



Bay Area Metro Center
375 Beale Street
San Francisco, CA 94105

Meeting Agenda

Metropolitan Transportation Commission Workshop

Wednesday, May 25, 2022

1:30 PM

HYBRID (In person option available)

The Day 1 of the Metropolitan Transportation Commission Workshop is scheduled to meet on Wednesday, May 25, 2022 at 1:30 p.m. or immediately following the 9:45 a.m. BAHA, in the Bay Area Metro Center (HYBRID - In person option available). In light of Governor Newsom's State of Emergency declaration regarding COVID-19 and in accordance with the recently signed Assembly Bill 361 allowing remote meetings, this meeting will be accessible via webcast, teleconference, and Zoom for all participants. A Zoom panelist link for meeting participants will be sent separately to committee, commission, or board members.

Meeting attendees may opt to attend in person for public comment and observation at 375 Beale Street, Yerba Buena Conference Room (1st Floor). In-person attendees must adhere to posted public health protocols while in the building.

The meeting webcast will be available at

<https://mtc.ca.gov/whats-happening/meetings/live-webcasts>.

Members of the public are encouraged to participate remotely via Zoom at the following link or phone number:

Attendee Link: <https://bayareametro.zoom.us/j/83718715534>

Or iPhone one-tap: US: +13462487799,,83718715534# or +16699006833,,83718715534#

Or Join by Telephone: (for higher quality, dial a number based on your current location) US:

+1 408 638 0968 or +1 669 900 6833 or +1 253 215 8782 or +1 346 248 7799 or

+1 312 626 6799 or +1 646 876 9923 or +1 301 715 8592 or

877 853 5247 (Toll Free) or 888 788 0099 (Toll Free)

Webinar ID: 837 1871 5534

International numbers available: <https://bayareametro.zoom.us/j/83718715534>

Detailed instructions on participating via Zoom are available at:

<https://mtc.ca.gov/how-provide-public-comment-board-meeting-zoom>. Committee members and members of the public participating by Zoom wishing to speak should use the "raise hand" feature or dial "*9". In order to get the full Zoom experience, please make sure your application is up to date.

Members of the public may participate by phone or Zoom or may submit comments by email at info@bayareametro.gov by 5:00 p.m. the day before the scheduled meeting date. Please include the committee or board meeting name in the subject line. Due to the current circumstances there may be limited opportunity to address comments during the meeting. All comments received will be submitted into the record.

MTC Commission Roster:**Alfredo Pedroza, Chair Nick Josefowitz, Vice Chair****Margaret Abe-Koga, Eddie Ahn, David Canepa, Cindy Chavez, Damon Connolly, Carol Dutra-Vernaci, Dina El-Tawansy, Victoria Fleming, Dorene M. Giacomini, Federal D. Glover, Sam Liccardo, Nate Miley, Gina Papan, David Rabbitt, Hillary Ronen, Libby Schaaf, James P. Spering, Amy R. Worth****Workshop Theme: Delivering the Next Generation of Transit Major Projects: Setting the Bay Area up for Success**

Objective: Understand their importance and specifics of major transit projects to achieving PBA2050 goals as well as the significant time, effort, funding, and risk associated with delivering mega projects. Discuss best practices, lessons learned, and risk management approaches and potential MTC regional value-add in project delivery. Finally, discuss how the Major-project Advancement Policy (MAP) will bring together a funding strategy, policy reinforcements, and risk management toward successful project delivery of the Next Generation of Transit for the Bay Area.

May 25, 2022 (1:30 p.m. - 4:30 p.m.)**1) Introduction and Expectations (Chair Alfredo Pedroza)**[22-1010](#) Introduction and Expectations**Attachments:** [Introduction and Expectations.pdf](#)**2) [22-0978](#) The Bay Area Transit Landscape**

Staff will provide an overview of Plan Bay Area 2050 and the role of major transit expansion projects and complementary strategies in achieving its goals. Recent context related to the pandemic and recovery as well as Bay Area employer plans and resident sentiment will be discussed.

Action: Information**Presenter:** Alix Bockelman**Attachments:** [The Bay Area Transit Landscape Presentation.pdf](#)**3) Delivering Transit Mega Projects and Managing Risk****3a) [22-0979](#) Mega Project 101**

Ms. Walker-Ford will give an overview of fundamentals in delivering major capital projects with a focus on the important pipeline on the front end of the project lifecycle, identifying and selecting the optimal delivery model and creating contractual relationships that address risk throughout the project delivery lifecycle.

Action: Information**Presenter:** Jannet Walker-Ford, WSP

Break**3b) [22-0751](#) Three Project Delivery Perspectives**

Three invited guests will share risk management approaches and lessons learned through the project delivery lifecycle.

- i) BART to Silicon Valley - Applying lessons learned from Phase 1 to Phase 2 (Carl Holmes, BART Assistant General Manager and Takis Salpeas, VTA Project Manager)
- ii) What the East Span of the Bay Bridge Taught Us (Steve Heminger, Former MTC Executive Director and Current SFMTA and Caltrain Board member)
- iii) Getting Back on Track, Policy Solutions to Improve California Rail Transit Projects (Ethan Elkind, Director of Climate Program, Berkeley Law - Center for Law, Energy and the Environment)

Action: Information

Presenter: Carl Holmes, Takis Salpeas, Steve Heminger, and Ethan Elkind

Attachments: [3bi-BART to Silicon Valley - Phase II Extension Project.pdf](#)
[3bii-What The East Span of the Bay Bridge Taught Us.pdf](#)
[3biii-Getting Back on Track.pdf](#)

4) Public Comment / Other Business

5) Adjournment of Day 1: The Commission Workshop will continue on Thursday, May 26, 2022 at 9:30 a.m.

Public Comment: The public is encouraged to comment on agenda items at Committee meetings by completing a request-to-speak card (available from staff) and passing it to the Committee secretary. Public comment may be limited by any of the procedures set forth in Section 3.09 of MTC's Procedures Manual (Resolution No. 1058, Revised) if, in the chair's judgment, it is necessary to maintain the orderly flow of business.

Meeting Conduct: If this meeting is willfully interrupted or disrupted by one or more persons rendering orderly conduct of the meeting unfeasible, the Chair may order the removal of individuals who are willfully disrupting the meeting. Such individuals may be arrested. If order cannot be restored by such removal, the members of the Committee may direct that the meeting room be cleared (except for representatives of the press or other news media not participating in the disturbance), and the session may continue.

Record of Meeting: Committee meetings are recorded. Copies of recordings are available at a nominal charge, or recordings may be listened to at MTC offices by appointment. Audiocasts are maintained on MTC's Web site (mtc.ca.gov) for public review for at least one year.

Accessibility and Title VI: MTC provides services/accommodations upon request to persons with disabilities and individuals who are limited-English proficient who wish to address Commission matters. For accommodations or translations assistance, please call 415.778.6757 or 415.778.6769 for TDD/TTY. We require three working days' notice to accommodate your request.

可及性和法令第六章: MTC 根據要求向希望來委員會討論有關事宜的殘疾人士及英語有限者提供服務/方便。需要便利設施或翻譯協助者，請致電 415.778.6757 或 415.778.6769 TDD / TTY。我們要求您在三個工作日前告知，以滿足您的要求。

Acceso y el Titulo VI: La MTC puede proveer asistencia/facilitar la comunicación a las personas discapacitadas y los individuos con conocimiento limitado del inglés quienes quieran dirigirse a la Comisión. Para solicitar asistencia, por favor llame al número 415.778.6757 o al 415.778.6769 para TDD/TTY. Requerimos que solicite asistencia con tres días hábiles de anticipación para poderle proveer asistencia.

Attachments are sent to Committee members, key staff and others as appropriate. Copies will be available at the meeting.

All items on the agenda are subject to action and/or change by the Committee. Actions recommended by staff are subject to change by the Committee.



Metropolitan Transportation Commission

375 Beale Street, Suite 800
San Francisco, CA 94105

Legislation Details (With Text)

File #: 22-1010 **Version:** 1 **Name:**

Type: Report **Status:** Informational

File created: 5/23/2022 **In control:** Metropolitan Transportation Commission Workshop

On agenda: 5/25/2022 **Final action:**

Title: Introduction and Expectations

Sponsors:

Indexes:

Code sections:

Attachments: [Introduction and Expectations.pdf](#)

Date	Ver.	Action By	Action	Result
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Metropolitan Transportation Commission Commission Workshop

May 25, 2022

Agenda Item 1

Delivering the Next Generation of Transit Major Projects: Setting the Bay Area Up For Success

Subject:

Summary of the May 25-26 Commission Workshop.

Background:

MTC is currently developing a Major Project Advancement Policy (MAP), scheduled for adoption in Summer/Fall 2022, focused on delivering the next generation of large transportation projects in the Bay Area. The region, like many major metropolitan areas throughout the country, has experienced successes and challenges in delivering large transit infrastructure projects. To prepare for the next generation of projects and inform the MAP, this workshop explores the current major project landscape in the Bay Area, focusing on successes and challenges of recent major project delivery in the region, examining the current slate of projects approved in Plan Bay Area 2050, and receiving expert testimony on best practices, risk management, delivery methods and structures and recommendations on how the region can expand its project delivery tool kit.

MAP Development

The MTC Programming and Allocations Committee received staff updates and provided direction in April and May 2022 on MAP development. Additionally, the MAP was discussed at the May MTC Policy Advisory Council. Further information on the MAP, including updated information from sponsors and the project evaluation will be presented on Day 2 of the workshop. Staff is seeking further Commission and public input on the MAP in the coming months.

Key Dates for Public/Partner/Stakeholder Engagement and Input (other opportunities may be added):

March 30	Partnership Board*
April/May/June	Outreach to Partnership Board, Transit Agencies, County Transportation Agencies, Federal and State and Local funding partners
April/May/June	Targeted outreach to transit agencies, funding partners, and stakeholders
April 6	Partnership Transit Finance Working Group
April 13	MTC Programming and Allocations Committee*
May 11	MTC Programming and Allocations Committee*
May 11	MTC Policy Advisory Council*
May 25-26	MTC Commission Workshop*
June 8	MTC Programming and Allocations Committee*
July 13	MTC Programming and Allocations Committee*
September 14 and 28	MAP Recommendations to Programming and Allocations and MTC for Approval*

*Denotes opportunity for public comment

Issues:

None identified.

Recommendations:

Information

Attachments:

None



Therese W. McMillan



Metropolitan Transportation Commission

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Legislation Details (With Text)

File #:	22-0978	Version:	1	Name:	
Type:	Report	Status:		Informational	
File created:	5/13/2022	In control:		Metropolitan Transportation Commission Workshop	
On agenda:	5/25/2022	Final action:			
Title:	The Bay Area Transit Landscape				

Staff will provide an overview of Plan Bay Area 2050 and the role of major transit expansion projects and complementary strategies in achieving its goals. Recent context related to the pandemic and recovery as well as Bay Area employer plans and resident sentiment will be discussed.

Sponsors:

Indexes:

Code sections:

Attachments: [The Bay Area Transit Landscape Presentation.pdf](#)

Date	Ver.	Action By	Action	Result
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Subject:

The Bay Area Transit Landscape

Staff will provide an overview of Plan Bay Area 2050 and the role of major transit expansion projects and complementary strategies in achieving its goals. Recent context related to the pandemic and recovery as well as Bay Area employer plans and resident sentiment will be discussed.

Presenter:

Alix Bockelman

Recommended Action:

Information

PLAN BAY AREA 2050

Bay Area Transit Landscape

*Commission Workshop
May 25, 2022*

Plan Bay Area 2050 Serves as our Roadmap

Adopted unanimously by the Commission and ABAG Executive Board in October 2021, Plan Bay Area 2050 provides a vision for the region's future supported by years of intensive analysis and engagement.

Plan Bay Area 2050 demonstrates how the region can reduce GHG emissions to meet state mandates while simultaneously prioritizing **equity** and **resilience** to uncertain future trends.

160+

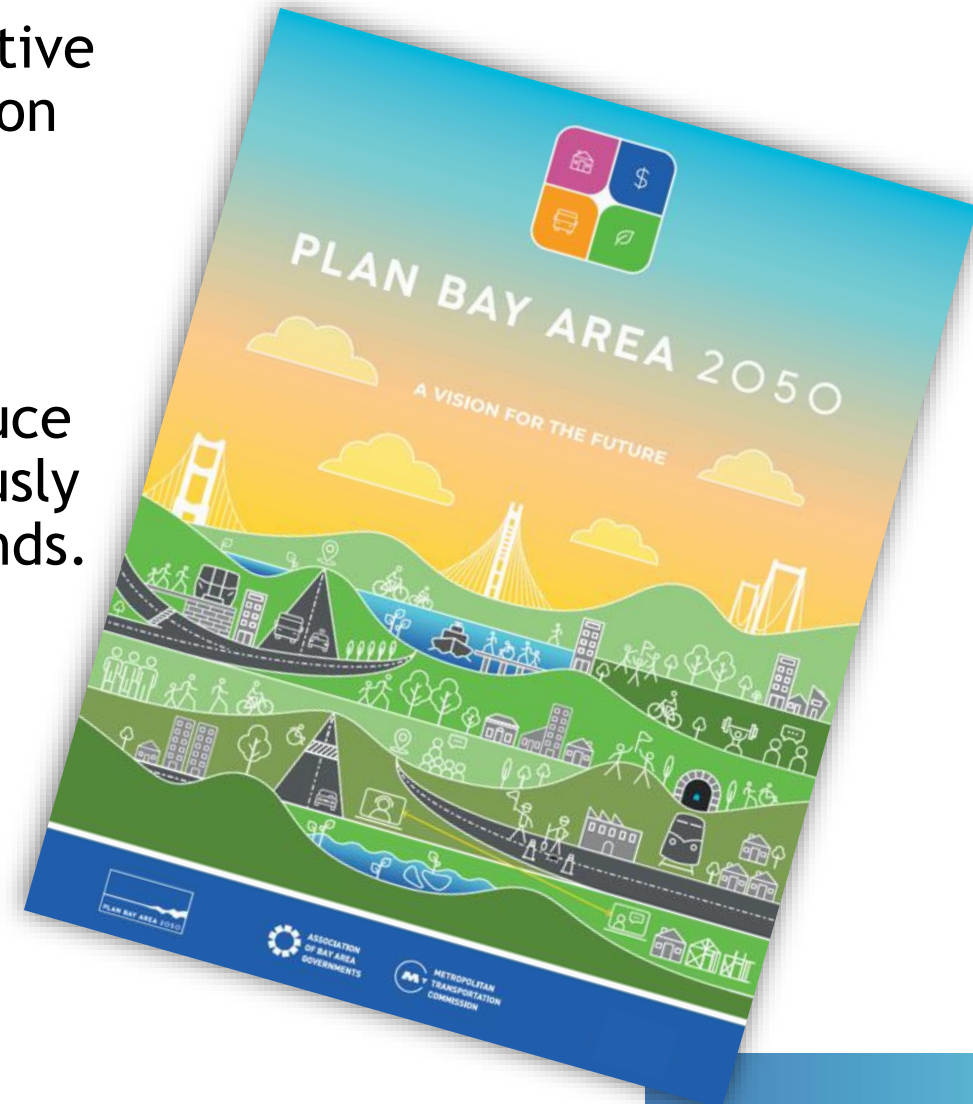
public meetings featuring discussion of Horizon & Plan Bay Area 2050

234,000+

public comments received

60%+

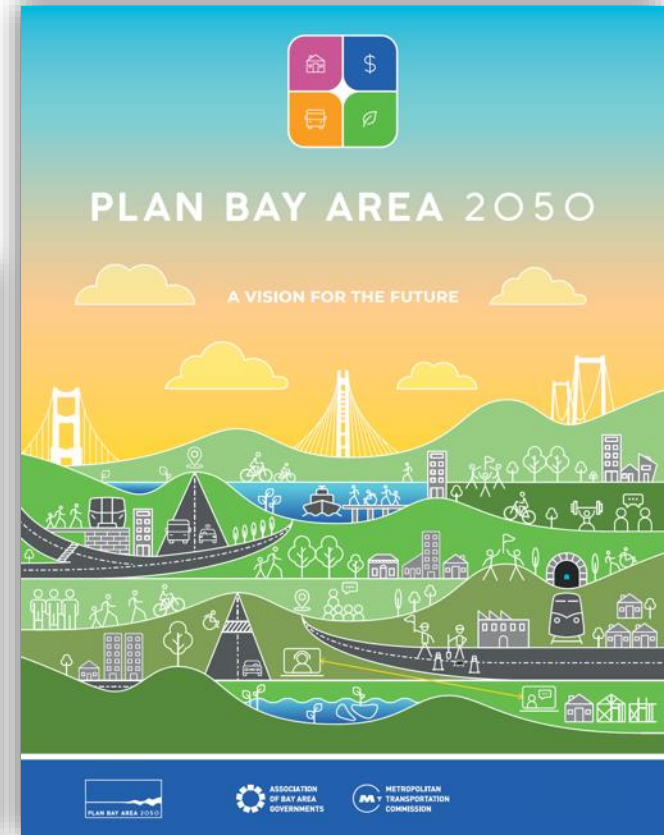
of events/activities targeted Equity Priority Communities or other underserved groups



Four-Year Journey to a Bold New Regional Vision

Kicked off in early 2018, Horizon and Plan Bay Area 2050 recognized the importance of planning for an uncertain future.

Through Horizon, policies and investments were analyzed in three distinct future contexts, with strategies that performed well across futures prioritized for inclusion in Plan Bay Area 2050. The result: a long-range plan that is resilient to uncertainty.



HORIZON

Futures Planning
Perspective Papers
Project Performance

PLAN BAY AREA 2050

Draft Blueprint & Final Blueprint
Plan Document & Implementation Plan
Environmental Impact Report (EIR)

Project Prioritization

Plan Bay Area 2050's Project Performance Assessment evaluated nearly 100 major projects in three distinct visions of a future Bay Area, assessing how projects might fare in an uncertain future.

Projects were prioritized for inclusion in the Plan based on the following three criteria:



Benefit/Cost Ratio: is the project cost effective and resilient?



Equity Score: does the project primarily benefit lower-income residents?



Guiding Principles Assessment: does the project align with Plan Bay Area 2050's vision?

Snippet from Final Performance Summary

Guiding Principle Flags	Benefit-Cost Ratio			Equity Score		
	Rising Tides Falling Fortunes	Clean and Green	Back to the Future	Rising Tides Falling Fortunes	Clean and Green	Back to the Future
2	0.7	2	2	Even	Even	Even
2	0.6	1	1	Even	Even	Even
0	0.6	1	1	Even	Even	Even
0	0.6	1	1	Even	Even	Even
0	<0.5	0.7	0.6	Challenges	Challenges	Challenges
0	<0.5	<0.5	0.6	Advances	Advances	Even
2	<0.5	0.5	<0.5	Challenges	Challenges	Challenges
0	<0.5	<0.5	0.5	Even	Even	Challenges
2	<0.5	<0.5	<0.5	Challenges	Challenges	Challenges
0	<0.5	<0.5	<0.5	Advances	Advances	Even
0	<0.5	1	1	Even	Even	Even
0	<0.5	0.6	0.7	Challenges	Challenges	Challenges
0	<0.5	<0.5	<0.5	Even	Advances	Even
0	<0.5	<0.5	<0.5	Challenges	Challenges	Challenges
1	<0.5	<0.5	<0.5	Even	Advances	Even
0	<0.5	<0.5	<0.5	Even	Even	Even
0	<0.5	1	1	Challenges	Challenges	Challenges
0	<0.5	<0.5	<0.5	Even	Challenges	Challenges
0	<0.5	0.5	<0.5	Advances	Challenges	Challenges
0	<0.5	<0.5	<0.5	Challenges	Even	Challenges
0	1	2	2	Even	Even	Even
0	0.5	0.6	0.8	Advances	Advances	Even
2	<0.5	1	0.5	Challenges	Even	Challenges
2	<0.5	0.9	0.5	Challenges	Even	Challenges

MTC's analysis shows that major transportation investments are most impactful at reducing greenhouse gas emissions and advancing equity when coupled with supportive policies.



Effective Complementary Strategies

Plan Bay Area 2050 includes a number of policy-based strategies that meaningfully advance regional climate and equity goals.



More housing & jobs near transit



Seamless mobility improvements



Integrated & means-based fares



Incentives for EV adoption



Support for community priorities



All-lane freeway tolling

Envisioned Transit Investments

Plan Bay Area 2050 proposes over \$100 billion in investments to expand and modernize the region's transit network, making transit a more competitive choice for trips of all types.

\$32B *Enhance Local Transit Frequency, Capacity and Reliability*

\$81B *Expand and Modernize the Regional Rail Network*

\$9B *Build an Integrated Regional Express Lanes and Express Bus Network*

Enhance Local Transit Frequency, Capacity & Reliability

Example projects

Geary Rapid Phase 2



San Pablo Avenue Multimodal Corridor



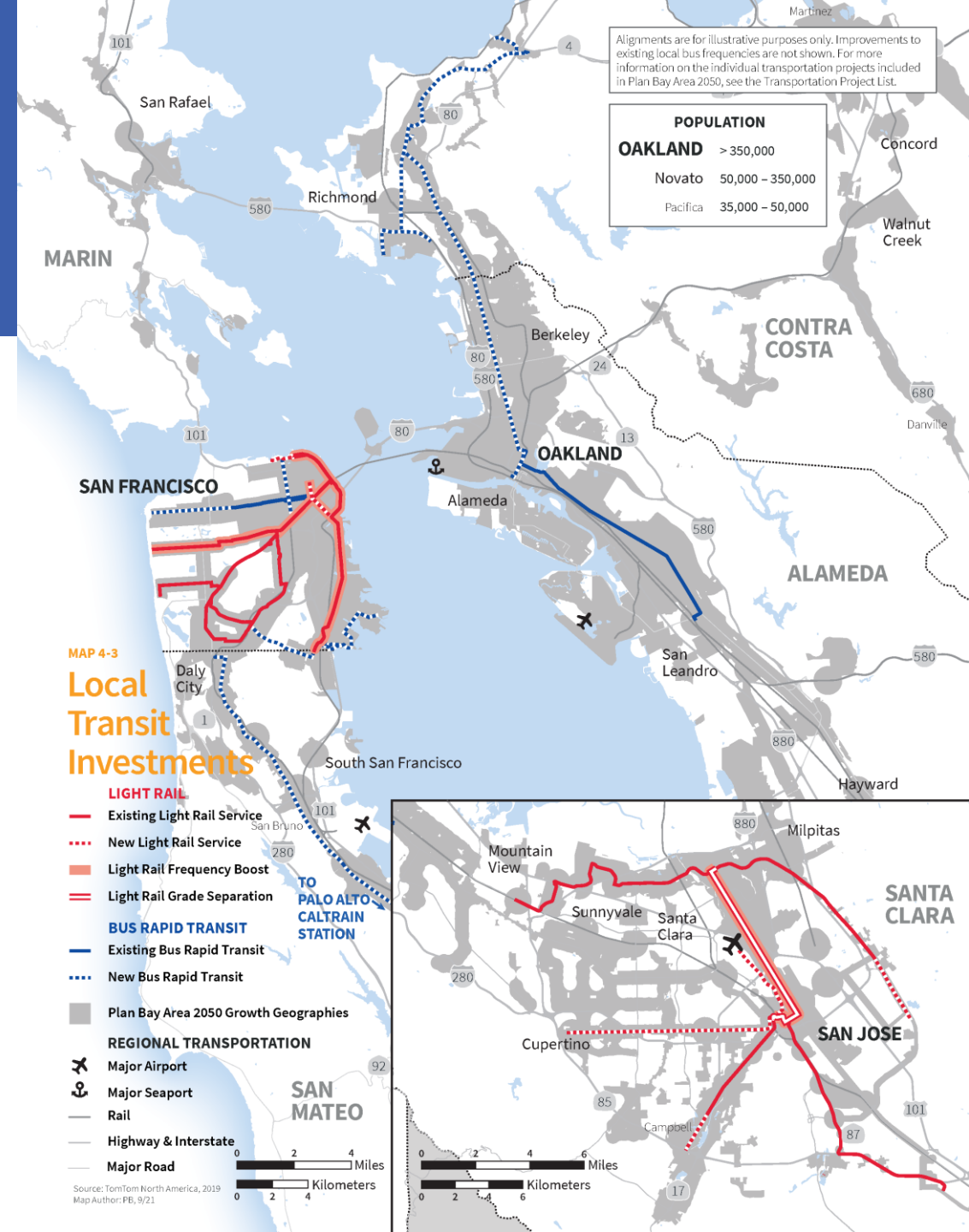
Downtown San Jose Subway



Muni Forward



Note: Lower-cost projects not shown on map



Expand and Modernize the Regional Rail Network

Example projects

Caltrain Downtown Extension



BART to Silicon Valley Phase II



Valley Link



Caltrain Grade Separations



Build an Integrated Regional Express Lanes & Bus Network

Example projects

Regional Express Lanes Network



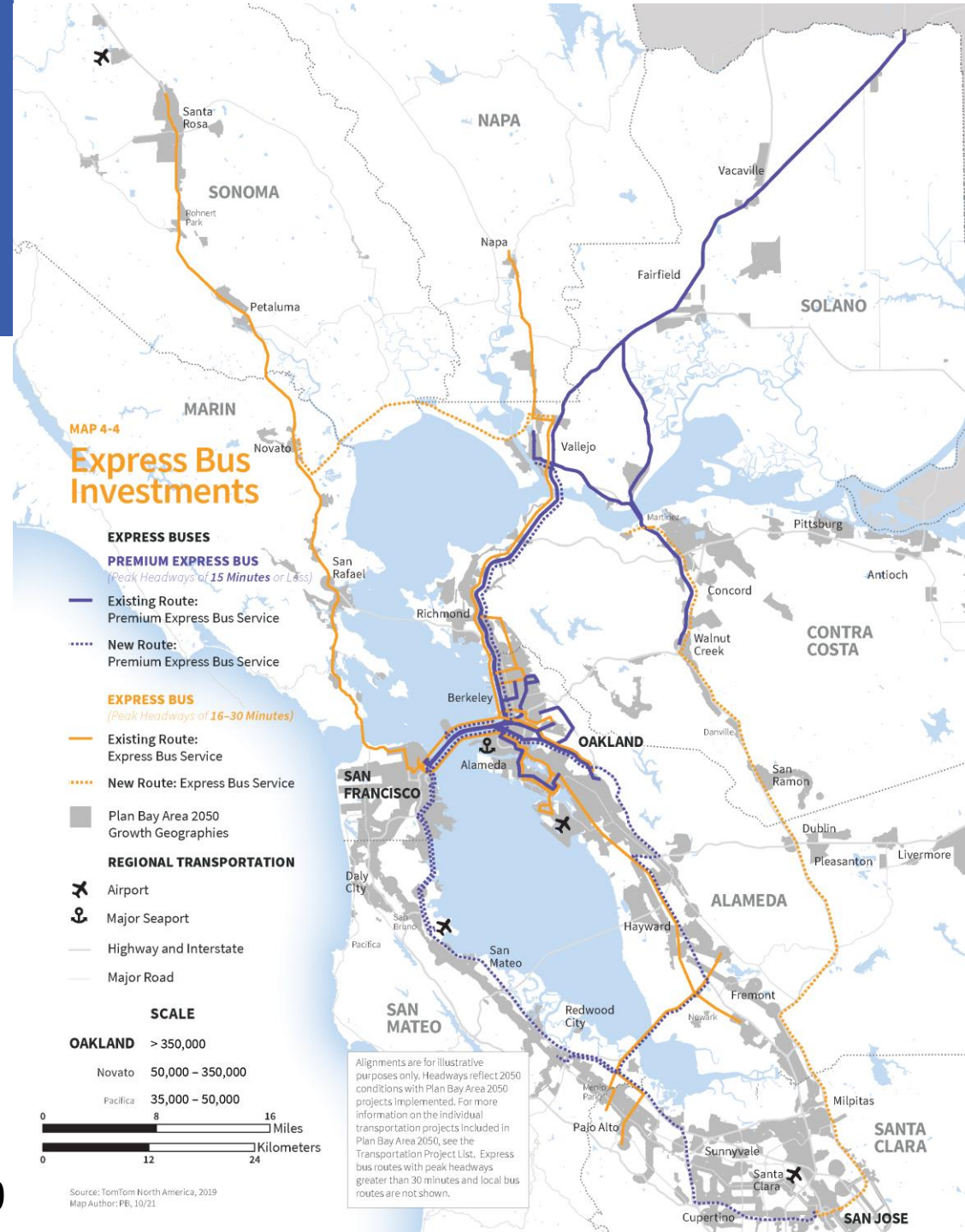
AC Transit Transbay Service Increase



Innovate 680 Multimodal Enhancements



Express Bus on San Francisco Express Lanes



The Public's View: Looking Ahead

In March '22, Bay Area voters said :

45%

Homelessness or housing costs are top concern; 5% view traffic/congestion as #1 problem.

73%

Reduced demand for transit is temporary and we'll need the system sooner or later

26%

The pandemic has changed the way we use transit forever and we need to adapt transit to the reality that fewer people are using it

In April '22, Bay Area employers said:

13%

Of employees will come back 5-days per week after the pandemic is over

60%

Of employees will come back 2-3 days per week

20%

Of employees expect to be fully remote

Ridership Recovery Faces Many Obstacles



SERVICE

Only 80% of Pre-COVID Service Hours Restored



REVENUE

At Least \$1 Billion Revenue Shortfall by FY 30



STAFFING

Operator Shortfalls Limit Service Recovery

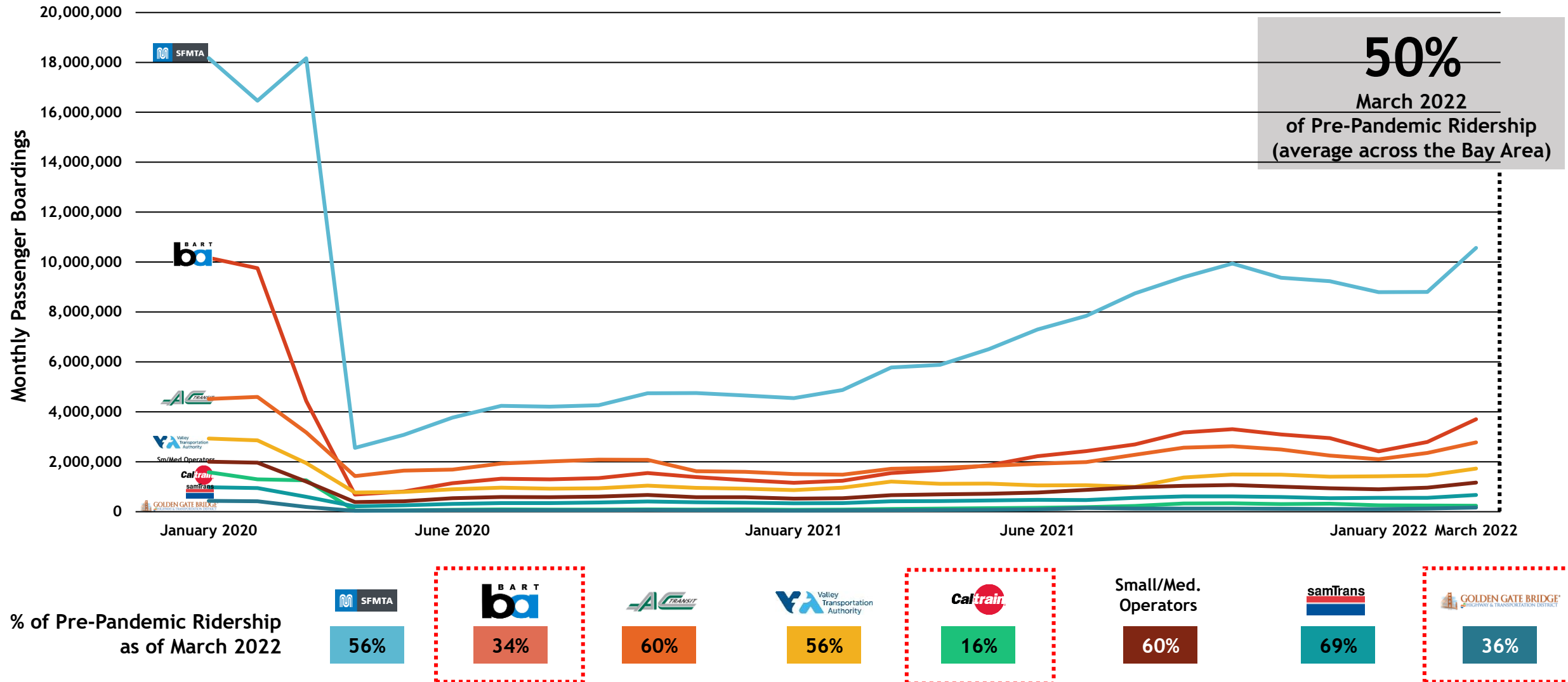


ECONOMIC UNCERTAINTY

Inflation, Hybrid Work, and Recession?

Transit Ridership: A Slow and Uneven Recovery

13



Moving Forward With an Eye on Uncertainty

- The future contains many unknowns - funding availability, telework preferences, shifting transit demand markets, and public comfort with shared transportation, and more.
- Plan Bay Area 2050's investments and policies have been stress tested against varied future scenarios
- Resilience to uncertainty and equity are key decision-making criteria





Metropolitan Transportation Commission

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Legislation Details (With Text)

File #:	22-0979	Version:	1	Name:	
Type:	Report	Status:		Informational	
File created:	5/13/2022	In control:		Metropolitan Transportation Commission Workshop	
On agenda:	5/25/2022	Final action:			
Title:	Mega Project 101				

Ms. Walker-Ford will give an overview of fundamentals in delivering major capital projects with a focus on the important pipeline on the front end of the project lifecycle, identifying and selecting the optimal delivery model and creating contractual relationships that address risk throughout the project delivery lifecycle.

Sponsors:

Indexes:

Code sections:

Attachments:

Date	Ver.	Action By	Action	Result
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Subject:

Mega Project 101

Ms. Walker-Ford will give an overview of fundamentals in delivering major capital projects with a focus on the important pipeline on the front end of the project lifecycle, identifying and selecting the optimal delivery model and creating contractual relationships that address risk throughout the project delivery lifecycle.

Presenter:

Jannet Walker-Ford, WSP

Recommended Action:

Information



Metropolitan Transportation Commission

375 Beale Street, Suite 800
San Francisco, CA 94105

Legislation Details (With Text)

File #: 22-0751 **Version:** 1 **Name:**
Type: Report **Status:** Informational
File created: 4/8/2022 **In control:** Metropolitan Transportation Commission Workshop
On agenda: 5/25/2022 **Final action:**
Title: Three Project Delivery Perspectives

Three invited guests will share risk management approaches and lessons learned through the project delivery lifecycle.

- i) BART to Silicon Valley - Applying lessons learned from Phase 1 to Phase 2 (Carl Holmes, BART Assistant General Manager and Takis Salpeas, VTA Project Manager)
- ii) What the East Span of the Bay Bridge Taught Us (Steve Heminger, Former MTC Executive Director and Current SFMTA and Caltrain Board member)
- iii) Getting Back on Track, Policy Solutions to Improve California Rail Transit Projects (Ethan Elkind, Director of Climate Program, Berkeley Law - Center for Law, Energy and the Environment)

Sponsors:

Indexes:

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Attachments: [3bi-BART to Silicon Valley - Phase II Extension Project.pdf](#)
[3bii-What The East Span of the Bay Bridge Taught Us.pdf](#)
[3biii-Getting Back on Track.pdf](#)

Date	Ver.	Action By	Action	Result
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Subject:

Three Project Delivery Perspectives

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Presenters:

Carl Holmes, Takis Salpeas, Steve Heminger, and Ethan Elkind

Recommended Action:
Information



VTA's BART Silicon Valley Phase II Extension Project

MTC Workshop

May 25, 2022

Takis Salpeas, VTA
Carl Holmes, BART

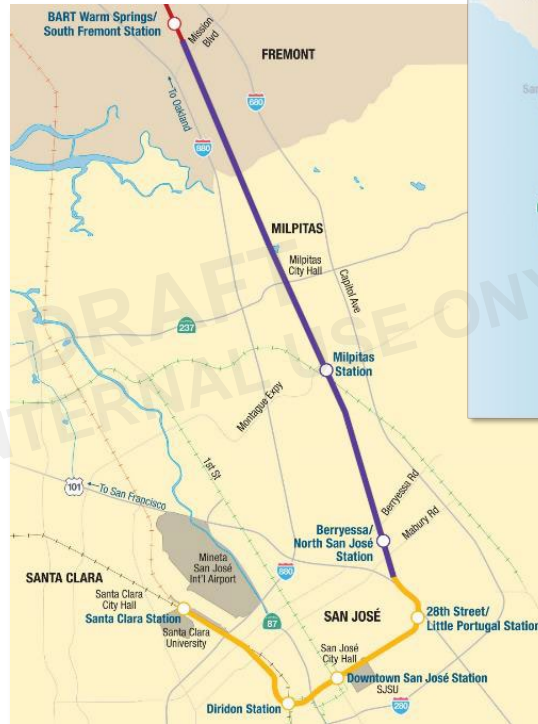
VTA's BART Silicon Valley Program

Phase I Extension (Complete)

- 10-mile extension
- 2-stations
- BART service started in 2020

Phase II Extension

- 6-mile extension (5-mile subway)
- 4-stations
- Newhall Storage Yard & Maintenance Facility



1

Phase I Extension
(Complete)

2

Phase II Extension





Ringling the Bay with fast, frequent transit

VTA & BART Partnership

*Santa Clara County is not part of the BART district. The framework for the partnership is provided by the **Comprehensive Agreement (2001)** and the **Operations and Maintenance Agreement (2020)**.*









Santa Clara Valley Transportation Authority (VTA) Responsibilities

-  Pay all costs associated with the extension
-  Contracting/Procurement
-  Construct to applicable BART/industry standards, codes, and regulations
-  Own infrastructure

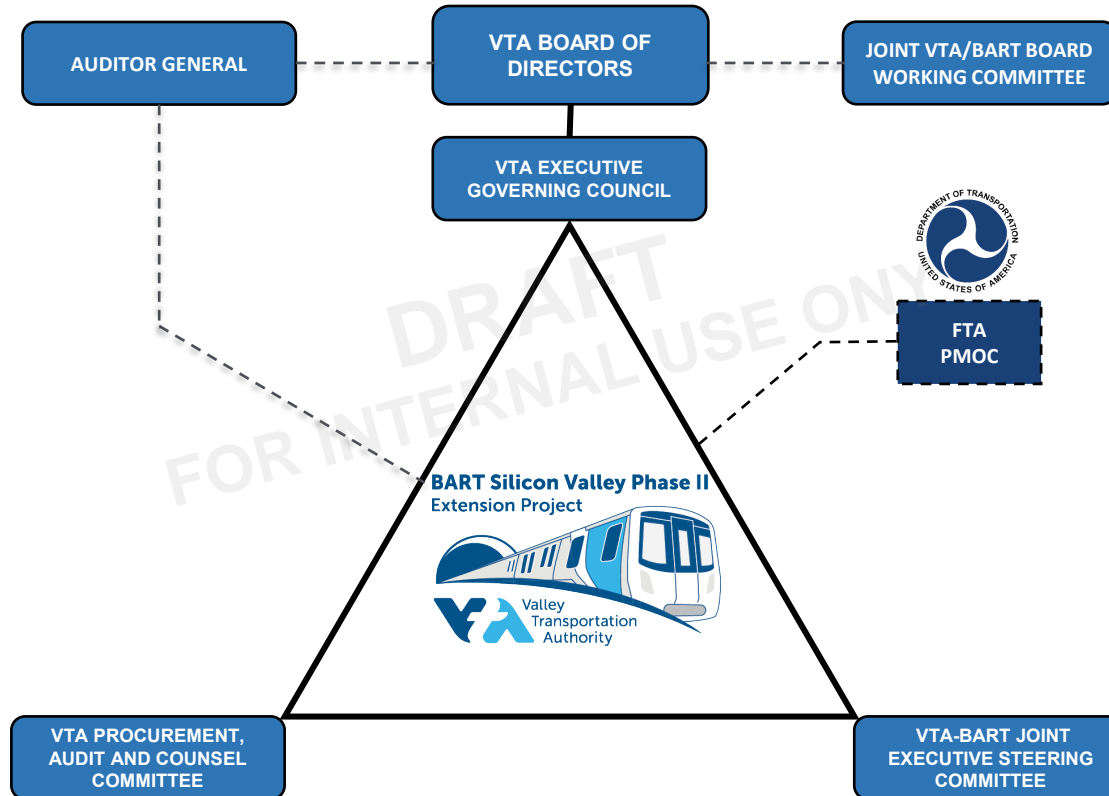
Bay Area Rapid Transit (BART) Responsibilities

-  Technical requirements
-  Operations
-  Maintenance
-  Service Planning

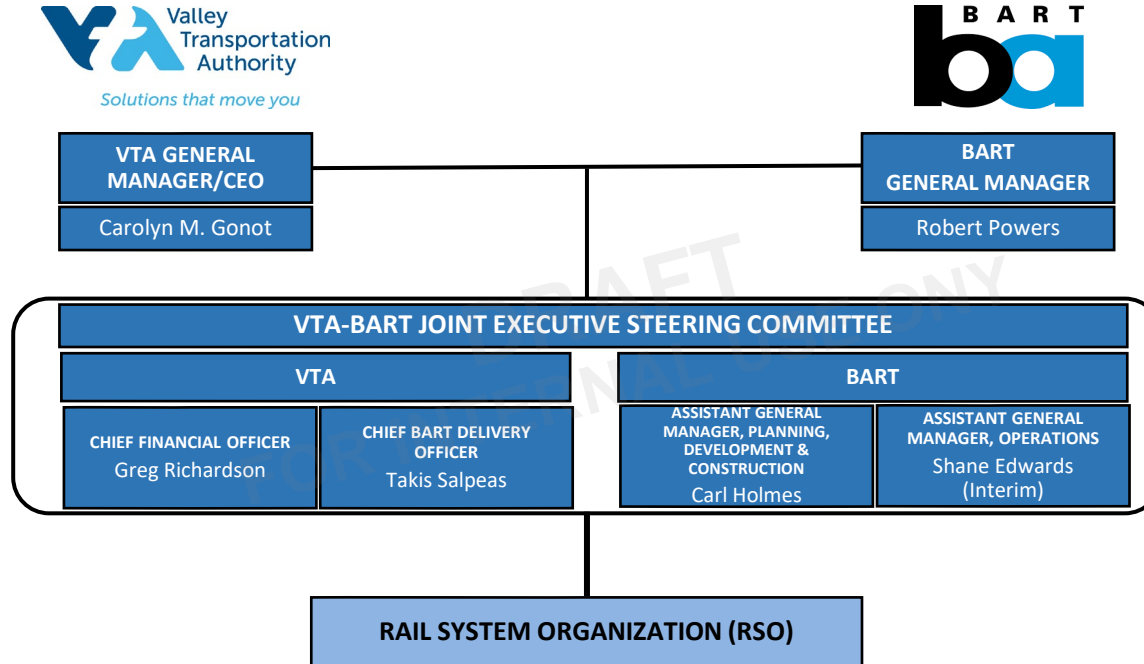
VTA & BART Division of Responsibilities

Facility/Equipment	Builds & Owns	Operates & Maintains	Safety & Security
Station Plazas, Landscaping, Surface and Structure Parking	 VTA	VTA	VTA
Yard and Shops		 BART	 BART
Station Buildings			
Guideway			
Wayside Facilities	 City	BART	BART
Rolling Stock		 City	 City
Track Equipment			
Spare Parts			
Roadways	City	City	City

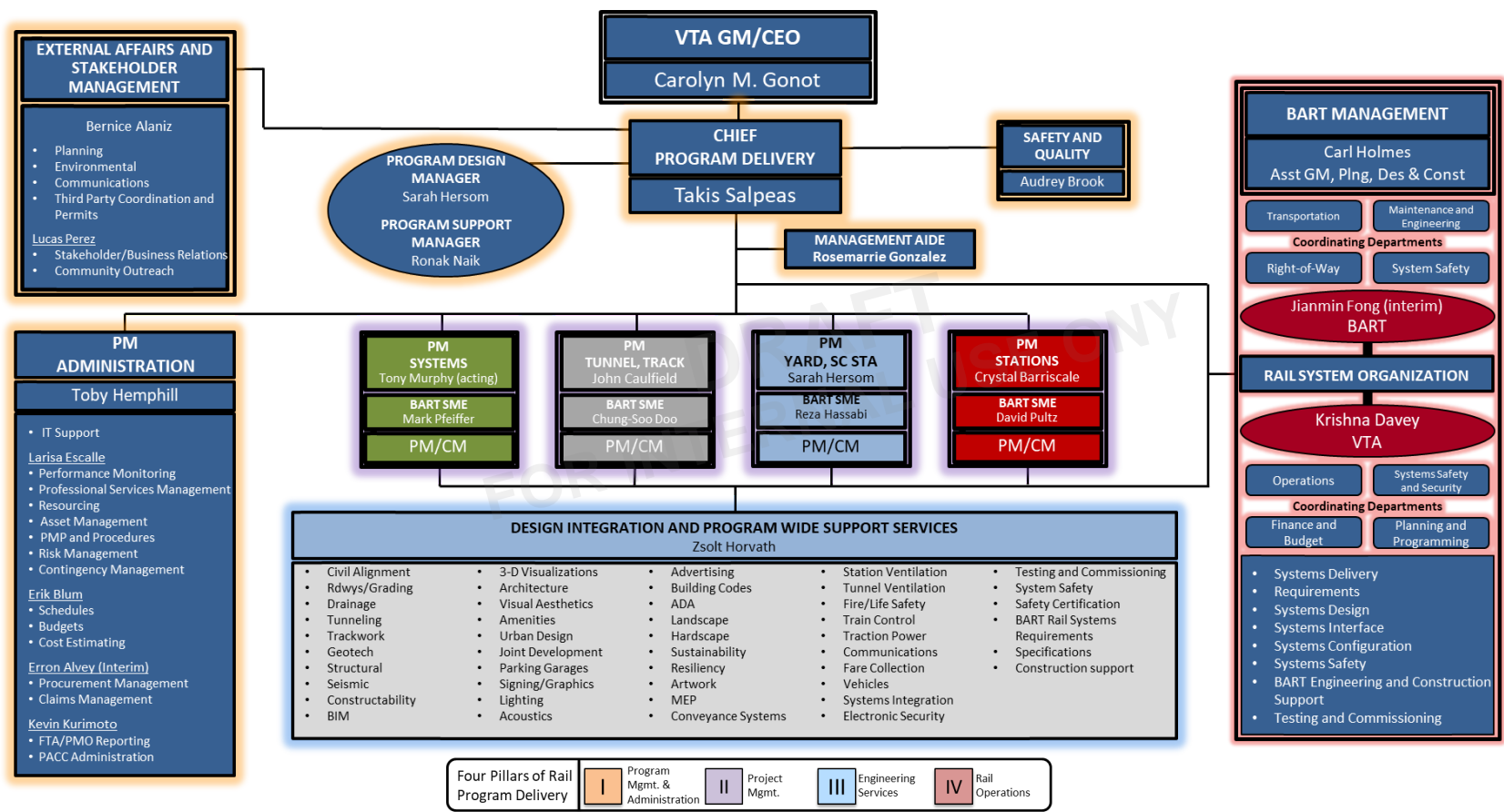
Program Oversight



VTA/BART Joint Executive Steering Committee

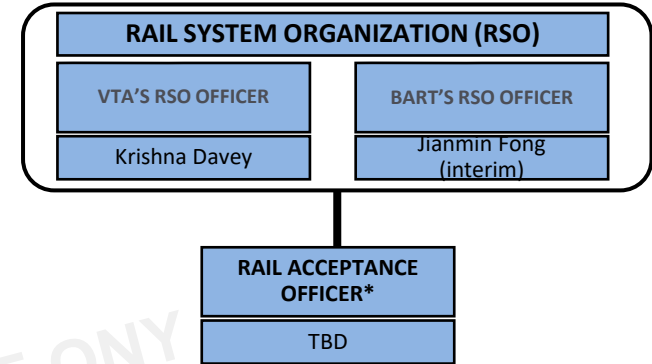


Program Organization

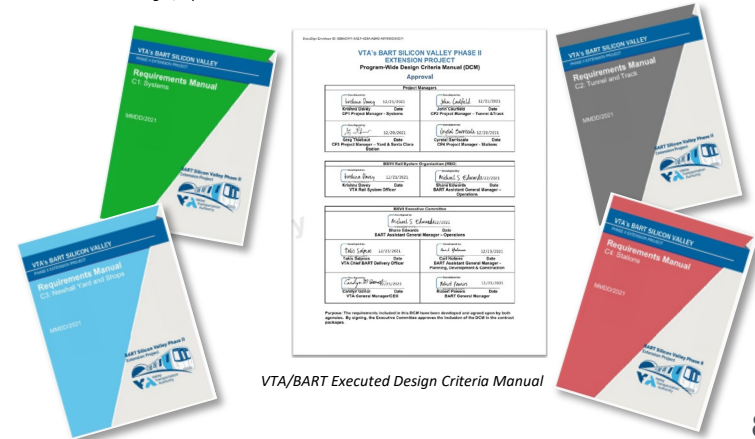


Rail System Organization

- Joint VTA-BART body led by Rail System Officers representing both agencies
- Jointly develops project specific requirements aligning with applicable BART, national, state, and local industry standards and monitors its implementation
- VTA and BART completed final sign-off of project Design Criteria/Requirements manuals in December 2021 to be included in procurement documents
- Supports VTA and BART Executive management in resolving project interface risks, issues and escalation of high-level actions for resolution



* Assigned upon project readiness for testing, safety certification and passenger operations; Rail Acceptance Officer reports directly to the Joint Executive Committee and represents BART's Assistant General Manager, Operations



VTA/BART Executed Design Criteria Manual

Questions?

DRAFT
FOR INTERNAL USE ONLY

What the East Span of the Bay Bridge Taught Us

Steve Heminger

Former MTC Executive Director,
Current SFMTA and Caltrain Board
member





Berkeley Law | Center for Law, Energy,
& the Environment

CALIFORNIA RAIL TRANSIT COSTS

GETTING BACK *On* TRACK

Policy Solutions to Improve California Rail Transit
Projects

JANUARY 2022
Policy Report



San Francisco Central Subway

San Diego Mid-Coast Corridor
Trolley

Los Angeles Purple Line

Bay Area Rapid Transit Berryessa
Extension

California High-Speed Rail

THEMES + RECOMMENDATIONS



PROCUREMENT
AND
CONTRACTING
METHODS



ADVANCE AND
ONGOING
MULTI-AGENCY
COORDINATION



MEGAPROJECT
MANAGEMENT
CAPACITY AND
EXPERTISE



PROJECT SCOPE
AND DESIGN



COMPREHENSIVE
STAKEHOLDER
OUTREACH

SAN DIEGO MID-COAST TROLLEY



	TOTAL COST (\$ MILLIONS)	YEARS OF CONSTRUCTION	COST PER KM (\$MILLIONS/KM)	YEARS OF CONSTRUCTION PER KM (YR/KM)
Expected ⁶³	CA - \$826	CA - 8.6	CA - \$47	CA - 0.50
	U.S. - \$1,090	U.S. - 7.9	U.S. - \$62	U.S. - 0.50
	Int'l. - \$661	Int'l. - 8.8	Int'l. - \$38	Int'l. - 0.50
Actual	\$2,171	5.0	\$124	0.3
Comparison to Baseline			CA - 260%	CA - 60%
			U.S. - 200%	U.S. - 60%
			Int'l. - 330%	Int'l. - 60%

USING APPROPRIATE PROCUREMENT AND CONTRACTING METHODS

- Break projects into smaller contracts
- Consider advance utility removal contracts
- Consider CMGC/CMAR
- Update state law to allow all transit agencies to use CMGC/CMAR
- Structure state grants to encourage efficient procurement

SAN FRANCISCO CENTRAL SUBWAY



	TOTAL COST (\$ MILLIONS)	YEARS OF CONSTRUCTION	COST PER KM (\$MILLIONS/KM)	YEARS OF CONSTRUCTION PER KM (YR/KM)
Expected	CA - n/a	CA - n/a	CA - n/a	CA - n/a
	U.S. - \$1,570	U.S. - 4.7	U.S. - \$574	U.S. - 1.7
	Int'l. - \$620	Int'l. - 4.0	Int'l. - \$227	Int'l. - 1.5
Actual	\$1,891	12.0	\$691	4.4
Comparison to Baseline			CA - n/a	CA - n/a
			U.S. - 120%	U.S. - 250%
			Int'l. - 300%	Int'l. - 300%

BART BERRYESSA EXTENSION



	TOTAL COST (\$ MILLIONS)	YEARS OF CONSTRUCTION	COST PER KM (\$MILLIONS/KM)	YEARS OF CONSTRUCTION PER KM (YR/KM)
Expected	CA - \$1,709	CA - 12.7	CA - \$105	CA - 0.8
	U.S. - \$2,240	U.S. - 7.7	U.S. - \$137	U.S. - 0.5
	Int'l. - \$1,409	Int'l. - 22.5	Int'l. - \$86	Int'l. - 1.4
Actual	\$2,330	8.3	\$143	0.5
Comparison to Baseline			CA - 140%	CA - 70%
			U.S. - 100%	U.S. - 119%
			Int'l. - 170%	Int'l. - 40%

BUILDING
MEGAPROJECT
MANAGEMENT
CAPACITY + EXPERTISE

- Regional collaboratives with permanent expertise
- Capacity aligned with scale of project
- Statewide/regional megaproject delivery teams



CLEE:

[HTTPS://WWW.LAW.BERKELEY.EDU/RESEARCH
/CLEE/](https://www.law.berkeley.edu/research/clee/)

REPORT:

[HTTPS://WWW.LAW.BERKELEY.EDU/RESEARCH
/CLEE/RESEARCH/CLIMATE/TRANSPORTATIO
N/ANALYZING-TRANSIT-PROJECT-COSTS-AND-
DELAYS](https://www.law.berkeley.edu/research/clee/research/climate/transportation/analyzing-transit-project-costs-and-delays)