Regional Zero-Emission Transit Transition Strategy Update

Bay Area Partnership Board
September 23, 2023

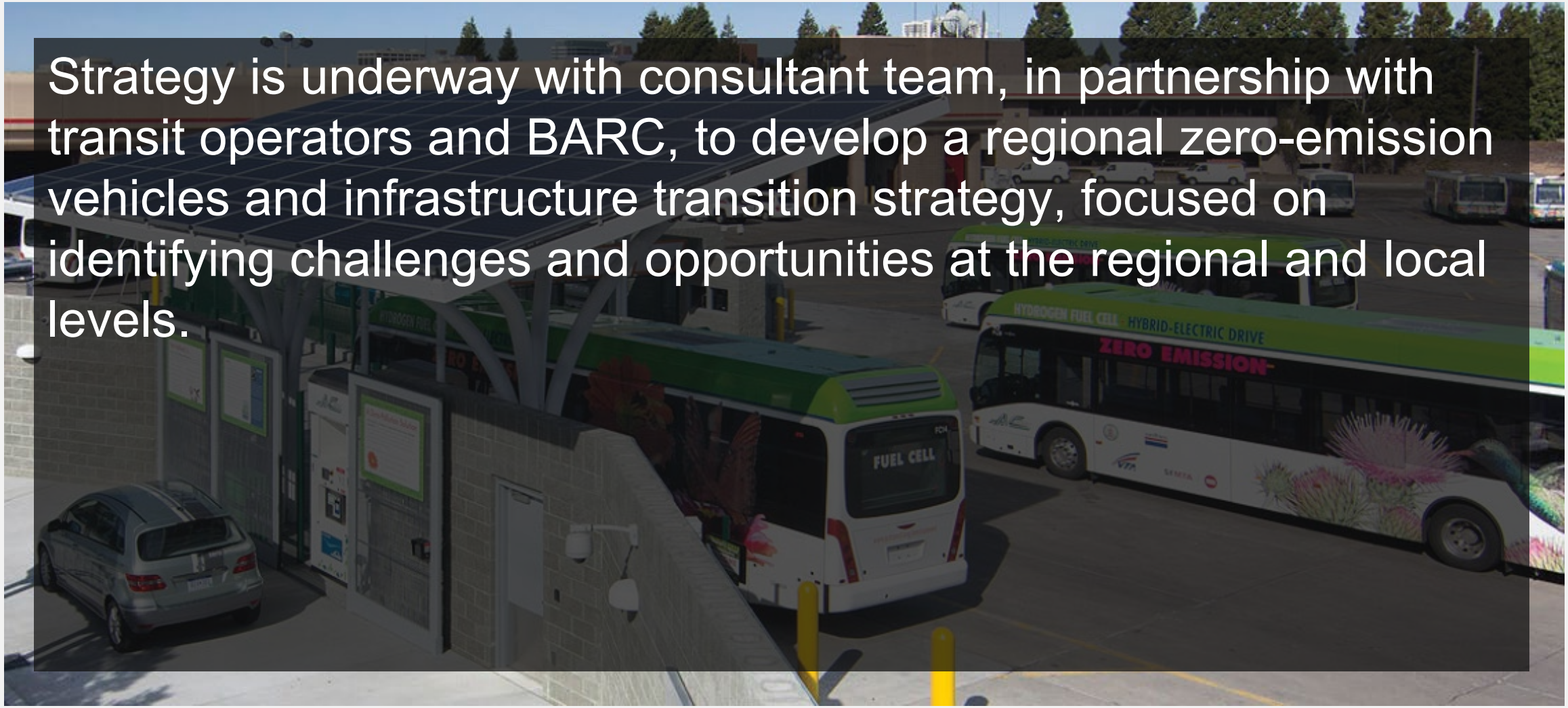
Current Zero Emission Transition Context

California Air Resources Board (CARB) Innovative Clean Transit rule requires transit agencies to transition to 100% zero-emission bus fleets by 2040

- Purchase requirements underway for large operators
- Operators have submitted Rollout Plans to CARB
- Majority of operators have initial ZEB deployments

CARB Commercial Harbor Craft Regulation requires lower-emission ferry fleets

Regional Zero-Emission Transit Transition Strategy



Strategy is underway with consultant team, in partnership with transit operators and BARC, to develop a regional zero-emission vehicles and infrastructure transition strategy, focused on identifying challenges and opportunities at the regional and local levels.

Zero Emission Transit Transition Strategy Principles

a. Transition in **partnership** (operators, CTAs, MTC, State, Federal)

b. Accelerate transition elements to focus facility investments on ZEB ready infrastructure

c. Support a **dynamic bus system** serving local routes, key trunk corridors, and express lane network

d. Evaluate and **manage risk** throughout transition

Current Status of ZEB Deployment

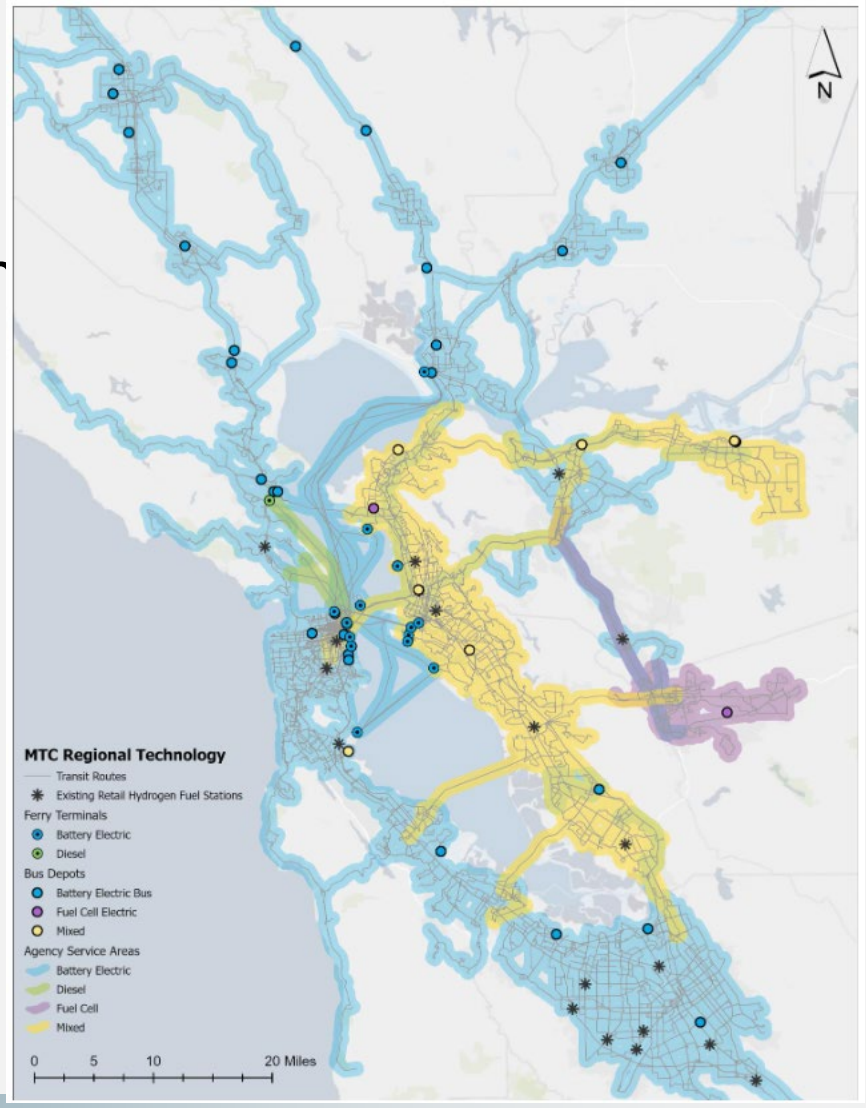
- Approximately 450 ZEBs currently deployed across 12 agencies – over 10% of the region's bus fleet
  - 278 electric trolleys (SFMTA)
  - 130 Battery Electric Buses
  - 40 Fuel Cell Electric Buses

- Chargers and hydrogen fueling mostly at bus depot
- Limited numbers of on-route chargers

Summarization of Current Agency Plans

- Significant numbers of both Battery Electric and Fuel Cell buses
- Some agencies are committed to one or both technologies, others still assessing future fleet mix
- Primary focus on depot-based charging and fueling, with strategic on-route charging

- Overall cost being refined, but in the high billions of dollars
  - Vehicle cost inflation
  - Complex facilities projects



Significant Identified Risks

- Schedule risk for compliance
  - Timeline of facility infrastructure upgrades delayed
  - Timeline of utility capacity upgrades delayed, or insufficient grid power on required timeframe
- Budgetary risk
  - Funding levels are insufficient at current cost projections (gap in the billions of dollars)
  - Capital and operating costs may grow beyond current projections

Collaboration Opportunities

- Workforce training
- Knowledge sharing
- Vehicle purchases
- Hydrogen procurement
- Interagency coordination for shared on-route chargers

Funding Opportunities and Challenges

- FTA formula funds (Transit Capital Priorities program) typically funds majority of replacement vehicles, but rapid cost escalation causing strain
- Vehicles are the highest cost, with significant needs also for facilities and charging/fueling infrastructure
- Recent performance in FTA discretionary bus funding was strong, with nearly 7% of national funding ($110M)
- Will need to leverage existing state and federal transit discretionary sources, access energy and emissions-focused sources, and realize new funding opportunities to meet the gap

Ongoing/Upcoming Tasks

- Refinement of cost estimate and development of funding strategy
- Analysis of technological approaches and compatibility
- Feasibility of shared infrastructure
- Analysis of considerations related to interoperability and emergency preparedness
- Interactive map of existing and planned zero emission transit facilities, hubs, and charging/fueling locations
- Analysis of regional opportunities and challenges