



CALENDAR YEAR 2020  
REPORT OF  
STATE SAFETY OVERSIGHT ACTIVITIES  
FOR  
RAIL FIXED GUIDEWAY PUBLIC TRANSPORTATION SYSTEMS  
IN CALIFORNIA



*California Public Utilities Commission*

*Rail Safety Division*

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## EXECUTIVE SUMMARY

The California Public Utilities Commission (CPUC) regulates the safety and security of 15 rail transit agencies (RTAs) in California. Eight of these RTAs are jurisdictional to and funded in part by the Federal Transit Administration (FTA). The Rail Safety Division's (RSD) Rail Transit Safety Branch (RTSB) is responsible for the CPUC's rail transit safety oversight program.

This report is part of the CPUC's annual reporting requirements regarding its rail transit safety program. There are two elements of annual reporting to FTA that the CPUC must meet. In order to comply with the regulations established by the FTA, all State Safety Oversight Agencies (SSOA) must upload certain required documents and data regarding their oversight activities each calendar year (CY) into an FTA online reporting system. The CPUC must submit these documents and data by March 15 of each year that include the following information:

- Summary of its oversight activities for the previous year;
- Description of the causal factors of accidents identified through investigation and identifies the status of corrective actions;
- Any changes to the Public Transportation Agency Safety Plans of each FTA-regulated RTA; and
- The level of effort by the SSOA in carrying out its oversight activities.

In addition, FTA regulations require that at least once a year, the SSOA report the status of the safety of each RTA under their jurisdiction to their Governor, the FTA, and the board of directors, or equivalent entity, of RTAs.

This report summarizes the data and information submitted to the FTA's online reporting system, outlining CPUC's rail transit safety program and RTSB's activities for CY 2020. Specifically, this report summarizes the CPUC staff hours and core activities that comprise the safety oversight effort of the program and the audit, inspection, investigation and capital project oversight activities conducted in carrying out the program in 2020. In addition, data and information for all RTAs, information regarding the types of accidents each RTA has reported, and the primary causal factors for those accidents are discussed.

### **Impacts of Coronavirus Pandemic**

Due to the novel Coronavirus Disease 2019 (COVID-19) pandemic, in-person meetings with RTAs were limited to reduce the transmission of the disease. As a result, in CY 2020, the CPUC limited its activities to those that were deemed safe under coronavirus prevention protocols. However, the CPUC continued conducting its safety oversight activities on RTAs, but it took a number of steps to do so in compliance with U.S. Department of Health and Human Services' Centers for Disease Control and

Prevention (CDC), state, and local health safety requirements. These steps limited contact to the extent possible between CPUC staff and RTA personnel. Routine field work was typically conducted by one or more inspectors making inspections and observations of the operations and infrastructure, and subsequently transmitting the inspection report and any findings to the RTA. RTA personnel and participating CPUC staff reviewed accident videos remotely, or by in-person meetings following social distancing and mask protocols. CPUC staff also participated in capital project meetings that were conducted virtually by RTAs and their contractors.

### **CPUC Staff Resources Devoted to Rail Transit Safety Oversight**

RTSB and other CPUC staff (including staff from other RSD branches, and the Legal and Administrative Law Judges Divisions) performed approximately 61,290 hours of safety and security oversight activities during the reporting period, for both non-FTA funded and FTA funded RTA's. This is approximately the same as in 2019, although the number of staff hours varied amongst the categories, largely due to the changes necessitated by the COVID-19 pandemic.

### **Comprehensive Triennial Audits**

Due to the COVID-19 pandemic, triennial audits scheduled for 2020 were postponed due to the risk to CPUC staff and RTA personnel resulting from the nature and scope of these comprehensive in-depth audits. However, CPUC staff conducted many other safety oversight activities that could be done safely without exposing CPUC staff and others to risks of COVID-19 transmission.

In response to the COVID-19 pandemic the CPUC issued Resolution ST-241 (12/18/2020), which delegated to the Director of RSD temporary ministerial authority to extend the timeframes for conducting triennial audits of California RTAs, required by Commission General Order 164-E. Additionally, the Resolution also authorized the RSD Director to extend the timeframes for retraining and recertification of RTA's employees.

### **Field Inspections of Rail Transit Facilities, Vehicles, and Operations**

RTSB inspectors conducted 227 inspections during the reporting period, while participating in numerous accident investigations. This was a 27% drop from the previous year, also primarily due to the COVID-19 pandemic. As a result of the pandemic, one major RTA shut down service for over 9 months, and 4 of 7 small non-FTA regulated agencies ceased service immediately after the pandemic began, and one is still under construction and not yet operating.

### **Accident Investigations**

RTAs reported 224 rail transit accidents during CY 2020. CPUC staff investigated and/or reviewed and approved the majority of the RTA reports for these accidents, however some still remain open and under investigation. The purpose of the accident investigation reports is to assure the RTA identified

the causal and contributory factors leading to the accident and to prevent recurrence. The majority (approximately 67 percent) are related to collisions with vehicles and pedestrians/bicycles at rail crossings or along street-running transit lines. Data provided herein indicate the number and types of accidents for all agencies and also by individual RTA.

### **Capital Projects**

CPUC staff spend a significant portion of their time on safety oversight of RTA capital projects. California has numerous capital projects, particularly in the Los Angeles area as they prepare for the 2028 Olympics City of Los Angeles will be hosting. Capital projects include new vehicle procurement projects, line extensions for service to new areas, major infrastructure projects such as electric substations, new dispatch and emergency operations centers, new train control systems, seismic retrofit projects, and others. There are currently over 20 active major rail transit projects that are in active stages of construction, as detailed herein.

### **Corrective Action Plans**

CPUC staff reviewed 249 Corrective Action Plans (CAPs) during CY 2020 from all sources; a 31% drop from the previous year. CAPs are generated by accident investigations, identified system hazards, inspections, triennial audits, internal safety audits (conducted by RTAs), consumer complaints and potentially other sources. CPUC staff approved for closure 164 (66%) of those CAPs. The remainder are in various stages of completion and CPUC staff continues to monitor their progress.

### **Enforcement Actions**

CPUC staff did not initiate new enforcement actions in CY 2020, but they continued to monitor compliance with previous CPUC Decisions applicable to the Bay Area Rapid Transit District (BART). CPUC staff filed a report with the Commission in January of 2021 regarding BART's compliance with the Commission's Decision and BART's efforts to improve their overall safety culture.



## BACKGROUND

The US Congress enacted, and President Obama signed into law the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) on July 6, 2012. Among several other things, MAP-21 required the FTA to adopt a comprehensive Public Transportation Safety Program, one element of which is to strengthen the rail transit State Safety Oversight program of the FTA required by 49 CFR Part 659.

The CPUC has a long-standing rail transit safety oversight program which pre-dates the federal program, which began in the early 1990's. The CPUC was given authority by the legislature as early as the mid-1950's over the safety of rapid transit systems in California, at first by individual RTAs as they were created. In the 1970's, during the construction of the Bay Area Rapid Transit (BART) system, that authority was broadened by the legislature to include all systems. Specifically, California Public Utilities Code § 99152<sup>1</sup> makes all fixed guideway public transportation systems in California planned, acquired, or constructed, on or after 1979 subject to the regulations of the CPUC. The CPUC has developed a rigorous and comprehensive program over the years to assure the safety of systems under its jurisdiction.

On October 13, 1992, pursuant to the requirements of the federal Intermodal Surface Transportation Efficiency Act of 1991, Governor Pete Wilson designated the CPUC as the state agency charged with overseeing the development and implementation of safety plans for all fixed guideway transit systems in California, referred to as the State Safety Oversight Agency (SSOA) by the FTA. Subsequently, in 1996 the FTA adopted 49 CFR Part 659, which was the federal regulation for SSOAs such as the CPUC, which describes requirements to meet regarding its public transportation fixed guideway safety oversight obligations.

MAP-21 required the FTA to develop certification requirements for SSOAs, such as the CPUC, and provides for grants to eligible states to develop or carry out rail fixed guideway public transportation safety oversight programs. The FTA developed interim certification requirements based on the Congressional direction provided by MAP-21 until it took the steps to develop regulations to

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<sup>1</sup> Public Utilities Code §99152 states “*Any public transit guideway planned, acquired, or constructed, on or after January 1, 1979, is subject to regulations of the Public Utilities Commission relating to safety appliances and procedures. The commission shall inspect all work done on those guideways and may make further additions or changes necessary for the purpose of safety to employees and the general public. The commission shall develop an oversight program employing safety planning criteria, guidelines, safety standards, and safety procedures to be met by operators in the design, construction, and operation of those guideways. Existing industry standards shall be used where applicable. The commission shall enforce the provisions of this section.*”

strengthen 49 CFR Part 659. On October 1, 2013, the FTA certified the CPUC SSOA program as one of only two in the nation whose existing program met all interim certification requirements and thus was made eligible for grant funding. Subsequently, the CPUC passed Resolution ST-169 (10/2/2014), which authorized CPUC staff to apply for the available grant funding for the CPUC’s SSOA program. On July 2, 2015, the FTA approved the CPUC’s first SSOA grant funding application. The CPUC has applied for and received six grants thus far totaling \$23,773,702. CPUC’s grant application for the 2021 fiscal year has been submitted in the amount allocated for California for the year, \$3,821,734.

As required by MAP-21, in order to strengthen the SSOA program requirements of 49 CFR Part 659, the FTA adopted new requirements in 49 CFR Part 674, which became effective on April 15, 2016. Under the MAP-21 requirements, three years from that date (April 15, 2019) 49 CFR Part 659 was rescinded and only 49 CFR Part 674 provides authority for the SSOA program.

With the adoption by the FTA of 49 CFR Part 674, the CPUC made changes to its fixed guideway public transportation safety oversight program in 2017 and 2018 in order to attain FTA certification under Part 674 requirements. The CPUC submitted its Certification Application to the FTA and obtained certification on October 23, 2018, well ahead of the April 15, 2019 deadline.

In order to comply with the new regulations in 49 CFR Part 674.13(a)(7) and 49 CFR 674.39 (a)(3), every SSOA that oversee Rail Fixed Guideway Public Transportation Systems (RFGPTS, as defined in 49 CFR Part 674) must submit an Annual Report that summarizes its oversight activities for the preceding 12 months. This report describes the causal factors of accidents identified through investigation, and identifies the status of corrective actions, changes to Public Transportation Agency Safety Plans, and the level of effort by the SSOA in carrying out its oversight activities. Accordingly, this report provides the data required for CY 2020.

## OVERVIEW OF CPUC’S RAIL TRANSIT SAFETY OVERSIGHT PROGRAM

The CPUC currently oversees 15 RTAs, of which eight receive FTA funding and are thus subject to FTA regulations. The remaining seven do not receive FTA funding and are not subject to FTA regulations.

### RTAs Subject to FTA Regulations

- Bay Area Rapid Transit District (BART)
- Los Angeles County Metropolitan Transportation Authority (LACMTA or Metro)
- North [San Diego] County Transit District (NCTD or Sprinter)
- Orange County Transportation Authority (OCTA or OC Streetcar)
- San Francisco Municipal Transportation Agency (SFMTA or Muni)
- Sacramento Regional Transit District (SRTD)
- San Diego Trolley, Inc. (SDTI)



- Santa Clara Valley Transportation Authority (VTA)

RTAs Not Subject to FTA Regulations

- Americana at Brand Trolley
- Angels Flight Railway Company (funicular)
- Getty Center Museum Automated People Mover (APM)
- The Grove Trolley
- Los Angeles World Airports (LAWA) Automated People Mover
- Sacramento County Department of Airports (SCDOA) Automated People Mover
- San Francisco International Airport (AirTrain) Automated People Mover

From the systems listed above, the following are currently under construction and are not yet operating:

- LAWA APM
- OC Streetcar

In addition, the following systems are in various stages of development and have not yet been awarded full grant funding from the FTA:

- Downtown Sacramento Riverfront Streetcar (Cities of Sacramento and West Sacramento)
- Los Angeles Streetcar (City of Los Angeles)

**Rail Transit Safety Branch Structure**

RTSB is responsible for conducting the CPUC’s rail transit safety oversight program activities. RTSB has 33 authorized staff positions located in San Francisco, Los Angeles, Sacramento, and San Diego, as well as home-based inspectors and other staff to provide California effective safety oversight of the rail transit and other fixed guideway systems under the CPUC’s jurisdiction. RTSB has two Sections: Rail Transit Safety Section (staff engineers and analysts) and Rail Transit Operations Safety Section (field inspectors). Each Section has Supervisors and Senior Engineers or Senior Inspectors to guide their respective teams in Northern and Southern California as shown in Figure 1.

# Rail Transit Safety Branch

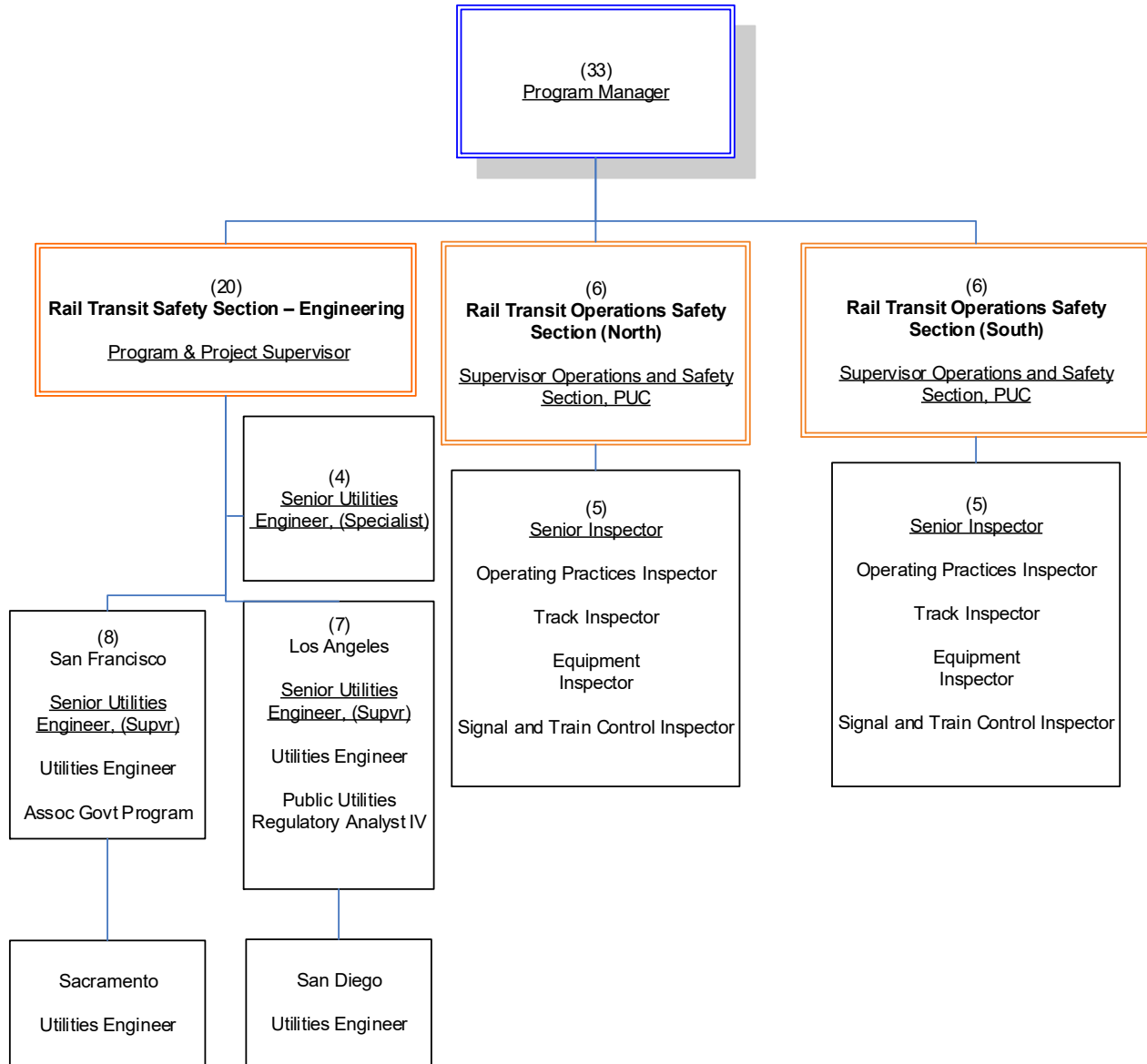


Figure 1: RTSB Organizational Chart

FTA requires SSOAs to develop qualified staff to conduct the rail transit safety oversight activities and provide them a minimum level of initial and refresher training pursuant to 49 CFR Part 672 (FTA’s Public Transportation Safety Certification Training Program rules). RTSB staff are highly qualified, and

RTSB developed and submitted to the FTA a Technical Training Plan (TTP) as part of the FTA certification process.

FTA's 49 CFR 674.27 requires SSOAs to adopt and distribute a written program standard (procedures manual) and at least once a year submit it to the FTA with an indication of any revisions made. Accordingly, RTSB's Program Standard identifies staff positions responsible for, and describes the practices to be followed in, conducting its SSOA program; sets forth the processes and procedures RTSB uses in implementing the various aspects of the safety oversight program; and is posted on the CPUC's web site at [www.cpuc.ca.gov/rtsb](http://www.cpuc.ca.gov/rtsb).

RTSB's Program Standard includes, but is not limited to:

- System safety and security program management and oversight of the design, construction, safety certification, internal safety and security audits, operation and maintenance of rail fixed guideway transportation systems;
- Review and approval of RTA's Public Transportation Agency Safety Plan (previously System Safety Program Plan), System Security Plan, Safety Certification Plans (SCPs), accident investigation procedures, accident investigation reports, annual internal safety and security audit reports, hazard management and corrective action plans and schedules;
- Reporting and investigating events (including accidents) and hazards;
- Performing triennial audits;
- Inspections;
- Hazard management;
- Handling formal and informal complaints; and
- Procedure for Enforcement Actions.

## CORONAVIRUS PANDEMIC IMPACTS

In 2020, the CPUC received multiple inquiries from RTAs regarding compliance issues created by the COVID-19 pandemic, and a resulting inability or potential inability of RTAs to maintain compliance with CPUC training and recertification requirements applicable to RTAs. Additionally, both CPUC staff and RTA personnel had concerns that they may be so constrained by health protocols that they will be unable to conduct mandated comprehensive triennial audits safely and effectively.

### Triennial Audits

Generally, in order to carry out the processes and procedures pertaining to the comprehensive triennial audits, CPUC staff make on-site visits to RTA facilities. CPUC staff review documents and conduct interviews with RTA supervisors, employees and contractors, inspect infrastructure and rail vehicles (such as, passenger cars and maintenance vehicles), monitor operations, evaluate maintenance practices, and engage in other activities that are routine elements of triennial audits. CPUC typically performs

comprehensive triennial audits of three to four RTAs per year, each of which requires a large number of CPUC staff to devote two or more weeks, involving overnight travel and significant interaction with coworkers, RTA personnel, and others.

After discussing and analyzing various options on conducting triennial audits, CPUC staff and RTA personnel determined that it would be possible to conduct some, but not all, required activities either virtually or by utilizing procedures to maintain physical distancing. In many instances it is not possible to carry out required activities while remaining in compliance with COVID-19 related guidance and directives. CPUC staff concluded that triennial audits performed primarily remotely would be inadequate. Moreover, since triennial audits are a backwards-looking review of RTAs activities and conduct for the last three years, and since CPUC staff's general transit safety oversight activities are ongoing, delaying the triennial audits to the following CY is unlikely to compromise safety.

### **Employee Retraining and Recertifications**

RTAs are required to provide training and recertification for their personnel's job classification, as well as two-year medical evaluations for vehicle operators. Several RTAs have requested that recertifications be allowed to exceed the intervals CPUC General Orders (GOs) require, because of the difficulty in getting the medical exams and safely providing in-person training during the COVID-19 pandemic. RTAs requested these extensions only for re-training and re-certification, and not for new or transferred employee appointments. In addition, RTA worked on transitioning to computer-based virtual training wherever possible.

### **Resolution ST-241**

The Commission issued Resolution ST-241 (10/18/2020), which delegated to its Director of Rail Safety Division temporary ministerial authority to extend timeframes for triennial audits of California RTAs, and timeframes for retraining and recertification of certain RTA employees, pursuant to conditions and restrictions outlined in the Resolution.

## **SUMMARY OF OVERSIGHT ACTIVITIES OF ALL RAIL TRANSIT AGENCIES IN CALENDAR YEAR 2020**

### **Summary of CPUC Safety Oversight Activities**

In typical years CPUC's SSOA activities fall into the following major categories:

- conducts comprehensive triennial audits of RTAs (none were conducted in 2020 due to COVID-19 pandemic)
- perform ongoing inspections of RTA facilities, operations, and construction projects to assess compliance with federal and state regulations, including CPUC GOs

- monitor RTA operational and safety activities
- evaluates new SCPs covering new major projects
- evaluate and recommend certain RTA safety plans for Commission approval
- makes recommendations to CPUC leadership to develop new or modify existing GOs related to RTA safety
- facilitates communication between the FTA and RTAs by notifying RTAs of all FTA Safety Directives and Safety Advisories
- collects data requested by the FTA from RTAs
- assess RTA compliance with industry standards and with the RTAs’ own operating procedures
- review and approve accident investigation reports prepared by RTAs
- participate in the RTA accident or other investigations if RTSB management determines it is necessary or appropriate
- participates in National Transportation Safety Board (NTSB) investigations when they occur at jurisdictional RTAs in California
- if RSD management deems necessary, conduct its own investigations of certain accidents

As shown in Table 1 below, during the reporting period covered by this Annual Report, CPUC staff (including 33 authorized RTSB positions, as well as CPUC staff from the Rail Crossings and Engineering Branch of RSD, the Legal Division, and the Administrative Law Judges Division) spent 61,290 (59,435.30 for FTA funded RTAs plus 1,854.50 for non-FTA funded RTAs) hours in carrying out its safety and security oversight activities.

Program Activity	Total Hours				2020 - 2019 % Diff	
	2019		2020		Non-FTA Funded	FTA Funded
	Non-FTA Funded	FTA Funded	Non-FTA Funded	FTA Funded	Non-FTA Funded	FTA Funded
Developing Policy/Standards, Supporting Management, Special Projects	0.00	9,627.05	0.00	9,672.30	0.00%	0.47%
Other Transit Safety Oversight/Investigations	1,093.50	9,164.50	448.50	10,478.00	-58.98%	14.33%
Inspections	321.00	8,504.50	234.00	7,030.00	-27.10%	-17.34%
Accident Investigations	20.00	7,033.25	0.00	6,726.50	-100.00%	-4.36%
Managing/Supervising	133.00	6,399.00	223.00	9,678.00	67.67%	51.24%
Certifying Capital Projects	931.00	3,810.75	393.00	5,078.50	-57.79%	33.27%
Triennial Audits	1,739.50	3,270.50	198.00	1,086.00	-88.62%	-66.79%
Miscellaneous *	284.00	3,007.50	358.00	4,758.00	26.06%	58.20%
Rail Transit Crossings	0.00	2,207.50	0.00	2,819.50	0.00%	27.72%
Training (receiving and giving)	0.00	1,991.50	0.00	2,002.50	0.00%	0.55%
Administrative Law Judges Division/Legal Division	12.00	669.00	0.00	106.00	-100.00%	-84.16%
Total	4,534.00	55,685.05	1,854.50	59,435.30	-338.77%	13.14%
*Miscellaneous includes – Administrative Submittals, Responses to Public Records Act Requests, Responses to FTA inquiries, Responses to general inquiries, and Staff Meetings.						

Table 1: Summary of SSOA Program Staff Activities for Calendar Years 2019 and 2020

### Rail Transit Inspections

California is one of only a few states to have inspectors for its rail transit oversight program (in addition to inspectors in CPUC's Railroad Operations and Safety Branch for freight and commuter rail systems) with broad experience in specific rail transit disciplines that are core to the industry, who are primarily out in the field conducting facility, equipment, and operations inspections. The CPUC has developed a rigorous inspection program to determine whether the plans, procedures, processes and training



outlined in the various Standard Operating Procedures, safety plans, and other RTA documents are carried out by RTA employees in the field as they operate and maintain their system. This has become one of the most valuable components of the CPUC's SSOA program. Since its inception, RTSB inspectors have found RTA employees/contractors in the field straying from the established written procedures, potentially leading to failures and sometimes accidents.

RTSB inspectors performed 227 inspections in CY 2020. RTSB's inspection program is divided into the Northern California inspection team and Southern California inspection team. Each team has a supervisor, a senior inspector, and one inspector in each of the four rail transit disciplines (areas of expertise): (1) track, (2) signal and train control, (3) equipment/mechanical (rail vehicles), and (4) operating practices.

RTSB inspectors conduct both announced and unannounced inspections. Any findings of the inspections are discussed with RTA personnel before RTSB inspectors depart from the inspection site. Often, RTSB inspectors conduct joint inspections in shared rail corridors with inspectors from the CPUC's Railroad Operations and Safety Branch and/or the Federal Railroad Administration. After each inspection, RTSB senior inspector sends an inspection report to the RTA. If the inspection identifies safety concerns that require corrective action, the RTA must respond within 30 days with either completed corrective actions, or a corrective action plan (CAP) with a timeline for its implementation and the RTA personnel responsible for its completion. RTSB inspectors monitor responses and field-verify the corrective actions. The inspection case file is considered closed when RTSB sends a follow-up report to the RTA accepting the corrective action or CAP. RTSB inspectors track CAPs to closure.

Table 2 below summarizes the inspection activities conducted by RTSB inspectors. Due to the COVID-19 pandemic, inspection activities conducted decreased from the previous year by 28 percent for FTA funded RTAs, and 16 percent for Non-FTA funded RTAs, for a grand total of 27 percent for all RTAs. The FTA funded RTAs are larger operations (larger systems, operating more trains, at longer distances, and transporting more passengers) than the non-FTA funded RTAs, as a result CPUC focuses majority of its activities on the FTA funded RTAs.

## CALENDAR YEAR 2020 ANNUAL REPORT –STATE SAFETY OVERSIGHT OF RAIL FIXED GUIDEWAY SYSTEMS

	Agency	Total between January 1, 2019 to December 31, 2019	Total between January 1, 2020 to December 31, 2020	2020-2019 % difference
<b>FTA FUNDED</b>	Sacramento Regional Transit District	61	37	-39%
	Bay Area Rapid Transit (BART)	38	29	-24%
	San Francisco Municipal Transportation Agency	25	12	-52%
	Santa Clara Valley Transportation Authority	46	33	-28%
	Los Angeles Metropolitan Transportation Authority	73	55	-25%
	North [San Diego] County Transit District (Sprinter)	19	17	-11%
	San Diego Trolley, Inc.	31	28	-10%
	FTA Funded Sub Total	293	211	-28%
<b>NON-FTA FUNDED</b>	Angels Flight Railway Company	1	6	500%
	Sacramento International Airport APM	5	1	-80%
	Getty Center Museum APM	5	0	-100%
	San Francisco International Airport (AirTrain) APM	3	3	0%
	Americana at Brand/The Grove Trolley	5	6	20%
	Non-FTA Funded Sub Total	19	16	-16%
	<b>Grand Total</b>	<b>312</b>	<b>227</b>	<b>-27%</b>

Table 2: RTSB Inspections for Calendar Years 2019 and 2020

## Accident Investigations

As prescribed in the RTSB's Program Standard, causal factors are identified through accident investigations and documented in the Commission's Rail Safety and Security Information Management System (RSSIMS) database.

RTAs are required to report accidents<sup>2</sup> and incidents<sup>3</sup> to CPUC. GO 164-E requires RTAs to investigate and CPUC staff to review and approve the RTA's accident investigation reports. In some cases, CPUC staff conduct a separate investigation of certain accidents. CPUC staff track accident investigation closeouts by RTAs and any CAPs associated with the accidents. In some cases, the CPUC staff may conduct additional on-site accident follow up investigations to obtain more detailed information. Workload associated with this element is highly variable due to the number and complexity of the investigations, as well as other factors. In CY RTAs reported 224 accidents.



**SRTD GRADE CROSSING ACCIDENT**

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<sup>2</sup> Commission GO 164-E, 2.1: *Accident* means an event that involves any of the following: a loss of life; a report of a serious injury to a person; a collision involving a rail transit vehicle; a runaway train; an evacuation for life safety reasons; or any derailment of a rail transit vehicle, at any location, at any time, whatever the cause.

<sup>3</sup> Commission GO 164-E, 2.13: *Incident* means an event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock or infrastructure that disrupts the operations of a rail transit agency.

### Accident Types

	LACMTA	MUNI	NCTD	SRTD	SDTI	BART	VTA	Total
Evacuation/Fire/Smoke	0	0	0	1	0	2	2	5
Other/Train vs Train/Yard Collision	5	10	8	8	0	3	11	45
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider)	19	2	1	14	7	10	11	64
Train vs Vehicle	28	24	0	14	8	0	12	86
Mainline Derailment/Yard Derailment	5	2	0	3	0	12	2	24
<b>Grand Total</b>	<b>57</b>	<b>38</b>	<b>9</b>	<b>40</b>	<b>15</b>	<b>27</b>	<b>38</b>	<b>224</b>

Table 3: Types of Accidents Reported by All Rail Transit Agencies in Calendar Year 2020

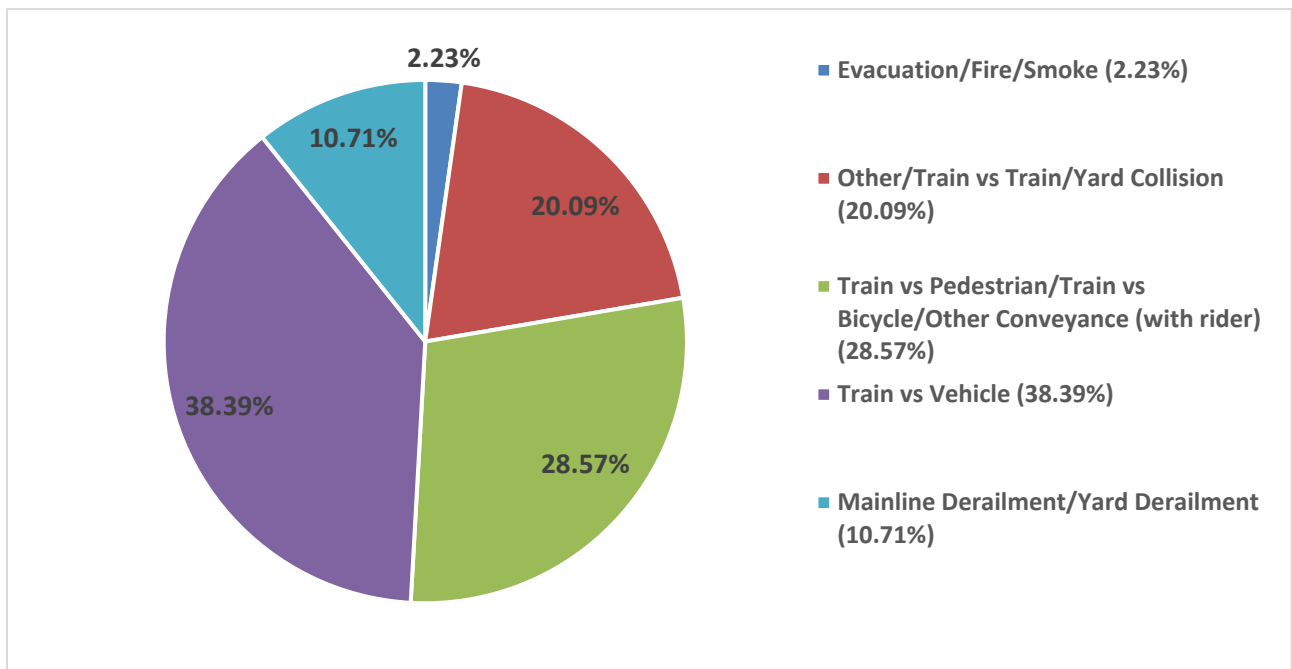


Figure 2: Types of Accidents Reported by All Rail Transit Agencies in Calendar Year 2020

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage, evacuations, or a collision with an object such as debris or shopping carts left on or next to the tracks.

## CALENDAR YEAR 2020 ANNUAL REPORT –STATE SAFETY OVERSIGHT OF RAIL FIXED GUIDEWAY SYSTEMS

**Accident Primary Causal Factors**

Primary Causal Factors	2019		2020		2020-2019 % difference
	Total Accidents	Percentage of Accidents	Total Accidents	Percentage of Accidents	
Action of Motorist, Non-transit auto driver at fault	144	42.60%	67	29.91%	-53.47%
Operating Rule Violation/ Human Factor, Employee error or organizational issue	75	22.19%	45	20.09%	-40.00%
Under Investigation	56	16.57%	9	4.2%	-83.93%
Other, Acts of Nature/ Unknown	29	8.58%	21	9.38%	-27.59%
Trespasser, Trespasser action	24	7.10%	25	11.16%	4.17%
Pedestrian Actions, Pedestrian at fault	20	5.92%	10	4.46%	-50.0%
Suicide, Suicides and suicide attempts	19	5.62%	18	8.04%	-5.26%
Imprudent Customer Actions, Inappropriate patron or passenger behavior on vehicles or in stations	12	3.55%	15	6.70%	25.00%
Equipment Failure, System component failure	8	2.37%	10	4.46%	25.00%
Poor Maintenance, System not properly maintained	5	1.48%	4	1.79%	-20.00%
Slips and Falls, Slips and falls in station or vehicle	2	0.59%	0	0.00%	0.00%
Medically Related, Illness, heart-attacks	0	0.00%	0	0.00%	0.00%
<b>Grand Total</b>	<b>338</b>	<b>100%</b>	<b>224</b>	<b>100%</b>	<b>-33.73%</b>

Table 4: Primary Causal Factors Identified through Accident Investigation for Calendar Years 2019 and 2020

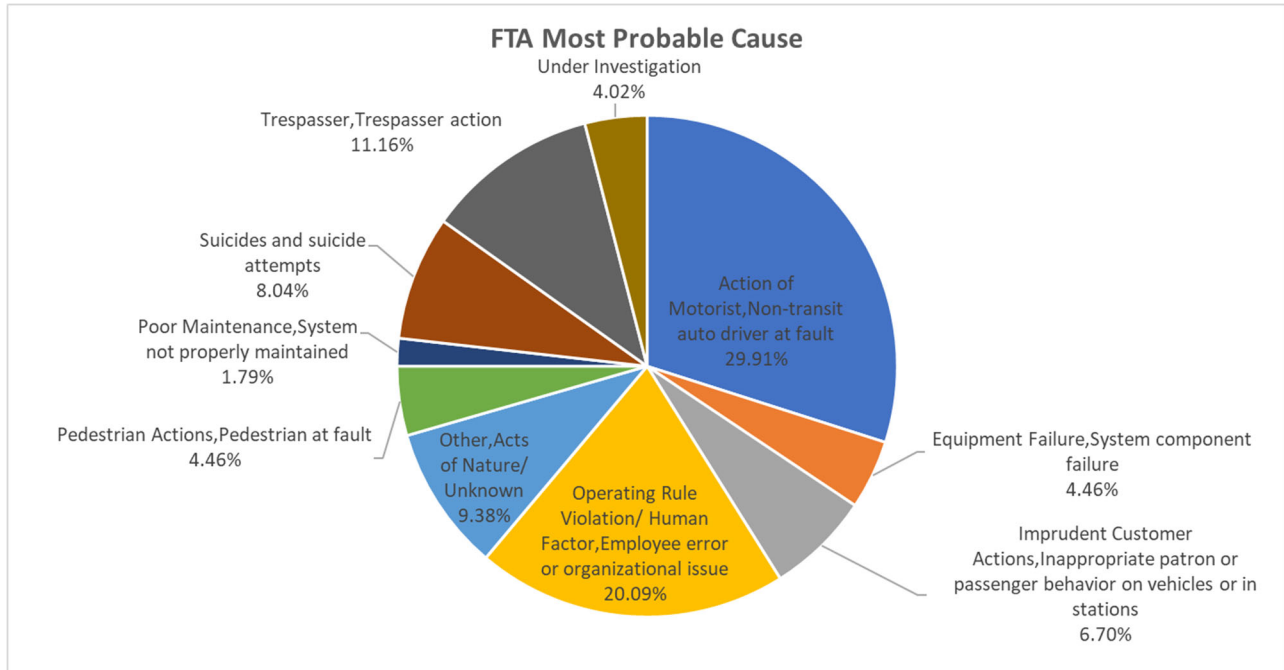


Figure 3: Primary Causal Factors Identified through Accident Investigation in Calendar Year 2020

### National Transportation Safety Board Accident Investigations

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and any significant accidents in other modes of transportation – rail, highway, marine and pipeline. The NTSB determines the probable cause of accidents and issues safety recommendations aimed at preventing future accidents.

When a rail transit accident occurs, the NTSB may initiate an accident investigation depending upon the severity of the accident. In such a case, the NTSB is responsible for leading the investigation, including the determination of facts, conditions, and circumstances, the cause or probable causes, and recommendations to reduce the likelihood of recurrence. CPUC staff work with the NTSB and participate along with the involved RTAs to complete any accident investigation the NTSB chooses to investigate. The NTSB will typically address any accident findings through recommendations to the involved parties that they believe would have prevented or mitigated the accident.



On August 22, 2019, Sacramento Regional Transit District revenue train collided with a train allowed onto the mainline track for testing a mechanical problem. The NTSB chose to investigate this accident. SRTD personnel and CPUC staff participated in the investigation. NTSB has not yet issued its report.



**NTSB Personnel and CPUC Staff at SRTD Train vs Train Collision Site**

CPUC staff are also working on the CPUC accident investigation and report.

### **Corrective Action Plans**

As described previously, CAPs are developed by RTAs and tracked by CPUC staff. CPUC and FTA rules require RTAs to develop CAPs for investigations of events; hazard management; triennial audits conducted by CPUC; internal safety/security reviews conducted by the RTAs; and other purposes. CAPs describe the proposed corrective actions and the responsible RTA personnel who will implement and track the CAP to closure. CPUC staff review the proposed CAPs to determine their adequacy in addressing the issue, and either approve or require modifications to the CAP. CPUC staff hold routine meetings with RTA personnel to assess CAP status and update CPUC records. In CY 2020, CPUC staff reviewed 249 CAPs, as shown in Table 5 below.

## CALENDAR YEAR 2020 ANNUAL REPORT –STATE SAFETY OVERSIGHT OF RAIL FIXED GUIDEWAY SYSTEMS

FTA Category	CAPs Generated in CY 2019			CAPs Generated in CY 2020			2020-2019 % Diff in number of CAPs
	Number	CAP Status		Number	CAP Status		
		Open	Closed		Open	Closed	
<b>Bay Area Rapid Transit</b>							
Accident Investigation	13	0	13	16	9	7	23%
Hazard Management	0	0	0	0	0	0	0%
Inspection	9	5	4	14	7	7	56%
Internal Safety Audit Program	0	0	0	0	0	0	0%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	22	5	17	30	16	14	36%
<b>San Francisco Municipal Transportation Agency</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	4	0	4	1	1	0	-75%
Internal Safety Audit Program	8	4	4	0	0	0	-100%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	12	4	8	1	1	0	-92%
<b>Santa Clara Valley Transportation Authority</b>							
Accident Investigation	15	1	14	11	1	10	-27%
Hazard Management	1	1	0	0	0	0	-100%
Inspection	24	2	22	14	10	4	-42%
Internal Safety Audit Program	3	2	1	2	1	1	-33%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	43	6	37	27	12	15	-37%
<b>Los Angeles County Metropolitan Transportation Authority</b>							
Accident Investigation	8	5	3	21	7	14	163%
Hazard Management	0	0	0	0	0	0	0%
Inspection	47	6	41	58	16	42	23%
Internal Safety Audit Program	6	6	0	5	3	2	-17%
Triennial Audit	0	0	0	0	0	0	0%
Other	1	1	0	0	0	0	-100%
Sub Total	62	18	44	84	26	58	35%

Table 5: Status of Corrective Actions by FTA Source Category in Calendar Years 2019 and 2020

## CALENDAR YEAR 2020 ANNUAL REPORT –STATE SAFETY OVERSIGHT OF RAIL FIXED GUIDEWAY SYSTEMS

FTA Category	CAPs Generated in CY 2019			CAPs Generated in CY 2020			2020-2019 % Diff in number of CAPs
	Number	CAP Status		Number	CAP Status		
		Open	Closed		Open	Closed	
<b>North [San Diego] County Transit District</b>							
Accident Investigation	1	0	1	6	0	6	500%
Hazard Management	0	0	0	0	0	0	0%
Inspection	16	2	14	12	3	9	-25%
Internal Safety Audit Program	0	0	0	0	0	0	0%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	17	2	15	18	3	15	6%
<b>San Diego Trolley, Inc</b>							
Accident Investigation	0	0	0	1	1	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	20	0	20	13	0	0	-35%
Internal Safety Audit Program	0	0	0	6	6	0	0%
Triennial Audit	17	7	10	0	0	0	-100%
Other	0	0	0	0	0	0	0%
Sub Total	37	7	30	20	7	0	-46%
<b>Sacramento Regional Transit District</b>							
Accident Investigation	7	0	7	1	1	0	-86%
Hazard Management	0	0	0	0	0	0	0%
Inspection	25	2	23	23	7	16	-8%
Internal Safety Audit Program	7	6	1	6	6	0	-14%
Triennial Audit	46	25	21	0	0	0	-100%
Other	0	0	0	0	0	0	0%
Sub Total	85	33	52	30	14	16	-65%
<b>San Francisco International Airport Automatic People Mover (AirTrain)</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	4	0	4	1	1	0	-75%
Internal Safety Audit Program	8	4	4	0	0	0	-100%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	12	4	8	1	1	0	-92%

Table 5: Status of Corrective Actions by FTA Source Category in Calendar Years 2019 and 2020

## CALENDAR YEAR 2020 ANNUAL REPORT –STATE SAFETY OVERSIGHT OF RAIL FIXED GUIDEWAY SYSTEMS

FTA Category	CAPs Generated in CY 2019			CAPs Generated in CY 2020			2020-2019 % Diff in number of CAPs
	Number	CAP Status		Number	CAP Status		
		Open	Closed		Open	Closed	
<b>Getty Center Museum Automated People Mover</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	0	0	0	0	0	0	0%
Internal Safety Audit Program	0	0	0	0	0	0	0%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	0	0	0	0	0	0	0%
<b>Sacramento County Department of Airports</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	0	0	0	0	0	0	0%
Internal Safety Audit Program	2	0	2	0	0	0	-100%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	2	0	2	0	0	0	-100%
<b>Angels Flight Railway Company</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	0	0	0	5	0	5	500%
Internal Safety Audit Program	0	0	0	0	0	0	0%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	0	0	0	5	0	5	500%
<b>Americana At Brand Trolley</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	1	0	1	0	0	0	-100%
Internal Safety Audit Program	0	0	0	0	0	0	0%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	1	0	1	0	0	0	-100%

Table 5: Status of Corrective Actions by FTA Source Category in Calendar Years 2019 and 2020

FTA Category	CAPs Generated in CY 2019			CAPs Generated in CY 2020			2020-2019 % Diff in number of CAPs
	Number	CAP Status		Number	CAP Status		
		Open	Closed		Open	Closed	
<b>Grove Trolley</b>							
Accident Investigation	0	0	0	0	0	0	0%
Hazard Management	0	0	0	0	0	0	0%
Inspection	1	0	1	0	0	0	-100%
Internal Safety Audit Program	0	0	0	0	0	0	0%
Triennial Audit	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	0%
Sub Total	1	0	1	0	0	0	-100%
<b>Total</b>	<b>361</b>	<b>136</b>	<b>225</b>	<b>249</b>	<b>85</b>	<b>164</b>	<b>-31%</b>

Table 5: Status of Corrective Action Plans by FTA Source Category for Calendar Years 2019 and 2020

### Changes to the RTA Public Transportation Agency Safety Plans

Prior to FTA's adoption of 49 CFR Part 673 (FTA's Public Transportation Agency Safety Plan rule), RTAs were guided by their System Safety Program Plan (SSPP), as required by 49 CFR Part 659, for the first part of 2020. On July 29, 2018, FTA issued 49 CFR Part 673, which requires RTAs under FTA jurisdiction to develop Public Transportation Agency Safety Plans (PTASPs), based on the principles of Safety Management Systems. 49 CFR Part 673 required RTAs under FTA jurisdiction to have their PTASP submitted and approved by their SSOA no later than July 20, 2020. However, due to the COVID-19 pandemic, FTA announced it will defer until July 20, 2021 enforcement action on RTAs that do not comply with this requirement.

CPUC staff have been working closely with California RTAs under FTA jurisdiction to have a completed and approved PTASP. FTA's 49 CFR 673 provides the following minimum requirements for PTASPs:

- An approval by the RTA board of directors, or an equivalent entity, and a signature from the RTA's Accountable Executive
- Documented processes and procedures for a Safety Management System, which would include a Safety Management Policy, a process for Safety Risk Management, a process for Safety Assurance and Safety Promotion
- Performance targets based on the safety performance measures set out in the National Public Transportation Safety Plan
- Compliance with the National Public Transportation Safety Plan and FTA's Public Transportation Safety Program

- A process and timeline for conducting an annual review and update of the plan.
- Emergency preparedness and response plan or procedures that addresses, at a minimum, the assignment of employee responsibilities during an emergency, and coordination with federal, state, regional, and local officials with roles and responsibilities for emergency preparedness and response in the RTA’s service area.

All FTA jurisdictional California RTAs have submitted their PTASP and received CPUC staff approval before the July 20, 2020 deadline, with the exception of North [San Diego] County Transit District (NCTD). CPUC staff are working with NCTD personnel to resolve the remaining issues to approve their PTASP.

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## ENFORCEMENT ACTIONS

The CPUC has two primary methods of taking enforcement actions. One is to open a formal proceeding before the Commission referred to as an Order Instituting Investigation (OII) and the second process allows CPUC staff to issue a citation.

If the Commission issues an OII, a formal proceeding is initiated where an Administrative Law Judge is assigned to preside over hearings and may prepare a draft Decision for Commission consideration.

The Commission issued Resolution ST-163 (12/22/2014), which approved a citation program under the administration of the CPUC’s Director of the Safety and Enforcement Division (SED) for enforcing compliance with certain GOs, CFRs, and other requirements for RTAs operating in California. RTSB and two other CPUC branches involved in rail safety used to be part of SED. In 2019 CPUC formed RSD by separating the 3 rail safety branches from SED. Therefore, the authority delegated to the SED Director in Resolution ST-163, now is delegated to the RSD Director.

RSD is delegated authority to draft and issue citations for specific violations and levy penalties in specified amounts as set forth in the Resolution. RSD works with CPUC’s Legal Division to generate and issue citations. The Rail Transit Citation Program includes an appeal process.

### **BART Order Instituting Investigation (OII) 16-06-010**

On June 28, 2016, the Commission issued an OII in response to a two fatality BART accident that occurred on October 19, 2013. The Commission issued Decision (D.) 18-10-020 on October 22, 2018, regarding alleged violations by BART relating to the fatal accident. In part, D. 18-10-020 imposed a total fine of \$1,348,000 against BART. The Commission stayed half of the fine under the condition that BART “... remains in compliance with the directives in this Decision during the probationary period.” In accordance with D. 18-10-020, BART will be on probation for three years from the date of issuance. Additional requirements regarding training of supervisors and managers and other items are intended to improve BART’s safety culture. CPUC staff continue to monitor BART’s compliance with the Commission’s directives in D. 18-10-020.



On January 22, 2021, RSD staff submitted to the CPUC Commissioners the required Compliance Filing on the BART OII, which recommended no further extension of the 3-year probation period for BART.

## SUMMARY OF ACTIVITIES FOR ALL FTA REGULATED RAIL TRANSIT AGENCIES IN CALENDAR YEAR 2020

### BAY AREA RAPID TRANSIT DISTRICT

BART is a rapid transit public transportation system serving the San Francisco Bay Area, that began revenue operations on September 11, 1972. BART is operated by the Bay Area Rapid Transit District, formed in 1957. The initial system opened in stages from 1972 to 1974. The heavy rapid rail, electrically powered, elevated and subway system connects San Francisco and Oakland with urban and suburban areas in Alameda, Contra Costa, San Mateo and Santa Clara counties. The BART Board is comprised of nine elected officials from the 9 BART Districts who serve 4-year terms.



BART serves 50 stations along seven routes on 131 miles of rapid transit lines, including a 10-mile spur line in eastern Contra Costa County which utilizes diesel powered trains and a 3.2-mile automated guideway transit line to the Oakland International Airport.

### **BART Rail System Description**

The current BART system operates on the following seven lines:

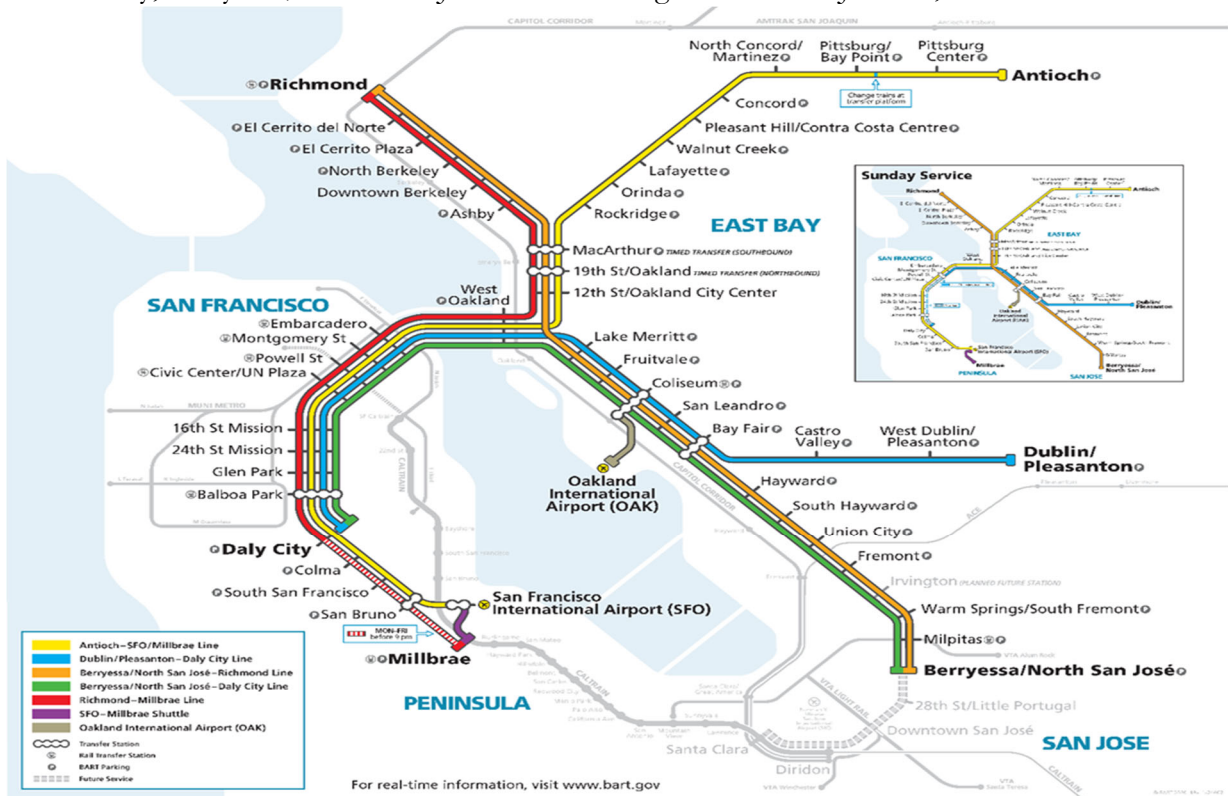
- Warm Springs/South Fremont - Daly City Line
- Dublin/Pleasanton—Millbrae Line
- Richmond—Millbrae Line
- Pittsburg/Bay Point— San Francisco Airport Line
- Richmond—Fremont Line
- Oakland Airport Connector

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- e-BART (East Contra Costa County BART extension)

The initial segment was 28 miles of track in Alameda County, servicing Oakland to Fremont. The second segment opened on January 29, 1973, with 12 miles of track extending to Richmond. A 17-mile segment opened on May 21, 1973, offering service from Oakland to Concord. On November 5, 1973, a new, temporarily disconnected 7.5-mile segment opened between Montgomery Street in Downtown San Francisco and Daly City. The Transbay Tube opened on September 16, 1974, fully connecting the 71.5 miles of track of the original BART system. Embarcadero Station opened on May 27, 1976, bringing the total station count to 34.

An extension to the Concord line, continuing to the North Concord/Martinez Station, opened on December 16, 1995, adding 2.25 miles of track to the BART system. The Colma Station opened for revenue service on February 24, 1996, adding 1.6 miles of track south of the Daly City Yard. The Pittsburg/Bay Point Station opened on December 7, 1996, completing the 7.8-mile extension from Concord station which included the North Concord/Martinez Station. The Dublin/Pleasanton extension opened on May 10, 1997, adding 14 miles of track and two stations to the system. The San Francisco Airport extension opened on June 22, 2003 adding four stations and 8.7 miles of track. The Warm Springs/South Fremont extension opened on March 25, 2017 adding one station and 5.4 miles of track. Finally, Berryessa/North San Jose extension began service on June 13, 2020.



BART SYSTEM MAP

### **East Contra Costa BART Extension (e-BART)**

The East Contra Costa BART Extension (e-BART) Project opened in 2018 and provides passenger service along 10 miles of the California State Route 4 corridor connecting east of the Pittsburg/Bay Point Station. The extension uses Diesel Multiple Unit vehicles instead of BART’s standard, electrically driven trains and includes two new stations and a transfer platform to provide timed transfers between e-BART and traditional BART trains. The SCP for this extension was approved by the Commission in Resolution ST-139 (3/23/2012).

### **BART’s Oakland Airport Connector**

The Oakland Airport Connector (OAC) is an APM system designed to integrate with BART at the Coliseum Station, to convey passengers to and from the Oakland International Airport. OAC began revenue operation on November 22, 2014. The system was designed and constructed by Flatiron Construction and Parson Transportation along with Doppelmayr Cable Car (DCC) that designed, manufactured, and supplied the APM system and guideway. DCC now operates and maintains the system as part of a 20-year BART operations and maintenance contract. The pinched-loop cable-driven system is 3.2 miles in length, including two passenger stations and a vehicle maintenance facility which houses the traction motors. CPUC staff monitored the engineering design and construction phases of this project through the safety certification process approved by the Commission in Resolution ST- 64 (10/2/2003). BART established OAC as a separate system because of its significant difference from traditional BART service.

The OAC system has not experienced any accidents or significant operational concerns since it began operations. OAC underwent its first triennial audit in October 2016, and its

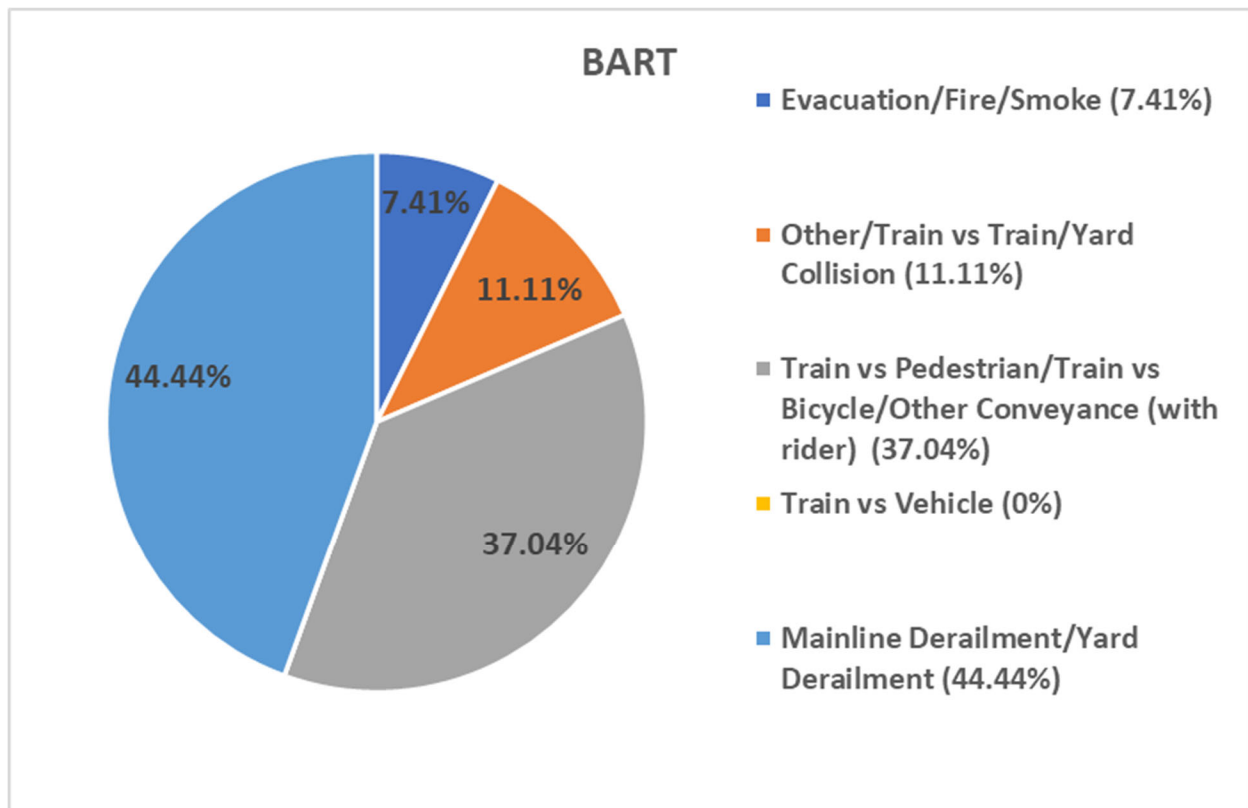


second in October of 2019. Preliminary findings from the 2019 triennial audit indicate there are no significant issues identified. CPUC staff are finalizing their report to the Commission.

**BART Accident Summary**

Accident Type	BART
Evacuation/Fire/Smoke (7.41%)	2
Other/Train vs Train/Yard Collision (11.11%)	3
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (37.04%)	10
Train vs Vehicle (0%)	0
Mainline Derailment/Yard Derailment (44.44%)	12
Grand Total	27

**Table 6: BART Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 4: BART Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.

**COVID-19 Impacts**

BART had an average ridership of 112,000 weekday passengers and 32 million annual passengers in CY 2020 compared to 411,000 weekday passengers and 118 million annual passengers in CY 2019. As of February 2021, BART is averaging approximately 12% ridership compared to pre-pandemic levels.



BART has additionally implemented a hiring freeze and budget restrictions due to the revenue loss resulting from the COVID-19 pandemic, although exceptions are granted. BART has moved to fill its new Safety Management Systems manager position planned as part of its implementation of their new Public Transportation Agency Safety Plan that CPUC staff reviewed and approved. An additional vacancy in the Safety Department has also been authorized to refill. Finally, BART notified CPUC staff of an inability to meet certain retraining and operator medical testing due to the pandemic. This was addressed by Resolution ST-241 and the RSD Director’s delegated authority to extend such time frames.

## System Expansions and Capital Projects

### Silicon Valley Berryessa Extension/Silicon Valley Rapid Transit Project

The Santa Clara Valley Transit Authority (VTA) and BART are constructing a 16.3-mile extension that will extend the BART system into Santa Clara County and to the City of San Jose. The extension was planned and developed jointly by BART and VTA. VTA and its contractors are constructing the extension in accordance with BART Standards and BART will operate the rail system when completed. The



planned revenue service date is June 1, 2030. The line will extend from the planned Warm Springs Station to Milpitas alongside Union Pacific Railroad Company tracks, continuing to 28<sup>th</sup> Street and Santa Clara Street in San Jose, then proceeding underground through downtown San Jose to the Diridon Caltrain Station and finally terminating at the Santa Clara Station. This project has been divided into 2 phases:

- Silicon Valley Berryessa Extension (SVBX) – 10 miles in length which is currently in operation and was approved for rail service on June 13, 2020. This segment is currently operating.
- Santa Clara Valley Extension - 6.3 miles in length which is environmentally cleared and under final design, slated for completion by June 2030.

The CPUC approved BART’s SCP with Resolution ST-83 (2/15/2007), and CPUC staff have been monitoring and inspecting the engineering, design, and construction phases of this project through the Safety Certification process.

## New Vehicle Procurement Project – Fleet of the Future

BART's new vehicle procurement project currently underway will replace the existing fleet of 669 legacy cars to 775 Fleet of the Future (FOTF) new cars. BART has since purchased an additional 225 cars for the FOTF project. The new cars have been continuously being rolled out since 2018. CPUC staff have been reviewing test records



prior to approval for each car during the procurement project through the Safety Certification Process (SCP). As of January 2021, CPUC staff have approved 287 new cars after final acceptance testing by BART and the new cars are operating in revenue service. Due to the project being behind schedule, the final assembly and test facility is being moved to Pittsburg, California from Plattsburg, New York. BART and the vendor believe moving the final assembly and test facility location will have a positive effect on the production schedule by eliminating two weeks of travel per car and will give BART a more hands-on approach with the vehicle production. BART is safety certifying the cars in accordance with the SCP, approved by the Commission in Resolution ST-150 (3/22/2013).

Currently, the FOTF project has been experiencing service reliability issues such as flattened wheels during rainy days and vehicle loss of communication with wayside automatic train control equipment, occasionally requiring resets during revenue service. This has resulted in a higher frequency of service to address the flat spots on wheels, and the communications losses require the train to notify the control center and undergo a system reboot lasting up to 10 minutes, delaying service on the system. BART has halted the receipt of further FOTF vehicles until the service reliability issues are resolved by the FOTF vendor. Reliability issues are estimated to be completed by spring or early summer of 2021.

## BART Upgraded Communications Based Train Control

BART is upgrading its entire mainline with a Communications-Based Train Control (CBTC) system. The CBTC technology utilizes a two-way digital radio frequency communication between intelligent trains, and a network of distributed track-side zone controllers. The primary characteristics of a CBTC system include high resolution train location determination by car borne equipment, and independent of track circuits. The new CBTC system will provide shorter headways (amount of time between train arrivals at a station), lower maintenance costs, greater operational flexibility, enhanced



safety (due to reduced maintenance and more precise tracking of trains and maintenance vehicles), smoother and more predictable operation, and improved reliability and availability. BART awarded the contract to Hitachi to design and build the project, with Notice to Proceed executed in November 2020. The SCP was approved by the Commission in Resolution ST-206 (10/30/2017).

### **BART Transbay Tube Seismic Retrofit Project**

This project is a portion of the Earthquake Safety Program approved by the Commission in Resolution ST-81 (10/27/2005). The program is to retrofit the 1976 Transbay Tube. In 2005, the project began to retrofit elements including aerial structures, underground structures, and stations that may be vulnerable to a major earthquake. All elements have been completed with the exception of the 3.6-mile-long Transbay Tube connecting the cities of Oakland and San Francisco that started the retrofitting construction in 2019. The Transbay Tube retrofit project will upgrade and strengthen the infrastructure by reinforcing the tube itself. The estimated cost for the project is \$267 million and the projected completion date is Fall 2023.

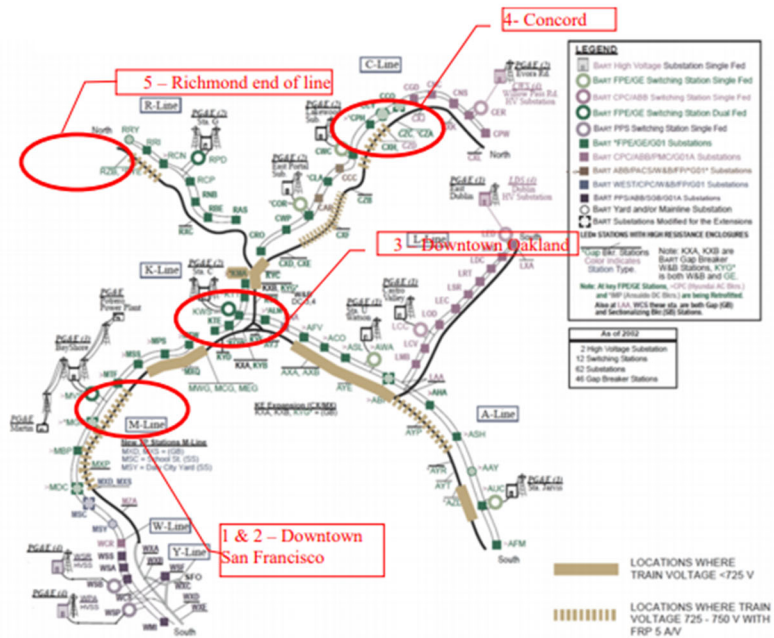
### **Hayward Maintenance Complex**

BART's new project to expand and improve its Hayward maintenance and storage yard, approved by Commission Resolution ST-218 (4/16/2019), is partially complete. BART's Hayward Yard is one of four BART maintenance facilities serving the BART system. Over the next 30 years, BART will acquire additional vehicles to meet future demand associated with the regional population growth, system expansion of the Warm Springs and Silicon Valley/San Jose Extension projects, additional riders from the Oakland Airport Connector, and the e-BART projects. Accordingly, BART requires expanded maintenance and storage facilities to serve the expanded fleet. The project will add storage tracks for up to 250 rail cars, expand maintenance facilities, construct a flyover bridge structure to move cars south out of the complex, and an equipment/personnel overcrossing to allow movements between the existing complex and a new storage yard.

### **BART Traction Power System Improvements Project:**

To support the traction power system due to BART's capacity expansion, five sites have been identified for installation of new traction power substations. The project is split into the West Bay and East Bay sites. The two West Bay sites are Civic Center Station and Montgomery Street Station and have

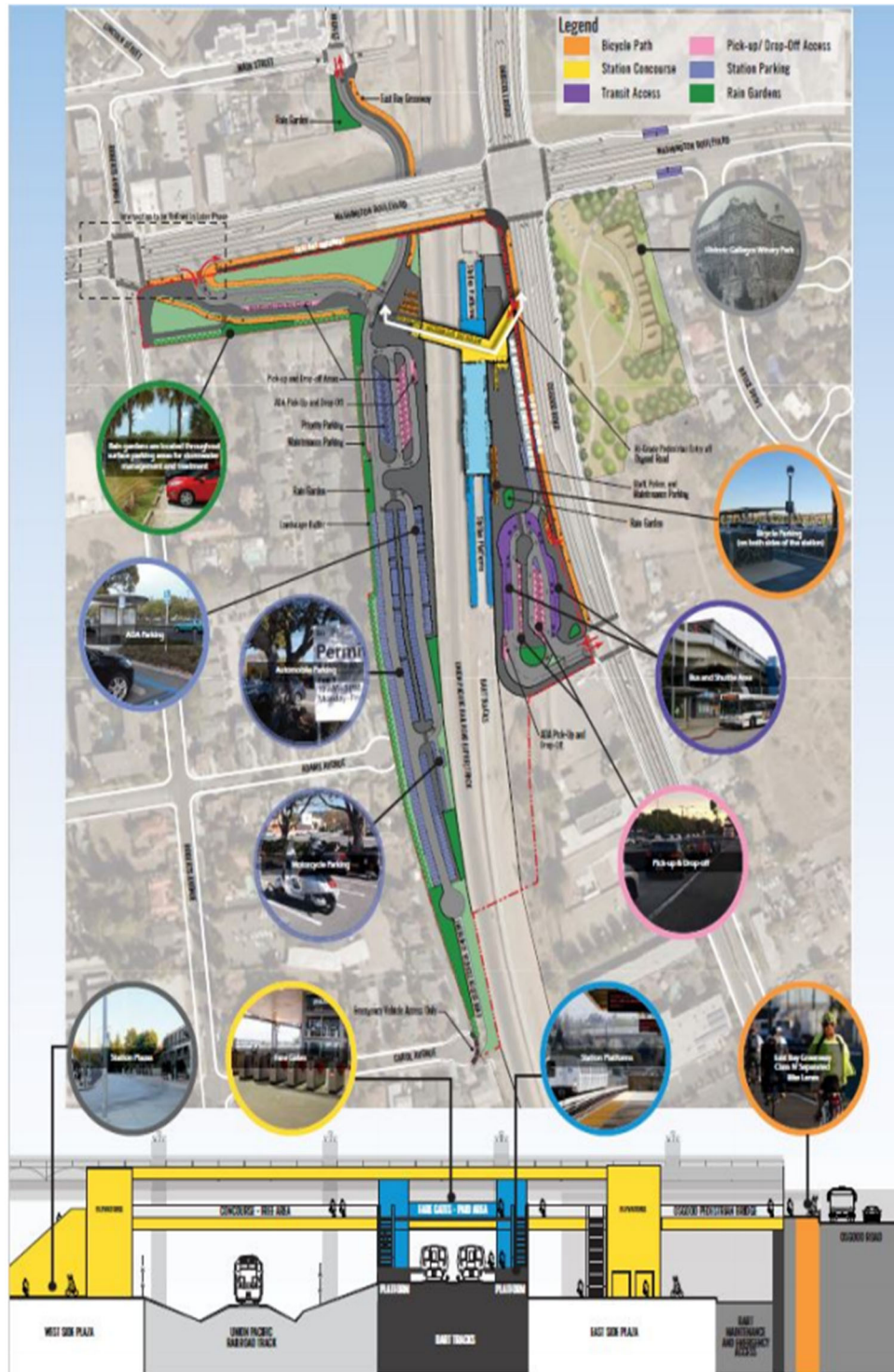
estimated completion dates by 2022. The three East Bay sites are in the cities of Oakland, Concord, and Richmond, with completion dates to be determined. An SCP was approved via Commission resolution proceeding ST-239, issued July 20, 2020. The construction contract for the West Bay sites was issued Notice to Proceed in October 2020. East Bay sites are in the engineering design phase.



**BART Traction Power System Improvement Project**

**BART Irvington Station Project:**

The Irvington Station Project includes construction of a new station halfway between the existing Fremont and Warm Springs / South Fremont stations. The estimated completion year is 2027. The Project is in the engineering design phase. The SCP was approved under Commission resolution proceeding ST-240, dated November 5, 2020.



Irvington Station Layout

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

LACMTA is the transportation agency for the greater Los Angeles County. LACMTA is governed by a 13-member Board of Directors comprised of five Los Angeles County Supervisors, the Mayor of Los Angeles, three Los Angeles mayor-appointed members, four city council members representing the other 87 cities in Los Angeles County, and one non-voting member appointed by the Governor of California. The Twenty-Eight by '28 initiative set forth by the City of Los Angeles Mayor and the LACMTA Board of Directors which proposes for the completion of 28 LACMTA transportation infrastructure projects before the start of the 2028 Summer Olympic and Paralympic Games.

**LACMTA Rail System Description**

The LACMTA rail system consists of Metro A (formerly Blue), Metro B (formerly Red), Metro C (formerly Green), Metro D (formerly Purple), Metro E (formerly Expo) and Metro L (formerly Gold) lines. The Metro Gold Line Eastside Extension was opened in November 2009. The Mid-City Exposition Light Rail Line Phase One opened in April 2012. The Gold Line Foothill Extension and



LACMTA Rail System Map



Expo Phase Two opened for revenue service March and May 2016, respectively. Regional Connector, the Crenshaw Corridor and the Westside Extension are currently in the construction phase. LACMTA operates over 105 miles with 93 stations. The average ridership of the system was approximately 52 million for calendar year 2020 compared to 93 million for calendar year 2019.

### **A Line (Metro Blue Line)**

The Metro A Line (MAL, formerly the Blue Line) is a light rail line that runs between downtown Los Angeles and downtown Long Beach and serves 22 stations over a 22-mile route. MAL connects to the Metro C Line (formerly the Green Line) at Rosa Parks/Imperial station in Compton and connects to the Metro B Line (formerly the Red Line) at 7<sup>th</sup>/Metro Station in downtown Los Angeles. Currently, LACMTA operates two-car and three-car trains on the line depending on the time of the day. MAL is LACMTA's oldest line and underwent an extensive rehabilitation during 2019, including track replacements and additions, and signal and grade crossing upgrades. Additionally, the train control system at the MBL Yard (Division 11) will be modernized and undergo verification testing prior to deployment of the new system. The testing schedule is being determined by LACMTA but is expected to occur in 2021.

### **B Line (Metro Red Line)**

The Metro B Line (MBL, formerly the Red Line) is a heavy rail subway line that has been operating since 1990. LACMTA operates four-car and six-car trains on this 17.4 mile route between the Los Angeles Union Station and North Hollywood with 16 stations. The MBL connects to the MAL and the Mid-City E Line at the 7<sup>th</sup>/Metro Station in downtown Los Angeles and to Amtrak, Metrolink commuter rail and the Metro L (formerly the Gold Line) at the Los Angeles Union Station.

### **C Line (Metro Green Line)**

The Metro C Line (MCL, formerly the Green Line) is a light rail line that runs east-west along the median of the Glenn Anderson (a.k.a. Century) Freeway (Interstate 105) through Los Angeles County between City of Norwalk and City of Redondo Beach. LACMTA operates two-car configuration on the line with the exception of one-car trains during low service use period. MCL has been operating since 1995 and has 14 stations over its 20-mile route. It connects to the MAL at the Imperial/Wilmington (Rosa Parks) Station in City of Compton.

### **D Line (Metro Purple Line)**

The Metro D Line (formerly the Purple Line) is a heavy rail subway line that runs between the Los Angeles Union Station and the Koreatown area of the City of Los Angeles and diverges from the Metro B Line at the Vermont-Wilshire Station with two additional stations. The Metro D Line construction expansion will eventually provide the connection to the three phases of the Metro D Line capital project extensions currently in construction.

**L Line (Metro Gold Line also known as Pasadena Gold Line)**

The Metro L Line (formerly the Gold Line) is a light rail line that runs from the Los Angeles Union Station to City of Pasadena Sierra Madre Villa Station. LACMTA operates two-car trains on the line with the exception of one-car trains during low service use periods. The Metro L Line has been operating since July 2003 and has 13 stations over its 14-mile route. Metro L Line connects to the Metro B Line at the Los Angeles Union Station.

**L Line (Metro Gold Line Foothill Extension)**

The Metro Gold Line Foothill Extension project opened in March 2016. It is an 11-mile, double track light rail system with six stations. The extension originates from the Sierra Madre Villa Station, previously a terminal station of the Pasadena Gold Line, traveling eastbound through the Cities of Arcadia, Monrovia, Duarte, Irwindale, downtown Azusa and terminating just north of Azusa Pacific University and Citrus College. The Metro L Line capital project extensions are currently in construction and are more fully described below.

**L Line (Metro Gold Line Eastside Extension)**

The Metro Gold Line East Side Extension project opened in November 2009, and is a six-mile, double track light rail system with eight new stations and one station modification at the Los Angeles Union Station. The system originates at Union Station in downtown Los Angeles, where it continues from the Pasadena Gold Line's formerly terminal station traveling east through East Los Angeles to City of Pomona and is the transfer point to the Metro B Line subway at Los Angeles Union Station.

**E Line (Metro Mid-City Expo Line)**

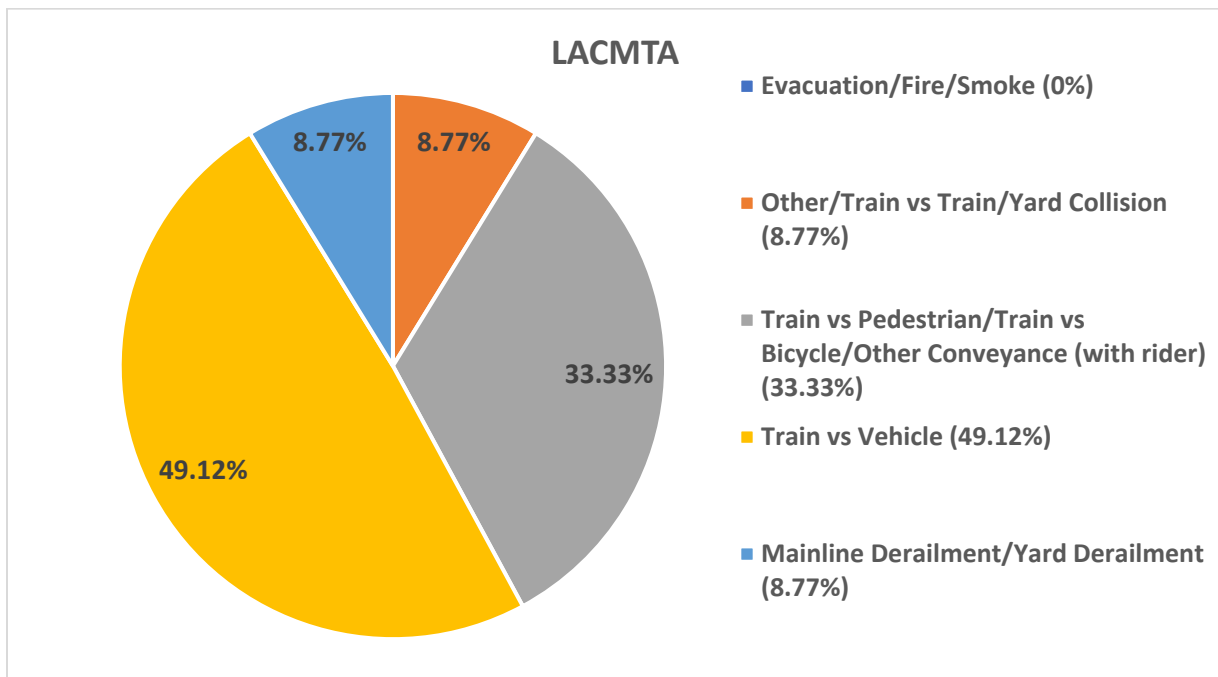
The Metro Mid-City Expo Line Phase I project opened in April 2012, and operates on eight and a half-mile, double track light rail system with 12 stations and with two stations shared with Metro A Line. Both the Metro E Line and Metro A Line terminate at the City of Los Angeles 7<sup>th</sup>/Metro where they are transfer points to the B and D Lines. The Metro Mid-City Expo Line Phase I also shares the City of Los Angeles Pico Station with the A Line which serves the Staples Center and L.A. Live. The Metro E Line serves the University of Southern California, Exposition Park, the Mid-City communities, the Crenshaw District, and Culver City.

The Metro Expo Line Phase II project opened in May 2016. This line is a 6.6-mile double track extension of the Expo Mid-City Expo Phase I Line, which extends the existing 8-mile system from downtown Los Angeles to Culver City westbound to City of Santa Monica. The system continues from Culver City to West Los Angeles and Santa Monica, with seven new stations and travels along the old Pacific Electric Exposition right-of-way to 4<sup>th</sup> Street and Colorado Ave in downtown Santa Monica.

**LACMTA Accident Summary**

Accident Type	LACMTA
Evacuation/Fire/Smoke (0%)	0
Other/Train vs Train/Yard Collision (8.77%)	5
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (33.33%)	19
Train vs Vehicle (49.12%)	28
Mainline Derailment/Yard Derailment (8.77%)	5
Grand Total	57

**Table 7: LACMTA Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 5: LACMTA Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.

**COVID-19 Impacts**

As noted above, average ridership of the system was approximately 52 million for calendar year 2020 compared to 93 million for calendar year 2019, a 44% drop primarily due to the impacts of COVID-19. As a result, rail service throughout the system has been reduced, mostly through increasing the time between trains and ending rail service earlier.



There were concerns during 2020 that LA Metro maintenance may be sufficiently depleted in certain departments due to COVID-19 absences during the peak of the Los Angeles area COVID-19 surge that not all established maintenance could be performed. Although the absences were significant, they did not result in missed maintenance.

There were some impacts to capital projects and supply lines, and delivery of new HR4000 heavy rail cars (see below) have been delayed.

## System Expansions and Capital Projects

### P3010 New Vehicle Procurement Project



LACMTA is in the process of procuring as many as 235 new rail vehicles. These vehicles are intended to expand passenger capacity for the recently completed projects (Expo Phase 2 and Foothill Extension Phase 2) and the future LAX/Crenshaw line currently under construction. The SCP was approved by Resolution ST-149

(1/10/2013). As rail cars are prepared for service, CPUC staff will approve them after reviewing the Car History Books (testing documentation). On March 4, 2016, CPUC staff gave LACMTA personnel approval to place the first five cars in service. To date, CPUC staff have certified 185 vehicles for revenue service. Kinkisharyo, the vehicle manufacturer, completed a required 4,000 miles of Operational Reliability test in December 2020, so the shipment of the final 50 light rail vehicles (LRV) resumed in January 2021. On January 7, 2021, LACMTA received the final rail car of the order at the new maintenance yard for the Crenshaw/LAX Transit Project (Division 16). This shipment completes the P3010 LRV fleet, the largest rail fleet at LACMTA.

### HR4000 Heavy Rail Vehicle Procurement

LACMTA is in the process of procuring a base order of 64, with options for up to 282, new heavy rail vehicles to provide for the future expansions of its Regional Connector and Metro D Line (Purple Line) Extensions, and to replace the aging heavy rail vehicle fleet operating on the Metro B and Metro D Lines (Red/Purple Line) subways. Resolution ST-185 (10/25/2018) approved the procurement option. Due to COVID-19 impacts, the arrival of the rail pilot cars will be postponed from December 2020 to June 2021.



Image of proposed HR4000 Heavy Rail Vehicle

### Regional Connector Project



The Regional Connector Project is a 1.9-mile underground light-rail extension with 3 new stations being constructed in Downtown Los Angeles. This project will provide a direct connection between the Metro L, Metro A, and Metro E lines that currently would require a transfer from the Metro B or Metro D lines. This will provide a direct connection between Cities of Azusa and Long

Beach, and between East Los Angeles and Santa Monica, and in general allows LACMTA to have much greater flexibility with regard to route options within LA County. CPUC staff are working with LACMTA personnel to ensure design conformance of safety related requirements through participation in the Safety Certification Review Committee meetings and Fire Life Safety Committee meetings. In October 2020, heavy construction impacting the current rail transit revenue service commenced in which the existing Little Tokyo station was demolished, and five at-grade rail crossings were permanently closed. LACMT has implemented a bus bridge service around the work zone, which is expected to last for approximately 1.5 years. The Regional Connector revenue service date is currently scheduled for Fall of 2022.

## D Line (Westside) Extension Project

The Westside Metro D Line (Purple Line) Extension project will extend subway service from the current terminus at the Wilshire/Western Station to Westwood (UCLA and the Veteran's Administration Hospital). This extension will consist of nearly

nine miles of heavy rail subway and seven stations and is separated into 3 different projects/segments (PLE1, PLE2, PLE3). The design build contractor for Segment 1 is STS (a joint venture of Skanska, Traylor, Shea). The design build contractor for Segment 2 is TPOG (a joint venture of Tutor Perini and O&G). Tutor Perini is also the design build contractor for Segment 3 tunneling and stations. The planned revenue service years for Purple Line Segments 1, 2, and 3 are 2023, 2025, and 2027, respectively. CPUC staff are working with the project's and LACMTA's safety department to ensure design conformance of safety related requirements through the participation at the Safety Certification Review Committee meetings and Fire Life Safety Committee meetings. The SCP was approved by Resolution ST-142 (1/10/2013).

## Metro Purple (D Line) Extension Transit Project



## L Line Foothill Extension Phase 2B

The Foothill Phase 2B light rail transit project extends the Metro L Line (Gold Line) from the current terminus of Azusa Station to the City of Pomona (in Los Angeles County), with a contract option for the design build contractor (Kiewit-Parsons) to build to the City of Montclair (in San Bernardino County) if additional funding can be secured by September 2021. Major construction commenced on July 2020, beginning with track and warning equipment installation at the at-grade rail crossings. Project completion is scheduled for 2025. CPUC staff have been meeting with the project teams, LACMTA, and the Foothill Construction Authority to audit and review design conformance of safety related requirements. The SCP was approved by the CPUC in Resolution ST-194 (1/19/2017).



### **Crenshaw/LAX Corridor Project**

LACMTA is constructing a new light rail line from the existing Metro E Line (Expo Line) Crenshaw Station to the existing Metro C Line (Green Line) Aviation/LAX Station. An additional at-grade station is included in the project at 96th Street and Aviation, known as the Airport Metro Connector (AMC), which will connect to the future LAWA APM system at Los Angeles International Airport (LAX) currently under construction. The line will travel 8.5 miles and will serve the Cities of Los Angeles, Inglewood, El Segundo and portions of unincorporated Los Angeles County. Substantial completion is currently anticipated to occur in 2021 and revenue service is expected to commence later the same year. The SCP was approved by the CPUC in Resolution ST-143 (10/3/2014). There are also plans to grade-separate the Centinela at-grade rail crossing, which will necessitate another bus bridge. The SCP was revised to reflect the project changes and was approved by CPUC, dated October 14, 2020. On July 9, 2020, LACMTA requested a waiver of GO-95 requirements for installation of their underground overhead contact rail in certain locations where insufficient clearance in the tunnel was identified. Resolution ST-242 (12/17/2020) granted LACMTA the waiver.

### **East San Fernando Valley Project**

The East San Fernando Valley project alignment will start at the City of Los Angeles Van Nuys Bus Rapid Transit Orange line station and head north for 10 miles through the San Fernando Valley. It will be a street running system for the most part with approximately 3 miles on a shared corridor with Metrolink/Amtrak. LACMTA has contracted Gannett Fleming Inc. to develop a 30/60 percent design package. LACMTA is planning to begin the procurement process of the final design build package sometime in the middle of 2021 although it may be delayed to later in the year pending the pandemic impacts. Groundbreaking on construction is scheduled for 2022. CPUC staff have been working with the project team and LACMTA on development and drafting of the Safety Certification Plan.

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## **NORTH [SAN DIEGO] COUNTY TRANSIT DISTRICT**

San Diego's North County Transit District (NCTD) was created by Senate Bill 802 in 1975 and started operations as North County Transit District on July 1, 1976. The NCTD Board of Directors is made up of one representative from each incorporated city served by NCTD, plus the County Supervisor representing the County's



Fifth District which covers unincorporated areas of north San Diego County. The NCTD is responsible for planning, developing, and implementing a fixed route system throughout North San Diego County. The region is described as the San Diego County-Orange County border at the northern end, City of La Jolla at the southern end, and from the western coast of the City of Oceanside to the City of Ramona at the eastern end.

In June 1994, the NCTD created the San Diego Northern Railroad (SDNR) to operate the “Coaster” commuter rail which provides service from the City of Oceanside to downtown San Diego. The SDNR is responsible for maintaining the San Diego rail subdivision, purchased in 1994, which extends from the San Diego County-Orange County border south to downtown San Diego for commuter rail service and extends from City of Oceanside to City of Escondido for Sprinter light rail service. Only the line from City of Oceanside to City of Escondido hosting Sprinter light rail service is jurisdictional to the rail transit safety regulations and are included in this SSOA Annual Report.

NCTD has contracted out maintenance and operations of the Sprinter system. On June 11, 2016, NCTD entered into a consolidated rail contract with Bombardier, Inc. (Bombardier), which is responsible for dispatching, train operations, maintenance of revenue facilities, maintenance of signal, maintenance of track, and maintenance of rail equipment for both the Sprinter and Coaster rail systems. Prior to June 11, 2016, the contracts for various aspects of operations and maintenance were spread amongst several contractors.

### **NCTD Rail System Description**

The NCTD Sprinter light rail transit (LRT) system operates over 22.3 miles, from the City of Oceanside to the City of Escondido, partially double-tracked, with 15 stations. The average ridership of the system was approximately 1.44 million for calendar year 2020 compared to 2.48 million for calendar year 2019. NCTD’s rail lines are classified as light rail on semi-exclusive right-of-way<sup>4</sup>. There is a shared corridor with Amtrak and Coaster trains beginning at the Oceanside Transit Center and ending less than a quarter mile South of the Oceanside Boulevard grade crossing, where Sprinter tracks turn east toward City of Escondido. In addition to the shared corridor, most of NCTD track on the Sprinter line is jointly used by LRT and freight operations under a temporal separation<sup>5</sup>. The Pacific Sun Railroad (PSRR), a subsidiary short line railroad owned by Watco Companies, is the freight railroad that shares track with NCTD on the Sprinter line. Freight operations by PSRR operate during the late-night

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<sup>4</sup> A semi-exclusive alignment is in a separate right-of-way or along a street or railroad right-of-way where motor vehicles, pedestrians, and bicycles have limited access and cross only at designated locations, such as rail crossings.

<sup>5</sup> Temporal separation exists when no simultaneous operation of light rail transit and freight trains on the same track occurs.

hours outside of NCTD Sprinter LRT revenue service, under a Federal Railroad Administration (FRA) waiver. The FRA approved NCTD’s standard operating procedures that ensure the light rail vehicles (LRVs) and freight vehicles remain temporally separated.

The Sprinter LRT system began revenue service on March 9, 2008. The Escondido Transit Center Station and Vista Transit Center Station are the main transfer stations for light rail/bus connections, and the Oceanside Transit Center Station provides service connections to Amtrak, NCTD Coaster commuter train, and the NCTD Breeze bus system. The Sprinter operates through four jurisdictions including the Cities of Oceanside, San Marcos, Vista and Escondido.

NCTD currently has no Sprinter capital projects under construction, nor are there any planned for the near future.

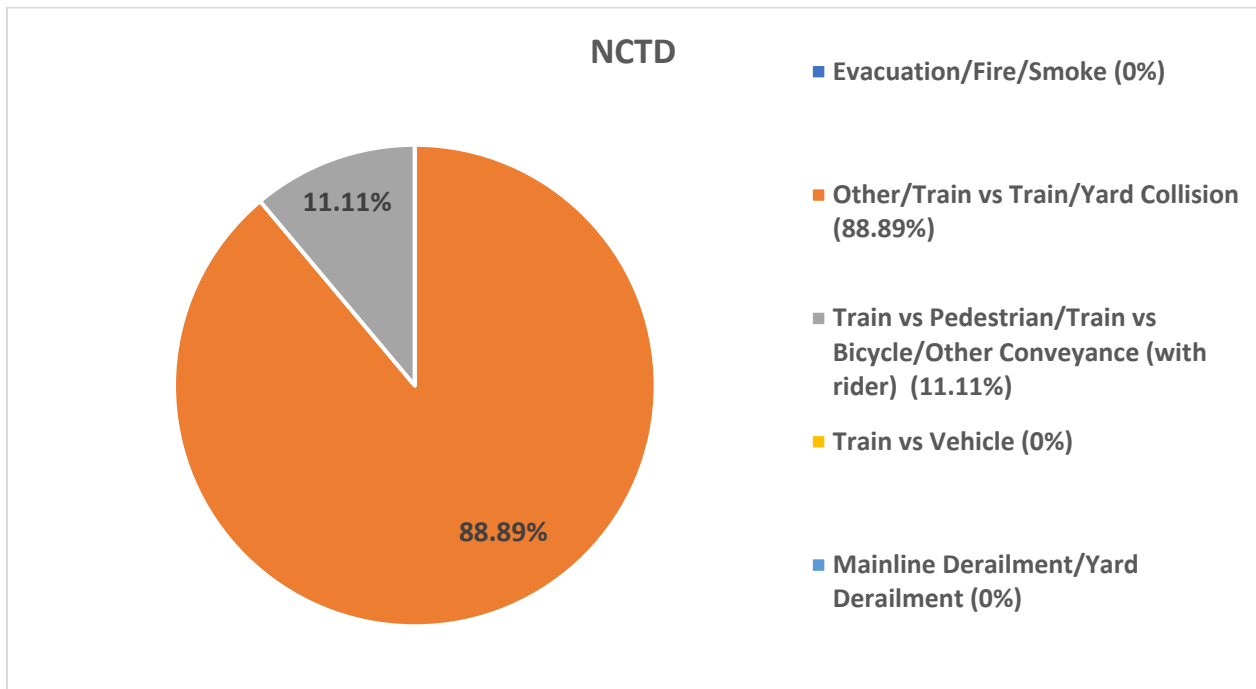


NCTD SPRINTER SYSTEM MAP

**NCTD Accident Summary**

Accident Type	NCTD
Evacuation/Fire/Smoke (0%)	0
Other/Train vs Train/Yard Collision (88.89%)	8
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (11.11%)	1
Train vs Vehicle (0%)	0
Mainline Derailment/Yard Derailment (0%)	0
Grand Total	9

**Table 8: NCTD Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 6: NCTD Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.



### **COVID-19 Impacts**

Currently, NCTD’s cleaning standard is based on the American Public Transportation Association’s (APTA) Cleaning and Disinfecting Transit Vehicles and Facilities During a Contagious Virus Pandemic program. NCTD signed the APTA National Transit Recovery Commitment Program pledge in August 2020. It defines four core categories of responsibilities for transit agencies to address for themselves and for their passengers including frequent cleaning, personal protective equipment, face coverings, social distancing, self-health evaluations, and minimizing touching surfaces.

NCTD buses, trains, paratransit vehicles and transit facilities are cleaned every day, and high-use facilities are disinfected throughout the day.

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### ORANGE COUNTY TRANSPORTATION AUTHORITY

The OCTA has received a full-funding grant agreement from the FTA and is constructing a streetcar system consisting of 4.15 miles of track between the Santa Ana Regional Transportation Center in the City of Santa Ana and the Harbor Boulevard/Westminster Avenue intersection in the City of Garden Grove. The system will be a completely new rail transit streetcar system, with OCTA becoming a new jurisdictional rail transit agency to the CPUC and will be known as the OC Streetcar. The OCTA Board of Directors is comprised of seventeen members (mostly elected officials), and the Caltrans District 12 Director serving as the 18th member in an ex-officio capacity. The Commission has approved the system SCP for the project in Commission Resolution ST-191 (4/27/2017). The system is planned for revenue service in 2022.



Image of Proposed OC Streetcar

The trackway includes both operations along exclusive right-of-way<sup>6</sup>, in the old Pacific Electric (PE) railway right-of-way, and street-running operations, along Santa Ana Boulevard and 4th Street in the City of Santa Ana. Bi-directional operations occur over a new bridge north of the existing PE Santa Ana River Bridge. The Project includes 10 stations in the eastbound direction and 10 stations in the westbound direction. A new operation and maintenance facility will be bordered by 5th Street to the north, the PE Right-of-Way to the south, approximately 500 feet west of Raitt Street to the east, and approximately 1,000 feet west of Raitt Street to the west, in the City of Santa Ana.

The system is not yet operating, and current project construction activities include track installation, overhead catenary system pole installation, maintenance facility construction, and bridge construction. Construction is approximately 42% complete. Vehicle procurement has begun, with the first four of eight vehicles in preliminary static and dynamic testing at the Siemens Transportation Group facility.



OC Streetcar Future System Map

**COVID-19 Impacts**

All OCTA employees assigned to the OC Streetcar project are working in a telecommute capacity from their homes, in compliance with the state’s COVID stay at home order. All meetings are held virtually to comply with CDC social distancing guidelines. The agency’s pandemic response has been in compliance with federal, state, and local public health agency guidelines.

<sup>6</sup> Exclusive alignment is a right-of-way without at-grade crossings, which is grade-separated or protected by a fence or substantial barrier, as appropriate to the location. Includes subways and aerial structures.

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## SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

The SFMTA is the public transportation system of the City and County of San Francisco. The San Francisco Municipal Railway (MUNI), along with the San Francisco Department of Parking and Traffic, became a part of the SFMTA on March 1, 2000. A seven-member board, appointed by the City of San Francisco Mayor, governs the SFMTA and the Director of Transportation serves as the agency's senior management officer.

The SFMTA MUNI was the first publicly owned streetcar system in a major city in the United States and began operation in 1912. It has a relatively small service area of just 46.7 square miles. SFMTA MUNI's fleet of rail transit vehicles consist of the subway and surface operating



Image SFMTA Rail Vehicles

LRVs, surface operating Historic Streetcars (HSC), and cable cars.

### SFMTA Rail System Description

SFMTA MUNI LRT operations are carried out by the Green Metro Division. It operates LRVs on six different lines.

- J – Church Line
- K – Ingleside Line
- L – Taraval Line
- M – Oceanview Line
- N – Judah Line
- T – Third Street Line

Trains on the SFMTA MUNI Metro Subway and Twin Peaks Tunnel operate under the control of a fully automated communications-based train control system. The majority of rail operations are on the surface, in semi-exclusive and mixed traffic right-of-way, with up to a seven percent grade in some locations.

The Green Metro Division is also responsible for the operation of the HSC. The HSCs are operated on the surface and principally on the double track F – Market and Wharves Line.

The Cable Car Division is responsible for operation of the cable cars. It provides passenger cable car service on three surface lines and traverse grades of up to 21 percent. The SFMTA MUNI Cable Car Division operates three lines. They include the Powell-Hyde Line, the Powell-Mason Line, and the California Street Line. Operating in mixed traffic, cable cars and vehicular traffic sharing traffic lanes, the cable cars transport an average of over 21,900 riders on weekdays over narrow congested streets. A moving cable, below the surface of the street, provides propulsion for the cable cars via a mechanical grip, extending from the cable car and down through a continuous slot between the running rails. All onboard propulsion and braking controls for the cable cars are mechanical and are hand or foot-operated by the cable car operator. Cable car operation and equipment has changed little since the late 19th century and relies heavily on human performance and craft.



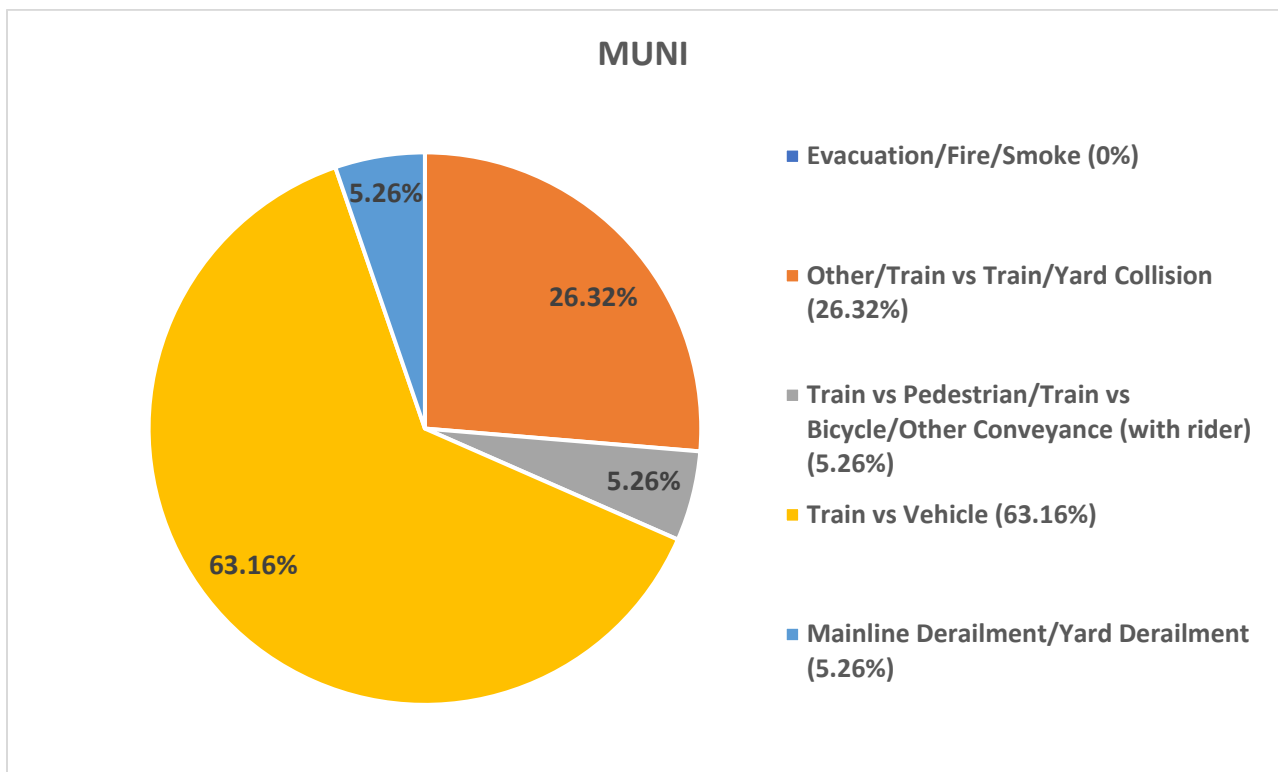
SFMTA MUNI System Map



**SFMTA Accident Summary**

<b>Accident Type</b>	<b>MUNI</b>
Evacuation/Fire/Smoke (0%)	0
Other/Train vs Train/Yard Collision (26.32%)	10
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (5.26%)	2
Train vs Vehicle (63.16%)	24
Mainline Derailment/Yard Derailment (5.26%)	2
<b>Grand Total</b>	<b>38</b>

**Table 9: SFMTA (MUNI) Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 7: SFMTA (MUNI) Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.

## **COVID-19 Impacts**

Due to the COVID-19 pandemic, SFMTA suspended their rail service from the end of March 2020 to near the end of 2020. In November 2020, they restored the J Line surface, then in January 2021, they restored the T Line service to Embarcadero Station. A plan has been developed to start service again on the other lines during 2021.

## **System Expansions and Capital Projects**

### **Third Street Light Rail Extension Phase II (Central Subway Project)**

Phase II of SFMTA’s Third Street Light Rail extension project, commonly known as the Central Subway Project, will extend SFMTA’s Third Street Line north of the intersection of Fourth Street and King Street to Chinatown on Stockton Street near Washington Street. The project will construct new surface tracks along Fourth Street to a portal structure between Bryant Street and Harrison Street, where two newly excavated precast concrete-lined subway tunnels will carry light rail traffic underneath Fourth Street to Market Street, then continue under Stockton Street. One new at-grade station is planned at Fourth Street and Brannan Street, and three new subway stations will be constructed at Yerba Buena/Moscone (Fourth Street and Folsom Street), Union Square/Market Street (Stockton Street and Geary Street, with mezzanine-level access to the existing Powell Street BART and Muni Station), and Chinatown (Stockton Street and Washington Street). The project SCP was approved by the CPUC in Resolution ST-102 (3/26/2009). SFMTA expects the construction to be finished by the end of Spring 2021 and start revenue service the following year in the Spring of 2022.

### **LRV4 Vehicle Procurement**

SFMTA has initiated a new LRV procurement project (LRV4 Project) to acquire up to 264 vehicles over a period of 15 years. The scope of the LRV4 project will include the design, manufacture, delivery, and test of up to 260 LRVs together with the associated services, spare parts, special tools, training, and documentation. The base quantity is 175 new vehicles including an initial delivery of 24 vehicles, scheduled



**SFMTA New Siemens Rail Vehicle**

for delivery to supplement the fleet when the Third Street Phase 2 (Central Subway) extension opens. Another 151 new vehicles are projected for the replacement of the existing 151 LRVs supplied by Siemens Transportation Group, with deliveries starting in 2021 with a projected completion date in 2028. SFMTA has issued contract modifications for an additional 44 new vehicles, bringing the total fleet size to 219. An option for an additional 45 new vehicles may be issued in the future. The LRV4s are expected to have a 30-year life, which includes a mid-life overhaul. The LRV4 Procurement will be funded through several different sources including federal funds. The SCP for the project was approved by the CPUC in Resolution ST-190 (11/10/2016). Currently, SFMTA has 68 LRV4s authorized by the CPUC for revenue service operation.

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## SACRAMENTO REGIONAL TRANSIT DISTRICT

SRTD is governed by an 11-member Board of Directors. The Board is comprised of members of the Sacramento, Rancho Cordova, Citrus Heights, Elk Grove, and Folsom City Councils, as well as the the Sacramento County Board of Supervisors.

### **SRTD Rail System Description**

SRTD light rail system currently operates over approximately 43 miles, covering a 422 square-mile service area with 54 stations. The average ridership of the system was approximately 5.32 million for calendar year 2020 compared to 5.29 million for calendar year 2019. SRTD began operations in 1973 with the acquisition of the Sacramento Transit Authority. Over the next decade, SRTD continued to expand its bus service while city, county and state government officials worked together to develop a light rail system. In 1987, the 18.3-mile light rail system opened, linking the northeast (Interstate 80) and eastern (Highway 50) corridors with downtown Sacramento. In 1998, SRTD began expanding its light rail system to further meet the transportation needs of the Sacramento area. Since then, several light rail expansion projects have been completed, including:

- 1998 - 2.3-mile Mather Field extension and Brighton Bridge double track project
- 2003 - Bee Bridge double track project
- 2003 - 6.3-mile South Line Phase I extension
- 2004 - 2.8-mile extension from Mather to Sunrise
- 2005 - 2.4-mile extension from Sunrise to Folsom
- 2006 - 0.55-mile extension to Amtrak Station
- 2009 - Watt Avenue Grade Separation
- 2012 – Green Line Township 9 Extension to Richards Boulevard
- 2016 – South Line 4.3-mile extension to Cosumnes River College



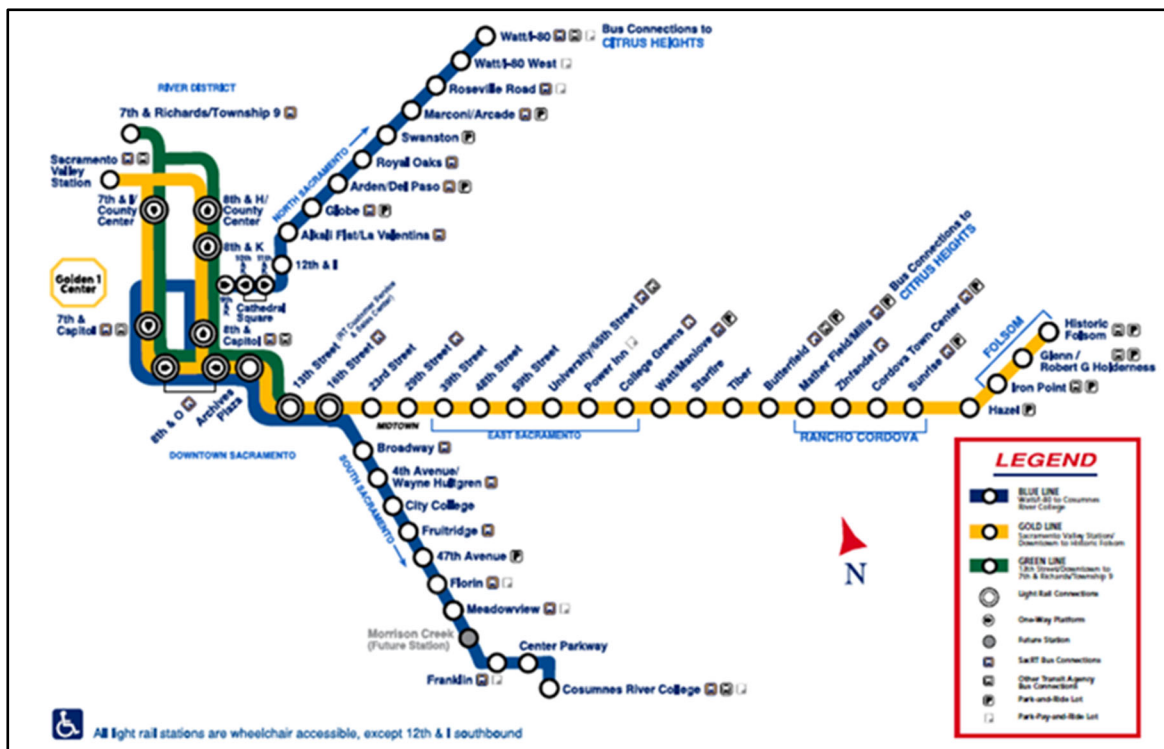
The Gold Line runs from the Historic Folsom Station in downtown Folsom to the Sacramento Valley Station at the Amtrak Station in downtown Sacramento. The Blue Line runs from the Watt/I-80 Station in the northeast corridor to the Cosumnes River College to the south. In 2012, SRTD completed the Green Line, a one-mile extension from downtown Sacramento to Richards Boulevard.



SRTD Light Rail Train at the State Capital

This line includes 2 stations, running a 30-minute headway service from the Township 9 Station on Richards Boulevard to the existing 13<sup>th</sup> Street Station.

SRTD has secured funding for 20 new Siemens Transportation Group S700 Light Rail Vehicles scheduled for delivery in August 2022.

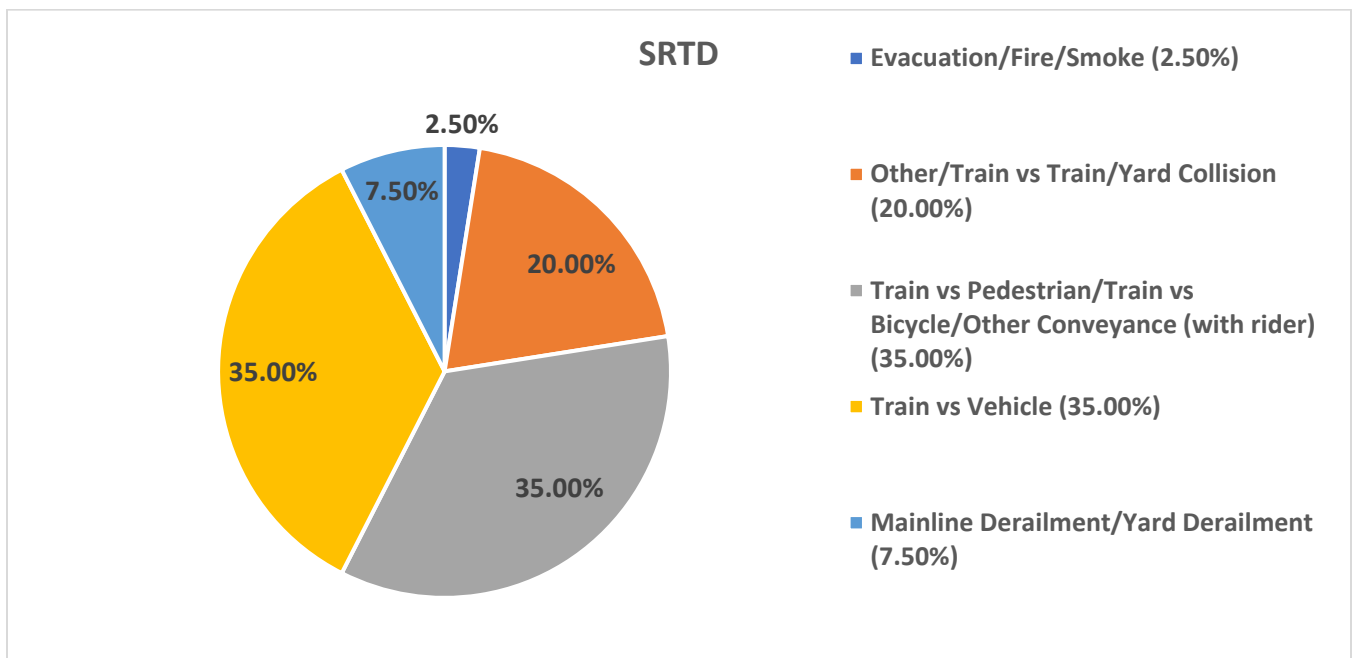


Sacramento Regional Transit District System Map

**SRTD Accident Summary**

Accident Type	SRTD
Evacuation/Fire/Smoke (2.50%)	1
Other/Train vs Train/Yard Collision (20.00%)	8
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (35.00%)	14
Train vs Vehicle (35.00%)	14
Mainline Derailment/Yard Derailment (7.50%)	3
Grand Total	40

**Table 10: SRTD Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 8: SRTD Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.

**COVID-19 Impacts**

Due to the COVID-19 pandemic, in March 2020 SRTD temporarily reduced its service. Effective August 30, 2020, SRTD implemented its service recovery plan. SRTD also requires all passengers to wear masks.

### **System Expansions and Capital Projects**

The Green Line to the Sacramento International Airport light rail Project is a future planned extension, which will extend the system 13 miles from the Richards Boulevard/Township 9 Station to the Sacramento International Airport and serve seven stations. SRTD is currently completing the environmental documents for the project. This Project is planned to start construction by 2022, but may be delayed due to COVID-19 impacts and budget issues.

SRTD may become involved in the construction or even the operation of the Downtown Sacramento Riverfront Streetcar project of the Cities of Sacramento and West Sacramento due to its experience in rail transit systems. That project has not yet received funding and Board approval is needed to advance.

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#### SAN DIEGO TROLLEY, INC.

The California legislature created the Metropolitan Transit Development Board (MTDB) in 1975 by Senate Bill 101, empowering the board to design, engineer, and build fixed guideway facilities within San Diego County. The MTDB established the San Diego Trolley, Inc. in August 1980 as a wholly owned subsidiary responsible for operation and maintenance of the LRT system. In 2005, MTDB changed its name to the Metropolitan Transit System (MTS). Its board of



**San Diego Trolley Light Rail Vehicle in Downtown San Diego**

directors has 15 members selected as follows: four appointed from the City of San Diego (the Mayor of San Diego and 3 San Diego City Council members); two appointed from the City of Chula Vista (the Mayor of Chula Vista and a Chula Vista City Council Member); and one appointed from each city council of Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway and Santee; and one appointed from the San Diego County Board of Supervisors.

The area of jurisdiction is about 570 square miles serving a population of 3 million, approximately 75 percent of southwestern San Diego County. The SDTI LRT system operates over 53.5 miles on three routes, mostly double-tracked, with 53 stations. The average ridership of the system was approximately 21.73 million for calendar year 2020 compared to 38.03 million for calendar year 2019.

SDTI's rail lines are classified as light rail on semi-exclusive right-of-way. There is a shared corridor with BNSF Railway, Amtrak, and Coaster trains through downtown San Diego. In addition to the shared corridor, portions of SDTI track on the Blue and Orange Lines are jointly used by LRT and freight operations under temporal separation with limited night-time joint operations. The San Diego and Imperial Valley Railroad (SDIV), a subsidiary short line railroad owned by Rail America Corporation, shares track with SDTI on the Blue line from the Imperial Transfer Station to the International Border. SDTI and SDIV share track on the Orange Line from Commercial Street at the Imperial Junction to Bradley Avenue in El Cajon, California. SDIV operates freight trains during the early morning hours with a fringe period of overlap with SDTI LRT operations under a FRA waiver. FRA approved SDTI standard operating procedures ensure during this overlap mode of operation the LRVs remain spatially and temporally separated.

### **SDTI Rail System**

**Blue Line** - Revenue service began on July 26, 1981. The Blue Line currently extends 15.4 miles from the America Plaza Station to the San Ysidro station at the U.S-Mexico international border. Trains operate on city streets for 1.4 miles (C Street & India to 12<sup>th</sup> & Imperial) of the total 15.4 miles with the remaining 14 miles from 12<sup>th</sup> & Imperial to the San Ysidro station operating in semi-exclusive right-of-way. The Blue Line operates through four jurisdictions: the cities of San Diego, National City, Chula Vista, and an unincorporated area of San Diego County.

**Orange Line** – Revenue service on the first phase, from Imperial Transfer to the Euclid Avenue station, began on March 23, 1986. The line was extended in 1989 to El Cajon, and to Santee in 1995. The Orange Line currently extends 16.9 miles from the Santa Fe Depot station (via the downtown San Diego C Street corridor) to the El Cajon Transit Center station. Of the 16.9 miles, 1.7 miles of track are operated on city streets (C Street & India to 32<sup>nd</sup> & Commercial). After the 32<sup>nd</sup> & Commercial station, the line continues east for an additional 13.8 miles on semi-exclusive right-of-way to the El Cajon Transit Center station. The Orange Line operates through four jurisdictions including the City of San Diego, Lemon Grove, La Mesa and El Cajon.

**Green Line** - Revenue service began on July 10, 2005. The Green Line begins at the Imperial Transfer Station and extends 23.8 miles through Mission Valley, under San Diego State University via a subway and continues east on semi-exclusive right-of-way to Cuyamaca Street in Santee. The last 0.6 miles of the line are operated on city streets before terminating at the Santee Town Center Station.



SAN DIEGO TROLLEY SYSTEM MAP

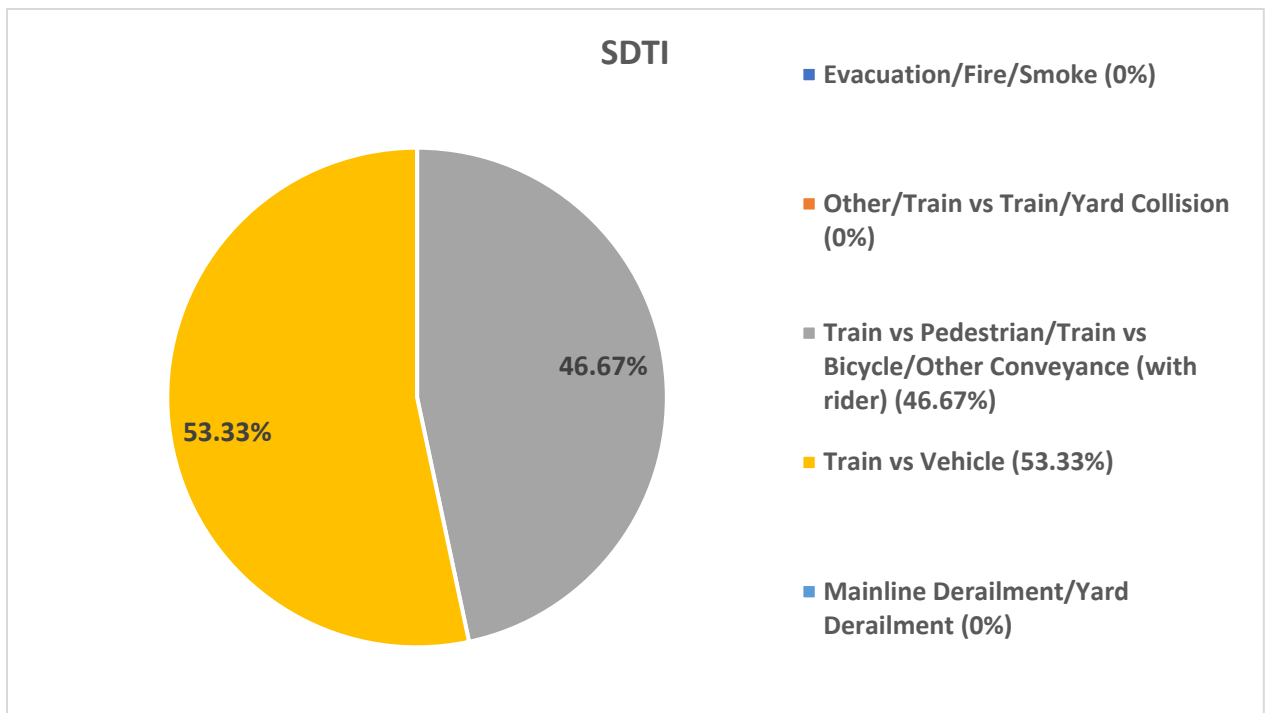
**Silver Line** – One Presidential Conference Car (PCC) Vintage Trolley Streetcar began revenue service on August 2011 and the second PCC began in March 2015. The PCC operates on an existing 2.7-mile downtown loop from the 12<sup>th</sup> P & Imperial Transit Center station clockwise, adjacent to Harbor Drive, on C Street, and Park Blvd and completes its loop at the 12th & Imperial Transit Center station on the “third track”. The PCC operates on Friday 5:30am-12:30pm, Saturday on 1:30pm-10:30pm, and Sunday 9:30am-6:30pm and major holidays on 30-minute headway.



**SDTI Accident Summary**

Accident Type	SDTI
Evacuation/Fire/Smoke (0%)	0
Other/Train vs Train/Yard Collision (0%)	0
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (46.67%)	7
Train vs Vehicle (53.33%)	8
Mainline Derailment/Yard Derailment (0%)	0
Grand Total	15

**Table 11: SDTI Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 9: SDTI Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.

**COVID-19 Impacts**

MTS has experienced a decline in revenue service since March 2020. However, they are running 3-car trains to help maintain “social distance” between passengers on-board their trains. All rail transit and bus stations are being cleaned by the Facilities Maintenance Department staff in accordance with the national protocols. The MTS offices, building work areas, etc. have Purell hand sanitizers dispensers



available for use. In late March 2020, MTS established designated “temperature check-in stations” at their bus and rail divisions for all MTS employees and visitors who are required to have their temperature and name recorded prior to work and conducting business on MTS premises.

As of January 19, 2021, MTS established a free on-site COVID-19 “self-testing” option. The self-test results are kept confidential, sent to the employee only, and the employees are encouraged to take the appropriate steps necessary if they have a positive test result. All employees are encouraged to get tested weekly.

### **System Expansions and Capital Projects**

#### **SD9 Light Rail Vehicle Procurement**

SDTI is procuring 45 new LRVs from the Siemens Transportation Group. The 45 new LRVs are being procured in advance of the Mid-Coast Light Rail Extension activation, scheduled for revenue service Fall 2021. The new vehicles will operate on the existing SDTI system and their future Mid-Coast Rail Extension. The procurement project began January 2018



with an expected scheduled completion and acceptance of all 45 LRVs by June 2021. The 45 new SD9 LRVs will be manufactured by Siemens Transportation Systems. in Sacramento, California. The SCP was approved by the CPUC in Resolution ST-217 (10/11/2018).

**Mid-Coast Corridor  
Transit Project**

The Mid-Coast Trolley project will extend Trolley service from the Old Town Transit Center Station to the University City community, serving major activity centers such as Veterans Administration Hospital, the University of California San Diego, Westfield University Town Center area and adjacent businesses.

Construction started in 2017 with the right-of-way tracks, and overpass bridges above Interstate 5 completed.

Overhead catenary poles are in place and the overhead wires are being installed.

The stations construction are approximately 50% complete at this time. CPUC staff have been attending weekly virtual start-up meetings for 2020 and 2021, and have performed on-site inspections. Revenue service is anticipated to begin in November 2021. The SCP was approved by the CPUC in Resolution ST-186 (1/19/2017).



Mid-Coast Corridor Transit Project Expansion Map

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## THE SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

VTA is an independent special transit district that provides bus, light rail, and paratransit services, as well as participates as a funding partner in regional rail service including Caltrain, Capitol Corridor, and the Altamont Corridor Express in Santa Clara County. As the county’s congestion management agency, VTA is responsible for countywide transportation planning, including congestion management, design and construction of specific highway, pedestrian, and bicycle improvement projects, as well as promotion of transit-oriented development.

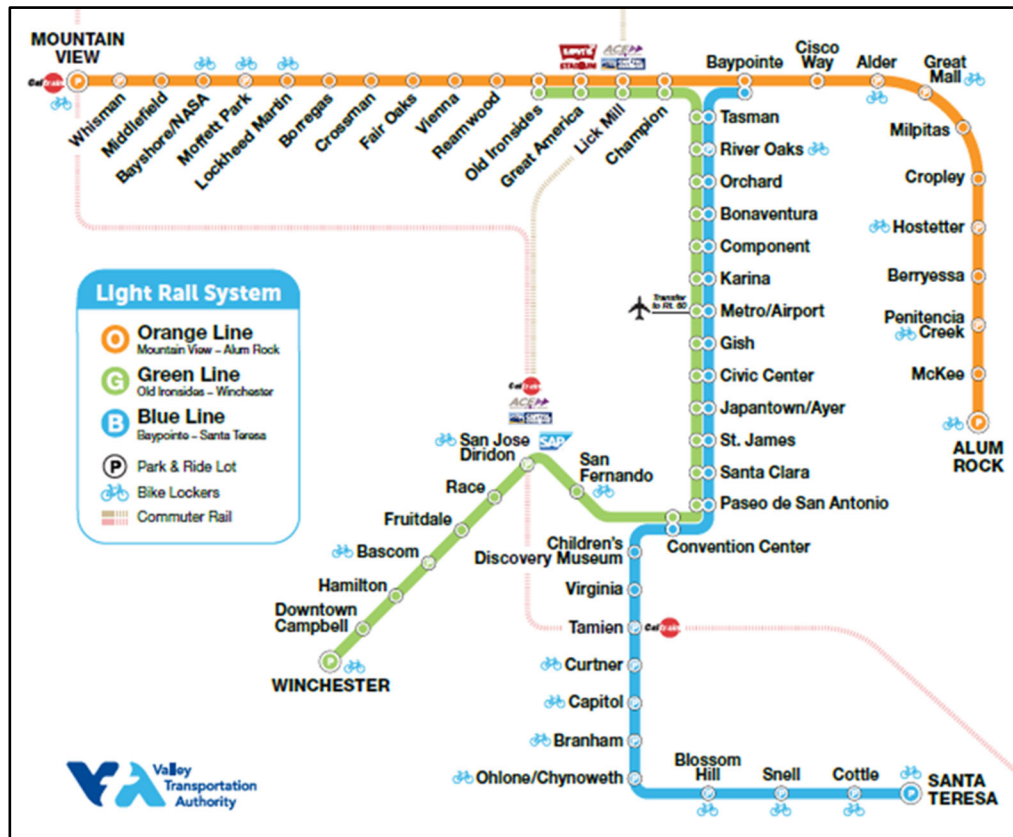
The VTA board of directors has 18 members and ex-officio members, all of whom are elected officials appointed to serve on the board by the jurisdictions they represent. Fifteen Directors are city council members and three are County Supervisors. Twelve Directors serve as voting members and there are six Directors who serve



as alternates. The ex-officio members are non-voting members and are the three Santa Clara County representatives to the Metropolitan Transportation Commission. VTA currently operates an urban transit service with LRVs within Santa Clara County. VTA’s service coverage is 346 square miles, serving 15 cities in Santa Clara County with a population of nearly 2 million. Historic trolley service may be provided in the downtown San Jose Transit Mall on a seasonal basis.

The VTA rail system consists of the Guadalupe, Tasman West, Tasman East, Capitol and Vasona Lines with two other proposed extensions. The total operating system is about 42.2 miles with 61 Light Rail Stations. The average ridership of the system was approximately 3.2 million for calendar year 2020 compared to 8.4 million for calendar year 2019.





VTA SYSTEM MAP

**VTA Rail System Description**

**Guadalupe Line**

The 21-mile Guadalupe light rail line began service in 1991, which extends from south San Jose, into downtown and continues to employment centers of north of the cities of San Jose and Santa Clara. The Downtown Transit Mall in San Jose serves as a hub for rail/bus connections. Light rail and Caltrain service connects at the Tamien Station in San Jose. The Guadalupe Line has 27 light rail stations.

**Tasman West Line**

The 7.6-mile Tasman West light rail line began service in 1999, and travels through four cities: San Jose, Santa Clara, Sunnyvale, and Mountain View serving major employment centers of Silicon Valley. It links with Caltrain in Downtown Mountain View. In August 2014, VTA started providing light rail and bus service to the new Levi’s Stadium for large events. Levi’s Stadium is located near the Great America Light Rail Station. The Tasman West Line has 16 light rail stations.

**Tasman East Line**

The Tasman East light rail line is a 4.8-mile extension from North First Street to Hostetter Road which travels through the cities of San Jose and Milpitas. The first phase, a 1.9-mile extension from North

First Street to Interstate-880 along the median of Tasman Drive opened for revenue service in May 2001 and marked the beginning of VTA LRVs in the City of Milpitas. The second phase, a 2.9-mile segment from Interstate-880 to Hostetter Road along the Capitol Avenue median opened for revenue service in June 2004. Approximately 7,200 feet of this segment is grade separated over two railroad crossings, Montague Expressway, and other cross streets. The Tasman East Line has six light rail stations.

### **Capitol Line**

The Capitol light rail line, a 3.5-mile extension of the Tasman light rail line opened for revenue service in June 2004. It travels along Capitol Avenue from just south of Hostetter Road to Alum Rock Avenue, north of Capitol Expressway and operates in the median of Capitol Avenue, with two vehicle travel lanes and a bike lane in each direction paralleling the track way. The Capitol Line has four stations.

### **Vasona Line**

The Vasona Line is a 5.3-mile light rail line that operates primarily on Union Pacific Railroad Company right-of-way. Revenue service began in 2005. The Vasona Line has 8 light rail stations and links with Caltrain, Altamont Corridor Express (ACE), and Capitol Corridor at Diridon Station.

### **BART Silicon Valley Extension -Phase I**

The BART Silicon Valley Extension Project is a 16-mile extension of the BART system to Santa Clara County that is being funded and constructed to BART standards by VTA. VTA will continue to own the assets it funds and constructs, however BART will independently operate the extension of its system. Phase I, the Berryessa Extension, is a 10-mile extension, including two BART stations. This extension begins in Fremont, south of the Warm Springs/South Fremont BART Station, and proceeds along the former Union Pacific Railroad Company right-of-way through Milpitas, the



**Berryessa Elevated Station**

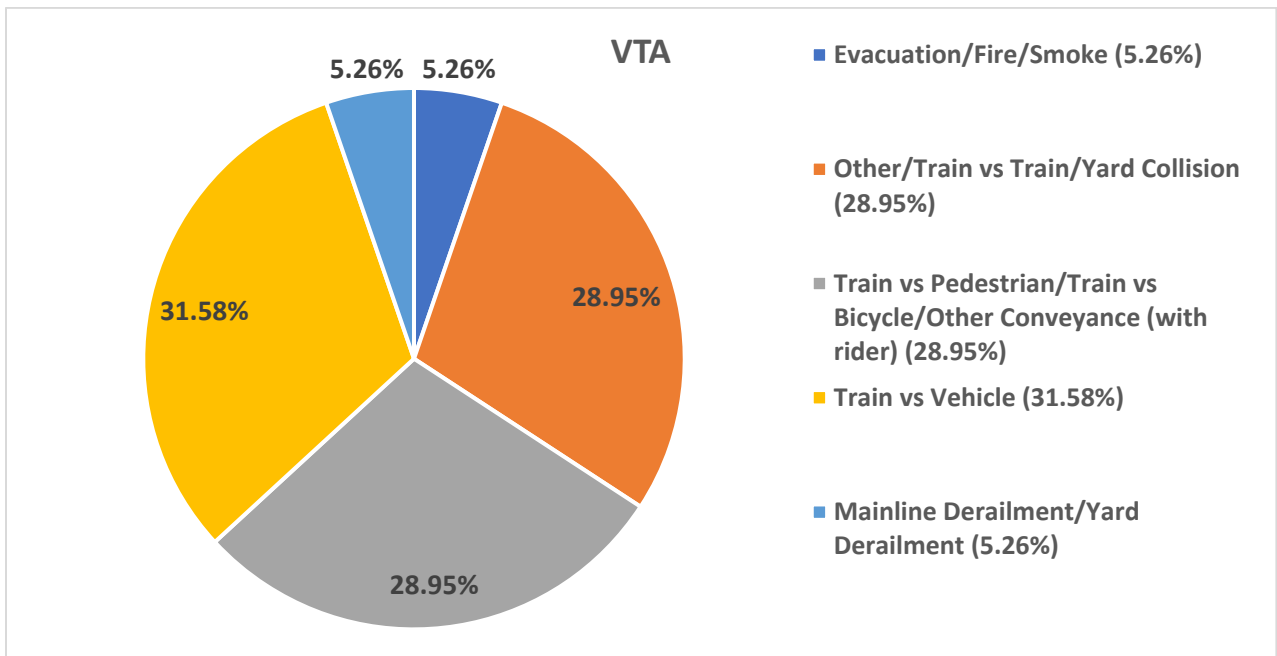
location of the first station, to the Berryessa area of North San Jose, the location of the second station. The Berryessa Extension (Phase I) is now in revenue service, having begun starting June 13, 2020.



**VTA Accident Summary**

Accident Type	VTA
Evacuation/Fire/Smoke (5.26%)	2
Other/Train vs Train/Yard Collision (28.95%)	11
Train vs Pedestrian/Train vs Bicycle/Other Conveyance (with rider) (28.95%)	11
Train vs Vehicle (31.58%)	12
Mainline Derailment/Yard Derailment (5.26%)	2
Grand Total	38

**Table 12: VTA Accidents Primary Causal Factors - Calendar Year 2020**



**Figure 10: VTA Accidents Primary Causal Factors - Calendar Year 2020**

NOTE: The category “Other” is comprised of all accidents not included in the other categories. These include accidents resulting in substantial damage or evacuations, and a collision with an object such as debris or shopping carts left on or next to the tracks.

**COVID-19 Impacts**

VTA experienced suspension of service for 2-3 weeks in April of 2020 due to employees being tested positive for COVID-19.

Currently, VTA has made a regional commitment with other transit operators in the nine Bay Area counties with a common set of standards, based upon the industry’s best health-related practices, called the “Riding Together: Bay Area Healthy Transit Plan.” It outlines action items to strengthen trust in

riding transit, including frequent cleaning, personal protective equipment, face coverings, social distancing, ventilation, and touchless fares. On Sept. 3, 2020, the VTA Board adopted a resolution endorsing the plan.

VTA buses, trains, Access Paratransit vehicles and transit facilities are cleaned every day, and frequently touched surfaces are disinfected throughout the day.

The federal government, State of California and Santa Clara County have mandated face coverings while riding transit. Passengers cannot ride VTA without one unless exempt.

### **System Expansions and Capital Projects**

#### **Eastridge to BART Regional Connector Project**

The Eastridge to BART Regional Corridor Project is a 2.6-mile extension from the existing Alum Rock Station to Eastridge Transit Center. The alignment will be primarily grade separated. The Project is being implemented in phases. Phase I was completed in the Spring of 2015, and included the installation of sidewalk, landscape and street lighting on Capital Expressway from Capital Avenue to Tully Road and the reconfiguration of the Eastridge Transit Center. Phase 2 will extend light rail from the existing Alum Rock Light Rail Station to the Eastridge Transit Center. Light rail will operate primarily in the center of Capitol Expressway in an elevated track structure from Capitol Avenue to Tully Road. The Eastridge extension will include two stations: Story and Eastridge. Construction will begin in mid-2020 and will be completed in mid-2023. The SSCP was approved by the CPUC in Resolution ST-88 (5/24/2007), however, VTA provided an updated revision of the SSCP in early 2020 and CPUC reviewed and approved the revision in July 2020.

#### **Vasona Junction Light Rail Extension**

The Vasona Junction Project is a 1.5-mile extension from Winchester Station into the Town of Los Gatos. A federal environmental document was completed and approved by the FTA. Currently, the construction schedule is dependent upon available funding. A SSCP has not yet been submitted to the CPUC for this project.

#### **BART Silicon Valley Extension Project – Phase II**

The BART Silicon Valley Extension Project is a 16-mile extension of the BART system to Santa Clara County that is being funded and constructed to BART standards by VTA. VTA will continue to own the assets it funds and constructs, however BART will independently operate the extension of its system. Phase I (10 miles) began revenue service in June 2020.

VTA is completing design and engineering for Phase II (6 miles) of the BART Silicon Valley Extension, which includes a subway tunnel through downtown San Jose, 4 stations and a Newhall Yard

Maintenance Facility in the City of Santa Clara. Construction of the second phase is expected to begin in 2022 with passenger service targeted for 2028. The SSCP for this project was submitted by BART and was approved by the CPUC in Resolution ST-83 (2/15/2007). Currently, BART personnel are working on preparing a revised SSCP for Phase II of the project, and they have provided CPUC staff a draft copy for review.

## SUMMARY OF ACTIVITIES FOR NON-FTA REGULATED RAIL TRANSIT AGENCIES FOR CALENDAR YEAR 2020

No accident graphs are shown for the smaller non-FTA regulated systems, because no reportable accidents occurred on these smaller systems during the reporting period. Several of the systems have never experienced a reportable accident.

### AMERICANA AT BRAND TROLLEY

The Americana At Brand (AAB) trolley began service in 2008 and is owned by Caruso Affiliated in the City of Glendale in Los Angeles County. The AAB trolley operates on a single track that travels around the AAB shopping center from Americana Way to Caruso Avenue. The AAB trolley is a single-story vehicle mounted on the undercarriage of a circa early 1900s trolley from City of Milan, Italy. The trolley is powered by on-board batteries and has a detachable unpowered car.

The AAB trolley operates on a length of track of about one third mile and is capable of speeds of up to 5 miles per hour. The trolley is operated in two-operator teams and can seat up to 72 passengers. Caruso Affiliated utilizes contracts with LAZ Parking to operate the trolley with properly trained operators and the Midwest Trolley Services to provide maintenance of the trolley.



**Americana At Brand Trolley**

### **COVID-19 Impacts**

The AAB trolley went out of service on March 16, 2020 due to the pandemic. The AAB trolley continued to be maintained and serviced monthly while out-of-service. The AAB trolley remained out-of-service until February 8, 2021.

During the winter holiday season, the AAB trolley was used as a stage for regular performances featuring a Santa Claus and a brass band. No patrons were allowed on board and all persons not operating the trolley remained seated while trolley was in motion.

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## ANGELS FLIGHT RAILWAY COMPANY FUNICULAR

Angels Flight is a landmark funicular railway that was originally built in 1901 in the Bunker Hill region of downtown Los Angeles. Between 1901 and 1969, Angels Flight was owned by 6 different entities, with the funicular eventually becoming under the control of the now defunct Community Redevelopment Agency of the City of Los Angeles (CRA/LA). CRA/LA was the eventual owner of Angels Flight and dismantled the funicular in 1969.

In 1996, after 27 years of storage, CRA/LA oversaw the project to restore and reconstruct Angels Flight. The funicular was reopened to the public after being reinstalled two blocks south of its 1969 location, now located between 3<sup>rd</sup> and 4<sup>th</sup> Streets on Hill Street in downtown Los Angeles. Since 1997, Angels Flight has been effectively owned by the Angels Flight Railway Foundation (AFRF) through a 99-year long-term ground lease.

When the system was rebuilt several modifications were made, in particular to the drive and braking systems. In 2001, the modified drive system failed and one of the cars rolled freely down the 33-degree incline before striking the other car. One passenger was killed, as a result of the accident, five passengers received serious injuries, and two passengers received minor injuries. The accident was thoroughly investigated by the CPUC and the NTSB. The funicular was taken out of revenue service and shut down for several years as a result of this accident. NTSB investigators made specific recommendations for a track-adjacent emergency walkway and raising the end doors to prevent passenger ejection in the event of an accident.

In January 2007, Angels Flight Railway Company (AFRC) personnel, the operators of Angels Flight acting on behalf of the AFRF, notified CPUC staff their intent to refurbish and re-open Angels Flight. AFRC contracted engineering and manufacturing services to refurbish Angels Flight. After CPUC staff's review of the system upgrades and approval of their request to place the system back in service, Angels Flight was once again reopened to the public in March 2010, with improved safety features. The improvements included a secondary safety cable, redundant fail-safe braking, and fail-safe carrier track



**Angels Flight Railway Company Funicular**



brakes. The mechanical drive was once again redesigned, a state-of-the art controller was installed, and the entire system was refurbished in conformance with funicular standards developed by the American National Standards Institute (ANSI B77.2 – 2004). NTSB noted upon reopening that the CPUC had not required implementation of the two NTSB recommendations from the 2001 accident. CPUC staff noted at the time that the ANSI Standards did not specifically require such additions. The system operated from then until a further accident in 2013.

In September 2013, a derailment of one of the cars occurred in which a downward moving Angels Flight car derailed. Although there were no injuries during the derailment, and it resulted in only minor displacement with just the wheel dropping off the track, this was a serious incident. Several contributing factors were identified as causes of the derailment, including improper operating practices that bypassed safety functions of the funicular system, inadvertent carrier brake activation, and carrier brake design issues. The system remained out-of-service for over three years.

In late 2016, AFRF notified CPUC staff that it had acquired engineering services to address the system and operational failures that lead to the 2013 derailment and intended to bring the system back into service. CPUC staff indicated they would not support such a request unless and until AFRF submitted a SCP to safety certified any changes to the system and implemented both NTSB recommendations from the 2001 accident (track-adjacent emergency walkway and raised end doors). The AFRF agreed and submitted to CPUC staff a SCP and designs for the walkway and end doors. The SCP was approved by the CPUC in Resolution ST-197 (1/19/2017). On August 31, 2017, the system was brought back into service with new operational management under the Angel's Flight Development Company (AFDC).

During 2018 and 2019, the CPUC staff worked closely with the AFDC to review the funicular system for its compliance with all the ANSI B77.2 Standards, including those whose strict compliance is not required due to the vintage of the system. CPUC staff also conduct frequent inspections and meetings with AFDC personnel regarding the operations of the system.

With Angel's Flight's resumption of service, the NTSB reviewed the approved Safety Certification Verification Report submitted to the CPUC by AFDC, which verifies all actions taken outlined in CPUC Resolution ST-197 and addresses all areas of NTSB Safety Recommendation R-13-37. On January 6, 2021, NTSB concluded the CPUC and AFDC met all requirements and have classified R-13-37 as "Closed – Acceptable Action."

### **COVID-19 Impacts**

From March 2020 to August 2020, Angel's Flight operations suspended service due to the impacts of COVID-19. Angel's Flight has resumed revenue operations in September 2020.

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## THE GETTY CENTER MUSEUM AUTOMATED PEOPLE MOVER

The Getty Center Tram is an Otis Hovair APM located in the City of Los Angeles serving the J. Paul Getty Center Museum. The Getty Center Tram was opened at the end of 1997. It is an electric, cable-driven hover train, with 2 tram sets of 3 cars each. When both three-car trains are operating, it has the capability of transporting 1,200 passengers per hour in each direction.

The Tram is located north of Brentwood in the Westside Region of Los Angeles and links a street-level parking area to the Getty Center, located on a hilltop three-quarters of a mile away. The lower station at the bottom of the hill lies beside Sepulveda Boulevard and the San Diego Freeway. The upper station at the top of the hill is located in the arrival plaza of the museum and is part of the museum structure.



**Getty Center Tram**

The tram guideway follows the "Getty Center Drive" and has a by-pass section mid-route.

Unlike most train cars, which are wheeled vehicles, the Getty Center Tram is suspended by a cushion of air. When the air suspension system is deactivated, the vehicle rests on a series of skids which also serve as a part of the emergency braking system.

Although the Getty Center Tram started operating in 1997, it was not until 2013 that the CPUC asserted jurisdiction for safety oversight of the system following an evaluation of unregulated rail fixed guideway systems throughout California. CPUC staff worked with Getty personnel to develop the initial Getty System Safety Program Plan (SSPP) meeting CPUC GO 164 requirements. Full implementation of the SSPP commenced in January 2015.

The Getty Center Tram was scheduled for a triennial audit in late 2019. However, the wildfires that impacted the Los Angeles metro area in late 2019 impacted the Getty property (but not the APM system), and CPUC staff agreed to postpone the safety review until the first quarter of 2020.

**COVID-19 Impacts**

The Getty Center has been closed to the public since March 14, 2020, but Otis personnel remain on site to maintain both the tram and the museum elevators. There is also an essential group of Getty personnel on-site to maintain the museum. The triennial audit was rescheduled for March 2020 but was postponed due to the COVID-19 pandemic.

**THE GROVE TROLLEY**

The Grove Trolley began operation in 2002 and is owned by Caruso Affiliated in the City of Los Angeles. The Grove Trolley operates on a single track that travels along First Street between The Grove open air shopping center and the Original Farmers Market. The Grove Trolley is built on a historic undercarriage from a Boston streetcar of the 1950s. It is double-deck and open-air, with two spiral staircases that lead to the upper deck. The trolley is powered by on-board batteries and computerized digital controllers manage all trolley functions.



**Grove Trolley**

The Grove Trolley operates on a length of track of about one quarter mile and is capable of speeds of up to 5 miles per hour. The trolley is operated in two-man teams and can seat up to 56 passengers. Caruso Affiliated utilizes contracts with LAZ Parking to operate the trolley with properly trained operators and the Midwest Trolley Services to provide maintenance of the trolley.

**COVID-19 Impacts**

The Grove trolley went out of service on March 16, 2020, due to the pandemic. The Grove trolley continued to be maintained and serviced monthly while out-of-service. The Grove trolley restarted service on February 8, 2021.

During the winter holiday season, The Grove trolley was as a stage for regular performances featuring a Santa Claus and a brass band. No patrons were allowed on board and all persons not operating the trolley remained seated while trolley was in motion.



## LOS ANGELES WORLD AIRPORTS AUTOMATED PEOPLE MOVER

Los Angeles World Airports (LAWA), the governing body of Los Angeles International Airport (LAX), is developing a multi-billion-dollar upgrade to the ground transportation system at LAX. The Project is known as the LAWA Landside Access Modernization Program. The project will add six stations and

elevated guideway between the terminals and ground transportation options.

Three new Central Terminal stations will connect to stations at the new Consolidated Rent-A-Car facility, airport parking, and LACMTA rail transit and bus facilities. The LACMTA station

(Airport Metro Connector) will be a

multilevel station connecting to the new LACMTA Crenshaw rail transit line currently under construction.



**Los Angeles World Airports Proposed Rail System**

The stations in the Central Terminal Area will provide fast and easy connections to nine airline terminals with a pedestrian walkway system leading to the terminal stations. The project SCP was approved by the Commission in Resolution ST-212 (10/11/2018). LAWA broke ground on the APM project in March 2019 and the APM is expected to open in 2023. Construction of vehicles, guideway, Maintenance and Storage Facility, and stations is underway. The Project's Safety and Security Certification Design Checklist Review is scheduled to start in 2021.

### **COVID-19 Impacts**

The project continued during the COVID-19 pandemic as it is considered essential work. Project meetings continued electronically.

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## SACRAMENTO COUNTY DEPARTMENT OF AIRPORTS AUTOMATED PEOPLE MOVER

The SCDOA installed and operates an APM between its central terminal and B gates concourse. The APM System includes a completely automated dual lane shuttle offering passengers a connection between the Central Terminal B and Airside Concourse B, with an emergency/backup walkway located between guideways. Two passenger stations with flow-through configurations (one center platform and two side platforms) are in the Central Terminal building and the B Concourse building.

SCDOA has contracted with Bombardier for the design, supply, installation, operation, and maintenance of the APM system. The complete system includes power distribution, power rail and vehicle power collector assemblies and interface, communication system, communications-based train control system required to operate the system, automatic station platform doors, and CX-100 vehicles.



**Automated People Mover at Sacramento International Airport**

The CX-100 vehicle is a fully automated, air-conditioned vehicle capable of operating in various modes twenty-four hours per day. A maintenance facility, including the Central Control Room, is located on level one under the Concourse B station.

SCDOA underwent a triennial audit in 2019 and the final report is scheduled to be considered at the March 18, 2021, Commission meeting for approval.

### **COVID-19 Impacts**

During the COVID-19 pandemic, the Sacramento International Airport maintained service and so SCDOA continued operating its APM 24 hours a day, but at a reduced frequency schedule due to significant passenger reductions.



## SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER

The San Francisco International Airport AirTrain APM system began operation on February 24, 2003, as a six-mile system. It operates 24 hours every day, providing free service throughout the San Francisco International Airport. The AirTrain was originally contracted to Bombardier as a design-build-operate-maintain project. The system is owned by the San Francisco Airports Commission and currently operated and maintained by Bombardier.



With a fleet of 42 CX-100 vehicles including a Maintenance Recovery

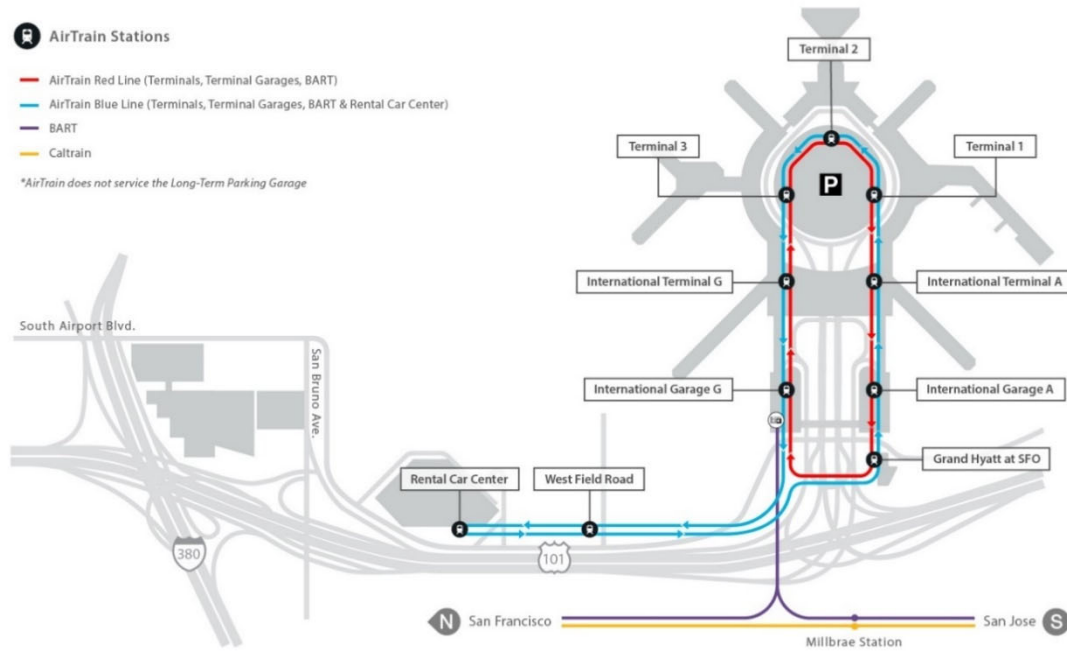
### San Francisco International Airport AirTrain Automated People Mover

Vehicle (MRV), the 6-mile system serves nine stations connecting all the airport's terminals, hotel, parking garages, the Rental Car Center and an external connection to the BART Airport Station.

The AirTrain system underwent a triennial audit in 2019 and the final report is scheduled to be presented to the Commission for approval in early 2021.

### **COVID-19 Impacts**

During the COVID-19 pandemic, San Francisco International Airport maintained service and so AirTrain continued operating 24 hours a day, but at a reduced frequency schedule due to significant passenger reductions.



Francisco International Airport AirTrain System Map

**System Expansions and Capital Projects**

**AirTrain Extension Project**

Resolution ST-205 (8/10/2017) approved AirTrain’s Extension SCP. The project expands the existing AirTrain system to include a new Long-term Parking Garage Station and an additional in-line Hotel Station serving a new hotel. Several additional upgrades to facilities and equipment are part of the project. The project has three phases: upgrade of the train control system, the extension to a new airport hotel, and the extension to a new long-term parking facility. Project culmination and start of complete revenue service is anticipated to take place in first quarter of 2021. RTSB management approved Phase 1 that allowed line-of-sight communication upgrades for existing fleet of 39 CX-100 cars, and 3 new CX-100 cars to enter the fleet by July 2020. RTSB management approved Phase 2 that allowed the Hotel Station to begin revenue service in October 2019.

**SYSTEMS IN DEVELOPMENT OR FUNDING STAGES**

**LOS ANGELES STREETCAR**

The Los Angeles Streetcar is a project in Downtown Los Angeles (DTLA) that is advancing under the Community Facilities District that is a special tax voted by area residents. Additional funding sources include an FTA Small-Starts Grant, Los Angeles County Measure M transportation funding, and some elements of Public-Private Partnership(s). In 2013, the Los Angeles City Council approved \$295 million in operations funding. The Los Angeles Streetcar is proposed as an urban circulator that was designed to meet the needs of DTLA residents, commuters, and tourists. The 3.8-mile route will run approximately 18 hours a day to connect South Park, the Financial District and Historic Broadway, Grand Park and the Civic Center, the Fashion District and the Convention Center, Staples Center, and LA Live.

The Los Angeles Streetcar will also serve as a much-needed connector to key local and regional bus and rail lines, serving as the first/last mile solution needed to bridge the gaps in DTLA’s existing public transportation system. LACMTA is assisting the City of Los Angeles on the project. As of the end of 2019, the project received Federal National Environmental Policy Act clearance and California Environmental Quality Act clearance. A SCP will be submitted to CPUC in the future if the project is funded and approved.



Los Angeles Streetcar Proposed System Map

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## DOWNTOWN [SACRAMENTO] RIVERFRONT STREETCAR

The Cities of Sacramento and West Sacramento have partnered to propose a streetcar system linking the two cities and connecting to SRTD’s rail system in downtown Sacramento. FTA funding was secured for the design and development of the project, which SRTD is assisting with, however bids were sought for the proposed system which came in significantly higher than estimated. The project has been reduced in scope and a revised project is being discussed by the two Cities. The project is currently facing a funding shortage of approximately \$300,000 out of a proposed \$200 million budget. The current scope includes a streetcar system from Sacramento Valley Station to Sutter Health Park with two additional passenger stations to be determined along the route. The two Cities continue to discuss funding, scope, and approval of the project; agreements may be made by the third quarter of 2021.

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## OTHER CPUC RAIL TRANSIT SAFETY BRANCH PROJECTS

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### GO 143 REVISION

In its continuous efforts to improve rail transit safety in California, CPUC staff are working on proposed revisions to CPUC General Order 143, which provides safety rules and regulations on the design, construction, operation, and maintenance of rail transit systems. CPUC staff will recommend to the Commission to issue an Order Instituting Rulemaking (OIR) to open a formal proceeding to consider the proposed revisions.

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### RAIL TRANSIT BRIDGE, TUNNEL, AND AERIAL STRUCTURE EVALUATION PROGRAM

RTSB has begun also developing an inspection program by implementing a safety oversight program for bridges, tunnels, and aerial structures used by RTAs. RTSB management designated staff engineers with civil engineering background as leads and had them complete bridge assessment and inspection training. RTSB will continue to develop and refine the program.

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### ON-LINE SYSTEM FOR SUBMITTING AND UPDATING CORRECTIVE ACTION PLANS

RTSB is developing an online platform to oversee and track implementation of corrective action plans by rail transit agencies and improved tracking of its inspections. The proposed new system will improve the abilities of both RTSB staff and RTA personnel to seamlessly track and update corrective action plans, that are intended to address safety problems and mitigate future hazards.

## ANNUAL REPORT FINDINGS

This Annual Report, as required by Code of Federal Regulation, Title 49, Sections 674.13(a)(7) and 674.39(a), provides a summary of the activities of California’s State Safety Oversight program for Rail Fixed Guideway Public Transportation Systems.

The California Public Utilities Commission (CPUC) continues with its ongoing safety and security oversight activities for Rail Transit Agencies (RTAs). The Federal Transit Administration certified CPUC as California’s State Safety Oversight Agency (SSOA) on October 23, 2018. The CPUC’s SSOA program has been a national leader for years and continues to lead in developing a rail transit field inspection program, a citation program, on-line tools for reporting accidents and tracking corrective action plans, and other areas that improve safety.

This and other rail safety programs at the CPUC feed into the CPUC’s Strategic Directive SD-02, regarding safety and the CPUC’s promotion of continuous improvement of safety culture, based on processes adopting the concepts of Safety Management Systems.

In 2021, CPUC’s Rail Transit Safety Branch will continue its rail transit safety oversight activities including inspections of facilities and operations, oversight of capital projects, and investigations of accidents and other incidents of rail transit agencies. Plans for 2021 also include initiating a rulemaking to revise General Order 143 series; continue developing an inspection program for bridges, tunnels, and aerial structures used by RTAs; and continue work on developing an on-line system for improved processing and monitoring of corrective action plans.