June 21, 2006

Attention: Robert Cross
California Air Resources Board
1001 "I" Street
P.O. Box 2815
Sacramento, CA 95812

RE: Bay Area Proposal for Changes to CARB's Zero Emission Bus Requirements

Dear Mr. Cross:

This letter presents a proposal for revisions to the California Air Resources Board (CARB) Zero Emission Bus (ZEB) requirements for public transit operators which was jointly developed by the Metropolitan Transportation Commission (MTC), the metropolitan planning organization for the nine-county San Francisco Bay Area, and the region's five largest bus transit operators: Alameda-Contra Costa Transit District (AC Transit), Santa Clara Valley Transportation Authority (VTA), San Francisco Municipal Transportation Agency (SFMTA), Golden Gate Bridge, Highway and Transportation District (Golden Gate Transit) and San Mateo County Transit District (SamTrans). We appreciate the opportunity to comment on the proposed revisions to the ZEB requirements that were presented by CARB staff at the April 14 ZEB workshop, and to present an alternative proposal.

MTC and the five major Bay Area bus operators are committed to furthering fuel cell technology and implementation of a meaningful ZEB demonstration project. Our proposal takes advantage of momentum created by the two ZEB demonstrations currently underway in the region to help reach the next threshold in the development of commercially viable fuel cell technology. At the same time, our proposal recognizes the practical limitations on our ability to implement that technology on a larger scale in the near future.

Fuel cell hybrid technology is promising but not yet ready for commercial or urban public transit implementation. The demonstrations will provide data that is critical to the development of zero emission technology, but the evaluation of performance and reliability of the first generation vehicles is not yet complete. Reliable performance is critical for a public transit system.

Capital and operating costs need to come down before large scale implementation is feasible. The current ZEBs cost about ten times as much as diesel buses, and fuel costs are roughly four times diesel. The Bay Area region currently faces a projected $4.1 billion transit capital shortfall over the next 25 years without fully accounting for the additional cost of ZEBs. Paying a substantial premium for ZEBs would present transit properties with a dilemma: cut service or defer maintenance. Either choice would force transit riders into automobiles, resulting in increased emissions and hampering CARB's clean air goals.

Severely limited federal and state funding also constrains the development of fuel cell technology. Federal funding currently available in the SAFETEA authorization is only $49 million nationwide.

Limited manufacturing capacity is unlikely to meet the demand created by the proposed purchase requirement. The current ZEBs are hand-built prototypes, not mass-produced.

Taking these realities into account, we propose:

- An expanded regional demonstration project to support further development of ZEB technology and evaluate ZEB operations on a fleet-level scale; and
- Maintaining the 15 percent ZEB requirement for purchased and leased buses with an implementation date of 2014 for diesel operators and 2016 for alternative fuel operators to allow time for the next generation of ZEB technology to develop, manufacturing capacity to expand, and costs to come down to affordable levels.

The region's ability to implement the proposal is predicated on a review of the evaluation results from current demonstration projects and the availability of federal and state funding.

Expanded Regional Demonstration Project

The current ZEB demonstration projects have proven that public sector demonstrations can encourage the development of ZEB technology. The expanded regional demonstration will allow testing under a wider variety of operating parameters, provide more complete data and lead to improved technology and expanded manufacturing capacity at reduced costs, facilitating more efficient use of public funds. The expanded regional ZEB demonstration would build on the experience of AC Transit and VTA, and would consist of three phases:

- Phase I: Accelerated testing. Expand bus operating hours to provide data for technology improvements.
- Phase II: Bus Upgrades. Update the technology in the existing ZEBs to provide longer fuel cell life and lower costs based on the results of the accelerated testing.

- Phase III: Fleet Expansion. Expand the existing ZEB fleet by a minimum of seven buses for a total of ten. If technological advances are sufficient and funding is available, ideally the region would increase the regional ZEB fleet by 17 buses for a total of 20. Expand ZEB infrastructure (fueling and maintenance facilities) to support the additional buses.

Certain funding agencies do not offer grants for projects that are required to meet state or federal mandates. Setting the minimum size of the expanded demonstration fleet lower than what we hope to achieve could facilitate additional funding opportunities. Therefore, we recommend maintaining flexibility in the number of buses required under CARB's regulation.

The region is committed to a successful ZEB demonstration with the five largest bus operators playing a lead role. The current partnership and shared financial resources provide models for regional planning and oversight of the expanded demonstration. A regional ZEB working group has already been formed and the region is working to identify matching funds for federal grants, and is pursuing state funding.

The expanded fleet would be operated on a cooperative basis by AC Transit, VTA, SFMTA, Golden Gate Transit and SamTrans. The operating plan would be developed by the regional ZEB working group and refined to maximize benefits in terms of technology development and to make the best use of financial resources. AC Transit and VTA would provide operations and maintenance training for all Bay Area operators that would enable the operators to operate demonstration buses in their jurisdictions.

The demonstration would leverage existing resources by using AC Transit and VTA fueling and maintenance infrastructure (including additional fueling facilities currently planned by AC Transit). The Bay Area operators are aware of the need to expand hydrogen infrastructure but believe it would be premature to do so when the technology is still in its infancy.

ZEB Purchase Requirement Implementation

Postponing the implementation of ZEB fleet integration to 2014 is necessary because:

- The expanded regional demonstration needs to be completed, providing data to support the development of the next, more reliable generation of ZEB technology to better serve the public;
- Transit operators need sufficient time to develop the infrastructure and experience needed to operate ZEBs on a fleet-level scale;
- Manufacturing capacity needs to expand to meet the higher demand created by the purchase requirement; and
- Costs need to come down to affordable levels.

Implementation of the purchase requirement should proceed only after ZEB technology has met specified thresholds of performance, durability, reliability, commercial availability and cost. As part of this proposal, the regional ZEB working group would

work with CARB staff to develop performance measures that could be used to evaluate whether fuel cell technology is ready for large scale implementation.

As with the size of the proposed expanded demonstration fleet, the fleet integration requirement needs to take into account the amount of funding available. While limited federal funds may be available to support the demonstration, there are no funding sources currently dedicated to ZEB implementation, so any funding provided by the region would come at the expense of other pressing transit capital needs.

Summary of Proposal and Timeline

The following table summarizes our proposal with a tentative timeline. The parameters of the expanded demonstration and the purchase requirement should be based on the results of the expanded demonstration, and on the availability of funding, and therefore we urge CARB to allow flexibility in its revised regulation.

Phase	**Description**	**Proposed Date**
Phase 1	Accelerated testing of existing demonstration buses	2006 and 2007
	Report to CARB on existing demonstration	January 2007
	Determine optimum fleet size and related infrastructure needs, and present final plan for expanded demonstration to CARB. Order new ZEBs (minimum of 7, maximum of 17 if funding is available) for delivery 2009-2012	June 2007
Phase II	Upgrade existing ZEBs with latest technology	Fall 2007 to Fall 2008
Phase III	Delivery of first next-generation buses for expanded demonstration	Late 2009/ early 2010
	Final delivery of up to 17 new buses	2011 to early 2012
	Evaluate performance of expanded demo fleet	2010 to 2014
	Interim annual reports to CARB on evaluation results of expanded demonstration January of each year beginning in 2008. Refine ZEB purchase requirement based on interim evaluation results	January 2008 through 2014
	Final report to CARB on evaluation results of expanded demonstration. Implement purchase requirement (date should remain flexible to allow for adjustments based on demonstration results)	June 2014

We look forward to discussing this proposal and to working in cooperation with CARB to promote the development and implementation of zero emission bus technology in California. Please contact MTC staff members Kate Miller (510-817-5722, kmille@mtc.ca.gov) or Glen Tepke (510-817-5781, gtepke@mtc.ca.gov) if you have any questions or concerns about this proposal.

Sincerely,

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cc: Gerhard Achtelik
Lesley Crowell