Background on Caltrain Corridor Grade Crossings and Separations

WPLP Committee

February 24, 2021

Purpose

- Provide background on at-grade crossings and grade separations along the Caltrain corridor
- Describe funding sources for prior grade separation efforts
- Discuss ongoing city-led grade separation plans and projects
- Discuss planned corridor wide grade separation policy work

Background

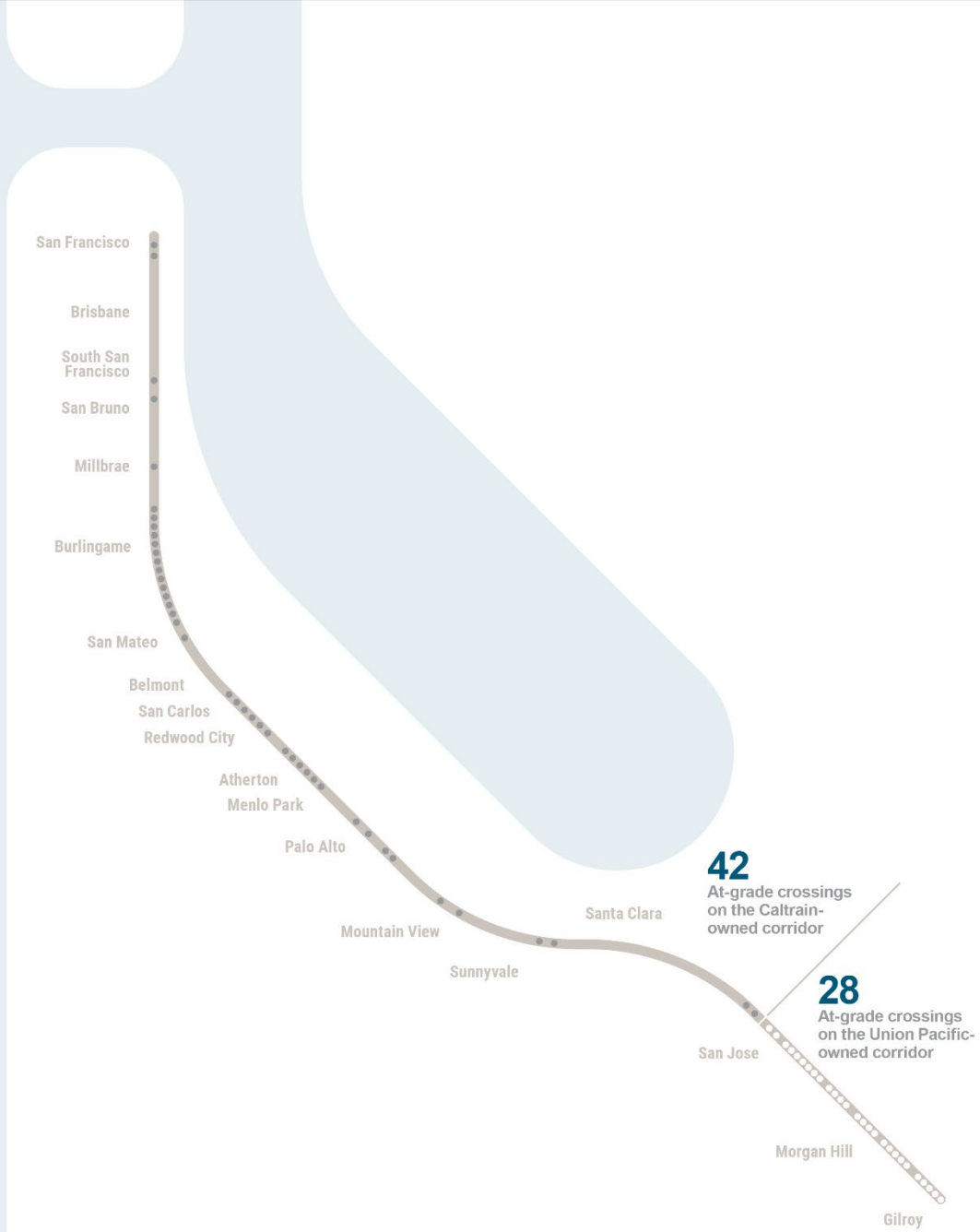
Context

- 41 at-grade crossings on the corridor Caltrain owns between San Francisco and San Jose
- 28 additional at-grade crossings on the UP-owned corridor south of Tamien

At-Grade Crossing by County in Caltrain Territory

- San Francisco: 2 at-grade crossings
- San Mateo: 29 at-grade crossings
- Santa Clara: 10 at grade crossings (with 28 additional crossings on the UP-owned corridor)

Most of the data shown in this presentation pertains to the Caltrain-owned corridor north of Tamien Station



Background

Regulation

Caltrain understands that there is a gap between the regulatory requirement for grade separation and the desires and ongoing plans of many communities along the corridor

When is Grade Separation or Closure of a Crossing Required?

Grade crossings are regulated by the Federal Railroad Administration (FRA) and, in California, by the California Public Utilities Commission

Under current regulations, the separation or closure of an at-grade crossing is required in the following circumstances:

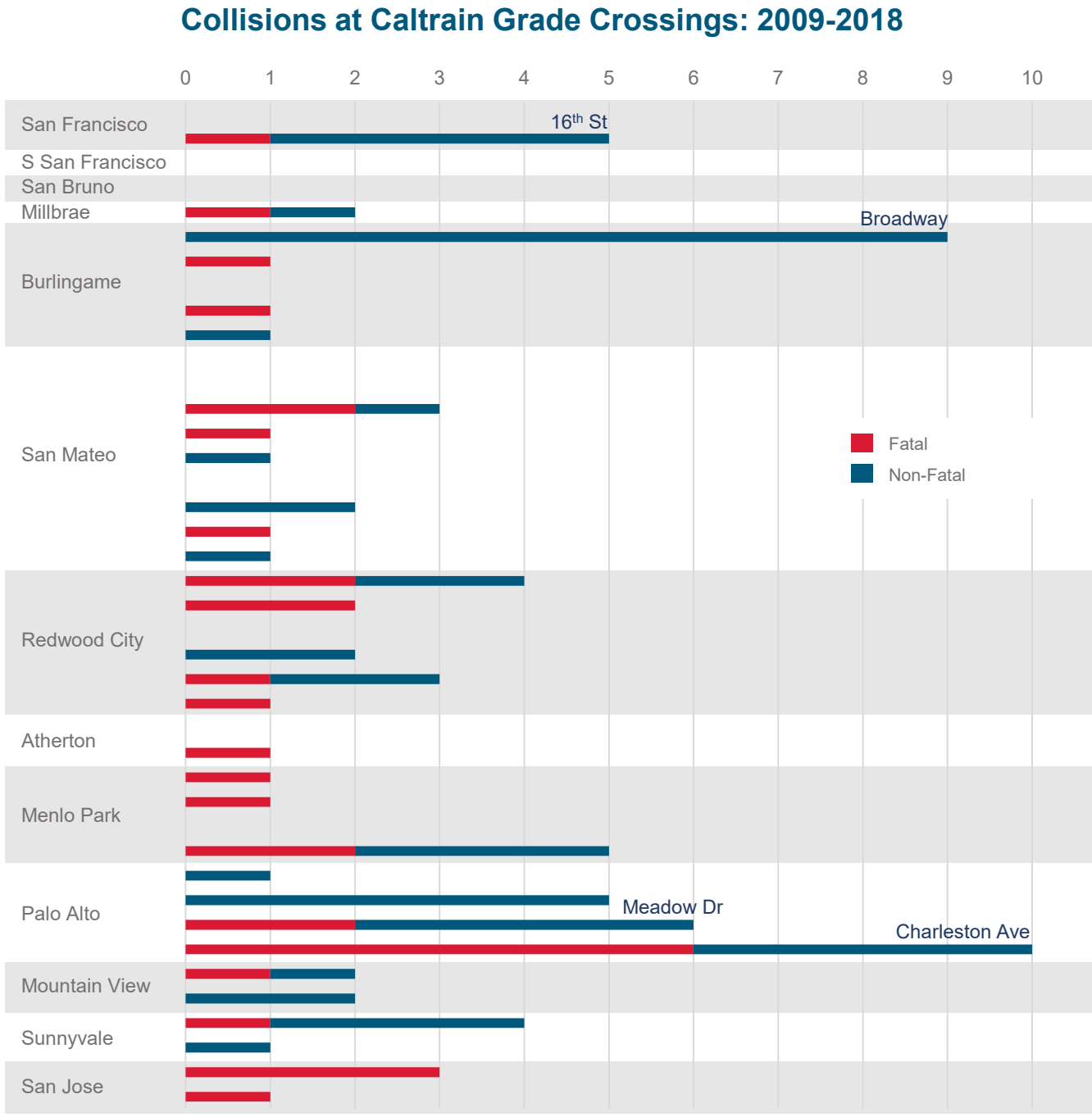
- When maximum train speeds exceed 125 mph (FRA regulation)
- When the crossing spans 4 or more tracks (CPUC guidance interpreted into Caltrain Standards)

Background

Safety

Over 80 collisions occurred at Caltrain's grade crossings in the 10 years from 2009-2018. More than 30 of these collisions involved a fatality

- 11 crossings had 0 collisions
- 8 crossings had 4 or more collisions
- 21 crossings had 1 or more fatalities



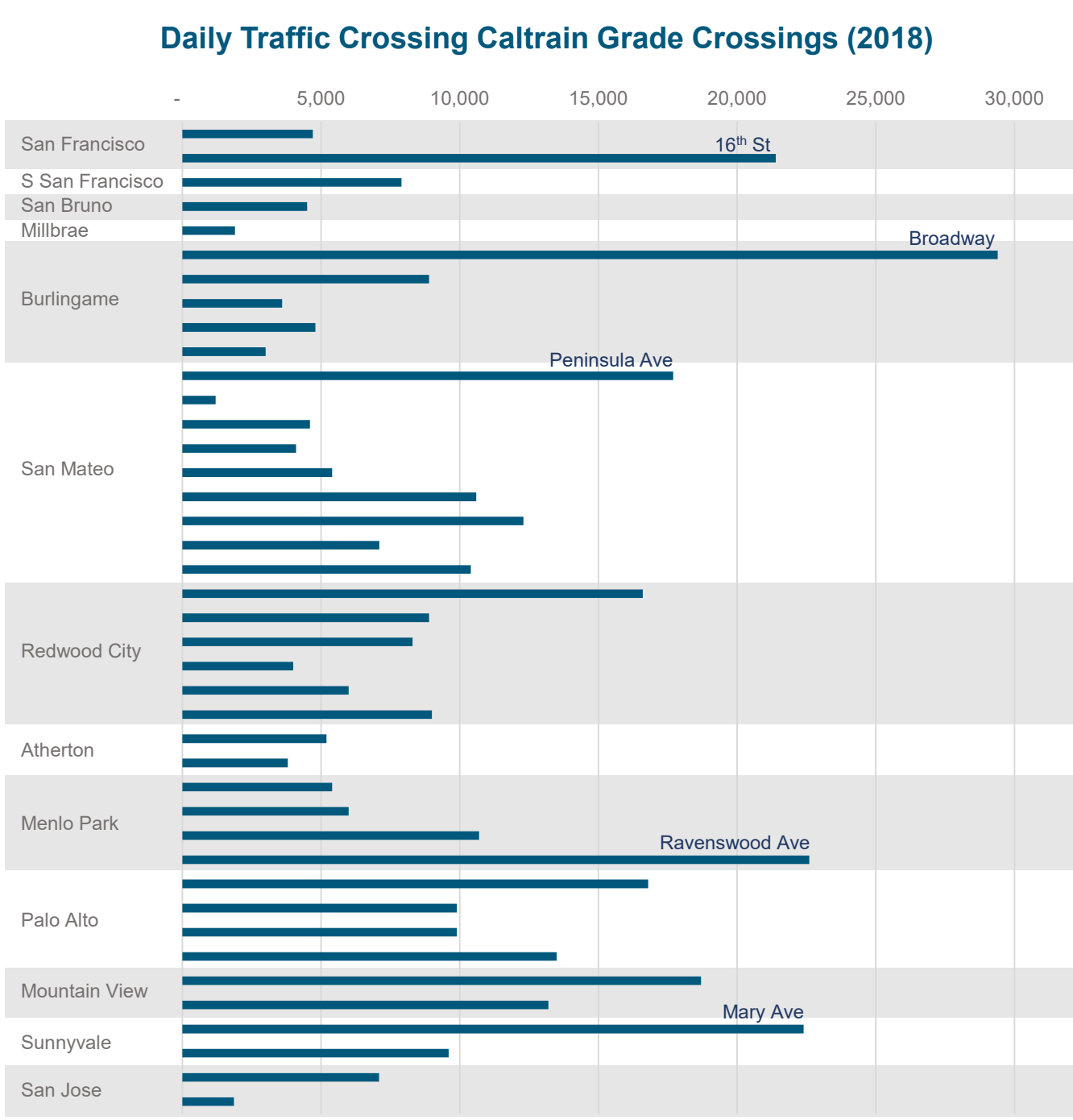
Data presented for Caltrain-owned corridor Only. Collision data from FRA reports

Background

Usage

During a typical 2018 weekday, Caltrain's at-grade crossings were traversed by approximately 400,000 cars. This is equivalent to the combined traffic volumes on the Bay Bridge and San Mateo Bridge

The 10 busiest at-grade crossings account for half of all traffic volumes



Data presented for Caltrain-owned corridor only. Data reflects 2016 ADT

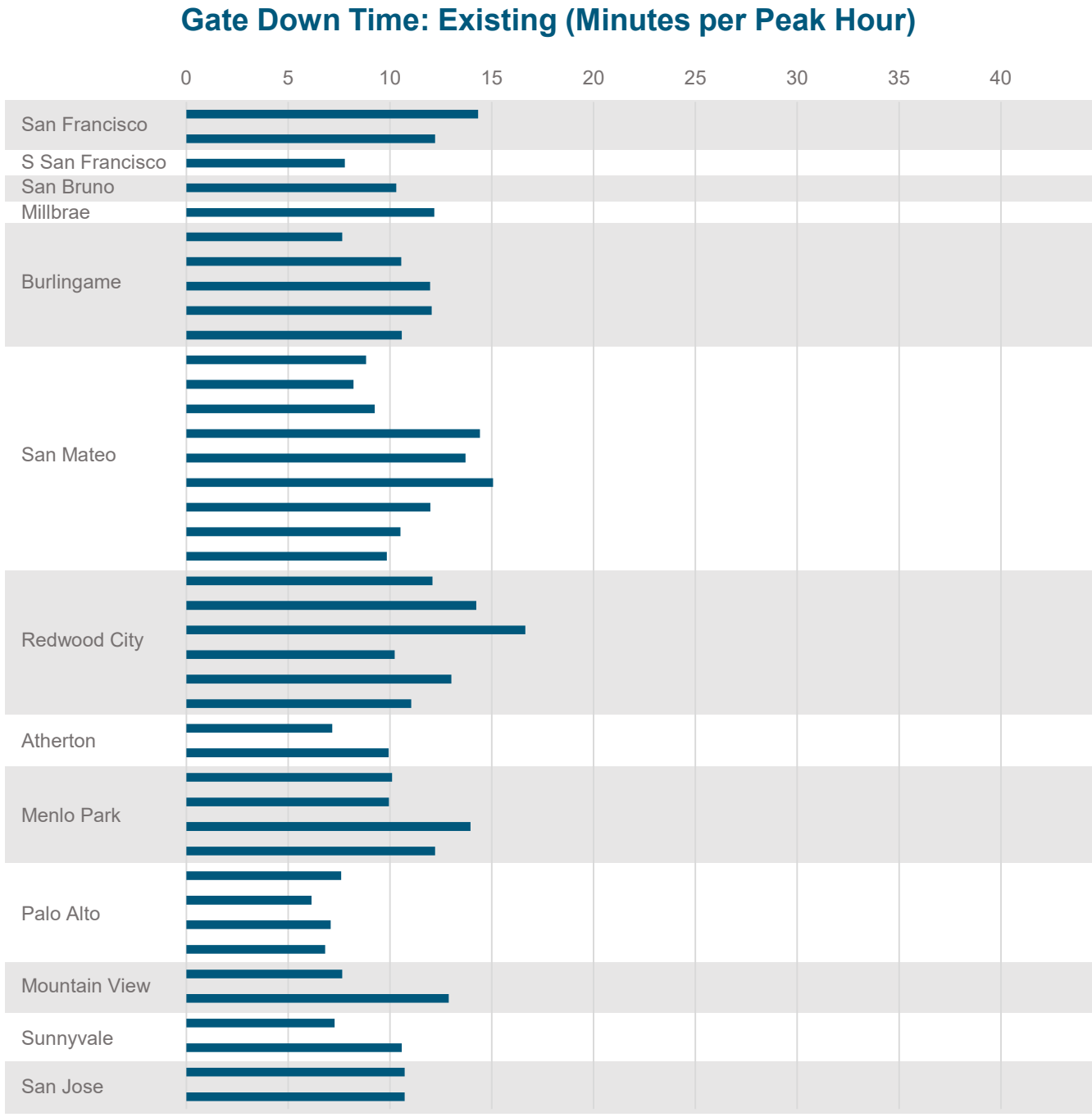
Background

Existing Gate Downtimes

In 2018 Caltrain's crossing gates were down for an average of about 11 minutes during the peak weekday commute hour. Gate down times range from 6 minutes up to nearly 17 minutes.

Note: Gate downtimes shown reflect the average time crossing gates are down only. Depending on individual crossing and roadway configuration traffic signals may stay red for longer and auto users may experience longer delays

Data presented for Caltrain-owned corridor only.



Background

History

Today, 71 of 113 crossings along the Caltrain corridor have already been separated (63%) and 12 of 30 crossings along the UP corridor utilized by Caltrain have been separated (29%)

The grade separations have been constructed (and reconstructed) at various points during the corridor's 150-year history

Planning for, funding, and constructing grade separations has been a decades-long challenge for the Caltrain corridor

Bayshore Tunnels under construction, 1907

Background - History

Grade Separations Have Been an Enduring Challenge

"In 1929, Palo Alto City Mayor, C.H. Christen, and Stanford University Engineering Professor Emeritus, W.F. Durand, organized political leaders from San Francisco, San Mateo, and Santa Clara counties to form the Peninsula Grade Crossing Conference, also referred to as the Peninsula Grade Crossing Association. Professor Durand and the association, with help from the San Francisco City Engineer, Southern Pacific Railroad, and the California Railroad Commission, studied the grade crossing situation on the San Francisco Peninsula throughout 1930 and sought ways to eliminate grade crossings.

In 1931, the association's engineering subcommittee released a detailed, $9 million two-phase proposal to eliminate grade crossings on the peninsula. The "Primary Program" of the plan called for construction of grade separations at the 15 most traveled and hazardous grade crossings and closure of the 17 least important grade crossings. The "Secondary Program" would have completed the elimination of all major grade crossings in San Francisco, San Mateo, and Santa Clara counties. The conference's aim was to permit travelers to cross railroad tracks only via grade separations. At an average cost of $270,000 per grade separation, the Peninsula Grade Crossing Conference proposed legislation to fund these projects through a portion of the state's gasoline tax."

- *Historic Context Statement. Roadway Bridges of California 1936-1959. Published by Caltrans in 2003*

Background - Funding

Over the last 30 years, grade separation projects have occurred exclusively in San Mateo County because San Mateo County has set aside a dedicated source of funding for grade separation projects through its Measure A Sales Tax (1988 and 2004). This funding has directly paid for the majority of grade separation costs and has been instrumental in leveraging state and local funding sources to make up the balance of project needs. Caltrain is now actively working with cities in Santa Clara County on grade separation projects following the establishment of dedicated grade separation funding through Santa Clara County's 2016 Measure B.

Crossings (City)	Date Completed	San Mateo County TA	Federal	State	Local	Total
Oyster Point (South San Francisco)	1994	$11.0		$6.9	$6.3	$24.2
Millbrae Ave. (Millbrae)	1996	$13.3		$9.8	$0.9	$24.0
Ralston/Harbor/Holly (Belmont and San Carlos)	2000	$60.7		$35.3	$3.6	$99.6
Brittan/ Howard (San Carlos)	1995	$11.3		$8.7	$3.0	$23.0
Jefferson Ave. (Redwood City)	1999	$8.1		$5.5	$0.6	$14.2
Fifth Ave. (North Fair Oaks)	1995	$10.1		$5.0	$1.9	$17.0
San Bruno/ San Mateo / Angus (San Bruno)	2014	$101.8	$6.6	$56.0	$0.75	$165.1
25th Ave (San Mateo) (Under Construction)	2021	$74.0		$94.0	$12.0	$180.0
TOTAL		$290.3		$221.2	$28.3	$547.1

Funding

Section 190 Program

The California Public Utilities Commission Section 190 Program provides $15 million a year in state funding for the grade separation and/or elimination of at-grade crossings. As part of this program, the CPUC is required by law to establish a priority list of railroad grade separation projects that have the highest need. Projects must be submitted by a local entity for evaluation. The criteria used to evaluate and prioritize the submitted projects include accident history, average train and vehicular volume and project site characteristics.

Caltrain Corridor Projects on the 2020-2021 CPUC List

- Broadway Ave (Burlingame) – Ranked 1st in State
- Whipple Ave (Redwood City) – Ranked 5th in State
- Ravenswood Ave, Oak Grove Ave, Glenwood Ave (Menlo Park) – Ranked 7th in State
- Rengstorff Ave (Mountain View) – Ranked 9th in State
- Auzerais Ave and West Viginia St (San Jose) – Ranked 12th in State
- Castro St (Mountain View) – Ranked 14th in State
- Skyway Dr, Branham Ln, Chynoweth Ave – Ranked 19th in State

Funding

Section 130 Program

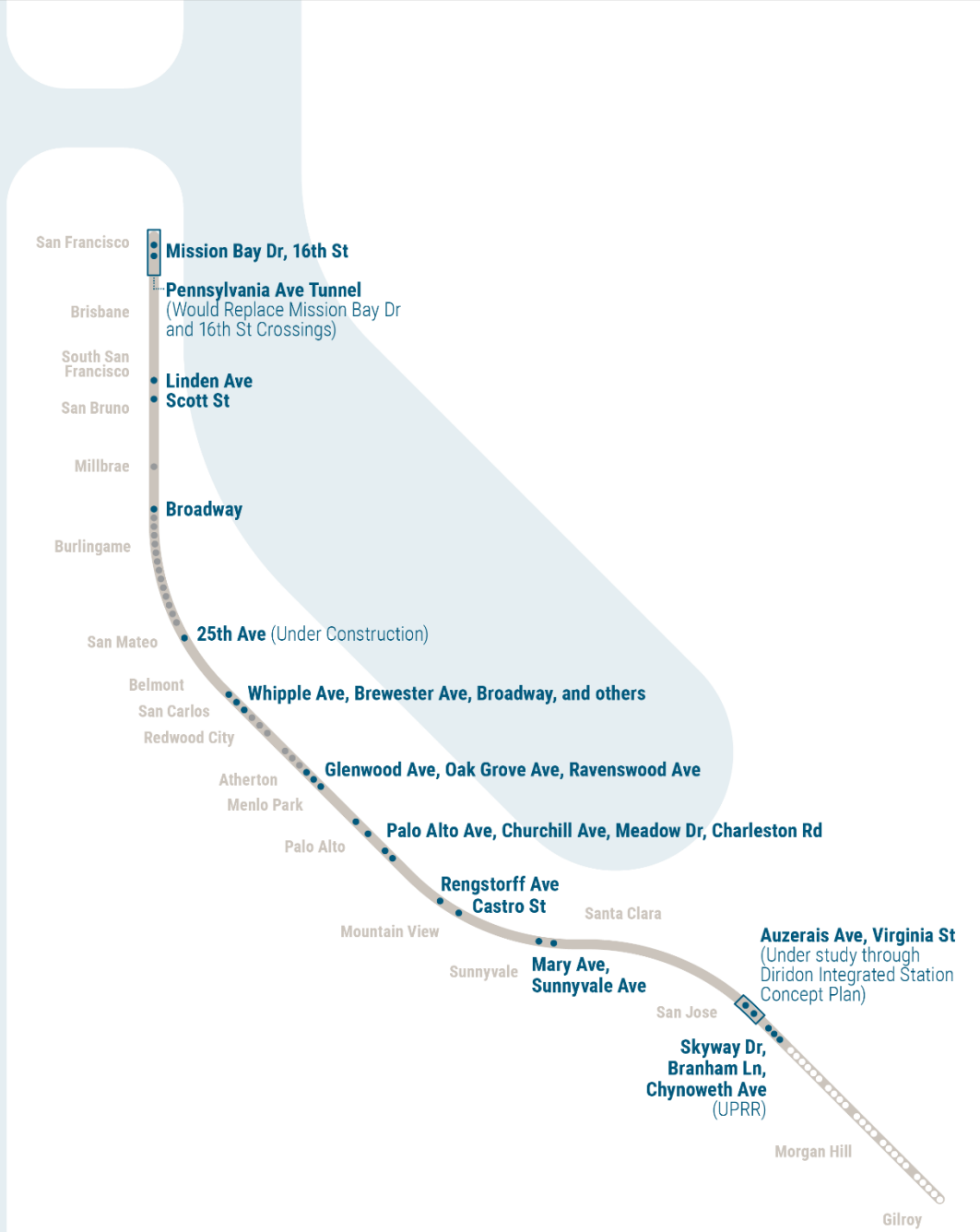
The California Public Utilities Commission Section 130 Program provides funding for the elimination of hazards at existing at-grade railroad crossings. The goal of the program is to reduce the number and severity of accidents between trains and motorists, bicyclists, and pedestrians at crossings. Projects can be nominated by railroads or local jurisdictions and eligible projects are placed on a priority list based on accident history and the ability to improve safety. Annual funding allocations are determined and provided by Caltrans.

Caltrain Corridor Crossings Receiving Section 130 Funding over last 10 years

County	Crossing	Year	Funding
Santa Clara	Castro and Rengstorff	2011	$3,146,000
San Mateo	Brewster and 3rd Ave	2013	$602,000
San Mateo	Broadway, Main and Whipple	2015	$1,660,000
Santa Clara	Mary Avenue	2017	$3,125,000
Santa Clara	Churchill Avenue	2019	$2,250,000
San Mateo	4th and 5th Avenues	2020	$2,000,000

Ongoing City Studies, Plans and Projects

- Many cities along the corridor are actively planning or considering grade separations
- Each of these represents a major community effort to plan a significant and impactful project
- These projects, including their estimated and potential costs (as available), have been incorporated into the Business Plan



City-led Grade Separation and Closure Plans

Caltrain staff is involved to differing degrees in all of the projects listed below. Staff has incorporated or accounted for grade separation concepts, plans and cost estimates from the following city-led studies into the Business Plan

City	Crossings Under Study	Status of Plan or Study
San Francisco	Pennsylvania Ave Tunnel (includes both Mission Bay Dr and 16th St Crossings)	Pre Environmental
South San Francisco	Linden Ave	PSR
San Bruno	Scott St	PSR
Burlingame	Broadway	EIR
San Mateo	25th Ave	Construction
Redwood City	Whipple Ave, Brewster Ave, Broadway (Maple, Main and Chestnut under potential consideration)	Conceptual Planning

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City	Crossings Under Study	Status of Plan or Study
Menlo Park	Glenwood Ave Oak Grove Ave Ravenswood Ave	Conceptual Planning
Palo Alto	Palo Alto Ave	Under Study through Coordinated Area Plan
Palo Alto	Churchill Ave	Alternatives Analysis
Palo Alto	East Meadow Dr Charleston Rd	Alternatives Analysis
Mountain View	Rengstorff Ave	PE/EIR
Mountain View	Castro St	PE/EIR

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City	Crossings Under Study	Status of Plan or Study
Sunnyvale	Mary Ave	Feasibility Study with 15% Design
Sunnyvale	Sunnyvale Ave	Feasibility Study with 15% Design
San Jose	Azurais Ave Virginia Ave	Under study through Diridon Integrated Station Concept Plan
San Jose	Skyway Dr Branham Ln Chynoweth Ave	Feasibility Study

Crossings are part of UP-Owned Corridor

Estimated corridor wide costs of planned and potential future grade separations were developed as part of the Caltrain Business Plan

	Type	Service Vision - Moderate Growth	Service Vision - High Growth
Total Corridor Wide Cost Estimate for Crossings	Auto	$8.9B	$10.1B
	Bike / Ped	$140M	$140M
	Total	**$9.0B**	**$10.2B**
Investments on JPB-owned Corridor	Quad Gates & Safety Improvements	11	6
	Mitigated Closure	5	8
	Grade Separation	25	27
Investments on UP-owned Corridor	Quad Gates & Safety Improvements	20	20
	Mitigated Closure	3	3
	Grade Separation	5	5

Ongoing Work

There is a significant body of work remaining to address the issue of at grade crossings in the Caltrain corridor

Caltrain plans to continue advancing a corridor wide conversation regarding the construction, funding and design of grade separations while continuing to support the advancement of individual city-led projects

Within the Business Plan

- Incorporated grade crossing investment estimates into overall corridor costing and business case analysis
- Continued peer review of corridor wide grade separation case studies and examples

Beyond the Business Plan

- Submitted grade separation projects as part of PBA2050 submittals
  - Initially as part of overall Caltrain submittal
  - Subsequently through work with county CMAs
  - Final PBA2050 included additional regional discretionary capacity for grade seperations
- Continued work with cities and counties to advance individual projects
- Secured $5 million in funding for corridor wide grade separation strategy

Corridor wide Grade Separation Strategy

The corridor wide grade separation strategy will be a significant undertaking – with a scale and level of effort comparable to the Caltrain Business Plan

Example Areas of Focus

- Developing a shared dataset and body of information and educational materials for entire corridor (including UP owned section)
- Review of large-scale national and international corridor projects
- Review of railroad standards, construction and delivery approaches for grade separation projects
- Significant work with communities to focus on place making, cross-track connectivity, land use opportunities and equity
- Development of benefits case / “Business Case” framework for grade separations
- Identification of funding needs and potential new funding approaches and strategies
- Development of corridor wide options / strategies for project sequencing and delivery
- Development of organizational and governance options and strategies

Corridor wide Grade Separation Strategy

The corridor wide grade separation strategy will be a significant undertaking – with a scale and level of effort comparable to the Caltrain Business Plan

Approach

- Project will start in 2021. Envisioned as a multi-year, phased effort.
- Dedicated PM
- Multi agency effort with Caltrain as “convener” rather than sole owner. Robust involvement anticipated from
  - Corridor cities
  - County TAs and CMAs
  - HSR and other rail operators
  - Regional and state agencies
  - Community groups and private sector
- Initial phase of work (+/- 6 mos) would be extensive information gathering and stakeholder outreach effort focused on gathering the input needed to;
  - Define a technical scope of work for the remainder of the project
  - Develop an organizational structure and governance model for the project
  - Develop and execute contracting strategy
  - Solicit additional funding if needed (based on technical scope input)
  - Brief relevant boards and key elected officials

FOR MORE INFORMATION

WWW.CALTRAIN.COM