EQUAL OR BETTER:

THE STORY OF THE SILVER LINE

A thesis
submitted by

Kristopher Carter

In partial fulfillment of the requirements
for the degree of

Master of Arts
in
Urban and Environmental Policy and Planning

TUFTS UNIVERSITY

November 2011

ADVISER: Penn Loh
READER: Barbara Parmenter

© 2011, Tufts University
ABSTRACT

In 1987 the Washington Street Elevated train was torn down and community members awaited rapid replacement service between Dudley Station in Roxbury and Downtown Boston. Commuters boarded busses each day and finally in 2002 the official replacement, the Silver Line, opened. It too was a bus, touting the benefits of bus rapid transit but lacking the infrastructure to uphold the ‘rapid’ moniker. This document supports the documentary film: Equal or Better: The Story of the Silver Line and explores the larger issues of transit equity and mode choice for the replacement service project. The film interviews community members, state officials, and transit riders and attempts to unearth how well the Silver Line fulfills the promise of “equal to or better than” transit service made to the neighborhoods. With such a subjective question comes a subjective answer dependent upon neighborhood, race, and class. The film can be found in the Tufts University library collection and online at www.smallcraftadvisoryproductions.com
ACKNOWLEDGMENTS

This research and creative undertaking would not have been made possible without the support of a large cast of colleagues, mentors, family, and friends. My years working in the South End led me to inquire more deeply about how cities function and to me, the Silver Line served as a parable of a well-intentioned public planning processes going awry. The MYTOWN organization, Kim Allyne, Marinell Rousmaniere, staff, and Youth Guides inspired this pursuit.

While at Tufts, Penn Loh offered his invaluable knowledge and gentle suggestions over my two years to guide this project. Barbara Parmenter, who pushed me to think deeper and embraced some unique approaches to learning - even if it was in the form of a haiku – supplied the feedback that helped make this thesis what it has become. Both Penn and Barbara have gone to bat for students like myself, eager to think about traditional academic work in a changing world, and for that I am incredibly grateful. Howard Woolf at the Tufts Ex-College provided the production support and a cinematic knowhow that supplemented my often novice approach.

My colleagues at UEP were critical to the completion of this film – especially Dan Nally and Marcus Rozbitsky – did not hesitate to pick up a microphone or hold a camera when asked. Fred Salvucci, Peter Calcaterra, and Bob Terrell opened their homes and candidly shared their memories on camera. It is only my hope that the next generation of planning professionals can exhibit the charisma and commitment to public good of these three.

I owe endless amounts of appreciation to Kat Callard, who watched each rough cut and provided encouraging words through the long process. Lastly, my family – Kent, Connie, Ed, and Cami – who supported
this endeavor of mixing urban planning with film production and provided years of informal discussions around the breakfast table about how to make the world a better place; I hope this is 60 minutes closer to that vision.
# TABLE OF CONTENTS

**INTRODUCTION** 8

**TRANSPORTATION EQUITY IN THE U.S.** 15

**UNDERSTANDING EQUITY** 18

**A POLICY RESPONSE TO EQUITY** 20

**EXECUTIVE ORDERS AND TITLE VI** 22

**EQUITY AND MODE CHOICE** 25

**EQUITY ON WASHINGTON STREET** 27

**TIMELINE: From Orange Line to Silver Line** 30

**WHAT DOES MODE HAVE TO DO WITH IT?** 36

**MODE CHOICE: BRT OR LRT** 39

**ENVIRONMENTAL IMPACTS OF BRT** 41

**THE HISTORY OF BRT IN THE USA** 43

**PERCEPTION VERSUS REALITY** 45

**BARRIERS TO BRT** 47

**THE REPLACEMENT PROJECT BY THE NUMBERS** 49

**CONCLUSION** 56

**BIBLIOGRAPHY** 60

**APPENDIX: FILM BIBLIOGRAPHY** 64
LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURE 1.1</td>
<td>Boston demographics</td>
<td>9</td>
</tr>
<tr>
<td>FIGURE 1.2</td>
<td>South End demographics</td>
<td>10</td>
</tr>
<tr>
<td>FIGURE 1.4</td>
<td>Median household income</td>
<td>11</td>
</tr>
<tr>
<td>FIGURE 2.1</td>
<td>Map of Boston train lines</td>
<td>27</td>
</tr>
<tr>
<td>FIGURE 5.1</td>
<td>Features of BRT</td>
<td>38</td>
</tr>
<tr>
<td>FIGURE 5.2</td>
<td>Emissions of BRT v. LRT</td>
<td>43</td>
</tr>
<tr>
<td>FIGURE 5.3</td>
<td>CO2 Emissions of BRT</td>
<td>44</td>
</tr>
<tr>
<td>FIGURE 5.4</td>
<td>BST/LRT Choices</td>
<td>48</td>
</tr>
<tr>
<td>FIGURE 6.1</td>
<td>Travel times</td>
<td>50</td>
</tr>
<tr>
<td>FIGURE 6.2</td>
<td>Service frequency</td>
<td>51</td>
</tr>
<tr>
<td>FIGURE 6.3</td>
<td>Capital costs</td>
<td>51</td>
</tr>
<tr>
<td>FIGURE 6.4</td>
<td>Greenbush capital costs</td>
<td>52</td>
</tr>
<tr>
<td>FIGURE 6.5</td>
<td>Greenbush ridership</td>
<td>53</td>
</tr>
<tr>
<td>FIGURE 6.7</td>
<td>Alternatives ridership</td>
<td>55</td>
</tr>
</tbody>
</table>
INTRODUCTION

In 1987 the Massachusetts Bay Transportation Authority’s Elevated Orange Line, which ran along Washington Street from downtown Boston to Forest Hills station in Jamaica Plain was taken down. An updated version of the Orange Line began operation in a relocated corridor, and the people of Dudley Square in Roxbury, a station servicing a large minority population, lost their rapid transit link to Boston’s core. It took 15-years to launch the replacement service promised to the community. With the launch of the Silver Line, a version of bus rapid transit, there remains great debate whether the state fulfilled its promise to the “highly dependent transit population in the South End and Lower Roxbury” by providing “a replacement service equal or better than the Washington Street elevated” (US Dept. of Transportation 1987, I).

The Elevated Orange Line spanned five neighborhoods, but the South End and Roxbury were especially affected by the closing of the line. The distance from Dudley station in Roxbury to Downtown is just over two miles, the majority of which resides in the South End neighborhood. However, Roxbury residents became the most isolated from rapid transit – since the relocated Orange Line’s new stops in Back Bay and Massachusetts Avenue provided relatively easy access points for South End residents. This division of neighborhoods factored into the eventual outcome of the replacement service, the community process that occurred, and the perception of how well the ‘equal or better than’ promise was fulfilled.
Boston is a city of neighborhoods, each with a distinct feel and blend of cultures. This attribute of the city was a major character in the community planning process for the Silver Line. During the later stages of planning of the project, Boston became a majority-minority city, but the demographics of South End and Roxbury remained drastically different.

![Boston: Race and Ethnicity Changes](image)

Figure 1.1: Boston city-wide demographics from the US Census. NOTE: Values do not add up to 100 percent as this does not include all race and ethnicity categories.

The South End was a rapidly changing neighborhood between 1987 and 2002 when the Silver Line replacement service launched.
During the same period the median household income rose faster than the city average, including the 37 percent of households in the neighborhood who earn more than $100,000 per year (US Census ACS 2009). This coincided with a 51.1 percent increase in housing ownership (TBF 2009). In the 2010 Census an 18.2 percent rise in white residents and decline of 17 percent by African American/Black residents continued the trend. It was the highest proportional drop in African American/Black residents in the entire city of Boston (Rocheleau 2011).
While the South End gentrified, Roxbury went through a period of disinvestment. In Roxbury the median household income between 1990 and 2000 fell 1.3 percent to $27,133 a year, while Boston’s average rose by 3 percent. The neighborhood is a minority community, but the make-up of that minority has been shifting from largely a Black or African American population to those with Hispanic or Latino heritage. Between 1990 and 2000 the percentage of owner occupied housing units rose by only 2 percent to be 22.8 percent of the entire neighborhood (TBF 2008).
Figure 1.4: Roxbury neighborhood demographics from the US Census/TBF Indicators Project. NOTE: Values do not add up to 100 percent as this does not include all race and ethnicity categories.

That brief snapshot of the demographic data is the basis for approaching the Replacement Transit Improvement Study (USDOT 1987) through the lens of transportation equity. There are stark racial and economic differences between those two neighborhoods. Some argue that those differences affect the level of investment in those communities, political voice and the type of transit offered to the residents. The *Equal or Better* film explores these issues in the context of the Silver Line project. While it is not uncommon to have low-income areas of a city served by busses and wealthier neighborhoods served by trains, the Washington Street story is especially unique because in its recent history, it was served by a
train and that service was taken away – stripping the economic benefits that accompany rapid transit lines.

The Roxbury delegation in the state house and community activists from the Washington Street Corridor Coalition often refer to the Silver Line as the “Silver Lie” for its failure to be the rapid replacement transit it was touted to be by state officials. In many ways the argument boils down to the choice in mode for the replacement. A train was removed and replaced with a bus. Is it possible for a bus to be equal or better than a train? Examining that question from a quantitative stance, by exploring the travel times, headways, and capital expenses of the project do not point to one clear conclusion. Factoring in the aesthetic values of different modes and neighborhood dynamics, the conclusion becomes even more muddled. In short, to answer the question if the replacement service is equal or better, another question needs to be asked: it depends on who is speaking. The documentary film *Equal or Better* attempts to unearth the process that led to this conflict of opinion and allow viewers to decide for themselves.

*Equal or Better* picks up the story shortly after Massachusetts Governor Francis Sargent called for a moratorium on highway construction, a move that put the relocation of the Orange Line into motion. The film follows the path of the project and how community groups become involved and begin to advocate for their distinct positions. In the South End it became about revitalizing the street. In Roxbury it was a battle for rapid service. In the end, it is hard to tell if either side got their way - the street and service now are arguably better than what it had
become by the mid-1990s - but did Washington Street reach its full potential to become a lively corridor with rapid transit service?

This research guide accompanies the film to provide background information too extensive to squeeze into the documentary film. A further exploration into the issue of transit equity, an in-depth look at Bus Rapid Transit (BRT), a timeline of the Silver Line project, and a quantitative look at transit service along Washington Street help to expand upon the themes shown in *Equal or Better*. The guide complements the often qualitative views in the film with a quantitative analysis. To access the film, visit www.smallcraftadvisoryproductions.com or the Tufts University Masters Thesis digital collection.
TRANSPORTATION EQUITY IN THE U.S.

Transportation can have a sizable impact upon a community. It can affect the location and pace of development, quality of life, access to employment, and property values. The varied levels of investment in transportation amongst neighborhoods can lead to unequal levels of service. Additionally, transportation hubs consume large amounts of land that are usually untaxed. While a hub can provide access to communities, they also often act as physical barriers within a neighborhood. When looking specifically at urban mass transit, where a transit center is located and the modes it includes, concerns of equity often arise, based on class, race, and income. This segment of the guide will explore the history of transportation equity, the policy response, and a brief exploration of the connection of equity to the Washington Street Transportation Replacement project.

Minorities from low-incomes disproportionately use urban mass transit in America. African Americans and Latinos make up 54 percent of public transportation users, 62 percent of the bus riders and only 29 percent of the commuter rail users (Sanchez 2003, 3). Many of these users are what transportation planners refer to as ‘captive riders,’ those who do not own a personal vehicle and need transit to access employment, school, church, shopping, or medical services. In the United States nearly 20 percent of African Americans households and 14 percent of Latino households do not own a car compared to only 7 percent of white households (Transportation for America 2011).
The roots of equity issues in transportation run deep in the United States and are at the heart of seminal civil rights cases that challenged racist laws perpetuated for over a century. The *Plessy v. Ferguson* case (1896) that led to the “separate but equal” doctrine was the result of Homer Plessy attempting to sit in the white section of a segregated East Louisiana Railroad car in 1892. Transportation equity was then the impetus for a half-century of separate but equal doctrine that affected everything from water fountains to schools.

Transportation issues also anchored the Civil Rights Movement from the 1940s to the 1960s. The first African American labor union chartered by the American Federation of Labor (AFL) was a group of sleeping car porters and maids (Electronic Encyclopedia of Chicago, 2005). Rosa Parks famously refused to sit in the back of a bus, which spurred marches and the Montgomery Bus Boycotts. Busloads of Freedom Riders traveling through the South brought national attention to racial injustice. Dr. Martin Luther King Jr. denoted the importance of urban transit in 1968 by stating “Urban transit systems in most American cities...have become a genuine civil rights issue, and a valid one, because the layout of rapid-transit systems determines the accessibility of jobs to the African-American community” (Hair 1991, 326).

Yet this cry for racial equality in transportation during the 1960s went largely unaddressed by public policy until the 1990s. This acceptance of racial bias in transportation policy led to decades of transportation practices that adversely impacted minority communities; this bias was most pronounced in the
systematic construction of interstate highways through low-income neighborhoods. States were incentivized to build highways by the federal dollars tethered to their construction. For every dollar a state spent on a highway, the federal government provided four (Center for Community Change 1998, 13). Not only did this practice of removing homes for highways physically disrupt the patchwork of a neighborhood but land use decisions in-favor of the automobile have also contributed to increased asthma rates in places like Detroit and Harlem (Sanchez 2003). In other areas, the land use practices promoted by the highway construction produced sprawling suburban communities (Center for Community Change 1998, 24). The more spread out a city becomes the more difficult it becomes to serve with public transit and the more auto-dependent workers become. The 1970s and 1980s brought about a larger investment in public transit, spawned mostly by growing environmental concerns and a fuel crisis. A growth in the funding for mass transit projects indirectly supported low-income communities, but addressing the issue of transportation equity was often overlooked.

This lack of equity can be felt in the economics of spending by the federal government. Of each dollar spent on transportation, 80 cents is spent on highways and 20 cents is earmarked for public transportation (Puentes 2003). State funding, usually dependent upon gas tax revenues, is often more minimal for public transit. “Thirty states restrict the use of their gasoline tax revenues to funding highway programs” (Sanchez 2003, 11). In Massachusetts, the MBTA does not receive any
funds from the 21-cent per gallon gas tax; instead the MBTA receives 1 percent of the 6.25 percent state sales tax in the 178 cities and towns it serves. A proposal from Governor Patrick to raise the gas tax and provide a percentage of that increase to fund the MBTA failed to gain traction in 2009 (Goodnough 2009).

Not only is less money spent on the services used in low-income communities, but also fare structures and revenues from fares tend to favor suburban commuters. In many cities low-income riders actually subsidize the higher-income riders. Low-income riders tend to make shorter trips than their counterparts, in some cases paying twice the true costs of the trip, where the higher-income commuter may travel 20 miles and pay only 20 percent of the cost (Deka 2004).

UNDERSTANDING EQUITY
Transportation equity can be loosely distributed into three categories (Littman 2003, 53):

1. **Vertical Equity with regard to Mobility Need and Ability** – this examines how transportation impacts those with disabilities or special needs in relation to other groups.

2. **Vertical Equity with regard to Income and Social Class** – this explores the “distribution of impacts between individuals and groups that differ in abilities and needs,”(Littman 2002, 53) based on socio-economic criteria. Under this definition, policies are equitable if they positively compensate
disadvantaged people disproportionately to over-compensate for other inequities in society.

3. **Horizontal Equity** – this concept deals with fairness, surmising that all people should be treated equally, share the same burden of costs, and the same benefits. The idea of horizontal equity is to not provide any preferential treatment to a group or individual.

Inherent in these three categories of transportation equity is the conflict they hold with one another. Vertical opposes horizontal equity and this tension is one issue making the evaluation of projects and policies a challenge for planners. Vertical equity is often divided into *equity of opportunity* and *equity of outcome*. It is generally agreed that all people should share opportunity equally but it is more contested to create policy that ensures the success of disadvantaged individuals (Littman 2002, 56). Transportation equity also considers “disparate outcomes in planning, operation and maintenance, and infrastructure development” (Bullard 2004, 26). These categories explore transit equity on geographic, social, and procedural grounds, thus, probing if a project is created with community input, if a project unfairly meets the needs of one spatial location over another, and if the benefits of the system are distributed to all groups – such as the access to employment.

Equal access to employment opportunities and the relationship to housing is often explained as the “Spatial Mismatch Hypothesis,” coined by economist John
Forest Kain in 1968 (Sanchez 2003, 10). Kain theorized that entry-level jobs in suburban growth centers were ill situated for low-income urban living workers. Commuting to these jobs became increasingly expensive and unemployment rates in urban communities began to rise. Perhaps, because Kain framed this mismatch as an issue of housing and employment, the issue of spatial inequity in the United States has largely been ignored by transportation policy makers (Sanchez 2003, 10). This lack of access to quality transportation can become socially isolating for those dependent upon public transit.

A POLICY RESPONSE TO EQUITY

In 1991 the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) shifted the long standing funding preference for highways and gave greater authority to Metropolitan Planning Organizations (MPOs) to determine their own regional transportation plans. An MPO is responsible for transportation planning in metropolitan areas with populations greater than 50,000. The planning efforts of the MPO help decide which improvements will receive federal capital transportation funds. In the Boston area, the MPO covers 101 cities and towns, who it helps to organize for a coordinated transportation agenda for the nearly three million residents.

The ISTEA legislation required MPOs to work with cities and towns to create a 20-year transportation plan and a three year Transportation Improvement Plan (TIP) in order to receive federal funds. It was the first transportation policy
to make economic, health, and the social effects of projects in minority communities a part of the evaluation criteria for project approval. Another large impact on low-income urban communities was the provision in ISTEA permitting the transferring of capital funds from highway construction projects to transit, bicycle, and pedestrian projects (Dembach 2002, 654-655). This shift to a multi-mode approach in policy finally allowed cities to slow the highway-building machine and put people to work building transit.

With the expiration of ISTEA in 1998, the Transportation Equity Act for the 21st Century (TEA-21) was signed into law by President Clinton and required a new level of community participation in state transportation planning as well as grant programs “to help serve the transportation needs of minority and low-income communities” (Sanchez 2003, 6). Two of those grant programs: Jobs Access and Reverse Commute provided federal funds to municipal and state governments to expand transit options for welfare recipients and other low-income individuals looking to access employment wherever it may be in the region.

TEA-21 provided $217 billion for transportation spending over six years (United States Congress 1998). The policy expanded public involvement in the planning process and focused on improving transportation mobility by coordinating services in low-income communities. TEA-21 required “early and continuous” public involvement in transportation decisions since most citizens rarely have access to “transparent and accessible information” on how...
transportation dollars were being spent (Katz 2003, 7). TEA-21 expired in 2003 but under a series of extensions lasted until 2005.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law in 2005 by President Bush, providing $286.4 billion of provisions and earmarks to improve the surface transportation systems in the country. This bill became infamous for the ‘Bridge to Nowhere’ project that fueled congressional debates on earmarks and pork barrel politics, but it also continued funding the New Starts program under the Federal Transit Authority (FTA) at $6.6 billion. New Starts is discretionary spending allowed by the FTA for locally planned fixed-guide way projects and is responsible for many of the new rail projects in the nation over the last decade (Federal Transit Administration 2011). Although New Starts offers an 80 percent federal funds match, priority funding is awarded to projects requesting 50 percent or less. A new program called Small Starts was added to SAFETEA-LU and is used to fund projects under $75 million (Hill 2006, 1). It also helped to streamline the environmental review process for projects. SAFETEA-LU expired in 2009 but continues to be regularly extended by an increasingly partisan congress that has struggled to create a clear vision for the next transportation bill (Prince 2011).

EXECUTIVE ORDERS AND TITLE VI

The Fourteenth Amendment and Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in any
program or activity receiving federal financial assistance. This of course directly applies to states and MPOs receiving federal funds for transportation projects. Title VI was utilized as a powerful tool for the federal government and individuals to ensure equal treatment in transportation-related issues under the law.

For example, in the early 1990s community organizers in Los Angeles grew frustrated with the misappropriation of funds for services not serving low-income communities. At the time, the Los Angeles Metropolitan Transportation Authority (LAMTA) used busses to haul 94 percent of its riders, 80 percent of which were people of color, but only allocated 30 percent of its resources to bus transit. The remaining 70 percent went to rail lines that served just 6 percent of LAMTA riders, the majority of which were white (Sanchez 2003, 15). A group of organizers known as the Bus Riders Union (BRU) brought a Title VI lawsuit against the LAMTA for the misappropriation of funds just as the authority planned a fare hike for bus users. The BRU lawsuit led to a 10-year, multibillion dollar consent decree that required LAMTA to fix past injustices by implementing a reduced monthly bus pass, a new weekly pass, the purchase of over 350 new busses to reduce overcrowding on busses, and five-year plan to extend bus service in low-income communities (Mann 2004, 40-43).

The utilization of Title VI for individuals and class-action cases like the BRU used in Los Angeles changed in recent years. In 2001 the power of Title VI was severely weakened by the Supreme Court decision in Alexander v. Sandoval, which ended the fifty-year practice of allowing private individuals to sue for Title
VI violations. The prior precedent allowed individuals to sue for *disparate impact* on communities based on race and other discriminatory categories. In *Sandoval*, the standard was adjusted to no longer provide legal standing in court for individuals or citizen groups. Instead standing is reserved for government bodies; additionally, a clear *intent* to discriminate must be shown. Instead of showing the effects of a policy on a community to be racist, the community must now prove the intent of that policy – which is a much higher burden of proof. The change to who has legal standing essentially leaves the federal and state, and local governments with the sole responsibility to monitor Title VI violations. This lessens both the ability of minority communities to bring lawsuits and causes a conflict of interest in many transportation equity challenges – which are often leveled against the government bodies.

Transportation equity has become a subset of Environmental Justice, providing another tool to challenge projects and processes. Environmental justice challenges from minority communities are provided for under The National Environmental Policy Act of 1969 (NEPA). NEPA created a lengthy procedural process that all transportation projects must go through to evaluate the impacts of the project. NEPA mandates a review of the environmental impacts a project will have on a community, requires the exploration of possible alternatives, facilitates the development of mitigation procedures, and ensures public process throughout the project. Many states have drafted their own legislation in the shadow of NEPA. The Massachusetts Environmental Policy Act (MEPA) process is what
required improved transit options (like the Green Line extension to Somerville and the South Boston Silver Line) that mitigated the increased traffic volumes brought about by the Big Dig.

NEPA still did not provide all of the tools necessary to support low-income communities as they fought against pollution and other factors disproportionately effecting their neighborhoods. The burgeoning Environmental Justice (EJ) movement in the early 1990s pushed for a policy response from the highest levels of government. In February of 1994, President Clinton issued an Executive Order 12898 entitled Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This was an attempt to bolster laws that currently existed, namely Title VI and NEPA of 1969 (Bullard 2004, 24). This executive order led to a national conference held by the national transportation authorities and precipitated the Federal Department of Transportation Order of Environmental Justice in early 1997. The order requires that, “steps to guard against disproportionally high and adverse effects on persons, on the basis of race, color, or national origin” be considered during the transportation planning process (US DOT 1997).

EQUITY AND MODE CHOICE

The most visual way to understand transit equity is through modal access. Low-income and minority neighborhoods are often serviced by bus while suburban and higher-income communities often are served by rail. The negative
stigma of riding a bus is well documented in surveys and in popular culture. In the 2004 film Crash a character poses a theory about why busses have such large windows: “One reason only, to humiliate the people of color who are reduced to riding on them,” (Haggis 2004). The systemic subsidization of rail compared to bus is less frequently discussed.

Bus transit receives just 23 percent of funds used for capital transit projects nationwide, even though busses carry 54 percent of the trips in the nation (American Public Transportation Association 2010, 20). The National Household Travel Survey conducted by the Federal Highway Administration in 2001 showed that urban households earning less than $20,000 make up 47 percent of bus riders, 20 percent of subway riders and only 6 percent of commuter rail riders. In urban area households earning over $100,000 the numbers were almost reversed: they make up 42 percent of commuter rail riders, 27 percent of subway riders, and just 7 percent of bus riders (Pucher 2003, 63).

An increased push from transit authorities across the nation on commuter-orientated rail service and express busses can divert funding away from the transit ridership base within the inner city (Garrett 1999, 7). Environmental concerns, increased traffic congestion, a rise in fuel prices, and the community protests opposing new highway construction have all led to suburbanites pushing regional authorities for more transit options. This can be evidenced locally by the Massachusetts Bay Transportation Authority’s (MBTA) decision to implement the almost $600 million Greenbush Line commuter rail service, a costly capital
project to wealthier communities with inbound daily ridership of just over 2,000 people.

**EQUITY ON WASHINGTON STREET**

At the heart of the debate for transit along Washington Street in Boston is quick access to downtown employment centers for the low-income community of Roxbury. Providing rapid access to downtown and a fast connection to the rest of the subway system from Dudley Station is critical to commuting workers in Roxbury, Dorchester, and Mattapan. The debate over mode and how those modes would operate to accomplish this task prolonged the process of providing adequate replacement service to the community. A further explanation of the modal choice process is explored in the film.

![Figure 2.1: A map of Boston showing the MBTA train lines and the census blocks with a population over 50 percent Black/African-American](image)

*Figure 2.1: A map of Boston showing the MBTA train lines and the census blocks with a population over 50 percent Black/African-American*
Funding for the project also led to extensive delays. Repeated requests for light rail made by the MBTA to the FTA were denied based on expense. Activists like Bob Terrell of the Washington Street Corridor Coalition were unwilling to accept this “excuse” and pointed to other more expensive projects being explored with lower ridership projections, like the Greenbush Commuter Line and the Boston Piers Transitway in South Boston. The eventual completion of the Silver Line on Washington Street and those other projects helped to illustrate this ‘excuse’ further. The highly utilized Silver Line service between Dudley Station and Downtown Crossing runs 2.06 miles costing each passenger $1.25 or an average of $0.61 per mile. An MBTA commuter rail trip from Greenbush to South Station runs 18 miles and costs $6.75 for an average of $0.38 per mile. Both of these projects were funded exclusively with state funds. Not only is the cost per mile substantially higher for the low-income bus riders but the ridership numbers are significantly in favor of the Washington Street service. Ridership numbers and capital cost figures for those projects and the South Boston branch of the Silver Line are explored in the By the Numbers segment of the guide.

As referenced above, the Washington Street project timeline coincided with the changes in policy and a new focus on environmental justice. Utilizing Title VI to challenge the selection of busses for the replacement service however did not prove fruitful for the Washington Street Corridor Coalition. Their lack of standing in the court allowed the organization only to file an administrative complaint with the FTA. The allegations of racism in transit planning were found
not to have merit by the FTA, a decision made not long after the launch of the
Silver Line on Washington Street. However, because of the changes in policy and
the hard work of community organizers the eventual bus selection for the Silver
Line was a low-emission, Compressed Natural Gas vehicle and at Dudley station,
a no-idling rule was put into practice to help improve the air quality around the
station.
TIMELINE: From Orange Line to Silver Line

1972  Governor Francis Sargent releases a study emphasizing the importance of public transit to ensure Boston’s future.

1974  MBTA plans to close the Washington Street Elevated and agrees to provide replacement service. The BRA calls the Washington Street El “the transit spine of the South End” and states it should not be eliminated “until at least equivalent service is assured.”

1977  MBTA releases Final EIS for Southwest Corridor Project that includes moving the Orange Line from Washington Street to the Southwest Corridor. This begins the process of replacement service selection.

1978  The Urban Mass Transit Authority (UMTA) funds the Alternative Analysis/ Replacement Transit Improvement Study: Phase 1, which settles for three options: Bus, Light Rail, and Commuter Rail

1981  UMTA Letter to MBTA rejects funding study of light rail alternative.

1982  UMTA agrees to allow MBTA to further analyze light rail alternatives

1984  MBTA releases Replacement Transit Improvement Study: Phase 1 Feasibility Report that indicates Trackless Trolley and Light Rail as the preferred options to explore on Washington Street.

UMTA announces new guidelines for rail projects; MBTA left to redo major portions of the draft submitted earlier in the year.

1985  Replacement Transit Improvement Study: What Happened…and What’s Happening Next, released by the MBTA, includes utilizing the abandoned tunnel to connect with green line at Boylston Station.

1987  MBTA creates Draft Environmental Impact Statement for replacement service, recommending light rail in nearly every category except capital costs.

UMTA rejects plans for light rail as replacement service. The South Boston Piers Transitway Service feasibility study is launched. This is later renamed Silver Line Phase II.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>After rejection by UMTA, the MBTA declares the replacement service project will be state funded. The MBTA files an Environmental Notification Form (ENF) for an electric trolley bus service.</td>
</tr>
<tr>
<td>1990</td>
<td>The Washington Street Corridor Coalition (WSCC) request light rail service and MBTA submits plans to the Federal Transit Authority (FTA) for light rail under the New Starts Program. Community meetings on the electric bus idea bring widespread opposition from the Roxbury and South End communities. The BRA and Mayor both oppose the electric bus. MA Dept. of Environmental Protection (MassDEP) confirms Washington Street Replacement Service as one of the transit mitigation agreements of the Big Dig project.</td>
</tr>
<tr>
<td>1991</td>
<td>The FTA rejects the idea of light rail, citing that it is too expensive. The FTA begins to promote the concept of Bus Rapid Transit (BRT) as a solution for some urban transportation needs.</td>
</tr>
<tr>
<td>1992</td>
<td>An independent report commissioned by the MBTA concludes that light rail is twice the cost of electric bus.</td>
</tr>
<tr>
<td>1995</td>
<td>Mayor Thomas M. Menino forms the Washington Street Task Force (WSTF), a mix of residents, activists, and business-owners along the corridor, headed by Randi Lathrop.</td>
</tr>
<tr>
<td>1996</td>
<td>State Senator Diane Wilkerson adds $65 million authorization for light rail cars into the transportation bond bill for Washington Street. MBTA declares the South Boston transitway to be renamed as the Silver Line.</td>
</tr>
<tr>
<td>1997</td>
<td>The WSTF report concludes sidewalk and roadway improvements are key to revitalizing the corridor and that replacement service should be called the “Silver Line,” but they stop short of identifying a service vehicle. It can be a trolley bus, light rail, or bus, as long as it fits the new street design guidelines.</td>
</tr>
</tbody>
</table>
MBTA receives FTA funds to make the Silver Line a BRT demonstration project

The Silver Line begins service from Dudley Station to Downtown but is not connected underground at Boylston Station or Downtown Crossing.

MBTA estimates 14,000 riders take the Silver Line between Dudley Station in Roxbury to Downtown Boston and back each day.

WSDO issues a draft report that recommends an underground tunnel connecting to the Boylston station (Green Line), numerous streetscape improvements, and the eventual extension of the Silver Line along Blue Hill Avenue to Mattapan.

MBTA indefinitely postpones Phase III of the Silver Line that would connect the two lines underground due to Downtown/Chinatown neighborhood opposition and escalating costs.

1997 The Washington Street Design Oversight Committee (WSDO) is formed after Mayor Menino and state representatives send a strongly worded letter to the MBTA urging action on Washington Street.

WSDO meets 9 times and approves the BRT style service favored by the MBTA.

1998 MBTA files an ENF describing the Silver Line for the first time as BRT

MBTA submits a Notice of Project Change to combine the Washington Street Replacement Service with the South Boston Piers Transitway Project creating Silver Line Phase I and II.

WSDO issues a draft report that recommends an underground tunnel connecting to the Boylston station (Green Line), numerous streetscape improvements, and the eventual extension of the Silver Line along Blue Hill Avenue to Mattapan.

1999 MBTA receives FTA funds to make the Silver Line a BRT demonstration project.

2002 The Silver Line begins service from Dudley Station to Downtown but is not connected underground at Boylston Station or Downtown Crossing.

2005 MBTA estimates 14,000 riders take the Silver Line between Dudley Station in Roxbury to Downtown Boston and back each day.

2010 MBTA indefinitely postpones Phase III of the Silver Line that would connect the two lines underground due to Downtown/Chinatown neighborhood opposition and escalating costs.

32

Equal or Better: The Story of the Silver Line 2
These are just a few of the influential people involved in the process to bring the Silver Line to Washington Street. In a project that spanned four decades, there are obviously countless other community activists, residents, political figures, engineers, planners, and business owners who had a role in the project. The selection of individuals here provide a cross-section of the view and backgrounds of the people involved.

**ED BEAN** - local business owner

The owner of Suffolk Jewelers and Pawn Brokers located in Lower Roxbury. Mr. Bean was in favor of removing the elevated Orange Line and improving the street but preferred the light rail service option.

**PETER CALCATERA** - project manager

Mr. Calcaterra spent a large portion of his career working on the Replacement Service project for the MBTA. He was a constant at community meetings from 1976-1991. After the rejection of electric trolley bus service in the early 1990s he asked to be assigned to another project.

**DICK DOYLE** - FTA regional administrator

Mr. Doyle worked at the UMTA and FTA for almost 40 years. He worked closely with the MBTA on a number of projects and was part of the team helping to update and relocate the Orange Line as well as being involved in the rejection of light rail becoming the replacement service along Washington Street.
SHEILA GROVE - south end resident
A long time resident of the South End and Director of the Washington Gateway Main Streets program in the late 1990's and early 2000's. Mrs. Grove was involved in attracting businesses to the corridor as reconstruction began.

HOWARD HAYWOOD - chief of design
Mr. Haywood touts the community process he used at the T in the development of the Silver Line as a model for how to properly seek input from the public. He supported the BRT solution but regrets the design of the stations.

JIM KERASIOTES - Sec. of transportation 1992-1998
Kerasiotes served as the MA Secretary of Transportation during much of the 1990’s. Kerasiotes was in-part responsible for the slow progress in the replacement service project after experiencing community backlash over the electric bus proposal.

RANDI LATHROP - task force president
A South End resident, Ms. Lathrop was appointed by Mayor Menino as the President of the Washington Street Task Force in 1996. Her focus was on the revitalization of the street and not the vehicle type. The success of the task force led Ms. Lathrop to a career in community planning at the BRA.

GLORIA FOX - state representative
Gloria Fox transitioned from community activist to elected official in the mid-1980’s. As a member of the Boston delegation she was heavily involved in organizing citizens during the Washington Street Replacement project. She believes that the “Silver Lie,” shortchanges the city’s black and latino communities who deserved a light rail system.
ROBERT PRINCE - MBTA general manager 1997-2001
A Roxbury resident and General Manager of the MBTA during the time the Silver Line was launched and completed. Mr. Prince has been credited by some as the driving force to finish the replacement service project and an advocate for BRT.

MARVIN MARTIN - WSCC president
A South End resident and longtime activist, Mr. Martin served as board president for the Washington Street Corridor Coalition. He felt the only way to satisfy the equal or better promise was to re-institute rail service along the corridor.

FRED SALVUCCI - Sec. of transportation 1975-1979; 1983-1991
Mr. Salvucci was a tireless advocate for public transportation during his time in office. A member of the team responsible for relocating the Orange Line, extending the red line and often credited as the mind behind the Big Dig. Along Washington Street he opposed plans that included property takings and advocated for the electric bus solution.

BOB TERRELL - community organizer
Mr. Terrell has a long history as a community organizer in Roxbury and the South End. Starting in the early 1980’s he worked as the Executive Director of the Washington Street Corridor Coalition. He is an authoritative voice on transit equity issues in Boston and was strongly opposed to a BRT solution for Washington Street.
WHAT DOES MODE HAVE TO DO WITH IT?

Much of the debate about the eventual replacement for the elevated – the Silver Line – is that it is not a true Bus Rapid Transit service. As discussed in *Equal or Better*, there is constant debate over how to make the service better based on international models. Those models are often touted by the Federal Transit Administration (FTA) for their effectiveness, but the success has yet to be replicated in the United States.

The FTA refers to Bus Rapid Transit (BRT) as an “enhanced bus system” that brings together the benefits of a dedicated transit way with the flexibility of a bus (Federal Transit Administration 2009). The infrastructure investments needed to support a BRT service can have much smaller capital costs than a rail system, since many city roadways need little adjustment to accommodate busses and the added expense of laying rail is non-existent (Arrillaga 2009, 4).

Perhaps the most often cited implementation of BRT located in Curitiba, Brazil, where the bus system plays a critical role in the economic development of the city. The system in Curitiba has headways of 90 seconds, pre-pay boarding capabilities, elevated platforms, and dedicated roadways. “Even with one automobile for every three people…around 70 percent of Curitiba’s commuters use transit daily to travel to work (Arrillaga 2009, 13).
<table>
<thead>
<tr>
<th>Feature</th>
<th>Washington Street Silver Line BRT</th>
<th>Curitiba, Brazil BRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physically segregated exclusive bus lanes</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fully enclosed bus stops where passengers pay to enter rather than the bus driver</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>A bus station platform level with the floor of the bus</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Free and convenient transfer between lines at enclosed transfer points</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Bus priority at intersections X (added in 2007)</td>
<td>X (added in 2007)</td>
<td>X</td>
</tr>
</tbody>
</table>

Figure 5.1: Some key features of BRT (Galicia 2009).

**BENEFITS OF BRT**

Three characteristics define a mode of transit: vehicle technology, right-of-way, and the type of operations (Vulkan 2002, 72). The vehicle is often the most visible portion of a service and therefore it is what the public identifies. Along Washington Street in Boston, for almost a century an elevated train (the Orange Line) traversed the street until 1987 when it was replaced with a bus and eventually BRT in 2002. While this swapping of vehicles is easily visualized, the real change on Washington Street is the elimination of an exclusive right-of-way, which has been replaced by a bus lane right-of-way. This new right of way is regularly in conflict with automobile traffic, double-parked delivery trucks, and pedestrians crossing the street.
“Buses travel on average at only around 60 percent of the speeds of automobiles and other private vehicles using the same streets due to the cumulative effects of traffic congestion, traffic signals, and passenger boarding” (Arrillaga 2009, 4). By incorporating features like signal prioritization, faster boarding opportunities, and dedicated travel lanes busses are able to become rapid transit. The FTA looks for BRT projects to include exclusive or near-exclusive use of a travel lane (for 90 percent of the route), preferential treatment of busses at intersections, special bus boarding areas, and advanced payment methods as key features. Some BRT systems allow riders the option to pay their fare upon entering an enclosed bus station prior to bus arrivals. This then permits passengers to board through all doors of a stopped bus, eliminating the biggest time delay in most bus systems.

With limited financial resources, the lower capital expenditures for BRT systems compared to light rail are often prioritized by transit agencies. “The high cost of rail transit limits the possible role it can play in urban mobility even under radical changes in modal spending priorities” (Polzin 2002, 49). In 2000 dollars the average cost of construction for new light rail was estimated at $34.8 million per mile, as compared to the average cost per mile for BRT busway construction of $13.5 million per mile (U.S. General Accounting Office 2001, 4). That financial difference coupled with the increased flexibility BRT offers makes it a
MODE CHOICE: BRT OR LRT

Light Rail Transit (LRT) and Bus Rapid Transit (BRT) have distinct traits, which have fueled debate for decades as to what constitutes adequate replacement service along Washington Street. LRT can generally serve a limited number of stations creating nodes of dense development and typically have high ridership numbers associated with their service. BRT often permits more stops, serves more destinations that may not be as concentrated, but often does not have the same economic impact or effect on land-use decisions (Kaine 2006). For those unsatisfied with the Silver Line outcome, this is the prominent question at stake in the Washington Street Corridor Replacement Service project—was the goal to provide rapid transit from Roxbury to Downtown or was the goal to provide an intermediate level of service (faster than a typical bus but slower than a train running on its own reservation) to residents throughout the corridor. The answer to that question is at the heart of the divisive opinions over BRT in Roxbury and the South End neighborhoods.

What is the most efficient and cost effective way to move people through a metropolitan region and how are operating costs weighed against capital costs are fundamental debates at state and federal transit agencies. One of the most oft-cited qualities of light rail is the permanence of investment in a corridor that can
lure economic development and provide stability for growth. This quality can be emulated by BRT through the construction of bus stations, physical infrastructure investment to the roadway, and other identifiable traits that create a unique brand to the service. “Customers, adjacent residents, and businesses, and the general public traveling past a BRT alignment should be able to identify its physical presence,” just as they can easily identify train service (Polzin 2002, 59).

However, with that physical permanence comes commitment, not just to the community but also to the vehicles and alignment of the service. An investment in rail cars with a 40-year life likely ensure minimal changes in service for 40-years. The 12-year lifespan of BRT vehicles ensures upgrades and modifications to the system much more frequently. The flexibility is not just in vehicles but also in the non-fixed guide ways. Transit authorities are able to add spurs and extensions to BRT much easier and with less cost than LRT. Currently the MBTA, community groups, and the Boston Redevelopment Authority are evaluating the possibility for the extension of Silver Line service down Blue Hill Avenue to Mattapan and a spur in the South End along Albany Street for a faster link to South Station (Lathrop 2011). Of course, transit authorities could also remove under-used lines as well, which concerns some Roxbury residents.

The theory of incremental planning promotes the use of BRT service as a way to test the development market before committing to a LRT system. When the MBTA submitted a plan to the FTA for trolley bus service in 1990, the plan called for the creation of infrastructure that would later allow for an easier
conversion to light rail (Calcaterra 2011). This is similar to the plans for the Silver Line service that runs in South Boston. Although experts are critical of this theory citing “it is highly improbable that a corridor that had a BRT project is also likely to be in line for rail investment within the near term. It may be difficult to come back to the same corridor a second time with major investment dollars as other geographic areas argue that it is their turn to receive investments” (Polzin 2002, 61). This is why community activists from Roxbury fought so hard for LRT during the Silver Line planning process and balked at the idea voiced by some officials that it might just be an interim solution.

ENVIRONMENTAL IMPACTS OF BRT

The Silver Line along Washington Street uses busses that run on Compressed Natural Gas (CNG) and are oft cited as ‘clean’ busses compared to the older diesel fleet. While the CNG busses may be a big improvement in street-level air quality over diesel busses, expanding to the study area to regional air quality, CNG BRT is not entirely clean. “LRT systems produce less regional or urban emissions…this is true whenever equal technology levels are compared and even when superior BRT technology is compared with standard LRT systems (Puchalsky 2005, 35-37).”
Figure 5.2: This shows the emissions concerns with BRT from a study completed by Christopher Puchalsky, p. 36-37.

However, when looking at CO2 emissions, BRT may provide a greater reduction in CO2 emissions than LRT. Taking into account not just the local air...
quality but in the environmental impact of the full system, this may be the case. Electricity to power LRT is often generated by coal-fired power plants, which are large CO2 polluters. More interesting is that because BRT has lower capital costs than LRT, which allows for a wider dispersion of projects, increasing the overall number of commute trips made by transit (Vincent 2006, 219-222). A city might spend $100 million on three BRT lines instead of the same figure on one LRT line of service, reaching more neighborhoods with transit.

\[ CO_2 \text{ Emissions Per Passenger Mile For All Transportation Modes} \]

![Graph showing CO2 emissions per passenger mile for various modes of transportation.]

Figure 5.3: This graph can be found in “The Potential for Bus Rapid Transit to Reduce Transportation-Related CO2 Emissions” by William Vincent and Lisa Callaghan. The Journal of Public Transportation, BRT Special Edition. 2006: 227.

**THE HISTORY OF BRT IN THE USA**

While a push from the FTA for more BRT pilot projects in the late 1990s insinuates that the concept of BRT in the United States is new, it has existed in various planning proposals since the 1930s. Chicago proposed a conversion of rail...
lines to busses operating on super highways in 1937 and a number of other cities followed with similar proposals throughout the next three decades (Transit Cooperative Research Program 2002, 14). BRT finally became a reality in the 1970s in the form of High Occupancy Vehicle (HOV) lane for both busses and car commuters. Pittsburgh, Washington D.C., New Jersey, San Francisco, and Los Angeles all experimented with dedicated bus lanes, however with the exception of Pittsburgh and New Jersey, each of those bus lanes have since been converted to automobile HOV lanes (Arrillaga 2009, 5).

Bus lanes in downtown areas began to arrive in the early 1980s in Minneapolis, Portland, Denver, and New York City. The bus lanes on Madison Avenue in New York City implemented in 1981 “reduced bus travel times by 34 to 42 percent and increased ridership by 10 percent” (Arrillaga 2009, 5). A more aggressive strategy for new BRT projects in the United States has been put forth by the FTA in the past decade, with a goal to deploy 22 projects by 2008. These demonstration projects were targeted at reducing travel times, increasing ridership, and reducing the operating costs per revenue mile by up to 60% (Kulyk, 2000). This new generation of BRT projects places its emphasis not on curbed bus lanes and physical-differentiated elements but instead upon amenities, service, strong identities, and marketing. At the top of the action list for the FTA when launching this BRT initiative was the creation of marketing strategies to change the image of bus service. One ridership analysis study conducted by the FTA largely attributes the 84% increase in ridership on the Washington Street corridor
to the branding and uniqueness of the Silver Line vehicle (Federal Transit Administration 2005). This trend is observed in other cities.

**PERCEPTION VERSUS REALITY**

Subjects interviewed who remain opposed to the Silver Line found the MBTA’s attempt to “silver wash” the project very insulting and many feel there is nothing rapid about it; it’s just a bus. The Washington Street Task Force, a Mayor of Boston-appointed working group, called for a “transit service for Washington Street that is inherently permanent in nature, with major expenditures and physical improvements to be made now to indicate a commitment to install a system that is viable for the long term,” in their 1997 report (Boston Redevelopment Authority 1997, 22). This service was later dubbed the *Silver Line* giving it a sense of permanence, like Boston’s other colored train lines without identifying a specific mode for the corridor. Howard Haywood, the MBTA Chief Designer on the project, echoed the importance of the line having a color similar to the train lines. “We wanted to promote the Silver Line as a rapid transit line, not just a bus line. The service was different than a typical bus line, the stations are less frequent and the service is more frequent and more consistent with the rapid transit line…the color fit that” (Haywood 2011).

“The Silver Line is a silver bus, a silver bus is a silver lie” claims Seventh Suffolk District State Representative Gloria Fox, and her sentiment is shared with many who resent the marketing ploy of BRT promoters to sway sentiment for the
mode of transit. While one end of the Silver Line operates in its own tunnels, the Washington Street service operates in mixed traffic and although it is marketed as BRT “it has gone a long way to damage BRT’s reputation in the United States (Hook 2009, 30). The National BRT Institute (NBRTI) claims that a flashy image will attract more riders but that the quality of service must be high for riders to be retained (Cain 2007, 13). The NBRTI highlights the reputation of conventional bus service to be “unreliable, inconvenient, crowded, dirty, and lumbering,” contrasted to light rail’s image of “clear and easy to understand routes, world-class city reputation, permanence that promotes economic growth, and greater livability” (Cain 2007, 12).

This stark contrast in perception of service between BRT and light rail has fueled much of the debate in the Washington Street Corridor. Captive riders, those who are dependent upon public transit are not able to “avoid the service due to any stigma, so any substantive service or image improvements are positive regardless of what the new service is called” (Polzin 2002, 52). Though the MBTA put the NBRTI’s concepts of “distinguishing BRT from regular bus service” by having an integrated system of elements that include stations, land-use decisions, special vehicles, and branding into use on the Silver Line project, it did not sway long-time community members to view the service positively. The Silver Line is a drastic improvement over the 49-bus replacement service from
Dudley to Downtown (SEE COMPARISON BELOW), but for those reminiscent of rapid rail access in the corridor, the B in BRT still stands for Bus.

BARRIERS TO BRT

A BRT system requires a substantial cross-section, at least 11-feet in either direction for the bus lane. In conjunction with normal travel lanes this can require a curb-to-curb roadway of well over 50-feet in width (Arrillaga 2009, 6). In older cities that type of cross-section is often not an option. While a busway tends to preclude conflicts with other vehicles, a bus lane with only painted marking and signage permits conflicts with turning traffic, delivery truck parking, and double-parked vehicles. The FTA notes “dual-width bus lanes are markedly superior to single-width lanes, but obviously require a substantial wider cross section” (Arrillaga 2009, 10). Bus lanes that operate in the median ease vehicle conflicts but force passengers to cross travel lanes to reach the bus stop. This median reservation model is one utilized by all of the Green Line light rail trains in Boston and was one of the alternatives proposed in a study of the Washington Street Corridor conducted by the American Institute of Architects in 1980 and by the MBTA in the 1987 Draft Environmental Impact Statement/Alternatives Analysis. However, South End residents feared the barrier it would create between the two sides of Washington Street and quickly rejected the idea.
Comparison of BST/LRT

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Bus Semirapid Transit (BST)</th>
<th>Light Rail Transit (LRT)</th>
<th>Superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle performance &amp;</td>
<td>Good</td>
<td>Excellent</td>
<td>LRT</td>
</tr>
<tr>
<td>passenger comfort</td>
<td>High</td>
<td>Very High</td>
<td>BST</td>
</tr>
<tr>
<td>Investment cost</td>
<td>Short</td>
<td>Medium</td>
<td>BST</td>
</tr>
<tr>
<td>Implementation time</td>
<td>Lower for low pass. volume</td>
<td>Lower for high pass. volume</td>
<td></td>
</tr>
<tr>
<td>System image and passenger</td>
<td>Good</td>
<td>Excellent</td>
<td>LRT</td>
</tr>
<tr>
<td>attraction</td>
<td>Considerable</td>
<td>None</td>
<td>LRT</td>
</tr>
<tr>
<td>Air pollution and noise</td>
<td>Limited</td>
<td>Excellent</td>
<td>LRT</td>
</tr>
<tr>
<td>Interaction with land</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>development</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.4: From "Bus Semirapid Transit Mode Development and Evaluation," (Vulkan 2002).
THE REPLACEMENT PROJECT BY THE NUMBERS

Offering frequent, rapid, and all-day service through BRT is especially significant for low-wage workers who are transit dependent and much more likely to ride at off-peak times of the day (Fan 2010, 15). A study of the Hiawatha light rail line in Minneapolis concluded there is enormous importance in creating a fully integrated transit system, not individual corridors, when attempting to connect low-income communities with low-wage jobs (Fan 2010, 16).

The Silver Line – Phase I along the Washington Street corridor connects the mostly residential neighborhood of Roxbury with the employment opportunities of downtown Boston. The Silver Line provides BRT service for a “highly dependent transit population in the South End and Lower Roxbury” (United States Department of Transportation 1987, 1). A comparison of the new Silver Line service to the 49-bus route it replaced was completed in 2005 as part of the FTA’s Bus Rapid Transit Pilot Program. However, a comparison of Silver Line service to the service it was intended to replace, the elevated Orange Line, was not conducted by any agency. The following is a numerical comparison of Silver Line Phase I with the 49-bus route, the proposed light rail alternative, and the original elevated Orange Line.

As touted in the 2005 FTA report the “Boston Silver Line Washington Street Bus Rapid Transit (BRT) Demonstration Project Evaluation,” the travel times for the Silver Line are improved when compared to the 49-bus route. However, when compared to the Elevated Orange Line the Silver Line trip takes
twice as long and is over 50-percent longer than the 1987 projections for a light rail alternative in the corridor.

Figure 6.1: travel times from 1987 DEIS, 1982 Orange Line, and 2005 Silver Line Report.
Throughout the replacement project, residents were repeatedly asked if they would prefer a service that gets them downtown in 10 minutes but only arrives four times an hour or one that takes 20 minutes to travel downtown but arrives every 5 minutes. In figure 6.2 the light rail estimate from the 1987 Draft EIS/AA appears to be more generous than what interviews with transportation officials have indicated actual service would look like. Even with that more frequent service, light rail clearly has the longest gap between vehicles, and more time spent waiting on platforms.

![Frequency of Service in Minutes](image)

**Figure 6.2: Service frequencies from 1987 DEIS, 1982 Orange Line schedule, and 2009 Silver Line Schedule.**
Light rail advocates, who were told light rail was too expensive for Washington Street, often express frustration at the capital cost investment for the Silver Line project. The Washington Street Corridor Coalition places the figure at over $600 million, with the Washington Street segment comprising just slightly over $50 million of that. Much of the $600 million figure is derived from underground operations commencing at South Station and extending into the South Boston Waterfront. For creating a purer comparison, Silver Line Phase I, which includes significant roadway reconstruction paid for by the Massachusetts Highway Department, is shown below. The light rail alternative still remains a more expensive option in this analysis but does provide the added benefit of a direct connection to the downtown subway; something not included in Silver Line Phase I and estimated to cost an additional $750 million in a stalled Phase III (FTA 2003).

Figure 6.3: Capital Costs from 1987 DEIS and 2005 Silver Line Report.
Phase III of the Silver Line project, a tunnel to connect the Washington Street branch with the Silver Line that services Logan Airport and the South Boston Waterfront has been withdrawn from the FTA for funding consideration. The MBTA, under stress from its debt service, shelved Phase III due to its cost (Salvucci 2011). While not the first time government finances have impacted the Silver Line, it does underline the lack of commitment to providing a connected service to Roxbury residents.

**Capital Cost of Project in 2009 Dollars**

![Capital Cost Chart](chart.png)

Figure 6.4: Capital cost numbers from Boston Globe, “Greenbush Line Falling Short of Expectations” and Silver Line 2005 Report.

During the late 1990s and early 2000s the State and MBTA spent millions of dollars adding service for South Shore residents through the Greenbush commuter rail line. This investment in rail service to the predominantly white and middle-class suburbs by the state while simultaneously saying light rail would be too costly an alternative for Washington Street was blatant transit racism to some of the activists in Dudley Square.
Activists did not have to look as far as Greenbush to see spending inequities. A 2007 report from the FTA evaluating the Silver Line route serving the South Boston Waterfront and Logan Airport placed the price tag over $618 million (Federal Transit Administration 2007, 48), compared to only $46.5 million spent on the Washington Street phase (Federal Transit Administration 2005, 2-14). The net total subsidy for the Waterfront Silver Line is more than $100,000 a day, “nearly $10 per boarding.” While the Washington Street service has a net subsidy of only $.48 per boarding (Federal Transit Administration 2007, 49). The disparity in subsidy, intentional or unintentional, is a clear case of transit inequality.

In 2008, the MBTA had over 105 million bus trips completed on its system. The Washington Street Silver Line is the most popular bus service of the
MBTA’s 191 routes, carrying over 14,000 passengers each weekday. Due to the high ridership, it also has the lowest operating cost of any bus in the system (Massachusetts Bay Transportation Authority 2004). Compared to the estimates for other 1987 alternatives, the Washington Street Silver Line outperforms all of them in daily ridership figures. However, the 1990 Environmental Notification Form for Trolley Bus service along Washington Street (the precursor to the Silver Line plan) with the proposed tunnel connection estimates ridership at 20,739 per day, more than current Silver Line ridership levels (Massachusetts Bay Transportation Authority 1990, 4).

![Average Weekday Passenger Totals](image)

Figure 6.7: Elevated Orange Line from 1985 DEIS/AA pg. 47; #49 Bus and Silver Line numbers from CTPS 2001/2003; LR estimates from “The Study: What’s Happening Next” pg. 23.
CONCLUSION

In many ways, the Replacement Transit/Improvement Study was a typical planning process. It spanned a lengthy amount of time, suffered a number of financial setbacks, and for the most part attempted to involve the community members. In other ways it was unique: after years of work and multiple rejections for federal funding it slowly became the poster child of injustice. That injustice was voiced by the failure to follow through on a promise. It became a rallying cry for minorities feeling like the city and the state turned their back on Dudley Square when it needed the most help. The project came on the heels of Urban Renewal and the defeat of a massive highway project which had ironically spurred a renewed focus on community planning. It occurred during a period when the racial and economic makeup of the neighborhoods were in flux.

The highly divisive racial compositions of Roxbury and the South End created a difficult playing field. Lavish transit expenditures on commuter rail, highways, and the South Boston piers project left the highly transit dependent population of Roxbury feeling betrayed and ignored. Although activists selected the MBTA as their enemy, there is not one place to point a finger – the MBTA, the Governor, the FTA, citizens, community groups, neighborhood associations – they all played a role in shaping how this project evolved.
The MBTA spent years holding public meetings and going through the motions of public process on Washington Street. Reaction to the community process of the project ranged from feeling valued to feeling tokenized and ignored. Anecdotally, with the people interviewed for this project, those groups were often divided by race and neighborhood. Roxbury residents felt ignored, while South End residents, who seemed to have considerably more political power at the city level, felt validated.

Over the two months I spent interviewing people for this story, I eventually arrived at two key questions. First, would light rail really provide a better service along Washington Street than anything else and secondly, why didn’t the Washington Street Corridor Coalition change tactics once BRT was selected as the mode? Given that the only MBTA train operating in mixed-traffic is the perpetually slow E Branch of the Green Line, I would not have high hopes for a rapid light rail service along Washington Street. Perhaps if Bob Terrell and the Washington Street Corridor Coalition embraced BRT and then pushed for a true-BRT system, one with 100 percent dedicated lanes and prepay boarding platforms, the equal or better questions would be an easy answer. Their “nothing but rail is good enough” message blinded the community to perhaps the best solution and provided no incentive for the MBTA to construct something other than a bare bones semi-rapid bus service.
People like Peter Calcaterra and Bob have spent decades working on this one project, and even though the Silver Line began service almost ten years ago, they are still determined to influence how history remembers the replacement project. After viewing *Equal or Better*, Peter Calcaterra commented to me that the work done by the MBTA in the late 1970s and early 1980s is overlooked. The film was not intended to be exhaustive in exploring the early stages of the planning process; there is little contention from the community that the work done in the early 1980s was not comprehensive. Other interviewees felt that the film does not go far enough to reveal the delay tactics of the MBTA in Roxbury seemingly while surrounding towns and neighborhoods received funds for their projects. For me, these sentiments further amplify the importance of having a transparent community process. When Calcaterra left the project in the early 1990s, there suddenly became a lack of community process. Frustration began to sink in for those riding the #49 bus and overcoming that decade of mistrust in the black community has proven difficult for the MBTA. This was recently evidenced by the 28X bus route planning discussions along Blue Hill Avenue in 2010.

Is it possible to apply a series of metrics to evaluate a qualitative promise like the one implied for Washington Street? Interviewed riders, community members and civil rights leaders all spin the same set of facts to suit their particular stance on ‘equal or better.’ Public officials like Bob Prince and Peter Calcaterra often brush off the 'equal or better' statement as not a promise at all, but merely an intended goal. Activists like Bob Terrell and Gloria Fox feel wronged...
by the public process, damaging the MBTA’s relationship with minority neighborhoods in the city.

When asked simply: is the Silver Line equal to or better than the Orange Line, some users responded with a resounding, “yes, it is better.” To others it was a definite “no.” For the majority it is a more nuanced answer. Commuters utilizing the Silver Line from Dudley station do not have the same rapid one-seat ride into the system’s core they possessed for over 80-years with the Elevated. Residents in the South End, many of whom likely walked a long distance to one of the Elevated Orange Line stations now have a Silver Line stop closer to their home and sacrifice only minutes in total trip time, if any at all. The subjective nature of “equal or better” is not a question that can be answered in quantitative terms. It is impossible to determine if the service meets or exceeds a person’s perceptions of what rapid service should be; it is equally as difficult to evaluate the process.


Plessy v. Ferguson 163 U.S. 537 (1896).


Equal or Better: The Story of the Silver Line


Fuerbringer, Jonathan. “It was culmination of no’s in Sargent Road decision” Boston Globe. December 1, 1972.


 Howe, Peter J. “Southwest Corridor Orange Line gets mixed review riders cite longer ride from Roxbury, convenience in Jamaica Plain.” Boston Globe, July 21, 1987


Howe, Peter J. “Group will seek halt to artery Environmental grounds are basis of lawsuit.” Boston Globe, May 29, 1991.


Massachusetts Bay Transportation Authority. The Study...What is it? What happens next? 1985.


---

*Equal or Better: The Story of the Silver Line*


Seltz, Johanna. “On Track: Two years after Greenbush train service was restored, the question persists of whether its use justifies the cost.” Boston Globe, October 29, 2009.


ARCHIVAL FOOTAGE


People Before Highways. Recorded 4 December 1987 by The Massachusetts Bay Transportation Authority.


To New Horizons. Produced by Handy Jam Organization. 1940. Prelinger Archives, New York, NY.

Urban Update: Orange Line Demolition. First broadcast 31 January 1987 by WNEV-TV.

Urban Update: Dudley Station. First broadcast 20 December 1984 by WNEV-TV.

WCVB-TV News: Special Report. First broadcast November 1972
GEOGRAPHIC DATA

U.S. Census 2000
MassGIS

MUSIC


PHOTOGRAPHS


Kruckemeyer, Ken. Southwest Corridor Slides, 1975-1990, Boston, MA.

Kruckemeyer, Ken. Curitiba Brazil BRT, 1996, Boston, MA.

INTERVIEWS

Lathrop, Randi. Interview by author. Video recording, Boston, MA, March 1, 2011.
Martin, Marvin. Interview by author. Video recording, Boston, MA, March 9, 2011.