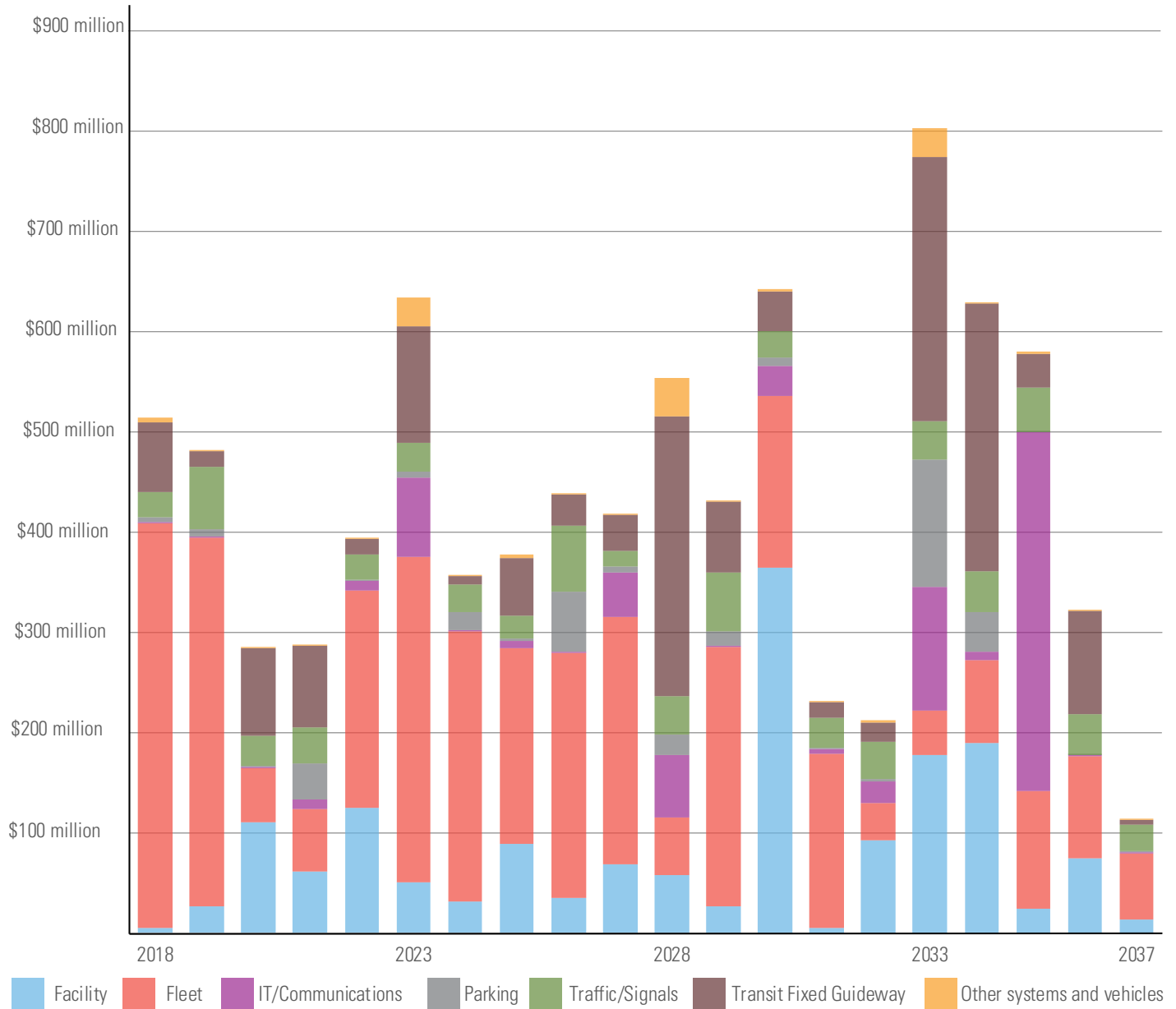


Figure 6 shows the current 20-Year unconstrained need for State of Good Repair, not including the current backlog, by capital program. The first five years (2018-2022) of this plus the current backlog is what the backlog will be in five years assuming no additional SGR investment. Figure 6 does not

reflect the current backlog, it shows what will be added to it over the next twenty years if no investments are made in SGR.

# State of Good Repair Analysis and Opportunities

When considering upcoming SGR needs it is important to note when these needs spike for the agency. Individual years with disproportionate additions to the backlog are more challenging to manage than steady increases. The agency aims to mitigate these spikes by phasing asset replacements over time. Our Capital Asset Inventory shows a spike of assets entering the backlog in 2023 of \$631.5 million in additional necessary capital investment, over \$200 million more than in years prior and after.

Table 6 and Figure 7 provide an additional way of looking at SGR needs is by looking at how they will change over the next five years according to our planned investment and how the backlog will grow in each Capital Program without investment (years 2018-2022 of Figure 6).

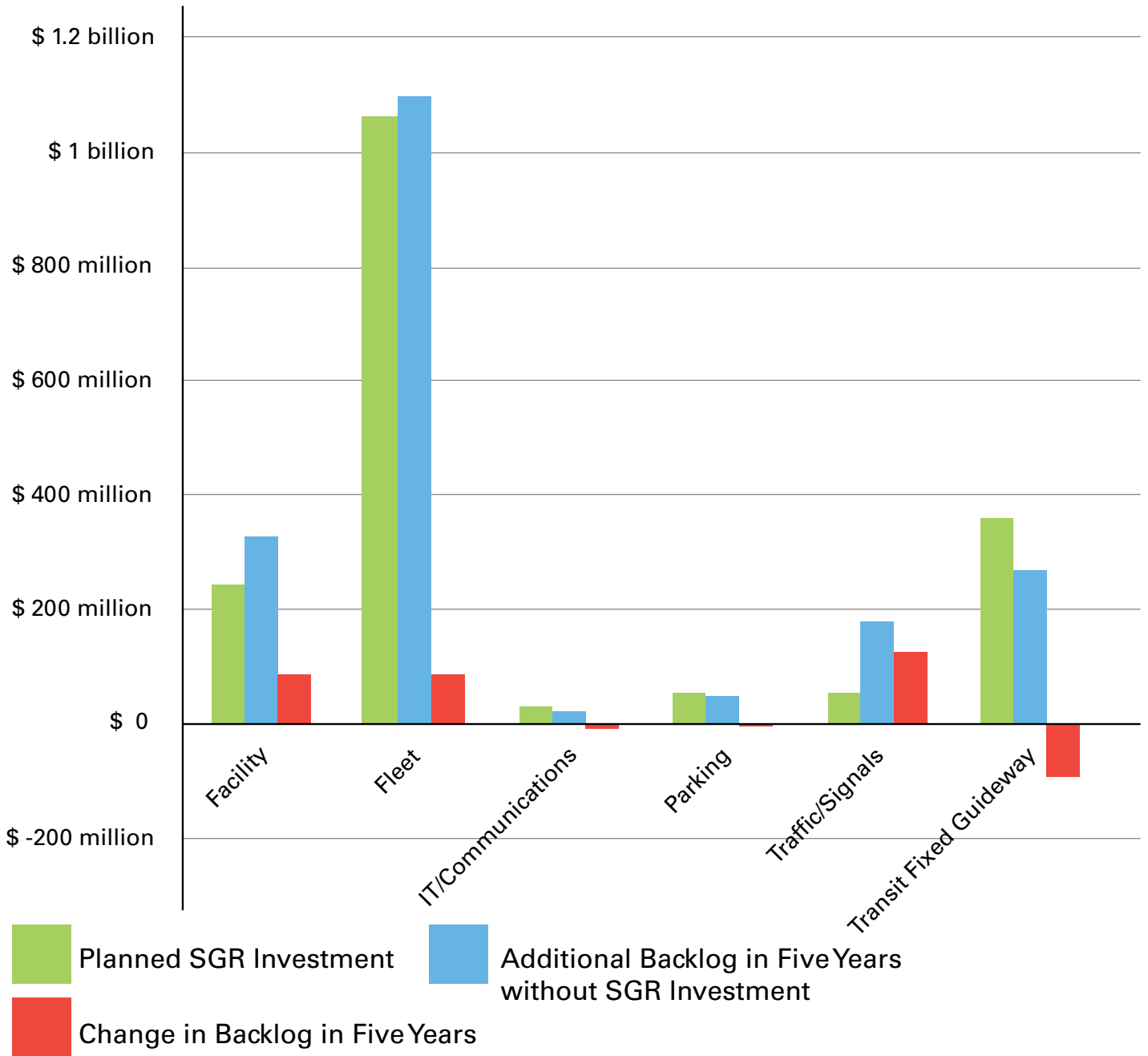
**Table 6: Five Year Outlook: 2018-2022 Additional State of Good Repair Needs and Planned Investment**

Capital Program	Planned SGR Investment per updated digital FY 2017-21 5-Year CIP	Additional Backlog in Five Years without SGR investment	Change in Backlog in five years with Planned SGR Investment	Percentage Change in Backlog in five years
Facility	\$ 243 M	\$ 329 M	<b>\$ 86 M</b>	26.1%
Fleet	\$ 1,062 M	\$ 1,099 M	<b>\$ 37 M</b>	3.4%
IT/Communications	\$ 30 M	\$ 21 M	<b>- \$ 9 M</b>	-44%
Parking	\$ 53 M	\$ 49 M	<b>- \$ 4 M</b>	-7.5%
Traffic/Signals	\$ 55 M	\$ 179 M	<b>\$ 124 M</b>	69.3%
Transit Fixed Guideway	\$ 360 M	\$ 270 M	<b>- \$ 91 M</b>	-33.6%
Non-Revenue Fleet	\$ 7.4 M	\$ 6.8 M	<b>- \$ 0.6 M</b>	-8.6%
<b>Total</b>	<b>\$ 1,810 M</b>	<b>\$ 1,954 M</b>	<b>\$ 143 M</b>	<b>7.3%</b>



# State of Good Repair Analysis and Opportunities

**Figure 7: Five Year Outlook: 2018-2022 Additional State of Good Repair Needs and Planned Investment**



# State of Good Repair Analysis and Opportunities

Below is a more in depth analysis and explanation of the information displayed in Tables 5 and 6 and Figures 5 through 7 per capital program:

- This Five Year Outlook analysis shows that the agency is doing an exceptional job of addressing the state of good repair capital investment needs of its **revenue fleet vehicles**. As a very straightforward set of records, fleet vehicles are the easiest asset to measure in the Capital Asset Inventory. The agency's robust recently updated vehicle fleet replacement plan outlines the replacement of these assets near the end of their useful lives. This fleet plan is reflected in the asset inventory, and the fleet plan dictates a phased replacement of these assets in order to mitigate future spikes of SGR needs, however Figure 6 shows future spikes in the fleet program's capital investment needs. **Non-revenue fleet vehicles** are not allocated as much capital funding for the timely replacement and rehabilitation of these assets.
- The Five Year Outlook analysis of the **Transit Fixed Guideway** Capital Program shows that 35% of the assets projected to be past the end of their useful life in five years have capital funding allocated to address them. This warrants further research as this capital program encompasses many assets critical to safety, efficient use of operation and maintenance revenue, and transit reliability such as trackway, overhead line, and substation assets. This presents an opportunity to conduct follow up work with this capital program in order to better understand these assets and to determine if more undedicated capital funding will need to be dedicated to this program. This work could use the Capital Asset Inventory's data to create a model that may assist prioritization and planning of future capital projects as well as update the inventory to reflect on our specialist's knowledge of these assets. It should also be noted that Figure 6 shows spikes in the future capital investment needs of these assets in 2028 and 2033.
- Investment in **Communications and IT Infrastructure** is mostly contingent on subsequent updates of fixed guideway, revenue vehicle, and other agency infrastructure. The majority of the assets in the backlog in this capital program are in the radio system. There have been significant capital dollars expended on this capital project in FY 2017 which is not covered in the current CIP as the project continues through construction and implementation. The future needs of this program show a significant spike in 2035.
- Much of the value in the backlog of the agency's **Parking** capital program is of parking garages and structures that have a high value. The Capital Asset Inventory model suggests replacing assets at the end of their useful lives and breaks assets into subcomponents such as substructure and superstructure. It has been identified that there is an opportunity for the agency to create a more robust long range plan of how to care for these assets to maintain their utility and long range functionality by making strategic investments in them while prioritizing other critical needs. This could inform more robust mid- and long-range planning as well as update the Capital Asset Inventory. There is funding currently allocated for strategic upgrades of HVAC, lighting, waterproofing, seismic upgrades and elevator modernizations as outlined in the CIP.
- The **Facility** Capital Program has created a long range strategic capital plan outlining the investments that must be made in order for these assets to keep up with the demands of operating the service provided by the agency including its growing light rail and rubber tire fleet. While the Capital Asset Inventory model suggests the replacement of assets including buildings as they reach the end of their useful life, this is in fact what needs to be done with some of the agency's outdated, over 100 year old facilities over the next 20 years. While the five year CIP investment shows that we will address just less than 20% of the backlog in this capital program over the next five years, we can expect

# State of Good Repair Analysis and Opportunities

this number to increase in future SGR annual reports as this capital program conducts necessary planning and preliminary engineering work to lay the framework for revenue allocation towards these critical investments.

- Analysis of the **Traffic Signals** capital program projects funded in the CIP shows that many of these expand rather than replace our assets. The assumption of our SGR quarterly updates that 100% of investment in this capital program is related to state of good repair may need to be revisited. As there are many signal assets across the city, when the Capital Asset Inventory was assembled in 2009 general assumptions were made

as to when these assets were brought into service. However, the analysis result that just under 15% of the estimated backlog in five years will be addressed through planned investment warrants an opportunity for further outreach to be conducted with this capital program to ensure that critical assets in this program are being properly addressed.







**Current  
State of  
Good Repair  
Projects and  
Campaigns**



## Current State of Good Repair Projects and Campaigns

This section of the state of good repair report documents how the agency is currently making SGR investments and its ongoing efforts to continuously improve these processes.

### Defining State of Good Repair Investments

The SFMTA categorizes capital projects as State of Good Repair if they provide for the rehabilitation or replacement of existing SFMTA owned and operated transportation infrastructure. This definition excludes projects where the primary purpose is to enhance or expand the transportation network, however capital assets are replaced with current up to date models or technology in the course of a state of good repair investment. For example, as the SFMTA purchases motor coaches that replace its existing revenue fleet, these newly purchased motor coaches are of better quality than fleet vehicles that are going out of service. New assets that are introduced to the transportation system through enhancement or expansion projects are added to the Capital Asset Inventory upon completion. This ensures that they will be included in future assessments of the agency's rehabilitation and replacement needs.

This document reports upon SGR investments that are made via SFMTA capital expenditures. The SFMTA operating budget funds Maintenance of Way, Bus Maintenance, and Rail Maintenance among other activities

which allow assets to meet their useful lives. Operating dollars also fund the SFMTA shops that are responsible for repair and maintenance of paint, parking meters, signs, and traffic signals. The daily work of these groups is essential to achieving the expected useful life of assets and avoiding service disruptions. Essential responsibilities include inspections, preventative maintenance, and asset component replacement. However, operating funds are not currently tracked as part of the SFMTA's calculation of SGR investments. The agency aims to create a system for tracking operating investments.

### FY 2017 State of Good Repair Investments

Over the past fiscal year, the SFMTA has reached critical milestones on SGR projects across the transportation system, including:

#### Fleet Rehabilitation & Replacement

- 5 60' trolley buses, 87 40' hybrids and 46 60' hybrids were accepted and put into revenue service replacing vehicles at the end of their useful life.





## Current State of Good Repair Projects and Campaigns

- 27 Paratransit vans were purchased to replace outdated vehicles.
- Automatic Train Control System (ATCS) is currently being installed at five interlock locations (West Portal, Duboce, Castro, Van Ness and Embarcadero) to replace outdated systems.

### Information Technology Upgrades

- Blue Light Emergency Phone Replacement project has been completed.
- ITS Radio System Replacement project to replace and modernize SFMTA's radio communications system has been completed.

### Traffic Signal & Street Improvements

- Upgraded 67 traffic signal controller cabinets, replaced 8" vehicle signals with 12" signals at 35 intersections.

### Subway and Fixed Guideway Projects

- L-Taraval Overhead Catenary System and Track replacement project received comments on its 65% detailed design plans, specifications, and estimates. This project will replace 23,000 feet of track, improving safety, reliability, and reducing travel times.
- Sunset Tunnel Trackway Improvement project repaired

cracks of the tunnel walls and is planning weekend shutdowns for installation of feeder cable. This project will replace and rehabilitate old infrastructure within the Sunset Tunnel.

- M-Ocean View Track replacement project is working with transit in order to create a shutdown plan for project construction. This project will replace sections of track, overhead lines, and upgrade traffic signals.
- A Request for Proposals was advertised for the Agency's rail grinding project, which will address rail grinding in the Muni Metro Tunnel. This project will extend the useful life of the rail and eliminate forms of differential wear.

### Facilities

- Escalator Rehabilitation Phase II has completed work on six of the 17 escalators it will rehab or replace throughout the system. Two of the 17 escalators are in construction.
- Rehabilitation of 1508 Bancroft facility is setting up for contractor mobilization on-site. This 90,000 square foot facility will upgrade and replace vertical conveyance systems, building lighting, HVAC systems, and external envelope insulation to meet energy efficiency standards.



# Current State of Good Repair Projects and Campaigns

- Green Center rail replacement project completed installation of Overhead Contact System around the revenue loop and continues to coordinate with BART for the Eastside Connection Project.
- Cable Car Gearbox rehabilitation project has begun construction. This project will overhaul and refurbish all cable car gearboxes presently in use at the Cable Car Barn, as well as a spare gearbox unit off site.
- The renovation and rehabilitation of the Burke Warehouse facility is undergoing detailed design. This will prepare the facility for new transit fleet maintenance functions.

The SFMTA presents its progress on reaching its State of Good Repair investment goals quarterly to the FTA. Of note are the assumptions currently made to calculate total planned SGR investment as well as SGR funds allocated and spent. These assumptions are used in the dashboards

presented in these quarterly memos. They assume the percent of funds allocated or spent per capital program that go toward improving the state of good repair of agency assets based on past observation and analysis of each capital program.

In the future these assumptions may be updated as we tie CIP IDs (from the 5-year fiscally constrained plan) to Capital Need IDs in the Capital Plan (the 20-year fiscally unconstrained plan). CIP IDs are given to each project to show how this project aligns with planned revenue expenditure in the CIP, and every CIP ID is now tied to a Capital Need ID. The latest 2017 Capital Plan characterized each Capital Need in order to display, among other things, how each capital need relates to SGR. This will provide a future opportunity to utilize a more refined method to estimate levels of actual SGR capital investment.

The assumptions of SGR spending per capital program used in the FY 2017 quarterly reports are shown in Table 7:

**Table 7: SGR Investment Level Assumption by Capital Program**

Capital Program	SGR Investment Level Assumption
Communications & IT	100%
Facility	100%
Security	100%
Traffic & Signals	100%
Transit Fixed Guideways	100%
Parking	100%
Fleet	70%
Transit Optimization & Expansion	20%
Streets	10%
Central Subway	0%
Other	0%
Taxi	0%

# Current State of Good Repair Projects and Campaigns

This section presents materials from the FY 2017 Q4 memo which outlines total progress made in the entire 2017 fiscal year.

**Figure 8:**

## FY 2017 Investment Dashboard

### State of Good Repair Expenditure **Progress Tracker** Fiscal Year 2017 (July 2016 - June 2017)

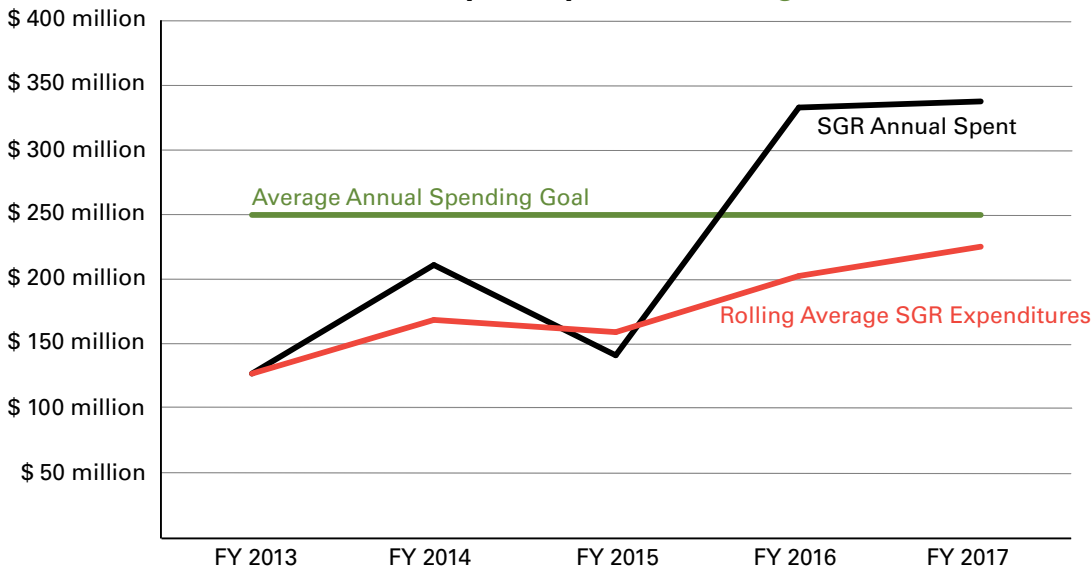
Capital Program	FY 2017 - 2021 Planned Investment	FY 2017 - 2021 Planned SGR Investment	FY 2017 Planned SGR Investment (YTD) <sup>1</sup>	FY 2017 SGR Funds Allocated (YTD) <sup>2</sup>	FY 2017 SGR Funds Spent (YTD) <sup>3</sup>	FY 2017 Non-SGR Funds Spent (YTD)
Central Subway	\$402,521,000	--	--	--	--	\$116,440,000
Communication/IT	\$11,222,000	\$11,222,000	\$8,772,000	\$12,253,000	\$51,863,000	--
Facility	\$243,497,000	\$243,497,000	\$104,429,000	\$43,402,000	\$42,707,000	--
Fleet	\$1,190,218,000	\$836,966,000	\$310,193,000	\$101,109,000	\$157,994,000	\$22,950,000
Other	\$9,926,000	--	--	--	--	\$8,513,000
Parking	\$16,200,000	\$16,200,000	\$1,200,000	\$6,872,000	\$3,062,000	--
Security	\$24,669,000	\$24,669,000	\$5,599,000	\$2,770,000	\$4,599,000	--
Streets	\$256,748,000	\$25,675,000	\$2,608,000	\$4,073,000	\$2,751,000	\$24,762,000
Taxi	\$2,000,000	--	--	--	--	\$5,000
Traffic/Signals	\$99,656,000	\$99,656,000	\$36,163,000	\$17,317,000	\$21,181,000	--
Transit Fixed Guideway	\$223,037,000	\$223,037,000	\$48,319,000	\$48,405,000	\$43,429,000	--
Transit Optimization/ Expansion	\$965,025,000	\$193,005,000	\$43,375,000	\$42,609,000	\$10,770,000	\$43,078,000
<b>Total</b>	<b>\$3,444,719,000</b>	<b>\$1,673,927,000</b>	<b>\$560,658,000</b>	<b>\$278,811,000</b>	<b>\$338,355,000</b>	<b>\$215,748,000</b>

# Current State of Good Repair Projects and Campaigns

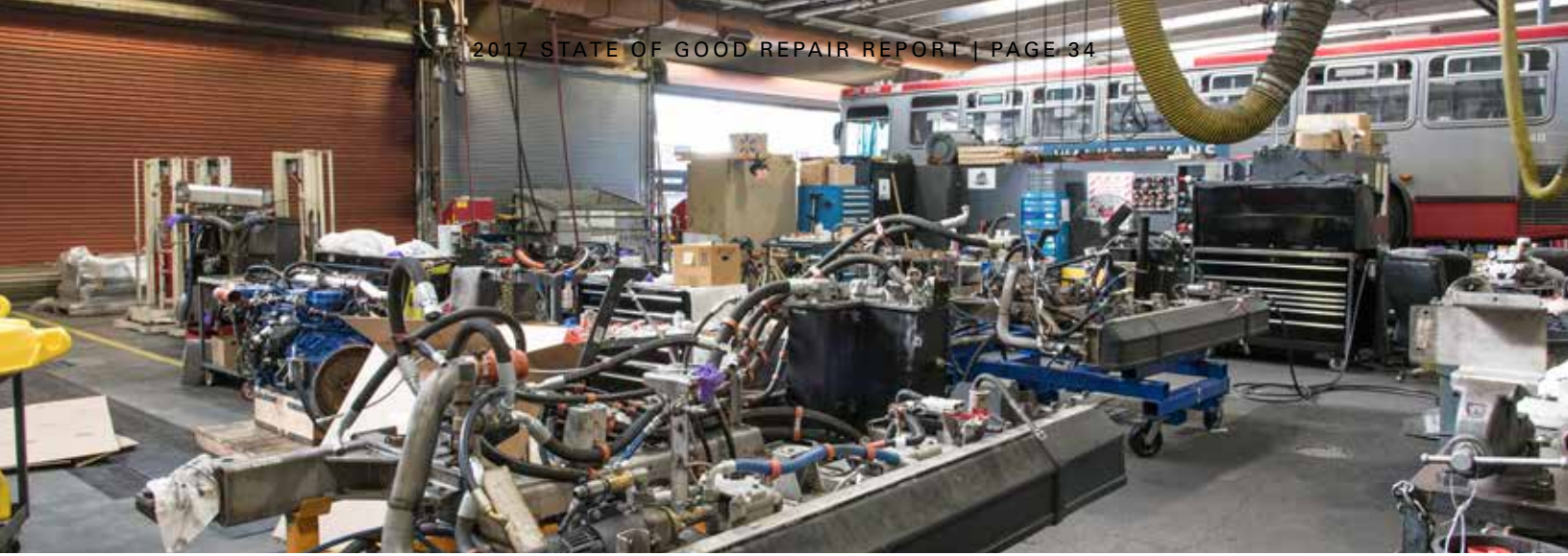
**Figure 9:**



## State of Good Repair Expenditures Progress Tracker







## Current State of Good Repair Projects and Campaigns

The SFMTA must have a balanced budget in which expenses equal revenues, which requires the allocation of available funding not only for state of good repair needs but also operating, enhancement and expansion projects. The SFMTA annual State of Good Repair Report and analysis identifies SGR capital need priorities. Of the \$3.4 billion in capital investments outlined in the FY 2017-21 Capital Improvement Program, approximately \$1.7 billion is directed towards SGR investments.

The SFMTA has committed to investing an average of \$250 million annually on State of Good Repair. The above FY 2017 Investment Dashboard and Progress Tracker in Figures 8 and 9 display how well the agency is delivering on this \$250 million annual investment goal. The agency tracks funds spent as a metric to determine progress towards our commitment, but the dynamic nature of the capital project delivery process requires looking at funds planned, invested, and spent to fully understand our progress toward the commitment over time.

In calculating SGR expenditures, the SFMTA looks at both funding that is committed to SGR capital projects (funds allocated) and the agency's success in spending down these funds (funds spent). In FY 2017, the agency allocated \$278.8 million for SGR projects. Also during this period, SFMTA spent \$338.4 million on SGR projects. At the end of

FY2017 \$218.8 M was encumbered in SGR contracts. The SFMTA has met its commitment of \$250 million spent on SGR projects in FY2017.

In evaluating the upcoming CIP, it is important to note that a portion of the planned SGR investments are reliant on currently non-committed sources, such as state and federal competitive grant initiatives, a new Series of 2017 issuance of SFMTA Revenue Bonds, and potential revenue ballot measures in 2018. The Agency's \$340 million annual SGR commitment outlined in the FY 2017-2021 CIP is therefore contingent on anticipated revenue sources that have not been secured. Revenue assumptions for non-committed funds are generally conservative, but still unknown.

As a capital project implementation plan, the CIP is constantly evolving. On the project side, budgets and cost estimates increase and decrease, unanticipated system needs are identified, and City investment priorities shift. In terms of anticipated revenue sources, competitive grant awards are announced, Congress updates Federal transportation legislation impacting Federal Grants and new funding opportunities arise. Therefore, the SFMTA will conduct on-going review of SGR investments throughout the year to track against planned investments outlined in the CIP.



## Current State of Good Repair Projects and Campaigns

As this report shows, the SFMTA is well on its way to making up for prior years of missing this \$250 million per year target. SGR expenditures in FY 2016 and FY 2017 were well above the \$250 million threshold, and if this rate of SGR expenditure continues in FY 2018, the Agency will have reached this rolling average target. The SGR investment dashboards that are presented in these memos present planned investment as programmed in the Capital Improvement Program, as well as funding allocated to projects and funds spent by these projects. Funding allocated and spent typically is not as high as planned investment. This is common and was also the case in past years of collecting this data. However, in FY 2017 the amount of funds spent was higher than funds allocated. In prior years funds allocated were higher than funds spent, and what has happened in this fiscal year shows that the funding allocated in prior fiscal years that rolled over onto FY 2017 has been spent on projects to materialize state of good repair investments. This demonstrates progress for the agency in its efforts to realize its SGR goals. There are many projects in which funds spent has exceeded funds allocated to a project in FY 2017. Here is a list, by Capital Program, of those that are most notable:

### Comm/IT

- Radio Replacement / Rail Communications
- Central Control and Comm (C3) Program

### Facility

- Islais Creek Woods Annex
- DPT Signal Equipment and Transit Facility Improvement
- Transit Service Improvement Support
- Phelan Plaza Development
- Operator Convenience Facilities Phase 2
- Fire Life Safety Upgrade
- 1570 Burke Facility Renovation
- Preventative Maintenance Facilities

### Fleet

- Cable Car Renovation
- LRV Safety Mods Overhaul Project
- Historic Car Rehab
- Procurement of 30 40 and 60 foot Hybrid buses
- New Propulsion Rehab Campaign

### Parking

- Japan Center Garage Ventilation
- Golden Gateway Garage Ventilation
- Waterproofing Ventilation Car Garages
- Lombard Waterproofing and Improvement Project

### Security

- Vehicle Video Surveillance Replacement
- OPack and Surge Patrol Counter Terrorism Op
- Counter Terrorism Training and MultiAgency

# Current State of Good Repair Projects and Campaigns

## Traffic/Signals

- Polk St. Signal Upgrade
- SFGo Van Ness Corridor Management
- Franklin Signal Upgrade
- CT62 New Signals
- Ped Countdown Signals Revenue Bond
- So. Van Ness Signal Upgrade
- Add PCS to High Injury Corridors
- TS0136 FTP TFC Signal Conduit T2030
- NoMaSoMa Controller Upgrade

## Transit Fixed Guideway

- Muni Rail Replacement
- Sunset Tunnel Rail Rehab

- Balboa Park Station Area and Plaza Improvement
- Green Center Rail Replacement
- Twin Peaks Tunnel Rail Replacement
- Digital Axle Counter Replacement and ATCS Misc
- LRV4 VCC Support

Table 8 shows what capital investments are planned ahead in the most recent FY 2017-2021 Capital Improvement Program. This includes all capital investments including State of Good Repair. The level of SGR investment assumed per capital program was shown in a previous table. The CIP will be updated and the FY 2019-2023 edition released in the Spring of 2018.

**Table 8: Planned Investments by Capital Program: All Investments FY 2017-2021 Capital Improvement Program (CIP)**

Capital Program	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	CIP Total
Central Subway	\$154.0	\$150.0	\$98.5	--	--	\$402.5
Communications/IT Infrastructure	\$8.8	\$0.4	\$0.7	\$0.7	\$0.7	\$11.2
Facility	\$104.4	\$52.7	\$25.3	\$10.5	\$50.5	\$243.5
Fleet	\$504.6	\$352.2	\$158.9	\$101.3	\$73.2	\$1,190.2
Parking	\$1.2	\$5.0	\$10.0	--	--	\$16.2
Security	\$5.6	\$10.1	\$3.0	\$3.0	\$3.0	\$24.7
Streets	\$26.1	\$56.2	\$79.1	\$49.4	\$46.0	\$256.7
Taxi	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$2.0
Traffic Signals	\$36.2	\$28.4	\$15.2	\$8.0	\$11.8	\$99.7
Transit Fixed Guideway	\$48.3	\$47.0	\$57.3	\$34.9	\$35.5	\$223.0
Transit Optimization/Expansion	\$216.9	\$152.7	\$259.1	\$229.2	\$107.1	\$965.0
Other	\$3.6	\$4.7	\$0.7	\$0.8	\$0.2	\$9.9
<b>Total</b>	<b>\$1,110.0</b>	<b>\$859.8</b>	<b>\$708.2</b>	<b>\$438.2</b>	<b>\$328.5</b>	<b>\$3,444.7</b>

\* Includes State of Good Repair, Expansion & Enhancement Projects.

\*\*All amounts shown in millions (\$M)







## Current State of Good Repair Projects and Campaigns

### Future Steps

#### Improving Asset Management and Project Delivery

The SFMTA is implementing new agency-wide project delivery and long-range planning initiatives. These will help to ensure that the SFMTA can deliver upon its SGR goals and will provide wide-ranging benefits for improving the effectiveness and efficiency of SGR investments. There initiatives include:

##### **Project Delivery Improvement Group (PDIG)**

SFMTA staff involved in various facets of project delivery meet on a regular basis to improve the delivery of projects at the SFMTA. In order to deliver the scale of projects necessary to meet our \$250 million investment commitment, the agency needs to improve its project delivery bandwidth. This group has focused on developing agency-wide project delivery standards and processes that better define roles and responsibilities across divisions. In the past year the agency has established a Project Delivery Framework identifying areas that affect project delivery and focus on areas that require improvement. As part of this effort the agency established a Project Management Office (PMO) composed of representatives from the agency's delivery divisions to lead this improvement effort.

The PDIG Technical Advisory Committee provides support to the PMO.

##### **SFMTA's Building Progress Program**

Addressing the SGR needs for facilities is a challenge for many transit agencies. These facility assets typically have useful lives that are longer than many careers and rebuild costs that dwarf agency budgets. These problems are compounded in San Francisco, where many of our facilities have surpassed or are quickly approaching the end of their useful lives and space within the City is at a premium. The SFMTA recognizes the importance of addressing our facility needs, and is initiating implementation of 2017 Facilities Framework, now known as the Building Progress program, to retool the SFMTA's bus, rail, and support facilities, build capacity for fleet vehicle expansion, and optimize the sites' development and land use mix.

##### **Project Integration Process**

In 2014, the SFMTA began full implementation of a Project Integration Process (PIP) that is intended to better coordinate project delivery and ensure that the agency delivers Complete Streets projects. The process created a Project Integration Committee of technical experts representing many agency divisions, including ten capital programs, that reviews project scopes to identify potential project integration opportunities based on existing plans, policies, and programs.



## Current State of Good Repair Projects and Campaigns

### Asset Management Program

The SFMTA is working to implement a Transportation Asset Management Program to better assess and prioritize the agency's SGR needs. The program is being developed to align with the FTA's Transit Asset Management regulatory requirements.

The implementation of the Transportation Asset Management program is based on a framework of supportive technology, business processes and engaged staff. Asset management is a process and requires ongoing resources to maintain best practices.

SFMTA will develop an agency Asset Management Plan by October 2018 which will guide the implementation process.

### Enterprise Asset Management System

The Enterprise Asset Management System (EAMS) is currently in implementation and will enable agency-wide asset tracking, work order management, materials management, and asset management system. This will provide the fine grained detail needed to understand the ongoing condition of our assets based on real-time maintenance assessments, accurate asset useful life values, and life cycle costs of an asset.

Once fully deployed, the EAMS will integrate currently disparate asset tracking systems within the agency. These improvements will support asset renewal/replacement programs, create a comprehensive link between our investments and the condition of our system, allow for better financial forecasting and planning, and provide the foundation for collective decision making at an agency level. The SFMTA plans to deploy the EAMS across approximately 45 business units within agency by late 2020. As EAMS is implemented, the information it provides will enhance future SGR reports.





# Appendix



# Appendix

## Asset Class - Capital Program crosswalk

**Table 9: Percent of Total Assets by Asset Class in each Capital Program**

Asset Class	Capital Program
Facilities	Facility (99%) IT/Communications (0.01%) Transit Fixed Guideway (1%)
Light Rail Vehicles	Fleet (100%)
Motor Coach Vehicles	Fleet (100%)
Other Systems & Vehicles	Facility (13%) Fleet (34%) IT/Communications (22%) Transit Fixed Guideway (23%) Other Systems and Vehicles (6%)
Overhead Traction Power System	Transit Fixed Guideway (100%)
Parking & Traffic	Parking (48%) Traffic/Signals (52%)
Stations	Facility (68%) IT/Communications (0.1%) Transit Fixed Guideway (32%)
Track	Transit Fixed Guideway (100%)
Train Control & Communications	IT/Communications (99.9%) Transit Fixed Guideway (0.1%)
Trolley Coach Vehicles	Fleet (100%)

**Table 10: Percent of Total Assets by Capital Program in each Asset Class**

Capital Program	Asset Class
Facility	Facilities (43%) Other Systems & Vehicles (2%) Stations (54%)
Fleet	Light Rail Vehicles (38%) Motor Coach Vehicles (30%) Other Systems & Vehicles (11%) Trolley Coach Vehicles (21%)
IT/Communications	Facilities (0.01%) Other Systems & Vehicles (16%) Stations (0.4%) Train Control & Communications (83%)
Parking	Parking & Traffic (100%)
Traffic/Signals	Parking & Traffic (100%)
Transit Fixed Guideway	Facilities (0.2%) Other Systems & Vehicles (3%) Overhead Traction Power System (53%) Stations (21%) Track (22%) Train Control & Communications (0.01%)
Other Systems and Vehicles	Other Systems & Vehicles (100%)

# Appendix

## SFMTA Transportation Asset Management Policy

1. The SFMTA asset management strategy will be guided by the SFMTA strategic goals.
2. The Agency will use an inventory to know what its assets are, where each asset is located, and the lifecycle requirements for each asset. Every record will be managed and maintained by a Data Owner.
3. Assets will be the common language to link planning, acquisition, disposal, and operations and maintenance of assets using standard polices, processes, data, and analytical tools.
4. Management of agency assets will be a shared responsibility with clear accountability.
5. Assets will be managed using an Asset Management Plan to guide cost-effective, lifecycle management.
6. The Agency will seek to maintain, renew, and extend the life of its assets, and will use performance data to evaluate if assets are performing as intended.
7. The Agency will use a transparent, streamlined, repeatable, collaborative, and data driven approach to decision making for capital investments which takes into consideration the geography, the condition and the risk of failure of the assets.
8. The asset inventory will align with the agency's financial records.

## Select Capital Project Scopes: Capital Improvement Program (CIP)

### SFMTA Facility Framework

Conduct Preliminary Engineering, including environmental clearance, due diligence, and technical studies of framework projects, for rebuilds of the Potrero, Presidio, and Kirkland Maintenance Facilities; a new trolley bus swing facility; and building improvements and construction improvements for the Sustainable Streets Enforcement and other SFMTA facilities.

### Islais Creek Phase II

Construct a new 65,000 square foot motor coach maintenance and operations facility to alleviate current demand for adequate storage and maintenance space, and to better accommodate fleet expansion. This new facility will include light and heavy maintenance bays; warehouse space, operations and maintenance offices; and showers, galley room, locker rooms and training space.

### Facility and Life Safety System Renovation

Replace and upgrade obsolete life and fire safety systems at the Flynn, Kirkland, Scott, Metro Green and Potrero Facilities to remain code compliant and ensure the safety of employees and the public. Potential improvements include new control panels, new battery back-ups, new manual pull stations, new annunciator panels, monitoring of the automatic fire sprinkler system, new notification devices, and new smoke detectors. Existing systems are reaching the end of their useful lives and have become difficult and costly to maintain.



# Appendix

## Fleet Overhauls

Conduct mid-life overhauls on SFMTA's transit hybrid vehicles, a vital part of keeping the transit fleet in a state of good repair. Traditionally SFMTA has not had funds for mid-life overhauls, resulting in frequent breakdowns, costly vehicle repairs and disruption of transit service. This funding reserve for midlife overhauls will help SFMTA to improve service reliability.

## Purchase and Replace Motor Coaches

Replace 511 outdated 40-foot standard and 60-foot articulated motor coaches (hybrid and diesel) that have reached the end of their useful lives. New coaches will be equipped with hybrid technology, enhanced regenerative braking, composite materials, slip resistant flooring, low floor bus design, better seating configuration and better exterior viewing mirrors. This project will improve agency safety and security, transit reliability, on-time efficiency, and customer satisfaction.

## Replace 151 Light Rail Vehicles

Purchase 151 new Light Rail Vehicles (LRVs) to replace outdated Breda vehicles that have reached the end of their scheduled useful life. The new LRVs will be manufactured by Siemens in their Sacramento facility, and will be equipped with state-of-the-art equipment and safety features. These new vehicles will increase the comfort, safety and reliability of the Muni Metro system.

## Replace and Purchase Trolley Coaches

Replace 333 outdated trolley coach vehicles (both 40' and 60' vehicles) that have reached the end of their scheduled useful lives. New vehicles will improve agency safety and security, transit reliability, on-time efficiency, and customer satisfaction. During replacement the mix of vehicle sizes may be adjusted to align with the Transit Fleet Management Plan projections of ridership, which could result fewer 40' vehicles. The scheduled replacement cycle for trolley coach vehicles is every 15 years.

## LRV Vehicle Overhauls

Perform scheduled replacement and overhauls of truck components in accordance with manufacturer recommendations. The SFMTA operates a fleet of 151 light rail vehicles (LRVs), each of which is equipped with three trucks--two motor trucks and one trailer truck--that serve as suspension systems that support vehicle loads and provide a comfortable ride for passengers. Maintenance data show that rehabilitation of the light rail vehicle trucks will significantly improve vehicle reliability, help to eliminate breakdowns, and prevent service interruptions and costly repairs.

## Non-Revenue Fleet Replacement

Replacement of more than 800 non-revenue fleet vehicles. The non-revenue fleet consists of light vehicles, medium and heavy trucks as well as specialized maintenance units that have reached the end of their scheduled useful lives. Replacing these vehicles at the end of their useful lives will help to reduce overall maintenance costs, improve reliability, and reduce emissions.

## Ellis/O'Farrell Seismic Upgrade

Design and construct upgrades to the Ellis-O'Farrell parking garage to ensure that the structure can withstand an 8.5 magnitude earthquake. A recent conceptual design study of the garage identified approximately \$9 million in improvements needed to bring the garage into a state of good repair wherein it meets seismic needs. By implementing the recommended changes, the project will ensure safe parking operations.



# Appendix

## **Better Market Street**

A comprehensive program to re-envision the City's premier cultural, civic and commercial corridor, the Better Market Street project will implement capital improvements along Market Street from Steuart Street to Octavia Boulevard. The project will increase core transit capacity along the region's most important transit street, in addition to improving street design and re-invigorating public life along the corridor. The work will include complete repaving of Market Street, including the transit and mixed-use lanes, sidewalks, and a protected bike facility. This work would also replace Muni traction power duct banks, rail, support structures over BART vents and overhead lines, as well as constructing new transit stations/stops and boarding islands. For more information, visit [www.bettermarketstreetsf.org](http://www.bettermarketstreetsf.org).

## **Van Ness Bus Rapid Transit**

Construct a package of transit, streetscape and pedestrian safety improvements along a two-mile corridor of Van Ness Avenue between Mission and Lombard Streets. Key features include conversion of two mixed-flow traffic lanes into dedicated bus lanes, consolidated transit stops, high quality stations, transit signal priority, all-door low floor boarding, elimination of most left turn opportunities for mixed traffic, and pedestrian safety enhancements.





