

Regional Zero-Emission Transit Transition Strategy Update

Bay Area Regional Collaborative
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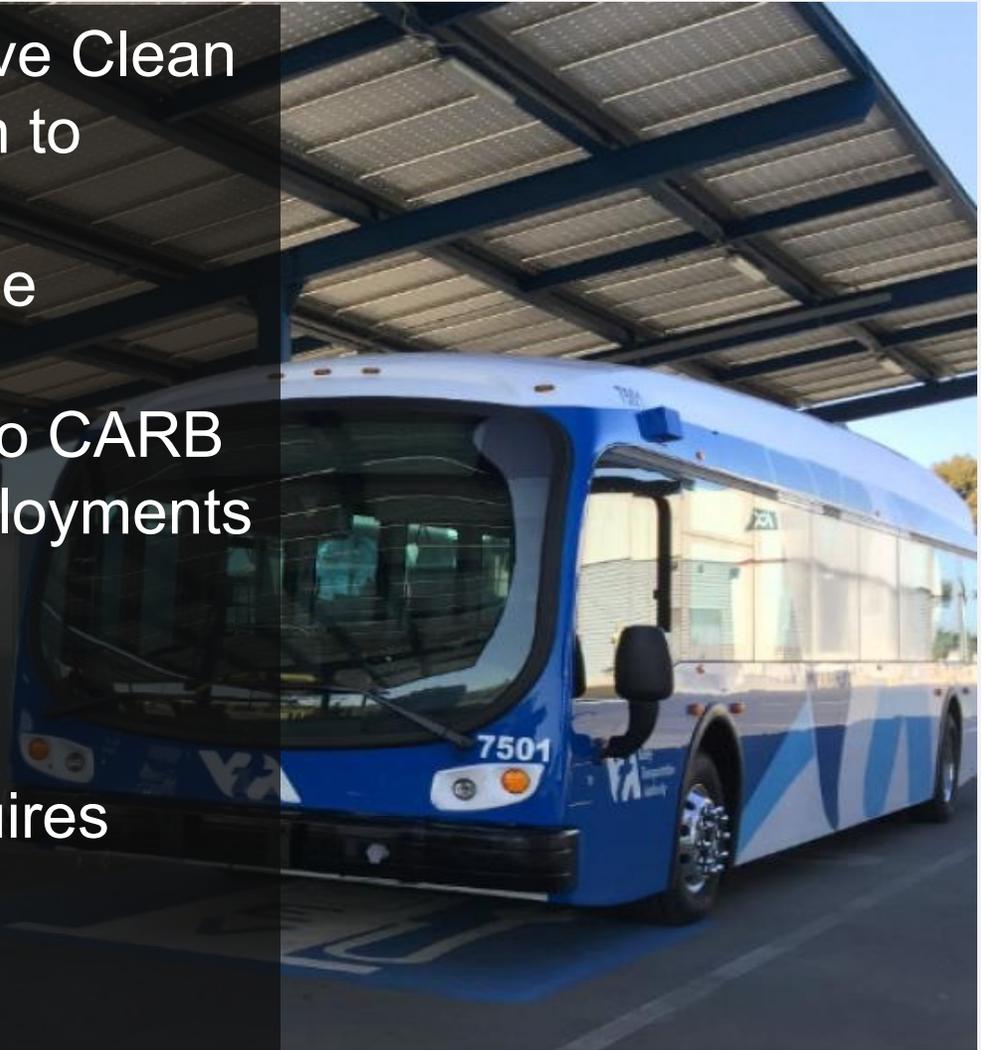


Current Zero Emission Transition Context

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

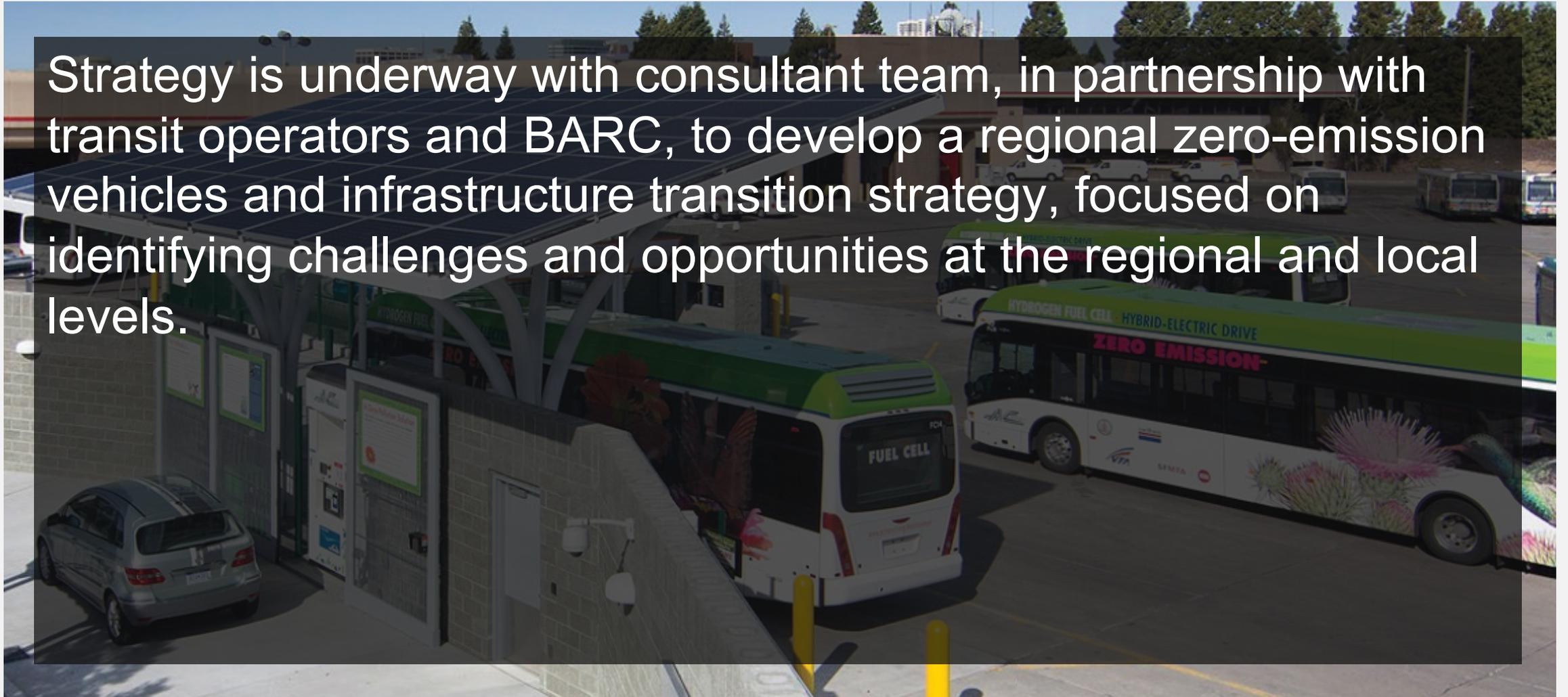
- Purchase requirements underway for large operators
- Operators have submitted Rollout Plans to CARB
- Majority of operators have initial ZEB deployments

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



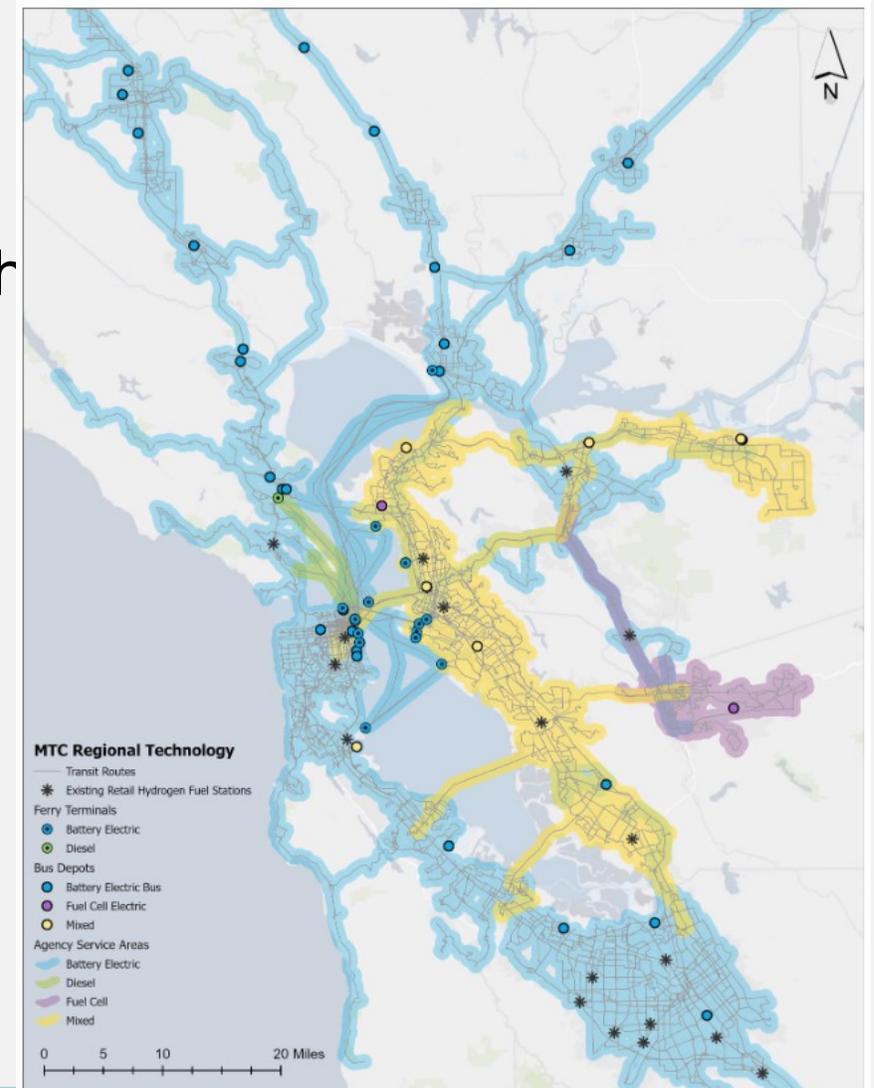
Current Status of ZEB Deployment

- 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

