Line 1R Service and Reliability Study
Executive Summary

**Line Overview and General Operating Characteristics**
Line 1R is the second busiest public bus route in the East Bay. The more than 17 mile long route operates between the University of California in Berkeley and the Bay Fair BART station in San Leandro, primarily via Telegraph Avenue, International Boulevard, and East 14th Street. The Line operates every 12 minutes throughout the day, making it one of the most frequent routes in the District. However, service on Line 1R has been unreliable, with such operational problems as bus bunching, late vehicles and crowded buses.

In October 2008, AC Transit began a study of Line 1R in order to evaluate its levels of service and reliability. The first step in studying Line 1R was the creation of a Task Force which included representation from several departments within AC Transit, as well as a representative from each of the Cities of Berkeley, Oakland and San Leandro, where the route operates. The goals established for the Task Force included improving reliability, optimizing efficiency, and increasing productivity.

The Task Force guided the evaluation process, with specific feedback and consistent participation. After the Task Force had defined the purpose and scope of the Line 1R Study, staff began the process of data collection and technical analysis of the operating characteristics of the route. Staff formulated recommendations for route improvement on two levels—corridor-wide recommendations and the more detailed stop-level recommendations. This report is the culmination of the Task Force’s efforts and documents the entire process from problem definition to analysis and concludes with a series of recommendations.

Information on service levels and general line characteristics can be found in Chapter 2.

**Documentation of Existing Conditions**
In order to achieve these goals, staff conducted an in depth analysis of the Line1R service. Staff investigated existing conditions on Line 1R by reviewing an onboard survey and origin-destination (OD) survey, Automatic Passenger Counter (APC) data, and Automatic Vehicle Location (AVL) data as well as conducting point checks and ride checks. The significant findings from that analysis are summarized below:

- Heavily used route (12,000 passengers weekday average)
- Highly productive route (over 75 passengers per service hour)
- Passengers raised concerns about bus bunching, long wait times, and on-time performance.
- Each segment has significant variability in its running time.
- Actual headways are irregular throughout the route and cause vehicles to bunch.
- Only 57% of the running time is spent in motion; delays (19%) and dwell time (24%) represent the other half; traffic signals account for almost all delays.

A summary of the results of the onboard survey and origin-destination survey can be found in Chapter 3. Detailed information on existing conditions and data analysis can be found in Chapter 4. Delay data specific to the Line 1R, with references to locations and duration of delays can be found in Chapter 5.
**Corridor-wide Recommendations**

Most recommendations generated by this study can be applied to the Line 1R on a corridor-wide level. These corridor-wide level recommendations include the following:

- **Signage and Customer Education:** Passengers should be encouraged to move to the rear of the bus, exit through the rear door, and help keep the aisles clear of obstructions.
- **Stroller Policy:** A designated stroller area should be created on the bus, the number and size of strollers should be limited to fit in the available space.
- **Boarding Area Pavement Markings:** Sidewalk pavement markings should be used at 1R bus stops to designate the location of the front door and middle door wheelchair deployment zone.
- **Operator Training and Orientation:** Rapid-specific training should be required for any driver wishing to operate the Line 1R. Recurrent training should be implemented on an annual basis.
- **Line Management:** All buses should be required to pull from the yard on-time in order to start the first trip of the day at its scheduled time. In addition, Supervision should use active line management to implement short turns, holds, or deadheads if the route is running late or early. Supervisors should be trained on the use of GPS-based computer tools that will enable them to monitor bus spacing, delays, and bunching from a route-wide perspective.
- **Fare Payment:** More efficient methods of fare payment should be encouraged in order to reduce boarding time. Greater participation in the Bay Area’s smart card, Translink, would be an effective way of implementing this. In addition, Ticket Vending Machines (TVM) should be installed at high volume Rapid stops to facilitate off-board fare payment.
- **Fleet Deployment:** A 20% spare ratio (or 4 buses) should be implemented for Line 1R. Each of the spare buses should be equipped with a TSP emitter and Rapid branding.
- **Scheduling Consistency:** Use of fragmented runs or “frags” should be eliminated on Line 1R. “Frag” runs are often filled by extraboard operators. Extraboard operators often have less familiarity with the nuances and issues associated with the route.
- **Transit Signal Priority (TSP):** To proactively identify equipment problems, TSP emitters and receivers should be tested on quarterly basis. This includes the equipment installed on the buses and on the traffic signals themselves.
Stop and Segment Recommendations
Planning Staff measured all Rapid stops on the Line 1R alignment. Many stops were found to be deficient with either not enough red curb or obstructions blocking the wheelchair ramp deployment area. Many of the necessary improvements will require the loss of some parking to accommodate the articulated coaches safely.

Other stops were identified for elimination, consolidation, or relocation based on ridership and the District’s minimum stop spacing guidelines. Removing less patronized stops can increase the travel speed of the bus.

The following 1R stops should be considered for either removal or relocation, based upon their distance from adjoining stops and/or their passenger activity.

- Dolores Ave/Parrott St (San Leandro) should be removed due to low ridership and stop spacing guidelines.
- The pair of 26th Avenue stops (Oakland) should be relocated to a signalized intersection at 23rd Avenue for street crossing safety and to provide connectivity with Line 62.
- The 5th and 10th Avenue stops (Oakland) should be consolidated into a new Rapid stop at 8th Avenue to provide better stop spacing.
- The westbound 1st Avenue stop (Oakland) should be relocated to 2nd Avenue to make it easier for buses to make the left turn at 1st Avenue.
- The 11th and 12th Street stops at Broadway (Oakland) should have bus bulbs added in order to better facilitate turns to/from Broadway.

Implementation of the stop or segment-specific recommendations will require detailed effort involving each respective City. Several of the detailed recommendations found in Chapter 6 do not require considerable funding for implementation, while some do.

Project Next Steps
Staff will continue to work towards completion of the Line 1R Task Force Final Report by fully incorporating comments and feedback received from Staff, City, and Caltrans personnel. It is anticipated that further internal outreach, and possibly public outreach, will be needed in order to complete the Report.