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To : Wig Zamore and Ellin Reisner, STEP

From : Stephen H. Kaiser, PhD

***Summary of Analysis for Proposed Maintenance Facility :  
Green Line Extension in Somerville and Cambridge***

STEP has requested that I review the design proposed by state officials for the proposed centralized Green Line storage yard and maintenance facility for Yard 8 in Somerville. I have attended many of the Green Line public meetings in Somerville over the past year and have extensive design engineering involvement with the proposals for Scheme Z highway plans in 1990 and membership on the North-South Rail Link Task Force in 1993. In 1982, I prepared a state staff report on Green Line trip times, operations and service variability. I was also the expert witness for the plaintiffs in the case of Moot vs. DEP relating to tidelands identification and mapping at the North Point site in Somerville and Cambridge (2005-present).

My review of the Yard 8 design proposal disclosed that the site did provide for LRV storage with access of disabled trains to a large maintenance building, but that the connection of the storage yards to the mainline tracks of the new Green Line would require extensive switching of trains, with brief travel in the wrong direction on the opposing tracks. Each train would be required to stop on the opposing track and reverse direction every time a train is moved from the storage yard to the mainline tracks. This action would require LRV operators to shut down the train, walk from one end of the unit to the other, and start up the LRV again to travel properly in the reverse direction. The entire reversal would take a considerable amount of time, measured in minutes. Other LRVs already in service on the mainline tracks would need to be stopped in both directions while this switchover and reversal of direction occurred.

Over the years, I have studied the Green Line extensively and am quite aware of the existing operational difficulties of trying to keep LRV units operating smoothly at

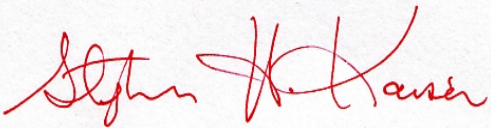
short and evenly spaced headways. I cannot imagine a more disruptive operational procedure on the Green Line than to shut down the mainline for minutes in both directions while new LRV units are added into service. I would strongly recommend that EOT and the MBTA reconsider the track layouts and storage yard access for the Yard 8 plan both for its implications for transit service operations and efficiency.

I also believe that the switching and train reversal movements have important safety implications for the Green Line -- with the current design dependent as it is now on making frequent use of opposing tracks by LRVs. I am aware of historical MBTA concerns over the safety implications of at-grade crossovers such as the Copley switch. A simple at-grade track crossing like the Copley switch is far simpler and safer than a crossover onto the track of trains traveling in the opposite direction, followed by several minutes of the train sitting stopped on the track. We have the recent examples of two significant train accidents involving rear end collisions, which should be a straightforward and obvious safety challenge. Switching of trains onto the opposing track is a far more complex and hazardous condition. It would be clearly unwise to recommend such a design feature as part of the new maintenance facility plan.

LRV units approaching the maintenance and storage site would be required to engage in the switching and reversal of direction when approaching from the inbound tracks from Tufts or from Union Square. LRVs leaving the storage yard would switch and reverse direction to travel inbound on the Green Line towards Boston. This movement is most significant because in peak transit hours the priority is to add service to the Boston lines and related activities.

I will continue my work in investigating different track layouts which will allow safe and efficient access in and out of the maintenance yard. However, I also urge that the City of Somerville initiate contacts with state officials and their design engineers to review the current design and seek an improved track design that services disabled trains, allows for efficient daily operations , and is safe for the traveling public.

Sincerely,



Stephen H. Kaiser, PhD