

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

PROCEEDING BEFORE SPECIAL MASTER

LABOR/COMMUNITY STRATEGY CENTER, et al.,

Plaintiffs,

vs.

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY and JULIAN BURKE,

Defendants.

CASE NO. CV 94-5936 TJH (MCx)

IN RE LOAD FACTOR COMPLIANCE

MEMORANDUM DECISION AND ORDER

I. INTRODUCTION

The issue presented to the Special Master for resolution is fairly straightforward: what steps are necessary to bring the MTA into compliance with the load factor requirements of the Consent Decree? The resolution of this issue, however, is costly and complex. Under the Consent Decree entered into by the parties and approved by the Court on October 29, 1996, the MTA undertook to make significant service improvements to the bus system, including "reducing overcrowding by adding new service." See Consent Decree at II.A (hereinafter "Consent Decree" or "Decree"). To accomplish this, the MTA agreed to a five-year timetable reducing the amount of overcrowding on buses as measured by a "load factor" – a specific ratio

of bus passengers to bus seats. The achievement of this five-year goal was to be accomplished in the following increments ("load factor target" or "LFT"):

December 31, 1997:	1.35
June 30, 2000:	1.25
June 30, 2002:	1.20

Thus, achieving the load factor of 1.35 would mean, *inter alia*, that during any 20-minute weekday peak period in the peak direction of travel on each bus line, the *average* number of passengers standing would not exceed 15. To meet the 1.25 load factor target, the average number of passengers standing during any 20-minute weekday peak period would not exceed 11 and to meet the final load factor target of 1.20, the average number of standing passengers during any 20-minute peak period would not exceed 9 passengers. *Id.*

If the MTA fails to meet the target load factors for all bus lines by the dates specified above, the Consent Decree provides that "MTA shall meet the target as soon as possible and reallocate sufficient funds from other programs to meet the next lower load factor target as scheduled." See Consent Decree at II.A.4 ("Failure to Meet Targets"). The Consent Decree requires that the MTA reprogram funds, which may include, but not be limited to, revenues from Propositions A and C discretionary funds, to meet the load factor targets. Any dispute about whether the targets are met or, if they are not met, whether sufficient funds have been reprogrammed to meet the next target is to be reviewed by the Joint Working Group ("JWG"), established pursuant to Section IV of the Consent Decree, and consisting of representatives of the MTA and the Plaintiffs' class. If the JWG cannot resolve the matter, it will be referred to the Special Master. See Consent Decree at II.A.4.

On September 9, 1998, after having received guidance from the Special Master concerning the legal standards by which compliance is to be measured, the JWG agreed that the MTA did not meet the December 31, 1997 load factor target of 1.35 for 75 out of the 79

monitored bus lines. These bus lines had been selected for monitoring pursuant to a plan devised by the JWG and previously reviewed by the Special Master.

Since September 9, 1998, the JWG has met on a number of occasions to exchange information concerning the causes of the failure of the MTA to meet the load factor target and to consider the remedies that would be appropriate to bring the MTA into compliance with the load factor requirements of the Consent Decree. Through this process, an enormous amount of information and analysis has been generated which is part of the Administrative Record in this proceeding and provides the foundation for this decision. While the JWG was able to agree that the MTA had not met the target load factors, the JWG was not able to agree on an appropriate remedial plan. Therefore, each party prepared and presented to the Special Master a remedial plan providing its analysis of the causes of the MTA's failure to achieve the load factor targets and the proposed actions necessary to address those causes.

While there are some areas of agreement, the remedial plans presented by the MTA and the Plaintiff Class are far apart on a number of critical issues. Thus, pursuant to Section IV.A.4 of the Consent Decree, it is incumbent upon the Special Master to resolve the matter.

The specific task before the Special Master – and the purpose of this Memorandum Decision and Order – is to determine what remedial steps the Decree requires to achieve compliance with the 1.35 load factor target of December 31, 1997 “as soon as possible” and “to meet the next lower load factor target” of 1.25 by June 30, 2000. See Consent Decree at II.A.4.

In reaching a decision, I have reviewed the remedial plans submitted by the MTA and the Bus Riders Union (“BRU”), the briefs, reply briefs, declarations and exhibits submitted by counsel to the MTA and the BRU, and the Administrative and Supplemental Administrative Record jointly submitted by the parties. Having considered all of these data and analysis, I have adapted elements from each of the parties' plans in fashioning a “narrowly tailored” remedial plan that, in my best judgment, will meet the specific requirements of the Consent Decree. The

specific elements of this remedial plan are set forth on pages 52-56 of this Memorandum Decision and Order.

Pursuant to Section V.B of the Consent Decree, any matter resolved by or referred to the Special Master may be reviewed by the United States District Court, Central District of California, Western Division, along with the recommendations of the Special Master, if any, upon motion by either of the parties. If either or both parties file such a motion, the entire Administrative Record, including this Memorandum Decision and Order, will be submitted to the Honorable Terrence J. Hatter.

II. BACKGROUND

In September 1994, the Community Legal Strategy Center, together with the Bus Riders Union, other community organizations and the named Plaintiffs (hereinafter "Plaintiffs" or "BRU") brought a lawsuit against the MTA on behalf of the class of predominantly minority, transit-dependent bus riders in Los Angeles County seeking declaratory and injunctive relief under, *inter alia*, the Fourteenth Amendment and Section 6 of the Civil Rights Act of 1964. The Plaintiffs challenged the allegedly discriminatory and disparate impact of the MTA's decisions to increase bus fares, cut bus passes and divert funds from the bus system, which serves 94% of the transit-dependent riders of Los Angeles County, in order to finance and construct a subway and light rail system. After many months of discovery and within a few weeks of trial, the parties agreed to settle the litigation and a Consent Decree was approved by the Court on October 29, 1996.

A. Major Components of the Consent Decree.

1. Fare Provisions.

The Consent Decree contains three major components. First, the Decree provides for a freeze on fares until November 1998, with an allowance for inflationary increases thereafter. See

Consent Decree at III. In addition, the Decree retains the monthly and bi-weekly passes and creates a new weekly pass set at \$11.00. These provisions were implemented with relatively little controversy and the objectives and benefits of the Consent Decree in this area have been for the most part successfully achieved. Moreover, although the MTA has been authorized to provide for an inflationary increase in the bus fares since November 1998, it has not done so and, apparently, has not initiated any of the formal steps required to do so.

2. Load Factor Reduction Program.

The second major component of the Consent Decree – a program for the reduction of bus overcrowding as measured by load factor targets – has not fared so well. As stated above, the Decree requires the MTA to provide for significant improvements in bus service, to be measured by the achievement of specific load factor reduction targets over a five-year period. The MTA's failure to achieve the load factor target established by the Decree is what necessitates the present Decision. The pertinent history is as follows.

On May 1, 1998, the Plaintiffs filed a motion with the Special Master seeking to consolidate the informal Stage I and formal Stage II proceedings and proceed directly to a determination of whether the MTA was in compliance with the Consent Decree and, if not, what remedy would be appropriate. The MTA opposed the motion, proposing informal consultations.

On May 28, 1998, the Special Master issued a Procedural Order granting the Plaintiffs' motion to consolidate Stage I and Stage II proceedings and requesting that the parties clarify the outstanding issues to be resolved. In their written submissions to the Special Master and at a June 24 status conference, it was apparent that the parties held substantially different views as to how Section II of the Consent Decree should be interpreted and applied, and that these foundational conflicts needed to be resolved as a threshold matter before the issue of compliance could be determined. Accordingly, the parties were directed to brief the foundational legal

question (and various related sub-issues) concerning the proper standard by which to measure compliance with Section II of the Consent Decree.

In its brief, the MTA contended that compliance under the Decree should be measured by a comparison of the MTA's overall system-wide load factor compliance rate, per time period, with the industry-wide percentage of service interruptions. In connection with this interpretative proposal, the MTA argued that the load factor should be computed using fixed, 20-minute periods. Conversely, the Plaintiffs argued that the Consent Decree requires compliance to be measured on each and every bus route, using a sliding window for "any 20 minute period." Plaintiffs further argued that the MTA had breached the Consent Decree by failing to procure an additional 102 buses, as required by Section II.B. Opening Brief of Plaintiffs and Plaintiff's Class (filed July 8, 1998); MTA's Brief Re Load Factor Compliance Standard (filed July 8, 1988).

The Special Master issued a Memorandum Decision and Order on July 15, 1998, rejecting the MTA's system-wide interpretation of Section II of the Consent Decree and, instead, holding that Section II of the Decree requires that the load factor targets be met on each and every bus line. The Special Master adopted the MTA's position on the "20-minute" measure and also noted that there may be *de minimis* exceptions to requirements that the MTA meet the LFT on every bus line for every 20-minute period. Memorandum Decision and Order (filed July 15, 1998).

On August 14, 1998, the Plaintiffs moved for reconsideration of the Special Master's decision on the issues relating to the 20-minute period, by-passed passengers, *de minimis* exceptions, and the procurement of an additional 102 buses. Plaintiff's Motion for Reconsideration of the Special Master's Memorandum Decision, and Motion to Strike Inadmissible Extrinsic Evidence (filed Aug. 14, 1998).

Upon completion of the briefing, the Special Master issued an Order on August 25, 1998, granting the Plaintiffs' motion in part and denying the motion in part. Order Re Plaintiffs'

Motion for Reconsideration of the Special Master (dated July 15, 1998); Order Re Compliance Standards (dated Aug. 25, 1998). The Special Master adopted the Plaintiffs' definition of "any non-overlapping sliding 20-minute period" as the proper measurement of compliance and deferred consideration of *de minimis* exceptions until a later stage in the proceeding. On the issue of the additional 102 buses, the Special Master reaffirmed his earlier decision that Section II.B of the Consent Decree did not mandate the immediate procurement of 102 additional new buses by July 1997.¹ The Special Master deferred consideration of when the additional new buses must be acquired until the remedial phase of the load factor compliance proceeding.

Having clarified the legal standards applicable to compliance under the Decree, the Special Master directed the JWG to reconvene to determine whether the MTA was in compliance with the load factor targets for each bus line and, if not, to consider appropriate remedies. On September 8 and 9, 1998, the JWG found that the MTA was not in compliance with the 1.35 LFT for 75 out of the 79 monitored MTA bus lines. Letter to Special Master from Habib F. Balian (dated September 8, 1998); Letter to Special Master from Eric Mann (dated Sept. 9, 1998).

While valuable information and analysis were developed and exchanged by the parties, and although a number of discussions on proposed remedial actions were held, the JWG failed to reach agreement on a remedial plan. Despite this impasse, the parties requested the opportunity to establish confidential procedures for the purpose of developing and exchanging proposed remedial plans in the hope of facilitating settlement and agreement on areas of difference.

The proposed plans were exchanged on December 11, 1998 and discussed in an informal conference held in Los Angeles on December 18, 1998. At the conclusion of the informal discussions, the Plaintiffs indicated to the Special Master that there was no prospect of reaching an agreement on the remedial plan and requested additional discovery concerning the basis for

¹ The MTA temporarily satisfied this requirement by extending the life of buses scheduled for replacement and used the replacement vehicles to add service.

the MTA's proposed remedial plan. The Special Master approved the parties' proposed procedures for additional, limited discovery and granted their request for a postponement of a briefing schedule on the merits. Procedural Order (dated Dec. 16, 1998). Briefing on the merits of the proposed remedial plans was completed on February 13, 1999, and the issue of a remedial plan was thus referred to the Special Master for decision.

3. Development of a Five-Year Plan.

The third major component of the Consent Decree involves the development of a five-year plan, as set forth in Section II.C.2, providing for additional bus and other transit services designed to improve access to employment opportunities, health care facilities and educational centers for the transit-dependent. To this end, the Decree requires the MTA to implement, after consultation with the JWG, a pilot project to demonstrate the feasibility of providing added service to achieve this objective. The JWG failed to reach agreement on a five-year plan by the deadline of December 31, 1998. At the direction of the Special Master, the parties submitted separate five-year plans on February 21, 1999. As the MTA notes in its Opening Brief, compliance with this provision of the Consent Decree may require the MTA to acquire additional buses to implement the five-year plan.

B. Role of the Joint Working Group.

At the time the Consent Decree was agreed upon by the parties and approved by the Court, it was impossible to fashion in great detail all of the specific actions that would be necessary to achieve the goals, objectives and spirit of the Decree. Accordingly, the JWG, consisting of representatives of both the MTA and the Plaintiffs, was established for the purpose of working together to fill in the details and realize the benefits of the Consent Decree for the transit-dependent population -- a goal shared by the Plaintiffs and the MTA. The JWG has met on many occasions and in many ways has been a thoughtful forum for the exchange of

information and ideas. Despite the controversies that have flared up, the JWG has developed a substantial amount of valuable information that has been used to improve the quality of bus service.

It has been disappointing, however, that the JWG has not been able to resolve many of the major issues in dispute. This is unfortunate because it requires the Special Master to step in and substitute his judgment for the expertise of the MTA staff, the BRU staff and their expert consultants, who are very knowledgeable about the bus system and are capable of designing solutions to problems arising under the Consent Decree. Nonetheless, all the MTA's "horses" and all the BRU's "men" (and women) have not been able to put together an agreed-upon remedial plan, which was clearly the desired course under the Consent Decree. Consequently, the obligation to resolve these areas of conflict under the Decree is now thrust upon, at least in the first instance, the Special Master.

If it has taken more time than we all would have wished to get to this point, it is because I strongly believe that it is important that the JWG be given every incentive and opportunity to resolve as many of the disputes as possible. Moreover, the data and analyses that have resulted from these deliberations have been a critical part of the analytical foundation for a remedial plan that meets the Consent Decree's requirements. Most importantly, the parties have not merely passed the time collecting and reviewing information; rather, they have taken a number of critical and concrete steps to improve the MTA's capacity to adhere to the requirements of the Consent Decree. For example, in January 1998, construction of the Eastside, Mid-Cities and Pasadena rail lines was suspended, thus conserving some transit capital and management resources for bus improvements.² In October, an accelerated bus procurement plan was approved that commits the MTA to purchase 2095 buses at a cost of \$817.3 million and will

² Plaintiffs contend that the MTA has not actually reallocated any of these resources to improve the bus system and plans to provide substantial resources to the Pasadena Blue Line. Reply Brief for Plaintiffs and the Plaintiff Class at 2 n.2 (filed Feb. 16, 1999) ("BRU Rep. Br.").

reduce the average age of the fleet to about six years within the next two and one-half years. Purchase orders have been executed for 538 new buses to be delivered before June 2000 and plans have been approved to convert or repair 917 "unreliable" alternate fuel buses by the end of the year.

In sum, both parties have undertaken an extraordinary amount of work to develop the analytical foundation for a remedial plan that addresses the causes of bus overcrowding. Because the parties have failed to reach agreement, however, it is now incumbent upon the Special Master to determine what specific steps are needed to achieve compliance with the dictates of the Consent Decree.

III. POSITIONS OF THE PARTIES ON THE PROPOSED LOAD FACTOR REMEDIAL PLANS

For the most part, the information relied upon by the parties in the preparation of their remedial plans has been developed by the MTA and the BRU through the cooperative efforts of the JWG. Thus, there exists a common source of data that both parties generally accept. Both parties have undertaken a thoughtful analysis of these data and, while they agree on certain points, they have reached widely different conclusions on the causes of, and remedies for, the MTA's load factor noncompliance.

Significantly, both parties agree that approximately half of the incidents of load factor exceedence are attributable to "missing buses"—buses that are in the active fleet and scheduled for service, but are unable to provide service on a particular run because they are not operable, the driver is not available, or the bus experiences an in-service failure. The parties also agree that most of the load factor exceedence attributable to missing buses is a result of the poor reliability of an aging bus fleet and a fleet which has experienced substantial mechanical difficulties with the use of alternative fuel vehicles. MTA's Opening Brief Re Load Factor Reduction Plan at 5-6 (filed Feb. 8, 1999) ("MTA Br."); Bus Riders Union Remedial Plan for

Meeting Load Factor Requirements of Federal Consent Decree at 3-4 (filed Dec. 11, 1998) ("BRU Remedial Plan").

The parties disagree, however, on the other 50% of the causes of load factor exceedence. The MTA believes that 29% of these LFT exceedences are attributable to poor schedule adherence – the fact that a bus arrives early or late and therefore creates overcrowding situations that a properly managed schedule would avoid. The MTA believes that the remaining 19% is attributable to an insufficient number of buses on the routes. The BRU, on the other hand, believes that 50% to 60% of the causes of overcrowding is attributable to insufficient capacity and that poor schedule adherence is negligible as a cause of overcrowding. Chart A provides a comparison of the causes of overcrowding as analyzed by the MTA and Plaintiffs.

Since the MTA and the Plaintiffs disagree about at least half the universe of load factor exceedence, it is perhaps not surprising that they also differ considerably on the remedies that are needed to address these causes. Charts B and C provide a comparison of these proposed remedies. The following subsections summarize the respective positions of the parties, which are set forth more completely in their briefs and proposed plans.

A. The MTA's Causal Analysis and Proposed Remedial Plan

In order to determine the causes of its load factor exceedences, the MTA has undertaken an analysis of point check data compiled during 1998 on the 20 highest ridership bus lines and reviewed historical reports on cancelled daily bus runs and service delays. MTA Br. at 3.³ The MTA staff used these data to prepare spreadsheets detailing each instance of overcrowding as a basis for analysis of the primary cause of each instance of overcrowding. The MTA concluded that of the 1,369 instances of overcrowding observed in 1,424 point checks, missing trips accounted for more than one-half of all occurrences (51.7%). *Id.* at 5. Poor schedule adherence

³ Trained MTA and BRU personnel conduct "point checks" by counting the number of bus passengers standing when a bus arrives at a designated bus stop.

was found to be the primary cause of 29.1% of the observed overcrowding. *Id.* Insufficient capacity (*i.e.*, not enough buses) was the primary cause of the remaining 19.2% of all instances where the LFT was exceeded. *Id.* The MTA's remedial plan is designed to allocate resources to address these causes of overcrowding proportionately.

1. Missed trips.

As noted above, the MTA attributes 51.7% of instances of overcrowding to "missed trips." Under the MTA's analysis, "missed trips" include: (1) trips that were scheduled but missed because the bus was not able to provide service for any number of reasons; (2) trips that were missed due to the unavailability of an operator; and (3) trips that were missed due to an incident occurring while the bus was in service (*e.g.*, "in service failure"). MTA Br. at 5-6. "In service failures" include mechanical breakdowns, accidents, passenger incidents, traffic delays, and other events that can cause a scheduled bus not to complete its assigned route.

The MTA points out that in its continued effort to improve air quality in Southern California – an issue of enormous concern in the Los Angeles basin – it has acquired alternative fuel buses that do not have the demonstrated record of reliability that more traditional diesel-powered buses have developed over the years. *Id.* at 6. The MTA notes the following problems with its alternate fuel buses that have substantially decreased the reliability of its peak fleet: (1) some 300 buses, most of them alcohol-fueled, are not currently in use due to engine failure, (2) 594 compressed natural gas (CNG) buses have exhibited substantial reliability problems, and (3) due to the problems encountered with the reliability of new alternate fuel buses, the MTA has retained some 910 buses in the fleet that exceed the 12-year age for planned retirement. *Id.* The MTA's plan addresses the first sub-category of missed trips, the unavailability of equipment, by improving the availability of buses through warranty defect corrections, engine replacements, improved maintenance, and the acquisition of more modern, reliable equipment. The MTA

proposes the following specific steps to address the missed trips cause of load factor exceedence that is attributable to the lack of an operable bus. *See Id.* at 7-14.

(a) Accelerated replacement plan.

The MTA Board of Directors has recently adopted an accelerated bus procurement plan to provide for 1,237 new buses over the next three fiscal years (through FY02). MTA Br. at 7. One-half of these buses will be delivered within the next 18 to 24 months. *Id.* The MTA's replacement schedule for fiscal year 1998 through fiscal year 2004 provides for the accelerated procurement of 2,095 buses, which constitute 782 buses over and above what had initially been planned for this period at the time the Consent Decree was approved. *Id.* at 8.⁴ The additional cost is almost \$300 million. *Id.* This accelerated program is intended to improve the condition of MTA's fleet and thereby reduce the number of missed trips due to the lack of operable equipment. It also is intended to reduce the number of missed trips due to service failures or bus breakdowns.

(b) Conversion of ethanol buses.

The MTA contends that an additional cause of "missed trips" can be attributed to the extreme unreliability of the approximately 333 ethanol buses, which the MTA purchased between 1989 and 1992. MTA Br. at 9. The MTA asserts that, in the later years of operation, alcohol engines have failed at an average of 30,000 miles compared to 120,000 miles between failures for comparable diesel engines. *Id.* To remedy these problems, the MTA has begun to

⁴ In December 1998, MTA completed a contract with Neoplan for the acquisition of 100 high-floor CNG buses. The delivery of these buses is scheduled to begin in March 1999. *Id.* at 8. In October 1997 the MTA entered into a contract with New Flyer for the acquisition of 223 high-floor CNG buses. *Id.* These buses are expected to be delivered starting in July 1999. *Id.* In October 1998, the MTA entered into a contract with NABI for the acquisition of 215 low-floor CNG buses, and delivery for these buses is scheduled to begin in December 1999. *Id.* The acquisition of these 538 buses, which are expected by June 2000, will decrease the average age of the MTA fleet from nine and one-half years to approximately six years. *Id.* In addition, in August 1998, the MTA purchased 20 New Flyer low-floor buses from ATC/Vancom of Las Vegas. *Id.* at 10. These buses were put into service on November 11, 1998. *Id.*

convert the ethanol buses to diesel at the rate of 15 buses per month, and plans to complete the conversion program by December, 1999. *Id.* The MTA has found that the buses converted to diesel so far have demonstrated significant improvement in their performance. *Id.*

(c) Correction of warranty defects in CNG buses.

According to the MTA's analysis, correction of warranty defects will also serve to address the problem of "missed trips." MTA Br. at 10. The CNG fleet of buses has experienced fuel tank failures, bus fires, and problems with a variety of engine and fuel-system-related components. *Id.* The MTA has worked with the manufacturer to develop protection shields for installation under the fuel tanks and heat wraps to protect the buses from catching on fire should the exhaust system malfunction. *Id.* The bus manufacturer is expected to complete retrofit work on the buses to improve their reliability and performance. *Id.*

(d) Better management of operator availability and hiring.

The MTA has found that the lack of an operator (bus driver) accounted for about 7% of the missed trips occurring between January to August 1998. MTA Br. at 11. The MTA believes that this problem is not caused by an insufficient number of operators, but by the need for better management of the available operators. *Id.* To address these concerns, the MTA recommends various management steps including ensuring that operators not take vacations at the same time and that the right number of operators are assigned to each shift at each division. Instead of hiring more operators, the MTA recommends varying the rate of hiring to match seasonal trends in the need for operators. *Id.*

(e) Reduction of in-service failures.

The MTA has also concluded that accelerated replacement and improved reliability of alternate fuel buses will reduce the number of missed trips caused by in-service failures. *Id.* at

12. The MTA proposes to test a "staged" buses program, increase maintenance staffing, and provide for additional training of maintenance personnel. MTA Br. at 12-13. Under the "staged" buses program, up to ten buses will be stationed on call at five locations during peak hours. *Id.* at 12. The MTA believes that this will enable it to respond quickly to service disruptions and to reduce the amount of time lost between the trouble call, loss of service, and replacement. The MTA plans to test and evaluate this program in 1999. *Id.* at 11.

In addition, since July 1998, the MTA has hired up to 53 additional mechanics, which has resulted in improvements in the ratio of past-due, critical preventive maintenance program repairs and an increase in the miles between total road calls ("MBR"). *Id.* at 13-14. The MTA has set an objective to increase the MBR from 700 in July 1998, to 2000 by June 2000. *Id.* at 14. The MTA notes that the Cancellations and "Out Lates" of buses were reduced to less than 1% by November 1998 compared with over 3-1/2% in August 1998. *Id.* According to the MTA, these improvements are a direct result of increased emphasis on maintenance issues. The MTA contends that it now has a sufficient number of mechanics to achieve these goals. *Id.* The MTA also plans to improve training for mechanics. *Id.*

(f) Other actions.

The MTA's remedial plan includes other actions to reduce overcrowding. These include training for bus operators to improve consistency of actions and deployment of Operations Supervisors at recurring problem sites. MTA Br. at 15. In addition, the MTA plans to procure and install automated passenger counters (APCs) on 20% of the fleet to provide more reliable tracking on overcrowding and will initiate a pilot project to utilize TRS for vehicle tracking and remote supervision, which will allow the MTA to provide faster in-service control and to make adjustments in real time. *Id.*

2. Schedule Adherence

The MTA's causal analysis and remedial plan are premised on the assumption that proper management of schedule adherence is crucial to the even distribution of passenger loads throughout the day. In theory, a bus running early increases the likelihood that the next bus will be forced to pick up a substantially greater load of passengers, and buses departing excessively late also cause overcrowding. MTA Br. at 15. The MTA's analysis concludes that 29.1% of the instances of overcrowding are due to poor schedule adherence by MTA operators.⁵ *Id.* at 16.

To improve schedule adherence, the MTA recommends several steps. First, the MTA suggests the deployment of additional on-street supervisors to force operators who "run hot" (*i.e.*, run ahead of schedule) to adhere to the schedule.⁶ *Id.* Second, the MTA intends to enforce more strictly its collective bargaining agreement by taking disciplinary action against operations personnel for rule violations that impact on-time performance. *Id.* The MTA also recommends making use of automated passenger counters and radio system monitoring techniques for better identification of problem routes, runs and operators. *Id.* at 17. Finally, the MTA plans to delegate additional responsibilities to the Transportation Division Dispatchers to enable the reduced number of Transit Operations Supervisors to focus on schedule adherence. *Id.* at 18. The MTA cites the successes of the San Diego and Minneapolis transit systems as evidence that on-site supervision can improve schedule adherence. *Id.* at 17-18.

3. Insufficient Scheduled Service

The MTA also concludes, based on its analysis, that 19.2% of the instances of overcrowding are due to insufficient scheduled service. MTA Br. at 19. To address this

⁵ MTA's data reveal that early arrivals were found to cause 18% of such occurrences while excessive lateness was the cause of the remaining 11%. *Id.* at 16.

⁶ The MTA has tested this approach over a two week period on Line 33 which runs from downtown Los Angeles, via Venice Boulevard, to the City of Santa Monica, a line that has experienced an usually high number of instances of overcrowding attributable to poor schedule adherence. According to the MTA, there was a 31% decline in the number of load factor violations, from 42% to 29%, as a result of improved schedule adherence during the demonstration period. *Id.* at 17 and Woodbury Decl. ¶¶ 16, 17. See also BRU Op. Br. at 22-23; MTA Rp. Br. at 5.

problem, the MTA proposes to add 30 buses to the peak fleet. *Id.* Moreover, to meet the load factor targets of 1.25 by June 2000, the MTA proposes adding, no later than December 1999, 130 additional buses to the peak fleet (over and above the 30 buses mentioned above). *Id.* at 19-20.

In designing a remedy for this factor, the MTA has submitted an analysis of the 20 most overcrowded lines conducted by various MTA personnel responsible for designing bus schedules ("Schedule Makers"). This analysis includes recommendations on how to address the specific causes of overcrowding for each of the lines, utilizing various schedule adjustments such as short-lining, adjusting headways, deadheading, interlining, and re-tieing. *Id.* at 20-21. The analysis by the MTA's Schedule Makers also includes recommendations on how many additional buses would be required to meet both the 1.35 and 1.25 load factor targets. Based on the analysis of these Schedule Makers, the MTA concluded that 160 additional buses would be required to ensure compliance with the Decree. *Id.* at 46.

B. BRU's Casual Analysis and Remedial Plan

Taking into account both the MTA and the BRU point check data, the BRU has conducted a violation by violation analysis of the peak hours, between January and September 1998, on the 75 lines that the MTA and the BRU agreed were in violation of the Consent Decree. See Mapping of Load Factor Violations, Weekday A.M. and P.M. Rush Hours (75 Lines) (dated Dec. 11, 1998) (Administrative Record ("AR") Tab 59 ("BRU Analysis")). In this analysis, every violation was matched to its schedule to determine if all the scheduled buses arrived, and, if so, what time they arrived and how many people were on the buses. From this analysis, Plaintiffs concluded that there were two primary sources of load factor violations: (1) scheduled buses not arriving at all (40%-50%), and (2) not enough buses even when all the scheduled service arrived (50%-60%). See BRU Remedial Plan at 3-4. The BRU attempted to code every violation on every line according to these two primary causes. In conducting its mapping analysis, the BRU relied on MTA and BRU data showing the full extent of the MTA's historical

noncompliance recorded from January 1, 1998 and then analyzed these data using the 20-minute sliding-window periods. In tailoring a remedial plan to cure the massive violations, the BRU addressed both the violations caused by missing buses and the violations caused by insufficient capacity. *Id.*

1. Remedies for Missing Bus Violations.

The BRU's plan to remedy the approximately 50% of load factor violations caused by missed trips aims to improve the reliability of the operating fleet through modernization and engine replacement and by hiring additional operators and mechanics. The specific proposals include requiring the MTA to:

- Purchase 333 new CNG buses over and above the MTA's accelerated procurement plan to provide for the replacement of all buses over the federal 12-year/500,000-mile retirement standard by the June 2000 load factor target.
- Replace engines in methanol/ethanol fleet.
- Complete CNG warranty program.
- Hire 112 operators to increase the operator spare ratio to 1.20.
- Hire 64 mechanics to expand preventative, critical and general maintenance.
- Expand maintenance training and supervision.
- Create/expand recurring defects analysis program.
- Improve spare parts management.
- Improve management of emergency service for bus accidents, advance notice of special events, traffic management, and radio system.

BRU Remedial Plan at 5-6.

2. Remedies for Insufficient Capacity.

The BRU's remedial plan addresses the serious problem of insufficient capacity by first analyzing how many additional bus trips are needed to achieve the load factor targets for each bus line. *Id.* at 6-8. The BRU's analysis concludes that additional service is required on 57 lines to meet the 1.35 and 1.25 LFTs. *Id.* at 6. To provide this level of service, the BRU recommends the immediate purchase of 348 additional buses (plus 70 spares) to meet the 1.35 target, and 157 additional buses (plus 31 spares) to meet the 1.25 target. Reducing this total of 606 buses by the 53 buses that MTA already has planned for expansion, the BRU recommends that the MTA expand its fleet by procuring 553 new CNG buses. Opening Brief for Plaintiffs and the Plaintiffs Class at 33 (filed Feb. 8, 1999) ("BRU Br."). The BRU also recommends increasing the Operator Availability Ratio ("OAR") from 1.16 to 1.20 and hiring 184 additional mechanics. BRU Remedial Plan at 7, 5.

Additionally, because the bus procurement process generally takes 18 months, the BRU's plan would require the MTA to lease immediately 348 new CNG buses to meet the 1.35 target until the purchased buses arrive. BRU Br. at 33.

Finally, Plaintiffs contend that Section ILB of the Consent Decree requires the MTA to add into service 102 additional buses (*i.e.*, buses in addition to those already planned for replacement purposes). *Id.* at 36.

3. Monitoring and Reporting.

The BRU points out that the MTA has reduced its point check/ride check staff from approximately 60 to 29. BRU Remedial Plan at 7. The BRU recommends that the MTA continue the frequency of checks at two times a month on the top 20 lines and increase the frequency of point checks to two times a month on the rest of the 55 lines. *Id.*

In addition, in order to monitor overcrowding more effectively, the BRU proposes that the MTA prepare a quarterly report that tracks all remedial action, per line and system-wide, including:

- (a) Cancelled and late runs totaled for each month;
- (b) Equipment failures in-service listed by amount, reason, bus series and line;
- (c) Missing operators summarized by reason per month;
- (d) Point check data matched to scheduled times and bus runs, with analysis of every violation; and,
- (e) A mapping of every load factor violation for each line over time.

Id. at 7-8.

IV. ANALYSIS OF ISSUES AND FINDINGS.

A. Causes of Load Factor Violations.

1. Load Factor Data.

Under the Consent Decree, a violation occurs when the *average* load factor on any bus line during any sliding 20-minute (non-overlapping) period during the peak morning or evening rush hours exceeds the load factor target. See Order Re Plaintiffs' Motion for Reconsideration (filed Aug. 25, 1998). The fact that a particular bus or several buses carry more than 15 standing passengers and thus exceed the 1.35 ceiling will not result in a violation unless the *average* load factor for a non-overlapping 20-minute rolling period exceeds 1.35. Furthermore, it is important to keep in mind that the determination of load factor exceedence is based on MTA and BRU point check data that monitored only a sample of the number of bus trips from November 1997 through September 1998. Consequently, the "violations" are only representative of the extent of overcrowding. Nevertheless, the general consistency of BRU and MTA data generally establish the validity of the sampling size.

In the analysis supporting its remedial plan, the BRU relied upon incidents of exceedence during the entire period from November 1997 through September 1998 and utilized, properly, the sliding 20-minute window. The BRU also provides the data for all 77 lines. *See* BRU Analysis. The MTA, on the other hand, apparently conducted its analysis using a static 20-minute window, limited the incidents of violation to more recent occurrences, and focused on the 20 most heavily traveled lines. *See* MTA Br. at 20; *see also* Deposition of Frank Schroder at 79:17 – 80:6 (dated Jan. 13, 1999). Therefore, the data concerning line by line violations relied upon by the BRU in fashioning its remedial plan are more comprehensive and useful in analyzing the causes of load factor exceedence. This is not to say that the conclusions that the BRU draws from its analysis of these data are always correct. However, the BRU's data provide a more comprehensive picture from which to determine line-by-line causes of load factor violations and serves as a basis for tailoring appropriate remedies to the problem of overcrowding.

2. Causes of Overcrowding.

The parties generally agree that about half of the incidents of overcrowding are attributable to missed trips resulting from the unavailability of a bus, the unavailability of an operator or in-service failure. MTA Br. at 3-5; BRU Remedial Plan at 3-4; *see also* Declaration of Dana Woodbury ¶ 8 (dated Feb. 8, 1999) ("Woodbury Decl.").

They differ sharply on the other half. The MTA found that 29% of overcrowding was caused by poor schedule adherence and that only 19% was a result of insufficient capacity. MTA Br. at 5; Woodbury Declaration ¶¶ 8-9. The BRU, on the other hand, found that 50%-60% of the load factor violations were caused by insufficient capacity and accorded negligible weight to poor schedule adherence as a cause of overcrowding. BRU Remedial Plan at 4.

The gap between the parties on this issue, however, may not be as large as it seems. The MTA acknowledges that improved management of schedule adherence cannot eliminate 29% of

the load factor violations and that it is very difficult to reduce late arrivals through schedule management alone. *See, e.g.,* Woodbury Decl. ¶ 28 (schedule adherence can only remedy one out of six violations). Moreover, the BRU does not deny that improvements in schedule adherence, especially in combination with other factors such as added capacity, will reduce instances of overcrowding. *See* Declaration of Thomas Rubin ¶ 42 (dated August 14, 1998) ("Rubin Decl.").

As discussed more fully below, a combination of remedies, including accelerated replacement, fleet expansion and better schedule adherence, are necessary to meet the LFTs. While I believe that the MTA overstates, and the BRU understates, the extent of poor schedule adherence as a cause of overcrowding, I do not believe that it is necessary to allocate a specific causal percentage to schedule adherence to design an interactive remedial plan.

B. Remedy for "Missing Buses"

The MTA and the BRU agree that most of the violations attributable to missing buses can be cured by substantially improving the reliability of the fleet. BRU Remedial Plan at 5; MTA Br. at 7. They further agree that the conversion of the ethanol buses and warranty repair of the CNG buses are important to improved reliability. BRU Remedial Plan at 5; MTA Br. at 9-10. Finally, they agree that reliability can be enhanced by the retirement and replacement of older, less reliable diesel buses in the fleet. BRU Remedial Plan at 5; MTA Br. at 7-8.

BRU bases its proposed remedy on the fact that under the MTA's accelerated procurement plan there will be 599 buses over the 12-year/500,000-mile retirement limit in June 2000, the date by which the 1.25 load factor target must be achieved. BRU Remedial Plan at 5. After the conversion of the ethanol/methanol fleet, the MTA will still have 333 buses over the 12-year/500,000-mile mark. Thus, the BRU proposes the immediate procurement of 333 buses for delivery prior to June 2000. *Id.*

It is beyond question that the MTA's active fleet has become older in recent years. The size of the MTA bus fleet has steadily declined from FY93 through FY97 while, at the same time, the age of the fleet has steadily increased during the same period. See Mundle & Associates, Review of CACMTA's Bus Operating Plans at V-2 (dated Mar. 1998) (AR Tab 77). The percentage of buses that exceeded 12 years of age in June 1997 had increased to 45%. *Id.* at Exh. V-5. Excluding the methanol buses from the age calculations (which have had significant unreliability problems), the percentage of the fleet that exceeded 12 years in June 1997 was 52%. *Id.* at Exh. V-6.

Nor is there any dispute that the continued use of older buses has led to increasingly frequent and expensive maintenance and has increased the number and severity of breakdowns. As of July 27, 1997, the MTA had a total of 2,416 buses, of which 2,103 were in the active fleet and only 1,666 were operational. *Id.* at V-2.⁷ According to MTA's statistics, there were 333 cancelled runs in FY94 compared to 7,093 in FY98. See MTA Cancelled and Late Runs FY93 Through FY98, AR Tab 84. In addition, there were 3,681 late runs in FY94 compared to 15,079 in FY98. BRU Br. at 10.

To address the problems associated with a rapidly aging fleet, the MTA Board approved an accelerated bus replacement schedule in October 1998. In his declaration, Mr. John Drayton, MTA's Acting Director for Vehicle Acquisition, Technical Support, Warranty and Reliability, points out that as a result of this accelerated bus procurement plan, the MTA will be receiving over 1,237 new buses over the next three fiscal years (through FY02). Declaration of John Drayton ¶ 4 (dated Feb. 8, 1999) ("Drayton Decl."). One half of these buses will be delivered within the next 18-24 months. *Id.* ¶ 5. At the time the Consent Decree was entered in October 1996, the MTA's replacement schedule for Fiscal Year 1998 through Fiscal Year 2004 was 1,313 buses. As a result of the accelerated procurement plan, the MTA's replacement schedule

⁷ The total fleet included buses that were used by private contractors and buses that were retired from service.

will provide 2,095 buses over the same period of time. This represents a procurement of 782 buses over and above what had initially been contemplated for this period, at an additional cost of almost \$300 million. *Id.*

The BRU points out, however, that most of these replacement vehicles will not arrive by June 2000 in time to meet the 1.25 LFT. BRU Br. at 19-20. In fact, under the accelerated plan, there will actually be a decrease by 26 buses from the number of buses previously scheduled to arrive in this fiscal year (FY99) and a net increase of only 203 buses in FY99 and FY00, which will be delivered by June 2000. *Id.* Section II of the Decree requires the Special Master to design a remedy that will meet the 1.35 load factor target "as soon as possible" and the 1.25 target by June 2000. The accelerated arrival of buses after June 2000 undoubtedly will prove necessary to meet and maintain subsequent reduced load factor targets, but this is not a remedy for the violations which have already occurred.

Nevertheless, the MTA has set in motion a number of specific steps that will have a measurable effect on meeting the June 2000 LFTs. MTA Br. at 7-10. First, the MTA currently has contracts for the acquisition of 538 buses, expected to be delivered by June 2000, which will decrease the average age of the MTA fleet from 9-1/2 years to approximately 6 years. *Id.* at 8. Second, the MTA will complete the conversion of 333 ethanol buses, which have been extremely unreliable, into diesel buses by December 1999. *Id.* at 9. Third, the MTA will complete the repair of defects pursuant to warranty on 594 new CNG buses by May 1999. *Id.* at 10. Finally, the MTA purchased 20 low floor buses from Las Vegas which were placed in service on November 11, 1998 after corrective repairs were completed. *Id.*

It is evident that the MTA's accelerated bus procurement program, approved by the Board last October, is a critical step that is fully consistent with the objectives and spirit of the Consent Decree. The evidence supports the conclusion that this accelerated program will improve the condition of the MTA's fleet by reducing the number of missed trips caused by the lack of operable equipment and service failures. I am persuaded that the combination of these

new, converted and repaired buses, which total 1,485, will substantially improve the reliability of the fleet prior to the June 2000 load factor target. Moreover, the replacement program is consistent with the practical reality of efficient procurement planning and bus deliveries. The accelerated procurement schedule will stagger the delivery of buses. As Mr. Drayton points out, it is impractical to replace a bus fleet all at once due to the physical constraints of receiving a large number of buses all at one time as well as the problems that are created when an entire fleet gets old and must be replaced at the same time. Drayton Decl. ¶ 4.

In my view, the BRU has underestimated the extent to which the elimination of many of the most unreliable buses from the fleet and their replacement with 1,485 new, converted and repaired buses before June 2000 will substantially improve the reliability of the MTA's active bus fleet and therefore reduce significantly the number of incidents of overcrowding that are attributable to missing buses. Moreover, the evidence suggests that the MTA's accelerated bus procurement program will contribute to significant improvement in overall fleet reliability. From FY98 through June 2000, the MTA plans to obtain 895 new buses, 240 more replacement buses than scheduled under the previous plan. If executed on time, the average age of the fleet will be reduced from 9.73 in FY99 to 7.66 by June 2000. 1998 Bus Procurement Plan and Summary Age of Fleet at 2 (AR Tab 66). While a vehicle that has reached the 12-year/500,000-mile threshold is eligible for replacement with federal assistance, it is not absolutely essential that no bus be allowed to operate beyond this threshold. Indeed, some of the older buses in the MTA's fleet have been more reliable than some of the newer alternative fuel vehicles.

While the BRU's goal of retiring *all* buses exceeding this threshold by June 2000 is laudable, I am not persuaded that this further step is necessary to eliminate the load factor violations attributable to inoperable buses or in-service breakdowns. With the delivery of 437 replacement buses in FY00 -- the highest annual level in the accelerated plan -- the MTA should be able to retire vehicles with a history of mechanical problems. *Id.* at 1. With operating spares, the MTA should have a far more reliable fleet.

For these reasons, I have concluded that it is not necessary to direct the MTA to purchase immediately the additional 333 new CNG buses to address the "missing bus" cause of load factor exceedence. I find that the MTA's engine conversion and warranty repair program, together with the accelerated bus replacement plan, should be sufficient to remedy the violations caused by inoperable buses. Since additional buses will be required to address the "insufficient capacity" cause of load factor exceedence, *see* Section IV.F below, there are limits as to how many new buses the MTA can procure and assimilate in one fiscal year, and, in my judgment, the immediate need for additional capacity is more critical at this point in meeting the LFTs. However, should the MTA modify or scale back its accelerated bus replacement plan or fail to make timely conversions or warranty repairs to alternate fuel vehicles, additional measures may be required at that time.

C. Operator Availability.

The BRU also contends that the current operator assignment ratio (OAR) of 1.16 is inadequate to ensure a cushion of reserve operators to cover for illness, military leave, court duties, discipline and other events that prevent operators from being available to work. Although the MTA notes that the lack of operator availability accounted for 7% of the missed trips that occurred between January and August 1998, it rejects the BRU's proposal to solve this problem by increasing the OAR from 1.16 to 1.20, which would require approximately 112 new bus operators at an annual increased cost of \$6 million. *See* Declaration of Gary Spivack ¶¶ 11-13 ("Spivack Decl.").⁸ Instead, the MTA plans to improve the management of available operators by ensuring that the right number is assigned to each shift, coordinating vacations, and studying how to establish specific OAR levels for each division.⁹ *Id.* ¶ 12.

⁸ There seems to be an inconsistency in the MTA's position with respect to operators. Mr. Woodbury states in his declaration that "the hiring of additional operators will ensure that schedule assignments are filled." *See* Woodbury Decl. ¶ 20. In contrast, Mr. Spivack claims that hiring more operators is "a simplistic solution" and is "not cost-effective." *See* Spivack Decl. ¶ 12.

⁹ It is difficult to understand why these types of improvements have not already been made given that the load factor reduction requirements have been in place since October of 1996.

In my view, the record does not justify a mandatory increase of the OAR at this time. Nonetheless, the MTA needs to take whatever steps are necessary to comply with the requirements of the Decree by substantially eliminating the number of missed trips attributable to operator unavailability. If this objective is not achieved by the end of December 1999, through the management reforms proposed in the MTA's plan or by other appropriate steps taken by the MTA, then it will be necessary to consider further action in this area. Under the new reporting requirements set forth *infra* at V.8, the MTA is directed to report, on a quarterly basis, its progress in meeting this objective.

D. Other MTA Proposals to Address Reliability.

1. Staged Bus Project. The MTA also proposes a "staged" bus pilot project of up to ten buses (at an initial five locations) during peak hours on some of the most crowded lines. MTA Br. at 12-13. The MTA states that this program will enable it to respond quickly to service disruptions and mechanical malfunctions and to adjust headways to reduce overcrowding. *Id.* at 12. This program will be in place during 1999 as a temporary program and will be reevaluated before it is implemented further. *Id.* at 13.

Given the severity of the "missing bus" problem, the MTA is directed to proceed with the implementation of this pilot project. While it is hoped that the results will be helpful in reducing overcrowding, it is not possible to conclude at this time that this is a long-term solution to the load factor exceedence problem under the Consent Decree. The MTA shall report on the results of this pilot project in its Quarterly Report to the Special Master.

2. Mechanics. The BRU has recommended, as part of its remedial plan, an increase of the current mechanic workforce by approximately 184 new mechanics. BRU Remedial Plan at 5. The MTA opposes the plan, noting that the number of mechanics was increased by 47 in July 1998, and was further increased by six mechanics during the recent mid-year budget adjustment. MTA Br. at 13. The MTA also has set some specific goals and claims

significant progress already in meeting them. For example, the MTA plans to increase mean miles between total road calls (MBR) from 700 in July 1998 to 2,000 by June 2000 (and states it has achieved an average of 1,047 miles in recent months.) *Id.* at 14.

The evidence presented in the Administrative Record does not necessitate a finding at this time that the additional mechanics recommended by the BRU are necessary. The MTA must take all reasonable steps to ensure that it has in place an adequate workforce of mechanics to meet the LFTs as required by the Consent Decree. However, it is up to the MTA to determine specifically the number of mechanics that will be required for compliance and to include this information, as well as the progress it is making in achieving its goals in this area, in its Quarterly Reports.

3. Automation. The MTA includes in its remedial plan the procurement and installation of APCs on 20% of the fleet. It also recommends a pilot project to utilize TRS for vehicle tracking and remote supervision, thereby providing faster in-service control and adjustments. *See Spivack Decl.* ¶ 23; MTA Br. at 15. These appear to be useful actions which may facilitate monitoring and compliance in a timely and cost-effective manner. The MTA is directed to proceed with these steps as a component of the remedial plan to achieve compliance with the load factor targets established by the Consent Decree. *Id.*

E. Schedule Adherence.

The MTA attributes approximately 29% of the cause of load factor exceedence to failed schedule adherence, with approximately 63% of the scheduled adherence failures attributable to the early arrival of buses. MTA Br. at 5, 15; Woodbury Decl. ¶ 15. The MTA is not suggesting that 29% of the problem can be fixed through better management and on-street supervision of schedule adherence. It is suggesting, however, that improvements in on-street supervision and better enforcement of the collective bargaining agreement will result in a significant reduction of the incidents of overcrowding. While Plaintiffs apparently attribute no quantifiable load factor

improvement to better management of schedule adherence, they do recognize that "all else equal, maximizing schedule adherence will generally have a positive impact on reducing some overload conditions." Rubin Decl. ¶ 42. Nonetheless, the BRU asserts that the MTA significantly overstates the importance of schedule adherence to reduced load factors and compliance. BRU Br. at 20-24.

I have concluded that schedule adherence is a bit of a chicken-and-egg problem. It is as much a result of overcrowding as a cause of overcrowding. If sufficient buses are not provided on a route, then it follows that additional time will be required for passengers to board and disembark overcrowded buses, which will slow down travel speeds and cause the buses to fall behind schedule. Therefore, late buses may be in part a manifestation of insufficient capacity and unmet demand.

Moreover, there is ample evidence to suggest that there are a number of additional factors, clearly beyond the control of effective management of scheduling adherence, which contribute to the late arrival of buses. These include traffic accidents, street construction, crime and police action incidents, passenger incidents such as illness, disabled vehicles, weather-related delays, spiked increase in ridership demand due to special events and excessive traffic congestion due to any number of factors. See, e.g., MTA Br. at 15, 19; Rubin Decl. ¶¶ 42-43. On the other hand, there are remedial steps that are part of one or both of the proposed remedial plans that will have a positive effect on schedule adherence. These include adding additional capacity to handle passenger demand, refining bus schedules to reduce overcrowding, improving the reliability of buses to reduce in-service failures, and managing operator availability more successfully.¹⁰ MTA Br. at 5-19; BRU Br. at 30-33.

I have concluded that adding additional capacity, refining schedules, improving bus reliability, and better management of operator availability will work in conjunction with more

¹⁰ On balance, however, as the MTA concedes, it is not possible to place very much confidence in the elimination of late bus arrivals through more efficient management of schedule adherence even though it is anticipated that as various other components of the remedial plan are implemented, schedule adherence will improve and late bus arrivals will be reduced.

successful management of schedules to reduce load factor exceedence caused by poor schedule adherence. I expect that some progress will be made in reducing early arrivals. However, I find that mere efficient schedule adherence – without more – will not have a substantial impact on the problem of late arrivals. I would also note that while the MTA has taken steps to improve field supervision of schedule adherence, the ranks of transit operations supervisors (“TOS”) have been reduced from 385 in FY 1990 to only 186 today. MTA Br. at 18.¹¹

Therefore, I have given far less credence to schedule adherence as an effective remedy for load factor violations. Only in those instances where load factor exceedence appears to be attributable to the early arrival of buses, perhaps on a so-called “hot run,” have I given some weight to this component of the MTA’s remedial plan. I have concluded that it is probable that *some* load factor reduction can be achieved by reducing the number of buses that arrive early through better schedule adherence management, and by implementing plans to improve on-street supervision of schedule adherence with particular emphasis on eliminating early arrivals, *if* these remedies are executed in conjunction with others, as outlined in this Decision. Accordingly, the MTA should proceed with all of the schedule adherence improvements outlined in its remedial plan.

F. Remedy for Insufficient Capacity.

The MTA’s operations planning staff initially analyzed the instances in which the 1.35 load factor target was exceeded by reviewing the numerous point checks conducted during 1998 on the 20 highest ridership bus lines. The MTA’s analysis concluded that for 1,369 instances of overcrowding observed during 1,424 point checks, insufficient capacity (*i.e.*, not enough buses)

¹¹ The MTA proposes to refocus the efforts of the smaller TOS staff on street supervision by hiring additional Transportation Division Dispatchers (TDD) to handle duties unrelated to on-street supervision that are presently being handled by TOS staff, thereby allowing the TOS staff to devote their time to supervising the lines and providing instruction and training of operators. The MTA indicates that it is hiring retired TOS staff to serve as line regulators on an interim basis until additional personnel can be hired and trained, but the MTA has not indicated how many additional TOS personnel it plans to hire. The TOS staff formerly occupied with other duties are now in the field and form the basis of “Tiger Teams” who work in groups to monitor and patrol targeted lines. Spivack Decl. ¶ 8.

was found to be the primary cause of only 19.2% of all instances where the load factor targets were exceeded. MTA Br. at 5. The MTA proposes to meet the 1.35 load factor target as soon as possible by adding 30 buses to the peak fleet. According to the MTA, these 30 buses, which are already in the fleet, will reduce overcrowding to a *de minimis* level no later than June 1999. *Id.* at 19. To meet the load factor target of 1.25 by June 30, 2000, the MTA proposes adding 130 additional buses to alleviate instances of overcrowding due to insufficient scheduled service (66 buses in June 1999 and 64 buses in December 1999). *Id.* at 19-20.

The determination that 130 additional buses are needed to achieve the 1.25 load factor target was based on a detailed line-by-line analysis of service. The MTA claims that these additional 130 buses will permit the MTA to reduce overcrowding to a *de minimis* level consistent with a 1.25 load factor target on or before the June 2000 deadline. *Id.* at 20.

The BRU has also conducted its own line-by-line analysis of 75 bus lines to determine the number of expansion trips required to meet the load factor target. Essentially, the BRU calculated the number of expansion bus trips required by mapping insufficient capacity violations to determine the time period over which additional service would have to be added. An additional bus trip was added for every non-overlapping 20-minute period exhibiting at least one insufficient capacity violation. Bus trips were also added for time periods sandwiched between violation periods, or at the end of a range of violations. In some instances, the BRU calculated the number of bus trips by adjusting the "headways" (time between buses) and taking into account the "recycling" of buses. Under this analysis, the BRU calculated that a total of 606 buses would be required to meet the load factor targets. Subtracting the 53 additional buses that MTA already has scheduled to be purchased, the BRU has recommended an immediate purchase of 553 buses. Declaration of Ted Robertson ¶ 23 (dated Feb. 8, 1999).

The MTA argues that the BRU's bus acquisition plan is overstated because, among other things: (1) additional buses on selected bus lines in specific time periods are proposed, despite the absence of a documented history of overcrowding *within the specific time period*;

(2) additional buses are proposed although no documented incidence of overcrowding has occurred for many months; (3) there is no attempt to mitigate overcrowding resulting from poor schedule adherence other than by adding more buses; (4) bus trips are converted into a number of additional buses required by using a method that employs only one of many available scheduling techniques for economizing the number of buses needed to operate at a specified level of service; and (5) the BRU estimates of the number of additional buses needed to achieve the 1.25 load factor reduction target are inflated because they are based on an unreasonably high estimate of patronage growth over the next 18 months. MTA Br. at 49.

As indicated in the line-by-line analysis below, I have taken into account some of these criticisms and have adjusted the number of additional buses that would be required to meet the load factor targets as recommended by the BRU. I am not persuaded, however, that only recently documented incidents of overcrowding should be taken into account. Failure to meet the LFT on December 31, 1997 constitutes a "violation" and the pattern of LFT exceedence has continued throughout 1998. While substantial evidence of improvement may be taken into account on certain lines, there also may be seasonal variations which are relevant. It therefore is appropriate to consider violations that have occurred since January 1, 1998.

The MTA also maintains that it can provide a more cost-effective and efficient response to the need to reduce overcrowding through sophisticated scheduling techniques, which its highly-experienced Schedule Makers can undertake given their familiarity with the particular characteristics of the lines to which they are assigned.¹² The MTA believes that another common practice, involving deadheading buses (buses operating without passengers back to their starting points, thereby making them available sooner for additional trips), is also an efficient and effective response to overcrowding. Similarly, the MTA suggests that on some routes, where a bus is no longer needed on one line, the same bus can be employed on a nearby line to meet

¹² For example, when demand is not consistently high over all segments of a bus route, it is possible to operate a higher level of service over busy portions of a route and reduce levels of service over less heavily patronized segments. Additional buses can operate on the heavily patronized segments and then return for a second trip much sooner through a practice known as "short turn."

scheduled trip needs through a process called interlining. Finally, the MTA argues for a more elaborate technique, which involves repackaging the combination of trips that will be operated by each bus assigned to a line (known as re-tieing service) and adjusting headways (the time between buses). Declaration of Frank Schroder ¶¶ 5-7 (dated Feb. 8, 1999) ("Schroder Decl."); MTA Br. at 21-22. The MTA believes that its use of all of these techniques will reduce the number of additional buses that will be required to remedy lack of capacity.

In addition, the MTA states that it cannot assimilate the 553 additional buses proposed by the BRU because of the limited physical capacity of the MTA's facilities (e.g., room to park, ability to fuel, facilities to maintain). The MTA contends that its capacity is limited to an active fleet of 2,354 buses (including spares) within the current operating division structure. MTA Br. at 47. The MTA decided to close Division 12 (because of its cost-inefficient location) after the Consent Decree was executed, but even if this Division were reopened, it would apparently increase physical capacity by only 130 buses (including spares) to 2,484, at the additional annual cost of \$2 million. *Id.* The MTA states that it currently operates over 1,700 peak buses. *Id.* An increase of 553 peak buses over the next 18 months would require it to have the ability to garage and maintain an active fleet of 2,704 buses (1,700 plus 553 equals 2,253 plus 20% spares equals 2,704). *Id.* Since the MTA's available capacity at existing divisions will support an active fleet of 2,354 buses, the excess 350 buses over the MTA's capacity is the equivalent of one additional operating division. *Id.* Given the time required for funding, site location and acquisition, environmental planning, design and construction, the MTA contends that it would not be possible to provide this additional capacity within the timeframe recommended by the BRU. Declaration of Michelle Caldwell ¶¶ 4-5 (dated Feb. 8, 1999) ("Caldwell Decl.").

I do not find these arguments entirely persuasive. According to the Caldwell Declaration, the MTA currently has some excess capacity to accommodate additional buses. If Division 12 were reopened, the amount of excess capacity would increase by about 130 buses. It is also

possible, as suggested by the BRU, that temporary arrangements could be made to accommodate additional buses within existing facilities or at temporary locations. BRU Rep. Br. at 16-19. The record does not show that, with careful and innovative planning, the MTA would be unable to accommodate the additional buses called for in the remedial plan set forth below.

Having reviewed the Administrative and Supplemental Record, the Special Master finds that a significant cause of the load factor violations is a bus fleet that is simply too small for the ridership demands placed upon it. See Mundle & Associates, Review of LACMTA's Bus Operating Plans at V-9 (March, 1998) (showing the substantial decrease in the MTA fleet of total, active and operational buses over the last decade.) For example, on October 19, 1988 the MTA had a total fleet of 2,957 buses, 2,554 active buses, and 1,998 operational buses. On July 27, 1997, there were 2,416 total buses, 2,103 active buses, and 1,666 operational buses. *Id.* at V-2. AR 77.¹³ Given the evidence presented, an effective remedial plan must incorporate an increase in the size of the bus fleet. The Special Master's specific line-by-line findings are laid out below.

1. Meeting the 1.35 Standard.

In order to calculate how many additional buses are required for the MTA to meet the 1.35 LFT, the Special Master began by reviewing the point check data provided by the parties and contained in the Administrative and Supplemental Record. For each of the 75 lines found to be out of compliance, the Special Master then determined the time range in the A.M. peak period (6:00-9:00 A.M.) in which the "insufficient capacity" violations occurred between January and September 1998. Violations in the afternoon peak and base periods were also considered;

¹³ As noted in the BRU brief, on one day in July 1997, the MTA schedule required 1,743 buses to meet the afternoon peak, but there were only 1,666 operational buses that afternoon. The MTA was short 77 buses. BRU Br. at 9 (citing Mundle & Associates, Review of LACMTA's Bus Operating Plans at V-3 (March, 1998)). See also *Id.* at V-43 (Operational Buses Versus Peak Requirement).

however the vast majority of violations attributable to insufficient capacity were in the morning peak periods. Unlike the BRU plan, time periods reflecting no violations that were sandwiched between violation periods, or found at the end of a range, were not included. For each non-overlapping time period reflecting at least one such violation, an extra bus trip was added.¹⁴

To illustrate, data maintained on Line 1 show insufficient capacity violations between 6:00 A.M. and 6:20 A.M. and subsequently from 7:00 A.M. to 8:20 A.M. Since there are five (5) non-overlapping periods containing such violations, five extra bus trips are required. To determine the number of additional buses needed to run the additional trips, the Special Master considered the practice of "recycling" buses – i.e., one bus covering two expansion trips by finishing the initial route, turning around and servicing the route again. In the case of Line 1, for example, the evidence contained in the record reveals that five buses are needed to cover the five additional bus trips.

In conducting this line-by-line analysis, schedule adherence was considered, although much less credence was given to this factor. The Special Master reviewed the data available in the Administrative and Supplemental Record to determine if schedule adherence could completely account for the violations in any given 20-minute time period. If so, that period was excluded from the calculation of the additional trips required to remedy that line.

Moreover, the Special Master did take into account the MTA's advanced scheduling techniques such as deadheading, interlining and retying. However, given the excessive number of violations of the 1.35 LFT, which have continued during the past year, the record simply does not support the claims by the Schedule Makers that full compliance can be achieved on many of these lines by such scheduling techniques alone. Indeed, since the MTA has known the importance of meeting the LFT since October 1996, it must be assumed that many of these

¹⁴ Time periods containing multiple and recent violations coded as "unknown cause" by the BRU – i.e., violations color-coded black in the BRU's Mapping of Load Factor Violations (AR Tab 59) – were also sometimes included in this calculation because they reflect a pattern of overcrowding that is likely due in part to insufficient capacity.

techniques have been used (without great success) over the past few years. With the improved reliability of the fleet, it is expected that these techniques will be more effective in the future. Thus, the Special Master has taken into account the MTA's ability to employ such practices in reducing the number of additional trips and buses needed to remedy violations caused by insufficient capacity. For example, the Special Master eliminated additional bus trips for periods which showed no violations but were sandwiched between time periods with high concentrations of violations. Therefore, the MTA should exercise its full discretion in scheduling existing and added capacity to meet the LFTs as efficiently as possible, utilizing these techniques wherever possible; however, the MTA should be mindful that the Decree would not permit significant reductions, elimination, or reallocation of existing service to meet the load factor target. *See Memorandum Decision and Recommendation in re Late Night and Owl Service Modifications at 4-5; 15 (dated February 29, 1998).*

Applying the methodologies described above, the Special Master finds that 332 buses should be added to the peak fleet (277 buses + 55 spares (20%)) in order to meet the existing 1.35 load factor target. This calculation is broken down, line-by-line, as follows:

(1) Line 1.

Line 1 has exhibited insufficient capacity violations between 6:00-6:20 A.M. and 7:00-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that five additional buses are needed to bring this line into compliance with the 1.35 load factor target.

(2) Line 2.

Line 2 has exhibited insufficient capacity violations between 6:00-7:40 A.M. and 8:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses (servicing eight trips) are needed to bring this line into compliance with the 1.35 load factor target.

(3) Line 4.

Line 4 has exhibited insufficient capacity violations between 6:00-6:40 A.M., 7:00-7:40 A.M. and 8:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(4) Line 10.

Line 10 has exhibited insufficient capacity violations between 6:20-7:00 A.M. and 8:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that three buses are needed to bring this line into compliance with the 1.35 load factor target.

(5) Line 14.

Line 14 has exhibited insufficient capacity violations between 6:20-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses (servicing eight trips) are needed to bring this line into compliance with the 1.35 load factor target.

(6) Line 16.

Line 16 has exhibited insufficient capacity violations between 6:20-7:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(7) Line 18.

Line 18 has exhibited insufficient capacity violations between 6:00-7:40 and 8:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental

Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(8) Line 20.

Line 20 has exhibited insufficient capacity violations between 6:00-7:20 and 7:40-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(9) Line 26.

Line 26 has exhibited insufficient capacity violations primarily between 6:00-8:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(10) Line 28.

Line 28 has exhibited insufficient capacity violations between 6:20-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that five buses (servicing six trips) are needed to bring this line into compliance with the 1.35 load factor target.

(11) Line 30

Based on the Administrative and Supplemental Record, the Special Master hereby finds that no buses are needed to remedy this line at this time.

(12) Line 33.

Line 33 has exhibited insufficient capacity violations between 6:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the

Special Master hereby finds that seven buses (servicing eight trips) are needed to bring this line into compliance with the 1.35 load factor target.

(13) Line 38.

Line 38 has exhibited insufficient capacity violations between 6:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that eight buses are needed to bring this line into compliance with the 1.35 load factor target.

(14) Line 40.

Line 40 has exhibited insufficient capacity violations between 6:00-6:20 A.M., 6:40-7:00 A.M. and 7:40-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that six buses are needed to bring this line into compliance with the 1.35 load factor target.

(15) Line 45.

Line 45 has exhibited insufficient capacity violations between 6:20-8:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that five buses are needed to bring this line into compliance with the 1.35 load factor target.

(16) Line 53.

Line 53 has exhibited insufficient capacity violations between 6:20-7:20 A.M. and 7:40-8:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(17) Line 55.

Line 55 has exhibited insufficient capacity violations between 6:20-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that eight buses are needed to bring this line into compliance with the 1.35 load factor target.

(18) Line 60.

Line 60 has exhibited insufficient capacity violations between 6:00-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(19) Line 66.

Line 66 has exhibited insufficient capacity violations between 6:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that nine buses (servicing 10-12 trips) are needed to bring this line into compliance with the 1.35 load factor target.

(20) Line 68.

Line 68 has exhibited insufficient capacity violations between 6:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that nine buses are needed to bring this line into compliance with the 1.35 load factor target.

(21) Line 70.

Line 70 has exhibited insufficient capacity violations between 7:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the

Special Master hereby finds that six buses are needed to bring this line into compliance with the 1.35 load factor target.

(22) Line 76.

Line 68 has exhibited insufficient capacity violations between 7:00-8:00 A.M. and 8:20-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that five buses are needed to bring this line into compliance with the 1.35 load factor target.

(23) Line 78.

Line 78 has exhibited insufficient capacity violations between 6:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that nine buses are needed to bring this line into compliance with the 1.35 load factor target.

(24) Line 81.

Line 81 has exhibited insufficient capacity violations between 6:00-6:20 A.M. and 6:40-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(25) Line 90.

Line 90 has exhibited insufficient capacity violations between 6:20-7:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(26) Line 94.

Based on the Administrative and Supplemental Record, the Special Master hereby finds that no buses are needed to remedy this line at this time.

(27) Line 105.

Line 105 has exhibited insufficient capacity violations between 6:20-7:00 A.M., 7:20-7:40 A.M. and 8:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(28) Line 108.

Line 108 has exhibited insufficient capacity violations between 6:00-7:40 A.M. and 8:00-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that six buses are needed to bring this line into compliance with the 1.35 load factor target.

(29) Line 110.

Line 110 has exhibited insufficient capacity violations between 6:40-7:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that one bus is needed to bring this line into compliance with the 1.35 load factor target.

(30) Line 111.

Line 111 has exhibited insufficient capacity violations between 6:40-7:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that one bus is needed to bring this line into compliance with the 1.35 load factor target.

(31) Line 152.

Line 152 has exhibited insufficient capacity violations between 6:00-6:40 A.M. and 7:00-7:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(32) Line 161.

Line 161 has exhibited insufficient capacity violations between 6:00-6:20 A.M., 6:40-7:00 A.M. and 7:40-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses (servicing five trips) are needed to bring this line into compliance with the 1.35 load factor target.

(33) Line 163.

Line 163 has exhibited insufficient capacity violations between 6:20-7:20 A.M. and 7:40-8:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(34) Line 165.

Line 165 has exhibited insufficient capacity violations between 6:20-7:40 A.M. and substantial violations between 3:00 P.M.-6:00 P.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that nine buses are needed to bring this line into compliance with the 1.35 load factor target.

(35) Line 166.

Line 166 has exhibited insufficient capacity violations between 6:00-7:00 A.M. and substantial violations between 3:40-5:40 P.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(36) Line 175.

Based on the Administrative and Supplemental Record, the Special Master hereby finds that no buses are needed to remedy this line at this time.

(37) Line 180.

Line 180 has exhibited insufficient capacity violations between 6:00-6:20 A.M. and 6:40-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that six buses are needed to bring this line into compliance with the 1.35 load factor target.

(38) Line 200.

Line 200 has exhibited insufficient capacity violations between 6:40-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that three buses are needed to bring this line into compliance with the 1.35 load factor target.

(39) Line 204.

The Administrative and Supplemental Record do not contain sufficient data to fashion a remedy for this line.

(40) Line 205.

Line 205 has exhibited insufficient capacity violations between 7:00-7:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that one bus is needed to bring this line into compliance with the 1.35 load factor target.

(41) Line 206.

Line 206 has exhibited insufficient capacity violations between 6:00-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that nine buses are needed to bring this line into compliance with the 1.35 load factor target.

(42) Line 207.

Line 207 has exhibited insufficient capacity violations between 6:20-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that eight buses are needed to bring this line into compliance with the 1.35 load factor target.

(43) Line 210.

Based on the Administrative and Supplemental Record, the Special Master hereby finds that no buses are needed to remedy this line at this time.

(44) Line 212.

Line 212 has exhibited insufficient capacity violations between 6:00-7:40 A.M. and 8:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(45) Line 230.

Line 230 has exhibited insufficient capacity violations between 7:00-7:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that two buses are needed to bring this line into compliance with the 1.35 load factor target.

(46) Line 232.

Line 232 has exhibited insufficient capacity violations primarily between 6:00-7:20 A.M. and 7:40-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(47) Line 234.

Line 234 has exhibited insufficient capacity violations between 6:20-7:00 A.M., 7:20-7:40 A.M. and 8:00-8:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(48) Line 243.

Line 243 has exhibited insufficient capacity violations between 6:00-8:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that five buses (servicing six trips) are needed to bring this line into compliance with the 1.35 load factor target.

(49) Line 251.

Line 251 has exhibited insufficient capacity violations between 6:40-9:00 A.M. and 3:00-5:40 P.M. Based on the data and evidence contained in the Administrative and

Supplemental Record, the Special Master hereby finds that seven buses are needed to bring this line into compliance with the 1.35 load factor target.

(50) Line 260.

Line 260 has exhibited insufficient capacity violations between 6:00-8:40 A.M. and 3:20-5:40 P.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that eight buses are needed to bring this line into compliance with the 1.35 load factor target.

(51) Line 268.

Line 268 has exhibited insufficient capacity violations between 6:40-7:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that one bus is needed to bring this line into compliance with the 1.35 load factor target.

(52) Line 420.

Line 420 has exhibited insufficient capacity violations between 6:40-7:40 A.M. and 8:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that three buses are needed to bring this line into compliance with the 1.35 load factor target.

(53) Line 424.

Line 424 has exhibited insufficient capacity violations between 6:00-6:40 and 8:00-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that four buses are needed to bring this line into compliance with the 1.35 load factor target.

(54) Line 446.

Line 446 has exhibited insufficient capacity violations between 6:20-7:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that three buses are needed to bring this line into compliance with the 1.35 load factor target.

(55) Line 484.

Line 484 has exhibited insufficient capacity violations between 6:00-6:20 A.M. and 7:00-7:20 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that two buses are needed to bring this line into compliance with the 1.35 load factor target.

(56) Line 522.

Line 522 has exhibited insufficient capacity violations between 6:20-9:00 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that eight buses are needed to bring this line into compliance with the 1.35 load factor target.

(57) Line 561.

Line 561 has exhibited insufficient capacity violations between 6:20-8:40 A.M. Based on the data and evidence contained in the Administrative and Supplemental Record, the Special Master hereby finds that five buses are needed to bring this line into compliance with the 1.35 load factor target.

2. Meeting the 1.25 Standard.

To determine the number of additional buses that will be required for the MTA to meet the 1.25 LFT in June 2000, both the MTA and the BRU have presented estimates of the expected

ridership growth over the next two years. Based on 1998 statistics from the National Transit Database Section 15 Report, the BRU projects a two year growth rate of 12%: comprised of a 4.8% ridership increase in 1998, a 4.8% increase in 1999, plus a 1.5% per year increase due to improved service. See BRU Remedial Plan, p. 6 n. 13. The MTA, on the other hand, projects a growth rate of 7.14% for the next 18 months based upon limited sampling. MTA Br. at 53.

Utilizing its growth estimate, the BRU's remedial plan calculates the projected ridership for each line and determines the number of additional bus trips necessary to accommodate this level of service. BRU Remedial Plan at 6-7. Using this methodology, and based upon its analysis that 348 additional buses are required to meet the 1.35 LFT, the BRU has concluded that an additional 157 buses (plus 20% or 31 spares) should be added to the peak fleet to meet the 1.25 LFT. *Id.* The MTA, however, estimates that only 130 additional buses are needed to meet the 1.25 LFT. MTA Remedial Plan at VI - VS.

Based on the evidence presented, the Special Master finds that 12% is an appropriate estimate of projected ridership growth for the next two years. Indeed, the MTA's own Regional Transit Alternatives Analysis (dated Nov. 9, 1998)(AR Tab 104) projects cumulative bus ridership increases up to 25.1% from FY1998 to FY2000. See Rubin Decl., Exhs. 3, 6.

Using this 12% multiplier, and applying the Special Master's line by line analysis, I find that 126 buses should be added to the fleet to meet the 1.25 LFT (over and above those needed to meet the 1.35 LFT).¹⁵ Factoring MTA's standard spare ratio of 20%, a total of 151 buses will be required to meet this next target by June 2000.

¹⁵ Since the Special Master's line by line findings reveal that the BRU's 1.35 estimates were overstated by approximately 20% (due to its inclusion of buses for periods where there were no violations and its underreliance on schedule adherence and other scheduling techniques), I have discounted the BRU's 1.25 estimate of 157 buses by the same percentage.

In sum, to remedy the load factor violations caused by "insufficient capacity" the MTA would need to add a total of 430 new buses to the fleet (277 plus 55 spares to meet the 1.35 LFT and 126 plus 25 spares to meet the 1.25 LFT, minus 53 buses already scheduled by MTA for purchase).

G. Provisional remedy during interim period while buses are ordered.

Because the achievement of the load factor target requires immediate improvements that are only possible with additional capacity, and because the procurement of buses generally requires an 18-month cycle, the BRU further proposes that the MTA immediately lease or otherwise obtain on a temporary basis 348 CNG buses to operate until the new buses arrive. BRU Br. at 33. The MTA contends that this would be impossible to implement as there are no such transit buses available in the market. MTA Br. at 47-49. Specifically, purchasing buses directly from U.S. manufacturers would involve an extensive contract negotiation process and the only manufacturers that may have currently available production capacity do not have proven low-floor CNG products. *Id.* at 48. The MTA has explored international sources of buses, but there are significant reservations about bringing foreign buses into the MTA's operating environment due to maintenance constraints (e.g., all metric dimensions and fasteners), availability of equipment and training of personnel to operate and maintain new foreign equipment. Furthermore, no foreign equipment manufacturer currently produces buses certified to operate in the U.S. nor are they likely to because of Buy America constraints. *Id.*; Drayton Decl. ¶ 14.

Taking into account these arguments, I have concluded that the BRU is correct in its assertion that the MTA likely cannot meet the 1.35 load factor target "as soon as possible" (and the 1.25 load factor target by June 2000) unless it acts immediately to obtain additional buses on

a temporary basis to remedy the load factor violations caused by insufficient capacity. In order to meet the requirements of Section II.A of the Consent Decree, the MTA therefore should use its best efforts to lease or obtain, by whatever means available, at least 277 additional buses of any type appropriate for service on the MTA system.¹⁶ These buses should be scheduled for delivery on or before December 31, 1999 and should remain in service until the new buses required by the remedial plan are delivered.

H. Section II.B of the Consent Decree.

Under Section II.B of the Consent Decree, the MTA was required to "make available 51 additional buses (i.e., buses in addition to those already planned for replacement purposes) by the end of calendar year 1996 to reduce overcrowding, initiate new services and improve mobility and access for its dependent riders. Another 51 additional buses (i.e., buses in addition to those already planned for replacement purposes) to reduce overcrowding will be available by June 30, 1997 for a net of 102 additional buses." The MTA has temporarily met this requirement by extending the life of buses scheduled for replacement. In previous rulings I have indicated that eventually the MTA would have to retire the expansion buses and obtain 102 new buses, which would constitute a net addition to the fleet. While the Consent Decree did not specify a deadline, I indicated that the matter would be considered in connection with a remedial plan. The time is now ripe, and I am therefore directing the MTA to obtain an additional 102 buses (over and above the buses to be obtained through the accelerated replacement plan and over and above the additional buses required by the remedial plan to remedy insufficient capacity). These 102 additional new buses should be delivered, as net additions to the active fleet, on or before June

¹⁶ This number is taken from the Special Master's findings concerning the number of buses needed to remedy

30, 2002, the date by which the MTA is required to meet the 1.2 LFT. These buses may be used by the MTA to meet and sustain the reduced LFT, or for new services.

V. SPECIAL MASTER'S DETERMINATION OF REMEDIES NECESSARY FOR COMPLIANCE WITH THE OCTOBER 1996 CONSENT DECREE

The Special Master has determined based on the foregoing that, in order to achieve compliance with the 1996 Consent Decree, the MTA should implement the remedies outlined below. The MTA is directed to move expeditiously to:

1. Remedy violations attributable to inoperable buses.

In order to achieve compliance with the Consent Decree, the MTA should:

- (a) fully implement its accelerated bus procurement plan by replacing 538 aging vehicles with new CNG buses by June 2000;
- (b) complete the conversion of 333 ethanol buses by December 1999; and
- (c) complete the repair of the 594 CNG buses under warranty by May 1999.

2. Remedy violations attributable to lack of operators.

In order to achieve compliance with the Consent Decree, the MTA should:

- (a) implement its program to improve the management of bus operator availability; and
- (b) substantially eliminate load factor violations attributable to the lack of an operator by December 31, 1999. If by the time of its Quarterly Report to the Special Master on January 10, 2000, violations of the 1.35 load factor standard attributable to the unavailability of an operator are not substantially eliminated, the Special Master will consider directing the MTA

the 1.35 load factor violations caused by insufficient capacity (without spares).

to increase its operator assignment ratio of 1.16 to a ratio that will appropriately eliminate all violations attributable to this causal factor.

3. Remedy violations attributable to in-service failures.

In order to achieve compliance with the Consent Decree, the MTA should:

(a) initiate its staged buses pilot demonstration project by utilizing ten buses at five locations during 1999 and report to the Special Master its evaluation of this pilot project by January 10, 2000;

(b) hire a sufficient number of additional mechanics, improve training and supervision, and establish performance quality standards for mechanics, that will enable the MTA to meet its objective of increasing mean miles between total road calls (MBR) from 700 in July 1998 to 2,000 by June 2000;

(c) create/expand a recurring defects analysis program;

(d) improve its spare parts management; and

(e) undertake improvements to service reliability, including emergency service for bus accidents, advance notice of special events, traffic management and a new radio system. The MTA should include in its Quarterly Reports (see below) to the Special Master information on the progress in meeting this objective. If sufficient progress in reducing violations attributable to in-service failures is not reported by January 10, 2000, more specific remedies may be required in this area.

4. Remedy violations attributable to "missed trips".

In order to achieve compliance with the Consent Decree, the MTA should:

(a) provide training to operators to improve consistency of actions and deployment of operations supervisors at recurring sites; and

(b) procure and install APCs on 20% of the fleet and initiate a TRS pilot project for tracking and remote supervision to provide faster in-service control of problem areas.

5. Remedy violations attributable to poor schedule adherence.

In order to achieve compliance with the Consent Decree, the MTA should:

- (a) deploy additional on-street supervisors who will devote most of their time to supervising schedule adherence;
- (b) utilize automated passenger counters and radio system monitoring techniques to identify problem routes, runs and operators; and
- (c) collect data and evaluate new technologies that will be helpful in reducing late operations. Progress on these issues shall be included in the Quarterly Reports to the Special Master.

6. Remedy violations attributable to insufficient capacity.

In order to achieve compliance with the Consent Decree, the MTA should:

- (a) purchase 430 new CNG buses to provide the additional capacity required to reduce the load factor target to 1.35 as soon as possible and to meet the 1.25 load factor target by June 2000, which includes:
 - (1) 277 buses to add trips to the lines with "insufficient capacity" violations to meet the 1.35 LFT;
 - (2) 55 spares (20% of 277);
 - (3) 126 buses to meet the 1.25 LFT; and
 - (4) 25 spares (20% of 126); minus
 - (5) 53 buses already planned by MTA for purchase.
- (b) hire additional full-time operators to operate the new service, as required;
- (c) hire additional mechanics as needed to meet the new service requirements;

and

(d) obtain, through lease or other means, 277 buses on a temporary basis to meet 55 load factor target as soon as possible until the new purchased buses arrive.

Although the determination of the number of additional buses that are required to reduce load factor violations attributable to insufficient capacity is based in substantial part on a line-by-line analysis of the causes of the violations during 1998, the MTA has the flexibility to schedule its service in a way that will maximize the efficiency of the fleet and will enable the MTA to meet the load factor targets as quickly and cost-effectively as possible. While meeting this objective may require some adjustment of schedules and some utilization of scheduling techniques such as short runs, retying, deadheading, repackaging, and other means, the MTA should not significantly reduce service to the transit-dependent in order to meet the load factor targets on the specified routes.

7. Remedy violations attributable to MTA's having an undersized fleet.

In order to achieve compliance with the Consent Decree, the MTA should procure an additional 102 new buses to satisfy the requirement of Section II.B of the Consent Decree, for delivery on or before June 30, 2002. These buses must be in addition to the buses scheduled for replacement and the buses procured pursuant to Section 6 above, and shall result in a net increase to the size of the operating fleet of 102 additional buses.

8. Providing for adequate monitoring and reporting.

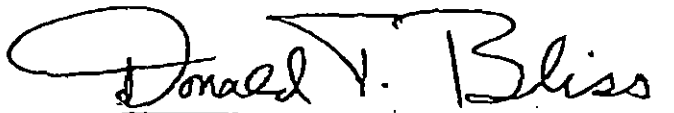
In order to achieve compliance with the Consent Decree, the MTA should:

- (a) provide additional staff to ensure adequate monitoring of overcrowding levels;
- (b) continue to conduct point checks two times a month on the top 20 lines and increase the frequency of the point checks to once a month on the additional 55 lines that were found not in compliance; and

(c) prepare and submit to the Special Master a Quarterly Report that tracks all remedial actions on a per-line and system-wide basis. The Quarterly Report should include, but not be limited to (1) cancelled and late runs totaled for each month categorized by amount, reason, bus series and line; (2) equipment failures in-service listed by amount, reason, bus service and line; (3) missing operators summarized by reason per month; (4) point check data matched to scheduled times and bus runs, with analysis of each violation; and (5) a mapping of load factor violations for each line over time.

The MTA shall submit a Quarterly Report within ten (10) days after the end of each quarter (e.g., April 10, July 10, October 10, January 10).

IT IS SO ORDERED.


SPECIAL MASTER

Date: March 6, 1999

A

**COMPARISON OF MTA AND BRU ANALYSIS
OF CAUSES OF LOAD FACTOR EXCEEDENCE**

Party	Missing Trips			Schedule Adherence			Insufficient Capacity	
	(Total)	Lack of Bus	Lack of Operators	In Service Failures	(Total)	Early Arrival	Late Operator	(Total)
MTA	51.7%		7%		29.1%	18%	11%	19.2%
BRU	40% - 50%				Negligible			50% 60%

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COMPARISON OF PROPOSED REMEDIES

B-1

	MISSING TRIPS 51.7%			SCHEDULE ADHERENCE 29.1%		INSUFFICIENT CAPACITY 19.2%
	Lack of Bus	Lack of Operator	In-Service Failures	Early	Late	
MTA	<p>1. Accelerated Bus Procurement Plan</p> <p>a. FY02 - 1,237 buses (half to be delivered in 18-24 months).</p> <p>b. FY04 - 2,095 buses (782 additional buses in this time frame at added cost of \$300 million).</p> <p>c. Near-term deliveries</p> <ul style="list-style-type: none"> • 100 Neoplan high-floor CNG buses - delivery begins in March, 1999. • 223 New Flyer CNG high-floor buses - delivery July-December 1999. • NABI - 215 low-floor CNG buses - delivery December 1999-May 2000. • Additional 223 New Flyer options - December 2000 (average age of fleet to be reduced from 9-1/2 to approximately 6 yrs.) <p>d. <u>Conversion of 131 ethanol buses</u> - December 1999.</p> <p>e. <u>Warranty defects repaired in 594 CNG buses</u> - May 1999.</p> <p>f. <u>Purchase of 20 New Flyer low-floor buses from Las Vegas</u> - November 11, 1998.</p>	<p>1. Improved management of operator availability. (better scheduling by division of vacations and other events)</p> <p>2. Retain current MTA Operator Assignment Ratio (OAR) of 1.16.</p> <p>Other Actions</p> <p>1. Improve training for operators to improve consistency of actions and deployment of operations supervisors at recurring sites.</p> <p>2. Procurement and institution of APC's on 20% of the fleet and TRS pilot project for tracking and remote supervision - faster in-service control.</p>	<p>1. Staged Buses Pilot Demonstration Program. 1999 (ten buses at five locations).</p> <p>2. Increased number of mechanics. (From 610-663 by 51, starting July, 1998.)</p> <p>3. Improve past-due critical maintenance program (PMP) to increase mean miles between failures (MBR) from 8700 in July 1998 to 2000 by June 2000.</p> <p>4. Establish performance quality standards for mechanics and improve training.</p>	<p>1. Deployment of additional on-street supervisors and devote most of their time to supervising the lines.</p> <p>2. Enforcement of Collective Bargaining Agreement rule violations that impact on time performance.</p> <p>3. Implement results of Line 31 test project that reduced overcrowding by field supervisor management of schedule adherence.</p> <p>4. Utilize automated passenger counters and radio system monitoring techniques for better identification of problem routes, runs and operators.</p> <p>5. Late operation is more difficult because of events beyond MTA control; however, MTA will enhance data collection and evaluate new technologies, to identify and fix problem areas.</p>	<p>1. <u>MTA will add 30 buses to the peak fleet immediately.</u></p> <p>2. <u>MTA will add a total of 160 buses to the peak fleet to reduce overcrowding by December 1999 (66 buses in June 1999 and 64 buses in December 1999).</u></p> <p>3. <u>Number of added buses to peak fleet was determined by line-by-line analysis by experienced "Schedule Makers."</u></p>	

B-2

COMPARISON OF PROPOSED REMEDIES

	Missing Trips	Insufficient Capacity	Other
BRU	<ul style="list-style-type: none"> • Immediately purchase 333 new CNG buses over MTA replacement plan to accelerate replacement of buses over federal retirement/mileage. • Hire 112 operators to increase operator spare ratio to 1.20. (Increase 3176 full-time operators from 3176 to 3288). • Replace engines in methanol/ethanol fleet. • Hire 65 mechanics to expand preventative, critical, and general maintenance. • Complete CNG warranty program. • Expand maintenance training and supervision. • Create/expand a recurring defects analysis program. • Better spare parts management. • Improvements to service reliability, including emergency service for bus accidents, advance notice of special events, traffic management, and a new radio system. 	<ul style="list-style-type: none"> • Immediately purchase 553 new CNG buses to reduce load factor target to 1.35 and to ensure meeting the 1.25 load factor requirement. • Hire 586 additional full-time operators to operate new service required. • Lease 348 new CNG buses to meet the 1.35 deadline until the purchased buses arrive. • No cutting of existing service (particularly by lengthening wait times in peak or off-peak times) to move resources to load factor reduction. • Hire 184 more mechanics to match expansion in service. 	<ul style="list-style-type: none"> • Improved and monitoring of overcrowding levels. • MTA should continue the frequency of point checks to two times a month on the top 20 lines and increase the frequency of point checks to two times a month on the rest of the 55 lines. • MTA should create a more detailed quarterly report that tracks all remedial actions – per line and system-wide. <p>The quarterly report should include, but not be limited to:</p> <ul style="list-style-type: none"> (a) Cancelled and late runs totaled for each month categorized by amount, reason, bus series, and line. (b) Equipment failures in service listed by amount, reason, bus series and line. (c) Missing operators summarized by reason per month. (d) Point check data matched to scheduled times and bus runs, with analysis of every violation. (e) A mapping of every load factor violation per each line over time.

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BUS PROCUREMENT COMPARISON

	FY97	Dec. 31, '97	FY98	FY99	FY00	June 2000	FY01	FY02	FY03	FY04	FY05	Total Through FY10
C.D. Deadlines		1.35				1.25		1.20				
MTA Bus Replacement Schedule at time of C.D.			200	247	208	655	162	164	165	167	181	2,630
Accelerated Bus Procurement Plan			237	221	437	895	400	400	200	200	200	3,295
Difference			+37	-26	+229	+240	+238	+236	+35	+33	+19	+665
Average Fleet Age MTA Schedule			9.01	9.07	8.40		7.93	7.77	7.64	7.60	7.39	
Accelerated Plan			9.01	9.73	7.66		6.06	4.76	4.60	4.48	4.42	
BRU Plan (Additional Buses)				+348 (temp lease)	+333 (replacement) +553 (new capacity) +886							

Source: Administrative Record
Tab 66, BRU Plan