REVISED DRAFT

FY19 SHORT RANGE TRANSIT PLAN AND CAPITAL IMPROVEMENT PROGRAM

OCTOBER 2018

San Francisco Bay Area
Rapid Transit District

Robert Raburn, President, Board of Directors

Grace Crunican, General Manager

BUILDING A BETTER BART

Short Range Transit Plan and Capital Improvement Program

Federal transportation statutes require that the Metropolitan Transportation Commission (MTC), in partnership with state and local agencies, develop and periodically update a long-range Regional Transportation Plan (RTP) and a Transportation Improvement Program (TIP) that implements the RTP by programming federal funds to transportation projects contained in the RTP. To effectively execute these planning and programming responsibilities, MTC requires that each transit operator in its region that receives federal funding through the TIP prepare, adopt, and submit to MTC a Short Range Transit Plan (SRTP) that includes a Capital Improvement Program (CIP).

Schedule, cost, and performance data used to generate this SRTP/CIP were based upon the most current information available as of October 2018.

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1 INTRODUCTION

This Fiscal Year 2019 Short Range Transit Plan/Capital Improvement Program (SRTP/CIP) summarizes BART's operating financial plan for the period FY19-FY28 and capital financial plan for the period FY19-FY33. The purpose of the SRTP/CIP is to:

- Describe BART's capital and operating budgets and assess the District's financial capacity to carry out proposed levels of service and the associated capital investment.
- Allow regional transportation partners, the BART Board of Directors, and BART staff to formulate strategies in advance of potential financial challenges.
- Provide the Federal Transit Administration (FTA) and the Metropolitan Transportation Commission (MTC) with required information to meet regional fund programming and planning criteria.
- Inform requests for federal, state, and regional funds.
- Provide MTC with regular information on projects and programs of regional significance.
- Articulate goals, objectives, and standards by which BART assesses the system's performance.

BART's operating and capital plans are driven by the BART Strategic Plan Framework, as adopted by the Board of Directors in October 2015. The District has committed to advancing the Mission statement: "Provide safe, reliable, clean, quality transit service for riders."

The forecast in the SRTP/CIP is based on the best available information at the time of publication and outlines a financial scenario based on that information. The plan will be updated as new information becomes available.

2 OVERVIEW OF THE BART SYSTEM

2.1 HISTORY

Since 1972, BART has provided reliable rapid transit service in the Bay Area. Over its history, the system has grown to meet the needs of a more densely populated, expanding, and economically vibrant region. This chapter describes key milestones in BART's history; BART's governance and organizational structures; the service BART provides and the areas it serves; its fare structure; and the physical infrastructure that supports service. Key milestones in BART's history are shown in Figure 2-1.

Figure 2-1 Milestones in BART History

Year	Milestone
1957	California state legislature creates BART in response to Bay Area growth and transportation needs
1962	Voters approve $792 million general obligation bond issue in San Francisco, Alameda, and Contra Costa counties that provides funding to construct original 71-mile system (bond fully paid off in 2000)
1972	BART begins service 12 stations open from MacArthur to Fremont
1973	20 stations open: Richmond to Ashby; Concord to Rockridge; and Montgomery Street to Daly City
1974	Transbay service begins
1976	Embarcadero Station opens
1995	North Concord/Martinez Station opens
1996	Colma and Pittsburg/Bay Point stations open
1997	Castro Valley and Dublin/Pleasanton stations open
2003	Four San Francisco International Airport (SFO) extension stations begin service: South San Francisco, San Bruno, San Francisco International Airport, and Millbrae
2004	$980 million general obligation bond approved by voters for BART earthquake safety projects
2007	BART and SamTrans, with the aid of MTC, agree to turn SFO extension operations over to BART
2011	West Dublin/Pleasanton Station opens
2012	BART celebrates 40 years of service and, on the day of the Giants' World Series victory parade, carries the most riders ever, nearly 570,000
2014	BART to Oakland International Airport service begins
2016	$3.5 billion general obligation bond approved by voters to fund critical BART capital needs
2017	Warm Springs/South Fremont Station opens
2018	BART to Antioch service opens with two new stations in eastern Contra Costa County, Pittsburg Center Station and Antioch Station
2019	Two Santa Clara County stations to open: Milpitas and Berryessa

2.2 GOVERNANCE

Nine publicly elected directors form BART's governing board. A member of the BART Board:

- Serves a four-year term.
- Represents approximately 374,000 residents in one of nine election districts that comprise the three-county District.
- Provides strategic and policy guidance to achieve BART's mission to "provide safe, reliable, clean, quality transit service for riders."
- Represents diverse constituencies, taking a leadership role by working with a broad range of stakeholders in the region, state, and nation to promote effective transit policies and political support for regional transit initiatives.

Figure 2-2 BART Board of Directors

BART Board of Directors	Counties Represented	Term Ends in December
Robert Raburn, Ph.D, President	Alameda	2018
Nick Josefowitz, Vice President	San Francisco	2018
Debora Ann Allen	Contra Costa	2020
Thomas M. Blalock, P.E.	Alameda	2018
Bevan Dufty	San Francisco	2020
Joel Keller	Contra Costa	2018
John McPartland	Alameda	2020
Rebecca Saltzman	Alameda/Contra Costa	2020
Lateefah Simon	Alameda/Contra Costa/San Francisco	2020

2.3 ORGANIZATIONAL STRUCTURE

Figure 2-4 shows BART's organizational structure. BART has five Board-appointed positions: General Manager, General Counsel, Controller-Treasurer, District Secretary, and Independent Police Auditor. BART is the only transit district in California with a dedicated police department. BART Police provides a full range of law enforcement services within its jurisdiction.

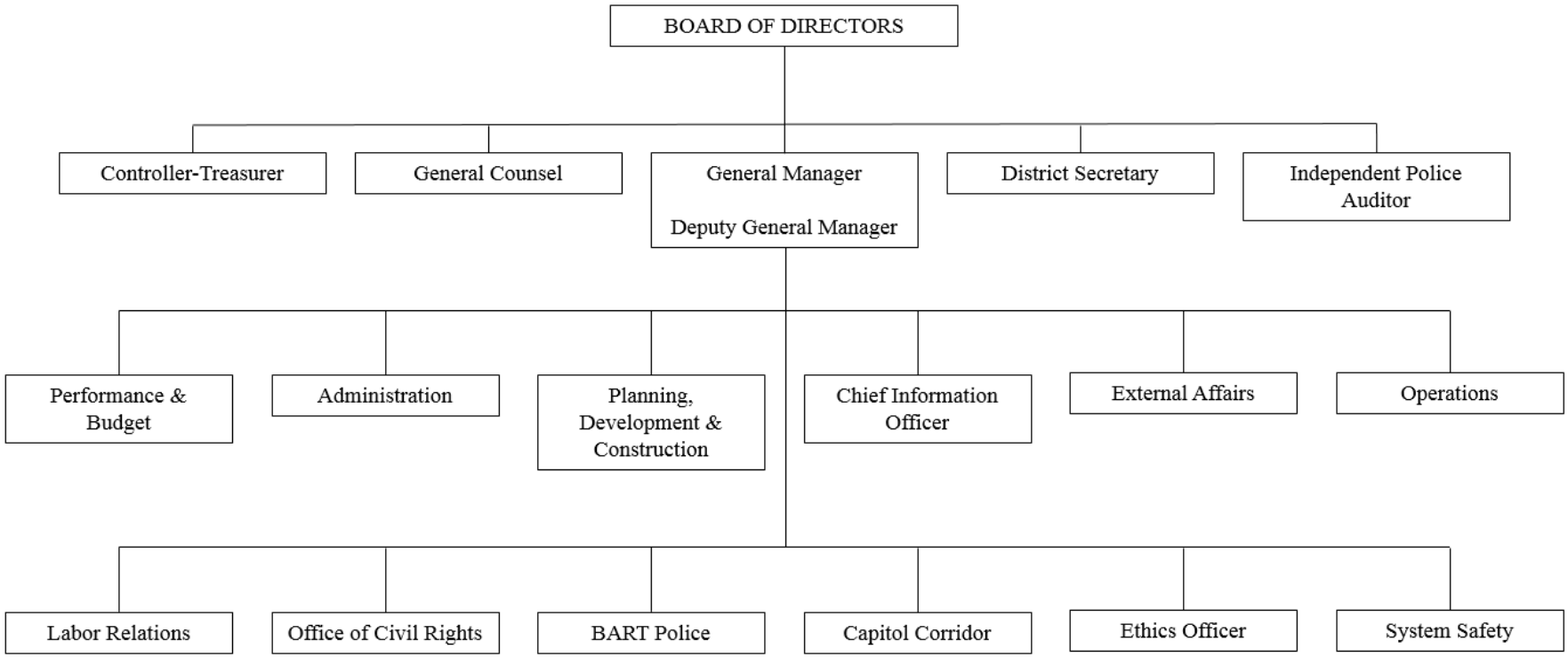
2.4 LABOR UNIONS

BART has five employee unions and collective bargaining agreements covering 84% of BART's workforce. The labor agreements for Service Employees International Union 1021, Amalgamated Transit Union Local 1555, and American Federation of State, County and Municipal Employees Local 3993 expire in FY21; the agreements for the two police unions expired at the end of FY18. Union membership, based upon positions budgeted for the FY19 Adopted Budget, is shown in Figure 2-3. The remainder of BART staff is non-represented.

Figure 2-3 Union Membership

Union	Membership
Service Employees International Union 1021	2,155
Amalgamated Transit Union Local 1555	981
American Federation of State, County and Municipal Employees Local 3993	383
BART Police Officers Association	292
BART Police Managers Association	57

Figure 2-4 BART Organizational Chart (FY19 Adopted Budget)



2.5 SERVICES PROVIDED AND AREAS SERVED

2.5.1 Fixed-Route Service

BART operates five lines of heavy rail service over a radial network with stations in Alameda, Contra Costa, San Francisco, and San Mateo counties. In addition, BART operates an automated people mover (BART to OAK) that provides connecting service to Oakland International Airport. Each line is identified by color (Yellow, Blue, Red, Orange, and Green), as shown in the system map (Figure 2-7) on the next page. The current lines and hours of service are shown in Figure 2-5 below. The system's headways (minutes between trains) are shown in Figure 2-6.

Figure 2-5 BART Routes and Hours of Service

Route	Hours of Service		
	Weekday	Saturday	Sunday
YELLOW: Antioch—SFO/Millbrae[1]	4 a.m.–12 a.m.	6 a.m. –12 a.m.	8 a.m. –12 a.m.
BLUE: Dublin/Pleasanton—Daly City	4 a.m. –12 a.m.	6 a.m. –12 a.m.	8 a.m. –12 a.m.
RED: Richmond—Millbrae[2]	4 a.m. –9 p.m.	9 a.m. –7 p.m.	Not in service
ORANGE: Richmond—Warm Springs/South Fremont	4 a.m. –12 a.m.	6 a.m. –12 a.m.	8 a.m. –12 a.m.
GREEN: Warm Springs/South Fremont—Daly City	5 a.m. –6 p.m.	9 a.m. –7 p.m.	Not in service
BART to OAK: Coliseum-Oakland International Airport	5 a.m. –12 a.m.	6 a.m. –12 a.m.	8 a.m. –12 a.m.

[1] Service extended to Millbrae during evenings and weekends

[2] Service terminates at Daly City during evenings and weekends

Figure 2-6 BART Headways

Service Days	Headway (minutes)
Monday through Friday[1]	Day: 15 Night: 20
Saturday, Sunday and major holidays	20

[1] For the Yellow line between Pittsburg/Bay Point and Daly City stations, peak period (6 a.m. to 9 a.m. and 4 p.m. to 7 p.m.) headways are between four and 11 minutes. For BART to OAK, headways are six minutes until 10:00 p.m., then 20 minutes.

BART periodically reviews and adjusts service levels when necessary to meet ridership demand. Changes include lengthening or shortening trains, adding or removing trains scheduled on a route, or changing a route's service hours or terminal stations.

Depending on demand, holiday rail service is operated on a full or modified weekday schedule, or a Saturday or Sunday schedule. Additional rail service for special events is provided by either adding cars to regularly scheduled trains, placing additional trains in service, or providing revenue operations at times when the system is normally closed.

Starting in February, 2019, BART will begin the Transbay Tube Retrofit project, resulting in modified service hours and headways for a three and a half year period. See Section 4.2 for additional information.

Figure 2-7 BART System Map

RECENT AND PLANNED SYSTEM EXTENSIONS

BART to Antioch, which opened in May 2018, is a two-station commuter rail service that extends BART's Yellow line from Pittsburg/Bay Point Station to Antioch. It uses Diesel Multiple Unit (DMU) trains operating over standard-gauge track. These trains use diesel fuel, utilize advanced exhaust treatment technologies, and exceed the US government's strictest diesel engine exhaust standard. Service hours and headways match the rest of the Yellow line.

The Silicon Valley Rapid Transit (SVRT) extension will link the Warm Springs/South Fremont Station to stations in Santa Clara County. The extension is being constructed through a parternsip between BART and Santa Clara Valley Transit Authority (VTA), and will be operated and maintained at VTA's expense. The first phase of the project, known as the Silicon Valley Berryessa Extension (SVBX) will connect to stations in Milpitas and Berryessa. SVBX is expected to open in FY20. SVRT Phase 2 will connect to four additional stations in San Jose and Santa Clara. Construction on Phase 2 will begin following a Full Funding Grant Agreement between VTA and the Federal Transit Administration. This SRTP/CIP assumes that Phase 2 service will begin in FY27.

2.5.2 Demand Responsive Service

BART complies with the Americans with Disabilities Act (ADA) requirement to provide paratransit service comparable and complementary to the BART system. Federal regulations define the ADA paratransit service area as a 0.75-mile radius around each BART station.

Paratransit service is available to persons who are prevented from using the accessible fixed-route services BART offers due to a disabling health condition. BART participates in a regional ADA eligibility process followed by the principal transit operators in the San Francisco Bay Area. BART, together with other Bay Area transit agencies, works to coordinate regional paratransit travel through the Bay Area Partnership Accessibility Committee.

PARATRANSIT PARTNERSHIPS WITH OTHER OPERATORS

To provide effective paratransit service in its service area, BART partners with the following transit operators:

AC Transit: In their areas of joint service, BART and AC Transit fund and administer the East Bay Paratransit Consortium (EBPC). Service is provided through contractors. BART assumes 31% and AC Transit 69% of the broker and service provider costs based on their proportionate areas of responsibility. BART and AC Transit have split the cost of the Program Coordinator's Office 50/50 since FY11. This office provides a neutral central point of contact and fulfills administrative and contract monitoring activities for the two agencies.

SFMTA: BART has a Memorandum of Understanding (MOU) with the San Francisco Municipal Transportation Agency (SFMTA) whereby SFMTA provides service to meet BART's obligation within the City and County of San Francisco. BART reimburses SFMTA for 7.9% of the net cost of ADA paratransit service for all San Francisco riders. BART also pays SFMTA an administrative fee for these services, which is calculated at 4.7% of BART's annual payment.

Other Agencies: BART has financial agreements with the Contra Costa County Transit Authority (County Connection), Eastern Contra Costa Transit Authority (Tri Delta Transit), and Livermore Amador Valley Transit Authority (Wheels). These agencies provide paratransit service on BART's behalf during the same hours they operate their own ADA paratransit service. BART's share of the service provided by these operators is small compared to that provided by EBPC and SFMTA.

2.5.3 Connecting Services Provided by Other Operators

Seventeen Bay Area bus operators provide connecting (or "feeder") service to BART. These operators are AC Transit, Benicia Breeze, County Connection, Dumbarton Express (operated by AC Transit), Fairfield-Suisun Transit, Golden Gate Transit, Muni (SFMTA), Rio Vista Delta Breeze, SamTrans (including Caltrain), Santa Clara Valley Transportation Authority (VTA), Solano Express, Tri Delta Transit, Union City Transit, Vallejo Transit, WestCAT, and Wheels.

2.6 FARES

2.6.1 Fixed-Route Fares

BART fares are computed using a distance-based formula with surcharges applied. Fare structure components and fare media, including discounted fares and transfers, are shown in Figure 2-8.

Figure 2-9 details station-to-station fares for BART's 48 stations. On January 1, 2018, the following Board-approved fare changes were implemented:

- A fare increase of 2.7% on average in accordance with the Board-approved productivity-adjusted CPI-based fare increase program.
- A $0.50 surcharge added to the fare for each trip taken with a blue magnetic-stripe ticket; the surcharge is prorated for trips taken with discounted fare media.
- A new 50% discount for youth riders age 13 through 18.
- A discount reduction from 62.5% to 50% for youth riders age 5 through 12.

The necessary federal Title VI equity analysis and public outreach were performed and approved by the BART Board. A Board-approved mitigation action plan has been implemented for the magnetic stripe ticket surcharge to give free Clipper cards to low-income riders.

2.6.2 Demand Responsive Fares

The ADA limits the fare that can be charged for ADA paratransit service to twice the full adult fare for a comparable fixed-route trip. Fares for paratransit services in which BART participates vary widely due to the range of fare structures of BART and local bus agencies.

- BART/AC Transit EBPC fares are distance-based and range from $4.00 to $7.00 for trips in the East Bay and from $6.00 to $10.00 for trips into and out of San Francisco.
- San Francisco trips that go beyond BART service area carried by EBPC pay an additional Muni paratransit fare of $2.50.
- SFMTA paratransit provides travel within San Francisco. SF Access ADA service is $2.50 per ride.
- SFMTA also provides non-ADA taxi service for eligible riders at the rate of $6.00 for $30 worth of service.
- Fares for BART's other paratransit partners currently range from $2.50 to $7.00 per trip.

2.6.3 Inter-operator Transfer Arrangements and Fare Coordination

BART riders can receive discounted transfer fares for trips on the following operators: AC Transit, County Connection, Muni, Tri Delta Transit, Union City Transit, VTA, WestCAT, and Wheels. Discounted transfers are automatically given when the rider uses a Clipper card on all these operators (Clipper is the Bay Area's universal fare card that works on most Bay Area transit systems). AC Transit, County Connection, Union City Transit, and Wheels also accept a paper transfer dispensed in the paid area of the BART station. In addition, Muni and BART have an agreement whereby BART accepts Muni's "A" Fast Pass, available only on Clipper, for unlimited rides on BART within San Francisco. The current values of the transfers and "A" Fast Pass are shown in Figure 2-8.

Figure 2-8 BART Fare Components and Ticket Prices (effective January 1, 2018)

Clipper fares; Blue magnetic stripe ticket fares are 50 cents more per trip.		
TRIP LENGTH	Minimum Fare: Up to 6 miles	$2.00
	Between 6 and 14 miles[1]	$2.05 + 15.0¢/mile
	Over 14 miles	$3.22 + 9.0¢/mile
SURCHARGES	Transbay	$1.00
	Daly City[2]	$1.15
	San Mateo County[3]	$1.44
	Capital[4]	$0.13
	Premium fare applied to trips to/from SFO	$4.54
	Oakland Airport Project Fare	$6.16
SPEED DIFFERENTIAL	Charge differential for faster or slower than average trips, based on scheduled travel time	±5.8¢/minute
RESULTING FARES	Range[5]	$2.00-$16.15
	Average fare (before discounts)[6]	$4.07
	Average fare paid (after discounts)[6]	$3.90
RAIL FARE DISCOUNTS and SPECIAL FARES[7]	Children under 5	Free
	50% Discount:	
	Youth age 5 through 18[8]	$1.00-$8.05 when using Clipper card; $12 mag stripe ticket with $24 ticket value
	62.5% Discount:	
	Persons 65 and over	$0.75-$6.05 when using Clipper card; $9 mag stripe ticket with $24 ticket value[9]
	Persons with a qualifying disability	
	Regular adult: 6.25% discount	$45 and $60 ($48 and $64 ticket value)
	Excursion (entry/exit, same station)[10]	$5.90
MONTHLY RAIL/MUNI PASS[11]	"A" Fast Pass (Unlimited monthly use of BART within San Francisco and SF Muni)	$94
ONE-WAY TRANSFERS:	AC Transit (Clipper fare)	$0.50 off of $2.25 Clipper fare (22% disc)
FROM BART TO[12]	County Connection	$1 off of $2 cash fare (50% disc)
	Muni, within San Francisco[13]	$0.50 off of $2.50 Clipper fare (20% disc)
	Tri Delta Transit	$0.75 off of $2 fare (37.5% disc)
	Union City Transit	$0.50 off of $2 fare (25% disc)
	VTA (Clipper fare; express buses only at Fremont Station)	$0.50 off of $4.50 fare (11% disc)
	WestCAT	$0.75 off of $1.75 fare (43% disc)
	Wheels	$1 off of $2 fare (50% disc)
TWO-WAY TRANSFERS: FROM BART/TO BART	AC Transit (cash fare)	$0.25 off of $2.35 one-way cash fare (9% disc)
	Muni, Daly City Station[14]	Free ($2.50 one-way Clipper fare)
ADA SERVICE	East Bay Paratransit Consortium[15]	$4-$7 trips within East Bay; $6-$10 trips fo/from San Francisco
	All other areas	See ADA Paratransit Section

NOTES: BART Fare Components and Ticket Prices

[1] Trips over 6 miles within the East Bay Suburban Zone (certain station pairs between Antioch-Concord, Pittsburg/Bay Point-Orinda, Warm Springs/South Fremont-Bay Fair, Richmond-Ashby, and Dublin/Pleasanton-Bay Fair) are priced at the fare indicated for trips up to 6 miles.

[2] The Daly City surcharge is applied to trips between Daly City Station and San Francisco stations; it does not apply to Transbay trips or San Mateo County surcharge trips.

[3] The San Mateo County surcharge is applied to trips between San Mateo County stations (except trips between the San Francisco International Airport (SFIA) Station and Millbrae Station for which only the Premium Fare is charged) and trips between San Mateo County stations (except Daly City) and San Francisco stations. It does not apply to Transbay trips.

[4] The capital surcharge is applied to trips that begin and end in the three-county BART District including Daly City; the Board approved this surcharge in May 2005 to be used to fund capital projects within this area.

[5] Clipper fares shown are effective January 1, 2018, at which time the per-trip magnetic stripe blue ticket fare became 50 cents more than the Clipper fare. BART rail fares are computed by automatic fare collection equipment and are rounded to the nearest 5¢. Prior fare increases occurred on January 1 of 2016 and 2014; July 1 of 2012 and 2009; January 1 of 2008, 2006, 2004, and 2003; April 1 of 1997, 1996, and 1995; January 1, 1986; September 8, 1982; June 30, 1980; and November 3, 1975.

[6] The average rail fare before and after discounts includes rail passenger revenue from all fare instruments. The figures shown are for FY17.

[7] Discounts are given with the appropriate Clipper card. High-value discount, red (people with disabilities and youth), and green (seniors) magnetic stripe tickets continue to be sold via mail, at the Customer Service Center at Lake Merritt Station, and SFO.

[8] Effective January 1, 2018, the youth discount eligibility age was increased from age 12 to 18, and the previous youth discount of 62.5% for riders age 5 through 12 became 50% for riders age 5 through 18. For trips youth take with red magnetic stripe tickets, the 50-cent per-trip blue magnetic stripe ticket surcharge is prorated down by 50% to 25 cents. With a 50% discount now available to youth through age 18, on August 9, 2018, the BART Board approved discontinuing the student orange ticket program. The $32 student orange ticket had been sold for $16, a 50% discount, at participating middle and high schools and was to be used only for weekday school-related trips.

[9]The 50-cent per-trip blue magnetic stripe ticket surcharge is prorated down by 62.5% to 19 cents for trips taken by seniors using green magnetic stripe tickets and by people with disabilities using red magnetic stripe tickets.

[10] There is a three-hour limit on the excursion fare for magnetic stripe tickets and a six-hour limit for Clipper cards.

[11] BART began accepting the regular adult Muni Fast Pass for BART travel within San Francisco on April 1, 1983. The current Muni “A” Fast Pass allows unlimited rides on Muni and BART within San Francisco. The current price of the monthly “A” Fast Pass as set by SFMTA is $94, and SFMTA reimburses BART $1.35 for each Fast Pass trip on BART. Muni Fast Passes are available only on Clipper.

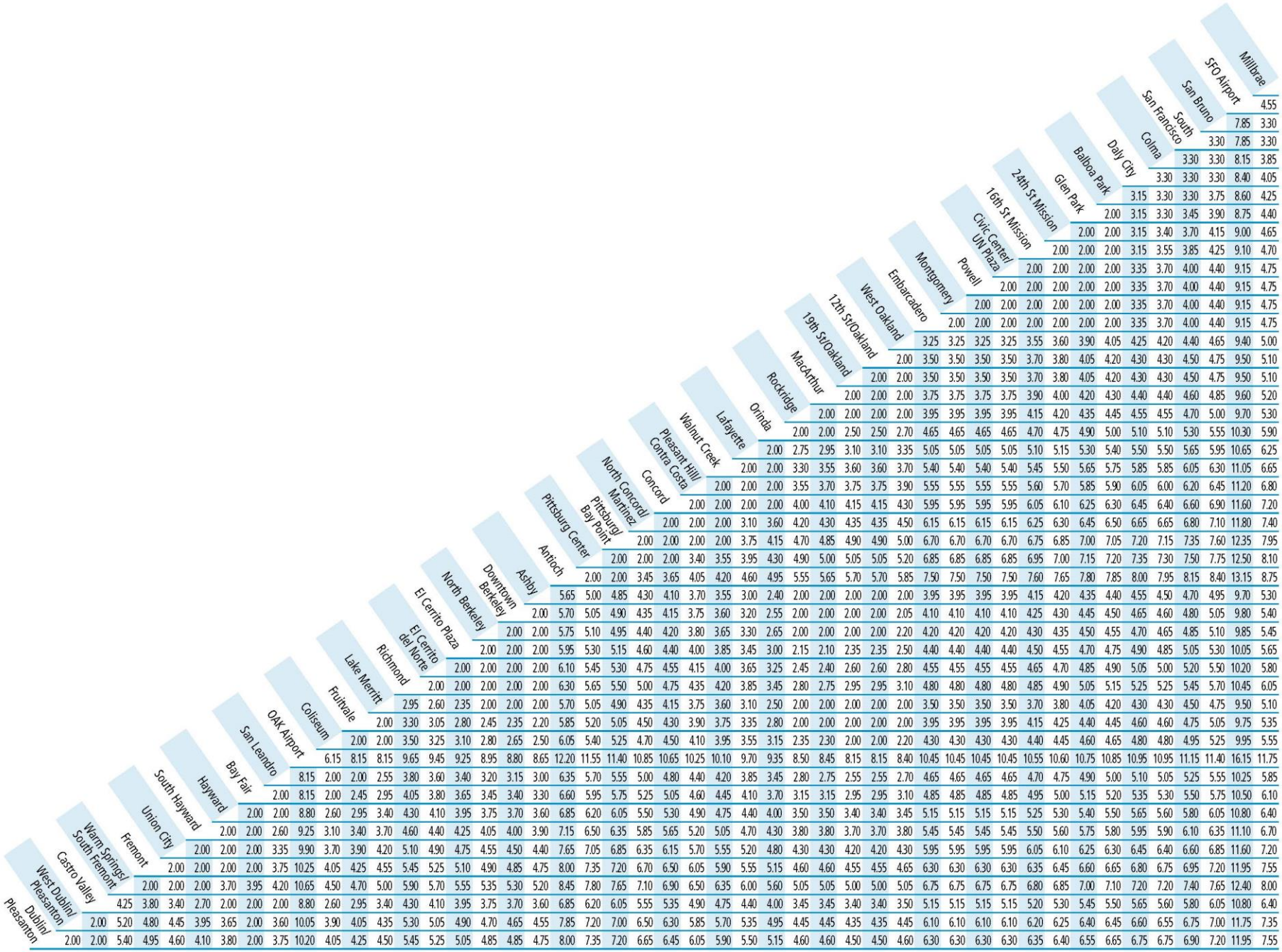
[12] When transferring between BART and a Clipper-enabled operator, the Clipper card automatically gives the transfer discount.

[13] Effective April 10, 2014; before that time, Muni offered a two-way transfer.

[14] The free Muni trips for BART riders transferring to/from Muni lines at Daly City Station has been in place since 1980 and is now available on Clipper only. BART reimburses SFMTA for the cost of one of the two trips made, as recorded by the Clipper system.

[15] BART and AC Transit formed the East Bay Paratransit Consortium, which provides service to eligible BART customers in service areas that overlap with AC Transit.

Figure 2-9 BART Station-to-Station Clipper Fare Table (effective January 1, 2018)



2.7 PHYSICAL INFRASTRUCTURE AND CAPITAL ASSETS

2.7.1 Rail Cars

MAINLINE TRAINS

BART's original fleet of rail cars consists of 669 cars of types designated 'A,' 'B,' and 'C'. BART trains are three cars minimum, per the California Public Utilities Commission requirement, to 10 cars maximum, as limited by station platform lengths. End cars are either cab-equipped 'A' or 'C' cars.

In 2007, BART initiated the procurement of new rail cars, incuding the development of a funding plan, and in 2012, Bombardier Transportation was awarded a contract to design and construct 775 cars. BART is now accepting the first 'D' and 'E' cars, both replacing and expanding the original BART fleet, and providing sufficient spare vehicles to ensure service reliability. Cab-equipped 'D' cars will occupy the ends of trains of new cars, which will operate separately from 'A,' 'B' and 'C' cars. As of July 2018, thirty-one cars have been delivered for testing and evaluation, and have begun revenue service. Figure 2-10 describes BART's current and new car rail vehicle inventory. BART is currently planning the procurement of additional cars to expand the fleet to the size commensurate with service over SVBX and the operation of more frequent service enabled by new train control technology.

Figure 2-10 BART Rail Vehicle Inventory

<table>
<tr><th>Car Type</th><th>Number in Fleet</th><th>Function</th><th>Years of Manufacture</th><th>Years of Renovation</th><th>Length and Width</th></tr>
<tr><td>A2</td><td>59</td><td>Lead or trail car</td><td rowspan="2">1971 to 1975</td><td rowspan="2">1995 to 2002</td><td>75 feet long x 10.5 feet wide</td></tr>
<tr><td>B2</td><td>380</td><td>Mid-train car only</td><td rowspan="3">70 feet long x 10.5 feet wide</td></tr>
<tr><td>C1</td><td>150</td><td rowspan="2">Lead, mid-train, or trail car</td><td>1987 to 1990</td><td rowspan="2">N/A</td></tr>
<tr><td>C2</td><td>80</td><td>1995 to 1996</td></tr>
<tr><td>D</td><td>310</td><td>Lead, mid-train without passenger pass through, or trail car</td><td rowspan="2">2013 to 2022 (on order)</td><td rowspan="2">N/A</td><td rowspan="2">70 feet long x 10.5 feet wide</td></tr>
<tr><td>E</td><td>465</td><td>Mid-train car only with limited passenger pass through when coupled to D car</td></tr>
</table>

SPECIALIZED RAIL VEHICLES

BART to Antioch's rail car fleet consists of eight Diesel Multiple Unit (DMU) rail cars procured from Stadler (model GTW DMUs). Each unit is comprised of two passenger units (A end, B end) which together bracket a center power unit (C) to form one complete unit (A, C, B). Propulsion is provided by two diesel engines producing electric energy to power motored axles. The maximum operating speed is 79 miles-per-hour.

BART to OAK service relies on cable-drawn automatic guideway vehicles that were built by Doppelmayr Cable Car. The fleet includes four three-car trains.

2.7.2 Track & Structures

BART operates via 112 route miles of 66-inch gauge heavy rail track: 28 miles in subways and tunnels; 32 miles on aerial structures; and 52 miles at ground level. Most of BART's mainline is dual-tracked, enabling simultaneous bi-directional operation. BART also operates diesel multiple unit trains over approximately 10 miles of standard-gauge track to provide BART to Antioch service, connecting the Pittsburg/Bay Point Station with the Antioch Station. The BART to OAK service employs rubber-tired, cable-driven vehicles, operating via a 3.2-mile elevated guideway that is maintained under contract by Doppelmayr Cable Car. BART uses and maintains approximately 500 linear miles of track counting all tracks running in two (or more) directions, train storage, track sidings, and rail access routes from yards. BART grounds, tracks and other facilities are fenced to prevent intrusion.

2.7.3 Traction Power & Electrical Systems

The BART traction power system provides power for the movement of trains. Power is received at 115KV or 34.5KV from Pacific Gas & Electric (PG&E) and transformed in BART substations to 1000 VDC which is distributed along a third-rail system to power trains.

BART electrical systems energize critical tunnel ventilation systems, yards, shops and stations. These systems operate in the 120V to 4160V range and include a network of switchgears and transformers. BART also maintains and operates a battery-sourced backup power system to provide uninterrupted power to the train control, station emergency lighting and fire alarm systems in the event of a loss of facilities' power.

2.7.4 Stations

BART has 48 passenger stations: 16 subway, 13 elevated, and 19 at grade (ground level). Stations are situated on average between one-half to one mile apart within and near downtown San Francisco, Oakland, and Berkeley, and from two to 10 miles apart in suburban areas. All station platforms are situated on mainline tracks, rather than on dedicated sidings off the mainline. Platforms are typically about 700 feet long, to accommodate the maximum train length of 10 cars. Names and characteristics of all BART stations are summarized in Figure 2-11.

The BART to OAK service has a transfer station at Coliseum Station and a terminal station at Oakland International Airport. To access BART to Antioch service, users transfer between the DMU trains and the central BART system via a dedicated transfer platform located just east of the Pittsburg/Bay Point Station. The transfer platform and two stations are located in the highway median of California SR 4.

Stairways, elevators and escalators enable riders to enter and exit the stations from the street level, and to move between the mezzanine and platform levels. Automated fare collection equipment accepts cash, credit cards, and debit cards to vend and process magnetic stripe tickets and Clipper cards.

Figure 2-11 BART Stations

Station Name	County	City	Station Typology[1]	Location	Parking Spaces
12th Street/Oakland City Center	Alameda	Oakland	Urban	Subway	0
16th Street/Mission	San Francisco	San Francisco	Urban	Subway	0
19th Street/Oakland	Alameda	Oakland	Urban	Subway	0
24th Street/Mission	San Francisco	San Francisco	Urban	Subway	0
Antioch	Contra Costa	Antioch	Auto Dependent	Ground Level	1,012
Ashby	Alameda	Berkeley	Urban w/ Parking	Subway	548
Balboa Park	San Francisco	San Francisco	Urban	Ground Level	0
Bay Fair	Alameda	San Leandro	Balanced Intermodal	Elevated	1,665
Castro Valley	Alameda	Castro Valley	Auto Dependent	Ground Level	1,118
Civic Center	San Francisco	San Francisco	Urban	Subway	0
Coliseum	Alameda	Oakland	Balanced Intermodal	Elevated	954
Colma	San Mateo	Colma	Intermodal - Auto Reliant	Subway	1,770
Concord	Contra Costa	Concord	Intermodal - Auto Reliant	Elevated	2,358
Daly City	San Mateo	Daly City	Balanced Intermodal	Elevated	1,954
Downtown Berkeley	Alameda	Berkeley	Urban	Subway	0
Dublin/Pleasanton	Alameda	Pleasanton	Auto Dependent	Ground Level	2,886
El Cerrito del Norte	Contra Costa	El Cerrito	Intermodal - Auto Reliant	Elevated	2,176
El Cerrito Plaza	Contra Costa	El Cerrito	Balanced Intermodal	Elevated	749
Embarcadero	San Francisco	San Francisco	Urban	Subway	0
Fremont	Alameda	Fremont	Intermodal - Auto Reliant	Ground Level	2,141
Fruitvale	Alameda	Oakland	Balanced Intermodal	Elevated	873
Glen Park	San Francisco	San Francisco	Urban w/ Parking	Subway	56
Hayward	Alameda	Hayward	Balanced Intermodal	Elevated	1,449
Lafayette	Contra Costa	Lafayette	Auto Dependent	Ground Level	1,528
Lake Merritt	Alameda	Oakland	Urban w/ Parking	Subway	218
MacArthur	Alameda	Oakland	Urban w/ Parking	Ground Level	475
Millbrae	San Mateo	Millbrae	Intermodal - Auto Reliant	Ground Level	2,978
Montgomery Street	San Francisco	San Francisco	Urban	Subway	0
North Berkeley	Alameda	Berkeley	Urban w/ Parking	Subway	795
North Concord/Martinez	Contra Costa	Concord	Auto Dependent	Ground Level	1,973
Oakland Intl Airport	Alameda	Oakland	Airport	Elevated	0
Orinda	Contra Costa	Orinda	Auto Dependent	Ground Level	1,361
Pittsburg Center	Contra Costa	Pittsburg	Sub-Urban/Auto-Dependent	Ground Level	262
Pittsburg/Bay Point	Contra Costa	Pittsburg	Auto Dependent	Ground Level	2,035
Pleasant Hill/Contra Costa Centre	Contra Costa	Pleasant Hill	Intermodal - Auto Reliant	Elevated	2,937
Powell Street	San Francisco	San Francisco	Urban	Subway	0
Richmond	Contra Costa	Richmond	Balanced Intermodal	Ground Level	750
Rockridge	Alameda	Oakland	Urban w/ Parking	Ground Level	892
San Bruno	San Mateo	San Bruno	Intermodal - Auto Reliant	Subway	1,058
San Francisco Intl Airport	San Mateo	San Francisco	Airport	Ground Level	0
San Leandro	Alameda	San Leandro	Balanced Intermodal	Elevated	1,268
South Hayward	Alameda	Hayward	Balanced Intermodal	Ground Level	1,272
South San Francisco	San Mateo	South San Francisco	Intermodal - Auto Reliant	Subway	1,350
Union City	Alameda	Union City	Intermodal - Auto Reliant	Ground Level	1,144
Walnut Creek	Contra Costa	Walnut Creek	Intermodal - Auto Reliant	Elevated	2,093
Warm Springs/S Fremont	Alameda	Fremont	n/a	Ground Level	2,082
West Dublin/Pleasanton	Alameda	Dublin	Auto Dependent	Ground Level	1,190
West Oakland	Alameda	Oakland	Balanced Intermodal	Elevated	457

1. See BART's Station Access Policy (available at https://www.bart.gov/about/planning/access) for station typology descriptions

2.7.5 Station Access Facilities

PEDESTRIAN INFRASTRUCTURE

Above-ground BART stations have sidewalks along driveways and bus zones that connect the surrounding street networks to the station entrances. Partner localities provide the sidewalks, crosswalks, and signals that allow walk access to underground stations. At stations adjacent to pedestrian barriers such as freeways or railroad rights-of-way, BART maintains pedestrian bridges or tunnels. Stairways, elevators, and escalators that connect the street level to concourse and platform levels provide pedestrian access within BART stations.

All BART stations also have facilities to accommodate people with disabilities, including elevators and accessible paths from accessible parking areas, bus intermodals, and accessible drop-offs. Station areas also provide curb cuts with yellow tactile detectable warning strips that assist the visually impaired to safely travel between the street and the sidewalk.

TRANSIT AND SHUTTLE INFRASTRUCTURE

Most of BART's non-urban stations have intermodal areas that provide access for buses, shuttles, taxis, paratransit service, and standard and ADA-accessible passenger drop-off and pickup zones. Of BART's 48 stations, 29 have dedicated space for bus stops and layover. Bus stops typically include shelters and seating, and sometimes include real-time departure displays. At 17 stations, which are mostly in urban environments, there are bus stops within the public right-of-way, often immediately adjacent to the station entrances. San Francisco International Airport and Oakland International Airport stations are within airport property, where buses are available. At San Francisco's downtown stations, BART shares the concourse level with Muni light rail train lines, providing integration between systems. At Millbrae Station, BART shares the station area with Caltrain and at Richmond Station, BART provides a connection to the adjacent Amtrak station.

BICYCLE PARKING

BART's bicycle infrastructure includes several types of bicycle parking, as shown in Figure 2-12.

Figure 2-12 BART Bicycle Parking Inventory

Bicycle Facility Type	Description	Spaces
Bike Racks	Standard unsecure bicycle racks	4,061
On-demand Lockers	Short-term bicycle cage rentals	1,642
BikeStation	Access-controlled secure bicycle parking rooms	1,286
Keyed Lockers	Long-term bicycle cage subscription rentals	390
Bikeep	"Smart" lock rack, activated with Clipper card	34
	Total	**7,413**

VEHICLE PARKING

BART has over 49,000 parking spaces at 36 of its current 48 stations, as shown in Figure 2-11. Most of these parking spaces are in surface lots; remaining spaces are in BART's parking structures, with a small number located on city streets. Paid parking, discussed in more detail in Chapter 4, is one of BART's

larger non-fare revenue sources. BART offers the following paid parking programs: daily fee parking; and monthly, single-day and airport/long-term reserved permit parking.

2.7.6 Train Control & Communications

BART's train control system controls the speed and movement of trains on the rail network, and keeps the trains running safely by controlling the distance between trains. The existing train control system is a fixed block system with Automatic Train Operation. Computers along the right-of-way control train movements, under supervision of a central computer at the Operations Control Center. Train operators can override the automatic system if needed. The system is operating at full capacity through the Transbay core and can safely accommodate one train every 2.5 minutes, or 24 trains per hour, through the Transbay Tube. Revenue service is based on an average speed of 34 miles per hour, including station stops.

BART has a complex communications network which monitors and controls critical operational assets including those located in the train control, traction power, automatic fare collection, and fire alarm systems. Communications systems include electronic and telecommunication systems within the BART right-of-way; BARTnet (BART Internal Internetworking System); closed-circuit television systems; radio systems; fiber-optic and copper cable plants; UON (Unified Optical Network), public address systems; PBX and IP-based telephone systems; and SCADA (Supervisory Control and Data Acquisition).

The Operations Control Center (OCC) houses BART's central train control computer system that supervises train movements 24 hours a day. Communications from OCC to train operators occur via trunk radio. OCC communicates with stations via telephone. In addition, OCC personnel can monitor train movements and station activities via a network of remote cameras.

2.7.7 Maintenance Shops & Yards

EXISTING MAINTENANCE SHOPS

BART operates five lines of service, supported by four major yard and shop complexes, each of which provides 24-hour running maintenance and overnight storage. Planned preventive maintenance and unscheduled repairs of BART's rail cars are performed at four facilities located near Concord, Hayward, Richmond, and Daly City stations. Accident damage, component repair, and overhaul functions are performed at the Hayward facility.

In addition to the mainline vehicle maintenance facilities preventative maintenance and unscheduled repairs of the BART to OAK and BART to Antioch vehicles are performed at their respective maintenance facilities in Oakland and Antioch.

PLANNED MAINTENANCE SHOP CAPACITY

To prepare for the incoming new rail car fleet and for the planned SVRT extensions, BART is expanding its maintenance shop capacity. The Hayward Maintenance Complex (HMC) project will provide much of the needed maintenance and storage capacity to support the southern expansion to Berryessa and Milpitas stations. This project, which is under construction, will reconfigure the existing Hayward revenue vehicle shop for increased primary repair shop capacity and procure a 26-acre parcel for new facilities. The project includes a new component repair shop, a vehicle-level overhaul shop, a new central parts warehouse, and a new maintenance and engineering repair shop.

Engineering and design work for capacity enhancements to other Rolling Stock and Shops (RS&S) facilities is also underway. These critical improvements, needed to ensure the safe and efficient maintenance of the growing fleet, include additional car lifts in Daly City and Richmond shops and a wheel truing facility for the Concord shop.

VEHICLE STORAGE YARDS AND STAGING

BART's rail car fleet is distributed among yards and shops in response to transportation and maintenance priorities, the needs of particular car types, and the capabilities of each facility.

In total, BART's existing storage yards have an absolute capacity of 689 individual cars. Tail tracks at Millbrae, Pittsburg/Bay Point and Dublin/Pleasanton add capacity of 152 cars to that of the yards. While existing storage capacity exceeds the size of the current fleet, the total capacity of 841 cars is insufficient to accommodate a future fleet of as many as 1,200 cars, many of which will be stored overnight in trains of 10 cars. Additional capacity is needed not only to store the revenue fleet, but also to ensure the efficient movement of trains and cars between revenue service, storage and maintenance. Additional capacity will be provided by the construction of a new storage facility adjacent to the existing Hayward yard and shop complex, bringing the total storage capacity to about 1,060 cars. This facility is expected to be operational in 2023.

2.7.8 Administrative Facilities

Most of BART's administrative staff is located in downtown Oakland at 300 Lakeside Drive near the 19th Street/Oakland Station. BART Police Department staff are housed near Lake Merritt Station at the Joseph P. Bort MetroCenter Building, which was acquired for that purpose in 2017.

3 BART GOAL AREAS, OBJECTIVES, AND PERFORMANCE EVALUATION

This chapter describes BART's strategic vision, mission, and goals, and documents BART's actual performance over the past 10 years on key indicators associated with each goal area. The chapter also provides a 10-year retrospective look at ridership; revenue service hours and miles; and finances. The final section covers MTC's Community-based Transportation Planning Program, BART's Title VI Program Triennial Update Report, the District's FTA Triennial Review, and the District's FTA Transit Asset Management (TAM) Plan.

3.1 STRATEGIC PLAN FRAMEWORK

BART's Strategic Plan Framework, adopted by the Board of Directors in 2015, outlines the agency's vision and mission, goals, and short-term strategies to achieve these goals. Figure 3-1 provides an overview of the framework, which is helping to guide BART's work-planning, budgeting, performance management, and annual performance evaluation processes.

GOAL AREAS

The eight strategic plan goal areas are as follows:

Leadership & Partnership in the Region

- Economy: Contribute to the region's global competitiveness and create economic opportunities.
- Equity: Provide equitable delivery of transit service, policies, and programs.
- Environment: Advance regional sustainability and public health outcomes.

Riders & Public

- Experience: Engage the public and provide a quality customer experience.

Infrastructure & Service

- System Performance: Optimize and maintain system performance to provide reliable, safe, cost-effective, and customer-focused service.

Organization

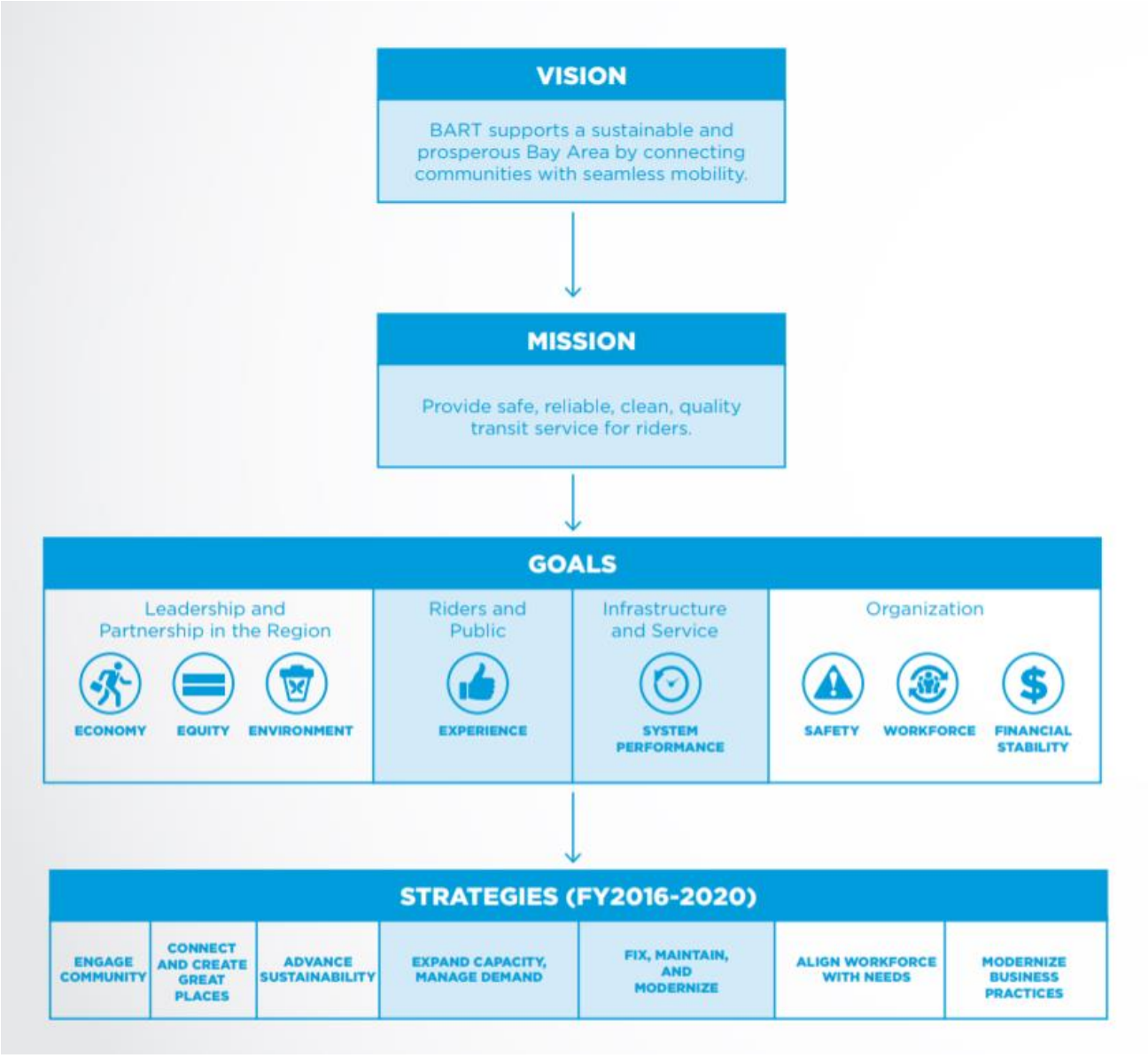
- Safety: Evolve to a premier safety culture for our workers, riders, and the public.
- Workforce: Invest in our current and future employees' development, wellness, and diversity.

- Financial Stability: Ensure BART's revenues and investments support a sustainable and resilient system.

STRATEGIES & WORK PLANS

As shown in Figure 3-1, BART has identified seven strategies designed to support progress towards the Strategic Plan goal areas over a four-year period (FY16 through FY20). Staff has developed four-year work plans associated with each of the strategies (such as "Engage Community" and "Connect and Create Great Places"). Each work plan focuses on a limited number of key activities that define the District's strategic work in that field in the near term. The work plans are interdisciplinary and interdepartmental, with one or two executive managers in charge of achievement.

Figure 3-1 BART Strategic Plan Framework



3.2 STRATEGIC PLAN GOAL AREAS & PERFORMANCE INDICATORS

BART tracks multiple indicators to gauge progress towards the eight strategic plan goal areas. Figure 3-2 presents a snapshot of BART's performance for the eight goal areas using 10 key indicators, comparing results in FY17 to the previous fiscal year or the most recent comparison year that data was available. In the following sections, more detail on 10-year trends for additional Strategic Indicators are provided for four goal areas that relate most directly to the issues discussed in this plan: System Performance, Customer Experience, Safety, and Financial Stability.

Figure 3-2 Strategic Indicators at a Glance

GOAL AREA	STRATEGIC INDICATOR	FISCAL YEAR 2017* PERFORMANCE	LONG TERM BENCHMARK	EVALUATION
SYSTEM PERFORMANCE	**On-time performance:** Percent of customers arriving on time	89%	92%	◐
	Escalator availability: Percent of street and platform escalators in service	88% street	95% street	○
		96% platform	96% platform	●
EXPERIENCE	**Customer satisfaction:** Percent of customers who are very or somewhat satisfied	69%	85%	○
SAFETY	**Crime:** Crimes against persons per million riders	2.7	2	○
WORKFORCE	**Turnover:** Percent of employees in critical positions departing within the year	6%	6%	●
FINANCIAL STABILITY	**Efficiency:** Change in the operating cost per passenger mile of service (FY16-F17) compared to typical inflation	7%	2.2%	○
ECONOMY	**Development near BART:** Change in concentration of housing units and jobs within ½ mile of BART to meet Plan Bay Area targets	Increasing **	Continue to increase	●
EQUITY	**Minority ridership:** Ratio of minority ridership to minority residents in the region	1.0	1.0	●
ENVIRONMENT	**Low-carbon energy:** Percent of BART's energy from low and zero carbon sources compared to board-adopted 2025 target	97%	90%	●
	Sustainable access: Percent of riders walking or biking to BART	Increasing ***	Continue to increase	●

● Benchmark met or exceeded

◐ Benchmark not met but within 5%

○ Benchmark not met by more than 5%

* Reflects performance for FY 17 overall, or for the most recent year that data was available.

** The share of 4-County jobs within ½ mile of BART increased from 25% in 2010 to 26% in 2015; the share of 4-County housing units increased from 11% (2005-2009) to 12% (2010-2014). To meet Plan Bay Area targets, shares will need to reach 30% and 17% for jobs and housing units, respectively, by 2040.

*** The share of riders walking or bicycling to BART (active access) increased from 35% in 2008 to 44% in 2015 based on BART's Station Profile Survey. BART's Board of Directors set a target to reach 52% by 2025.

3.2.1 Goal Area: System Performance

INDICATOR		FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Provide reliable service												
SP1	Daily customer on-time performance	95.4%	94.7%	95.0%	95.7%	94.6%	95.7%	94.9%	94.5%	91.8%	91.5%	89.2%
Provide reliable station equipment												
SP2	Station elevators in service	99.2%	99.5%	99.1%	98.5%	98.7%	98.7%	98.6%	98.0%	98.6%	98.5%	98.6%
SP3	Street escalators in service	97%	96.8%	97.7%	96.6%	93.7%	86.2%	89.6%	92.2%	91.3%	89.5%	87.6%
SP4	Platform escalators in service	99%	98.4%	98.8%	98.0%	96.4%	93.8%	94.8%	95.6%	95.8%	95.3%	96.0%

SP1: Source: BART Operations (Integrated Control System & Data Acquisition System)

SP2: Source: BART Operations (Maximo maintenance database)

SP3: Source: BART Operations (Maximo maintenance database)

SP4: Source: BART Operations (Maximo maintenance database)

SPOTLIGHT TREND: ON-TIME PERFORMANCE

BART measures the on-time performance of customers and trains during peak hours and average weekdays. To be "on-time," a train/customer must arrive at the destination station less than five minutes late compared to published schedules. On-time performance has been largely stable over the last 10 years, but began to decline beginning around FY15 due to aging infrastructure, crowding, and changes to safety rules that require that rail service in active work areas be slowed or stopped. Recent efforts to improve on-time performance have focused on:

- Replacing worn trackway using Measure RR funds. Worn trackway is a top source of delay.
- Bringing on new train cars, which will help trains recover more quickly from delays.
- Aggressively maintaining existing train cars: Due to smarter maintenance practices, the average amount of time that passes between delays related to train car equipment has improved by 80 percent since FY10.
- Increasing the amount of time that medical teams are stationed at West Oakland and Embarcadero stations to be able to respond quickly to medical emergencies during peak periods.
- Holding daily delay review meetings: BART Operations and BART Police meet daily to review and learn from data on the previous days' delays.

Because of these and other efforts, BART's customer on-time performance began improving in FY18, rising from 90% in the first quarter of FY18 to 94.2% in the fourth quarter.

3.2.2 Goal Area: Rider and Customer Experience

INDICATOR		FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Increase customer satisfaction												
EX1	% of customers who are satisfied	85%		84%		82%		84%		74%		69%
Provide clean stations and trains												
EX2	Avg. customer rating for station cleanliness	4.69		4.77		4.58		4.46		4.11		3.93
EX3	Avg. customer rating for train interior cleanliness	4.33		4.58		4.41		4.49		4.28		4.25
Increase peak capacity to address crowding												
EX4	Average number of train cars in the Westbound A.M. Transbay Tube 6-10 am	664	677	666	655	665	668	670	668	670	703	721

EX1: Source: BART Bi-Annual Customer Satisfaction Survey. Includes % of customers who are very and somewhat satisfied with BART overall.

EX2: Source: BART Bi-Annual Customer Satisfaction Survey. Based on 1-7 rating, where 7 is best.

EX3: Source: BART Bi-Annual Customer Satisfaction Survey. Based on 1-7 rating, where 7 is best.

EX4: Source: BART Operations Planning. Reflects the average number of vehicles over the fiscal year operating in the Westbound Transbay tube on weekdays 6 am - 10 am.

SPOTLIGHT TREND: CUSTOMER SATISFACTION

Between FY07 and FY13, overall customer satisfaction was stable and relatively high. More than 80% of customers were very or somewhat satisfied with BART service. However, satisfaction has declined since then, to 74% in FY15 and then to 69% in FY17. Between the FY13 and FY17 surveys, average weekday ridership grew 9%, reaching historic highs, increasing crowding on trains, and straining the aging BART system. Although many improvements are on the horizon, such as new rail cars and numerous projects to rebuild BART, the rebuilding process itself requires periodic planned service closures. BART's improved service resulting from system reinvestment is anticipated to improve customer satisfaction.

3.2.3 Goal Area: Safety

INDICATOR		FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Reduce crimes												
SA1	Crimes against persons on the BART system per million riders	2.0	1.5	2.3	1.5	1.7	2.0	2.2	1.9	1.7	1.8	2.72
Ensure patron safety												
SA2	Safety incidents per million patrons	4.88	4.86	5.24	5.25	5.04	4.83	6.08	6.24	5.07	5.35	2.31
Ensure employee safety												
SA3	Employee injuries	11.0	9.1	11.2	12.9	14.8	15.3	15.8	14.9	10.0	12.2	10.8

SA1: Source: BART Police Department. Includes homicide, rape, robbery, and aggravated assault

SA2: Source: BART System Safety. Includes safety incidents occurring in and around trains and stations. Examples include a patron slipping/falling or being struck by a train door while boarding.

SA3: Source: BART System Safety. Defined as the number of OSHA Recordable Illnesses/Injuries.

SPOTLIGHT TREND: STATION AND VEHICLE INCIDENTS

In each of the past 10 years, BART has met its standards for passenger safety as measured by the number of station and vehicle incidents per million passengers. BART sets a goal of no more than 5.5 station incidents per million passengers and 1.3 vehicle incidents per million passengers, or a combined 6.8 incidents. Station incidents and vehicle incidents are all incidents that meet the FTA criteria as "reportable" and occur either in BART station areas or on BART

train cars. Between FY07 and FY17, station incidents have consistently met this standard. The average number of vehicle incidents also has stayed beneath 1.3 incidents per million passengers for the 10-year period; every year except FY14 had less than one incident per million passengers.

3.2.4 Goal Area: Financial Stability

FINANCIAL STABILITY
Goal: Ensure BART's revenues and investments support a sustainable and resilient system

INDICATOR		FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Increase efficiency												
FS1-A	Operating cost per passenger mile	$0.33	$0.34	$0.36	$0.35	$0.33	$0.33	$0.33	$0.33	$0.33	$0.34	$0.37
FS1-B	% Change from previous year		2%	7%	-1%	-6%	1%	0%	0%	-2%	4%	7%
Stabilize operating revenues												
FS2	% Operating costs covered by fares	60.3%	59.5%	60.1%	64.8%	69.9%	69.4%	71.8%	72.9%	75.6%	74.4%	70.4%
Fund post-employment benefits												
FS3	$ Millions in unfunded pension liability									$497	$439	$401
FS4	$ Millions unfunded retiree medical liability									$132	$129	$111

FS1: Source: BART Financial Planning. Calculated by dividing total BART operating costs by total mileage traveled by all passengers during the year. Not inflation adjusted.

FS2: Source: BART Financial Planning. Represents the percentage of operating expenses covered by fares.

FS3: Source: BART Budget Department. Combines Safety and Miscellaneous pension plans.

FS4: Source: BART Budget Department.

SPOTLIGHT TREND: OPERATING COST PER PASSENGER MILE

From FY11 through FY15, BART's operating cost per passenger mile was stable at $0.33 per mile, as growing ridership offset modest annual cost escalation. Two factors have led to cost per passenger mile rising to $0.37 per mile by the end of FY17: ridership decreased slightly in each year, while service added to relieve peak period Transbay crowding in FY16 and the opening of the Warm Springs/South Fremont Station in FY17 drove operating cost increases.

3.3 TEN-YEAR RETROSPECTIVE: RIDERSHIP, SERVICE, AND FINANCIAL RESULTS

This section reviews trends in BART ridership and BART service delivery including revenue route miles and revenue hours, and financial results over the period FY09 through FY18.

3.3.1 Ridership Retrospective

SYSTEMWIDE RIDERSHIP TREND

Figure 3-3 shows total annual linked trips and average weekday, Saturday, and Sunday trips for the past 10 fiscal years. Figure 3-4 graphically illustrates the trend in total annual trips over this period. During this period, BART set records not only for total annual passenger trips (128.5 million in FY16), but also for average weekday trips (433,400 in FY16), average Saturday trips (207,500 in FY15) and average Sunday trips (151,600 in FY15).

Historically, BART ridership trends have reflected the health of the regional economy: trips increase when the economy is healthy and decline during times of recession. Since FY17, however, BART has experienced a decrease in ridership despite continued economic growth. This trend is consistent with the experience of other transit operators in North America. Described below are key regional economic milestones and their effects on ridership over the past 10 years:

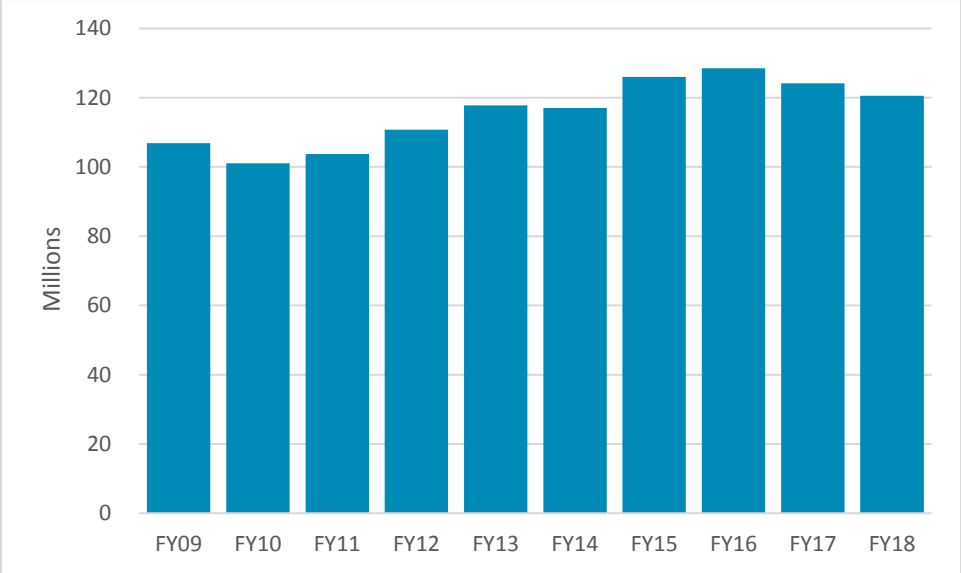
- Ridership declined in early 2009 in response to the Great Recession, reaching its lowest point in the summer and fall of 2009 (FY10). A year-to-year ridership decline of 10% was observed in summer 2009.
- Monthly ridership loss persisted until July 2010, when trips started to grow again very slightly.
- Ridership growth was inconsistent until early 2011, when growth of around 4% to 6% indicated that the region's recovery from the recession was taking hold.
- Bay Bridge toll increases, increased congestion from regional population and job growth, and gas price fluctuations were also factors that likely contributed to making BART a more attractive option compared to driving.
- During spring 2016, economic analysts were reporting that the Bay Area was at full employment. It was at this time that annual BART trips peaked.
- Despite continued growth in the regional economy, ridership growth reached in inflection point by the end of FY16, with just a 2% increase over FY15 for weekdays and declines of -3% and -5%, respectively, in Saturday and Sunday ridership.
- Declining ridership persisted through FY18, though since May 2018 the annual rate of decline has slowed.

Figure 3-3 BART Ridership

	Total Passenger Trips (Linked) [1]	Year-to-Year Change	Average Weekday Trips	Year-to-Year Change	Average Saturday Trips	Year-to-Year Change	Average Sunday Trips	Year-to-Year Change
FY09	106,874,000	-1%	356,700	0%	182,800	1%	130,200	-2%
FY10	101,004,000	-5%	335,000	-6%	175,200	-4%	125,300	-4%
FY11	103,714,000	3%	345,300	3%	173,400	-1%	126,400	1%
FY12	110,777,000	7%	366,600	6%	190,000	10%	138,800	10%
FY13	117,815,000	6%	392,300	7%	202,900	7%	148,200	7%
FY14	117,074,000	-1%	399,100	2%	203,300	0%	150,600	2%
FY15	125,979,000	8%	423,100	6%	207,500	2%	151,600	1%
FY16	128,524,000	2%	433,400	2%	201,400	-3%	143,800	-5%
FY17	124,171,000	-3%	423,400	-2%	188,200	-7%	133,500	-7%
FY18	120,554,000	-3%	414,200	-2%	176,500	-6%	126,700	-5%

NOTE: [1] A linked trip is a trip from origin to destination. Even if a passenger must make a transfer, the trip is counted as one linked trip.

Figure 3-4 BART Annual Ridership (FY09-FY18)



RIDERSHIP TRENDS BY MARKET

Ridership growth between FY09 and FY18 was strongest in the already highly constrained Transbay corridor. Year-over-year growth in the weekday Transbay travel market outpaced both intra-East and intra-West Bay trips (see Figure 3-5).

Figure 3-5 BART Average Weekday Trips by Market Area

	Average Weekday Trips				Year-to-Year % Change		
	Transbay	Intra-West Bay	Intra-East Bay	Total	Transbay	Intra-West Bay	Intra-East Bay
FY09	166,800	107,100	82,900	356,700	-1%	1%	0%
FY10	162,700	96,500	75,700	335,000	-2%	-10%	-9%
FY11	169,400	97,100	78,700	345,300	4%	1%	4%
FY12	180,600	102,600	83,400	366,600	7%	6%	6%
FY13	195,800	108,700	87,800	392,300	8%	6%	5%
FY14	205,200	107,700	86,300	399,100	5%	-1%	-2%
FY15	221,500	112,500	89,100	423,100	8%	4%	3%
FY16	232,600	112,900	87,900	433,400	5%	0%	-1%
FY17	231,600	106,800	84,900	423,400	0%	-5%	-3%
FY18	229,100	102,800	82,300	414,200	-1%	-4%	-3%

Some of the major factors driving increased ridership in particular BART markets during the 10-year period include:

- Record job growth in the urban cores of downtown San Francisco and Oakland and the relative scarcity of housing in inner Bay Area communities contributed to growth in the Transbay market.
- Through FY13 ridership growth on the SFO Extension in San Mateo County outpaced growth in the rest of the system. Ridership grew from approximately 30,000 weekday trips in FY07 to nearly 51,000 weekday trips in FY16.
- In November 2014, BART to Oakland International Airport service commenced operation, replacing the AirBART shuttle bus. In FY18, the service averaged about 2,600 daily entries and exits. This average includes both weekday and weekend ridership, as airport service is typically well-used on weekends.
- BART recently opened two extensions, Warm Springs/South Fremont Station in March 2017 and BART to Antioch in May 2018. By June 2018 the Warm Springs Extension averaged approximately 3,400 average weekday exits, while the two stations in the Bart to Antioch Extension averaged a combined 3,900 average weekday exits.

These ridership gains were offset by the following factors which reduced ridership in specific BART markets during the 10-year period:

- Since January 2010, BART ridership in San Francisco has been impacted by SFMTA's implementation of a two-tier Fast Pass pricing structure and substantial price increases. The "A" Fast Pass, priced at $94, is accepted both on Muni and BART within San Francisco, while the $78 "M" Fast Pass, is accepted on Muni only. Since the introduction of the more expensive "A" Fast Pass, Fast Pass trips on BART have declined by over 60%, from 12.5 million trips in FY09 to 4.8 million trips in FY18. This decline has been only partially offset by riders taking intra-San Francisco trips using non-Fast Pass BART fare products.

- Increased competition from growing ride-hailing services such as Uber and Lyft reduced the number of BART trips to San Francisco and Oakland airports, and likely reduced the number of total short BART trips made within the West Bay and East Bay.

- Beginning in late FY15, BART began a series of major maintenance projects resulting in planned weekend service disruption. BART provided bus bridges to passengers; however, due to the potential operational uncertainties involved in bus bridges, BART advised affected passengers to consider alternative means if possible. This information campaign had the intended effect and reduced ridership to a more manageable level that the bus bridges could serve effectively. This is a factor contributing to the decline in weekend ridership.

3.3.2 Revenue Service Hours and Miles

Figure 3-6 shows a 10-year retrospective summary of BART's revenue service hours and revenue service miles.

Figure 3-6 BART Revenue Service Hours and Miles

	Revenue Service Hours	Change from Prior Year	Revenue Service Miles	Change from Prior Year
FY09	1,941,000	0%	67,843,000	1%
FY10	1,780,000	-8%	63,237,000	-7%
FY11	1,774,000	0%	63,347,000	0%
FY12	1,800,000	1%	64,266,000	1%
FY13	1,821,000	1%	65,652,000	2%
FY14	1,803,000	-1%	64,766,000	-1%
FY15	1,906,000	6%	67,269,000	4%
FY16	2,032,000	7%	71,629,000	6%
FY17	2,144,000	5%	75,238,000	5%
FY18	2,189,000	2%	77,292,000	3%

The following events explain the few fluctuations that did occur over this period:

- Service hours and service miles decreased in FY10, following the September 2009 return to 20 minute off-peak headways. The return to prior service levels was mainly due to budget considerations; however, declining fleet reliability, in part the result of increased off-peak service frequency between January 2008 and September 2009, also had an effect.

- Service hours and service miles gradually increased between FY11 and FY15 with incremental increases in train lengths on the Dublin/Pleasanton line and, during non-commute periods, on other Transbay lines.

- Service hours and service miles decreased slightly in FY14 due to the impact of the BART strikes and work stoppages in July and October 2013.

- Service hours and service miles were increased in two phases in FY13 and FY16 by extending the off-peak operating hours of the Red line (Richmond-Millbrae) from 7pm to 9pm.

- Service hours and service miles were increased in FY16 to address increasing train peak and off-peak crowding using a fixed supply of cars by increasing maintenance shop productivity, turning more trains back midline during peak commute periods, and eliminating three-car trains on the Richmond-Fremont line seven days a week.

- Service hours and service miles were increased in FY17 with the opening of the Warm Springs extension and in FY18 with the opening of BART to Antioch.

3.3.3 Financial Results Retrospective

BART's actual financial outcomes for the previous 10 fiscal years (FY09 through FY18) are shown in Figure 3-7, with unaudited results for FY18.

Over the past 10 years, total sources of operating funds have grown by approximately 52%, with the strongest growth in fare and parking fee revenue. Growing ridership during a significant portion of the 10 years, BART's program of small, regular fare increases, and moving to a market-based approach for parking fees all contributed to revenue growth. Sales tax, BART's second-largest source of funds, declined by nearly 20% during the Great Recession, and it took five years to recover to pre-recession levels.

During this same period, revenues have grown more than expenses, with the resulting additional revenue directed to critical capital needs.

Figure 3-7 BART Operating Financial History

($ millions)	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18[1]
Operating Revenue										
Net rail revenue	317.5	331.4	342.7	366.5	406.1	415.7	462.8	488.7	484.8	480.9
ADA	0.6	0.7	0.8	0.9	0.8	0.8	0.9	0.9	0.9	0.9
Subtotal net passenger revenue	318.1	332.0	343.5	367.3	406.9	416.6	463.6	489.6	485.7	481.8
Parking revenue	11.2	11.8	14.0	14.8	15.7	20.0	28.4	33.5	35.1	36.2
Other operating revenue	20.0	24.9	19.5	19.8	20.7	26.5	22.7	23.8	28.6	33.4
Subtotal non-fare revenue	31.2	36.7	33.5	34.6	36.4	46.6	51.1	57.3	63.8	69.6
Total Operating Revenue	349.3	368.7	377.0	402.0	443.3	463.2	514.7	546.9	549.4	551.4
Tax and Financial Assistance										
Sales tax	184.3	166.5	180.8	195.2	208.6	221.1	233.1	241.5	247.2	257.9
Property tax	30.4	30.1	29.5	29.7	31.7	32.1	34.3	38.1	41.6	45.7
State Transit Assistance (STA)	0.0	0.0	19.7	18.3	17.3	20.0	18.1	11.3	10.1	26.9
LCTOP Cap-and-Trade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0
LCFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	19.3
ARRA grants/feeder swap	0.0	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SamTrans - SFO operations	2.8	2.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Allocations from reserves	23.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	10.1	9.2	6.7	5.7	6.5	4.3	15.1	9.8	13.5	8.6
Total Financial Assistance	251.0	234.1	238.2	248.9	264.0	277.5	300.6	302.3	313.3	358.3
TOTAL SOURCES	600.3	602.8	615.1	650.9	707.3	740.7	815.3	849.2	862.8	909.7
Rail Car Fund Swap	22.7	22.7	0.00	26.7	24.0	72.0	74.2	50.2	52.5	0.0

($ millions)	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18[1]
Expenses										
Net labor	381.7	352.3	352.8	375.6	403.7	411.7	419.7	450.1	488.9	524.1
OPEB unfunded liability[2]	5.2	14.4	5.4	5.1	5.8	2.2	2.0	1.6	25.8	49.9
Traction/station power	36.8	35.3	35.3	35.1	37.3	37.2	36.0	37.7	37.9	39.0
Other non-labor	91.2	87.4	83.2	99.0	104.3	103.4	115.6	122.0	135.3	131.9
Subtotal Rail Operating Expenses	514.9	489.4	476.7	514.8	551.1	554.5	573.3	611.5	687.9	744.9
Purchased transportation	3.7	11.0	2.6	2.7	3.5	4.3	10.5	13.3	14.3	13.4
ADA paratransit service	11.0	11.9	12.1	12.2	12.4	12.5	13.3	13.5	14.0	14.7
Subtotal Non-Rail Expenses	14.7	22.9	14.6	14.8	15.9	16.8	23.8	26.8	28.3	28.1
Total Operating Expense	529.6	512.3	491.3	529.6	567.0	571.3	597.1	638.3	716.2	773.0
Rail car fund swap	22.7	22.7	0.00	26.7	24.0	72.0	74.2	50.2	52.5	0.0
Debt Service and Allocations										
Debt Service	67.7	68.5	68.1	62.3	62.5	58.3	56.0	48.6	50.5	45.6
Capital & Other Allocations	8.2	33.4	43.9	52.2	31.1	46.3	61.4	51.3	30.0	50.2
Allocation - Rail Cars	0.0	0.0	0.0	0.0	45.6	46.0	45.0	45.0	44.5	33.4
Allocation - Priority Cap Prog	0.0	0.0	0.0	0.0	0.0	8.6	19.4	27.0	33.4	37.6
Allocation - Stations & Access	0.0	0.0	0.0	0.0	0.0	0.0	5.9	8.1	6.0	6.0
Allocation - SFO Reserve	0.0	0.7	0.0	8.6	7.0	6.4	11.0	12.2	8.0	5.2
Allocation - Operating Reserve	0.0	0.0	15.6	3.3	0.0	6.0	5.0	0.6	0.0	3.5
Total Debt Service and Allocations	75.9	102.5	127.6	126.4	146.2	171.5	203.7	192.9	172.4	181.5
TOTAL USES	605.5	614.8	618.9	656.0	713.2	742.8	800.9	831.2	888.6	954.5
OPEB unfunded liability[2]	-5.2	-14.4	-5.4	-5.1	-5.8	-2.2	-2.0	-1.6	-25.8	-49.9
ANNUAL FINANCIAL RESULTS ($M)	0.0	2.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	5.1

NOTES:
[1]FY18 unaudited actuals.
[2]OPEB: Other Post-Employment Benefits.

3.4 COMPLIANCE

3.4.1 MTC's Community-Based Transportation Planning Program

BART participates in MTC's Community-Based Transportation Planning program (CBTP), which brings together local residents, community organizations, and transportation agencies to identify low-income neighborhoods' most important transportation challenges and develop strategies to overcome them. Because more recent CBTP efforts have been conducted in areas with no or limited BART stations or service, BART has not participated in the development of a community-based transportation plan for several years. BART will continue to monitor the CBTP program and participate fully in those plans that include a BART station or involve BART service.

BART has taken lessons learned from past CBTP planning efforts and has implemented many of the recommendations including improved pedestrian and bicycle infrastructure, bicycle parking, improved wayfinding, additional/upgraded bus shelters, and increased lighting. In the past five years, BART has also developed station modernization plans at over 10 BART stations. These planning efforts include a robust public outreach and engagement process, both for passengers and local communities.

3.4.2 Title VI Program Triennial Update Report

BART is required to submit a report to the FTA every three years detailing its efforts to comply with Title VI of the Civil Rights Act of 1964, which requires that any agency receiving federal money cannot discriminate on the basis of race, color or national origin. In February 2017, BART submitted the Board-approved 2016 Title VI Program Triennial Update report for the period January 1, 2014 to December 31, 2016 to the FTA in accordance with FTA Circular 4702.1B (effective 2012).

The 2016 Title VI Program Triennial Update report outlines BART's service and fare equity analysis process, which includes Title VI data collection, data analysis, and results and findings of the analysis together with input received from the public through outreach activities. The report also includes BART's Disparate Impact and Disproportionate Burden Policy which establishes thresholds to determine when a proposed fare change or major service change would result in a disparate impact on minority riders or a disproportionate burden on low-income riders.

If the assessment finds that minority riders (as defined by Title VI) experience disparate impacts from the proposed new fares, BART will take steps to avoid, minimize, or mitigate these disparate impacts. If the additional steps do not mitigate the potential disparate impacts on minority riders, pursuant to FTA Circular 4702.1B, BART may proceed with the proposed new fares only if BART can show:

- A substantial legitimate justification for the proposed new fare; and
- There are no alternatives serving the same legitimate objectives that would have a less disparate impact on minority riders.

If the assessment finds that low-income riders experience a disproportionate burden from the proposed new fare, pursuant to FTA Circular 4702.1B, BART should take steps to avoid, minimize, or mitigate these impacts where practicable. BART shall also describe alternatives available to low-income riders affected by the proposed new fare. The 2016 Title VI Program Triennial Update report is available at www.bart.gov/guide/titlevi.

The Title VI Circular also includes a number of general reporting requirements that are completed by departments within BART. These include public notification of protections under Title VI; Title VI complaint procedures and forms; a policy for providing access for limited-English-proficient populations (based on the U.S. Department of Transportation's limited-English-proficiency [LEP] guidance); inclusive public-participation processes; a breakdown of minority representation on planning and advisory bodies; and equity analyses of the locations of any proposed transit facilities. All documentation related to these general reporting requirements can be found in BART's Title VI Program Triennial Update report at www.bart.gov/guide/titlevi.

3.4.3 FTA Triennial Review

In September 2015, BART completed its most recent FTA Triennial Review for compliance with the requirements of Title VI of the Civil Rights Act of 1964, Equal Employment Opportunity Program, and Disadvantaged Business Enterprises. The Triennial Review is one of FTA's management tools for examining grantee performance and adherence to current FTA requirements and policies. BART was found to be compliant in all areas. The 2018 Triennial Review is currently underway.

3.4.4 FTA Transit Asset Management Rule

All transit agencies that own, operate, or manage capital assets used in the provision of public transportation and receive federal financial assistance under 49 U.S.C. Chapter 53 must comply with FTA Transit Asset Management (TAM) rulemaking, which require that each agency:

- Assess the current condition of its capital assets,
- Determine what the condition and performance of its assets should be (if they are not already in a state of good repair),
- Identify the unacceptable risks, including safety risks, in continuing to use an asset that is not in a state of good repair,
- Decide how to best balance and prioritize reasonably anticipated funds towards improving asset condition and achieving a sufficient level of performance within those means,
- Submit asset inventories, condition assessments, and other required data to NTD, and
- Prepare a Transit Asset Management plan which must include:
    - An inventory of assets

- A condition assessment of inventoried assets
- Documentation of the use of a decision support tool
- A prioritization of investments (from all funding sources)
- A Transit Asset Management/State of Good Repair policy
- A Transit Asset Management Implementation strategy
- List of key annual activities to improve the State of Good Repair
- Identification of resources used to implement TAM activities
- Evaluation plan to assess the success of the TAM plan and facilitate continuous improvement

Many of the required elements were already underway at BART prior to the TAM rulemaking. BART's first Transit Asset Management plan is planned for publication in Fall 2018.

To coordinate the response to these requirements across the District, BART established an Asset Management Governance Framework (AMGF). The AMGF provides a mechanism to communicate and disseminate asset management requirements, as well as engage the appropriate amount of support for asset management activities. The AMGF includes a senior management level steering committee (AMSC), which is directly engaged with informing investment prioritization decisions, enacting an implementation strategy, and communicating steps towards the continuous improvement of BART's asset management system.

3.4.5 MTC's Transit Sustainability Project

MTC's Transit Sustainability Project (TSP) required each operator to achieve a five percent real reduction by FY17 in one of three key performance metrics: Cost per Revenue Hour, Cost per Passenger, or Cost per Passenger Mile, as compared to the highest cost baseline year between FY08 and FY11. MTC requires operators to report TSP metrics net of inflation to measure the true progress of cost containment efforts by operators.

BART has met the cost per passenger and cost per passenger mile standards each year through the last reporting period of FY17. Generally, this is due to strong ridership growth since FY11 that BART served without substantially increasing operating and maintenance costs. In the future, it may be a challenge for BART to continue to meet the standards, as BART's maintenance needs for an aging and expanding system will result in additional operating expense. These situations are not specifically addressed in the TSP.

4 OPERATING SERVICE PLAN AND FINANCIAL PLAN

This chapter details BART's operating service plan and operating financial plan for the period FY19 through FY28. This information helps guide BART's annual budget decision-making process and identify challenges and opportunities that may arise over the next 10 years.

The financial forecast for the SRTP is based upon the FY19 budget, which the BART Board adopted in June 2018.

4.1 OPERATING SERVICE AND FINANCIAL PLAN SUMMARY

The next 10 years will be a period of transition and change for the BART District. Major assumptions and expectations reflected in the operating financial outlook include:

- Planned service improvements: This plan reflects several major service changes over the next 10 years. The rail car fleet will expand from the current 669 to 775 cars by 2022 and then to as many as 1,200 cars by 2028. As new cars are delivered, all peak period trains will be lengthened to 10 cars. Off-peak service enhancements are anticipated upon completion of the Transbay Tube Seismic Retrofit Project. A larger rail car fleet and a new train control system will allow an improvement from 15-minute to 12-minute headways on each line in the core of the system in FY26 and systemwide by FY28. In addition, service from the Warm Springs/South Fremont Station to new stations in Milpitas and Berryessa is expected to open in FY20, followed by a four-station extension to San Jose in FY27. Santa Clara Valley Transit Authority (VTA) will fund the operating and capital costs of these extensions.

- Planned major capital reinvestment, with impacts on operations: BART has committed to renew system infrastructure and upgrade capacity during the period of this plan. Planned capital programs, which are detailed in Chapter 5, include more than $12 billion of investment in rail cars, track and structures, traction power infrastructure, stations, electrical and mechanical infrastructure, train control, maintenance shops and yards, and other facilities by FY33. These capital plans pose two challenges for BART operations: First, operating revenues will be used to help pay for the planned capital investment and additional operating funds will be required to operate many of the capital improvements, such as new rail cars supporting increased service levels. Second, infrastructure projects in the BART right-of-way will require adjustments to and occasional interruptions of BART service, which could impact ridership.

- Uncertain ridership and fare revenue growth: Following five years of strong ridership growth, BART trips declined in FY17 and FY18. The recent trend was uneven across service markets: short trips, off peak trips, trips within the east or west bay and weekend BART trips all declined (consistent with a drop in transit ridership across North America over the same

time period), while demand for BART's peak period Transbay service continued to be strong. This pattern of use presents dual challenges for the District's operating financial outlook: lower overall ridership yields lower fare revenue, while continued crowding on peak period Transbay trains requires that BART continue to invest in adding service capacity. As a result of recent trends, this Plan projects lower ridership than prior forecasts and acknowledges significant uncertainty about long-term ridership and fare revenue trends.

- Increased reliance on non-fare revenue sources: With lower fare revenue than FY16, BART's FY18 and FY19 budgets relied to a greater extent on other sources of funding. Continued strength in the Bay Area economy has increased sales tax and property tax revenue. The District has also taken steps to increase revenue from non-fare operating sources such as information technology infrastructure and advertising. Finally, California Senate Bill (SB) 1, passed in 2017, provides additional state funds for BART's operating program. Looking forward, this plan projects modest growth in sales and property taxes and continued development of non-fare operating revenue sources. There is uncertainty around the future of state funding, however, as voters will consider repeal of SB1 in the November 2018 election.

- Revenue enhancement/cost containment will be required to close potential operating shortfalls: The operating outlook in this plan shows potential operating shorfalls beginning in FY20. The cumulative 10-year shortfall is currently estimated at $327 million, or 2.8% of the cumulative operating program between FY19 and FY28. The forecast shows a Revenue Enhancement/Cost Containment line that reflects BART's commitment to produce a balanced budget for the Board's consideration prior to the start of each future fiscal year. Strategies to close these potential shortfalls include increasing sources of operating revenues, and could include further expense reductions and adjustments to the timing of operating to capital allocations to the actual funding needs of projects. In addition, BART continues to seek additional revenue sources for capital needs to lessen the demand on operating revenues.

4.2 RIDERSHIP FORECASTS

BART system ridership determines the need for rail service and generates the majority of operating revenue, so ridership forecasts are a key input into the District's Operating Service Plan (Section 4.3) and the Operating Financial Plan (Section 4.4).

The Plan's ridership forecasts are unconstrained by capacity and assume BART's ability to maintain adequate reliability and on-time performance, as well as riders' ability to access stations.

BART uses current ridership data to serve as the base year for its ridership forecasting model. This ensures that the baseline ridership levels and trip distributions reflect the most recent trends. The model, using updated baseline data, is then adjusted to account for the various factors affecting ridership, such as:

- Projected changes in regional population and employment (per MTC's Plan Bay Area).

- Recent ridership trends: Ridership trends are discussed in detail in Section 4.1 of this Plan. After several years of strong ridership growth, the growth began to slow and ultimately

reversed in late FY16. Ridership declined in FY17 and FY18. Weekday ridership in FY18 averaged 414,200, which is 2.2% below FY17. Weekend ridership, which makes up a smaller and more variable component of BART's total ridership, continued to decline through FY18. Based on these factors, ridership expectations have been adjusted downward for FY19-FY28 as compared to prior forecasts.

- Planned service changes reflected in ridership forecasts:
  - The BART to Antioch extension began service in May 2018.
  - The Silicon Valley Berryessa Extension (SVBX) is projected to open in FY20. This Plan includes SVBX ridership forecasts prepared by VTA.
  - Transbay Tube seismic retrofit work resulting in a 5 a.m. service start and increased headways during late night service will impact ridership through mid-FY22. Thus, ridership projections have been adjusted downward for the period FY19-FY22. Ridership is then projected to increase when normal service resumes in the second half of FY22.
  - The Silicon Valley Phase II Extension Project (SVSX) is projected to begin service in FY27, connecting the Berryessa Station to the Santa Clara Station, via downtown San Jose. This Plan uses SVSX ridership forecasts prepared by VTA.
- Scheduled BART fare changes (as described in the Rail Passenger Revenue section of Chapter 4.4.1).
- Projected changes in competing travel markets (e.g. fuel costs and feeder transit service).

Ridership forecasts for FY19-FY28 are shown in Figure 4-1.

Figure 4-1 BART Ridership Forecast

	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Average Weekday	413,000	433,700	443,900	458,400	473,900	483,500	490,500	500,100	535,800	548,000
Total Annual (M)	119.7	126.4	129.4	133.6	138.1	140.9	143.0	145.8	156.2	159.7
Annual Change	-	5.0%	2.4%	3.3%	3.4%	2.0%	1.4%	2.0%	7.1%	2.3%

4.3 OPERATING SERVICE PLAN

4.3.1 Rail Service Plan

BART operates rail service over a radial network with stations in Alameda, Contra Costa, San Francisco, and San Mateo counties. The existing service plan is described in further detail in Section 2.5. Major service changes during FY18 included introduction of BART to Antioch, a commuter rail service which connects BART's Pittsburg/Bay Point Station with two new stations in eastern Contra Costa County.

BART's service plans for future years are based on the ridership forecast shown in Section 4.2 and moderated by anticipated operational constraints. The most significant near-term constraints are the number of legacy fleet cars that may be deployed, the rates of delivery and acceptance of new cars, and implementation of Communications Based Train Control (CBTC) which will increase Transbay service capacity beyond its current limit of 24 trains per hour. Additionally, future service plans are designed to accommodate the planned opening of station extensions.

BART will continue to plan additional service for special events and augment service in the form of longer trains, additional trains, or expanded hours of operation. Holiday rail service will be adjusted according to demand.

Figure 4-2 shows the BART Rail Service Forecast, a preliminary overview of how BART might operate service to accommodate the projected increase in ridership and planned service changes through FY28. Service change assumptions are described in Figure 4-3.

Figure 4-2 BART Rail Service Forecast

	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Peak Vehicles	633	697	697	705	710	710	710	860	900	930
Fleet Vehicles	833	943	954	1,007	1,070	1,028	1,022	1,092	1,279	1,200
Base Trains	60	60	60	60	60	60	60	74	78	78
Peak trains	66	71	71	71	71	71	71	86	90	93
Transbay trains peak hour/peak direction	23	24	24	24	24	24	24	28	28	30
Total car miles (millions)	84.1	91.8	91.8	92.9	106.0	106.0	106.0	120.1	126.3	127.0
Total car hours (millions)	2.6	2.8	2.8	2.9	3.3	3.3	3.3	3.6	3.8	3.8

Figure 4-3 Major Planned Service Change Assumptions

Year	Description	Notes
FY19	Add two-line service to Warm Springs/South Fremont Station.	Extend Green and Orange line to serve Warm Springs/South Fremont Station during the respective line's regular hours of service.
FY19	Lengthen all peak Transbay trains to 10 cars.	Dependent on delivery and acceptance of new rail cars.
FY19 – FY22	As part of the Transbay Tube Seismic Retrofit Project: • Shift start of service from 4 a.m. to 5 a.m. (Monday-Friday) • 24 minute evening headways (Sunday-Thursday)	Early AM service adjustment allows for additional time for overnight construction work. Evening service adjustment allows for work equipment staging in the work area.
FY19 – FY24	Service adjustment to Sunday for 34.5kV power cable replacement project.	Service adjustment allows for construction to occur during service hours.
FY19	Introduction of Millbrae-SFO shuttle.	5-car shuttle would run on weekdays before 9 p.m.
FY20	Start of service to SVBX Extension: Milpitas and Berryessa stations.	Additional new cars required to deliver the incremental increase in service are being paid for by VTA; dependent on delivery and acceptance of new rail cars.
FY23	Improved weekday off-peak headways and increased weekend service.	Following the reduced off-peak service due to the Transbay Tube Seismic Retrofit Project, weekday evening service is planned to be improved to 15-minute headways with commensurate increase in weekend service.
FY23	Completion of Hayward Maintenance Complex.	Increases car maintenance and storage capacity.
FY26	CBTC implementation for core.	Core is bound by Daly City, MacArthur, and Bay Fair stations. Would allow for increased capacity of 28 Transbay trains per hour.
FY26	Start of service to SVSX Extension: Alum Rock, Downtown San Jose, Diridon, and Santa Clara stations.	Additional new cars required to deliver the incremental increase in service are being paid for by VTA; dependent on delivery and acceptance of new rail cars.
FY28	Complete CBTC migration for entire network.	Allows for 30 Transbay trains per hour.

4.3.2 ADA Paratransit Service Plan

As described in Section 2.5.2, BART's primary responsibility for paratransit is met through the East Bay Paratransit Consortium (EBPC), which is funded and administered in partnership with AC Transit. The EBPC delivers demand-responsive ADA service during all revenue-service hours with a fleet of approximately 245 contractor-provided lift-vans that annually carry over 760,000 trips. BART also partners with local operators to offer paratransit service in BART's other service areas, usually by BART's providing payment directly to the transit operator to cover BART's share of the service costs.

Figure 4-4 below shows current projections for the EBPC. The projections are based on recent ridership trends with moderate growth expected to continue. "Total Passengers" include ADA riders as well as attendants and companions, while "ADA Passengers" excludes attendants and companions. Productivity is defined as passengers per revenue vehicle hour and is calculated for both categories of ridership.

Figure 4-4 ADA Paratransit Projected Passengers and Productivity

Projections	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Total Passengers	770,700	778,400	786,200	794,000	802,000	808,000	814,000	820,200	826,300	832,500
Total ADA Passengers	655,100	661,600	668,200	674,900	681,700	686,800	691,900	697,100	702,400	707,600
Productivity (Tot. Pass.)	1.78	1.78	1.78	1.79	1.79	1.79	1.79	1.79	1.79	1.79
Productivity (ADA Pass.)	1.51	1.51	1.51	1.52	1.52	1.52	1.52	1.52	1.52	1.52

4.4 OPERATING FINANCIAL PLAN

The operating financial plan includes projected revenues, financial assistance, expenses, and allocations out of operating funds to other BART programs. Projections of passenger revenue are calculated using ridership forecasts described in Figure 4-1. Expense forecasts are based on ridership forecasts, projections of future service requirements, known impacts of labor contracts, and anticipated changes to benefit costs.

These forecasts are, as much as possible, consistent with or based upon regional forecasts and historical trends. For example, the MTC provides guidance on projections for inflation, State Transit Assistance (STA), and Low Carbon Transit Operations Program (LCTOP) funds. Figure 4-5, which is based upon the FY19 adopted budget, shows the current 10-year operating financial outlook through FY28. Major categories of revenues and expenses are described in subsequent sections.

4.4.1 Operating Sources: Revenue

RAIL PASSENGER REVENUE

Rail passenger revenue is projected based on the ridership forecast shown in Figure 4-1. Annual fare revenue is estimated for each year by multiplying an origin-destination matrix of projected trips by a station-to-station fare matrix. The resulting average daily fare revenue is then converted into an annual figure and reduced by the various fare discounts BART offers.

Future fare increases are estimated using the CPI-based fare formula that accounts for changes in inflation, both nationally and locally, over the two-year period preceding the fare increase; this result is reduced by a productivity factor of 0.5% to account for increases in BART labor and operating efficiencies.

As a participant in MTC's Regional Means-Based Fare Pilot Program, scheduled to start in July 2019, BART plans to offer a 20% discount on all trips to low-income riders earning 200% or less of the federal poverty level. Approximately 25% of BART's current riders qualify for the discount, and it is assumed that 50% of them will participate. To account for offering this new discount beginning in FY20, fare revenue has been reduced by $5.6 million annually, which is net of MTC's annual payment of approximately $5 million to offset the discount.

FARE INCREASE REVENUE FOR PRIORITY CAPITAL PROJECTS

In 2013, the Board acted to renew the CPI-based fare increase program and to dedicate incremental fare revenue generated by the fare increases in 2014, 2016, 2018, and 2020 to help fund high-priority capital needs. These needs currently include the 'Big 3' capital projects: New Car Program Phase 1, Hayward Maintenance Complex Phase 1, and the Train Control Modernization Program. Figure 4-5 shows the incremental revenue in a separate line.

Between the first fare increase in January 2014 and the end of FY18, BART directed an estimated total of $127 million in incremental fare revenue to high priority capital projects. Allocations

Figure 4-5 BART Operating Financial Forecast

(Escalated $M)	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Revenue										
Rail Fare Revenue	442.1	472.7	487.8	529.8	578.1	607.2	629.5	666.7	756.3	787.9
Fare Incr. for Priority Capital Programs	42.9	55.1	67.7	56.7	42.4	40.0	40.0	29.0	15.0	20.0
Subtotal Net Rail Passenger Revenue	485.0	527.9	555.6	586.4	620.5	647.2	669.5	695.6	771.3	807.9
ADA passenger revenue	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Subtotal Net Passenger Revenue	485.9	528.8	556.5	587.4	621.5	648.2	670.5	696.6	772.3	808.9
Parking revenue	36.7	37.7	38.9	40.0	41.2	42.5	43.8	45.1	46.4	47.8
Advertising revenue	20.7	10.4	10.3	10.3	10.3	11.2	12.1	13.0	13.8	14.7
Other operating revenue	17.7	19.3	22.1	29.7	29.9	29.9	30.3	30.7	31.2	31.6
Subtotal Non-Fare Revenue	75.0	67.5	71.3	80.1	81.5	83.6	86.2	88.8	91.4	94.1
Total Operating Revenue	560.8	596.2	627.8	667.5	702.9	731.8	756.7	785.4	863.7	903.0
Financial Assistance										
Sales Tax	264.6	277.7	286.0	294.6	303.5	312.6	321.9	331.6	341.5	351.8
Property Tax	46.8	49.1	51.6	54.1	56.8	59.7	62.7	65.8	69.1	72.5
State Transit Assistance (STA)	38.0	26.2	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8
Low Carbon Transit Operations Program	0.0	10.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Low Carbon Fuel Standard	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Local and Other Assistance	5.4	6.0	6.0	5.8	4.8	4.9	5.0	7.2	7.4	7.6
SVBX Assistance	0.0	21.2	17.7	13.3	9.4	6.5	6.4	5.2	16.1	6.3
Total Financial Assistance	361.3	397.0	400.3	407.0	413.7	422.9	435.4	449.3	473.7	477.8
TOTAL SOURCES	922.2	993.2	1,028.2	1,074.5	1,116.6	1,154.7	1,192.1	1,234.7	1,337.4	1,380.8

(Escalated $M)	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Expense										
Net Labor and Benefits	560.7	634.5	668.2	699.5	743.8	759.6	784.1	838.2	909.3	940.5
Traction/Station Power	43.8	47.1	47.8	48.6	54.6	56.2	57.5	64.8	68.8	71.0
Other Non-Labor	133.1	143.2	147.4	151.1	159.8	164.1	168.8	179.9	193.7	198.8
Subtotal Rail Operating Expense	737.6	824.7	863.5	899.2	958.2	979.9	1,010.5	1,082.9	1,171.9	1,210.2
BART to OAK	6.5	6.6	6.8	6.9	7.1	7.2	7.4	7.5	7.7	7.9
ADA Paratransit Service	16.1	16.4	16.8	17.1	17.5	17.9	18.3	18.7	19.1	19.5
Other Purchased transportation	7.6	8.0	8.4	8.8	9.3	9.7	10.2	10.7	11.3	11.8
Subtotal Non-Heavy Rail Expense	23.7	24.4	25.2	26.0	26.8	27.7	28.5	29.5	30.4	31.4
Total Operating Expense	767.8	855.8	895.4	932.1	992.0	1,014.7	1,046.4	1,119.9	1,210.0	1,249.5
Debt Service and Allocations										
Bond Debt Service	46.6	47.2	48.9	50.7	52.5	52.7	52.8	52.8	52.8	52.9
Allocations:										
Baseline Capital Allocation	29.9	26.9	27.4	27.9	28.5	29.0	29.5	30.1	30.7	31.3
Priority Capital Programs	42.9	55.1	67.7	56.7	42.4	40.0	40.0	29.0	15.0	20.0
Additional State of Good Repair	0.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Stations/Access Projects	3.7	4.2	4.4	5.8	6.0	6.2	6.5	6.7	6.9	7.1
SFO Operations/New Car Allocation	4.8	6.4	7.5	8.9	10.5	11.4	12.3	12.1	0.0	0.0
CalPERS Lump Sum Payment	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Other/Programmatic Allocations:										
Pleasant Hill/MacArthur	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
BART to OAK (CARP)	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3
Oper Reserve Alloc - LCFS Credit	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Allocation to Capital - Sustainability	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
MetroCenter Building	3.1	2.7	2.7	2.7	2.7	2.7	2.7	0.0	0.0	0.0
Reserve for Economic Uncertainty	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Debt Service and Allocations	154.4	170.7	191.7	185.8	175.8	175.2	177.0	163.9	138.7	144.6
TOTAL USES	922.2	1,026.4	1,087.1	1,117.9	1,167.8	1,190.0	1,223.4	1,283.8	1,348.7	1,394.1
NET RESULT	0.0	(33.2)	(59.0)	(43.5)	(51.2)	(35.2)	(31.3)	(49.0)	(11.2)	(13.3)
Revenue Enhancement/Cost Containment	0.0	33.2	59.0	43.5	51.2	35.2	31.3	49.0	11.2	13.3
Revised Net Result	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

between FY19 and the end of the current CPI-based program will depend upon actual ridership and inflation. The financial forecast estimates additional allocations of $205 million of incremental fare increase revenue from FY19 through December 2021, the end of the current Board-adopted program, based upon the current SRTP forecast of ridership and future fare increases.

For planning purposes, this Plan assumes that a next phase of the CPI-based fare increase program will include increases in 2022, 2024, 2026, and 2028. The SRTP also assumes that after BART completes its contributions to the current 'Big 3' projects and directs an additional $200 million to fund projects in the Core Capacity Plan (see Section 5.3.3), incremental fare increase revenue will go to fund rail operations, as it did prior to 2014. This revenue is estimated to total $80 million through FY28 and will help provide the additional resources needed to operate the capital projects that were previously funded by the CPI-based fare increase program. Continuation of the CPI-based fare increase program beyond 2020, and the use of the fare revenue, is subject to future Board approval.

ADA PASSENGER REVENUE

BART complies with the ADA requirement to provide paratransit service comparable and complementary to the BART system. In their areas of joint service, BART and AC Transit fund and administer the EBPC, which provides service through contractors. BART directly collects fare revenue from EBPC trips. Fare revenue projections are a function of ridership. Recent paratransit ridership has been relatively flat and is expected to remain flat during the time covered by this SRTP, with a projected growth in revenues of 0.75% per year.

PARKING REVENUE

Paid parking is BART's largest source of non-fare revenue. BART charges daily and permit parking fees at its current 36 stations with parking facilities. In 2013, the Board approved modifications to the paid parking programs by implementing a demand-based approach to parking fees. Daily parking fees are re-evaluated every six months, based on the occupancy of the parking facility. Costs for permits and fees may either increase or decrease by 50¢ per day, depending upon whether the facility's utilization is above or below 95% capacity. There is a daily fee maximum of $3 at all stations, with the exception of West Oakland, which does not have a cap. All stations have a $3 daily parking fee now, except West Oakland ($10) and South Hayward ($2).

Under current policy, additional revenue raised from the demand-based initiative is dedicated to investments in station access and station improvements including renovation, heavy cleaning, and addressing quality of life issues. In addition, the funds are used to enhance the customer experience, including improvements in signage and communication. Programs and projects funded by the increased parking revenue consist of both operating and capital efforts, some of which are one-time in nature and others ongoing.

The FY19 parking revenue budget is $36.7 million. Of this revenue, $16.2 million is directed to the demand-based initiative, funding ongoing programs such as Station Brightening (thorough deep cleaning) and dedicated parking enforcement staff, and one time projects and programs

such as fare evasion prevention and initiatives focused on public safety and security. The one-time allocations are shown as a line item in Section 4.4.4.

BART has begun the process to modernize its parking fee collection and enforcement equipment. It will take several years to upgrade all of the parking equipment, but once implemented, BART will be able to offer more flexible pricing policies and more efficient parking enforcement.

Parking revenue is projected to increase annually by 3% annually. This revenue forecast does not assume any impact from future TOD projects on BART parking.

ADVERTISING

BART maintains an advertising franchise agreement with a third party that manages the sales and posting of advertising on BART's behalf. In April 2018 BART executed a new 10.75-year advertising francise agreement with Outfront Media which will result in a $10 million one-time signing bonus in FY19 plus a total of $150 million in guaranteed revenue through FY29. The new advertising franchise agreement also provides an opportunity to exceed the guaranteed amount of revenue by increasing the sale of more lucrative digital advertising. To do so, the new franchisee has committed to investing an additional $25 million to install more than 600 new digital ad screens. If BART is able to streamline approvals and place digital screens in high-value locations, the franchisee estimates that an additional $100 million in revenue to BART can be realized through FY29.

OTHER OPERATING REVENUE

Other sources of operating revenue include fiber optics and telecommunication programs; parking fines and forfeitures; and station concessions. Categories not tied to contracts are forecast to keep pace with inflation.

The Commercial Communications Revenue Program (CCRP), managed by the Office of the Chief Information Officer (OCIO), works to expand the District's commercial fiber and wireless telecommunications revenue footprint. In FY18, BART completed scoring on a public commercial invitation for a proposal to develop new license agreements with firms interested in large fiber optic and wireless projects both around the District and within the San Francisco Municipal Transportation Agency (SFMTA) underground. In November 2016, BART entered into an agreement with SFMTA to manage the fiber optic and cellular licensing opportunities in the SFMTA underground. The CCRP is estimated to generate $8.4 million in FY19, a decrease of $1.9 million as the focus shifts to new construction, with revenue increasing steadily thereafter as new fiber optic and wireless assets come online.

4.4.2 Operating Sources: Financial Assistance

SALES TAX

BART's largest source of financial assistance is a dedicated 75% share of a one-half cent sales tax levied in the three BART counties. Almost half of the sales tax revenues are driven by restaurant,

miscellaneous retail (such as small chain stores), and new auto sales. However, these areas are susceptible to economic downturns, which result in reduced sales tax revenue.

Over the past two decades, which include two recessions and several periods of strong economic growth, BART's annual sales tax growth rate has averaged 3.1%. Actual sales tax for FY18 came in higher than budgeted, with 4.3% actual growth, and the FY19 budget assumes 2.6% growth. Beyond FY19, sales tax growth is projected at 3% annually, as most regional economic forecasts anticipate Bay Area sales tax growth to return to more sustainable long-term rates. Additionally, starting in FY20 a flat $5 million increase in sales tax revenue has been forecast to reflect the 2018 Supreme Court ruling on the South Dakota v. Wayfair, Inc. case, which will require sales tax from online sales to be collected in the state of the purchaser.

PROPERTY TAX

BART receives a pre-Proposition 13 property tax assessment in the three BART counties. Based on historic property tax growth rates, which have been between 4.3% to 5.7% over the past two decades, the forecast assumes annual property tax revenue growth of 5%. This long-term growth rate assumes that the real estate and housing market returns to a more sustainable growth pattern, down from the recent high growth rates.

STATE TRANSIT ASSISTANCE

BART receives funding through appropriations of State Transit Assistance (STA), which is derived from actual receipts of the sales tax on diesel fuel. Statewide collections can fluctuate based on diesel prices and consumption. In addition, appropriations to transit operators can vary based on calculations of qualifying revenues for the local operator and the region.

Senate Bill (SB) 1, passed in April 2017, provides for new formula-based funding sources for public transit, augmenting the current STA program. For public transit, SB1 increases the incremental sales tax on diesel fuel dedicated to the STA program by 3.5%, generating approximately $250 million per year, with inflation adjustments, to be used for transit capital and operations purposes. SB1 also implements another 0.5% increase on the incremental sales tax on diesel fuel, generating approximately $40 million per year with inflationary increases over time to intercity passenger and commuter rail systems.

In November 2018, California voters will consider Proposition 6, which would repeal SB1 and enact a constitutional amendment requiring certain vehicle fuel taxes and fees be submitted to voters for approval. If SB1 is repealed, the Metropolitan Transportation Commission (MTC) estimates that BART's operating program could lose approximately $19 million of STA funds in FY19 and an estimated $173 million from FY20 to FY28. There would also be impacts to capital fund sources. This represents a significant financial risk to the District, as well as all transit operators in the state. The FY19 budget includes a reserve of $15 million to help off set potential revenue loss in FY19 and staff is currently developing future year contingency plans should Proposition 6 pass in November.

For FY19, MTC estimates BART will receive approximately $39.0 million of revenue-based STA funds for operations and $6.1 million of State of Good Repair revenue-based STA funds for

investment in preventative maintenance programs. From the operating funds, MTC will direct $7.1 million to feeder bus operators providing service to BART stations, leaving a net of $38.0 million for BART.

LOW CARBON TRANSIT OPERATIONS PROGRAM

BART receives funding from the Low Carbon Transit Operations Program (LCTOP), one of several programs of the Transit, Affordable Housing, and Sustainable Communities Program (SB 862) established in 2014 by the California legislature. Programs in SB 862 are funded by revenue from the state's Cap-and-Trade Program through the auction of carbon credits. The LCTOP provides transit agencies with operating and capital assistance for programs to reduce greenhouse gas emissions and improve mobility and prioritizes serving disadvantaged communities. SB 32 extended the Cap-and-Trade Program to 2030. MTC has advised that BART could expect approximately $10.4 million of LCTOP in June of 2019, which will be programmed for use in FY20, and approximately $6.4 million annually through FY28.

LOW CARBON FUEL STANDARD PROGRAM

The Low Carbon Fuel Standard Program (LCFS) is a state program administered by the California Air Resources Board. The purpose of the program is to move state energy production toward less carbon-intensive fuel sources. Under newly updated regulations, electric railroad operators such as BART are permitted to sell credits to producers of higher-carbon-intensity fuels for the purpose of meeting their program compliance obligations. Revenues collected from the LCFS credits depend on the LCFS credit market and the timing of BART's sales. Based on four years of market history, BART expects annual revenue of $6.5 million per year, though actual revenues in future years are unpredictable and will depend on market conditions at the time. Funds will be used according to BART's LCFS Policy, adopted in 2017, which allocates half of the revenue to BART's Sustainability Program and half to BART operations.

LOCAL AND OTHER ASSISTANCE

BART also receives smaller amounts of annual operating funding from several local sources including Alameda and Contra Costa counties, the cities of Bekeley and Oakland, and other agencies like the Caltrain and SamTrans.

SILICON VALLEY RAPID TRANSIT (SVRT) ASSISTANCE

SVRT Financial Assistance reflects the estimated net difference between fare revenue collected for all trips entering or exiting at SVRT stations and the calculated operating expense. Per the terms of the 2001 Comprehensive Agreement governing operations of BART service into Santa Clara County, VTA will reimburse BART for the net expense for operating service on this extension.

Projected SVBX fare revenue is based on the application of BART's distance-based fare formula to ridership forecasts provided by VTA. BART and VTA will reconcile financial results annually using actual ridership and related fare revenue, and estimated operating and maintenance costs to determine the net financial result.

4.4.3 Operating Uses: Expenses

Operating expense projections use the FY19 adopted budget as the base. Projections for future years reflect the terms of current labor contracts, anticipated changes to benefit costs, inflation, and agreements with other agencies and service providers. The forecast reflects the operating expense of planned service changes, including lengthening and adding trains to revenue service with the arrival of new cars. Expected operating expenses for the SVBX extension are included but are offset by equal amounts of operating revenue as those costs are fully borne by VTA.

NET LABOR AND BENEFITS

Labor costs, including both wages and benefits, are the primary driver for BART's operating uses, comprising about 73% of BART's operating expense. Labor costs reflect the wage increases and benefits included in FY18 through FY21 labor agreements. An annual wage increase of 2.50% occurred in FY19, with a 2.75% wage increase scheduled for FY20 and FY21. An annual wage increase of 2.0% is assumed for the years not covered by the labor contracts. Major benefit categories include active employee medical insurance and pension, while smaller categories include other post-employment benefits for retiree medical and life insurance.

ACTIVE EMPLOYEE MEDICAL INSURANCE

Active employee medical insurance plan premiums increased approximately 7% annually over the last four years. Although the FY19 cumulative average health premium cost projection of $80 million decreased slightly from FY18, this flattening of medical rate increases is not assumed to continue. The SRTP includes actuarial projections of annual rate changes between 3.75% and 4.0% for the next five years. The actuarial projections do not account for any potential changes to national health care law, which could also impact premiums.

PENSION

The California Public Employee Retirement System (CalPERS) administers BART's two pension plans: Safety (sworn police officers) and Miscellaneous (all other employees). CalPERS determines the employer's pension contribution rates annually. The employees' pension contribution is based on State statute and collective bargaining agreements. The District and employees share the cost of both plans.

In recent years CalPERS has implemented actions based on policy changes to improve the stability of the fund and guard against market downturns. At the same time, CalPERS has experienced investment losses and demographic changes. These factors have caused increases to employer payments; for example, the Miscellaneous Plan employer rate has risen about 10% per year the last three years. Most recently in December 2016, the CalPERS Board approved a decrease in the discount rate (assumed future investment return) from 7.5% to 7.0%. This change will be phased in over three years from FY19 through FY21, with the impact on employer contributions spread over five years for each of the three phases. This change will significantly increase BART's future contributions, adding to increases from prior measures implemented recently.

Employees subject to the Public Employees' Pension Reform Act of 2013 (PEPRA) pay 100% of the required employee contribution, which is 6.25% of pay for the Miscellaneous Plan and 13.0% of pay for Safety Plan. Classic (Non-PEPRA) employees, per the current labor contracts, make contributions of 4.0% of pay towards the 7.0% Miscellaneous Plan employer rate and the 9.0% Safety Plan employer rate. The SRTP assumes that both the current PEPRA and non-PEPRA employer contributions will continue. The SRTP also reflects the actuarial assumption that new hires will go from 50% PEPRA to 100% PEPRA over the 20 years beginning in FY13.

BART's actuary makes future year pension projections based on the CalPERS assumptions. As a result, the future projections show a significant increase in BART's contribution through FY25 when the payments are estimated to stabilize somewhat as the CalPERS changes will have been fully implemented and PEPRA plays a larger role in pension costs. The SRTP includes the changes to CalPERS policy and actuarial assumptions with the resulting pension increases built into the current forecast. The SRTP projections are based on forecasts by the District's actuary for Normal Cost percentages of payroll and the fixed Unfunded Liability payment, using an estimated investment return of 6.5%. The FY19 Budget includes $85.3 million in employer contributions and $8.8 million for the portion of the employee contribution paid by BART.

The financial forecast includes an annual allocation of $10 million per year between FY20 and FY28 toward paying off BART's unfunded pension liability. The District will seek to identify an additional $10 million between FY18 and FY19. It is the intent of the Board to direct these funds to help reduce future BART pension obligations.

RETIREE MEDICAL

Retiree medical insurance is funded by District payments into a dedicated trust, with full annual defined contributions being made since FY14 after a "ramp-up" period from FY06 through FY13. The draft FY19 Actuarial Determined Contribution (ADC) is $39.5 million, 11% more than FY18. This increase results from changes to several key actuarial assumptions, including a lower discount rate and higher future medical cost trends.

The total unfunded liability increased from $300 million in the FY18 valuation to $304 million in the draft FY19 ADC. The funded ratio, however, increased from 44.1% in FY18 to 47.1% in FY19. The unfunded liability is scheduled to be paid off by 2034.

TRACTION AND STATION POWER

BART's electric power cost is just under 5% of its total annual operating budget. BART uses approximately 400,000 megawatt-hours (MWh) per year to power its fleet of 100% electric rail cars, as well as its stations, shops and wayside facilities, making it among the largest electricity end users in Northern California.

BART meets its energy supply needs through a balanced portfolio of short-term, medium-term, and long-term contracts for clean power, guided by the Board-adopted Wholesale Electricity Portfolio Policy (adopted in 2017). In December 2017, BART executed two large, long-term power supply contracts for fully-renewable wind and solar located in Southern California. The first is the 61.7 MW Sky River Wind Energy Center in the Tehachapi Mountains being developed

by NextEra Energy Resources and the other is the 45 MW Gaskell West 2 project in the Antelope Valley being developed by Recurrent Energy. Both are expected to be online in early 2021 and will meet approximately 75% of BART's needs over the 20-year period from 2021-2040.

While energy supply procurement strategies and costs are managed by BART staff under the direction provided by Board-adopted policies, BART purchases delivery services from PG&E separately, at rates set by the California Public Utilities Commission (CPUC) and the Federal Energy Regulatory Commission (FERC).

OTHER NON-LABOR EXPENSES

Non-labor expenses include materials usage; rental and maintenance contracts; insurance; utilities other than traction and station power, including diesel fuel for BART to Antioch DMU operations; professional and technical services; and other miscellaneous expenses, including fees paid to MTC and financial institutions to administer the Clipper regional transit smart card program. Most other non-labor categories are assumed to increase at the rate of inflation.

BART TO OAK

BART service to the Oakland International Airport opened in November 2014 and will be operated and maintained for 20 years by a private contractor, Doppelmayr Cable Car. Contractor performance measures and inflation factors apply to the calculation of annual operations and maintenance (O&M) costs. The FY19 budgeted O&M cost is $6.5 million, growing based upon the escalation factors built into the contract.

ADA PARATRANSIT SERVICE

BART's paratransit program has been operating under full federal compliance since 1997. Expenses, which rapidly escalated during the program's early days, have been relatively stable in recent years. The SRTP forecasts expenses of $16.1 million for FY19 and a subsequent annual expense growth of 3%.

OTHER PURCHASED TRANSPORTATION

BART has agreements with SFMTA and AC Transit to pay for feeder bus service to BART stations. The annual purchased transportation payment is linked to changes in Bay Area inflation and changes in the number of riders transferring between BART and the associated operator, with an annual cap of 5% for increases or decreases.

4.4.4 Operating Uses: Debt Service and Allocations

Since 1976, BART has been allocating operating funds to capital projects and is one of the few transit operators to do so. These annual allocations are used for many critical capital projects that do not qualify for grant funding or for which other funding sources may not be available. BART has substantially increased annual allocations when funding sources, primarily ridership and fare revenue, have grown more than budgeted. Conversely, BART has reduced allocations when facing reduced operating revenues associated with recessions and lower ridership. This approach allows for the increases in operating sources to be redirected to one-time or short-

term capital needs and for scaling back when financial resources require, instead of reducing service.

In recent years, BART has taken an even larger role in self-funding critical capital needs to reduce its reliance on unpredictable federal and state funding. Allocations include debt service, allocations to support the capital program, and other allocations as required by agreements with other agencies or accounting rules.

BOND DEBT SERVICE

BART issues bonds, backed by BART's dedicated sales tax revenues, to fund capital costs for system improvement and renovation. BART's credit rating for sales tax backed debt is currently "AA+," nearly the highest level given by credit rating agencies. In December 2017, BART fully refunded the outstanding Series 2010 revenue bond and partially refunded Series 2012A and 2012B revenue bonds, with savings of $5.5 million for FY19 and $5.1 million for FY20, and ongoing annual savings of varying amounts in succeeding years. As of the close of FY18, the principal for all outstanding sales tax revenue bonds was approximately $529 million. No new sales tax debt issuances are planned, but BART anticipates that current outstanding debt will be refunded at lower rates when market conditions allow.

ALLOCATIONS – BASELINE CAPITAL

The annual baseline allocation serves as the required local match for federal grants or to fund ongoing capital projects for which grants are not typically available, such as stations and facilities renovation, inventory buildup, non-revenue vehicle replacement, tools, and other capitalized maintenance.

BART also allocates one-time capital funding to projects that are generally multi-year and non-recurring. In FY19, this allocation funds the remaining pre-revenue service startup expenses for BART to Antioch and the final year of the five-year Train Control Uninterrupted Power Supply Renovation program, and the final year of the Millbrae tail track project. The allocations also fund one-year projects to address quality of life initiatives such as homelessness and pigeon abatement and on-going OCIO programs. Future year allocations will be determined during future annual budget processes.

ALLOCATIONS – PRIORITY CAPITAL PROJECTS/PROGRAMS

BART has made a commitment to provide operating funds for a group of capital projects that are needed for system reliability and for system capacity increases to meet future ridership demand. These include:

- New Car Program Phase 1. BART is under contract to purchase 775 new rail cars. BART committed $293 million from BART operating funds to the first 410 cars and $164 million of incremental fare increase revenue to the remaining contract cost, for a total of $457 million.

- Hayward Maintenance Complex Phase 1 (HMC). BART is constructing a renewed and expanded rail car maintenance facility in Hayward that will service the new fleet. Including

prior fare revenue allocations, total fare revenue allocations of $172 million are anticipated for the project.

- Transbay Core Capacity Plan. BART has committed a total of $200 million toward the projects that make up the Transbay Core Capacity Plan, which is described in Section 5.3.3 of this document. Funds will go toward the New Car Program Phase 2 (306 cars), the Train Control Modernization Program, as well as Core Capacity Plan program management and program contingency. BART currently plans to fund the $200 million through additional fare revenue allocations between FY19 and FY28.

Incremental fare revenue from the January 1, 2014, 2016, and 2018 CPI-based fare increases and the subsequent fare increase scheduled for 2020 are directly allocated to a fund for these programs. This plan also assumes that additional funding for the allocations to the Transbay Core Capacity Plan projects will come from subsequent fare increases after FY20.

ALLOCATIONS – ADDITIONAL STATE OF GOOD REPAIR

The SRTP assumes that BART will allocate additional funds in future years to critical asset replacement needs. This placeholder amount may be adjusted depending on BART's financial outlook in future years.

ALLOCATIONS – STATIONS AND ACCESS PROGRAMS FROM PARKING FEES

Allocations to stations and access programs are funded by the incremental parking fee revenue generated by the demand-based parking program first implemented in May 2013. This incremental revenue, above the baseline revenue generated by BART's prior parking program, is directed to station improvements and station access programs. In FY19, these programs include fare evasion prevention, carpool and parking enhancements, station sustainability initiatives, and public address system improvements. Ongoing programs from previous years (with some additional funding in FY19) include station brightening (by deep cleaning), pedestrian improvements, increased parking enforcement, bike program expansion, and additional staff to address quality of life issues in downtown San Francisco stations. The allocation funds the capital portion of the programs; the balance is included in the operating budget, of which the majority of operating expenses are ongoing. Future year capital projects will be determined in each fiscal year's budget process.

ALLOCATIONS – RAIL CARS FROM SFO EXTENSION RESULTS

Operation of the five-station SFO Extension into San Mateo County, which is outside the three-county BART District, is projected to generate net positive financial results. Per the terms of the 2007 agreements relieving SamTrans of financial responsibility for the extension, fare revenue in excess of operating expenses is to be allocated to a dedicated reserve account. The first $145 million deposited into the reserve account is to fund commitments to BART's new rail car program. Based upon current forecasts, this obligation is estimated to be complete in FY26.

ALLOCATIONS – CALPERS LUMP SUM PAYMENT

Beginning in FY20, BART will begin allocating approximately $10 million annually with the intention of paying down the outstanding CalPERS unfunded liability on an accelerated timeline.

This strategy will reduce the overall liability by paying down a larger portion of principal and interest than the current plan.

ALLOCATIONS – PLEASANT HILL / MACARTHUR

Other allocations include annual accounting entries to offset amounts booked as other revenue or financial assistance for development at the Pleasant Hill/Contra Costa Centre and MacArthur stations.

ALLOCATIONS – BART TO OAK (CARP)

The BART to Oakland International Airport project included the creation of a Capital Asset Replacement Program (CARP) to fund future renovation and replacement needs. BART will contribute to this escrow fund each year during the 20-year term of the operating contract. Fund expenditure is controlled jointly by BART and the contract provider, Doppelmayr Cable Car (DCC), based upon refurbishment and replacement needs over the 20 years of the contract. DCC is required to fund costs that are in excess of the CARP.

ALLOCATIONS – LOW CARBON FUEL STANDARD CREDIT

California's Low Carbon Fuel Standard (LCFS) Program uses a market-based cap-and-trade approach to lowering the greenhouse gas emissions from petroleum-based transportation fuels like reformulated gasoline and diesel. As an electric-powered public transit system that receives over 90% of its power from carbon-free sources, BART generates LCFS credits that it sells on the open market. Based upon the Board-approved LCFS policy, proceeds from LCFS credit sales are divided equally between the Sustainability Program and BART's operating fund, with the operating portion currently placed in operating reserves.

ALLOCATIONS – JOSEPH P. BORT METROCENTER (MET) BUILDING

In 2017, BART completed the purchase of the Joseph P. Bort MetroCenter, which will house BART police staff and contain space that will be leased to non-profit agencies. Allocations will fund the purchase of the MetroCenter building and one-time capital costs. There will be operating to capital allocations between FY18 and FY25 to fund repayment of the loan from BART cash reserves used to purchase the building, totaling approximately $20 million.

RESERVE FOR ECONOMIC UNCERTAINTY

To prepare for the possibility of a Proposition 6 passage in November 2018, BART's FY19 budget directs funds from a one-time signing bonus for the new advertising contract and higher-than-planned STA revenue to a Reserve for Economic Uncertainty. Should Proposition 6 pass, these funds will help BART fill the FY19 revenue gap.

REVENUE ENHANCEMENT/COST CONTAINMENT

This line represents BART's commitment to address future year defecits, either on an annual basis or as part of an overall financial strategy.

5 CAPITAL IMPROVEMENT PROGRAM

5.1 CAPITAL IMPROVEMENT PROGRAM SUMMARY

This chapter presents BART's Capital Improvement Program (CIP). It includes:

- Section 5.1: A brief summary of the CIP.
- Section 5.2: A discussion of the 10 program areas and 47 capital programs that make up the CIP.
- Section 5.3: A summary of three major capital investment plans that touch multiple program areas in the CIP: the Measure RR System Renewal Plan; the 'Big 3' Priority Capital Plan, and the Transbay Corridor Core Capacity Plan.
- Section 5.4: A forecast of capital funding sources for the CIP.
- Section 5.5: A forecast of annual capital budget and unfunded needs by program.

The CIP is consistent with the Metropolitan Transportation Commission's (MTC's) Plan Bay Area (2045) and with the BART Strategic Plan Framework. It reflects BART staff's understanding of system needs based on currently available data. As asset management programs are refined, it is likely that additional needs will be identified.

5.1.1 Capital Investment Needs and Planned Capital Investment

This CIP identifies BART's total capital investment need as $22.40 billion for the 15-year period FY19-FY33. Of that total, the CIP describes $12.35 billion of planned capital investment for which funding sources have been identified. It also documents $10.04 billion of capital investment needs for which no funding source has yet been identified. Figure 5-1 summarizes total investment need, identified funding, and unfunded needs for each of 10 capital program areas. Figure 5-3 provides the same information for each of the 47 capital programs that make up the CIP.

5.1.2 Funding Plan

BART has identified $12.35 billion of funding to support this plan, including $9.29 billion in committed or secure funds and an additional $3.06 billion in competitive and not yet secure

funding opportunities. Major fund sources are summarized in Figure 5-2. More detail on funding forecasts are provided in Figure 5-16.

Figure 5-1 Summary of Planned Capital Investment FY19-FY33 (millions)

Program Area	Total Need[1]	Total Funding/ Planned Investment[1]	Secure Funding	Competitive Funding Identified	Unfunded Needs	Percent of needed funding identified
Rail Cars	4,448	4,136	2,882	1,254	312	93%
Track & Structures	3,046	1,439	1,404	35	1,607	47%
Traction Power	2,089	1,392	1,311	81	697	67%
Train Control & Communications	1,978	1,312	1,035	277	666	66%
Stations	4,101	1,172	1,050	122	2,929	29%
Maintenance Shops, Yards, & Other Facilities	1,474	580	285	295	894	39%
Seismic Programs	1,915	415	415	-	1,500	22%
System Expansion	343	308	308	-	35	90%
Electrical & Mechanical Infrastructure	2,123	365	363	2	1,758	17%
System Support	879	578	67	511	301	66%
Contingency	-	655	168	487	(655)	NA
Total	**$22,396**	**$12,352**	**$9,288**	**$3,064**	**$10,044**	**55%**

Figure 5-2 Major Fund Sources FY19-FY33 (millions)

Major Fund Source	Committed/ Secure	Not Secure/ Competitive	Total
BART and Voter-Approved Funds	**4,632**	**757**	**5,389**
Measure RR[1]	3,333	-	3,333
BART Operating Allocations	998	757	1,755
Earthquake Saftey Program Bonds	298	-	298
MTC-Administered Federal & Regional Funds	**2,655**	**88**	**2,743**
Local Funds (city, county, and transit agency partners)	**862**	**719**	**1,581**
Other Federal Funds	**80**	**1250**	**1,330**
State of California Funding	**490**	**250**	**740**
Other Regional Funding (including RM3)	**570**	-	**570**
Total	**$9,288**	**$3,064**	**12,352**

Notes:

1. Measure RR total assumes that $100 million in RR funds will be expended after FY33.

Figure 5-3 FY19-33 Capital Improvement Program Summary (millions)

	Total Need	TotalFunding/PlannedInvestment	SecureFunding	CompetitiveFunding Identified	UnfundedNeeds	PercentofNeeded Funding
Rail Cars	**4,448**	**4,136**	**2,882**	**1,254**	**312**	**93%**
New Car Program (775 cars)	2,198	2,198	2,198	-	-	100%
New Car Program Phase 2 (306 cars)	1,618	1,618	681	937	-	100%
New Car Program Phase 3 (119 cars)	629	317	-	317	312	50%
Rail Car Improvements	3	3	3	-	-	100%
Track & Structures	**3,046**	**1,439**	**1,404**	**35**	**1,607**	**47%**
Trackway Rehabilitation Program	1,618	919	919	-	699	57%
Structures Rehabilitation Program	1,155	444	444	-	711	38%
Wayside Equipment Program	178	64	29	35	114	36%
Track Capacity Improvements (BART Metro)	95	12	12	-	83	13%
Traction Power	**2,089**	**1,392**	**1,311**	**81**	**697**	**67%**
Substation Renovation Program	767	263	263	-	504	34%
34.5KV Cable Replacement Program	609	572	572	-	37	94%
Traction Power Controls Program	614	458	458	-	156	75%
Core Capacity Traction Power Upgrades	99	99	18	81	-	100%
Train Control & Communications	**1,978**	**1,312**	**1,035**	**277**	**666**	**66%**
Train Control Modernization Program	1,121	1,121	844	277	-	100%
Train Control System Rehabilitation Program	258	188	188	-	70	73%
Communications & Computer Systems Rehab Program	599	3	3	-	596	1%
Stations	**4,101**	**1,172**	**1,050**	**122**	**2,929**	**29%**
Station Modernization Program	493	258	226	32	235	52%
Escalator/Canopy Installation Program	243	243	243	-	-	100%
Station Access Enhancement Program	405	280	190	90	125	69%
Fare Collection Systems Rehabilitation Program	237	134	134	-	103	57%
Station Capacity Improvements (BART Metro)	639	103	103	-	536	16%
Station Buildings & Facilities Rehabilitation Program	915	73	73	-	842	8%
Station Accessibility Improvement Program	392	60	60	-	332	15%
Wayfinding & Customer Experience Program	105	15	15	-	90	14%
Elevator & Escalator Rehabilitation Program	672	6	6	-	666	1%
Maintenance Shops, Yards, & Other Facilities	**1,474**	**580**	**285**	**295**	**894**	**39%**
Hayward Maintenance Complex Phase 1	387	183	183	-	204	47%
Hayward Maintenance Complex Phase 2	226	226	33	193	-	100%
Non-Station Buildings & Facilities Rehabilitation Program	711	154	60	94	557	22%

	Total Need	TotalFunding/PlannedInvestment	SecureFunding	CompetitiveFundingIdentified	UnfundedNeeds	PercentofNeededFunding
Shop & Yard Equipment Program	50	17	9	8	33	34%
Fleet Storage Capacity (BART Metro)	100	-	-	-	100	0%
Seismic Programs	**1,915**	**415**	**415**	**-**	**1,500**	**22%**
Earthquake Safety Program / TBT Seismic Retrofit	350	350	350	-	-	100%
Caldecott BART Tunnel Seismic Retrofit Program	1,060	60	60	-	1,000	6%
A-Line Seismic Program	505	5	5	-	500	1%
System Expansion	**343**	**308**	**308**	**-**	**35**	**90%**
Transbay Crossing Study & Crowding Relief Program	191	191	191	-	-	100%
New BART Transit Operations Facility	78	43	43	-	35	55%
Remaining BART to Antioch & Warms Springs Costs	43	43	43	-	-	100%
Silicon Valley Extensions	30	30	30	-	-	100%
System Expansion Planning	1	1	1	-	-	100%
Electrical & Mechanical Infrastructure	**2,123**	**365**	**363**	**2**	**1,758**	**17%**
Mechanical Infrastructure Rehabilitation Program	685	107	107	-	578	16%
Electrical Infrastructure Rehabilitation Program	891	154	152	2	737	17%
Lighting Rehabilitation & Upgrades Program	547	104	104	-	443	19%
System Support	**879**	**578**	**67**	**511**	**301**	**66%**
Core Capacity Support Program	406	406	43	363	-	100%
Information Technology Program	92	66	3	63	26	72%
Sustainability Program	59	59	10	49	-	100%
Real Estate Program	25	25	7	18	-	100%
BART to Oak and eBART Asset Replacement	58	18	-	18	40	31%
Climate Adaptation & Resiliency Program	232	3	3	-	229	1%
BART Police Capital Program	7	1	1	-	6	14%
Contingency	**-**	**655**	**168**	**487**	**(655)**	
Total	**22,396**	**12,352**	**9,288**	**3,064**	**10,044**	**55%**

5.2 CAPITAL PROGRAMS

5.2.1 Rail Car Programs

BART's fleet of 669 rail cars is one of the oldest in the United States and requires constant maintenance and repair. Rehabilitation and upgrade of BART's rail cars in the late 1990s helped prolong the life of these essential vehicles, but they are now in need of replacement. BART has embarked on a project to replace the existing fleet and eventually enlarge the fleet to 1,200 cars.

Figure 5-4 Rail Car Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
New Car Program (Phase 1)	Reinvestment (86%) Service & Capacity Enhancement (14%)	BART is now procuring 775 new rail cars from Bombardier Transportation to replace and expand the original fleet. The first cars were delivered in 2017. The last cars are schedule for delivery by 2022. The total cost of this program is $2,584M, of which $2,198M will occur in FY19 and later.	Total: $2,198 Committed/ Secure: $2,198	None
New Car Program (Phase 2)	Service & Capacity Enhancement (100%)	To relieve crowding and serve growing peak period, peak direction demand, BART plans to increase service frequencies to 30 trains per hour through the Transbay Tube by 2028. A minimum of 1,081 cars is required for this service plan. New Car Program (Phase 2) would procure the additional 306 cars that are required.	Total: $1,618 Committed/ Secure: $681 Competitive/Not Secure: $937	None
New Car Program (Phase 3)	Service & Capacity Enhancement (100%)	1,081 cars is the minimum fleet size required to operate 30 peak hour trains through the Transbay corridor. BART's Fleet Management Plan calls for a total of 1,200 cars to allow for operating SVRT Phase 2 and to provide more robust service during the shoulder periods in the core BART system. VTA is responsible for funding for the cars required to operate SVRT.	Total: $317 Committed/ Secure: $0 Competitive/Not Secure: $317	$312
Rail Car Rehabilitation & Improvements	Reinvestment (100%)	Most maintenance of the rail car fleet is performed as part of BART's operating program. This small capital program will make periodic adjustments to the rail car fleet as needed.	Total: $3 Committed/ Secure: $3	None

5.2.2 Track & Structures Programs

The Track & Structures program area includes four programs that will replace, rehabilitate, and upgrade the BART system's rail rights-of-way, including trackway infrastructure, tunnels, and aerial structures. Most of these components are original to the system and worn from decades of use.

Figure 5-5 Track & Structures Programs

Program Name	Program Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Trackway Rehabilitation Program	Reinvestment (100%)	This program will repair, rehabilitate, and replace BART system trackway assets. Projects include replacement of 90 miles of original rails; replacement of supporting infrastructure including the fasteners, ties, and switches; and replacement of rails at turnouts and maintenance yards.	Total: $919 Committed/ Secure: $919	$699
Structures Rehabilitation Program	Reinvestment (100%)	This program will repair and rehabilitate BART system tunnels and aerial structures. Investment will focus on repair of water intrustion for aerial structures and tunnels; waterproofing of tunnels systemwide; rehabilitating street grates and vent shafts on Market Street and other tunnels; and installation of worker fall protection on aerial structures.	Total: $444 Committed/ Secure: $444	$711
Wayside Equipment Program	Reinvestment (100%)	This program will repair and replace the vehicles and heavy equipment used to maintain BART rights-of-way. Investment will focus on systematic replacement of vehicles and related equipment due to age and wear and tear.	Total: $64 Committed/ Secure: $29 Competitive/Not Secure: $35	$114
Track Capacity Improvements (BART Metro)	Service & Capacity Enhancement (100%)	This program will construct new track segments to improve service flexibility and reliability for the BART system. Planned work includes replacement of a pocket track at Lafayette and installation of a new tail track at Millbrae.	Total: $12 Committed/ Secure: $12	$83

5.2.3 Station Programs

Programs in this area will repair and rehabilitate existing station assets and make improvements by modernizing stations; enhancing and expanding station access facilities; improving wayfinding and the customer experience; and improving capacity to accommodate more riders at the system's busiest stations.

Figure 5-6 Station Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Station Modernization Program	Reinvestment (50%) Service & Capacity Enhancement (50%)	This program will invest in stations and surrounding areas to advance transit ridership and enhance quality of life. Modernization projects are now underway or in planning for the following stations: 19th St./Oakland; Balboa Park; Concord; El Cerrito Del Norte, and Powell St. This program also includes investment in public art per the board-adopted Art Policy.	Total: $258 Committed/ Secure: $226 Competitive/Not Secure: $32	$235
Escalator/Canopy Installation Program	Reinvestment (50%) Service & Capacity Enhancement (50%)	This program will replace 23 street entrance and 18 platform escalators in downtown San Francisco stations and install 24 protective canopies for the BART/MUNI entrances at all downtown San Francisco stations. Two canopies are under construction in a pilot contract at Powell Street and Civic Center Stations. Work will continue through 2027.	Total: $243 Committed/ Secure: $243	None
Station Access Enhancement Program	Service & Capacity Enhancement (100%)	Consistent with the Station Access Policy adopted by the BART Board in 2016, this program will invest in opportunities for access by all modes, with a focus on increasing pedestrian and bike access, improving transit connections, and strategic investment in parking.	Total: $280 Committed/ Secure: $190 Competitive/Not Secure: $90	$125
Fare Collection Systems Rehabilitation Program	Reinvestment (80%) Service & Capacity Enhancement (20%)	This program will repair, replace, and upgrade fare collection equipment. Investments will include: replacement of fare collection computer equipment; modification of fare collection equipment for the next generation of Clipper technology (Clipper 2); installation of additional change machines; and	Total: $134 Committed/ Secure: $134	$103

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
		software, server, and back-office updates for the automatic fare collection system.		
Station Capacity Improvement Program (BART Metro)	Service & Capacity Enhancement (100%)	This program will invest in projects that increase station capacity. BART anticipates the need to make major investments in additional capacity at Montgomery and Embarcadero stations, which may include platform edge doors, additional platforms, and/or additional elevators. This program also includes the Bay Fair Connector project.	Total: $103 Committed/ Secure: $103	$536
Station Buildings & Facilities Rehabilitation Program	Reinvestment (100%)	This program will repair station buldings and the facilities that support station operations. Investments will include station bulding roof repairs; station ventilation repairs; public address system improvements; worker fall protection equipment on roofs; and replacement of waste management facilities.	Total: $73 Committed/ Secure: $73	$842
Station Accessibility Improvement Program (AIP)	Service & Capacity Enhancement (100%)	This program will invest in projects to bring original BART facilities into compliance with current accessibility rules and to implement a program of investments to improve accessibility above what ADA requires. Projects include installation of new accessible faregates, improved accessible signage, and improved navigation systems for sight-impaired riders.	Total: $60 Committed/ Secure: $60	$332
Wayfinding & Customer Experience Improvement Program	Service & Capacity Enhancement (100%)	This program will invest in signage to help passengers better navigate within stations and get oriented before they exit. Projects will include wayfinding sign improvements on street level, concourse level, and platform level at 14 stations.	Total: $15 Committed/ Secure: $15	$90
Elevator & Escalator Rehabilitation Program	Reinvestment (100%)	This program will overhaul original elevators and escalators system-wide to improve reliability. A six-phase program is identified to renovate escalators system-wide. A nine-phase program is identified to renovate elevators.	Total: $6 Committed/ Secure: $6	$666

5.2.4 Traction Power

BART trains run on electric power. The infrastructure that distributes electricity throughout the system and propels BART trains by providing electricity to BART's third rail is supported through a set of 118 substations, over 700 high voltage circuit breakers and switchgears, and over 1.5 million linear feet of cabling. Most of this infrastructure is original to the system and requires either replacement or major rehabilitation. This program area includes four programs that will replace, renovate, and upgrade power infrastructure to maintain and improve service reliability.

Figure 5-7 Traction Power Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Substation Renovation Program	Reinvestment (100%)	BART's original traction power substations require rehabilitation. Using funds made available through Measure RR, BART has begun the first phase of the program to replace and renovate 62 substations.	Total: $263 Committed/ Secure: $263	$504
34.5KV Cable Replacement Program	Reinvestment (100%)	A network of high-voltage power cables distributes traction electricity throughout the BART system. Many of these cables are original to the system. This program will repair or replace approximately 90 miles of 34.5KV cable.	Total: $572 Committed/ Secure: $572	$37
Traction Power Controls Rehabilitation Program	Reinvestment (75%) Service & Capacity Enhancement (25%)	This program will renovate and upgrade the control and protection systems that support traction power delivery. Investment will include replacement of breaker stations throughout the BART system and installation of a fiber optic cable network to allow communication between new substations.	Total: $458 Committed/ Secure: $458	$156
Core Capacity Traction Power Upgrades	Service & Capacity Enhancement (100%)	This program will install five new traction power substations that are required to operate the increased frequencies associated with the Transbay Corridor Core Capacity plan.	Total: $99 Committed/ Secure: $18 Competitive/Not Secure: $81	None

5.2.5 Train Control & Communications Programs

BART's train control system consists of both hardware and software that are used to control speed and movement on the rail network, keeping trains running smoothly and eliminating any possibility of a collision. BART's communications systems support train control and other operational functions. They include the Operations Control Center, supporting fiber optic cable network, the trunked radio system, and CCTV cameras.

Figure 5-8 Train Control & Communications Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Train Control Modernization Program	Reinvestment (77%) Service/Capacity Enhancement (23%)	This program will replace BART's original train control infrastructure with a modern Communications-Based Train Control (CBTC) system to improve reliability, decrease the run time of trains between stations, and enhance maintenance efficiency. CBTC will allow trains to operate at more closely-spaced intervals and at faster speeds. The program is scheduled to be complete by FY28. The total program cost is $1,150M billion, of which $1,121M will be expended in FY19 and later.	Total: $1,121 Committed/ Secure: $844 Competitive/Not Secure: $277	None
Train Control System Rehabilitation Program	Reinvestment (100%)	The Train Control Modernization Program is a complex effort that will take years to fully implement. In the meantime, this program will repair and replace components of the existing aging train control system as needed to ensure safe and reliable operations.	Total: $188 Committed/ Secure: $188	$70
Communications & Computer Systems Rehabilitation Program	Reinvestment (100%)	This program will repair and rehabilitate the communications and computer systems that support BART operations. Planned investments include replacement of BART's trunked radio system, renewal and upgrade of closed-circuit television (CCTV) infrastructure, as well as upgrades to BART's Integrated Computer System (ICS).	Total: $3 Committed/ Secure: $3	$596

5.2.6 Maintenance Shops, Yards, Other Facilities

A range of buildings and facilities that are not visible to BART riders support system operations. These include BART's four rail car maintenance facilities in Hayward, Richmond, Concord, and Daly City, and other facilities. Five programs in this area will repair and upgrade these facilities.

Figure 5-9 Maintenance Shops, Yards, and Other Facilities Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Hayward Maintenance Complex Phase 1	Reinvestment (50%) Service & Capacity Enhancement (50%)	This program will expand and upgrade BART's maintenance facility in Hayward. It will reconfigure the existing yard and construct a larger primary repair shop, a new component repair shop, a vehicle overhaul shop, a central parts warehouse, and a maintenance and engineering repair shop.	Total: $183 Committed/ Secure: $183	$204
Hayward Maintenance Complex Phase 2	Service & Capacity Enhancement (100%)	This program will further expand the Hayward Maintenance facility to allow BART to store and maintain a fleet of 1,081 rail cars.	Total: $227 Committed/ Secure: $33 Competitive/ Not Secure: $193	None
Non-Station Buildings & Facilities Rehabilitation Program	Reinvestment (100%)	This program will repair non-station buldings and facilities. Investments will include rehabilitation of maintenance shop buildings; roof repairs; repair of right-of-way fencing; upgrades to water management facilities; and repaving of maintenance access roads.	Total: $154 Committed/ Secure: $60 Competitive/ Not Secure: $94	$557
Shop & Yard Equipment Program	Reinvestment (100%)	This program will repair, replace, and upgrade equipment used to maintain BART rail cars. Investments will include replacement of rail car lifts; new car lifts at Richmond and Daly City shops; a new wheel truing facility at the Concord Shop; and a new train washer and overhaul of train washing equipment.	Total: $17 Committed/ Secure: $9 Competitive/ Not Secure: $8	$33
Fleet Storage Expansion Program	Service & Capacity Enhancement (100%)	Additional rail car storage capacity will be required to maintain operational efficiency with the planned fleet of 1,200 rail cars. Additional planning is required and funding for this program has not yet been identified.	Total: $0	$100

5.2.7 Seismic Programs

In 2004, BART District voters approved Proposition AA, a general obligation bond to fund BART's Earthquake Safety Program (ESP). Since that time, BART has been steadily investing in crucial seismic upgrades to its core infrastructure, including elevated structures, stations, maintenance facilities, and other buildings. Remaining Earthquake Safety Program work will focus on the Transbay Tube. Beyond the 2004 Earthquake Safety Program, investment will be required to address a set of risks to operations in the Caldecott BART Tunnel resulting from incremental movement of the Hayward Fault.

Figure 5-10 Seismic Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Transbay Tube Seismic Retrofit & Remaining 2004 Earthquake Safety Program	Earthquake Safety (100%)	Over the next three years, BART will use remaining ESP funds and an additional $54 million from Measure RR to complete a major project that will reduce the likelihood of flooding in the Transbay Tube during a catastrophic earthquake.	Total: $350 Committed/ Secure: $350	None
Caldecott BART Tunnel Seismic Program	Earthquake Safety (100%)	This program will address risks to operations in the Caldecott BART Tunnel resulting from seismic activity on the Hayward Fault. In the near term, Measure RR will fund a project to realign tracks in the tunnel. In the longer term, a major project will be required to design and implement a permanent solution.	Total: $60 Committed/ Secure: $60	$1,000
A-Line Seismic Program	Earthquake Safety (100%)	The 2004 ESP went beyond its original scope to bring most of the BART system to an 'operability' seismic standard, allowing the system to continue operating normally even after a major earthquake. The one exception is the system segment (A-line) between Bay Fair and Fremont, which remains at a 'life safety' standard; in the event of a major earthquake, passengers and workers in this segment would be protected, but BART service could be interrupted for an extended period of time. This program would bring the A-Line up to an 'operability' standard.	Total: $5 Committed/ Secure: $5	$500

5.2.8 System Expansion Programs

BART is working to complete ongoing system expansion projects and working with partners to study the possibility of future expansion. Current system expansion needs in the CIP include an new Transit Operations Facility to serve a larger system, a set of investments to complete current projects that are in their final stages, and a set of planning processes and studies that are fully funded.

Figure 5-11 System Expansion Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Transbay Crossing Study & Crowding Relief Program	System Expansion (100%)	This program will evaluate the long-term need for a second rail crossing of the San Fancisco Bay and undertake engineering for such a crossing. It will also fund nearer-term projects to relieve crowding on the BART system.	Total: $191 Committed/ Secure: $191	None
BART Transit Operations Facility	Reinvestment (50%) System Expansion (50%)	This new facility near Lake Merritt Station will support improved and expanded BART operations now and 40 years into the future. The facility will provide expanded facilities and physical capacity to operate the larger BART system.	Total: $43 Committed/ Secure: $43	$35
Remaining BART to Antioch and Warm Springs Costs	System Expansion (100%)	This program includes remaining capital expenditures related to recently completed system expansion projects.	Total: $43 Committed/ Secure: $43	None
Silicon Valley Extension Program	System Expansion (100%)	BART is partnering with VTA on environmental studies and design for VTA's BART Silicon Valley - Phase II Extension Project, to extend BART service an additional six miles to downtown San Jose and Santa Clara. In December 2016, FTA and VTA circulated a Draft Supplemental Environmental Impact Statement/Report (SEIS/SEIR) to address environmental effects of the proposed project. VTA is responsible for funding this project.	Total: $30 Committed/ Secure: $30	None
System Expansion Planning Program	System Expansion (100%)	BART is working with partners to study the possibility of further expansion.	Total: $1 Committed/ Secure: $1	None

5.2.9 Electrical & Mechanical Programs

BART system operations depend on a wide range of electrical and mechanical infrastructure, including backup power supplies, HVAC equipment, fire suppression equipment, water management infrastructure, and many other facilities. This program area includes three programs that will replace, renovate, and upgrade electrical and mechanical infrastructure to maintain safe and reliability operations. Measure RR will provide significant funding for these investments.

Figure 5-12 Electrical & Mechanical Infrastructure Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Mechanical Systems Rehabilitation	Reinvestment (75%) Service/Capacity Enhancement (25%)	This program will repair and replace mechanical infrastructure that supports BART system operations. Planned investments include upgrades to storm water treatment infrastructure; rehabilitation of fire services at yards; replacement of HVAC equipment; and rehabilitation of fire suppression equipment at the Lake Merritt Administration Building.	Total: $107 Committed/ Secure: $107	$578
Electrical Systems Rehabilitation	Reinvestment (72%) Safety & Security (27%)	This program will repair and replace electrical infrastructure that supports BART system operations, including generators, backup power supplies, equipment that supports BART's traction power system, and related infrastructure. Planned investments include replacement and upgrade of backup power supplies; replacement of breakers and wiring for ventilation fans; and replacement of electrical switchgear, secondary panels, and subpanels to improve reliability of power for operations system-wide.	Total: $154 Committed/ Secure: $152 Competitive/Not Secure: $2	$737
Lighting Rehabilitation & Upgrades	Reinvestment (90%) Service/Capacity Enhancement (10%)	This program will repair, replace, and upgdrade lighting infrastructure in BART facilities, stations, and rights-of-way. Planned investments include tunnel lighting replacement and upgrades, as well as upgrades to station emergency lighting.	Total: $104 Committed/ Secure: $104	$443

5.2.10 System Support Programs

System Support programs invest in areas other than mainline railroad and station assets. They support BART District operations and promote strategic plan goals in a variety of areas.

Figure 5-13 System Support Programs

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
Transbay Core Capacity Plan Support	Service & Capacity Enhancement (100%)	BART is applying for funding from the Federal Transit Administration to fund the Transbay Corridor Core Capacity Program. In addition to the cost of the individual projects that make up the program (described in Section 5.3.3), BART's Core Capacity Financial Plan includes program management; unallocated program contingency; and financing costs.	Total: $406 Committed/ Secure: $43 Competitive/Not Secure: $363	None
Information Technology Program	Reinvestment (75%) Service & Capacity Enhancement (25%)	BART's Office of the Chief Information Officer (OCIO) oversees BART's administrative computer networks. OCIO projects include investments in asset management and computer hardware and software upgrades.	Total: $66 Committed/ Secure: $3 Competitive/Not Secure: $63	$26
Sustainability Program	Service/Capacity Enhancement (100%)	This program will invest in projects to advance Sustainability Action Plan goals related to energy and water conservation, greenhouse gas emissions reduction, and waste management. Investments will include energy efficient lighting, on-site solar energy, water conservation, and energy storage. It is anticipated that conservation in these areas will also reduce District operating costs. This capital project will also strategically invest in electric vehicle charging station infrastructure as funding becomes available.	Total: $59 Committed/ Secure: $10 Competitive/Not Secure: $49	None
Real Estate Program	Reinvestment (75%) Service/Capacity Enhancement (25%)	This program will invest in acquiring and developing properties for BART system use, including the Joseph P. Bort MetroCenter Building which was acquired in 2017 and houses the BART Polic Department. It will also invest in Transit Oriented Development projects near BART stations.	Total: $25 Committed/ Secure: $7 Competitive/Not Secure: $18	None

Program Title	Purpose	Scope of Work	Identified Funding ($M)	Unfunded Need ($M)
BART to OAK and BART to - Antioch Asset Replacement Program	Reinvestment (100%)	This program includes funding for the BART to OAK Capital Asset Replacement (CARP) fund. It also includes the cost of replacing components of the recently constructed BART to Antioch system segment when necessary. A fund source for these needs has not yet been identified.	Total: $18 Competitive/Not Secure: $18	$40
Climate Adaptation & Resiliency Program	Reinvestment (100%)	BART has identified the need for significant investment over the 15-year period of the plan for programs and projects to address sea level rise and other potential flooding impacts to the BART system associated with climate change. Specific infrastructure investments are under study.	Total: $3 Committed/ Secure: $3	$229
BART Police Department Capital Program	Safety & Security (100%)	BART Police Department serves all stations and facilities. The department's capital investment needs include rehabilitation of staff facilities and ongoing renewal of BART police department capital assets, including firearms.	Total: $1 Committed/ Secure: $1	$6

5.3 CROSS-PROGRAM CAPITAL PLANS

BART's capital planning and coordination with funding partners in recent years has focused on a set of cohesive, integrated capital investment plans. Each plan includes a package of several programs outlined in Section 5.2 and addresses the District's highest priority needs: the Measure RR System Renewal Plan; the 'Big 3' Priority capital projects; and the Transbay Corridor Core Capacity Plan. These plans are described below.

5.3.1 Measure RR: BART System Renewal Plan

In November 2016, BART District voters approved Measure RR, the BART System Renewal Program Plan. The measure authorizes the sale of $3.5 billion in general obligation bonds to fund a group of high-priority projects that will repair and replace critical safety infrastructure; relieve crowding and reduce traffic congestion; and improve station access and safety. Figure 5-14 summarizes the projects in the Measure RR System Renewal Plan. This CIP assumes that $3.3 billion of the $3.5 billion total will be expended during the period FY19-FY33.

Figure 5-14 Measure RR System Renewal Plan

Project Category	Planned Investment ($M)	% Total of Program
Repair and Replace Critical Safety Infrastructure	**$3,165**	**90%**
Renew track	$625	18%
Renew power infrastructure	$1,225	35%
Repair tunnels and structures	$570	16%
Renew mechanical infrastructure	$135	4%
Replace train control and other major system infrastructure to increase peak period capacity	$400	11%
Renew stations	$210	6%
Relieve crowding	**$335**	**10%**
Expand opportunities to safely access stations	$135	4%
Design and engineer future projects to relieve crowding	$200	6%
Total	**$3,500**	**100%**

5.3.2 'Big 3' Priority Capital Plan

This plan includes three major interrelated capital projects, known as the 'Big 3,' that are needed for system reliability and for system capacity increases to meet future ridership demand:

- New Car Program Phase 1 (775 Rail Cars): BART is now procuring 775 new rail cars from Bombardier Transportation to replace and expand the original fleet.
- Hayward Maintenance Complex Phase 1: This program will expand and upgrade BART's maintenance facility in Hayward so that BART can maintain the planned fleet of 775 cars.
- Train Control Modernization Program: This program will replace BART's original train control infrastructure with a modern Communications-Based Train Control (CBTC) system to improve reliability, decrease the run time of trains between stations, and enhance maintenance efficiency.

As discussed in Section 4.4.4 of this Plan, BART has directly allocated the incremental fare revenue from the January 1, 2014, 2016, and 2018 CPI-based fare increases and subsequent fare increase scheduled for 2020 to a fund that is one of several funding sources for these investments.

5.3.3 Transbay Corridor Core Capacity Plan

The Transbay Corridor Core Capacity plan is a coordinated package of investments that will increase BART system capacity between San Francisco and Oakland by more than 45 percent. The program will allow BART to operate 30 ten-car trains per hour in the Transbay corridor. This capacity increase will take place on the main trunk of the existing system, between Daly City and the Oakland Wye, maximizing throughput in the most heavily used part of its system.

The plan has several elements, each of which is a distinct program in this CIP:

- New Car Program Phase 2 (306 cars): This program would procure the additional 306 cars that are required for 30 ten-car trains per hour in the Transbay Corridor.
- Hayward Maintenance Complex (Phase 2): This program will expand the Hayward Maintenance Complex (HMC) to provide additional storage capacity for the larger fleet.
- Train Control Modernization Program: This program is part of both the 'Big 3' Priority Capital Plan and the Transbay Corridor Core Capacity plan. CBTC will provide the capacity to handle 30 trains per hour in each direction.
- Core Capacity Traction Power Upgrades Program: This program will install five new traction power substations to support the planned service changes.

The plan also includes program management, unallocated program contingency, and financing costs. BART is working with the Federal Transit Administration, as well as local and regional partners, to secure funding for these investments.

5.4 CAPITAL FUNDING

BART has identified $12.35 billion in capital funding that is reasonably expected to be available over the 15 years of this Plan (FY19-33). Future funding sources are identified as either Committed or Secure (Figure 5-15) or Competitive or Not Secure (Figure 5-16):

- Committed or Secure Funds: Figure 5-15 details $9.29 billion in Committed or Secure capital funding. Committed funds are those for which BART currently has spending authority, or which are committed by voters or through a final agreement with a funding partner. Major committed fund sources include Measure RR funding; Earthquake Safety Program bonds; funding that MTC has committed to BART's rail car programs; Regional Measure 3 bridge toll funding; and funds from other sources that have been awarded in prior years and are currently funding active projects. Secure funds are those that have a very high likelihood of becoming available during the CIP period. This category includes FTA 5337 State of Good Repair funding, which is distributed by formula as well as future BART operating allocations set aside for Phase 1 of the rail car program and for local match of federal funds.

- Competitive or Not Secure Funds: Figure 5-16 details $3.06 billion in Competitive or Not Secure capital funding. The largest competitive source in the forecast is the FTA New Starts Capital Investment Grant that BART is pursuing to fund the Transbay Core Capacity plan. Funds identified as Not Secure include additional state and local government partner funding for the Transbay Core Capacity plan, as well as additional BART operating allocations for state of good repair investment that will depend on the status of BART's operating budget in future years.

- Detail on Committed or Secure funds is in Section 5.4.1, and Section 5.4.2 provides a description of funds that are Competitive or Not Secure.

Figure 5-15 Capital Funding Sources – Committed and Secure

	FY19-33	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
BART & Voter Committed	**4,632**	**495**	**333**	**374**	**505**	**491**	**370**	**326**	**220**	**222**	**225**	**215**	**214**	**214**	**214**	**215**
Measure RR Bond	3,333	132	164	196	338	342	278	279	201	201	201	201	201	201	201	201
Operating Allocations to Capital	998	331	109	118	107	89	63	47	19	21	24	14	13	14	14	14
Earthquake Safety Program Bond	298	30	60	60	60	60	29	0	-	-	-	-	-	-	-	-
Sales Tax Bonds	2	2	0	0	0	0	-	0	-	-	-	-	-	-	-	-
MTC-Administered Federal & Regional Funds	**2,655**	**256**	**634**	**597**	**293**	**56**	**236**	**59**	**60**	**62**	**63**	**65**	**66**	**68**	**69**	**71**
FTA 5337 State of Good Repair	991	129	53	59	55	56	57	59	60	62	63	65	66	68	69	71
MTC Bond proceeds (New Car Programs)	960	-	319	431	210	-	-	-	-	-	-	-	-	-	-	-
MTC Exchange Account (New Car Programs)	394	42	173	-	-	-	179	-	-	-	-	-	-	-	-	-
FTA/STP (New Car Programs)	310	85	89	107	29	-	-	-	-	-	-	-	-	-	-	-
Local	**862**	**270**	**30**	**30**	**30**	**35**	**56**	**48**	**49**	**60**	**59**	**38**	**38**	**39**	**40**	**40**
Santa Clara VTA	448	209	7	7	8	14	15	13	13	24	24	22	22	23	23	24
Alameda County	195	5	6	6	6	6	26	26	26	26	26	6	6	6	6	6
SFMTA Joint Use Agreement	140	12	8	8	8	8	9	9	9	9	9	10	10	10	10	10
San Francisco County	30	0	6	6	6	6	6	-	-	-	-	-	-	-	-	-
Other Local Government & Private	26	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contra Costa County	22	17	2	2	2	-	-	-	-	-	-	-	-	-	-	-
Other Regional	**570**	**20**	**39**	**149**	**164**	**164**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Bridge Tolls (RM3)	550	-	39	149	164	164	4	4	4	4	4	4	4	4	4	4
Bridge Tolls (AB 1171/AB 664/RM1/RM2)	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
State	**490**	**150**	**45**	**4**	**40**	**64**	**71**	**71**	**45**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Transit and Intercity Rail Capital Program (TIRCP)	318	-	42	-	37	60	67	67	45	-	-	-	-	-	-	-
State Infrastructure Bonds	156	135	4	4	4	4	4	4	-	-	-	-	-	-	-	-
Low Carbon Transit Operations Program (LCTOP)	13	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other State Funds	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Federal	**80**	**80**	**0**	**0**	**0**	**0**	**0**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Other Federal (Direct FTA, FHWA, and other)	80	80	0	0	0	0	0	0	-	-	-	-	-	-	-	-
Total Committed/Secure Funding	9,288	1,272	1,080	1,153	1,032	809	737	508	377	346	351	321	322	324	327	330

Figure 5-16 Capital Funding Sources – Not Secure and Competitive

	FY19-33	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
Other Federal	**1,250**	**-**	**167**	**156**	**104**	**104**	**104**	**370**	**197**	**15**	**12**	**10**	**8**	**3**	**-**	**-**
FTA New Starts Capital Investment Grant	1,250	-	167	156	104	104	104	370	197	15	12	10	8	3	-	-
BART	**757**	**26**	**38**	**42**	**43**	**43**	**66**	**83**	**71**	**55**	**56**	**49**	**47**	**47**	**46**	**46**
Operating Allocations to Capital	757	26	38	42	43	43	66	83	71	55	56	49	47	47	46	46
Local	**719**	**1**	**14**	**41**	**43**	**42**	**45**	**141**	**50**	**69**	**45**	**45**	**45**	**45**	**45**	**45**
Santa Clara VTA	419	1	14	8	11	11	9	8	16	69	45	45	45	45	45	45
San Francisco County	100	-	0	11	11	10	12	44	11	-	-	-	-	-	-	-
Contra Costa County	100	-	0	11	11	10	12	44	11	-	-	-	-	-	-	-
Alameda County	100	-	0	11	11	10	12	44	11	-	-	-	-	-	-	-
State	**250**	**1**	**11**	**53**	**24**	**14**	**8**	**20**	**21**	**21**	**21**	**21**	**9**	**9**	**9**	**9**
Transit and Intercity Rail Capital Program	136	-	4	45	17	7	0	13	13	13	13	13	-	-	-	-
State Transit Assistance - State of Good Repair	97	-	6	6	6	6	7	7	7	7	7	7	7	8	8	8
State Transportation Improvement Program	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MTC-Administered Federal & Regional Funds	**88**	**2**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**7**	**7**	**7**	**7**
MTC Transit Performance Initiative (TPI)	56	-	4	4	4	4	4	4	4	4	4	4	4	4	4	5
OBAG Grant Program (STP/CMAQ)	32	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Not Secure/Competitive	3,064	31	236	296	219	209	229	620	344	167	141	131	116	111	108	108

5.4.1 Committed and Secure Funds

BART AND VOTER-APPROVED FUNDS

Measure RR System Renewal Program

In November 2016, BART District voters approved Measure RR, the BART System Renewal Plan. The Measure authorizes the sale of $3.5 billion in general obligation bonds, with the proceeds to be invested in projects that will maintain BART system safety, improve reliability, and provide more capacity to relieve crowding during peak times. Planned investments are summarized in Section 5.3.1.

In June 2017, BART raised $300 million with its first issue of bonds authorized by Measure RR. Consistent with spending objectives reported to the Measure RR Oversight Committee, this plan assumes that funding from this initial bond issue will be fully invested by June 2020. The CIP assumes that most of the remaining bonds will be issued by FY33, but that $100 million will remain to be invested in FY34 and later. This issuance schedule is proposed and may change based on the pace of Measure RR-funded work and and will be timed to minimize transaction and interest costs to taxpayers.

BART Operating Allocations to Capital

BART allocates operating funds to certain capital projects. The various categories of Operating Allocations to Capital are detailed in Chapter 4 of this Plan. Allocation amounts identified as Committed and Secure in Figure 5-13 include:

- Allocations made in prior years that are funding projects now underway or are set aside for expected priority capital projects.
- Allocations planned for BART rail car programs per the terms of the District's funding agreements with MTC.
- Planned 20% local match of forecast FTA 5337 State of Good Repair funds.

The future availability of operating funds, even those identified as Secure, are not certain. Actual amounts will depend on numerous factors that will affect BART's operating budget, including actual ridership, fare revenue, sales tax revenue, and operating costs.

BART Earthquake Safety Program Bonds

In November 2004, Bay Area voters approved a bond measure to fund BART's Earthquake Safety Program. Funds from that bond have been invested in maintaining the safety of the BART system, including its elevated structures, stations, maintenance facilities, and other buildings. The program has upgraded critical elements of BART's infrastructure to current seismic design standards in support of the safety of BART riders and BART employees. The majority of the remaining bond funds will be dedicated to planned work on the Transbay Tube.

MTC-ADMINISTERED FEDERAL AND REGIONAL FUNDS (TRANSIT CAPITAL PRIORITIES)

MTC distributes both federal transportation funds and regional bridge toll funds to Bay Area transportation agencies through its competitive Transit Capital Priorities (TCP) program. The CIP anticipates $2.7 billion in TCP funds available between FY19 and FY33, including:

- State of Good Repair funding: The Transit Capital Priorities program directs FTA Section 5337 funding toward high priority state of good repair needs, including train control, traction power, fixed guideway rehab/replacement, fare collection equipment, and accessibility (ADA) projects. The total forecast amount over the life of the CIP is $991M.[1]

- New Car Program funding: MTC has directed approximately $1.2 billion in Transit Capital Priorities funding over the timeframe of this CIP toward BART's New Car Programs. Of this amount, approximately $310 million is expected to be provided directly from current-year funding sources, and $960 million is expected to be provided through MTC financing backed by future federal and regional revenues. A further $394 million in prior year funding has already been set aside for the rail car program in a joint BART/MTC 'exchange' account.[2]

Federal Sources for MTC Transit Capital Priorities

The major federal funding sources for MTC's Transit Capital Priorities program are:

- FTA Section 5337 - State of Good Repair program provides grants to maintain transit systems in a state of good repair.

- FTA Section 5307 distributes funds to regions based on an urbanized area formula.

- Federal Surface Transportation Program (STP) funds regional planning, operations, bicycle programs, transportation for livable communities, and transit capital rehabilitation.

- Congestion Mitigation and Air Quality (CMAQ) is jointly administered by FHWA and FTA, and provides funding for projects that reduce air pollution in areas that do not meet the National Ambient Air Quality Standards.

Regional Sources for MTC Transit Capital Priorities

The major regional funding sources for MTC's Transit Capital Priorities program are:

- AB664 Bridge Tolls: Assembly Bill 664 designated MTC to allocate certain bridge tolls for projects that relieve congestion on the Bay Bridge, San Mateo Bridge, and Dumbarton

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[1] The amounts shown for FY19 and FY20 reflect MTC Preliminary Transit Capital Priorities programming amounts. For subsequent years, revenues from this source are projected to increase 2% annually to FY22 then at a rate of 3% annually per TFWG Memorandum, October 7, 2015.

[2] Rail car project funding sources as per MTC Preliminary Transit Capital Priorities programming amounts, December 2016. Total MTC Rail Car funding committed in MTC Resolution No. 4126 revised on January 27, 2016; MTC Resolution 4123 revised on January 27, 2016; BART Resolution 5134, adopted April 22, 2010.

Bridge. MTC plans to allocate BART's share of future AB 664 funding toward the New Car Program.

- Regional Measure 2: Voters in 2004 approved Regional Measure 2 (RM2), raising the toll on the region's seven state-owned toll bridges by $1. The measure funds highway, transit, bicycle and pedestrian projects in the bridge corridors and their approaches.

LOCAL FUNDING

Santa Clara VTA

VTA and BART reached agreement in November 2001 regarding operation and maintenance of the BART system in Santa Clara County. Per the terms of the agreement, a total of $448 million in VTA funding is considered Secure in this plan, including VTA participation in the following BART District capital investments:

- Fund the purchase of new rail cars needed to serve the SVRT project, including 60 rail cars for the Phase 1 Berryessa extension (SVBX).
- Fund the portion of the Train Control Modernization program that will upgrade the SVRT segment to Communications-Based Train Control.
- Contribute funding to the planned new Transit Operations Facility.
- VTA also is responsible for paying for state of good repair costs within Santa Clara County and any impact that the extension may have on the BART system outside of Santa Clara County.

Alameda County

In November 2004, Alameda County voters approved Measure BB, which authorized $100 million for the Bay Fair Connector project and and $90 million for station modernization and capacity. Measure BB funding allocated for a future Irvington BART station ($120 million) and a Livermore rail connection ($400 million) are not included in this plan.

SFMTA Joint Use Agreement

Embarcadero, Montgomery Street, Powell Street, and Civic Center stations are used by both BART and SFMTA. BART maintains the shared use areas of all four stations, and SFMTA reimburses BART for half the cost of that maintenance under the terms of a Joint Maintenance Agreement between the two agencies. This plan forecasts that SFMTA will reimburse approximately $140 million of the investment in shared use stations over the next 15 years.

San Francisco County

In November 2014, San Francisco voters approved a general obligation bond to fund transportation improvements in the city. The bond included $30 million to help fund the new canopies to provide weather protection for the escalators serving BART/Muni stations on Market Street.

Contra Costa County

In November 2004, Contra Costa County voters approved Measure J, which took effect in 2009. BART received funding from Measure J for the BART to Antioch extension, which received $150 million in 2004, as well as $41 million for "Parking, Access, and Other Improvements" projects. Of that total, $14 million is funding active BART projects and $7 million remains unallocated.

OTHER REGIONAL FUNDING

Regional Measure 3 (RM3)

In June 2018, Bay Area voters approved Regional Measure 3 (RM3), authorizing toll increases for regional bridges that will fund $4.45 billion for transportation capital investment over 25 years and $60 million annually for transit operations. The RM3 expenditure plan includes $500 million for Phase 2 of BART's New Car Program, and $50 million to fund studies, conceptual engineering, design, and service planning for a second Transbay rail crossing.

The expenditure plan also includes $375 million to fund an extension of the BART system through San Jose to Santa Clara (SVRT Phase 2). Because Santa Clara VTA is leading this project, these funds are not included in this CIP.

STATE FUNDING

California Transit and Intercity Rail Program (TIRCP)

California's Transit and Intercity Rail Capital Program (TIRCP) provides grants from the state's Greenhouse Gas Reduction Fund for transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems, and bus and ferry transit systems to reduce emissions of greenhouse gases by reducing congestion and vehicle miles traveled throughout California. In 2018, the program awarded $318 million to BART's Train Control Modernization Program.

TIRCP grants are backed in part by $250 million per year from the statewide "Transportation Improvement Fee" (TIF) created by Senate Bill 1. Should California voters pass Proposition 6 in November 2018, this grant could be reduced or eliminated.

California Low Carbon Transit Operations Program (LCTOP)

The Low Carbon Transit Operations Program provides operating and capital assistance for transit agencies to reduce greenhouse gas emission and improve mobility, with a priority on serving disadvantaged communities. $13 million of previously-awarded LCTOP funds will support the New Car Program (Phase 1).

State Infrastructure Bonds

California voters have made funding available for transportation capital projects through propositions, including Proposition 1B (the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act in 2006) and Proposition 1A (the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century in 2008). All funds awarded through these programs have

been allocated and are now supporting BART investments in Station Modernization, HMC, rail cars, and security programs.

OTHER FEDERAL FUNDING

Other Federal (Direct FTA, FHWA, and other)

Approximately $80 million in direct grants from other federal funding sources are supporting capital projects now underway.

5.4.2 Competitive/Not Secure Funds

Competitive and Not Secure funding sources are reasonably expected but not yet committed to BART. They include a range of potential funding sources, including BART's planned operating allocations, federal funding available through the Core Infrastructure Grant Program, as well as a group of state and regional funds that may become available to BART over the life of this plan.

PLANNED BART OPERATING ALLOCATIONS

Beyond what has been identified as secure, an additional $757 million in BART operating allocations to capital will be made if funds are available. The availability of these funds, while reasonably expected, is uncertain because it depends upon factors that affect BART's operating budget, including ridership, fare revenue, sales tax revenue, inflation, and operating costs.

FEDERAL FUNDING OPPORTUNITIES

FTA Core Infrastructure Grant Program

In 2014, MTC approved Resolution No. 4123, which committed to a funding strategy to invest in new transit capacity for the core of the Bay Area. This 15-year program, called the Core Capacity Challenge Grant Program, makes funding available to the three largest transit operators – BART, Muni, and AC Transit. It includes funding for fleet replacement and enhancement, facilities upgrades, and fixed guideway infrastructure. Through this program, BART has worked with MTC to develop a funding plan for the Transbay Corridor Core Capacity Program. The plan relies on a range of discretionary federal, state, and local funding sources for which the BART projects must compete for funding.

To provide additional funding for this initiative, BART has applied for $1.25 billion in funding through the FTA's Core Infrastructure Grant Program. BART is one of three operators that has been accepted into the program and is working with FTA to refine the scope, schedule, and funding plan for the full set of projects.

LOCAL FUNDING OPPORTUNTIES

County Congestion Management Authorities

Full implementation of BART's Transbay Corridor Core Capacity Program would require participation from the Congestion Management Authorities in Alameda, Contra Costa, and San

Francisco counties. The CIP estimates the required contribution to be $300 million in total over the lifetime of Phase 2 of the Rail Car Program. BART and MTC will work with these partner agencies to develop mutually agreeable funding strategies.

STATE FUNDING OPPORTUNTIES

California Transit and Intercity Rail Program

Beyond the $318 million already awarded to BART's Train Control Modernization program, BART expects to compete for an additional $136 million in TIRCP funding for Phase 2 of the New Car Program.

State Transit Assistance (STA) - State of Good Repair

Senate Bill (SB) 1, passed in April 2017, provides for new operating and capital funding sources for public transit. SB1 funding for BART operations is discussed in Chapter 4 of this Plan.

SB1 establishes a new "Transportation Improvement Fee" (TIF) under the Vehicle License Fee law. The TIF is based on a vehicle's current market value and ranges from $25 to $175. Fee revenues are dedicated to the STA program ($105 million per year) for state of good repair investments. Based on MTC forecasts, the Plan assumes approximately $6.1 million per year from this source for BART state of good repair investments.

This funding source depends upon the results of the November 2018 election, in which California voters will vote on Proposition 6.

State Transportation Improvement Program (STIP)

California's STIP is the biennial five-year plan adopted by MTC for future allocations of certain transportation funds for state highway improvements, intercity rail, and regional highway and transit improvements. BART expects to receive approximately $17 million from the STIP.

MTC-ADMINISTERED FEDERAL & REGIONAL FUNDS

MTC's Transit Performance Initiative (TPI)

MTC's Transit Performance Initiative is a pilot program that directs federal formula funds toward low-cost capital investments that can be implemented quickly and efficiently, and are designed to increase ridership and productivity. Based on forecasts from MTC's Transit Finance Working Group, BART expects to receive $3.5 million per year with a 3% annual increase each year, for total funding of $56 million over 15 years. These funds will be directed toward the highest priority projects that increase productivity and ridership.

One Bay Area Grant Program

MTC's One Bay Area Grant program (OBAG), established in 2012, directs federal funds toward regional transportation priorities while also advancing the Bay Area's land-use and housing goals. BART estimates that it will receive approximately $2 million per year from this competitive funding source, for a total of $30 million over the 15 years of the CIP.

5.5 CAPITAL IMPROVEMENT PROGRAM ANNUAL DETAILS

Figure 5-17 Annual Capital Budget Forecast and Total Unfunded Needs by Program

Program	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	Total Funding	Secure Funding	Competitive Funding ID'd	Unfunded Needs	% of Funding ID'd
Rail Cars	506	686	793	393	72	379	679	241	72	64	56	59	45	45	45	4,448	2,882	1,254	312	93%
New Car Program (775 cars)	504	677	632	295	14	15	16	16	17	10	1	-	-	-	-	2,198	2,198	-	-	100%
New Car Program Phase 2 (306 cars)	1	8	160	98	57	364	663	225	10	9	9	13	-	-	-	1,618	681	937	-	100%
New Car Program Phase 3 (119 cars)	-	-	-	-	-	-	-	-	45	45	45	45	45	45	45	629	-	317	312	50%
Rail Car Improvements	1	1	0	0	0	0	0	-	-	-	-	-	-	-	-	3	3	-	-	100%
Track & Structures	64	47	68	106	107	106	107	105	104	104	104	104	104	105	105	3,046	1,404	35	1,607	47%
Trackway Rehabilitation Program	35	33	45	65	65	66	66	66	67	67	68	68	69	69	70	1,618	919	-	699	57%
Structures Rehabilitation Program	19	9	18	34	34	33	33	33	33	33	33	33	33	33	33	1,155	444	-	711	38%
Wayside Equipment Program	5	5	5	6	7	7	6	5	3	3	3	3	2	2	2	178	29	35	114	36%
Track Capacity Improvements (BART Metro)	5	0	1	1	1	1	1	0	0	0	0	0	0	0	0	95	12	-	83	13%
Traction Power	48	54	72	106	107	108	113	95	96	97	98	98	99	100	101	2,089	1,311	81	697	67%
Substation Renovation Program	16	14	15	16	16	17	17	17	18	18	19	19	20	20	21	767	263	-	504	34%
34.5KV Cable Replacement Program	21	15	25	42	42	42	42	42	42	43	43	43	43	43	44	609	572	-	37	94%
Traction Power Controls Program	11	8	17	33	33	33	36	36	36	36	36	36	36	36	36	614	458	-	156	75%
Core Capacity Traction Power Upgrades	-	17	15	16	16	17	18	-	-	-	-	-	-	-	-	99	18	81	-	100%
Train Control & Communications	63	210	132	170	161	135	130	89	62	46	42	28	15	15	16	1,978	1,035	277	666	66%
Train Control Modernization Program	20	200	118	163	159	132	127	81	48	32	28	14	-	-	-	1,121	844	277	-	100%
Train Control System Rehabilitation Program	41	10	14	7	2	2	3	8	14	14	14	15	15	15	16	258	188	-	70	73%
Communications & Computer Systems Rehabilitation Program	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	599	3	-	596	1%

Program	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	Total Funding	Secure Funding	Competitive Funding ID'd	Unfunded Needs	% of Funding ID'd
Stations	135	112	94	87	86	106	101	67	68	68	49	49	50	50	51	4,101	1,050	122	2,929	29%
Station Modernization Program	9	40	28	16	15	15	15	15	15	15	15	15	15	15	16	493	226	32	235	52%
Escalator/Canopy Installation Program	30	36	36	36	36	36	30	-	-	-	-	-	-	-	-	243	243	-	-	100%
Station Access Enhancement Program	58	18	12	17	17	17	17	16	16	16	16	16	16	16	16	405	190	90	125	69%
Fare Collection Systems Rehabilitation	13	8	8	8	8	8	9	8	9	9	9	9	9	9	10	237	134	-	103	57%
Station Capacity Improvements (BART	0	0	0	0	0	20	20	20	20	20	0	0	0	0	0	639	103	-	536	16%
Station Buildings & Facilities Rehabilitation Program	1	5	5	5	5	5	6	5	5	5	5	5	5	5	5	915	73	-	842	8%
Station Accessibility Improvement Program	8	3	3	4	4	4	4	4	4	4	4	4	4	4	4	392	60	-	332	15%
Wayfinding & Customer Experience Program	12	1	1	1	1	1	1	0	0	0	0	0	0	0	0	105	15	-	90	14%
Elevator & Escalator Rehabilitation Program	3	1	1	1	1	1	1	-	-	-	-	-	-	-	-	672	6	-	666	1%
Maintenance Shops, Yards, & Other	85	105	83	86	64	48	29	10	10	10	10	10	10	10	10	1,474	285	295	894	39%
Hayward Maintenance Complex Phase 1	49	27	27	27	28	11	11	0	0	0	0	0	0	0	0	387	183	-	204	47%
Hayward Maintenance Complex Phase 2	9	64	47	47	25	26	7	-	-	-	-	-	-	-	-	226	33	193	-	100%
Non-Station Buildings & Facilities	24	8	9	10	10	10	10	9	9	9	9	9	9	9	9	711	60	94	557	22%
Shop & Yard Equipment Program	3	6	1	1	1	1	1	1	1	1	1	1	1	1	1	50	9	8	33	34%
Fleet Storage Capacity (BART Metro)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	0%
Seismic Programs	36	83	83	83	82	47	-	-	-	-	-	-	-	-	-	1,915	415	-	1,500	22%
Earthquake Safety Program / TBT Seismic Retrofit	35	70	70	70	70	35	-	-	-	-	-	-	-	-	-	350	350	-	-	100%
Caldecott BART Tunnel Seismic Retrofit Program	-	12	12	12	12	12	-	-	-	-	-	-	-	-	-	1,060	60	-	1,000	6%
A-Line Seismic Program	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	505	5	-	500	1%
System Expansion	26	36	33	20	20	18	21	17	17	17	17	17	17	17	17	343	308	-	35	90%
Transbay Crossing Study & Crowding Relief Program	4	0	4	10	10	10	17	17	17	17	17	17	17	17	17	191	191	-	-	100%
New BART Transit Operations Facility	-	14	7	7	7	7	2	-	-	-	-	-	-	-	-	78	43	-	35	55%
Legacy (completed expansion projects)	12	12	12	3	3	1	1	-	-	-	-	-	-	-	-	43	43	-	-	100%
Silicon Valley Extensions	10	10	10	-	-	-	-	-	-	-	-	-	-	-	-	30	30	-	-	100%
System Expansion Planning	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	100%

Program	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	Total Funding	Secure Funding	Competitive Funding ID'd	Unfunded Needs	% of Funding ID'd
Electrical & Mechanical Infrastructure	54	11	17	27	27	26	26	22	22	22	22	22	22	22	22	2,123	363	2	1,758	17%
Mechanical Infrastructure Rehabilitation Program	2	2	4	8	8	8	8	8	8	8	8	8	8	8	8	685	107	-	578	16%
Electrical Infrastructure Rehabilitation Program	48	5	7	10	10	10	10	7	7	7	7	7	7	7	7	891	152	2	737	17%
Lighting Rehabilitation & Upgrades Program	3	3	5	9	9	9	9	7	7	7	7	7	7	7	7	547	104	-	443	19%
System Support	17	53	53	51	45	73	103	57	32	26	21	17	12	9	9	879	67	511	301	66%
Core Capacity Support Program	0	39	39	38	32	60	90	46	21	17	13	9	3	-	-	406	43	363	-	100%
Information Technology Program	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	92	3	63	26	72%
Sustainability Program	5	5	5	5	5	5	5	3	3	3	3	3	3	3	3	59	10	49	-	100%
Real Estate Program	4	3	3	3	3	3	2	2	2	-	-	-	-	-	-	25	7	18	-	100%
BART to Oak and eBART Asset Replacement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	58	-	18	40	31%
Climate Adaptation & Resiliency Program	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	232	3	-	229	1%
BART Police Capital Program	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	7	1	-	6	14%
Contingency	1	24	29	29	28	28	41	42	52	61	72	60	61	62	64	-	168	487	(655)	
Total	**1,035**	**1,421**	**1,457**	**1,158**	**798**	**1,077**	**1,349**	**745**	**535**	**515**	**491**	**465**	**435**	**435**	**439**	22,396	9,288	3,064	10,044	55%

ACRONYM LIST

Acronym	Description
AB	Assembly Bill
ADA	Americans with Disabilities Act
ADC	Actuarial Determined Contribution
AMGF	Asset Management Governance Framewor
AMSC	Asset Management Steering Committee
CalPERS	California Public Employee Retirement System
CARP	Capital Asset Replacement Program
CBTC	Communication-Based Train Control
CBTP	Community-Based Transportation Planning program
CCRP	Commercial Communications Revenue Program
CCTV	Closed-Circuit Television
CIP	Capital Improvement Program
CMAQ	Congestion Mitigation and Air Quality
CPI	Consumer Price Index
CPUC	California Public Utilities Commission
DCC	Doppelmayr Cable Car
DMU	Diesel Multiple Unit
eBART	East Contra Costa Bart Extension
EBPC	East Bay Paratransit Consortium
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
HMC	Hayward Maintenance Complex
HVAC	Heating, Ventilation, And Air Conditioning
ICS	Integrated Computer Systems
LCFS	Low Carbon Fuel Standard Program
LCTOP	Low Carbon Transit Operations Program
LEP	Limited-English-Proficiency
MOU	Memorandum of Understanding
MTBSD	Mean Time Between Service Delays

Acronym	Description
MTC	Metropolitan Transportation Commission
MWh	Megawatt hour
O&M	Operations and Maintenance
OAK	Oakland International Airport
OCC	Operations Control Center
OCIO	Office of the Chief Information Officer
OPEB	Other Post Employment Benefit
PEPRA	California Public Employees' Pension Reform Act
PG&E	Pacific Gas and Electric Company
RM2	Regional Measure 2
RM3	Regional Measure 3
RS&S	Rolling Stock and Shops
RTP	Regional Transportation Plan
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SEIS	Supplemental Environmental Impact Statement
SEIR	Subsequent Environmental Impact Report
SFIA or SFO	San Francisco International Airport
SFMTA	San Francisco Municipal Transportation Agency (Muni)
SFO	San Francisco International Airport
SRTP	Short Range Transit Plan
STA	State Transit Assistance
STP	Surface Transportation Program
SVBX	Silicon Valley Berryessa Extension
SVSX	Silicon Valley Santa Clara Extension
SVRT	Silicon Valley Rapid Transit
TAM	Transit Asset Management
TCP	Transit Capital Priorities
TIF	Transportation Improvement Fee
TIP	Transportation Improvement Program
TIRCP	Transit and Intercity Rail Capital Program
TNC	Transportation Network Companies
TOD	Transit-Oriented Development
TPI	Transit Performance Initiative
TSP	MTC Transit Sustainability Project
UON	Unified Optical Network
VTA	Santa Clara Valley Transportation Authority