



CONNECT NORTHERN CALIFORNIA

# City of Alameda Transportation Commission – Link21 Update

September 22, 2021



DRAFT-DELIBERATIVE





# Program Overview

# Link21 Program Vision

The Link21 Program will transform the passenger rail network in the Northern California Megaregion into a **faster**, more **integrated** system that provides a **safe, efficient, equitable**, and **affordable** means of travel for all types of trips.

This Program, including a new passenger rail connection between Oakland and San Francisco, will make passenger rail transit the **mode of choice** for trips throughout the megaregion.



# Goals and Objectives



## TRANSFORM THE PASSENGER EXPERIENCE

- Provide better service
- Improve reliability and system performance
- Build ridership and mode share



## ENHANCE COMMUNITY AND LIVABILITY

- Connect people and places
- Improve safety, health and air quality
- Advance equity



## SUPPORT ECONOMIC GROWTH AND GLOBAL COMPETITIVENESS

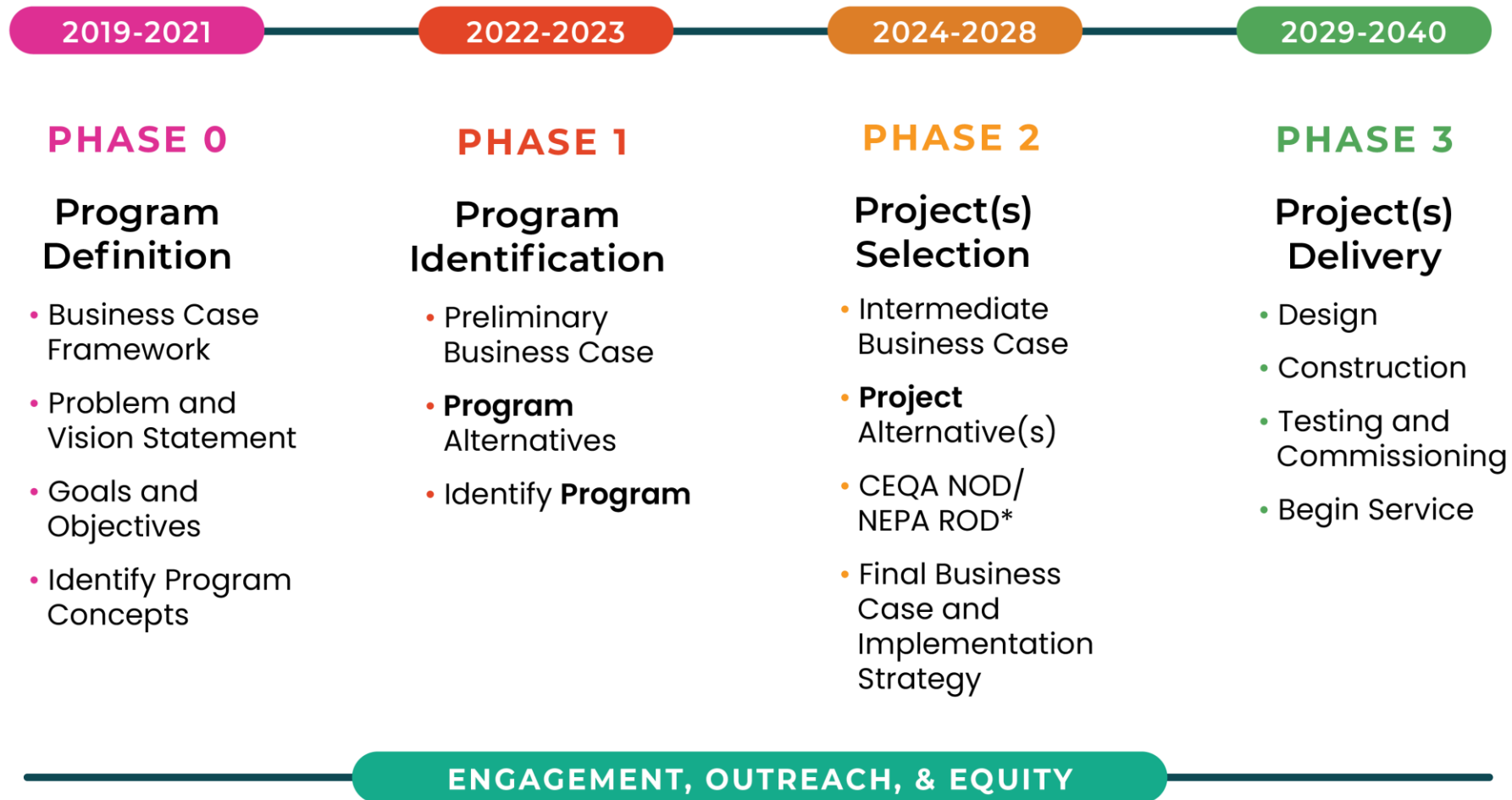
- Improve access to opportunity and employment
- Connect major economic, research and education centers
- Enable transit-supportive land use



## ADVANCE ENVIRONMENTAL STEWARDSHIP AND PROTECTION

- Increase climate change resilience
- Reduce greenhouse gas emissions
- Conserve resources

# Program Timeline



\*CEQA NOD = California Environmental Quality Act Notice of Determination/NEPA ROD = National Environmental Policy Act Record of Decision





# Link21 is Essential to Meet Climate Goals

Link21 (as NTRC) is the top-ranked transit project in MTC's Plan Bay Area 2050 for regional GHG reduction/climate goals

- The SF Bay Area must reduce greenhouse gas emissions (GHG) by 19% per capita by 2030.
- Potential to reduce vehicle miles traveled (VMT) by 1.2 – 4.8 million per day by 2050.



KEY FINDING

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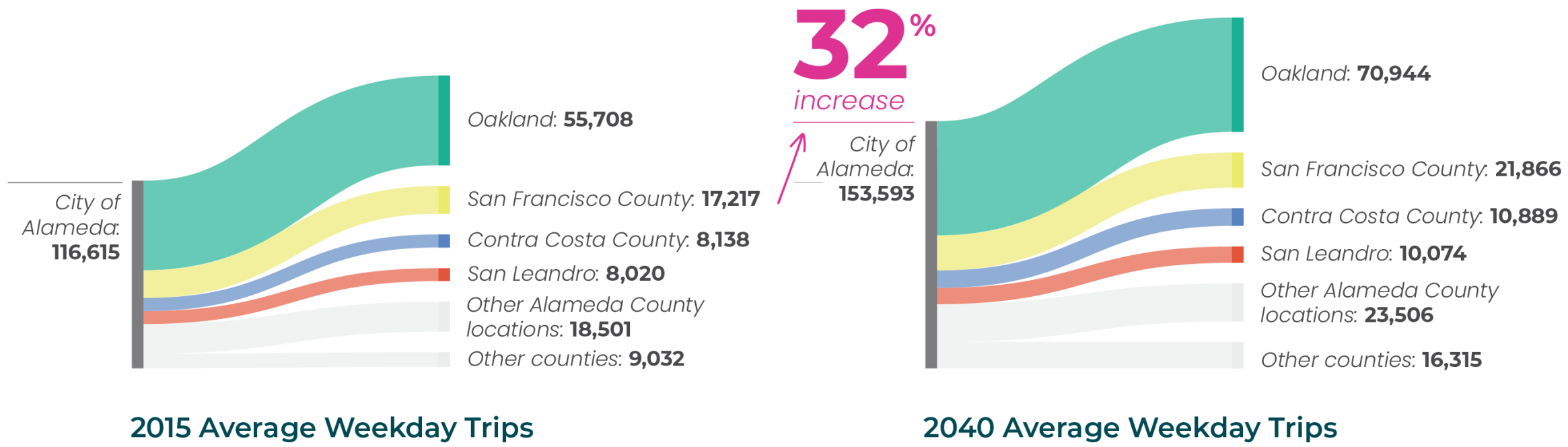
**A new Transbay Rail Crossing emerged as the most cost-effective transit expansion megaproject.**

To relieve crowding, support focused growth, and enhance mobility across the Bay Area, Plan Bay Area 2050 should consider a new rail and/or BART crossing between San Francisco and the East Bay as a critical new investment.

Metropolitan Transportation Commission (MTC), Plan Bay Area 2050, "Final Blueprint Report" 2020

# Travel Patterns

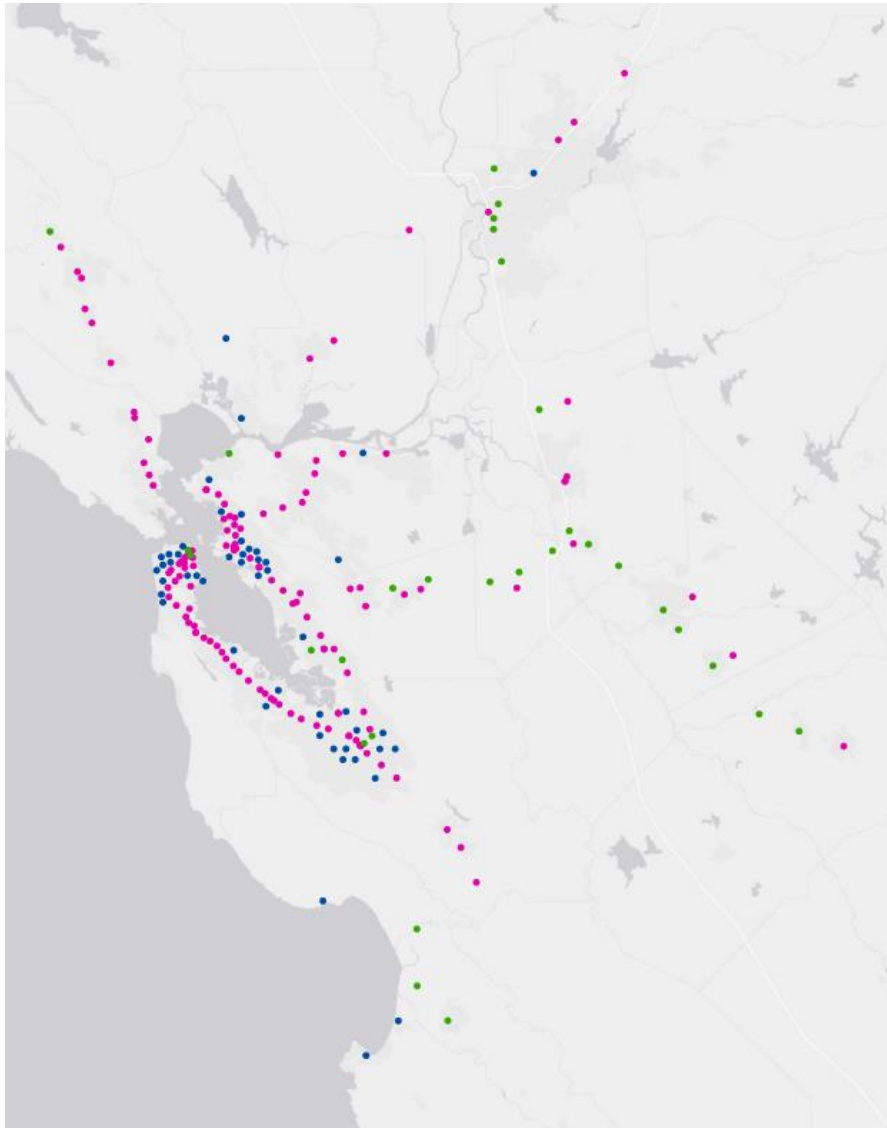
➔ From **City of Alameda** to other destinations





# Market Analysis



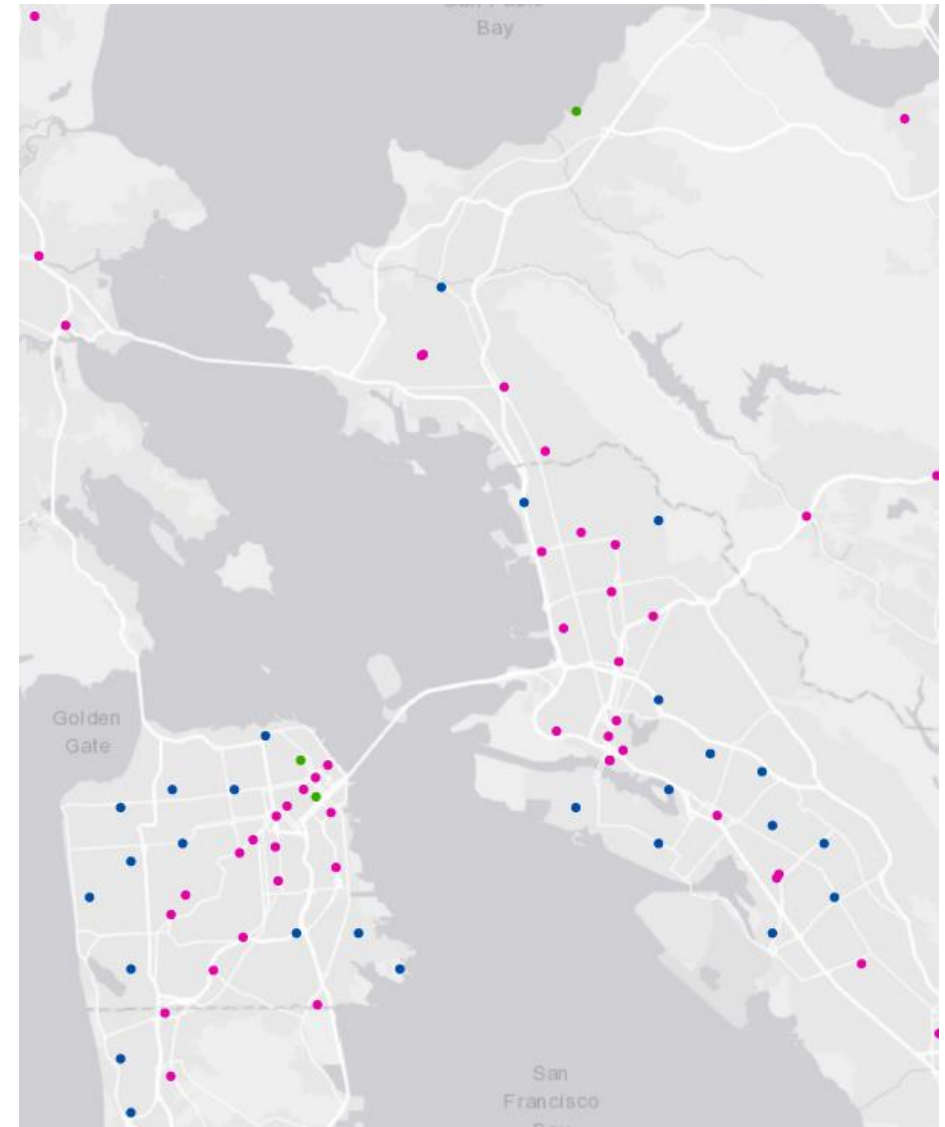


~200 clusters of activity identified in the N CA megaregion

~150 at existing or planned stations  
~ 50 new clusters

Clusters represent areas of market opportunity for Link21

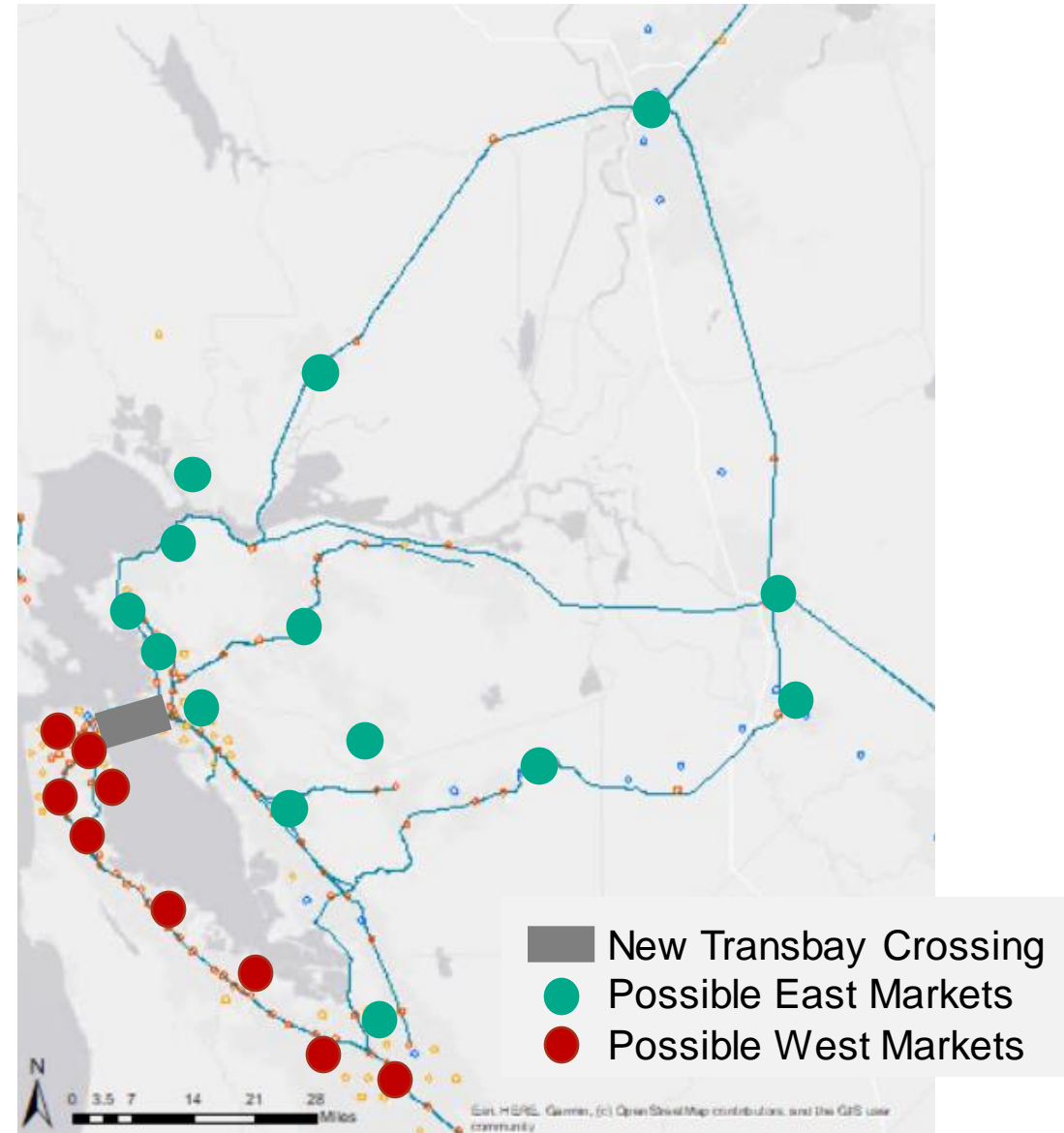
They are not necessarily the locations of future Link21 stations



● Existing Stations
 ● Planned Stations
 ● New Clusters

# Connecting Markets Throughout the Megaregion

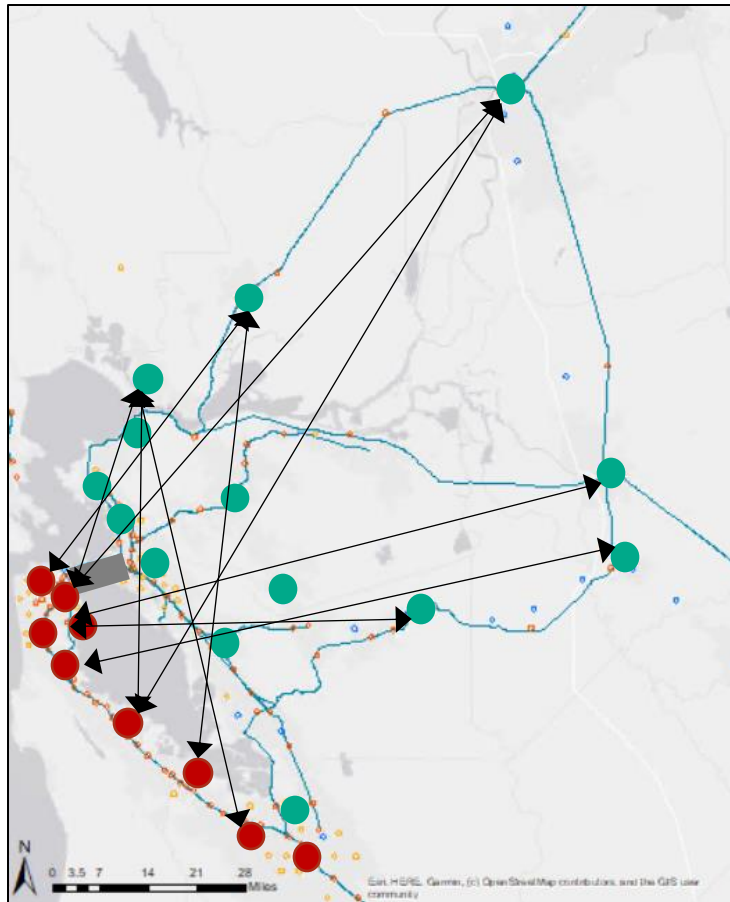
- Purpose of the Market Analysis:  
Identify the cluster-cluster pairs with the greatest ridership potential for Link21



# Market Analysis Versus Demand Forecasting

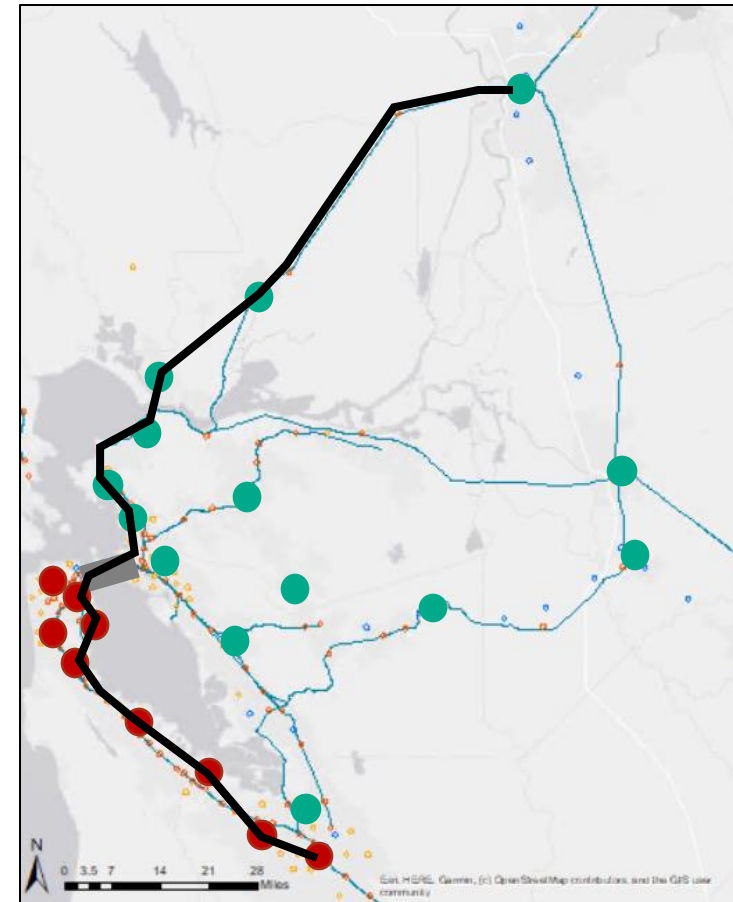
## MARKET ANALYSIS

Find cluster-cluster pairs with large number of potential rail riders



## DEMAND FORECASTING

Estimate ridership for a specific rail service



# Market Analysis Concepts

## Good Service Rail Network

A hypothetical rail network connecting every two clusters with “good service”

## Good Service Rail Potential

The potential total ridership with the Good Service Network

## Unmet Rail Potential

The potential new riders with the Good Service Network =  
Good Service Rail Potential – Baseline Rail Ridership



# Key Considerations and Assumptions

## • Considerations

- Include induced trips but not land use impacts
- Estimates rail potential – could be served by other transit modes
- Priority Populations\* weighted to prioritize these communities

## • Assumptions

- Travel Patterns Pre-Covid
- Land Use and projects from Adopted MPO plans
- Scenarios analyzed to test robustness under uncertainties
  - Overall market analysis results unchanged, with minor adjustments

*\* Priority Population designations will be refined with co-creation inputs*





# Introduction to Program Concept Development



# Concept Development Results to Date

- Developed preliminary program concepts
  - All feature new SF-Oakland Bay crossing with BART or Regional Rail (RR) technology
  - All include improvements to both the BART and RR systems
  - All include various service, infrastructure changes beyond the crossing
  - Concepts need modifications, better analysis tools to make refinements
  - Serve as basis for further development in Phase 1
- Work is resulting in key findings, which will be described for Stage Gate 1
  - Findings will inform work beyond Stage Gate 1



# What Shapes the Program Concepts?

- Initial Market Analysis → Potential Markets
  - Based on geography of land uses/jobs/housing (e.g., Oakland, Vallejo, Sacramento)
  - Type (e.g., core, commute, long distance commute/inter-city)
- Service Planning → Service Aspirations
  - Travel time, peak frequency, extended hours
- Rail Technology → Flexible Vehicle Train Technology
  - EMU, hydrogen developments
- Physical Features → What's Needed and What's Possible
  - BART and RR improvements included in all concepts
  - Driven by existing rail network constraints



# New Rail Technology...More Choices

**Electric Multiple Unit (EMU):  
Caltrain EMU**



**Battery EMU**

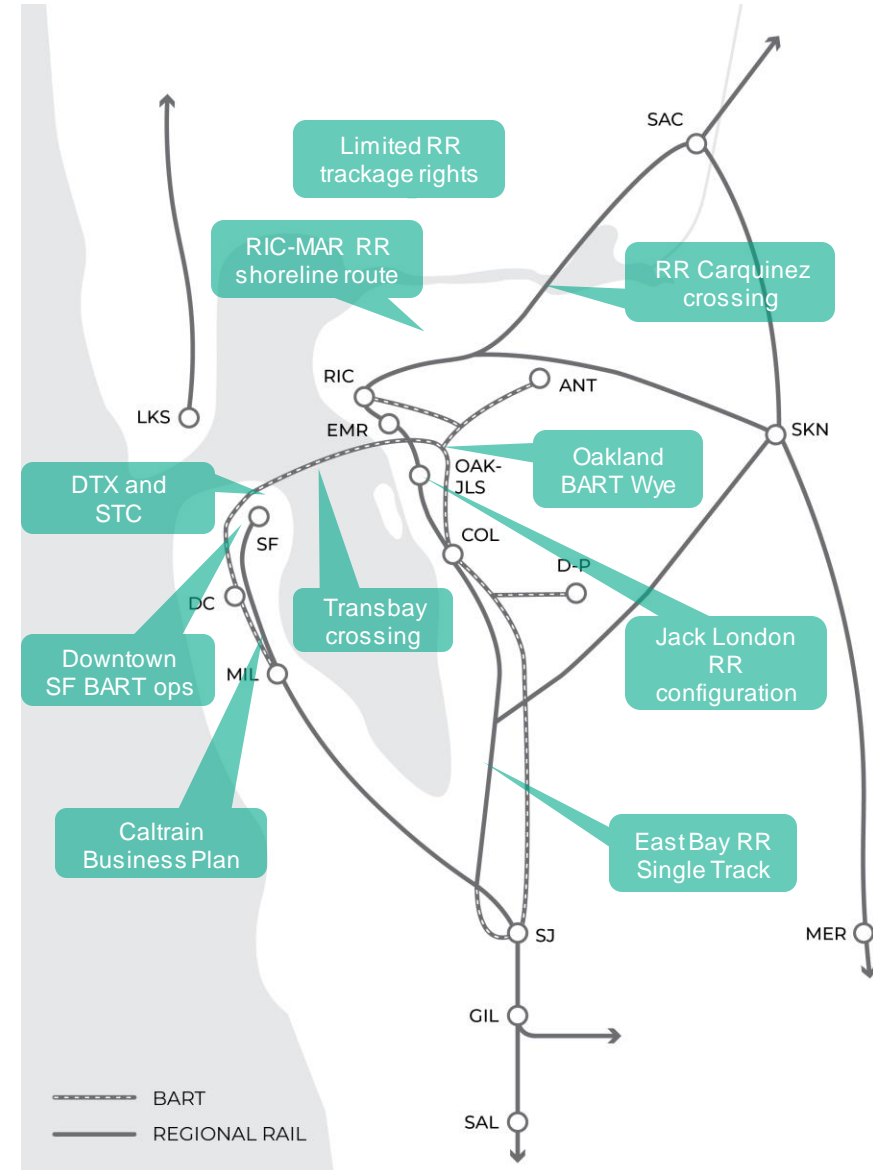
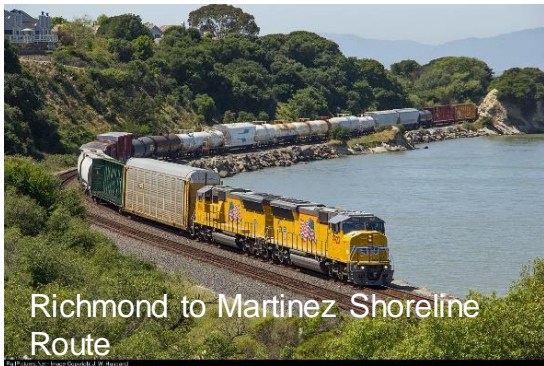
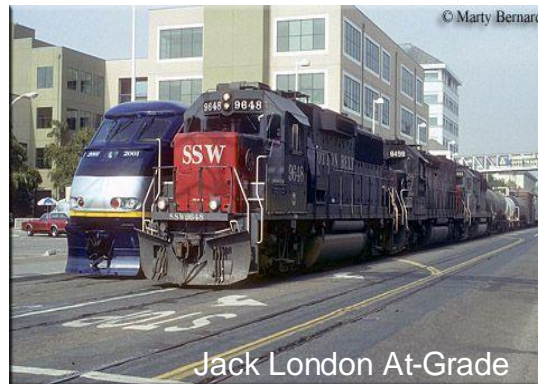


**Hydrogen-Hybrid Multiple Unit  
(Fuel-Cell/Battery)**





# Infrastructure: Existing Rail Network Constraints



# Key Planning/Engineering Findings in Phase 0

- Expanded hours on BART are possible with a new crossing AND other improvements
- Shared BART + RR tunnel (2-track) would result in inefficient operations and insufficient capacity
  - Incompatible vehicles
  - Train separation requirements
- Rail bridge not feasible versus underwater rail crossing
  - Requires 2-3 miles of ramps on SF side
  - Connecting to deep underground locations in SF
- One combined BART + RR crossing (4-track) is nearly the same cost as two separate (2-track) crossings
- Limited options for RR connection to Salesforce Transit Center





Thank you