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PERFORMANCE MEASURES FOR MASS TRANSIT SERVICE

AN EVALUATION OF 96 SAMPLE TRIPS

ON THE BOSTON COLLEGE BRANCH

OF THE MBTA'S GREEN LINE

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PERFORMANCE MEASURES FOR MASS TRANSIT SERVICE

SAMPLE TRIP EVALUATION ON THE GREEN LINE

========== INTRODUCTION ==========

Transit performance can be measured in several ways. The primary concern for the MBTA in the past 20 years has concentrated on how to stay within the budget -- in effect fiscal performance.

Another concern is the efficiency in the use of buses and trains, such as vehicle-miles per year, energy use, or annualized vehicle cost -- generally termed rolling stock performance.

A third category is service quantity, such as passengers per day or passenger-miles per year.

An extension of service quantity is service quality, which focuses on passenger perceptions of service, such as average trip speed (trip time), service variations (including bunching and reliability against breakdowns). Service quality also could include more qualitative factors such as comfort and safety.

Finally, comparative service quality is determined by comparing service/performance of sampled transit trips with alternate modes, such as cars, bicycles, ridesharing or walking.

A sixth option is not really a performance measurement but represents the appearance of progress -- namely, spin control. A form of public relations or publicity manipulation is applied to press and public perceptions of MBTA performance, bypassing any other images presented by public critiques, the MBTA Advisory Board and ridership advocacy groups such as the Association for Public Transportation or Conservation Law Foundation.

SUMMARY : 6 TYPES OF PERFORMANCE MEASURES

1. Fiscal Performance -- cost efficiencies
2. Rolling Stock Performance -- hourly, daily, or annual
3. Service Quantity -- amount of service provided
4. Service Quality -- passenger perceptions of quality
5. Comparative Service Quality -- other modes (cars, walk, etc)
6. Spin Control -- image manipulation without real measurement

For years, there have been efforts by the MBTA Advisory Board and various management teams to measure fiscal performance. Service quantity has been measured in terms of daily or annual trips and frequency of scheduled trips. The only apparent effort to determine service quality is the monitoring of MBTA "on-time" performance. I am unaware of any studies which review service quality of transit vs. other modes.

========== WEAKNESS OF THE "ON-TIME" TRIP CONCEPT ==========

The MBTA regularly measures the arrival times of buses and trains at the ends of their trips and determines how many trips deviate excessively from an allowable variation around schedules. It is unclear how this process deals with trains which leave the beginning terminal either too early or too late.

The on-time method has five major weaknesses :

1. How should we handle late or early departures at the beginning of the trip?

2. What is the acceptable variation from schedule to still qualify as being "on-time"?

3. Should we allow a simple Automatic credit for as-directed vehicles? (If so, operational snafus can be covered up).

4. How common is the manipulation of the trip schedules (in order to show improved results)?

5. How can we overcome difficulties in the monitoring of performance by the MBTA -- especially asking for data gathering and review by independent evaluators?

Most of these factors focus on the tendencies of MBTA management -- indeed any management -- to present a Rose-Colored-Glasses view of the world. The usual techniques are selecting the most favorable data, setting criteria which will make available data look better, and finally outright fabrication of data.

All government agencies are notorious for presenting only the good news, since the Messenger of Bad News inevitably is the first to meet the hangman. Large private companies have also acquired a legendary history of punishing the Messenger of Bad News.

When the bad news becomes intensely public, it usually becomes politically infeasible to make the Messenger of Bad News into the scapegoat, and instead a new battleground erupts over how we interpret the data.

One of the classic manipulation games occurred in the early 1960s at General Motors. A quality index was set up for various auto plants, with 100 for a perfect score, 95 for a car with 5 defects and so on. But too many plants had trouble getting a "passing" grade of 60. So what solution did GM management come up with? They made 145 a perfect score. That way a car with 40 defects looked just fine and it now took 85 defects to flunk the quality test.

Business Week (Sept. 18, 1989) noted, "Such was the culture of GM. Don't ask how scores could really be improved. Don't ask what poor quality means to customers. Don't even admit that there's a fundamental problem, because nobody likes bad news. Just juggle the numbers."

More recently, a medical doctor in North Carolina was astonished by the claims which logically implied that 90% of America's schools were better than average. The result was an investigation into distortion, manipulation and -- in some cases -- outright cheating by educators in order to increase grade scores. The natural administrative result was denial and scapegoating.

The primary concern of bureaucrats was expressed bluntly but crudely by John Poindexter in his testimony on Iran-Contra : CYA. The main goal is job preservation, not truth or public service.

Do we really expect MBTA management to be better than General Motors or our public schools? Many of our contemporary corporate ills will also be reflected in transit management, and these flaws will be augmented by those special to government bureaucracies.

One evident example of MBTA management playing the general Motors game with schedules on the Riverside branch of the Green Line. Official schedules list this line as offering service at 7-minute headways, but one recent study for a private development showed that actual service on the line occurred on 3.5 minute headways. Under the circumstances, it would be a piece of cake for the MBTA to demonstrate attainment of the 7-minute headway objective. Easy objectives are easily attained.

By focussing on scheduled performance, a clever bureaucrat can relax schedule times and lower the expectations of scheduled service in order to match the actual service achieved. Any transit system can play this game, and this weakness is the primary limitation of current MBTA efforts to assess on-time performance. Excellent performance can be claimed by achieving 100% adherence to mediocrity or less.

It is quite logical to expect that a bureaucracy like the MBTA will naturally tend to slant service data in the most positive light. It is also quite logical to expect that fairness and truth will be casualties in this process. However, there are some limits : outright fabrication of data always runs the risk of exposure, by whistleblowers, the press or the Advisory Board.

Thus we will receive a mix of information from the MBTA, some legitimate and truthful, while other elements are manipulated and distorted. Stonewalling (elaborate stalling tactics) are also vital to the exercise of damage control and hoping that short memories & the press of other local issues will allow any crisis to blow over.

The ridership, general public and Advisory Board are all naturally frustrated by such a situation, because they do not know what or who to believe.

======= THE NEED FOR QUALITY PERFORMANCE MEASUREMENT ==========

Presently, as in most cities, all MBTA trip reporting is initiated and controlled by the operating transit agency itself, with virtually no independent trip measurement. As a result, transit performance is one of the most heavily monopolized and introverted data bases in existence.

There is a pressing need for an independent performance monitoring process for MBTA service, with more extensive data-gathering capabilities. The goal of this monitoring effort should be to gather information on average and peak system performance, and to provide a better understanding of trip variations and train bunching.

We need performance targets and further measurements to determine how well these targets are being achieved. This data must be collected without fear of anyone being the "messenger of bad news". We need a proper independent audit of performance, rather than reliance on MBTA data. This audit should be either passive to the operations of the agency (independent data review and analysis) or involve sampling of active operations. Sampling (rather than blanket monitoring of all trips) would reduce audit costs and the degree of intrusion into daily MBTA operations.

Good sampling helps to reduce the data processing workload and allows greater depth of analysis, rather than a shallow analysis of all trips. It is the standard method of quality analysis in industry, having been fine tuned by Americans like Edwards Deming, exported to Japan and reintroduced to American industry in the past 20 years. As best as I can tell, the MBTA does no analysis of system performance based on trip sampling, although CTPS does engage in spot trip time measurements on an annual basis.

Oddly enough, MBTA trip evaluation appears more substantive on buses, compared to rail. Bus service quality standards were established in 1977 and while not adhered to 100% their existence has at least allowed for some discussion of route performance. Rail performance appears to be much more of a rudderless ship.

One factor which has severely crippled rail operations has been the extensive tunnel and rail work on the various lines. The disruption broke apart the established routine of regular service and temporarily replaced it with a chaotic sequence of less quality service. At the operating level, employees became accustomed to the degraded levels and it was virtually impossible to return to the higher standards of service which existed prior to construction. This loss of excellence is most evident on the Red Line, which used to be the flagship line of the MTA and MBTA.

Another factor undermining rail management integrity was the loss of old-timers at the operating level and chaos in management going back to the 1960s. This downward slide was broken only by the plunge into the horrors of the Barry Locke era and the stuttering partial recovery since 1981 from those depths of iniquity. Recovery of operational performance has also been hampered by the excessive bureaucratic emphasis since the 1970s on MBTA construction, as opposed to operations.

========== BAD TRIPS AND ERRATIC SERVICE ==========

The one most common complaint about MBTA transit service is that the train arrivals are so erratic. A good trip on one day can be followed by a very slow trip on the next day. Trains arrive bunched together, and management appears helpless to understand what is happening and how to keep the trains running evenly spaced.

There is a persuasive argument that memories of the worst transit trip tend to overpower memories of the best trips, so that the worst trip has an overwhelming influence on modal choice. The bad trip will have an anti-marketing function, driving people away from transit in droves. Thus, on days when service is excellent, one wonders why the cars aren't more crowded. The answer is that the disaffected are at least subconsciously remembering their bad MBTA trips.

How are trip time and unreliability related, from a ridership viewpoint? If there is steady reliability in trip times of 1/2 hour, riders know the trip will take 1/2-hour. What they expect, they get. There is no cause for anger. But if some trips take 15 minutes and some take 1/2-hour, riders can become accustomed to the 15 minute trip. When they get hit with a 1/2-hour trip, they become late and frustrated. While they may appreciate the faster 15-minute trips, they also become angry at the inability of the system to provide consistent, predictable service.

An interesting academic question is this : would riders prefer a steady reliable 30-minute trip or a 22.5-minute trip composed of equally random 15-minute and 30-minute trips? I suspect that the randomness in trip times would outweigh any improvement in average speed. However, the better focus is on finding ways to maintain reliability of all trips close to the attainable 15-minute performance level.

In order to perform a better job of monitoring MBTA performance, we need both a mechanism and a method. The mechanism would be a new organization called The Ridership Consortium, and the method would be gathering and analysis of sample transit trips.

========== SETTING UP A RIDERSHIP CONSORTIUM ==========

A Ridership Consortium should be formed -- with a mandate to measure, report on and make recommendations for improvement in MBTA transit performance. The Consortium would be made up of groups such as the Association for Public Transportation, the Boston and Cambridge Chambers of Commerce, the Central Transportation Planning Staff, MBTA Advisory Board, and citizen volunteers. The Ridership Consortium would report to both the general public and the MBTA. It would take no direction from the MBTA or anyone else, except from its mandate to report on MBTA transit performance.

None of its activities would require the approval of another body, such as the MBTA, EOTC or the Legislature. There would be room for both minority member reports and a separate report from MBTA management.

In terms of priorities, the initial focus should be on rail operations, especially the Red and Green Lines. Later efforts could track the performance of other rapid transit lines, buses and commuter rail.

========== FUNCTIONS OF THE RIDERSHIP CONSORTIUM ==========

The Ridership Consortium would serve as a clearing house for trip time data collected by group members. The data would be submitted in a standard format with special commentary, and would be analyzed on a sampled basis.

The goal would be to identify important trip routes and riders who would volunteer to report sampled trip times, generally as part of regular commuting trips. Where funds and staff permit, sampled surveys of train arrivals/departures at terminals and at Park Street should be performed on a weekly basis.

Suitable sampling frequency would be about 1 trip a week for most runs, or 50 trips a year. A few heavily traveled routes could merit 2-3 trips per week, and this data could be obtained by more frequent reporting or overlapping of sample commuting routes.

Processing and printing each sample trip might take about 1 hour, so the sampling should be performed with care and recognition of time/staff/funding limits.

========== SAMPLING PROCEDURES ==========

Riders would fill out pre-printed 3x5 data cards for station start/stop times and train loadings. Special notes (delays, headways of trains in front, etc.) would be added on the reverse side of the reporting form.

Riders would send in their data cards by mail. All times and comments would be typed into a data analysis spreadsheet, which would be available for public review. The spreadsheet would include calculations of incremental trip times, speeds and levels of service. Further calculations would be made of trip efficiencies and statistical variations -- as part of a larger spread sheet and data base of all sampled trips.

========== THE TRANSIT LEVEL-OF-SERVICE ANALOGY ==========

A rating system is needed to evaluate the excellence of service for a transit trip (or lack thereof). The concept of a transit level of service is analogous to the traffic level of service defined by traffic engineers. It is intended to reflect the quality of the transit trip as measured by trip time. Traffic LOS is often defined by speed or delay, so transit LOS is reflected in trip time.

Clearly, transit level-of-service does not tell the whole story, since ideal LOS conditions are usually achieved during the off-peak when there are fewer riders. Moreover, factors such as comfort and safety are not taken into consideration in LOS. While we recognize that no measurement is complete, the LOS concept remains very valuable as a means of assessing the efficiency of transit service.

Highway traffic Level of Service is modeled after school grades, ranging from A for excellent to F for failure. LOS A represents an achievable off-peak ideal, while LOS C as a good target for urban conditions, and LOS E as capacity. LOS F represents heavy congestion and delays, and might be defined as "intolerable" conditions. The same standards should be applied to transit.

Both highways and transit deliver the best quality service when the system is underutilized. LOS A for transit is the best trip possible in peak or off-peak. An LOS F transit trip would represent a clear condition of degraded capacity and intolerable performance.

For purposes of setting an attainable ideal, the best transit trip is defined as a composite of all the best individual station-to-station link times. The pieces of the trip are real and actually occurred; the ideal trip is a fictional combination of these pieces. The actual best trip may be 85-90% of this composite best trip.

The best trip represents the empirical potential of the system, not a theoretical analysis. It is a pure LOS A standard against which all other trips are compared.

It should be noted that as new data comes in, the time for the best trip may be reduced. If a train makes a link time which is a new record, it receives an LOS A+ for the link and the best trip data are updated. As the trip data base grows, the frequency of any such change diminishes. During the first 6 months of data gathering, weekly updates on best trip times should be circulated, with computer templates revised at all information processing locations. Summary reports should be issued at 3 months and 6 months and every 6 months thereafter.

Variations in service will be reflected in different trip times along the same route. The basic measurement is that of Lost Time, which is the amount of extra time used, compared to the fastest or best trip time. Any trip will vary from the best links and dwells by the Lost Time, which becomes the difference between the measured time on the trip and the best time for any dwell or link. For example, if the best trip between two stations was 90 seconds, and the sample trip took 125 seconds, the lost time would be 35 seconds.

========== LINK vs. DWELL LEVELS OF SERVICE ==========

We are all familiar with the degradation of transit service during peak hours, as trains become crowded and loading periods are longer. We would expect the loading or dwell periods to be much longer during crowded peak hours, while the link times for travel between the stations should only be reduced slightly. Theoretically, we would expect link travel times to be reduced marginally, proportional to the extra weight of the passengers. In actual practice, the variations in link times are quite large.

Because of the different impacts of peak hour crowding on dwell and link times, we will need different LOS standards for link and dwell, as discussed in the next section.

========== DEFINING TRANSIT "LOS F" ==========

For transit, intolerable link delays define LOS F as the point at which the lost time equals the best time. In other words, LOS F means that the link travel time is actually double the best time.

This definition is somewhat arbitrary but reasonable. It says that service becomes unacceptable when speeds drop by 50 %, or when travel times double. Most riders would describe a doubling of trip time as a "bad" or "unacceptable" trip clearly worth complaining about, although others could complain that this standard is too tolerant and even small variations in trip times make service intolerable.

As measurements will show, these more tolerant standards show numerous occurrences of LOS F during regular operations. A stricter standard would simply reduce almost all trips to LOS F and would not be very useful as distinguishing among moderately inefficient trips.

We do have the option of setting LOS targets which are better than LOS F, such as LOS B or LOS C. A good transit system should seek to operate at a level which is targeted towards quality professional standards and not allow itself to sink to a level which operates barely above the point at which the ridership is in revolt.

One example of setting a professional standard is to define our lowest acceptable expectation as a trip which takes 50% longer than the best composite trip. Such a goal would represent LOS C.

The advantage with the LOS standard proposed is that it allows for separate standards for different critics : LOS F, LOS D, LOS C and so forth. It also allows for incremental goal setting, such as aiming for 85% of all trips as being LOS E or better.

With LOS A reflecting best measured time and LOS F meaning link times twice the best measured time, the transit link levels-of-service A through F are be defined as in Table 1.

The two additional categories of LOS F- and LOS F= are intended to reflect even worse performance conditions, and correct for a flaw in traffic LOS definitions which implies that once conditions reach LOS F they cannot get any worse. Indeed, with transit there may be some cases of severe breakdown where an LOS rating of "F-10-minus..." might be justified.

The distinction between link and dwell LOS is made as follows. It appears reasonable to allow a degradation in dwell LOS to occur at only half the rate of link LOS. In effect, dwell time would have to grow to three times the best dwell time to achieve LOS F. This criterion is adequate for now, but may be too inflexible for those cases where an off-peak stop is represented by a quick opening and closing of the doors.

TABLE 1 LINK AND DWELL LEVELS OF SERVICE

>>>>>>> L I N K <<<<<<<			>>>>>> D W E L L <<<<<<<		
Lost time / Best Time		LOS	Lost time / Best Time		LOS
0.0 to 0.2	.. -> ..	A	0.0 to 0.4	.. -> ..	A
0.2 to 0.4	.. -> ..	B	0.4 to 0.8	.. -> ..	B
0.4 to 0.6	.. -> ..	C	0.8 to 1.2	.. -> ..	C
0.6 to 0.8	.. -> ..	D	1.2 to 1.6	.. -> ..	D
0.8 to 1.0	.. -> ..	E	1.6 to 2.0	.. -> ..	E
1.0 to 1.2	.. -> ..	F	2.0 to 2.4	.. -> ..	F
1.2 to 1.5	.. -> ..	F-	2.4 to 3.0	.. -> ..	F-
1.5 or more	.. -> ..	F=	3.0 or more	.. -> ..	F=

========== TRANSIT TRIP PRODUCTIVITY ==========

Managers and engineers tend to measure their success in riders per hour or day, while customers show concern for a speedy, consistent trip. Capacity is of interest to managers, while speed is of interest to passengers. Clearly, what we have are two goals -- ridership and speed.

An ideal performance measure should be a combination of the two -- ridership and speed. We would be seeking the dual goals of moving more people at higher average speeds. We would be balancing the twin objectives of speed and loading.

Obviously, one could have fast moving trains which were empty, -- and they would provide insignificant transit service. Similarly, one could have jammed but slow moving trains -- which also represents poor service. Maximum performance would result from trains which are both fast and fully loaded. Ideally, riders would like performance which was slightly less than fully loaded, in the interests of comfort.

One author (*) has identified "Productive Capacity" as the product of the capacity and operating speed, and describes it as "A good composite representation of transit system performance." (This factor has also been termed "Transit Line Productivity when capacity is measured by the number of vehicles operated on the line or alternately the number of seats or passengers.)

Productive Capacity sounds useful, but as a measurement is carries the units of Riders x distance / time-squared. Such awkward units are very difficult to understand. We must do better.

========== RIDERSHIP EFFICIENCY ==========

Our best measure of efficiency remains the Productive Capacity Ratio, expressed as a percentage. For simplicity, let us call it Ridership Efficiency, because the focus is on the riders -- how many of them are served and how fast they are moved.

Ridership Efficiency becomes the percentage of maximum train loading multiplied by the percentage of the best measured speed. For example, a train that is 50% loaded and traveling at only 50% of the best-speed-ever-measured would represent a Ridership Efficiency of 25%. A train which is only 10% loaded while traveling in record time has a Ridership efficiency of only 10%.

V. Vuchic, Urban Public Transportation, Prentice Hall, 1981 p. 520

TABLE 2 DEFINITION OF RIDERSHIP EFFICIENCY

$$\text{RIDERSHIP EFFICIENCY} = \frac{\text{Train Loading}}{\text{100\% maximum}} \times \frac{\text{Trip Speed}}{\text{Best Speed}}$$

EFFICIENCY AND EFFECTIVENESS

A distinction must be made between "efficiency" and "effectiveness". Efficiency tends to be an engineering term which measures how well input efforts yield output results. Effectiveness also evaluates the impact of transit service on societal goals. In a simplistic way, efficiency means "doing things right", while effectiveness means "doing the right thing."

There has been an unfortunately association of "efficiency" with conservatives, especially right-wing managers who would cold-heartedly cut out services because they were not judged to be "efficient". Similarly, Liberals have been more associated with effectiveness, at least in the sense of tieing government actions to more diffuse societal goals such as social justice. However, the use of transit efficiency to measure system performance would appear to meet the goals of liberals for good and fair mass transit service, while achieving conservative's objectives of minimizing waste and bumbling in operations.

USING EFFICIENCIES TO TARGET SERVICE GOALS

The total trip is composed of the sum of the individual link and dwell times. A typical MBTA trip will often show better performance on some links or dwells than on others. Some parts of a trip may get LOS B or C service while other sections limp in at LOS E or F. A logical question is to seek ways of bringing all links and dwells up to LOS B or C -- by improving on the "bad" parts of the trip. We can simulate the results of such efforts by doing "What-If?" analysis on the computer with all links and dwells improved to LOS B or C.

The actual implementation methods may be much more complex, such as identifying lagging trains and expediting them to catch up with the train in front. Left unattended, such lagging could produce severe line instability, with long gap headways followed by closely bunched trains, with the critical lead train overloaded and bumbling along at LOS F. In some cases, the lagging may be caused by equipment problems or surge loads from other intersecting transit lines. Too often, the lagging is due to poor management or union sabotage caused by whatever may be the discontents of the day.

The scenario would be to identify lagging trains early while the lengthened headways were still manageable. In this way line stability could be assured and LOS F for links need only be a rare emergency occurrence. Because any improvements would necessarily be gradual, we can set up targets of insuring LOS D service on all links, then we can seek LOS C or better as earlier goals are achieved.

Setting goals of LOS B or LOS C would allow for promising performance goals to the public. Years ago, this was done in the form of signs which promised "10 minutes to Park Street" or "12 minutes to Summer Street". Unfortunately, these signs were removed by MBTA management as part of station "modernization" and no similar service commitments have been advertised in recent years.

A more complex series of guidelines could appear in a combination of objectives :

* No more than 1% of the trips should be LOS E or worse
* No more than 10% of the trips should be LOS D or worse
* No more than 30% of the trips should be LOS C or worse

As with all objectives, we can take sample trips and assess the results of "What-If?" limits on the frequency of bad trips.

======== SAMPLING PROCEDURES TO MEASURE SPEED AND TIMES ==========

We know we can measure speed and travel times, and thereby establish Levels of Service for individual trips. But how many trips need to be measured? How frequently should trains be sampled, and how can the data be used to represent individual trips, line performance or system performance?

There are two general types of field measurement : the fixed observer and the moving observer.

..... THE FIXED OBSERVER

The fixed observer stands at a platform and records the arrival time of each train, as well as a visual estimate of loading. The number of units is also recorded, so a fairly complete log of trains and riders past a fixed point is kept for up to a 2-hour period.

Unfortunately, there are no measurements of speed or any recording of service at other points along the line.

..... THE MOVING OBSERVER METHOD

A moving observer can measure speed and ridership (loading) by riding along in the train and observing the stop/start times and the number of riders. Other than spot observations at the beginning and end of trip, there are no records of headways.

For the line as a whole, we need both moving and fixed observers, with speed and loading variations predominantly the responsibility of the moving observer, while the fixed observer records train frequency of the trains and loading variations between train units. For the Green Line, this observer would best be located at Park Street.

The fixed observer can also report on train loadings, but the observations tend to be very hurried because of the short time available to estimate train loading as a train speeds by.

Ideally, line performance would be a combination of headways measured at beginning, middle and end of the line by fixed observers, with speed and ridership estimates coming from a large percentage of sampled trips by moving observers..

For example, a peak hour sampling of 2 riders on each of the four Green Line branches would yield 8 sample trips per hour in the Park to Copley tunnel. With trains operating about one a minute in the peak, such a sample would represent about 15% of all trips. However, the moving rider would be recording loadings for only one of possibly two or more LRV units. Speed sampling would be 15%, but load sampling would be 8% or less.

These sampling estimates suggest the desirability of having two sampling riders per train. Their results would reflect any unbalanced loadings between front and rear of the train, and the record of stop/start times would serve as a check on each other's data accuracy.

With trip sampling occurring an average of 2 days a week, each observer would produce 100 sampled 2-way trip records per year. A rate of 50 trip records each way over the year should serve as an adequate annual line summary of performance. As the MBTA begins to get a better handle on erratic trip performance and service evenness improves, the frequency of trip sampling can be reduced.

========== BEGINNING THE SAMPLING OF 96 GREEN LINE TRIPS ========

This report includes 96 sample trips on the outbound Boston College line, covering the route between Park Street and Boston University Central.

The data form was designed to permit comparison of trip times for different modes, including door-to-door walking times. This format allows one to compare transit vs. car vs. bicycle, etc. However, the original walking times were recorded to Government Center, so the full modal comparison capabilities of the data sheet have yet to be utilized.

The trip path from Park Street to B.U. Central, as well as connections to Government Center and walking to Cambridgeport are shown in the map (Figure 1).

TABLE 3 TRANSIT TRIP OBSERVATIONS AND RECORDED DATA
Made for 96 Sampled Trips

1. Date and time of day
2. Headways of trains arriving during platform wait period
3. Type of train and number of cars
4. Stop and Start times at each station
5. Estimated car loadings leaving each stop : # of seats full and # of standees (for half of LRV unit)
6. Special incidents, breakdowns etc.
7. Bunching of LRVs (train headways at B.U. Bridge)

========== HOW MEASUREMENTS WERE MADE ==========

All 96 trips were recorded by the author, riding the Boston College outbound line between 1977 and 1990. Usually, a 3x5 card was sufficient to record the station names, the stops and start times, and the observed car loading.

Except for the very first trip, made in 1977, all trips were made utilizing a digital wrist watch (hr/min/sec) and recording a visual passenger count. Standees were counted up to about 20, and thereafter an estimate was made of the percentage of maximum standees -- as determined by jammed stairwells and aisles lined two passengers across. On many occasions, the trains were effectively jammed to capacity at the door wells, while standing room was still available in the aisles at the center of the train. This available standing room was inaccessible, so the train was effectively "full" or at capacity.

Some trains recorded as 90-95% full in terms of available floor space for standees were incapable of accepting any more riders. In some instances, standees distributed themselves better, with less crowding around the doors. This situation means that the "maximum capacity" of a transit car varies slightly, depending upon how evenly distributed the standees are throughout the car.

Stop and start times were determined by train lurching, not door opening and closing. Usually, doors opened almost immediately after the lurch, but there were numerous times when the doors closed, but the train did not move out. A typical example is waiting for traffic signals to change on Commonwealth Avenue.

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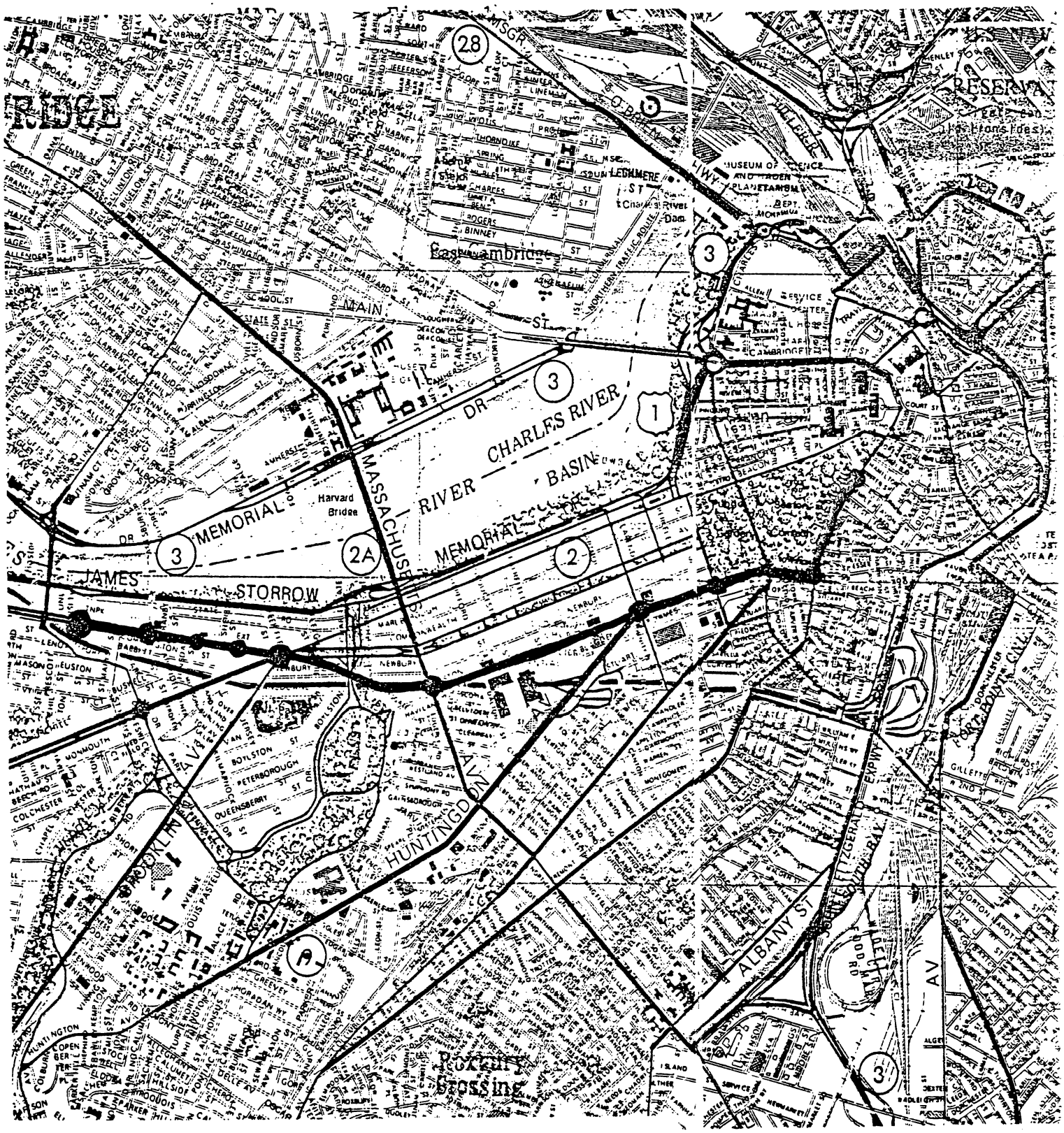


FIGURE 1 - ROUTE MAP FOR 96 GREEN LINE TRIPS

========== TRANSCRIBING OF TRIP DATA ==========

My initial efforts to develop a tally sheet began in August 1981, using a word processor. By April 1985, the first efforts to develop a spreadsheet version were begun, using SuperCalc on a 64K Zenith Z-89 CP/M computer. Memory limits hampered the analysis.

By December 1987, hardware and software were switched to IBM-compatible. Since 1988, a shareware program (ExpressCalc) has been employed to create a 1-sheet spreadsheet template labeled "TRAINMASTER" (75K) to record each trip's data, while a cumulative summary sheet of 350K contained columnar summaries of all 96 trips.

Input data included trip date, PCC or LRV (Boeing-Vertol or Type 7), number of train units, the in-and-out times at stations, the number of seats occupied and the % of maximum standees. All other data was either fixed data in the spreadsheet (such as station spacing) or calculations such as link times, speeds, LOS and efficiencies.

Initially, the base spreadsheet required frequent updating for the best & worst times for links and dwells. After 96 trips, the occurrence of record times is infrequent and the forms have stabilized.

After each trip sheet was printed, the data on link/dwell times and total loadings were typed into the summary sheet listing all 96 trips. Average, maximum and minimum speeds and dwell times were calculated.

From the summary sheet information, trip time data were rearranged to show speeds by time of day. A bar-graph representation was used to show speeds, loading and efficiencies for each trip, utilizing the shareware graphing program, ExpressGraph.

========== RESULTS : SAMPLED DOOR-TO-DOOR TRAVEL TIMES ==========

About 6 of the total 96 trips included transit times between Government Center and Boston University West, as well as walking times from 100 Cambridge Street to Government Center and from B.U.West to Hamilton Street in Cambridge. These very specific trip destinations now allowed for a small-sample modal comparison of door-to-door travel times. For the Green Line, trip times varied between 35 and 65 minutes.

About half a dozen Red Line trips were made as well, with a range of 25-45 minutes door-to-door. Bicycle trips varied primarily by weather and headwind conditions (15-25 minutes). The fastest trips were made by motorcycle, only 15 minutes or less, while car travel entailed about a 5 minute penalty for congestion and a high parking fee. Based on my walking speed to and from the Green Line, I estimate the time to walk the entire distance door-to-door (about 3 miles) as 55-65 minutes (see Table 4).

TABLE 4 SAMPLE TRAVEL TIMES, DOOR-TO-DOOR
(Downtown Boston to Cambridgeport)

1. Average Green Line Trip	35-65 minutes
2. Average Red Line Trip	25-45 minutes
3. Travel by bicycle	15-25 minutes
4. Travel by motorcycle	13-15 minutes
5. Walk entire route	55-65 minutes
6. Drive and Park (automobile)	15-25 minutes

========== RESULTS OF 96 SAMPLED GREEN LINE TRIPS ==========

Table 5 includes a listing of all 96 trips, with date and time of day, as well as any special incidents such as express operations or breakdowns. The average trip speed is shown both as an average MPH and as a percentage of the best trip speed (17.6 MPH).

We should be interested in how much speeds vary and why. Speed variations may be due to several factors :

** Time of day and by implication loading

** Average headways and equipment availability

** Breakdowns or human decisionmaking errors

** Variations in operator skills, experience or motivation/morale

** Innocent ignorance of system operations

** Sabotage by employees (management or carmen)

These factors are not listed in order of any real priority, but simply in typical order that MBTA management is prepared to discuss publicly. The common excuse that the system is "busy" does not explain the erratic performance noted in the trip sample, nor can breakdowns explain the bunching of trains.

In truth, several of these factors may be occurring at any one time -- what some people call "multivariables." Indeed, on bad days it is conceivable for every factor to be at play.

The best place to begin is at the top of the list above, the time and loading factors and determine how much this factor influences performance levels.

TABLE 5. Listing of 96 Sampled Trips -- Boston College Outbound
(Time leaving Park Street; Average Speed to B.U. East)

#	DATE	TIME	Comment	SPEED,	% of best
1.	Oct. 26, 1977	4:30 PM	(No Ridership notes)	9.3 MPH	53%
2.	July 28, 1981	5:40 PM	.....	4.8 MPH	27%
3.	Aug. 24, 1981	6:00 PM	.....	11.8 MPH	67%
4.	Sept. 21, 1981	2:00 PM	.....	14.5 MPH	82%
5.	Oct. 5, 1981	8:00 PM	.....	12.5 MPH	71%
6.	Oct. 13, 1981	3:45 PM	.....	11.4 MPH	65%
7.	Nov. 2, 1981	3:20 PM	.....	11.1 MPH	63%
8.	Nov. 4, 1981	2:55 PM	.....	7.8 MPH	44%
9.	Dec. 30, 1981	4:50 PM	.....	8.6 MPH	49%
10.	Jan. 5, 1982	5:25 PM	.....	11.4 MPH	65%
11.	Jan. 12, 1982	6:25 PM	.....	10.5 MPH	60%
12.	Jan. 27, 1982	8:15 PM	BU East & W.bypassed	11.5 MPH	65%
13.	March 11, 1982	2:20 PM	.....	9.9 MPH	56%
14.	March 19, 1982	2:00 PM	.....	10.6 MPH	60%
15.	April 12, 1982	8:30 PM	.....	12.1 MPH	69%
16.	April 13, 1982	4:50 PM	.....	8.6 MPH	49%
17.	April 14, 1982	5:25 PM	Bad Wheel,all off at	5.7 MPH	32%
18.	May 24, 1982	5:20 PM	..... Kenmore	12.2 MPH	69%
19.	June 7, 1982	4:20 PM	.....	10.4 MPH	59%
20.	Oct. 26, 1982	5:30 PM	.....	8.9 MPH	51%
21.	Oct. 29, 1982	3:10 PM	.....	13.0 MPH	74%
22.	Jan. 17, 1983	5:40 PM	Breakdown at Haymkt.	6.1 MPH	35%
23.	April 29, 1983	8:20 PM	Bypass B.U. West	12.0 MPH	68%
24.	June 3, 1983	4:10 PM	.....	12.7 MPH	72%
25.	April 16, 1985	6:30 PM	.....	6.6 MPH	38%
26.	April 23, 1985	4:45 PM	Express to Brighton,	9.6 MPH	55%
27.	April 29, 1985	2:25 PM	..... chg.@B.U.E.	8.8 MPH	50%
28.	Aug. 26, 1985	6:15 PM	.....	9.5 MPH	54%
29.	Jan. 30, 1986	4:50 PM	.....	8.3 MPH	47%
30.	Jan. 31, 1986	5:25 PM	.....	9.1 MPH	52%
31.	Feb. 3, 1986	6:50 PM	.....	11.8 MPH	67%
32.	Feb. 5, 1986	6:50 PM	Breakdown at Kenmore	4.8 MPH	27%
33.	Feb. 7, 1986	4:20 PM	.....	9.4 MPH	53%
34.	Feb. 10, 1986	3:15 PM	Express Park-Kenmore	10.0 MPH	57%
35.	Feb. 12, 1986	5:50 PM	.....	8.5 MPH	48%
36.	Feb. 25, 1986	5:50 PM	.....	8.8 MPH	50%
37.	Feb. 26, 1986	5:50 PM	.....	10.3 MPH	59%
38.	March 4, 1986	5:00 PM	.....	9.5 MPH	54%
39.	March 14, 1986	5:55 PM	.....	7.8 MPH	44%
40.	April 7, 1986	5:25 PM	.....	9.2 MPH	52%
41.	April 11, 1986	5:15 PM	Express to Brighton;	8.4 MPH	48%
42.	Aug. 14, 1986	5:40 PM	..... chg.@Kenmore	11.7 MPH	66%
43.	Aug. 18, 1986	1:00 PM	.....	13.1 MPH	74%
44.	Sept. 10, 1986	5:30 PM	Express to Brighton	8.7 MPH	49%
45.	Sept. 17, 1986	5:20 PM	..... chg.@Kenmore	7.7 MPH	44%
46.	Oct. 13, 1986	2:10 PM	.....	12.8 MPH	73%
47.	Nov. 26, 1986	5:15 PM	.....	7.6 MPH	43%
48.	Dec. 9, 1986	10:50 PM	.....	14.7 MPH	84%
49.	Dec. 15, 1986	10:45 PM	.....	13.2 MPH	75%
50.	Jan. 26, 1987	10:40 PM	.....	15.8 MPH	90%

TABLE 5 (continued) 96 Sampled Trips -- Boston College Outbound
(Time leaving Park Street; Average Speed to B.U. East)

51.	Jan. 29, 1987	Midnight	.....	17.6 MPH	100%
52.	Feb. 4, 1987	8:00 PM	.....	12.6 MPH	72%
53.	April 17, 1987	8:00 PM	.....	10.5 MPH	60%
54.	June 8, 1987	4:30 PM	.....	11.2 MPH	64%
55.	Jan. 4, 1988	7:00 PM	.....	10.4 MPH	59%
56.	Jan. 20, 1988	5:30 PM	.....	5.8 MPH	33%
57.	Feb. 4, 1988	5:05 PM	Light snow ending	10.0 MPH	57%
58.	Feb. 18, 1988	4:55 PM	.....	11.1 MPH	63%
59.	March 24, 1988	5:05 PM	.....	10.1 MPH	57%
60.	April 4, 1988	5:50 PM	.....	10.9 MPH	62%
61.	May 12, 1988	2:05 PM	..... Park-Kenmr	11.9 MPH	68%
62.	May 18, 1988	5:20 PM	Prior BC LRV express	11.2 MPH	64%
63.	May 23, 1988	5:50 PM	4 BC LRVs bunched	9.0 MPH	51%
64.	June 9, 1988	5:10 PM	.....	10.5 MPH	60%
65.	July 8, 1988	5:50 PM	.....	11.0 MPH	63%
66.	August 2, 1988	9:35 PM	Skipped BUE,BUC,+BUW	13.3 MPH	76%
67.	Aug. 10, 1988	5:40 PM	.....	10.6 MPH	60%
68.	Aug. 17, 1988	5:10 PM	Air Conditng. kaput	10.0 MPH	57%
69.	Sept. 15, 1988	6:20 PM	Eve.game at Fenway	9.3 MPH	53%
70.	Sept. 19, 1988	4:55 PM	.....	10.3 MPH	59%
71.	Sept. 29, 1988	5:05 PM	.....	11.2 MPH	64%
72.	Oct. 20, 1988	4:00 PM	.....	10.2 MPH	58%
73.	Oct. 26, 1988	6:10 PM	.....	11.8.MPH	67%
74.	Nov. 18, 1988	1:30 PM	.....	9.1 MPH	52%
75.	Dec. 8, 1988	3:50 PM	.....	10.3 MPH	59%
76.	Dec. 12, 1988	7:30 PM	First trip on Type 7	12.5 MPH	71%
77.	Dec. 30, 1988	8:10 PM	.....	14.8 MPH	84%
78.	Jan. 11, 1989	5:30 PM	LRV separated @Bland-	9.6 MPH	55%
79.	Jan. 12, 1989	2:20 PM	..... ford	10.2 MPH	58%
80.	Jan. 27, 1989	5:20 PM	.....	11.0 MPH	63%
81.	Feb. 28, 1989	6:20 PM	.....	11.8 MPH	67%
82.	March 1, 1989	6:00 PM	4 BC trains bunched	8.7 MPH	49%
83.	March 15, 1989	5:55 PM	.....	10.1 MPH	57%
84.	March 16, 1989	4:00 PM	.....	11.3 MPH	64%
85.	March 21, 1989	1:30 PM	.....	12.6 MPH	72%
86.	March 29, 1989	5:00 PM	.....	10.8 MPH	61%
87.	April 12, 1989	6:10 PM	.....	11.7 MPH	66%
88.	April 14, 1989	3:00 PM	.....	12.5 MPH	71%
89.	June 13, 1989	6:15 PM	.....	11.8 MPH	67%
90.	June 21, 1989	6:05 PM	.....	10.0 MPH	57%
91.	August 9, 1989	4:30 PM	Breakdown at BU.Cent	7.6 MPH	43%
92.	Dec. 1, 1989	5:25 PM	BC car wrong turn at	4.3 MPH	24%
93.	Feb. 21, 1990	5:45 PM	..... Kenmore	9.8 MPH	56%
94.	June 4, 1990	4:45 PM	.....	10.4 MPH	59%
95.	June 14, 1990	7:00 PM	.....	14.5 MPH	82%
96.	June 21, 1990	5:50 PM	.....	12.9 MPH	73%

========== THE BEST AND THE WORST ==========

One of the first results from this 96-trip sample is the range of best & worst times for dwells, links and total trips. This range reveals the best news -- what the achievable potential is the system is -- as well as the bad news -- how often service collapses into the pits. The potential provides us with a target for future goals, while the worst trips provide an immediate target for improvement. Tables 6 & 7 illustrate when the best and worst dwells occurred and the extent of the spread. This listing excludes any breakdown or operating change which forced me to get off the train (see Table 8).

TABLE 6 BEST AND WORST DWELL TIMES (All PM Trips)

DWELL...DWELL	TIME OF TRIP	BEST	TIME OF TRIP PM	WORST
Park Street	Dec.30'88, 8:10	14 sec.	Jan.17'88, 5:40	131 sec.
Boylston	Jan.29'87, Midn.	10 sec.	Mar. 4'86, 5:00	42 sec.
	May 12'88, 2:05	10 sec.		
Arlington	Dec.30'88, 8:10	9 sec.	Jan.17'83, 5:40	66 sec.
Copley Sq.	Dec.30'88, 8:10	11 sec.	Apr.14'82, 5:25	112*sec.
Auditorium	Aug.18'86, 1:00	9 sec.	Apr.14'82, 5:25	85*sec.
Kenmore Sq.	Dec.30'88, 8:10	10 sec.	Apr.11'86, 5:15	208 sec.
Blandford	Mar.21'89, 1:30	5 sec.	Jan.11'89, 5:30	147 sec.
Bost.U.East	Dec.30'81, 4:50	8 sec.	Apr.23'85, 4:45	180 sec.
Bost.U.Cent.	Jan.29'87, Midn.	8 sec.	Jan.17'83, 5:40	73 sec.
TOTAL DWELL TIME :		BEST 83 sec.		WORST 1021 sec.

* Note : The April 14, 1982 long dwells were followed by a complete breakdown with passenger transfer at Kenmore

TABLE 7 BEST AND WORST LINK TIMES (All P.M. Trips)

.LINK...LINK.	TIME OF TRIP	BEST	TIME OF TRIP	WORST
Park/Boylston	Jan.26'87 10:42	42 sec.	Apr.16'85 6:30	202 sec
Boylston/Arl.	Jan.17'83 5:40	56 sec.	Apr.16'85 6:30	260 sec
Arl./Copley	Jan.29'87 Midn.	44 sec.	July28'81 5:40	740 sec
Copley/Audit.	Jan.29'87 Midn.	75 sec.	July28'81 5:40	225 sec
Audit/Kenmore	Mar.19'82 2:00	51 sec.	Jan.17'83 5:40	315 sec
Kenmore/Bland.	May 12'88 2:05	37 sec.	Mar. 4'86 5:00	98 sec
Blandford/BUE	Sept21'81 =2:00	39 sec.	Jan.20'88 5:30	154 sec
(12/30/81=4:50;1/26/87=10:40)				
BU East/Centr	Jan.27'82 8:15	21 sec.	Apr.25'85 2:25	=178 sec
			Aug.25'85 6:15	
TOTAL LINK TIME :		BEST 365 sec.		WORST 2221 sec.

TABLE 8 "FAILURE" TRIPS ON THE BOSTON COLLEGE LINE

* January 27, 1982	8:15 PM	2 stops skipped
* April 14, 1982	5:25 PM	Major breakdown at Kenmore
* April 29, 1983	8:20 PM	1 stop skipped
* April 23, 1985	4:45 PM	Express to Brighton from B.U.East
* February 5, 1986	6:50 PM	Major breakdown at Kenmore
* April 11, 1986	5:15 PM	Express to Brighton from Kenmore
* Sept. 10, 1986	5:30 PM	Express to Brighton from Kenmore
* August 2, 1988	9:35 PM	Unannounced express past 3 Commonwealth Avenue stops
* August 9, 1989	4:30 PM	Major breakdown at B.U. East
* December 1, 1989	5:25 PM	Train ended up on wrong track track at Kenmore; everyone off

Total 10 failure trips or 10% of 96 sample Boston College trips

..... COMPOSITE TRIP "BESTS AND WORSTS"

From Tables 6 and 7 above, one can create "composite trips" as a combination of all the best or worst individual trip segments. These theoretical composite trips can be compared with actual best trip performance for all trips or for rush hour trips.

The composite best trips are assigned a grade or rating of 100% and all actual trips are rated on a scale from 0% to 100% of best. The best composite trips are shown in Table 9.

TABLE 9 COMPOSITE TRIP, BEST ACTUAL TRIP, +@ RUSH HOUR

	BEST COMPOSITE	BEST ACTUAL	5-6 PM BEST RUSH HOUR
* DWELL time	... 83 seconds	.. 91 seconds (91%)	.. 169 sec (49%)
* LINK time	... 365 seconds	..403 seconds (91%)	.. 474 sec (77%)
* TRIP time	... 440 seconds**	515 seconds (85%)	.. 750 sec (59%)
* TRIP SPEED	... 20.8 MPH	... 17.6 MPH (85%)	.. 12.2 MPH(59%)

	WORST COMPOSITE	WORST ACTUAL
* DWELL time	..1021 sec. (8%)	758 seconds (11%)
* LINK time	.. 2221 seconds	1540 seconds (24%)
* TRIP time	.. 3242 seconds	1915 seconds (23%)
* TRIP SPEED	.. 2.8 MPH	.... 4.3 MPH

(Note ** : Actual trips include only part of the dwell times at Park and B.U. Central. For simplicity of calculation, assume all dwell time occurs at Park ("instant on") and none of the dwell time at B.U. Central ("instant off").

..... BEST AND WORST DWELL TIMES

Consider the example of an excellent peak hour dwell performance : the 5:05 PM trip of February 4, 1988, which had an average station dwell of only 19 seconds. The train was only about 1/3 loaded, and the lengthy link times suggest that it was near the end of a bunched train group.

The longest average dwell time for a non-breakdown trip was 84 seconds (758 sec. total) on Jan. 17, 1983 at 5:40 PM, while February 5, 1986 at 6:50 PM had a total dwell of 78 seconds (704 second total). The worst breakdown dwell includes the platform time waiting for the next train to arrive : December 1, 1989 at 5:25, with 1396 seconds total or 155 seconds of average station dwell.

TABLE 10 BEST AND WORST ACTUAL TRIP DWELL vs. COMPOSITE DWELL TIMES

Rank :				
# 0.	Composite Best Trip Dwell, 8 stops		83 sec.	100 %
# 1.	December 30, 1988	8:10 PM	91 sec.	91 %
# 2.	August 18, 1986	1:00 PM	117 sec.	71 %
# 3.	January 26, 1987	10:40 PM	118 sec.	70 %
# 4.	January 29, 1987	Midnight	120 sec.	69 %
# 5.	February 4, 1987	8:00 PM	145 sec.	57 %
. . . . .				
# 92.	November 4, 1981	2:55 PM	477 sec.	17 %
# 93.	September 10, 1986	5:30 PM	511 sec.	16 %
# 94.	April 11, 1986	5:10 PM	572 sec.	15 %
# 95.	February 5, 1986	6:50 PM	704 sec.	12 %
# 96.	January 17, 1983	5:40 PM	758 sec.	11 %
# 00.	Composite Worst Trip Dwell.....		1021 sec.	8 %

..... BEST AND WORST LINK TIME TOTALS

The January 29, 1987 midnight ride provided some sense of the Green Line capability. Clearly, the motorman was nearing the end of his shift and was "putting the hammer down" to finish the run. With no management directives or union rules to interfere with the efficient completion of his tasks, he reeled off a total trip which was 91% of the composite best trip, setting two dwell time records and two link time records in the process.

The July 28, 1981 trip had a link speed rating of only 24%. This means that the link travel time was four times the composite time, and also 3.8 times longer than the fastest record link time of January 29, 1987. (see Table 11, next page)

TABLE 11 BEST AND WORST ACTUAL TRIP LINK TIMES vs. COMPOSITE LINK TIMES

Rank :			
# 0.	Composite Best Trip Link Time...	365 sec.	100 %
1.	January 29, 1987 @ Midnight.....	403 sec.	91 %
2.	September 21, 1981 @ 2:00 PM....	461 sec.	79 %
3.	January 26, 1987 @ 10:40 PM.....	466 sec.	78 %
4.	January 5, 1982 @ 5:25 PM	474 sec.	77 %
5.	December 9, 1986 @ 10:50 PM	477 sec.	77 %
92.	September 17, 1986 @ 5:20 PM ...	939 sec.	39 %
93.	April 16, 1985 @ 6:30 PM	1048 sec.	35 %
94.	February 5, 1986 @ 6:50 PM	1172 sec.	31 %
95.	January 20, 1988 @ 5:30 PM	1281 sec.	28 %
96.	July 28, 1981 @ 5:40 PM	1540 sec.	24 %
00.	Composite Worst Trip Link Time..	2221 sec.	16 %

..... BEST AND WORST TOTAL TRIP SPEEDS

The total trip time is most useful if it is directly translated into total trip speed.

Here again, the remarkable midnight ride of January 29, 1987 showed the ability to achieve 85% of the composite best trip speed.

TABLE 12 BEST AND WORST TRIPS : AVERAGE SPEED

Rank :			
0.	Composite Best Trip : Total Time	20.8 MPH	(100%)
1.	January 29, 1987 @ Midnight.....	17.6 MPH	(85 %)
2.	January 26, 1987 @ 10:40	15.8 MPH	(76 %)
3.	December 30, 1988 @ 8:10	14.8 MPH	(71 %)
4.	December 9, 1986 @ 10:50	14.7 MPH	(71 %)
5.	September 21, 1981 @ 2:00	14.5 MPH	(70 %)
92.	April 16, 1985 @ 6:30.	6.6 MPH	(32 %)
93.	January 17, 1983 @5:40	6.1 MPH	(29 %)
94.	January 20, 1988 @5:30.....	5.8 MPH	(28 %)
95.	April 14, 1982 @5:25	5.7 MPH	(27 %)
	(February 5, 1986 @ 6:50) breakdown	4.8 MPH	(23 %)
96.	July 28, 1981 @ 5:40 PM	4.8 MPH	(23 %)
	(December 1, 1989 @ 5:25) snafu	4.3 MPH	(21 %)
00.	Composite Worst Trip (3242 sec)	3.1 MPH	(15 %)

..... BEST AND WORST LINK EFFICIENCIES

The link efficiencies result from multiplying the loading by the speed, with all factors expressed as a percentage of the composite best. Because the composite best loading is virtually 100%, and the composite best speed is 100% by definition, the composite best link efficiency is 100%.

The April 14, 1982 trip of 70% link efficiency represents a remarkable standout, compared the next group of trips which are grouped around 57-58%. The trip occurred at 5:25 PM during the rush hour with a 100% jammed train. The train was also subject to a breakdown ("bad wheel") and withdrawal from service, as there were several lengthy stops before the train was removed from service at Kenmore. The following LRV which picked up the ejected passengers continued at a fairly swift pace down Commonwealth Avenue with a full load.

TABLE 13 BEST AND WORST TRIPS : LINK EFFICIENCIES OVERALL

Rank :		
0.	Composite Best Trip	100 %
1.	April 14, 1982 @ 5:25	70 %
2.	May 24, 1982 @ 5:25..	58 %
3.	April 23, 1985 @ 4:45	58 %
4.	April 7, 1986 @ 5:25	57 %
5.	August 17, 1988 @ 5:10	53 %
84.	March 1, 1989 @ 6:00	7 %
85.	August 18, 1986 @ 1:00	6 %
86.	February 4, 1987 @ 8:00	5 %
87.	August 2, 1988 @ 9:35	4 %
88.	December 30, 1988 @ 8:10	3 %
00.	Composite Worst Trip	1 %

As expected, the best time period for train efficiency was in the busy 4:30 to 5:30 period. Off-peak trips with very low occupancy produced the lowest efficiency results.

The most critical element for efficiency measures is in the downtown tunnel, especially in the section generally recognized as the heaviest load point on the Green Line : Arlington-to-Copley. Along this tunnel segment, quite high link efficiencies were recorded for 3 peak hour trains which made good speed down the tracks.

It is interesting to note that the #4 and #5 ranked trips for high efficiency occurred in the off-peak : 8:30 PM and 3:45 PM respectively. (Table 14)

TABLE 14 BEST LINK EFFICIENCIES *** Inside Tunnel ***

ARLINGTON-TO-COPLEY

# 1.	April 14, 1982	5:25 PM	.....	91 %
# 2.	August 17, 1988	5:10 PM	.....	82 %
# 3.	April 11, 1986	5:10 PM	.....	74 %
# 4.	April 12, 1982	8:30 PM	.....	72 %
# 5.	Oct.13, 1981	3:45 PM	.....	68 %

========== BREAKDOWNS AND SYSTEM FAILURES ==========

Transit breakdowns are similar to highway accidents : major delays are caused by unexpected aberrations.

The MBTA has claimed that Green Line system reliability is improving because of the Type 7 cars, and indeed all observed problems with equipment occurred on the Boeing-Vertol LRVs.

Overall, 3 of the 96 trips (3%) were directly affected by fatal equipment breakdown during the trip, requiring riders to exit and wait for the next train.

Six trips (6%) involved unexpected skipping of stations (either an express announced after the trip was already underway or the unannounced bypassing of a stop.)

> The most outlandish experience occurred on the August 2, 1988 trip. I was riding in the second unit of a dual-LRV. The driver went past BU East and BU Central and proceeded past BU West without stopping. The second motorman phoned ahead and requested him to stop after skipping BU Central, but to no avail.

Another embarrassing mistake occurred December 1, 1989 when the motorman made the wrong turn at the Kenmore switch and ended up on the Riverside/ Beacon side of the platform. Lots of red faces ..... then everybody off.

"Individual Service Failure" is defined as rider inconvenience resulting from mechanical breakdown or unanticipated human decisions resulting in stopping changes for the rider's vehicle. Such a failure would mean either a skipped stop or being forced off the train and onto another one to complete the trip.

The "Individual Service Failure Rate" from the 10 failed trips is 10%. (The earlier Table 8 is reprinted below to aid the context of this discussion).

TABLE 15 "FAILURE" TRIPS ON THE BOSTON COLLEGE LINE

* January 27, 1982	8:15 PM	2 stops skipped
* April 14, 1982	5:25 PM	Major breakdown at Kenmore
* April 29, 1983	8:20 PM	1 stop skipped
* April 23, 1985	4:45 PM	Express to Brighton from B.U.East
* February 5, 1986	6:50 PM	Major breakdown at Kenmore
* April 11, 1986	5:15 PM	Express to Brighton from Kenmore
* Sept. 10, 1986	5:30 PM	Express to Brighton from Kenmore
* August 2, 1988	9:35 PM	Unannounced express past 3 Commonwealth Avenue stops
* August 9, 1989	4:30 PM	Major breakdown at B.U. East
* December 1, 1989	5:25 PM	Train ended up on wrong track track at Kenmore;everyone off

Total 10 failure trips or 10% of 96 sample Boston College trips

..... SYSTEM FAILURES

The "System Service Failure Rate" cannot be calculated from sampled trips, because it is a measure of train breakdowns which affect an entire section of the Green Line. There are two ways that such a rate might be calculated :

* A survey of Operations Headquarters could be made for reports of all train breakdowns or unauthorized skipping of stations.

* We could define a critical link (such as Park to Copley) and establish a minimum "tolerable" speed from an operations viewpoint. For example, the lowest 15th percentile of trips could set this threshold : any slower trip would rank as a system failure. However, such a definition would tend to generate 15% system failure rates, which would be no surprise.

Ideally, a system failure rating should be able to identify where mechanical or human failures generated a severe problem which affected at least 3 trains. This would require a central tracking system far beyond the MBTA's current capabilities or interests.

========== EQUIPMENT AVAILABILITY AND SCHEDULING ==========

During this sampling survey, no measurements were made of MBTA equipment service availability. The MBTA claim appears valid that equipment availability has improved on the Green Line, with the combined losses due to retirement of PCC cars and mothballing of irreparable Boeing-Vertol cars being more than offset by the delivery of the new Type 7 cars from Japan.

====== PEAK PERIOD CONGESTION AND EFFECTS ON PERFORMANCE ===

Public transit systems commonly have peak hours of operations between 8-9 AM and 5-6 PM. Two-hour peak periods have been identified as 7-9 AM and 4-6 PM. The transit peak (14-17%) tends to be sharper than for highways (8-10%), and the imbalance of off-peak ridership is growing more severe.

Are efficient transit operations inevitably crippled by the directional peakiness of this ridership demand? The data suggest some interesting opportunities for improvement in the 96 afternoon and evening outbound trips sampled.

Seven time periods were used to segment the peak and off-peak travel times, as shown in Tables 6 and 7. The data from Table 6 is also shown graphically in Figures 2-5. (NOTE : because the very first trip was made in 1977 and did not record loadings, the trip totals may sum to only 95, not 96).

TABLE 16. PERFORMANCE VARIATIONS BY TIME OF DAY

	# TRIPS	AVERAGE			
	SAMPLED	LOADING	DWELL	LINK	EFFICIENCY
* Noon to 3 PM	11	33 %	27 s.	80 s.	19 %
* 3-4 PM	6	42 %	28 s.	75 s.	26 %
* 4-5 PM	13	52 %	35 s.	81 s.	31 %
* 5-6 PM	36	60 %	41 s.	87 s.	34 %
* 6-7 PM	15	42 %	31 s.	87 s.	24 %
* 7-9 PM	9	43 %	23 s.	69 s.	28 %
* 9PM to Midnight	5	20 %	16 s.	61 s.	15 %

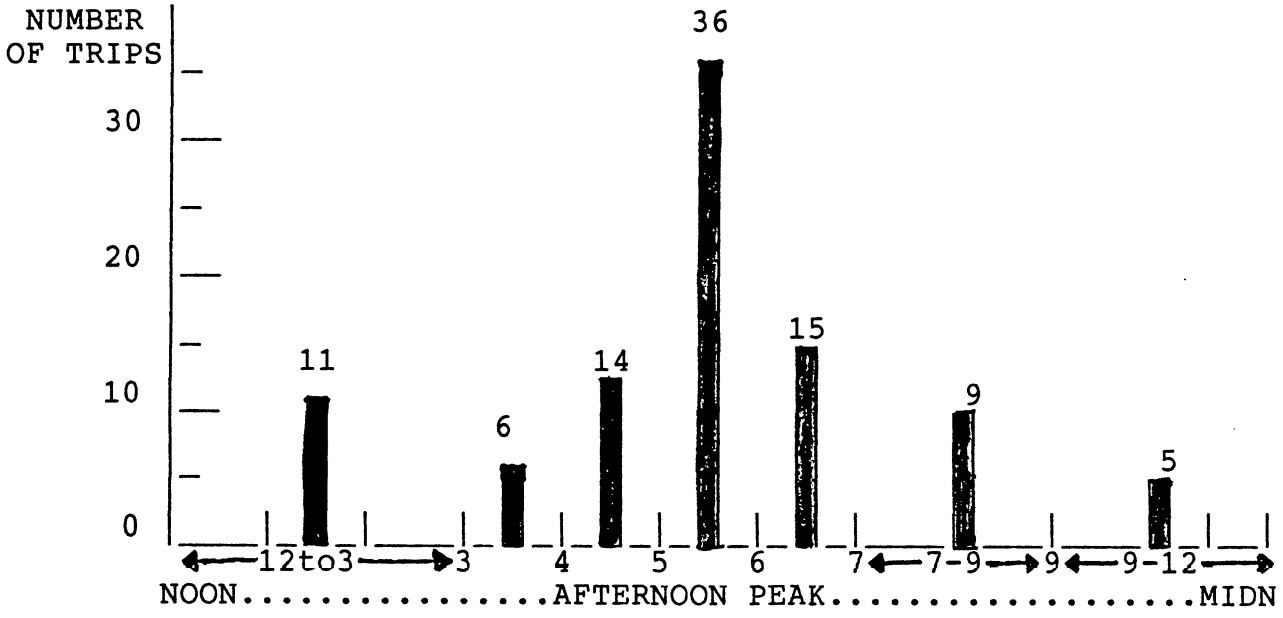


FIGURE 2. Distribution of Sampled Trips by Time of Day

..... LOADING OF GREEN LINE CARS

Loading during the peak 5-6 hour averaged 60%, which is remarkably low for the peak directional flow. While this implies a 40% reserve capacity in the peak hour, the 60% average loading figure is affected by several factors :

* Loading variations along the route. In the summer, for example, B.U. loadings are less, and many riders get off at Copley.

* Surges in demand, such as from the new 6-car Red Line trains or from office personnel departing exactly at 5:00 can cause some trains to be jammed, while others are lightly loaded.

* Crowding around the doors, while prevents all standing space from being utilized.

* Uneven loading of train units, with the front of the train typically being more heavily loaded than the rears.

* Bunching of trains, so that one overloaded train is followed closely by one or more lightly loaded trains.

Loading during the 4-5 PM period is quite high at 52%, while the 3-4 PM and 6-7 PM periods show identical average loadings of 42%.

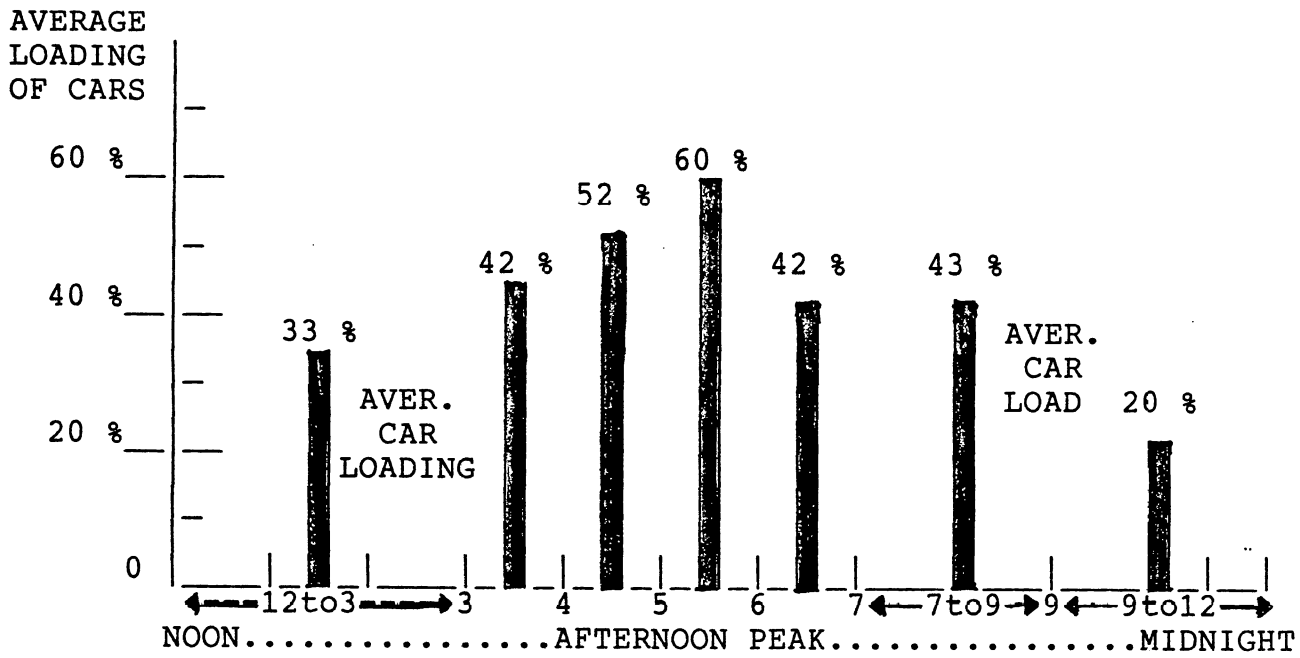


FIGURE 3 Average Train Car Loading by Time of Day

..... AVERAGE DWELL TIMES

As expected, station dwell times increased significantly during the peak hour. These dwell times are roughly proportional to the train loading when the results are averaged, but it was also evident from observation that as trains became jammed, dwell times increased disproportionately -- as people getting on and off had to squeeze past others standing is the aisles or stairwells.

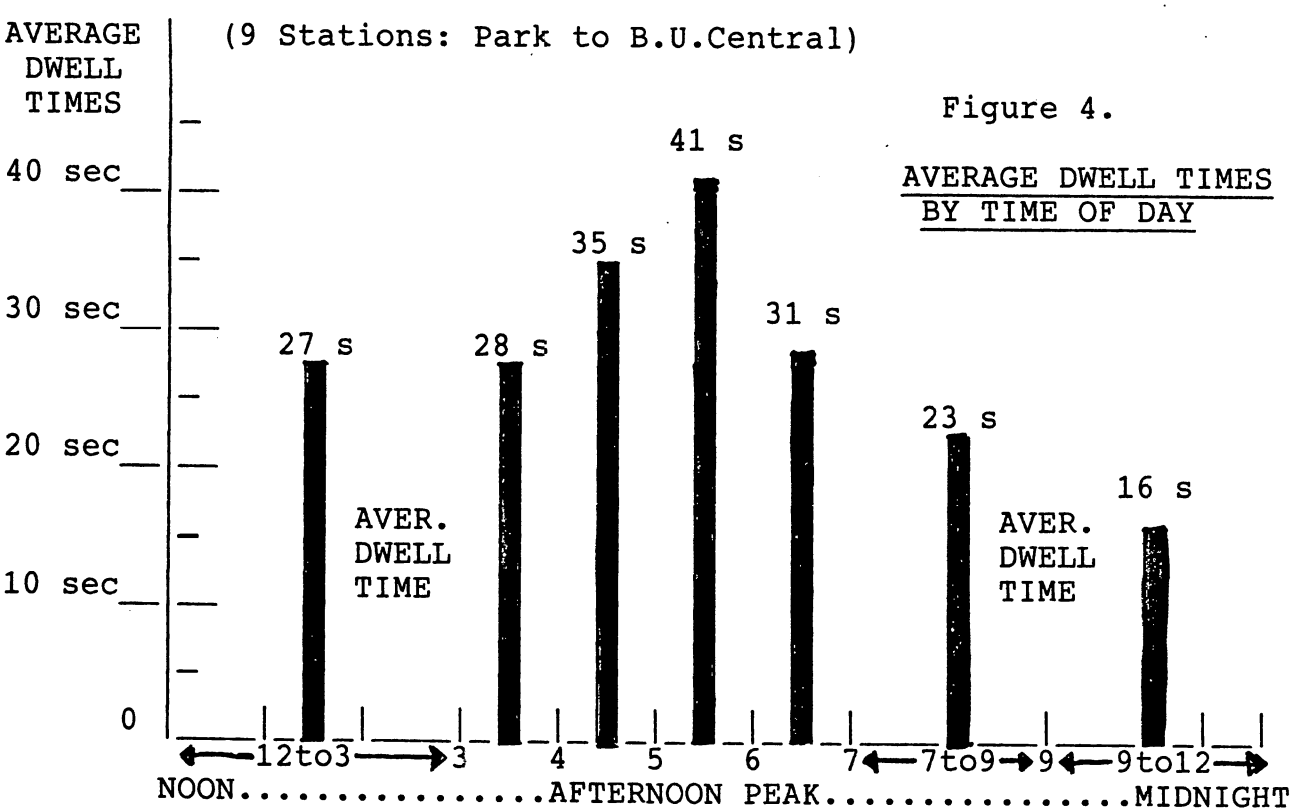


Figure 4.

AVERAGE DWELL TIMES
BY TIME OF DAY

Figure 5 below shows this approximately linear relationship between average car loading and average dwell time.

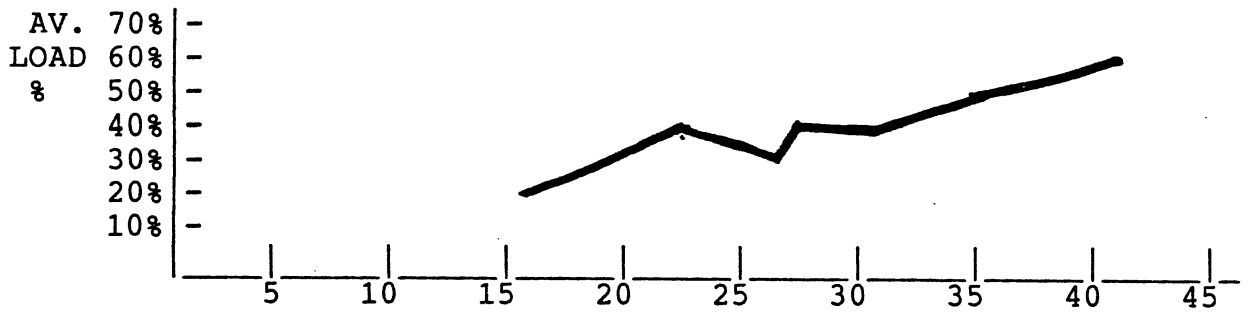


Fig. 5 AVERAGE STATION DWELL, seconds

..... AVERAGE TRIP AND LINK SPEEDS

Average trip speeds decline as expected during the 5-6 peak hour, about 10% compared with the adjacent "shoulder" periods of 4-5 PM and 6-7 PM. During the average peak hour trip, trains moved at only 9 miles an hour.

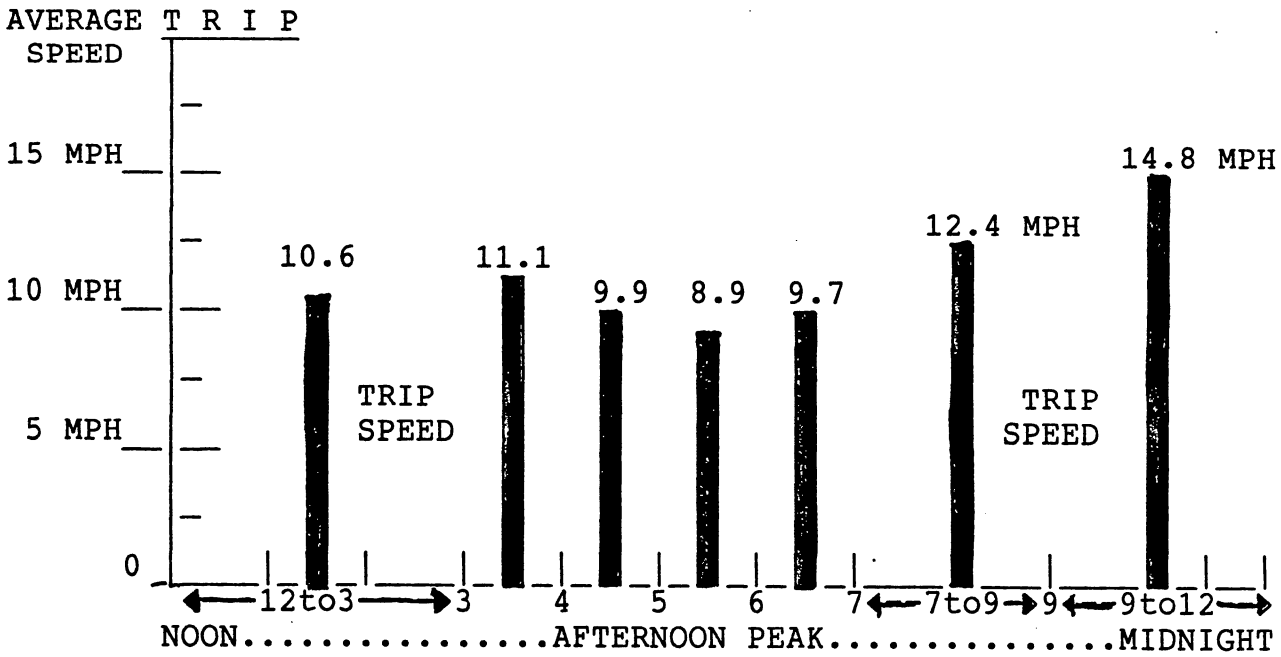


FIGURE 6 Average Trip Speed of Trips by Time of Day

Figure 6 above shows the average trip speed during the day. The average speeds during travel between station -- or the link speed -- is shown on the next page in Figure 7.

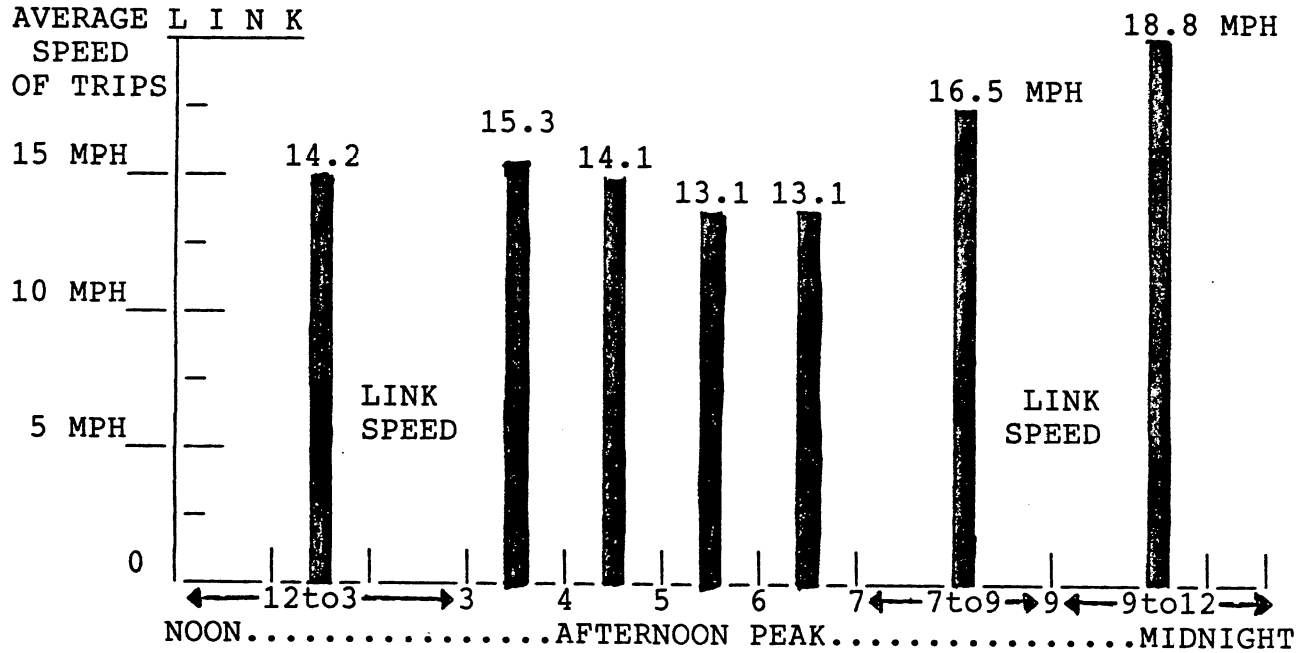


FIGURE 7 Average Link Speed of Trips by Time of Day

The link speeds show lesser variation in percentage terms than total trip speeds, because dwell times are higher (as expected) during peak hours. Still, the variation in link times is far greater than one would expect due to slower acceleration caused by the weight of passengers in heavily loaded cars. A well-run system would show only minor reductions in link times during the day, so that large variations in link times are indicators of poor operating control of the Green Line system.

..... LINK EFFICIENCIES

The efficiency is the combined effects of speed and loading. A train which is fully loaded and is moving at the best-ever attained link speed has a 100% efficiency, by definition. So a train which is only half loaded and is moving at only 50% of the fastest speed has a link efficiency of only 25%.

The overall trip efficiency can also be calculated by comparing loadings with the total travel time (including both link time and dwell time). Due to time and space limitations, such as analysis has not been included in this report.

The net result of large peak hour loadings and somewhat diminished link speeds is that people-moving efficiency does indeed peak during the 5-6 PM period, but by only relatively small amounts compared to the off-peak "shoulder" periods.

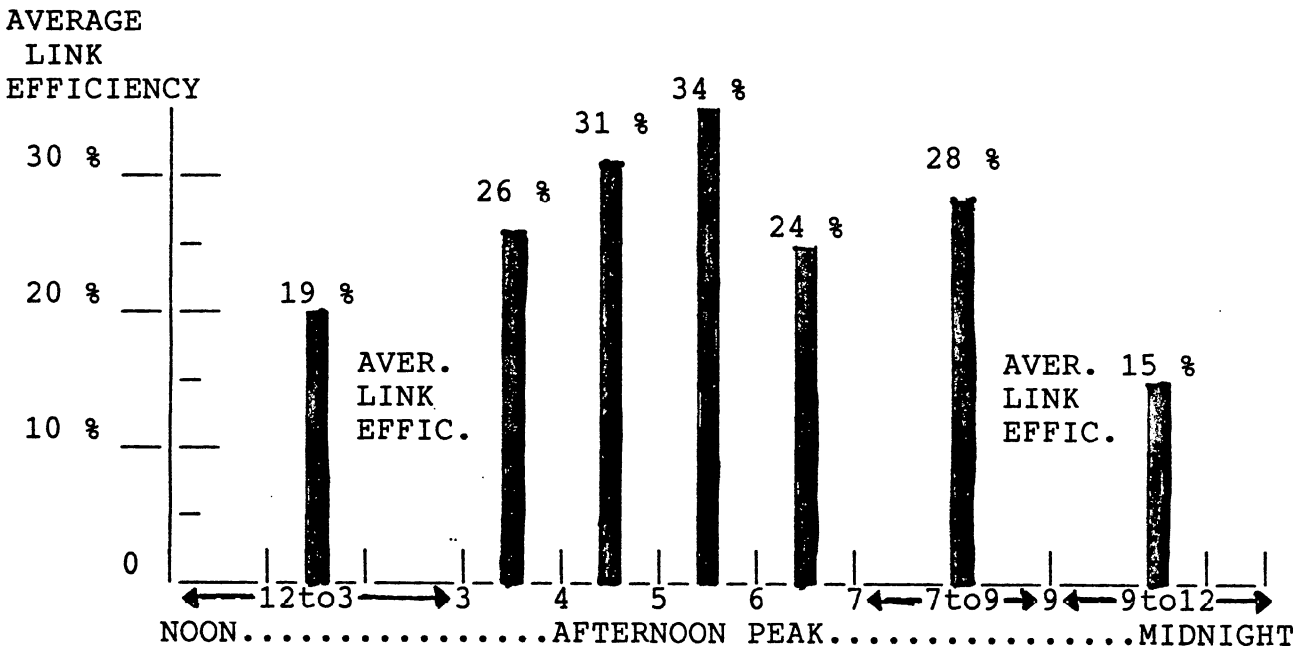


FIGURE 8 Average Link Efficiency by Time of Day

Another evident result is the efficiency drop between 6-7 compared to the later 7-9 period. Car loadings were fairly constant between both periods, but the slow dwell and link times during the 6-7 PM period suggest a carryover from the 5-6 peak hour, with train bunching and deteriorated performance carrying over past the 5-6 time into the 6-7 slot, even though the real "rush" has subsided. These results suggest that the 6-7 time represents a recovery period in order for the train schedules to get back into better order.

Another explanation may be that there are employee and management changeovers, with new vigor taking over after the rush hour. Furthermore, multiple shift factories typically have different types of management and employees between the two shifts, with daytime management likely to be more bumbling and interfering than the evening shift. As a consequence, employees who are more self-motivated and resentful of low-quality management may be attracted to the evening shifts.

.....BEST AND WORST TIMES

The range of speeds and loadings provides an even better insight into the turmoil of the peak hour Green Line. There is very little variation in the best link times from noon to 9 PM, with the best trip typically averaging a minute for each link. The worst link times vary dramatically, from 76 seconds to 193 seconds.

Because of heavy peak hour loads, the best efficiencies double during the 5-6 peak, compared to the shoulder periods. In other words, individual trains can perform very well during the peak hour -- in terms of both speed and passenger-carrying capability.

TABLE 17 RANGE OF SPEED + LOADING VARIATIONS BY TIME OF DAY

	==== LINK TIMES =====			====EFFICIENCIES===		
	AVERAGE	BEST	WORST	AVERAGE	BEST	WORST
* Noon to 3 PM	80 s.	58 s.	101 s.	19 %	38 %	6 %
* 3-4 PM	75 s.	69 s.	81 s.	26 %	35 %	12 %
* 4-5 PM	81 s.	62 s.	105 s.	31 %	58 %	14 %
* 5-6 PM	87 s.	59 s.	193 s.	34 %	70 %	9 %
* 6-7 PM	87 s.	66 s.	147 s.	24 %	43 %	7 %
* 7-9 PM	69 s.	61 s.	76 s.	28 %	46 %	3 %
* 9PM to Midn.	61 s.	50 s.	69 s.	15 %	22 %	4 %

The range in efficiency -- from best to worst -- is the most startling result. One was always aware that good trips were much better than bad trips on the MBTA, but the concept that the best trip would be almost 8 times better than the worst trip is somewhat startling in impact. The system steadily degrades from moderate equilibrium in the 3-4 PM period, to a huge efficiency spread in the peak 5-6 period, and then staggers through the 6-7 period on its way to eventual recovery later in the evening.

It can reasonably be concluded that during the peak hour and shortly thereafter, the Green Line goes slightly "haywire" -- or out of control. It becomes much more erratic and variable. The need for an on-going analysis of these service variations becomes increasingly justified.

Several conclusions can be drawn from these tables and diagrams :

** Performance from 7 PM to midnight was surprisingly better than the norm. The improved consistency in performance on the evening shift occurs when the primary daytime shift of operations managers has gone home. The explanations might be superior managers at night, more motivated employees, or less meddling by less-than-competent daytime managers.

** Variations in link times increase significantly during peak hours. The differences between the best and worst link times are very revealing. The system demonstrates an ability to make best trips of approx. 60 seconds per average link from midday through the early evening hours.

** Train observations during the trips also showed an unusual percentage of poor trips in the 6-7 PM time slot. This result may be due to residual bunching and confusion carried over from the peak hour 5-6 PM operations.

** The achievement of a 70% efficiency for one trip during the 5-6 PM peak hour is quite good. (A rating of 100% represents the impossible situation of moving a 100% loaded train at record speeds.) A 70% rating is also equivalent to moving an 85% loaded car at 85% record speed. In other words, the system has remarkable capabilities, and these capabilities have been demonstrated in the peak hour.

** At the opposite end of the spectrum is a peak hour trip with only 9% efficiency. This is equivalent to a peak hour train which is only 30% loaded moving at only 30% of record speed.

========== FURTHER STATISTICAL ANALYSIS ==========

So far, this report has discussed the simple matters of average times or speeds, and the range of measurements obtained. The next step is to consider the implications of more advanced statistical results. The most common statistical feature of varied or scattered data is the standard deviation, which is a measure of the "spread" in the scatter of data. A small standard deviation implies that data is very consistent and lies quite close to the average. A larger standard deviation suggests much more scatter beyond the average. The higher the standard deviation, the more inconsistency is in the data or performance.

Most statistical analyses for quality control are usually performed by first deciding what variations from average or specifications are acceptable. There may be different gradations of severity in tolerance, ranging from "marginally acceptable" to "completely unacceptable". Important individual judgments go into setting this standard of acceptability. If management sets a very lax standard for acceptability, the number of rejects is reduced (which looks good on paper), but the quality of the product to the comumer may suffer.

Let's take an example from industry. In machine tools, if management accepts sloppy parts, they can achieve a lower rejection rate. "Acceptability" improves, but quality suffers, and service may be unacceptable to the consumer.

With mass transit, management can intentionally set too flexible a tolerance for poor trips. The result is easy "success" -- with almost all trips "acceptable" to the lax standard set by management. The riders may fume, but management can rest smugly satisfied at their survivalist ruse.

In industry, once one has established standards for any tolerable variations in quality, engineers can calculate the standard deviation of actual production samples. There will always be a few cases where production work is so deficient that the part or product must be rejected, but this percentage will always be small.

Again using the example of machine tools, standard deviations of 1% or less are tolerable. Exceptions to this "toleration range" are by definition "intolerable" and are classified as defects, to be withdrawn from the manufacturing process. A defect or failure rate of 5% is indicative of a very sick manufacturing process, and 25% (as occurred on some of the last U.S television assembly lines) is downright disastrous. Field reports from one of the most famous disasters of all time -- the Edsel -- indicated that up to 90% of the first 1958 Edsels delivered to the dealers simply would not run.

As another example, materials processing is less critical in terms of deviations in properties. Typically, material strengths and other properties might vary 3% or less and still be acceptable for commercial use.

Much of the success of America's "Arsenal of democracy" in World War II was attributable to the combination of a renewed work ethic and statistical quality control. When early American bombs and planes did not work properly and reliably, major efforts were expended to assure that things would work properly in the future.

Unfortunately, the end of World War II also brought about a gradual abandonment of statistical quality control in the U.S. Coincidentally, the mass transit industry continued in a long downward slide towards reduced efficiency and reliability of service. While the United States abandoned much of its skills in quality control, the Japanese adopted many of the old American methods for measuring and insuring quality .... and revolutionized the automobile business, as well as consumer electronics.

Therefore, it was not entirely in a humorous vein that I have offered the suggestion for Green Line operations to be contracted out to the Japanese. In the United States, deficient management has enjoyed a monopoly for too many years, and they have been shielded from responsibility for their performance by the innocent protection offered by genuine transit advocacy groups, such as environmentalists and rail fans. We must recognize the "transit management gap" which exists in Boston and other major American cities, compared with the vastly superior transit operations in other countries, especially Canada, Europe, Japan and including .... Moscow.

Why have American transit managements fallen down so badly, especially compared to less advanced nations? If the "Best and the Brightest" in our nation went into high tech, Wall Street, and national government, where did the "Worst and the Dumbest" go?

For decades, we have been puring vast sums and personnel into the space and the military, depleting our available skills and attentions away from urban transit operations. The Russians too had this space/military fixation. They may have reduced the Soviet Republics to a collections of basket cases, but the Moscow subway still works. In peak hours, trains come in 30 seconds after the last one has left.

Consider this comparison : while the Japanese have adapted one of the most advanced forms of computer applications -- fuzzy logic -- to the optimization of minimum delay for passengers on the Tokyo subway system, the MBTA avoids any measurements of passenger delays and instead issues press releases on how many more people are happy with T service ..... compared to the days of Barry Locke.

Therefore, statistical quality control for transit service must be seen as a matter of skill and belief, and cannot be mandated. If the Japanese and the Moscovites have quality in their systems, we should find out how and why. If MBTA management is not prepared to make a commitment to setting proper goals for transit operations, then those services should be contracted to other parties. Given the lack of concern for operations quality by MBTA management over the past 2 decades, we should assume that if service quality control and MBTA management cannot be made into a harmonious fit, then one of them will have to go, and it will not be service quality control.

All subsequent discussion of service variance be based on the assumption that -- by whatever means appropriate -- a managerial attitude is present which is enthusiastic for providing consistently good quality service.

..... STANDARD DEVIATION OF SYSTEM PERFORMANCE

So far, this analysis has considered simply the averages or the extremes of Green Line performance. The extent of statistical scatter can be determined by using the measure of the Standard Deviation, or the Standard Deviation percentage (also called the Coefficient of Variation). Commonly, the standard deviation is a statistical measure reflecting the variation of data about an average, expressed in the original units of measurement. For example, the standard deviation of dwell times would be expressed in seconds, as is dwell time. However, it is more useful to utilize the percentage of standard deviation, where

$$\text{Percentage of Standard Deviation} = \frac{\text{Standard Deviation}}{\text{Trip Average}}$$

(expressed as a %)

In the discussion in the previous section, the examples used for comparison were :

* machine tools ..... with a Standard Deviation of 1%

* materials..... with a Standard Deviation of 3% or less

The peak hour MBTA Green Line service, based on 96 sample trips, has the following characteristics :

	5-6 PM	3-4 PM
* car loading ..... with a Standard Deviation of	39%	36 %
* station dwell.... with a Standard Deviation of	66%	26 %
* link speed ..... with a Standard Deviation of	30 %	6 %
* efficiency ..... with a Standard Deviation of	43 %	30 %

These striking results illustrate not only the contrast between MBTA service and well-monitored machine tool & materials industries -- they also illustrate how extensive is the deterioration of service into widely scattered variability during the peak hour.

These results represent trip monitoring primarily over a 10-year period. The results show no evidence of reduction in the scatter during this period, except for link speed. The averages have shifted in the direction of reduced average loadings, increased average speeds, and reduced efficiencies, but the scatter of performance around these averages remains a major problem.

Unfortunately, we have no data from the 1930s and 1940s as to schedule adherence and performance variation, so there is no way of determining statistically how much better schedule performance was in decades past. We know only from hearsay and the advertised commitment to schedules that things were indeed better years ago. MBTA management rigorously resists any comparison of present day service with service achieved in these earlier periods, and instead uses the 1981 Barry Locke period as the baseline for comparison.

.....VARIATIONS IN CAR LOADINGS

The variations in loading during any time period stay within a range of 36% to 49%, except for the 7-9 period, which could reflect evening sports activity in Boston and the irregular surges which result.

Another contributing factor to variable car loadings could be the 50% increased surges occurring from the longer cars on the Red Line. The new 6-car trains on the Red Line will tend to send larger passenger surges onto Green Line platforms.

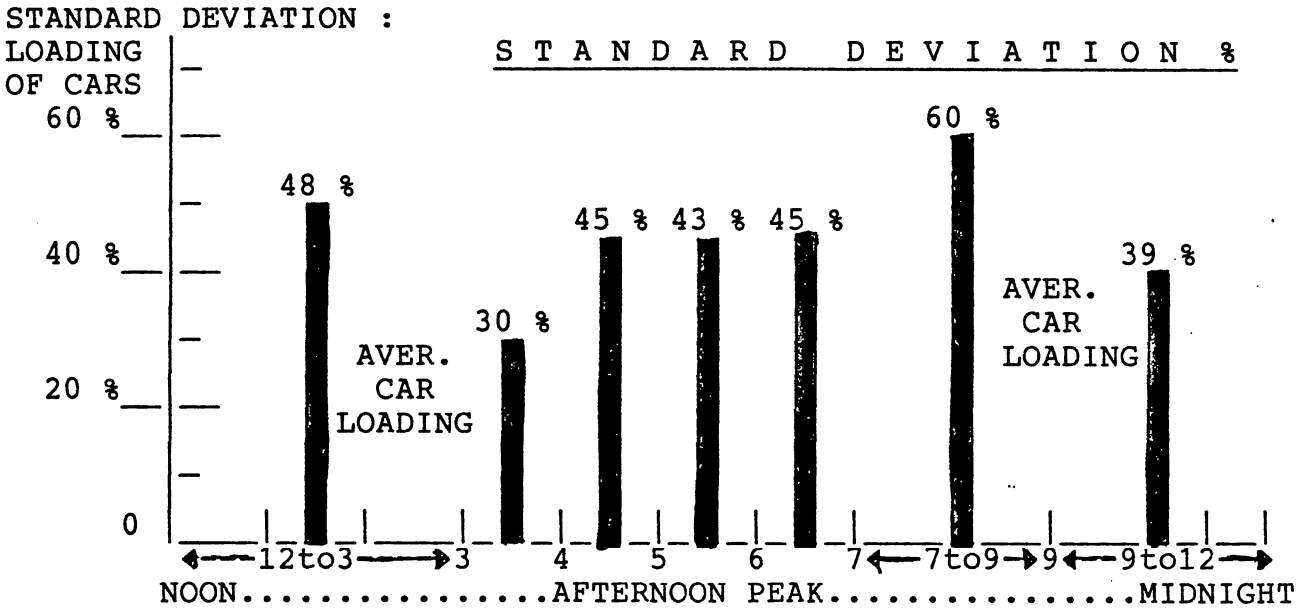


FIGURE 9 Standard Deviation : Loading by Time of Day

.....VARIATIONS IN AVERAGE DWELL TIMES

The variation in dwell times showed the most prominent sensitivity to peak hour loading. As trains become overloaded, especially if the stairwells become jammed, it takes much longer for passengers to make their way from the interior of the car to the steps and out the door.

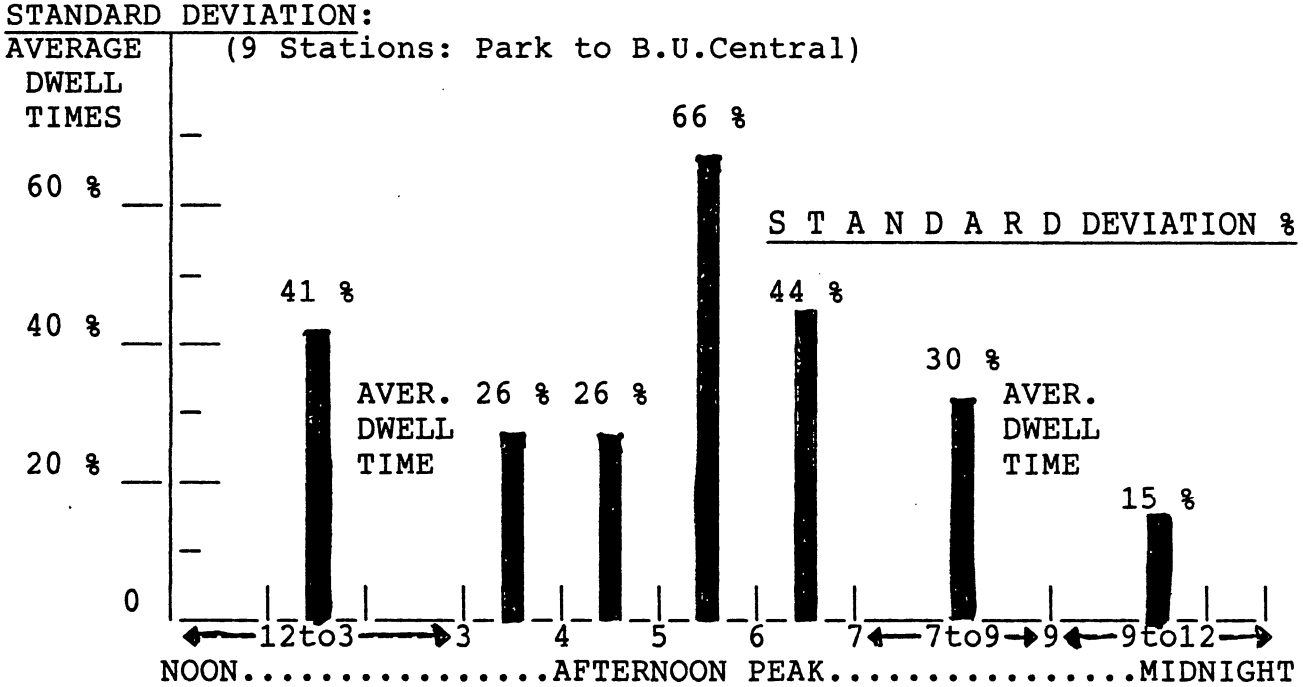


FIGURE 10 Standard Deviation : Dwell Time by Time of Day

The loading process is hampered by the likelihood of people trying to climb the stairs as others are trying to exit. There is a lack of eye contact for easy communications and yielding of position, and the handrails are not comfortably located for exiting.

Only on one or two occasions did MBTA platform attendants take active roles in preventing car overcrowding. Generally, passengers were left to their own devices to handle the issue of when a train was so overcrowded it warranted waiting for the next train.

..... VARIATIONS IN AVERAGE LINK SPEEDS

Variations in speed were most prominent in the peak hour, although the 6-7 PM period also showed wide variations as the Green Line system struggled to regain its operating composure after the rush hour.

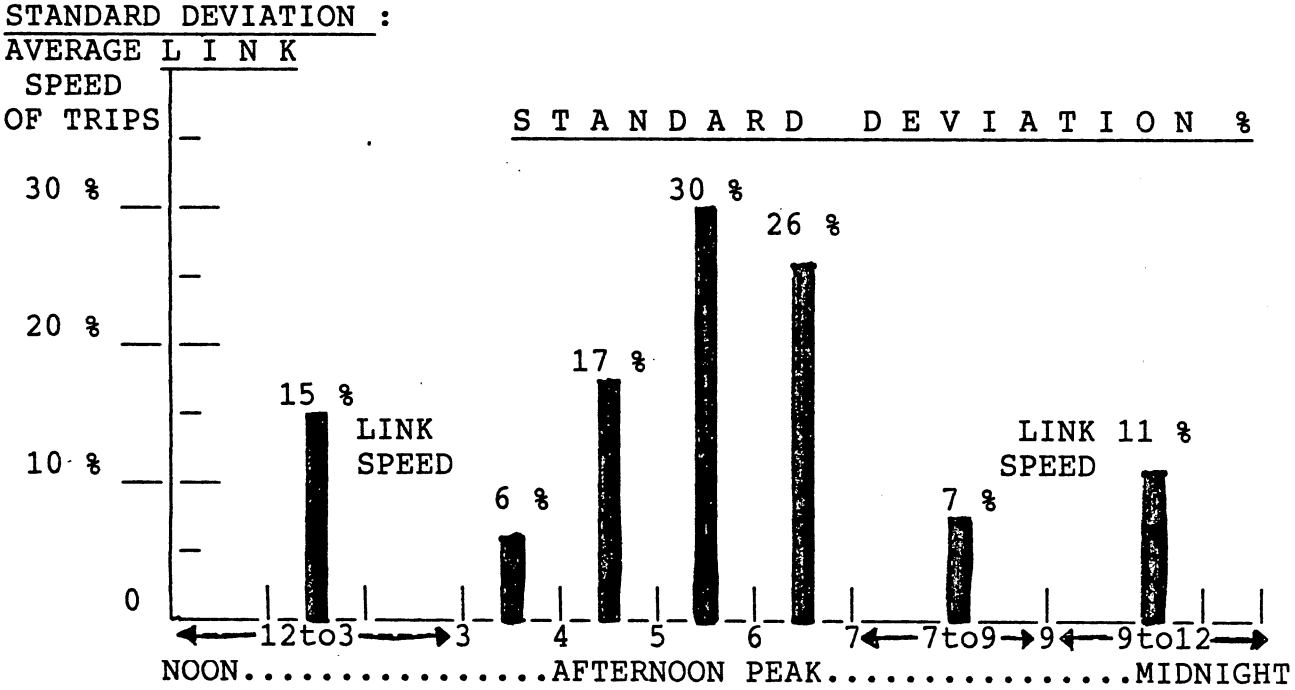


FIGURE 11 Standard Deviation : Link Speed by Time of Day

..... LINK EFFICIENCIES

Recall that the efficiency is the combined effects of speed and loading. A train which is fully loaded and is moving at the best-ever attained link speed has a 100% efficiency, by definition. So a train which is only half loaded and is moving at only 50% of the fastest speed has a link efficiency of only 25%.

The greatest link efficiency variations occurred during the mid-evening hours, probably due to sporting events.

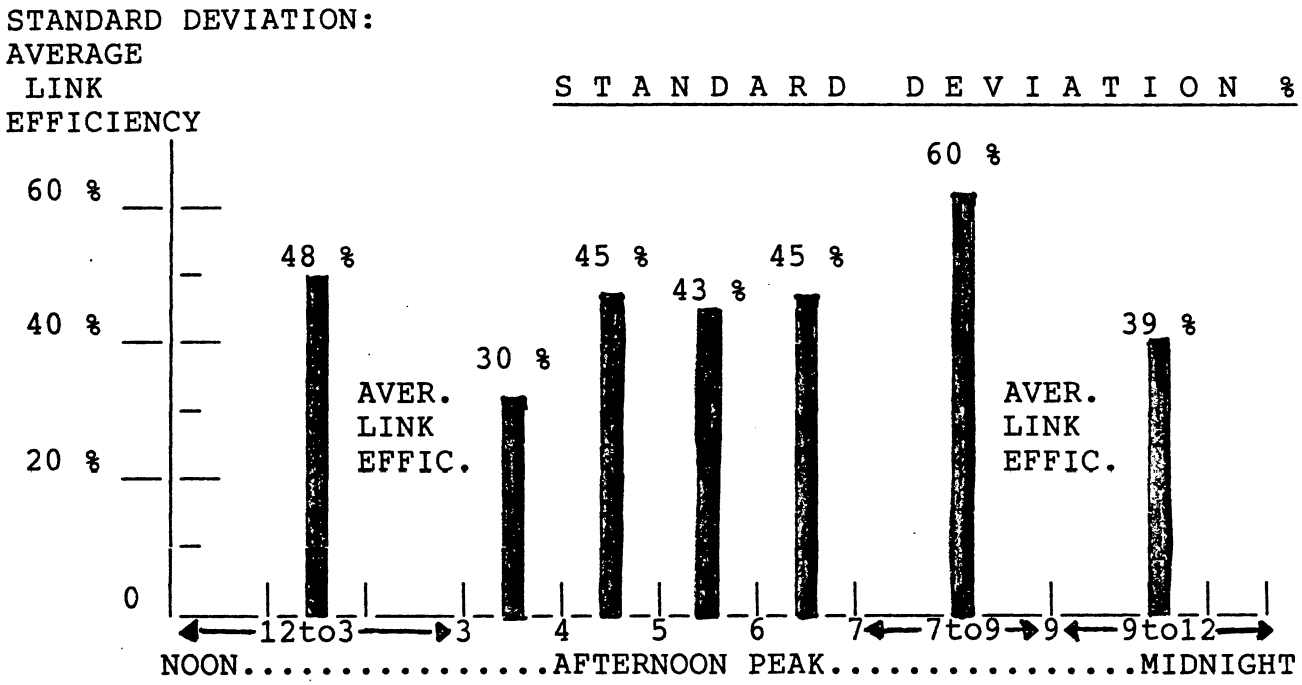


FIGURE 11 Standard Deviation : Average Link Efficiency by Time of Day

========== SETTING PERFORMANCE GOALS BASED ON SAMPLING ==========

The analysis so far has established a decent statistical base for determining essential information on service performance on the Green Line, in particular the standard measures of averages and variances (scatter). From the 96 sampled trips over a 10-year period, we can draw certain conclusions about service, how to measure it, and how to structure the data sheet.

The next question is : where do we go from here? How do we use the data to set performance goals and measure any subsequent success in their attainment?

Clearly, 96 trips in 10 years is still too small a sample to get a good grasp on Boston College Line performance, let alone the Green Line as a whole. Ten trips a year gives some idea of how well things are going, but we would be better off with 100 trips in the sample each year, with about half of them in the peak hour. If the sample included the other Green Line branches as well, we would be talking about 400 total trips in one direction, with 100% coverage of Park-to-Copley and 75% coverage of Copley-to-Kenmore. In terms of gathering the trip data, such a sampling rate would represent 4 riders (one on each branch) recording 40% of their daily trips. Ideally, one would use an independent corps of samplers (selected and coordinated by the MBTA Advisory Board and Association for Public Transit) so that commuter trips could be combined with data gathering.

Data sheets would be submitted to the Ridership Consortium (see page 6) and processed there by technical staff entirely independent of the MBTA. While processing and printing of each trip analysis form (Appendix A) has heretofore taken about an hour, this time could be trimmed to about 10 minutes with skilled key punching. The basic information on dates, loadings and times takes only 2-3 minutes to type, while comments on travel conditions, other trains and any special delays/breakdowns would average out to another 5 minutes. Final printing and loading of a new blank data form would take another 1-2 minutes, using print spooling and hard disk access.

.....SETTING QUALITY TOLERANCES IN TRANSIT SERVICE

In industry, production lines commonly function within certain set tolerances. These standards are set by establishing an ideal attainable target, with allowable deviations or tolerances. Any part that does not meet the tolerance represents a defect. Defects can be incidental, minor or major. Once areas of too many defects have been identified, the production managers must then determine where and why the problem is occurring and how to reduce the number of defects produced.

The efficient management of this process is called Quality Control and is the essence of good industrial management -- whether it is the American "Arsenal of Democracy" in World War II or Japanese consumer goods produced for the world market.

By implication, a transit authority should be considered as an industry in the business of providing a public service, namely mass transportation. There will always be a supply/demand debate between liberals and conservatives over how efficiently mass transit should be run. I regret that Liberals have surrendered the concept of efficiency to the Conservatives without a fight, while Conservatives tend to view "Public Service" as a Communist plot. The net result is a transit system in the United States which ranks among the lowest in the world in terms of efficiency and professional commitment -- a vast distance arrears of Canada, Europe and Russia.

In response to this controversy over equity vs. efficiency, the analysis below will assume a fixed availability of personnel and equipment, with no route changes or schedule reductions for existing Green Line riders. If more riders take advantage of any improvement in service quality, all the better. Any efficiency improvement should be used to allow for ridership growth -- and any effort by conservatives to respond with service cuts should be actively resisted. The bias towards bringing more cars into the city -- as reflected in the current designs for the North Area of the Central Artery -- should be reduced, in favor of a stress on efficient mass transit serving more people, not less.

Similarly, Liberal paranoia that efficiency improvements will automatically trigger conservative service slashing must also be resisted. Efficiency should not be such a terrible and frightening word for transit advocates and should not be seen as the unmentionable "E-word". The really deadly "E-word" should be Edsel, which best describes the recent state of MBTA management.

The MBTA shows little evidence of even preparing to approach issues of service tolerance and acceptability. In the summer of 1983, the MBTA publicly declared that any delay greater than two minutes warranted an announcement and an explanation to passengers. Unfortunately, the MBTA does not monitor to see whether such announcements are made.

These delays must, of course, be measured against some standard, the only available one being the printed schedule times. Since trains on the Red and Green lines seldom run on schedule, how is it possible to identify when one is 2 minutes late?

..... TRANSIT GOALS SHOULD BE BETTER THAN AVERAGE

Unlike regular industrial quality control, the tolerance for MBTA travel should not be centered around an average. The difference between transit and regular industrial production is that very fast transit trips are better than very slow ones. The fast trips may result in bunching, but they also represent a potential for improvement in service. The reasons for a trip occurring much faster than average are :

** Fewer passengers are waiting at platforms or riding on the trains, due to simple statistical variations.

** Faster loading/unloading occurs due to better equipment -- more train units, wider doors, fewer steps, etc.

** Higher speed or acceleration/braking capabilities of the train shortens link times.

** Better skill or motivation by the motorman causes him to operate briskly and efficiently.

** Whim or sabotage by the motorman, caring little about schedules or intentionally undermining them by going too fast.

** Slowdowns in trains ahead, so the lead trains become more heavily loaded than following trains. (The "Instability Effect", resulting in bunching)

Some fast train trips will be undesirable because of the Instability Effect which causes train bunching. To prevent bunching, operators have three main choices :

1. Skip stops by making the train an "express"

2. Speed up the leading trains by taking on fewer new riders, accelerating and braking more sharply, and traveling at higher speeds between stations.

3. Slow down any train which is ahead of schedule, and allow lagging trains to catch up and maintain a regular passenger loading.

Factor #1 (express trips) is commonly used by MBTA management to correct a situation after delays and crowding have already gone bad. With express strategies, many passengers are forced into getting off one train and onto another -- a major inconvenience. This approach is like industry reworking its defective products : the strategy is to patch up defects rather than fix and monitorthe process.

Factors #2 and #3 above involve selectively speeding up or slowing down trains. At worst, some riders would encounter slightly longer delays in order to maintain line stability. (The alternative of inaction is likely to be line instability and bunching. Delays will be even longer.) Selective speedup or slow-down of trains has a considerable potential for avoiding bunching, provided a monitoring system is in place and the train operators are properly responsive.

Train speedup within reasonable operating schedules should be seen as a union-management goal, with incentives to the carmen for good service achievements. The use of service monitoring as a device by management to impose arbitrary "speedup" in the traditional union/management sense must be actively avoided.

While fast trips may be an aberration from the average schedule, they also tell us something of the service potential of the system. They are reassurances that transit service in Boston can be improved and could once again reach the levels of quality and schedule adherence achieved in years long past.

Slow trips have no merit whatsoever and should be the first priority for service improvement. Only after progress has been made in cutting down the frequency of the "worst trips" should there be parallel efforts to trim down the frequency of very fast trips.

========== DEFINITION OF ACCEPTABLE SERVICE ==========

There is a clear implication that "tolerance" means something is "tolerable". It may be argued that today's MBTA transit riders finds current service to be tolerable -- otherwise they would not be riding. In truth, many riders have no choice (no car, no parking). "Intolerable" transit service will also drive transit riders into purchasing a car and clogging the roads.

As a consequence, our focus should always be on the relative strengths of transit and autos.

ADVANTAGES TO TRANSIT	ADVANTAGES TO AUTOMOBILES
** "No fear of accidents"	** "Personal safety"
** "No parking problems, costs"	** "Travel independence"
** "No driving hassles"	** "Personal privacy"
** "No highway congestion, delays	** "No transit delays"
** "No car ownership costs"	** "No transit fares"
** "Time to read, music..."	** "Cleanliness, no smells"
** "Less energy, pollution"	** "Quickest travel time"
** "Less need for highways, pavement, garages"	** "No waiting at platforms"
	** "More reliable"
	** "More carrying space"
	** "Protection from weather"

In terms of basic operating equipment, there is little that can be done immediately for transit. The best short term possibilities are to reduce transit delays, improve travel times and minimize waiting times at platforms. In this way we improve riders' tolerance of transit, to offset some of the advantages claimed by auto drivers.

In industry, a tolerance is what is allowed in order to make conditions acceptable. With transit ridership, acceptability varies from person to person. If service declines, 10% may find it unacceptable and make other travel plans. If decline continues, some of the remaining 90% will abandon transit.

We begin with the evidence that today's transit service is at least marginally acceptable to its riders, because they are the hangers-on who have not yet quit. Improving performance will bring to transit many new faces whose concept of acceptable transit service is somewhat higher than the norm. Every further improvement in service opens up transit service to a new group who find the improved service now "acceptable".

Historically, the level of acceptability for Boston transit has shifted. In the 1920s, signs were posted requesting riders to notify management of impolite motormen. Today, who cares? Trains used to run on schedule, now they do not. In past years, people could travel on a schedule, now they do not. If transit service improves, one would expect that what the public would accept -- and expect -- would improve as well.

Most managers hope that as service improves, the dissatisfied will become satisfied. In truth, the satisfied may become dissatisfied : they may want more, and their repressed anxieties may find a voice. Ah, such is gratitude. Similarly, when service declines, many riders who are dissatisfied will become satisfied or at least complacent -- merely as a response of helplessness.

========== TRIP TOLERANCE LEVELS ==========

The total span for trip times in certain periods may be as high as +/-50% around the average. This is clearly a situation of large variability, and the goal should be to operate with a much smaller range. Clearly a variability of +/- 1% is too fine and unnecessary. Trip variations of more than 20% are pressing the boundaries of acceptability, while +/- 10% appears to be a goal well within the acceptability limits of riders and also one which could be attained by a well run system.

It should be emphasized that variations in total trip speeds will be less than the worst variations in individual links and dwells. Normally, in industry one can relax the tolerances for individual elements, without jeopardizing the overall tolerance. In practice, the transit analogy would be that a slow dwell could be followed by a fast link, and thereby maintain progress towards an acceptable overall trip.

However, in transit, failures have a tendency to propagate through the system, and contribute to line instability. Under present MBTA monitoring, elemental delays such as long dwells are seldom identified, nor are they followed up by efforts to achieve speedy links and dwells at subsequent stations. With transit systems, it makes sense to target the most deviant links and dwells as the best way to avoid train bunching and slow service.

An additional emphasis peculiar to transit should be an initial stress on improving link performance. All dwells are subject to surges of passengers from other platforms or entrances, or to random delays such as handicapped or elderly passengers. Traditionally it has been the platform starter's role to keep track of trains and train loading and to serve as a train dispatcher. Unfortunately, this role has not been developed in recent years, and every dispatcher seems on his own, isolated from up-to-date information on system conditions. How remarkable it is that a McDonald's restaurant will have the crew chief with a portable headset for communications with others on the premises, while the MBTA with such a larger system keeps its platform-based crew chiefs in the dark. Providing starters with clear roles, instructions and communications would be an important element in improved efficiency, but such a system would need to be set up and operating with consistency before any dwell optimization program was imposed on the operation.

By contrast, link performance should not show large variations in a well-operating system. Passenger loadings may hinder acceleration and braking to a small degree, but overall link performance should be independent of peak periods.

The initial goal is to identify the best link time as the performance standard, followed by setting a tolerance or threshold for the worst trips to be allowed.

Conceptually, all 96 sample trips could be evaluated for the amount of service improvement if a threshold standard was set and all speeds & dwells below this level were brought up to this threshold. We would look at all the very bad times in the 96 trips and calculate how much of an improvement would have resulted if we replaced these times with the minimal levels now tolerable.

For example, we could set a target of Level-of-Service D or better for all link speeds. A target of LOS D means any link which was less than 55% of the best speed would need to be improved ; it would be out of the range of tolerant deviation from the standard. A Link measured at LOS E would be about 50% of best speed, so the improvement would be raising 50% up to 55%.

Each improvement to LOS D could represent a certain percentage of speed improvement or reduced trip time. The cumulative savings from all improved trips would represent the incremental trip time that the average rider could expect to save.

The decision on establishing performance targets are entirely a matter of our judgment. In practice, we would proceed with a series of steps -- first seeing if LOS F tolerance levels can be met, then gradually improving them to LOS E, LOS D and so forth. These targets should not be set without a full appreciation of the unavoidable variations in ridership arrivals, handicapped, equipment aberrations, weather, and the moods of managers and carmen. By analyzing the 96 sample trips to see what effects will arise from setting different target thresholds, we can estimate the possible improvements, which would be balanced against the human difficulties of maintaining daily transit operations at progressively higher standards.

From this logic of statistical analysis and goals, we can see the overall data analysis proceeding as follows :

** Average speeds for each trip and for all trips

** Range of speeds for each trip : maximum and minimum
-- both total trip and individual links and dwells
(Note : Other ranges could be calculated too : such as the interquartile range--(the middle 50% -- or the highest/lowest deciles or 10% groupings.

** Mean deviation (arithmetic scatter)

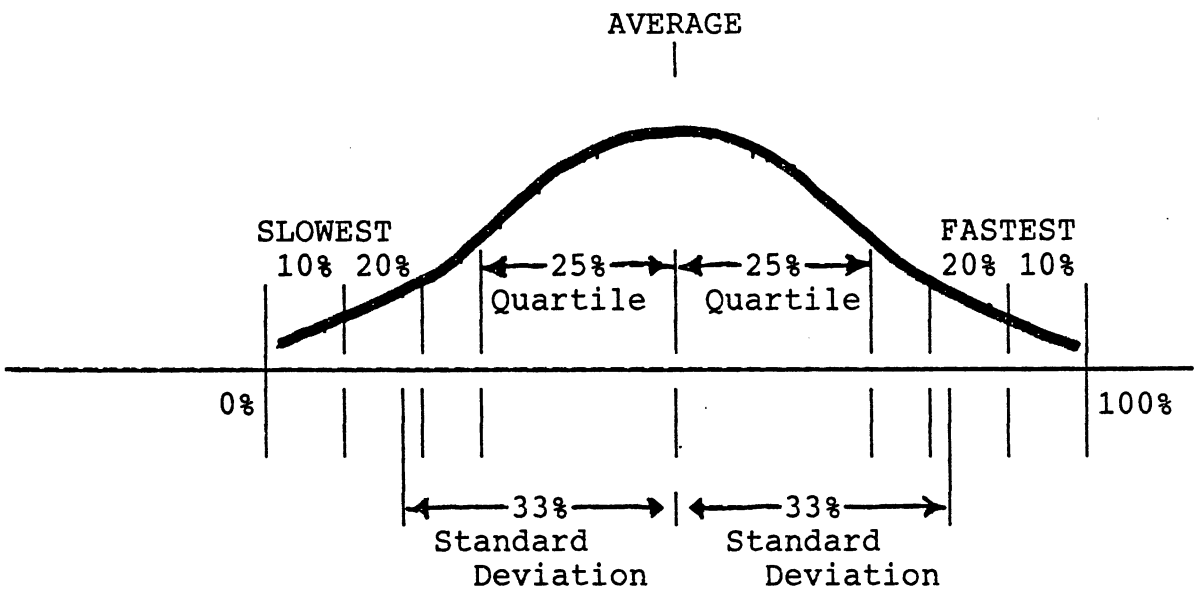
** Standard deviation (statistic variation)
(usually more than mean deviation by 10-20%; sometimes equal but never less)

** Coefficient of variation, in per cent
(also referred to as the standard deviation percentage)

** % Improvements by LOS thresholds for link travel
(different results for LOS E, LOS D, LOS C)

In its simplest terms, setting LOS thresholds means "throwing out" all slower movements and replacing them with a threshold time. All LOS E, LOS F, LOS F- and LOS F= trips would be replaced by LOS D times, whenever the target threshold is LOS D. If 20% of the times were in the range of LOS E to LOS F=, the lowest 20% of the link or dwell times would be thrown out.

A typical trip distribution is shown below as a typical "bell curve" ranging from the few slowest trips through the primary grouping around the average, and ending at the few fastest trips. The standard deviation represents the span within which 2/3 of the sampled trips fall. Another way to look at the spread is to consider the distribution in 10% or 25% segments, so that there is a top 10% and top 20%, as well as a first quartile, which is the top 25%, the second, third and fourth quartiles. In terms of transit performance, our primary focus is likely to be on the fourth quartile or the slowest 25%.



The original Boston Elevated Company posted commitments to service -- "10 minutes to Park Street", "12 minutes to Summer Street" -- but without any promises regarding variance or certainty. The Boston Elevated managers apparently believed that they could maintain an average of 10 or 12 minutes, with some slight insignificant variance. Sadly, these signs were taken down as part of transit "modernization". Today's equivalent signs would probably read, "17 minutes to Park Street, +/- 5 minutes." Such a claim would represent a 30% variation.

Such variations are not new. In May 1969 a Bruce Campbell & Assoc. study for the MBTA's Beacon Street Line concluded that "the primary problem of outbound operations is due to poor headway regularity (10 seconds to 15 minutes) of trains outbound at the portal."

In the year 1990, we find conditions which seem wearily similar to the 1969 description. It would appear that the difficulties of maintaining consistent Green Line operations have been a problem at least since the inception of the MBTA in 1964.

====== RESULTS OF TARGETED IMPROVEMENTS TO 96 SAMPLE TRIPS =======

There are two approaches to targeting improvements to trip speed. One is to limit the improvement to link times only, leaving all dwell times unchanged. The second is to improve both link and dwell times up to the targeted threshold.

.....LINK TIME IMPROVEMENTS ONLY

The base case is the unaltered 96 trips as recorded, with an average trip speed of 10.4 MPH and an average link speed of 13.9 MPH. If the target threshold is raised and met to LOS E, then C and finally B, the results are :

LINK TARGET THRESHOLD	LINK SPEED	TRIP SPEED	LINK SPEED IMPROVEMENT	TRIP SPEED IMPROVEMENT
Base Case	13.9 MPH	10.4 MPH	0	0
LOS E	15.7 MPH	11.5 MPH	12.6%	10.0%
LOS C	17.1 MPH	12.3 MPH	22.9%	18.3%
LOS B	18.2 MPH	13.0 MPH	31.2%	25.0%

As defined earlier in Table 1 (page 9), LOS E represents 55% of the best attainable speed, LOS C corresponds to 64%, and LOS B to 71%.

Because link speed by itself should not be significantly affected by peak hour loading, the stable operation of the Green Line would mean that LOS B or better should be possible, since this would mean operating in a fairly wide band ranging from 71% to 100% of best speed. If we permit a 10% allowance for the effects of car loading on acceleration and deceleration, then the operating band would be 71% to 90%. This implies holding within link schedules to +/- 10%, which appears a reasonable and attainable goal for a well-run system.

.....BOTH LINK AND DWELL IMPROVEMENTS

Improvements to both link and dwell times require a concerted effort to monitor train position and loading. Starters at key locations such as Park, Arlington and Copley would be required to check on any slippage from schedule and to prevent any one train or car in a train from becoming overloaded.

It might be necessary to impose additional policies similar to those on buses, which preclude standing on the front steps close to the driver. For the Green Line LRV cars, the steps would be painted yellow (similar to the yellow high platform line) and passengers would not be allowed to stand on the yellow -- the stairs. The loss of standing room for passengers on the stairs would be more than made up for by greater dispersal of passengers throughout the train and less crowding around the critical doors and stairs. Passengers could step down onto the stairs to make a pathway for exiting riders (similar to stepping out onto a rapid transit high platform, then re-entering the train).

With programs in place to limit excessive dwell times and to keep the trains moving evening in the peak hour, target thresholds for both link and dwell performance become possible. The total trip speed now becomes the target for improvement, with an LOS C standard producing a 33% improvement in average speed, while an LOS B target would yield a 48% speed improvement. The reduction in ridership on the average trip would be only a few percent, so that the efficiency improvements possible would be in the 30% to 45% range.

========== ADDED RIDERSHIP FROM SERVICE IMPROVEMENTS =========

Any improvements in service should result in added ridership. Normally, most of these riders would come from car pools or existing bus trips -- with only a minority switching from driver-only cars. However, coordinated programs to encourage ride-sharing and improve bus service should serve ultimately to achieve the goal of reducing the number of single-occupant cars in the commuter stream.

There is a relationship (or "elasticity") between ridership and trip time, just as similar relationships exist between ridership and transit fares. Typically, raising fares by X percent produces a drop in ridership of 20%X to 35%X. Technically, the elasticity is noted as -0.20 to -.35. Similarly, increased travel time produces a drop in ridership, with an elasticity of -0.39.

(Ref.: Wayne Talley, Introduction to Transportation, Southwestern Publishing Company, 1983. p. 300.)

If travel times are reduced, elasticity similarly applies, but the result is more riders. For example, a 10% travel time reduction would yield a peak hour work-trip ridership gain of 3.9%. This gain would result from bringing all links up to a target threshold of LOS E. Similarly, thresholds of LOS C and LOS B would yield ridership increases of 7.1% and 9.8% respectively, as summarized on the next page.

LINK TARGET THRESHOLD	TRIP SPEED	TRIP SPEED IMPROVEMENT	INCREASED RIDERSHIP
Base Case	10.4 MPH	0	0
LOS E	11.5 MPH	10.0%	3.9%
LOS C	12.3 MPH	18.3%	7.1%
LOS B	13.0 MPH	25.0%	9.8%

========== OTHER RESEARCH CONCEPTS AND NEEDS ==========

MBTA managers have consistently resisted any comparison of Boston transit performance with any other transit system, including the BEC and MTA of years past. A survey should be conducted of how cities around the world monitor their rail systems for schedules and variability in service. Schedule performance over a period of 50-60 years should be considered when system longevity permits.

Further research needs to be done on the psychological effects of trip variability. Such studies would help immensely in terms of identifying the desirable target levels of transit service, and in understanding the psychology of why people do or do not take transit, and under what conditions of service they could be make more enthusiastic about using transit.

For example, consider the effects of time variability on a work trip, using any mode. Consider 6 trips which took 25 minutes, 35 minutes, 25 minutes, 35 minutes, 30 minutes and 30 minutes. The average trip is 30 minutes, the longest is 35 and the shortest is 25 minutes. The standard deviation is 4.1 minutes and the % deviation is 13.6%. generally, most people would consider such trip performance quite acceptable and would rate the service as at lest good.

Now suppose the last trip took 40 minutes, rather than 30. The average increases to 31.7 and the % deviation to 17.4%. Most people would be unhappy with the 40 minute trip, but would rate overall performance as OK.

Suppose the last trip deteriorated to 60 minutes, twice as long as the original average trip. Now the average trip is 35 minutes and the % deviation is 34%. Most people would consider the overall performance of the 6 trips to be intolerable.

Oddly enough, if the worst trip were cut to 45 minutes, and all other trips raised to 35 minutes, some riders would be happier. The average trip time would be higher, but the variability would be lower.

TABLE 18. EFFECTS OF 5 TRIPS PLUS A VARIABLE 6TH TRIP

LAST TRIP TIME	AVERAGE OF 6 TRIPS	STANDARD DEVIATION	ST.DEV. PERCENT	TYPICAL RATING
30 min	30.0	4.1 min	13.6%	Good
40 min	31.7	5.5 min	17.4%	OK
50 min	33.3	8.5 min	25.5%	Poor
60 min	35.0	11.9 min	34 %	Intolerable

How do ordinary people assess these tradeoffs? Some good surveys and interviews could be very revealing.

========

Other offbeat surveys could be revealing. How were the Red Sox able to average 31,612 attendees for 80 home games -- a figure of 92% capacity, despite the history of conflict and anguish associated with the team? Annual attendance went from 1.1 million in 1960 to 652,000 in 1965, then surging to 1.6 million in 1970, 2 million in 1980 and 2.5 million in 1990. The old park stayed substantially the same, transit service followed the fortunes of the Green Line, and ticket prices rose dramatically. Did the Red Sox do something to make the fans feel welcome -- an approach quite foreign to the normal machinations of MBTA management?

==========

Other state agencies have performance rating systems which may provide useful experience and analogies. For example, the Mass Department of Public Works has a program to monitor the use of road salt and identify areas where excessive amounts of salt are used. The DPW Maintenance Division has adopted a materials Control System and a related performance rating system which compares actual salt applications with the target or goal for salt application. The Division sets certain target usage rates and after a snow storm compares the actual salt use with the target rates. (see Draft Generic EIR, "Snow and Ice Control Program", March 1989, p. 3-76)

RATING OF PERFORMANCE	ACTUAL SALT USE VS. TARGET RATES
Excellent	..... Actual use within 0-20% of Target
Good	..... Actual use within 20-50% of Target
Fair	..... Actual use within 50-100% of Target
Poor	.....Actual more than 100% greater than Target.

========== SUMMARY RESULTS OF SAMPLING AND ANALYSIS =======

The overall analysis of the 96 trips on the Boston College branch of the outbound Green Line produced a range of results, beginning with definitions and ending with statistical analysis.

1. The focus of transit performance evaluations should be on bad trips and how to improve them.

2. To understand what makes for bad trips, we need to consider the variations in service, and key in level of service definitions to these variations.

3. Satisfactory definitions for transit "Level-of-Service" do not exist in the literature. LOS A was defined as being within 90% of the best recorded time in the sample. Separate definitions are necessary for dwell and link LOS F, because loading times are more sensitive to peak hour operations than are link speeds.

4. Generally, the LOS measures work quite well, with the exception of certain stations with very low dwell times, such as the Boston University stations at night. The result is frequent occurrence of LOS F or worse, even for moderately rapid stops. A somewhat less stringent LOS formula is probably justified for dwells. The LOS formula for speeds between stations works very well.

5. Because speed and loading are separate values of performance, they can be combined into one performance measure called the "efficiency" -- which is the product of speed and loading. The best actual trip efficiency actually measured was 70%, which is very good and indicates peak hour system potential.

6. An analysis form was designed, using computer spreadsheet methods. The form took raw data on trip times and loadings and automatically performed time and speed calculations, as well as statistical comparisons with other trips.

7. Of the 96 trips recorded, 95 were complete for data. The average data for all trips showed :

* AVERAGE, ALL TRIPS		AVERAGE, PEAK HOUR ONLY...RANGE	
LOADING	48 %	60.4 %	19 % - 99 %
DWELL	33 sec	41 sec	19 - 155 sec
SPEED	10.4 MPH	8.9 MPH	4.8 - 12.9 MPH
EFFICIENCY	28 %	34 %	9 % - 70 %

8. Listings were also made of the 5 Best and 5 Worst total trips as well as for each individual station stop and link connection.

9. The scatter of the data was calculated using the Standard Deviation formulas, with the results presented in percentage form. The wide Green Line variations contrast with other industries which provide product with a standard deviation in the 1-3% range:

* STANDARD DEV...ALL TRIPS		STANDARD DEV...PEAK HOUR ONLY
LOADING	50 %	30 %
DWELL	61 %	66 %
SPEED	26 %	30 %
EFFICIENCY	51 %	43 %

10. Improved service would also produce increases in ridership. Cutting travel time by 10% would yield ridership growth of 3.9%, equivalent to bringing all trip links up to LOS E. More stringent LOS goals could result in ridership increases of 7.1 % and 9.8%.

========== CONCLUSIONS AND RECOMMENDATIONS ==========

1. There should be the formalization of a trip sampling function by using regular T riders to gather data wherever possible. Base data would be submitted to a transit analysis group called the Ridership CONSORTIUM, which would be entirely independent of independent of MBTA management. The Consortium staff would take the trip data and run it through computer analysis for circulation to the Advisory Board, MBTA and general public.

2. The sampling frequency on the Green Line should be higher than other lines because of the numerous branches. The primary focus should be on moving observers recording train loadings and progress, while fixed-observer sighting at individual locations (such as the peak load point) should be concentrated but on a less frequent schedule. Ideally, each branch should be subject to about 50 annual trips in one direction during the peak hour, with another 50 covering trips in various off-peak periods. This would translate into about 200 annual round trips on each line. Setting up data input would be critical, to assure both speed and accuracy of processing such vast amounts of trip data.

3. A definition for transit "Level-of-Service" should be adopted. This report develops a letter grade designation for Level of Service, analogous to traffic level of service. To account for many cases of severe degradation of service, added LOS designations of LOS F- and LOS F= were provided to account for cases where speeds dropped to less than 40% of best measured speeds.

4. The MBTA appears to be operating the Green Line with inadequate monitoring of performance and an inability to prevent the system from clotting into bunched up trains.

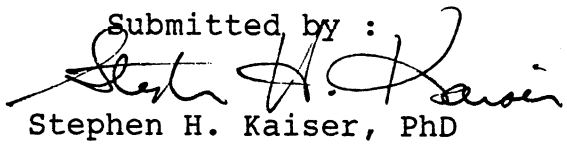
5. The MBTA Advisory Board should be expanded in function to consider more than just the financial operations of the MBTA. It should be given work responsibilities which more effectively make the Advisory Board a ridership advocacy group. If all else fails, the Advisory Board members should be elected, rather than appointed, to 2-year terms.

6. The system needs more incentives to perform well. At least 20% of all salaries should be variable, based on the degree of excellence in service offered.

7. There should be a historical performance review of Green Line ridership trends and performance over the past 50 years, including all efforts by the Boston Elevated, MTA and MBTA to make ridership and speed measurements.

8. The MBTA must develop administrative expertise to monitor, control, and encourage better service and performance.

Submitted by :



Stephen H. Kaiser, PhD
Traffic and Transportation Engineer

B O S T O N C O L L E G E OUTBOUND # 1 SHK Rider AVER. TRIP SPEED = 9.3 LOS E
WEDNESDAY, OCTOBER 26, 1977 Typed by: SHK FEB.17, 89 Previous Worst = 4.8 LOS F-
..Begin Trip 4:30 P.M. Checked by: SHK APR.16, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS PCC (two)	STATION TIME IN	STATION TIME OUT	Max130 Riders 42\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	
PARK STREET	28:00	28:50	100%	-% - %	50	14	36	F-	—	—	—	—	—		131	—
BOYLSTON	30:20	30:30	100%	-% - %	10*	10	0*	A	90	42	48	F	1500'	11.4	88	202
ARLINGTON	33:55	34:10	100%	-% - %	15	9	6	B	205	56	=149	F=	2000'	6.7	66	260
COPLEY	35:50	36:05	100%	-% - %	15	11	4	A	100	44	56	F-	1600'	10.9	112	740
AUDITORIUM	38:15	38:25	100%	-% - %	10	9	1	A	130	75	55	D	2800'	14.7	85	225
KENMORE	40:10	40:30	100%	-% - %	20	9	11	D	105	51	54	F	2250'	14.6	208	315
BLANDFORD	41:30	42:35	100%	-% - %	65	5	60	F=	60	37	23	D	1100'	12.5	78	147
B.U.EAST	43:25	43:35	100%	-% - %	10	8	2	A	50	39	11	B	1400'	19.1	180	154
B.U.CENTRAL	44:25	45:00	100%	-% - %	35	8	27	F=	50	21	29	F-	750'	10.2	73	178
TOTALS :	—	—	—		230	83	=147		790	-365	=425		13400'	—	1021	2221
AVERAGE:	100%	NA%	NA%		26	9	16	E	99	46	53	F	1675'	11.6	11	278
MAXIMUM:	100%	NA%	NA%		65	14	60		205	75	149		2800'	19.1	208	Worst Dwell
MINIMUM:	100%	NA%	NA%		10	5	0		50	21	11		750'	6.7		

* = Best Time Ever ...
^ = Worst Time Ever .....

MEAN DEVIATION: LOADING NA% LOST DWELL18 sec | LOST LINK 25 sec | 21% | Worst Link 740
STANDARD DEVIATION: LOADING NA% LOST DWELL19 sec | LOST LINK 40 sec | 38%

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.28:.00	<<< :<<<	—
Transit Trip	13,400	4:.44:.25	16 :.25	9.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST TIME		
DWELL	.0	- .4 =>	A	<= .0	- .2	LINK
DWELL	.4	- .8 =>	B	<= .2	- .4	LINK
DWELL	.8	-1.2 =>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6 =>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0 =>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4 =>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0 =>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or =>	F=	<= 1.5	or	LINK
<<<<<<<<<<<	> more				more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-				
BOYL	NA	THE	NA	NA	NA
ARLI	NA	LINK	NA	NA	NA
COPL	NA	EFFICIENCIES	NA	NA	NA
AUDI	NA	WOULD	NA	NA	NA
KENM	NA	BE	NA	NA	NA
BLAN	NA	....	NA	NA	NA
BU.E	NA		NA	NA	NA
BU.C	NA		NA	NA	NA
	NA	AVERAGE LINK	NA	NA	NA

GAIN IN RIDERS :
...Link Improvements only NA NA NA
...Link & Dwell Improvements NA NA NA

TRIP NOTES — OTHER TRAINS AND COMMENTS

Trip notes were recorded with a sweep second watch, with times reported to the nearest five seconds.

No record was made of passenger loadings.

B O S T O N C O L L E G E OUTBOUND # 2 SHK Rider AVER. TRIP SPEED = 4.8 LOS F=
.... TUESDAY, JULY 28, 1981 Typed by: SHK APR.16, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:40 P.M. Checked by: SHK APR.16, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS PCC (two)	STATION TIME IN	STATION TIME OUT	Max130 Riders 42\ STAND SEATS	Max130 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	45:35	46:55	100%	80% 86%	80	14	= 66	F=	—	—	—	—	—	131	—
BOYLSTON	47:50	48:10	100%	85% 90%	20	10	= 10	C	55	42	= 13	B 1500'	18.6	88	202
ARLINGTON	49:35	50:15	100%	90% 93%	40	9	= 31	F=	85	56	= 29	C 2000'	16.0	66	260
COPLEY	6:02:35	03:35	100%	90% 93%	60	11	= 49	F=	740^	44	=696^F=	1600'	1.5^	112	740
AUDITORIUM	07:20	08:00	100%	100% 100%	40	9	= 31	F=	225^	75	=150^F=	2800'	8.5^	85	225
KENMORE	12:50	13:35	100%	100% 100%	45	9	= 36	F=	290	51	=239 F=	2250'	5.3	208	315
BLANDFORD	14:25	15:00	100%	100% 100%	35	5	= 30	F=	50	37	= 13	B 1100'	15.0	78	147
B.U.EAST	15:55	16:50	100%	97% 98%	55	8	= 47	F=	55	39	= 16	C 1400'	17.4	180	154
B.U.CENTRAL	17:30	17:50	100%	97% 98%	20	8	= 12	D	40	21	= 19	E 750'	12.8	73	178
* = Best Time Ever ...	TOTALS :		—	— —	395	83	=312		1540	365	=1175	13400'	—	1021	2221
	AVERAGE:		100%	93% 95%	44	9	= 35	F=	193	46	=147 F=	1675'	5.9	11	278
^ = Worst Time Ever	MAXIMUM:		100%	100% 100%	80	14	66		740	75	696	2800'	18.6	208	Worst dwell
	MINIMUM:		100%	80% 86%	20	5	10		40	21	13	750'	1.5		
-------- MEAN DEVIATION:	LOADING		5%	LOST DWELL	15sec				LOST	LINK	161sec		109%	Worst	
STANDARD DEVIATION:	LOADING		5%	LOST DWELL	17sec				LOST	LINK	222sec		174%	link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.45:.35	<<< :<<<	—
Transit Trip	13,400	6:.17:.30	31 :.55	4.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 66%	THE	66% 66%	66%
ARLI 59%	LINK	59% 59%	69%
COPL 6%	EFFICIENCIES	49% 62%	72%
AUDI 31%	WOULD	49% 62%	72%
KENM 18%	BE	53% 67%	77%
BLAN 74%	....	74% 74%	74%
BU.E 71%		71% 71%	77%
BU.C 51%		51% 65%	75%
23%	AVERAGE LINK	57% 65%	73%

GAIN IN RIDERS :
...Link Improvements only 148%183%217%
...Link & Dwell Improvements NA NA NA

TRIP NOTES -- OTHER TRAINS AND COMMENTS

All times were recorded with a sweep second watch with accuracy to the nearest 5 seconds.

The day after this trip, I made inquiry to the MBTA to determine what caused the severe delays along the Green Line.
Two days later, the MBTA called back to say that there were no reports of anything unusual on the Green Line on the day in question.

This lack of feedback on a near system breakdown prompted me to begin sampling Green Line trips, initially using a word processor on my then state-of-the-art Zenith Z-89 computer.

B O S T O N C O L L E G E OUTBOUND # 3 SHK Rider AVER. TRIP SPEED = 11.8 LOS C
.... MONDAY, AUGUST 24, 1981 Typed by: SHK FEB.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:55 P.M. Checked by: SHK APR.17, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK LINK
PARK STREET	57:59	-58:45	100%	40% 58%	46	- 14 =	32	F	—	—	—		—	—	131	—
BOYLSTON	59:59	-00:16	100%	50% 65%	17	- 10 =	7	B	74	- 42 =	32	D	1500'	13.8	88	202
ARLINGTON	6:01:46	-02:16	100%	33% 53%	30	- 9 =	21	F	90	- 56 =	34	D	2000'	15.2	66	260
COPLEY	03:14	-03:42	100%	33% 53%	28	- 11 =	17	D	58	- 44 =	14	B	1600'	18.8	112	740
AUDITORIUM	05:19	-05:42	100%	40% 58%	23	- 9 =	14	D	97	- 75 =	22	B	2800'	19.7	85	225
KENMORE	07:15	-07:49	100%	15% 41%	34	- 9 =	25	F-	93	- 51 =	42	E	2250'	16.5	208	315
BLANDFORD	08:35	-08:52	100%	17% 42%	17	- 5 =	12	F-	46	- 37 =	9	B	1100'	16.3	78	147
B.U.EAST	09:33	-09:52	100%	20% 44%	19	- 8 =	11	D	41	- 39 =	2	A	1400'	23.3	180	154
B.U.CENTRAL	10:55	-11:10	100%	25% 48%	15	- 8 =	7	C	63	- 21 =	42	F=	750'	8.1	73	178
* = Best Time Ever ...	TOTALS :		—	— —	229	- 83 =	146		562	-365 =	197		13400'	—	1021	2221
	AVERAGE:		100%	30% 51%	25	- 9 =	16	E	70	- 46 =	25	C	1675'	16.3	11	278
^ = Worst Time Ever	MAXIMUM:		100%	50% 65%	46	14	32		97	75	42		2800'	23.3	208	Worst Dwell
	MINIMUM:		100%	15% 41%	15	5	7		41	21	2		750'	8.1		
-------- MEAN DEVIATION:			LOADING	8%	LOST DWELL	8 sec			LOST LINK	13 sec				17%	Worst Link	740
STANDARD DEVIATION:			LOADING	8%	LOST DWELL	8 sec			LOST LINK	14 sec				30%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.57:.59	<<< :<<<	—
Transit Trip	13,400	6:.10:.55	12 :.56	11.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
DWELL	.0 - .4 =>	A	<= .0 - .2 LINK
DWELL	.4 - .8 =>	B	<= .2 - .4 LINK
DWELL	.8 -1.2 =>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6 =>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0 =>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4 =>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0 =>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or =>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	33%	THE	34% 38% 44%
ARLI	40%	LINK	44% 44% 49%
COPL	40%	EFFICIENCIES	40% 40% 40%
AUDI	41%	WOULD	41% 41% 41%
KENM	32%	BE	40% 40% 40%
BLAN	33%	....	33% 33% 33%
BU.E	40%		40% 40% 40%
BU.C	15%		23% 29% 34%
	33%	AVERAGE LINK	36% 38% 39%

GAIN IN RIDERS:
...Link Improvements only 9% 15% 18%
...Link & Dwell Improvements 10% 20% 33%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND # 4 SHK Rider AVER. TRIP SPEED = 14.5 LOS B
... MONDAY, SEPTEMBER 21, 1981 Typed by: SHK FEB.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:00 P.M. Checked by: SHK APR.17, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Riders TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	03:46	04:15	100%	2% 32%	29	14	15	C	—	—	—	—	—	131	—
BOYLSTON	05:08	05:25	100%	12% 39%	17	10	7	B	53	42	11	B 1500'	19.3	88	202
ARLINGTON	06:54	07:18	100%	16% 41%	24	9	15	E	89	56	33	C 2000'	15.3	66	260
COPLEY	08:05	08:30	100%	33% 53%	25	11	14	D	47	44	3	A 1600'	23.2	112	740
AUDITORIUM	09:57	10:15	100%	15% 41%	18	9	9	C	87	75	12	A 2800'	21.9	85	225
KENMORE	11:31	11:51	100%	0% 30%	20	9	11	D	76	51	25	C 2250'	20.2	208	315
BLANDFORD	12:31	12:45	100%	0% 30%	14	5	9	E	40	37	3	A 1100'	18.8	78	147
B.U.EAST	13:24	13:45	100%	10% 37%	21	8	13	E	39*-	39	0*	A 1400'	24.5*	180	154
B.U.CENTRAL	14:15	14:43	100%	8% 36%	28	8	20	F-	30	21	9	C 750'	17.0	73	178
* = Best Time Ever ...	TOTALS :		—	— —	196	83	=113		461	-365	= 96	13400'	—	1021	2221
	AVERAGE:		100%	11% 38%	22	9	= 13	D	58	46	= 12	B 1675'	19.8	11	278
^ = Worst Time Ever	MAXIMUM:		100%	33% 53%	29	14	20		89	75	33	2800'	24.5	208	Worst Dwell
	MINIMUM:		100%	0% 30%	14	5	7		30	21	0	750'	15.3		
MEAN DEVIATION:			LOADING	6%	LOST DWELL	4 sec			LOST LINK	9 sec			11%	Worst	
STANDARD DEVIATION:			LOADING	7%	LOST DWELL	4 sec			LOST LINK	11 sec			17%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	2:.03:.46	<<< :<<<	—
Transit Trip	13,400	2:.14:.15	10 :.29	14.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST LINK
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	25%
ARLI	25%
COPL	38%
AUDI	46%
KENM	28%
BLAN	28%
BU.E	30%
BU.C	26%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	25%	25%	25%
LINK	25%	25%	30%
EFFICIENCIES	38%	38%	38%
WOULD	46%	46%	46%
BE	28%	28%	32%
....	28%	28%	28%
	30%	30%	30%
	26%	26%	28%

30% AVERAGE LINK 30% 30% 32%

GAIN IN RIDERS :
...Link Improvements only 0% 0% 7%
...Link & Dwell Improvements 3% 6% 16%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND # 5 SHK Rider AVER. TRIP SPEED = 12.5 LOS C
....TUESDAY, OCTOBER 5, 1981 Typed by: SHK FEB.17, 89 Previous Worst = 4.8 LOS F-
..Begin Trip 8:00 P.M. Checked by: SHK APR.16, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	04:32-05:11	100%	25% 48%	39	14	25	E	—	—	—		—	—	131	-
BOYLSTON	06:09-06:25	100%	30% 51%	16	10	6	B	58	42	16	B	1500'	17.6	88	202
ARLINGTON	07:50-08:27	100%	40% 58%	37	9	28	F=	85	56	29	C	2000'	16.0	66	260
COPLEY	09:20-09:48	100%	40% 58%	28	11	17	D	53	44	9	B	1600'	20.6	112	740
AUDITORIUM	11:27-11:42	100%	40% 58%	15	9	6	B	99	75	24	B	2800'	19.3	85	225
KENMORE	13:08-13:33	100%	35% 55%	25	9	16	E	86	51	35	D	2250'	17.8	61	315
BLANDFORD	14:16-14:47	100%	35% 55%	31	5	26	F=	43	37	6	A	1100'	17.4	208	147
B.U.EAST	15:48-16:10	100%	35% 55%	22	8	14	E	61	39	22	C	1400'	15.6	180	154
B.U.CENTRAL	16:40-17:11	100%	35% 55%	31	8	23	F-	30	21	9	C	750'	17.0	73	178
* = Best Time Ever ...	TOTALS :	—	— —	244	83	=161		515	-365	=150		13400'	—	1021	2221
	AVERAGE:	100%	35% 55%	27	9	18	E	64	46	19	C	1675'	17.7	11	278
^ = Worst Time Ever	MAXIMUM:	100%	40% 58%	39	14	28		99	75	35		2800'	20.6	208	Worst Dwell
	MINIMUM:	100%	25% 48%	15	5	6		30	21	6		750'	15.6		Worst Link 740
MEAN DEVIATION:	LOADING	3%	LOST DWELL 8 sec					LOST LINK 9 sec					6%		
STANDARD DEVIATION:	LOADING	3%	LOST DWELL 8 sec					LOST LINK 10 sec					10%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	8:.04:.32	<<< :<<<	—
Transit Trip	13,400	8:.16:.40	12 :.08	12.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	35%	35%	35%
ARLI	34%	34%	39%
COPL	48%	48%	48%
AUDI	44%	44%	44%
KENM	34%	39%	45%
BLAN	47%	47%	47%
BU.E	35%	35%	42%
BU.C	39%	39%	42%
	39%	40%	43%

THE LINK EFFICIENCIES WOULD BE .... — AVERAGE LINK

GAIN IN RIDERS :

...Link Improvements only	0%	3%	10%
...Link & Dwell Improvements	10%	16%	28%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND # 6 SHK Rider AVER. TRIP SPEED = 11.4 LOS C
....TUESDAY, OCTOBER 13, 1981 Typed by: SHK FEB.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 3:45 P.M. Checked by: SHK APR.17, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	44:05-45:05	100%	75% 83%	60	- 14 =	46	F=	—	—	—	—	—	131	—
BOYLSTON	45:55-46:20	100%	85% 90%	25	- 10 =	15	D	50	- 42 =	8	A 1500'	20.5	88	202
ARLINGTON	47:46-48:13	100%	70% 79%	27	- 9 =	18	F	86	- 56 =	30	C 2000'	15.9	66	260
COPLEY	49:04-49:34	100%	25% 48%	30	- 11 =	19	E	51	- 44 =	7	A 1600'	21.4	112	740
AUDITORIUM	51:08-51:30	100%	5% 34%	22	- 9 =	13	D	94	- 75 =	19	B 2800'	20.3	85	225
KENMORE	52:54-53:24	70%	2% 22%	30	- 9 =	21	F	84	- 51 =	33	D 2250'	18.3	208	315
BLANDFORD	54:05-54:30	80%	2% 25%	25	- 5 =	20	F=	41	- 37 =	4	A 1100'	18.3	78	147
B.U.EAST	55:59-56:16	100%	3% 32%	17	- 8 =	9	C	89	- 39 =	50	F- 1400'	10.7	180	154
B.U.CENTRAL	57:25-57:46	100%	5% 34%	21	- 8 =	13	E	69	- 21 =	48	F= 750'	7.4	73	178
* = Best Time Ever ...	TOTALS :	—	— —	257	- 83 =	174		564	-365 =	199	13400'	—	1021	2221
	AVERAGE:	94%	30% 50%	29	- 9 =	19	F	71	- 46 =	25	C 1675'	16.2	11	278
^ = Worst Time Ever	MAXIMUM:	100%	85% 90%	60	14 =	46		94	75 =	50	2800'	21.4	208	Worst Dwell
	MINIMUM:	70%	2% 22%	17	5 =	9		41	21 =	4	750'	7.4		Worst Link 740
MEAN DEVIATION:		LOADING 26% LOST DWELL 7 sec						LOST LINK 15 sec				22%		
STANDARD DEVIATION:		LOADING 25% LOST DWELL10 sec						LOST LINK 17 sec				33%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	3:.44:.05	<<< :<<<	—
Transit Trip	13,400	3:.57:.25	13 :.20	11.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL	.0 - .4 =>	A	<= .0 - .2 LINK
DWELL	.4 - .8 =>	B	<= .2 - .4 LINK
DWELL	.8 -1.2 =>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6 =>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0 =>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4 =>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0 =>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or =>	F=	<= 1.5 or LINK
<<<<<<<<<<>	more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 70%	THE	70% 70%	70%
ARLI 59%	LINK	59% 59%	69%
COPL 68%	EFFICIENCIES	68% 68%	68%
AUDI 38%	WOULD	38% 38%	38%
KENM 21%	BE	21% 23%	26%
BLAN 20%	....	20% 20%	20%
BU.E 11%		13% 17%	19%
BU.C 10%		17% 21%	25%
32%	AVERAGE LINK	35% 37%	40%

GAIN IN RIDERS :
...Link Improvements only 9% 16% 25%
...Link & Dwell Improvements 16% 27% 42%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND # 7 SHK Rider AVER. TRIP SPEED = 11.1 LOS D
.... MONDAY, NOVEMBER 2, 1981 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 3:20 P.M. Checked by: SHK APR.17, 89 Previous Best = 17.6 LOS A
==T==R==A==I==N=====M==A==S==T==E==R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	23:50	24:30	100%	3% 32%	40	14	26	E	—	—	—	—	—	131	—
BOYLSTON	26:33	26:50	100%	3% 32%	17	10	7	B	123	42	81	F= 1500'	8.3	88	202
ARLINGTON	28:26	28:50	100%	2% 32%	24	9	15	E	96	56	40	D 2000'	14.2	66	260
COPLEY	29:44	30:05	55%	0% 17%	21	11	10	C	54	44	10	B 1600'	20.2	112	740
AUDITORIUM	31:53	32:15	55%	0% 17%	22	9	13	D	108	75	33	C 2800'	17.7	85	225
KENMORE	33:50	34:20	50%	0% 15%	30	9	21	F	95	51	44	E 2250'	16.1	208	315
BLANDFORD	35:07	35:42	40%	0% 12%	35	5	30	F=	47	37	10	B 1100'	16.0	78	147
B.U.EAST	36:35	36:53	40%	0% 12%	18	8	10	D	53	39	14	B 1400'	18.0	180	154
B.U.CENTRAL	37:30	37:46	40%	0% 12%	16	8	8	C	37	21	16	D 750'	13.8	73	178
* = Best Time Ever ...	TOTALS :		—	— —	223	83	=140		613	-365	=248	13400'	—	1021	2221
	AVERAGE:		64%	1% 20%	25	9	= 16	E	77	46	= 31	D 1675'	14.9	11	278
^ = Worst Time Ever	MAXIMUM:		100%	3% 32%	40	14	30		123	75	81	2800'	20.2	208	Worst Dwell
	MINIMUM:		40%	0% 12%	16	5	7		37	21	10	750'	8.3		
-------- MEAN DEVIATION:			LOADING	9%	LOST DWELL	8 sec			LOST LINK	19 sec			16%	Worst	
STANDARD DEVIATION:			LOADING	9%	LOST DWELL	8 sec			LOST LINK	23 sec			29%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	3:.23:.50	<<< :<<<	—
Transit Trip	13,400	3:.37:.30	13 :.40	11.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4	=>	A	<= .0	- .2	LINK
DWELL	.4	- .8	=>	B	<= .2	- .4	LINK
DWELL	.8	-1.2	=>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6	=>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0	=>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4	=>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or	=>	F=	<= 1.5	or	LINK
<<<<<<<<<<> more						more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	11%	THE	17% 21%	25%
ARLI	19%	LINK	19% 21%	25%
COPL	26%	EFFICIENCIES	26% 26%	26%
AUDI	12%	WOULD	12% 12%	13%
KENM	9%	BE	9% 11%	13%
BLAN	12%	....	12% 12%	12%
BU.E	9%		9% 9%	9%
BU.C	7%		7% 8%	9%
12%		AVERAGE LINK	13% 14%	15%

GAIN IN RIDERS :
...Link Improvements only 8% 17% 25%
...Link & Dwell Improvements 10% 21% 35%

TRIP NOTES — OTHER TRAINS AND COMMENTS
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B O S T O N C O L L E G E OUTBOUND # 8 SHK Rider AVER. TRIP SPEED = 7.8 LOS F-
..WEDNESDAY, NOVEMBER 4, 1981 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:55 P.M. Checked by: SHK APR.17, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	56:35-58:10	90%	0% 27%	95 -	14 =	81 F=		—	—	—	—	—	131 —
BOYLSTON	59:57-00:25	80%	0% 24%	28 -	10 =	18 E		107 -	42 =	65 F=	1500'	9.6	88 202
ARLINGTON	3:02:29-03:25	85%	0% 26%	56 -	9 =	47 F=		124 -	56 =	68 F-	2000'	11.0	66 260
COPLEY	04:32-05:17	80%	0% 24%	45 -	11 =	34 F=		67 -	44 =	23 C	1600'	16.3	112 740
AUDITORIUM	07:34-08:16	85%	0% 26%	42 -	9 =	33 F=		137 -	75 =	62 E	2800'	13.9	85 225
KENMORE	09:56-10:48	90%	0% 27%	52 -	9 =	43 F=		100 -	51 =	49 E	2250'	15.3	208 315
BLANDFORD	11:45-12:34	90%	0% 27%	49 -	5 =	44 F=		57 -	37 =	20 C	1100'	13.2	78 147
B.U.EAST	14:15-15:14	85%	0% 26%	59 -	8 =	51 F=		101 -	39 =	62 F=	1400'	9.5	180 154
B.U.CENTRAL	16:00-16:51	85%	0% 26%	51 -	8 =	43 F=		46 -	21 =	25 F	750'	11.1	73 178
* = Best Time Ever ...	TOTALS :	—	—	—	477 -	83 =	394	739 -	365 =	374	13400'	—	1021 2221
	AVERAGE:	86%	0% 26%	53 -	9 =	44 F=		92 -	46 =	47 F	1675'	12.4	11 278
^ = Worst Time Ever	MAXIMUM:	90%	0% 27%	95	14	81		137	75	68	2800'	16.3	208Worst
	MINIMUM:	80%	0% 24%	28	5	18		46	21	20	750'	9.5	Dwell
~~	MEAN DEVIATION:	LOADING	1% LOST	DWELL12 sec				LOST LINK 18 sec				16%	Worst
	STANDARD DEVIATION:	LOADING	1% LOST	DWELL16 sec				LOST LINK 19 sec				23%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	2:.56:.35	<<< :<<<	—
Transit Trip	13,400	3:.16:.00	19 :.25	7.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4	=>	A	<= .0	- .2	LINK
DWELL	.4	- .8	=>	B	<= .2	- .4	LINK
DWELL	.8	-1.2	=>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6	=>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0	=>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4	=>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or	=>	F=	<= 1.5	or	LINK
<<<<<<<<<<<	more					more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 11%	THE	14% 18%	21%
ARLI 11%	LINK	13% 16%	18%
COPL 17%	EFFICIENCIES	17% 17%	20%
AUDI 13%	WOULD	13% 16%	18%
KENM 13%	BE	13% 17%	20%
BLAN 18%	....	18% 18%	21%
BU.E 10%		14% 18%	21%
BU.C 12%		14% 17%	20%
13%	AVERAGE LINK	14% 17%	20%

GAIN IN RIDERS :

...Link Improvements only	8%	31%	54%
...Link & Dwell Improvements	34%	63%	93%

TRIP NOTES — OTHER TRAINS AND COMMENTS
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B O S T O N C O L L E G E OUTBOUND # 9 SHK Rider AVER. TRIP SPEED = 8.6 LOS F
.WEDNESDAY, DECEMBER 30, 1981 Typed by: SHK FEB.25, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:50 P.M. Checked by: SHK APR.17, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	56:42-57:55	100% 25%	48%	73 -	14 =	59 F=		—	—	—	--	—	131 —
BOYLSTON	5:00:10-00:30	100% 15%	41%	20 -	10 =	10 C		135 -	42 =	93 F=	1500'	7.6	88 202
ARLINGTON	02:13-02:34	100% 7%	35%	21 -	9 =	12 D		103 -	56 =	47 E	2000'	13.2	66 260
COPLEY	05:40-06:04	90% 0%	27%	24 -	11 =	13 C		186 -	44 =	142 F=	1600'	5.9	112 740
AUDITORIUM	08:23-08:46	95% 0%	29%	23 -	9 =	14 D		139 -	75 =	64 E	2800'	13.7	85 225
KENMORE	11:03-11:26	90% 0%	27%	23 -	9 =	14 D		137 -	51 =	86 F=	2250'	11.2	208 315
BLANDFORD	12:14-12:28	95% 0%	29%	14 -	5 =	9 E		48 -	37 =	11 B	1100'	15.6	78 147
B.U.EAST	13:07-13:15	95% 0%	29%	8*-	8 =	0* A		39*-	39 =	0* A	1400'	24.5*	180 154
B.U.CENTRAL	14:07-14:24	90% 0%	27%	17 -	8 =	9 C		52 -	21 =	31 F-	750'	9.8	73 178
* = Best Time Ever ...	TOTALS :	— —	—	223 -	83 =	140		839 -	365 =	474	13400'	—	1021 2221
	AVERAGE:	95% 5%	32%	25 -	9 =	16 E		105 -	46 =	59 F-	1675'	10.9	11 278
^ = Worst Time Ever	MAXIMUM:	100% 25%	48%	73	14	59		186	75	142	2800'	24.5	208Worst
	MINIMUM:	90% 0%	27%	8	5	0		39	21	0	750'	5.9	Dwell
--------	MEAN DEVIATION:	LOADING 7%		LOST DWELL 11sec				LOST LINK 37 sec				34%	Worst
	STANDARD DEVIATION:	LOADING 7%		LOST DWELL 16sec				LOST LINK 44 sec				69%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.56:.42	<<< :<<<	—
Transit Trip	13,400	5:.14:.07	17 :.25	8.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>		A <=	.0 - .2 LINK
DWELL .4 - .8 =>		B <=	.2 - .4 LINK
DWELL .8 -1.2 =>		C <=	.4 - .6 LINK
DWELL 1.2 -1.6 =>		D <=	.6 - .8 LINK
DWELL 1.6 -2.0 =>		E <=	.8 -1.0 LINK
DWELL 2.0 -2.4 =>		F <=	1.0 -1.2 LINK
DWELL 2.4 -3.0 =>		F- <=	1.2 -1.5 LINK
DWELL 3.0 or =>		F= <=	1.5 or LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	15%	THE	25% 32%	37%
ARLI	22%	LINK	22% 27%	32%
COPL	8%	EFFICIENCIES	18% 23%	27%
AUDI	15%	WOULD	15% 18%	21%
KENM	11%	BE	15% 19%	22%
BLAN	21%	....	21% 21%	21%
BU.E	29%		29% 29%	29%
BU.C	12%		15% 19%	22%
14%		AVERAGE LINK	19% 22%	25%

GAIN IN RIDERS :
...Link Improvements only 36% 57% 79%
...Link & Dwell Improvements 39% 64% 87%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrived 4:45 at Science Park Station
Riverside @ Science Park 47:00 in 47:50 out
@ North Station 49:10 in 49:25 out
@ Haymarket 50:30 in 50:58 out
@ Government Center 52:56 in 53:23 out

Boston College @ Gov. Ctr. 53:37 in 54:08 out
50% seated
@ B.U. West 16:30 in 16:50 out

B O S T O N C O L L E G E OUTBOUND #10 SHK Rider AVER. TRIP SPEED = 11.4 LOS C
...TUESDAY, JANUARY 5, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:25 P.M. Checked by: SHK APR.18, 89 Previous Best = 17.6 LOS A

==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	35:30-37:15	100%	25% 48%	105	14	91	F=	—	—	—	—	—	131	—
BOYLSTON	38:05-38:45	100%	33% 53%	40	10	30	F=	50	42	8	A 1500'	20.5	88	202
ARLINGTON	40:05-40:54	100%	40% 58%	49	9	40	F=	80	56	24	C 2000'	17.0	66	260
COPLEY	41:41-42:22	100%	45% 62%	41	11	30	F-	47	44	3	A 1600'	23.2	112	740
AUDITORIUM	43:44-44:11	100%	40% 58%	27	9	18	F	82	75	7	A 2800'	23.3	85	225
KENMORE	45:34-46:00	100%	25% 48%	26	9	17	E	83	51	32	D 2250'	18.5	208	315
BLANDFORD	46:40-46:58	100%	25% 48%	18	5	13	F-	40	37	3	A 1100'	18.8	78	147
B.U.EAST	47:43-48:03	100%	25% 48%	20	8	12	D	45	39	6	A 1400'	21.2	180	154
B.U.CENTRAL	48:50-49:08	100%	25% 48%	18	8	10	D	47	21	26	F- 750'	10.9	73	178
* = Best Time Ever ...	TOTALS :	—	— —	344	83	=261		474	-365	=109	13400'	—	1021	2221
	AVERAGE:	100%	31% 52%	38	9	29	F=	59	46	14	B 1675'	19.3	113	278
^ = Worst Time Ever	MAXIMUM:	100%	45% 62%	105	14	91		83	75	32	2800'	23.3	208	Worst Dwell
	MINIMUM:	100%	25% 48%	18	5	10		40	21	3	750'	10.9		Worst Link 740
MEAN DEVIATION:	LOADING	5% LOST DWELL 19 sec						LOST LINK 10 sec				13%		
STANDARD DEVIATION:	LOADING	5% LOST DWELL 24 sec						LOST LINK 11 sec				20%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.35:.30	<<< :<<<	—
Transit Trip	13,400	5:.48:.50	13 :.20	11.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 40%	THE	40%	40% 40%
ARLI 37%	LINK	37%	37% 41%
COPL 54%	EFFICIENCIES	54%	54% 54%
AUDI 57%	WOULD	57%	57% 57%
KENM 36%	BE	36%	39% 45%
BLAN 44%	....	44%	44% 44%
BU.E 42%		42%	42% 42%
BU.C 21%		25%	32% 37%
40%	AVERAGE LINK	41%	42% 44%

GAIN IN RIDERS :
...Link Improvements only 2% 5% 10%
...Link & Dwell Improvements 24% 35% 48%

TRIP NOTES — OTHER TRAINS AND COMMENTS
==========

B O S T O N C O L L E G E OUTBOUND #11 SHK Rider AVER. TRIP SPEED = 10.5 LOS D
....TUESDAY, JANUARY 12, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:25 P.M. Checked by: SHK APR.18, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	LINK
PARK STREET	25:25-26:10	100%	90% 93%	45 -	14 =	31	F	—	—	—	—	—		131	—
BOYLSTON	27:42-28:09	100%	90% 93%	27 -	10 =	17	E	92 -	42 =	50	F	1500'	11.1	88	202
ARLINGTON	29:55-30:13	100%	95% 97%	18 -	9 =	9	C	106 -	56 =	50	E	2000'	12.9	66	260
COPLEY	31:20-32:11	100%	93% 95%	51 -	11 =	40	F=	67 -	44 =	23	C	1600'	16.3	112	740
AUDITORIUM	34:17-34:41	100%	50% 65%	24 -	9 =	15	E	126 -	75 =	51	D	2800'	15.2	85	225
KENMORE	36:23-36:46	100%	40% 58%	23 -	9 =	14	D	102 -	51 =	51	F	2250'	15.0	208	315
BLANDFORD	37:46-38:19	100%	40% 58%	33 -	5 =	28	F=	60 -	37 =	23	D	1100'	12.5	78	147
B.U.EAST	39:15-39:27	100%	40% 58%	12 -	8 =	4	B	56 -	39 =	17	C	1400'	17.0	180	154
B.U.CENTRAL	39:56-40:13	100%	40% 58%	17 -	8 =	9	C	29 -	21 =	8	B	750'	17.6	73	178
* = Best Time Ever ...	TOTALS :	—	— —	250 -	83 =	167		638 -	365 =	273		13400'	—	1021	2221
	AVERAGE:	100%	64% 75%	28 -	9 =	19	F	80 -	46 =	34	D	1675'	14.3	11	278
^ = Worst Time Ever	MAXIMUM:	100%	95% 97%	51	14	40		126	75	51		2800'	17.6	208	Worst Dwell
	MINIMUM:	100%	40% 58%	12	5	4		29	21	8		750'	11.1		Worst Link 740
--------	MEAN DEVIATION:	LOADING 20%		LOST DWELL11 sec				LOST LINK 16 sec					12%		
	STANDARD DEVIATION:	LOADING 18%		LOST DWELL11 sec				LOST LINK 17 sec					19%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.25:.25	<<< :<<<	—
Transit Trip	13,400	6:.39:.56	14 :.31	10.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 42%	THE	49% 62% 72%	
ARLI 49%	LINK	49% 62% 72%	
COPL 64%	EFFICIENCIES	64% 64% 75%	
AUDI 57%	WOULD	57% 63% 73%	
KENM 33%	BE	33% 43% 50%	
BLAN 36%	....	36% 39% 45%	
BU.E 40%		40% 40% 45%	
BU.C 42%		42% 42% 42%	
43%	AVERAGE LINK	44% 50% 58%	

GAIN IN RIDERS :
...Link Improvements only 2% 16% 35%
...Link & Dwell Improvements 10% 26% 46%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Cleveland Circle 6:05 in 6:30 out PCC
Cleveland Circle 6:12:21 in 6:14:06 out PCC
Boston College 6:14:40 in 6:16:22 out LRV
Boston College 6:16:55 in 6:18:12 out LRV
Riverside 6:18:40 in 6:19:40 out LRV
reads "X NO PASSENGERS" in back
Cleveland Circle -:--:-- in 6:20:25 out PCC
Riverside 6:21:39 in 6:23:10 out LRV
reads "X INSTRUCTION CAR" in back
Brigham Circle 6:24:51 in LRV

B O S T O N C O L L E G E OUTBOUND #12 SHK Rider AVER. TRIP SPEED = 11.5 LOS C
..WEDNESDAY, JANUARY 27, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 8:15 P.M. Checked by: SHK APR.18, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	16:07-16:50	100% 60%	72%	43 - 14 = 29 F	— — — — —	131 —
BOYLSTON	18:49-19:10	100% 60%	72%	21 - 10 = 11 C	119 - 42 = 77 F= 1500' 8.6	88 20
ARLINGTON	20:47-21:16	100% 70%	79%	29 - 9 = 20 F	97 - 56 = 41 D 2000' 14.1	66 26(
COPLEY	22:15-22:47	100% 40%	58%	32 - 11 = 21 E	59 - 44 = 15 B 1600' 18.5	112 740
AUDITORIUM	24:25-24:50	100% 40%	58%	25 - 9 = 16 E	98 - 75 = 23 B 2800' 19.5	85 22
KENMORE	26:28-26:58	100% 65%	76%	30 - 9 = 21 F	98 - 51 = 47 E 2250' 15.7	208 31
BLANDFORD	27:55-28:18	100% 65%	76%	23 - 5 = 18 F=	57 - 37 = 20 C 1100' 13.2	78 14
B.U.EAST	29:00-29:00	100% 65%	76%	0 - 8 = NA	42 - 39 = 3 A 1400' 22.7	180 154
B.U.CENTRAL	29:21-29:52	100% 65%	76%	31 - 8 = 23 F-	21*- 21 = 0* A 750' 24.4*	73 17
* = Best Time Ever ...	TOTALS :	— — —		234 - 83 =159	591 -365 =226 13400' —	1021 2221
^ = Worst Time Ever	AVERAGE:	100% 59%	71%	26 - 9 = 18 E	74 - 46 = 28 D 1675' 15.5	11 278
	MAXIMUM:	100% 70%	79%	43 14 29	119 75 77 2800' 24.4	208Worst
	MINIMUM:	100% 40%	58%	0 5 11	21 21 0 750' 8.6	Dwel
--------	MEAN DEVIATION:	LOADING 7%		LOST DWELLERRsec	LOST LINK 20 sec 24%	Worst
	STANDARD DEVIATION:	LOADING 7%		LOST DWELL 5 sec	LOST LINK 24 sec 40%	Link 74

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	8:.16:.07	<<< :<<<	—
Transit Trip	13,400	8:.29:.21	13 :.14	11.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A <=	.0 - .2 LINK
DWELL .4 - .8 =>	B <=	.2 - .4 LINK
DWELL .8 -1.2 =>	C <=	.4 - .6 LINK
DWELL 1.2 -1.6 =>	D <=	.6 - .8 LINK
DWELL 1.6 -2.0 =>	E <=	.8 -1.0 LINK
DWELL 2.0 -2.4 =>	F <=	1.0 -1.2 LINK
DWELL 2.4 -3.0 =>	F- <=	1.2 -1.5 LINK
DWELL 3.0 or =>	F= <=	1.5 or LINK
<<<<<<<<<<< more		more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 25%	THE	38% 48%	55%
ARLI 42%	LINK	42% 48%	55%
COPL 59%	EFFICIENCIES	59% 59%	59%
AUDI 44%	WOULD	44% 44%	44%
KENM 30%	BE	30% 39%	45%
BLAN 49%	....	49% 49%	58%
BU.E 71%		71% 71%	71%
BU.C 76%		76% 76%	76%
44%	AVERAGE LINK	47% 52%	56%
GAIN IN RIDERS :			
...Link Improvements only		7% 18%	27%
...Link & Dwell Improvements		12% 26%	41%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Two stops were skipped : BU East and BU West
The trip began by leaving 100 Cambridge St. at 7:55 PM, arriving at the platform at 7:59 PM, At Government Center, other trains heading southbound included 8:04 and 8:09 Riverside trai LRVs entering Government Center from Park Street (Opposite platform) came in at 8:04, 8:05, 8:06, 8:07:30 and 8:09:20.
The trip ended at Amory Street, 31:40/32:07.

B O S T O N C O L L E G E OUTBOUND #13 SHK Rider AVER. TRIP SPEED = 9.9 LOS E
...THURSDAY, MARCH 11, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:20 P.M. Checked by: SHK APR.18, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ SEATS	STAND	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	28:23-29:09	90%	0%	27%	46	14	32	F	—	—	—	—		—	131	—
BOYLSTON	30:18-30:44	80%	0%	24%	26	10	16	E	69	42	27	1500'	D	14.8	88	202
ARLINGTON	33:09-33:28	80%	0%	24%	19	9	10	C	145	56	89	2000'	F=	9.4	66	260
COPLEY	34:56-35:19	75%	0%	23%	23	11	12	C	88	44	44	1600'	F	12.4	112	740
AUDITORIUM	37:10-37:35	65%	0%	20%	25	9	16	E	111	75	36	2800'	C	17.2	85	225
KENMORE	39:10-39:32	30%	0%	9%	22	9	13	D	95	51	44	2250'	E	16.1	208	315
BLANDFORD	40:38-40:52	30%	0%	9%	14	5	9	E	66	37	29	1100'	D	11.4	78	147
B.U.EAST	41:48-42:05	30%	0%	9%	17	8	9	C	56	39	17	1400'	C	17.0	180	154
B.U.CENTRAL	43:43-43:57	30%	0%	9%	14	8	6	B	98	21	77	750'	F=	5.2	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	206	83	=123		728	-365	=363	13400'		—	1021	2221
^ = Worst Time Ever	AVERAGE:	57%	0%	17%	23	9	14	D	91	46	45	1675'	E	12.5	11	278
	MAXIMUM:	90%	0%	27%	46	14	32		145	75	89	2800'		17.2	208	Worst
	MINIMUM:	30%	0%	9%	14	5	6		56	21	17	750'		5.2		Dwell
MEAN DEVIATION:	LOADING	8%	LOST DWELL 6 sec						LOST LINK 19 sec					24%	Worst	
STANDARD DEVIATION:	LOADING	7%	LOST DWELL 7 sec						LOST LINK 23 sec					35%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	2:.28:.23	<<< :<<<	—
Transit Trip	13,400	2:.43:.43	15 :.20	9.9
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	16%	THE	16%	18% 21%
ARLI	9%	LINK	13%	16% 18%
COPL	12%	EFFICIENCIES	12%	16% 18%
AUDI	16%	WOULD	16%	16% 18%
KENM	11%	BE	11%	13% 15%
BLAN	5%	....	5%	6% 7%
BU.E	6%		6%	6% 7%
BU.C	2%		5%	6% 7%
	9%	AVERAGE LINK	10%	11% 13%

GAIN IN RIDERS :
...Link Improvements only 11% 22% 44%
...Link & Dwell Improvements 18% 35% 57%

TRIP NOTES — OTHER TRAINS AND COMMENTS

At Government center, LRV-2 in at 2:23:08, out at 24:32, with 90% standees
LRV-2 in at 2:25:55, out at 26:22 25% seated

BUWest in 45:30 out 45:43 other train was one block ahead.

A press report had a Riverside train taking down an overhead line at 2:15 PM.

B O S T O N C O L L E G E OUTBOUND #14 SHK Rider AVER. TRIP SPEED = 10.6 LOS D
...THURSDAY, MARCH 19, 1982 Typed by: SHK FEB.18 Previous Worst = 4.8 LOS F=
..Begin Trip 2:00 P.M. Checked by: SHK APR.28, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	WORST LINK LINK
PARK STREET	00:51	01:38	100%	50% 65%	47	14	= 33	F	--	--	--	--	--	131	--
BOYLSTON	02:30	02:48	100%	50% 65%	18	10	= 8	C	52	42	= 10	B 1500'	19.7	88	202
ARLINGTON	04:24	04:55	100%	50% 65%	31	9	= 22	F-	96	56	= 40	D 2000'	14.2	66	260
COPLEY	05:47	06:20	100%	33% 53%	33	11	= 22	F	52	44	= 8	A 1600'	21.0	112	740
AUDITORIUM	09:40	10:03	100%	33% 53%	23	9	= 14	D	200	75	=125 F=	2800'	9.5	85	225
KENMORE	10:54	11:39	100%	50% 65%	45	9	= 36	F=	51*-	51	= 0*	A 2250'	30.1*	208	315
BLANDFORD	12:42	13:12	100%	63% 74%	30	5	= 25	F=	63	37	= 26	D 1100'	11.9	78	147
B.U.EAST	14:06	14:28	100%	63% 74%	22	8	= 14	E	54	39	= 15	B 1400'	17.7	180	154
B.U.CENTRAL	15:11	15:32	100%	50% 65%	21	8	= 13	E	43	21	= 22	F 750'	11.9	73	178
* = Best Time Ever ...	TOTALS :		-- -- --		270	83	=187		611	-365	=246	13400'	--	1021	2221
	AVERAGE:		100% 49% 64%		30	9	= 21	F	76	46	= 31	D 1675'	15.0	11	278
^ = Worst Time Ever	MAXIMUM:		100% 63% 74%		47	14	36		200	75	125	2800'	30.1	208	Worst
	MINIMUM:		100% 33% 53%		18	5	8		43	21	0	750'	9.5		Dwell
~~ MEAN DEVIATION:			LOADING 6%		LOST DWELL 9 sec				LOST LINK 26 sec				30%	Worst	
STANDARD DEVIATION:			LOADING 7%		LOST DWELL 9 sec				LOST LINK 37 sec				46%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	2:.00:.51	<<< :<<<	--
Transit Trip	13,400	2:.15:.11	14 :.20	10.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST LINK
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	53%	THE	53% 53% 53%
ARLI	38%	LINK	38% 43% 50%
COPL	55%	EFFICIENCIES	55% 55% 55%
AUDI	20%	WOULD	28% 35% 41%
KENM	53%	BE	53% 53% 53%
BLAN	38%	....	38% 43% 50%
BU.E	53%		53% 53% 53%
BU.C	36%		39% 49% 57%
	38%	AVERAGE LINK	42% 47% 51%

GAIN IN RIDERS :
...Link Improvements only 11% 24% 34%
...Link & Dwell Improvements 17% 33% 48%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrived at Government Center at 1:57:00
Riverside 57:33 in 58:40 out LRV-2
Boston College 59:43 in 00:06 out 50% standees

The short link time between Auditorium and Kenmore of only 51 seconds is notably less that the next fastest time of 70 seconds. The link speeds of 30.1 MPH is much faster than any other link by almost 6 MPH. The dwell time at Kenmore is also higher than other station dwells on this trip. Apparently a recording error was made so that the link time should be about 10-20 seconds longer. The reported results are carried through on all calculation sheets, simply to report all data as recorded, but the evident error should be noted.

B O S T O N C O L L E G E OUTBOUND #15 SHK Rider AVER. TRIP SPEED = 12.1 LOS C
.... MONDAY, APRIL 12, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 8:30 P.M. Checked by: SHK APR.29, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (single)	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	44:18-44:58	100%	67% 77%	40 -	14 =	26	E	—	—	—	—	—	131	—
BOYLSTON	45:53-46:05	100%	67% 77%	12 -	10 =	2	A	55 -	42 =	13	B	1500' 18.6	88	202
ARLINGTON	47:18-47:40	100%	70% 79%	22 -	9 =	13	D	73 -	56 =	17	B	2000' 18.7	66	260
COPLEY	48:28-48:57	100%	60% 72%	29 -	11 =	18	E	48 -	44 =	4	A	1600' 22.7	112	740
AUDITORIUM	50:18-50:52	100%	35% 55%	34 -	9 =	25	F-	81 -	75 =	6	A	2800' 23.6	85	225
KENMORE	53:26-53:50	100%	15% 41%	24 -	9 =	15	E	154 -	51 =	103	F=	2250' 10.0	208	315
BLANDFORD	54:30-54:50	100%	15% 41%	20 -	5 =	15	F=	40 -	37 =	3	A	1100' 18.8	78	147
B.U.EAST	55:42-56:05	100%	33% 53%	23 -	8 =	15	E	52 -	39 =	13	B	1400' 18.4	180	154
B.U.CENTRAL	56:51-57:15	100%	20% 44%	24 -	8 =	16	F	46 -	21 =	25	F	750' 11.1	73	178
* = Best Time Ever ...	TOTALS :	—	— —	228 -	83 =	145		549 -	365 =	184		13400' —	1021	2221
^ = Worst Time Ever	AVERAGE:	100%	42% 60%	25 -	9 =	16	E	69 -	46 =	23	C	1675' 16.6	11	278
	MAXIMUM:	100%	70% 79%	40	14	26		154	75	103		2800' 23.6	208	Worst Dwell
	MINIMUM:	100%	15% 41%	12	5	2		40	21	3		750' 10.0		
MEAN DEVIATION:	LOADING 16% LOST DWELL 5 sec							LOST LINK 21 sec					22%	Worst
STANDARD DEVIATION:	LOADING 15% LOST DWELL 7 sec							LOST LINK 31 sec					29%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	8:.44:.18	<<< :<<<	—
Transit Trip	13,400	8:.56:.51	12 :.33	12.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0	or =>	F=	<= 1.5	or LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 59%	THE	59% 59%	59%
ARLI 59%	LINK	59% 59%	59%
COPL 72%	EFFICIENCIES	72% 72%	72%
AUDI 67%	WOULD	67% 67%	67%
KENM 18%	BE	29% 37%	42%
BLAN 38%	....	38% 38%	38%
BU.E 31%		31% 31%	31%
BU.C 24%		28% 35%	41%
40%	AVERAGE LINK	45% 48%	49%

GAIN IN RIDERS :
...Link Improvements only 13% 20% 23%
...Link & Dwell Improvements 14% 25% 35%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Left 100 Cambridge St. at 8:30, arrived at
Government Center platform at 8:36:30
Boston College in 42:24 out 42:59
Arrived BU West at 58:34, left at 58:50
Arrived at 191 Hamilton Street at 9:16:04
Total door-to-door time of 46 minutes
Straight line distance of 12,500 feet.
Straight line speed of 4.1 MPH.
Total trip length of 21,200 ft. (7.0 MPH)

B O S T O N C O L L E G E OUTBOUND #16 SHK Rider AVER. TRIP SPEED = 8.6 LOS F
....TUESDAY, APRIL 13, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:50 P.M. Checked by: SHK APR.30, 89 Previous Best = 17.6 LOS A

==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders 50\ STAND TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK
PARK STREET	55:26	56:15	100%	2% 32%	49	14	= 35	F-	--	--	--	--	--	131	--
BOYLSTON	57:18	57:40	100%	4% 33%	22	10	= 12	D	63	42	= 21	C 1500'	16.2	88	202
ARLINGTON	59:24	59:49	100%	5% 34%	25	9	= 16	E	104	56	= 48	E 2000'	13.1	66	260
COPLEY	5:01:03	01:27	100%	3% 32%	24	11	= 13	C	74	44	= 30	D 1600'	14.7	112	740
AUDITORIUM	03:21	03:40	100%	2% 32%	19	9	= 10	C	114	75	= 39	C 2800'	16.7	85	225
KENMORE	08:14	08:40	95%	0% 29%	26	9	= 17	E	274	51	=223	F= 2250'	5.6	208	315
BLANDFORD	09:27	10:41	100%	0% 30%	74	5	= 69	F=	47	37	= 10	B 1100'	16.0	78	147
B.U.EAST	12:14	12:35	100%	2% 32%	21	8	= 13	E	93	39	= 54	F- 1400'	10.3	180	154
B.U.CENTRAL	13:09	13:32	100%	1% 31%	23	8	= 15	E	34	21	= 13	D 750'	15.0	73	178
* = Best Time Ever ...	TOTALS :		--	-- --	283	83	=200		803	365	=438	13400'	--	1021	2221
	AVERAGE:		99%	2% 32%	31	9	= 22	F-	100	46	= 55	F 1675'	11.4	11	278
^ = Worst Time Ever	MAXIMUM:		100%	5% 34%	74	14	69		274	75	223	2800'	16.7	208	Worst Dwell
	MINIMUM:		95%	0% 29%	19	5	10		34	21	10	750'	5.6		
MEAN DEVIATION:	LOADING 1% LOST DWELL15 sec								LOST LINK 42 sec				29%	Worst	
STANDARD DEVIATION:	LOADING 1% LOST DWELL18 sec								LOST LINK 65 sec				39%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	4:.55:.26	<<< :<<<	--
Transit Trip	13,400	5:.13:.09	17 :.43	8.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A <=	.0 - .2 LINK
DWELL .4 - .8 =>	B <=	.2 - .4 LINK
DWELL .8 -1.2 =>	C <=	.4 - .6 LINK
DWELL 1.2 -1.6 =>	D <=	.6 - .8 LINK
DWELL 1.6 -2.0 =>	E <=	.8 -1.0 LINK
DWELL 2.0 -2.4 =>	F <=	1.0 -1.2 LINK
DWELL 2.4 -3.0 =>	F- <=	1.2 -1.5 LINK
DWELL 3.0 or =>	F= <=	1.5 or LINK
<<<<<<<<<<> more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	21%	THE	21% 21% 25%
ARLI	18%	LINK	18% 22% 25%
COPL	20%	EFFICIENCIES	20% 23% 26%
AUDI	21%	WOULD	21% 21% 25%
KENM	6%	BE	17% 21% 25%
BLAN	23%	....	23% 23% 23%
BU.E	13%		16% 20% 23%
BU.C	20%		20% 21% 25%
	15%	AVERAGE LINK	19% 22% 25%

GAIN IN RIDERS :
...Link Improvements only 27% 47% 67%
...Link & Dwell Improvements 39% 56% 83%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrived at North Station Platform at 4:49
North Station 4:50:28 out 25% seats full
Haymarket 51:41 in 52:01 out 50% seats full
Government Ctr. 53:19 in 53:39 out 100% seats full
BU West stop was skipped.
Amory Street 15:30 in 15:55 out
LRV-2 followed, arriving at Amory at 17:09

B O S T O N C O L L E G E OUTBOUND #17 SHK Rider AVER. TRIP SPEED = 5.7 LOS F=
..WEDNESDAY, APRIL 14, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:25 P.M. Checked by: SHK APR.30, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	26:02-27:36	100% 95% 97%	94 - 14 = 80 F=	—	—	—	—	. —	131 —
BOYLSTON	28:30-28:55	100% 95% 97%	25 - 10 = 15 D	54 -	42 =	12	B 1500'	18.9	88 202
ARLINGTON	30:13-30:55	100% 98% 99%	42 - 9 = 33 F=	78 -	56 =	22	B 2000'	17.5	66 260
COPLEY	31:43-33:35	100%100%100%	112^- 11 =101^F=	48 -	44 =	4	A 1600'	22.7	112 740
AUDITORIUM	35:05-36:30	100%100%100%	85^- 9 = 76^F=	90 -	75 =	15	B 2800'	21.2	85 225
KENMORE	38:03-48:58	100%100%100%	655^- 9 =646^F=	93 -	51 =	42	E 2250'	16.5	208 315
BLANDFORD	50:05-50:45	100%100%100%	40 - 5 = 35 F=	67 -	37 =	30	E 1100'	11.2	78 147
B.U.EAST	51:40-52:14	100%100%100%	34 - 8 = 26 F=	55 -	39 =	16	C 1400'	17.4	180 154
B.U.CENTRAL	52:45-53:10	100%100%100%	25 - 8 = 17 F	31 -	21 =	10	C 750'	16.5	73 178
TOTALS :	— — —		1112 - 83 =1029	516 -	365 =	151	13400'	—	1021 2221
AVERAGE:	100% 99% 99%		124 - 9 =114 F=	65 -	46 =	19	C 1675'	17.7	11 278
MAXIMUM:	100%100%100%		655 14 646	93	75	42	2800'	22.7	208Worst
MINIMUM:	100% 95% 97%		25 5 15	31	21	4	750'	11.2	Dwell

* = Best Time Ever ...
^ = Worst Time Ever .....

MEAN DEVIATION: LOADING 1% LOST DWELL133sec LOST LINK 9 sec 12% Worst
STANDARD DEVIATION: LOADING 1% LOST DWELL190sec LOST LINK 11 sec 19% Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.26:.02	<<< :<<<	—
Transit Trip	13,400	5:.52:.45	26 :.43	5.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A <=	.0 - .2 LINK
DWELL .4 - .8 =>	B <=	.2 - .4 LINK
DWELL .8 -1.2 =>	C <=	.4 - .6 LINK
DWELL 1.2 -1.6 =>	D <=	.6 - .8 LINK
DWELL 1.6 -2.0 =>	E <=	.8 -1.0 LINK
DWELL 2.0 -2.4 =>	F <=	1.0 -1.2 LINK
DWELL 2.4 -3.0 =>	F- <=	1.2 -1.5 LINK
DWELL 3.0 or =>	F= <=	1.5 or LINK
<<<<<<<<<<< more		more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	75%	THE	75% 75% 75%
ARLI	70%	LINK	70% 70% 70%
COPL	91%	EFFICIENCIES	91% 91% 91%
AUDI	83%	WOULD	83% 83% 83%
KENM	55%	BE	55% 67% 77%
BLAN	55%	....	55% 67% 77%
BU.E	71%		71% 71% 77%
BU.C	68%		68% 68% 77%
	70%	AVERAGE LINK	70% 74% 78%

GAIN IN RIDERS :
...Link Improvements only 0% 6% 11%
...Link & Dwell Improvements NA NA NA

TRIP NOTES — OTHER TRAINS AND COMMENTS

Left Government Center at 5:24:10 with 8 standees
Arrived BU West at 55:40 out at 56:26.
. . M A J O R T R A I N B R E A K D O W N . .
Announcement at Kenmore that train was being withdrawn from service because of a bad wheel.
Entire train was unloaded.
Another LRV arrived about 5:45 and left fully loaded at 5:46:28. A dual LRV arrived at 47:47, loaded up and left at 48:58.
Total waiting time at Kenmore station was 10 minutes and 55 seconds for the second LRV.

B O S T O N C O L L E G E OUTBOUND #18 SHK Rider AVER. TRIP SPEED = 12.2 LOS C
.... MONDAY, MAY 24, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:20 P.M. Checked by: SHK APR.30, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	23:40-24:20	100% 50% 65%		40 - 14 = 26 E	— — — — —	131 —
BOYLSTON	25:28-25:47	100% 70% 79%		19 - 10 = 9 C	68 - 42 = 26 D 1500' 15.0	88 202
ARLINGTON	27:18-27:45	100% 80% 86%		27 - 9 = 18 F	91 - 56 = 35 D 2000' 15.0	66 260
COPLEY	28:44-29:12	100% 85% 90%		28 - 11 = 17 D	59 - 44 = 15 B 1600' 18.5	112 740
AUDITORIUM	30:59-31:22	100% 90% 93%		23 - 9 = 14 D	107 - 75 = 32 C 2800' 17.8	85 225
KENMORE	32:44-33:09	100% 95% 97%		25 - 9 = 16 E	82 - 51 = 31 D 2250' 18.7	61 315
BLANDFORD	33:51-34:09	100% 95% 97%		18 - 5 = 13 F-	42 - 37 = 5 A 1100' 17.9	78 147
B.U.EAST	35:05-35:25	100% 90% 93%		20 - 8 = 12 D	56 - 39 = 17 C 1400' 17.0	180 154
B.U.CENTRAL	36:10-36:29	100% 90% 93%		19 - 8 = 11 D	45 - 21 = 24 F 750' 11.4	73 178
* = Best Time Ever ...	TOTALS :	— — —		219 - 83 =136	550 -365 =185 13400' —	1021 2221
	AVERAGE:	100% 83% 88%		24 - 9 = 15 E	69 - 46 = 23 C 1675' 16.6	11 278
^ = Worst Time Ever	MAXIMUM:	100% 95% 97%		40 14 26	107 75 35 2800' 18.7	180Worst
	MINIMUM:	100% 50% 65%		18 5 9	42 21 5 750' 11.4	Dwell
MEAN DEVIATION:	LOADING 9%	LOST DWELL 4 sec			LOST LINK 8 sec 10%	Worst
STANDARD DEVIATION:	LOADING 10%	LOST DWELL 5 sec			LOST LINK 10 sec 15%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.23:.40	<<< :<<<	—
Transit Trip	13,400	5:.36:.10	12 :.30	12.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A <= .0 - .2	LINK
DWELL .4 - .8 =>	B <= .2 - .4	LINK
DWELL .8 -1.2 =>	C <= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D <= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E <= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F <= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F- <= 1.2 -1.5	LINK
DWELL 3.0 or =>	F= <= 1.5 or	LINK
<<<<<<<<<<< more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 40%	THE	40% 43% 50%	
ARLI 49%	LINK	49% 53% 61%	
COPL 64%	EFFICIENCIES	64% 64% 64%	
AUDI 63%	WOULD	63% 63% 69%	
KENM 58%	BE	58% 62% 72%	
BLAN 85%	....	85% 85% 85%	
BU.E 68%		68% 68% 75%	
BU.C 43%		49% 62% 72%	
58%	AVERAGE LINK	59% 62% 68%	

GAIN IN RIDERS :
...Link Improvements only 2% 7% 17%
...Link & Dwell Improvements 5% 13% 29%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrived at Science Park Station, 5:06 PM
5:09:43 Riverside in LRV-2 5:11:20 thru "X no Pass
Riverside 16:05 in 16:22 out 24% seated LRV-2
North Station 17:29 in 17:41 out
Haymarket 18:41 in 19:05 out change trains
Boston College @ Haymarket 19:52 in 20:17 out
50% seated
@ Government Center 21:23 in 21:47 out 5 standees
@ BU West 38:23 in 38:39 out

At Science Park, signal stayed red for 40 seconds
a train passed.

B O S T O N C O L L E G E OUTBOUND #19 SHK Rider AVER. TRIP SPEED = 10.4 LOS D
.... MONDAY, JUNE 7, 1982 Typed by: SHK FEB.18, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:20 P.M. Checked by: SHK APR.30, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	
PARK STREET	23:05-23:48	100%	15% 41%	43 -	14 =	29	F	—	—	—	—	—		131	—
BOYLSTON	24:58-25:15	100%	20% 44%	17 -	10 =	7	B	70 -	42 =	28	D 1500'	14.6		88	202
ARLINGTON	27:02-27:22	100%	25% 48%	20 -	9 =	11	D	107 -	56 =	51	E 2000'	12.7		66	260
COPLEY	28:24-29:02	100%	15% 41%	38 -	11 =	27	F-	62 -	44 =	18	C 1600'	17.6		112	740
AUDITORIUM	30:51-31:16	100%	0% 30%	25 -	9 =	16	E	109 -	75 =	34	C 2800'	17.5		85	225
KENMORE	33:50-34:06	85%	0% 26%	16 -	9 =	7	B	154 -	51 =	103	F= 2250'	10.0		208	315
BLANDFORD	34:48-35:59	85%	0% 26%	71 -	5 =	66	F=	42 -	37 =	5	A 1100'	17.9		78	147
B.U.EAST	36:52-37:04	50%	0% 15%	12 -	8 =	4	B	53 -	39 =	14	B 1400'	18.0		180	154
B.U.CENTRAL	37:40-37:55	50%	0% 15%	15 -	8 =	7	C	36 -	21 =	15	D 750'	14.2		73	178
* = Best Time Ever ...	TOTALS :	—	— —	257 -	83 =	174		633 -	365 =	268	13400'	—		1021	2221
	AVERAGE:	86%	8% 32%	29 -	9 =	19	F	79 -	46 =	34	D 1675'	14.4		11	278
^ = Worst Time Ever	MAXIMUM:	100%	25% 48%	71	14	66		154	75	103	2800'	18.0		208	Worst Dwell
	MINIMUM:	50%	0% 15%	12	5	4		36	21	5	750'	10.0			Worst
MEAN DEVIATION:		LOADING 12% LOST DWELL16 sec						LOST LINK 22 sec				15%		Link 740	
STANDARD DEVIATION:		LOADING 12% LOST DWELL19 sec						LOST LINK 29 sec				22%			

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.23:.05	<<< :<<<	—
Transit Trip	13,400	4:.37:.40	14 :.35	10.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 25%	THE	25% 27%	32%
ARLI 23%	LINK	23% 29%	34%
COPL 34%	EFFICIENCIES	34% 34%	37%
AUDI 28%	WOULD	28% 28%	32%
KENM 10%	BE	16% 20%	23%
BLAN 23%	....	23% 23%	23%
BU.E 19%		19% 19%	19%
BU.C 9%		9% 10%	12%
18%	AVERAGE LINK	20% 22%	25%
GAIN IN RIDERS :			
...Link Improvements only		11% 22%	39%
...Link & Dwell Improvements		21% 34%	49%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Government Center : 19:31 in 20:08 out 80% seated
BU West 38:55 in 39:05 out 45% seated

B O S T O N C O L L E G E OUTBOUND #20 SHK Rider AVER. TRIP SPEED = 8.9 LOS F
....TUESDAY, OCTOBER 26, 1982 Typed by: SHK FEB.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:30 P.M. Checked by: SHK APR.30, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	41:34-42:29	100%	95%	97%	55 -	14 =	41 F-	—	—	—	—	—	131	—
BOYLSTON	43:42-44:06	100%	90%	93%	24 -	10 =	14 D	73 -	42 =	31 D	1500'	14.0	88	202
ARLINGTON	46:13-46:58	100%	95%	97%	45 -	9 =	36 F=	127 -	56 =	71 F-	2000'	10.7	66	260
COPLEY	48:25-49:05	100%	93%	95%	40 -	11 =	29 F-	87 -	44 =	43 E	1600'	12.5	112	740
AUDITORIUM	51:19-52:05	100%	90%	93%	46 -	9 =	37 F=	134 -	75 =	59 D	2800'	14.2	85	225
KENMORE	53:55-54:32	100%	92%	94%	37 -	9 =	28 F=	110 -	51 =	59 F	2250'	13.9	208	315
BLANDFORD	55:32-56:34	100%	92%	94%	62 -	5 =	57 F=	60 -	37 =	23 D	1100'	12.5	78	147
B.U.EAST	57:30-57:30	100%	90%	93%	0 -	8 =	NA	56 -	39 =	17 C	1400'	17.0	180	154
B.U.CENTRAL	58:32-59:05	100%	90%	93%	33 -	8 =	25 F=	62 -	21 =	41 F=	750'	8.2	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	342 -	83 =	267	709 -	365 =	344	13400'	—	1021	2221
^ = Worst Time Ever	AVERAGE:	100%	92%	94%	38 -	9 =	30 F=	89 -	46 =	43 E	1675'	12.9	11	278
	MAXIMUM:	100%	95%	97%	62	14	57	134	75	71	2800'	17.0	208	Worst
	MINIMUM:	100%	90%	93%	0	5	14	56	21	17	750'	8.2		Dwell
MEAN DEVIATION:	LOADING	1%	LOST	DWELL	sec	LOST	LINK	15 sec				13%	Worst	
STANDARD DEVIATION:	LOADING	2%	LOST	DWELL	12sec	LOST	LINK	18 sec				22%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.41:.34	<<< :<<<	—
Transit Trip	13,400	5:.58:.32	16 :.58	8.9
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST	
DWELL .0 - .4	=>	A	<= .0 - .2	LINK	
DWELL .4 - .8	=>	B	<= .2 - .4	LINK	
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK	
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK	
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK	
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK	
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK	
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK	
<<<<<<<<<<<	more			more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	56%	THE	56% 65% 75%	
ARLI	41%	LINK	49% 62% 72%	
COPL	49%	EFFICIENCIES	49% 65% 75%	
AUDI	53%	WOULD	53% 63% 73%	
KENM	43%	BE	49% 62% 72%	
BLAN	58%	....	58% 63% 72%	
BU.E	65%		65% 65% 72%	
BU.C	32%		49% 62% 72%	
	48%	AVERAGE LINK	53% 63% 72%	

GAIN IN RIDERS :
...Link Improvements only 10% 31% 50%
...Link & Dwell Improvements 26% 52% 78%

TRIP NOTES — OTHER TRAINS AND COMMENTS

The train did not stop at BU East.
Government Ctr. 38:20 in 39:01 out
BU West 6:00:50 in 01:32 out
Next train followed closely at BU West
01:25 in 01:40 out 90% seats full no standees

B O S T O N C O L L E G E OUTBOUND #21 SHK Rider AVER. TRIP SPEED = 13.0 LOS C
.... FRIDAY, OCTOBER 29, 1982 Typed by: SHK FEB.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 3:10 P.M. Checked by: SHK APR.30, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ SEATS	Max166 Riders STAND	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK LINK
PARK STREET	09:52	10:20	100%	3%	32%	28	14	14	C	—	—	—		—	—	131	—
BOYLSTON	11:13	11:26	100%	5%	34%	13	10	3	A	53	42	11	B	1500'	19.3	88	202
ARLINGTON	13:14	13:35	100%	8%	36%	21	9	12	D	108	56	52	E	2000'	12.6	66	260
COPLEY	14:38	14:57	100%	5%	34%	19	11	8	B	63	44	19	C	1600'	17.3	112	740
AUDITORIUM	16:32	16:49	100%	5%	34%	17	9	8	C	95	75	20	B	2800'	20.1	85	225
KENMORE	18:12	18:28	100%	7%	35%	16	9	7	B	83	51	32	D	2250'	18.5	208	315
BLANDFORD	19:10	19:23	100%	7%	35%	13	5	8	E	42	37	5	A	1100'	17.9	78	147
B.U.EAST	20:06	20:26	100%	5%	34%	20	8	12	D	43	39	4	A	1400'	22.2	180	154
B.U.CENTRAL	21:28	21:43	100%	0%	30%	15	8	7	C	62	21	41	F=	750'	8.2	73	178
* = Best Time Ever ...	TOTALS :		—	—	—	162	83	79		549	365	184		13400'	—	1021	2221
	AVERAGE:		100%	5%	34%	18	9	9	C	69	46	23	C	1675'	16.6	11	278
^ = Worst Time Ever	MAXIMUM:		100%	8%	36%	28	14	14		108	75	52		2800'	22.2	208	Worst Dwell
	MINIMUM:		100%	0%	30%	13	5	3		42	21	4		750'	8.2		
MEAN DEVIATION:			LOADING		1%	LOST DWELL		3sec		LOST LINK 14 sec					19%	Worst	
STANDARD DEVIATION:			LOADING		2%	LOST DWELL		3sec		LOST LINK 16 sec					29%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	3:.09:.52	<<< :<<<	—
Transit Trip	13,400	3:.21:.28	11 :.36	13.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST TIME	
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	25%	THE	25%	25% 25%
ARLI	18%	LINK	18%	23% 26%
COPL	25%	EFFICIENCIES	25%	25% 28%
AUDI	27%	WOULD	27%	27% 27%
KENM	21%	BE	21%	23% 26%
BLAN	31%	....	31%	31% 31%
BU.E	32%		32%	32% 32%
BU.C	12%		18%	23% 26%
23%		AVERAGE LINK	24%	25% 27%

GAIN IN RIDERS :
...Link Improvements only 4% 9% 17%
...Link & Dwell Improvements 7% 15% 24%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #22 SHK Rider AVER. TRIP SPEED = 6.1 LOS F=
.... MONDAY, JANUARY 17, 1983 Typed by: SHK FEB.20, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:40 P.M. Checked by: SHK MAY 1, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS sec.	BEST TIME	LOST TIME	O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	46:30-48:41	100%	100%	100%	131^-	14	=117^F=	—	—	—	—	—	131	—
BOYLSTON	50:10-51:38	100%	100%	100%	88^-	10	= 78^F=	89 -	42	= 47	F 1500'	11.5	88	202
ARLINGTON	52:34-53:40	100%	99%	99%	66^-	9	= 57^F=	56*-	56	= 0*	A 2000'	24.4*	66	260
COPLEY	54:58-56:03	100%	99%	99%	65 -	11	= 54 F=	78 -	44	= 34	D 1600'	14.0	112	740
AUDITORIUM	57:48-58:51	100%	99%	99%	63 -	9	= 54 F=	105 -	75	= 30	C 2800'	18.2	85	225
KENMORE	6:04:06-05:06	100%	98%	99%	60 -	9	= 51 F=	315^-	51	=264^F=	2250'	4.9^	208	315
BLANDFORD	06:06-07:15	100%	99%	99%	69 -	5	= 64 F=	60 -	37	= 23	D 1100'	12.5	78	147
B.U.EAST	08:05-10:28	100%	98%	99%	143 -	8	=135 F=	50 -	39	= 11	B 1400'	19.1	180	154
B.U.CENTRAL	11:03-12:16	100%	98%	99%	73^-	8	= 65^F=	35 -	21	= 14	D 750'	14.6	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	758 -	83	=675	788 -	365	=423	13400'	—	1021	2221
	AVERAGE:	100%	99%	99%	84 -	9	= 75 F=	99 -	46	= 53	F 1675'	11.6	11	278
^ = Worst Time Ever	MAXIMUM:	100%	100%	100%	143	14	135	315	75	264	2800'	24.4	208	Worst
	MINIMUM:	100%	98%	99%	60	5	51	35	21	0	750'	4.9		Dwell
--------	MEAN DEVIATION:	LOADING	0%	LOST DWELL	26sec			LOST LINK	53 sec			38%	Worst	
	STANDARD DEVIATION:	LOADING	0%	LOST DWELL	29sec			LOST LINK	81 sec			59%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.46:.30	<<< :<<<	—
Transit Trip	13,400	6:.11:.03	24 :.33	6.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	47%	THE	53% 67%	77%
ARLI	100%	LINK	<<< <<<	<<<
COPL	56%	EFFICIENCIES	56% 66%	76%
AUDI	71%	WOULD	71% 71%	71%
KENM	16%	BE	52% 66%	76%
BLAN	61%	....	61% 66%	76%
BU.E	77%		77% 77%	77%
BU.C	59%		59% 66%	76%
46%		AVERAGE LINK	64% 72%	78%

GAIN IN RIDERS :
...Link Improvements only 39% 57% 70%
...Link & Dwell Improvements
99% <<< <<<

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrived at Haymarket Platform : 4:58:50
Waiting LRV had locked brakes.
Everybody off disabled train 5:08
Train towed out at 5:22:00
Heath St. Express through 22:40
Heath St. PCC-2 23:30 in 24:34 out
Boston College express through 25:00
Boston College 26:10 in 27:05 out full
Heath St. PCC-2 28:14 in 28:48 out full
Boston College @ Harmarket 41:15 in 41:42 out
100% seats, 5% standees
@ Government Center 43:30 in 44:33 out 99% standee
@ BU West 13:12 in 14:12 out 97% standees

B O S T O N C O L L E G E OUTBOUND #23 SHK Rider AVER. TRIP SPEED = 12.0 LOS C
.... FRIDAY, APRIL 29, 1983 Typed by: SHK FEB.20, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 8:25 P.M. Checked by: SHK MAY 4, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	25:50-26:26	100%	40% 58%	36 -	14 =	22	D	—	—	—	—	—	131	—
BOYLSTON	27:28-27:42	100%	40% 58%	14 -	10 =	4	B	62 -	42 =	20	C 1500'	16.5	88	202
ARLINGTON	29:17-29:34	100%	33% 53%	17 -	9 =	8	C	95 -	56 =	39	D 2000'	14.4	66	260
COPLEY	30:47-31:10	100%	40% 58%	23 -	11 =	12	C	73 -	44 =	29	D 1600'	14.9	112	740
AUDITORIUM	32:45-33:13	100%	60% 72%	28 -	9 =	19	F	95 -	75 =	20	B 2800'	20.1	85	225
KENMORE	34:32-35:00	100%	65% 76%	28 -	9 =	19	F	79 -	51 =	28	C 2250'	19.4	208	315
BLANDFORD	35:41-36:10	100%	70% 79%	29 -	5 =	24	F=	41 -	37 =	4	A 1100'	18.3	78	147
B.U.EAST	37:16-37:52	100%	75% 83%	36 -	8 =	28	F=	66 -	39 =	27	D 1400'	14.5	180	154
B.U.CENTRAL	38:24-39:06	100%	75% 83%	42 -	8 =	34	F=	32 -	21 =	11	C 750'	16.0	73	178
* = Best Time	TOTALS :	—	— —	253 -	83 =	170		543 -	365 =	178	13400'	—	1021	2221
Ever ...	AVERAGE:	100%	55% 69%	28 -	9 =	19	F	68 -	46 =	22	C 1675'	16.8	11	278
^ = Worst Time	MAXIMUM:	100%	75% 83%	42	14	34		95	75	39	2800'	20.1	208	Worst
Ever	MINIMUM:	100%	33% 53%	14	5	4		32	21	4	750'	14.4		Dwell
~~	MEAN DEVIATION:	LOADING	12%	LOST DWELL	8sec			LOST LINK	9 sec			10%	Worst	
	STANDARD DEVIATION:	LOADING	11%	LOST DWELL	9sec			LOST LINK	10 sec			13%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	8:.25:.50	<<< :<<<	—
Transit Trip	13,400	8:.38:.24	12 :.34	12.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	39%
ARLI	34%
COPL	32%
AUDI	46%
KENM	46%
BLAN	69%
BU.E	47%
BU.C	54%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	39%	39%	45%
LINK	34%	39%	45%
EFFICIENCIES	32%	35%	41%
WOULD	46%	46%	46%
BE	46%	46%	55%
....	69%	69%	69%
	47%	53%	61%
	54%	54%	64%

46%	AVERAGE LINK	46%	49% 54%
GAIN IN RIDERS :			
...Link Improvements only	0%	7%	17%
...Link & Dwell Improvements	10%	18%	34%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive at Government Center Platform 8:17:00
Riverside 17:54 in 18:54 out
Cleveland Circle 19:10 in 22:54 out
Boston College 23:38 in 24:15 out 9% standees

BU West stop bypassed at 40:00
Amory Street 40:40 in 41:15 out

B O S T O N C O L L E G E OUTBOUND #24 SHK Rider AVER. TRIP SPEED = 12.7 LOS C
.... FRIDAY, JUNE 3, 1983 Typed by: SHK FEB.20, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:10 P.M. Checked by: SHK MAY 4, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	12:14-13:01	100%	50% 65%	47 -	14 =	33	F	—	—	—	—	—	131	—
BOYLSTON	13:50-14:10	100%	70% 79%	20 -	10 =	10	C	49 -	42 =	7	A 1500'	20.9	88	202
ARLINGTON	15:43-16:12	100%	40% 58%	29 -	9 =	20	F	93 -	56 =	37	D 2000'	14.7	66	260
COPLEY	17:01-17:25	100%	45% 62%	24 -	11 =	13	C	49 -	44 =	5	A 1600'	22.3	112	740
AUDITORIUM	18:50-19:12	100%	35% 55%	22 -	9 =	13	D	85 -	75 =	10	A 2800'	22.5	85	225
KENMORE	21:02-21:34	100%	3% 32%	32 -	9 =	23	F-	110 -	51 =	59	F 2250'	13.9	208	315
BLANDFORD	22:13-22:35	100%	3% 32%	22 -	5 =	17	F=	39 -	37 =	2	A 1100'	19.2	78	147
B.U.EAST	23:15-23:35	100%	0% 30%	20 -	8 =	12	D	40 -	39 =	1	A 1400'	23.9	180	154
B.U.CENTRAL	24:09-24:24	100%	0% 30%	15 -	8 =	7	C	34 -	21 =	13	D 750'	15.0	73	178
* = Best Time Ever ...	TOTALS :	—	— —	231 -	83 =	148		499 -	365 =	134	13400'	—	1021	2221
	AVERAGE:	100%	27% 49%	26 -	9 =	16	E	62 -	46 =	17	B 1675'	18.3	11	278
^ = Worst Time Ever	MAXIMUM:	100%	70% 79%	47	14	33		110	75	59	2800'	23.9	208	Worst
	MINIMUM:	100%	0% 30%	15	5	7		34	21	1	750'	13.9		Dwell
MEAN DEVIATION:	LOADING	18%	LOST DWELL	7sec	LOST LINK	16 sec						17%	Worst	
STANDARD DEVIATION:	LOADING	17%	LOST DWELL	7sec	LOST LINK	19 sec						24%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.12:.14	<<< :<<<	—
Transit Trip	13,400	4:.24:.09	11 :.55	12.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK	
DWELL	.0 - .4 =>	A	<=	.0 - .2	LINK
DWELL	.4 - .8 =>	B	<=	.2 - .4	LINK
DWELL	.8 -1.2 =>	C	<=	.4 - .6	LINK
DWELL	1.2 -1.6 =>	D	<=	.6 - .8	LINK
DWELL	1.6 -2.0 =>	E	<=	.8 -1.0	LINK
DWELL	2.0 -2.4 =>	F	<=	1.0 -1.2	LINK
DWELL	2.4 -3.0 =>	F-	<=	1.2 -1.5	LINK
DWELL	3.0 or =>	F=	<=	1.5 or	LINK
<<<<<<<<<<< more				more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	56%
ARLI	48%
COPL	52%
AUDI	55%
KENM	26%
BLAN	30%
BU.E	31%
BU.C	19%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	56%	56%	56%
LINK	48%	53%	61%
EFFICIENCIES	52%	52%	52%
WOULD	55%	55%	55%
BE	29%	37%	42%
....	30%	30%	30%
	31%	31%	31%
	19%	20%	23%

36% AVERAGE LINK 37% 39% 42%

GAIN IN RIDERS :

...Link Improvements only	3%	8%	17%
...Link & Dwell Improvements	10%	19%	31%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Leave 100 Cambridge St. at 4:06:10
Arrive at platform 4:09:45

Boston College @ Government Center :
09:43 in 10:49 out 95% seats full
B U West 25:15 in 25:23 out
One LRV directly ahead of this train
Another LRV about one block ahead.

B O S T O N C O L L E G E OUTBOUND #25 SHK Rider AVER. TRIP SPEED = 6.6 LOS F=
...TUESDAY, APRIL 16, 1985 Typed by: SHK FEB.25, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:30 P.M. Checked by: SHK MAY 4, 89 Previous Best = 16.8 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	40:29-41:18	100%	50% 65%	49	- 14 =	35	F-	—	—	—	—	—	131	—
BOYLSTON	44:40-44:58	100%	55% 69%	18	- 10 =	8	C	202^-	42	=160^	F= 1500'	5.1^	88	202
ARLINGTON	49:18-49:41	100%	65% 76%	23	- 9 =	14	D	260^-	56	=204^	F= 2000'	5.2^	66	260
COPLEY	52:04-52:44	100%	65% 76%	40	- 11 =	29	F-	143 -	44 =	99	F= 1600'	7.6	112	740
AUDITORIUM	54:19-55:25	100%	70% 79%	66	- 9 =	57	F=	95 -	75 =	20	B 2800'	20.1	85	225
KENMORE	58:47-59:16	100%	60% 72%	29	- 9 =	20	F	202 -	51 =	151	F= 2250'	7.6	208	315
BLANDFORD	59:59-00:50	100%	80% 86%	51	- 5 =	46	F=	43 -	37 =	6	A 1100'	17.4	78	147
B.U.EAST	7:01:53-02:36	100%	80% 86%	43	- 8 =	35	F=	63 -	39 =	24	D 1400'	15.2	180	154
B.U.CENTRAL	03:16-03:57	100%	85% 90%	41	- 8 =	33	F=	40 -	21 =	19	E 750'	12.8	73	178
* = Best Time Ever ...	TOTALS :	—	— —	360	- 83 =	277		1048-365	=683		13400'	—	1021	2221
	AVERAGE:	100%	68% 78%	40	- 9 =	31	F=	131 -	46 =	85	F= 1675'	8.7	11	278
^ = Worst Time Ever	MAXIMUM:	100%	85% 90%	66	14	57		260	75	204	2800'	20.1	208	Worst Dwell
	MINIMUM:	100%	50% 65%	18	5	8		40	21	6	750'	5.1		Worst
MEAN DEVIATION:	LOADING	8%	LOST DWELL	13sec				LOST LINK	68 sec			51%	Link	740
STANDARD DEVIATION:	LOADING	8%	LOST DWELL	14sec				LOST LINK	73 sec			76%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.40:.29	<<< :<<<	—
Transit Trip	13,400	7:.03:.16	22 :.47	6.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 14%	THE	34% 43%	50%
ARLI 15%	LINK	36% 46%	53%
COPL 23%	EFFICIENCIES	40% 51%	58%
AUDI 60%	WOULD	60% 60%	60%
KENM 20%	BE	42% 53%	61%
BLAN 62%	....	62% 62%	62%
BU.E 53%		53% 57%	66%
BU.C 45%		45% 57%	66%
27%	AVERAGE LINK	47% 55%	61%

GAIN IN RIDERS :
...Link Improvements only 74% 104%126%
...Link & Dwell Improvements
<<< <<< <<<%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Outbound service was disrupted. At 6:13 a passenger at Arlington reported that he waited 1/2 hour and saw no outbound trains. Man in the collection booth knew nothing.
Boston College @ Gov. Center 30:50 in 35:10 out Train began moving out 31:32, doors opened again, closed at 6:33:00 with 10 people seated. 35:10 start again, 35:44 stop, 37:40 start 37:52 stop, 38:05 start.

@ B.U. West 05:32 in, 06:15 out 85% standees

B O S T O N C O L L E G E OUTBOUND #26 SHK Rider AVER. TRIP SPEED = 9.6 LOS E
.... TUESDAY, APRIL 23, 1985 Typed by: SHK FEB.25, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:45 P.M. Checked by: SHK MAY 4, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	50:07-50:55	100%	50%	65%	48 -	14 =	34 F-	—	—	—	—	—	131 —
BOYLSTON	51:43-52:07	100%	50%	65%	24 -	10 =	14 D	48 -	42 =	6	A 1500'	21.3	88 202
ARLINGTON	53:35-54:02	100%	50%	65%	27 -	9 =	18 F	88 -	56 =	32	C 2000'	15.5	66 260
COPLEY	55:08-55:47	100%	90%	93%	39 -	11 =	28 F-	66 -	44 =	22	C 1600'	16.5	112 740
AUDITORIUM	57:16-57:49	100%	90%	93%	33 -	9 =	24 F-	89 -	75 =	14	A 2800'	21.5	85 225
KENMORE	59:06-59:55	100%	90%	93%	49 -	9 =	40 F=	77 -	51 =	26	C 2250'	19.9	208 315
BLANDFORD	5:00:40-01:15	100%	90%	93%	35 -	5 =	30 F=	45 -	37 =	8	B 1100'	16.7	78 147
B.U.EAST	02:12-05:12	100%	75%	83%	180^-	8 =	172^F=	57 -	39 =	18	C 1400'	16.7	180 154
B.U.CENTRAL	05:48-06:14	100%	75%	83%	26 -	8 =	18 F	36 -	21 =	15	D 750'	14.2	73 178
* = Best Time Ever ...	TOTALS :	—	—	—	461 -	83 =	378	506 -	365 =	141	13400'	—	1021 2221
	AVERAGE:	100%	73%	81%	51 -	9 =	42 F=	63 -	46 =	18	B 1675'	18.1	11 278
^ = Worst Time Ever	MAXIMUM:	100%	90%	93%	180	14	172	89	75	32	2800'	21.5	208Worst
	MINIMUM:	100%	50%	65%	24	5	14	36	21	6	750'	14.2	Dwell
---------	MEAN DEVIATION:	LOADING 13%			LOST DWELL 33sec			LOST LINK 7 sec				12%	Worst
	STANDARD DEVIATION:	LOADING 12%			LOST DWELL 47sec			LOST LINK 8 sec				16%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<< <<<	:<<<	<<<<<
Train Arrives	—	4:.50:.07 <<<	:<<<	—
Transit Trip	13,400	5:.05:.48	15 :.41	9.6
Arrive Door ...	3,800	<:<<<:<<< <<<	:<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<< <<<	:<<<	<<<<<
Straight Line	12,500	<:<<<:<<< <<<	:<<<	<<<<<

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK - BOYL	57%	THE	57% 57%	57%
ARLI	41%	LINK	41% 41%	50%
COPL	43%	EFFICIENCIES	43% 43%	50%
AUDI	78%	WOULD	78% 78%	78%
KENM	62%	BE	62% 62%	72%
BLAN	76%	....	76% 76%	76%
BU.E	64%		64% 64%	72%
BU.C	48%		48% 55%	64%
	58%	AVERAGE LINK	58% 59%	65%
GAIN IN RIDERS :				
...Link Improvements only	0%		2%	12%
...Link & Dwell Improvements			34% 43%	63%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boston College @ Gov. Ctr. 47:03 in 48:00 out
@ B.U. West 5:07:55 in 08:25 out

Observations at Kenmore Square : 4:06 to 4:30

INBOUND ARRIVALS	OUTBOUND ARRIVALS
Riverside 4:06:10	
Boston Coll. 09:40	
Beacon Street 10:43	
Boston Coll. 15:03	Cleveland Circ. 15:38
Riverside 15:50	Riverside 16:54
Riverside 20:00	Boston College 17:30
Cleveland Circ. 21:06	Cleveland Circ. 18:30
Beacon Street 21:58	Riverside 23:38
B.C. Non-stop 4:23	Boston College 24:15
??? 4:23	Riverside 27:13
Riverside 29:30	Boston Coll. 28:29
	Riverside 30:11

B O S T O N C O L L E G E OUTBOUND #27 SHK Rider AVER. TRIP SPEED = 8.8 LOS F
.... MONDAY, APRIL 29, 1985 Typed by: SHK FEB.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:25 P.M. Checked by: SHK MAY 4, 89 Previous Best = 17.6 LOS A

==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	24:00-24:26	80%	0% 24%	26	14	12	C	—	—	—	—	—	131 —
BOYLSTON	25:40-26:09	100%	8% 36%	29	10	19	E	74	42	32	D 1500'	13.8	88 202
ARLINGTON	28:02-28:22	100%	11% 38%	20	9	11	D	113	56	57	F 2000'	12.1	66 260
COPLEY	29:21-29:44	100%	12% 39%	23	11	12	C	59	44	15	B 1600'	18.5	112 740
AUDITORIUM	31:29-31:46	100%	12% 39%	17	9	8	C	105	75	30	C 2800'	18.2	85 225
KENMORE	33:30-33:50	100%	12% 39%	20	9	11	D	104	51	53	F 2250'	14.8	208 315
BLANDFORD	34:32-35:35	100%	11% 38%	63	5	58	F=	42	37	5	A 1100'	17.9	78 147
B.U.EAST	37:49-38:10	100%	10% 37%	21	8	13	E	134	39	95	F= 1400'	7.1	180 154
B.U.CENTRAL	41:08-41:22	100%	10% 37%	14	8	6	B	178^	21	157^	F= 750'	2.9^	73 178
* = Best Time Ever ...	TOTALS :	—	— —	233	83	150		809	365	444	13400'	—	1021 2221
	AVERAGE:	98%	10% 36%	26	9	17	E	101	46	56	F- 1675'	11.3	11 278
^ = Worst Time Ever	MAXIMUM:	100%	12% 39%	63	14	58		178	75	157	2800'	18.5	208Worst
	MINIMUM:	80%	0% 24%	14	5	6		42	21	5	750'	2.9	Dwell
MEAN DEVIATION:	LOADING	3%	LOST DWELL 11sec					LOST LINK 36 sec				39%	Worst
STANDARD DEVIATION:	LOADING	4%	LOST DWELL 15sec					LOST LINK 46 sec				52%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	2:.24:.00	<<< :<<<	—
Transit Trip	13,400	2:.41:.08	17 :.08	8.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	14%	THE	14% 16% 18%
ARLI	18%	LINK	19% 24% 28%
COPL	28%	EFFICIENCIES	28% 28% 28%
AUDI	28%	WOULD	28% 28% 28%
KENM	19%	BE	21% 26% 30%
BLAN	34%	....	34% 34% 34%
BU.E	11%		20% 25% 29%
BU.C	4%		19% 25% 28%
	16%	AVERAGE LINK	22% 25% 27%

GAIN IN RIDERS :
...Link Improvements only 38% 56% 69%
...Link & Dwell Improvements 40% 59% 76%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Riverside @ Govmt. Ctr. 4:20:35 in 21:25 out
Boston College @ Govmt. Ctr. 21:17 in 22:00 out
7 people seated
@ B.U.West 42:51 in 43:09 out

B O S T O N C O L L E G E OUTBOUND #28 SHK Rider AVER. TRIP SPEED = 9.5 LOS E
.... MONDAY, AUGUST 26, 1985 Typed by: SHK FEB.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:15 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ SEATS	STAND	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	19:43	20:11	100%	1%	31%	28	14	= 14	C	—	—	—	—		—	131	—
BOYLSTON	22:28	22:48	100%	1%	31%	20	10	= 10	C	137	42	= 95	F= 1500'		7.5	88	202
ARLINGTON	24:35	25:00	100%	2%	32%	25	9	= 16	E	107	56	= 51	E 2000'		12.7	66	260
COPLEY	26:25	26:42	96%	0%	29%	17	11	= 6	B	85	44	= 41	E 1600'		12.8	112	740
AUDITORIUM	28:30	28:44	96%	0%	29%	14	9	= 5	B	108	75	= 33	C 2800'		17.7	85	225
KENMORE	30:20	30:35	96%	0%	29%	15	9	= 6	B	96	51	= 45	E 2250'		16.0	208	315
BLANDFORD	31:17	31:36	96%	0%	29%	19	5	= 14	F-	42	37	= 5	A 1100'		17.9	78	147
B.U.EAST	32:20	32:33	100%	0%	30%	13	8	= 5	B	44	39	= 5	A 1400'		21.7	180	154
B.U.CENTRAL	35:31	35:56	100%	13%	39%	25	8	= 17	F	178^	21	=157^	F= 750'		2.9^	73	178
* = Best Time	TOTALS :		—	—	—	176	83	= 93		797	-365	=432	13400'		—	1021	2221
Ever ...	AVERAGE:		98%	2%	31%	20	9	= 10	C	100	46	= 54	F 1675'		11.5	11	278
^ = Worst Time	MAXIMUM:		100%	13%	39%	28	14	17		178	75	157	2800'		21.7	208	Worst
Ever	MINIMUM:		96%	0%	29%	13	5	5		42	21	5	750'		2.9		Dwell
--------	MEAN DEVIATION:		LOADING	2%	LOST DWELL	5sec				LOST LINK 36 sec					41%	Worst	
	STANDARD DEVIATION:		LOADING	3%	LOST DWELL	5sec				LOST LINK 47 sec					63%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.19:.43	<<< :<<<	—
Transit Trip	13,400	6:.35:.31	15 :.48	9.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME				LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	10%	THE	16% 21%	24%
ARLI	16%	LINK	16% 21%	24%
COPL	17%	EFFICIENCIES	17% 21%	25%
AUDI	20%	WOULD	20% 20%	22%
KENM	15%	BE	15% 19%	22%
BLAN	26%	....	26% 26%	26%
BU.E	26%		26% 26%	26%
BU.C	4%		16% 20%	23%
	14%	AVERAGE LINK	19% 22%	24%

GAIN IN RIDERS :
...Link Improvements only 36% 57% 71%
...Link & Dwell Improvements 31% 51% 68%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Beacon Train @ Park 15:57 in, 16:40 out
Boston Coll. @ Park 17:30 in 17:57 out

@ B.U. West 6:37:24 in 37:39 out

B O S T O N C O L L E G E OUTBOUND #29 SHK Rider AVER. TRIP SPEED = 8.3 LOS F
...THURSDAY, JANUARY 30, 1986 Typed by: SHK FEB.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:50 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	54:17-55:15	100% 70% 79%	58 - 14 = 44 F=	— — — — —	131 —
BOYLSTON	56:12-56:53	100% 90% 93%	41 - 10 = 31 F=	57 - 42 = 15 B 1500' 17.9	88 202
ARLINGTON	58:39-59:11	100% 95% 97%	32 - 9 = 23 F-	106 - 56 = 50 E 2000' 12.9	66 260
COPLEY	5:00:35-01:26	100% 70% 79%	51 - 11 = 40 F=	84 - 44 = 40 E 1600' 13.0	112 740
AUDITORIUM	03:38-04:06	100% 70% 79%	28 - 9 = 19 F	132 - 75 = 57 D 2800' 14.5	85 225
KENMORE	05:59-06:55	100% 95% 97%	56 - 9 = 47 F=	113 - 51 = 62 F- 2250' 13.6	208 315
BLANDFORD	07:55-08:52	100% 95% 97%	57 - 5 = 52 F=	60 - 37 = 23 D 1100' 12.5	78 147
B.U.EAST	10:45-11:39	100% 98% 99%	54 - 8 = 46 F=	113 - 39 = 74 F= 1400' 8.4	180 154
B.U.CENTRAL	12:25-13:05	100% 99% 99%	40 - 8 = 32 F=	46 - 21 = 25 F 750' 11.1	73 178
* = Best Time Ever ...	TOTALS :	— — —	417 - 83 =334	711 -365 =346 13400' —	1021 2221
	AVERAGE:	100% 87% 91%	46 - 9 = 37 F=	89 - 46 = 43 E 1675' 12.9	11 278
^ = Worst Time Ever	MAXIMUM:	100% 99% 99%	58 14 52	132 75 74 2800' 17.9	208Worst Dwell
	MINIMUM:	100% 70% 79%	28 5 19	46 21 15 750' 8.4	Worst Link 740
MEAN DEVIATION:		LOADING 9%	LOST DWELL 11sec	LOST LINK 18 sec	12%
STANDARD DEVIATION:		LOADING 9%	LOST DWELL 11sec	LOST LINK 20 sec	27%

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.54:.17	<<< :<<<	—
Transit Trip	13,400	5:.12:.25	18 :.08	8.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4 =>	A	<= .0 - .2	LINK
DWELL	.4 - .8 =>	B	<= .2 - .4	LINK
DWELL	.8 -1.2 =>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK - BOYL	58%	THE	58% 58% 58%
ARLI	49%	LINK	49% 62% 72%
COPL	51%	EFFICIENCIES	51% 65% 75%
AUDI	45%	WOULD	45% 53% 61%
KENM	36%	BE	42% 53% 61%
BLAN	60%	....	60% 65% 75%
BU.E	33%		51% 65% 75%
BU.C	45%		52% 66% 76%
	47%	AVERAGE LINK	51% 61% 70%

GAIN IN RIDERS :
...Link Improvements only 9% 30% 49%
...Link & Dwell Improvements 32% 60% 86%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrived at Government Center Platform 4:42
Beacon LRV-2 43:52 in 44:27 out
Riverside LRV-244:50 in 45:15 out
Kenmore LRV-1 45:34 in
Kenmore LRV-1 (sign says Lechmere) 49:10/50:20
Beacon LRV-2 50:40 in 51:30 out
Boston College 51:50 in 52:25 out 10 standees
@ B.U. West 14:40 in 15:31 out 100% standees
5:20:30 still no train visible on the outbound tracks.

B O S T O N C O L L E G E OUTBOUND #30 SHK Rider AVER. TRIP SPEED = 9.1 LOS E
.... FRIDAY, JANUARY 31, 1986 Typed by: SHK FEB.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:25 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	25:13-26:23	100%	50% 65%	70 -	14 =	56 F=		—	—	—	—	—	131	—
BOYLSTON	27:31-28:08	100%	60% 72%	37 -	10 =	27 F-		68 -	42 =	26	D 1500'	15.0	88	202
ARLINGTON	30:09-30:53	100%	80% 86%	44 -	9 =	35 F=		121 -	56 =	65	F 2000'	11.3	66	260
COPLEY	32:06-33:01	100%	75% 83%	55 -	11 =	44 F=		73 -	44 =	29	D 1600'	14.9	112	740
AUDITORIUM	34:46-35:36	100%	70% 79%	50 -	9 =	41 F=		105 -	75 =	30	C 2800'	18.2	85	225
KENMORE	37:06-37:49	100%	40% 58%	43 -	9 =	34 F=		90 -	51 =	39	D 2250'	17.0	208	315
BLANDFORD	38:40-39:31	100%	40% 58%	51 -	5 =	46 F=		51 -	37 =	14	B 1100'	14.7	78	147
B.U.EAST	40:38-41:11	100%	40% 58%	33 -	8 =	25 F=		67 -	39 =	28	D 1400'	14.2	180	154
B.U.CENTRAL	41:50-42:34	100%	50% 65%	44 -	8 =	36 F=		39 -	21 =	18	E 750'	13.1	73	178
* = Best Time Ever ...	TOTALS :	—	— —	427 -	83 =	344		614 -	365 =	249	13400'	—	1021	2221
	AVERAGE:	100%	56% 69%	47 -	9 =	38 F=		77 -	46 =	31	D 1675'	14.9	11	278
^ = Worst Time Ever	MAXIMUM:	100%	80% 86%	70	14	56		121	75	65	2800'	18.2	208	Worst Dwell
	MINIMUM:	100%	40% 58%	33	5	25		39	21	14	750'	11.3		
MEAN DEVIATION:	LOADING 11%	LOST DWELL 9sec	LOST LINK 10 sec	9%	Worst Link 740
STANDARD DEVIATION:	LOADING 10%	LOST DWELL 9sec	LOST LINK 15 sec	14%	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.25:.13	<<< :<<<	—
Transit Trip	13,400	5:.41:.50	16 :.37	9.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL		LOS		LOST TIME/BEST LINK
DWELL .0 - .4 =>		A	<= .0 - .2	LINK
DWELL .4 - .8 =>		B	<= .2 - .4	LINK
DWELL .8 -1.2 =>		C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>		D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>		E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>		F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>		F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>		F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	40%
ARLI	33%
COPL	52%
AUDI	59%
KENM	45%
BLAN	42%
BU.E	34%
BU.C	31%
	41%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	40%	43%	50%
LINK	38%	48%	55%
EFFICIENCIES	52%	57%	66%
WOULD	59%	59%	59%
BE	45%	53%	61%
....	42%	42%	42%
	34%	39%	45%
	31%	39%	45%
AVERAGE LINK	42%	47%	52%

GAIN IN RIDERS :

...Link Improvements only	2%	15%	27%
...Link & Dwell Improvements	28%	47%	67%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Platform at Government Center full at 5:01
Kenmore LRV-1 5:01:50 out
Kenmore LRV-1 02:30 in 04:27 out
Kenmore LRV-107:41 in 09:25 out
Beacon LRV-1 09:50 in
Kenmore LRV-1 11:23 in 12:40 out
Riverside LRV-2 13:04 in 14:44 out
(arrived empty, left jammed full)
Beacon LRV-1 15:40 in 17:20 out
Boston Coll LRV-2 17:20 in 20:01 out 90% full
Beacon LRV-2 20:45 in 22:07 out
Boston Coll. 22:25 in 23:10 out 60% seats
(Riverside train right behind)
@ B.U.West 44:27 in 47:10 out
(Motorman in second car got out, talked with motorman in the first car. Train was made into an express. 3/4 of the people got off.)
Next train 47:47 in 48:55 out; next train 53:20 in

B O S T O N C O L L E G E OUTBOUND #31 SHK Rider AVER. TRIP SPEED = 11.8 LOS C
.... MONDAY, FEBRUARY 3, 1986 Typed by: SHK FEB.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:50 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	53:40-54:10	20%	0% 6%	30 -	14 =	16	C	—	—	—	—	—	131	—
BOYLSTON	55:14-55:37	28%	0% 8%	23 -	10 =	13	D	64 -	42 =	22	C 1500'	16.0	88	202
ARLINGTON	57:12-57:28	40%	0% 12%	16 -	9 =	7	B	95 -	56 =	39	D 2000'	14.4	66	260
COPLEY	58:22-58:41	60%	0% 18%	19 -	11 =	8	B	54 -	44 =	10	B 1600'	20.2	112	740
AUDITORIUM	7:00:22-00:42	64%	0% 19%	20 -	9 =	11	D	101 -	75 =	26	B 2800'	18.9	85	225
KENMORE	02:17-02:32	56%	0% 17%	15 -	9 =	6	B	95 -	51 =	44	E 2250'	16.1	208	315
BLANDFORD	03:22-04:15	56%	0% 17%	53 -	5 =	48	F=	50 -	37 =	13	B 1100'	15.0	78	147
B.U.EAST	05:18-05:40	52%	0% 16%	22 -	8 =	14	E	63 -	39 =	24	D 1400'	15.2	180	154
B.U.CENTRAL	06:30-06:46	60%	0% 18%	16 -	8 =	8	C	50 -	21 =	29	F- 750'	10.2	73	178
* = Best Time Ever ...	TOTALS :	—	— —	214 -	83 =	131		572 -	365 =	207	13400'	—	1021	2221
	AVERAGE:	48%	0% 15%	24 -	9 =	15	D	72 -	46 =	26	C 1675'	16.0	11	278
^ = Worst Time Ever	MAXIMUM:	64%	0% 19%	53	14	48		101	75	44	2800'	20.2	208	Worst
	MINIMUM:	20%	0% 6%	15	5	6		50	21	10	750'	10.2		Dwell
MEAN DEVIATION:		LOADING	4%	LOST DWELL	9sec			LOST LINK	9 sec			11%	Worst	
STANDARD DEVIATION:		LOADING	4%	LOST DWELL	12sec			LOST LINK	11 sec			18%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.53:.40	<<< :<<<	—
Transit Trip	13,400	7:.06:.30	12 :.50	11.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	4%	THE	4% 4%	5%
ARLI	5%	LINK	5% 5%	6%
COPL	10%	EFFICIENCIES	10% 10%	10%
AUDI	13%	WOULD	13% 13%	13%
KENM	10%	BE	10% 13%	15%
BLAN	13%	....	13% 13%	13%
BU.E	11%		11% 11%	13%
BU.C	7%		8% 11%	12%
10%	AVERAGE LINK		10% 11%	11%
GAIN IN RIDERS :				
...Link Improvements only			0% 10%	10%
...Link & Dwell Improvements			4% 12%	23%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrive at Government Center platform 6:35
——— LRV-1 6:35:20 out
Beacon LRV-1 36:10 in 36:40 out
Kenmore LRV-1 37:15 in 37:35 out
Riverside LRV-1 38:55 in 39:14 out
Boston Coll. LRV-2 40:10 in 40:40 out
Kenmore LRV-1 41:00 in 41:12 out
Beacon LRV-1 41:23 in 41:40 out
Kenmore LRV-1 48:20 in 48:56 out
Riverside LRV-1 50:16 in 50:50 out
Boston Coll. LRV-2 51:33 in 51:55 out 1 seated.
@ B.U. West 08:04 in 08:20 out

B O S T O N C O L L E G E OUTBOUND #32 SHK Rider AVER. TRIP SPEED = 4.8 LOS F=
..WEDNESDAY, FEBRUARY 5, 1986 Typed by: SHK FEB.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:50 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A

==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ SEATS	STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	54:40-55:13	100%	20% 44%	33 -	14 =	19 D		—	—	—	—	—	131	—
BOYLSTON	56:10-56:35	100%	20% 44%	25 -	10 =	15 D		57 -	42 =	15 B	1500'	17.9	88	202
ARLINGTON	58:20-58:46	100%	20% 44%	26 -	9 =	17 E		105 -	56 =	49 E	2000'	13.0	66	260
COPLEY	59:56-00:36	100%	27% 49%	40 -	11 =	29 F-		70 -	44 =	26 C	1600'	15.6	112	740
AUDITORIUM	7:02:17-02:43	100%	13% 39%	26 -	9 =	17 E		101 -	75 =	26 B	2800'	18.9	85	225
KENMORE	04:26-04:44	100%	8% 36%	18 -	9 =	9 C		103 -	51 =	52 F	2250'	14.9	208	315
BLANDFORD	14:49-23:08	50%	0% 15%	499^-	5 =	494^F=		605^-	37 =	568^F=	1100'	1.2^	78	147
B.U.EAST	24:30-24:41	50%	0% 15%	11 -	8 =	3 A		82 -	39 =	43 F	1400'	11.6	180	154
B.U.CENTRAL	25:30-25:56	50%	0% 15%	26 -	8 =	18 F		49 -	21 =	28 F-	750'	10.4	73	178
* = Best Time Ever ...	TOTALS :	—	— —	704 -	83 =	621		1172-365 =		807	13400'	—	1021	2221
	AVERAGE:	83%	12% 33%	78 -	9 =	69 F=		147 -	46 =	101 F=	1675'	7.8	11	278
^ = Worst Time Ever	MAXIMUM:	100%	27% 49%	499	14	494		605	75	568	2800'	18.9	208	Worst Dwell
	MINIMUM:	50%	0% 15%	11	5	3		49	21	15	750'	1.2		
MEAN DEVIATION:	LOADING 14% LOST DWELL 106sec							LOST LINK 117sec				77%	Worst	
STANDARD DEVIATION:	LOADING 13% LOST DWELL 150sec							LOST LINK 177sec				106%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.54:.40	<<< :<<<	—
Transit Trip	13,400	7:.25:.30	30 :.50	4.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	32%	THE	32% 32%	32%
ARLI	23%	LINK	23% 29%	34%
COPL	28%	EFFICIENCIES	28% 28%	34%
AUDI	36%	WOULD	36% 36%	36%
KENM	19%	BE	21% 26%	30%
BLAN	2%	....	19% 24%	28%
BU.E	7%		8% 10%	12%
BU.C	6%		8% 10%	12%
	NA	AVERAGE LINK	20% 23%	25%

GAIN IN RIDERS :
...Link Improvements only NA NA NA
...Link & Dwell Improvements

TRIP NOTES — OTHER TRAINS AND COMMENTS

At Government Center :
Riverside 6:49:35 in 50:20 out
Boston College 50:43 Express — bad wheel
Boston College 52:06 in 52:38 out 0 standees
Train delay at Kenmore : 4:26 in 4:44 doors closed
7:05:13 doors open/close quickly
7:06:40 lights off for 5 seconds
7:07:00 doors open and close no annoucements
12:50 start 13:33 stop 14:14 start 14:42 stop
14:49 doors open and stop at Blandford
Announcement of disabled train. All passengers off
Disabled train moved out at 18:08
Boston College LRV-1 18:55 in 20:18 out jammed
22:10 moves through intersection
LRV-2 enters platform with lights off appr. 21:00
22:30 lights on. People get on second LRV unit
23:08 train leaves Blandford.
At BUWest : 27:12 in 27:28 out 3/4 seat
Following train LRV-2 in at 28:08
Following LRV-2 in at 28:58
6 units in 90 seconds

B O S T O N C O L L E G E OUTBOUND #33 SHK Rider AVER. TRIP SPEED = 9.4 LOS E
.... FRIDAY, FEBRUARY 7, 1986 Typed by: SHK MAR. 3, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:20 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	22:20-22:57	100%	5% 34%	37	14	= 23	E	—	—	—	—	—	131	—
BOYLSTON	24:16-24:32	100%	11% 38%	16	10	= 6	B	79	42	= 37	E 1500'	12.9	88	202
ARLINGTON	26:20-26:39	100%	13% 39%	19	9	= 10	C	108	56	= 52	E 2000'	12.6	66	260
COPLEY	28:23-28:48	100%	40% 58%	25	11	= 14	D	104	44	= 60	F- 1600'	10.5	112	740
AUDITORIUM	30:30-30:52	100%	40% 58%	22	9	= 13	D	102	75	= 27	B 2800'	18.7	85	225
KENMORE	34:24-34:52	100%	60% 72%	28	9	= 19	F	212	51	=161	F= 2250'	7.2	208	315
BLANDFORD	35:37-36:32	100%	60% 72%	55	5	= 50	F=	45	37	= 8	B 1100'	16.7	78	147
B.U.EAST	37:18-37:47	100%	70% 79%	29	8	= 21	F-	46	39	= 7	A 1400'	20.8	180	154
B.U.CENTRAL	38:19-38:43	100%	70% 79%	24	8	= 16	F	32	21	= 11	C 750'	16.0	73	178
* = Best Time	TOTALS :	—	— —	255	83	=172		728	-365	=363	13400'	—	1021	2221
Ever ...	AVERAGE:	100%	41% 59%	28	9	= 19	F	91	46	= 45	E 1675'	12.5	11	278
^ = Worst Time	MAXIMUM:	100%	70% 79%	55	14	50		212	75	161	2800'	20.8	208	Worst
Ever	MINIMUM:	100%	5% 34%	16	5	6		32	21	7	750'	7.2		Dwell
-------- MEAN	DEVIATION:	LOADING 17%		LOST DWELL	9sec			LOST LINK 34 sec				27%	Worst	
STANDARD	DEVIATION:	LOADING 17%		LOST DWELL	12sec			LOST LINK 48 sec				44%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.22:.20	<<< :<<<	—
Transit Trip	13,400	4:.38:.19	15 :.59	9.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

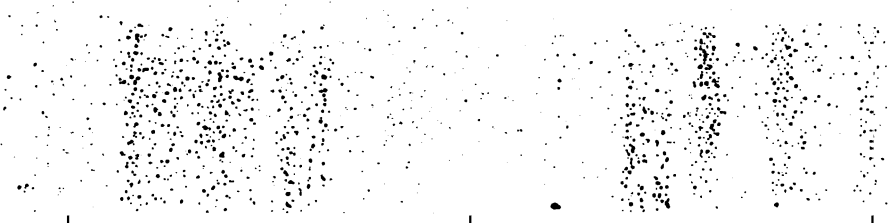
SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 18%	THE	18% 23% 26%	
ARLI 20%	LINK	20% 25% 29%	
COPL 17%	EFFICIENCIES	21% 26% 30%	
AUDI 43%	WOULD	43% 43% 43%	
KENM 14%	BE	31% 39% 45%	
BLAN 59%	....	59% 59% 59%	
BU.E 61%		61% 61% 61%	
BU.C 52%		52% 52% 61%	
30%	AVERAGE LINK	36% 42% 46%	

GAIN IN RIDERS :
...Link Improvements only 20% 40% 53%
...Link & Dwell Improvements 26% 45% 63%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive at Government Center Platform 4:19
Beacon St LRV-1 19:32 in 20:00 out
Boston College LRV-2 20:18 in 20:43 out 7 seat
BC @ B.U.West 39:35 in 39:56 out



B O S T O N C O L L E G E OUTBOUND #34 SHK Rider AVER. TRIP SPEED = 10.0 LOS E
.... MONDAY, FEBRUARY 10, 1986 Typed by: SHK MAR. 3, 89 Previous Worst = 4.9 LOS F=
..Begin Trip 3:15 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	16:20-16:59	100% 30%	51%	39 -	14 =	25	E	—	—	—	—	—	131	—
BOYLSTON	18:00-18:17	100% 30%	51%	17 -	10 =	7	B	61 -	42 =	19	C 1500'	16.8	88	202
ARLINGTON	20:04-20:44	100% 25%	48%	40 -	9 =	31	F=	107 -	56 =	51	E 2000'	12.7	66	260
COPLEY	21:30-21:30	100% 25%	48%	0 -	11 =	NA		46 -	44 =	2	A 1600'	23.7	112	740
AUDITORIUM	23:25-23:25	100% 25%	48%	0 -	9 =	NA		115 -	75 =	40	C 2800'	16.6	85	225
KENMORE	25:19-25:54	100% 30%	51%	35 -	9 =	26	F-	114 -	51 =	63	F- 2250'	13.5	208	315
BLANDFORD	26:41-27:39	100% 85%	90%	58 -	5 =	53	F=	47 -	37 =	10	B 1100'	16.0	78	147
B.U.EAST	29:43-30:45	100% 85%	90%	62 -	8 =	54	F=	124 -	39 =	85	F= 1400'	7.7	180	154
B.U.CENTRAL	31:22-32:06	100% 85%	90%	44 -	8 =	36	F=	37 -	21 =	16	D 750'	13.8	73	178
* = Best Time Ever ...	TOTALS :	— —	—	295 -	83 =	232		651 -	365 =	286	13400'	—	1021	2221
	AVERAGE:	100% 47%	63%	33 -	9 =	26	F-	81 -	46 =	36	D 1675'	14.0	11	278
^ = Worst Time Ever	MAXIMUM:	100% 85%	90%	62	14	54		124	75	85	2800'	23.7	208	Worst Dwell
	MINIMUM:	100% 25%	48%	0	5	7		37	21	2	750'	7.7		
MEAN DEVIATION:	LOADING 20%	LOST DWELL NAsec						LOST LINK 24 sec				20%	Worst Link 740	
STANDARD DEVIATION:	LOADING 19%	LOST DWELL 15sec						LOST LINK 27 sec				36%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	3:.16:.20	<<< :<<<	—
Transit Trip	13,400	3:.31:.22	15 :.02	10.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0	or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	35%
ARLI	27%
COPL	46%
AUDI	31%
KENM	21%
BLAN	40%
BU.E	28%
BU.C	51%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	35%	35%	39%
LINK	27%	34%	39%
EFFICIENCIES	46%	46%	46%
WOULD	31%	31%	37%
BE	25%	32%	37%
....	40%	40%	40%
	47%	60%	69%
	51%	60%	69%
AVERAGE LINK	39%	44%	50%

35%

GAIN IN RIDERS :

...Link Improvements only	11%	26%	43%
...Link & Dwell Improvements	30%	48%	68%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boston Coll. @ Gov. Center 3:13:07 in 13:37 out
20 seats (80%)
Announcement at Arlington : "First Stop will be Kenmore"
Copley and Auditorium stops were skipped.

B.U. West 33:30 in 34:00 out 85% standees following train at B.U. West 34:20 in

B O S T O N C O L L E G E OUTBOUND #35 SHK Rider AVER. TRIP SPEED = 8.5 LOS F
.WEDNESDAY, FEBRUARY 12, 1986 Typed by: SHK MAR. 3, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:50 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK LINK
PARK STREET	50:54	52:03	100%	65% 76%	69	14	= 55	F=	—	—	—	—	—	—	131	—
BOYLSTON	53:30	54:03	100%	70% 79%	33	10	= 23	F	87	42	= 45	F	1500'	11.8	88	202
ARLINGTON	55:41	56:29	100%	75% 83%	48	9	= 39	F=	98	56	= 42	D	2000'	13.9	66	260
COPLEY	57:31	58:32	100%	80% 86%	61	11	= 50	F=	62	44	= 18	C	1600'	17.6	112	740
AUDITORIUM	6:01:42	02:14	100%	80% 86%	32	9	= 23	F-	190	75	=115	F=	2800'	10.0	85	225
KENMORE	05:01	05:30	100%	40% 58%	29	9	= 20	F	167	51	=116	F=	2250'	9.2	208	315
BLANDFORD	06:16	06:34	100%	40% 58%	18	5	= 13	F-	46	37	= 9	B	1100'	16.3	78	147
B.U.EAST	07:31	07:50	100%	40% 58%	19	8	= 11	D	57	39	= 18	C	1400'	16.7	180	154
B.U.CENTRAL	08:32	08:52	100%	35% 55%	20	8	= 12	D	42	21	= 21	F	750'	12.2	73	178
* = Best Time Ever ...	TOTALS :		—	— —	329	83	=246		749	-365	=384		13400'	—	1021	2221
	AVERAGE:		100%	58% 71%	37	9	= 27	F-	94	46	= 48	F	1675'	12.2	11	278
^ = Worst Time Ever	MAXIMUM:		100%	80% 86%	69	14	55		190	75	116		2800'	17.6	208	Worst Dwell
	MINIMUM:		100%	35% 55%	18	5	11		42	21	9		750'	9.2		
MEAN DEVIATION:	LOADING 14% LOST DWELL 15sec								LOST LINK 34 sec					19%	Worst Link 740	
STANDARD DEVIATION:	LOADING 13% LOST DWELL 16sec								LOST LINK 41 sec					29%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.50:.54	<<< :<<<	—
Transit Trip	13,400	6:.08:.32	17 :.38	8.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	37%	THE	40% 51% 58%
ARLI	45%	LINK	45% 53% 61%
COPL	59%	EFFICIENCIES	59% 59% 64%
AUDI	34%	WOULD	45% 57% 66%
KENM	26%	BE	45% 57% 66%
BLAN	47%	....	47% 47% 47%
BU.E	40%		40% 40% 45%
BU.C	29%		29% 39% 45%
	35%	AVERAGE LINK	42% 49% 55%

GAIN IN RIDERS :
...Link Improvements only 20% 40% 57%
...Link & Dwell Improvements 29% 52% 76%

TRIP NOTES — OTHER TRAINS AND COMMENTS

40 people at Government Center platform :
Riverside LRV-2 36:00 out
Cleveland Circle LRV-2 37:12 in 37:43 out
Riverside 40:06 in 40:46 out
Beacon LRV-1 45:30 in 47:03 out
Boston College LRV-2 48:10 in 49:04 out
(doors closed at 48:40 5 standees
@ B.U.West 10:20 in 10:40 out

B O S T O N C O L L E G E OUTBOUND #36 SHK Rider AVER. TRIP SPEED = 8.8 LOS F
... TUESDAY, FEBRUARY 25, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:50 P.M. Checked by: SHK MAY 6, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	52:06-52:55	100%	33%	53%	49	14	35	F-	—	—	—	—	—	131	—
BOYLSTON	54:05-54:17	100%	33%	53%	12	10	2	A	70	42	28	D	1500'	14.6	88	202
ARLINGTON	57:34-58:08	100%	40%	58%	34	9	25	F-	197	56	141	F=	2000'	6.9	66	260
COPLEY	59:55-00:39	100%	50%	65%	44	11	33	F=	107	44	63	F-	1600'	10.2	112	740
AUDITORIUM	6:02:57-03:24	100%	40%	58%	27	9	18	F	138	75	63	E	2800'	13.8	85	225
KENMORE	05:11-05:43	100%	35%	55%	32	9	23	F-	107	51	56	F	2250'	14.3	208	315
BLANDFORD	06:39-07:04	100%	35%	55%	25	5	20	F=	56	37	19	C	1100'	13.4	78	147
B.U.EAST	08:00-08:25	100%	30%	51%	25	8	17	F	56	39	17	C	1400'	17.0	180	154
B.U.CENTRAL	09:17-09:45	100%	30%	51%	28	8	20	F-	52	21	31	F-	750'	9.8	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	276	83	=193		783	-365	=418		13400'	—	1021	2221
	AVERAGE:	100%	36%	55%	31	9	= 21	F	98	46	= 52	F	1675'	11.7	11	278
^ = Worst Time Ever	MAXIMUM:	100%	50%	65%	49	14	35		197	75	141		2800'	17.0	208	Worst Dwell
	MINIMUM:	100%	30%	51%	12	5	2		52	21	17		750'	6.9		
-------- MEAN DEVIATION:	LOADING	4%	LOST DWELL	8sec	LOST LINK 29 sec								22%	Worst		
STANDARD DEVIATION:	LOADING	4%	LOST DWELL	9sec	LOST LINK 38 sec								33%	Link 740		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.52:.06	<<< :<<<	—
Transit Trip	13,400	6:.09:.17	17 :.11	8.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS		LOST TIME/BEST
DWELL .0 - .4	=> A	<= .0 - .2		LINK
DWELL .4 - .8	=> B	<= .2 - .4		LINK
DWELL .8 -1.2	=> C	<= .4 - .6		LINK
DWELL 1.2 -1.6	=> D	<= .6 - .8		LINK
DWELL 1.6 -2.0	=> E	<= .8 -1.0		LINK
DWELL 2.0 -2.4	=> F	<= 1.0 -1.2		LINK
DWELL 2.4 -3.0	=> F-	<= 1.2 -1.5		LINK
DWELL 3.0	or => F=	<= 1.5	or	LINK
<<<<<<<<<<<	more		more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	32%
ARLI	15%
COPL	24%
AUDI	35%
KENM	28%
BLAN	36%
BU.E	38%
BU.C	21%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	32%	35%	41%
LINK	28%	35%	41%
EFFICIENCIES	31%	39%	45%
WOULD	35%	43%	50%
BE	31%	39%	45%
....	36%	36%	42%
	38%	38%	42%
	27%	34%	39%
AVERAGE LINK	31%	37%	42%

26% GAIN IN RIDERS :

...Link Improvements only	19%	42%	62%
...Link & Dwell Improvements	28%	53%	79%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Northbound at Boylston Street :
LRV-1 full 5:36:00 in
LRV-2 full 36:55 in
LRV-2 full 38:07
LRV-1 90% full jammed at door 39:49 in
@ Park Street 41:11 in 42:41 out 95% standees
@ Government Center 43:33 in

Government center platform Southbound :
Kenmore LRV-1 5:46:05 in 47:25 out
Boston College LRV-2 47:40 in 48:39 out 10% std
@ Boylston 54:00 empty LRV-2 heading inbound
@ Arlington/Copley 59:00 empty LRV-2 inbound

BC @ B.U.West 11:55 in 12:18 out 30% standees

B O S T O N C O L L E G E OUTBOUND #37 SHK Rider AVER. TRIP SPEED = 10.3 LOS D
..WEDNESDAY, FEBRUARY 26, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:50 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	50:20-51:28	100%	70%	79%	68	14	54 F=	—	—	—	—	—	131	—
BOYLSTON	52:12-52:37	100%	70%	79%	25	10	15 D	44	42	2	A 1500'	23.2	88	202
ARLINGTON	54:09-54:38	100%	70%	79%	29	9	20 F	92	56	36	D 2000'	14.8	66	260
COPLEY	55:35-56:20	100%	70%	79%	45	11	34 F=	57	44	13	B 1600'	19.1	112	740
AUDITORIUM	58:03-58:32	100%	20%	44%	29	9	20 F	103	75	28	B 2800'	18.5	85	225
KENMORE	6:00:14-00:47	100%	20%	44%	33	9	24 F-	102	51	51	F 2250'	15.0	208	315
BLANDFORD	01:46-02:16	100%	50%	65%	30	5	25 F=	59	37	22	C 1100'	12.7	78	147
B.U.EAST	03:33-03:58	100%	40%	58%	25	8	17 F	77	39	38	E 1400'	12.4	180	154
B.U.CENTRAL	04:56-05:26	100%	45%	62%	30	8	22 F-	58	21	37	F= 750'	8.8	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	314	83	=231	592	-365	=227	13400'	—	1021	2221
	AVERAGE:	100%	51%	65%	35	9	26 F-	74	46	28	D 1675'	15.4	11	278
^ = Worst Time Ever	MAXIMUM:	100%	70%	79%	68	14	54	103	75	51	2800'	23.2	208	Worst Dwell
	MINIMUM:	100%	20%	44%	25	5	15	44	21	2	750'	8.8		
--------	MEAN DEVIATION:	LOADING	14%		LOST DWELL	9sec		LOST LINK	12 sec			20%	Worst	
	STANDARD DEVIATION:	LOADING	14%		LOST DWELL	11sec		LOST LINK	15 sec			34%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.50:.20	<<< :<<<	—
Transit Trip	13,400	6:.04:.56	14 :.36	10.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST	
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	75%	75%	75%
ARLI	48%	53%	61%
COPL	61%	61%	61%
AUDI	58%	58%	58%
KENM	22%	29%	34%
BLAN	28%	28%	34%
BU.E	33%	43%	50%
BU.C	21%	39%	45%

THE LINK EFFICIENCIES WOULD BE ....

40%	AVERAGE LINK	41% 46% 51%
GAIN IN RIDERS :		
...Link Improvements only	2%	15% 27%
...Link & Dwell Improvements	17%	34% 52%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive @ northbound Boylston platform : 5:35
LRV-1 full 41:20 in
LRV-2 full 42:02 in
LRV-2 95% seats no standees 42:24 in
@Park Street 43:35 in 43:50 doors closed 44:14 out
@ Government Center 45:29

Southbound Boston College LRV-2
@ Government Center 48:00 in 48:35 out 60% seats
@ B.U.West 07:25 in 07:48 out 50% standees
Following LRV-2 08:06 in 08:12 out no standees

B O S T O N C O L L E G E OUTBOUND #38 SHK Rider AVER. TRIP SPEED = 9.5 LOS E
....TUESDAY, MARCH 4, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:05 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	06:15-06:15	100%	75% 83%	0 -	14 =	NA	NA	—	—	—	—	—	131	—
BOYLSTON	07:30-07:30	100%	75% 83%	0 -	10 =	NA	NA	75 -	42 =	33	D	1500' 13.6	88	202
ARLINGTON	09:40-09:40	100%	75% 83%	0 -	9 =	NA	NA	130 -	56 =	74	F-	2000' 10.5	66	260
COPLEY	11:52-12:17	100%	20% 44%	25 -	11 =	14	D	132 -	44 =	88	F=	1600' 8.3	112	740
AUDITORIUM	14:44-15:03	100%	15% 41%	19 -	9 =	10	C	147 -	75 =	72	E	2800' 13.0	85	225
KENMORE	17:22-17:51	100%	10% 37%	29 -	9 =	20	F	139 -	51 =	88	F=	2250' 11.0	208	315
BLANDFORD	19:29-19:42	100%	10% 37%	13 -	5 =	8	E	98 -	37 =	61	F=	1100' 7.7	78	147
B.U.EAST	21:04-21:18	100%	15% 41%	14 -	8 =	6	B	82 -	39 =	43	F	1400' 11.6	180	154
B.U.CENTRAL	22:04-22:18	100%	15% 41%	14 -	8 =	6	B	46 -	21 =	25	F	750' 11.1	73	178
* = Best Time Ever ...	TOTALS :	—	— —	114 -	83 =	64		849 -365 =	484	13400'	—		1021	2221
	AVERAGE:	100%	34% 54%	13 -	9 =	7	B	106 -	46 =	61	F-	1675' 10.8	11	278
^ = Worst Time Ever	MAXIMUM:	100%	75% 83%	29	14	20		147	75	88		2800' 13.6	208	Worst Dwell
	MINIMUM:	100%	10% 37%	0	5	NA		46	21	25		750' 7.7		
MEAN DEVIATION:	LOADING 21% LOST DWELL NAsec							LOST LINK 20 sec				13%	Worst	
STANDARD DEVIATION:	LOADING 20% LOST DWELL NAsec							LOST LINK 23 sec				20%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.06:.15	<<< :<<<	—
Transit Trip	13,400	5:.22:.04	15 :.49	9.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	46%
ARLI	36%
COPL	28%
AUDI	22%
KENM	15%
BLAN	14%
BU.E	18%
BU.C	19%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	46%	55%	64%
LINK	44%	55%	64%
EFFICIENCIES	44%	55%	64%
WOULD	22%	29%	34%
BE	22%	27%	32%
....	19%	25%	28%
	19%	25%	28%
	22%	27%	32%

23% AVERAGE LINK 28% 36% 42%

GAIN IN RIDERS :

...Link Improvements only	22%	57%	83%
...Link & Dwell Improvements	18%	46%	69%

TRIP NOTES — OTHER TRAINS AND COMMENTS

At Government Center southbound platform ...
*Kenmore LRV-1 4:39:40 in 40:55 out
*Kenmore LRV-1 42:57 in 44:00 out
*Beacon LRV-2 48:21 in 48:58 out
*Riverside LRV-2 express lights out 51:40 thru
*Riverside LRV-2 express 52:05 thru
*Boston College LRV-2 express 53:25 thru
*Riverside LRV-2 55:37 in 56:58 out 100% full
*Beacon LRV-2 57:15 through express (bad wheel)
*Kenmore LRV-1 57:50 in 58:30 out
*Boston College LRV-2 express 58:50 thru
*Beacon LRV-2 59:42 in 00:21 out
*Kenmore 00:47 in fully loaded. No announcements
*Boston College LRV-2 02:40 in 04:05 out.
Express to Copley Square
@ B.U.West 24:32 in 24:50 out 15% standees
B.C. Train directly ahead. A third train arrived at 5:25:28 with only a few standees.
Arrived home at 5:41 PM

B O S T O N C O L L E G E OUTBOUND #39 SHK Rider AVER. TRIP SPEED = 7.8 LOS F-
.... FRIDAY, MARCH 14, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:00 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	00:47-02:23	100% 75%	83%	96 - 14 = 82 F=	— — — — —	131 —
BOYLSTON	03:36-04:18	100% 80%	86%	42 - 10 = 32 F=	73 - 42 = 31 D 1500' 14.0	88 202
ARLINGTON	06:50-07:37	100% 80%	86%	47 - 9 = 38 F=	152 - 56 = 96 F= 2000' 9.0	66 260
COPLEY	09:14-09:58	100% 50%	65%	44 - 11 = 33 F=	97 - 44 = 53 F- 1600' 11.2	112 740
AUDITORIUM	12:24-12:52	100% 35%	55%	28 - 9 = 19 F	146 - 75 = 71 E 2800' 13.1	85 225
KENMORE	15:05-15:29	100% 30%	51%	24 - 9 = 15 E	133 - 51 = 82 F= 2250' 11.5	208 315
BLANDFORD	16:35-17:16	100% 30%	51%	41 - 5 = 36 F=	66 - 37 = 29 D 1100' 11.4	78 147
B.U.EAST	18:45-19:02	100% 30%	51%	17 - 8 = 9 C	89 - 39 = 50 F- 1400' 10.7	180 154
B.U.CENTRAL	20:00-20:28	100% 30%	51%	28 - 8 = 20 F-	58 - 21 = 37 F= 750' 8.8	73 178
* = Best Time Ever ...	TOTALS :	— — —		367 - 83 =284	814 -365 =449 13400' —	1021 2221
	AVERAGE:	100% 49% 64%		41 - 9 = 32 F=	102 - 46 = 56 F- 1675' 11.2	11 278
^ = Worst Time Ever	MAXIMUM:	100% 80% 86%		96 14 82	152 75 96 2800' 14.0	208Worst Dwell
	MINIMUM:	100% 30% 51%		17 5 9	58 21 29 750' 8.8	Worst Link 740
MEAN DEVIATION:	LOADING 16% LOST DWELL 16sec				LOST LINK 20 sec 10%	
STANDARD DEVIATION:	LOADING 15% LOST DWELL 20sec				LOST LINK 23 sec 17%	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.00:.47	<<< :<<<	—
Transit Trip	13,400	6:.20:.00	19 :.13	7.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

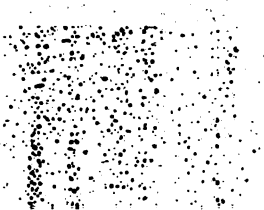
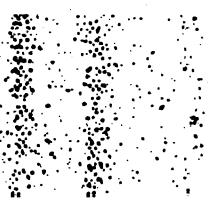
LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 48%	THE	48% 55%	64%
ARLI 32%	LINK	45% 57%	66%
COPL 39%	EFFICIENCIES	45% 57%	66%
AUDI 33%	WOULD	33% 43%	50%
KENM 21%	BE	29% 37%	42%
BLAN 29%	....	29% 34%	39%
BU.E 22%		27% 34%	39%
BU.C 18%		27% 34%	39%
29%	AVERAGE LINK	34% 43%	49%
GAIN IN RIDERS :			
...Link Improvements only		17% 48%	69%
...Link & Dwell Improvements		35% 68%	97%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive at Government Center 5:28:28
Kenmore LRV-1 30:42 in 32:20 out signed "Lechmere"
Boston College LRV-2 32:32 in 33:55 out jammed
Cleveland Circle LRV-2 34:21 in 35:25 out
Riverside LRV-2 35:47 in 36:34 out
Cleveland Circle 36:42 in 37:44 out
Beacon LRV-2 38:08/38:40 2 people on second unit
Riverside LRV-2 39:00/39:37
Kenmore LRV-1 40:00/41:05 not full delay leaving
Cleveland Circle LRV-2s 42:30/43:18 48:22/49:32
Beacon LRV-1 53:52 55:18
Riverside LRV-2 55:50 56:40
Boston College LRV-2 57:08/58:13 72% seated
Boston College LRV right behind
@ B.U.West 22:25 in 22:55 out 30% standing
Next LRV following in at 24:50

B O S T O N C O L L E G E OUTBOUND #40 SHK Rider AVER. TRIP SPEED = 9.2 LOS E
.... MONDAY, APRIL 7, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:25 P.M. Checked by: SHK MAY 7, 89 Previous Best = 16.8 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	26:18-27:29	100% 75%	83%	71 - 14 = 57 F=	— — — — —	131 —
BOYLSTON	28:17-28:45	100% 80%	86%	28 - 10 = 18 E	48 - 42 = 6 A 1500' 21.3	88 202
ARLINGTON	30:31-31:24	100% 80%	86%	53 - 9 = 44 F=	106 - 56 = 50 E 2000' 12.9	66 260
COPLEY	33:14-34:17	100% 90%	93%	63 - 11 = 52 F=	110 - 44 = 66 F= 1600' 9.9	112 740
AUDITORIUM	35:49-36:23	100% 90%	93%	34 - 9 = 25 F-	92 - 75 = 17 B 2800' 20.8	85 225
KENMORE	37:50-38:51	100% 90%	93%	61 - 9 = 52 F=	87 - 51 = 36 D 2250' 17.6	208 315
BLANDFORD	39:44-40:27	100% 90%	93%	43 - 5 = 38 F=	53 - 37 = 16 C 1100' 14.2	78 147
B.U.EAST	41:18-42:04	100% 90%	93%	46 - 8 = 38 F=	51 - 39 = 12 B 1400' 18.7	180 154
B.U.CENTRAL	42:36-43:16	100% 90%	93%	40 - 8 = 32 F=	32 - 21 = 11 C 750' 16.0	73 178
* = Best Time Ever ...	TOTALS :	— — —		439 - 83 =356	579 -365 =214 13400' —	1021 2221
	AVERAGE:	100% 86%	90%	49 - 9 = 40 F=	72 - 46 = 27 C 1675' 15.8	11 278
^ = Worst Time Ever	MAXIMUM:	100% 90%	93%	71 14 57	110 75 66 2800' 21.3	208Worst Dwell
	MINIMUM:	100% 75%	83%	28 5 18	32 21 6 750' 9.9	Worst Link 740
~~	MEAN DEVIATION:	LOADING	4%	LOST DWELL 12sec	LOST LINK 18 sec	18%
	STANDARD DEVIATION:	LOADING	4%	LOST DWELL 12sec	LOST LINK 20 sec	27%

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.26:.18	<<< :<<<	—
Transit Trip	13,400	5:.42:.36	16 :.18	9.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4 =>			A <= .0 - .2	LINK
DWELL .4 - .8 =>			B <= .2 - .4	LINK
DWELL .8 -1.2 =>			C <= .4 - .6	LINK
DWELL 1.2 -1.6 =>			D <= .6 - .8	LINK
DWELL 1.6 -2.0 =>			E <= .8 -1.0	LINK
DWELL 2.0 -2.4 =>			F <= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>			F- <= 1.2 -1.5	LINK
DWELL 3.0	or	=>	F= <= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	73%	THE	73% 73%	73%
ARLI	45%	LINK	45% 57%	66%
COPL	34%	EFFICIENCIES	45% 57%	66%
AUDI	76%	WOULD	76% 76%	76%
KENM	55%	BE	55% 62%	72%
BLAN	65%	....	65% 65%	72%
BU.E	71%		71% 71%	71%
BU.C	61%		61% 61%	72%
57%	AVERAGE LINK		59% 65%	71%
GAIN IN RIDERS :				
...Link Improvements only			4% 14%	25%
...Link & Dwell Improvements			33% 51%	70%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Northbound @ Boylston : LRV-2 full 5:11:02 out
LRV-1 11:25 in 11:50 out jammed 2 people get on
LRV-2 12:59 out full
LRV-2 14:04 out second car 2/3 full
LRV-2 14:25 in 14:47 out Park 15:43/17:09
Governmnet Center 18:16 in
5:22 Speaker: "All service is running on schedule"
Southbound platform at Government Center :
Kenmore LRV-1 20:00 in 21:33 out
Riverside LRV-2 21:45 in 23:07 out
Boston College LRV-2 23:28 in 24:16 out 75% stand
@ B.U.West 44:55 in 45:30 out 95% standees
(some people unable to board, left on platform)
Next train LRV-2 48:35 in 48:55 out
Arrive home at 6:08

B O S T O N C O L L E G E OUTBOUND #41 SHK Rider AVER. TRIP SPEED = 8.4 LOS F
.... FRIDAY, APRIL 11, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:10 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ SEATS	STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	10:42	11:46	100%	75% 83%	64	- 14	= 50 F=		—	—	—	—	—	131	—
BOYLSTON	12:34	13:12	100%	80% 86%	38	- 10	= 28 F-		48	- 42	= 6	A 1500'	21.3	88	202
ARLINGTON	14:50	15:52	100%	95% 97%	62	- 9	= 53 F=		98	- 56	= 42	D 2000'	13.9	66	260
COPLEY	16:50	18:00	100%	90% 93%	70	- 11	= 59 F=		58	- 44	= 14	B 1600'	18.8	112	740
AUDITORIUM	19:35	20:08	100%	60% 72%	33	- 9	= 24 F-		95	- 75	= 20	B 2800'	20.1	85	225
KENMORE	21:41	25:09	100%	30% 51%	208^	- 9	=199^F=		93	- 51	= 42	E 2250'	16.5	208	315
BLANDFORD	26:02	26:33	100%	30% 51%	31	- 5	= 26 F=		53	- 37	= 16	C 1100'	14.2	78	147
B.U.EAST	27:28	28:05	100%	30% 51%	37	- 8	= 29 F=		55	- 39	= 16	C 1400'	17.4	180	154
B.U.CENTRAL	28:36	29:05	100%	30% 51%	29	- 8	= 21 F-		31	- 21	= 10	C 750'	16.5	73	178
* = Best Time Ever ...	TOTALS :		—	— —	572	- 83	=489		531	-365	=166	13400'	—	1021	2221
	AVERAGE:		100%	58% 71%	64	- 9	= 54 F=		66	- 46	= 21	C 1675'	17.2	11	278
^ = Worst Time Ever	MAXIMUM:		100%	95% 97%	208	14	199		98	75	42	2800'	21.3	208	Worst Dwell
	MINIMUM:		100%	30% 51%	29	5	21		31	21	6	750'	13.9		
-------- MEAN DEVIATION:			LOADING 20% LOST DWELL 37sec						LOST LINK 11 sec				11%	Worst	
STANDARD DEVIATION:			LOADING 19% LOST DWELL 53sec						LOST LINK 13 sec				17%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.10:.42	<<< :<<<	—
Transit Trip	13,400	5:.28:.36	17 :.54	8.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A <= .0 - .2	LINK
DWELL .4 - .8 =>	B <= .2 - .4	LINK
DWELL .8 -1.2 =>	C <= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D <= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E <= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F <= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F- <= 1.2 -1.5	LINK
DWELL 3.0 or =>	F= <= 1.5 or	LINK
<<<<<<<<<<<> more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK - BOYL	73%	THE	73% 73% 73%
ARLI	49%	LINK	49% 57% 66%
COPL	74%	EFFICIENCIES	74% 74% 74%
AUDI	73%	WOULD	73% 73% 73%
KENM	39%	BE	39% 48% 55%
BLAN	36%	....	36% 36% 39%
BU.E	36%		36% 36% 39%
BU.C	35%		35% 35% 39%
	49%	AVERAGE LINK	49% 52% 56%

GAIN IN RIDERS :
...Link Improvements only 0% 6% 14%
...Link & Dwell Improvements 49% 65% 84%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrived at Government Center Platform : 4:55:20
Riverside LRV-2 55:40 in stop for 2 sec.
doors do not open no announcement
Cleveland Circle LRV-2 56:43 out
Riverside 56:57 in 57:25 out
Riverside LRV-2 57:48 in 58:24 out
5:02 no smoking announcement
Kenmore LRV-1 04:23 in 06:20 out long delay
Boston College LRV-2 06:14 in 07:40 out 25% stand
"Express to Packer's Corner"
@ Kenmore Kenmore 23:27 in 24:00 out empty
Boston College train @ Kenmore: 24:33 in 25:09 out
@ B.U.West 30:50 in 31:19 out 30% standees
NOTE : long dwell at Kenmore was caused by making the train an Express. Local riders had to get off at Kenmore and wait for the next train.

B O S T O N C O L L E G E OUTBOUND #42 SHK Rider AVER. TRIP SPEED = 11.7 LOS C
...THURSDAY, AUGUST 14, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:45 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	44:53-45:35	100% 20%	44%	42 -	14 =	28	F	—	—	—	—	—	131	—
BOYLSTON	46:25-46:45	100% 23%	46%	20 -	10 =	10	C	50 -	42 =	8	A 1500'	20.5	88	202
ARLINGTON	48:14-48:39	100% 16%	41%	25 -	9 =	16	E	89 -	56 =	33	C 2000'	15.3	66	260
COPLEY	49:50-50:49	100% 8%	36%	59 -	11 =	48	F=	71 -	44 =	27	D 1600'	15.4	112	740
AUDITORIUM	52:20-52:47	100% 8%	36%	27 -	9 =	18	F	91 -	75 =	16	B 2800'	21.0	85	225
KENMORE	54:26-54:55	100% 7%	35%	29 -	9 =	20	F	99 -	51 =	48	E 2250'	15.5	208	315
BLANDFORD	55:35-56:05	100% 7%	35%	30 -	5 =	25	F=	40 -	37 =	3	A 1100'	18.8	78	147
B.U.EAST	56:56-57:13	100% 5%	34%	17 -	8 =	9	C	51 -	39 =	12	B 1400'	18.7	180	154
B.U.CENTRAL	57:49-58:23	100% 8%	36%	34 -	8 =	26	F=	36 -	21 =	15	D 750'	14.2	73	178
* = Best Time Ever ...	TOTALS :	— —	—	283 -	83 =	200		527 -	365 =	162	13400'	—	1021	2221
	AVERAGE:	100% 11%	38%	31 -	9 =	22	F-	66 -	46 =	20	C 1675'	17.3	11	278
^ = Worst Time Ever	MAXIMUM:	100% 23%	46%	59	14	48		99	75	48	2800'	21.0	208	Worst Dwell
	MINIMUM:	100% 5%	34%	17	5	9		36	21	3	750'	14.2		Worst Link 740
MEAN DEVIATION:	LOADING	4%	LOST DWELL	10sec				LOST LINK	12 sec			12%		
STANDARD DEVIATION:	LOADING	4%	LOST DWELL	11sec				LOST LINK	14 sec			16%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.44:.53	<<< :<<<	—
Transit Trip	13,400	5:.57:.49	12 :.56	11.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	37%
ARLI	29%
COPL	25%
AUDI	30%
KENM	19%
BLAN	32%
BU.E	27%
BU.C	20%
	26%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	37%	37%	37%
LINK	29%	29%	35%
EFFICIENCIES	25%	27%	32%
WOULD	30%	30%	30%
BE	19%	24%	28%
....	32%	32%	32%
	27%	27%	27%
	20%	23%	26%
AVERAGE LINK	26%	28%	30%

GAIN IN RIDERS :

...Link Improvements only	0%	8%	15%
...Link & Dwell Improvements	12%	23%	38%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boston Coll @ Gov.Ctr 42:26 in 43:08 out 8 stand
@ B.U.West 59:13 in 59:33 out 5 stand

B O S T O N C O L L E G E OUTBOUND #43 SHK Rider AVER. TRIP SPEED = 13.1 LOS B
.... MONDAY, AUGUST 18, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 1:00 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	02:41	02:59	28%	0% 8%	18	14	4	A	—	—	—	—	—	131	—
BOYLSTON	04:00	04:15	24%	0% 7%	15	10	5	B	61	42	19	C 1500'	16.8	88	202
ARLINGTON	06:04	06:16	28%	0% 8%	12	9	3	A	109	56	53	E 2000'	12.5	66	260
COPLEY	07:44	07:57	40%	0% 12%	13	11	2	A	88	44	44	F 1600'	12.4	112	740
AUDITORIUM	09:51	10:00	36%	0% 11%	9*-	9	0*	A	114	75	39	C 2800'	16.7	85	225
KENMORE	11:25	11:39	36%	0% 11%	14	9	5	B	85	51	34	D 2250'	18.0	208	315
BLANDFORD	12:30	12:39	40%	0% 12%	9	5	4	C	51	37	14	B 1100'	14.7	78	147
B.U.EAST	13:24	13:33	40%	0% 12%	9	8	1	A	45	39	6	A 1400'	21.2	180	154
B.U.CENTRAL	14:11	14:29	40%	0% 12%	18	8	10	D	38	21	17	E 750'	13.5	73	178
* = Best Time Ever ...	TOTALS :		—	— —	117	83	34		591	365	226	13400'	—	1021	2221
	AVERAGE:		35%	0% 10%	13	9	4	B	74	46	28	D 1675'	15.5	11	278
^ = Worst Time Ever	MAXIMUM:		40%	0% 12%	18	14	10		114	75	53	2800'	21.2	208	Worst Dwell
	MINIMUM:		24%	0% 7%	9	5	0		38	21	6	750'	12.4		
--------	MEAN DEVIATION:		LOADING	2%	LOST	DWELL	2sec		LOST	LINK	14 sec			14%	Worst
	STANDARD DEVIATION:		LOADING	2%	LOST	DWELL	3sec		LOST	LINK	15 sec			23%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	.<<<<<
Train Arrives	—	1:.02:.41	<<< :<<<	—
Transit Trip	13,400	1:.14:.11	11 :.30	13.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	6%	THE	6%	6% 6%
ARLI	4%	LINK	4%	5% 5%
COPL	4%	EFFICIENCIES	4%	5% 6%
AUDI	8%	WOULD	8%	8% 9%
KENM	7%	BE	7%	7% 8%
BLAN	8%	....	8%	8% 8%
BU.E	10%		10%	10% 10%
BU.C	7%		7%	8% 9%
	6%	AVERAGE LINK	6%	7% 8%

GAIN IN RIDERS :
...Link Improvements only 0% 17% 33%
...Link & Dwell Improvements 6% 16% 29%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boston College @ Government Center :
1:00:12 in 00:32 out 5 seat
@ B.U.West 15:57 in 16:14 out

B O S T O N C O L L E G E OUTBOUND #44 SHK Rider AVER. TRIP SPEED = 8.7 LOS F
WEDNESDAY, SEPTEMBER 10, 1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:30 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL
PARK STREET	31:34	32:52	100%	60% 72%	78	14	= 64 F=		—	—	—	—	—	131 —
BOYLSTON	34:23	34:50	100%	60% 72%	27	10	= 17 E		91	42	= 49 F	1500'	11.2	88 202
ARLINGTON	36:36	37:10	100%	60% 72%	34	9	= 25 F-		106	56	= 50 E	2000'	12.9	66 260
COPLEY	38:01	38:59	100%	40% 58%	58	11	= 47 F=		51	44	= 7 A	1600'	21.4	112 740
AUDITORIUM	40:29	41:03	100%	40% 58%	34	9	= 25 F-		90	75	= 15 B	2800'	21.2	85 225
KENMORE	42:29	44:49	100%	9% 36%	140	9	=131 F=		86	51	= 35 D	2250'	17.8	208 315
BLANDFORD	45:36	45:52	100%	9% 36%	16	5	= 11 F		47	37	= 10 B	1100'	16.0	78 147
B.U.EAST	46:47	48:24	100%	8% 36%	97	8	= 89 F=		55	39	= 16 C	1400'	17.4	180 154
B.U.CENTRAL	48:58	49:25	100%	13% 39%	27	8	= 19 F		34	21	= 13 D	750'	15.0	73 178
* = Best Time Ever ...	TOTALS :		—	— —	511	83	=428		560	365	=195	13400'	—	1021 2221
^ = Worst Time Ever	AVERAGE:		100%	33% 53%	57	9	= 48 F=		70	46	= 24 C	1675'	16.3	11 278
	MAXIMUM:		100%	60% 72%	140	14	131		106	75	50	2800'	21.4	208Worst
	MINIMUM:		100%	8% 36%	16	5	11		34	21	7	750'	11.2	Dwell
MEAN DEVIATION:	LOADING 17% LOST DWELL 36sec								LOST LINK 15 sec				15%	Worst
STANDARD DEVIATION:	LOADING 16% LOST DWELL 38sec								LOST LINK 16 sec				24%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.31:.34	<<< :<<<	—
Transit Trip	13,400	5:.48:.58	17 :.24	8.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 33%	THE	38% 48% 55%	
ARLI 38%	LINK	38% 48% 55%	
COPL 62%	EFFICIENCIES	62% 62% 62%	
AUDI 48%	WOULD	48% 48% 48%	
KENM 34%	BE	34% 39% 45%	
BLAN 28%	....	28% 28% 28%	
BU.E 26%		26% 26% 28%	
BU.C 22%		22% 24% 28%	
35%	AVERAGE LINK	35% 39% 42%	

GAIN IN RIDERS :
...Link Improvements only 0% 11% 20%
...Link & Dwell Improvements 43% 63% 83%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boston College at Government Center :
5:29:11 out 40% seated LRV-2
@ B.U.West 50:11 in 50:33 out 15% stand

At the B.U. East stop, the driver got out to check the train.

B O S T O N C O L L E G E OUTBOUND #45 SHK Rider AVER. TRIP SPEED = 7.7 LOS F-
.WEDNESDAY, SEPTEMBER 17,1986 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:20 P.M. Checked by: SHK MAY 7, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ SEATS	STAND	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	21:21	-22:16	100%	40%	58%	55 -	14 =	41	F-	--	--	--	--	--	131	--
BOYLSTON	23:42	-23:54	100%	40%	58%	12 -	10 =	2	A	86 -	42 =	44	F 1500'	11.9	88	202
ARLINGTON	26:56	-27:17	100%	20%	44%	21 -	9 =	12	D	182 -	56 =	126	F= 2000'	7.5	66	260
COPLEY	30:08	-30:36	100%	13%	39%	28 -	11 =	17	D	171 -	44 =	127	F= 1600'	6.4	112	740
AUDITORIUM	32:55	-33:12	100%	13%	39%	17 -	9 =	8	C	139 -	75 =	64	E 2800'	13.7	85	225
KENMORE	35:23	-35:44	100%	5%	34%	21 -	9 =	12	D	131 -	51 =	80	F= 2250'	11.7	208	315
BLANDFORD	36:28	-37:20	100%	13%	39%	52 -	5 =	47	F=	44 -	37 =	7	A 1100'	17.0	78	147
B.U.EAST	38:20	-38:50	100%	7%	35%	30 -	8 =	22	F-	60 -	39 =	21	C 1400'	15.9	180	154
B.U.CENTRAL	40:56	-41:20	100%	21%	45%	24 -	8 =	16	F	126 -	21 =	105	F= 750'	4.1	73	178
* = Best Time Ever ...	TOTALS :		--	--	--	260 -	83 =	177		939 -365 =		574	13400'	--	1021	2221
	AVERAGE:		100%	19%	43%	29 -	9 =	20	F	117 -	46 =	72	F= 1675'	9.7	11	278
^ = Worst Time Ever	MAXIMUM:		100%	40%	58%	55	14	47		182	75	127	2800'	17.0	208	Worst Dwell
	MINIMUM:		100%	5%	34%	12	5	2		44	21	7	750'	4.1		Worst Link 740
-------- MEAN DEVIATION:			LOADING		8%	LOST	DWELL	13sec		LOST	LINK	38 sec		38%		
STANDARD DEVIATION:			LOADING		8%	LOST	DWELL	14sec		LOST	LINK	43 sec		52%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	5:.21:.21	<<< :<<<	--
Transit Trip	13,400	5:.40:.56	19 :.35	7.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 28%	THE	31% 39%	45%
ARLI 18%	LINK	31% 39%	45%
COPL 11%	EFFICIENCIES	23% 29%	34%
AUDI 21%	WOULD	21% 26%	30%
KENM 15%	BE	21% 26%	30%
BLAN 29%	....	29% 29%	29%
BU.E 25%		25% 25%	30%
BU.C 6%		18% 23%	27%
17%	AVERAGE LINK	24% 29%	33%

GAIN IN RIDERS :
...Link Improvements only 41% 71% 94%
...Link & Dwell Improvements 46% 74% <<<

TRIP NOTES -- OTHER TRAINS AND COMMENTS

AT GOVERNMENT CENTER Southbound :
Brigham Circle LRV-1 16:30 out
Beacon LRV-2 16:47 in 17:17 out no standees
Riverside LRV-2 17:37 in 18:05 out 5 seated
Boston College LRV-2 18:21 in 19:28 out 24% seat
@ B.U.West 43:05 in 43:25 out 25% stand
LRV-2 immediately in front.

B O S T O N C O L L E G E OUTBOUND #46 SHK Rider AVER. TRIP SPEED = 12.8 LOS C
....TUESDAY, OCTOBER 13, 1986 Typed by: SHK MAR.16, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:10 P.M. Checked by: SHK MAY 20, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	09:47-10:25	100%	7% 35%	38	14	24	E	—	—	—	—	—	131 —
BOYLSTON	11:11-11:24	100%	7% 35%	13	10	3	A	46	42	4	A 1500'	22.2	88 202
ARLINGTON	12:43-13:02	100%	7% 35%	19	9	10	C	79	56	23	C 2000'	17.3	66 260
COPLEY	13:54-14:14	96%	0% 29%	20	11	9	C	52	44	8	A 1600'	21.0	112 740
AUDITORIUM	16:14-16:28	96%	0% 29%	14	9	5	B	120	75	45	D 2800'	15.9	85 225
KENMORE	18:29-18:45	60%	0% 18%	16	9	7	B	121	51	70	F- 2250'	12.7	208 315
BLANDFORD	19:24-19:43	56%	0% 17%	19	5	14	F-	39	37	2	A 1100'	19.2	78 147
B.U.EAST	20:47-21:04	92%	0% 28%	17	8	9	C	64	39	25	D 1400'	14.9	180 154
B.U.CENTRAL	21:38-22:01	100%	0% 30%	23	8	15	E	34	21	13	D 750'	15.0	73 178
* = Best Time Ever ...	TOTALS :	—	— —	179	83	96		555	-365	=190	13400'	—	1021 2221
	AVERAGE:	89%	2% 28%	20	9	11	C	69	46	24	C 1675'	16.5	11 278
^ = Worst Time Ever	MAXIMUM:	100%	7% 35%	38	14	24		121	75	70	2800'	22.2	208Worst
	MINIMUM:	56%	0% 17%	13	5	3		34	21	2	750'	12.7	Dwell
--------	MEAN DEVIATION:	LOADING	6%	LOST DWELL	5sec			LOST LINK 17 sec				14%	Worst
	STANDARD DEVIATION:	LOADING	6%	LOST DWELL	6sec			LOST LINK 22 sec				23%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	.—	2:.09:.47	<<< :<<<	—
Transit Trip	13,400	2:.21:.38	11 :.51	12.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK
.0	- .4	=>	A	<= .0 - .2
.4	- .8	=>	B	<= .2 - .4
.8	-1.2	=>	C	<= .4 - .6
1.2	-1.6	=>	D	<= .6 - .8
1.6	-2.0	=>	E	<= .8 -1.0
2.0	-2.4	=>	F	<= 1.0 -1.2
2.4	-3.0	=>	F-	<= 1.2 -1.5
3.0	or	=>	F=	<= 1.5 or
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	32%	THE	32%	32% 32%
ARLI	25%	LINK	25%	25% 27%
COPL	30%	EFFICIENCIES	30%	30% 30%
AUDI	18%	WOULD	18%	19% 22%
KENM	12%	BE	15%	19% 22%
BLAN	17%	....	17%	17% 17%
BU.E	10%		10%	11% 13%
BU.C	17%		17%	19% 22%
18%		AVERAGE LINK	19%	21% 23%

GAIN IN RIDERS :
...Link Improvements only 6% 17% 28%
...Link & Dwell Improvements 8% 16% 27%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Government Center: 2:07:52 in 08:12 out 8 seated 7

B O S T O N C O L L E G E OUTBOUND #47 SHK Rider AVER. TRIP SPEED = 7.6 LOS F-
.WEDNESDAY, NOVEMBER 26, 1986 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:15 P.M. Checked by: SHK MAY 8, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND	Riders SEATS	Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	16:42	17:59	100%	90%	93%	77	14	= 63	F=	—	—	—	—	—	131	—
BOYLSTON	18:49	19:09	100%	90%	93%	20	10	= 10	C	50	42	= 8	A 1500'	20.5	88	202
ARLINGTON	21:53	22:37	100%	85%	90%	44	9	= 35	F=	164	56	=108	F= 2000'	8.3	66	260
COPLEY	24:22	25:06	100%	85%	90%	44	11	= 33	F=	105	44	= 61	F- 1600'	10.4	112	740
AUDITORIUM	27:49	28:30	100%	85%	90%	41	9	= 32	F=	163	75	= 88	F 2800'	11.7	85	225
KENMORE	30:04	30:52	100%	85%	90%	48	9	= 39	F=	94	51	= 43	E 2250'	16.3	208	315
BLANDFORD	31:38	32:00	100%	85%	90%	22	5	= 17	F=	46	37	= 9	B 1100'	16.3	78	147
B.U.EAST	33:09	33:37	100%	85%	90%	28	8	= 20	F-	69	39	= 30	D 1400'	13.8	180	154
B.U.CENTRAL	36:30	37:00	100%	85%	90%	30	8	= 22	F-	173	21	=152	F= 750'	3.0	73	178
TOTALS :	—	—	—	—	—	354	83	=271		864	365	=499	13400'	—	1021	2221
AVERAGE:	100%	86%	91%			39	9	= 30	F=	108	46	= 62	F- 1675'	10.6	11	278
MAXIMUM:	100%	90%	93%			77	14	63		173	75	152	2800'	20.5	208	Worst
MINIMUM:	100%	85%	90%			20	5	10		46	21	8	750'	3.0		Dwell
MEAN DEVIATION:	LOADING	1%	LOST	DWELL	13sec					LOST	LINK	40 sec		37%	Worst	
STANDARD DEVIATION:	LOADING	1%	LOST	DWELL	15sec					LOST	LINK	47 sec		62%	Link	740

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<< <<< :<<<		<<<<<
Train Arrives	—	5:.16:.42 <<< :<<<		—
Transit Trip	13,400	5:.36:.30	19 :.48	7.6
Arrive Door ...	3,800	<:<<<:<<< <<< :<<<		<<<<<
Total Trip ...	19,700	<:<<<:<<< <<< :<<<		<<<<<
Straight Line	12,500	<:<<<:<<< <<< :<<<		<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	78%	THE	78% 78% 78%
ARLI	32%	LINK	49% 62% 72%
COPL	38%	EFFICIENCIES	47% 60% 69%
AUDI	41%	WOULD	47% 60% 69%
KENM	49%	BE	49% 60% 69%
BLAN	72%	....	72% 72% 72%
BU.E	51%		51% 60% 69%
BU.C	11%		47% 60% 69%
38%		AVERAGE LINK	53% 63% 71%

GAIN IN RIDERS :
...Link Improvements only 39% 66% 87%
...Link & Dwell Improvements 49% 79% <<<

TRIP NOTES -- OTHER TRAINS AND COMMENTS

@ Govmt. Center 5:14:22 in 14:57 out 100% seats
@ B.U. West 36:30 in 37:00 out 85% standees
Next in : LRV-2 37:21
(tail lights not working)

B O S T O N C O L L E G E OUTBOUND #48 SHK Rider AVER. TRIP SPEED = 14.7 LOS B
... TUESDAY, DECEMBER 9, 1986 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 10:50 P.M. Checked by: SHK MAY 8, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	55:01-55:28	75%	0% 23%	27	14	13	C	—	—	—	—	—	131	—
BOYLSTON	56:15-56:29	80%	0% 24%	14	10	4	B	47	42	5	A 1500'	21.8	88	202
ARLINGTON	57:52-58:06	85%	0% 26%	14	9	5	B	83	56	27	C 2000'	16.4	66	260
COPLEY	58:55-59:12	90%	0% 27%	17	11	6	B	49	44	5	A 1600'	22.3	112	740
AUDITORIUM	11:00:40-00:58	95%	0% 29%	18	9	9	C	88	75	13	A 2800'	21.7	85	225
KENMORE	02:22-02:40	100%	3% 32%	18	9	9	C	84	51	33	D 2250'	18.3	208	315
BLANDFORD	03:19-03:32	100%	3% 32%	13	5	8	E	39	37	2	A 1100'	19.2	78	147
B.U.EAST	04:23-04:43	100%	5% 34%	20	8	12	D	51	39	12	B 1400'	18.7	180	154
B.U.CENTRAL	05:19-05:37	100%	9% 36%	18	8	10	D	36	21	15	D 750'	14.2	73	178
* = Best Time Ever ...	TOTALS :	—	— —	159	83	76		477	365	112	13400'	—	1021	2221
	AVERAGE:	92%	2% 29%	18	9	8	C	60	46	14	B 1675'	19.2	11	278
^ = Worst Time Ever	MAXIMUM:	100%	9% 36%	27	14	13		88	75	33	2800'	22.3	208	Worst Dwell
	MINIMUM:	75%	0% 23%	13	5	4		36	21	2	750'	14.2		
MEAN DEVIATION:	LOADING	4%	LOST DWELL	3sec				LOST LINK	8 sec			10%	Worst Link	740
STANDARD DEVIATION:	LOADING	4%	LOST DWELL	3sec				LOST LINK	10 sec			15%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	:.55:.01	<<< :<<<	—
Transit Trip	13,400	1:.05:.19	10 :.18	14.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK	
DWELL	.0 - .4 =>	A	<=	.0 - .2	LINK
DWELL	.4 - .8 =>	B	<=	.2 - .4	LINK
DWELL	.8 -1.2 =>	C	<=	.4 - .6	LINK
DWELL	1.2 -1.6 =>	D	<=	.6 - .8	LINK
DWELL	1.6 -2.0 =>	E	<=	.8 -1.0	LINK
DWELL	2.0 -2.4 =>	F	<=	1.0 -1.2	LINK
DWELL	2.4 -3.0 =>	F-	<=	1.2 -1.5	LINK
DWELL	3.0 or =>	F=	<=	1.5 or	LINK
<<<<<<<<<<> more				more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	21%	THE	21% 21% 21%
ARLI	16%	LINK	16% 16% 18%
COPL	23%	EFFICIENCIES	23% 23% 23%
AUDI	23%	WOULD	23% 23% 23%
KENM	18%	BE	18% 19% 22%
BLAN	30%	....	30% 30% 30%
BU.E	24%		24% 24% 24%
BU.C	20%		20% 23% 26%
	22%	AVERAGE LINK	22% 23% 24%

GAIN IN RIDERS :
...Link Improvements only 0% 5% 9%
...Link & Dwell Improvements 4% 7% 15%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrive at Govmt. Center platform 10:48:00
Riverside LRV-1 51:48 in
@ B.U.West 07:04 in 07:19 out 6 stand

B O S T O N C O L L E G E OUTBOUND #49 SHK Rider AVER. TRIP SPEED = 13.2 LOS B
.... MONDAY, DECEMBER 15, 1986 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 10:45 P.M. Checked by: SHK MAY 8, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	47:38	48:03	56%	0% 17%	25	14	11	B	—	—	—	—	—	131	—
BOYLSTON	48:56	49:07	56%	0% 17%	11	10	1	A	53	42	11	B 1500'	19.3	88	202
ARLINGTON	50:42	50:56	60%	0% 18%	14	9	5	B	95	56	39	D 2000'	14.4	66	260
COPLEY	51:50	52:09	68%	0% 20%	19	11	8	B	54	44	10	B 1600'	20.2	112	740
AUDITORIUM	54:00	54:20	80%	0% 24%	20	9	11	D	111	75	36	C 2800'	17.2	85	225
KENMORE	56:10	56:22	80%	0% 24%	12	9	3	A	110	51	59	F 2250'	13.9	208	315
BLANDFORD	57:05	57:24	80%	0% 24%	19	5	14	F-	43	37	6	A 1100'	17.4	78	147
B.U.EAST	58:06	58:35	96%	0% 29%	29	8	21	F-	42	39	3	A 1400'	22.7	180	154
B.U.CENTRAL	59:04	59:35	100%	11% 38%	31	8	23	F-	29	21	8	B 750'	17.6	73	178
* = Best Time Ever ...	TOTALS :		—	— —	180	83	97		537	365	172	13400'	—	1021	2221
	AVERAGE:		75%	1% 23%	20	9	11	C	67	46	22	C 1675'	17.0	11	278
^ = Worst Time Ever	MAXIMUM:		100%	11% 38%	31	14	23		111	75	59	2800'	22.7	208	Worst Dwell
	MINIMUM:		56%	0% 17%	11	5	1		29	21	3	750'	13.9		
MEAN DEVIATION:			LOADING	6%	LOST DWELL	7sec			LOST LINK 18 sec				12%	Worst	
STANDARD DEVIATION:			LOADING	6%	LOST DWELL	7sec			LOST LINK 19 sec				21%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	:.47:.38	<<< :<<<	—
Transit Trip	13,400	:.59:.04	11 :.26	13.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

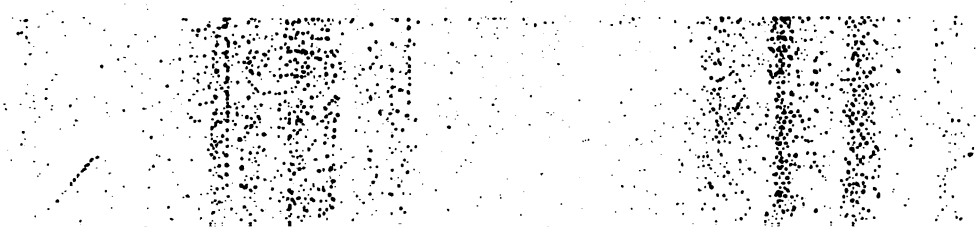
PARK	-
BOYL	13%
ARLI	10%
COPL	15%
AUDI	14%
KENM	11%
BLAN	21%
BU.E	22%
BU.C	21%
	16%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	13%	13% 13%
LINK	10%	11% 13%
EFFICIENCIES	15%	15% 15%
WOULD	14%	14% 15%
BE	13%	16% 18%
....	21%	21% 21%
	22%	22% 22%
	21%	21% 21%
AVERAGE LINK	16%	17% 18%

GAIN IN RIDERS :
...Link Improvements only 0% 6% 13%
...Link & Dwell Improvements 9% 17% 27%

TRIP NOTES — OTHER TRAINS AND COMMENTS
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B O S T O N C O L L E G E OUTBOUND #50 SHK Rider AVER. TRIP SPEED = 15.8 LOS A
.... MONDAY, JANUARY 26, 1987 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 10:40 P.M. Checked by: SHK MAY 8, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	LINK
PARK STREET	42:56-43:15	48%	0% 14%	19	14	5	A	—	—	—	—	—		131	—
BOYLSTON	43:57-44:13	52%	0% 16%	16	10	6	B	42*-	42	0*	A 1500'	24.4*		88	202
ARLINGTON	45:35-45:51	68%	0% 20%	16	9	7	B	82	56	26	C 2000'	16.6		66	260
COPLEY	46:42-46:55	60%	0% 18%	13	11	2	A	51	44	7	A 1600'	21.4		112	740
AUDITORIUM	48:15-48:31	72%	0% 22%	16	9	7	B	80	75	5	A 2800'	23.9		85	225
KENMORE	49:50-50:08	72%	0% 22%	18	9	9	C	79	51	28	C 2250'	19.4		208	315
BLANDFORD	50:52-51:01	72%	0% 22%	9	5	4	C	44	37	7	A 1100'	17.0		78	147
B.U.EAST	51:40-51:40	72%	0% 22%	0	8	0	A	39*-	39	0*	A 1400'	24.5*		180	154
B.U.CENTRAL	52:29-52:40	100%	0% 30%	11	8	3	A	49	21	28	F- 750'	10.4		73	178
* = Best Time Ever ...	TOTALS.:	—	— —	118	83	43		466	-365	=101	13400'	—		1021	2221
	AVERAGE:	68%	0% 21%	13	9	5	B	58	46	13	B 1675'	19.6		11	278
^ = Worst Time Ever	MAXIMUM:	100%	0% 30%	19	14	9		82	75	28	2800'	24.5		208	Worst
	MINIMUM:	48%	0% 14%	0	5	0		39	21	0	750'	10.4			Dwell
MEAN DEVIATION:		LOADING	4%	LOST	DWELL	3sec		LOST	LINK	11 sec		17%		Worst	
STANDARD DEVIATION:		LOADING	4%	LOST	DWELL	3sec		LOST	LINK	12 sec		27%		Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	:.42:.56	<<< :<<<	—
Transit Trip	13,400	:.52:.29	9 :.33	15.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST LINK
DWELL .0 - .4 =>		A	<= .0 - .2 LINK
DWELL .4 - .8 =>		B	<= .2 - .4 LINK
DWELL .8 -1.2 =>		C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>		D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>		E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>		F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>		F-	<= 1.2 -1.5 LINK
DWELL 3.0 or =>		F=	<= 1.5 or LINK
<<<<<<<<<<<	more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	14%	THE	14% 14% 14%	
ARLI	11%	LINK	11% 11% 12%	
COPL	17%	EFFICIENCIES	17% 17% 17%	
AUDI	17%	WOULD	17% 17% 17%	
KENM	14%	BE	14% 14% 17%	
BLAN	19%	....	19% 19% 19%	
BU.E	22%		22% 22% 22%	
BU.C	9%		12% 15% 17%	
	16%	AVERAGE LINK	17% 17% 18%	

GAIN IN RIDERS :
...Link Improvements only 6% 6% 13%
...Link & Dwell Improvements 3% 5% 11%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrived at Government Center platform : 10:10:30
Brig. Circ. LRV-1 14:16 in 15:20 out
Riverside LRV-1 18:55 in 19:15 out
Cleve Circ. LRV-1 19:42 in 20:20 out w/ standees
Riverside LRV-1 23:24 out w/standees
Beacon St. LRV-1 24:55 in 25:15 out
Riverside LRV-1 25:48 in 26:00 out
Brig. Circle LRV-1 27:14 in 27:58 out jammed
Cleveland Circ. LRV-1 29:51 in 30:15 out 1/2 seat
Cleve. Circ. 32:57 in 33:11 out
Riverside 35:29 in 36:25 out
Brig. Circle 37:30 in 38:01 out
Boston College 40:34 in 40:55 out 3 seated
(enter station with lights off)
@ B.U.West 54:05 in 54:24 out 100% seat
Home at 11:10 with fast walk



B O S T O N C O L L E G E OUTBOUND #51 SHK Rider AVER. TRIP SPEED = 17.6 LOS A
..THURSDAY, JANUARY 29, 1987 Typed by: SHK MAR.17, 89 Previous Worst = 5.1 LOS F
..Begin Trip 12:00 A.M. Checked by: SHK MAY 8, 89 Previous Best = 16.8 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	06:45-07:06	40%	0% 12%	21 -	14 =	7	B	—	—	—	—	—	—	131	—
BOYLSTON	07:51-08:01	48%	0% 14%	10*-	10 =	0*	A	45 -	42 =	3	A	1500'	22.7	88	202
ARLINGTON	09:04-09:19	64%	0% 19%	15 -	9 =	6	B	63 -	56 =	7	A	2000'	21.6	66	260
COPLEY	10:03-10:19	80%	0% 24%	16 -	11 =	5	B	44*-	44 =	0*	A	1600'	24.8*	112	740
AUDITORIUM	11:34-11:47	72%	0% 22%	13 -	9 =	4	B	75*-	75 =	0*	A	2800'	25.5*	85	225
KENMORE	12:57-13:12	68%	0% 20%	15 -	9 =	6	B	70 -	51 =	19	B	2250'	21.9	208	315
BLANDFORD	13:50-13:59	72%	0% 22%	9 -	5 =	4	C	38 -	37 =	1	A	1100'	19.7	78	147
B.U.EAST	14:39-14:52	72%	0% 22%	13 -	8 =	5	B	40 -	39 =	1	A	1400'	23.9	180	154
B.U.CENTRAL	15:20-15:28	72%	0% 22%	8*-	8 =	0*	A	28 -	21 =	7	B	750'	18.3	73	178
* = Best Time Ever ...	TOTALS :	—	— —	120 -	83 =	37		403 -365 =		38		13400'	—	1021	2221
^ = Worst Time Ever	AVERAGE:	65%	0% 20%	13 -	9 =	4	B	50 -	46 =	5	A	1675'	22.7	11	278
	MAXIMUM:	80%	0% 24%	21	14	7		75	75	19		2800'	25.5	208	Worst
	MINIMUM:	40%	0% 12%	8	5	0		28	21	0		750'	18.3		Dwell
MEAN DEVIATION:	LOADING	3%	LOST DWELL	2sec				LOST LINK	5 sec				8%	Worst	
STANDARD DEVIATION:	LOADING	4%	LOST DWELL	2sec				LOST LINK	6 sec				10%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	2:.06:.45	<<< :<<<	—
Transit Trip	13,400	2:.15:.20	8 :.35	17.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4	=>	A	<= .0	- .2	LINK
DWELL	.4	- .8	=>	B	<= .2	- .4	LINK
DWELL	.8	-1.2	=>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6	=>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0	=>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4	=>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or	=>	F=	<= 1.5	or	LINK
<<<<<<<<<<> more						more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	11%			
ARLI	12%			
COPL	19%			
AUDI	24%			
KENM	16%			
BLAN	19%			
BU.E	21%			
BU.C	17%			
		THE	11% 11% 11%	
		LINK	12% 12% 12%	
		EFFICIENCIES	19% 19% 19%	
		WOULD	24% 24% 24%	
		BE	16% 16% 16%	
		....	19% 19% 19%	
			21% 21% 21%	
			17% 17% 17%	
18%		AVERAGE LINK	18% 18% 18%	

GAIN IN RIDERS :
...Link Improvements only 0% 0% 0%
...Link & Dwell Improvements 2% 2% 2%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

At Government Center platform :
Cleveland Circle LRV-1 12:01:45 in 01:51 out
Boston College LRV-1 05:05 in 05:23 out 7 seated
@ Boston Univ. West driver missed stop at 16:20
@ Amory Street : 18:11 in 18:24 out
Lost 6 minutes walking bacvk one stop.
Arrived home at 12:40

B O S T O N C O L L E G E OUTBOUND #52 SHK Rider AVER. TRIP SPEED = 12.6 LOS C
..WEDNESDAY, FEBRUARY 4, 1987 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 8:00 P.M. Checked by: SHK MAY 8, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders STAND TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	59:37	59:56	24%	0% 7%	19	14	5	A	—	—	—	—	—	131	—
BOYLSTON	9:00:44	00:55	24%	0% 7%	11	10	1	A	48	42	6	A 1500'	21.3	88	202
ARLINGTON	02:31	02:45	28%	0% 8%	14	9	5	B	96	56	40	D 2000'	14.2	66	260
COPLEY	04:01	04:22	24%	0% 7%	21	11	10	C	76	44	32	D 1600'	14.4	112	740
AUDITORIUM	06:21	06:34	24%	0% 7%	13	9	4	B	119	75	44	C 2800'	16.0	85	225
KENMORE	08:12	08:26	16%	0% 5%	14	9	5	B	98	51	47	E 2250'	15.7	208	315
BLANDFORD	09:15	09:32	20%	0% 6%	17	5	12	F-	49	37	12	B 1100'	15.3	78	147
B.U.EAST	10:44	11:00	32%	0% 10%	16	8	8	C	72	39	33	E 1400'	13.3	180	154
B.U.CENTRAL	11:35	11:55	40%	0% 12%	20	8	12	D	35	21	14	D 750'	14.6	73	178
* = Best Time Ever ...	TOTALS :		—	— —	145	83	62		593	365	228	13400'	—	1021	2221
	AVERAGE:		26%	0% 8%	16	9	7	B	74	46	29	D 1675'	15.4	11	278
^ = Worst Time Ever	MAXIMUM:		40%	0% 12%	21	14	12		119	75	47	2800'	21.3	208	Worst Dwell
~~	MINIMUM:		16%	0% 5%	11	5	1		35	21	6	750'	13.3		
	MEAN DEVIATION:		LOADING	2%	LOST	DWELL	4sec		LOST	LINK	13 sec		9%	Worst	
	STANDARD DEVIATION:		LOADING	2%	LOST	DWELL	4sec		LOST	LINK	15 sec		21%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	8:.59:.37	<<< :<<<	—
Transit Trip	13,400	9:.11:.35	11 :.58	12.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
.0 - .4	=>	A	<= .0 - .2
.4 - .8	=>	B	<= .2 - .4
.8 -1.2	=>	C	<= .4 - .6
1.2 -1.6	=>	D	<= .6 - .8
1.6 -2.0	=>	E	<= .8 -1.0
2.0 -2.4	=>	F	<= 1.0 -1.2
2.4 -3.0	=>	F-	<= 1.2 -1.5
3.0 or	=>	F=	<= 1.5 or
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	6%	THE	6%	6% 6%
ARLI	4%	LINK	4%	5% 5%
COPL	5%	EFFICIENCIES	5%	5% 6%
AUDI	4%	WOULD	4%	4% 5%
KENM	4%	BE	4%	5% 5%
BLAN	4%	....	4%	4% 4%
BU.E	3%		3%	4% 5%
BU.C	6%		6%	7% 8%
	5%	AVERAGE LINK	5%	5% 6%

GAIN IN RIDERS :

...Link Improvements only	0%	0%	20%
...Link & Dwell Improvements	-1%	8%	22%

TRIP NOTES — OTHER TRAINS AND COMMENTS

At Government Center platform :
Brigham Circle 7:48:50 in 49:17 out
Riverside LRV-1 51:04 in 51:32 out
Beacon LRV-1 54:20 in 55:05 out
Brigham Circle LRV-1 56:06 in 56:21 out
Riverside LRV-1 56:35 in 57:04 out
Boston College LRV-1 57:19 in 57:36 out
@ B.U. West 13:00 in 13:15 out

B O S T O N C O L L E G E OUTBOUND #53 SHK Rider · AVER. TRIP SPEED = 10.5 LOS D
.... FRIDAY, APRIL 17, 1987 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 7:55 P.M. Checked by: SHK MAY 8, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	54:21-55:23	100%	50% 65%	62	- 14 =	48	F=	—	—	—	—	—	—	131	—
BOYLSTON	56:47-57:04	100%	50% 65%	17	- 10 =	7	B	84	- 42 =	42	F	1500'	12.2	88	202
ARLINGTON	58:54-59:18	100%	50% 65%	24	- 9 =	15	E	110	- 56 =	54	E	2000'	12.4	66	260
COPLEY	8:00:28-00:57	100%	33% 53%	29	- 11 =	18	E	70	- 44 =	26	C	1600'	15.6	112	740
AUDITORIUM	02:43-03:10	100%	50% 65%	27	- 9 =	18	F	106	- 75 =	31	C	2800'	18.0	85	225
KENMORE	04:42-05:07	100%	75% 83%	25	- 9 =	16	E	92	- 51 =	41	E	2250'	16.7	208	315
BLANDFORD	05:53-06:30	100%	75% 83%	37	- 5 =	32	F=	46	- 37 =	9	B	1100'	16.3	78	147
B.U.EAST	07:25-07:57	100%	75% 83%	32	- 8 =	24	F=	55	- 39 =	16	C	1400'	17.4	180	154
B.U.CENTRAL	08:45-09:07	100%	75% 83%	22	- 8 =	14	E	48	- 21 =	27	F-	750'	10.7	73	178
* = Best Time Ever ...	TOTALS :	—	— —	275	- 83 =	192		611	-365 =	246		13400'	—	1021	2221
	AVERAGE:	100%	59% 72%	31	- 9 =	21	F	76	- 46 =	31	D	1675'	15.0	11	278
^ = Worst Time Ever	MAXIMUM:	100%	75% 83%	62	14	48		110	75	54		2800'	18.0	208	Worst Dwell
	MINIMUM:	100%	33% 53%	17	5	7		46	21	9		750'	10.7		
MEAN DEVIATION:	LOADING 11%			LOST DWELL 10sec				LOST LINK 11 sec					14%	Worst	
STANDARD DEVIATION:	LOADING 11%			LOST DWELL 11sec				LOST LINK 14 sec					19%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	7:.54:.21	<<< :<<<	—
Transit Trip	13,400	8:.08:.45	14 :.24	10.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4 =>			A	<= .0 - .2 LINK
DWELL .4 - .8 =>			B	<= .2 - .4 LINK
DWELL .8 -1.2 =>			C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>			D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>			E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>			F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>			F-	<= 1.2 -1.5 LINK
DWELL 3.0	or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	33%	THE	33% 43%	50%
ARLI	33%	LINK	33% 43%	50%
COPL	41%	EFFICIENCIES	41% 41%	50%
AUDI	38%	WOULD	38% 38%	41%
KENM	36%	BE	36% 43%	50%
BLAN	67%	....	67% 67%	67%
BU.E	59%		59% 59%	64%
BU.C	36%		44% 55%	64%
43%	AVERAGE LINK		44% 49%	56%
GAIN IN RIDERS :				
...Link Improvements only			2% 14%	30%
...Link & Dwell Improvements			12% 29%	49%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive at Government Center platform at 7:42:30
Riverside LRV-1 43:00 in 43:50 out loaded
(sign says : "X No Pass."
Brigham Circle LRV-1 44:02 in 44:35 out
Beacon St. LRV-1 44:50 in 45:02 out
Riverside LRV-1 51:45 in 52:50 out
ANNOUNCEMENT : All BC trains leave from Park St.
51:30
Boston College at Park Street :
54:21 in 55:23 out 1/2 standees

B O S T O N C O L L E G E OUTBOUND #54 SHK Rider AVER. TRIP SPEED = 11.2 LOS D
....TUESDAY, JUNE 23, 1987 Typed by: SHK MAR.24, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:50 P.M. Checked by: SHK MAY 15, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	53:10	53:57	100%	16% 41%	47	14	= 33	F	—	—	—	—	—	131	—
BOYLSTON	54:48	55:08	100%	16% 41%	20	10	= 10	C	51	42	= 9	B 1500'	20.1	88	202
ARLINGTON	56:45	57:11	100%	26% 48%	26	9	= 17	E	97	56	= 41	D 2000'	14.1	66	260
COPLEY	58:07	58:45	100%	20% 44%	38	11	= 27	F-	56	44	= 12	B 1600'	19.5	112	740
AUDITORIUM	7:00:55	02:06	100%	10% 37%	71	9	= 62	F=	130	75	= 55	D 2800'	14.7	85	225
KENMORE	03:36	04:01	100%	0% 30%	25	9	= 16	E	90	51	= 39	D 2250'	17.0	208	315
BLANDFORD	04:43	05:01	96%	0% 29%	18	5	= 13	F-	42	37	= 5	A 1100'	17.9	78	147
B.U.EAST	05:49	06:06	100%	3% 32%	17	8	= 9	C	48	39	= 9	B 1400'	19.9	180	154
B.U.CENTRAL	06:39	06:54	100%	9% 36%	15	8	= 7	C	33	21	= 12	C 750'	15.5	73	178
* = Best Time Ever ...	TOTALS :		—	— —	277	83	=194		547	365	=182	13400'	—	1021	2221
	AVERAGE:		100%	11% 38%	31	9	= 22	F	68	46	= 23	C 1675'	16.7	11	278
^ = Worst Time Ever	MAXIMUM:		100%	26% 48%	71	14	62		130	75	55	2800'	20.1	208	Worst Dwell
	MINIMUM:		96%	0% 29%	15	5	7		33	21	5	750'	14.1		
MEAN DEVIATION:	LOADING		6%	LOST DWELL	14sec				LOST LINK 17 sec				11%	Worst Link	740
STANDARD DEVIATION:	LOADING		6%	LOST DWELL	16sec				LOST LINK 18 sec				17%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.53:.10	<<< :<<<	—
Transit Trip	13,400	7:.06:.39	13 :.29	11.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST LINK
DWELL .0 - .4 =>			A	<= .0 - .2 LINK
DWELL .4 - .8 =>			B	<= .2 - .4 LINK
DWELL .8 -1.2 =>			C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>			D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>			E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>			F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>			F-	<= 1.2 -1.5 LINK
DWELL 3.0	or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<>	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	34%
ARLI	24%
COPL	38%
AUDI	25%
KENM	21%
BLAN	26%
BU.E	24%
BU.C	20%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	34%	34%	34%
LINK	24%	27%	32%
EFFICIENCIES	38%	38%	38%
WOULD	25%	29%	34%
BE	21%	25%	28%
....	26%	26%	26%
	24%	24%	24%
	20%	20%	25%

25% AVERAGE LINK 25% 28% 30%

GAIN IN RIDERS :

...Link Improvements only	0%	12%	20%
...Link & Dwell Improvements	10%	22%	37%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boston College @ Government Center :
50:51 in 51:23 out 40% seated

B O S T O N C O L L E G E OUTBOUND #55 SHK Rider AVER. TRIP SPEED = 10.4 LOS D
.... MONDAY, JANUARY 4, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:55 P.M. Checked by: SHK MAY 9, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL
PARK STREET	54:20-55:12	88%	0% 27%	52 -	14 =	38	F-	—	—	—	—	—	131 —
BOYLSTON	56:19-56:35	92%	0% 28%	16 -	10 =	6	B	67 -	42 =	25	D 1500'	15.3	88 202
ARLINGTON	58:50-59:10	100%	1% 31%	20 -	9 =	11	D	135 -	56 =	79	F- 2000'	10.1	66 260
COPLEY	7:00:06-00:48	100%	7% 35%	42 -	11 =	31	F-	56 -	44 =	12	B 1600'	19.5	112 740
AUDITORIUM	03:29-03:52	100%	0% 30%	23 -	9 =	14	D	161 -	75 =	86	F 2800'	11.9	85 225
KENMORE	05:59-06:19	100%	0% 30%	20 -	9 =	11	D	127 -	51 =	76	F- 2250'	12.1	208 315
BLANDFORD	06:59-07:14	100%	0% 30%	15 -	5 =	10	F	40 -	37 =	3	A 1100'	18.8	78 147
B.U.EAST	08:05-08:17	100%	0% 30%	12 -	8 =	4	B	51 -	39 =	12	B 1400'	18.7	180 154
B.U.CENTRAL	08:50-09:04	100%	0% 30%	14 -	8 =	6	B	33 -	21 =	12	C 750'	15.5	73 178
* = Best Time Ever ...	TOTALS :	—	— —	214 -	83 =	131		670 -	365 =	305	13400'	—	1021 2221
	AVERAGE:	98%	1% 30%	24 -	9 =	15	D	84 -	46 =	38	E 1675'	13.6	11 278
^ = Worst Time Ever	MAXIMUM:	100%	7% 35%	52	14	38		161	75	86	2800'	19.5	208Worst
	MINIMUM:	88%	0% 27%	12	5	4		33	21	3	750'	10.1	Dwell
MEAN DEVIATION:	LOADING	1%	LOST DWELL	10sec				LOST LINK	32 sec			22%	Worst
STANDARD DEVIATION:	LOADING	2%	LOST DWELL	11sec				LOST LINK	33 sec			31%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.54:.20	<<< :<<<	—
Transit Trip	13,400	7:.08:.50	14 :.30	10.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK		
DWELL	.0 - .4 =>		A	<= .0 - .2		LINK
DWELL	.4 - .8 =>		B	<= .2 - .4		LINK
DWELL	.8 -1.2 =>		C	<= .4 - .6		LINK
DWELL	1.2 -1.6 =>		D	<= .6 - .8		LINK
DWELL	1.6 -2.0 =>		E	<= .8 -1.0		LINK
DWELL	2.0 -2.4 =>		F	<= 1.0 -1.2		LINK
DWELL	2.4 -3.0 =>		F-	<= 1.2 -1.5		LINK
DWELL	3.0 or =>		F=	<= 1.5 or		LINK
<<<<<<<<<<< more				more		

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 17%	THE	17% 17%	21%
ARLI 12%	LINK	15% 19%	22%
COPL 24%	EFFICIENCIES	24% 24%	24%
AUDI 16%	WOULD	18% 23%	27%
KENM 12%	BE	16% 20%	23%
BLAN 28%	....	28% 28%	28%
BU.E 23%		23% 23%	23%
BU.C 19%		19% 19%	23%
16%	AVERAGE LINK	18% 21%	23%

GAIN IN RIDERS :
...Link Improvements only 13% 31% 44%
...Link & Dwell Improvements 18% 34% 51%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrive Park Street platform : 6:37 PM
Riverside LRV-2 6:37:30 in
Riverside LRV-2 38:45 in
Cleveland Cir. LRV-2 40:20 in 40:59 out
Brig. Circle LRV-1 41:16 in 41:51 out
Boston Coll. LRV-1(7) 43:06 in 44:33 out 95% full
(Announcer : Apology for delay for mech. problems)
Cleveland Circle LRV-2 47:16 48:20 out
Brigham Circle LRV-1(7) 50:50 in 52:08 out
Boston College LRV-1(7) 52:15 in 53:15 out
Express top Kenmore....
Boston College 53:40 thru train, lights off LRV-2
Arrive at home 7:27:10

B O S T O N C O L L E G E OUTBOUND #56 SHK Rider AVER. TRIP SPEED = 5.8 LOS F=
WEDNESDAY, JANUARY 20, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:30 P.M. Checked by: SHK MAY 9, 89 Previous Best = 17.6 LOS A

==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	32:18-33:37	55%	0% 17%	79	14	65	F=	—	—	—	—	—	131	—
BOYLSTON	35:43-36:14	65%	0% 20%	31	10	21	F	126	42	84	F= 1500'	8.1	88	202
ARLINGTON	38:46-39:08	100%	3% 32%	22	9	13	D	152	56	96	F= 2000'	9.0	66	260
COPLEY	44:53-45:48	100%	10% 37%	55	11	44	F=	345	44	=301	F= 1600'	3.2	112	740
AUDITORIUM	49:07-49:26	100%	11% 38%	19	9	10	C	199	75	=124	F= 2800'	9.6	85	225
KENMORE	51:13-51:33	100%	11% 38%	20	9	11	D	107	51	= 56	F 2250'	14.3	208	315
BLANDFORD	53:59-54:17	100%	10% 37%	18	5	13	F-	146	37	=109	F= 1100'	5.1	78	147
B.U.EAST	56:51-57:09	100%	8% 36%	18	8	10	D	154^	39	=115^	F= 1400'	6.2^	180	154
B.U.CENTRAL	58:01-58:22	100%	8% 36%	21	8	13	E	52	21	= 31	F- 750'	9.8	73	178
* = Best Time Ever ...	TOTALS :	—	— —	283	83	=200		1281	365	=916	13400'	—	1021	2221
	AVERAGE:	91%	7% 32%	31	9	= 22	F-	160	46	=115	F= 1675'	7.1	11	278
^ = Worst Time Ever	MAXIMUM:	100%	11% 38%	79	14	65		345	75	301	2800'	14.3	208	Worst
	MINIMUM:	55%	0% 17%	18	5	10		52	21	31	750'	3.2		Dwell
MEAN DEVIATION:		LOADING	7%	LOST DWELL	16sec			LOST LINK	49 sec			35%	Worst	
STANDARD DEVIATION:		LOADING	8%	LOST DWELL	18sec			LOST LINK	76 sec			48%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.32:.18	<<< :<<<	—
Transit Trip	13,400	5:.58:.01	25 :.43	5.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4 =>		A	<= .0 - .2	LINK
DWELL .4 - .8 =>		B	<= .2 - .4	LINK
DWELL .8 -1.2 =>		C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>		D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>		E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>		F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>		F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>		F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	6%	THE	9% 11% 13%
ARLI	7%	LINK	11% 13% 15%
COPL	4%	EFFICIENCIES	17% 21% 25%
AUDI	14%	WOULD	19% 25% 28%
KENM	18%	BE	20% 25% 29%
BLAN	10%	....	20% 25% 29%
BU.E	9%		19% 25% 28%
BU.C	15%		19% 24% 28%
	9%	AVERAGE LINK	17% 21% 25%

GAIN IN RIDERS :
...Link Improvements only 89% 133%178%
...Link & Dwell Improvements <<< <<< <<<

TRIP NOTES — OTHER TRAINS AND COMMENTS

Riverside LRV-2 at Park : 5:31:50 IN
On Boston College train : numerous delays and waits in tunnel.
Next train at B.U.Central 6:00:20 in
Arrive at door : 6:16:20

B O S T O N C O L L E G E OUTBOUND #57 SHK Rider AVER. TRIP SPEED = 10.0 LOS E
... THURSDAY, FEBRUARY 4, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:05 P.M. Checked by: SHK MAY 9, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK LINK
PARK STREET	05:23	-05:50	100%	9% 36%	27	- 14 =	13	C	—	—	—	—	—	—	131	—
BOYLSTON	06:43	-06:58	100%	9% 36%	15	- 10 =	5	B	53	- 42 =	11	B	1500'	19.3	88	202
ARLINGTON	09:42	-10:05	100%	11% 38%	23	- 9 =	14	D	164	- 56 =	108	F=	2000'	8.3	66	260
COPLEY	12:02	-12:26	100%	7% 35%	24	- 11 =	13	C	117	- 44 =	73	F=	1600'	9.3	112	740
AUDITORIUM	14:42	-14:59	100%	4% 33%	17	- 9 =	8	C	136	- 75 =	61	E	2800'	14.0	85	225
KENMORE	16:53	-17:17	100%	5% 34%	24	- 9 =	15	E	114	- 51 =	63	F-	2250'	13.5	208	315
BLANDFORD	18:05	-18:19	100%	5% 34%	14	- 5 =	9	E	48	- 37 =	11	B	1100'	15.6	78	147
B.U.EAST	19:22	-19:35	100%	7% 35%	13	- 8 =	5	B	63	- 39 =	24	D	1400'	15.2	180	154
B.U.CENTRAL	20:26	-20:38	100%	5% 34%	12	- 8 =	4	B	51	- 21 =	30	F-	750'	10.0	73	178
* = Best Time Ever ...	TOTALS :		—	— —	169	- 83 =	86		746	-365 =	381		13400'	—	1021	2221
	AVERAGE:		100%	7% 35%	19	- 9 =	10	C	93	- 46 =	48	F	1675'	12.2	11	278
^ = Worst Time Ever	MAXIMUM:		100%	11% 38%	27	14	15		164	75	108		2800'	19.3	208	Worst Dwell
	MINIMUM:		100%	4% 33%	12	5	4		48	21	11		750'	8.3		
MEAN DEVIATION:			LOADING	1%	LOST DWELL		4sec		LOST LINK		29 sec			23%	Worst	
STANDARD DEVIATION:			LOADING	1%	LOST DWELL		4sec		LOST LINK		32 sec			37%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.05:.23	<<< :<<<	—
Transit Trip	13,400	5:.20:.26	15 :.03	10.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .: E / C / B

PARK -			
BOYL 29%	THE	29% 29%	29%
ARLI 12%	LINK	19% 24%	28%
COPL 14%	EFFICIENCIES	20% 25%	29%
AUDI 19%	WOULD	19% 23%	27%
KENM 15%	BE	17% 22%	25%
BLAN 26%	....	26% 26%	26%
BU.E 21%		21% 23%	26%
BU.C 14%		18% 23%	27%
17%	AVERAGE LINK	20% 24%	27%

GAIN IN RIDERS :
...Link Improvements only 18% 41% 59%
...Link & Dwell Improvements 18% 36% 54%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Riverside 5:05:05 out
Weather : light snow ending

B O S T O N C O L L E G E OUTBOUND #58 SHK Rider AVER. TRIP SPEED = 11.1 LOS D
.. THURSDAY, FEBRUARY 18, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:55 P.M. Checked by: SHK MAY 10, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	54:17-55:21	100%	50% 65%	64	14	50	F=	--	--	--	--	--	131	--
BOYLSTON	56:10-56:33	100%	51% 66%	23	10	13	D	49	42	7	A 1500'	20.9	88	202
ARLINGTON	58:04-58:30	100%	50% 65%	26	9	17	E	91	56	35	D 2000'	15.0	66	260
COPLEY	59:26-59:57	100%	48% 64%	31	11	20	E	56	44	12	B 1600'	19.5	112	740
AUDITORIUM	5:01:40-02:03	100%	46% 62%	23	9	14	D	103	75	28	B 2800'	18.5	85	225
KENMORE	03:41-04:11	100%	44% 61%	30	9	21	F	98	51	47	E 2250'	15.7	208	315
BLANDFORD	04:56-05:25	100%	46% 62%	29	5	24	F=	45	37	8	B 1100'	16.7	78	147
B.U.EAST	06:51-07:22	100%	45% 62%	31	8	23	F-	86	39	47	F- 1400'	11.1	180	154
B.U.CENTRAL	07:54-08:18	100%	44% 61%	24	8	16	F	32	21	11	C 750'	16.0	73	178
* = Best Time Ever ...	TOTALS :	--	-- --	281	83	198		560	365	195	13400'	--	1021	2221
	AVERAGE:	100%	47% 63%	31	9	22	F	70	46	24	C 1675'	16.3	11	278
^ = Worst Time Ever	MAXIMUM:	100%	51% 66%	64	14	50		103	75	47	2800'	20.9	208	Worst Dwell
	MINIMUM:	100%	44% 61%	23	5	13		32	21	7	750'	11.1		
--------	MEAN DEVIATION:	LOADING	2%	LOST DWELL	8sec			LOST LINK 15 sec				12%	Worst	
	STANDARD DEVIATION:	LOADING	2%	LOST DWELL	11sec			LOST LINK 16 sec				23%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	4:.54:.17	<<< :<<<	--
Transit Trip	13,400	5:.07:.54	13 :.37	11.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 56%	THE	56%	56% 56%
ARLI 41%	LINK	41%	44% 51%
COPL 51%	EFFICIENCIES	51%	51% 51%
AUDI 47%	WOULD	47%	47% 47%
KENM 32%	BE	32%	41% 48%
BLAN 50%	....	50%	50% 50%
BU.E 28%		33%	41% 48%
BU.C 41%		41%	41% 48%
41%	AVERAGE LINK	42%	46% 49%

GAIN IN RIDERS :
...Link Improvements only 2% 12% 20%
...Link & Dwell Improvements 11% 24% 38%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Three trains were bunched up from B.U.Central to Blandford Street.

B O S T O N C O L L E G E OUTBOUND #59 SHK Rider AVER. TRIP SPEED = 10.1 LOS D
.. THURSDAY, MARCH 24, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:05 P.M. Checked by: SHK MAY 10, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	100% STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	07:35	08:49	100%	80% 86%	74 -	14 =	60	F=	--	--	--	--	--	--	131	--
BOYLSTON	09:42	10:06	100%	85% 90%	24 -	10 =	14	D	53 -	42 =	11	1500'	B	19.3	88	202
ARLINGTON	11:47	12:32	100%	85% 90%	45 -	9 =	36	F=	101 -	56 =	45	2000'	E	13.5	66	260
COPLEY	13:30	14:08	100%	80% 86%	38 -	11 =	27	F-	58 -	44 =	14	1600'	B	18.8	112	740
AUDITORIUM	15:56	16:25	100%	70% 79%	29 -	9 =	20	F	108 -	75 =	33	2800'	C	17.7	85	225
KENMORE	18:03	18:35	100%	60% 72%	32 -	9 =	23	F-	98 -	51 =	47	2250'	E	15.7	208	315
BLANDFORD	19:13	20:31	100%	65% 76%	78^-	5 =	73^	F=	38 -	37 =	1	1100'	A	19.7	78	147
B.U.EAST	21:17	22:03	100%	65% 76%	46 -	8 =	38	F=	46 -	39 =	7	1400'	A	20.8	180	154
B.U.CENTRAL	22:31	22:58	100%	60% 72%	27 -	8 =	19	F	28 -	21 =	7	750'	B	18.3	73	178
* = Best Time Ever ...	TOTALS :		--	-- --	393 -	83 =	310		530 -	365 =	165	13400'		--	1021	2221
^ = Worst Time Ever	AVERAGE:		100%	72% 81%	44 -	9 =	34	F=	66 -	46 =	21	1675'	C	17.2	11	278
	MAXIMUM:		100%	85% 90%	78	14	73		108	75	47	2800'		20.8	208	Worst Dwell
	MINIMUM:		100%	60% 72%	24	5	14		28	21	1	750'		13.5		
MEAN DEVIATION:	LOADING		7%	LOST DWELL	17sec				LOST LINK	16 sec				11%	Worst	
STANDARD DEVIATION:	LOADING		7%	LOST DWELL	19sec				LOST LINK	17 sec				16%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	5:.07:.35	<<< :<<<	--
Transit Trip	13,400	5:.22:.31	14 :.56	10.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
.0 - .4	=>	A	<= .0 - .2
.4 - .8	=>	B	<= .2 - .4
.8 -1.2	=>	C	<= .4 - .6
1.2 -1.6	=>	D	<= .6 - .8
1.6 -2.0	=>	E	<= .8 -1.0
2.0 -2.4	=>	F	<= 1.0 -1.2
2.4 -3.0	=>	F-	<= 1.2 -1.5
3.0 or	=>	F=	<= 1.5 or
<<<<<<<<<<<	more		more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	68%
ARLI	50%
COPL	68%
AUDI	60%
KENM	41%
BLAN	70%
BU.E	64%
BU.C	57%

56% AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	68%	68%	68%
LINK	50%	60%	69%
EFFICIENCIES	68%	68%	68%
WOULD	60%	60%	66%
BE	41%	53%	61%
....	70%	70%	70%
	64%	64%	64%
	57%	57%	57%
AVERAGE LINK	56%	60%	64%

GAIN IN RIDERS :

...Link Improvements only	0%	7%	14%
...Link & Dwell Improvements	27%	42%	57%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Riverside train at Park Street 5:05:50

At B.U. Central, no other outbound train was in sight.

B O S T O N C O L L E G E OUTBOUND #60 SHK Rider AVER. TRIP SPEED = 10.9 LOS D
...THURSDAY, APRIL 4, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:50 P.M. Checked by: SHK MAY 10, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	53:45-54:27	100%	9% 36%	42 -	14 =	28	F	——	--	--	--	--	131	--
BOYLSTON	55:12-55:24	100%	11% 38%	12 -	10 =	2	A	45 -	42 =	3	A 1500'	22.7	88	202
ARLINGTON	57:02-57:25	100%	8% 36%	23 -	9 =	14	D	98 -	56 =	42	D 2000'	13.9	66	260
COPLEY	58:35-59:00	100%	8% 36%	25 -	11 =	14	D	70 -	44 =	26	C 1600'	15.6	112	740
AUDITORIUM	6:01:25-01:39	100%	5% 34%	14 -	9 =	5	B	145 -	75 =	70	E 2800'	13.2	85	225
KENMORE	03:54-04:15	100%	9% 36%	21 -	9 =	12	D	135 -	51 =	84	F= 2250'	11.4	208	315
BLANDFORD	04:58-05:23	100%	11% 38%	25 -	5 =	20	F=	43 -	37 =	6	A 1100'	17.4	78	147
B.U.EAST	06:37-06:58	100%	13% 39%	21 -	8 =	13	E	74 -	39 =	35	E 1400'	12.9	180	154
B.U.CENTRAL	07:37-08:03	100%	17% 42%	26 -	8 =	18	F	39 -	21 =	18	E 750'	13.1	73	178
* = Best Time Ever ...	TOTALS :	--	-- --	209 -	83 =	126		649 -	365 =	284	13400'	--	1021	2221
	AVERAGE:	100%	10% 37%	23 -	9 =	14	D	81 -	46 =	36	D 1675'	14.1	11	278
^ = Worst Time Ever	MAXIMUM:	100%	17% 42%	42	14	28		145	75	84	2800'	22.7	208	Worst Dwell
	MINIMUM:	100%	5% 34%	12	5	2		39	21	3	750'	11.4		
MEAN DEVIATION:	LOADING	2%	LOST DWELL	6sec	LOST LINK 23 sec							15%	Worst	
STANDARD DEVIATION:	LOADING	2%	LOST DWELL	7sec	LOST LINK 27 sec							33%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	5:.53:.45	<<< :<<<	--
Transit Trip	13,400	6:.07:.37	13 :.52	10.9
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line .	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 34%	THE	34% 34%	34%
ARLI 22%	LINK	22% 25%	29%
COPL 23%	EFFICIENCIES	23% 23%	28%
AUDI 19%	WOULD	19% 24%	28%
KENM 13%	BE	18% 23%	26%
BLAN 31%	....	31% 31%	31%
BU.E 20%		20% 25%	29%
BU.C 21%		21% 26%	30%

21% AVERAGE LINK 22% 26% 29%

GAIN IN RIDERS :
...Link Improvements only 5% 24% 38%
...Link & Dwell Improvements 12% 30% 49%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

At Government Center platform :
Boston College 5:49:20 out
Riverside 49:40 in 50:04 out
Cleveland Circle 50:18 in 50:38 out
Boston College LRV-1 50:54 in 51:23 out 7 stand
@ B.U.West 09:53 in 10:06 out
3 Outbound trains in a row
Next arriving train : LRV-1 10:35 in

B O S T O N C O L L E G E OUTBOUND #61 SHK Rider AVER. TRIP SPEED = 11.9 LOS C
... THURSDAY, MAY 12, 1988 Typed by: SHK MAR.17, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:05 P.M. Checked by: SHK MAY 10, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders STAND TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	09:07	09:37	100%	30%	30	14	16	C	—	—	—	—	—	—	131 —
BOYLSTON	10:50	11:00	94%	28%	10*	10	0*	A	73	42	31	D	1500'	14.0	88 202
ARLINGTON	12:52	13:19	100%	32%	27	9	18	F	112	56	56	F	2000'	12.2	66 260
COPLEY	14:27	14:44	100%	30%	17	11	6	B	68	44	24	C	1600'	16.0	112 740
AUDITORIUM	17:03	17:18	94%	28%	15	9	6	B	139	75	64	E	2800'	13.7	85 225
KENMORE	19:00	19:20	94%	28%	20	9	11	D	102	51	51	F	2250'	15.0	208 315
BLANDFORD	19:57	20:08	92%	28%	11	5	6	D	37*	37	0*	A	1100'	20.3*	78 147
B.U.EAST	21:04	21:15	90%	27%	11	8	3	A	56	39	17	C	1400'	17.0	180 154
B.U.CENTRAL	21:51	22:06	94%	28%	15	8	7	C	36	21	15	D	750'	14.2	73 178
* = Best Time Ever ...	TOTALS :		—	—	156	83	73		623	365	258		13400'	—	1021 2221
	AVERAGE:		95%	29%	17	9	8	C	78	46	32	D	1675'	14.7	11 278
^ = Worst Time Ever	MAXIMUM:		100%	32%	30	14	18		139	75	64		2800'	20.3	208Worst
	MINIMUM:		90%	27%	10	5	0		36	21	0		750'	12.2	Dwell
MEAN DEVIATION:	LOADING	2%	LOST DWELL	5sec	LOST LINK 19 sec									11%	Worst
STANDARD DEVIATION:	LOADING	1%	LOST DWELL	6sec	LOST LINK 21 sec									17%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	2:.09:.07	<<< :<<<	—
Transit Trip	13,400	2:.21:.51	12 :.44	11.9
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS		LOST TIME/BEST
DWELL .0 - .4 =>		A	<= .0 - .2	LINK
DWELL .4 - .8 =>		B	<= .2 - .4	LINK
DWELL .8 -1.2 =>		C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>		D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>		E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>		F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>		F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>		F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	17%
ARLI	14%
COPL	21%
AUDI	16%
KENM	14%
BLAN	28%
BU.E	20%
BU.C	16%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	17%	20%	23%
LINK	14%	19%	22%
EFFICIENCIES	21%	21%	25%
WOULD	16%	20%	23%
BE	14%	19%	22%
....	28%	28%	28%
	20%	20%	22%
	16%	18%	21%

17% AVERAGE LINK 17% 20% 23%

GAIN IN RIDERS :

...Link Improvements only	0%	18%	35%
...Link & Dwell Improvements	0%	15%	31%

TRIP NOTES — OTHER TRAINS AND COMMENTS

At Government Center platform :
Brigham Circle LRV-1 2:04:30 in 04:49 out
Cleveland Circle 05:49 in 06:07 out
Boston College 06:27 in 06:43 out 9 seated
Another Cleveland Circle train right behind
At Kenmore, heavily loaded Riverside car (ahead)

B O S T O N C O L L E G E OUTBOUND #62 SHK Rider AVER. TRIP SPEED = 11.2 LOS D
WEDNESDAY, MAY 18, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:20 P.M. Checked by: SHK MAY 12, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	18:09-18:57	100%	40% 58%	48 -	14 =	34 F-		--	--	--	--	--	131	--
BOYLSTON	19:49-20:07	100%	40% 58%	18 -	10 =	8 C		52 -	42 =	10 B	1500'	19.7	88	202
ARLINGTON	22:00-22:17	100%	40% 58%	17 -	9 =	8 C		113 -	56 =	57 F	2000'	12.1	66	260
COPLEY	23:42-24:13	100%	50% 65%	31 -	11 =	20 E		85 -	44 =	41 E	1600'	12.8	112	740
AUDITORIUM	25:48-26:20	100%	50% 65%	32 -	9 =	23 F-		95 -	75 =	20 B	2800'	20.1	85	225
KENMORE	27:50-28:24	100%	30% 51%	34 -	9 =	25 F-		90 -	51 =	39 D	2250'	17.0	208	315
BLANDFORD	29:03-30:00	100%	30% 51%	57 -	5 =	52 F=		39 -	37 =	2 A	1100'	19.2	78	147
B.U.EAST	30:51-31:10	100%	30% 51%	19 -	8 =	11 D		51 -	39 =	12 B	1400'	18.7	180	154
B.U.CENTRAL	31:36-31:48	100%	30% 51%	12 -	8 =	4 B		26 -	21 =	5 B	750'	19.7	73	178
* = Best Time Ever ...	TOTALS :	--	-- --	268 -	83 =	185		551 -	365 =	186	13400'	--	1021	2221
	AVERAGE:	100%	38% 56%	30 -	9 =	21 F		69 -	46 =	23 C	1675'	16.6	11	278
^ = Worst Time Ever	MAXIMUM:	100%	50% 65%	57	14	52		113	75	57	2800'	20.1	208	Worst
	MINIMUM:	100%	30% 51%	12	5	4		26	21	2	750'	12.1		Dwell
--------	MEAN DEVIATION:	LOADING	6%	LOST DWELL	13sec			LOST LINK	17 sec			15%	Worst	
	STANDARD DEVIATION:	LOADING	5%	LOST DWELL	14sec			LOST LINK	19 sec			20%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	5:.18:.09	<<< :<<<	--
Transit Trip	13,400	5:.31:.36	13 :.27	11.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 47%	THE	47% 47%	47%
ARLI 29%	LINK	31% 39%	45%
COPL 30%	EFFICIENCIES	30% 39%	45%
AUDI 51%	WOULD	51% 51%	51%
KENM 37%	BE	37% 43%	50%
BLAN 48%	....	48% 48%	48%
BU.E 39%		39% 39%	39%
BU.C 41%		41% 41%	41%
37%	AVERAGE LINK	38% 42%	45%
GAIN IN RIDERS :			
...Link Improvements only		3% 14%	22%
...Link & Dwell Improvements		13% 26%	37%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive at Park Street platform : 5:13:10
Cleveland Circle 13:10 out
Riverside arrive empty 14:50 in 15:35 out
Beacon St. out 15:50
Brigham Circle in 16:05
Boston College : Express to Kenmore
16:32 in 17:45 out arrive empty, leave 12 stand
40% full

B O S T O N C O L L E G E OUTBOUND #63 SHK Rider AVER. TRIP SPEED = 8.9 LOS F
.... MONDAY, MAY 23, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:50 P.M. Checked by: SHK MAY 10, 89 Previous Best = 17.6 LOS A

==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ SEATS	STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	55:31-56:12	100%	40% 58%	41	14	= 27	E	--	--	--	--	--	131	--
BOYLSTON	57:22-57:42	100%	40% 58%	20	10	= 10	C	70	42	= 28	D 1500'	14.6	88	202
ARLINGTON	59:24-59:42	100%	35% 55%	18	9	= 9	C	102	56	= 46	E 2000'	13.4	66	260
COPLEY	6:01:08-01:25	100%	35% 55%	17	11	= 6	B	86	44	= 42	E 1600'	12.7	112	740
AUDITORIUM	04:33-04:54	100%	35% 55%	21	9	= 12	D	188	75	=113	F= 2800'	10.2	85	225
KENMORE	06:33-06:51	100%	35% 55%	18	9	= 9	C	99	51	= 48	E 2250'	15.5	208	315
BLANDFORD	07:43-08:50	100%	40% 58%	67	5	= 62	F=	52	37	= 15	C 1100'	14.4	78	147
B.U.EAST	11:01-11:16	100%	40% 58%	15	8	= 7	C	131	39	= 92	F= 1400'	7.3	180	154
B.U.CENTRAL	12:22-12:43	100%	40% 58%	21	8	= 13	E	66	21	= 45	F= 750'	7.7	73	178
TOTALS :		--	-- --	238	83	=155		794	-365	=429	13400'	--	1021	2221
AVERAGE:		100%	38% 57%	26	9	= 17	E	99	46	= 54	F 1675'	11.5	11	278
MAXIMUM:		100%	40% 58%	67	14	62		188	75	113	2800'	15.5	208	Worst
MINIMUM:		100%	35% 55%	15	5	6		52	21	15	750'	7.3		Dwell
MEAN DEVIATION:		LOADING	2%	LOST DWELL	14sec			LOST LINK	25 sec			22%	Worst	
STANDARD DEVIATION:		LOADING	1%	LOST DWELL	17sec			LOST LINK	31 sec			31%	Link	740

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	5:.55:.31	<<< :<<<	--
Transit Trip	13,400	6:.12:.22	16 :.51	9.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

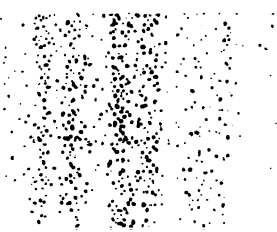
SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	35%	THE	35% 39%	45%
ARLI	32%	LINK	32% 39%	45%
COPL	28%	EFFICIENCIES	28% 37%	42%
AUDI	22%	WOULD	29% 37%	42%
KENM	28%	BE	28% 37%	42%
BLAN	39%	....	39% 39%	42%
BU.E	17%		31% 39%	45%
BU.C	18%		31% 39%	45%
26%	AVERAGE LINK		31% 38%	44%

GAIN IN RIDERS :
...Link Improvements only 19% 46% 69%
...Link & Dwell Improvements 24% 47% 69%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Arrive at Government Center platform : 5:42:00
Cleveland Circle 42:10 in 43:10 out
Cleveland Circle LRV-1 44:10 in 44:48 out
Brigham Circle LRV-2(7) 45:25 in 46:00 out
Riverside LRV-1 (7) 46:20 in 48:02 out
held in station, leave 48:25
Cleveland Circle LRV-1 (7) 49:00 in 49:45 out
Riverside LRV-2 50:37 in
Boston College LRV-1 50:50 in 51:50 doors closed
52:24 doors open again 52:50 doors closed, leave
7 standees ..... Riverside train immediately b
@ B.U.West 12:22 in 12:43 out
Next train @ B.U.West 12:50 in LRV-1
Next train @ B.U.West 13:40 in 13:55 out LRV-1
Next train non-stop 13:55 LRV-2 right behind




B O S T O N C O L L E G E OUTBOUND #64 SHK Rider AVER. TRIP SPEED = 10.5 LOS D
... THURSDAY, JUNE 9, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:10 P.M. Checked by: SHK MAY 10, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989=====

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	12:19	13:25	100%	21% 45%	66	14	= 52	F=	—	—	—	—	—	131	—
BOYLSTON	14:47	15:05	100%	24% 47%	18	10	= 8	C	82	42	= 40	E 1500'	12.5	88	202
ARLINGTON	17:10	17:37	100%	22% 45%	27	9	= 18	F	125	56	= 69	F- 2000'	10.9	66	260
COPLEY	18:27	19:05	100%	36% 55%	38	11	= 27	F-	50	44	= 6	A 1600'	21.8	112	740
AUDITORIUM	21:03	21:38	100%	38% 57%	35	9	= 26	F-	118	75	= 43	C 2800'	16.2	85	225
KENMORE	23:32	23:59	100%	36% 55%	27	9	= 18	F	114	51	= 63	F- 2250'	13.5	208	315
BLANDFORD	24:40	25:01	100%	40% 58%	21	5	= 16	F=	41	37	= 4	A 1100'	18.3	78	147
B.U.EAST	25:46	26:04	100%	40% 58%	18	8	= 10	D	45	39	= 6	A 1400'	21.2	180	154
B.U.CENTRAL	26:40	27:01	100%	30% 51%	21	8	= 13	E	36	21	= 15	D 750'	14.2	73	178
* = Best Time Ever ...	TOTALS :		—	— —	271	83	=188		611	365	=246	13400'	—	1021	2221
	AVERAGE:		100%	32% 52%	30	9	= 21	F	76	46	= 31	D 1675'	15.0	11	278
^ = Worst Time Ever	MAXIMUM:		100%	40% 58%	66	14	52		125	75	69	2800'	21.8	208	Worst Dwell
	MINIMUM:		100%	21% 45%	18	5	8		36	21	4	750'	10.9		
MEAN DEVIATION:			LOADING	5% LOST DWELL 11sec					LOST LINK 23 sec				20%	Worst	
STANDARD DEVIATION:			LOADING	5% LOST DWELL 13sec					LOST LINK 25 sec				30%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.12:.19	<<< :<<<	—
Transit Trip	13,400	5:.26:.40	14 :.21	10.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK	
DWELL	.0	- .4 =>	A	<= .0	- .2 LINK
DWELL	.4	- .8 =>	B	<= .2	- .4 LINK
DWELL	.8	-1.2 =>	C	<= .4	- .6 LINK
DWELL	1.2	-1.6 =>	D	<= .6	- .8 LINK
DWELL	1.6	-2.0 =>	E	<= .8	-1.0 LINK
DWELL	2.0	-2.4 =>	F	<= 1.0	-1.2 LINK
DWELL	2.4	-3.0 =>	F-	<= 1.2	-1.5 LINK
DWELL	3.0	or =>	F=	<= 1.5	or LINK
<<<<<<<<<<> more					more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	23%
ARLI	21%
COPL	40%
AUDI	35%
KENM	26%
BLAN	50%
BU.E	50%
BU.C	34%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE		23%	30% 35%
LINK		25%	31% 36%
EFFICIENCIES		40%	40% 40%
WOULD		35%	35% 42%
BE		30%	38% 44%
....		50%	50% 50%
		50%	50% 50%
		34%	39% 45%
31%	AVERAGE LINK	33%	37% 42%

GAIN IN RIDERS :
...Link Improvements only 6% 19% 35%
...Link & Dwell Improvements 16% 34% 53%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #65 SHK Rider AVER. TRIP SPEED = 11.0 LOS D
.... FRIDAY, JULY 8, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:55 P.M. Checked by: SHK MAY 12, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ SEATS	STAND	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	57:28-58:11	100%	1%	31%	43	14	29	F	—	—	—	—	—	131	—
BOYLSTON	59:27-59:50	100%	0%	30%	23	10	13	D	76	42	34	E 1500'	13.5	88	202
ARLINGTON	6:02:38-03:01	88%	0%	27%	23	9	14	D	168	56	=112 F=	2000'	8.1	66	260
COPLEY	03:59-04:16	92%	0%	28%	17	11	6	B	58	44	14	B 1600'	18.8	112	740
AUDITORIUM	06:22-06:42	80%	0%	24%	20	9	11	D	126	75	51	D 2800'	15.2	85	225
KENMORE	08:11-08:27	48%	0%	14%	16	9	7	B	89	51	38	D 2250'	17.2	208	315
BLANDFORD	09:11-09:25	56%	0%	17%	14	5	9	E	44	37	7	A 1100'	17.0	78	147
B.U.EAST	10:19-10:33	56%	0%	17%	14	8	6	B	54	39	15	B 1400'	17.7	180	154
B.U.CENTRAL	11:10-11:19	56%	0%	17%	9	8	1	A	37	21	16	D 750'	13.8	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	179	83	96		652	365	=287	13400'	—	1021	2221
	AVERAGE:	75%	0%	23%	20	9	11	C	82	46	36	D 1675'	14.0	11	278
^ = Worst Time Ever	MAXIMUM:	100%	1%	31%	43	14	29		168	75	112	2800'	18.8	208	Worst Dwell
	MINIMUM:	48%	0%	14%	9	5	1		37	21	7	750'	8.1		
MEAN DEVIATION:		LOADING	7%		LOST DWELL	6sec			LOST LINK 23 sec				18%	Worst Link 740	
STANDARD DEVIATION:		LOADING	6%		LOST DWELL	7sec			LOST LINK 32 sec				26%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.57:.28	<<< :<<<	—
Transit Trip	13,400	6:.11:.10	13 :.42	11.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	17%
ARLI	10%
COPL	20%
AUDI	17%
KENM	14%
BLAN	12%
BU.E	12%
BU.C	10%

13% AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	17%	21%	24%
LINK	16%	20%	23%
EFFICIENCIES	20%	20%	20%
WOULD	17%	19%	22%
BE	14%	16%	18%
....	12%	12%	12%
	12%	12%	12%
	10%	11%	13%
AVERAGE LINK	14%	16%	18%

GAIN IN RIDERS :
...Link Improvements only 8% 23% 38%
...Link & Dwell Improvements 16% 29% 43%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrive at Government Center platform : 5:50:00
Boston College LRV-1 50:40 out
Riverside 51:00 in 51:40 out
Cleveland Circle 52:04 in 52:38 out
Brigham Circle 52:58 in 53:25 out
Riverside LRV-2 54:04 in 54:28 out
Boston College LRV-2 55:12 in empty 55:42 out
8 standees Cleveland Circle right behind
@B.U.West 13:20 in 13:33 out 13 seated
no BC LRVs in sight

B O S T O N C O L L E G E OUTBOUND #66 SHK Rider AVER. TRIP SPEED = 13.3 LOS B
... TUESDAY, AUGUST 2, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 9:35 P.M. Checked by: SHK MAY 12, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	35:50-36:10	12%	0% 4%	20 -	14 =	6	B	—	—	—	—	—	131	—
BOYLSTON	36:55-37:06	12%	0% 4%	11 -	10 =	1	A	45 -	42 =	3	A 1500'	22.7	88	202
ARLINGTON	38:44-38:58	24%	0% 7%	14 -	9 =	5	B	98 -	56 =	42	D 2000'	13.9	66	260
COPLEY	39:51-40:17	24%	0% 7%	26 -	11 =	15	D	53 -	44 =	9	B 1600'	20.6	112	740
AUDITORIUM	42:03-42:18	24%	0% 7%	15 -	9 =	6	B	106 -	75 =	31	C 2800'	18.0	85	225
KENMORE	43:46-43:57	24%	0% 7%	11 -	9 =	2	A	88 -	51 =	37	D 2250'	17.4	208	315
BLANDFORD	44:50-45:13	24%	0% 7%	23 -	5 =	18	F=	53 -	37 =	16	C 1100'	14.2	78	147
B.U.EAST	46:33-46:46	24%	0% 7%	13 -	8 =	5	B	80 -	39 =	41	F 1400'	11.9	180	154
B.U.CENTRAL	47:13-47:28	20%	0% 6%	15 -	8 =	7	C	27 -	21 =	6	B 750'	18.9	73	178
* = Best Time Ever ...	TOTALS :	—	— —	148 -	83 =	65		550 -	365 =	185	13400'	—	1021	2221
	AVERAGE:	21%	0% 6%	16 -	9 =	7	B	69 -	46 =	23	C 1675'	16.6	11	278
^ = Worst Time Ever	MAXIMUM:	24%	0% 7%	26	14	18		106	75	42	2800'	22.7	208	Worst
	MINIMUM:	12%	0% 4%	11	5	1		27	21	3	750'	11.9		Dwell
MEAN DEVIATION:	LOADING	1%	LOST DWELL	5sec				LOST LINK 15 sec				16%	Worst	
STANDARD DEVIATION:	LOADING	1%	LOST DWELL	5sec				LOST LINK 15 sec				27%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	9:.35:.50	<<< :<<<	—
Transit Trip	13,400	9:.47:.13	11 :.23	13.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	4%	THE	4%	4% 4%
ARLI	2%	LINK	2%	3% 3%
COPL	6%	EFFICIENCIES	6%	6% 6%
AUDI	5%	WOULD	5%	5% 5%
KENM	4%	BE	4%	5% 5%
BLAN	5%	....	5%	5% 5%
BU.E	3%		4%	5% 5%
BU.C	5%		5%	5% 5%
	4%	AVERAGE LINK	4%	4% 5%

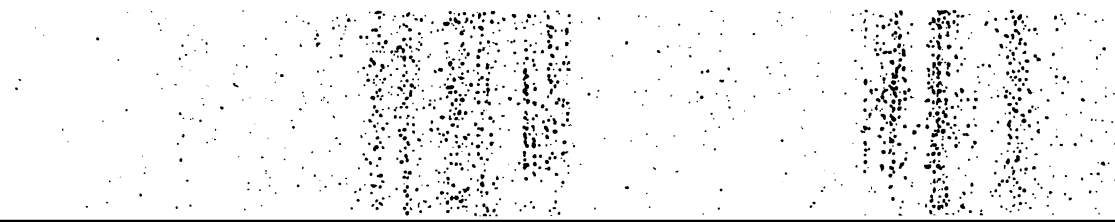
GAIN IN RIDERS :

...Link Improvements only	0%	0%	25%
...Link & Dwell Improvements	0%	6%	16%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrived at Government Center platform 9:25 PM
Riverside LRV-1 25:48 out full
Cleveland Circle LRV-1 25:59 in 26:25 out
Riverside LRV-1 28:45 in 29:50 out
Brigham Circle LRV-1 30:18 in 30:42 out
Cleveland Circle LRV-1 33:38 in 34:07 out
(I took this train to Park St., 35:40 in).

I was riding in the trailing unit of a dual LRV and noticed that the doors did not open at either B.U. East or Central. Expecting that the B.U.West stop might be skipped too, I walked to the front of the car. The driver told me to pull the cord, but it was not working. She got up, pulled the other cord and then used the phone to call the driver ahead to stop. Nevertheless, the train went sailing right through B.U.West and finally stopped at Amory Street. No apologies, no explanations.



B O S T O N C O L L E G E OUTBOUND #67 SHK Rider AVER. TRIP SPEED = 10.6 LOS D
.. WEDNESDAY, AUGUST 10, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:40 P.M. Checked by: SHK MAY 12, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	38:10-38:50	50%	0% 15%	40 -	14 =	26	E	—	—	—	—	—	131	—
BOYLSTON	40:04-40:29	85%	0% 26%	25 -	10 =	15	D	74 -	42 =	32	D 1500'	13.8	88	202
ARLINGTON	42:56-43:12	100%	3% 32%	16 -	9 =	7	B	147 -	56 =	91	F= 2000'	9.3	66	260
COPLEY	44:44-45:20	100%	15% 41%	36 -	11 =	25	F	92 -	44 =	48	F 1600'	11.9	112	740
AUDITORIUM	47:17-47:40	100%	11% 38%	23 -	9 =	14	D	117 -	75 =	42	C 2800'	16.3	85	225
KENMORE	49:18-49:40	100%	11% 38%	22 -	9 =	13	D	98 -	51 =	47	E 2250'	15.7	208	315
BLANDFORD	50:21-50:40	100%	24% 47%	19 -	5 =	14	F-	41 -	37 =	4	A 1100'	18.3	78	147
B.U.EAST	51:29-51:54	100%	24% 47%	25 -	8 =	17	F	49 -	39 =	10	B 1400'	19.5	180	154
B.U.CENTRAL	52:22-52:38	100%	24% 47%	16 -	8 =	8	C	28 -	21 =	7	B 750'	18.3	73	178
* = Best Time Ever ...	TOTALS :	—	— —	222 -	83 =	139		646 -	365 =	281	13400'	—	1021	2221
	AVERAGE:	93%	12% 37%	25 -	9 =	15	E	81 -	46 =	35	D 1675'	14.1	11	278
^ = Worst Time Ever	MAXIMUM:	100%	24% 47%	40	14	26		147	75	91	2800'	19.5	208	Worst Dwell
	MINIMUM:	50%	0% 15%	16	5	7		28	21	4	750'	9.3		
MEAN DEVIATION:	LOADING	9%	LOST DWELL	5sec	LOST LINK 22 sec							20%	Worst	
STANDARD DEVIATION:	LOADING	10%	LOST DWELL	6sec	LOST LINK 27 sec							29%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.38:.10	<<< :<<<	—
Transit Trip	13,400	5:.52:.22	14 :.12	10.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	9%
ARLI	10%
COPL	15%
AUDI	26%
KENM	20%
BLAN	34%
BU.E	37%
BU.C	35%
	21%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	9%	10%	12%
LINK	14%	17%	20%
EFFICIENCIES	17%	21%	25%
WOULD	26%	26%	32%
BE	20%	25%	29%
....	34%	34%	34%
	37%	37%	37%
	35%	35%	35%
AVERAGE LINK	23%	26%	29%

GAIN IN RIDERS :

...Link Improvements only	10%	24%	38%
...Link & Dwell Improvements	12%	28%	46%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #68 SHK Rider AVER. TRIP SPEED = 10.0 LOS E
..WEDNESDAY, AUGUST 17, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:10 P.M. Checked by: SHK MAY 12, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Riders TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	10:52	11:53	100%	70% 79%	61	14	47	F=	—	—	—	—	—	—	131	—
BOYLSTON	13:22	13:52	100%	80% 86%	30	10	20	F	89	42	47	F	1500'	11.5	88	202
ARLINGTON	15:44	16:22	100%	90% 93%	38	9	29	F=	112	56	56	F	2000'	12.2	66	260
COPLEY	17:12	18:04	100%	90% 93%	52	11	41	F=	50	44	6	A	1600'	21.8	112	740
AUDITORIUM	19:44	20:22	100%	90% 93%	38	9	29	F=	100	75	25	B	2800'	19.1	85	225
KENMORE	22:00	23:02	100%	70% 79%	62	9	53	F=	98	51	47	E	2250'	15.7	208	315
BLANDFORD	23:42	24:07	100%	70% 79%	25	5	20	F=	40	37	3	A	1100'	18.8	78	147
B.U.EAST	24:57	25:20	100%	70% 79%	23	8	15	E	50	39	11	B	1400'	19.1	180	154
B.U.CENTRAL	25:55	26:14	100%	70% 79%	19	8	11	D	35	21	14	D	750'	14.6	73	178
TOTALS :	—	—	—		348	83	265		574	365	209		13400'	—	1021	2221
AVERAGE:	100%	78%	84%		39	9	29	F=	72	46	26	C	1675'	15.9	11	278
MAXIMUM:	100%	90%	93%		62	14	53		112	75	56		2800'	21.8	208	Worst
MINIMUM:	100%	70%	79%		19	5	11		35	21	3		750'	11.5		Dwell

* = Best Time Ever ...
^ = Worst Time Ever .....

MEAN DEVIATION: LOADING 7% LOST DWELL 13sec | LOST LINK 18 sec 17% | Worst
STANDARD DEVIATION: LOADING 6% LOST DWELL 14sec | LOST LINK 20 sec 25% | Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.10:.52	<<< :<<<	—
Transit Trip	13,400	5:.25:.55	15 :.03	10.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME				LOS	LOST TIME/BEST
DWELL	.0	- .4	=>	A	<= .0 - .2 LINK
DWELL	.4	- .8	=>	B	<= .2 - .4 LINK
DWELL	.8	-1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2	-1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6	-2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0	-2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0	or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<<	more				more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	37%
ARLI	43%
COPL	82%
AUDI	70%
KENM	48%
BLAN	73%
BU.E	62%
BU.C	47%

53% AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE LINK EFFICIENCIES WOULD BE ....

42%	53%	61%
43%	57%	66%
82%	82%	82%
70%	70%	70%
48%	62%	72%
73%	73%	73%
62%	62%	62%
47%	53%	61%
AVERAGE LINK 54%	62%	67%

GAIN IN RIDERS :

...Link Improvements only	2%	17%	26%
...Link & Dwell Improvements	19%	39%	55%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Boeing-Vertol LRV-2. It was a hot day and the air conditioning was not working.

B O S T O N C O L L E G E OUTBOUND #69 SHK Rider AVER. TRIP SPEED = 9.3 LOS E
..THURSDAY, SEPTEMBER 15, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:20 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	19:30-20:18	100%	70%	79%	48	- 14 = 34	F-	—	—	—	—	—	131	—
BOYLSTON	21:57-22:18	100%	75%	83%	21	- 10 = 11	C	99	- 42 = 57	F-	1500'	10.3	88	202
ARLINGTON	24:40-25:08	100%	90%	93%	28	- 9 = 19	F	142	- 56 = 86	F=	2000'	9.6	66	260
COPLEY	26:52-27:36	100%	90%	93%	44	- 11 = 33	F=	104	- 44 = 60	F-	1600'	10.5	112	740
AUDITORIUM	29:42-30:15	100%	90%	93%	33	- 9 = 24	F-	126	- 75 = 51	D	2800'	15.2	85	225
KENMORE	31:52-32:34	100%	50%	65%	42	- 9 = 33	F=	97	- 51 = 46	E	2250'	15.8	208	315
BLANDFORD	33:21-33:41	100%	75%	83%	20	- 5 = 15	F=	47	- 37 = 10	B	1100'	16.0	78	147
B.U.EAST	34:53-35:13	100%	80%	86%	20	- 8 = 12	D	72	- 39 = 33	E	1400'	13.3	180	154
B.U.CENTRAL	35:46-36:12	100%	85%	90%	26	- 8 = 18	F	33	- 21 = 12	C	750'	15.5	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	282	- 83 = 199		720	-365 = 355		13400'	—	1021	2221
	AVERAGE:	100%	78%	85%	31	- 9 = 22	F-	90	- 46 = 44	E	1675'	12.7	11	278
^ = Worst Time Ever	MAXIMUM:	100%	90%	93%	48	14 34		142	75 86		2800'	16.0	208	Worst
	MINIMUM:	100%	50%	65%	20	5 11		33	21 10		750'	9.6		Dwell
MEAN DEVIATION:	LOADING	8%	LOST DWELL	9sec	LOST LINK 20 sec							17%	Worst	
STANDARD DEVIATION:	LOADING	9%	LOST DWELL	9sec	LOST LINK 24 sec							22%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.19:.30	<<< :<<<	—
Transit Trip	13,400	6:.35:.46	16 :.16	9.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4	=>	A	<= .0	- .2	LINK
DWELL	.4	- .8	=>	B	<= .2	- .4	LINK
DWELL	.8	-1.2	=>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6	=>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0	=>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4	=>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or	=>	F=	<= 1.5	or	LINK
<<<<<<<<<<<	more					more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK -
BOYL 34%
ARLI 33%
COPL 39%
AUDI 55%
KENM 49%
BLAN 51%
BU.E 45%
BU.C 55%

43%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	42%	53% 61%
LINK	44%	55% 64%
EFFICIENCIES	49%	62% 72%
WOULD	55%	62% 72%
BE	49%	62% 72%
....	51%	51% 51%
	45%	55% 64%
	55%	55% 66%
AVERAGE LINK	48%	57% 66%

GAIN IN RIDERS :
...Link Improvements only 12% 33% 53%
...Link & Dwell Improvements 19% 42% 66%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Ball game at Fenway Park

@ B.U. Central :
LRV-1 36:52 in 37:05
LRV-1 37:22 out
(17 seconds headway)

6:44 B.U. Rotary clogged, queue from Comm. Ave. signal around rotary.

B O S T O N C O L L E G E OUTBOUND #70 SHK Rider AVER. TRIP SPEED = 10.3 LOS D
... MONDAY, SEPTEMBER 19, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:55 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	54:21-55:44	68%	0% 20%	83 -	14 =	69 F=	—	—	—	—	—	131	—
BOYLSTON	56:41-57:03	96%	0% 29%	22 -	10 =	12 D	57 -	42 =	15	B	1500'	17.9	88	202
ARLINGTON	58:44-59:13	100%	10% 37%	29 -	9 =	20 F	101 -	56 =	45	E	2000'	13.5	66	260
COPLEY	5:00:09-00:37	100%	15% 41%	28 -	11 =	17 D	56 -	44 =	12	B	1600'	19.5	112	740
AUDITORIUM	02:16-02:39	100%	20% 44%	23 -	9 =	14 D	99 -	75 =	24	B	2800'	19.3	85	225
KENMORE	04:15-04:43	100%	25% 48%	28 -	9 =	19 F	96 -	51 =	45	E	2250'	16.0	208	315
BLANDFORD	05:25-06:22	100%	23% 46%	57 -	5 =	52 F=	42 -	37 =	5	A	1100'	17.9	78	147
B.U.EAST	07:24-08:18	100%	50% 65%	54 -	8 =	46 F=	62 -	39 =	23	C	1400'	15.4	180	154
B.U.CENTRAL	09:00-09:32	100%	75% 83%	32 -	8 =	24 F=	42 -	21 =	21	F	750'	12.2	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	356 -	83 =	273	555 -	365 =	190		13400'	—	1021	2221
	AVERAGE:	96%	24% 46%		40 -	9 =	30 F=	69 -	46 =	24	C	1675'	16.5	11	278
^ = Worst Time Ever	MAXIMUM:	100%	75% 83%		83	14	69	101	75	45		2800'	19.5	208	Worst
	MINIMUM:	68%	0% 20%		22	5	12	42	21	5		750'	12.2		Dwell
MEAN DEVIATION:		LOADING 15%		LOST DWELL 19sec				LOST LINK 11 sec					12%	Worst	
STANDARD DEVIATION:		LOADING 18%		LOST DWELL 19sec				LOST LINK 14 sec					16%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.54:.21	<<< :<<<	—
Transit Trip	13,400	5:.09:.00	14 :.39	10.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more					more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	15%	THE	15% 15%	15%
ARLI	16%	LINK	16% 19%	22%
COPL	29%	EFFICIENCIES	29% 29%	29%
AUDI	31%	WOULD	31% 31%	31%
KENM	23%	BE	23% 29%	34%
BLAN	42%	....	42% 42%	42%
BU.E	29%		29% 29%	35%
BU.C	33%		33% 43%	50%
	30%	AVERAGE LINK	30% 33%	36%

GAIN IN RIDERS :
...Link Improvements only 0% 10% 20%
...Link & Dwell Improvements 19% 33% 49%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Arrive at Park Street platform : 4:53
Riverside out 53:50
Cleveland Circle 53:50 in
@ B.U.Central next train 12:30 in 12:52 out
LRV-2 Section #1 5 stand, #2 100% seats
Section #3 50% seated #4 33% seated
headway 3:20 or 200 seconds
approx. 75 riders on the LRV-2
Flow rate of 1350 passengers per hour on Boston College branch

B O S T O N C O L L E G E OUTBOUND #71 SHK Rider AVER. TRIP SPEED = 11.2 LOS D
... MONDAY, SEPTEMBER 29, 1988 Typed by: SHK MAR.24, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:05 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	05:20-05:53	100%	15% 41%	33 -	14 =	19	D	—	—	—			—	131	—
BOYLSTON	06:40-06:57	100%	25% 48%	17 -	10 =	7	B	47 -	42 =	5		A	1500' 21.8	88	202
ARLINGTON	08:30-08:59	100%	25% 48%	29 -	9 =	20	F	93 -	56 =	37		D	2000' 14.7	66	260
COPLEY	11:06-11:34	100%	28% 50%	28 -	11 =	17	D	127 -	44 =	83		F=	1600' 8.6	112	740
AUDITORIUM	13:10-13:32	100%	35% 55%	22 -	9 =	13	D	96 -	75 =	21		B	2800' 19.9	85	225
KENMORE	14:58-15:22	100%	40% 58%	24 -	9 =	15	E	86 -	51 =	35		D	2250' 17.8	208	315
BLANDFORD	16:05-16:40	100%	40% 58%	35 -	5 =	30	F=	43 -	37 =	6		A	1100' 17.4	78	147
B.U.EAST	17:52-18:22	100%	40% 58%	30 -	8 =	22	F-	72 -	39 =	33		E	1400' 13.3	180	154
B.U.CENTRAL	18:51-19:16	100%	40% 58%	25 -	8 =	17	F	29 -	21 =	8		B	750' 17.6	73	178
* = Best Time Ever ...	TOTALS :	—	— —	243 -	83 =	160		593 -	365 =	228			13400' —	1021	2221
	AVERAGE:	100%	32% 53%	27 -	9 =	18	E	74 -	46 =	29		D	1675' 15.4	11	278
^ = Worst Time Ever	MAXIMUM:	100%	40% 58%	35	14	30		127	75	83			2800' 21.8	208	Worst Dwell
	MINIMUM:	100%	15% 41%	17	5	7		29	21	5			750' 8.6		
MEAN DEVIATION:	LOADING	6%	LOST DWELL	5sec	LOST LINK 19 sec									20%	Worst
STANDARD DEVIATION:	LOADING	6%	LOST DWELL	6sec	LOST LINK 24 sec									30%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.05:.20	<<< :<<<	—
Transit Trip	13,400	5:.18:.51	13 :.31	11.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST LINK
DWELL .0 - .4	=>		A	<= .0 - .2 LINK
DWELL .4 - .8	=>		B	<= .2 - .4 LINK
DWELL .8 -1.2	=>		C	<= .4 - .6 LINK
DWELL 1.2 -1.6	=>		D	<= .6 - .8 LINK
DWELL 1.6 -2.0	=>		E	<= .8 -1.0 LINK
DWELL 2.0 -2.4	=>		F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0	=>		F-	<= 1.2 -1.5 LINK
DWELL 3.0	or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<>	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	37%
ARLI	29%
COPL	17%
AUDI	39%
KENM	33%
BLAN	50%
BU.E	31%
BU.C	42%
	33%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	37%	37%	37%
LINK	29%	32%	37%
EFFICIENCIES	25%	32%	37%
WOULD	39%	39%	39%
BE	33%	37%	42%
....	50%	50%	50%
	31%	39%	45%
	42%	42%	42%
AVERAGE LINK	35%	39%	42%

GAIN IN RIDERS :
...Link Improvements only 6% 18% 27%
...Link & Dwell Improvements 15% 28% 43%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Riverside LRV-3 out 5:04:58, with bad wheel

B O S T O N C O L L E G E OUTBOUND #72 SHK Rider AVER. TRIP SPEED = 10.2 LOS D
... THURSDAY, OCTOBER 20, 1988 Typed by: SHK MAR.24, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:00 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	58:47-59:35	75%	0% 23%	48 -	14 =	34	F-	—	—	—		—	—	131	—
BOYLSTON	5:00:50-01:07	75%	3% 25%	17 -	10 =	7	B	75 -	42 =	33	D	1500'	13.6	88	202
ARLINGTON	03:20-03:38	85%	3% 28%	18 -	9 =	9	C	133 -	56 =	77	F-	2000'	10.3	66	260
COPLEY	04:59-05:24	60%	0% 18%	25 -	11 =	14	D	81 -	44 =	37	E	1600'	13.5	112	740
AUDITORIUM	07:09-07:28	100%	1% 31%	19 -	9 =	10	C	105 -	75 =	30	C	2800'	18.2	85	225
KENMORE	09:03-09:24	100%	1% 31%	21 -	9 =	12	D	95 -	51 =	44	E	2250'	16.1	208	315
BLANDFORD	10:09-11:09	100%	10% 37%	60 -	5 =	55	F=	45 -	37 =	8	B	1100'	16.7	78	147
B.U.EAST	12:09-12:51	100%	7% 35%	42 -	8 =	34	F=	60 -	39 =	21	C	1400'	15.9	180	154
B.U.CENTRAL	13:35-13:53	100%	8% 36%	18 -	8 =	10	D	44 -	21 =	23	F	750'	11.6	73	178
* = Best Time Ever ...	TOTALS :	—	— —	268 -	83 =	185		638 -	365 =	273		13400'	—	1021	2221
^ = Worst Time Ever	AVERAGE:	88%	4% 29%	30 -	9 =	21	F	80 -	46 =	34	D	1675'	14.3	11	278
	MAXIMUM:	100%	10% 37%	60	14	55		133	75	77		2800'	18.2	208	Worst Dwell
	MINIMUM:	60%	0% 18%	17	5	7		44	21	8		750'	10.3		Worst
MEAN DEVIATION:	LOADING	6%	LOST DWELL	16sec				LOST LINK	14 sec				14%		Link 740
STANDARD DEVIATION:	LOADING	6%	LOST DWELL	16sec				LOST LINK	19 sec				18%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.58:.47	<<< :<<<	—
Transit Trip	13,400	5:.13:.35	14 :.48	10.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=>	A	<= .0 - .2 LINK
DWELL	.4 - .8	=>	B	<= .2 - .4 LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6 LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8 LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0 LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2 LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5 LINK
DWELL	3.0 or	=>	F=	<= 1.5 or LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	13%
ARLI	11%
COPL	15%
AUDI	13%
KENM	17%
BLAN	25%
BU.E	24%
BU.C	17%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	13%	15%	18%
LINK	13%	17%	19%
EFFICIENCIES	15%	19%	22%
WOULD	13%	13%	13%
BE	17%	21%	24%
....	25%	25%	25%
	24%	24%	28%
	18%	23%	27%

17% AVERAGE LINK 17% 20% 22%

GAIN IN RIDERS :

...Link Improvements only	0%	18%	29%
...Link & Dwell Improvements	20%	35%	52%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Another LRV was one block ahead at B.U.Central
LRV-1 @ B.U.Central 17:40 out
LRV-2 @ B.U.Central 18:00 out, bad wheel

B O S T O N C O L L E G E OUTBOUND #73 SHK Rider AVER. TRIP SPEED = 11.8 LOS C
.WEDNESDAY, OCTOBER 26, 1988 Typed by: SHK MAR.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:10 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	09:30-10:42	100%	6% 34%	72 -	14 =	58	F=	—	--	—		--	—	131	--
BOYLSTON	12:02-12:16	100%	8% 36%	14 -	10 =	4	B	80 -	42 =	38	E	1500'	12.8	88	202
ARLINGTON	14:00-14:17	100%	8% 36%	17 -	9 =	8	C	104 -	56 =	48	E	2000'	13.1	66	260
COPLEY	15:22-15:44	96%	0% 29%	22 -	11 =	11	C	65 -	44 =	21	C	1600'	16.8	112	740
AUDITORIUM	17:17-17:32	92%	0% 28%	15 -	9 =	6	B	93 -	75 =	18	B	2800'	20.5	85	225
KENMORE	18:57-19:20	92%	0% 28%	23 -	9 =	14	D	85 -	51 =	34	D	2250'	18.0	208	315
BLANDFORD	20:01-20:20	100%	2% 32%	19 -	5 =	14	F-	41 -	37 =	4	A	1100'	18.3	78	147
B.U.EAST	21:21-21:38	100%	2% 32%	17 -	8 =	9	C	61 -	39 =	22	C	1400'	15.6	180	154
B.U.CENTRAL	22:21-22:37	100%	0% 30%	16 -	8 =	8	C	43 -	21 =	22	F	750'	11.9	73	178
* = Best Time Ever ...	TOTALS :	—	— —	215 -	83 =	132		572 -	365 =	207		13400'	—	1021	2221
	AVERAGE:	98%	3% 32%	24 -	9 =	15	D	72 -	46 =	26	C	1675'	16.0	11	278
^ = Worst Time Ever	MAXIMUM:	100%	8% 36%	72	14	58		104	75	48		2800'	20.5	208	Worst Dwell
	MINIMUM:	92%	0% 28%	14	5	4		41	21	4		750'	11.9		Worst Link 740
--------	MEAN DEVIATION:	LOADING	3%	LOST DWELL	11sec			LOST LINK 11 sec					14%		
	STANDARD DEVIATION:	LOADING	3%	LOST DWELL	16sec			LOST LINK 13 sec					19%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.09:.30	<<< :<<<	—
Transit Trip	13,400	6:.22:.21	12 :.51	11.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK	
DWELL .0 - .4 =>			A	<= .0 - .2	LINK
DWELL .4 - .8 =>			B	<= .2 - .4	LINK
DWELL .8 -1.2 =>			C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>			D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>			E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>			F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>			F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>			F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	18%	THE	18% 23%	26%
ARLI	19%	LINK	19% 24%	28%
COPL	24%	EFFICIENCIES	24% 24%	28%
AUDI	23%	WOULD	23% 23%	23%
KENM	17%	BE	17% 19%	22%
BLAN	25%	....	25% 25%	25%
BU.E	20%		20% 20%	25%
BU.C	16%		17% 21%	25%
	20%	AVERAGE LINK	21% 23%	25%

GAIN IN RIDERS :
...Link Improvements only 5% 15% 25%
...Link & Dwell Improvements 10% 20% 35%

TRIP NOTES -- OTHER TRAINS AND COMMENTS
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B O S T O N C O L L E G E OUTBOUND #74 SHK Rider AVER. TRIP SPEED = 9.1 LOS E
.... FRIDAY, NOVEMBER 18, 1988 Typed by: SHK MAR.13, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 1:30 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	29:49-30:59	100% 20% 44%		70 - 14 = 56 F=	— — — — —	131 —
BOYLSTON	31:47-32:09	100% 20% 44%		22 - 10 = 12 D	48 - 42 = 6 A 1500' 21.3	42 137
ARLINGTON	33:56-34:26	100% 25% 48%		30 - 9 = 21 F	107 - 56 = 51 E 2000' 12.7	66 205
COPLEY	36:47-37:12	100% 25% 48%		25 - 11 = 14 D	141 - 44 = 97 F= 1600' 7.7	112 740
AUDITORIUM	39:52-40:12	100% 25% 48%		20 - 9 = 11 D	160 - 75 = 85 F 2800' 11.9	85 225
KENMORE	42:24-42:45	100% 20% 44%		21 - 9 = 12 D	132 - 51 = 81 F= 2250' 11.6	61 315
BLANDFORD	43:25-44:04	100% 30% 51%		39 - 5 = 34 F=	40 - 37 = 3 A 1100' 18.8	78 147
B.U.EAST	44:54-45:43	100% 30% 51%		49 - 8 = 41 F=	50 - 39 = 11 B 1400' 19.1	180 154
B.U.CENTRAL	46:21-46:51	100% 30% 51%		30 - 8 = 22 F-	38 - 21 = 17 E 750' 13.5	73 178
* = Best Time Ever ...	TOTALS :	— — —		306 - 83 =223	716 -365 =351 13400' —	828 2101
^ = Worst Time Ever	AVERAGE:	100% 25% 48%		34 - 9 = 25 F-	90 - 46 = 44 E 1675' 12.8	92 263
	MAXIMUM:	100% 30% 51%		70 14 56	160 75 97 2800' 21.3	180Worst
	MINIMUM:	100% 20% 44%		20 5 11	38 21 3 750' 7.7	Dwell
	MEAN DEVIATION:	LOADING 3%		LOST DWELL 14sec	LOST LINK 35 sec 25%	Worst
	STANDARD DEVIATION:	LOADING 3%		LOST DWELL 15sec	LOST LINK 37 sec 47%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	1:.29:.49	<<< :<<<	—
Transit Trip	13,400	1:.46:.21	16 :.32	9.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2 LINK
DWELL .4 - .8 =>	B	<= .2 - .4 LINK
DWELL .8 -1.2 =>	C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5 LINK
DWELL 3.0 or =>	F=	<= 1.5 or LINK
<<<<<<<<<<> more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	39%
ARLI	23%
COPL	15%
AUDI	23%
KENM	19%
BLAN	41%
BU.E	40%
BU.C	28%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	39%	39%	39%
LINK	23%	29%	34%
EFFICIENCIES	25%	32%	37%
WOULD	25%	32%	37%
BE	25%	32%	37%
....	41%	41%	41%
	40%	40%	40%
	28%	34%	39%

24% AVERAGE LINK 29% 34% 38%

GAIN IN RIDERS :

...Link Improvements only	21%	42%	58%
...Link & Dwell Improvements	29%	52%	74%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #75 SHK Rider AVER. TRIP SPEED = 10.3 LOS D
.. THURSDAY, DECEMBER 8, 1988 Typed by: SHK MAR.19, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 3:50 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ SEATS	Riders STAND TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	LINK
PARK STREET	48:29	49:02	100%	2% 32%	33	14	19	D	—	—	—	—	—		131	—
BOYLSTON	50:18	50:50	100%	6% 34%	32	10	22	F	76	42	34	1500'	13.5	E	88	202
ARLINGTON	52:46	53:18	100%	9% 36%	32	9	23	F-	116	56	60	2000'	11.8	F	66	260
COPLEY	54:30	54:59	100%	25% 48%	29	11	18	E	72	44	28	1600'	15.2	D	112	740
AUDITORIUM	57:08	57:38	100%	62% 73%	30	9	21	F	129	75	54	2800'	14.8	D	85	225
KENMORE	59:12	59:36	100%	62% 73%	24	9	15	E	94	51	43	2250'	16.3	E	208	315
BLANDFORD	4:00:24	00:46	100%	62% 73%	22	5	17	F=	48	37	11	1100'	15.6	B	78	147
B.U.EAST	01:42	02:20	100%	50% 65%	38	8	30	F=	56	39	17	1400'	17.0	C	180	154
B.U.CENTRAL	03:06	03:31	100%	50% 65%	25	8	17	F	46	21	25	750'	11.1	F	73	178
TOTALS :	—	—	—		265	83	=182		637	365	=272	13400'	—		1021	2221
AVERAGE:	100%	36%	55%		29	9	= 20	F	80	46	= 34	1675'	14.3	D	11	278
MAXIMUM:	100%	62%	73%		38	14	30		129	75	60	2800'	17.0		208	Worst
MINIMUM:	100%	2%	32%		22	5	15		46	21	11	750'	11.1			Dwell
MEAN DEVIATION:	LOADING	18%	LOST	DWELL	4sec				LOST	LINK	14 sec				11%	Worst
STANDARD DEVIATION:	LOADING	17%	LOST	DWELL	4sec				LOST	LINK	16 sec				16%	Link 740

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	3:.48:.29	<<< :<<<	—
Transit Trip	13,400	4:.03:.06	14 :.37	10.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	18%
ARLI	16%
COPL	22%
AUDI	28%
KENM	40%
BLAN	56%
BU.E	51%
BU.C	30%
	32%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	18%	21%	25%
LINK	18%	23%	26%
EFFICIENCIES	22%	24%	28%
WOULD	28%	32%	37%
BE	40%	49%	56%
....	56%	56%	56%
	51%	51%	56%
	34%	43%	50%
AVERAGE LINK	32%	37%	42%

GAIN IN RIDERS :

...Link Improvements only	0%	16%	31%
...Link & Dwell Improvements	11%	30%	51%

TRIP NOTES — OTHER TRAINS AND COMMENTS

At Park Street platform : southbound ...
Boston College LRV-1 Express to Kenmore
46:25 in 47:12 out Dwell: 47 seconds
Brigham Circle LRV-2 47:49 in

B O S T O N C O L L E G E OUTBOUND #76 SHK Rider AVER. TRIP SPEED = 12.5 LOS C
.... MONDAY, DECEMBER 12, 1988 Typed by: SHK JAN,7, 89 Previous Worst = 5.1 LOS F=
..Begin Trip 7:30 P.M. Checked by: SHK MAY 13,89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) T7	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	31:10	31:42	95%	0% 29%	32	18	= 14	B	—	—	—	—	—	131	—
BOYLSTON	32:32	32:47	95%	0% 29%	15	10	= 5	B	50	42	= 8	A 1500'	20.5	42	202
ARLINGTON	34:20	34:37	100%	5% 34%	17	12	= 5	B	93	56	= 37	D 2000'	14.7	66	260
COPLEY	35:35	35:57	100%	4% 33%	22	13	= 9	B	58	44	= 14	B 1600'	18.8	112	740
AUDITORIUM	37:40	38:00	100%	4% 33%	20	9	= 11	D	103	75	= 28	B 2800'	18.5	85	225
KENMORE	39:34	40:01	100%	0% 30%	27	9	= 18	F	94	51	= 43	E 2250'	16.3	208	315
BLANDFORD	40:48	41:17	100%	7% 35%	29	5	= 24	F=	47	37	= 10	B 1100'	16.0	78	147
B.U.EAST	42:18	42:38	100%	9% 36%	20	8	= 12	D	61	39	= 22	C 1400'	15.6	180	154
B.U.CENTRAL	43:23	43:39	100%	7% 35%	16	8	= 8	C	45	21	= 24	F 750'	11.4	73	178
* = Best Time	TOTALS :	—	—	—	198	92	=106		551	-365	=186	13400'	—	1021	2221
Ever ...	AVERAGE:	99%	4% 33%		22	10	= 12	C	69	46	= 23	C 1675'	16.6	11	278
^ = Worst Time	MAXIMUM:	100%	9% 36%		32	18	24		103	75	43	2800'	20.5	208	Worst
Ever	MINIMUM:	95%	0% 29%		15	5	5		45	21	8	750'	11.4		Dwell
MEAN DEVIATION:	LOADING	2%	LOST DWELL	5 sec	LOST LINK	10 sec							11%	Worst	
STANDARD DEVIATION:	LOADING	3%	LOST DWELL	6 sec	LOST LINK	12 sec							18%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	7:.31:.10	<<< :<<<	—
Transit Trip	13,400	7:.43:.23	12 :.13	12.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<<> more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	24%
ARLI	17%
COPL	26%
AUDI	24%
KENM	18%
BLAN	24%
BU.E	22%
BU.C	17%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	24%	24%	24%
LINK	17%	19%	22%
EFFICIENCIES	26%	26%	26%
WOULD	24%	24%	24%
BE	18%	22%	25%
....	24%	24%	24%
	22%	22%	27%
	19%	24%	28%
AVERAGE LINK	22%	24%	25%

GAIN IN RIDERS :

...Link Improvements only	0%	9%	14%
...Link & Dwell Improvements	5%	13%	23%

TRIP NOTES — OTHER TRAINS AND COMMENTS

First trip made on a new type 7 train on the Boston College Line.

B O S T O N C O L L E G E OUTBOUND #77 SHK Rider AVER. TRIP SPEED = 14.8 LOS B
.. THURSDAY, DECEMBER 30, 1988 Typed by: SHK JAN.12, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 8:10 P.M. Checked by: SHK MAY 13, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989=========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ SEATS	STAND	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	08:02-08:16	12%	0%	4%	14*-	14	0*	A	—	—	—	—	—	131	—
BOYLSTON	09:15-09:26	12%	0%	4%	11 -	10	1	A	59 -	42	17	C 1500'	17.3	88	202
ARLINGTON	10:55-11:04	12%	0%	4%	9*-	9	0*	A	89 -	56	33	C 2000'	15.3	66	260
COPLEY	11:56-12:07	24%	0%	7%	11*-	11	0*	A	52 -	44	8	A 1600'	21.0	112	740
AUDITORIUM	13:43-13:53	16%	0%	5%	10 -	9	1	A	96 -	75	21	B 2800'	19.9	85	225
KENMORE	15:22-15:32	16%	0%	5%	10 -	9	1	A	89 -	51	38	D 2250'	17.2	208	315
BLANDFORD	16:13-16:21	16%	0%	5%	8 -	5	3	B	41 -	37	4	A 1100'	18.3	78	147
B.U.EAST	17:22-17:31	12%	0%	4%	9 -	8	1	A	61 -	39	22	C 1400'	15.6	180	154
B.U.CENTRAL	18:18-18:27	8%	0%	2%	9 -	8	1	A	47 -	21	26	F- 750'	10.9	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	91 -	83	8		534 -	365	169	13400'	—	1021	2221
	AVERAGE:	14%	0%	4%	10 -	9	1	A	67 -	46	21	C 1675'	17.1	11	278
^ = Worst Time Ever	MAXIMUM:	24%	0%	7%	14	14	3		96	75	38	2800'	21.0	208	Worst Dwell
	MINIMUM:	8%	0%	2%	8	5	0		41	21	4	750'	10.9		
MEAN DEVIATION:	LOADING	1%	LOST	DWELL	1 sec		LOST	LINK	9 sec				12%	Worst	
STANDARD DEVIATION:	LOADING	1%	LOST	DWELL	1 sec		LOST	LINK	11 sec				17%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	8:.08:.02	<<< :<<<	—
Transit Trip	13,400	8:.18:.18	10 :.16	14.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	3%
ARLI	3%
COPL	3%
AUDI	5%
KENM	3%
BLAN	5%
BU.E	3%
BU.C	2%
	3%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	3%	3%	3%
LINK	3%	3%	3%
EFFICIENCIES	3%	3%	3%
WOULD	5%	5%	5%
BE	3%	3%	4%
....	5%	5%	5%
	3%	3%	4%
	2%	3%	3%
AVERAGE LINK	3%	3%	3%

GAIN IN RIDERS :

...Link Improvements only	0%	0%	0%
...Link & Dwell Improvements	-2%	0%	8%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #78 SHK Rider AVER. TRIP SPEED = 9.6 LOS E
. WEDNESDAY, JANUARY 11 ,1989 Typed by: SHK JAN.11,89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:30 P.M. Checked by: SHK MAY 13,89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50 STAND SEATS	Max166 Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK
PARK STREET	31:25	32:24	100%	10% 37%	59	18	= 41	F	—	—	—		—	—	131	—
BOYLSTON	33:22	33:52	100%	15% 41%	30	10	= 20	F	58	42	= 16	B	1500'	17.6	88	202
ARLINGTON	35:30	35:56	100%	16% 41%	26	12	= 14	C	98	56	= 42	D	2000'	13.9	66	260
COPLEY	36:47	37:21	100%	22% 45%	34	13	= 21	E	51	44	= 7	A	1600'	21.4	112	740
AUDITORIUM	38:45	39:16	100%	20% 44%	31	9	= 22	F-	84	75	= 9	A	2800'	22.7	85	225
KENMORE	40:51	41:40	100%	10% 37%	49	9	= 40	F=	95	51	= 44	E	2250'	16.1	208	315
BLANDFORD	42:25	44:52	100%	9% 36%	147^	5	=142^	F=	45	37	= 8	B	1100'	16.7	78	147
B.U.EAST	46:32	46:42	100%	6% 34%	10	8	= 2	A	100	39	= 61	F=	1400'	9.5	180	154
B.U.CENTRAL	47:16	47:32	100%	5% 34%	16	8	= 8	C	34	21	= 13	D	750'	15.0	73	178
TOTALS :	—	—	—		402	92	=310		565	365	=200		13400'	—	1021	2221
AVERAGE:	100%	13% 39%			45	10	= 34	F=	71	46	= 25	C	1675'	16.2	11	278
MAXIMUM:	100%	22% 45%			147	18	=142		100	75	61		2800'	22.7	208	Worst Dwell
MINIMUM:	100%	5% 34%			10	5	2		34	21	7		750'	9.5		
MEAN DEVIATION:	LOADING	4%	LOST	DWELL	30 sec				LOST	LINK	18 sec			16%	Worst	
STANDARD DEVIATION:	LOADING	4%	LOST	DWELL	40 sec				LOST	LINK	19 sec			28%	Link	740

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.31:.25	<<< :<<<	—
Transit Trip	13,400	5:.47:.16	15 :.51	9.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4 =>	A	<= .0	- .2	LINK
DWELL	.4	- .8 =>	B	<= .2	- .4	LINK
DWELL	.8	-1.2 =>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6 =>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0 =>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4 =>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0 =>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or =>	F=	<= 1.5	or	LINK
<<<<<<<<<<<	> more				more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	27%
ARLI	23%
COPL	35%
AUDI	40%
KENM	24%
BLAN	30%
BU.E	14%
BU.C	21%
25%	AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	27%	27% 27%
LINK	23%	27% 32%
EFFICIENCIES	35%	35% 35%
WOULD	40%	40% 40%
BE	24%	29% 34%
....	30%	30% 30%
	19%	24% 28%
	21%	23% 26%
	26%	29% 31%

GAIN IN RIDERS :
...Link Improvements only 4% 16% 24%
...Link & Dwell Improvements 34% 50% 66%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Weather : dry 30 degrees
The lengthy wait at Blandford Street was caused by the motormen separating the two LRV units. The previous maximum dwell of 78 seconds was increased to 147 seconds or 2 1/2 minutes.

B O S T O N C O L L E G E OUTBOUND #79 SHK Rider AVER. TRIP SPEED = 10.2 LOS D
...THURSDAY, JANUARY 12, 1989 Typed by: SHK JAN.12,89 Previous Worst = 4.8 LOS F=
..Begin Trip 2:20 P.M. Checked by: SHK MAY 14,89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	19:24-19:52	50%	0% 15%	28 -	14 =	14	C	—	—	—	—		—	131	—
BOYLSTON	21:09-21:25	45%	0% 14%	16 -	10 =	6	B	77 -	42 =	35	1500'	E	13.3	88	202
ARLINGTON	23:09-23:28	68%	0% 20%	19 -	9 =	10	C	104 -	56 =	48	2000'	E	13.1	66	260
COPLEY	24:29-24:50	100%	5% 34%	21 -	11 =	10	C	61 -	44 =	17	1600'	B	17.9	112	740
AUDITORIUM	27:20-27:39	100%	4% 33%	19 -	9 =	10	C	150 -	75 =	75	2800'	F	12.7	85	225
KENMORE	29:15-29:56	100%	22% 45%	41 -	9 =	32	F=	96 -	51 =	45	2250'	E	16.0	208	315
BLANDFORD	30:58-31:51	100%	40% 58%	53 -	5 =	48	F=	62 -	37 =	25	1100'	D	12.1	78	147
B.U.EAST	33:04-33:23	100%	40% 58%	19 -	8 =	11	D	73 -	39 =	34	1400'	E	13.1	180	154
B.U.CENTRAL	34:17-34:39	100%	40% 58%	22 -	8 =	14	E	54 -	21 =	33	750'	F=	9.5	73	178
* = Best Time Ever ...	TOTALS :	—	— —	238 -	83 =	155		677 -	365 =	312	13400'		—	1021	2221
	AVERAGE:	85%	17% 37%	26 -	9 =	17	E	85 -	46 =	39	1675'	E	13.5	11	278
^ = Worst Time Ever	MAXIMUM:	100%	40% 58%	53	14	48		150	75	75	2800'		17.9	208	Worst Dwell
	MINIMUM:	45%	0% 14%	16	5	6		54	21	17	750'		9.5		
--------	MEAN DEVIATION:	LOADING 18%		LOST DWELL11 sec				LOST LINK 13 sec					12%	Worst	
	STANDARD DEVIATION:	LOADING 17%		LOST DWELL13 sec				LOST LINK 16 sec					18%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	2:.19:.00	<<< :<<<	<<<<<
Train Arrives	—	2:.19:.24	0 :.24	—
Transit Trip	13,400	2:.34:.17	14 :.53	10.2
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	8%
ARLI	8%
COPL	14%
AUDI	17%
KENM	18%
BLAN	27%
BU.E	31%
BU.C	23%
	20%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	8%	10%	12%
LINK	8%	9%	11%
EFFICIENCIES	14%	14%	14%
WOULD	17%	23%	26%
BE	18%	22%	25%
....	27%	30%	35%
	31%	39%	45%
	31%	39%	45%
AVERAGE LINK	20%	25%	28%

GAIN IN RIDERS :

...Link Improvements only	0%	25%	40%
...Link & Dwell Improvements	11%	32%	51%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #80 SHK Rider AVER. TRIP SPEED = 11.0 LOS D
.... FRIDAY, JANUARY 27, 1989 Typed by: SHK JAN.27, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:20 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Riders TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	23:15	24:13	100%	12% 39%	58	- 14	= 44	F=	—	—	—	—		—	131	—
BOYLSTON	25:06	25:27	100%	20% 44%	21	- 10	= 11	C	53	- 42	= 11	B	1500'	19.3	88	202
ARLINGTON	27:09	27:35	100%	23% 46%	26	- 9	= 17	E	102	- 56	= 46	E	2000'	13.4	66	260
COPLEY	28:30	28:59	100%	20% 44%	29	- 11	= 18	E	55	- 44	= 11	B	1600'	19.8	112	740
AUDITORIUM	30:50	31:16	100%	16% 41%	26	- 9	= 17	E	111	- 75	= 36	C	2800'	17.2	85	225
KENMORE	33:04	33:32	100%	0% 30%	28	- 9	= 19	F	108	- 51	= 57	F	2250'	14.2	208	315
BLANDFORD	34:24	34:57	100%	0% 30%	33	- 5	= 28	F=	52	- 37	= 15	C	1100'	14.4	78	147
B.U.EAST	36:00	36:19	95%	0% 29%	19	- 8	= 11	D	63	- 39	= 24	D	1400'	15.2	180	154
B.U.CENTRAL	37:05	37:22	95%	0% 29%	17	- 8	= 9	C	46	- 21	= 25	F	750'	11.1	73	178
* = Best Time Ever ...	TOTALS :		—	— —	257	- 83	=174		590	-365	=225		13400'	—	1021	2221
	AVERAGE:		99%	10% 37%	29	- 9	= 19	F	74	- 46	= 28	C	1675'	15.5	11	278
^ = Worst Time Ever	MAXIMUM:		100%	23% 46%	58	14	44		111	75	57		2800'	19.8	208	Worst Dwell
	MINIMUM:		95%	0% 29%	17	5	9		46	21	11		750'	11.1		Worst Link 740
MEAN DEVIATION:	LOADING	7%	LOST DWELL 8 sec						LOST LINK 13 sec					14%		
STANDARD DEVIATION:	LOADING	7%	LOST DWELL10 sec						LOST LINK 16 sec					20%		

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	5:.20:.30	<<< :<<<	<<<<<
Train Arrives	—	5:.23:.15	2 :.45	—
Transit Trip	13,400	5:.37:.05	13 :.50	11.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK -
BOYL 31%
ARLI 24%
COPL 37%
AUDI 30%
KENM 19%
BLAN 21%
BU.E 19%
BU.C 13%

23% AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	32% 32%	32%
LINK	26% 28%	33%
EFFICIENCIES	37% 37%	37%
WOULD	30% 30%	34%
BE	23% 23%	29%
....	21% 21%	23%
	19% 20%	23%
	15% 19%	22%
AVERAGE LINK	24% 25%	28%

GAIN IN RIDERS :
...Link Improvements only 4% 9% 22%
...Link & Dwell Improvements 8% 21% 38%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Weather : dry 30 degrees
A BC train arrived 5:20:30, left 21:36 LRV-2
At BU Central, the first LRV was directly in front, while another LRV-2 arrived at 39:20.

One middle aged man was standing in the center section, seection wearing headphones and reading a paperback book entitled. "Bimbos of the Death Sun." A mumbing, abusive drunk also caused some minor discomfort to other passengers.

B O S T O N C O L L E G E OUTBOUND #81 SHK Rider AVER. TRIP SPEED = 11.8 LOS C
... TUESDAY, FEBRUARY 28, 1989 Typed by: SHK MAR. 4, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:20 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	LINK
PARK STREET	21:30-22:14	100%	17% 42%	44 -	14 =	30	F	—	—	—		—		131	—
BOYLSTON	23:05-23:21	100%	16% 41%	16 -	10 =	6	B	51 -	42 =	9	B	1500'	20.1	88	202
ARLINGTON	24:49-25:09	100%	10% 37%	20 -	9 =	11	D	88 -	56 =	32	C	2000'	15.5	66	260
COPLEY	26:02-26:33	100%	0% 30%	31 -	11 =	20	E	53 -	44 =	9	B	1600'	20.6	112	740
AUDITORIUM	28:32-28:53	100%	0% 30%	21 -	9 =	12	D	119 -	75 =	44	C	2800'	16.0	85	225
KENMORE	30:46-31:13	40%	0% 12%	27 -	9 =	18	F	113 -	51 =	62	F-	2250'	13.6	208	315
BLANDFORD	32:00-32:22	68%	0% 20%	22 -	5 =	17	F=	47 -	37 =	10	B	1100'	16.0	78	147
B.U.EAST	33:24-33:40	88%	0% 27%	16 -	8 =	8	C	62 -	39 =	23	C	1400'	15.4	180	154
B.U.CENTRAL	34:18-34:39	100%	5% 34%	21 -	8 =	13	E	38 -	21 =	17	E	750'	13.5	73	178
* = Best Time Ever ...	TOTALS :	—	— —	218 -	83 =	135		571 -	365 =	206		13400'	—	1021	2221
	AVERAGE:	88%	5% 30%	24 -	9 =	15	E	71 -	46 =	26	C	1675'	16.0	11	278
^ = Worst Time Ever	MAXIMUM:	100%	17% 42%	44	14	30		119	75	62		2800'	20.6	208	Worst Dwell
	MINIMUM:	40%	0% 12%	16	5	6		38	21	9		750'	13.5		
MEAN DEVIATION:	LOADING	8%	LOST DWELL	6sec				LOST LINK 15 sec					10%	Worst	
STANDARD DEVIATION:	LOADING	9%	LOST DWELL	7sec				LOST LINK 18 sec					18%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.21:.30	<<< :<<<	—
Transit Trip	13,400	6:.34:.18	12 :.48	11.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
DWELL .0 - .4 =>		A	<= .0 - .2 LINK
DWELL .4 - .8 =>		B	<= .2 - .4 LINK
DWELL .8 -1.2 =>		C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>		D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>		E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>		F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>		F-	<= 1.2 -1.5 LINK
DWELL 3.0 or =>		F=	<= 1.5 or LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	35%
ARLI	26%
COPL	31%
AUDI	19%
KENM	14%
BLAN	9%
BU.E	13%
BU.C	15%

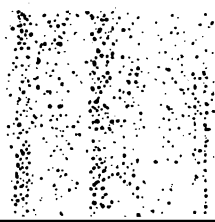
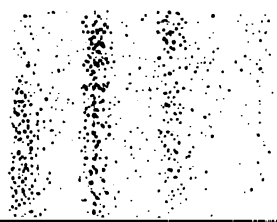
SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE		35%	35% 35%
LINK		26%	26% 32%
EFFICIENCIES		31%	31% 31%
WOULD		19%	19% 23%
BE		16%	20% 23%
....		9%	9% 9%
		13%	13% 15%
		15%	18% 21%
AVERAGE LINK		20%	21% 23%

19%

GAIN IN RIDERS :
...Link Improvements only 5% 11% 21%
...Link & Dwell Improvements 8% 15% 33%

TRIP NOTES — OTHER TRAINS AND COMMENTS
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B O S T O N C O L L E G E OUTBOUND #82 SHK Rider AVER. TRIP SPEED = 8.7 LOS F
..WEDNESDAY, MARCH 1, 1989 Typed by: SHK MAR. 4, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:00 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) T7	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	STAND TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	00:22-01:36	52%	0% 16%	74 -	14 =	60	F=	—	—	—		—		131	—
BOYLSTON	02:33-02:53	52%	0% 16%	20 -	10 =	10	C	57 -	42 =	15	B	1500'	17.9	88	202
ARLINGTON	06:19-06:38	52%	3% 18%	19 -	9 =	10	C	206 -	56 =	150	F=	2000'	6.6	66	260
COPLEY	08:19-08:42	48%	0% 14%	23 -	11 =	12	C	101 -	44 =	57	F-	1600'	10.8	112	740
AUDITORIUM	11:10-11:35	44%	0% 13%	25 -	9 =	16	E	148 -	75 =	73	E	2800'	12.9	85	225
KENMORE	13:11-13:37	40%	0% 12%	26 -	9 =	17	E	96 -	51 =	45	E	2250'	16.0	202	315
BLANDFORD	14:26-15:20	40%	0% 12%	54 -	5 =	49	F=	49 -	37 =	12	B	1100'	15.3	78	147
B.U.EAST	16:24-17:02	40%	0% 12%	38 -	8 =	30	F=	64 -	39 =	25	D	1400'	14.9	180	154
B.U.CENTRAL	17:40-17:53	36%	0% 11%	13 -	8 =	5	B	38 -	21 =	17	E	750'	13.5	73	178
* = Best Time Ever ...	TOTALS :	—	— —	292 -	83 =	209		759 -	365 =	394		13400'	—	1021	2221
	AVERAGE:	45%	0% 14%	32 -	9 =	23	F-	95 -	46 =	49	F	1675'	12.0	11	278
^ = Worst Time Ever	MAXIMUM:	52%	3% 18%	74	14	60		206	75	150		2800'	17.9	202	Worst Dwell
	MINIMUM:	36%	0% 11%	13	5	5		38	21	12		750'	6.6		
MEAN DEVIATION:	LOADING	2%	LOST DWELL	17sec				LOST LINK	33 sec				23%	Worst	
STANDARD DEVIATION:	LOADING	2%	LOST DWELL	18sec				LOST LINK	43 sec				36%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.00:.22	<<< :<<<	—
Transit Trip	13,400	6:.17:.40	17 :.18	8.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	12%
ARLI	4%
COPL	8%
AUDI	7%
KENM	7%
BLAN	9%
BU.E	7%
BU.C	7%

7% AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	12%	12% 12%
LINK	8%	11% 12%
EFFICIENCIES	9%	12% 14%
WOULD	7%	9% 11%
BE	7%	9% 10%
....	9%	9% 9%
	7%	8% 9%
	7%	8% 9%
AVERAGE LINK	8%	10% 11%

GAIN IN RIDERS :

...Link Improvements only	14%	43%	57%
...Link & Dwell Improvements	28%	51%	72%

TRIP NOTES — OTHER TRAINS AND COMMENTS

At B.U. Central, another LRV was one block ahead.
A third LRV arrived at B.U. Central at 18:20.
A fourth LRV stopped at the B.U. Bridge signals at 6:20:20.
This bunching of trains represents four trains in two minutes.

B O S T O N C O L L E G E OUTBOUND #83 SHK Rider AVER. TRIP SPEED = 10.1 LOS D
.. WEDNESDAY, MARCH 15, 1989 Typed by: SHK MAR.21, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:55 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	LINK
PARK STREET	57:08-57:46	90%	3% 29%	38 -	14 =	24	E	—	—	—	—	—		131	—
BOYLSTON	58:37-58:51	90%	3% 29%	14 -	10 =	4	B	51 -	42 =	9	B 1500'	20.1		88	202
ARLINGTON	6:00:54-01:21	100%	0% 30%	27 -	9 =	18	F	123 -	56 =	67	F- 2000'	11.1		66	260
COPLEY	04:12-04:34	100%	3% 32%	22 -	11 =	11	C	171 -	44 =	127	F= 1600'	6.4		112	740
AUDITORIUM	06:25-06:41	100%	2% 32%	16 -	9 =	7	B	111 -	75 =	36	C 2800'	17.2		85	225
KENMORE	08:35-08:51	100%	2% 32%	16 -	9 =	7	B	114 -	51 =	63	F- 2250'	13.5		208	315
BLANDFORD	09:33-09:50	100%	0% 30%	17 -	5 =	12	F-	42 -	37 =	5	A 1100'	17.9		78	147
B.U.EAST	11:09-11:30	100%	3% 32%	21 -	8 =	13	E	79 -	39 =	40	F 1400'	12.1		180	154
B.U.CENTRAL	12:08-12:28	100%	5% 34%	20 -	8 =	12	D	38 -	21 =	17	E 750'	13.5		73	178
* = Best Time Ever ...	TOTALS :	—	— —	191 -	83 =	108		729 -	365 =	364	13400'	—		1021	2221
	AVERAGE:	98%	2% 31%	21 -	9 =	12	D	91 -	46 =	46	F 1675'	12.5		11	278
^ = Worst Time Ever	MAXIMUM:	100%	5% 34%	38	14	24		171	75	127	2800'	20.1		208	Worst Dwell
	MINIMUM:	90%	0% 29%	14	5	4		38	21	5	750'	6.4			Worst Link 740
MEAN DEVIATION:	LOADING	2%	LOST DWELL	5sec	LOST LINK 30 sec							25%			
STANDARD DEVIATION:	LOADING	2%	LOST DWELL	6sec	LOST LINK 38 sec							41%			

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.57:.08	<<< :<<<	—
Transit Trip	13,400	6:.12:.08	15 :.00	10.1
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4	=> A	<= .0 - .2	LINK
DWELL	.4 - .8	=> B	<= .2 - .4	LINK
DWELL	.8 -1.2	=> C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=> D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=> E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=> F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=> F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=> F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	24%
ARLI	13%
COPL	8%
AUDI	22%
KENM	14%
BLAN	28%
BU.E	15%
BU.C	18%

16% AVERAGE LINK

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	24%	24%	24%
LINK	15%	19%	22%
EFFICIENCIES	16%	20%	23%
WOULD	22%	22%	25%
BE	17%	21%	25%
....	28%	28%	28%
	16%	20%	23%
	18%	21%	25%
AVERAGE LINK	19%	22%	24%

GAIN IN RIDERS :

...Link Improvements only	19%	38%	50%
...Link & Dwell Improvements	21%	38%	56%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Empty BC train leaves opposite side track for U-turn at 5:55:55. Enters southbound Park St. at 57:08, for a turnaround time of 1:13.

Another LRV one block ahead
Next train LRV-2 14:05 in 14:22 out 1/4 seat
Type 7
Next train through first signal @ BU Bridge 16:35
LRV-2
6 Train units in 4 minutes. Train headway 80 seco
Units spacing 40 seconds.

B O S T O N C O L L E G E OUTBOUND #84 SHK Rider AVER. TRIP SPEED = 11.3 LOS D
.... THURSDAY, MARCH 16, 1989 Typed by: SHK MAR.21, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 4:00 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	12:37-13:12	100%	10% 37%	35 -	14 =	21	D	—	—	—	—	—	131	—
BOYLSTON	14:04-14:17	100%	15% 41%	13 -	10 =	3	A	52 -	42 =	10	B 1500'	19.7	88	202
ARLINGTON	15:51-16:12	100%	19% 43%	21 -	9 =	12	D	94 -	56 =	38	D 2000'	14.5	66	260
COPLEY	17:11-17:42	100%	22% 45%	31 -	11 =	20	E	59 -	44 =	15	B 1600'	18.5	112	740
AUDITORIUM	19:17-19:42	100%	26% 48%	25 -	9 =	16	E	95 -	75 =	20	B 2800'	20.1	85	225
KENMORE	21:15-21:50	100%	30% 51%	35 -	9 =	26	F-	93 -	51 =	42	E 2250'	16.5	208	315
BLANDFORD	22:41-23:40	100%	60% 72%	59 -	5 =	54	F=	51 -	37 =	14	B 1100'	14.7	78	147
B.U.EAST	24:33-25:20	100%	80% 86%	47 -	8 =	39	F=	53 -	39 =	14	B 1400'	18.0	180	154
B.U.CENTRAL	25:57-26:27	100%	90% 93%	30 -	8 =	22	F-	37 -	21 =	16	D 750'	13.8	73	178
* = Best Time Ever ...	TOTALS :	—	— —	296 -	83 =	213		534 -	365 =	169	13400'	—	1021	2221
	AVERAGE:	100%	39% 57%	33 -	9 =	24	F-	67 -	46 =	21	C 1675'	17.1	11	278
^ = Worst Time Ever	MAXIMUM:	100%	90% 93%	59	14	54		95	75	42	2800'	20.1	208	Worst Dwell
	MINIMUM:	100%	10% 37%	13	5	3		37	21	10	750'	13.8		
MEAN DEVIATION:	LOADING 20% LOST DWELL 12sec							LOST LINK 9 sec				11%	Worst	
STANDARD DEVIATION:	LOADING 20% LOST DWELL 14sec							LOST LINK 11 sec				15%	Link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	4:.12:.37	<<< :<<<	—
Transit Trip	13,400	4:.25:.57	13 :.20	11.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4 =>			A <= .0 - .2	LINK
DWELL .4 - .8 =>			B <= .2 - .4	LINK
DWELL .8 -1.2 =>			C <= .4 - .6	LINK
DWELL 1.2 -1.6 =>			D <= .6 - .8	LINK
DWELL 1.6 -2.0 =>			E <= .8 -1.0	LINK
DWELL 2.0 -2.4 =>			F <= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>			F- <= 1.2 -1.5	LINK
DWELL 3.0 or =>			F= <= 1.5 or	LINK
<<<<<<<<<<> more				more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	30%	THE	30% 30%	30%
ARLI	24%	LINK	24% 27%	32%
COPL	32%	EFFICIENCIES	32% 32%	32%
AUDI	36%	WOULD	36% 36%	36%
KENM	26%	BE	26% 32%	37%
BLAN	37%	....	37% 37%	37%
BU.E	53%		53% 53%	53%
BU.C	49%		49% 57%	66%
39%	AVERAGE LINK		39% 41%	44%
GAIN IN RIDERS :				
...Link Improvements only			0% 5%	13%
...Link & Dwell Improvements			14% 25%	37%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Riverside LRV-2 old 3:59:13 in 4:00:04 out
Reservoir LRV-1 new nonstop 00:15
Reservoir LRV-1 new 00:42 in 01:26 out
Boston College LRV-2 new 01:55 in 02:54 out 15 std
(Sign @ front "BU via Comm. Ave." BC sign on side
Cleveland Circle LRV-2 03:15 in 03:45 out
* Riverside LRV-2 old 4:15 in 4:55 out
Riverside Express LRV-2 old empty through train
Brigham Circle LRV-2 new 5:10 in 6:02 out
Reservoir LRV-1 new 6:24 in 7:00 out 25% seated
* Riverside LRV-3 old 6:51 in 7:42 out 25% seated
* Reservoir LRV-1 Express 8:07 through empty
* Cleveland Circle LRV-2 new 8:32 in 8:58 out
* Cleveland Circle LRV-2 new 10:47 in 11:15 out
5 standees
* Riverside LRV-2 new 11:45 in 12:18 out 75% seate
@ B.U.Central LRV-2 in at 29:08

B O S T O N C O L L E G E OUTBOUND #85 SHK Rider AVER. TRIP SPEED = 12.6 LOS C
... TUESDAY, MARCH 21, 1989 Typed by: SHK MAR.21, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 1:30 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) T7	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Riders TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	29:44	30:29	100%	2% 32%	45 -	14 =	31	F	—	—	—	—	—	131	—
BOYLSTON	31:17	31:30	100%	2% 32%	13 -	10 =	3	A	48 -	42 =	6	A 1500'	21.3	88	202
ARLINGTON	32:53	33:17	100%	3% 32%	24 -	9 =	15	E	83 -	56 =	27	C 2000'	16.4	66	260
COPLEY	34:33	35:08	100%	2% 32%	35 -	11 =	24	F	76 -	44 =	32	D 1600'	14.4	112	740
AUDITORIUM	36:36	36:49	100%	3% 32%	13 -	9 =	4	B	88 -	75 =	13	A 2800'	21.7	85	225
KENMORE	38:19	38:37	100%	9% 36%	18 -	9 =	9	C	90 -	51 =	39	D 2250'	17.0	208	315
BLANDFORD	39:16	39:21	100%	11% 38%	5*-	5 =	0*	A	39 -	37 =	2	A 1100'	19.2	78	147
B.U.EAST	40:33	40:49	100%	10% 37%	16 -	8 =	8	C	72 -	39 =	33	E 1400'	13.3	180	154
B.U.CENTRAL	41:44	42:04	100%	12% 39%	20 -	8 =	12	D	55 -	21 =	34	F= 750'	9.3	73	178
* = Best Time Ever ...	TOTALS :		—	— —	189 -	83 =	106		551 -	365 =	186	13400'	—	1021	2221
	AVERAGE:		100%	6% 34%	21 -	9 =	12	D	69 -	46 =	23	C 1675'	16.6	11	278
^ = Worst Time Ever	MAXIMUM:		100%	12% 39%	45	14	31		90	75	39	2800'	21.7	208	Worst Dwell
	MINIMUM:		100%	2% 32%	5	5	0		39	21	2	750'	9.3		
MEAN DEVIATION:			LOADING	3%	LOST DWELL		9sec		LOST LINK		12 sec			17%	Worst
STANDARD DEVIATION:			LOADING	3%	LOST DWELL		10sec		LOST LINK		13 sec			27%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	1:.29:.44	<<< :<<<	—
Transit Trip	13,400	1:.41:.44	12 :.00	12.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4 =>	A	<= .0 - .2	LINK
DWELL	.4 - .8 =>	B	<= .2 - .4	LINK
DWELL	.8 -1.2 =>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	28%
ARLI	22%
COPL	19%
AUDI	27%
KENM	18%
BLAN	34%
BU.E	21%
BU.C	14%

23%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE LINK EFFICIENCIES WOULD BE ....

28%	28%	28%
22%	22%	25%
19%	21%	25%
27%	27%	27%
18%	21%	25%
34%	34%	34%
21%	25%	29%
19%	25%	28%
AVERAGE LINK 23%	25%	28%

GAIN IN RIDERS :

...Link Improvements only	0%	9%	22%
...Link & Dwell Improvements	5%	15%	27%

TRIP NOTES — OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #86 SHK Rider AVER. TRIP SPEED = 10.8 LOS D
..WEDNESDAY, MARCH 29, 1989 Typed by: SHK APR.15, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 5:00 P.M. Checked by: SHK MAY 14, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST.	SPEED MPH	LOS	WORST LINK DWELL	LINK
PARK STREET	00:37-01:08	48%	0% 14%	31 -	14 =	17	D	—	—	—	—	—		131	—
BOYLSTON	02:13-02:35	68%	0% 20%	22 -	10 =	12	D	65 -	42 =	23	1500'	15.7	C	88	202
ARLINGTON	04:33-04:50	68%	0% 20%	17 -	9 =	8	C	118 -	56 =	62	2000'	11.6	F	66	260
COPLEY	07:28-07:51	76%	0% 23%	23 -	11 =	12	C	158 -	44 =	114	1600'	6.9	F=	112	740
AUDITORIUM	09:34-09:49	76%	0% 23%	15 -	9 =	6	B	103 -	75 =	28	2800'	18.5	B	85	225
KENMORE	11:04-11:26	76%	2% 24%	22 -	9 =	13	D	75 -	51 =	24	2250'	20.5	C	208	315
BLANDFORD	12:05-12:32	80%	3% 26%	27 -	5 =	22	F=	39 -	37 =	2	1100'	19.2	A	78	147
B.U.EAST	13:30-13:47	80%	2% 25%	17 -	8 =	9	C	58 -	39 =	19	1400'	16.5	C	180	154
B.U.CENTRAL	14:37-14:54	72%	2% 23%	17 -	8 =	9	C	50 -	21 =	29	750'	10.2	F-	73	178
TOTALS :		—	— —	191 -	83 =	108		666 -	365 =	301	13400'	—		1021	2221
AVERAGE:		72%	1% 22%	21 -	9 =	12	D	83 -	46 =	38	1675'	13.7	E	11	278
MAXIMUM:		80%	3% 26%	31	14	22		158	75	114	2800'	20.5		208	Worst
MINIMUM:		48%	0% 14%	15	5	6		39	21	2	750'	6.9			Dwell
MEAN DEVIATION:		LOADING	3%	LOST DWELL	4sec			LOST LINK	25 sec			28%		Worst	
STANDARD DEVIATION:		LOADING	3%	LOST DWELL	5sec			LOST LINK	33 sec			35%		Link	740

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	5:.00:.37	<<< :<<<	—
Transit Trip	13,400	5:.14:.37	14 :.00	10.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME DWELL		LOS	LOST TIME/BEST LINK
DWELL .0 - .4 =>		A	<= .0 - .2 LINK
DWELL .4 - .8 =>		B	<= .2 - .4 LINK
DWELL .8 -1.2 =>		C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>		D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>		E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>		F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>		F-	<= 1.2 -1.5 LINK
DWELL 3.0 or =>		F=	<= 1.5 or LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	9%
ARLI	9%
COPL	6%
AUDI	17%
KENM	16%
BLAN	23%
BU.E	17%
BU.C	11%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	9%	9%	11%
LINK	11%	13%	15%
EFFICIENCIES	11%	13%	15%
WOULD	17%	17%	17%
BE	16%	16%	18%
....	23%	23%	23%
	17%	17%	20%
	13%	17%	19%

12% AVERAGE LINK 14% 15% 17%

GAIN IN RIDERS :

...Link Improvements only	17%	25%	42%
...Link & Dwell Improvements	12%	21%	36%

TRIP NOTES — OTHER TRAINS AND COMMENTS

Cleveland Circle 5:00:11 LRV-2 out
Brigham Circle 00:45 out
Boston College train had a squeaky center joint

At BU Central, an LRV-2 was directly ahead.

B O S T O N C O L L E G E OUTBOUND #87 SHK Rider AVER. TRIP SPEED = 11.7 LOS C
...WEDNESDAY, APRIL 12, 1989 Typed by: SHK APR.15, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 6:10 P.M. Checked by: SHK MAY 15, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Riders TOTAL	DWELL TIME L MEAS sec.	BEST TIME	LOST TIME	O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	12:10	12:55	100%	10% 37%	45	14	= 31	F	—	—	—		—	—	131	—
BOYLSTON	13:48	14:10	100%	20% 44%	22	10	= 12	D	53	42	= 11	B	1500'	19.3	88	202
ARLINGTON	15:54	16:20	100%	22% 45%	26	9	= 17	E	104	56	= 48	E	2000'	13.1	66	260
COPLEY	17:20	17:50	100%	28% 50%	30	11	= 19	E	60	44	= 16	B	1600'	18.2	112	740
AUDITORIUM	19:32	19:58	100%	31% 52%	26	9	= 17	E	102	75	= 27	B	2800'	18.7	85	225
KENMORE	21:32	21:57	100%	34% 54%	25	9	= 16	E	94	51	= 43	E	2250'	16.3	208	315
BLANDFORD	22:39	23:03	100%	36% 55%	24	5	= 19	F=	42	37	= 5	A	1100'	17.9	78	147
B.U.EAST	24:09	24:32	100%	41% 59%	23	8	= 15	E	66	39	= 27	D	1400'	14.5	180	154
B.U.CENTRAL	25:05	25:25	100%	45% 62%	20	8	= 12	D	33	21	= 12	C	750'	15.5	73	178
* = Best Time Ever ...	TOTALS :	—	—	—	241	83	=158		554	365	=189		13400'	—	1021	2221
^ = Worst Time Ever	AVERAGE:	100%	30%	51%	27	9	= 18	E	69	46	= 24	C	1675'	16.5	11	278
	MAXIMUM:	100%	45%	62%	45	14	31		104	75	48		2800'	19.3	208	Worst Dwell
	MINIMUM:	100%	10%	37%	20	5	12		33	21	5		750'	13.1		
MEAN DEVIATION:	LOADING	7%	LOST DWELL	4sec	LOST LINK 13 sec									10%	Worst	
STANDARD DEVIATION:	LOADING	7%	LOST DWELL	5sec	LOST LINK 15 sec									15%	Link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	6:.12:.10	<<< :<<<	—
Transit Trip	13,400	6:.25:.05	12 :.55	11.7
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST	
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<> more				more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	29%
ARLI	24%
COPL	33%
AUDI	37%
KENM	28%
BLAN	48%
BU.E	33%
BU.C	38%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	29%	29%	29%
LINK	24%	29%	34%
EFFICIENCIES	33%	33%	33%
WOULD	37%	37%	37%
BE	28%	35%	40%
....	48%	48%	48%
	33%	37%	42%
	38%	38%	45%

34% AVERAGE LINK 34% 37% 39%

GAIN IN RIDERS :
...Link Improvements only 0% 9% 15%
...Link & Dwell Improvements 4% 17% 30%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

@ BU Central, no outbound trains in sight.

B O S T O N C O L L E G E OUTBOUND #88 SHK Rider AVER. TRIP SPEED = 12.5 LOS C
.. FRIDAY, APRIL 14, 1989 Typed by: SHK APR.15, 89 Previous Worst = 4.8 LOS F=
..Begin Trip 3:00 P.M. Checked by: SHK MAY 15, 89 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	02:33-03:04	56%	0% 17%	31 - 14 = 17 D	— — — — —	131 —
BOYLSTON	03:57-04:10	68%	0% 20%	13 - 10 = 3 A	53 - 42 = 11 B 1500' 19.3	88 202
ARLINGTON	06:18-06:38	68%	0% 20%	20 - 9 = 11 D	128 - 56 = 72 F- 2000' 10.7	66 260
COPLEY	07:32-07:55	72%	0% 22%	23 - 11 = 12 C	54 - 44 = 10 B 1600' 20.2	112 740
AUDITORIUM	09:24-09:39	80%	0% 24%	15 - 9 = 6 B	89 - 75 = 14 A 2800' 21.5	85 225
KENMORE	11:08-11:27	100%	9% 36%	19 - 9 = 10 C	89 - 51 = 38 D 2250' 17.2	208 315
BLANDFORD	12:07-12:35	100%	28% 50%	28 - 5 = 23 F=	40 - 37 = 3 A 1100' 18.8	78 147
B.U.EAST	13:30-13:47	100%	34% 54%	17 - 8 = 9 C	55 - 39 = 16 C 1400' 17.4	180 154
B.U.CENTRAL	14:39-15:01	100%	35% 55%	22 - 8 = 14 E	52 - 21 = 31 F- 750' 9.8	73 178
* = Best Time Ever ...	TOTALS :	— — —	188 - 83 =105	560 -365 =195	13400' —	1021 2221
^ = Worst Time Ever	AVERAGE:	83% 12% 33%	21 - 9 = 12 D	70 - 46 = 24 C	1675' 16.3	11 278
	MAXIMUM:	100% 35% 55%	31 14 23	128 75 72	2800' 21.5	208Worst
	MINIMUM:	56% 0% 17%	13 5 3	40 21 3	750' 9.8	Dwell
MEAN DEVIATION:	LOADING 16% LOST DWELL 5sec			LOST LINK 17 sec	20%	Worst
STANDARD DEVIATION:	LOADING 15% LOST DWELL 6sec			LOST LINK 21 sec	26%	Link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	—
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	—	3:.02:.33	<<< :<<<	—
Transit Trip	13,400	3:.14:.39	12 :.06	12.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME	LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2 LINK
DWELL .4 - .8 =>	B	<= .2 - .4 LINK
DWELL .8 -1.2 =>	C	<= .4 - .6 LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8 LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0 LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2 LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5 LINK
DWELL 3.0 or =>	F=	<= 1.5 or LINK
<<<<<<<<<<> more		more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	13%
ARLI	9%
COPL	16%
AUDI	19%
KENM	14%
BLAN	33%
BU.E	35%
BU.C	22%
	22%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	13% 13% 13%	
LINK	11% 13% 15%	
EFFICIENCIES	16% 16% 16%	
WOULD	19% 19% 19%	
BE	14% 16% 18%	
....	33% 33% 33%	
	35% 35% 38%	
	28% 36% 42%	
AVERAGE LINK	23% 25% 27%	

GAIN IN RIDERS :
...Link Improvements only 5% 14% 23%
...Link & Dwell Improvements 8% 17% 27%

TRIP NOTES — OTHER TRAINS AND COMMENTS

AT PARK STREET :
Boston College LRV-1 new 2:56:20 out
Reservoir LRV-1 new 56:45 out
Brigham Circle LRV-2 new 57:00 in 57:38 out
Riverside LRV-2 new 57:32 in 58:30 out
stopped at Boston College platform
(Boston College LRV-2 old stopped on inbd.platform
Reservoir LRV-1 new 00:45 in 01:20 out
Cleveland Circle LRV-2 new 01:04 in 01:30 out
Reservoir LRV-2 old 02:05 in

At BU Central, no other outbound trains in sight.

B O S T O N C O L L E G E OUTBOUND #89 SHK Rider AVER. TRIP SPEED = 11.8 LOS C
TUESDAY, JUNE 13, 1989 Typed by: SHK FEB.26, 90 Previous Worst = 4.8 LOS F-
..Begin Trip 6:15 P.M. Checked by: SHK FEB.26, 90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (one) T7	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST sec. TIME TIME	DIST.	LOS	SPEED MPH	WORST LINK DWELL
PARK STREET	12:14-	13:26	100% 10%	37%	72 - 14 = 58 F=	— — —			—	131 --
BOYLSTON	14:19-	14:40	100% 10%	37%	21 - 10 = 11 C	53 - 42 = 11	1500'	B	19.3	88 202
ARLINGTON	16:19-	16:43	100% 20%	44%	24 - 9 = 15 E	99 - 56 = 43	2000'	D	13.8	66 260
COPLEY	17:48-	18:16	100% 40%	58%	28 - 11 = 17 D	65 - 44 = 21	1600'	C	16.8	112 740
AUDITORIUM	19:51-	20:12	100% 25%	48%	21 - 9 = 12 D	95 - 75 = 20	2800'	B	20.1	85 225
KENMORE	21:39-	22:08	100% 10%	37%	29 - 9 = 20 F	87 - 51 = 36	2250'	D	17.6	208 315
BLANDFORD	22:56-	23:15	100% 9%	36%	19 - 5 = 14 F-	48 - 37 = 11	1100'	B	15.6	78 147
B.U.EAST	24:05-	24:26	100% 7%	35%	21 - 8 = 13 E	50 - 39 = 11	1400'	B	19.1	180 154
B.U.CENTRAL	24:59-	25:17	100% 7%	35%	18 - 8 = 10 D	33 - 21 = 12	750'	C	15.5	73 178
TOTALS :	—	—	—		253 - 83 =170	530 -365 =165	13400'		—	1021 222
AVERAGE:	100%	15%	41%		28 - 9 = 19 F	66 - 46 = 21	1675'	C	17.2	11 278
MAXIMUM:	100%	40%	58%		72 14 58	99 75 43	2800'		20.1	208Worst
MINIMUM:	100%	7%	35%		18 5 10	33 21 11	750'		13.8	dwell
MEAN DEVIATION:	LOADING	7%	LOST DWELL	10sec		LOST LINK 10 sec			9%	Worst
STANDARD DEVIATION:	LOADING	7%	LOST DWELL	14sec		LOST LINK 12 sec			13%	link 740

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	—	<:<<<:<<<	—	--
Arrive Platform	2,500	6:.06:.44	<<< :<<<	<<<<<
Train Arrives	—	6:.12:.14	5 :.30	—
Transit Trip	13,400	6:.24:.59	12 :.45	11.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL .0 - .4	=>	A	<= .0 - .2	LINK
DWELL .4 - .8	=>	B	<= .2 - .4	LINK
DWELL .8 -1.2	=>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more	

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK -			
BOYL 29%	THE	29% 29%	29%
ARLI 21%	LINK	21% 25%	28%
COPL 30%	EFFICIENCIES	30% 30%	34%
AUDI 46%	WOULD	46% 46%	46%
KENM 28%	BE	28% 32%	37%
BLAN 29%	....	29% 29%	29%
BU.E 28%		28% 28%	28%
BU.C 22%		22% 22%	27%
28%	AVERAGE LINK	28% 30%	32%
GAIN IN RIDERS :			
...Link Improvements only		0% 7%	14%
...Link & Dwell Improvements		12% 19%	33%

TRIP NOTES — OTHER TRAINS AND COMMENTS

A Boston College LRV-1 was initially waiting afte
a long stop. It left at 6:06:44.
Boston College LRV-1 07:00 in 07:49 out
Riverside LRV-2 in/out 6:08
Cleve Circle LRV-2 09:11 in 09:50 out
Brigham Circle LRV-2 11:29 in
Boston College car entered 12:14 saying
"Boston University" on its front sign.
The dispatcher said it would go to Packer's Corne

B O S T O N C O L L E G E OUTBOUND #90 SHK Rider AVER. TRIP SPEED = 10.0 LOS E
WEDNESDAY, JUNE 21, 1989 Typed by: SHK FEB.26, 90 Previous Worst = 4.8 LOS F-
..Begin Trip 6:05 P.M. Checked by: SHK FEB.26, 90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) T7	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS		TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	STATION-STATION or "LINK" DIST. LOS	STATION-STATION or "LINK" SPEED MPH	WORST LINK DWELL	
PARK STREET	05:50	06:26	100%	9%	36%	36	14	22	D	--	--	--	--	--	131	--
BOYLSTON	07:46	08:03	100%	9%	36%	17	10	7	B	80	42	38	E 1500'	12.8	88	202
ARLINGTON	09:59	10:19	100%	9%	36%	20	9	11	D	116	56	60	F 2000'	11.8	66	260
COPLEY	11:55	12:27	100%	9%	36%	32	11	21	E	96	44	52	F 1600'	11.4	112	740
AUDITORIUM	14:38	15:01	100%	10%	37%	23	9	14	D	131	75	56	D 2800'	14.6	85	225
KENMORE	17:02	17:36	100%	2%	32%	34	9	25	F-	121	51	70	F- 2250'	12.7	208	315
BLANDFORD	18:27	18:50	100%	5%	34%	23	5	18	F=	51	37	14	B 1100'	14.7	78	147
B.U.EAST	19:51	20:00	100%	7%	35%	9	8	1	A	61	39	22	C 1400'	15.6	180	154
B.U.CENTRAL	20:56	21:13	100%	7%	35%	17	8	9	C	56	21	35	F= 750'	9.1	73	178
TOTALS :	--	--	--			211	83	128		712	365	347	13400'	--	1021	222
AVERAGE:	100%	7%	35%			23	9	14	D	89	46	43	E 1675'	12.8	11	278
MAXIMUM:	100%	10%	37%			36	14	25		131	75	70	2800'	15.6	208	Worst dwell
MINIMUM:	100%	2%	32%			9	5	1		51	21	14	750'	9.1		
MEAN DEVIATION:	LOADING	1%				LOST DWELL	7sec			LOST LINK 16 sec				11%	Worst link	740
STANDARD DEVIATION:	LOADING	1%				LOST DWELL	7sec			LOST LINK 18 sec				17%		

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	6:.05:.00	<<< :<<<	<<<<<
Train Arrives	--	6:.05:.50	0 :.50	--
Transit Trip	13,400	6:.20:.56	15 :.06	10.0
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST TIME		
DWELL .0 - .4 =>			A	<= .0 - .2		LINK
DWELL .4 - .8 =>			B	<= .2 - .4		LINK
DWELL .8 -1.2 =>			C	<= .4 - .6		LINK
DWELL 1.2 -1.6 =>			D	<= .6 - .8		LINK
DWELL 1.6 -2.0 =>			E	<= .8 -1.0		LINK
DWELL 2.0 -2.4 =>			F	<= 1.0 -1.2		LINK
DWELL 2.4 -3.0 =>			F-	<= 1.2 -1.5		LINK
DWELL 3.0 or =>			F=	<= 1.5 or		LINK
<<<<<<<<<<< more				more		

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	19%	THE	19%	24% 28%
ARLI	17%	LINK	19%	24% 28%
COPL	17%	EFFICIENCIES	19%	24% 28%
AUDI	21%	WOULD	21%	24% 28%
KENM	16%	BE	19%	25% 28%
BLAN	23%	....	23%	23% 23%
BU.E	22%		22%	22% 26%
BU.C	13%		18%	23% 27%
18%	AVERAGE LINK		20%	23% 27%

GAIN IN RIDERS :

...Link Improvements only	11%	28%	50%
...Link & Dwell Improvements	12%	32%	53%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Cleveland Circle : LRV-2 6:05:23 out
At B.U. Central, the next train was a new dual LRV. It went express through and didn't seem occupied.
Another new LRV-1 arrived at 6:24:22. The car was fully loaded.

B O S T O N C O L L E G E OUTBOUND #91 SHK Rider AVER. TRIP SPEED = 7.6 LOS F-
..WEDNESDAY, AUGUST 9, 1989 Typed by: SHK JUN.16,'90 Previous Worst = 4.8 LOS F-
..Begin Trip 4:30 P.M. Checked by: SHK JUN.16,'90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 6.15 ===1990==========

2.5 MILES 9 STATIONS LRV (two) #7	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	32:30-34:46	100%	2% 32%	136^-	14	=122^F=		--	--	--	--	--	131	--
BOYLSTON	35:36-35:54	100%	0% 30%	18 -	10	= 8	C	50 -	42	= 8	A 1500'	20.5	88	202
ARLINGTON	37:24-37:46	100%	3% 32%	22 -	9	= 13	D	90 -	56	= 34	D 2000'	15.2	66	260
COPLEY	38:38-39:03	100%	5% 34%	25 -	11	= 14	D	52 -	44	= 8	A 1600'	21.0	112	740
AUDITORIUM	40:26-40:42	100%	7% 35%	16 -	9	= 7	B	83 -	75	= 8	A 2800'	23.0	85	225
KENMORE	44:27-44:47	80%	3% 26%	20 -	9	= 11	D	225 -	51	=174	F= 2250'	6.8	208	315
BLANDFORD	45:23-45:37	80%	3% 26%	14 -	5	= 9	E	36 -	37	= 0	0 1100'	20.8	78	147
B.U.EAST	46:29-49:55	80%	3% 26%	206^-	8	=198^F=		52 -	39	= 13	B 1400'	18.4	180	154
B.U.CENTRAL	52:22-52:41	80%	0% 24%	19 -	8	= 11	D	147 -	21	=126	F= 750'	3.5	73	178
* = Best Time Ever ...	TOTALS :	--	-- --	476 -	83	=393		735 -	365	=370	13400'	--	1021	2221
	AVERAGE:	91%	3% 29%	53 -	9	= 44	F=	92 -	46	= 46	F 1675'	12.4	11	278
^ = Worst Time Ever	MAXIMUM:	100%	7% 35%	206	14	198		225	75	174	2800'	23.0	208	Worst dwell
	MINIMUM:	80%	0% 24%	14	5	7		36	21	0	750'	3.5		
~~	MEAN DEVIATION:	LOADING	4%	LOST DWELL	58sec			LOST LINK	52 sec			53%	Worst	
	STANDARD DEVIATION:	LOADING	4%	LOST DWELL	65sec			LOST LINK	62 sec			ERRO%	link	740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	4:.04:.00	<<< :<<<	<<<<<
Train Arrives	--	4:.32:.30	28 :.30	--
Transit Trip	13,400	4:.52:.22	19 :.52	7.6
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME			LOS	LOST TIME/BEST	
DWELL	.0 - .4	=>	A	<= .0 - .2	LINK
DWELL	.4 - .8	=>	B	<= .2 - .4	LINK
DWELL	.8 -1.2	=>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6	=>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0	=>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4	=>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0	=>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or	=>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more				more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	27%
ARLI	19%
COPL	27%
AUDI	31%
KENM	8%
BLAN	27%
BU.E	20%
BU.C	4%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE	27%	27%	27%
LINK	19%	20%	23%
EFFICIENCIES	27%	27%	27%
WOULD	31%	31%	31%
BE	18%	23%	27%
....	27%	27%	27%
	20%	20%	20%
	14%	17%	20%

14% AVERAGE LINK 21% 23% 24%

GAIN IN RIDERS :

...Link Improvements only	50%	64%	71%
...Link & Dwell Improvements	76%	90%	<<<

TRIP NOTES -- OTHER TRAINS AND COMMENTS

This trip involved a mis-labeled train and a return to Park Street to obtain a continuous record for a Boston College trip. The train taken at 4:11 was actualy a Brigham Circle car which said "Boston College" on the front.
Beacon LRV-2#7 06:24 in 7:15 out at Park Street
Riverside LRV-2 7:40 in 8:33 out
Cleveland Circle LRV-2 9:10 in 9:38 out
Boston College"/Cleve.Circ. LRV-2#7 11:15 in 12:10 out 25% standees
* * * * * TRAIN BREAKDOWN * * * * * * * *
Train breakdown at BU Central 51:10 out with maintenance truck escort.
Next BC LRV-2 out at 52:00 with 10 standees.

B O S T O N C O L L E G E OUTBOUND #92 SHK Rider AVER. TRIP SPEED = 4.3 LOS F=
.... FRIDAY, DECEMBER 1, 1989 Typed by: SHK JUN.15,'90 Previous Worst = 4.8 LOS F-
..Begin Trip 5:25 P.M. Checked by: SHK JUN.15,'90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 6.15 ===1990==========

2.5 MILES 9 STATIONS LRV (two) BV	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME L MEAS BEST LOST O sec. TIME TIME S	STATION-STATION or "LINK" MEAS BEST LOST DIST. SPEED sec. TIME TIME LOS MPH	WORST LINK DWELL
PARK STREET	23:49-25:08	100% 95% 97%		79 - 14 = 65 F=	-- -- -- -- --	131 --
BOYLSTON	26:09-26:40	100% 97% 98%		31 - 10 = 21 F	61 - 42 = 19 C 1500' 16.8	88 202
ARLINGTON	28:53-29:43	100% 98% 99%		50 - 9 = 41 F=	133 - 56 = 77 F- 2000' 10.3	66 260
COPLEY	30:53-32:11	100%100%100%		78 - 11 = 67 F=	70 - 44 = 26 C 1600' 15.6	112 740
AUDITORIUM	34:04-34:58	100% 97% 98%		54 - 9 = 45 F=	113 - 75 = 38 C 2800' 16.9	85 225
KENMORE	36:41-53:05	100% 95% 97%		984^- 9 =975^F=	103 - 51 = 52 F 2250' 14.9	208 315
BLANDFORD	54:16-55:03	100% 98% 99%		47 - 5 = 42 F=	71 - 37 = 34 E 1100' 10.6	78 147
B.U.EAST	56:48-57:20	100% 98% 99%		32 - 8 = 24 F=	105 - 39 = 66 F= 1400' 9.1	180 154
B.U.CENTRAL	58:12-58:53	100% 97% 98%		41 - 8 = 33 F=	52 - 21 = 31 F- 750' 9.8	73 178
* = Best Time Ever ...	TOTALS :	-- -- --	1396 - 83 =1313		708 -365 =343 13400' --	1021 22?
	AVERAGE:	100% 97% 98%	155 - 9 =146		89 - 46 = 43 E 1675' 12.9	11 27?
^ = Worst Time Ever	MAXIMUM:	100%100%100%	984 14 975		133 75 77 2800' 16.9	208Worst dwel.
	MINIMUM:	100% 95% 97%	31 5 21		52 21 19 750' 9.1	
~~	MEAN DEVIATION:	LOADING 1%	LOST DWELL207sec		LOST LINK 17 sec 21%	Worst
	STANDARD DEVIATION:	LOADING 1%	LOST DWELL294sec		LOST LINK 19 sec 29%	link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	<:<<<:<<<	<<< :<<<	<<<<<
Train Arrives	--	5:.23:.49	<<< :<<<	--
Transit Trip	13,400	5:.58:.12	34 :.23	4.3
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

LOST TIME/BEST TIME			LOS	LOST TIME/BEST
DWELL	.0 - .4 =>	A	<= .0 - .2	LINK
DWELL	.4 - .8 =>	B	<= .2 - .4	LINK
DWELL	.8 -1.2 =>	C	<= .4 - .6	LINK
DWELL	1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL	1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL	2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL	2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL	3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<<	more			more

LEVEL OF SERVICE CRITERIA

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	67%	THE	67% 67% 75%	
ARLI	41%	LINK	52% 65% 75%	
COPL	62%	EFFICIENCIES	62% 62% 76%	
AUDI	66%	WOULD	66% 66% 77%	
KENM	49%	BE	52% 65% 75%	
BLAN	51%	....	51% 65% 75%	
BU.E	37%		52% 66% 76%	
BU.C	40%		52% 66% 76%	
51%	AVERAGE LINK		57% 65% 75%	

GAIN IN RIDERS :
...Link Improvements only 12% 27% 47%
...Link & Dwell Improvements 31% 54% 81%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

This trip was one of the most embarrassing snafus ever observed on the Green Line. At Kenmore the train went the wrong way at the approach switch and ended up on the Riverside/Cleveland Circle platform. The motorman appear young and inexperienced, so platform personnel made the decision to redesignate the train for Cleveland Circle, meaning all passengers had to get off and wait for the next Boston College train.

Another Cleveland Circle train came in at 6:41:00 and left at 41:25, and a Riverside train passed trought at 41:39 in and 42:13 out.

Another Riverside LRV-1 went through with lights out at 6:47:00.

The next Boston College train arrived at48:25 and left over 2 minutes later at 50:35 -- jammed

A Riverside LRV-2 BV arrived at 48:55 and lef at 49:46. Cleveland Cir. LRV-1 in 50:14, out 51:0?

At BUEast, the next train arrived at 59:20, anot at 6:00:00, and 2 more (total 3 units) at 6:03.

B O S T O N C O L L E G E OUTBOUND #93 SHK Rider AVER. TRIP SPEED = 9.8 LOS E
WEDNESDAY, FEBRUARY 21, 1990 Typed by: SHK FEB.21, 90 Previous Worst = 4.8 LOS F-
..Begin Trip 5:45 P.M. Checked by: SHK JUN.14, 90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) T7	STATION TIME IN	STATION TIME OUT	Max166 Riders 50\ STAND SEATS	Riders TOTAL	DWELL TIME MEAS sec.	DWELL TIME BEST TIME	DWELL TIME LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	STATION-STATION or "LINK" BEST TIME	STATION-STATION or "LINK" LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	WORST LINK
PARK STREET	43:42	44:20	100%	14% 40%	38	14	= 24	E	--	--	--	--	--	--	131	--
BOYLSTON	45:46	46:01	100%	16% 41%	15	10	= 5	B	86	42	= 44	F	1500'	11.9	88	202
ARLINGTON	48:45	49:17	100%	31% 52%	32	9	= 23	F-	164	56	=108	F=	2000'	8.3	66	260
COPLEY	50:18	50:47	100%	38% 57%	29	11	= 18	E	61	44	= 17	B	1600'	17.9	112	740
AUDITORIUM	52:11	52:38	100%	33% 53%	27	9	= 18	F	84	75	= 9	A	2800'	22.7	85	225
KENMORE	54:03	54:40	100%	80% 86%	37	9	= 28	F=	85	51	= 34	D	2250'	18.0	208	315
BLANDFORD	55:20	56:45	100%	80% 86%	85^	5	= 80^	F=	40	37	= 3	A	1100'	18.8	78	147
B.U.EAST	57:48	58:27	100%	80% 86%	39	8	= 31	F=	63	39	= 24	D	1400'	15.2	180	154
B.U.CENTRAL	59:05	59:43	100%	100% 100%	38	8	= 30	F=	38	21	= 17	E	750'	13.5	73	178
TOTALS :	--	--	--	--	340	83	=257		621	-365	=256		13400'	--	1021	222
AVERAGE:	100%	52%	67%		38	9	= 29	F=	78	46	= 32	D	1675'	14.7	11	278
MAXIMUM:	100%	100%	100%		85	14	80		164	75	108		2800'	22.7	208	Worst dwell
MINIMUM:	100%	14%	40%		15	5	5		38	21	3		750'	8.3		
MEAN DEVIATION:	LOADING 23%				LOST DWELL 14sec				LOST LINK 23 sec					22%	Worst	
STANDARD DEVIATION:	LOADING 21%				LOST DWELL 20sec				LOST LINK 31 sec					30%	link 740	

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	5:.40:.00	<<< :<<<	<<<<<
Train Arrives	--	5:.43:.42	3 :.42	--
Transit Trip	13,400	5:.59:.05	15 :.23	9.8
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL			LOS	LOST TIME/BEST LINK		
.0	- .4	=>	A	<= .0	- .2	
.4	- .8	=>	B	<= .2	- .4	
.8	-1.2	=>	C	<= .4	- .6	
1.2	-1.6	=>	D	<= .6	- .8	
1.6	-2.0	=>	E	<= .8	-1.0	
2.0	-2.4	=>	F	<= 1.0	-1.2	
2.4	-3.0	=>	F-	<= 1.2	-1.5	
3.0	or	=>	F=	<= 1.5	or	
<<<<<<<<<<<	more				more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP

PARK	-
BOYL	20%
ARLI	14%
COPL	38%
AUDI	51%
KENM	32%
BLAN	80%
BU.E	53%
BU.C	48%

SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

THE		21%	27% 31%
LINK		22%	27% 32%
EFFICIENCIES		38%	38% 38%
WOULD		51%	51% 51%
BE		32%	35% 41%
....		80%	80% 80%
		53%	57% 66%
		48%	57% 66%

.39% AVERAGE LINK 44% 49% 54%

GAIN IN RIDERS :
...Link Improvements only 13% 26% 38%
...Link & Dwell Improvements
29% 47% 65%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

B O S T O N C O L L E G E OUTBOUND #94 SHK Rider AVER. TRIP SPEED = 10.4 LOS D
.... MONDAY, JUNE 4, 1990 Typed by: SHK JUN.14, 90 Previous Worst = 4.8 LOS F-
..Begin Trip 4:45 P.M. Checked by: SHK JUN.14, 90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 4.16 ===1989==========

2.5 MILES 9 STATIONS LRV (two) #7	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	L O S	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	DIST. LOS	SPEED MPH	WORST LINK DWELL	
PARK STREET	43:12-43:55	100%	17%	42%	43	14	29	F	--	--	--	--	--	131	--
BOYLSTON	45:12-45:33	100%	26%	48%	21	10	11	C	77	42	35	E	1500' 13.3	88	202
ARLINGTON	47:27-47:50	100%	34%	54%	23	9	14	D	114	56	58	F	2000' 12.0	66	260
COPLEY	48:46-49:10	100%	34%	54%	24	11	13	C	56	44	12	B	1600' 19.5	112	740
AUDITORIUM	50:50-51:42	100%	42%	59%	52	9	43	F=	100	75	25	B	2800' 19.1	85	225
KENMORE	52:58-53:21	100%	95%	97%	23	9	14	D	76	51	25	C	2250' 20.2	208	315
BLANDFORD	54:10-55:21	100%	95%	97%	71	5	66	F=	49	37	12	B	1100' 15.3	78	147
B.U.EAST	56:23-57:05	100%	100%	100%	42	8	34	F=	62	39	23	C	1400' 15.4	180	154
B.U.CENTRAL	57:42-58:18	100%	100%	100%	36	8	28	F=	37	21	16	D	750' 13.8	73	178
* = Best Time Ever ...	TOTALS :	--	--	--	335	83	252		571	365	206		13400' --	1021	222
	AVERAGE:	100%	60%	72%	37	9	28	F=	71	46	26	C	1675' 16.0	11	278
^ = Worst Time Ever	MAXIMUM:	100%	100%	100%	71	14	66		114	75	58		2800' 20.2	208	Worst dwell
	MINIMUM:	100%	17%	42%	21	5	11		37	21	12		750' 12.0		
MEAN DEVIATION:	LOADING 26% LOST DWELL 15sec								LOST LINK 11 sec				15%	Worst	
STANDARD DEVIATION:	LOADING 24% LOST DWELL 17sec								LOST LINK 14 sec				19%	link 740	

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	4:.40:.00	<<< :<<<	<<<<<
Train Arrives	--	4:.43:.12	3 :.12	--
Transit Trip	13,400	4:.57:.42	14 :.30	10.4
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4	=>	A	<= .0	- .2	LINK
DWELL	.4	- .8	=>	B	<= .2	- .4	LINK
DWELL	.8	-1.2	=>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6	=>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0	=>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4	=>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or	=>	F=	<= 1.5	or	LINK
<<<<<<<<<<<	more					more	

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	23%	THE	23% 28% 32%	
ARLI	24%	LINK	25% 32% 37%	
COPL	42%	EFFICIENCIES	42% 42% 42%	
AUDI	41%	WOULD	41% 41% 41%	
KENM	40%	BE	40% 40% 45%	
BLAN	73%	....	73% 73% 73%	
BU.E	61%		61% 61% 75%	
BU.C	57%		57% 67% 77%	
46%	AVERAGE LINK		47% 50% 55%	

GAIN IN RIDERS :
...Link Improvements only 2% 9% 20%
...Link & Dwell Improvements 19% 30% 47%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

4:40 PM Riverside out ...
4:40 PM Cleveland Circle in 4:41 out

At Kenmore, observed 40 standees also represented about 95% standees, for 1/2 the car. This implies a standee capacity of 42, plus 25 seats per 1/2 LRV, or LRV unit capacity of 135, rather than previous estimates of 166. Special focus was placed on crowding around the doorways, as the key capacity measure -- even though there was unutilized standing room around the middle of the train and/or the ends.

B O S T O N C O L L E G E OUTBOUND #95 SHK Rider AVER. TRIP SPEED = 14.5 LOS B
...THURSDAY, JUNE 14, 1990 Typed by: SHK JUN.15,'90 Previous Worst = 4.8 LOS F-
..Begin Trip 7:00 P.M. Checked by: SHK JUN.15,'90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 6.15 ===1990==========

2.5 MILES 9 STATIONS LRV (two) #7	STATION TIME IN	OUT	Max166 Riders 50\ STAND SEATS	TOTAL	DWELL TIME MEAS sec.	BEST TIME	LOST TIME	LOS	STATION-STATION or "LINK" MEAS sec.	BEST TIME	LOST TIME	LOS	DIST.	SPEED MPH	WORST LINK DWELL	
PARK STREET	02:08	02:43	24%	0% 7%	35	14	21	D	--	--	--		--	--	131	--
BOYLSTON	03:39	03:54	32%	0% 10%	15	10	5	B	56	42	14	B	1500'	18.3	88	202
ARLINGTON	05:28	05:43	36%	0% 11%	15	9	6	B	94	56	38	D	2000'	14.5	66	260
COPLEY	06:34	06:51	32%	2% 11%	17	11	6	B	51	44	7	A	1600'	21.4	112	740
AUDITORIUM	08:15	08:32	64%	0% 19%	17	9	8	C	84	75	9	A	2800'	22.7	85	225
KENMORE	09:55	10:10	52%	0% 16%	15	9	6	B	83	51	32	D	2250'	18.5	208	315
BLANDFORD	10:50	11:01	52%	0% 16%	11	5	6	D	40	37	3	A	1100'	18.8	78	147
B.U.EAST	11:54	12:03	52%	0% 16%	9	8	1	A	53	39	14	B	1400'	18.0	180	154
B.U.CENTRAL	12:33	12:46	44%	0% 13%	13	8	5	B	30	21	9	C	750'	17.0	73	178
TOTALS :	--	--	--		147	83	64		491	365	126		13400'	--	1021	2221
AVERAGE:	43%	0%	13%		16	9	7	B	61	46	16	B	1675'	18.6	11	278
MAXIMUM:	64%	2%	19%		35	14	21		94	75	38		2800'	22.7	208	Worst dwell
MINIMUM:	24%	0%	7%		9	5	1		30	21	3		750'	14.5		
MEAN DEVIATION:	LOADING	4%			LOST DWELL	4sec			LOST LINK 10 sec					8%	Worst	
STANDARD DEVIATION:	LOADING	4%			LOST DWELL	5sec			LOST LINK 12 sec					13%	link 740	

* = Best Time Ever ...
^ = Worst Time Ever .....

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	6:.58:.00	<<< :<<<	<<<<<
Train Arrives	--	7:.02:.08	4 :.08	--
Transit Trip	13,400	7:.12:.33	10 :.25	14.5
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LEVEL OF SERVICE CRITERIA

LOST TIME/BEST TIME DWELL				LOS	LOST TIME/BEST LINK		
DWELL	.0	- .4	=>	A	<= .0	- .2	LINK
DWELL	.4	- .8	=>	B	<= .2	- .4	LINK
DWELL	.8	-1.2	=>	C	<= .4	- .6	LINK
DWELL	1.2	-1.6	=>	D	<= .6	- .8	LINK
DWELL	1.6	-2.0	=>	E	<= .8	-1.0	LINK
DWELL	2.0	-2.4	=>	F	<= 1.0	-1.2	LINK
DWELL	2.4	-3.0	=>	F-	<= 1.2	-1.5	LINK
DWELL	3.0	or	=>	F=	<= 1.5	or	LINK
<<<<<<<<<<<	more					more	

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-			
BOYL	5%	5%	5%	5%
ARLI	6%	6%	7%	8%
COPL	9%	9%	9%	9%
AUDI	10%	10%	10%	10%
KENM	12%	12%	13%	15%
BLAN	15%	15%	15%	15%
BU.E	12%	12%	12%	12%
BU.C	11%	11%	11%	12%

THE LINK EFFICIENCIES WOULD BE ....

10% AVERAGE LINK 10% 10% 11%

GAIN IN RIDERS :
...Link Improvements only 0% 0% 10%
...Link & Dwell Improvements 5% 8% 13%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

6:59:10 Riverside LRV-2 #7 leaves on left side track.
59:58 Cleveland Circle LRV-2 #7 arrives on left side track. 7:00:36 leaves with 1/3 seated passengers.
01:50 Heath Street train arrives.

B O S T O N C O L L E G E OUTBOUND #96 SHK Rider AVER. TRIP SPEED = 12.9 LOS C
...THURSDAY, JUNE 21, 1990 Typed by: SHK JUN.25,'90 Previous Worst = 4.8 LOS F-
..Begin Trip 5 50 P.M. Checked by: SHK JUN.25,'90 Previous Best = 17.6 LOS A
==T===R===A===I===N=====M===A===S===T===E===R=====V=e=r=s=i=o=n= 6.15 ===1990==========

2.5 MILES 9 STATIONS LRV (two) #7	STATION TIME IN OUT	Max166 Riders 50\ STAND SEATS TOTAL	DWELL TIME MEAS BEST LOST sec. TIME TIME	L O S	STATION-STATION or "LINK" MEAS BEST LOST sec. TIME TIME	DIST.	SPEED LOS MPH	WORST LINK DWELL
PARK STREET	52:13-53:00	100% 25% 48%	47 - 14 = 33	F	-- -- --	--	--	136 --
BOYLSTON	53:52-54:13	100% 25% 48%	21 - 10 = 11	C	52 - 42 = 10	1500'	B 19.7	88 202
ARLINGTON	55:46-56:06	100% 28% 50%	20 - 9 = 11	D	93 - 56 = 37	2000'	D 14.7	66 260
COPLEY	56:59-57:26	100% 32% 52%	27 - 11 = 16	D	53 - 44 = 9	1600'	B 20.6	112 740
AUDITORIUM	58:53-59:16	100% 45% 62%	23 - 9 = 14	D	87 - 75 = 12	2800'	A 21.9	85 225
KENMORE	6:00:42-01:08	100% 35% 55%	26 - 9 = 17	E	86 - 51 = 35	2250'	D 17.8	208 315
BLANDFORD	01:50-02:14	100% 45% 62%	24 - 5 = 19	F=	42 - 37 = 5	1100'	A 17.9	85 147
B.U.EAST	03:05-03:26	100% 45% 62%	21 - 8 = 13	E	51 - 39 = 12	1400'	B 18.7	180 154
B.U.CENTRAL	03:56-04:18	100% 45% 62%	22 - 8 = 14	E	30 - 21 = 9	750'	C 17.0	73 178
* = Best Time Ever ...	TOTALS :	-- -- --	231 - 83 =148		494 -365 =129	13400'	--	1033 222
	AVERAGE:	100% 36% 56%	26 - 9 = 16	E	62 - 46 = 16	1675'	B 18.5	11 278
^ = Worst Time Ever	MAXIMUM:	100% 45% 62%	47 14 33		93 75 37	2800'	21.9	208Worst dwell
	MINIMUM:	100% 25% 48%	20 5 11		30 21 5	750'	14.7	
~~	MEAN DEVIATION:	LOADING 6%	LOST DWELL 5sec		LOST LINK 10 sec		8%	Worst
	STANDARD DEVIATION:	LOADING 6%	LOST DWELL 6sec		LOST LINK 12 sec		12%	link 740

	DISTANCE Feet	CLOCK TIME	ELAPSED TIME	SPEED MPH
Leave Door ...	--	<:<<<:<<<	--	--
Arrive Platform	2,500	5:.46:.00	<<< :<<<	<<<<<
Train Arrives	--	5:.52:.13	6 :.13	--
Transit Trip	13,400	6:.03:.56	11 :.43	12.9
Arrive Door ...	3,800	<:<<<:<<<	<<< :<<<	<<<<<
Total Trip ...	19,700	<:<<<:<<<	<<< :<<<	<<<<<
Straight Line	12,500	<:<<<:<<<	<<< :<<<	<<<<<

TRIP ENDS : Govmt. Ctr. - Hamilton St. Cambridge
LRV CAPACITY : 50 SEATS + 116 STANDEES

LOST TIME/BEST TIME		LOS	LOST TIME/BEST
DWELL .0 - .4 =>	A	<= .0 - .2	LINK
DWELL .4 - .8 =>	B	<= .2 - .4	LINK
DWELL .8 -1.2 =>	C	<= .4 - .6	LINK
DWELL 1.2 -1.6 =>	D	<= .6 - .8	LINK
DWELL 1.6 -2.0 =>	E	<= .8 -1.0	LINK
DWELL 2.0 -2.4 =>	F	<= 1.0 -1.2	LINK
DWELL 2.4 -3.0 =>	F-	<= 1.2 -1.5	LINK
DWELL 3.0 or =>	F=	<= 1.5 or	LINK
<<<<<<<<<<< more			more

LEVEL OF SERVICE CRITERIA

LINK EFFICIENCY THIS TRIP — SUPPOSE ALL LINK TIMES WERE IMPROVED SO NONE WERE WORSE THAN LOS .. E / C / B

PARK	-		
BOYL	39%	THE	39% 39% 39%
ARLI	29%	LINK	29% 32% 37%
COPL	42%	EFFICIENCIES	42% 42% 42%
AUDI	45%	WOULD	45% 45% 45%
KENM	37%	BE	37% 41% 48%
BLAN	48%	....	48% 48% 48%
BU.E	47%		47% 47% 47%
BU.C	43%		43% 43% 48%
	41%	AVERAGE LINK	41% 43% 45%

GAIN IN RIDERS :
...Link Improvements only 0% 5% 10%
...Link & Dwell Improvements 5% 12% 23%

TRIP NOTES -- OTHER TRAINS AND COMMENTS

Heath St. LRV-1 out at 5:48:48.
Riverside LRV-2 #7 in 50:50 out 51:45

Note : with 25 standees, 4 were standing in the center stairwell. Aisle access was free an clear. Doors were not impeded.

Appendix B

=B-O-S-T-O-N=C-O-L-L-E-G-E=O-U-T-B-O-U-N-D=Version 6.25 =1990=B-O-S-T-O-N=C-O-L-L-E-G-E=

MONTH	OCT	JULY	AUG	SEPT	OCT	OCT	NOV	NOV	DEC	JAN	JAN	JAN	MAR	MAR	APR	APR	APR	MAY	JUNE	OCT
DAY	26	28	24	21	5	13	2	4	30	5	12	27	11	19	12	13	14	24	7	26
YEAR	1977	1981	1981	1981	1981	1981	1981	1981	1981	1982	1982	1982	1982	1982	1982	1982	1982	1982	1982	1982
TIME	4:30	5:40	6:00	2:00	8:00	3:45	3:20	2:55	4:50	5:25	6:25	8:15	2:20	2:00	8:30	4:50	5:25	5:20	4:20	5:30
SHK 6/25/90	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
=L=O=A=D=I=N=G																				
PARK ST.	NA	86%	55%	32%	48%	83%	32%	27%	48%	48%	93%	72%	27%	65%	77%	32%	97%	65%	41%	97%
BOYLSTON	NA	90%	64%	39%	51%	90%	32%	24%	41%	53%	93%	72%	24%	65%	77%	33%	97%	79%	44%	93%
ARLINGTON	NA	93%	50%	41%	58%	79%	32%	26%	35%	58%	97%	79%	24%	65%	79%	34%	99%	86%	48%	97%
COPLEY	NA	93%	55%	53%	58%	48%	17%	24%	27%	62%	95%	58%	23%	53%	72%	32%	100%	90%	41%	95%
AUDITORIUM	NA	100%	55%	41%	58%	34%	17%	26%	29%	58%	65%	58%	20%	63%	55%	32%	100%	93%	30%	93%
KENMORE	NA	100%	36%	30%	55%	22%	15%	27%	27%	48%	58%	76%	9%	65%	41%	29%	100%	97%	26%	94%
BLANDFORD	NA	100%	38%	30%	55%	25%	12%	27%	29%	48%	58%	76%	9%	74%	41%	30%	100%	97%	26%	94%
B.U.EAST	NA	98%	40%	37%	55%	32%	12%	26%	29%	48%	58%	76%	9%	74%	53%	32%	100%	93%	15%	93%
B.U.CENTRL	NA	98%	44%	36%	55%	34%	12%	26%	27%	48%	58%	76%	9%	65%	44%	31%	100%	93%	15%	93%
AVERAGE	NA	95%	49%	38%	55%	50%	20%	26%	32%	52%	75%	71%	17%	65%	60%	32%	99%	88%	32%	94%
MAXIMUM	NA	100%	64%	53%	58%	90%	32%	27%	48%	62%	97%	79%	27%	74%	79%	34%	100%	97%	48%	97%
MINIMUM	NA	86%	36%	30%	48%	22%	12%	24%	27%	48%	58%	58%	9%	53%	41%	29%	97%	65%	15%	93%
*STAND.DEV	NA	5%	9%	7%	3%	25%	9%	1%	7%	5%	18%	7%	7%	6%	15%	1%	1%	10%	12%	2%
LOADING																				
=D=W=E=I=L																				
PARK ST.	50	80	46	29	39	60	40	95	73	105	45	43	46	47	40	49	94	40	43	55
BOYLSTON	10	20	17	17	16	25	17	28	20	40	27	21	26	18	12	22	25	19	17	24
ARLINGTON	15	40	30	24	37	27	24	56	21	49	18	29	19	31	22	25	42	27	20	45
COPLEY	15	60	28	25	28	30	21	45	24	41	51	32	23	33	29	24	112	28	38	40
AUDITORIUM	10	40	23	18	25	22	22	42	23	27	24	25	25	23	34	19	85	23	25	46
KENMORE	20	45	34	20	25	30	30	52	23	26	23	30	22	45	24	26	655	25	16	37
BLANDFORD	65	35	17	14	31	25	35	49	14	18	33	23	14	30	20	74	40	18	71	62
B.U.EAST	10	55	19	21	22	17	18	59	8	20	12	skip	17	22	23	21	34	20	12	skip
B.U.CENTRL	35	20	15	28	31	21	16	51	17	18	17	31	14	21	24	23	25	19	15	33
AVERAGE	26	44	25	22	28	29	25	53	25	38	28	29	23	30	25	31	124	24	29	43
MAXIMUM	65	80	46	29	39	60	40	95	73	105	51	43	46	47	40	74	655	40	71	62
MINIMUM	10	20	15	14	16	17	16	28	8	18	12	21	14	18	12	19	25	18	12	24
*STAND DEV	19%	18%	10%	5%	7%	12%	8%	17%	18%	26%	12%	6%	9%	10%	8%	17%	190%	7%	18%	11%
LOST DWELL																				
PARK ST. TO=L=I=N=K																				
BOYLSTON	90	55	74	53	58	50	123	107	135	50	92	119	69	52	55	63	54	68	70	70
ARLINGTON	205	85	90	89	85	86	96	124	103	80	106	97	145	96	73	104	78	91	107	127
COPLEY	100	740	58	47	53	51	54	67	186	47	67	59	88	52	48	74	48	59	62	87
AUDITORIUM	130	225	97	87	89	94	108	137	139	82	126	98	111	200	81	114	90	107	109	134
KENMORE	105	290	93	76	86	84	95	100	137	83	102	98	95	51	154	274	93	82	154	110
BLANDFORD	60	50	46	40	43	41	47	57	48	40	60	57	66	63	40	47	67	42	42	60
B.U.EAST	50	55	41	39	61	89	53	101	39	45	56	42	56	54	52	93	55	56	53	56
B.U.CENTRL	50	40	63	30	30	69	37	46	52	47	29	21	98	43	46	34	31	45	36	62
AVERAGE	99	193	70	58	63	71	77	92	105	59	80	74	91	76	69	100	65	69	79	88
MAXIMUM	205	740	97	89	89	94	123	137	186	83	126	119	145	200	154	274	93	107	154	134
MINIMUM	50	40	41	30	30	41	37	46	39	40	29	21	56	43	40	34	31	42	36	56
LOST LINK	48%	225%	20%	22%	20%	19%	30%	30%	50%	18%	30%	32%	27%	49%	35%	70%	20%	21%	38%	29%
STD. DEV.																				
=E=F=F=I=C=I=E=N=C=I=E=S																				
LINK EFFIC.AVER.		23%	33%	30%	39%	32%	12%	13%	14%	40%	43%	44%	9%	38%	40%	15%	70%	58%	18%	48%
LOS E GAIN -		148%	9%	0%	0%	9%	8%	8%	36%	2%	2%	7%	11%	11%	13%	27%	0%	2%	11%	10%
LOS C GAIN -		183%	15%	0%	3%	1%	17%	31%	57%	5%	16%	18%	22%	24%	20%	47%	6%	7%	22%	31%
LOS B GAIN -		217%	18%	7%	10%	25%	25%	54%	79%	10%	35%	27%	44%	34%	23%	67%	11%	17%	39%	50%
LINK+DWELL LOS C	NA		20%	6%	16%	27%	21%	63%	64%	35%	26%	26%	35%	33%	25%	56%	NA	13%	34%	52%
GAIN TO : LOS B	NA		33%	16%	28%	42%	35%	93%	87%	48%	46%	41%	57%	48%	35%	83%	NA	29%	49%	78%
=T=R=I=P=S=P=E=E=D=S																				
TRIP SPEED	9.3	4.8	11.8	14.5	12.5	11.4	11.1	7.8	8.6	11.4	10.5	11.5	9.9	10.6	12.1	8.6	5.7	12.2	10.4	8.9
miles/hour	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
% OF BEST	53%	27%	67%	82%	71%	65%	63%	44%	49%	65%	60%	65%	56%	60%	69%	49%	32%	69%	59%	51%

B-O-S-T-O-N C-O-L-L-E-G-E O-U-T-B-O-U-N-D Version 6.25 1990 B-O-S-T-O-N C-O-L-L-E-G-E

MONTH	OCT	JAN	APR	JUNE	APR	APR	APR	AUG	JAN	JAN	FEB	FEB	FEB	FEB	FEB	FEB	MAR	MAR	APR
DAY	29	17	29	3	16	23	29	26	30	31	3	5	7	10	12	25	26	4	14	7
YEAR	1982	1983	1983	1983	1985	1985	1985	1985	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986
TIME	3:10	5:40	8:20	4:10	6:30	4:45	2:25	6:15	4:50	5:25	6:50	6:50	4:20	3:15	5:50	5:50	5:50	5:00	5:55	5:25
	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30	#31	#32	#33	#34	#35	#36	#37	#38	#39	#40
LOADING																				
PARK ST.	32%	100%	58%	65%	65%	65%	24%	31%	79%	65%	6%	44%	34%	51%	76%	53%	79%	83%	83%	83%
BOYLSTON	34%	100%	58%	79%	69%	65%	36%	31%	93%	72%	8%	44%	38%	51%	79%	53%	79%	83%	86%	86%
ARLINGTON	36%	99%	53%	58%	76%	65%	38%	32%	97%	86%	12%	44%	39%	48%	83%	58%	79%	83%	86%	86%
COPLEY	34%	99%	58%	62%	76%	93%	39%	29%	79%	83%	18%	49%	58%	48%	86%	65%	79%	44%	65%	93%
AUDITORIUM	34%	99%	72%	55%	79%	93%	39%	29%	79%	79%	19%	39%	58%	48%	86%	58%	44%	41%	55%	93%
KENMORE	35%	99%	76%	32%	72%	93%	39%	29%	97%	58%	17%	36%	72%	51%	68%	55%	44%	37%	51%	93%
BLANDFORD	35%	99%	79%	32%	86%	93%	38%	29%	97%	58%	17%	15%	72%	90%	58%	55%	65%	37%	51%	93%
B.U.EAST	34%	99%	83%	30%	86%	83%	37%	30%	99%	58%	16%	15%	79%	90%	58%	51%	58%	41%	51%	93%
B.U.CENTRL	30%	99%	83%	30%	90%	83%	37%	39%	99%	65%	18%	15%	79%	90%	55%	51%	62%	41%	51%	93%
AVERAGE	34%	99%	69%	49%	78%	81%	36%	31%	91%	69%	15%	33%	59%	63%	72%	55%	65%	54%	64%	90%
MAXIMUM	36%	100%	83%	79%	90%	93%	39%	39%	99%	86%	19%	49%	79%	90%	86%	65%	79%	83%	86%	93%
MINIMUM	30%	99%	53%	30%	65%	65%	24%	29%	79%	58%	6%	15%	34%	48%	55%	51%	44%	37%	51%	83%
*STAND.DEV	2%	0%	11%	17%	8%	12%	4%	3%	9%	10%	4%	13%	17%	19%	12%	4%	14%	20%	15%	4%
LOADING																				
PARK ST.	28	131	36	47	49	48	26	28	58	70	30	33	37	39	69	49	68	expss	96	71
BOYLSTON	13	28	14	20	18	24	29	20	41	37	23	25	16	17	33	32	25	expss	42	28
ARLINGTON	21	66	17	29	23	27	20	25	32	44	16	26	19	40	48	34	29	expss	47	53
COPLEY	19	65	23	24	40	39	23	17	51	55	19	40	25	expss	61	44	45	25	44	63
AUDITORIUM	17	63	28	22	66	33	17	14	28	50	20	26	22	expss	32	27	29	19	28	34
KENMORE	16	60	28	32	29	49	20	15	56	43	15	18	28	35	29	32	33	29	24	61
BLANDFORD	13	69	19	22	51	35	63	19	57	51	53	499	55	58	18	25	30	13	41	43
B.U.EAST	20	143	36	20	43	180	21	13	54	33	22	11	29	62	19	25	25	14	17	46
B.U.CENTRL	15	73	42	15	41	26	14	25	40	44	16	26	24	44	20	28	30	14	28	40
AVERAGE	18	78	27	26	40	51	26	20	46	47	24	78	28	42	37	33	35	19	41	49
MAXIMUM	28	143	42	47	66	180	63	28	58	70	53	499	55	62	69	49	68	29	96	71
MINIMUM	13	28	14	15	18	24	14	13	28	33	15	11	16	17	18	25	25	13	17	28
*STAND DEV	4%	34%	9%	9%	14%	46%	14%	5%	11%	10%	11%	149%	11%	14%	18%	8%	13%	6%	22%	13%
LOST DWELL																				
PARK ST. TO																				
BOYLSTON	53	89	62	49	202	48	74	137	57	68	64	57	79	61	87	70	44	75	73	48
ARLINGTON	108	116	95	93	260	88	113	107	106	121	95	105	108	107	98	197	92	130	152	106
COPLEY	63	78	73	49	143	66	59	85	84	73	54	70	104	46	62	107	57	132	97	110
AUDITORIUM	95	105	95	85	95	89	105	108	132	105	101	101	102	115	190	138	103	147	146	92
KENMORE	83	315	79	110	202	77	104	96	113	90	95	103	212	114	167	107	102	139	133	87
BLANDFORD	42	60	41	39	43	45	42	42	60	51	50	605	45	47	46	56	59	98	66	53
B.U.EAST	43	50	76	40	63	57	134	44	113	67	63	82	46	124	57	56	77	82	89	51
B.U.CENTRL	62	35	32	34	40	36	178	178	46	39	50	49	32	37	42	52	58	46	58	32
AVERAGE	69	106	69	62	131	63	101	100	89	77	72	147	91	81	94	98	74	106	102	72
MAXIMUM	108	315	95	110	260	89	178	178	132	121	101	605	212	124	190	197	103	147	152	110
MINIMUM	42	35	32	34	40	36	42	42	46	39	50	49	32	37	42	52	44	46	58	32
LOST LINK SID. DEV.	23%	83%	22%	27%	78%	19%	41%	42%	30%	26%	20%	174%	54%	34%	52%	47%	21%	34%	35%	28%
LINK EFFIC.	23%	46%	46%	36%	27%	58%	16%	14%	47%	41%	10%	NA	30%	35%	35%	26%	40%	23%	29%	57%
LOS E GAIN	4%	39%	0%	3%	74%	0%	38%	36%	9%	2%	0%	NA	20%	11%	20%	19%	2%	22%	17%	4%
LOS C GAIN	9%	57%	7%	8%	104%	2%	56%	57%	30%	15%	10%	NA	40%	26%	40%	42%	15%	57%	48%	14%
LOS B GAIN	17%	70%	17%	17%	126%	12%	69%	71%	49%	27%	10%	NA	53%	43%	57%	62%	27%	83%	69%	25%
LINK+ C+	15%	NA	18%	19%	NA	43%	59%	51%	60%	47%	12%	NA	45%	48%	52%	53%	34%	46%	68%	51%
DWELL B+	24%	NA	34%	31%	NA	63%	76%	68%	86%	67%	23%	NA	63%	68%	76%	79%	52%	69%	97%	70%
TRIP SPEED	13.0	6.1	12.0	12.7	6.6	9.6	8.8	9.5	8.3	9.1	11.8	4.8	9.4	10.0	8.5	8.8	10.3	9.5	7.8	9.2
miles/hour	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
% OF BEST	74%	35%	68%	72%	38%	55%	50%	54%	47%	52%	67%	27%	53%	57%	48%	50%	59%	54%	44%	52%

=B=O=S=T=O=N=C=O=L=L=E=G=E=O=U=T=B=O=U=N=D= Version 6.25 =1990= B=O=S=T=O=N=C=O=L=L=E=G=E=

MONTH	APR	AUG,	AUG	SEPT	SEPT	OCT	NOV	DEC	DEC	JAN	JAN	FEB	APR	JUNE	JAN	JAN	FEB	FEB	MAR	APR
DAY	11	14	18	10	17	13	26	9	15	26	29	4	17	23	4	20	4	18	24	4
YEAR	1986	1986	1986	1986	1986	1986	1986	1986	1986	1987	1987	1987	1987	1987	1988	1988	1988	1988	1988	1988
TIME	5:15	5:40	1:00	5:30	5:20	2:10	5:15	10:50	10:45	10:40	MIDN	8:00	7:55	6:50	6:55	5:30	5:05	4:55	5:05	5:50
	#41	#42	#43	#44	#45	#46	#47	#48	#49	#50	#51	#52	#53	#54	#55	#56	#57	#58	#59	#60
=L=O=A=D=I=N=G=																				
PARK ST.	83%	44%	8%	72%	58%	30%	93%	23%	17%	14%	12%	7%	65%	41%	27%	17%	36%	65%	86%	36%
BOYLSTON	86%	46%	7%	72%	58%	30%	93%	24%	17%	16%	14%	7%	65%	41%	28%	20%	36%	66%	90%	38%
ARLINGTON	97%	41%	8%	72%	44%	30%	90%	26%	18%	20%	19%	8%	65%	48%	31%	32%	38%	65%	90%	36%
COPLEY	93%	36%	12%	58%	39%	24%	90%	27%	20%	18%	24%	7%	53%	44%	35%	37%	35%	64%	86%	36%
AUDITORIUM	72%	36%	11%	58%	39%	24%	90%	29%	24%	22%	22%	7%	65%	37%	30%	38%	33%	62%	79%	34%
KENMORE	51%	35%	11%	36%	34%	15%	90%	32%	24%	22%	20%	5%	83%	30%	30%	38%	34%	61%	72%	36%
BLANDFORD	51%	35%	12%	36%	39%	14%	90%	32%	24%	22%	22%	6%	83%	29%	30%	37%	34%	62%	76%	38%
B.U.EAST	51%	34%	12%	36%	35%	23%	90%	34%	29%	22%	22%	10%	83%	32%	30%	36%	35%	62%	76%	39%
B.U.CENTRL	51%	36%	12%	39%	45%	25%	90%	36%	38%	30%	22%	12%	83%	36%	30%	36%	34%	61%	72%	42%
AVERAGE	71%	38%	10%	53%	43%	24%	91%	29%	23%	21%	20%	8%	72%	38%	30%	32%	35%	63%	81%	37%
MAXIMUM	97%	46%	12%	72%	58%	30%	93%	36%	38%	30%	24%	12%	83%	48%	35%	38%	38%	66%	90%	42%
MINIMUM	51%	34%	7%	36%	34%	14%	90%	23%	17%	14%	12%	5%	53%	29%	27%	17%	33%	61%	72%	34%
*STAND.DEV	19%	4%	2%	16%	8%	6%	1%	4%	6%	4%	4%	2%	11%	6%	2%	8%	1%	2%	7%	2%

LOADING

=D=W=E=L=L=																				
PARK ST.	64	42	18	78	55	38	77	27	25	19	21	19	62	47	52	79	27	64	74	42
BOYLSTON	38	20	15	27	12	13	20	14	11	16	10	11	17	20	16	31	15	23	24	12
ARLINGTON	62	25	12	34	21	19	44	14	14	16	15	14	24	26	20	22	23	26	45	23
COPLEY	70	59	13	58	28	20	44	17	19	13	16	21	29	38	42	55	24	31	38	25
AUDITORIUM	33	27	9	34	17	14	41	18	20	16	13	13	27	71	23	19	17	23	29	14
KENMORE	208	29	14	140	21	16	48	18	12	18	15	14	25	25	20	20	24	30	32	21
BLANDFORD	31	30	9	16	52	19	22	13	19	9	9	17	37	18	15	18	14	29	79	25
B.U.EAST	37	17	9	97	30	17	28	20	29	skip	13	16	32	17	12	18	13	31	46	21
B.U.CENTRL	29	34	18	27	24	23	30	18	31	11	8	20	22	15	14	21	12	24	27	26
AVERAGE	64	31	13	57	29	20	39	18	20	15	13	16	31	31	24	31	19	31	44	23
MAXIMUM	208	59	18	140	55	38	77	27	31	19	21	21	62	71	52	79	27	64	79	42
MINIMUM	29	17	9	16	12	13	20	13	11	9	8	11	17	15	12	18	12	23	24	12
*STAND DEV	53%	12%	3%	39%	14%	7%	16%	4%	7%	3%	4%	3%	12%	17%	13%	20%	5%	12%	19%	8%

LOST DWELL

PARK ST. TO=L=I=N=K=																				
BOYLSTON	48	50	61	91	86	46	50	47	53	42	45	48	84	51	67	126	53	49	53	45
ARLINGTON	98	89	109	106	182	79	164	83	95	82	63	96	110	97	135	152	164	91	101	98
COPLEY	58	71	89	51	171	52	105	49	54	51	44	76	70	56	56	345	117	56	58	70
AUDITORIUM	95	91	114	90	139	120	163	88	111	80	75	119	106	130	161	199	136	103	108	145
KENMORE	93	99	85	86	131	121	94	84	110	79	70	98	92	90	127	107	114	98	98	135
BLANDFORD	53	40	51	47	44	39	46	39	43	44	38	49	46	42	40	146	48	45	38	43
B.U.EAST	55	51	45	55	60	64	69	51	42	39	40	72	55	48	51	154	63	86	46	74
B.U.CENTRL	31	36	38	34	126	34	173	36	29	49	28	35	48	33	33	52	51	32	28	39
AVERAGE	66	66	74	70	117	69	108	60	67	58	50	74	76	68	84	160	93	70	66	81
MAXIMUM	98	99	114	106	182	121	173	88	111	82	75	119	110	130	161	345	164	103	108	145
MINIMUM	31	36	38	34	44	34	46	36	29	39	28	35	46	33	33	52	48	32	28	39
*SID.LOST L	24%	23%	27%	25%	47%	32%	49%	20%	31%	17%	16%	27%	24%	31%	46%	80%	42%	26%	29%	39%

SID. DEV.

=E=F=F=I=C=I=E=N=C=I=E=S=																				
LINK EFFIC.	49%	26%	6%	35%	17%	18%	38%	22%	16%	16%	18%	5%	43%	25%	16%	9%	17%	41%	56%	21%
LOS E GAIN	0%	0%	0%	0%	41%	6%	39%	0%	0%	6%	0%	0%	2%	0%	13%	89%	18%	2%	0%	5%
LOS C GAIN	6%	8%	17%	11%	71%	17%	66%	5%	6%	6%	0%	0%	14%	12%	31%	133%	41%	12%	7%	24%
LOS B GAIN	14%	15%	33%	20%	94%	28%	87%	9%	13%	13%	0%	20%	30%	20%	44%	178%	59%	20%	14%	38%
LINK+ C+	65%	23%	16%	63%	74%	16%	79%	7%	17%	5%	0%	8%	29%	22%	34%	NA	36%	24%	42%	30%
DWELL B+	84%	38%	29%	83%	100+%	27%	100+%	15%	27%	11%	2%	22%	49%	37%	51%	NA	54%	38%	57%	49%

=T=R=I=P=S=P=E=E=D=S=																				
TRIP SPEED	8.4	11.7	13.1	8.7	7.7	12.8	7.6	14.7	13.2	15.8	17.6	12.6	10.5	11.2	10.4	5.8	10.0	11.1	10.1	10.9
miles/hour	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
% OF BEST	48%	66%	74%	49%	44%	73%	43%	84%	75%	90%	100%	72%	60%	64%	59%	33%	57%	63%	57%	62%

=B-O-S-T-O-N=C-O-L-L-E-G-E=O-U-T-B-O-U-N-D=Version 6.25 =1990=B-O-S-T-O-N=C-O-L-L-E-G-E=

MONTH	MAY	MAY	MAY	JUNE	JULY	AUG	AUG	AUG	SEPT	SEPT	SEPT	OCT	OCT	NOV	DEC	DEC	DEC	JAN	JAN	JAN
DAY	12	18	23	9	8	2	10	17	15	19	29	20	26	18	8	12	30	11	12	27
YEAR	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1989	1989	1989
TIME	2:05	5:20	5:50	5:10	5:50	9:35	5:40	5:10	6:20	4:55	5:05	4:00	6:10	1:30	3:50	7:30	8:10	5:30	2:20	5:20
	#61	#62	#63	#64	#65	#66	#67	#68	#69	#70	#71	#72	#73	#74	#75	#76	#77	#78	#79	#80
=L=O=A=D=I=N=G=																				
PARK ST.	25%	55%	55%	41%	26%	4%	15%	79%	79%	20%	41%	23%	34%	44%	32%	29%	4%	37%	15%	39%
BOYLSTON	24%	55%	55%	43%	25%	4%	26%	86%	83%	29%	48%	25%	36%	44%	34%	29%	4%	41%	14%	44%
ARLINGTON	27%	55%	51%	42%	22%	7%	32%	93%	93%	37%	48%	28%	36%	48%	36%	34%	4%	41%	20%	46%
COPLEY	25%	63%	51%	52%	23%	7%	41%	93%	93%	41%	50%	18%	29%	48%	48%	33%	7%	45%	34%	44%
AUDITORIUM	24%	63%	51%	54%	20%	7%	38%	93%	93%	44%	55%	31%	28%	48%	73%	33%	5%	44%	33%	41%
KENMORE	24%	48%	51%	52%	12%	7%	38%	79%	65%	48%	58%	31%	28%	44%	73%	30%	5%	37%	45%	30%
BLANDFORD	23%	48%	55%	55%	14%	7%	47%	79%	83%	46%	58%	37%	32%	51%	73%	35%	5%	36%	58%	30%
B.U.EAST	23%	48%	55%	55%	14%	7%	47%	79%	86%	65%	58%	35%	32%	51%	65%	36%	4%	34%	58%	29%
B.U.CENTRL	24%	48%	55%	48%	14%	6%	47%	79%	90%	83%	58%	36%	30%	51%	65%	35%	2%	34%	58%	29%
AVERAGE	24%	54%	53%	49%	19%	6%	37%	84%	85%	46%	53%	29%	32%	48%	55%	33%	4%	39%	37%	37%
MAXIMUM	27%	63%	55%	55%	26%	7%	47%	93%	93%	83%	58%	37%	36%	51%	73%	36%	7%	45%	58%	46%
MINIMUM	23%	48%	51%	41%	12%	4%	15%	79%	65%	20%	41%	18%	28%	44%	32%	29%	2%	34%	14%	29%
*STAND.DEV	1%	6%	2%	5%	5%	1%	10%	6%	9%	18%	6%	6%	3%	3%	17%	3%	1%	4%	17%	7%
LOADING																				
=D=W=E=I=L=																				
PARK ST.	30	48	41	66	43	20	40	61	48	83	33	48	72	70	33	32	14	59	28	58
BOYLSTON	10	18	20	18	23	11	25	30	21	22	17	17	14	22	32	15	11	30	16	21
ARLINGTON	27	17	18	27	23	14	16	38	28	29	29	18	17	30	32	17	9	26	19	26
COPLEY	17	31	17	38	17	26	36	52	44	28	28	25	22	25	29	22	11	34	21	29
AUDITORIUM	15	32	21	35	20	15	23	38	33	23	22	19	15	20	30	20	10	31	19	26
KENMORE	20	34	18	27	16	11	22	62	42	28	24	218	23	21	24	27	10	49	41	28
BLANDFORD	11	57	67	21	14	23	19	25	20	57	35	60	19	39	22	29	8	147	53	33
B.U.EAST	11	19	15	18	14	13	25	23	20	54	30	42	17	49	38	20	9	10	19	19
B.U.CENTRL	15	12	21	21	9	15	16	19	26	32	25	18	16	30	25	16	9	16	22	17
AVERAGE	17	30	26	30	20	16	25	39	31	40	27	30	24	34	29	22	10	45	26	29
MAXIMUM	30	57	67	66	43	26	40	62	48	83	35	60	72	70	38	32	14	147	53	58
MINIMUM	10	12	15	18	9	11	16	19	20	22	17	17	14	20	22	15	8	10	16	17
*STAND DEV	7%	14%	16%	14%	9%	5%	8%	15%	10%	19%	5%	15%	17%	16%	5%	6%	2%	39%	12%	11%
LOST DWELL																				
PARK ST. TO=L=I=N=K=																				
BOYLSTON	73	52	70	82	76	45	74	89	99	57	47	75	80	48	76	50	59	58	77	53
ARLINGTON	112	113	102	125	168	98	147	112	142	101	93	133	104	107	116	93	89	98	104	102
COPLEY	68	85	86	50	58	53	92	50	104	56	127	81	65	141	72	58	52	51	61	55
AUDITORIUM	139	95	188	118	126	106	117	100	126	99	96	105	93	160	129	103	96	84	150	111
KENMORE	102	90	99	114	89	88	98	98	97	96	86	95	85	132	94	94	89	95	96	108
BLANDFORD	37	39	52	41	44	53	41	40	47	42	43	45	41	40	48	47	41	45	62	52
B.U.EAST	56	51	131	45	54	80	49	50	72	62	72	60	61	50	56	61	61	100	73	63
B.U.CENTRL	36	26	66	36	37	27	28	35	33	42	29	44	43	38	46	45	47	34	54	46
AVERAGE	78	69	99	76	82	69	81	72	90	69	74	80	72	90	80	69	67	71	85	74
MAXIMUM	139	113	188	125	168	106	147	112	142	101	127	133	104	160	129	103	96	100	150	111
MINIMUM	36	26	52	36	37	27	28	35	33	42	29	44	41	38	46	45	41	34	54	46
*SID.LOST L	34%	29%	41%	36%	42%	26%	38%	29%	35%	24%	31%	29%	21%	48%	29%	22%	20%	25%	30%	26%
SID. DEV.																				
=E=F=F=I=C=I=E=N=C=I=E=S=																				
LINK EFFIC.	17%	37%	26%	31%	13%	4%	21%	53%	43%	30%	33%	17%	20%	24%	32%	22%	3%	25%	20%	23%
LOS E GAIN	0%	3%	19%	6%	8%	0%	10%	2%	12%	0%	6%	0%	5%	21%	0%	0%	0%	4%	0%	4%
LOS C GAIN	18%	14%	46%	19%	23%	0%	24%	17%	33%	10%	18%	18%	15%	42%	16%	9%	0%	16%	25%	9%
LOS B GAIN	35%	22%	69%	35%	38%	25%	38%	26%	53%	20%	27%	29%	25%	58%	31%	14%	0%	24%	40%	22%
LINK+ C+	15%	26%	47%	34%	29%	6%	28%	39%	42%	33%	28%	35%	20%	52%	30%	13%	0%	50%	32%	21%
DWELL B+	31%	37%	69%	53%	43%	16%	46%	55%	66%	49%	43%	52%	35%	74%	51%	23%	0%	66%	51%	38%
=T=R=I=P=S=P=E=E=D=S=																				
TRIP SPEED	11.9	11.2	9.0	10.5	11.0	13.3	10.6	10.0	9.3	10.3	11.2	10.2	11.8	9.1	10.3	12.5	14.8	9.6	10.2	11.0
miles/hour	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
% OF BEST	68%	64%	51%	60%	63%	76%	60%	57%	53%	59%	64%	58%	67%	52%	59%	71%	84%	55%	58%	63%

BOSTON COLLEGE OUTBOUND Version 6.25 1990 BOSTON COLLEGE

MONTH	FEB	MAR	MAR	MAR	MAR	MAR	APR	APR	JUNE	JUNE	AUG	DEC	FEB	JUNE	JUNE	JUNE				
DAY	28	1	15	16	21	29	12	14	13	21	9	1	21	4	14	21				
YEAR	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1990	1990	1990	1990				
TIME	6:20	6:00	5:55	4:00	1:30	5:00	6:10	3:00	6:15	6:05	4:30	5:25	5:45	4:45	7:00	5:50	AVERAGE	MAX	MIN	STANDARD DEV. (% OF AVER)
	#81	#82	#83	#84	#85	#86	#87	#88	#89	#90	#91	#92	#93	#94	#95	#96				
LOADING																				
PARK ST.	42%	16%	29%	37%	32%	14%	37%	17%	37%	36%	32%	97%	40%	42%	7%	48%	46%	100%	4%	26%
BOYLSTON	41%	16%	29%	41%	32%	20%	44%	20%	37%	36%	30%	98%	41%	48%	10%	48%	48%	100%	4%	26%
ARLINGTON	37%	18%	30%	43%	32%	20%	45%	20%	44%	36%	32%	99%	52%	54%	11%	50%	50%	99%	4%	26%
COPLEY	30%	14%	32%	45%	32%	23%	50%	22%	58%	36%	34%	100%	57%	54%	11%	52%	49%	100%	7%	25%
AUDITORIUM	30%	13%	32%	48%	32%	23%	52%	24%	48%	37%	35%	98%	53%	59%	19%	62%	48%	100%	5%	24%
KENMORE	12%	12%	32%	51%	36%	24%	54%	36%	37%	32%	26%	97%	86%	97%	16%	55%	46%	100%	5%	26%
BLANDFORD	20%	12%	30%	72%	38%	26%	55%	50%	36%	34%	26%	99%	86%	97%	16%	62%	48%	100%	5%	27%
B.U.EAST	27%	12%	32%	86%	37%	25%	59%	54%	35%	35%	26%	99%	86%	100%	16%	62%	49%	100%	4%	27%
B.U.CENTRL	34%	11%	34%	93%	39%	23%	62%	55%	35%	35%	24%	98%	100%	100%	13%	62%	50%	100%	2%	27%
LOADING																	AVERAGE	MAX	MIN	STANDARD DEV. (% OF AVER)
AVERAGE	30%	14%	31%	57%	34%	22%	51%	30%	41%	35%	29%	98%	67%	72%	13%	56%	48%	99%	4%	50%
MAXIMUM	42%	18%	34%	93%	39%	26%	62%	42%	58%	37%	35%	100%	100%	100%	19%	62%	59%	100%	7%	46%
MINIMUM	12%	11%	29%	37%	32%	14%	37%	12%	35%	32%	24%	97%	40%	42%	7%	48%	38%	99%	2%	61%
*STAND.DEV	9%	2%	2%	20%	3%	3%	7%	9%	7%	1%	4%	1%	21%	24%	4%	6%	8%	25%	0%	75%
LOST DWELL																	AVER.	MAX	MIN	STDEV
PARK ST.	44	74	38	35	45	31	45	31	72	36	136	79	38	43	35	47	51	136	14	45%
BOYLSTON	16	20	14	13	13	22	22	13	21	17	18	31	15	21	15	21	21	42	10	34%
ARLINGTON	20	19	27	21	24	17	26	20	24	20	22	50	32	23	15	20	27	66	9	42%
COPLEY	31	23	22	31	35	23	30	23	28	32	25	78	29	24	17	27	33	112	11	48%
AUDITORIUM	21	25	16	25	13	15	26	15	21	23	16	54	27	52	17	23	26	85	9	50%
KENMORE	27	26	16	35	18	22	25	19	29	34	20	984	37	23	15	26	47	984	10	252%
BLANDFORD	22	54	17	59	5	27	24	28	19	23	14	47	85	71	11	24	34	147	5	66%
B.U.EAST	16	38	21	47	16	17	23	17	21	9	206	32	39	42	9	21	30	206	8	103%
B.U.CENTRL	21	13	20	30	20	17	20	22	18	17	19	41	38	36	13	22	24	73	8	42%
LOST DWELL																	DWELL	MAX	MIN	STDEV
AVERAGE	24	.32	21	33	21	21	27	24	28	23	53	155	38	37	16	26	33	155	10	61%
MAXIMUM	44	74	38	59	45	31	45	44	72	36	206	984	85	71	35	47	76	984	14	155%
MINIMUM	16	13	14	13	5	15	20	16	18	9	14	31	15	21	9	20	16	33	5	35%
*STAND DEV	8%	19%	7%	13%	12%	5%	7%	8%	16%	8%	65%	294%	18%	16%	7%	8%	20	294	2	188%
LOST LINK																	AVER.	MAX	MIN	STDEV
PARK ST. TO BOYLSTON	51	57	51	52	48	65	53	53	53	80	50	61	86	77	56	52	68	202	42	36%
ARLINGTON	88	206	123	94	83	118	104	128	99	116	90	133	164	114	94	93	112	260	63	27%
COPLEY	53	101	171	59	76	158	60	54	65	96	52	70	61	56	51	53	84	740	44	94%
AUDITORIUM	119	148	111	95	88	103	102	89	95	131	83	113	84	100	84	87	114	225	75	25%
KENMORE	113	96	114	93	90	75	94	89	87	121	225	103	83	76	83	86	109	315	51	40%
BLANDFORD	47	49	42	51	39	39	42	40	48	51	36	71	40	49	40	42	54	605	36	109%
B.U.EAST	62	64	79	53	72	58	66	55	50	61	52	105	53	62	53	51	63	154	39	34%
B.U.CENTRL	38	38	38	37	55	50	33	52	33	56	147	52	30	37	30	30	47	178	21	63%
LOST LINK																	LINK	MAX	MIN	STDEV
AVERAGE	71	95	91	67	69	83	69	71	66	89	92	89	75	71	61	62	82	193	50	26%
MAXIMUM	119	206	171	95	90	158	104	119	99	131	225	133	164	114	94	93	148	740	75	62%
MINIMUM	38	38	38	37	39	39	33	38	33	51	36	52	30	37	30	30	39	58	21	19%
LOST LINK SID. DEV.	29%	54%	44%	22%	18%	38%	26%	29%	23%	30%	60%	27%	39%	24%	21%	22%	37	225	16	76%
LINK EFFIC.	19%	7%	16%	39%	23%	12%	34%	22%	28%	18%	14%	51%	39%	46%	10%	41%	28%	70%	3%	51%
LOS E GAIN	5%	14%	19%	0%	0%	17%	0%	5%	0%	11%	50%	12%	13%	2%	0%	0%	12%	148%	0%	177%
LOS C GAIN	11%	43%	38%	5%	9%	25%	9%	14%	7%	28%	64%	27%	26%	9%	0%	5%	25%	183%	0%	113%
LOS B GAIN	21%	57%	50%	13%	22%	42%	15%	23%	14%	50%	71%	47%	38%	20%	10%	10%	39%	217%	0%	87%
LINK+ C+	15%	51%	38%	25%	15%	21%	17%	17%	19%	32%	64%	54%	47%	30%	8%	12%	33%	79%	0%	55%
DWELL B+	33%	72%	56%	37%	27%	36%	30%	27%	33%	53%	71%	81%	65%	47%	13%	23%	48%	97%	0%	45%
TRIP SPEED	11.8	8.7	10.1	11.3	12.6	10.8	11.7	12.5	11.8	10.0	7.6	4.3	9.8	10.4	14.5	12.9	10.4	17.6	4.3	22%
miles/hour	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	-
% OF BEST	67%	49%	57%	64%	72%	61%	66%	71%	67%	57%	43%	24%	56%	59%	82%	73%	59%	100%	24%	-

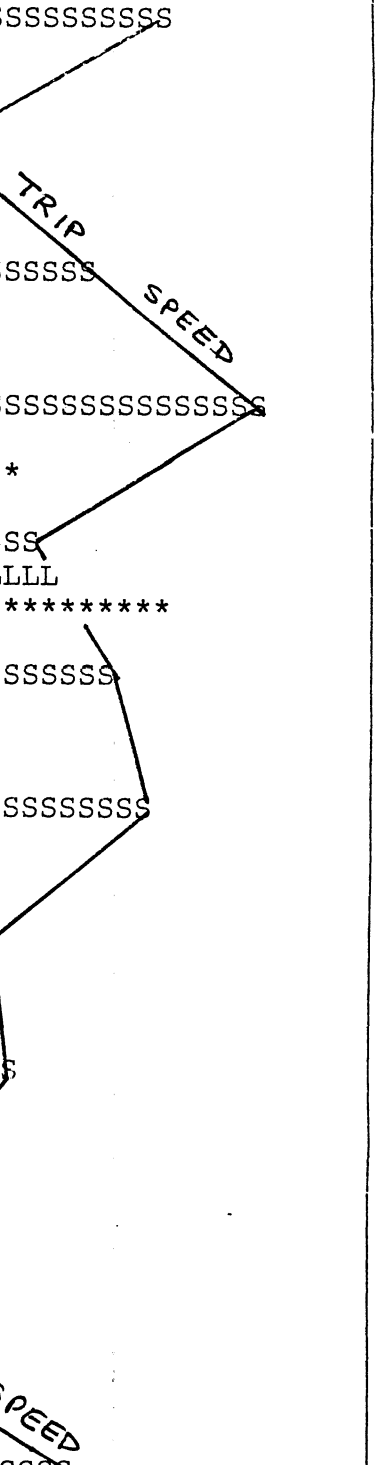
=B=O=S=T=O=N==C=O=L=L=E=G=E=====

MONTH / DAY / YEAR / TIME	AVERAGE LOADINGS, DWELL AND LINKS TRIPS 1-48	TRIPS 49-96	TRIPS 1-77	TRIPS 78-96
==========	L=O=A=D=I=N=G =			
PARK ST.	58%	35%	49%	34%
BOYLSTON	60%	37%	51%	36%
ARLINGTON	61%	39%	53%	38%
COPLEY	58%	41%	51%	41%
AUDITORIUM	55%	42%	50%	41%
KENMORE	51%	41%	47%	43%
BLANDFORD	53%	44%	49%	46%
B.U.EAST	53%	45%	49%	48%
B.U.CENTRL	53%	46%	50%	49%
==========	L-O-A-D-I-N-G			
AVERAGE	56%	41%	50%	42%
MAXIMUM	100%	100%	100%	100%
MINIMUM	6%	2%	2%	7%
*STAND.DEV	76%	71%	71%	87%
LOADING	D==W==E==L==L=			
==========	1-48	49-96	1-77	78-96
PARK ST.	54	48	51	51
BOYLSTON	23	19	21	19
ARLINGTON	31	23	28	24
COPLEY	37	29	34	30
AUDITORIUM	29	24	27	24
KENMORE	49	45	39	78
BLANDFORD	34	33	32	40
B.U.EAST	33	27	29	33
B.U.CENTRL	27	20	24	22
==========	D--W--E--L--L-			
AVERAGE	36%	30%	32%	36%
MAXIMUM	655%	984%	655%	984%
MINIMUM	8%	5%	8%	5%
*STAND DEV	166%	207%	134%	319%
LOST DWELL	=L==I==N==K=			
PARK ST. TO	-	-	-	-
BOYLSTON	73	62	70	64
ARLINGTON	111	112	108	116
COPLEY	90	78	86	82
AUDITORIUM	115	113	113	116
KENMORE	119	100	115	102
BLANDFORD	62	47	60	47
B.U.EAST	63	64	61	66
B.U.CENTRL	54	42	51	43
==========	-L--I--N--K-			
AVERAGE	86	77	83	80
MAXIMUM	164	132	156	137
MINIMUM	40	38	39	38
LOST LINK	42%	32%	39%	33%
STD. DEV.				
LINK EFFIC.	33	24	31	24
LOS E GAIN	15	9	14	8
LOS C GAIN	29	22	27	22
LOS B GAIN	42	35	41	36
LINK+ C+	38	28	36	28
DWELL B+	56	40	51	44
TRIP SPEED	9.8	11.0	10.3	10.6
miles/hour	MPH	MPH	MPH	MPH
% OF BEST				

Appendix C

SPEED AND EFFICIENCY OF THE GREEN LINE
BOSTON COLLEGE BRANCH, OUTBOUND 96 TRIPS 1977-1990

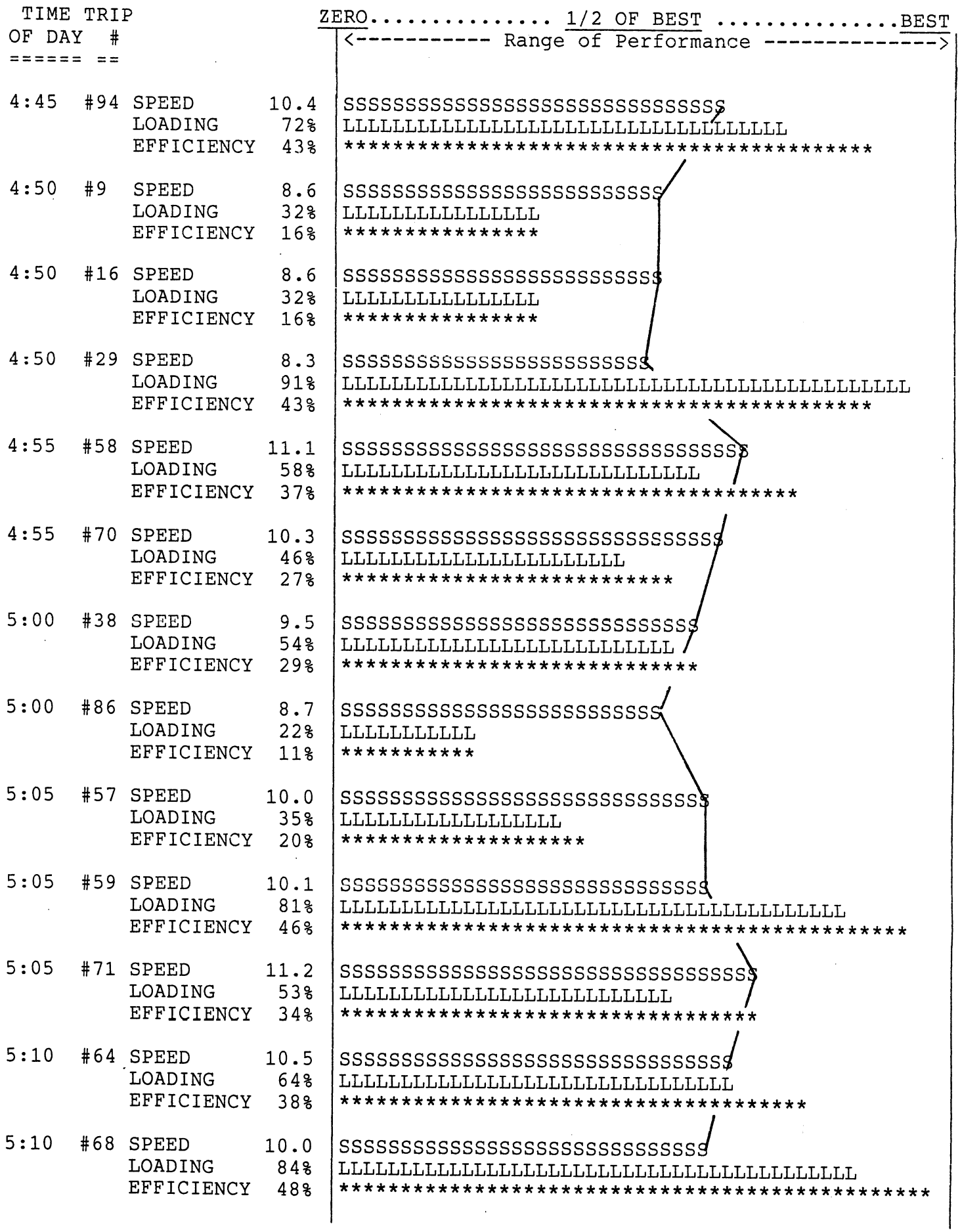
TIME OF DAY	TRIP #			ZERO..... 1/2 OF BEST .....BEST <---------- Range of Performance ---------->
1:00	#43	SPEED	13.1	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	10%	LLLLL
		EFFICIENCY	7%	*******
1:30	#74	SPEED	9.1	SSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	48%	LLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	25%	************************
1:30	#85	SPEED	11.8	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	34%	LLLLLLLLLLLLLLLLL
		EFFICIENCY	23%	**********************
2:00	#4	SPEED	14.5	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	38%	LLLLLLLLLLLLLLLLLL
		EFFICIENCY	31%	******************************
2:00	#14	SPEED	10.6	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	65%	LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	39%	**************************************
2:05	#61	SPEED	11.9	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	24%	LLLLLLLLLLL
		EFFICIENCY	16%	***************
2:10	#46	SPEED	12.8	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	24%	LLLLLLLLLLL
		EFFICIENCY	17%	*****************
2:20	#13	SPEED	9.9	SSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	17%	LLLLLLLLL
		EFFICIENCY	10%	**********
2:20	#79	SPEED	10.2	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	37%	LLLLLLLLLLLLLLLLLL
		EFFICIENCY	21%	**********************
2:25	#27	SPEED	8.8	SSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	36%	LLLLLLLLLLLLLLLLL
		EFFICIENCY	18%	*****************
2:55	#8	SPEED	7.8	SSSSSSSSSSSSSSSSSSSS
		LOADING	26%	LLLLLLLLLLLL
		EFFICIENCY	12%	************
3:00	#88	SPEED	11.3	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	30%	LLLLLLLLLLLLLL
		EFFICIENCY	19%	******************

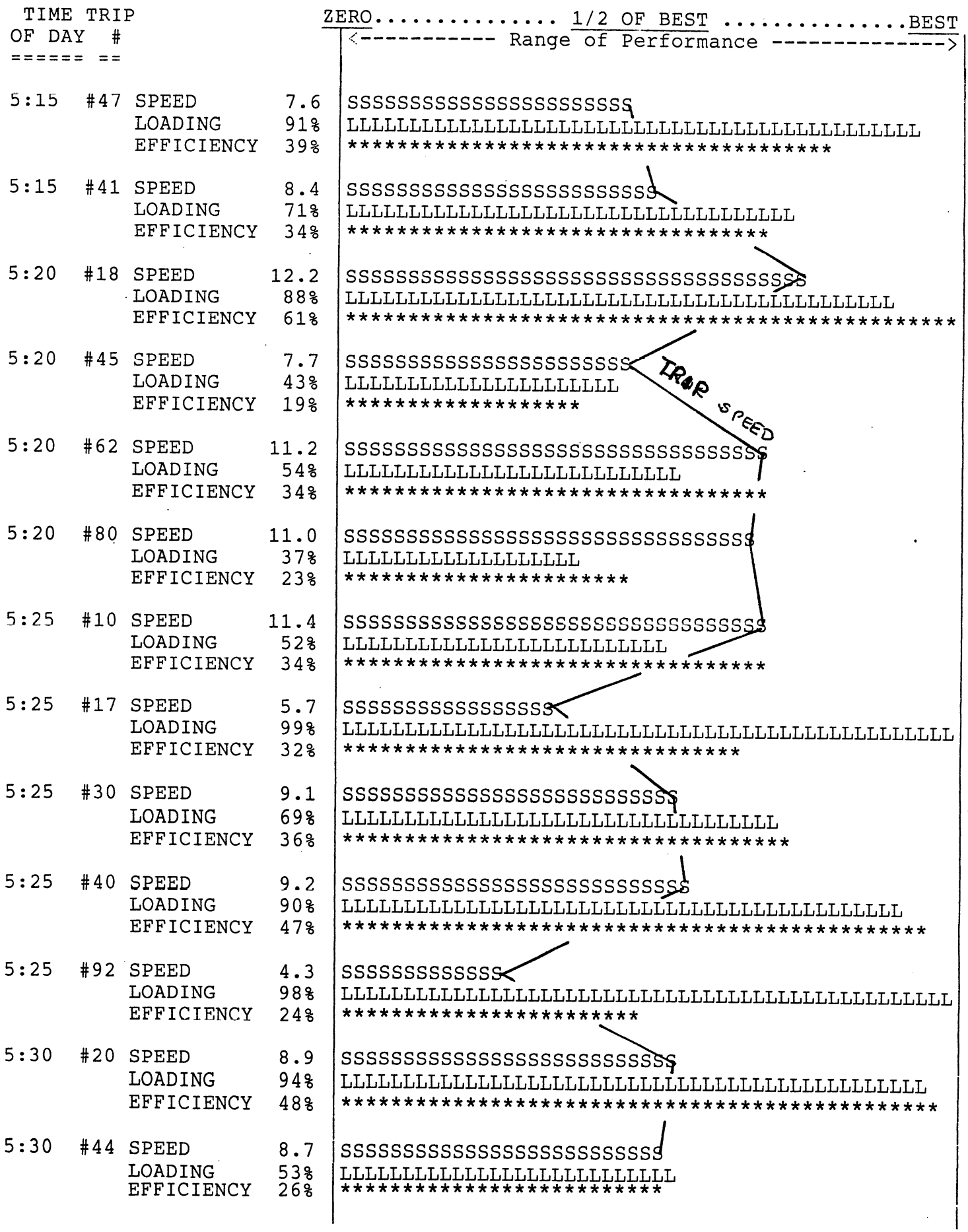


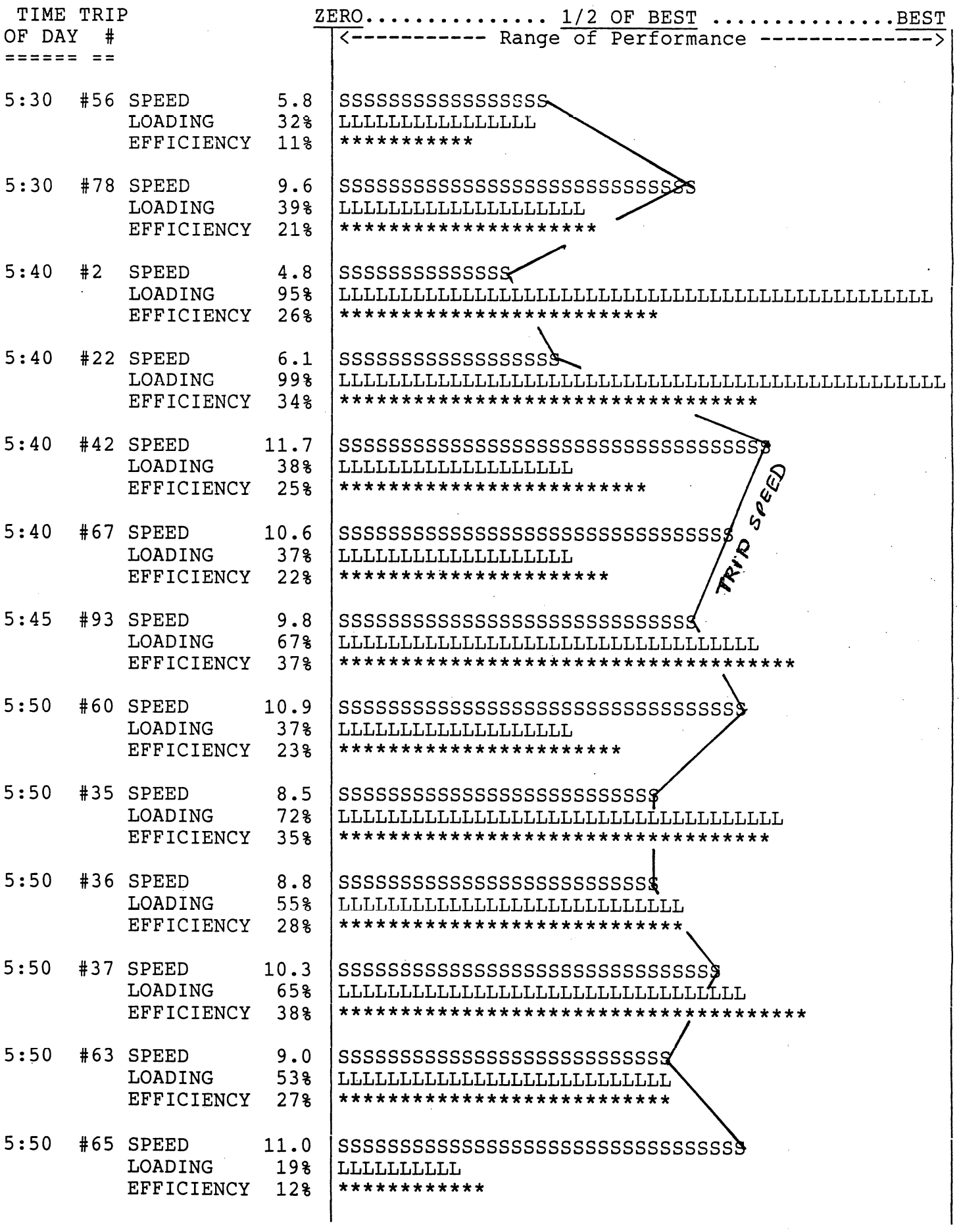
TIME OF DAY	TRIP #			ZERO..... 1/2 OF BEST .....BEST <---------- Range of Performance ---------->
3:10	#21	SPEED	13.0	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	34%	LLLLLLLLLLLLLLLL
		EFFICIENCY	25%	************************
3:10	#34	SPEED	10.0	SSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	63%	LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	36%	**********************************
3:20	#7	SPEED	11.1	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	20%	LLLLLLLLLL
		EFFICIENCY	13%	*************
3:45	#6	SPEED	11.4	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	50%	LLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	32%	********************************
3:50	#75	SPEED	10.3	SSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	75%	LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	44%	**
4:00	#72	SPEED	10.2	SSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	29%	LLLLLLLLLLLLLL
		EFFICIENCY	17%	******************
4:00	#84	SPEED	11.3	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	57%	LLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	37%	************************************
4:10	#24	SPEED	12.7	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	49%	LLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	35%	**********************************
4:20	#19	SPEED	10.4	SSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	32%	LLLLLLLLLLLLLLLL
		EFFICIENCY	19%	*******************
4:20	#33	SPEED	9.4	SSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	59%	LLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	32%	**********************************
4:30	#1	SPEED	9.3	SSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	NA	NA
		EFFICIENCY	NA	NA
4:30	#91	SPEED	7.6	SSSSSSSSSSSSSSSSSSSSSS
		LOADING	29%	LLLLLLLLLLLLLL
		EFFICIENCY	13%	*************
4:45	#26	SPEED	9.6	SSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	81%	LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	44%	**

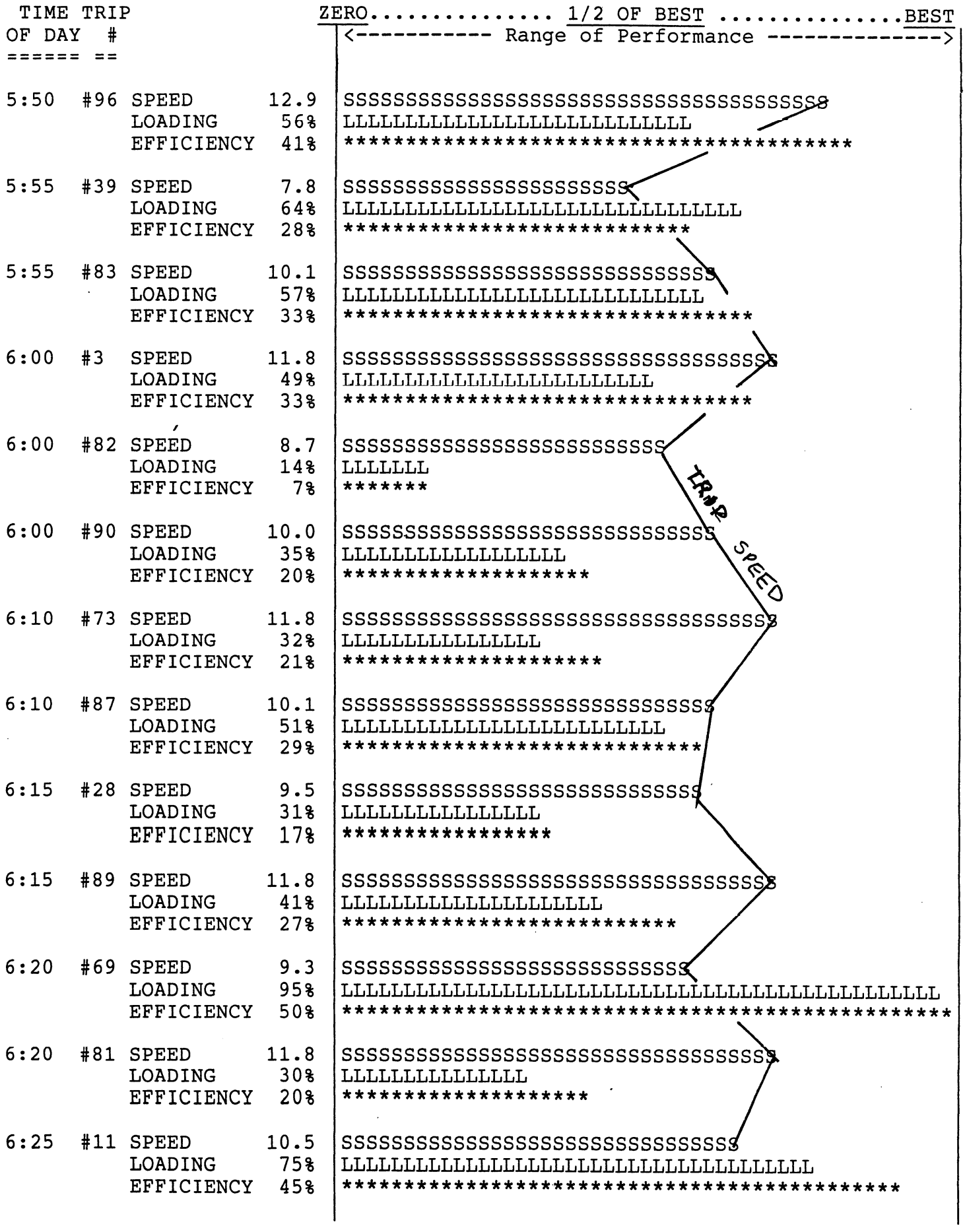
TRIP SPEED

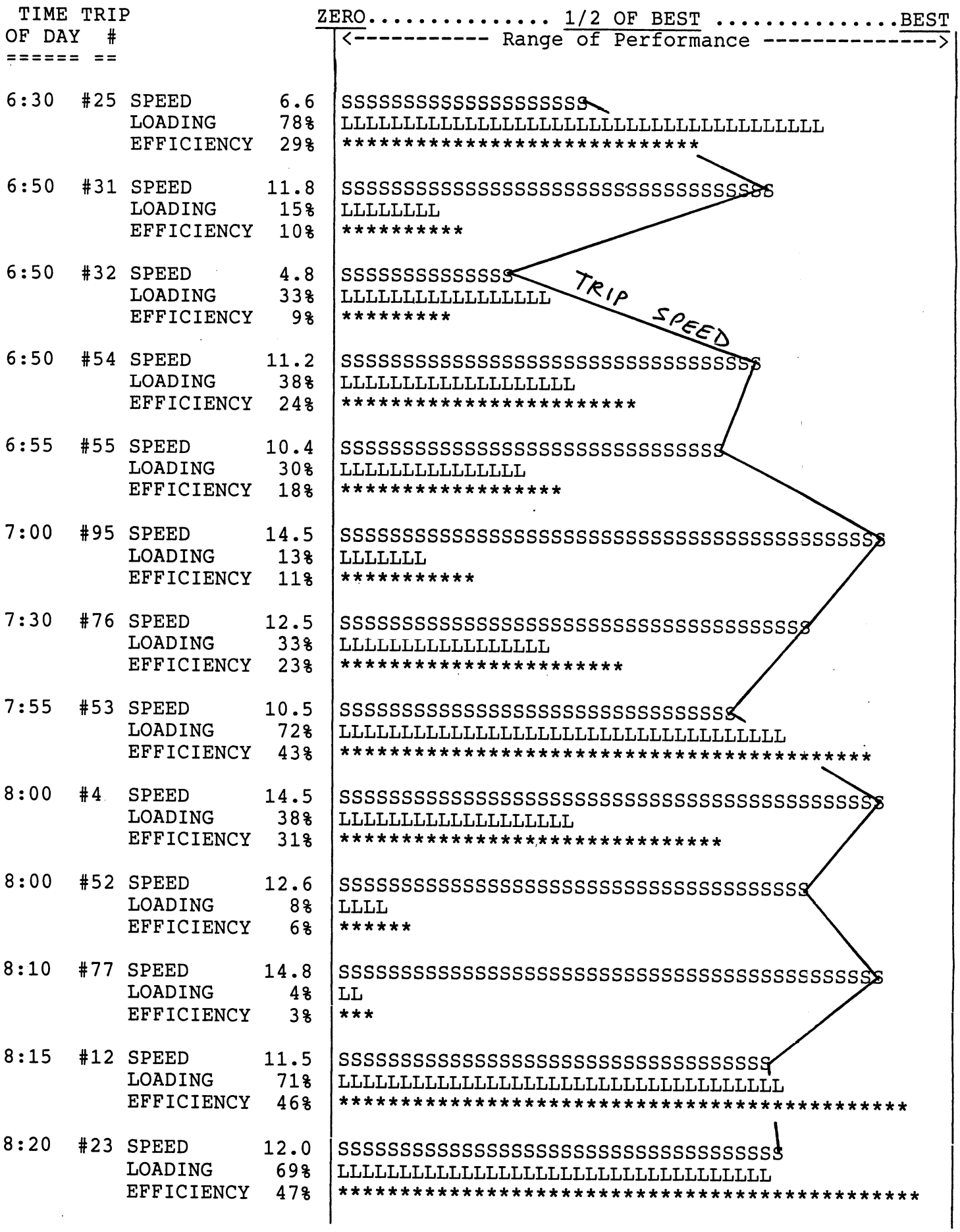
TRIP SPEED


TIME OF DAY
TRIP #
ZERO
1/2 OF BEST
BEST
Range of Performance
4:45 #94 SPEED 10.4
LOADING 72%
EFFICIENCY 43%
4:50 #9 SPEED 8.6
LOADING 32%
EFFICIENCY 16%
4:50 #16 SPEED 8.6
LOADING 32%
EFFICIENCY 16%
4:50 #29 SPEED 8.3
LOADING 91%
EFFICIENCY 43%
4:55 #58 SPEED 11.1
LOADING 58%
EFFICIENCY 37%
4:55 #70 SPEED 10.3
LOADING 46%
EFFICIENCY 27%
5:00 #38 SPEED 9.5
LOADING 54%
EFFICIENCY 29%
5:00 #86 SPEED 8.7
LOADING 22%
EFFICIENCY 11%
5:05 #57 SPEED 10.0
LOADING 35%
EFFICIENCY 20%
5:05 #59 SPEED 10.1
LOADING 81%
EFFICIENCY 46%
5:05 #71 SPEED 11.2
LOADING 53%
EFFICIENCY 34%
5:10 #64 SPEED 10.5
LOADING 64%
EFFICIENCY 38%
5:10 #68 SPEED 10.0
LOADING 84%
EFFICIENCY 48%


TIME OF DAY
TRIP #
ZERO
1/2 OF BEST
BEST
Range of Performance
5:15 #47 SPEED 7.6
LOADING 91%
EFFICIENCY 39%
5:15 #41 SPEED 8.4
LOADING 71%
EFFICIENCY 34%
5:20 #18 SPEED 12.2
LOADING 88%
EFFICIENCY 61%
5:20 #45 SPEED 7.7
LOADING 43%
EFFICIENCY 19%
TRIP SPEED
5:20 #62 SPEED 11.2
LOADING 54%
EFFICIENCY 34%
5:20 #80 SPEED 11.0
LOADING 37%
EFFICIENCY 23%
5:25 #10 SPEED 11.4
LOADING 52%
EFFICIENCY 34%
5:25 #17 SPEED 5.7
LOADING 99%
EFFICIENCY 32%
5:25 #30 SPEED 9.1
LOADING 69%
EFFICIENCY 36%
5:25 #40 SPEED 9.2
LOADING 90%
EFFICIENCY 47%
5:25 #92 SPEED 4.3
LOADING 98%
EFFICIENCY 24%
5:30 #20 SPEED 8.9
LOADING 94%
EFFICIENCY 48%
5:30 #44 SPEED 8.7
LOADING 53%
EFFICIENCY 26%


TIME OF DAY
TRIP #
ZERO
1/2 OF BEST
BEST
Range of Performance
5:30 #56 SPEED 5.8
LOADING 32%
EFFICIENCY 11%
5:30 #78 SPEED 9.6
LOADING 39%
EFFICIENCY 21%
5:40 #2 SPEED 4.8
LOADING 95%
EFFICIENCY 26%
5:40 #22 SPEED 6.1
LOADING 99%
EFFICIENCY 34%
5:40 #42 SPEED 11.7
LOADING 38%
EFFICIENCY 25%
5:40 #67 SPEED 10.6
LOADING 37%
EFFICIENCY 22%
5:45 #93 SPEED 9.8
LOADING 67%
EFFICIENCY 37%
5:50 #60 SPEED 10.9
LOADING 37%
EFFICIENCY 23%
5:50 #35 SPEED 8.5
LOADING 72%
EFFICIENCY 35%
5:50 #36 SPEED 8.8
LOADING 55%
EFFICIENCY 28%
5:50 #37 SPEED 10.3
LOADING 65%
EFFICIENCY 38%
5:50 #63 SPEED 9.0
LOADING 53%
EFFICIENCY 27%
5:50 #65 SPEED 11.0
LOADING 19%
EFFICIENCY 12%
TRIP SPEED


TIME OF DAY
TRIP #
ZERO
1/2 OF BEST
BEST
Range of Performance
5:50 #96 SPEED 12.9
LOADING 56%
EFFICIENCY 41%
5:55 #39 SPEED 7.8
LOADING 64%
EFFICIENCY 28%
5:55 #83 SPEED 10.1
LOADING 57%
EFFICIENCY 33%
6:00 #3 SPEED 11.8
LOADING 49%
EFFICIENCY 33%
6:00 #82 SPEED 8.7
LOADING 14%
EFFICIENCY 7%
6:00 #90 SPEED 10.0
LOADING 35%
EFFICIENCY 20%
6:10 #73 SPEED 11.8
LOADING 32%
EFFICIENCY 21%
6:10 #87 SPEED 10.1
LOADING 51%
EFFICIENCY 29%
6:15 #28 SPEED 9.5
LOADING 31%
EFFICIENCY 17%
6:15 #89 SPEED 11.8
LOADING 41%
EFFICIENCY 27%
6:20 #69 SPEED 9.3
LOADING 95%
EFFICIENCY 50%
6:20 #81 SPEED 11.8
LOADING 30%
EFFICIENCY 20%
6:25 #11 SPEED 10.5
LOADING 75%
EFFICIENCY 45%
TRIP SPEED


TIME OF DAY
TRIP #
ZERO
1/2 OF BEST
BEST
Range of Performance
6:30 #25 SPEED 6.6
LOADING 78%
EFFICIENCY 29%
6:50 #31 SPEED 11.8
LOADING 15%
EFFICIENCY 10%
6:50 #32 SPEED 4.8
LOADING 33%
EFFICIENCY 9%
TRIP SPEED
6:50 #54 SPEED 11.2
LOADING 38%
EFFICIENCY 24%
6:55 #55 SPEED 10.4
LOADING 30%
EFFICIENCY 18%
7:00 #95 SPEED 14.5
LOADING 13%
EFFICIENCY 11%
7:30 #76 SPEED 12.5
LOADING 33%
EFFICIENCY 23%
7:55 #53 SPEED 10.5
LOADING 72%
EFFICIENCY 43%
8:00 #4 SPEED 14.5
LOADING 38%
EFFICIENCY 31%
8:00 #52 SPEED 12.6
LOADING 8%
EFFICIENCY 6%
8:10 #77 SPEED 14.8
LOADING 4%
EFFICIENCY 3%
8:15 #12 SPEED 11.5
LOADING 71%
EFFICIENCY 46%
8:20 #23 SPEED 12.0
LOADING 69%
EFFICIENCY 47%

TIME OF DAY	TRIP #			ZERO..... 1/2 OF BEST .....BEST <---------- Range of Performance ---------->
8:30	#15	SPEED	12.1	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	60%	LLLLLLLLLLLLLLLLLLLLLLLLLLLLL
		EFFICIENCY	41%	**
9:35	#66	SPEED	13.3	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	6%	LLL
		EFFICIENCY	5%	*****
10:40	#50	SPEED	15.8	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	21%	LLLLLLLLLL
		EFFICIENCY	19%	*******************
10:45	#49	SPEED	13.2	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	23%	LLLLLLLLLLL
		EFFICIENCY	17%	*****************
10:50	#48	SPEED	14.7	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	29%	LLLLLLLLLLLLL
		EFFICIENCY	24%	************************
MIDN.	#51	SPEED	17.6	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
		LOADING	20%	LLLLLLLLL
		EFFICIENCY	20%	*******************

TRIP SPEED

FIRST PUBLICATION NUMBER 2512.

City of Cambridge

In the Year One Thousand, Nine Hundred Ninety

AN ORDINANCE

In amendment to an ordinance designated as the "Cambridge Municipal Code."

Be it ordained by the City Council of the City of Cambridge as follows:

That Title 10 entitled "Vehicles and Traffic" of the Cambridge Municipal Code is hereby amended by adding a new Chapter 10.16 entitled "Parking Freeze."

Passed to a second reading at the City Council meeting held on November 5, 1990 and on or after November 19, 1990 the question comes on passing to be ordained.

ATTEST:- Joseph E. Connarton
City Clerk

NOTE: Pursuant to the provisions of General Laws, Chapter 40, Section 32A, Tercentenary Edition, the ordinance as aforesaid which exceeds in length eight octavo pages of ordinary book print may be summarized for publication in a newspaper of general circulation in the city with the further provision that said Ordinance may be examined and obtained at the City Clerk's Office during office hours and that any objection to its invalidity by reason of any defect in the procedure of adoption may only be made within ninety days after the posting or the second publication.

ATTEST:- Joseph E. Connarton
City Clerk

City of Cambridge

In the Year One Thousand, Nine Hundred and Ninety

AN ORDINANCE

In amendment to an ordinance designated as the "Cambridge Municipal Code."

Be it ordained by the City Council of the City of Cambridge as follows:

WHEREAS, the City of Cambridge (City), and the Massachusetts Department of Environmental Protection (DEP) (the "parties") have agreed to cooperate in an effort to amend the State Implementation Plan (SIP) required by the Clean Air Act, 42 U.S.C. s. 7401 et seq., regarding the measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston Region; and

WHEREAS, the City and DEP were parties in a legal dispute pertaining to the terms and implementation of a parking freeze in Cambridge; and

WHEREAS, the parties, as part of a settlement of said dispute, entered into a Memorandum of Agreement (MOA), dated August 15, 1990, which requires that the Cambridge City Manager present to the Cambridge City Council an ordinance to implement the provisions of said MOA; and

WHEREAS, the final SIP amendments will include transportation control measures, including but not limited to parking restrictions, and a parking freeze, and

WHEREAS, a parking freeze is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel; and

WHEREAS, enforcement of a parking freeze will demonstrate the commitment of the City to support the Clean Air Act by discouraging automobile traffic to the City, and

WHEREAS, future revisions to the SIP may appropriately emphasize limits upon and/or reductions of all-day parking available to commuters, while at the same time retaining parking opportunities for shoppers, occasional visitors, and non-peak hour visitors, and

WHEREAS, the SIP amendment process will take approximately one year and the City hereby commits itself to the terms of this ordinance for the period until a SIP amendment is approved, said period to be known as the "interim period."

Now, THEREFORE, be it ordained by the City Council of the City of Cambridge as follows:

Title 10 of the Code (Vehicles and Traffic) is hereby amended by adding thereto the following new Chapter 10.16 (Parking Freeze):

Chapter 10.16

PARKING FREEZE

Sections:

10.16.010	Time period of Chapter
10.16.020	Definitions
10.16.030	Building or operation of parking facilities
10.16.040	Pre-existing applications, permits and determinations
10.16.050	Interim Parking Control Committee
10.16.060	Procedure for Obtaining CPFP or Determination of Exclusion
10.16.070	Number of CPFPs to be issued
10.16.080	Enforcement
10.16.090	Memorandum of Agreement of August 15, 1990

10.16.010 Time period of Chapter

This Chapter will remain in effect only during the interim period, as defined in s. 10.16.020.

10.16.020 Definitions

"Controlled parking facility" (CPF) means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked, except (i) a parking facility, the use of which is limited exclusively for the benefit of the residents of a specific residential building or group of buildings, or, (ii) parking on public streets, and (iii) a parking facility designated as a park-and-ride facility to be operated in conjunction with the Massachusetts Bay Transportation Authority.

"Controlled parking facility permit" (CPFP) means a permit issued by the Director of the Cambridge Department of Traffic and Parking, which allows the construction or modification of a CPF and the operation of a CPF. Each permit will be for a specific number of Controlled parking spaces.

"Controlled parking space" (CPS) means a parking space in a Controlled parking facility (CPF).

"Determination of exclusion" means a determination by the Director of the Cambridge Department of Traffic and Parking that a parking facility does not come within the definition of a Controlled parking facility.

"Director" means Director of the Cambridge Department of Traffic and Parking.

"Interim Parking Control Committee" (IPCC) means the committee established by this Chapter which decides whether to issue Controlled parking facility permits and Determinations of exclusion. These decisions by the IPCC are binding on the Director.

"Interim period" means the period starting August 15, 1990 and ending with the approval of an amendment to the State Implementation Plan (SIP), required by the Clean Air Act (42 U.S.C., s. 7401 et seq.), regarding measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston region.

"Memorandum of Agreement" or "Memorandum" means the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 10, 1990 and executed August 15, 1990.

"Parking facility" means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

10.16.030 Building or operation of parking facilities

No person shall be granted a permit to build a parking facility in Cambridge, or modify a parking facility so as to increase the number of parking spaces therein, and no person shall operate a parking facility, unless said person shall have first obtained a controlled parking facility permit or a determination of exclusion under the procedures set forth in this Chapter.

10.16.040 Pre-existing applications, permits and determinations

The City may issue new commercial parking facility permits or determinations of exclusion pursuant to the procedures set forth in the Memorandum of Agreement dated November 15, 1984, for and with respect to spaces for which an application was filed with the City on or before November 10, 1988. And if a commercial parking

facility permit or a determination of exclusion was obtained before August 15, 1990, that permit or determination shall not be subject to the provisions of this Chapter. The City, however, may enforce the terms and conditions of any permit or determination of exclusion, regardless of when it was issued.

Parking facilities that were not subject to the parking freeze prior to August 15, 1990 shall not be subject to the terms of this Chapter unless the owner or operator of the facility seeks to increase the number of parking spaces therein.

10.16.050 Interim Parking Control Committee

All applications for controlled parking facility permits and determinations of exclusion shall be reviewed by an Interim Parking Control Committee (IPCC or Committee) comprised of three Cambridge residents with appropriate experience, appointed by the City Manager. One member of the Committee shall be appointed from a list of five nominees submitted to the City Manager by the Cambridge Citizens for Livable Neighborhoods. No person shall be appointed to the Committee who has a financial interest in commercial parking in Cambridge. The Committee will be appointed no later than September 15, 1990. The Committee shall maintain complete and accurate records of all applications for CPFPs and determinations of exclusion. In carrying out its duties, the Committee shall consult with and seek the assistance of other appropriate departments and agencies in the City, state and federal governments such as the Department of Community Development, the License Commission, the Inspectional Services Department, the

Department of Traffic and Parking, the Massachusetts Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency.

10.16.060 Procedure for obtaining CPFP or Determination of Exclusion

a) An application for a CPFP or determination of exclusion shall be submitted to the Director on a form available at the Cambridge Traffic and Parking Department. The IPCC shall hold hearings on such applications on the fourth Wednesday of every month, if necessary. Only applications received at least 30 days prior to the scheduled hearing will be considered at such hearing.

b) The IPCC will publish in at least one local weekly newspaper a notice of the hearing. The notice shall set forth a specific hearing date not less than fourteen days and not more than thirty days from the date of publication, as well as the time and place of such hearing; said notice shall indicate that a copy of the application(s) is available for public inspection at the Traffic and Parking Department. A notice of all applications to be heard at the hearing shall be sent at least two weeks before the hearing to the DEP.

c) Every application for a CPFP or determination of exclusion shall include the following information:

1. Name and address of owner.
2. Name and address of proposed facility.
3. Type of facility (parking lot or garage).
4. Type of construction (new or modification) proposed.

5. Number of existing spaces and who uses them.

6. Number of proposed spaces and who will use them.

7. Proposed change in number of spaces by use.

8. Calculations showing parking space determination according to the appropriate section of the Cambridge Zoning Ordinance.

9. Detailed information on how use of the spaces will be controlled for each category of use.

10. Traffic mitigation measures which will be used to reduce vehicle trips to the project.

11. A detailed description of the need for the proposed facility and the type of development and patrons it will serve.

12. A site plan and floor plans of the proposed lot or garage, showing the location of the facility, the layout space, and the entry and exit points.

Six copies of every application shall be submitted, with the above information, to the Interim Parking Control Committee, City Hall Annex, 57 Inman Street, Cambridge, Massachusetts 02139. A copy thereof shall be sent by the Committee to the Commissioner, Massachusetts Department of Environmental Protection, 1 Winter Street, Boston, Massachusetts 02108.

d) The Committee shall be required to process any applications already on file with the Director at the time of the adoption of this Chapter in the order of the filing of said pending applications. All amendments to pending applications shall be

deemed to relate back to the original date of filing. Any pending application relating to a project for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager shall be processed and acted upon by the Committee, in accordance with the limits established in section 10.16.070, subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM and upon no other conditions, and without any modification of the application by the Committee.

e) At least 14 days before the hearing, the Interim Parking Control Committee shall send to each applicant which has submitted a complete application an analysis of the application in regard to the criteria set out above. This analysis will highlight any further information required in order to make a full assessment of the application. Any applicant who has filed an incomplete application shall be so notified at that time.

f) Within 14 days after the hearing, the Interim Parking Control Committee shall approve or disapprove the application for a CPFP or determination of exclusion after full consideration of all the facts contained in the application. The Committee's approval shall indicate on the CPFP or determination the conditions, if any, upon which approval is given. Such conditions may include reasonable traffic mitigation requirements to reduce air quality impacts of the proposed facility or spaces. A copy of said approval shall be sent to the applicant and the Commissioner, Massachusetts Department of Environmental Protection.

g) The Director shall approve or disapprove the application in accordance with the Committee's determination. When the decision is made to approve an application, the decision shall state the name, address and authorized number of spaces of the facility and any conditions upon which the application is approved. Any approval of a CPFP for a facility that applied after November 10, 1988 shall include reference to inventory data showing that the spaces issued come either from any spaces remaining of the 500 spaces referred to in section 10.16.070 or an identification of the location and number of spaces against which enforcement action has been taken pursuant to section 10.16.080, which serve as the basis for issuance of the CPFP pursuant to section 10.16.080. All CPFPs shall include a provision requiring that any spaces in the facility for which there will be an hourly or daily fee shall not be available for occupancy prior to 9:30 a.m. on weekdays.

10.16.070 Number of CPFP's to be Issued

The City, in accordance with the procedures set forth in this Chapter, may issue permits for up to 500 controlled parking spaces. In addition, the City may issue a number of CPFPs equal to

a) The number of parking spaces which the City has eliminated or against which the City has initiated an enforcement action in accordance with section 10.16.080; plus

b) The number of commercial parking spaces which were permitted in accordance with the November 15, 1984 MOA and which are no longer being used.

Rights to eliminated parking spaces cannot be transferred between persons, but must revert back to the City for allocation under the procedure set forth in s. 10.16.060.

10.16.080 Enforcement

a) If any person, after a hearing before the IPCC, is found to have operated a parking space illegally, either under the provisions of the November 15, 1984 MOA or under the provisions of this Chapter, such person may be subject to a fine of $10 per day per space for every day that the space was illegally operated. In addition, the Director, after such a hearing, may revoke a determination of exclusion for spaces operated in violation of their determinations, or eliminate those spaces or facilities found to be operating with no required permit or determination of exclusion.

At any hearing held by the IPCC to decide if excluded spaces have been operated as commercial spaces, or as controlled parking spaces as defined in s. 10.16.020, any facility holding a determination of exclusion, which is found to have any spaces operating in violation of the terms of said determination shall be presumed to have all of its spaces operating in violation of the terms of its determination unless the operator demonstrates to the satisfaction of the IPCC that a distinct and identifiable portion of the spaces have been operated in accordance with the terms of their determination. It shall be the responsibility of the IPCC to determine the number of spaces within a facility that are operating in violation of the terms of their determination of exclusion, and

to impose fines or revoke the determination.

Nothing in this Agreement shall prohibit the owner of spaces which have been improperly used from applying for a new determination of exclusion or a CPFP in accordance with the terms of this Chapter.

Upon the expiration of any temporary permit or exclusion the Director may issue an administrative order to cease operations at the facility without any requirement of a hearing before the IPCC.

b) The phrase "initiated an enforcement action," appearing in s. 10.16.070, means the issuance by the Director of an administrative order ordering a person to eliminate a parking space or spaces.

Unless the owner of a facility complies with an administrative order to eliminate spaces under this section, and waives any further appellate rights, the City shall not be authorized to issue new CPFPs for spaces in amounts equal to the number of spaces the City is seeking to eliminate until the City has initiated enforcement action including filing a complaint in court with an application for a preliminary injunction, to compel compliance with the administrative order. The City agrees that it shall initiate said court action no later than 30 days following the issuance of the administrative order if the facility has not complied. The City further agrees that it shall only be authorized to issue new CPFPs for 50% of the number of spaces sought to be eliminated by court action upon the filing of said action. The remaining 50% of said spaces will only be available for issuance as new spaces when

and if the City prevails on the merits of said court action. The City agrees to prosecute aggressively any such court action to compel compliance with said administrative order.

10.16.090 Memorandum of Agreement of August 15, 1988

The City agrees to fulfill all its obligations contained in the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 15, 1990.

City of Cambridge

In the Year One Thousand, Nine Hundred

DRAFT 6:00pm
November 19, 1990

AN ORDINANCE

In amendment to an ordinance designated as the "Cambridge Municipal Code."

Be it ordained by the City Council of the City of Cambridge as follows:

WHEREAS, the City of Cambridge (City), and the Massachusetts Department of Environmental Protection (DEP) (the "parties") have agreed to cooperate in an effort to amend the State Implementation Plan (SIP) required by the Clean Air Act, 42 U.S.C. s. 7401 et seq., regarding the measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston Region; and

WHEREAS, the City and DEP were parties in a legal dispute pertaining to the terms and implementation of a parking freeze in Cambridge; and

WHEREAS, the parties, as part of a settlement of said dispute, entered into a Memorandum of Agreement (MOA), dated August 15, 1990, which requires that the Cambridge City Manager present to the Cambridge City Council an ordinance to implement the provisions of said MOA; and

WHEREAS, the City has authority to enact the provisions of this ordinance pursuant to G. L. c. 111, § 31 C, as well as by

authority derived from the City's general police powers; and

WHEREAS, the final SIP amendments will include transportation control measures, and may include ~~including~~ but not be limited to parking restrictions and a parking freeze, and

WHEREAS, a parking freeze is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel; and

WHEREAS, enforcement of a parking freeze will demonstrate the commitment of the City to support the Clean Air Act by discouraging automobile traffic to the City, and

WHEREAS, future revisions to the SIP may appropriately emphasize limits upon and/or reductions of all-day parking available to commuters, while at the same time retaining parking opportunities for shoppers, occasional visitors, and non-peak hour visitors, and

WHEREAS, the SIP amendment process will take approximately one year and the City hereby commits itself to the terms of this ordinance for the period until a SIP amendment is approved, said period to be known as the "interim period."

Now, THEREFORE, be it ordained by the City Council of the City of Cambridge as follows:

Title 10 of the Code (Vehicles and Traffic) is hereby amended by adding thereto the follcwing new Chapter 10.16 (Parking Freeze):

Chapter 10.16

PARKING FREEZE

Sections:

10.16.010	Time period of Chapter
10.16.020	Definitions
10.16.030	Building or operation of parking facilities
10.16.040	Pre-existing applications, permits and determinations
10.16.050	Interim Parking Control Committee
10.16.060	Procedure for Obtaining CPFP or Determination of Exclusion
10.16.070	Number of CPFPs to be issued
10.16.080	Enforcement
10.16.090	Memorandum of Agreement of August 15, 1990

10.16.010 Time period of Chapter

This Chapter will remain in effect only during the interim period, as defined in s. 10.16.020.

10.16.020 Definitions

"Controlled parking facility" (CPF) means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked, except (i) a parking facility, the use of which is limited exclusively for the benefit of the residents of a specific residential building or group of buildings, or, (ii) parking on public streets, and (iii) a parking facility designated as a park-and-ride facility to be operated in conjunction with the Massachusetts Bay Transportation Authority.

"Controlled parking facility permit" (CPFP) means a permit issued by the Director of the Cambridge Department of Traffic and

Parking, which allows the construction or modification of a CPF and the operation of a CPF. Each permit will be for a specific number of Controlled parking spaces.

"Controlled parking space" (CPS) means a parking space in a Controlled parking facility (CPF).

"Determination of exclusion" means a determination by the Director of the Cambridge Department of Traffic and Parking that a parking facility does not come within the definition of a Controlled parking facility.

"Director" means Director of the Cambridge Department of Traffic and Parking.

"Interim Parking Control Committee" (IPCC) means the committee established by this Chapter which decides whether to issue Controlled parking facility permits and Determinations of exclusion. These decisions by the IPCC are binding on the Director.

"Interim period" means the period starting August 15, 1990 and ending with ~~between the enactment of this Chapter and~~ the approval of an amendment to the State Implementation Plan (SIP), required by the Clean Air Act (42 U.S.C., s. 7401 et seq.), regarding measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston region.

"Memorandum of Agreement" or "Memorandum" means the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 10, 1990 and executed August

15, 1990.

"Parking facility" means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

10.16.030 Building or operation of parking facilities

No person shall be granted a permit to build a parking facility in Cambridge, or modify a parking facility so as to increase the number of parking spaces therein, and no person shall operate a parking facility, unless said person shall have first obtained a controlled parking facility permit or a determination of exclusion under the procedures set forth in this Chapter.

10.16.040 Pre-existing applications, permits and determinations

The City may issue new commercial parking facility permits or determinations of exclusion pursuant to the procedures set forth in the Memorandum of Agreement dated November 15, 1984, for and with respect to spaces for which an application was filed with the City on or before November 10, 1988. And if a commercial parking facility permit or a determination of exclusion was obtained before August 15, 1990, that permit or determination shall not be subject to the provisions of this Chapter. The City, however, may enforce

the terms and conditions of any permit or determination of exclusion, regardless of when it was issued.

Parking facilities which, prior to August 15, 1990, were generally regarded as not being "commercial parking facilities" under the Memorandum of November 15, 1984, shall not be subject to the terms of this Chapter, except for the enforcement provisions of §10.16.080, unless the owner or operator of the facility seeks to increase the number of parking spaces therein. Pursuant to this paragraph the owner or operator of any non-commercial facility (including employee parking facilities) which was in compliance with all applicable laws at the time it was established, which did not apply for or receive either a permit or a determination of exclusion, and which would have been entitled to an exemption under the then existing rules of the parking freeze, shall be entitled to receive an exemption upon application to the IPCC. Such application shall include documentation evidencing compliance with all other applicable laws, the date of commencement of operations at the facility, and evidence of the qualification for an exemption under the parking freeze rules as applied by the Traffic Director at the time the facility began operations. Upon review of said application materials, and a finding that the facility would have been entitled to an exemption, the IPCC may waive the public hearing required by section 10.16.060 of this Chapter. If a facility is out of compliance with any applicable law, the IPCC may require any necessary steps to achieve compliance prior to notifying the Traffic Director to issue the determination

of exclusion authorized by this paragraph. The IPCC shall make a determination within thirty (30) days of an application under this paragraph. If the IPCC finds that the facility would have been entitled to an exemption under the rules of the parking freeze as applied by the Traffic Director at the time the facility began operations, then the IPCC shall notify the Traffic Director to issue a determination of exclusion.

10.16.050 Interim Parking Control Committee

All applications for controlled parking facility permits and determinations of exclusion shall be reviewed by an Interim Parking Control Committee (IPCC or Committee) comprised of three Cambridge residents with appropriate experience, appointed by the City Manager. One member of the Committee shall be appointed from a list of five nominees submitted to the City Manager by the Cambridge Citizens for Livable Neighborhoods. No person shall be appointed to the Committee who has a financial interest in commercial parking in Cambridge. The Committee will be appointed no later than September 15, 1990. The Committee shall maintain complete and accurate records of all applications for CPFPs and determinations of exclusion. In carrying out its duties, the Committee shall consult with and seek the assistance of other appropriate departments and agencies in the City, state and federal governments such as the Department of Community Development, the License Commission, the Inspectional Services Department, the Department of Traffic and Parking, the Massachusetts Department of

Environmental Protection (DEP) and the U.S. Environmental Protection Agency.

10.16.060 Procedure for obtaining CPFP or Determination of Exclusion

a) An application for a CPFP or determination of exclusion shall be submitted to the Director on a form available at the Cambridge Traffic and Parking Department. The IPCC shall hold hearings on such applications on the fourth Wednesday of every month, if necessary. Only applications received at least 30 days prior to the scheduled hearing will be considered at such hearing.

b) The IPCC will publish in at least one local weekly newspaper a notice of the hearing. The notice shall set forth a specific hearing date not less than fourteen days and not more than thirty days from the date of publication, as well as the time and place of such hearing; said notice shall indicate that a copy of the application(s) is available for public inspection at the Traffic and Parking Department. A notice of all applications to be heard at the hearing shall be sent at least two weeks before the hearing to the DEP.

c) Every application for a CPFP or determination of exclusion shall include the following information:

1. Name and address of owner.
2. Name and address of proposed facility.
3. Type of facility (parking lot or garage).
4. Type of construction (new or modification) proposed.
5. Number of existing spaces and who uses them.

6. Number of proposed spaces and who will use them.

7. Proposed change in number of spaces by use.

8. Calculations showing parking space determination according to the appropriate section of the Cambridge Zoning Ordinance.

9. Detailed information on how use of the spaces will be controlled for each category of use.

10. Traffic mitigation measures which will be used to reduce vehicle trips to the project.

11. A detailed description of the need for the proposed facility and the type of development and patrons it will serve.

12. A site plan and floor plans of the proposed lot or garage, showing the location of the facility, the layout space, and the entry and exit points.

Six copies of every application shall be submitted, with the above information, to the Interim Parking Control Committee, City Hall Annex, 57 Inman Street, Cambridge, Massachusetts 02139. A copy thereof shall be sent by the Committee to the Commissioner, Massachusetts Department of Environmental Protection, 1 Winter Street, Boston, Massachusetts 02108.

d) The Committee shall be required to process any applications already on file with the Director at the time of the adoption of this Chapter in the order of the filing of said pending applications. All amendments to pending applications shall be deemed to relate back to the original date of filing. Any pending

application relating to a project for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager shall be processed and acted upon by the Committee, in accordance with the limits established in section 10.16.070, subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM and upon no other conditions, and without any modification of the application by the Committee.

e) At least 14 days before the hearing, the Interim Parking Control Committee shall send to each applicant which has submitted a complete application an analysis of the application in regard to the criteria set out above. This analysis will highlight any further information required in order to make a full assessment of the application. Any applicant who has filed an incomplete application shall be so notified at that time.

f) Within 14 days after the hearing, the Interim Parking Control Committee shall approve or disapprove the application for a CPFP or determination of exclusion after full consideration of all the facts contained in the application. The Committee's approval shall indicate on the CPFP or determination the conditions, if any, upon which approval is given. Such conditions may include reasonable traffic mitigation requirements to reduce air quality impacts of the proposed facility or spaces. A copy of said approval shall be sent to the applicant and the Commissioner, Massachusetts Department of Environmental Protection.

g) The Director shall approve or disapprove the application

in accordance with the Committee's determination. When the decision is made to approve an application, the decision shall state the name, address and authorized number of spaces of the facility and any conditions upon which the application is approved. Any approval of a CPFP for a facility that applied after November 10, 1988 shall include reference to inventory data showing that the spaces issued come either from any spaces remaining of the 500 spaces referred to in section 10.16.070 or an identification of the location and number of spaces against which enforcement action has been taken pursuant to section 10.16.080, which serve as the basis for issuance of the CPFP pursuant to section 10.16.080. All CPFPs shall include a provision requiring that any spaces in the facility for which there will be an hourly or daily fee shall not be available for occupancy prior to 9:30 a.m. on weekdays.

10.16.070 Number of CPFP's to be Issued

The City, in accordance with the procedures set forth in this Chapter, may issue permits for up to 500 controlled parking spaces. In addition, the City may issue a number of CPFPs equal to

a) The number of parking spaces which the City has eliminated or against which the City has initiated an enforcement action in accordance with section 10.16.080; plus

b) The number of commercial parking spaces which were permitted in accordance with the November 15, 1984 MOA and which are no longer being used.

Rights to ~~eliminated~~ parking spaces eliminated by

enforcement cannot be transferred between persons, but must revert back to the City for allocation under the procedure set forth in s. 10.16.060.

10.16.080 Enforcement

a) If any person, after a hearing before the IPCC, is found to have operated a parking space illegally, either under the provisions of the November 15, 1984 MOA or under the provisions of this Chapter, such person may ~~will~~ be subject to a fine of $10 per day per space for every day that the space was illegally operated. In addition, the Director, after such a hearing, may revoke a determination of exclusion for spaces operated in violation of their determinations, or eliminate those spaces or facilities found to be operating with no required permit or determination of exclusion.

At any hearing held by the IPCC to decide if excluded spaces have been operated as commercial spaces, or as controlled parking spaces as defined in s. 10.16.020, any facility holding a determination of exclusion, which is found to have any spaces operating in violation of the terms of said determination shall be presumed to have all of its spaces operating in violation of the terms of its determination unless the operator demonstrates to the satisfaction of the IPCC that a distinct and identifiable portion of the spaces have been operated in accordance with the terms of their determination. It shall be the responsibility of the IPCC to determine the number of spaces within a facility that are operating in violation of the terms of their determination of exclusion, and

to impose fines or revoke the determination.

Nothing in this Agreement shall prohibit the owner of spaces which have been improperly used from applying for a new determination of exclusion or a CPFP in accordance with the terms of this Chapter.

Upon the expiration of any temporary permit or exclusion the Director may issue an administrative order to cease operations at the facility without any requirement of a hearing before the IPCC.

b) The phrase "initiated an enforcement action," appearing in s. 10.16.070, means the issuance by the Director of an administrative order ordering a person to eliminate a parking space or spaces.

Unless the owner of a facility complies with an administrative order to eliminate spaces under this section, and waives any further appellate rights, the City shall not be authorized to issue new CPFPs for spaces in amounts equal to the number of spaces the City is seeking to eliminate until the City has initiated enforcement action including filing a complaint in court with an application for a preliminary injunction, to compel compliance with the administrative order. The City agrees that it shall initiate said court action no later than 30 days following the issuance of the administrative order if the facility has not complied. The City further agrees that it shall only be authorized to issue new CPFPs for 50% of the number of spaces sought to be eliminated by court action upon the filing of said action. The remaining 50% of said spaces will only be available for issuance as new spaces when

and if the City prevails on the merits of said court action. The City agrees to prosecute aggressively any such court action to compel compliance with said administrative order.

10.16.090 Memorandum of Agreement of August 15, 1990

The City agrees to fulfill all its obligations contained in the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 15, 1990.

Upon submission by the City Manager to the Metropolitan Planning Organization, or other appropriate agency, of a proposed amendment to the SIP approved by the City Council, as contemplated by the August 15, 1990 MOA and by this Chapter, the provisions of this Chapter shall continue in effect for a period of sixty (60) days from the date of said submission. If, at the end of said sixty (60) days, there has not been a final approval by the United States Environmental Protection Agency (EPA) of the proposed SIP amendment, then the City shall take the necessary action to substitute the terms of said proposed SIP amendment for the terms of this Chapter, and shall implement said proposed SIP amendment on an interim basis pending final approval by the EPA.



RECEIVED
CITY CLERK
'90 NOV 23 AM 10:29
CAMBRIDGE MA.

THE ATHENAEUM GROUP
Athenaeum House
215 First Street
Cambridge, Massachusetts 02142
617-492-2155

November 20, 1990

Joseph E. Connarton
City Clerk
Cambridge City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Re: **PROPOSED PARKING FREEZE**

Dear Mr. Connarton:

For your records, I have enclosed copies of 20 letters from companies in opposition to the proposed parking freeze. I have also enclosed a list of an additional 15 companies opposed to the freeze who have authorized the use of their name in opposition. Please make these letters part of the public record.

Sincerely,

David Clem

DEC:rmf
Enclosures

COMPANIES WHO HAVE SAID WE CAN USE THEIR NAME

ON LIST OF COMPANIES IN OPPOSITION TO THE NEW PARKING FREEZE

Alzheimer's Disease and Related Disorders Association

Angora Travel, Inc.

Cambridge Graphics, Inc.

Cambridge Management Group

Carl Heinrich Company

Global Villages, Inc.

Kendall Square Dental Associates

Lewis, Trachtenberg and Associates

New England Technology Group, Inc.

One Kendall Clothing Corporation

Opinion Dynamics Corporation

Peter Feinstein, Inc.

Steadfast Research Laboratories, Inc.

Steve Marsel Studio, Inc.

The Career Group, Inc.

TOTAL 15

COMPANIES WHO SENT SUPPORT LETTERS

FOR NOVEMBER 19, 1990 CITY COUNCIL PARKING FREEZE HEARING

Bernard Hodes Advertising, Inc.

Bitstream Inc.

Dr. Steven J. Bromberg (Chiropractic Physician)

Cambridge Brewing Company

Collier New England

Free Romania Foundation, Inc.

Genzyme Corporation

Goemon Japanese Noodle Restaurant

Immulogic Pharmaceutical Corporation

Mail Boxes Etc. USA

Management Technologies

Motorola Inc.

Open Books, Inc.

Quantum Books

Repligen Corporation

Rowland Institute for Science, Inc.

Sensimetrics Corporation

Sirius Software, Inc.

The Office Facsimile Center

WRCA Radio

TOTAL 20

BERNARD HODES ADVERTISING, INC.

215 FIRST STREET
CAMBRIDGE, MA 02142
617 • 576 • 2131
FAX 617 • 576 • 2361

November 19,1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Gentlemen:

Bernard Hodes Advertising has been a tenant at 215 First Street since 1984, and would like to remain here.

However, any future parking restrictions could make it necessary for us to relocate. Advertising deadlines are such that many of our staff members work long hours .... too late for public transportation. Parking availability is a must.

We urge you to vote against this proposed freeze. It is not in our best interests or those of the city of Cambridge.

Very truly yours,

David A. Dwyer
Sr. Vice President

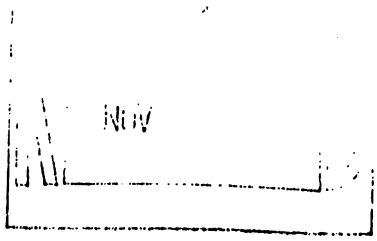
gcf

Bitstream

Bitstream Inc.
Athenaeum House
215 First Street
Cambridge, MA 02142

617 497-6222
Telex 467237
Fax 617 868-4732

November 16, 1990



Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

Bitstream Inc. has been a tenant at 215 First Street since 1981. We have grown from a small company with four employees to our current size of two hundred and twenty.

While we have lived through many changes in this area, we have made every effort to adapt. Our roots are here, and we have a strong desire to remain.

However, the parking situation could force us to leave. It is already impossible to secure spaces for all employees who need them. Any additional restrictions would be devastating.

Because we are still a young, high tech company, many employees work long hours and week-ends. Schedules do not always conform to availability of public transportation. Safety concerns require us to advise against employees walking to T stations late at night. Many employees live far beyond the immediate area and already spend over two hours a day commuting to and from work. We do not wish to add to this time or increase their frustration by searching for a place to put their cars. It is unrealistic to expect employees to remain at Bitstream when faced with unsolvable parking problems.

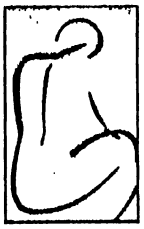
We urge you to vote against this proposed freeze. It is surely not in our best interests or those of the city of Cambridge. A vote for this measure is a vote against companies like mine staying in Cambridge.

Sincerely,

Jane Spencer

Jane Spencer
Manager, Administration

JS:jmc/1060



Dr. Steven J. Bromberg

NOV 15 1990

November 14, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

RE: Parking freeze

Dear City Councilors:

My office, staff and patients strongly oppose a parking freeze that would eliminate existing parking spaces at this office at One Kendall Square.

My staff conducted a survey of the method of transportation utilized by my patients, and determined that a minimum of 30% or 60 patients per week used a car and relied on the parking garage to keep their appointment. In addition, I commute from Bedford, MA and there is no fast or convenient mass transit from my home to Cambridge. Therefore, I require my car for transportation and without the parking garage I would have no place to park. I also have staff members that need their cars to get to work and would not be able to work at this office without parking.

In conclusion, without adequate parking I would not be able to maintain a practice at this location. To move my practice to another location would be devastating financially. To move a practice is to essentially start from scratch.

Although this is only one business that would be affected I am totally convinced after talking to some of my patients that work here at One Kendall Square that if we lose access to the parking garage that their business would have to move to a new location. I am sure that the loss of parking would be detrimental to other new businesses as well that rely on parking for customers as well as employees.

Chiropractic Physician

One Kendall Square
Building 300
Cambridge, MA 02139
(617) 494-1166

November 14, 1990

RE: Parking freeze

In light of a suffering economy and government deficits, the adverse effects of this parking freeze on jobs and tax revenue would be counterproductive to the health of our community.

If air pollution is the only issue that is driving this effort to limit parking then there are apparently far more effective programs that could be instituted. For example, 1) the mass transit could be expanded. The red line only makes 4 stops in Cambridge, and the green line stops at Lechmere. Major portions of Cambridge are inaccessible to the T. Also, the T could extend further into the suburbs north of the city so that more commuters could access it. 2) Create bicycle lanes in the street. 3) Work toward reducing ozone and sulfide emissions in industry and on cars.

In conclusion, a parking freeze would force me to leave One Kendall Square potentially devastating my practice which would adversely affect me, my employees and all the patients that I take care of. It would also cause the loss jobs and tax revenue at a time when many people are already out of work. Finally, it appears to be the least productive way to reduce air pollution.

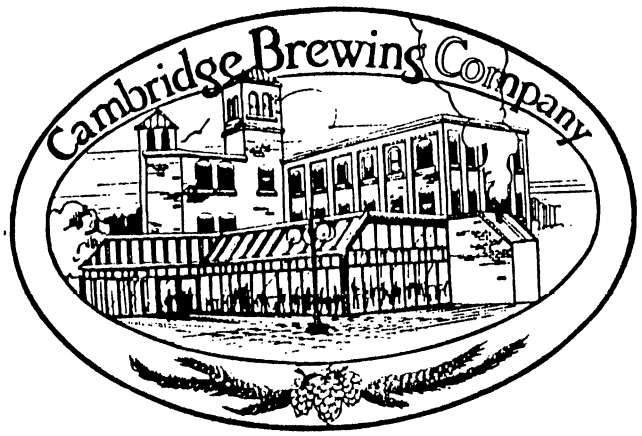
Please oppose this freeze.

Thank you.

Sincerely,

Steven J. Bromberg, D.C., C.C.S.P.

cc: The Athenaeum Group



11/15/90

Mr. Francis H. Duehay
Cambridge City Council

Dear Mr. Duehay,

My name is Phil Bannatyne and I am the owner here at the Cambridge Brewing Company, a restaurant and brewery at One Kendall Square. I also live in Cambridge at 69 Chilton St. and met you briefly while my wife and I were sitting on our front porch after one of the hospice orientation meetings which you attented. I am writing you today to voice my opposition to the proposed new parking freeze.

While I am certainly in favor of intelligent, controlled developement and any measures that contribute to cleaner air I am highly unconvinced that the new parking freeze is an effective means toward these ends. Such a drastic action would seemingly halt all developement and severely impact the economic well being of the city.

Yes it is a city! People live here because they enjoy the various cultural activities an urban environment can support. Along with all the theater, music, sporting events, and restaurants comes the inevitable need for transportation to and from them. An active urban society will suffer with some traffic and drastically limiting parking is not the answer.

Finally, as I am sure you know, the economy in general and the restaurant business specifically have seen better days. I fear that if we make it more difficult for people to come and do business in Cambridge that many businesses in Cambridge may fail. Times are tough and the new parking freeze can only make them tougher.

Sincerely,

Phil Bannatyne

One Kendall Square • Building 100 • Cambridge, MA 02139 • 617-494-1994

COLLIER
NEW ENGLAND

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear SIrs:

Collier New England has been a tenant at 215 First Street since 1951.

While we have lived through many changes in the area, we have made every effort to adapt. Our roots are here, and we have a strong desire to remain.

However, the parking situation could force us to leave. It is already impossible to secure spaces for all employees who need them. Any additional restrictions would be devastating.

We urge you to vote against this proposed freeze. It is surely not in the best interests or those of the City of Cambridge. a vote for this measure is a vote against companies like ours staying in Cambridge.

Sincerely,

Ronald J. Frisch
Vice President, Operations

215 First Street Cambridge, MA 02142 (617) 547-7200 FAX: (617) 547-5813

Free Romania Foundation, Inc.
725 CONCORD AVENUE, BOX 12, CAMBRIDGE, MA 02138 • TEL:617 876 3378 • FAX:617 876 3682

November 19,1990

Cambridge City Council
City Clerk,s Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

FRF has been a tenant at 725 Concord Ave since 1989. We have,grown from a small organization with few volunteers to our current size of one hundred ,and still more showing up everyday to help our cause.

Because we are a non-profit voluntary organization,volunteers work long hours and week-ends. Schedules do not always conform to availability of public transportation. Safety concerns require us to advise against volunteers walking to T stations late at night.Many volunteers live far beyond the immediate area and already spend over two hours a day commuting to and from work.We do not wish to add to this time or increase their frustration by searching for a place to put their cars. It is unrealistic to expect employees to remain at FRF when faced with unsolvable parking problems.

We urge you to vote against this proposed freeze. It is surely not in our best interests or those of the city of Cambridge. A vote for this measure is a vote against companies and organizations staying in Cambridge.

Sincerely,
UINSEANN Og macCOMASCAIGH
Administrator

** TOTAL PAGE.002 **

genzyme

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Ave.
Cambridge, MA 02139

Dear Sirs:

Genzyme Corporation has been a tenant in Cambridge since 1986. In the past four years we have gone from occupying 10,000 square feet to over 100,000 square feet. As part of this growth we have relocated our corporate headquarters from Boston . We currently have over 300 employees working in Cambridge. While we have lived through many changes in this area, we have made every effort to adapt and have a strong desire to remain.

However, the parking situation could force us to leave, It is already very difficult to secure spaces for all employees who need them. Any additional restriction would be devastating.

Because we are still a young, high tech company, many employees work long hours and weekends. Schedules do not always conform to availability of public transportation. Safety concerns require us to advise against employees walking to T stations late a night. Many employees live far beyond the immediate area and already spend over two hours a day commuting to and from work. We do not wish to add to this time or increase their frustration by searching for a place to put their cars. It is unrealistic to expect employees to remain at Genzyme when faced with unsolved parking problems.

We urge you to vote against this proposed freeze. It is surely not in our best interests or those of the city of Cambridge. A vote for this measure is a vote against companies like mine staying in Cambridge.

Sincerely,

Henri A. Termeer
President & CEO

HAT/slm

Genzyme Corporation, One Kendall Square, Cambridge, Massachusetts 02139
Tel: 617-252-7500 Fax: 617-252-7600

GOEMON

JAPANESE NOODLE RESTAURANT

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

RE: Parking Freeze

Dear City Council Members:

As a concerned member of the Cambridge business community, Goemon America Inc. would like to state its opposition to the proposed "Cambridge Parking Freeze".

A number of serious issues are of immediate concern to the City of Cambridge. It is our fear that the Freeze, a dubious solution to one problem, would significantly add to other problems currently facing the city.

For example, in this time of economic crisis, we would hesitate to create a situation that would discourage people and businesses from coming to or staying in Cambridge - whether to live, work, dine, etc.

Ideally, we would wish to work toward a solution that would consider the many problems of the City collectively.

Thank you for your attention to this matter.

Sincerely,

Eleanor Arpino

Eleanor Arpino
Vice President
Goemon America Inc.

IMMULOGIC
Pharmaceutical Corporation

November 16, 1990

Mr. Francis H. Duehay
26 Lowell Street
Cambridge, Massachusetts 02138

Dear Mr. Duehay:

We are a young company founded in 1987, which located in Cambridge in large part because of the attractiveness to our employees of the proximity to MIT and Harvard. We employ over 50 people in our Cambridge location and have substantial expansion plans. We are currently beginning an evaluation of our future facilities options, and consider the Cambridge parking situation to be a major factor in our decision process.

We do not want to leave Cambridge. We urge you to vote against the parking freeze and to work with all elements of the community to arrive at a solution which will not force companies such as ours to leave this community.

Sincerely yours,

Richard E. Bagley
President & Chief Executive Officer

REB/sdb

One Kendall Square, Building 600, Cambridge, MA 02139 (617) 494-0060 Telefax: (617) 577-8686

IMMULOGIC
Pharmaceutical Corporation

November 16, 1990

Mr. Jonathan S. Myers
5 Hollis Street
Cambridge, Massachusetts 02140

Dear Mr. Myers:

We are a young company founded in 1987, which located in Cambridge in large part because of the attractiveness to our employees of the proximity to MIT and Harvard. We employ over 50 people in our Cambridge location and have substantial expansion plans. We are currently beginning an evaluation of our future facilities options, and consider the Cambridge parking situation to be a major factor in our decision process.

We do not want to leave Cambridge. We urge you to vote against the parking freeze and to work with all elements of the community to arrive at a solution which will not force companies such as ours to leave this community.

Sincerely yours,

Richard E. Bagley
President & Chief Executive Officer

REB/sdb

One Kendall Square, Building 600, Cambridge, MA 02139 (617) 494-0060 Telefax: (617) 577-8686

Postal and Business Services

MAIL BOXES ETC. USA®

November 19, 1990

Cambridge City Council
City Clerks Office
City Hall
795 Massachusetts Ave.
Cambridge, MA 02139

Dear Council Members:

Mail Boxes Etc. is located at One Kendall Sq., we have been here for 4 years. Presently we employ 4 people including my wife and myself. Both of our employees take the T and we have always encouraged it. Our main concern is parking for our customers and the overall effect this legislation would have on all types of businesses in Cambridge. The people in favor should be commended for trying to reduce Air Pollution in Cambridge, but I cannot see how such a measure could do that. Logic says that if people cannot find a parking space they will drive around more, looking for a space hence more pollution and if they just do not come to Cambridge many businesses will fold.

If you add up all the positives and negatives I do not see how a vote in favor of this can be cast. Please look deep into the effect this will have on all the people who work and live in Cambridge and vote no.

Sincerly,

Bill McGrory
Owner

One Kendall Sq. Bldg. 600, Cambridge, MA 02142 TELE# (617) 494-1500 FAX# (617) 494-1394
AN INDEPENDENTLY OWNED AND OPERATED FRANCHISE

Management
Technologies

One Kendall Sq. Bldg 700, Cambridge, MA 02139 617-494-1060

November 14, 1990

NOV 15 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Members of the Council:

As a company maintaining a branch in Cambridge, Management Technologies opposes the proposed city ordinance to impose a parking freeze. We at Management Technologies urge you to vote against the parking ban ordinance.

The proposed parking freeze ordinance will adversely effect jobs and economic prosperity. We at MTI believe the substitute ordinance is a reasonable alternative.

Sincerely,

Thomas H. Stephanian
Branch Manager

bcc: Athenaeum Group

MOTOROLA INC.

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs and Madams:

Motorola, Inc. has been a tenant at One Kendall Square for almost one year. We are currently small in size, but have definite plans to grow.

One of the major issues in locating in Cambridge is the availability of parking for our employees and visitors. In fact, it is corporate policy that every employee be guaranteed reasonable parking should they desire it. It is my concern that the proposed parking freeze will have an adverse effect on our existing parking lot without effectively dealing with the important environmental issues it is intended to address.

I urge the City Council to take this into consideration in engineering a successful parking management plan for the City of Cambridge.

Sincerely,

Anton T. Dahbura
Research Director

AT/nd

NOV-19-90 MON 15:43 Motorola Cambridge R.C. P.02

Open Books, Inc.
215 First Street
Cambridge, Massachusetts 02142
617/547-9600

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

Open Books, Inc. has been a tenant at 215 First Street since1989. We are a rapidly growing company, having increased in size 350% this year.

Our company has flourished here, and we would very much like to stay. However, further restrictions on parking would severely compromise our plans in this locale. As it is, we are having difficulty securing the spaces we need.

As we are a young startup, many employees work long hours and weekends. Schedules do not always conform to availabilty of public transportation. Safety concerns require us to advise against employees walking to T stations late at night. Many employees live far beyond the immediate area, and spend over two hours a day commuting to and from work. We do not wish to add to this time or increase their frustration by having them have to search for a place to put their cars every day. It is unrealistic to expect employees to remain at Open Books when faced with intractable parking problems.

Sincerely,

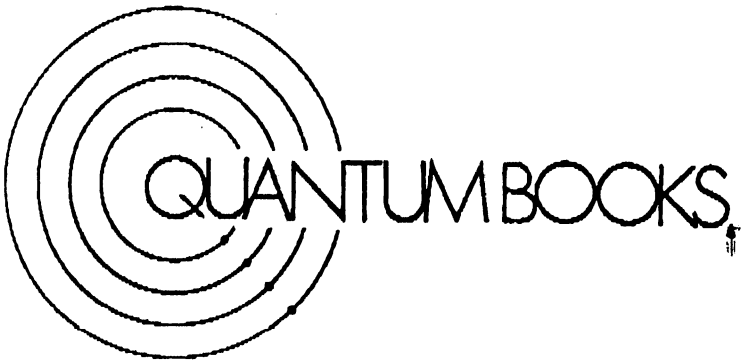
Julia Salas,
Manager, Administrative Systems

cc. David Taylor,
Vice President
Corporate Development

JS:pw

A TECHNICAL AND PROFESSIONAL BOOKSTORE

One Kendall Square
Cambridge, Mass. 02139
Phone: (617) 494-5042
Fax: (617) 577-7282



November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs,

Quantum Books opened in October of 1986. As a specialty bookseller, we service the needs of the academic and high tech community around us. Many of the books we carry simply cannot be found elsewhere. In addition, we provide extremely fast service on special orders for researchers and professionals whose work requires that they receive highly specialized information on very short notice.

While we share concerns regarding pollution control, we believe a freeze on parking spaces will do little to solve environmental problems and indeed, create a host of others such as loss of tax revenues and jobs.

If we think it is desirable for people to live, work, and shop in Cambridge, we simply have to come up with realistic solutions for allowing them to park here. We urge you to vote against the proposed freeze.

Sincerely,

William Szabo

William Szabo
President

RepliGen

Repligen Corporation
One Kendall Square
Building 700
Cambridge, Massachusetts 02139

Telephone: 617-225-6000
Telefax: 617-494-1766
Telex: 881987

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

Repligen Corporation has been located in Cambridge since it began its operation in 1981. The City has been an important location to us for we have been able to attract and employ a high calibre work force. Ten percent of our 145 employees currently live in Cambridge. Our ability to continue to grow in this area will be dependent upon us meeting the commuting needs of our very diverse work force. Many choose to live outside of the Boston/Cambridge area and commute to work. We cannot stay in Cambridge if we are not able to meet the parking needs of our current and future work force.

We recognize our corporate responsibility to help the City of Cambridge deal with the traffic congestion that we all face on a daily basis. Currently, we partially subsidize the cost of the "T" for 20% of our workforce who don't drive to work.

We urge you to adopt a plan that will help the City of Cambridge co-exist with industry rather than adopt measures that will drive it to other more friendly communities.

Sincerely,

Timothy J. Morrison,
Director Human Resources

TM:slp

ROWLAND INSTITUTE FOR SCIENCE, INC.
100 Cambridge Parkway
Cambridge, MA 02142

Stephen C. May
(617) 497-4690

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

Rowland Institute agrees with its neighbors that a parking freeze in the Cambridge area at this time could be a devastating move in a business atmosphere that is already suffering due to the economy. Business and parking in Cambridge should be promoted and encouraged to help stimulate the economy; a parking freeze would only tend to drive more businesses away from this area. We therefore urge you to vote against the proposed parking freeze.

Sincerely,

Stephen C. May lrp

Stephen C. May
Building Engineer

cc: Rosalie Famolare
The Athenaeum Group
Athenaeum House
215 First Street
Cambridge, MA 02142

SCM/lrp

SENSIMETRICS

November 19, 1990

Cambridge City Council
Office of the City Clerk
795 Massachusetts Avenue
Cambridge, Massachusetts 02139

Gentlemen:

We do research in speech and hearing, primarily under the sponsorship of the U.S. National Institutes of Health in Washington. Many people in Cambridge have worked with our company, including permanent residents of the city and faculty members and students at MIT and Harvard. We frequently have visitors from hospitals and universities in neighboring communities, visits that are crucially important in our work.

Our company has been located at One Kendall Square since 1987, when we moved from Belmont. The move to Cambridge was important for us because it allows people in Cambridge who need to see us to have immediate, convenient access to our laboratory. The only problem we have had is the persistent difficulty in parking encountered by our employees and visitors, both Cambridge residents holding permits and others. Restricted as we are in allocating limited research funds, a further shortage of parking space would cause what is now a growing nuisance to become a serious problem.

Please vote against the proposed freeze on parking space. Surely this community has room for us, for other companies like ours, and for people who come from other places to put their talent and energy to work in Cambridge.

Sincerely yours,

Robert Berkovitz
President

Sensimetrics Corporation One Kendall Square
Building 100
Cambridge, Massachusetts
02139

617.225.2442

215 First Street
Cambridge, Massachusetts 02142
tel (617) 577-8222
FAX: (617) 577-8847

Sirius Software, Inc.

November 19, 1990

Cambridge City Council
City Clerks Office
City Hall
795 Massachusetts Avenue
Cambrdige, MA 02139

Dear Sirs,

Sirius Software has been in business for four years. Two years ago we made the decision to move our offices to Cambridge. Without a doubt the ability to attract high quality personnel was the over-riding factor in our decision. As you probably are aware it is difficult to attract and keep good people in the high technology areas.

The ability to easily commute to and from work is a key concern for our employees. Our business requires us to work long hours, late every evening and on most week-ends. If public transportation was a viable alternative, I'm sure we would take advantage of it. The fact is it is not.

I'm afraid that the proposal to restrict available parking in Cambridge, if it were to change our ability to continue to offer parking to our employees, would force us to leave the city.

I urge that you vote against the freeze. It will only hurt an already distressed business environment.

Sincerely yours,

David Rozewski
Vice President

SHOWBIZ RADIO

WRCA 1 3 — CA 3 0

November 17, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

WRCA Radio is new to Cambridge. We're still unpacking in our new studios at One Kendall Square. Although we are literally new kids on the block, we feel it's appropriate for us to enter the debate over the proposed parking freeze on the side of those who oppose it.

We have had sufficient time to consider the arguments behind the proposed freeze, and time enough to recognize that so radical and sweeping a proposal promises immediate economic and social harm and seems unlikely to deliver on its promise of cleaner air.

Certainly, self-interest plays a part in our opposition to the freeze and our support for a more practical compromise. WRCA is a 24-hour a day business. Public transportation is not a viable alternative for a number of our employees. The automobile is essential to our sales effort. Actions which undermine normal commerce affect us directly. But we also see this as an issue larger than our own interests.

WRCA, as a public voice, can be counted on to be concerned with the general welfare of Cambridge and other communities within our broadcast reach. Cleaner air is an issue we can and do support. And we believe that this goal is achievable without needlessly punishing Cambridge residents and businesses with a proposal as swift as the chopping block and just as fatal.

Sincerely

Edward C. Brown
President

ER/vb

WRCA
473 WINTER STREET
WALTHAM, MA 02154
TEL 617.890.1400
FAX 617.890.3521

City of Cambridge

In the Year One Thousand, Nine Hundred and Ninety

AN ORDINANCE

In amendment to an ordinance designated as the "Cambridge Municipal Code."

Be it ordained by the City Council of the City of Cambridge as follows:

WHEREAS, the City of Cambridge (City), and the Massachusetts Department of Environmental Protection (DEP) (the "parties") have agreed to cooperate in an effort to amend the State Implementation Plan (SIP) required by the Clean Air Act, 42 U.S.C. s. 7401 et seq., regarding the measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston Region; and

WHEREAS, the City and DEP were parties in a legal dispute pertaining to the terms and implementation of a parking freeze in Cambridge; and

WHEREAS, the parties, as part of a settlement of said dispute, entered into a Memorandum of Agreement (MOA), dated August 15, 1990, which requires that the Cambridge City Manager present to the Cambridge City Council an ordinance to implement the provisions of said MOA; and

WHEREAS, the final SIP amendments will include transportation control measures, including but not limited to parking restrictions, and a parking freeze, and

WHEREAS, a parking freeze is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel; and

WHEREAS, enforcement of a parking freeze will demonstrate the commitment of the City to support the Clean Air Act by discouraging automobile traffic to the City, and

WHEREAS, future revisions to the SIP may appropriately emphasize limits upon and/or reductions of all-day parking available to commuters, while at the same time retaining parking opportunities for shoppers, occasional visitors, and non-peak hour visitors, and

WHEREAS, the SIP amendment process will take approximately one year and the City hereby commits itself to the terms of this ordinance for the period until a SIP amendment is approved, said period to be known as the "interim period."

Now, THEREFORE, be it ordained by the City Council of the City of Cambridge as follows:

Title 10 of the Code (Vehicles and Traffic) is hereby amended by adding thereto the following new Chapter 10.16 (Parking Freeze):

Chapter 10.16

PARKING FREEZE

Sections:

10.16.010	Time period of Chapter
10.16.020	Definitions
10.16.030	Building or operation of parking facilities
10.16.040	Pre-existing applications, permits and determinations
10.16.050	Interim Parking Control Committee
10.16.060	Procedure for Obtaining CPFP or Determination of Exclusion
10.16.070	Number of CPFPs to be issued
10.16.080	Enforcement
10.16.090	Memorandum of Agreement of August 15, 1990

10.16.010 Time period of Chapter

This Chapter will remain in effect only during the interim period, as defined in s. 10.16.020.

10.16.020 Definitions

"Controlled parking facility" (CPF) means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked, except (i) a parking facility, the use of which is limited exclusively for the benefit of the residents of a specific residential building or group of buildings, or, (ii) parking on public streets, and (iii) a parking facility designated as a park-and-ride facility to be operated in conjunction with the Massachusetts Bay Transportation Authority.

"Controlled parking facility permit" (CPFP) means a permit issued by the Director of the Cambridge Department of Traffic and Parking, which allows the construction or modification of a CPF and the operation of a CPF. Each permit will be for a specific number of Controlled parking spaces.

"Controlled parking space" (CPS) means a parking space in a Controlled parking facility (CPF).

"Determination of exclusion" means a determination by the Director of the Cambridge Department of Traffic and Parking that a parking facility does not come within the definition of a Controlled parking facility.

"Director" means Director of the Cambridge Department of Traffic and Parking.

"Interim Parking Control Committee" (IPCC) means the committee established by this Chapter which decides whether to issue Controlled parking facility permits and Determinations of exclusion. These decisions by the IPCC are binding on the Director.

"Interim period" means the period starting August 15, 1990 and ending with the approval of an amendment to the State Implementation Plan (SIP), required by the Clean Air Act (42 U.S.C., s. 7401 et seq.), regarding measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston region.

"Memorandum of Agreement" or "Memorandum" means the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 10, 1990 and executed August 15, 1990.

"Parking facility" means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

10.16.030 Building or operation of parking facilities

No person shall be granted a permit to build a parking facility in Cambridge, or modify a parking facility so as to increase the number of parking spaces therein, and no person shall operate a parking facility, unless said person shall have first obtained a controlled parking facility permit or a determination of exclusion under the procedures set forth in this Chapter.

10.16.040 Pre-existing applications, permits and determinations

The City may issue new commercial parking facility permits or determinations of exclusion pursuant to the procedures set forth in the Memorandum of Agreement dated November 15, 1984, for and with respect to spaces for which an application was filed with the City on or before November 10, 1988. And if a commercial parking

facility permit or a determination of exclusion was obtained before August 15, 1990, that permit or determination shall not be subject to the provisions of this Chapter. The City, however, may enforce the terms and conditions of any permit or determination of exclusion, regardless of when it was issued.

Parking facilities that were not subject to the parking freeze prior to August 15, 1990 shall not be subject to the terms of this Chapter unless the owner or operator of the facility seeks to increase the number of parking spaces therein.

10.16.050 Interim Parking Control Committee

All applications for controlled parking facility permits and determinations of exclusion shall be reviewed by an Interim Parking Control Committee (IPCC or Committee) comprised of three Cambridge residents with appropriate experience, appointed by the City Manager. One member of the Committee shall be appointed from a list of five nominees submitted to the City Manager by the Cambridge Citizens for Livable Neighborhoods. No person shall be appointed to the Committee who has a financial interest in commercial parking in Cambridge. The Committee will be appointed no later than September 15, 1990. The Committee shall maintain complete and accurate records of all applications for CPFPs and determinations of exclusion. In carrying out its duties, the Committee shall consult with and seek the assistance of other appropriate departments and agencies in the City, state and federal governments such as the Department of Community Development, the License Commission, the Inspectional Services Department, the

Department of Traffic and Parking, the Massachusetts Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency.

10.16.060 Procedure for obtaining CPFP or Determination of Exclusion

a) An application for a CPFP or determination of exclusion shall be submitted to the Director on a form available at the Cambridge Traffic and Parking Department. The IPCC shall hold hearings on such applications on the fourth Wednesday of every month, if necessary. Only applications received at least 30 days prior to the scheduled hearing will be considered at such hearing.

b) The IPCC will publish in at least one local weekly newspaper a notice of the hearing. The notice shall set forth a specific hearing date not less than fourteen days and not more than thirty days from the date of publication, as well as the time and place of such hearing; said notice shall indicate that a copy of the application(s) is available for public inspection at the Traffic and Parking Department. A notice of all applications to be heard at the hearing shall be sent at least two weeks before the hearing to the DEP.

c) Every application for a CPFP or determination of exclusion shall include the following information:

1. Name and address of owner.
2. Name and address of proposed facility.
3. Type of facility (parking lot or garage).
4. Type of construction (new or modification) proposed.

5. Number of existing spaces and who uses them.

6. Number of proposed spaces and who will use them.

7. Proposed change in number of spaces by use.

8. Calculations showing parking space determination according to the appropriate section of the Cambridge Zoning Ordinance.

9. Detailed information on how use of the spaces will be controlled for each category of use.

10. Traffic mitigation measures which will be used to reduce vehicle trips to the project.

11. A detailed description of the need for the proposed facility and the type of development and patrons it will serve.

12. A site plan and floor plans of the proposed lot or garage, showing the location of the facility, the layout space, and the entry and exit points.

Six copies of every application shall be submitted, with the above information, to the Interim Parking Control Committee, City Hall Annex, 57 Inman Street, Cambridge, Massachusetts 02139. A copy thereof shall be sent by the Committee to the Commissioner, Massachusetts Department of Environmental Protection, 1 Winter Street, Boston, Massachusetts 02108.

d) The Committee shall be required to process any applications already on file with the Director at the time of the adoption of this Chapter in the order of the filing of said pending applications. All amendments to pending applications shall be

deemed to relate back to the original date of filing. Any pending application relating to a project for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager shall be processed and acted upon by the Committee, in accordance with the limits established in section 10.16.070, subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM and upon no other conditions, and without any modification of the application by the Committee.

e) At least 14 days before the hearing, the Interim Parking Control Committee shall send to each applicant which has submitted a complete application an analysis of the application in regard to the criteria set out above. This analysis will highlight any further information required in order to make a full assessment of the application. Any applicant who has filed an incomplete application shall be so notified at that time.

f) Within 14 days after the hearing, the Interim Parking Control Committee shall approve or disapprove the application for a CPFP or determination of exclusion after full consideration of all the facts contained in the application. The Committee's approval shall indicate on the CPFP or determination the conditions, if any, upon which approval is given. Such conditions may include reasonable traffic mitigation requirements to reduce air quality impacts of the proposed facility or spaces. A copy of said approval shall be sent to the applicant and the Commissioner, Massachusetts Department of Environmental Protection.

g) The Director shall approve or disapprove the application in accordance with the Committee's determination. When the decision is made to approve an application, the decision shall state the name, address and authorized number of spaces of the facility and any conditions upon which the application is approved. Any approval of a CPFP for a facility that applied after November 10, 1988 shall include reference to inventory data showing that the spaces issued come either from any spaces remaining of the 500 spaces referred to in section 10.16.070 or an identification of the location and number of spaces against which enforcement action has been taken pursuant to section 10.16.080, which serve as the basis for issuance of the CPFP pursuant to section 10.16.080. All CPFPs shall include a provision requiring that any spaces in the facility for which there will be an hourly or daily fee shall not be available for occupancy prior to 9:30 a.m. on weekdays.

10.16.070 Number of CPFP's to be Issued

The City, in accordance with the procedures set forth in this Chapter, may issue permits for up to 500 controlled parking spaces. In addition, the City may issue a number of CPFPs equal to

a) The number of parking spaces which the City has eliminated or against which the City has initiated an enforcement action in accordance with section 10.16.080; plus

b) The number of commercial parking spaces which were permitted in accordance with the November 15, 1984 MOA and which are no longer being used.

Rights to eliminated parking spaces cannot be transferred between persons, but must revert back to the City for allocation under the procedure set forth in s. 10.16.060.

10.16.080 Enforcement

a) If any person, after a hearing before the IPCC, is found to have operated a parking space illegally, either under the provisions of the November 15, 1984 MOA or under the provisions of this Chapter, such person may be subject to a fine of $10 per day per space for every day that the space was illegally operated. In addition, the Director, after such a hearing, may revoke a determination of exclusion for spaces operated in violation of their determinations, or eliminate those spaces or facilities found to be operating with no required permit or determination of exclusion.

At any hearing held by the IPCC to decide if excluded spaces have been operated as commercial spaces, or as controlled parking spaces as defined in s. 10.16.020, any facility holding a determination of exclusion, which is found to have any spaces operating in violation of the terms of said determination shall be presumed to have all of its spaces operating in violation of the terms of its determination unless the operator demonstrates to the satisfaction of the IPCC that a distinct and identifiable portion of the spaces have been operated in accordance with the terms of their determination. It shall be the responsibility of the IPCC to determine the number of spaces within a facility that are operating in violation of the terms of their determination of exclusion, and

to impose fines or revoke the determination.

Nothing in this Agreement shall prohibit the owner of spaces which have been improperly used from applying for a new determination of exclusion or a CPFP in accordance with the terms of this Chapter.

Upon the expiration of any temporary permit or exclusion the Director may issue an administrative order to cease operations at the facility without any requirement of a hearing before the IPCC.

b) The phrase "initiated an enforcement action," appearing in s. 10.16.070, means the issuance by the Director of an administrative order ordering a person to eliminate a parking space or spaces.

Unless the owner of a facility complies with an administrative order to eliminate spaces under this section, and waives any further appellate rights, the City shall not be authorized to issue new CPFPs for spaces in amounts equal to the number of spaces the City is seeking to eliminate until the City has initiated enforcement action including filing a complaint in court with an application for a preliminary injunction, to compel compliance with the administrative order. The City agrees that it shall initiate said court action no later than 30 days following the issuance of the administrative order if the facility has not complied. The City further agrees that it shall only be authorized to issue new CPFPs for 50% of the number of spaces sought to be eliminated by court action upon the filing of said action. The remaining 50% of said spaces will only be available for issuance as new spaces when

and if the City prevails on the merits of said court action. The City agrees to prosecute aggressively any such court action to compel compliance with said administrative order.

10.16.090 Memorandum of Agreement of August 15, 1988

The City agrees to fulfill all its obligations contained in the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 15, 1990.

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
>
> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION
MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

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PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

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> WHEREAS, the final SIP amendments will include transportation control measures, and
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24-HOUR AVAILABILITY FOR CONTROLLED SPACES

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WPPKBPCT/1336.5

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In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

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WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

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WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE

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Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

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> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

WPPKBPCT/1336.6

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

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WPPKBPCT/1336.5

EMPLOYEE PARKING

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In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

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In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

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WPPKBPCT/1336.3

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The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

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Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
>
> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

WPPKBPCT/1336.6

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
>
> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
>
> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

WPPKBPCT/1336.6

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
>
> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

WPPKBPCT/1336.6

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION
MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
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> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

WPPKBPCT/1336.6

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION
MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by deleting the fourth, fifth and sixth "WHEREAS" clauses and inserting in lieu thereof the following clauses in lieu thereof:

> WHEREAS, the final SIP amendments will include transportation control measures, and
>
> WHEREAS, it is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel, and
>
> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

WPPKBPCT/1336.6

24-HOUR AVAILABILITY FOR CONTROLLED SPACES

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

EMPLOYEE PARKING

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

In the definition of "Controlled Parking Facility" set forth in Section 10.16.020 of the Parking Freeze Ordinance, delete the word "and" appearing before subsection (iii), and insert the following new subsection (iv) after the words "Transportation Authority": "and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public."

WPPKBPCT/1336.1

SUNSET PROVISION

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

GRANDFATHERING OF EXISTING LOTS

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

The Parking Freeze Ordinance shall be amended by inserting a new Section 10.16.100 as follows: "Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors."

WPPKBPCT/1336.4

PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE

In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (parking freeze) to title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert a new subsection (iv) as follows: "(iv) for any parking facility included in a project (a) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (b) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor included any traffic mitigation measures as a condition thereof. Each such permit or determination of exclusion issued by the Department of Traffic and Parking shall not be subject to the limits established in section 10.16.070, but each permit so issued for a facility described in clause (iv) of the immediately preceding sentence shall be subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the Department of Traffic and Parking."

Section 10.16.050 of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning thereof: "Except for applications for permits and determinations of exclusion for parking facilities referred to in subsection 10.16.040,".

Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending prior to the date of enactment hereof, and which special permit or application therefor includes any traffic mitigation measures as a condition thereof", and further amended by deleting the words "Committee in accordance with" and inserting in lieu thereof the words "Department of Traffic and Parking, without consideration of", and further amended by inserting the word "but" prior to the phrase "subject to the requirement. . .", and further amended by inserting the phrase "or special permit" prior to the phrase "and upon no other conditions", and further amended by deleting the word "Committee" and inserting in lieu thereof the phrase "Department of Traffic and Parking."

Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS

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WPPKBPCT/1336.5

EMPLOYEE PARKING

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In the seventh "WHEREAS" clause after the words "parking opportunities for" insert the word "employees" and after the words "occasional visitors," insert the words "working parents with a child or children in day care, guests and invitees of non-profit institutions," and after the words "non-peak hour visitors" insert the words "regardless of whether a fee is charged."

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WPPKBPCT/1336.1

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In the definition of "Interim period" appearing in Section 10.16.020 of the Parking Freeze Ordinance, after the words "and ending with" insert the following: "the earlier of August 15, 1991 or the date of," and deleting therefrom the words "between the enactment of this Chapter and".

WPPKBPCT/1336.2

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In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

In Section 10.16.040 of the Parking Freeze Ordinance, insert the following after the words "The City" appearing at the beginning of said Section: ", acting through the Department of Traffic and Parking" , and insert "(i)" before the words "for and with respect to spaces. . .", and insert the following language after the phrase "November 10, 1988" appearing therein: ", (ii) for parking facilities listed on Addendum A to the MOA, (iii) for existing parking facilities which are currently not permitted,".

WPPKBPCT/1336.3

ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L. c. 40A

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WPPKBPCT/1336.4

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Section 10.16.060(d) of the Parking Freeze Ordinance shall be amended by inserting at the beginning of said subsection the phrase "subject to the provisions of Section 10.16.040," and further amended by deleting in the third sentence of said subsection the word "pending" and inserting after the phrase "application relating to a" the phrase "parking facility included in a", and further amended by inserting "(i)" after the word "project", and further amended by inserting the following language after the phrase "City Manager": "or (2)

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Section 10.16.060(g) of the Parking Freeze Ordinance shall be amended by inserting the following language at the beginning of the second sentence thereof: "Except for a parking facility included in a project described in Section 10.16.040".

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> WHEREAS, supports the Clean Air Act and seeks to discourage automobile traffic to the City, and

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In amendment to the proposed Ordinance currently pending before the Cambridge City Council which proposed Ordinance would add a new Chapter 10.16 (Parking Freeze) to Title 10 of the Cambridge Municipal Code (hereinafter, the "Parking Freeze Ordinance"):

Section 10.16.060(g) is amended by deleting the last sentence thereof.

WPPKBPCT/1336.5

NOV 27 AM 9:48
CAMBRIDGE MA.

ROWLAND INSTITUTE FOR SCIENCE, INC.
100 Cambridge Parkway
Cambridge, MA 02142

Stephen C. May
(617) 497-4690

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

Rowland Institute agrees with its neighbors that a parking freeze in the Cambridge area at this time could be a devastating move in a business atmosphere that is already suffering due to the economy. Business and parking in Cambridge should be promoted and encouraged to help stimulate the economy; a parking freeze would only tend to drive more businesses away from this area. We therefore urge you to vote against the proposed parking freeze.

Sincerely,

Stephen C. May
Building Engineer

cc: Rosalie Famolare
The Athenaeum Group
Athenaeum House
215 First Street
Cambridge, MA 02142

SCM/lrp

Comm. from Stephen C. May, Rowland Institute for Science, Inc., in opposition to the parking freeze ordinance.

In City Council,

December 10, 1990

Referred to the petition

American Red Cross
of Massachusetts Bay

RECEIVED BY
CITY CLERK
1990 NOV 21 AM 11:24
CAMBRIDGE MA

West Area
21 Foster Street
Newtonville, MA 02160-1599
(617) 527-6000

November 19, 1990

The Honorable Cambridge City Council:

The American Red Cross supports the other non-profit organizations which have opposed the proposed "parking freeze ordinance" under consideration by the Cambridge City Council.

While the principles upon which the Red Cross movement was formed prohibit us from becoming involved in partizan politics, our sense is that this proposed ordinance goes beyond this and will have a detrimental effect on our services.

People helping people are the backbone of the American Red Cross. If the helpers, or those in need of help, have no place to park our work will become that much more difficult. The number of people who seek our services is ever expanding. We hope the number of service providers will also expand to meet this need. In either case, additional parking may become necessary. This proposed ordinance could hinder our service expansion efforts.

It is our hope that the leaders of this great community will be able to develop and implement less prohibitive strategies to ensure the cleanliness of the air in Cambridge. In any event, we hope the Cambridge City Council can see its way to exempting non-profit service providers from any parking freeze ordinance.

On behalf of the Directors,

John Fox
Executive Director

The Honorable City Council
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

United Way

Comm. from John Fox, Executive Director, American Red Cross in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

A TECHNICAL AND PROFESSIONAL BOOKSTORE

One Kendall Square
Cambridge, Mass. 02139
Phone: (617) 494-5042
Fax: (617) 577-7282

QUANTUM BOOKS

CAMBRIDGE MA.

November 19, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs,

Quantum Books opened in October of 1986. As a specialty bookseller, we service the needs of the academic and high tech community around us. Many of the books we carry simply cannot be found elsewhere. In addition, we provide extremely fast service on special orders for researchers and professionals whose work requires that they receive highly specialized information on very short notice.

While we share concerns regarding pollution control, we believe a freeze on parking spaces will do little to solve environmental problems and indeed, create a host of others such as loss of tax revenues and jobs.

If we think it is desirable for people to live, work, and shop in Cambridge, we simply have to come up with realistic solutions for allowing them to park here. We urge you to vote against the proposed freeze.

Sincerely,

William Szabo

William Szabo
President

Comm. from William Szabo, President, Quantum Books, in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

SENSIMETRICS

RECEIVED
OFFICE OF CITY CLERK
1990 NOV 21 AM 10:04
CAMBRIDGE MA.

November 19, 1990

Cambridge City Council
Office of the City Clerk
795 Massachusetts Avenue
Cambridge, Massachusetts 02139

Gentlemen:

We do research in speech and hearing, primarily under the sponsorship of the U.S. National Institutes of Health in Washington. Many people in Cambridge have worked with our company, including permanent residents of the city and faculty members and students at MIT and Harvard. We frequently have visitors from hospitals and universities in neighboring communities, visits that are crucially important in our work.

Our company has been located at One Kendall Square since 1987, when we moved from Belmont. The move to Cambridge was important for us because it allows people in Cambridge who need to see us to have immediate, convenient access to our laboratory. The only problem we have had is the persistent difficulty in parking encountered by our employees and visitors, both Cambridge residents holding permits and others. Restricted as we are in allocating limited research funds, a further shortage of parking space would cause what is now a growing nuisance to become a serious problem.

Please vote against the proposed freeze on parking space. Surely this community has room for us, for other companies like ours, and for people who come from other places to put their talent and energy to work in Cambridge.

Sincerely yours,

Robert Berkovitz
President

Sensimetrics Corporation
Auditory and
Electroacoustic Measurement
Systems

One Kendall Square
Building 100
Cambridge, Massachusetts
02139

617.225.2442

4.

Comm. from Robert Berkovitz, President, Sensimetrics in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

COMEnergy

COM/Energy Services Company
One Main Street
Post Office Box 9150
Cambridge, Massachusetts 02142-9150
Telephone (617) 225-4000

CITY CLERK'S OFFICE
1990 NOV 20 PM 5:01
CAMBRIDGE MA.

November 19, 1990

The Honorable Cambridge City Council
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

The Honorable Cambridge City Council:

Once again we are writing to express our opposition to the adoption of the proposed Parking Freeze Ordinance reported out of the Ordinance Committee.

As you will recall, on October 3, 1990 we wrote to you expressing our opposition to the adoption of the Parking Freeze Ordinance which is before you tonight for action. However, in that letter we also indicated a willingness to work with the City toward finding a workable solution. The amendments submitted by City Councillors Sheila Russell and Walter Sullivan on November 5, 1990 for consideration are viewed by COM/Energy as an acceptable solution to resolving the existing differences between the City and the business community. We believe these amendments strike a balance between the concerns of both parties.

The proposed Parking Freeze Ordinance, if adopted, will have a detrimental and longlasting impact on the City of Cambridge and the people who live and work here. Therefore we ask that you reconsider the proposal to adopt the Parking Freeze Ordinance and instead adopt the amended version submitted by City Councillors Russell and Sullivan.

Very truly yours,

Michael P. Sullivan
Vice President

MPS/aem

bcc: P. B. Casey

Comm. from Michael P. Sullivan, Vice-President, ComEnergy, in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

ZERO STAGE CAPITAL
COMPANY, INC.

One Broadway
Kendall Square
Cambridge, Massachusetts 02142
617 876 5355
Telex 221-500 (ASAS) Attn-ZSC
Fax 617 876 1248

Nov. 17, 1990

City Council
City of Cambridge
Cambridge, MA 02139

Re: Proposed Parking Ban Ordinance

Gentlemen:

I am writing to express the strong opposition of myself and my partners to the proposed parking ban ordinance now under consideration.

This ban if enacted will place extraordinary burdens on the orderly development of business, jobs and tax revenue in the city. It will make it an incrementally less attractive place for businesses to move or to expand, especially in an era when there are a great many attractive space alternatives to Cambridge. If this ban is enacted, Zero Stage will be among the companies that will have to reconsider their plans to expand in Cambridge.

While we recognize the parking issue is a serious one, we think you have the right diagnosis but the wrong prescription.

Sincerely yours,

Gordon Baty
Partner

Comm. from Gordon Baty, Partner, Zero Stage Capital Company, Inc., in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

Buckingham Browne & Nichols School

Gerry's Landing Road
Cambridge, Massachusetts 02138

Office of the Headmaster

November 16, 1990

The Honorable City Council
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

The Honorable Cambridge City Council:

I write to record Buckingham Browne & Nichols School's opposition to the proposed parking freeze ordinance.

As you know, Buckingham Browne & Nichols School provides an important educational option for many residents of Cambridge. We currently have 284 children from Cambridge in our school. By and large, parking is not a problem for them since most are not of driving age. However, many of our employees who teach or work in support services come from some distance, and parking is an important concern. For the record, 53 Cambridge residents work at our School in one or another capacity, and we are an integral part of the City's economy.

We recognize the important concern the ordinance is trying to address. While we do not support the ordinance as proposed, we can support the substitute ordinance.

Sincerely,

Peter K. Gunness
Headmaster

PKG:ehw

7.

Comm. from Peter K. Gunness, Headmaster, Buckingham, Browne and Nichols School, in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition



November 16, 1990

Cambridge City Council
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Council Members:

As a new business owner in Central Square, I am being faced with many hurdles. It is a difficult challenge to keep a new business afloat in the present economic environment while trying to become established. I would very much like Cezanne to become a vital part of the Central Square community, as well as to the rest of Cambridge. However, a parking freeze is one obstacle that could have a very negative impact upon the future of my business and other businesses. I urge you not to pass the ordinance without amendments.

Sincerely,

Judy Kravitz
Owner

cc: Carl Barron
Putnam Furniture Leasing

424 Massachusetts Avenue Cambridge, MA 02139 (617) 547-9616

8.

Comm. from Judy Kravitz, Owner, Cezanne Desserts, in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

Bitstream

RECEIVED BY
OFFICE OF CITY CLERK
1990 NOV 19 AM 9:56
CAMBRIDGE MA.

Bitstream Inc.
Athenaeum House
215 First Street
Cambridge, MA 02142

617 497-6222
Telex 467237
Fax 617 868-4732

November 16, 1990

Cambridge City Council
City Clerk's Office
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Sirs:

Bitstream Inc. has been a tenant at 215 First Street since 1981. We have grown from a small company with four employees to our current size of two hundred and twenty.

While we have lived through many changes in this area, we have made every effort to adapt. Our roots are here, and we have a strong desire to remain.

However, the parking situation could force us to leave. It is already impossible to secure spaces for all employees who need them. Any additional restrictions would be devastating.

Because we are still a young, high tech company, many employees work long hours and week-ends. Schedules do not always conform to availability of public transportation. Safety concerns require us to advise against employees walking to T stations late at night. Many employees live far beyond the immediate area and already spend over two hours a day commuting to and from work. We do not wish to add to this time or increase their frustration by searching for a place to put their cars. It is unrealistic to expect employees to remain at Bitstream when faced with unsolvable parking problems.

We urge you to vote against this proposed freeze. It is surely not in our best interests or those of the city of Cambridge. A vote for this measure is a vote against companies like mine staying in Cambridge.

Sincerely,

Jane Spencer

Jane Spencer
Manager, Administration

JS:jmc/1060

Comm. from Jane Spencer, Manager, Bitstream, in opposition to the parking freeze.

In City Council,

November 26, 1990

Referred to the petition

Harvard Square Business Association

ESTABLISHED 1910

18 BRATTLE STREET, CAMBRIDGE, MASSACHUSETTS 02138

Telephone: (617) 491-3434

OFFICERS

President
RICHARD R. BEATY
Ingram Rettig & Beaty

Vice-President
RICHARD K. GETZ
Richard Getz Associates

Vice-President
ROBERT F. GRAY
BayBank/Harvard Trust

Treasurer
JAMES H. SMITH
Cambridge Center for Adult Education

Secretary
JOAN E. O'CONNOR
Attorney at Law

Executive Director
SALLY ALCORN
Harvard Square Business Association

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FRED COHEN
Out of Town News

EDWARD N. GULESERIAN
Sheraton Commander Hotel

FRANK S. KRAMER
Harvard Book Store

SUE E. KUELZER
Grendel's Restaurant

CHRISS M. LEBLANC
Charles Square Management

CORNELIUS T. LEE
Beehive & Lee's Restaurants

JOHN R. LESANTO
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CHARLOTTE B. MOORE
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LILIANA P. SANCHEZ
Coolidge Bank & Trust

JUSTIN H. SLATE
Bob Slate's Stationers

KATHY SPIEGELMAN
Harvard Planning Group

EDWARD P. VER PLANCK
Dickson Bros. Hardware

November 14, 1990

Dear Member:

The Board of the Harvard Square Business Association felt that it would be important to let you know that we are extremely concerned that a proposed **parking freeze** ordinance, if passed without the amendments recommended by Cambridge's Chamber of Commerce, could seriously impact your business in Harvard Square.

In fact, The Board felt strongly enough about this to vote unanimously (with one abstention) to oppose this ordinance in its present form.

I am enclosing position papers of the two opposing viewpoints for your review. One has been drafted by the Chamber and the other, by Cambridge Citizens for Liveable Neighborhoods. If, after reading them, you feel the same way we do, please **call** the city councillors and **attend** the City Council hearing to voice your objections on November 19, 1990.

Sincerely,

Richard R. Beaty

Richard R. Beaty, President

Enclosures

CAMBRIDGE CHAMBER OF COMMERCE

November 7, 1990

Dear Cambridge Business Person,

On Nov. 19th the City Council will hold a public hearing and then vote to enact a new city ordinance that will impose a financially devastating parking freeze in Cambridge.

A broad-based group of schools, businesses, developers, and non-profit organizations, including nine of the 10 largest employers in the city, has been actively working to defeat the parking freeze ordinance, or at least get its most damaging provisions changed.

I'm writing to ask for your help in this battle. We need you to call or write the city council and attend the public hearing in opposition to this parking freeze plan.

Currently five of the nine city councilors support a version of the ordinance without our suggested changes. **To their minds, we need a show of support from every store, manufacturer, business, school, non-profit agency and building owner who provides parking now or who may want or need more parking spaces in the future.**

If this ordinance passes without amendments, any existing non-residential parking space in the city, which does not have all its proper permits or exemptions, could be permanently shut down. If this ordinance passes without amendments, there will be only 500 new parking space permits that can be awarded for new spaces. Once the 500 are given out, those wanting to build or expand will only get permits if someone else loses theirs.

This freeze will be devastating for Cambridge and for every Cambridge business. It will reduce the property values of all commercial property. It will reduce the total amount of property tax dollars paid by business, driving up the amount of tax dollars paid by homeowners. It will stop new office and commercial development, and drive up the price of commercial rents.

This freeze will also cut the total number of parking spaces available in the city, forcing up the price for parking, which is not good for you, or your customers, or your employees.

We need your help and your support. Please, join our efforts to defeat the parking freeze.

Sincerely,

David Vickery
Acting Chair,
Government and Community Affairs

Supported by

Carl F. Barron
President
Central Square Business Association

859 MASSACHUSETTS AVE. CAMBRIDGE, MA 02139 (617) 876-4100

Don't Let Them Freeze You Out of Your Parking Space

The City Council is preparing to pass a parking freeze ordinance on Monday, Nov. 19, that will have disastrous consequences for everyone who lives in Cambridge.

The proposed new ordinance will eliminate existing spaces — and drastically limit new ones — in parking garages and lots, at universities and schools, and at businesses and institutions where many employees, commuters and shoppers from outside the city now park.

What does that mean to you?

- ❑ Your streets will become even more congested as workers at Cambridge businesses, commuters and shoppers search the neighborhoods for places to park.
- ❑ Despite promises of vigorous city enforcement measures, resident parking spaces will be taken by frustrated out-of- towners who work, shop or do business in Cambridge or by those with resident parking stickers from other neighborhoods.
- ❑ You will find it more and more difficult to park your car everywhere you go in Cambridge — stores, restaurants, churches, schools and businesses.
- ❑ Prices at existing commercial garages and parking lots will skyrocket, forcing motorists to park illegally on neighborhood streets.
- ❑ Our city's economy will suffer — your taxes will go up — as many of Cambridge's largest employers, as well as prospective new businesses, choose to locate jobs and new facilities outside the city, where they won't have to face nighmarish parking problems for their employees and customers.

What can you do to stop this terrible mistake?

Call your city councilors immediately and tell them to vote against the parking freeze.

Call the Chamber of Commerce at 876-4100 and ask how you can help the coalition of large and small Cambridge employers, universities, non-profit organizations and unions fighting against the parking freeze.

Come to City Hall and let your voice be heard at the public hearing before the City Council at 8 p.m. Monday, Nov. 19.

ACT NOW TO STOP THE PARKING FREEZE!

Sponsored by the Government and Community Affairs Committee of the Cambridge Chamber of Commerce.

- parking permits of some freeze violators may be revoked, then re-issued to other parking providers whose operations will be less detrimental to the community.

✓ A local Interim Parking Control Committee will preside over both enforcement and new permits for parking, and in the process, will review requiring congestion-eliminating mitigations such as late-morning openings and garage-sponsored shuttle bus services. In recognition of its extraordinary efforts on behalf of freeze enforcement, CCLN Inc has been awarded one of the three seats on this Committee.

What the Agreement Means

A short-sighted real estate industry, obsessed with short-term profits, might assert that this Agreement is "anti-development", and will bring an end to growth and development in the City. This is bunk.

What the Agreement *really* means is that Cambridge is committed to the long-range health, welfare and liveability of the City and the region of which it's part. The Agreement is not anti-development. It is pro-environment, pro-transit, and pro-neighborhood.

This Agreement shows that the City is, at last, ready to do some thinking and planning for its future. It shows that the City is, at last, capable of distinguishing between the long-range *public* interest, and the short-term self-interest of developers.

This Agreement means that the City, the State, and eventually the real estate and development industry itself, will assign less priority to the habits of the suburban commuter, and more priority to implementing a balanced regional transportation plan which not only accommodates personal autos, but provides other viable travel alternatives as well.

And finally, this Agreement shows that Cambridge City government has entered a phase where citizen energy and neighborhood concerns will no longer be stonewalled. 1990 will be a year when the City responds to initiatives of its residents.

What Happens Next

CCLN legal action on behalf of the freeze against the City and State was not intended to punish offenders, nor to get judges to design us a regional transportation system. We sued the City and State to get the issues of the freeze out into the public arena, and resolved by public policy. In this, we've succeeded beyond our greatest hopes, and we have now withdrawn from court our legal actions against the City.

Even so, the Agreement of 30 July is only a step along the way. Next, the City, State, CCLN, the real estate industry, and other concerned parties must cooperate in formulating a new State Implementation Plan — one which eliminates the inconsistencies of the old SIP, and coordinates regional parking limitations with both other air quality protection strategies and also transit improvements which compensate for increasing restrictions on the single-passenger auto. Inventing a new SIP will take a year or two, and implementing it, the rest of the decade. Until the new SIP is in place, the 30 July Agreement is binding.

Like all public affairs, environmental protection and neighborhood conservation are team sports: We couldn't have done this alone. CCLN thanks and congratulates the Cambridge City Councillors who've taken constructive interest in this issue, the Conservation Law Foundation, and most of all, the hundreds of Cambridge citizens who have supported our efforts with time and money. The result has justified the investment.

The 30 July Agreement:
How the Council Voted

Ed Cyr	FOR
Frank Duehay	FOR
Jonathan Myers	FOR
Ken Reeves, Vice-Mayor	FOR
Sheila Russell	FOR
Walter Sullivan	FOR
Tim Toomey	FOR
Bill Walsh	FOR
Alice Wolf, Mayor	FOR

For information, call CCLN: 354-5670.

Cambridge Citizens for Liveable Neighborhoods Inc

31 JULY 1990

The Cambridge Parking Freeze:
VICTORY FOR CCLN, FOR THE CITY

Background

The 1973-75 federal Clean Air Act, and the State Implementation Plan (SIP) for this Act, specified a "freeze" on commercial parking in Cambridge. The purpose of this freeze was to limit commercial parking opportunity in the City, thus decreasing air pollution due to auto emissions by encouraging commuters and other visitors to travel by means other than the single-occupant auto.

For two years, CCLN has fought vigorously, in and out of court, for better enforcement of the commercial parking freeze. On Monday 30 July 1990, the **Cambridge City Council ratified an Agreement** between the City and State which resolved this long-standing controversy. This Agreement substantiates nearly all our positions and arguments, and represents a major victory for both CCLN and all those concerned with protecting environmental quality in Cambridge.

Air quality

Since 1987, Massachusetts has failed to attain US clean air standards, which are keyed to ground-level ozone levels. Automobiles are the single largest source of hydrocarbons and nitrogen oxides, which combine to form ground-level ozone. They also produce most of the carbon monoxide emissions in the state.

Ground-level ozone makes breathing difficult, reduces resistance to colds and increases our susceptibility to respiratory disease. Excessive carbon monoxide, which hinders the blood's ability to absorb oxygen, can cause chest pains and angina attacks and may impair thinking and perception.

With 3.5 million vehicles in Massachusetts burning more than 2.4 billion gallons of gasoline each year and spewing forth 1.7 million tons of pollutants, environmentalists say stricter standards are needed. "Control of mobile source emissions is the No. 1 priority in the region," said Nancy Seidman, acting executive director of the Northeast States for Coordinated Air Use Management. Seidman warns that without such controls, state residents could face more and more days each summer when the air is unhealthy to breathe.

From 'Different Plans for a Cleaner State', Boston Sunday Globe, 29 July 90

The 30 July Agreement: What It Says

By the most strict interpretation of the SIP, Cambridge permitted far too many commercial garages to be erected in the 1980's, and these garages should be torn down. However, no matter how poorly Cambridge has managed its freeze, it's just not realistic to expect wholesale, City-wide demolition of garages. CCLN has never called for this, and neither does the Agreement. Instead, the Agreement establishes that:

- ✓ Limits on commuter traffic and commercial parking make sense as part of a regional strategy for clean air and balanced transportation — and Cambridge is committed to working with this strategy, not against it.
- ✓ Existing garages must comply with the terms of their City permits by restricting access to the general public, and eliminating certain kinds of fee collection. Garages that have not complied may lose licenses and permits for some or all of their spaces.
- ✓ Issue of new commercial parking licenses will be greatly constrained compared to recent history: Down from an average of 1500 per year, to only 500 for the life of the Agreement. Also, the

Harvard Square Business Association

ESTABLISHED 1910

18 BRATTLE STREET, CAMBRIDGE, MASSACHUSETTS 02138
Telephone: (617) 491-3434

1990 NOV 16 AM 9:57
CAMBRIDGE MA.

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Ingram Rettig & Beaty

Vice-President
RICHARD K. GETZ
Richard Getz Associates

Vice-President
ROBERT F. GRAY
BayBank/Harvard Trust

Treasurer
JAMES H. SMITH
Cambridge Center
for Adult Education

Secretary
JOAN E. O'CONNOR
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Coolidge Bank & Trust

JUSTIN H. SLATE
Bob Slate's Stationers

KATHY SPIEGELMAN
Harvard Planning Group

EDWARD P. VER PLANCK
Dickson Bros. Hardware

November 14, 1990

Dear Councillor:

I am writing on behalf of the Board of the Harvard Square Business Association to let you know that we have voted unamimously to oppose the proposed parking freeze ordinance.

We urge you to consider including members of Cambridge's business community in a re-drafting of a more viable ordinance and to allow a proper and full hearing of all points of view.

Sincerely,

Richard R. Beaty

Richard R. Beaty, President

Enclosures

10.

Comm. from Richard R. Beaty, President, Harvard Square Business Association, in opposition to the parking freeze ordinance.

In City Council,

November 26, 1990

Referred to the petition

SYNOPSIS OF PARKING FREEZE AMENDMENTS

The following information sets forth a synopsis of the categories and substance of the amendments to the proposed Parking Freeze Ordinance, and parenthetically, the principal sections thereof affected thereby.

1. EMPLOYEE PARKING - Parking for employees and occassional visitors regardless of whether a fee is charged. (Section 10.16.020)

2. SUNSET PROVISION - Limitation on effective period of Ordinance. (Section 10.16.020 and 10.16.100)

3. GRANDFATHERING OF EXISTING LOTS - All currently existing lots to be permitted by Department of Traffic and Parking. (Section 10.16.040)

4. ADOPTION OF SIP AMENDMENTS PURSUANT TO M.G.L.c. 40A - Any proposed SIP Amendment affecting parking and traffic mitigation to be adopted pursuant to M.G.L.c. 40A. (Section 10.16.100)

5. PROJECTS WHICH INCLUDE TRAFFIC MITIGATION MEASURES NOT SUBJECT TO FREEZE - A project subject to an Agreement for Traffic Mitigation or special permit which includes traffic mitigation conditions will not be subject to freeze or other conditions. (Section 10.16.040, 10.16.060(d) and 10.160.060(g))

6. PARKING FREEZE NOT REQUIRED AS AN ELEMENT OF SIP AMENDMENTS - Ensure that all options will be open to discussion in SIP Amendment process. (4th, 5th & 6th "Whereas" clauses)

7. 24-HOUR AVAILABILITY FOR CONTROLLED SPACES - Eliminate discriminatory treatment of existing versus future commercial parking spaces. (Section 10.16.060(g))

WPPKBPCT/1328

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WPPKBPCT/1328f

CITY OF CAMBRIDGE

AN ORDINANCE

In amendment to an ordinance designated as the "Cambridge Municipal Code."

Be it ordained by the City Council of the City of Cambridge as follows:

WHEREAS, the City of Cambridge (City), and the Massachusetts Department of Environmental Protection (DEP) (the "parties") have agreed to cooperate in an effort to amend the State Implementation Plan (SIP) required by the Clean Air Act, 42 U.S.C. § 7401 et seq., regarding the measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston Region; and

WHEREAS, the City and DEP were parties in a legal dispute pertaining to the terms and implementation of a parking freeze in Cambridge; and

WHEREAS, the parties, as part of a settlement of said dispute, entered into a Memorandum of Agreement (MOA), dated August 15, 1990, which requires that the Cambridge City Manager present to the Cambridge City Council an ordinance to implement the provisions of said MOA; and

WHEREAS, the final SIP amendments will include transportation control measures, *including not to exceed to parking restrictions, and a parking freeze,* and

WHEREAS, a parking freeze is consistent with the policies of the City to reduce vehicle miles travelled, and to encourage and develop greater use of public transit, bicycles, walking, and other alternative modes of travel; and

WHEREAS, enforcement of a parking freeze will demonstrate the commitment of the City to supports the Clean Air Act by and seeks to discourage automobile traffic to the City, and

WHEREAS, future revisions to the SIP may appropriately emphasize limits upon and/or reductions of all day commercial parking facilities open to the public for which a separate fee is charged, available to customers, while at the same time retaining parking opportunities for employees, shoppers, occasional visitors, working parents with a child or children in day care, guests and invitees of nonprofit institutions, and non-peak hour visitors regardless of whether a fee is charged, and

WHEREAS, the SIP amendment process will take approximately one year and the City hereby commits itself to the completion thereof prior to the expiration of the terms of this ordinance for the period until a SIP amendment is approved, said period to be known as the "interim period."

Now, THEREFORE, be it ordained by the City Council of the City of Cambridge as follows:

Title 10 of the Code (Vehicles and Traffic) is hereby amended by adding thereto the following new Chapter 10.16 (Parking Freeze):

Chapter 10.16

PARKING FREEZE

Sections:

10.16.010	Time period of Chapter
10.16.020	Definitions
10.16.030	Building or operation of parking facilities
10.16.040	Pre-existing applications, permits ~~and~~/determinations and existing facilities
10.16.050	Interim Parking Control Committee
10.16.060	Procedure for Obtaining CPFP or Determination of Exclusion
10.16.070	Number of CPFPs to be issued
10.16.080	Enforcement
10.16.090	Memorandum of Agreement of August 15, 1990
10.16.100	Adoption of SIP Amendments

10.16.010 Time period of Chapter

This Chapter will remain in effect only during the interim period, as defined in § 10.16.020.

10.16.020 Definitions

"Controlled parking facility" (CPF) means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked, except (i) a parking facility, the use of which is limited exclusively for the

benefit of the residents of a specific residential building or group of buildings, or, (ii) parking on public streets, and (iii) a parking facility designated as a park-and-ride facility to be operated in conjunction with the Massachusetts Bay Transportation Authority, and (iv) parking spaces, regardless of whether a fee is charged, which are reserved for the exclusive use of employees, students, restaurant and retail store patrons or hotel guests throughout the day (24-hour period), and not available for use by the general public.

"Controlled parking facility permit" (CPFP) means a permit issued by the Director of the Cambridge Department of Traffic and Parking, which allows the construction or modification of a CPF and the operation of a CPF. Each permit will be for a specific number of Controlled parking spaces.

"Controlled parking space" (CPS) means a parking space in a Controlled parking facility (CPF).

"Determination of exclusion" means a determination by the Director of the Cambridge Department of Traffic and Parking that a parking facility does not come within the definition of a Controlled parking facility.

"Director" means Director of the Cambridge Department of Traffic and Parking.

"Interim Parking Control Committee" (IPCC) means the committee established by this Chapter which decides whether to issue Controlled parking facility permits and Determinations of exclusion. These decisions by the IPCC are binding on the Director.

"Interim period" means the period starting August 15, 1990 and ending on the earlier of August 15, 1991 or the date of ~~between the enactment of this Chapter and~~ the approval of an amendment to the State Implementation Plan (SIP), required by the Clean Air Act (42 U.S.C., § 7401 et seq.), regarding measures to be taken by the City for the attainment and maintenance of the national primary air quality standards necessary to protect public health in the Boston region.

"Memorandum of Agreement" or "Memorandum" means the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 10, 1990 and executed August 15, 1990.

"Parking facility" means any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are parked.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

10.16.030 Building or operation of parking facilities

No person shall be granted a permit to build a parking facility in Cambridge, or modify a parking facility so as to increase the number of parking spaces therein, and no person shall operate a parking facility, unless said person shall have

first obtained a controlled parking facility permit or a determination of exclusion under the procedures set forth in this Chapter.

10.16.040 Pre-existing applications, permits, and determinations and parking facilities

The City, acting through the Department of Traffic and Parking, may issue new commercial parking facility permits or determinations of exclusion pursuant to the procedures set forth in the Memorandum of Agreement dated November 15, 1984, (i) for and with respect to spaces for which an application was filed with the City on or before November 10, 1988, (ii) for parking facilities listed on Addendum A to the MOA, and (iii) existing parking facilities which are currently not permitted. And if a commercial parking facility permit or a determination of exclusion was obtained before August 15, 1990, that permit or determination shall not be subject to the provisions of this Chapter. The City, however, may enforce the terms and conditions of any permit or determination of exclusion, regardless of when it was issued.

Parking facilities which, prior to August 15, 1990, were generally regarded as not being "commercial parking Facilities" under the Memorandum of November 15, 1984, shall not be subject to the terms of this Chapter unless the owner or operator of the facility seeks to increase the number of parking spaces therein.

10.16.050 Interim Parking Control Committee

Except for applications for permits and determinations of exclusions for parking facilities referred to in subsections 10.16.040(ii) and (iii), and in Subsection 10.16.060(d) All applications for controlled parking facility permits and determinations of exclusion shall be reviewed by an Interim Parking Control Committee (IPCC or Committee) comprised of three Cambridge residents with appropriate experience, appointed by the City Manager. One member of the Committee shall be appointed from a list of five nominees submitted to the City Manager by the Cambridge Citizens for Livable Neighborhoods. No person shall be appointed to the Committee who has a financial interest in commercial parking in Cambridge. The Committee will be appointed no later than September 15, 1990. The Committee shall maintain complete and accurate records of all applications of CPFPs and determinations of exclusion. In carrying out its duties, the Committee shall consult with and seek the assistance of other appropriate departments and agencies in the City, state and federal governments such as the Department of Community Development, the License Commission, the Inspectional Services Department, the Department of Traffic and Parking, the Massachusetts Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency.

10.16.060 Procedure for obtaining CPFP or Determination of Exclusion

a) An application for a CPFP or determination of exclusion shall be submitted to the Director on a form available at the Cambridge Traffic and Parking Department. The IPCC shall hold hearings on such applications on the fourth Wednesday of every month, if necessary. Only applications received at least 30 days prior to the scheduled hearing will be considered at such hearing.

b) The IPCC will publish in at least one local weekly newspaper a notice of the hearing. The notice shall set forth a specific hearing date not less than fourteen days and not more than thirty days from the date of publication, as well as the time and place of such hearing; said notice shall indicate that a copy of the application(s) is available for public inspection at the Traffic and Parking Department. A notice of all applications to be heard at the hearing shall be sent at least two weeks before the hearing to the DEP.

c) Every application for a CPFP or determination of exclusion shall include the following information:

1. Name and address of owner.
2. Name and address of proposed facility.
3. Type of facility (parking lot or garage).
4. Type of construction (new or modification) proposed.
5. Number of existing spaces and who uses them.
6. Number of proposed spaces and who will use them.

7. Proposed change in number of spaces by use.

8. Calculations showing parking space determination according to the appropriate section of the Cambridge Zoning Ordinance.

9. Detailed information on how use of the spaces will be controlled for each category of use.

10. Traffic mitigation measures which will be used to reduce vehicle trips to the project.

11. A detailed description of the need for the proposed facility and the type of development and patrons it will serve.

12. A site plan and floor plans of the proposed lot or garage, showing the location of the facility, the layout space, and the entry and exit points.

Six copies of every application shall be submitted, with the above information, to the Interim Parking Control Committee, City Hall Annex, 57 Inman Street, Cambridge, Massachusetts 02139. A copy thereof shall be sent by the Committee to the Commissioner, Massachusetts Department of Environmental Protection, 1 Winter Street, Boston, Massachusetts 02108.

d) The Committee shall be required to process any applications already on file with the Director at the time of the adoption of this Chapter in the order of the filing of said pending applications. All amendments to pending applications shall be deemed to relate back to the original date of filing.

Any/pending application relating to a parking facility included in a project (i) for which there is an Agreement for Traffic Mitigation (ATM) executed by the City Manager or (ii) for which a special permit, including a planned unit development special permit, was issued, or with respect to which an application for any such special permit is pending, prior to the date of enactment hereof and which special permit or application therefor includesd any traffic mitigation measures as a condition thereof shall be processed and acted upon by the Committee Department of Traffic and Parking, //in/accordance with/without consideration of the limits established in section 10.16.070, but subject to the requirement that any permit or determination of exclusion shall be conditioned upon compliance by the applicant with the terms of the ATM or special permit and upon no other conditions, and without any modification of the application by the/Committee Department of Traffic and Parking, as applicable.

e) At least 14 days before the hearing, the Interim Parking Control Committee shall send to each applicant which has submitted a complete application an analysis of the application in regard to the criteria set out above. This analysis will highlight any further information required in order to make a full assessment of the application. Any applicant who has filed an incomplete application shall be so notified at that time.

f) Within 14 days after the hearing, the Interim Parking Control Committee shall approve or disapprove the application for a CPFP or determination of exclusion after full consideration of all the facts contained in the application. ~~T~~The Committee's approval shall indicate on the CPFP or determination the conditions, if any, upon which approval is given. Such conditions may include reasonable traffic mitigation requirements to reduce air quality impacts of the proposed facility or spaces. A copy of said approval shall be sent to the applicant and the Commissioner, Massachusetts Department of Environmental Protection.

g) The Director shall approve or disapprove the application in accordance with the Committee's determination. When the decision is made to approve an application, the decision shall state the name, address and authorized number of spaces of the facility and any conditions upon which the application is approved. Except for a parking facility included in a project described in section 10.16.060(d), ~~A~~any approval of a CPFP for a facility that applied after November 10, 1988 shall include reference to inventory data showing that the spaces issued come either from any spaces remaining of the 500 spaces referred to in section 10.16.070 or an identification of the location and number of spaces against which enforcement action has been taken pursuant to section 10.16.080, which serve as the basis for issuance of the CPFP pursuant to section 10.16.080. Except for a parking facility

included in a project described in section 10.16.060(d). All CPFPs shall include a provision requiring that any spaces in the facility for which there will be an hourly or daily fee shall not be available for occupancy prior to 9:30 a.m. on weekdays.

10.16.070 Number of CPFP's to be Issued

The City, in accordance with the procedures set forth in this Chapter, may issue permits for up to 500 controlled parking spaces. In addition, the City may issue a number of CPFPs equal to

a) The number of parking spaces which the City has eliminated or against which the City has initiated an enforcement action in accordance with section 10.16.080; plus

b) The number of commercial parking spaces which were permitted in accordance with the November 15, 1984 MOA and which are no longer being used.

Rights to eliminated parking spaces eliminated by enforcement cannot be transferred between persons, but must revert back to the City for allocation under the procedure set forth in § 10.16.060.

10.16.080 Enforcement

a) If any person, after a hearing before the IPCC, is found to have operated a parking space illegally, either under the provisions of the November 15, 1984 MOA or under the

provisions of this Chapter, such person may ~~will~~/be subject to a fine of $10 per day per space for every day that the space was illegally operated. In addition, the Director, after such a hearing, may revoke a determination of exclusion for spaces operated in violation of their determinations, or eliminate those spaces or facilities found to be operating with no required permit or determination of exclusion.

At any hearing held by the IPCC to decide if excluded spaces have been operated as commercial spaces, or as controlled parking spaces defined in § 10.16.020, any facility holding a determination of exclusion, which is found to have any spaces operating in violation of the terms of said determination shall be presumed to have all of its spaces operating in violation of the terms of its determination unless the operator demonstrates to the satisfaction of the IPCC that a distinct and identifiable portion of the spaces have been operated in accordance with the terms of their determination. It shall be the responsibility of the IPCC to determine the number of spaces within a facility that are operating in violation of the terms of their determination of exclusion, and to impose fines or revoke the determination.

Nothing in this Agreement shall prohibit the owner of spaces which have been improperly used from applying for a new determination of exclusion or a CPFP in accordance with the terms of this Chapter.

Upon the expiration of any temporary permit or exclusion the Director may issue an administrative order to cease operations at the facility without any requirement of a hearing before the IPCC.

b) The phase "initiated an enforcement action," appearing in § 10.16.070, means the issuance by the Director of an administrative order ordering a person to eliminate a parking space or spaces.

Unless the owner of a facility complies with an administrative order to eliminate spaces under this section, and waives any further appellate rights, the City shall not be authorized to issue new CPFPs for spaces in amounts equal to the number of spaces the City is seeking to eliminate until the City has initiated enforcement action including filing a complaint in court with an application for a preliminary injunction, to compel compliance with the administrative order. The City agrees that it shall initiate said court action no later than 30 days following the issuance of the administrative order if the facility has not complied. The City further agrees that it shall only be authorized to issue new CPFPs for 50% of the number of spaces sought to be eliminated by court action upon the filing of said action. The remaining 50% of said spaces will only be available for issuance as new spaces when and if the City prevails on the merits of said court action. The City agrees to prosecute aggressively any such court action to compel compliance with

said administrative order.

10.16.090 Memorandum of Agreement of August 15, 199088

The City agrees to fulfill all its obligations contained in the Memorandum of Agreement between the City and the Massachusetts Department of Environmental Protection, dated August 15, 1990/, insofar as the such obligations are consistent with the terms hereof.

10.16.100 Adoption of SIP Amendments

Any provision of any proposed SIP amendment applicable to the City and related to land use, traffic mitigation, or other matters currently governed in whole or in part by the Zoning Ordinances of the City of Cambridge shall be of no force or effect unless adopted in accordance with the provisions of M.G.L. c. 40A and the Zoning Ordinances of the City of Cambridge. If the SIP amendment process is not completed prior to the expiration of the interim period, the terms of this Ordinance shall be of no further force or effect. ~~A~~Any extension of the expiration date for the interim period shall require the affirmative vote of seven (7) City Councillors.

CAMBRIDGE CITY COUNCIL

CITY HALL, CAMBRIDGE, MASSACHUSETTS 02139

(617) 498-9094

CAMBRIDGE MA.

November 1, 1990

Mr. Joseph E. Connarton, City Clerk
City Hall
795 Massachusetts Avenue
Cambridge, MA 02139

Dear Mr. Connarton:

Attached, for the consideration of the City Council, is an amendment to the Parking Freeze Ordinance which we are submitted to address the concerns of the business and institutional communities which were expressed at the Ordinance Committee public hearing on October 24, 1990.

Sincerely yours,

Sheila T. Russell
City Councillor

Walter J. Sullivan
City Councillor

s

attachment

Parking Area - D-54A