

EXHIBIT 1

**Expert Report of Richard Berk
January 9, 2008**

1. I am a Distinguished Professor of Statistics Emeritus from the Department of Statistics at UCLA. I am currently a Professor at the University of Pennsylvania in the Department of Statistics and in the Department of Criminology. I am an elected fellow of American Statistical Association and the American Association for the Advancement of Science and have served in a professional capacity with a number of organizations such as the Committee on Applied and Theoretical Statistics for the National Research Council, the Board of Directors of the Social Science Research Council, and currently, the National Research Council committee to advise the Census Bureau on their data collections methods for the 2010 and 2020 U.S. census. I have been given the Paul F. Lazarsfeld Award for methodological contributions from the American Sociological Association. I have published 13 books and over 150 peer reviewed articles and book chapters, many on applied statistics and applications involving the role of race, age, and gender in a variety of settings. My teaching has for decades been in statistics at both the undergraduate and graduate levels. I have previously qualified as both a statistics expert and a social science expert in federal and state cases in California, Arizona, Nevada, Illinois, Maryland and elsewhere. A number of cases have involved claims of discrimination. My curriculum vitae is appended to this document as Exhibit A. The cases in which I have served as an expert are listed in Exhibit B. I charge \$350 per hour for my services as an expert.

2. I have been asked by attorneys for the plaintiffs in Sylvia Darensburg et al. versus the Metropolitan Transportation Commission to consider two questions. The first question is whether adverse policies or funding decisions affecting AC Transit services would disproportionately affect minority riders. The second question is whether adverse policies or funding decisions affecting AC Transit would burden its minority riders more than adverse policies or funding decisions affecting BART or Caltrain would burden their minority riders.

1. Deposition of Therese McMillan, November 8, 2007, December 7, 2007.
2. MTC Transit Passenger Demographic Survey, April 13, 2007.
3. MTC 2006-2007 Transit Passenger Survey, Final, May 23, 2007.
4. MTC 2006-2007 Transit Passenger Demographics Survey, Appendix B.
5. MTC 2006-2007 Transit Passenger Demographics Survey, Appendix C.
6. MTC 2006-2007 Transit Passenger Demographics Survey, Appendix D.
7. MTC Transit Passenger Demographic Survey, produced by Gobde Researcher (PowerPoint presentation) June 2007.
8. MTC 2006-2007 Transit Passenger Demographics Survey – Data Processing, Weighting and Expansion Methods (Technical Memo #3b), May23, 2007.

3. Using the data, tabulations and graphs available in these documents, it is apparent that any policy or funding decisions adversely affecting AC Transit services would disproportionately affect minority riders because minorities constitute far more than half of all AC Transit riders. It is also apparent that adverse policies or funding decisions affecting AC Transit would burden its minority riders more than adverse policies or funding decisions affecting BART or Caltrain would burden their minority riders. The reason is that AC Transit

riders are substantially more likely to be minorities than riders of BART or Caltrain. For purposes of this analysis, "minority" is defined as African-American, Asian, Hispanic, and Native American.

Question 1: Results for AC Transit Alone

4. From the table on page 235 of Appendix C of MTC 2006-2007 Transit Passenger Survey, Final, May 23, 2007, and slide 9 in the MTC Transit Passenger Survey, produced by Gobde Researcher (PowerPoint presentation) a little over 78% of the AC Transit riders (Local and Transbay) are minorities when the racial/ethnic categories of "other" and "DK/NA" are included as minority. (Because the data is presented separately for AC Transit Local and Transbay riders, I aggregated the two sets of data to obtain a single percentage.) That percentage drops to a little less than 68% when the racial/ethnic categories of "other" and "DK/NA" are included as non-minority. The figures of 78% and 68% provide an upper bound and lower bound respectively for minority AC Transit riders, depending on the actual race or ethnicity of individuals who self-identify as "other" and "DK/NA." For these data, the truth probably lies somewhere in between.

5. When a random sample is drawn, all sample statistics will likely differ by chance at least a bit from their true values in the population. For this analysis, the population is all AC Transit (Local and Transbay) riders. The sample is the set of AC Transit riders who responded to the MTC Transit Passenger Demographics Survey. Thus, the percentage of minority riders in the sample will likely differ a little from the percentage of minority riders in its population. A useful way to represent this uncertainty is to compute the margin of error for a sample statistic. For these data, I determined that the margin of error around either the lower or upper minority bound is less than plus or minus 3%. It follows that a one-sample test of the null hypothesis that in the population the minority and non-minority percentages (by either definition) are the same can be easily rejected at the conventional .05 level. This means that under conventional interpretations of statistical tests, the relative representation of minorities and non-minorities among AC Transit riders should not be seen as a random sampling artifact. The presence of a large racial/ethnic imbalance in the sample should be treated as real. It is appropriate to conclude, therefore, that the average AC Transit rider is 2.1 to 3.5 times more likely to be minority than non-minority.

6. According to the statistics on page 2 of MTC 2006 Transit Passenger Demographics Survey – Data Processing, Weighting and Expansion Methods (Technical Memo #3b), May 23, 2007, there are on the average a little more than 940,000 riders per week using AC transit. If at a minimum approximately 68% of those riders are minority group members, there are about 640,000 minority riders, and about 300,000 riders who are not minorities. If at a maximum, approximately 78% of the riders are minority group members, about 740,000 riders are minorities, and about 200,000 are not. Clearly, adverse policies or funding decisions affecting AC Transit service would disproportionately affect minority riders because AC Transit riders are approximately 2.1 to 3.5 times as likely to be minority than non-minority.

Question 2: Results for AC Transit Compared to BART and Caltrain

7. If the "other" and "DK/NA" response categories are taken to represent minority group members, about 54% of the BART riders are minorities. If the "other" and "DK/NA" response categories are not taken to represent minority group members, about 48% of the BART riders are minorities. If the "other" and "DK/NA" response categories are taken to represent minority group members, about 51% of the Caltrain riders are minorities. If the "other" and "DK/NA" response categories are not taken to represent minority group members, about 48% of the Caltrain riders are minorities. In this case, how one treats the "other" and "DK/NA" response categories makes little difference.

8. Using the survey data, AC Transit has a substantially larger percentage of its riders who are minorities than does either BART or Caltrain. Between about 2/3rds and 3/4ths of AC Transit riders are minorities and only about a half of all BART and Caltrain riders are minorities. Consequently, reductions in the quality or amount of service provided by AC Transit fall far more heavily on AC Transit minority riders than comparable reductions in the quality or amount of service provided by BART or Caltrain fall on minority riders. Put another way, minority riders of AC Transit are more vulnerable than minority riders of BART or Caltrain. By the same token, AC Transit minority riders would benefit relatively more from a comparable improvement in the quality or amount of service than would minority BART or Caltrain riders.

9. The population is now all riders of AC Transit, BART, and Caltrain. The survey respondents from the three carriers are a random sample from that population. From the table on page 239 of Appendix C of MTC 2006-2007 Transit Passenger Survey, Final, May 23, 2007, we learn that for both BART and Caltrain, one is able to use a two-sample test to reject the null hypothesis at the .05 level that in the population of all riders, the percentage of minority riders who use AC transit is the same as the percentage of minority riders who use either BART or Caltrain. One can arrive at the same "statistically significant" results using either of our earlier definitions of minority status. Using conventional interpretations of statistical tests, the racial/ethnic disparities between AC Transit riders and BART or Caltrain riders should not be seen as a random sampling artifact. The disparities should be treated as real. AC Transit riders are substantially more likely to be members of a minority group. Thus, minority riders face a relatively heavier burden from funding or policy decisions adversely affecting AC Transit service than from policy or funding decisions adversely affecting BART or Caltrain service.

Conclusions

10. In summary, AC Transit riders are far more likely to be members of a minority group than not and far more likely to be members of a minority group compared to BART riders or Caltrain riders. These conclusions are drawn from the survey data on which the MTC apparently relies. Policy and funding decisions adversely affecting AC Transit service alone would fall disproportionately on minorities. Likewise, policy and funding decisions adversely affecting AC Transit service would fall disproportionately on minorities compared to similar policy or funding decisions adversely affecting BART or Caltrain.

 1/11/2008