OPERATIONAL ASPECTS OF RESTORING LIGHT RAIL SERVICE IN THE ARBORWAY CORRIDOR

A critique of the "Arborway Alternatives Analysis" that was submitted by Systra on behalf of the MBTA

Prepared by Srdjan S. Nedeljkovic, M.D.
July 17, 2001

Presented to Christine Kirby
Department of Environmental Protection
Re: Arborway feasibility analysis

OPERATIONAL ASPECTS OF RESTORING LIGHT RAIL SERVICE IN THE ARBORWAY CORRIDOR

A critique of the "Arborway Alternatives Analysis" that was submitted by Systra on behalf of the MBTA

Introduction

The "Arborway Alternatives Analysis," prepared by Systra Consulting on behalf of the MBTA/EOTC, attempts to compare two alternatives for improving service between the Arborway corridor and downtown Boston. The two options considered are:

- Light rail service between Forest Hills and Park Street
- Compressed Natural Gas (CNG) bus service between Forest Hills and Park Street

The report favors the CNG alternative. Unfortunately, this study contains multiple erroneous assumptions, incorrect input data, and results in conclusions which are unreliable and not validated. Instead of evaluating the best possible solution to providing public transportation to the Arborway corridor, the report appears to ignore certain data and embellish other factors which are favorable for using CNG buses. The following review of the Systra study will point out some of its errant statements and conclusions and show that Light Rail Transit (LRT) is the best possible solution for the corridor from an operational perspective.

Some of the details outlined below may not be of direct relevance to the Department of Environmental Protection with regards to the factors which will be reviewed in making a decision on whether restoring light rail service is feasible for the Arborway corridor. Nevertheless, it is important to dissect the entire Systra study, with all of its assumptions and false findings, in order to invalidate this document and prove its ultimate conclusion as wrong.

Review of the "Arborway Alternatives Analysis"

In the "Evaluation Framework," the Systra report fails to state what should be the major goal of such a transportation and public transit analysis. The intent should be:

- Improve public transportation options for residents and businesses in a dense, urban environment

- Preserve non-auto oriented options for transportation within the contextual framework of Jamaica Plain
- Maximize the interconnectedness of the Jamaica Plain neighborhood with other key regions of Boston, including the central business district

Critique of "Arborway Alternatives Analysis"
Page 2

In the "Objectives" section of the "Evaluation Framework" (page ES-2), some of the key factors which are of importance to the community have been minimized:

- Air quality: eliminate point-of-service emissions by transit vehicles, reduce dwell-times of motorized vehicles that emit pollutants, improve transit options that will compete with auto traffic, improve the pedestrian environment so that people will want to walk to their destinations.

- Public safety: reduce conflicts on the roadway from swerving traffic (bus vs. car), improve channelization of traffic, enhance pedestrian safety measures, improve the level of noise, maintain police and fire safety functions.

- Transit ridership: increase ridership, improve schedule reliability, improve comfort of rides, minimize lurching, rolling, and turning, increase number of seats, improve passenger comfort, more frequent headways, improve platforms, shorter trip times, reduce cost, reduce crowding, encourage "choice" riders (non-captive), who tend to prefer rail transit over buses.

- Preserve business: an optimal transportation solution will improve access to the commercial zone by pedestrians and transit riders, maximize visibility of commercial areas, maintain adequate parking, allow for unobtrusive but unimpeded delivery and loading of materials, demonstrate level of service and investment in the community which instills a sense of pride and interest.

- Operations: an operationally effective solution will enhance overall system performance and reliability, provide for cost-effective and efficient maintenance and service of vehicles and facilities, create a solution which has the highest long-term cost-benefit, focus on safety and quality of service, increase global effectiveness of transit in the entire corridor.

- Comply with ADA: allow for pedestrian and wheelchair access by a system which is quick and easy to use, enhance the ability of the elderly to access transit vehicles, create aesthetically pleasing streetscape enhancements in the process of upgrading the sidewalks with ADA-compliant fixed platforms, insure that ADA-compliant transit vehicles pull to curbs and into ADA-compliant stations.

From an operational and transit analysis perspective, the primary objective of the Arborway study should be to increase transit ridership by providing a high quality, high capacity, rapid, reliable, and direct transportation system. In addition to being attractive from a capacity, ridership, and economic perspective, the system which is selected must be environmentally friendly and improve safety and accessibility throughout the corridor.

Emphasis of Key Findings in the "Arborway Alternatives Analysis"

In the evaluation summary which describes the rail and bus alternatives, it should be made apparent that the light rail alternative fulfills criteria which make it a more attractive solution in terms of the objectives of the study. For example, key positive findings favoring rail from the study include:

- Light rail provides a higher capacity system (2-car trains, holding a full load of 250) compared to buses (which only hold 84).
- The light rail system would be significantly faster than the bus (35 minutes vs. 41 minutes). In reality, as confirmed by current usage and travel times, a trip from Forest Hills to Park Street would take an average of 47 minutes. Based on ridership of 40,000 per day, that represents 8000 hours of lost productivity per day for patrons of buses compared to those using rail.
- Extending light rail would eliminate a duplicitous service using buses, whereas using buses would increase the number of buses circulating downtown by about 400 per day. The impact of these buses on downtown streets and neighborhoods needs to be described.
- Throughout the Systra report, the light rail option is portrayed mainly as a cost or detriment, whereas the bus option is unfairly described as being only an amenity, with both its apparent and hidden costs minimized in importance or overlooked.

Questionable findings that belie common sense are apparent throughout the Systra report. One such conclusion is found in the table on page ES-4, which purports that similar pollutant levels are generated between bus and rail, even though it is obvious that rail generates no point-of-service pollutants. No explanation is given as to how these numbers were derived, nor why the figures for bus and rail are suspiciously close. The allegation that transit usage would be less with a rail alternative compared to a bus alternative and stimulate increased automobile usage and emissions is contrary to the experience of other transit systems and also to the Arborway historical evidence.

The Systra report pretends that from a capital cost and operations viewpoint, it would be infeasible to construct an effective rail transit system in the Arborway corridor. This is a wrong conclusion, and ignores the reality that similar rail projects are being done in other cities. The challenges to design and construct street-running rail service

in mixed-use urban neighborhoods are those that are being met currently by Philadelphia (which is reconstructing the Rt. 15 streetcar line) and San Francisco (which is reconstructing the K-Ingleside line). The ability of these other cities to implement modern streetcar service proves the feasibility of doing the same in Arborway. There is no evidence that safety would be impeded by light rail, as the

evidence from other cities, the literature, and the historical data from Arborway proves. In contrast, studies show that light rail is the safest mode of transit, safer than either buses or automobiles. There is good reason to believe that a bus, swerving in and out of traffic, with a length of 60 ft., would create safety issues.

As far as cost, parking, and ADA-accessibility, there is strong evidence that implementing CNG buses would cost at least as much as rail, and data from other transit systems supports the cost-effectiveness of rail. The parking numbers in the summary are not real and are therefore invalid, as will be pointed out. Finally, the light rail solution, with its high-quality ADA accessible platforms, mandates easy accessibility by persons with disabilities, unlike the bus solution, which requires an active effort of the driver to maneuver the bus to the curb.

Within the MBTA system, the capital and operational costs of restored Arborway service are minimal and inconsequential when compared to other services provided by the agency. This is especially evident when looking at it as cost-per-passenger. For example, restoration of rail service on the Greenbush line, which will service about 5000 riders per day, may exceed $600 million (the MBTA's estimate is $399 million). The entire southern branch of the commuter rail system which terminates at South Station (Worcester/Framingham, Needham, Fairmount, Franklin, Attleboro/Providence, Stoughton, Plymouth, and Middleboro/Lakeville lines) serviced 42,844 passengers as of February, 2001. The North side total was only 22,341. Meanwhile, restoration of the Arborway line, which involves 1.9 miles of track, would alone carry a similar number of passengers as the entire South side commuter rail system. The total Capital Investment Program (CIP) budget of the MBTA is $2.91 billion, which includes $1.7 billion for infrastructure and $842 million for expansion of the system. The issue of Arborway restoration is not one of whether the money exists, but rather one of where the money will be invested. In the context of its overall budget, the MBTA must consider providing equitable investment and service to its diverse regions and neighborhoods. From the above review and data, which is ignored by the Systra report, it is apparent that restoration of light rail on Arborway can be easily justified on a cost and operational basis, with achievement of the goal of maintaining transportation equity and social/environmental justice.

Providing the best possible public transit options for southwest Boston

The remainder of this report will focus on three issues with the "Arborway Alternatives Analysis":

1) Providing the best possible public transit options for southwest Boston
2) Fallacies of the Systra report as it concerns parking
3) Transit usage and ridership numbers

Review of each of these points will describe the inconsistencies of the Systra study and propose corrections.

From a transit planning perspective, the "Arborway Alternative Analysis" fails in several ways. First, it concludes that duplication of transit services, by form of a bus running parallel with a high capacity rail line, is effective in terms of cost and operations. Rather than improving service of the existing rail line, of which more than half exists in a dedicated or semi-dedicated right-of-way, the bus alternative proposes that extra buses duplicate this line on surface streets all through some of Boston's most auto-congested streets. The study fails to take into account the traffic conditions around the Boston Common, and only focuses on traffic from Heath Street to Forest Hills. The erroneous conclusion is then made that the bus alternative would have no adverse effect on traffic or automobile congestion, with all of its associated pollution, even though there were no traffic studies done for almost four miles of the route.

Current bus routes along the Arborway corridor include the Rt. 39 (17,405 daily riders), Rt. 38 (West Roxbury to Forest Hills, 1633 riders), Rt. 41 (JP to Dudley, 1027 riders), and the Rt. 48 (JP loop, 203 riders). In Jamaica Plain, the Rt. 38 travels from the Monument to Forest Hills along South Street. The Rts. 41 and 48 travel on Centre Street from the Monument to near the Halifax/Moraine intersection. Since most of the passengers on the Rt. 38 are likely travelling to and from Boston/JP and West Roxbury, it is not necessary to route them to Forest Hills. Instead, the Rt. 38 and Rt. 41 bus routes can be combined to one route, directly from West Roxbury, to Centre Street in Jamaica Plain, then to the Jackson Square Orange line station (for those who would have transferred at Forest Hills), and then to Dudley. Currently, Rt. 38 has 33 trips per day and Rt. 41 has 38 trips per day in each direction. After 8 PM, there are only 3 trips in each direction on both routes combined, which is a very poor level of service. The low ridership total of these routes justifies combining them (total 2660 riders) but improving frequency of service to about 45 trips per day while adding buses to enhance service at night. This would not only improve overall service for patrons, but would remove 26 bus trips per day from Jamaica Plain. Also, significant air quality improvements would occur.

With ever increasing employment, development, and medically-oriented services experiencing growth in the Longwood medical area, providing an enhanced light rail service from Forest Hills via Jamaica Plain to the medical area would result in increased transit utilization by patrons of this region. Currently, there are various paratransit buses which shuttle people from the medical center to Ruggles station. With the

availability of light rail service directly to Forest Hills, many of these shuttles could be retired, again resulting in improved air quality.

Finally, it is not inconceivable to propose that some form of "express" light rail trip or even bus trip can be implemented at peak times in the Arborway corridor. For example, an express train or bus that stops only at Monument, Perkins, Heath Street, and Brigham Circle during rush hour may be an attractive option both to offload heavy regular transit use and to increase ridership for morning and evening commuters. A "rush hour" express extension of the Rt. 38 or Rt. 34 bus from West Roxbury or Roslindale/Dedham may be one such option.

The purpose of the above transit analysis is to show the deficiencies of the current "Arborway Alternatives Analysis" in terms of actually improving overall transit options to the Jamaica Plain neighborhood and to the remainder of southwest Boston. With a comprehensive plan that returns highly efficient light rail transit, coupled with improved efficiencies of some of the bus routes, true transit choices may stimulate even more people to leave their cars at home and use public transportation.

Fallacies with Parking estimates as seen in the Systra report

The first issue with parking is the question of how valuable parking is for the economic health of a commercial corridor and from a neighborhood perspective. Some of the most desirable neighborhoods in the world have great limitations on parking availability (think of Beacon Hill), whereas many neighborhoods with copious parking are economically challenged (think of dying strip-malls everywhere). There is no direct relationship between the amount of parking and the viability of these zones.

The second issue with parking is the incorrect assertion that a loss of parking is anticipated with rail service. The MBTA is wrong to insist that their light rail platforms must be 150 ft. in length, with a minimum length of 200 ft. when all transition ramps and crosswalks are considered. The light rail vehicles are 74 ft. long, or 148 ft. long when coupled. At a station which occurs after an intersection, the front of a stopped LRV and its platform needs to be at most 150 ft. in front of the adjacent street corner. If the station precedes the intersection, the rear of the platform needs to be at most 150' from the intersection. At those positions, the center of the low-floor doors of a stopped LRV would be 20 ft. 6 inches from the either end of the car. In a two-car set, the distance between the front and rear accessible doors is 107 ft. The 20 feet in front and behind the doors could be incorporated as a transition zone and for crosswalks. Therefore, using this construct, the total length of the platform can be kept under 150 ft. This smaller platform length conforms nicely to how other cities are building platforms for their streetcar systems.

A major problem with the Systra report is its baseline parking scenario, and the predictions it makes about loss of parking spaces with light rail. Using 18 to 20 feet as the length of a standard parking space, an independent on-site analysis was done of current parking availability **(See Figure 1).** This independent study, which involved actual measurements and counting of existing parking spaces and bus-stops, revealed the following numbers of parking spaces:

Independent Parking Analysis (inventory) in the Arborway corridor

Section	Southbound	Northbound	Total
South Huntington	100	95	195
Centre Street	92	114	206
South Street	64	85	149
Grand total:			550

This contrasts to the Systra number of spaces, which is overestimated at 615. An even more alarming error in the Systra report is its estimate of the numbers of parking spaces affected by the implementation of light rail. Using a platform length of 150 ft., field analysis shows that a much smaller number of parking spaces would be affected by light rail. This is detailed in **Figure 1** for each proposed station of the restored rail line. With the elimination of redundant bus stops, many parking spaces would actually be gained if light rail were implemented. The change in parking spaces with rail would total:

Section	Change South	Change North	Total
South Huntington	- 8	- 2	- 10
Centre Street	- 6	- 8	- 14
South Street	- 2	- 6	- 8
Grand total:			- 32

Thus, the Systra report not only overestimates the anticipated parking loss for light rail service, but also overestimates the current available number of parking spaces. The net result is that the Systra report purports a wrongly high percentage deficit of parking with light rail. In addition, the Systra report fails to accurately count the parking slots in the two public lots (Curley School, actual parking = 33, not 23) (Thomas Street, actual

parking 109, not 103), and fails to consider a private rear lot in the business district which can accommodate 75 to 80 cars.

Critique of "Arborway Alternatives Analysis"
Page 8

Actually, the number of on-street parking spaces lost with light rail (32) is lower than what is anticipated to be lost in Jamaica Plain alone with buses (38 slots). An even greater number of parking spots will be lost to the bus alternative from Heath Street to Northeastern (total, nearly 60 slots). Because the Systra report failed to measure the off-street parking availability accurately, the higher number of off-street parking spaces available makes the small number of slots lost to light rail platforms even more inconsequential. With an improved transit accessibility to a higher capacity of transit passengers with light rail, along with new and attractive platforms and street amenities, the overall number of business patrons will increase more than enough to overwhelm the minimal number of parking spaces that have been lost.

A final point about parking and platforms is the ADA-accessibility issue. Whereas the accessibility of buses to disabled passengers is dependent on the bus driver pulling precisely to the curb, a compliant light rail platform necessitates and insures that the light rail vehicle will be an exact distance to enable boardings by the disabled. Because light rail guarentees ADA accessibility, it is a better option from that perspective. Also, although cars can illegally park in a bus zone (and often do), cars cannot obstruct or park on a light rail platform, since it is not in the street.

Transit usage and ridership numbers

The accompanying report, entitled "Comparative Multi-City Analysis of Transit Ridership on Light Rail vs. Bus," carefully dissects the issue of whether the ridership numbers provided by the Systra report are realistic in comparison to the experiences of other cities which have implemented both new streetcar service or light rail corridors. It shows that:

- Transit ridership invariably increases greatly when a streetcar line replaces a bus route.
- Rail is generally more attractive to riders and stimulates increased ridership, as exemplified by multiple case studies of cities throughout the U.S.
- Modelling predictions greatly underestimate rail ridership, and a probably not a valid construct to accurately determine future use of a rail line, at least in their present configuration.

In the next few paragraphs, I would like to expand on these points and apply some ridership information to the Arborway discussion.

First, the validity and predictive accuracy of currently available modelling programs to assess usage of light rail and streetcar systems is highly weak and seems

to be of little value. As stated earlier, these models fail to incorporate the behavioral stimulii that seem to favor light rail over buses, even when other factors such as travel time, reliability of service, attractiveness of stations, and cost and economic data are held constant and similar. The result is that transit prediction models are deficient and underestimate ridership, often leading to lack of adequate parking facilities along rail lines and vehicles that are surprisingly (and not-so-surprisingly) crowded. Some of these examples are pointed out in the "Multi-City Analysis" report.

Transit models generally use outdated statistics, utilizing information on travel habits and socioeconomic parameters from a few years ago to try to predict trends that will happen in the next 5 to 20 years. The mathematical formulae used to generate the number of trips generated and how these are distributed are subject to sampling errors and cannot predict future business and work-related or recreational trends. For instance, using 1990 census data in this age of technology expansion does not take into account the increased possibilities for work-at-home options. Although transit usage is related to cost of travel and travel times, there is no good correlation between other more general socioeconomic variables and use of transit. The old and discredited paradigm that transit usage is highest in only the poorest neighborhoods, where people don't have cars to drive, is outdated and not valid. Studies have shown that when people of all socioeconomic stratum are given attractive and efficient transit options, they will leave their cars behind. The "Multi-city Analysis" describes several cases of transit usage increasing dramatically in high-income areas and for people with two or three automobiles garaged.

Generally, usage of transit by "choice" riders is of rail transit, as it is rare for a person with the option of using an automobile to abandon their car just to take a bus which competes with the same traffic as their car. There is seldom any good reason to take a bus, if a private automobile is at one's disposal. People tend to look at rail transit as more reliable and having better system performance, capacity, and safety, while tending to look down on buses as a substandard form of transport. Intangible factors such as desire to read the newspaper, talk unencumbered with a friend, and avoid road rage are not factored in any transit prediction models.

As the Systra report states, the transit ridership numbers created by models often fail to correlate with real-life, and must be adjusted to fit the current and actual figures. As written in Appendix C, page 3, "For this project, the model set was run and adjusted several times until it replicated the existing highway and transit counts at an acceptable level of accuracy." The model used in the Arborway analysis was very sensitive to minor changes in operational parameters. For example, the CNG bus

alternative with headways every 4 minutes projected a ridership of 23,370 per day, compared to a bus alternative with headways every 6 minutes predicting

ridership of 18,760 (a decrease of 4610). Meanwhile, if a LRT vehicle is run every 6 minutes, the ridership other than that of Heath St – Park St is 18,750. It is apparent that ridership numbers can be easily manipulated to achieve any of a number of desired outcomes, none of which can be accurately validated in the real world.

Another issue which needs to be challenged in the Systra report is that of central subway capacity on the Green Line, especially in terms of what an expanded Arborway rail service may have on overall tunnel capacity. Currently, during the AM peak period, which is from 8:27 to 9:27, the B, C, and D lines put 61 trains (122 cars) through Copley per hour, and the E line puts 10 trains (20 cars) through per hour. In addition, there are three run-as-directed cars, for a total of 148 trains per hour. The Systra report states that with improved headways on the new Arborway line, an additional three trains would pass through Copley at peak hour. Dwell times for the central subway are not noted, although the URS report (page 40) states that dwell times for surface Green line cars are approximately 30 - 60 seconds.

Several problems exist with this analysis. First, current E-line service is not equitable with service from other lines in terms of frequency. Whereas the B,C, and D lines run at a frequency of between 4.5 and 6.5 minutes, the Heath Street line runs only every 8.5 minutes. Yet, in terms of ridership and usage, the E line services 14,647 patrons (1995 CTPS counts), which is comparable to other lines when factoring in the length of the route (currently only 2.8 miles). With expansion of the route another 1.9 miles to Arborway and greatly increased ridership and capacity, service frequencies of every 6 minutes are certainly justified from the standpoint of transportation equity. We would all agree that service to neighborhoods like Roxbury and Jamaica Plain should be equitable to service to neighborhoods in Brookline and Newton.

Another problem with the Systra study determination of subway capacity is that it doesn't take into account improvements in efficiency that can happen at the stations. For example, in some cases, trains from different lines can be boarded and off-loaded at the same time using the platform, rather than having one train wait for the other to leave the station. In the Systra study, subway capacity is evaluated using a "simulation model." What happens in real life? On June 29, 2001, in a half hour period from 8:04 AM, 18 trains (37 cars) were noted going outbound and 16 trains (32 cars) were noted going inbound. Thus, 34 trains (69 cars) per half-hour, which is equivalent to 68 trains (138 cars) per hour were noted to pass through the station. The dwell times were generally about 15 to 30 seconds in the subway, as all doors were opened on each car. Although there were one or two times that the trains bunched going in either direction in that period, empirically there seemed to be enough time to pass at least 6-8 trains (12 to 16

cars) per hour per side. Another way to look at this is to allow 90 seconds between trains, with dwell times of 45 seconds.

Critique of "Arborway Alternatives Analysis"
Page 11

In such a scenario, 45 trains could pass through the station in each direction per hour, for a total of 90 trains or about 180 cars per hour, which is much greater than the 151 cars per hour that would be seen with restored Arborway service. This data suggests that the MBTA has greatly underestimated capacity of the tunnel at Copley, and that additional service on the Arborway line could easily be accomodated.

Finally, it is important to look at actual service numbers from the Arborway line when it ran the full length prior to 1985. According to the "Arborway Streetcar Line Fact Sheet," from the MBTA, dated April 2, 1974, scheduled weekday service counted a total of 338 car-trips (108 double cars from Arborway, 92 single cars from Arborway, and 30 single car trips from Heath Street, for a total of 338 cars or 230 journeys). This equated to an average car-trips/hour of 17.5. In addition, there were two to four cars per day operated by the starter at Northeastern University. Delays that occurred in the subway were those due to "problems on other routes." These vehicles from Arborway occupied the central subway without placing an additional burden on subway capacity, from a historical perspective.

An important point to understand is that while streetcar service existed on the Arborway line, the transit ridership numbers were much higher on this corridor. This was during a period of time (1970s to early 1980s) when transit ridership was at historically low levels, both in Boston and all over the nation. The Arborway line, in particular, was plagued by poor maintenance and track issues. By 1974, the average age of the trains was 28 years. Equipment failures and shortages were common, with each car being removed from service on average once per week. There was a lack of parts and motors and other electrical equipment were subject to water damage. There was poor scheduling of periodic overhauls, and the line was subject to frequent breakdowns. In spite of all these problems, this line enjoyed some of the highest ridership numbers of the entire Green Line system. Almost 50% of patrons of the line were from beyond Heath Street.

At the time while the streetcars ran on Arborway, various bus routes also serviced the corridor. The Routes 38 and 41 existed as they do today. The Rt. 59 ran along South Street overlapping with the Rt. 38. No other routes were in Jamaica Plain during the mid-1970s, but along Huntington Avenue, where the present Rt. 66 runs, both the Rt. 66 and Rt. 47 buses ran. According to the MBTA, no reliable statistics on ridership exist for these old bus lines in the 1970s and early 1980s, so it is difficult to study overall transit corridor ridership on both the rail line and buses.

However, there is information on ridership of the Green Line (including Arborway and the subway), as well as the old Orange line, which serviced the Egleston, Green

St., and Forest Hills Stations, which shows that overall transit ridership dropped after Arborway service was discontinued in 1985. One argument

given is that Arborway transit usage decreased because the new Orange line opened and transit users shifted to that utilize that line. Review of Orange line ridership shows that it has been stagnant in Jamaica Plain (the final three stations: Forest Hills, Green St., and Stonybrook or Egleston):

Ridership numbers on the Orange line (1964 – 1997)

Year	Forest Hills	Green Street	Stonybrook	JP totals
1964	16,800	2,200	5,800	24,800
1969	16,000	2,100	5,700	23,800
1974	10,599	1,541	4,039	16,179
1979	10,961	2,395	4,290	17,646
1988	13,094	2,420	2,625	18,139
1993	10,936	2,962	2,441	16,339
1997	13,422	3,387	2,477	19,286

From the above data, it is apparent that ridership levels on the Orange line have been flat, and that lost of ridership on Arborway did not transfer to the Orange line.

Meanwhile, ridership on the Green line (E-line to Heath Street) and the Rt. 39 bus has fallen drastically since the elimination of streetcar service. According to several reports, including the recent URS study from May, 2001, the old Arborway streetcar "line served 50,000 weekday and 15.3 million annual riders in 1985." Currently, the E-line carries only about 14,000 riders per day. Bus ridership on the Rt. 39 replacement bus has fallen from 28,000 per day in 1988 to 17,405 in 2001. The total transit ridership on the Arborway route is now only about 32,000, which is a 36% decrease since streetcar service was terminated. The historical evidence clearly shows how there has been a major loss of ridership in the Arborway corridor since streetcar service was discontinued. Meanwhile, this loss of ridership has occurred in a scenario of increasing transit ridership on other branches of the Green line, which have seen higher surface boardings.

Green Line Surface Boardings (1974 – 1995)

Year	Green line surface boardings
1974	42,505
1979	50,069
1988	67,964

1995 81,684

It is apparent from this review on ridership modelling and trends that the validity and predictive accuracy of currently available modelling programs is poor and of little value for determining ridership projections in the Arborway corridor. Subway capacity for expanded Arborway service is more than adequate, based on current analysis and on past usage of the central subway. Evaluation of historical ridership numbers shows that transit riders strongly prefer rail, and that a major loss of riders was seen when the streetcar line was converted to buses.

Conclusion

The "Arborway Alternatives Analysis," produced by Systra Consulting on behalf of the MBTA, fails to be convincing in its presentation of the data and criteria to evaluate the alternatives for improving public transporation in this corridor. This study begins by looking narrowly at the issues in question, and as a public transit analysis, does not examine options to maximize and preserve non-auto oriented options for transportation in Jamaica Plain. It excessively focuses on supporting an inferior solution to public transportation in the corridor by recommending bus service over rail restoration to Arborway.

The Systra study presents a biased and glowing report on the purported advantages of buses, seemingly ignoring vital issues such as point-of-service pollution from buses, the inherently reduced reliability of buses which would need to traverse an additional 3 miles in congested traffic to get to downtown, and the associated low capacity and high travel time issues, both which are greatly inferior on the bus compared to the train. For purposes of recommending the best possible transit planning solution, the Systra report only recommends a wasteful duplication of existing services, while failing to recommend innovative new mechanisms to increase transit usage along this corridor.

As for parking, the input data is erroneous and neither describes the current conditions for on-street parking nor the present-day situation with the bus stops. The Systra report assumes an unreasonably long platform length along the light rail route, such that is not seen in any other cities with in-street light rail service. Even so, a detailed review of the parking changes that would be seen with 150 ft. train platforms shows that fewer parking spaces would be lost to rail than to the bus alternative, and that the overall number would be minimal.

Finally, the ridership projections of the Systra report are pure modelling fabrications and not based either on transit trends elsewhere in the country nor on

historical data from Boston and the Arborway corridor. By all real-life estimates, the level of transit ridership on the reconstructed streetcar line would greatly exceed the projections by Systra and the MBTA, whereas bus service would be expected to be stagnant at best.

For these reasons and others, as pointed out by the many criticisms of the MBTA/Systra report, the "Arborway Alternatives Analysis" cannot be accepted as a reliable and objective document, and its conclusions are not valid.

Sincerely,

Srdjan S. Nedeljkovic, M.D.