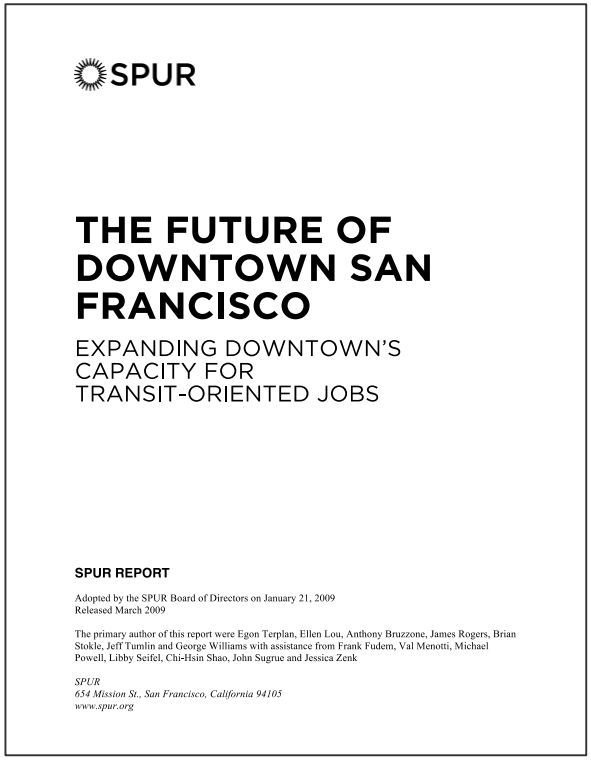
Designing the Bay Area's Second Transbay Rail Crossing

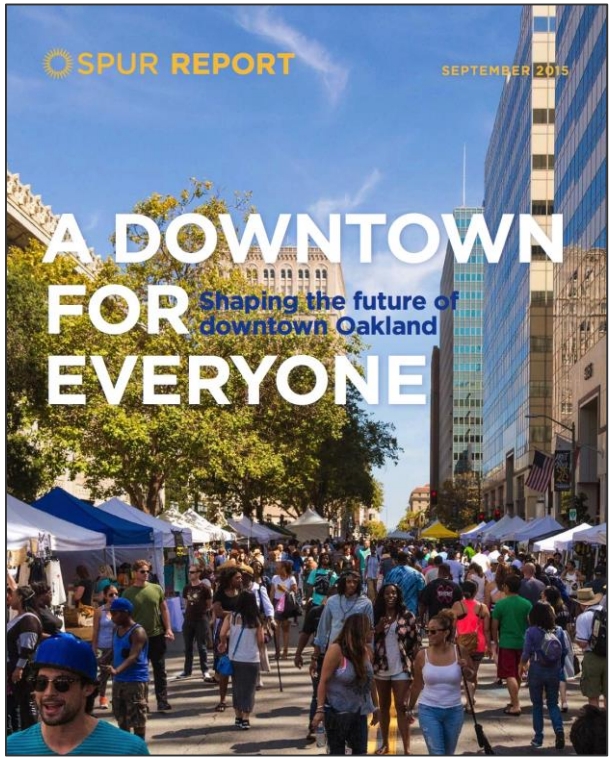
April 20, 2016

Ratna Amin
Transportation Policy Director

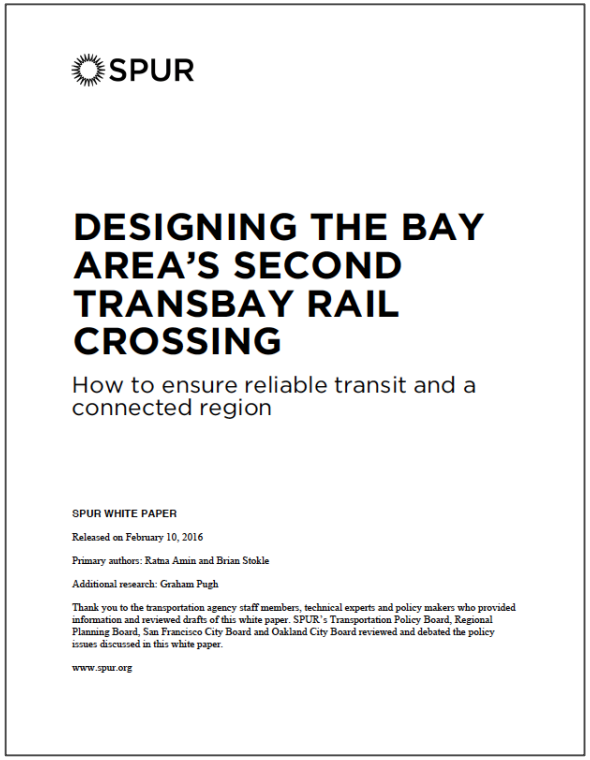
SPUR | Ideas + Action for a Better City



San Francisco **needs to have a new transbay rail tube** to provide access to the next generation of office development.



As the Bay Area continues to grow, we will **need a second rail line under the bay**, in addition to the current Transbay Tube.



A **second transbay rail crossing** is one essentail piece of the Bay Area's future.

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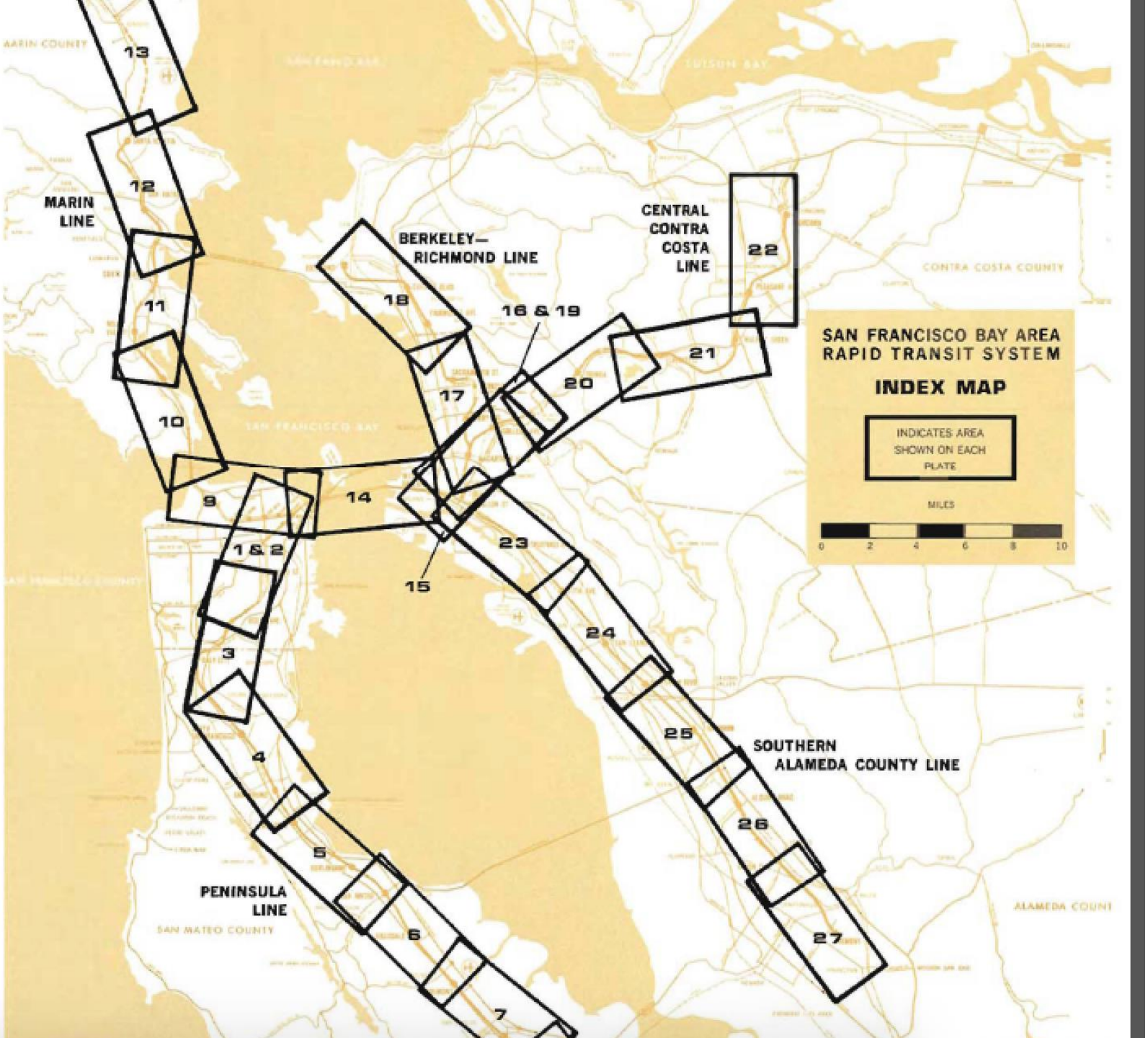
MARIN LINE
BERKELEY—RICHMOND LINE
CENTRAL CONTRA COSTA LINE
PENINSULA LINE
SOUTHERN ALAMEDA COUNTY LINE
16 & 19
1 & 2
SAN FRANCISCO BAY AREA RAPID TRANSIT SYSTEM
INDEX MAP
INDICATES AREA SHOWN ON EACH PLATE
MILES
0 2 4 6 8 10

What needs dos this second crossing need to fill?

1. Add transit capacity to meet demand.
2. Enable essential maintenance and repair.
3. Help us manage breakdowns and withstand shocks.
4. Keep the Bay Area moving as we grow.
5. Enable 24 hour transbay rail service.

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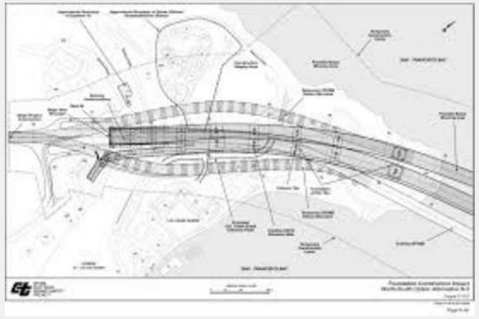
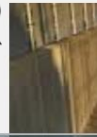
Google

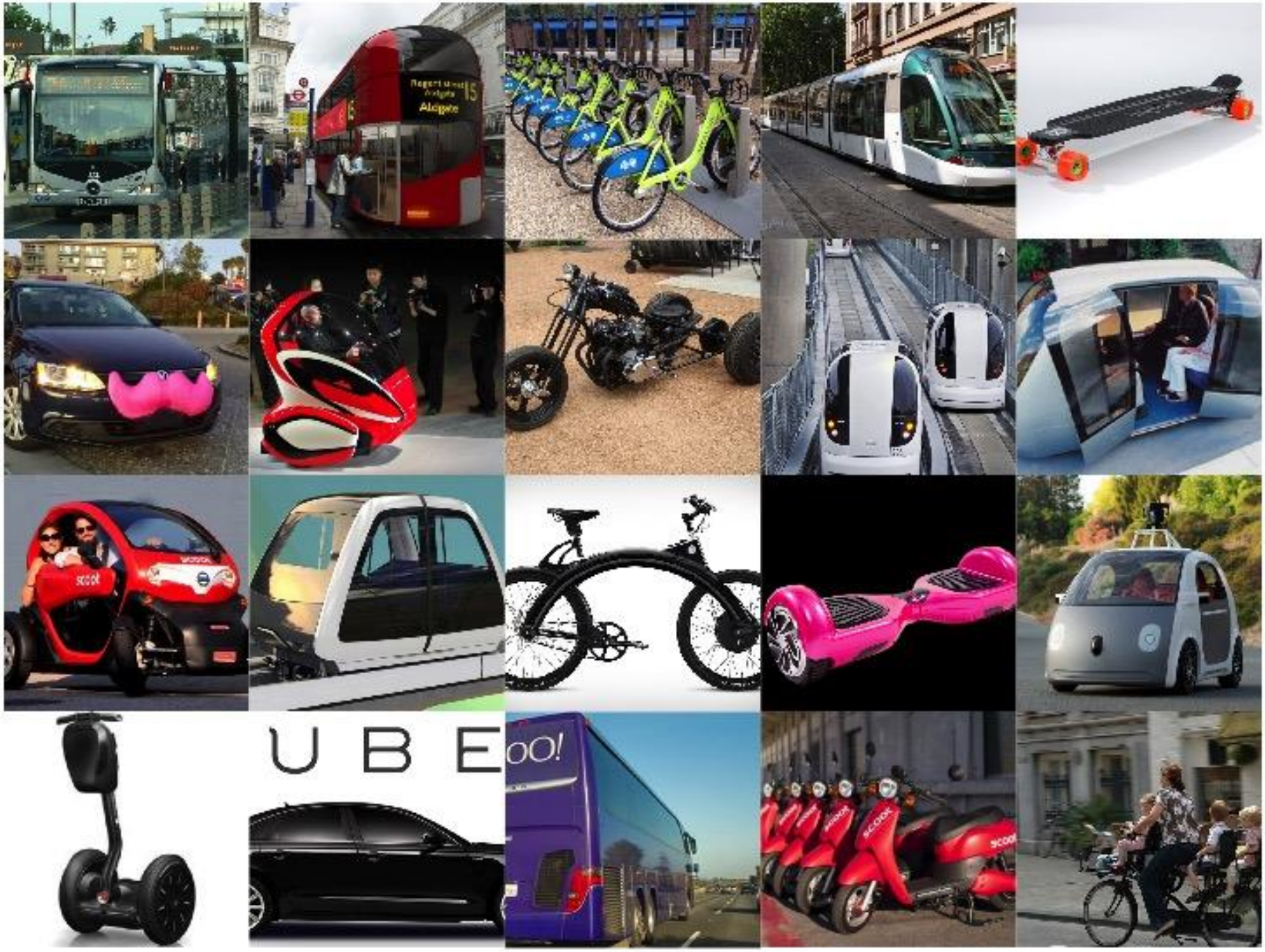
second transbay tube alignments

Web | Images | News | Videos | Maps | More | Search tools





How do we integrate systems?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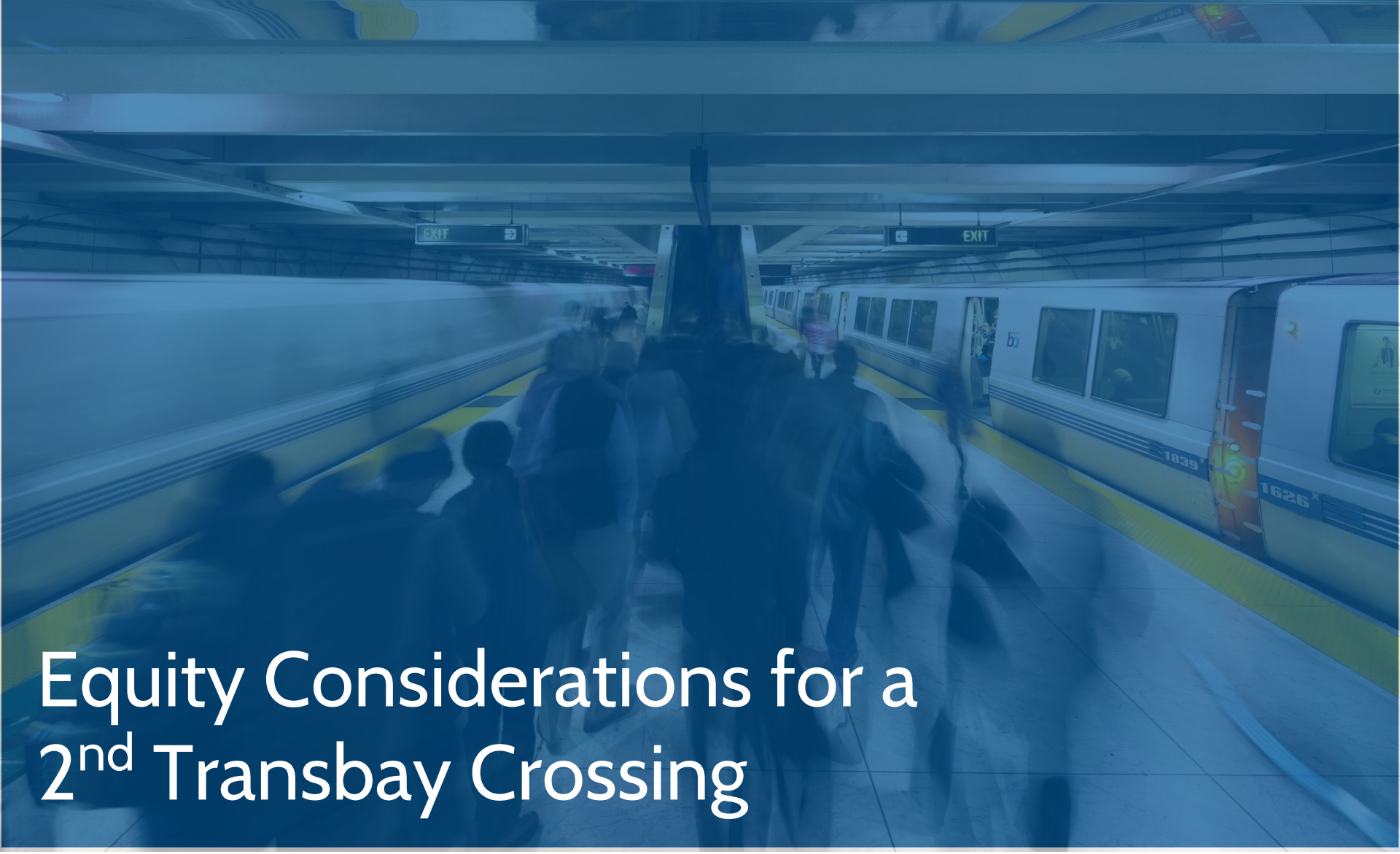
Designing the Bay Area's Second Transbay Rail Crossing

January 28, 2016

SPUR | Ideas + Action for a Better City



Equity Considerations for a 2nd Transbay Crossing

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Interviews







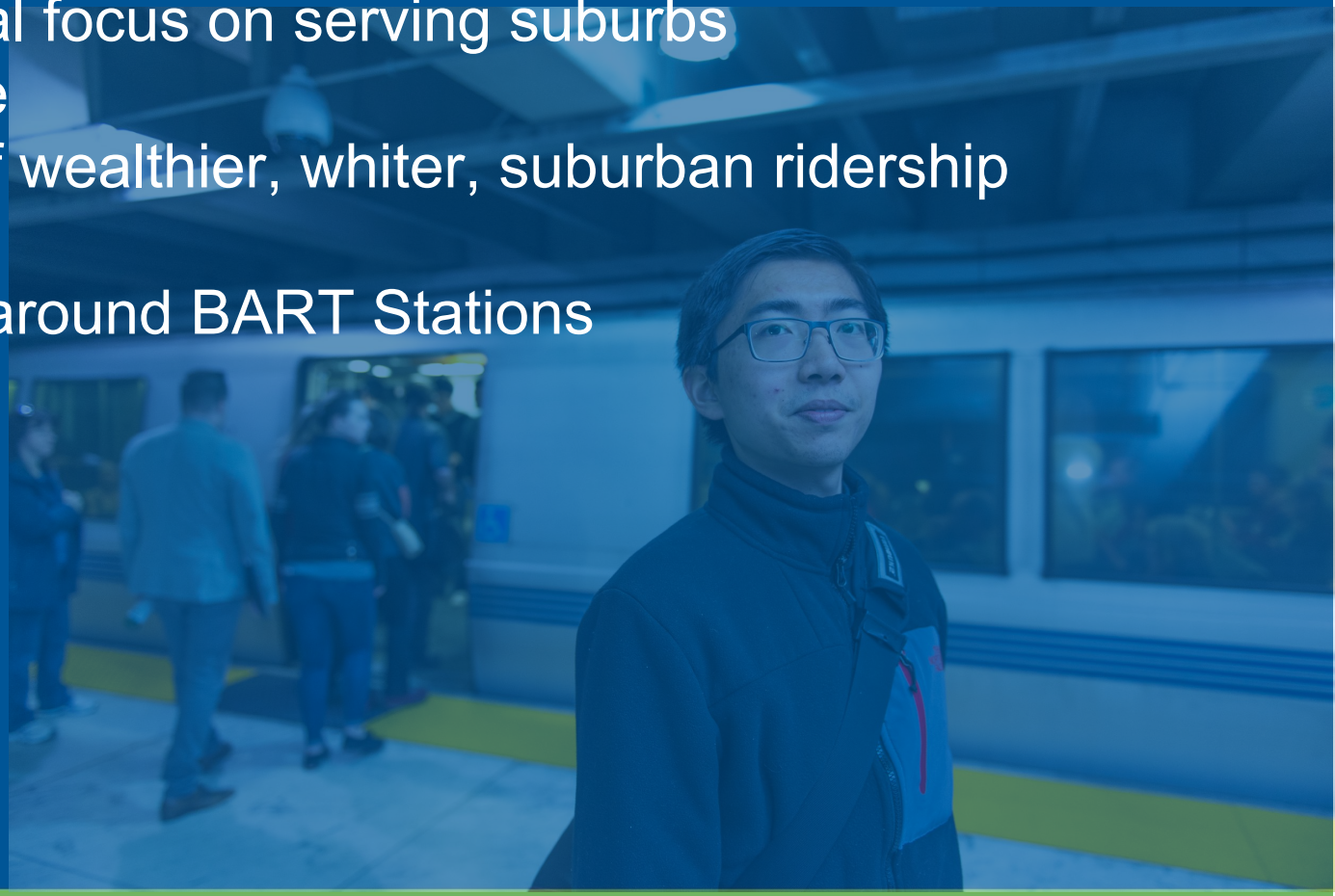


Causes for Concern….

1. BART's history of displacement in original construction

2. BART's original focus on serving suburbs
   -fare structure
   -perception of wealthier, whiter, suburban ridership

3. Gentrification around BART Stations



...And Reasons for Hope!

1. New Affordable Housing / TOD Policy
2. New constraints around recent extensions
   A. San Jose
   B. eBART
   C. TEP for Bond Measure

2. Title VI / EJ Committee

3. Police Oversight Committee

The Case For a 2nd Transbay Crossing

1. 24-hour service means all night access to jobs

2. Increased resiliancy means more dependable transit

3. Increased access to jobs (both construction, operations, and other newly accessible jobs)

4. Increased opportunities for transit-oriented affordable housing

5. Increased reliability (less crowding / increased capacity)

6. Improved Public Health (less air polution, more accessible transit, reduced GHG's and affects of global warming)

Recommendations

1. Invest in Existing Transit Infrastructure First

2. Support the Development of Strong, Local Affordable Housing and Tenant Protection Policies, including the early creation of Enhanced Infrastructure Finance Districts

3. Create Resident-led Governance Structures in Impacted Communities to Oversee Construction and Operation

4. Implement and Support Better Parking Mgmt and Enhance Multi-Modal Access To All Transbay Stations

5. Understand Mega-Project Risks and Implement Best Practices to Contain Them (…more)

Recommendations (Cont.)

6. Use Equitable Funding Sources

7. Minimize the Project's Impact on Transit Fares

8. Maintain and Strengthen Labor Peace Policies

9. Implement State-of-the-Art Disadvantaged Business Enterprise Policies

10. Ensure Ongoing EJ and Title VI Committee Oversight of Programming and Operation of New Project

Thank you!

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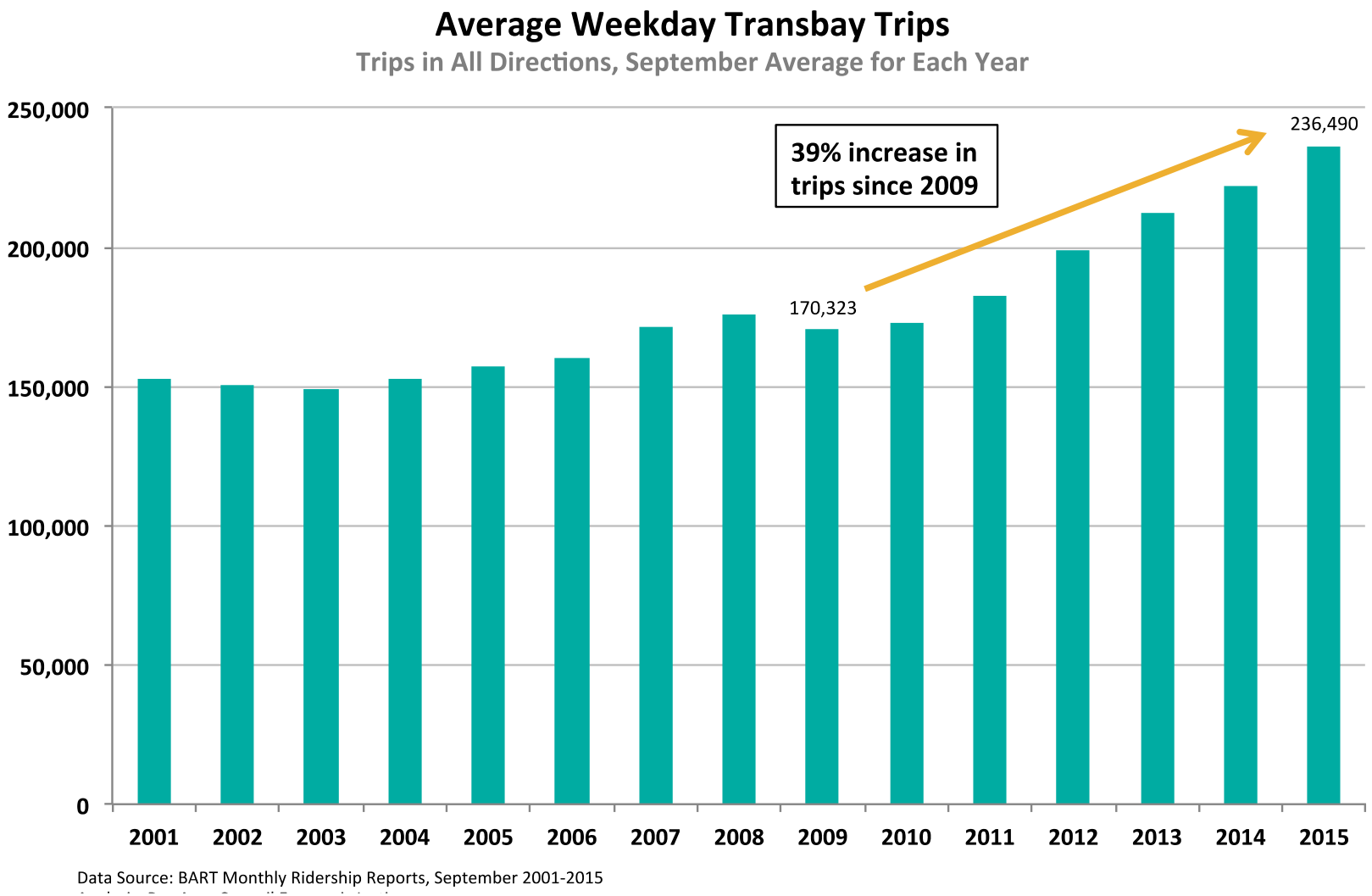
The Case for a Second Transbay Crossing

Sean Randolph, Senior Director

April 20, 2016

BAY AREA COUNCIL ECONOMIC INSTITUTE

Reliance on the Single Tube Grows



Data Source: BART Monthly Ridership Reports, September 2001-2015

What are the Economic Costs of the Single Transbay Tube?

- **Reliability:** Service interruptions have grown by 26% between 2012 and 2014
- **Resiliency:** One-third of BART assets in “poor” condition
- **Frequency:** Single-tracked tube constrains ability to add more trains
- **Limited Return on New Projects:** New extensions and passengers add to system stress

What Benefits Could a Second Transbay Crossing Produce?

- Time savings and productivity gains
- Opportunity for East Bay job hubs
- Transit-oriented development can reach its potential
- Enhanced regional and megaregional connectivity

How Can the Region Pay for a Second Crossing?

- **<u>History of Infrastructure Megaprojects</u>:** Second crossing price tag could reach $10-$14 billion

Bay Area Transportation Project Timelines and Cost

Project	Planning Begin Date	In-Service Date	Years to Completion	Project Cost
Caltrain Electrification	1992	2020	28	$1.5 billion
Warm Springs BART Extension	1991	2016	25	$890 million
Bay Bridge Eastern Span Replacement	1997	2013	16	$6.4 billion
eBART Extension to Antioch	2002	2018	16	$462 million
Caldecott Tunnel Fourth Bore	1998	2013	15	$405 million

- **<u>Engaging Private Capital</u>:** Public-private partnerships can limit cost overruns and create incentives for on-time delivery
- **<u>Capturing Value</u>:** EIFDs can monetize property value increases

GII is stimulating change to improve the delivery of new infrastructure and get more out of existing assets

GLOBAL INFRASTRUCTURE INITIATIVE
By McKinsey & Company

What is the Global Infrastructure Initiative?

- Convenes the world's leaders in infrastructure, from across the value chain, to identify opportunities to optimize the US $9 trillion in annual investments and take action to drive industry-wide change
  - The leading community of infrastructure leaders
  - A marketplace for infrastructure megaprojects
  - A vehicle to drive measurable change in the industry

Who attends?

- Decision makers—ministers, governors, mayors, chairs, CEOs and investors—from over 50 countries, representing 18 of the G20 nations

What supporting activities exist outside the GII summit?

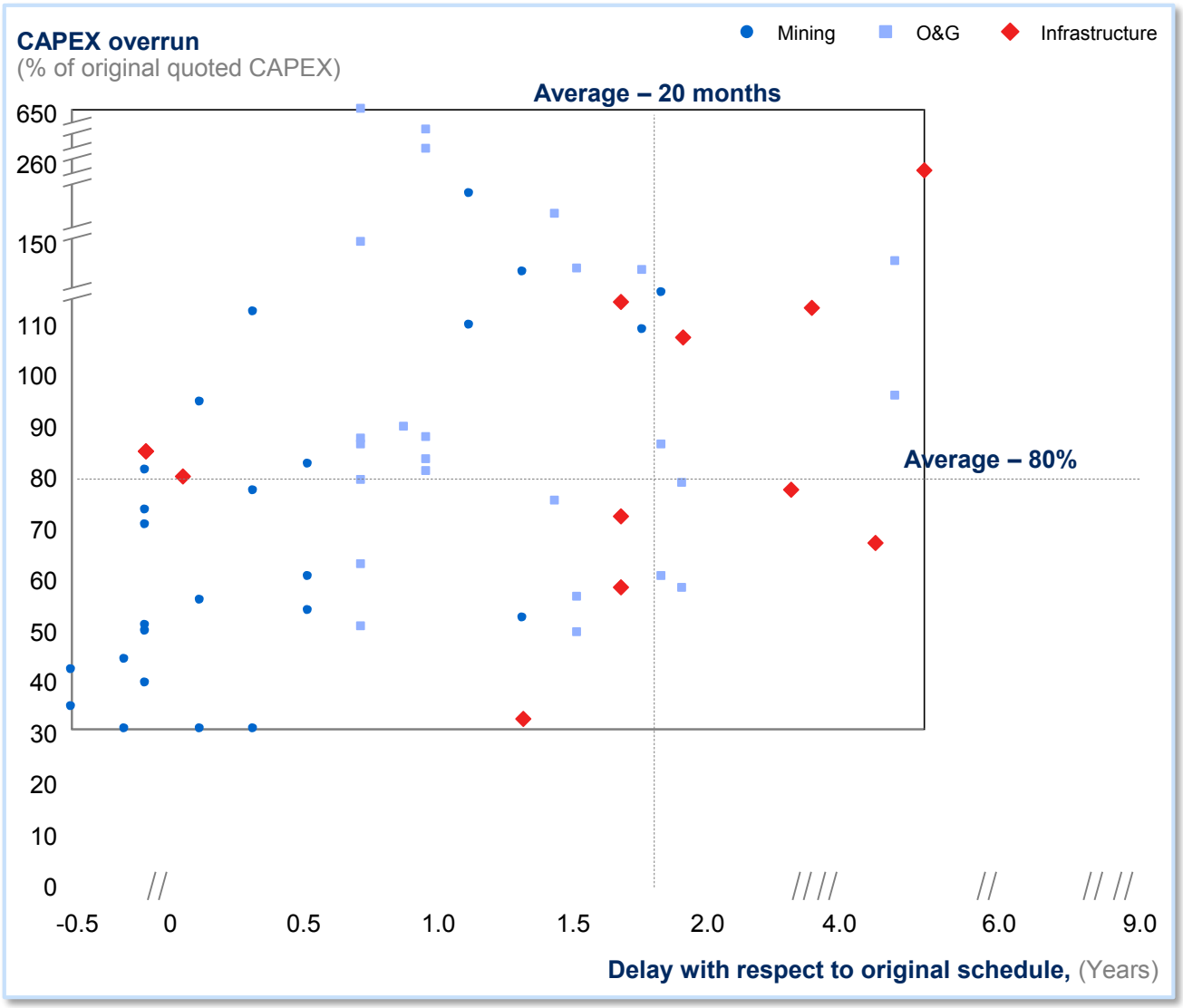
- GII Regional Roundtables and site visits in all major regions
- Tools to enable improved delivery and market-making
- Collaborative work on real projects – e.g., Transbay Tunnel

Delivering the Transbay Tunnel

- In partnership with the City of SF, GII incorporated sessions on how to plan, finance, build and operate the proposed Transbay Tunnel
- GII drew from the collective experience of participants to determine how to accelerate the responsible delivery of this megaproject
- The findings are presented in the Transbay Tunnel Report

Capital projects across industries struggle with on-time, on-cost delivery of large investment projects

ESTIMATES BASED ON BEST AVAILABLE DATA



- **Globally, 98%** of projects incur cost OR schedule overruns
- Average cost **increase is 80%** of original value
- The average slippage is **20 months** behind original schedule
- Few successes are in **infrastructure, which on average performs the worst** (5x longer and ~1.5x more costly than mining)

SOURCE: IHS Herold Global Projects Database (Nov. 19, 2013); Companies' public annual reports; press releases

Plan – How to streamline the process to optimize existing infrastructure, while ensuring system resilience and socioeconomic returns

- **Define the problem the Transbay Tunnel will solve**, and demonstrate objectively that it is the best solution to the problem.
  - Involve a wide variety of stakeholders in creating a collective vision of the future.
  - Vision should include a shared perspective on major vision "inputs", constraints, and the performance of the Transbay Tunnel versus other solutions
- **Complete a detailed stakeholder map**, including specific benefits by stakeholder group. Such an effort should illustrate benefits to both users and non-users of the TBT
- **Address displacement and socio-economic inequality** from the beginning of the planning process and consider including those costs as part of the TBT project cost
- **Determine the ownership structure and governance model** for the TBT's delivery, and seek innovative ways to speed up processes, deploy new forms of financing and construction, and integrate technology
  - In terms of **ownership**, GII participants suggested **considering the creation of a new public-private partnership** operating as a consortium to ensure compliance, manage governance, provide fiduciary oversight, and ensure safe and efficient operations, as well as bring in gap financing
  - Project **governance**, then, must enable **consistent, clear, and quick decision-making** to attract private sector partners and improve project outcomes

SOURCE: GII Participants

An efficient and effective planning process can reduce long-term project costs

Checklist – Best practices to optimize the planning process

Governance	▪ Clarify the overall governance model and strategy	☐
	▪ Align matrix of responsibilities and decision making rights	☐
	▪ Create a clear stage-gating process to rapidly get approval on design and business case decisions	☐
Risk	▪ Create a comprehensive risk register	☐
	▪ Develop overall project contingency and risk sharing approach	☐
	▪ Establish comprehensive insurance strategy (OCIP vs. traditional, etc.)	☐
	▪ Set clear KPIs and incentives for all stakeholders including designers and contractors	☐
	▪ Share risk strategy and mitigation approach with all key stakeholders	☐
Operator role	▪ Include the ultimate asset operator in the planning stage to improve the end-project result and operational contracting	☐
Parallel processing	▪ Start siting and environmental permitting early to ensure there are no delays	☐
	▪ Agree to advance technical planning, stakeholder management, land acquisition, and regulatory approvals in parallel with planning (may require some rework)	☐
Technology	▪ Use enabling technology to establish the baseline for project delivery, including 6-D BIM modeling and an online PMO model	☐
	▪ Create an early mapping of electronic workflows, including approvals, submissions, RFIs, and applications for payment	☐

Key question – How can TBT incorporate best practices to optimize its own planning process while ensuring it yields the best project outcomes? ?

SOURCE: Expert interviews; McKinsey Capital Productivity and Infrastructure Practice

Finance – Which financing and funding models can accelerate and improve project delivery?

- **Pass legislation to establish a responsible entity with authority to solicit and execute adequate project funding.** Legislation should define:
  - Governance process
  - Oversight mechanisms
  - Authorization for the entity to streamline procurement, permitting, and other approvals
- **Create a detailed, bankable business plan** to include:
  - Defined design and project milestones
  - Detailed budget
  - Commercial models for revenues
  - Project risks and potential risk-transfer opportunities
- **Develop a streamlined organizational model**, **especially if private-sector support is desired.** In the traditional PPP approach, there are many different stakeholders, and a long process to identify the lowest-cost options. The TBT could take a different tack, emphasizing speed, outcomes, and value, rather than just cost

SOURCE: GIP participants

To attract nonpublic funds, the TBT must have a strong business case that includes 4 key components

Components	Details
Defined project plan and funding	▪ Completed technical project plans, with a clearly defined funding mechanism(s) and cost structure, to allow the project to repay debt on time and provide an attractive ROI for equity
Clearly defined and shared risks	▪ Agreed-upon, comprehensive risk register that outlines the accountability for each risk, including any guarantees
Secured permits and approvals	▪ Environmental and other permits in place to enable the project construction to move forward
Secured land/wayleaves	▪ Alignment with land owners on right to acquire/use the land and cost of land

Key questions

- Which aspects of the overall business plan must be satisfied for each component to have an independent, bankable case?
- What is the public sector's role in funding the design process?

?

SOURCE: Expert interviews; McKinsey Capital Productivity and Infrastructure Practice

Build & Operate

Build – What needs to happen for construction to be completed in 10 years?

- **Consider an immersed tube construction** approach to minimize environmental impact and fast-track project delivery. This choice must be tested, however, with reference to the Bay Area's unique permitting processes, geology, and seismic risks
- **Establish a single point of decision-making** for all building-related activities to adequately address construction disruptions via stakeholder management and effective resolution

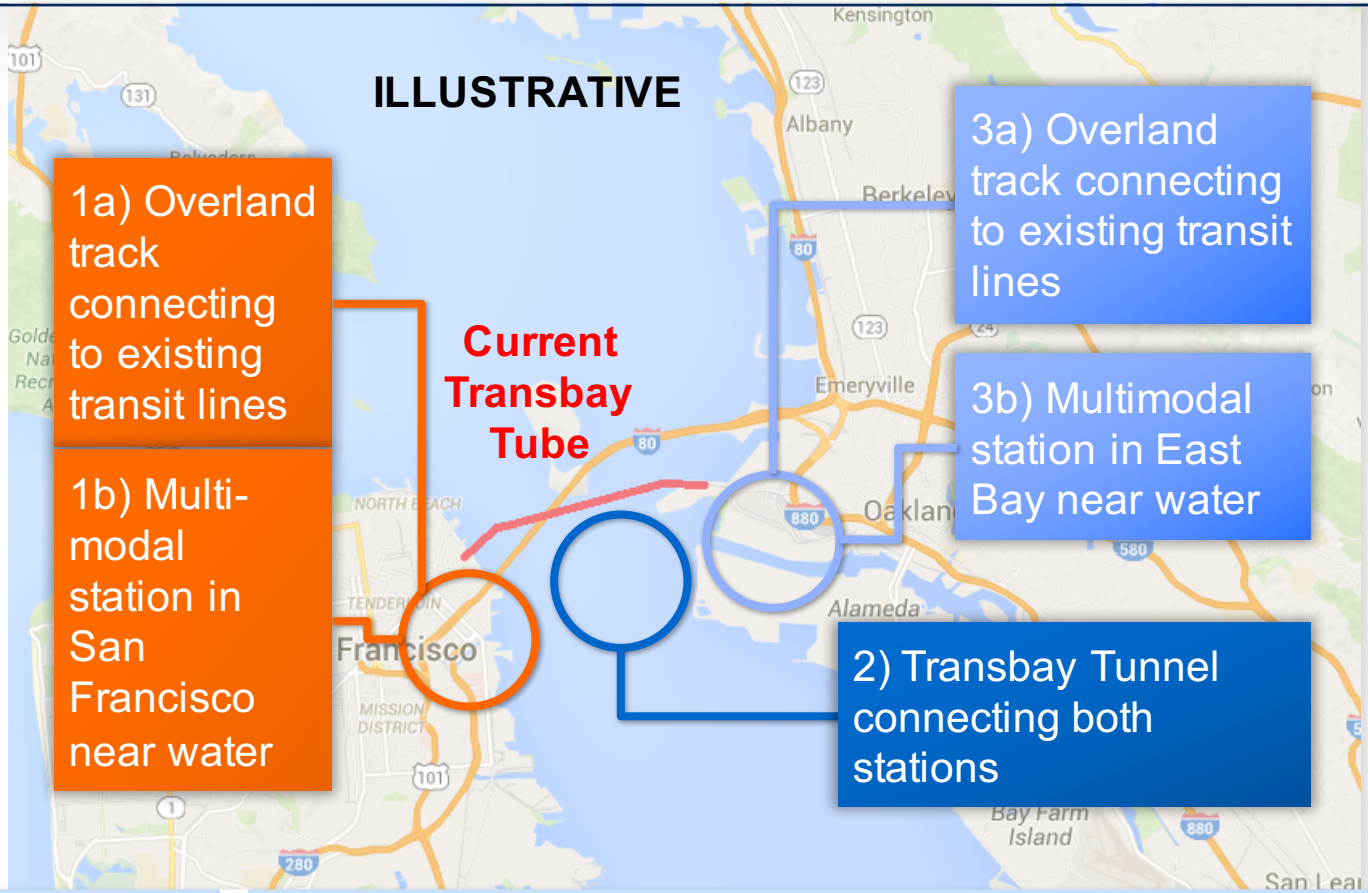
Operate – Who should own and operate the Tunnel. How does one design the asset to be future proof future?

- **Treat the TBT as part of the whole transit/transport system** for the northern California megaregion. Involve future operators and owners early in the process so they can play an active role in the TBT's planning and design phase
- **Explore consortia options** with relevant players in order to gauge interest and to understand their critical operating conditions
- **Embrace technology** to ensure the TBT can address future customer expectations and adapt to change (e.g., advent of way-finding).

SOURCE: GII participants

The key assets in the TBT megaproject can be phased to shorten project schedule, minimize disruption, and maintain independent utility

Potential TBT assets



Key question In which phases should the construction of assets take place to improve project delivery, minimize disruption, and maintain the economic independence of the asset? ?

SOURCE: Expert interviews