

## Expanding Access to Transit: Integrating a Green Line Station into Ball Square

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*Cover image: commuter rail  
tracks northeast of Ball Square.*

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noted.*





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## Abstract:

The purpose of this report is to provide an analysis of best practices for integrating public transit stops into neighborhoods, and to apply this analysis in recommendations for making a new Green Line transit stop in Ball Square compatible with its surrounding area. Our research concludes that the introduction of a new train station will benefit the residents of Ball Square by increasing mobility and access to jobs while reducing dependency on often unreliable buses. In addition, the new station will benefit businesses by increasing pedestrian traffic through the area. The proposed station has the potential to complement the existing mix of uses already in Ball Square, extend the commercial and retail uses along Broadway Street and Boston Avenue, and provide much-needed rapid transit service to a currently underserved neighborhood.

However, growth in a mature neighborhood should not be without careful planning and consideration. Our recommendations include the following:

- Affordable housing measures such as community land trusts and 40R designation of selected properties should be taken to ensure that existing residents and future generations can continue to reside in the neighborhood, despite predicted increases in land value;
- A deliberative community planning process that actively encourages public input is critical if the station is to be welcomed and fully integrated in the existing Ball Square residential neighborhood; and
- Station design elements that promote passenger safety, such as appropriate lighting and safe crosswalks, are essential if the station is to achieve adequate ridership.

## Executive Summary

The Green Line extension project is an air pollution and traffic congestion mitigation effort put forth by the Massachusetts Executive Office of Transportation (EOT) and the Massachusetts Bay Transportation Authority (MBTA) to combat potential air pollution resulting from the Big Dig. Two municipalities, Medford and Somerville, will be affected by the planned extension. Several Green Line light rail stops are proposed in both cities, with as many as ten different sites being considered (though not all of them will ultimately become home to a new T station). Ball Square is among the sites under consideration.

It is the hope of the Green Line extension's proponents that the project will reduce the number of commuters and other travelers who currently travel by car through Medford and Somerville, and from these cities into Cambridge and Boston, by providing quality rapid transit service, thereby improving air quality from reduced vehicle emissions and easing traffic congestion. In addition, many community groups and residents who have advocated for improved public transportation, particularly in Somerville, anticipate the project will bring them increased mobility and shorter commutes. Historically, Somerville has been an underserved community with respect to public transportation, specifically to and from Boston. Somerville is the most densely populated city in New England, yet is cur-

rently served by only two train stations – Sullivan Square on the Orange Line (located in East Somerville) and Davis Square on the Red Line (located in Davis Square on the border of Somerville and Cambridge).

However, the extension has been controversial from its inception. Any community facing a major infrastructure project is likely to have concerns about how its neighborhoods, homes and residents will be affected. The purpose of this report is to explore ways in which a new light rail station in the Ball Square neighborhood could be made compatible with its surroundings. We seek to find ways, through recommendations for public outreach, design and policy implementation, to address community concerns. These concerns include safety; air quality; accessibility to quality public transit; fears of gentrification and displacement; and differing values among residents, such as preference for suburban surroundings versus enthusiasm for increased urbanism.

We recognize that this study is only a representation of our recommendations for “best” practices according to our research and personal assessment (which, of course, is guided by our own values). However, we hope that it will be useful as a guide for planners, public officials, advocates and other community members as they negotiate the process of station planning, design and integration.

Our research, combined with consideration for various stakeholders' values, has led us to believe a new light rail station would be an asset to Ball Square because it

would provide a currently underserved neighborhood with much-needed transit that would improve access for its residents to jobs in Boston, Medford and Cambridge; because Ball Square already has many of the elements (such as high-density residential and commercial uses) that make it an ideal transit-oriented community; and because the existing commuter rail tracks already cut through the neighborhood, meaning its residents are already accustomed to the nuisance of a train traveling close to their properties. However, we have made recommendations to help ensure that Ball Square residents truly benefit from the station, and that their concerns are addressed.

### General Recommendations:

- Affordable housing measures such as community land trusts and 40R designation of selected properties should be taken to ensure that existing residents and future generations can continue to reside in the neighborhood, despite predicted increases in land value;
- A deliberative community planning process that actively encourages public input is critical if the station is to be welcomed and fully integrated in the existing Ball Square residential neighborhood; and
- Station design elements that promote passenger safety, such as appropriate lighting and safe crosswalks, are essential if the station is to achieve adequate ridership.

*(Continued)*

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## Detailed Recommendations:

### Recommendations for ensuring the station meets community needs:

- Frame community conversations with residents who oppose the Green Line extension in Medford in such a way that does not impose planners' and advocates' values of urbanization onto those who may instead value living in suburban surroundings. Transportation infrastructure can be introduced in such a way that Medford is not made to feel as if its character is being transformed into that of Cambridge, Boston or Somerville, but instead preserves some of the suburban qualities its residents may value. Comparison to Newton may prove useful in achieving this.
- Convene community stakeholders and obtain consensus on station plans to the greatest extent possible before engaging developers.
- When planning or advocating for land uses on the platform-adjacent parcel in Ball Square, we would recommend to city officials and community groups that they consider the potential for the site to become a transit and neighborhood commercial center with businesses that meet the immediate needs of on-the-go commuters as well as local residents.

### Recommendations for bicycle and pedestrian safety:

- Perform further analysis of 675 Broadway as a potential station location and explore the possibility of acquiring the parcel from its owner.
- Insert a pedestrian crossing at the corner of Rogers Avenue and Broadway connecting to the corner of Boston Avenue and Broadway to provide the shortest and most convenient route directly to the station entrance for Somerville residents living along or to the south and east of Rogers Avenue.
- A curb extension bulb-out is recommended at the northwest corner of Broadway and Boston Avenue in order to shorten the distance between sidewalks and as a visual cue for drivers to slow down. Any curb extensions for pedestrians should also include a cut-through for cyclists in order to avoid a situation where the safety measures for one mode of transit does not decrease the safety of the other by forcing cyclists out into the middle of traffic.
- Where most feeder streets intersect with Broadway, general changes from rounded corners to sharp corners would serve many of the same functions as bulb-outs by reducing the distance between sidewalks and forcing vehicle speed reductions. Raised crosswalks might also be considered appropriate in some areas.
- Work with the Medical Center and the

City of Medford to redesign the layout of the parking lot so that vehicles would enter and exit only onto Winchester Street.

- Create on-street or off-street bicycle lanes along both sides of Broadway to provide safe passageways for cyclists to and from Ball Square. These should include painted lanes and/or different materials to differentiate bicycle areas from other modes of transit.

### Recommendations for maximizing station accessibility to surrounding residents:

- The Mass Central Rail Trail Coalition, City of Somerville, Friends of the Community Path and Executive Office of Transportation should continue to study the expansion of the Somerville community path along the new proposed green line corridor. Much of the ridership at the Davis Square station arrives via the Community Path, and Ball Square could also benefit tremendously from access to a bike path.
- Design efforts should incorporate bike lockers. Bike lockers encourage pedestrians that might be out of walking distance to ride to the station rather than be picked up or dropped off. The lockers give an additional sense of security for bike owners.

(Continued)

- We highly recommend that no park and ride facilities be incorporated in to the design of the train station. In our research we discovered that park and ride facilities actually discourage rather than encourage pedestrian access, retail and a vibrant mix of uses and activities. Light rail train stations that have park and ride facilities tend to have heavy traffic congestion, and lack retail and other uses and therefore give the appearance of being unsafe during off peak commuting hours. Two examples of this are Wellington station and West Medford station.
- Bus stops should be located as close to the entrance/exit of the train station as possible to facilitate mobility and avoid passenger frustration. Davis Square station has bus access immediately outside both entrances/exits. This helps to eliminate rider confusion and helps to expand the network of transportation users in the area.
- Designers should incorporate elements that encourage safety such as adequate lighting, and structures that protect transit users from the elements but do not encourage loitering or create places for people to hide. Another important safety design element that should be incorporated in the design is safety/warning paving that serves as a barrier from the waiting platform to the rail tracks. Warning paving was something that was observed at several stations and helped to serve as a safety barrier

for children and visually impaired transit riders. An additional safety element that should be incorporated into the station is emergency call boxes.

- Designers should specify materials that are durable against vandalism, time and the elements, and do not require excessive maintenance.

### **Recommendations for preventing displacement due to increased land value:**

- Explore the feasibility of working with residents and community leaders to establish a community land trust in Ball Square to preserve affordability of selected parcels.
  - Explore the possibility of designating selected parcels as a small 40R district.
- Educate land owners about the federal conservation easement tax deduction, which offers some property owners tax incentives in exchange for placing a permanent restrictive easement on their property—in this case, to preserve affordability

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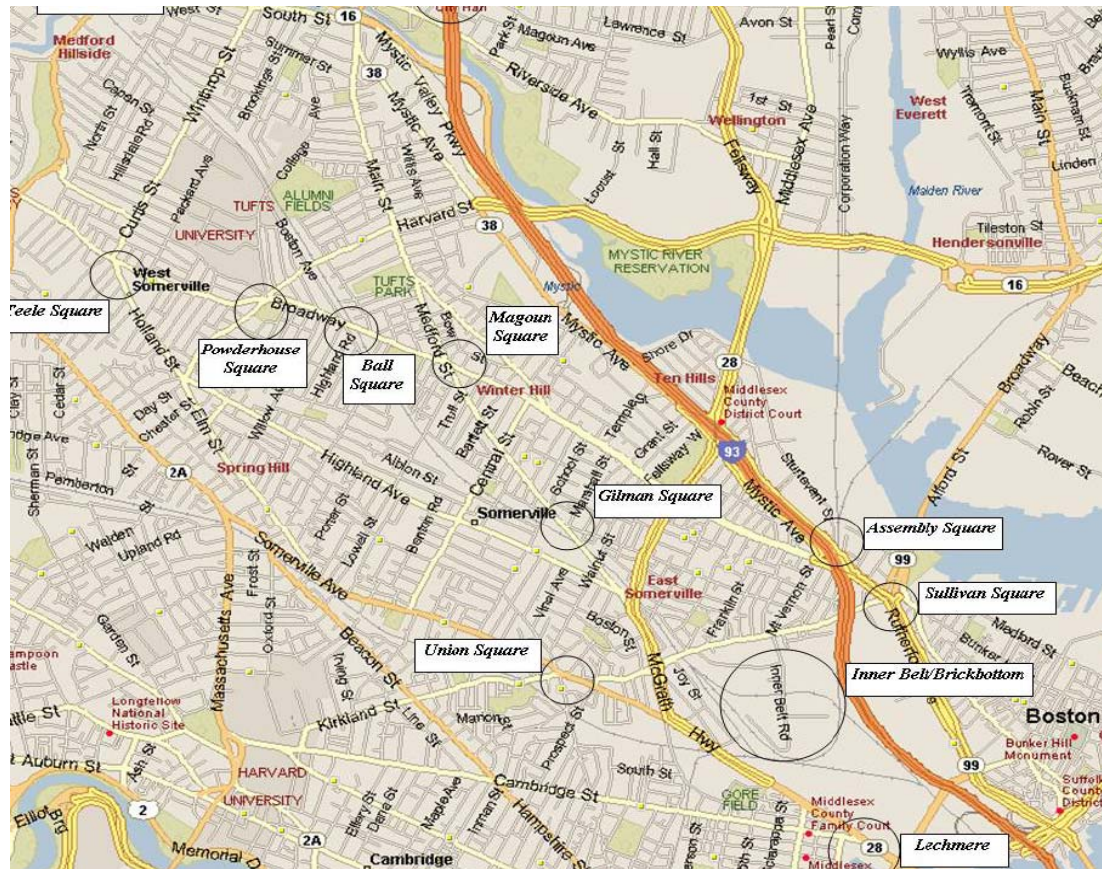
## Introduction

The City of Somerville has asked that we evaluate how to integrate a new Green Line rapid transit station into Ball Square. Ball Square is one of nine proposed new light rail stops in Somerville and Medford that are proposed as part of an extension of the Green Line from Lechmere through the two cities.

The Green Line extension project is an air pollution and traffic congestion mitigation effort put forth by the Massachusetts Executive Office of Transportation (EOT) and the Massachusetts Bay Transportation Authority (MBTA) to combat potential air pollution resulting from the Big Dig. It is the hope of the Green Line extension's proponents that the project will reduce the number of commuters and other travelers who currently travel by car through Medford and Somerville, and from these cities into Cambridge and Boston, by providing quality rapid transit service, thereby improving air quality from reduced vehicle emissions and easing traffic congestion. In addition, many community groups and residents who have advocated for improved public transportation, particularly in Somerville, anticipate the project will bring them increased mobility and shorter commutes. Historically, Somerville has been an underserved community with respect to public transportation, specifically to and from Boston. Somerville is the most densely populated city in New England, yet is currently served by only two train stations – Sullivan Square on the Orange Line (located in East Somerville) and Davis

Square on the Red Line (located in Davis Square on the border of Somerville and Cambridge).

The first chapter will discuss the background, history and context of the Green Line extension plan; current conditions in Ball Square, including its population demographics, current commuter behavior, connection to existing transportation infrastructure, and commercial activity; and community advocacy around the Green Line ex-



**Figure 1: Proposed Green Line Extension, VHB/ Vanasse Hangen Brustlin, Beyond Lechmere Northwest Corridor Study: Cambridge, Somerville, Medford, Massachusetts**

tension, both in support of and in opposition to the project. This understanding of the context of our study area enabled us to more effectively discuss both the physical and social impacts of the station, as well as its integration into the Ball Square area.

The next chapter describes our methodology, including how we assessed the physical conditions of Ball Square; re-researched and evaluated the community climate and advocacy relating to the Green Line extension and, where possible, Ball Square in particular; used Census data and GIS mapping functions to evaluate the neighborhood's demographics and commuting behavior; researched and learned from existing literature on station design and incorporating new transportation infrastructure into neighborhoods; and finally, synthesized our knowledge of existing conditions into preliminary design recommendations. Chapter 3 analyzes the conditions outlined in Chapter 1 and provides our view of "best practices" for station design and incorporation, as well as elements to avoid based on observed negative impacts in other contexts. This section also provides photos and analyses of several existing transit stations in the Boston area and elsewhere, and includes our opinion regarding which aspects

**Commuter rail tracks northeast of Ball Square**



of these stations serve to increase access, safety and usability, and respect neighborhood context (and should therefore be emulated in the Ball Square design), and which aspects do not (and should therefore be used as examples of what to avoid in Ball Square). Our analysis also outlines planning principles we believe will maximize access to the station, promote safety, enhance the user experience, and diminish the likelihood of negative social impacts to Ball Square

### *What are the key issues the City of Somerville should consider in integrating a new MBTA light rail station into Ball Square?*

such as resident displacement.

This report is designed to help the City of Somerville and its residents engage in conversation and be active participants throughout a deliberative public process with the EOT and the MBTA during the station design planning. The report should also help the City of Somerville understand the potential for future development sites, ways to enhance the commercial businesses of Ball Square, and navigate affordable housing policies. It is our intention that as the project unfolds over the next several years, this document may be used as a reference tool



**Commuter rail tracks, view from Broadway**

to help community members and key stakeholders ensure their interests are served through the planning process.

The research question we seek to answer is: *What are the key issues the City of Somerville should consider in integrating a new MBTA light rail station into Ball Square?*



# Chapter I: Background, History and Context

## Background and History of the Green Line Extension

The plan to extend the Green Line was a response to the proposed construction of the Central Artery/Harbor Tunnel through downtown Boston, which was expected to increase traffic and therefore exacerbate air pollution. The extension would mitigate this air pollution and reduce vehicle miles traveled by providing alternative modes of transportation. The September 2000 Administrative Consent Order, which updated the original 1991 agreement, specified a December 2011 date for completion. In early 2005, the Administrative Consent Order was again amended and included a provision specifying a process for reevaluation and possible substitution of the three remaining transit commitment projects, one of which was Green Line Extension to Medford Hillside. In 2005 the Conservation Law Foundation (CLF) sued the state of Massachusetts for not honoring its transportation commitments. In November of 2006, the CLF and City of Somerville/Medford won the court battle, and the state confirmed its commitment to extend the Green Line in tow spurs to Medford and to Union Square by 2014. Many organizations and community leaders throughout Massachusetts have gath-

ered in support of the State's plan to extend the Green Line, most notably the Green Line Community Forum, which includes numerous smaller citizen groups formed to advocate for realization of the project as well as to contribute to the community planning process.

## Ball Square Site Description

### Location

Ball Square is an urban village located in Middlesex County, Massachusetts. The Somerville/Medford city line runs along Boston Avenue and bisects Broadway, situating Ball Square in both Somerville and Medford. The center of Ball Square sits at the intersection of Boston Avenue and Broadway, located between Powderhouse Square and Magoun Square. Broadway links Powderhouse Square near Tufts University to East Somerville and Sullivan Square via the Winter Hill neighborhood. The strip of Broadway connecting Powderhouse Square and Sullivan Square (Ball Square lies in between), is a four-lane arterial roadway carrying between 20,000 and 30,000 vehicles per day. The road averages about 195 auto accidents a year and truck volumes on sections of Broadway are as much as 499 trucks per day (*Beyond Lechmere*, 3-22).

There are two major intersections running through the heart of Ball Square: Boston Avenue and Broadway, and Winchester Avenue and Broadway. Boston Avenue runs through both Somerville and Medford; it parallels the MBTA's Lowell Commuter Rail Line and passes near Tufts Uni-

versity at its intersection with College Avenue. Boston Avenue then goes on to intersect with Broadway at Ball Square, where its character transforms to that of a neighborhood residential street. The two-lane avenue carries between 11,000 and 18,000 vehicles per day. Each year there are approximately 20 auto accidents on Boston Avenue within the City of Somerville (*Beyond Lechmere* 3-22).

Ball Square contains a mix of businesses serving the student and academic populations of Tufts University, as well as residents of the neighborhoods to the east. Community members generally consider Ball Square to begin at Bay State Avenue, a residential street running perpendicular to Broadway and end at Winchester Avenue,



**Figure 2: Aerial view of Broadway (MassGIS)**

another residential street which runs perpendicular to Broadway.

### Recent History of Ball Square

The heart of Ball Square was destroyed by a fire that ignited on February 8, 1994. The fire wiped out eight businesses, many of which had been neighborhood staples for decades. The stores demolished in the fire had been built around 1910, along with one of the first bowling alleys in Somerville. (Lawrence, Janelle. "Ball Square Re-grouping After Blaze," *Boston Globe*. March 27, 1994). The origin of the fire was a deep fat fryer at Harold's Luncheonette and spread quickly throughout the neighborhood. According to the Fire Department's report, the fire caused more than \$500,000 in damage. The fire was a devastating blow to the square, closing down seven of the 40 businesses. It was also a turning point for many merchants, who were worried about the viability of a business area that competed with the Assembly Square Mall and a gentrified Davis Square. For months prior to the fire, merchants had complained about Ball Square's lack of parking and the city's ag-

### Northwest corner of Broadway and Boston



gressive ticketing policy, both of which deterred consumers.

### Current Uses

Ball Square today is a small but successful neighborhood business district. The Square is anchored by the 100-year-old Lyndell's bakery, a comparatively new diner, and True Grounds coffee-house. A growing restaurant and nightlife scene add to the district's uses, along with financial, health care, business, professional, and personal care services. Please see Appendix I for a detailed list of establishments.

### Zoning and Land Uses

The zoning in and around Ball Square is illustrated in Figure 3. (For context, the four parcels we examined as proposed station sites are in blue.) The heart of the business district along Broadway is zoned for Limited Business and General Business. The portion of Boston Avenue that approaches Ball Square from the North is zoned as Light Industrial, but zoning changes to Business as soon as Boston Avenue reaches Broadway. The areas on either side of the shopping district along Broadway are zoned as residential. Most of the structures in these neighborhoods are two- and

Figure 3: Land Uses in Ball Square (MassGIS, map by Danielle Lipes)



three-family homes (as opposed to single-family homes). Two areas of green space, Nathan Tufts/Powderhouse Park and Trumfield, lie just outside the approximate bounds of Ball Square.

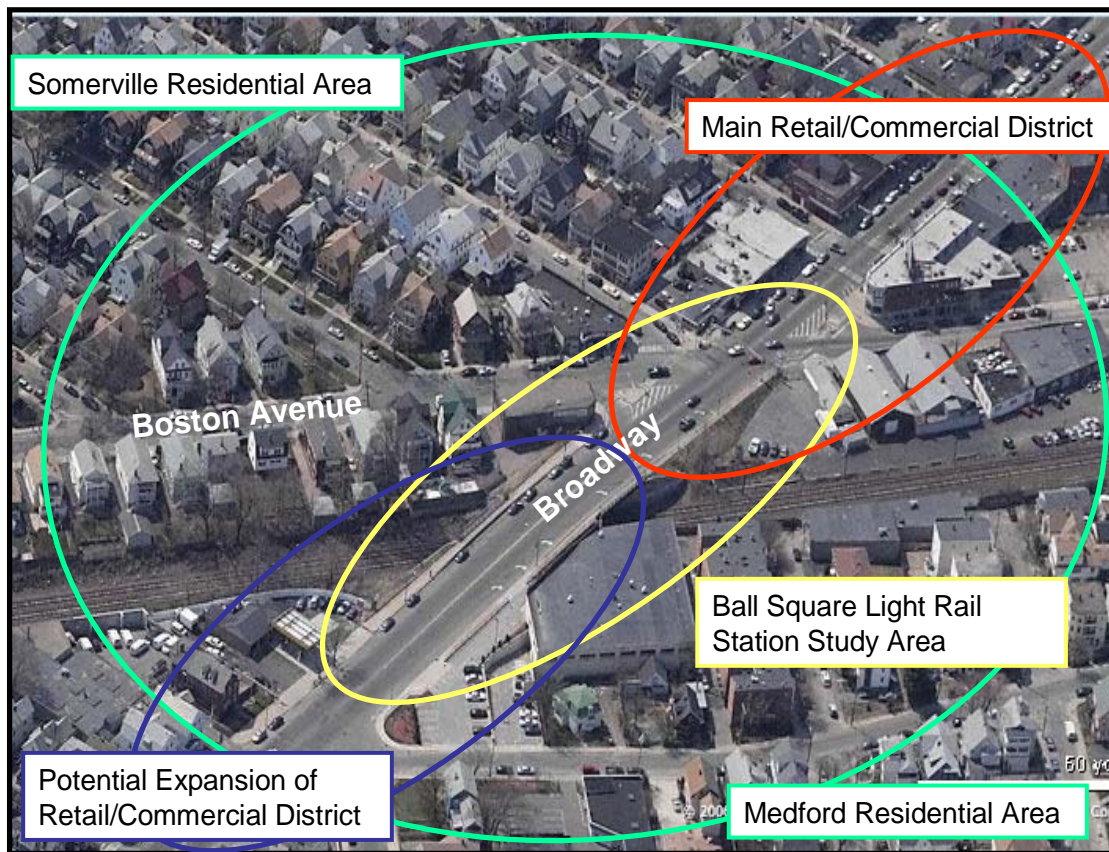
### Legend

#### Zoning

#### Primary Use

- Central Business
- Conservation/Recreation
- General Business
- General Industrial
- Limited Business
- Light Industrial
- Residential
- Possible Stations





**Figure 4 - Ball Square Boundaries**

A Central Business zoning district lies to the South of the residential neighborhood on the Somerville side of Ball Square (this area is approaching the vicinity of Davis Square).

### Existing Physical Conditions

Figure 4 is a map of Ball Square as it exists today. There is a healthy commercial/

This is considered the heart of Ball Square. See Appendix I for further breakdown of the existing mix of retail and commercial properties. It is adjacent to the Ball Square study area and therefore is considered the first ring of access to the potential new train station.

The Ball Square study area is depicted in yellow. This is the area that we have targeted for the potential of a new sta-

tion in Ball Square based on direction from the City of Somerville and preliminary analysis in the *Beyond Lechmere* study.

After visiting the area several times and conducting a geographic map analysis it became quickly apparent that the existing boundaries of Ball Square's retail/commercial area had the potential to expand beyond what is highlighted in red.

This potential expansion of Ball Square's retail/commercial district is shown within the blue oval. Our map and site visit analysis concluded that by introducing a new station into Ball Square, it would be possible to expand what are currently considered the boundaries of the neighborhood to include this larger area.

Figure 4 also shows the location of residential areas in context of the retail/commercial areas of Ball Square. The residential areas are considered the second ring of access to the Ball Square Study Area because they lie outside the current (and potential) retail/commercial areas but are still within access of the study area. Pedestrian access and proximity are discussed in further detail later in this report.



## Existing Conditions: A Demographic Profile of the Ball Square Area

### Population

At the 2000 census, there were 14,489 people living within the 14 block groups in the study area. The block groups take up .765 square miles; population density was 18,940 people per square mile. There were 5329 households.

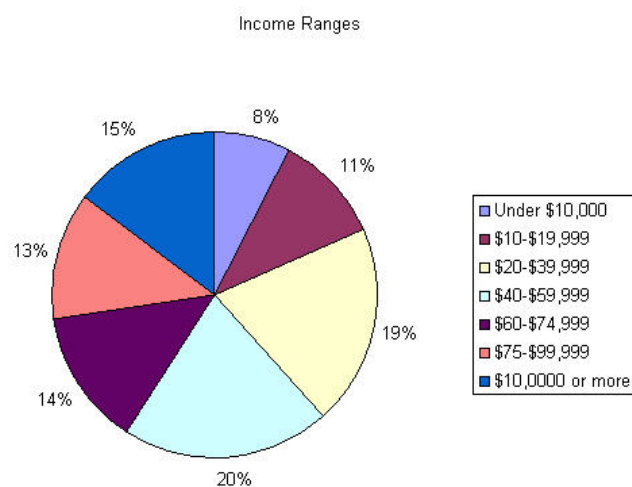
### Income

Among the 5329 households, income ranges were as follows: 8% earned less than \$10,000; 11% earned \$10,000 to \$19,999; 20% earned \$20,000 to \$39,999; 21% earned \$40,000 to \$59,999; 14% earned \$60,000 to \$74,999; 13% earned \$75,000 to \$99,999; and 15% earned \$100,000 or more. (See Figure 5.)

### Housing Statistics

5846 people lived in owner-occupied housing (42%), and 8046 (58%) lived in renter-occupied housing. Median gross rents in the 14 block groups varied widely, from \$706 in tract 3396, block group 7 (the easternmost block group in the study area), to \$1620 in tract 3395, block group 6 (located near the Tufts campus along Boston Ave). The median percentages of gross rent paid, as a percentage of income, were more consistent among the block groups and typically ranged between a median of 21.6% and 30.7% of income paid in rent.

**Figure 5: Income**



(Interestingly, two outliers on opposite extremes were both located near Tufts: tract 3395, block group 6, paying a median of 50.1% of income in rent, and tract 3396, block group 3, paying 14.7% of income in rent.)

### Employment and Occupations

Of the employed civilian population 16 and over, 8764 were employed (97%

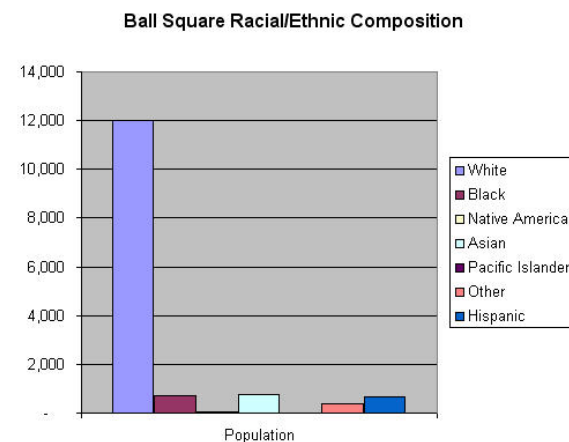
of the civilian population 16 and over). Of these, 48% were employed in management, professional and related occupations; 16% were in service occupations; 25% were in sales and office occupations; 6% were in construction, extraction, and maintenance occupations; and 7% were in production, transportation, and material moving occupations.

### Racial and Ethnic Composition

The majority of the area's population were white, as shown in Figure 6, though other racial groups were represented.

In summary, the neighborhood was generally middle income, had slightly more renters than owners, and paid the high rents typical of Somerville. The easternmost part of the neighborhood was the least well off financially. While the area did have an environmental justice population, as will be discussed later, the neighborhood was not severely impoverished.

**Figure 6: Racial and Ethnic Composition**



## Public Comments and Community Engagement

### Advocacy for the Green Line Extension

The Green Line Community Forum (an umbrella of like-minded groups) includes: STEP, Somerville Bike Committee, Cambridge Health Alliance, and Friends of the Community Path and Livable Streets. Other organizations in the area include: Friends of the Somerville Community Path, Medford Green Line Neighborhood Alliance (MGNA), Association for Public Transportation (APT), and Livable Streets Alliance.

Somerville Transportation Equity Partnership (STEP) – STEP is a group of concerned residents advocating for greatly needed transportation improvements for Somerville. Their mission is to secure transportation for the city which will increase social equity, environmental health, and economic opportunity. STEP's advocacy efforts for increased access to transit for Somerville residents originate in the group's conviction that the city is grossly underserved by quality public transportation based on its needs. STEP argues that Somerville, as the densest city in New England and the sixth-densest in the U.S., is done an injustice by the fact that eight passenger train lines run through Somerville, yet only one stops (Somerville STEP, <http://www.somervillestep.org/background/>). (Technically, two rail lines stop in Somerville: the Red Line at Davis Square and the Orange Line at Sullivan Square. However, their point is well taken that a city

should not have to contend with the noise pollution and disruption that comes from rail lines running through it without the benefit of access for its residents.) STEP also makes the point that one in four Somerville resident do not own cars, and that Somerville's reliance on public transportation to commute to work is only second highest of Metro Boston cities and towns. On their website, the group stresses the point that the state has a responsibility to fairly distribute the benefits of public amenities such as transportation based on environmental justice policies. Somerville suffers the second-highest exposure to air pollution in the state, and with 6,000 immigrants per square mile, high concentrations of low- and moderate-income people, Somerville is an environmental justice community that badly needs air quality mitigation and investment in public transit that is cleaner and more reliable than buses. STEP members advocate for the Green Line extension not only because they desire better transit, cleaner air, and improved public health, but because they hope the new T stops in Somerville will revitalize the neighborhoods surrounding them. As their website states, "the T stop revitalized Davis Square and can revitalize other parts of Somerville. Better transportation means stronger businesses, more jobs, and faster commutes. Train service can help businesses grow and bring critical tax dollars to the city to pay for needed services. Davis Square thrived after the Red Line extension provided access to good public transportation. The same thing can happen in Union

*A city should not have to contend with the noise pollution and disruption that comes from rail lines running through it without the benefit of access for its residents.*

Square and other locations in Somerville. Expanded T service is a crucial component of the city's future economic viability." (Somerville STEP)<sup>1</sup>

The Medford Green Line Neighborhood Alliance (MGNA) - MGNA is comprised of citizens who support the proposed Green Line extension into Medford. They encourage the proactive involvement of the city, its residents and all stakeholders to make certain the extension is completed in a way that is most beneficial to the community. They believe that if the proposal is executed properly, the Green Line can supply thousands of Medford residents with an environmentally friendly alternative to automobile use, and provide better access in and out of Boston, Cambridge, Somerville and beyond. (MGNA, [www.medfordgreenline.org](http://www.medfordgreenline.org)).

<sup>1</sup>While STEP's enthusiasm for community revitalization is shared by many Somerville residents and community groups, others fear the Green Line extension will increase development pressure, and therefore land values, so much that it will displace current low- and moderate-income residents, particularly in East Somerville. Please see the Analysis and Recommendations section for possible methods for mitigating such negative impacts.

The MGNA held a meeting on February 9<sup>th</sup> to discuss the possibility of integrating a new T stop in Ball Square; attendees included several representatives from MGNA, STEP, Medford and Somerville community members (including both people opposed to and in favor of the extensions, and several abutters). Many Ball Square residents and neighbors opposed to the T coming through their neighborhood expressed concern that traffic would worsen if more people were driving to the station. Members of STEP argued that the opposite would happen – there would be less traffic congestion because the T would take cars off the road, and local businesses would benefit from the increased foot traffic. Parking was also discussed: the MGNA was adamant that the neighbors should not have to deal with new parking garages. Additionally, the construction of a new T stop would have to respect the character and scale of the neighborhood and be safe for pedestrians and cyclists. Attendees agreed that the new stops would determine commercial activity in many of these neighborhoods; more specifically, a Ball Square stop would continue to revitalize the commercial area. Accordingly, reference was made to the planning used by the town of Arlington when rezoning for new development. In the case of Arlington, the town decided to permit development and greater density in certain areas but not all – that is the reason so much development is seen along Massachusetts Avenue and Broadway, but not on the residential side streets.

Association for Public Transportation, Inc. (APT) - APT is a non-profit organization working to promote public transportation for environmental, equity, and efficiency reasons. APT has been involved as an advocate for a number of public transportation issues. Some of these issues include: environmental review committees for the MBTA's 1980 and 1990 fare increases; participation in public hearings, providing testimony on proposed service cuts, fare increases, and the MBTA budget; and formation of ad hoc committees to deal with diverse issues such as MBTA public information, bus schedules, and operations (APT, [www.car-free.com](http://www.car-free.com)). The APT is a strong advocate of the extension of the Green Line service from Lechmere through Somerville to Medford and beyond to Route 128. They feel Somerville has been underserved by rapid transit in spite of its dense population and proximity to Boston and Cambridge.

Friends of the Somerville Community Path – This is a citizens' group dedicated to extending the Minuteman Bikeway/Linear Park through Somerville. While their focus is not on the Green Line extension, it is important to consider their objectives as the extension is planned. Because a large proportion of commuters who use the Davis Square T stop access it via the Community Path, there is considerable motivation for planning new T stops in conjunction with new and existing bike paths in Somerville and Medford.

*Ball Square has the advantage over some other sites of already having commuter trains move through it. Residents living in the vicinity of an active commuter rail line are more likely to welcome an additional local light rail line if they will be able to access it.*

#### Community Opposition

Community groups voicing opinions on the Green Line extension are mainly in favor of the extension. However, an error planners can easily make during community participation is assuming that all citizens are represented by those who are present at community meetings: “public sector mediators cannot be content simply to let organized parties meet and ‘make a deal,’ excluding weaker and perhaps unorganized parties” (Forester, 1967). While there does not appear to be a formal organization opposed to the Green Line extension, we did note comments from several residents (all happened to be from Medford) who hoped to stop the extension. One particularly vocal opponent to the extension, present at an MGNA meeting we attended, argued his opinion that Medford was primarily a commuter suburb and did not wish to develop into an urban center like its neighbor, Somerville.

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He stated that people preferred to drive to work in Medford, that few people took the subway or would take it if it were there, and that Medford would be plagued with much additional traffic from Winchester and other surrounding towns if the Green Line were to be extended there.

Factually, he is incorrect on several points: Medford is, in many ways, already an urban center; census data shows that a significant number of the Medford residents as well as the Somerville residents, in the Ball Square area at least, take public transportation; Winchester already has a commuter rail stop; and none of the new Green Line extension stops are proposed to be built as park-and-ride stations. While his points lack merit from a factual standpoint, it cannot be ignored that there is opposition to the Green Line extension. During the same meeting, we also heard from MGNA leaders that there are many residents who oppose extension of the Green Line to particular site locations, such as locating a terminus at Route 16 near the Wild Oats store, but not to the extension in general. The same is true of Somerville; while there is considerably less community opposition to the extension in Somerville, there certainly are individual residents who are concerned about the potential locations of certain stops. Several residents of the neighborhood surrounding the proposed Lowell St. site spoke out in opposition to the site, but not the entire extension.<sup>1</sup>

Little of the opposition we observed was focused on Ball Square in particular,

though one community member present at MGNA and STEP meetings advocated on at least two occasions for there not to be a stop located in Ball Square. The reasons he cited were the possibility of increased traffic in the area, and his opinion that the Department of Public Works site, an underutilized property, should be redeveloped and used as a Green Line stop; having a stop in that location would mean that all the other proposed stops would be pushed north slightly, with the result that Ball Square would be skipped.

Notes from a STEP meeting from 2006 indicated that Tufts had at one point favored a T stop at College Ave. and Boston Ave., on the Tufts campus. However, they had avoided publicly endorsing it for fear of backlash from Medford, which it perceived to oppose the Green Line extension (STEP meeting notes, 6/22/06). If the T stop were placed at this location on the Tufts campus, it would be too close to Ball Square to locate another one there, but too far to provide direct access to Ball Square businesses. It would, however, be a significant benefit to Tufts students, families of students, faculty, and staff.

Another community group with concerns about the Green Line Extension is Somerville Community Corporation. While they are not opposed to the extension, they fear displacement might occur due to the gentrification of East Somerville neighborhoods. However, Ball Square is not an area they consider one of their target communities for preventing displacement; according

to an interview with their lead community organizer, Meridith Levy, Ball Square has already gentrified; this occurred following the opening of the Davis Square station. That said, however, there are ways of preventing further displacement of residents should the neighborhood's land values increase even more (which they are likely to do if a T station is opened in Ball Square). For these techniques, please see the Recommendations section in Chapter 3.

In summary, a Ball Square T stop is likely to draw some opposition from Medford, but be generally supported by Somerville. As can be expected with any chosen location, there will likely be abutter opposition to the station. However, in this respect, Ball Square has the advantage over some other sites of already having commuter trains move through it. Residents living in the vicinity of an active commuter rail line are more likely to welcome an additional local light rail line if they will be able to access it (currently Ball Square residents have the commuter rail running through but not stopping in their neighborhood), particularly in comparison to neighborhoods that do not already have rail lines traversing them.

<sup>1</sup>What the communities have in common is some NIMBYism. The phrase "NIMBY," or "not in my back yard" is derogatory and tends to imply that neighbors and abutters want services but are not willing to be the ones to risk lowered property values for the greater public good. However, this does not mean that all community members who have questions or concerns about the Green Line extension's effects on their neighborhood or object to particular locations fall into this category. All concerns should be given a fair hearing without judgment.



## Environmental Justice Concerns

In planning major changes to a city's infrastructure, it is essential to consider the populations that will be impacted, and environmental justice (EJ) policies on the State and Federal levels have been introduced that pay particular attention to minority and low-income populations. The Federal Government has identified EJ to be an important consideration in transportation infrastructure projects. This includes consideration of how the project will impact the environment of low-income and minority populations, ensuring that they do not bear a disproportionate burden of the development's impact, and provision of opportunities for these populations to participate in public decision-making during the planning process. (*Beyond Lechmere*, 3-15).

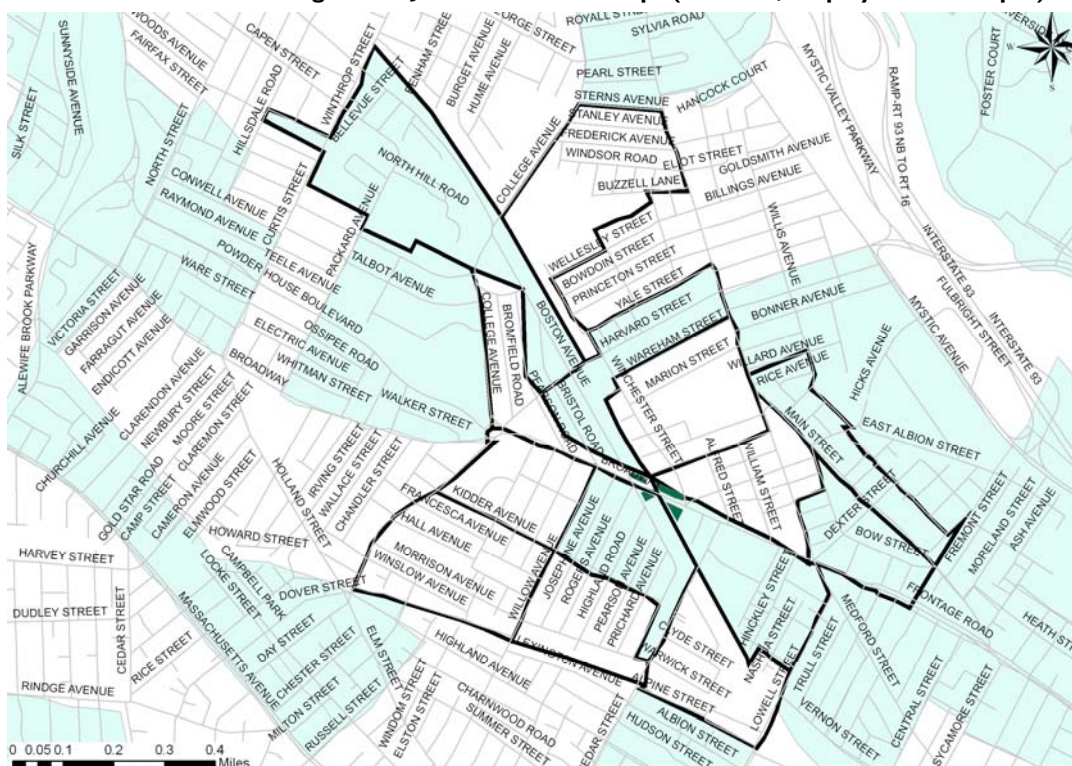
Massachusetts' Executive Office of Environmental Affairs (EOEA) classifies EJ communities as neighborhoods that are either 25% or more minority; 25% or more of residents were not born in the U.S.; 25% or more of residents are not proficient in English; or median annual household income is at or below 65% of the statewide median. The neighborhood need only meet one of these requirements to be classified as an EJ community (*Beyond Lechmere*, 3-15).

Much of Somerville and parts of Medford are considered to be environmental justice communities, including some of the census block groups in and around Ball Square. In fact, a 2001 report by Daniel Faber of Northeastern University ranked Somerville as the seventh most “intensively

overburdened” community in Massachusetts based on its high concentration of environmentally hazardous industrial facilities and sites (Faber, 36). Figure 7 shows the block groups within a quarter mile of the proposed station locations which have been identified as EJ communities. The *Beyond Lechmere* study states that its goal in examining impacts on EJ populations is “that improvements to transit services not burden and, to the greatest extent possible, provide benefits to these environmental justice populations in terms of air quality, mobility, and improved regional access” (*Beyond Lechmere*, 3-17). Within sev-

eral of the communities through which the Green Line extension will pass, the light rail service expansion is expected, in the long term, to lessen environmental pollution caused by buses and cars, ease traffic congestion, and provide increased mobility and access to jobs in Boston, Medford, Somerville and Cambridge to populations currently underserved by transit. That said, however, the impacts of construction itself will also cause pollution, traffic congestion, noise and disruption to neighborhoods in the short term.

**Figure 7: EJ Census Block Groups (MassGIS, map by Danielle Lipes)**





While the long-term goals of the Green Line extension include improving conditions for underserved and/or vulnerable populations, including EJ communities, there will be negative impacts to neighborhoods that the building of the extension will necessitate, which should be kept to a minimum if at all possible.

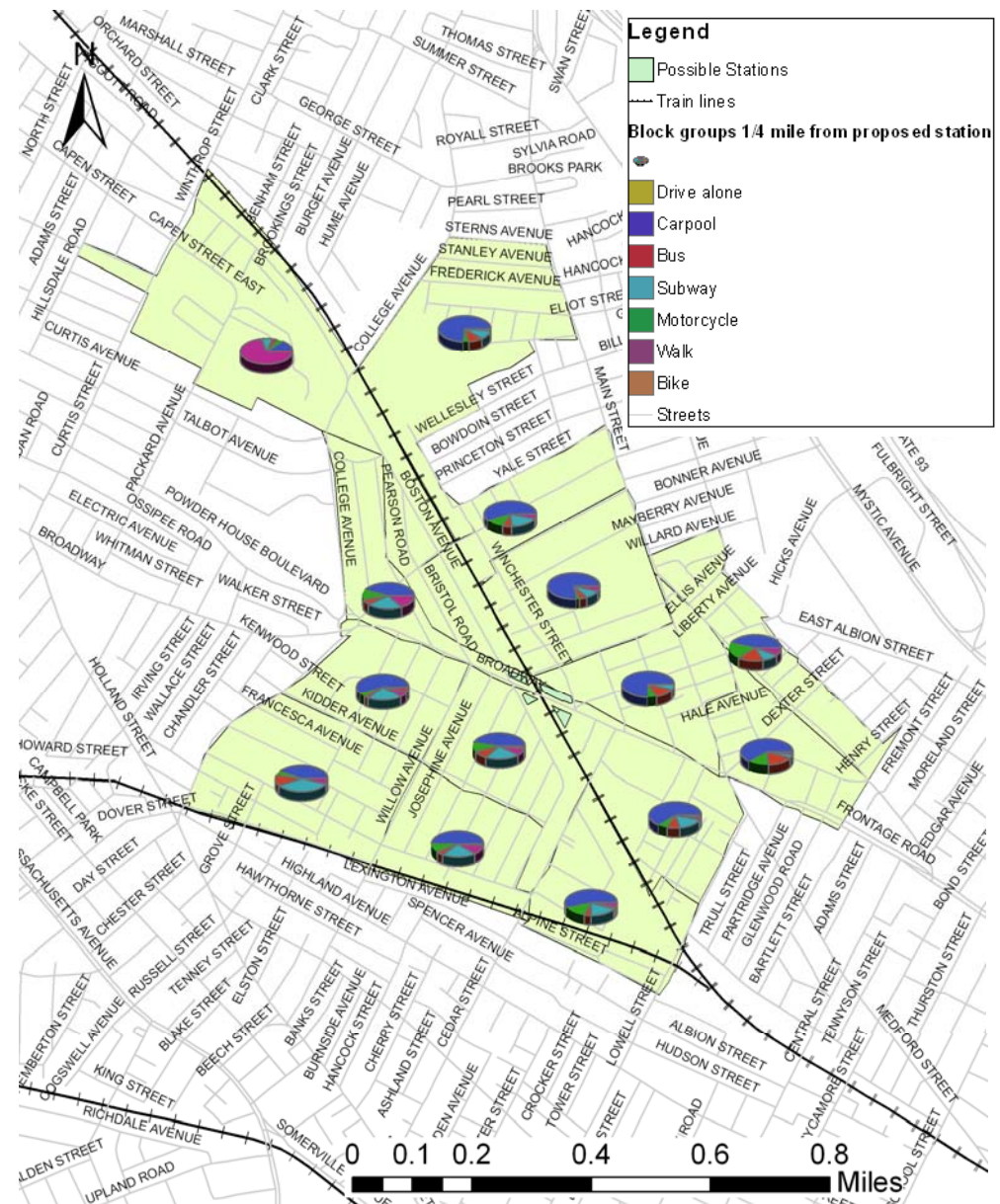
## Transportation Access

### Commuting Behavior of Residents

Ball Square is located on the edge of three census tracts, two in Somerville and one in Medford. Somerville Tract 350400 is approximately .2 square miles with a population of 5,921 people. Somerville Tract 350300 is about .2 square miles and has a population of 2,457. The Medford Tract 339600 has a population of 5,042 and is roughly .3 square miles.

Through the use of Geographic Information Systems we collected data on every block group within a 1/4 mile of the four proposed parcels. There were 14 block groups that met this criteria. We then downloaded Census data for these block groups on the number of commuters; whether they took a car, truck or van as means of transportation; how many commuters drive alone; how many bike to work; the number that walk to work; and how many use public transportation. We determined that there are 8075 residents within the 14 block groups in the study area over the age of 16 who commute. Of these, 4597 (57%) took a car, truck or van, with the vast majority driving alone (3977, or 87% of all commuters who traveled by vehicle). 673 (8%) took the bus; 1502 (19%) took the subway; 15 (less than 1%) motorcycled; 62 (nearly 1%) bicycled; and 792 (10%) walked. Appendix 2 provides a detailed breakdown of commuter behavior by block group.

**Figure 8: Commuting Patterns by Block Group in Ball Square (MassGIS, U.S. Census. Map by Danielle Lipes)**

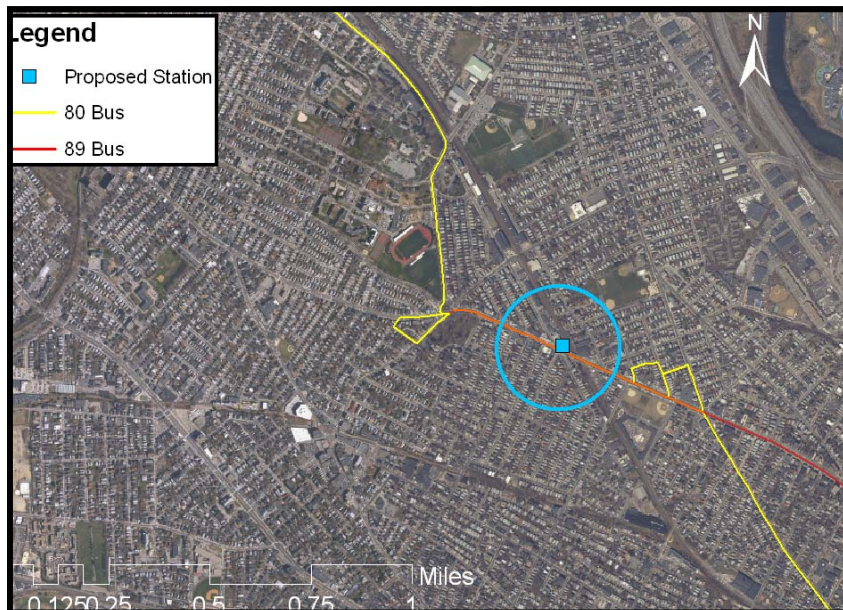


### Bus Service Frequency and Ridership

The two MBTA buses that run through Ball Square are the 80 and 89. The No. 80: Arlington Center – Lechmere via Powder House Square is a local route connecting Arlington Center, Medford Hillside, Powder House Square, Magoun Square, Gilman Square and Lechmere Station (See Figure 9). The route travels along Boston Avenue, College Avenue, Broadway, Medford Street, Pearl Street, and the McGrath/O'Brien Highway. The number 80 bus has a daily ridership of 1,872 passengers and makes 41 weekday inbound trips (*Beyond Lechmere*, 3-28 and 3-30).

The No. 89: Clarendon Hill – Sullivan Square Station via Broadway links Clarendon Hill and Sullivan Station via Powder

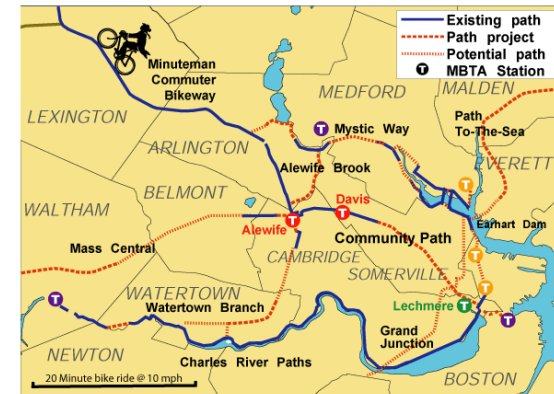
**Figure 9: Bus Routes. MassGIS, MBTA. Map by Danielle Lipis**



House Square and Winter Hill (See Map). The number 89 bus has a daily ridership of 3,586 passengers and makes 53 weekday inbound trips. The addition of a light rail station to Ball Square has the potential to eliminate the need for portions of both routes, especially the No. 80 route. However, keeping those portions of both routes that the Green Line extension will not replace, such as the No. 80's path from Somerville to Arlington, will bring passengers to the Green Line from access to parts of Somerville, Medford and Arlington that currently do not have T access.

### Bike Path Extension

The Somerville Community Path extension is a proposed project that would connect the Minuteman Bikeway and Cambridge Linear Park to the Charles River and downtown Boston via a multi-use path. Currently, a stretch of 0.8 miles runs east from Davis Square in Somerville. The proposed 2.5 mile extension would most likely run alongside the MBTA Commuter Rail Lowell Line. The Minuteman Bikeway extension is compatible with the anticipated MBTA Green Line and Urban Ring projects.



**Figure 10: Proposed Community Path Extension. Friends of the Community path, <http://www.pathfriends.org/>**

According to Friends of the Community Path the proposed path would run beside the trench, where the railroad tracks are located, with much of the path elevated. The path links up to three of Boston's four subway lines (Red, Green and Orange) and is within walking distance of North Station. There are 450 landowners of parcels immediately adjacent to the suggested path who will be impacted by its construction. Presently the Friends of the Community Path is conducting outreach to all of the 450 landowners through door knocking and hand-delivering invitations to their community meetings (Friends of the Community Path, [www.pathfriends.org](http://www.pathfriends.org/)).



## Part II: Methodology

### Physical Assessment of the Study Area

In order to familiarize ourselves with Ball Square and assess its physical conditions, we visited the site numerous times, varying our trip times to include daytime, evening, weekday and weekend visits. We walked through the site in order to familiarize ourselves with the experience of pedestrians. While none of us are cyclists, we observed the lack of safety features available for bike riders, such as bike lanes and trails. We drove through the site by car and parked on a side street for the experience of traveling through it by vehicle in order to access its businesses. We also visited Ball Square's bus stops and examined its online schedules.

We photographed sites throughout the square which in our opinion seemed to

#### Residential buildings north of Ball Square



give it its character. For example, we took pictures of several dilapidated-looking buildings which made us feel that parts of the square were run-down and abandoned. We photographed the high-volume, fast-moving traffic coming down Broadway in order to capture our feelings of unease as pedestrians walking through the neighborhood. That there are few people in these photos is telling; during none of our visits were the sidewalks bustling with pedestrians. The area by the existing commuter rail tracks had a desolate, almost unsafe feel about it, and our photos of the tracks reflect this mood. Just as importantly, we photographed the many businesses along Broadway, attempting to capture in these photos the variety of restaurant and retail establishments available to residents.

We observed, as a group, what felt to us to be the neighborhood's "boundaries" – where Ball Square begins and ends. We also informally questioned acquaintances who live in the area where they thought the boundaries were. Our analysis of obstacles, gateways, landmarks, eyesores, aesthetic assets and other features that gave the square its feel and personality were based on our own observations from physically walking through the area and viewing it with aerial maps.

### Assessing Community Views

We conducted unstructured interviews with the following individuals: Sarah Wilburn (Ball Square resident), James Wilson (Ball Square resident), Maria Bui (Ball



Residential buildings north of Ball Square.

Photo by Danielle Lipes

Square resident), Barbara Rubel (Director, Government and Community Relations, Tufts University), and Meridith Levy (Community Organizer, Somerville Community Corporation).

We also conducted an informal assessment of community members' opinions by attending MGNA and Somerville STEP meetings, searching online for transcripts of past meetings of these and other groups, and reading through list serves and blogs devoted to the subject of the Green Line extension.

### Literature Review

We researched literature on transit-oriented development, station design, impacts of transportation projects on communities, housing affordability, public space, and environmental justice. Our analysis also relied heavily on a previous study on the Green Line extension proposal, *Beyond Lechmere*.

VHB/Vanasse Hangen Brustlin's *Beyond Lechmere Northwest Corridor Study: Cambridge, Somerville, Medford, Massachusetts*. Summaries of the key points of the works most important to our report can be found in the annotated bibliography.

### **Assessment of Area Demographics and Commuter Behavior**

In order to give Somerville a basis for assessing the need for a station in Ball Square and the number of riders it could attract, we collected commuter behavior and demographic information from the U.S. Census. The reason for collecting commuter behavior was to evaluate the current demand for public transit based on how many people currently use it and how many people might use it but currently drive to work. We wanted to characterize the neighborhood in terms of factors such as race and income to determine whether this area might be home to a significant number of minorities and low-income people who are currently underserved by public transit.



Broadway, Ball Square

We used census block groups for this analysis because they are the smallest geographic unit for which Summary File 3 sample data – including commuting behavior, income, race, and certain housing characteristics – are available.

In order to analyze the census block groups in the vicinity of Ball Square, we used GIS to download a map of the area and then join this map to census data we selected. We then highlighted the four parcels we evaluated for the possible location of the T station (at the four corners of the intersection of Broadway and Boston Avenue). To determine which census block groups to analyze, we selected all census block groups located within a quarter-mile of these four parcels. Fourteen block groups met the criteria. These block groups, joined with the selected census data tables, and showing all their geographic features, were given color-coded quantities based on selected data sets, creating a choropleth map for each data set that could be illustrated in this way. Other data sets were illustrated on maps with pie charts representing information for each block group. Additional data sets less appropriate for mapping were downloaded directly from the U.S. Census website.

We used data from the 2000 U.S. Decennial Census, which we acknowledge may not be recent enough to portray our study area's population with high accuracy. Ball Square – like all of Somerville and Medford, the entire Boston Metro area, and indeed all of New England – has evolved considerably since the 2000 census data was



Commuter rail tracks north of Ball Square

collected in 1999. However, later estimates available from the American Community Survey (ACS, available for 2001 through 2005) do not include many of the data sets we are analyzing; and those data sets that are included in the ACS are not available at the block group level.

### **Recommending Design Features**

After gaining an understanding of the key issues and concerns community groups have identified, we then considered how the station design and other infrastructure improvements in the surrounding area might give the community what it needs and desires in terms of accessibility, safety, and minimal disruption to the neighborhood. We consulted *Railway Stations: Planning, Design and Management*, by Julian Ross, and *Planning and Urban Design Standards*, a publication of the American Planning Association, in order to make recommendations for design features.

## Part III: Analysis and Recommendations

### Site Analysis

#### Analysis of Key Design Concepts

This section examines potential locations for the Ball Square train station to be located in the proposed study area (see Figure 11). It was important to keep in mind that the station should be located in an area that best serves the larger population of Ball Square including all ages and accessibility levels.

**Figure 11: Ball Square Study Area**



According to the *Beyond Lechmere* Study, the initial recommendation anticipates that the new station will be a platform lo-

cated within the study area adjacent to the existing railway line, depicted in blue. Since there are no publicly owned parcels of land adjacent to the proposed site, we analyzed privately owned parcels with access to the tracks for potential acquisition.

In order to complete this analysis, we needed to understand what key concepts were important when incorporating a light rail station into an existing community. We consulted a number of sources, including existing case studies, design guidelines issues by the APA and existing literature on rail stations which aided us in creating a list of key concepts that were important when recommending a location for a light rail station:

1. Understand who will be accessing the station. A station should provide convenient, safe access for all pedestrians, transit riders, bicyclists and people who are arriving by bus or car.
2. Minimize road crossings when and if possible. When possible road crossings should be minimized from a pedestrian safety and ease of access standpoint. When a street crossing is required, the proper road signs, lights, markings and signals are necessary.
3. Station visibility is a key component; a person should know when they have arrived at the station or the desired location, in this case Ball Square. A light rail station can be a focal and identity point for a community establishing it as a destination.
4. When possible, a station should be lo-

cated along a busy street. Ideally, a station would be located at the intersection of two busy streets. This helps to increase safety, ridership and ease of access. A designer should avoid placing a station in off-street locations.

5. Locate a station as close to existing retail and commercial centers as possible. This will help to ensure a healthy commercial center and potentially increase opportunities for new business to come into the area. It also gives workers and customers alternative means besides a car to access the commercial and retail shops.

6. Make a station as compatible with other modes of transportation as possible. This includes bus lines, bike/pedestrian paths and vehicle pick up/drop off. When possible the new mode of transportation should be incorporated into the existing network of other transportation. In this case, re-routing existing bus lines should be avoided; rather, efforts should be made to incorporate them.

7. Locate the station in an area in close proximity to residential areas. The station should be the second ring of access (commercial/retail are the first ring of access) (See Figure 11). This helps to avoid both light and noise pollution in these areas.

8. Maintain an appropriate level of public involvement through out the process. Light rail stations are designed to serve the existing communities; local business owners and residents should be involved throughout the process of selecting a location and designing a station.



With a better understanding of the key concepts of integrating a light rail station into a community, we conducted several site visits to the study area, evaluated tax parcel maps showing existing ownership of the land surrounding the track, and viewed topographic maps. It became quickly apparent that there were several challenges that we would face in doing a site section analysis. However, we also recognized the potential for new opportunities for the community.

#### Challenges:

1. There are no publicly owned sites located along the rail line that allow adequate access for the potential program identified in the key concepts.
2. There are significant grade changes off of the main streets to the existing railroad tracks. Depending on the recommended parcel there is the potential that a complex series of ramps, lifts and elevators to access this site will be needed.
3. The tracks (see Figure 12) are adjacent to different municipalities: the City of Somerville and the City of Medford. This has the potential to present permitting, public involvement and access challenges.
4. The existing traffic infrastructure was not designed to have a new light rail station integrated into the circulation patterns.

#### Opportunities:

1. The new station has the potential to enhance the perceived boundaries of Ball Square.
2. The station has the potential to integrate with proposed bike/pedestrian paths in the city of Somerville. This will help to achieve the overall Green Line extension program goals (encouraging alternate routes of transportation besides cars).
3. The new station can create a new “sense of place” – it has the potential to become a place identifier, similar to the way the Davis Square train station has enhanced the accessibility of Davis Square and helps define the neighborhood.
4. The station has the potential to integrate existing bus routes into the light rail

station. This will help to expand the network and possibilities of transportation for the residents of the Ball Square area and surrounding communities.

#### Site Selection Analysis

After the key concepts, challenges and opportunities of the site were understood, the next step was to identify potential sites to locate the light rail train station within the study area. In order to identify potential sites, we needed to better understand the context of Ball Square. Figure 12 depicts residential areas of both Somerville and Medford in the context of the Ball Square study area and the main commercial and retail district. Broadway is the primary road running through Ball Square which intersects with Boston Avenue, a secondary road.

Based on the key concepts identified earlier, we identified four parcels of land that we thought would be well-suited for a light rail station in Ball Square. Although not every site meets all the criteria identified in the key concepts, they were short listed and put into our site selection matrix (See Table I later in the report) to further break down the analysis.



Figure 12: Context of Ball Square

The figure below (Figure 13) shows the four short listed parcels in context of the Ball Square. They are identified by stars and labeled 1 – 4.







**Site 1—675 Broadway**

In order to compare these sites, we created a site selection matrix. This matrix (Table 1, page 19) took into consideration three key criteria based on the key concepts identified earlier: Goal Achievement, Neighborhood Impacts and Infrastructure. Within each key criterion there were subcategories. These categories were scored from 0 – 3; 0 being the lowest possible score and 3 being the highest.

### Goal Achievement

We further broke down the goal achievement category in to subcategories based on site visibility, pedestrian access and the future integration of bus stop. Site visibility a key concept identified earlier, and is scored based on the ability of people entering and exiting the station from the street ability to understand that they had arrived in Ball Square. Pedestrian access was scored on a number of elements including the ability to access to site from the existing street patterns, the level of ramp/elevator/lift systems

that would be required to access the site and ability to interface with future pedestrian/bicycle paths. Finally, bus stop integration was the final sub-category under Goal Achievement. This measures the potential to incorporate a bus stop into the future design of the station. People using public transportation should have the ability to easily interchange among different modes of transportation.

### Neighborhood Impacts

Within Neighborhood Impacts, there are three subcategories: Residential, Retail and Commercial. A major concern in locating a light rail train station into an existing neighborhood is the potential for additional noise and light pollution. The study area is adjacent to two heavily populated neighborhoods in two different municipalities. When scoring the potential sites, we had to take into consideration the impacts additional foot traffic throughout the day and night would have on these matured neighborhoods. The next subcategory is retail. We wanted to maximize foot traffic to businesses;

**Site 3—151 Boston Avenue**



the new station should be located as close to existing retail as possible. The final subcate-



**Site 2—645 Broadway**

gory was Commercial. Again, we wanted the station to be located as close to existing commercial properties as possible. In all three cases we did not want to remove any existing residential, retail or commercial properties unless we felt that in the current parcel was underutilized.

**Site 4—620 Broadway**



## Infrastructure

There are only two subcategories in the Infrastructure category: integration with the existing rail line and roads. As mentioned previously, the existing tracks and roads were not originally designed with the intention of a light rail train station in Ball Square. The existing roads will face challenges when accommodating the new traffic patterns.

Our analysis for site access and research for key elements to take into consideration when locating a light rail train station led us to the conclusion that site one of the four identified parcels was best suited for the location of the new station.

Although the site has several attributes that make it attractive for a light rail train station and potentially much more (discussed in further detail in the Chapter 3 recommendations), this site is privately

**FIGURE 14 - View of Site One from Retail/Commercial Center of Ball Square**



owned and has transacted within the last year. The site could be potentially expensive to acquire—assuming the owner is willing to part with the land. Various structures of acquisitions could be explored such as a private/public partnership. If additional analysis concludes that this is the ideal parcel to move forward with locating a station, these discussions should happen as soon as possible, as the sale could take years to negotiate. The sooner the parcel of land can be acquired, the sooner the next steps in designing and integrating the station into the community can be taken.

	Site One	Site Two	Site Three	Site Four
<b>Goal Achievement</b>				
Site Visibility	3	2	2	3
Pedestrian Access	2	1	1	1
Bus Stop Integration	3	2	2	2
<b>Neighborhood Impacts</b>				
Residential	3	3	1	1
Retail	3	2	1	1
Commercial	2	0	2	2
<b>Infrastructure</b>				
Commuter Rail	2	2	2	1
Existing Roads	3	2	2	2
<b>GRAND AVERAGE</b>	<b>21</b>	<b>14</b>	<b>14</b>	<b>13</b>

**Table 1 - Site Selection Matrix.**  
Additional Scoring Detail for all sites can be found in Appendix V.

Figure 14 depicts the recommended site for the location of the new station. The site scored significantly better across the board in the site selection matrix. It has several characteristics based on our research that makes it an appropriate location:

IA traffic study should be conducted to better understand overall impacts from new traffic patterns.

### Positive Characteristics of Site One

- Location along existing rail tracks at the intersection of two main streets: Broadway and Boston Avenue
- Parcel is currently underutilized based on current zoning and floor area ratio as-of-right limits
- Existing buildings have not been protected due to architectural or cultural significance
- Close proximity to the main retail/commercial uses in Ball Square
- Potential to link existing retail/commercial districts of Ball Square to the area identified as possible areas of

retail and commercial expansion further down Broadway

- Not in close proximity to residential areas of Ball Square.
- Excellent visibility/view corridors (see image below) for transit users when entering and exiting the site
- Topographic analysis shows the most gradual grade change of all the “short listed” sites, this would require minimal ramp and lift systems for the site
- Locating the station on this site could fill in streetscape gaps.

***Recommendation: Perform further analysis of 675 Broadway as a potential station location and explore the possibility of acquiring the parcel from its owner.***



View of Site One from Retail/  
Commercial Center of Ball Square

The site is currently zoned as Commercial I and has an FAR of 2.0. The structure does not appear to be utilizing its full FAR potential as-of-right.



## Planning Principles

### Addressing Community Values and Opposing Viewpoints

Planning the Green Line extension, including deciding in which neighborhoods to locate stops, has brought out different values and opinions among community members, and will continue to do so throughout the planning process. Advocates of the stop are likely to value the opportunity to revitalize neighborhoods by bringing more customers to existing businesses, attracting new businesses, possibly increasing housing density, and establishing Ball Square, Magoun Square, Gilman Square, and other proposed locations as social and cultural destinations. Advocates are more likely to welcome the enhanced pedestrian traffic that will come as a result of the new stops, advocate for new business and residential development, and value the increased nighttime safety that results when a greater variety of uses is introduced into a neighborhood, including businesses typically patronized in the evening hours. They are also probably more willing to tolerate some increases in auto traffic to and from the station and some increase in land value and rents. Overall, advocates of the stop will probably welcome or at the very least tolerate increased urbanization of the neighborhoods that will host new T stops.

As we observed in community comments, opponents of the station approach the issues of urbanization, transit and neighborhood character with entirely differ-

ent values. Residents who identify strongly with Somerville's and especially Medford's roots as commuter suburbs are less likely to want or appreciate increased urbanization. They are more likely to object to increased traffic around stations and may fear commuters will be attracted from western and northern suburbs to use Somerville, but especially Medford, as a parking lot while they ride the T into Boston. These fears will probably not be completely allayed, but can at least be addressed with assurances that additional parking will not accompany the construction of the new stations. Medford could also establish resident-only parking districts, though this is likely to be met with disapproval from residents who are firmly rooted in the idea of Medford being a commuter suburb (as one Medford resident commented, resident-only parking would be a "step backwards" for Medford). The concept of urbanization may

not be an easy one for these residents to accept. Advocates and planners might be able to make the idea of a new T station more palatable by comparing Medford to Newton. Newton, also traditionally a commuter suburb, managed to grow around several Green Line stops while maintaining its suburban feel.

**Newton Centre T station (Cox,**  
[www.subwaynut.com/mbta/newtoncenter/index.html](http://www.subwaynut.com/mbta/newtoncenter/index.html))



Newton Centre, the most urbanized area in Newton that surrounds a T stop, has a small-city, urban feel rather than a suburban one, but this has not detracted from the suburban character of the rest of the city. Approaching the planning process for new T stations in Medford from the angle of what works in Newton may provide a framework within which Medford residents can more easily visualize an acceptable development scenario. For residents who value living in the suburbs, establishing such a framework for discussion may be critical in persuading them to participate in the planning process, rather than advocating against it.

**Recommendation: Frame community conversations with residents who oppose the Green Line extension in Medford in such a way that does not impose planners' and advocates' values of urbanization onto those who may instead value living in suburban surroundings. Transportation infrastructure can be introduced in such a way that Medford is not made to feel as if its character is being transformed into that of Cambridge, Boston or Somerville, but instead preserves some of the suburban qualities its residents may value. Comparison to Newton may prove useful in achieving this.**

#### Placemaking

In its commissioned study, *Beyond Lechmere*, the EOT outlined its plan to build

cement platforms at proposed stops along any potential Green Line extension into Somerville. These platforms would be similar in design and function to already existing street-level stops along parts of the Green Line.

Additionally, a recent report, *Transportation Finance in Massachusetts: An Unsustainable System* by the Transportation Finance Commission (TFC) on transportation spending in Massachusetts, concluded that the state will fall \$20 billion into deficit funding its transportation obligations over the next twenty years (Daniel, Mac, "Transit and roads face huge shortfall: study calls for cuts, new revenue measures, *Boston Globe*, 3/29/07). With this in mind, we see it as highly unlikely that the EOT will commit itself to anything beyond the minimal requirements for an operational high-speed transit stop.

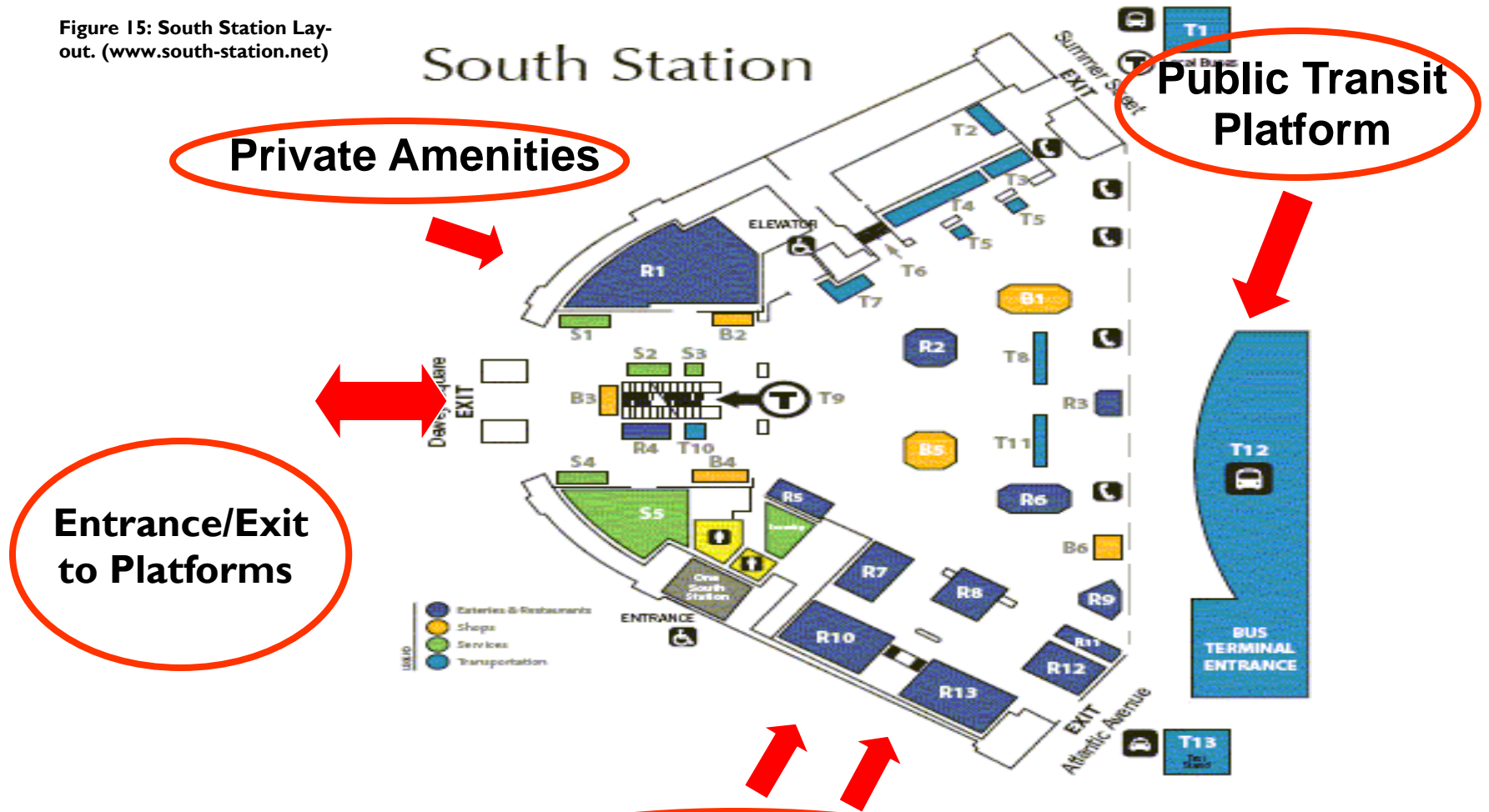
Nevertheless, even taking into consideration the recent findings of the TFC, we believe that by utilizing the privately owned land adjacent to our proposed platform location, the City of Somerville and the residents of Ball Square have a unique opportunity to develop a social, economic and physical focal point for the community; a place that can spur continued economic development and create a public space that contributes to the overall quality of civic life for the

*Opponents of the station may approach the issues of urbanization, transit and neighborhood character with entirely different values. Residents who identify strongly with Somerville's and especially Medford's roots as commuter suburbs are less likely to want or appreciate increased urbanization.*

residents of the neighborhood.

Some of the better examples of stations as more than mere entry and exit points onto transit lines are Washington D.C.'s Union Station or Boston's South Station. In both of these examples, embarking and disembarking travelers must pass by or through private amenities that are integrated into the transit stop, thus facilitating commercial and social interactions. Interestingly, Washington Post journalist Neal Pearce notes that the one-dimensional approach to transit stations is in fact changing: "Check across the nation, and you'll find that the resuscitation of railway stations has done more than spark city and town commercial revival...revived stations are also bolstering a rebirth of civic pride, opportunities for meeting and mixing with fellow citizens, and providing alternatives to the anonymity of exclusively auto-oriented existence" (Pierce, Neal, "Reviving Cities and Rail Stations: As Imperiled as Amtrak," *Washington Post*, 7/9/02).

Figure 15: South Station Lay-out. (www.south-station.net)



Left: Union Station, Washington, DC. Right: South Station, Boston. (Both from Wikimedia)



*“Transit-oriented development is not a national panacea; it is a specific tool that requires different policies in different contexts. In some regions more density may be needed around transit, whereas in other regions more transit may be required to better serve existing high densities.”*  
—Center for Transit-Oriented Development

Likewise, the concept of an integrated station is also in line with what the Project for Public Spaces (PPS), one of the leading advocates for public parks, transit, and other civic facilities in the United States, describes as the six broad characteristics necessary for making what it likes to call a “great place.” These characteristics are based on the assumption that a site is “successful” when its development and completion: “builds and supports the local economy, nurtures and defines community identity, improves sociability, creates improved accessibility, promotes a sense of comfort and draws a diverse population (Project for Public Spaces, <http://www.pps.org>).”

#### Strategies for Collaborative Placemaking

According to PPS, designing a new public space that can satisfy the desires of all stakeholders necessarily involves a collaborative effort. One approach that Somerville might consider emulating is the City of Portland’s recent community outreach and partnership efforts surrounding its light rail extension and corresponding station developments into its western suburbs. At one particular site, the Jefferson Street Station, Oregon’s Department of Transportation, also known as Tri-Met, created what it called the “Local Development Committee” which consisted of Portland Planning Bureau members as well as representatives of the surrounding neighborhoods and the transit agency. They were required to collaboratively complete the station’s site plan before the city would hire a developer to build the project (PPS).

We propose that advocates and city leaders consider taking a similar “bid package” approach to private development adjacent to the Ball Square platform. This would ensure that the community would play a major role in the design of the site. It could also help with avoiding confrontation and costly delays in the construction process by, “mak[ing] it possible for the developer to focus on implementing the best possible product, rather than struggling to obtain community consensus on the plan itself” (PPS).

#### Placemaking and Transit Oriented Development

The concept of placemaking can often be an elusive one for policymakers and planners. We believe that one of the best ways to determine how an idea like placemaking can be practically implemented is to examine “real life” examples where this has occurred. Transit Oriented Development is one such example where an academic concept has been adopted by city and state governments as a means of guiding growth. Transit Oriented Development is a smart growth tool that is often cited as a way towards more socially responsible, environmentally sustainable and economically efficient communities.

**Recommendation: Convene community stakeholders and obtain consensus on station plans to the greatest extent possible before engaging developers.**



As with smart growth, Transit Oriented Development, or TOD in shorthand, is a broad concept that has taken on different meanings by a variety of researchers and planners, but is generally known as a pattern of development that: “creates a mix of uses within walking distance of stations in a design that encourages walking, promotes transit ridership, and provides housing choices. A rich mix of land uses is central to transit-oriented development, and this means that rider-serving amenities such as retail and day care, as well as commercial spaces, are available in residential areas, and that office development is integrated into station areas” (CTOD, 9).

By building communities where residents do not need their cars to fulfill every day-to-day task, TODs have the potential to reduce carbon emissions by reducing the number of daily trips in an automobile. If these TOD sites contain a high percentage of inclusionary housing, it will also allow for the working poor to save money by being tapped into the state’s mass transportation network and eliminating the need to own a car.<sup>1</sup> High-density development such as TOD also saves in tax dollars by reducing the need to extend a city or state’s infrastructure ever outward, and the extra costs for upkeep and maintenance that accompany this expansion.

There are generally agreed-upon guiding principles in order for a site to be considered a TOD. The development must have a high density of units per acre, by one estimate anywhere between 7 and 50 units

per acre, in order for the new development to “sustain significant transit use” (Bossard, 1-17). The most outlying units must be no further than one quarter mile from the transit station lest potential passengers are discouraged from using the station. Other shared aspects of TODs include “design features such as landscaped sidewalks...and retail streetwalls that make walking more enjoyable” (Bossard, 9 and 14).

#### Transit Oriented Development: Ball Square

In many ways, Ball Square has most of the features that are thought to make TODs successful: existing high densities of people and buildings in the typically proscribed surrounding one quarter to half-mile radius, a mix of commercial, residential and light industrial uses, and a tendency to use public means of transportation among residents (discussed in further detail below). Likewise, with two major bus lines and two heavily traveled motorways passing through the area, including pedestrian and cycling traffic, Ball Square already has most of the “multimodal” components of TOD. What it still lacks is the rapid transit promised by the extension of the Green Line.

#### Creating a Destination: Ball Square Station as a Commercial Center

A recent study by Thomas Consultants, a Vancouver-based consulting firm specializing in retail development at different travel nodes, outlines a recommended retail “hierarchy” for commercial uses in and around rail stations. This hierarchy contains

several layers, beginning with the most obvious commodities for travel commuters called “distress needs” – immediate needs for on-the-go travelers, such as take-away food items, newspapers, magazines or coffee.

Following the most pressing immediate needs for commuters are the more “convenience-oriented” retail needs that could be marketed to local residents and shop owners as well as to train passengers; convenience retail might entail a stand-alone pharmacy, a type of mom-and-pop store providing basic foodstuffs, or small-scale drug store. This latter kind of retail could create for the Ball Square community a “destination for top-up shopping, which refers to additional shopping for items that may have been forgotten during one’s weekly shopping at a supermarket” (Le Tourneur and Hunt, 3). Finally, there are the “impulse” retailers similar to those at airports or malls, and usually located in kiosks and specializing in smaller items like watches, music, jewelry or even flowers. For retailers, the benefits of locating their stores at the Ball Square Green Line station would be numerous. Firstly, businesses thrive on customers. If train users must pass through

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<sup>1</sup>While residents can save money on car ownership, new access to transit is also likely to increase property values and cause an area to gentrify. Additionally, the gentrification effects are likely to increase a town’s tax base as “land values increase...as the result of transit investments (and) older neighborhoods...gradually transition to new uses and economically underutilized areas...redevelop to more intensive uses” (Calthorpe, 68-69).

or by their shops on their way to the platform, business owners will quickly come to “see the station as providing an enhanced footfall past [their] retail units.” Similarly, retailers big and small prefer to be visible to the public in order to sell their brands and to attract customers. The site we propose for Ball Square Station on the corner of Broadway and Boston Avenue would provide just such an opportunity for what Ross calls “uninterrupted street frontage” and visibility to passersby and Green Line riders (Ross, 241-246).

There are additional non-economic advantages to the community to having a busy commercial area within the Ball Square station. One such advantage involves improved area safety. Many stations during non-peak hours, when there are very few travelers on or around a platform, can come across to pedestrians as being “unsafe,” and may in fact be unsafe if muggers and thieves are drawn to the empty space. However, by

**Baron's Court Station, London**  
Source: Wikimedia (Shermozle)



attracting both passengers but also non-passengers to the station via the built-in stores during non-peak travel hours, the area will remain populated and can provide an “effective and productive way to make passengers feel more secure” (Ross, 242).

***Recommendation: When planning or advocating for land uses on the platform-adjacent parcel in Ball Square, we would recommend to city officials and community groups that they consider the potential for the site to become a transit and neighborhood commercial center with businesses that meet the immediate needs of on-the-go commuters as well as local residents.***

#### Station Accessibility

Access to a transit station is in many ways as or more important than the operational functionality of the station itself. For Ball Square or any urban station seeking to maximize itself as a point of entry to the transit system, accessibility by non-motorized means must be a primary consideration. It is our belief that a transit station is not merely a stand-alone entity but must be understood as one piece in an integrated travel network or “chain” of individual consumers, who are each seeking a mode of transportation at the lowest possible cost and with the least personal inconvenience. In short: “the market potential of railway services depends on the quality of the total

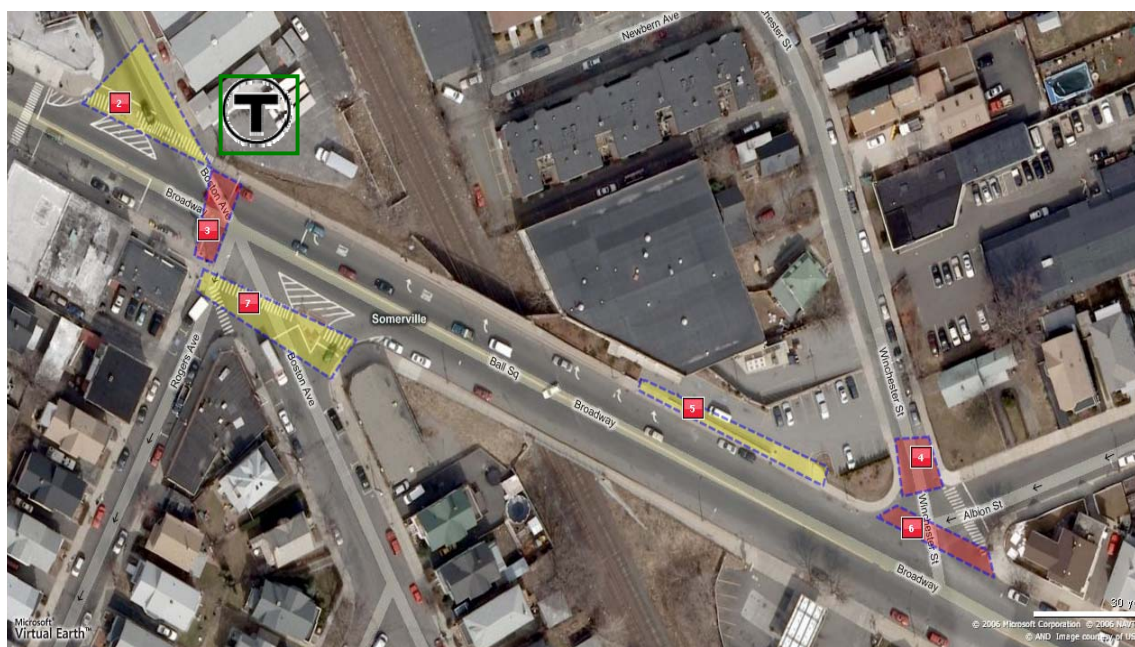


**Great Portland Street Station, London**  
Source: Wikimedia (Mahlum)

chain from [place of] residence to place of activity” (Reitveld, 71). In other words, the higher the physical barriers that would-be rail travelers face on or during their route to the station, whether by foot or by bicycle, the more likely they are to choose a substitute mode of transport, such as an automobile, to their intended destination.

**Holland Park Station, London**  
Source: Wikimedia (Htuk)





- No formal crosswalk for pedestrians
- Dangerous/Unsatisfactory crossing for pedestrians

**Figure 16: Barriers to Pedestrian Accessibility.**

Currently existing barriers to accessing a Ball Square T stop need not be so high, and if they remain unaddressed will discourage use of the new station. While many Ball Square area commuters currently take public transit – of the residents in two of the census tracts that encompass the Ball Square neighborhoods, Tracts 3503 and 3504, 25% and 37%, respectively, take some form of public transit to work – these numbers should be increased in order to improve air

quality and ease traffic congestion in the area. In these same two census tracts only 4% and 1% reported taking a bicycle to work and 3% and 7% reported walking to work (*Beyond Lechmere*, 3-11). The construction of the Ball Square T stop and the adjacent station can be a catalyst for increasing the number of people who take transit while simultaneously increasing the number of people who cycle or ride for all or part of their trip to work if infrastructure improvements are made in several key locations as discussed below.

### Pedestrian Accessibility

Building a new T station in Ball Square is very likely to increase pedestrian and bicycle traffic in the neighborhood, as more people are drawn to the area to commute. Pedestrian and cyclist safety is a key consideration, as is ensuring easy access to the station to maximize user rates. Figure 17 shows the street network immediately surrounding the proposed station. As shown, there are a number of obstacles that hinder easy pedestrian access to the station.

We have identified several major intersections along potential pedestrian paths to the site that are either inadequate for safe and comfortable crossing or where there exists no pedestrian access at all. The following sites are most in need of improvement:

- North-South access across Broadway is particularly restricted for pedestrians since the places to safely and legally cross are contained in a few limited areas. Traveling eastward over the commuter bridge away from Ball Square, there is a full 400 yards between the crosswalk at the intersection of Josephine Avenue and Broadway to the crosswalk at the intersection of Cedar Street.





**Lack of Crosswalk at Rogers and Broadway**

- Traveling from the corner of Rogers Avenue and Broadway to the corner of Boston Avenue and Broadway would be the shortest and most convenient route directly to the station entrance for Somerville residents living along or to the south and east of Rogers Avenue; currently this path lacks a crosswalk.
- Traffic travels very quickly past the northwest corner of Broadway and Boston Avenue, and there is a great distance between sidewalks.
- Pedestrians also must contend with exiting and entering traffic as they cross in front of the Medical Center.

Figure 17 shows the proposed station's "ped shed" – that is, the area from which the station can easily be accessed on foot. For purposes of this report, we are assuming most people are willing to walk between a quarter and half a mile to access the station. It is commonly thought that the typical American will only walk a quarter of

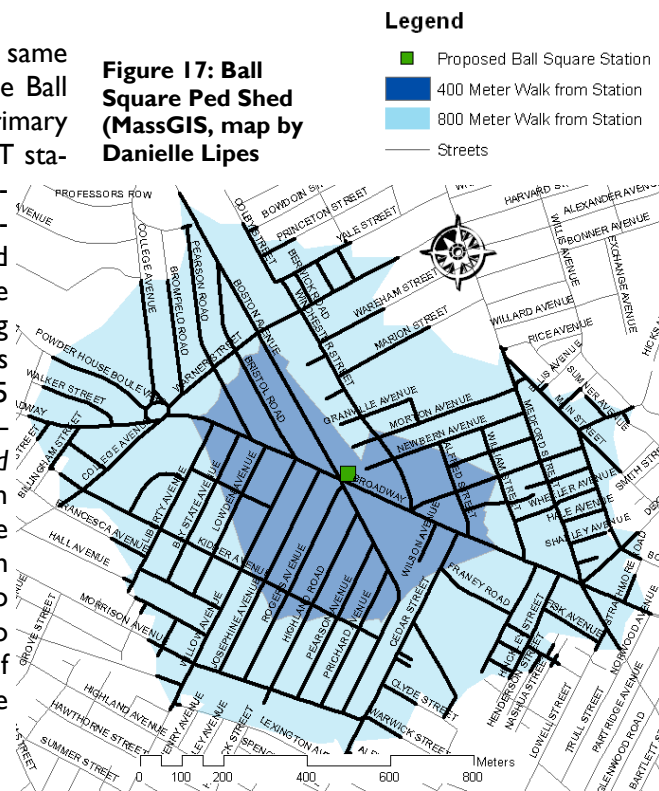
a mile, though a recent study showed that people will walk up to half a mile (Schlossberg, <http://waddle.uoregon.edu/?id=700>). Streets within the dark blue area are 400 meters in walking distance (approximately a ¼-mile walk) from the proposed station. Streets within the light blue area are 800 meters in walking distance (approximately a ½-mile walk) from the proposed station. The "ped shed" is helpful for illustrating the actual street distance a person needs to travel, rather than simply showing distance from the stations "as the crow flies."

#### Bicycle Safety

Cyclists confront many of the same or worse barriers as pedestrians in the Ball Square area. Along both of the primary streets crossing this study's proposed T station site, Broadway and Boston Avenue, cyclists compete with heavy volumes of traffic every day on very broad strips of road with up to four vehicle lanes in some spots. Traffic rates along Broadway can be up to 30,000 vehicles per day, and the street averages 195 automobile-related accidents per year – many of them with cyclists (*Beyond Lechmere*, 3-22). Between Gilman Square and Ball Square the average width of the road is 60 feet across with parking on both sides. The exception to this is the right-turn only lane onto Boston Avenue on the north side of Broadway as one crosses over the commuter rail line.



**Lack of bike lanes and width of street**

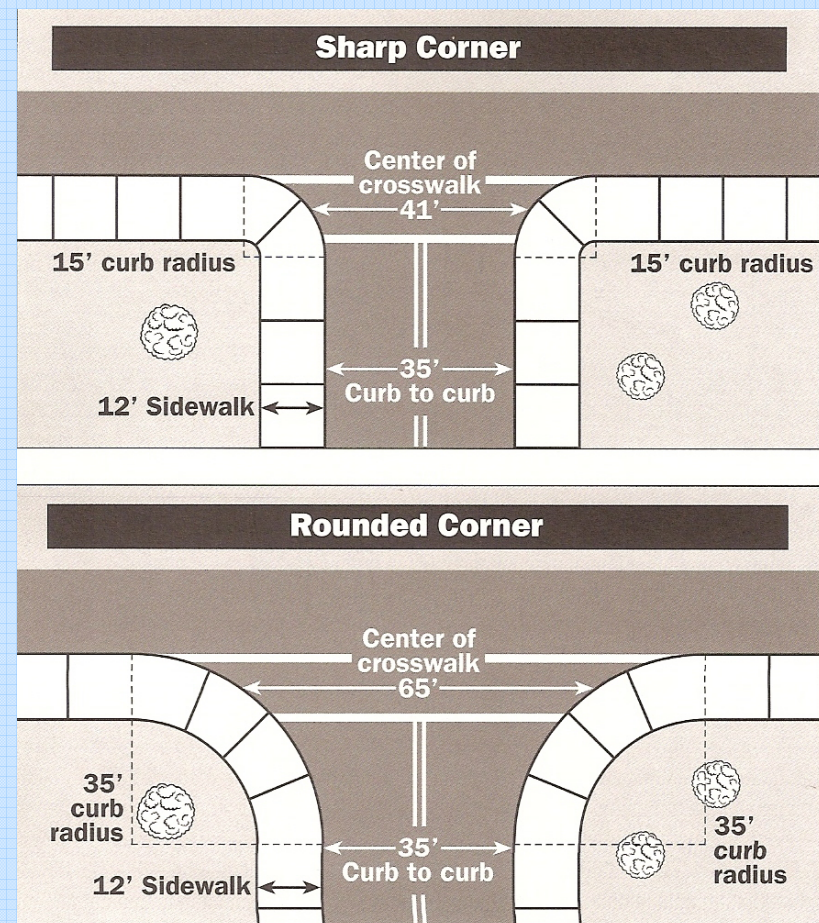


**Recommendations, Cyclist and Pedestrian Safety:**

1. Insert a pedestrian crossing at the corner of Rogers Avenue and Broadway connecting to the corner of Boston Avenue and Broadway to provide the shortest and most convenient route directly to the station entrance for Somerville residents living along or to the south and east of Rogers Avenue.
2. A curb extension bulb-out is recommended at the northwest corner of Broadway and Boston Avenue in order to shorten the distance between sidewalks and as a visual cue for drivers to slow down. Any curb extensions for pedestrians should also include a cut-through for cyclists in order to avoid a situation where the safety measures for one mode of transit does not decrease the safety of the other by forcing cyclists out into the middle of traffic.
3. Where most feeder streets intersect with Broadway, general changes from rounded corners to sharp corners would serve many of the same functions as bulb-outs by reducing the distance between sidewalks and forcing vehicle speed reductions. Raised crosswalks might also be appropriate in some areas.

CLF City Routes, City Rights  
1998 ©)

**Neckdown/Bulbout: Church St., Cambridge**





**Recommendations; Cyclist and Pedestrian Safety, Continued**

**4. Work with the Medical Center and the City of Medford to redesign the layout of the parking lot so that vehicles would enter and exit only onto Winchester Street.**

**5. Create on-street or off-street bicycle lanes along both sides of Broadway to provide safe passageways for cyclists to and from Ball Square. These should include painted lanes and/or different materials to differentiate bicycle areas from other modes of transit.**

**6. The MassCentral Rail Trail Coalition, City of Somerville, Friends of the Community Path and Executive Office of Transportation should continue to study the expansion of the Somerville community path along the new proposed Green Line corridor. Much of the ridership at the Davis Square station arrives via the Community Path, and a station in Ball Square would also benefit tremendously from bike path access.**



Left: Muenster -  
Gilbert N. Hanson:  
SUNY Stony Brook  
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bottom: Copen-  
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## Lack of Planning: Example of an Inadequate Station

### West Medford Station

Although the West Medford train stop is for commuter rail and not for rapid transit, it is nevertheless an instructive example of how a station should not be built. This station performs poorly in almost every category outlined in the previous section, and does not even attempt to create a distinct space of its own in the neighborhood. It seems instead to be relegated to no more than its most basic function: as somewhere for passengers to get on and off the train.

Upon exiting the train, the traveler finds herself at the back of a pharmacy, and at the end of the building's parking lot. In order to exit the platform and access one of the two main streets that parallel the tracks, one must either walk through the parking lot, hop a guard rail, or cross the rails and descend a steep cement staircase to a busy street with a sidewalk in only one direction.

**West Medford Station, front**



**West Medford Station, rear**

Without a sidewalk, pedestrians trying to access their cars must either walk on the street-side of the parked cars or make their way down the steep incline to their vehicles.

**Leaving West Medford Station—steep grade and no walkway**



There were also no visible attempts made to make the cement staircase handicap accessible for pedestrians when the train stop was envisioned.

The station also fails to function as a multi-modal transit connection serving the mobility needs of the local and greater community. There are small-print commuter rail schedules posted on a wall of the station's meager shelter, but there is no signage directing passengers to the three major bus routes through the area. There are no maps showing bus stop locations in relation to the commuter rail, or bus schedules indicating the times and routes of the bus lines.

Even if there were signs, the bus stops are placed several dozen yards away from the train stop and one bus line, the #96 bus connecting to a major transit hub in Harvard Square, has a stop two streets away. It also lacks sufficient parking for bicycles.

**West Medford Station, lack of signage and maps**



**West Medford Station, platform**



**West Medford Station, lack of handicap accessibility**



## Design Elements to Consider

Having discussed design elements to avoid, we now move on highlight design elements that can improve safety and increase accessibility and the number of users. Based on our use of design resources mentioned previously and our observation of other transit stops, we recommend that the following be considered:

### **Recommendations:**

- 1. Design efforts should incorporate bike lockers. Bike lockers encourage pedestrians that might be out of walking distance to ride to the station rather than be picked up or dropped off. The lockers give an additional sense of security for bike owners.**
- 2. We strongly recommend that no park and ride facilities be incorporated in to the design of the train station. In our research we discovered that park and ride facilities actually discourage rather than encourage pedestrian access, retail and a vibrant mix of uses and activities. Light rail train stations that have park and ride facilities tend to have heavy traffic congestion and lack retail and other uses, and therefore give the appearance of being unsafe during off-peak commuting hours. Two examples of this are Wellington station and West Medford station.**
- 3. Bus stops should be located as close to the entrance/exit of the train station as possible to facilitate mobility and avoid passenger frustration. Davis Square station has bus access immediately outside both entrances/exits. This helps to eliminate rider confusion and helps to expand the network of transportation users in the area.**
- 4. Designers should incorporate elements that encourage safety such as adequate lighting, and structures that protect transit users from the elements but do not encourage loitering or create places for people to hide. Another important safety design element that should be incorporated in the design is safety/warning paving that serves as a barrier from the waiting platform to the rail tracks. Warning paving was something that was observed at several stations and helped to serve as a safety barrier for children and visually impaired transit riders. An additional safety element that should be incorporated into the station is emergency call boxes.**
- 5. Designers should specify materials that are durable against vandalism, time and the elements, and do not require excessive maintenance.**

**Example of Bike Locker,** <http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/gfx/3-6-bike-lockers.jpg>





## Mitigating Negative Social Impacts

### Gentrification and Displacement

The passage of Executive Order 12898 into law in 1994 requires federal agencies to assess and diminish the potential impacts of federally funded projects on low-income and minority populations (Bourassa, 399). While the Green Line extension will be implemented by the Massachusetts Executive Office of Transportation, it will be receiving Federal funding and as such may be required to evaluate adverse effects of the projects on vulnerable populations. While the Green Line extension will serve to provide much-needed high-quality public transit services to currently underserved populations, we must also consider the negative results that may impact Somerville and Medford residents, paying particular attention to preventing displacement.

The extension of the Green Line through Ball Square will almost certainly increase the land values in the new station's vicinity. While Ball Square already underwent significant gentrification following the Red Line extension through Davis Square, with land values increasing dramatically from the early 1990s until now. We anticipate that the new Ball Square station will increase development pressures on the neighborhood and raise property values even higher than they are currently. While increases in value will bring wealth and investment into the neighborhood and increase city tax revenues, unchecked gentrification of the area will likely result in displacement of residents

and businesses. Our recommendations include exploring regulatory and non-regulatory land use controls for preventing further displacement from the area.

### Housing Affordability

As of 2007, the median home price in Somerville is \$384,250; in 1997 it was \$170,000 (The Warren Group, Town Statistics). In keeping with rising property values, rents rose 34% from 2000 to 2005 (U.S. Housing and Urban Development, <http://www.huduser.org>). Federal guidelines state that housing is considered affordable when a household pays no more than 30% of its income in housing costs, including rent. The U.S. Census estimates that 44% of Somerville rental households paid 30% or more of their income in rent, and that 36% paid more than 35% of their income in rent (U.S. Census Bureau, American Community Survey 2005).

A major challenge to creating and preserving affordability in Ball Square is that most of the property in the area is already privately-owned, market-rate housing and commercial space. However, there are several parcels that are underused and/or underdeveloped that could potentially be targeted for affordable housing.

### Preserving and Creating Affordable Housing in Ball Square: Non-regulatory Approaches

A common method for creating and preserving affordable housing is through deed restriction – private property owners restrict the market value of their property

for a specified amount of time, usually between 10 and 30 years, in exchange for financial incentives from federal or state programs (New Jersey Star Ledger, "Affordable Housing Deed Restrictions to Expire," 9/5/06). The disadvantage to this method is the time limit placed on the affordability of the properties. The public investment in affordability pays only for the time the property is subject to the restriction – there is no long-term investment made in affordable housing. There are a number of expiring-use properties in Somerville – as of 2004 there were 140 expiring-use units (City of Somerville, *Housing Executive Summary*) – that have the potential to revert back to market rate. Because of the temporary nature of affordable housing deed restrictions, we hesitate to recommend this approach in Ball Square.

**Affordable Housing on Linden St., Somerville.  
Somerville Community Corporation**



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Another more permanent technique for preserving affordability, and one that makes a public investment in low- and moderate-income housing last far longer, is the community land trust. The concept of the community land trust was introduced in the 1960s by the Massachusetts-based Institute for Community Economics, implemented by several small organizations across the U.S., and later defined in Section 212 of the Housing and Community Development Act of 1992 . While the approximately 130 organizations that refer to themselves as “community land trusts,” or “CLTs,” differ in their functioning, the classic model of the CLT is a nonprofit organization that retains fee simple ownership of land while selling the housing on that land to private owners. The homebuyers lease their land from the CLT, usually at a very small cost. (Davis and Demetrowitz, 2 and 26). Should the homebuyer wish to move, he terminates the ground lease and sells the property back to the CLT. CLTs vary in their policies concerning how much, if any, of the appreciated property value the homeowner may keep. Often, the homeowner keeps a small percentage of the property’s capital gains, which means that his investment in the CLT’s affordable home acts as an asset-building tool and provides a key first step for low-income people to become homebuyers. Because it is usually the value of the land that appreciates in strong housing markets, rather than the value of the structure on the land, CLTs effectively freeze the market values of properties within their trusts by holding land values

constant. If the CLT functions as intended, the properties are maintained as affordable in perpetuity.

This is the goal of the City of Lexington, Kentucky, in its creation of the Lexington Community Land Trust (LCLT). When the Newtown Pike highway extension through Southend Park, one of Lexington’s poorest and most isolated neighborhoods, was approved, the City sought ways to mitigate the inevitable impacts on this vulnerable area, as required by Executive Order 12898. The highway extension plan called for the complete redevelopment of Southend Park. Predicting that the redevelopment and the extension would open up the neighborhood to intense development pressure, planners, community leaders and residents created LCLT in order to provide permanent protection to Southend Park’s low income residents from extreme increases in land values (Bourassa, 399).

Lexington’s highway extension project bears some resemblance to the Green Line extension through Somerville and Medford. The Lexington project is a major transportation infrastructure improvement which, like the Green Line extension, is expected to improve mobility and meet the transportation needs of currently underserved parts of the city. Also like the Green Line extension, the advantages of improving access for neighborhoods lacking connections to major transportation corridors are likely to cause the unintended consequence of pushing out the people it ought to serve as land values increase and these residents are priced out

of their neighborhoods.

Lexington has arrived at a creative solution to a common dilemma faced by planners in bringing improvements to city infrastructure. However, because LCLT is a relatively new experiment, it remains to be seen whether the organization will be successful – first, in gaining resident buy-in, and later, in preserving affordability. Many homebuyers prefer to own their property entirely – land and all – in order to be able to take advantage of future appreciation on value. CLTs impose significant restrictions on the ability of their homeowners to accumulate wealth based on their property investment. Even after successfully implementing a CLT, breaches in the terms of the trust, foreclosures, and a variety of other factors can result in the loss of property back to the mainstream housing market.

In addition, LCTC faces the challenge that it was not a grassroots, community-based creation, as many land trusts are; it is a “top-down” approach that was proposed by city planners, and as such may be viewed with suspicion within the community (Bourassa, 402).

However, in spite of its disadvantages, the CLT model offers cities the opportunity to preserve affordability, revitalize neighborhoods, and provide homeownership opportunities to low-income people who would otherwise be priced out of the market. Additionally, the model provides a means of preserving the investment of public funds in affordable housing – funds which are often spent and gone after expiring-use affordable housing units revert to market-rate units.

There are a very small number of CLTs in the United States, so finding model programs can be difficult. However, the Burlington Community Land Trust (BCLT, now the Champlain Housing Trust) in Vermont has a strong track record and proven results in maintaining the affordability of its properties since 1984. Through their land stewardship, BCLT has provided 370 shared-application, single-family homes and condominiums, and 270 rental apartments (Burlington Community Land Trust, <http://www.bclt.net/aboutbclt.shtml>). Their activities have fostered an ideal environment in which reinvestment in low-value and dilapidated properties results in community revitalization – without the skyrocketing property values that preclude low-income people from living in the newly improved areas.

BCLT was founded as a grassroots effort with broad community support. However, it has worked in partnership with the City of Burlington successfully; it was the first municipally-funded CLT in the U.S., and still receives support from the city (Bourassa, 405). Somerville could pursue a similar model for Ball Square (and other neighborhoods impacted by the Green Line extension), in partnership with other community groups and residents. Should Somerville pursue such a model, we would recommend the creation of a CLT that focuses not only on homeownership, but which provides rental opportunities as well. While homeownership opportunities for low- and moderate-income people are badly needed in the area, so are affordable rental units. We would not recommend shifting the balance of homeowners and renters too far toward more homeowners, since there remains a need for rental opportunities in Somerville for those who are unable to purchase a home, even an affordable one.

#### A Regulatory Approach to Preserving Affordability in Ball Square

Another approach to creating and maintaining affordable housing opportunities is to take advantage of M.G.L. Chapter 40R, Massachusetts’ “smart growth” legislation. 40R was passed in response to the growing gap between market-rate housing in the state and home prices residents could afford, and to growing concerns about the negative environmental impacts of suburban sprawl. The basic principal of smart growth

espoused in 40R is planned development that maximizes land resources by encouraging compact, dense, mixed-use development around public transit nodes, reducing dependence on cars and preserving undeveloped open space. Cities can receive state funds by establishing 40R districts that meet the required development specifications and designate no less than 20% of new housing units as affordable to those earning less than 80% of the area median income.

Because the amount of developable land in Ball Square is limited, we are not recommending a large housing development in the area. However, 40R districts can be implemented on a very small scale, and one possibility is to select several parcels to be a designated 40R “mini-district” with a modest number of new housing units. Ball Square, with its new T stop, would meet the requirements for a 40R “eligible location” (it likely already does meet these requirements because of its bus access, but the new T stop will make the area even more suitable for designation as a 40R district).

Implementing a smart-growth zoning district in Ball Square could be done in a number of ways. If Somerville wishes to take



full advantage of the financial incentives offered by the state under 40R, it would need to rezone the selected 40R parcels in order to allow a higher density than that which is currently allowed as-of-right. This would make the new smart growth zoning district eligible for a one-time payment of between \$10,000 and \$600,000, depending on the number of new units to be created. In addition, the city would receive an additional \$3,000 “density bonus” per new unit created in the new district upon issuance of a building permit (Massachusetts General Laws Chapter 40R, Section 9).

If the city prefers to maintain the current levels of density in Ball Square, which is already quite dense at 18,940 people per square mile, it can still take advantage of the benefits offered by 40R. In this case, Ball Square would be designated as an existing smart growth zoning district and would be eligible for the density bonus payments of \$3,000 per new unit of housing created; however, it would not be eligible for the zoning incentive bonuses offered for increasing density. In addition to the density bonus payments, another advantage to 40R designation of an existing smart growth district is potential favorable review of application for certain state funds (Metropolitan Area Planning Council, 7).

40R requires a city to provide mechanisms for maintaining affordability of at least 20% of new housing units within a smart growth district for at least 30 years (MGL Chapter 40R, Section 2). However, it does not specify what mechanisms a city

must use. The requirement that housing remain affordable for at least 30 years implies the state may expect 40R housing to be kept affordable using such temporary measures as deed restrictions. Should Somerville pursue the designation of Ball Square or part of the square as a smart growth zoning district, we recommend combining this approach with a more permanent solution such as using a CLT as the mechanism to preserve affordability, rather than deed restrictions.

If a complete CLT model is deemed not feasible, we recommend the city explore the option of reaching out to private landowners and providing incentives for them to place permanent conservation easements on their property that specify perpetual afforda-

bility restrictions. Land owners can take advantage of the federal conservation easement deduction, a tax deduction property owners can take over five years equal to the value of land extinguished by a permanent restrictive easement. (The easement must be donated to a qualified nonprofit organization to receive the deduction.) (Byers and Ponte, 14-19.) Educating land owners about this tax incentive may result in some owners placing permanent affordability requirements on their properties.

**Atlas/Janus Housing Project: Proposed 40R District , Chelsea ([www.mass.gov](http://www.mass.gov))**



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### Possible Sites for Affordable Housing in Ball Square:

In 2005, a Tufts Field Project Team completed an assessment for Somerville Community Corporation of potential sites for affordable housing along Somerville's rail corridors in anticipation of the Green Line extension. The authors of the report identified two possible parcels in Ball Square: 270 Cedar Street and 14 Murdock Street (Anderson, Beraldi, Heffern and Lipomi, 13 and 26).

270 Cedar Street, a 14,810 square foot lot just off Broadway in Ball Square, is currently being used as a fitness center and small parking lot. According to the Field Project report, Somerville zoning allows a parcel of this size to hold 14 residential units. The current zoning in the surrounding neighborhood is RB, which permits multi-family homes and small- to medium-sized apartment buildings at heights no greater than three stories. Conversion of the facility from commercial to residential space could potentially increase tax revenue for the city, and such a conversion would fit well with the surrounding area, which is dense residential. For these reasons, and because of the property's close proximity to the proposed new rail stop in Ball Square, numerous retail establishments, bus lines, and the Community Path beginning at Cedar Street, and because it is not a brownfield, the authors of the report recommended this as a suitable parcel for a small affordable housing development (Anderson, Beraldi et al, 13).

14 Murdock Street, a 14,440 square

foot parcel located a quarter of a mile from Ball Square, is a 30-unit apartment building which could potentially be converted to affordable housing. Like 270 Cedar, this parcel is zoned RB, limiting its height to three stories. It is also not a brownfield, though it is located near commercial warehouses that are not compatible with residential land use. A disadvantage to converting this building to affordable housing would be a possible loss of tax revenue to the city (Anderson, Beraldi et al, 26).

#### **Recommendations:**

- 1. Explore the feasibility of working with residents and community leaders to establish a community land trust in Ball Square to preserve housing affordability in perpetuity of selected parcels.***
- 2. Explore the possibility of designating selected parcels as a small 40R district.***
- 3. Educate land owners about the federal conservation easement tax deduction, which offers some property owners tax incentives in exchange for placing a permanent restrictive easement on their property—in this case, to preserve affordability.***

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## Conclusion

We conclude, based on our research and observation of our study area, that Ball Square is indeed an appropriate location for T stop. It is our sincere hope that the review of characteristics of various rail stations and their surrounding physical features contained within our report will help to inform residents and city officials about how the new train station might provide the benefits of transit access – improved air quality, increased mobility, greater access to jobs, and shorter commutes – to Ball Square area residents and therefore become an asset to the neighborhood. Just as importantly, we hope that our report can help to mitigate the negative impacts that the construction of a Green Line may have on the neighborhood, such as resident and business displacement.

We recognize that this study is only a representation of our recommendations for “best” practices as pertains to the location and function of a Green Line station at Ball Square, and that it must be taken as such. That the land and parcel that we chose as the example “best site” for our study is privately owned and straddles two municipal boundaries is not in dispute and will necessarily be a large obstacle to any future development. It is also important to bear in mind that we did not assess other sites under consideration for a southwest Medford/northern Somerville area T station, such as College Avenue at Tufts University or the

Department of Public Works site in Somerville. These sites no doubt offer advantages and present problems the Ball Square site does not, but this report does not contain a comparative analysis among sites.

It is, however, our opinion that the recommended practices and policies discussed herein are relevant to the planning and construction of a T station in the Ball Square vicinity regardless of the eventual site location decided upon by the state and other actors involved in that part of the decision making process. The differences in values and perspectives among community members will need to be heard and negotiated, and we hope that an inclusive, collaborative public process will be the ultimate determinant of where – or whether – a T station is built in or near Ball Square. It is our hope that this study will have lent itself to empowering the citizens of Ball Square and the city officials in Somerville and Medford to making – or at least advocating for – what they believe is best for their communities.



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## Annotated Bibliography

**Anderson, G., Beraldi, T., Heffern, E. and Lipomi, N. *Developing Affordable Housing Along Somerville's Rail Corridors*. Tufts University Department of Urban and Environmental Policy and Planning, student Field Project, 2005. Available at [http://ase.tufts.edu/uep/academics/field\\_project\\_reports/2005/9-developing\\_affordable\\_housing.pdf](http://ase.tufts.edu/uep/academics/field_project_reports/2005/9-developing_affordable_housing.pdf).**

This study was completed for Somerville Community Corporation (SCC) to help them assess potential parcels to be developed for new affordable housing along Somerville's two rail corridors. The project was prompted by plans of Massachusetts' Executive Office of Transportation and the MBTA to extend the Green Line through Somerville and Medford. Since most of Somerville's remaining developable land exists along the old rail corridors, and since SCC predicted that new rail would gentrify their surrounding areas, SCC felt that setting aside land for affordable housing before the extension took place was crucial for preventing displacement of low- and middle-income residents. The students' analysis resulted in their recommendation of 27 potential parcels to be targeted for affordable housing development, two of which are located in Ball Square. The report is written for an affordable housing developer and is from the perspective that affordable housing should be a high priority for Somerville throughout the Green Line extension project. The authors do not explore the difficulties of acquiring properties, or whether the loss of some of the existing businesses targeted as possible sites for affordable housing would be detrimental to the surrounding community.

**American Planning Association. *Planning Advisory Services Report #479, The Principles of Smart Development*, 1998.**

This chapter provides a basic overview of the advantages of smart growth, including the mitigation of development-induced negative environmental impacts by concentrating density to preserve open space; the creation of aesthetically pleasing streetscapes through mixed-use development; and the ability of high residential densities to support transit. The chapter notes low-cost housing as an advantage of transit-oriented, smart growth development due to zoning that allows for small apartments above store fronts and other housing options usually not permitted in suburban subdivisions; however, in our review of other literature on TODs, we note that close proximity to public transit tends to raise home prices and rents, which the authors of this document do not address.

**Bluestone, Barry. "An Analysis of the Proposed Boston Community Stabilization Tenant and Small Property Owners Act." Testimony before the Boston City council on Docket #1404. Center for Urban and Regional Policy, Northeastern University: 2004.**

This testimony was delivered in response to a proposal to reinstitute rent control in Boston. Mr. Bluestone argues that rent control would cause suppliers of housing (developers and landlords) to provide less of it because it would yield lower profits. The decrease in supply would then cause an increase in rents, not a decrease, as the rent control proponents suggest. While our report does not address rent control, we used this report to help establish the housing affordability problem in Metro Boston.

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The author writes persuasively in favor of the need to preserve affordable housing; however, his testimony causes the reader to wonder if his strong advocacy for a *laissez-faire* approach to the rental housing market is motivated in part by ties to the development community.

**Bourassa, Steven. “The Community Land Trust as a Highway Environmental Impact Mitigation Tool.” *Journal of Urban Affairs* 28, no. 4 (2006): 399-418.**

This study describes a highway extension project in Lexington, KY that planners fear will cause displacement of low-income residents of a neighborhood, Southend Park, which will gain easy access to the highway as a result of the extension due to increased development pressure. Mr. Bourassa describes how planners intend to create a community land trust to preserve housing affordability in Southend Park. We compared the transportation improvement project in Lexington to the Green Line extension, since its effects may be similar, and used the study to describe how Somerville might also use the community land trust model to keep selected parcels affordable if and when the extension gentrifies the areas around its new stops. The author approaches the article with an objective voice; he critiques all aspects of the creation of a community land trust fairly, and while he appears to support the efforts of planners in their attempt to protect a vulnerable community, he also recognizes that the “top-down” approach taken in this case (the CLT creation was the idea of government officials) is atypical of the CLT model and may not be as effective as a grass-roots process.

**Bossard, Earl. “Appendix B: History of Transit-Oriented Development (TOD).” In *Mineta Transportation Institute Report Envisioning Neighborhoods with Transit Oriented Development Potential* : 1-17. Available at [http://www.transweb.sjsu.edu/mtportal/research/publications/documents/envisioning2/mti2001\\_etodp\\_website/](http://www.transweb.sjsu.edu/mtportal/research/publications/documents/envisioning2/mti2001_etodp_website/).**

This document provides a history of how early U.S. suburbs grew around streetcar lines during the nineteenth century, and why this development pattern is useful as planners once again seek to increase pedestrian accessibility to transit. Bossard cites New Urbanist and smart growth planning principles, outlining their relationships to (and sometimes differences from) transit-oriented development. He writes from the perspective of someone who values high density, urbanized communities, though he does not deliver the same scathing criticism of suburban development patterns as some of the authors he cites.

**Burlington Community Land Trust, <http://www.bclt.net/aboutbclt.shtml>**

This website describes the Burlington Community Land Trust’s model, documents its successes in preserving affordability, and provides information about the advantages of implementing a CLT. Through their land stewardship, BCLT has provided 370 shared-application, single-family homes and condominiums, and 270 rental apartments. The site was useful in helping us explain how Somerville might use a CLT model to preserve affordable housing. The site is, of course, a marketing tool for the BCLT, and therefore the information we gleaned from it portrayed the organization and the CLT model in general in a positive light.

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**Calthorpe, Peter, “Guiding Principles.” In *The Next American Metropolis: Ecology, Community and the American Dream*: 62-71. New York: Princeton University Press, 1993.**

The “Guiding Principles” chapter of this book provides guidelines for creation of transit-oriented developments (TODs), and also details how new development within existing transit-centered neighborhoods should proceed. Because Ball Square is a well-established neighborhood that was not specifically planned around an expected transit stop, some of Mr. Calthorpe’s strategies for planning new development are not applicable. However, his guidelines for what makes a TOD work (such as pedestrian safety, high-density residential, and a high concentration of public and commercial uses that are not auto-focused) helps us to understand how new infill development should proceed if and when a new transit stop makes Ball Square’s land valuable and development pressure increases. For example, current industrial uses in Ball Square might be slowly phased into commercial or residential uses in order to support the T stop and provide sufficient ridership. The book also explains why gentrification is likely to come to a neighborhood as a result of access to transit. Calthorpe is one of the few authors we cite (Bourassa is another) who acknowledges the effects gentrification can bring to a neighborhood as a result of transit-oriented development. His enthusiasm for public transit and walkable communities is not lessened by this recognition; instead, his advocacy for this type of planning comes across as more genuine than some authors who gloss over the potential for displacement transit improvements can bring in their haste to justify them.

**Campbell, Marcia Caton, and Salus, Danielle. “Community and Conservation Land Trusts as Unlikely Partners? The Case of Troy Gardens, Madison, Wisconsin.” *Land Use Policy* 20, (2003): 169-180.**

This article explores the tension that often exists between advocates for affordable housing and those who wish to preserve open space and sensitive lands. Campbell and Salus use the example of Troy Gardens, a Wisconsin park threatened by suburban development pressure, to show how stakeholders with seemingly opposing interests managed to collaborate to save Troy Gardens by planning a mixed housing and open space compromise through a community land trust model. The authors outline the strengths of the collaboration and describe how others can replicate it. Since Somerville has very little open space left, this is not a method we suggest in our report; however, we used the article to enhance our understanding of community land trusts and to support our analysis of its benefits.

**Center for Transit-Oriented Development, *Hidden in Plain Sight: Capturing the Demand for Housing Near Transit (Reconnecting America: Washington, D.C, September 2004): 10. Available at: <http://www.reconnectingamerica.org/public/reports>.***

This market study estimates that the demand in housing within a half-mile of transit will increase significantly over the next twenty years. CTOD examined the market for housing within a half-mile of twenty-seven existing rail systems and fifteen planned extensions or new systems and concluded that an estimated 14.8 million American households will seek housing that fits this criteria. The authors project that 2100 new residential units will be needed in the vicinity of the 3391 transit stops they studied. The study area included the Boston region. The report was written at least in part to promote transit-oriented development as a “real estate product.”



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The study, to which Fannie Mae contributed funding, represents the interests of the development community, which was important to bear in mind as we used it for our purpose, which was to determine common practices for transit-oriented development.

**Davis, John Emmeus, and Demetrowitz, Amy. “Permanently Affordable Homeownership: Does the Community Land Trust Deliver on its Promises? A Performance Evaluation of the CLT Model Using Resale Data from the Burlington Community Land Trust.” Burlington: Burlington Community Land Trust, 2003.**

This study evaluates the claims commonly made about community land trusts: that they promote revitalization without displacing residents, stabilize communities, and help first-time homeowners build assets. Davis & Demetrowitz analyze resale data of the Burlington Community Land Trust in order to determine what, if any, benefits BCLT’s target communities have realized. They find that BCLT’s model has resulted in preserved affordability, retention of community wealth, enhancement of residential stability, expansion of homeownership, creation of individual wealth, and enabling of residential mobility. The study is clearly written in support of CLTs, and while data is provided to support the author’s claims of the model’s success, the reader is left with the impression that any negative effects may not have been fully explored.

**Dunham, Molly. “Massachusetts Smart Growth Legislation: How it Works, How it Compares, and Prospects for Success.” Harvard Graduate School of Design, student paper, Spring 2005. Available at <http://dev.reai.harvard.edu/research/pdfs/masmartgrowthfinal.pdf>.**

This paper provides a background and analysis of Massachusetts’ General Laws 40R, legislation introduced to encourage transit-oriented, high-density development that includes a percentage of affordable housing, and 40S, legislation intended to offset increased school costs caused by the development of housing affordable to families with children. At the time the paper was written, no Massachusetts town had yet confirmed it was even considering taking advantage of 40R or 40S funding. Dunham cites problems with the legislation, most notably the zoning control towns must sacrifice in exchange for 40R and 40S funding and the Commonwealth’s failure to guarantee full reimbursements will be made in the event of budget shortfalls. This paper helped us to understand the reluctance many cities and towns have to implementing 40R and 40S projects, and why these programs cannot be thought of as “silver bullet” solutions to affordable housing shortages and sprawl.

**Engle, Lisa. “Land Trusts.” *Community Investments*, October 2002. Available at <http://www.community-wealth.org/pdfs/articles-publications/clts/article-engle.pdf>.**

This brief overview of the community land trust model articulates the opportunities and challenges associated with the model. Ms. Engle cites long-term affordability and sustainability, asset-building opportunities and the intrinsic community participation element of CLTs as its positive aspects. She also notes difficulties in acquiring land in strong-market areas (where CLTs are most needed), and points out a flaw in the CLT model itself – the deprivation of land owners of the opportunity to own their homes fully, including the land on which they are built, which from some perspectives is a fundamental piece of the American dream of homeownership.

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**Faber, Daniel R., “Unequal Exposure to Ecological Hazards: Environmental Injustices in the Commonwealth of Massachusetts.” Boston: Northeastern University, 2001. Available at: [http://www.environmentalleague.org/images/Unequal Exposure Report.pdf](http://www.environmentalleague.org/images/Unequal_Exposure_Report.pdf).**

This study evaluates the relationship between Massachusetts communities’ income level and racial composition, and the presence of hazardous facilities. Dr. Faber finds that communities with high concentrations of minorities are exposed to hazardous facilities at a rate almost nine times that of communities with low concentrations of minorities, and that low-income communities face an exposure rate 3-4 times that all other communities in the state. We used this report, as well as Massachusetts’ findings that parts of Somerville and Medford are EJ communities, to emphasize the importance of reducing public health risks in these cities, particularly in light of the fact that Somerville also suffers from poor air quality (the Green Line extension is expected to lower Somerville’s levels of air pollutants). The disadvantage to using this study to support our report was that it did not directly address air quality.

**Forester, John, *The Deliberative Practitioner*. Cambridge: Massachusetts Institute of Technology, 1999.**

This book illuminates key challenges faced by planners in consensus building; mediating among differing community interests, objectives and opinions; and promoting dialogue and understanding throughout the community planning process. It provides a theoretical framework upon which public decision making can be based that is rooted in gaining an understanding of opposing interests that can be deeply ingrained within cultural and social values. Mr. Forester offers practical solutions for when conflicts in values threaten to bring effective public participation in planning to a halt. We used this book to inform our thinking about why community members in Medford and Somerville might have such varying opinions about the Green Line extension.

**Rollins, Darcy, “An Overview of Chapters 40R and 40S: Massachusetts’ Newest Housing Policies.” New England Public Policy Center at the Federal Reserve Bank of Boston, 2006. Available at: <http://www.bos.frb.org/economic/neppc/briefs/2006/briefs061.pdf>.**

This policy brief compares the “carrot” approach of 40R and 40S funding incentives to towns for developing affordable housing to the more punitive “stick” approach of 40B. It also highlights potential problems with 40R and 40S, including the loss of zoning control towns suffer in exchange for smart growth funding (40R and 40S districts must allow affordable housing and mixed uses as of right). Ms. Rollins concludes that while it is yet to be determined whether the legislation will cause a significant increase in affordable housing units, the Massachusetts legislature is to be commended for moving from a regulatory approach to affordable housing (40B) to an incentive-based one (40R and 40S). While this piece helped us to understand 40R and 40S, we question the objectivity of an article written by the Federal Reserve Bank of Boston, since it is closely aligned with the interests of developers in some activities.

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**VHB/Vanasse Hangen Brustlin, *Beyond Lechmere Northwest Corridor Study: Cambridge, Somerville, Medford, Massachusetts*. Prepared for the Massachusetts Bay Transportation Authority, 2005. Available at: <http://www.eot.state.ma.us/default.asp?pgid=content/grLineExt&sid=about>.**

This is an extensive study and analysis of the existing conditions of Somerville, Medford and Cambridge's transportation infrastructure, environmental justice status, and travel behavior of residents. The report establishes the need for the extension with data showing the lack of reliable public transit, air quality problems, and traffic congestion issues within the study area. It provides numerous alternative scenarios for the possible Green Line extension and suggests the new transit stops can support economic growth initiatives and new development of underutilized areas through "smart growth" patterns that mitigate traffic, air pollution and sprawl.

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## Appendix I: Ball Square Commercial Establishments

Law Offices (1)	Medical Facilities (4)	Food Establishments (10)	Gas Stations/ Auto Repair (3)	Liquor Stores (2)	Banks (1)	Beauty (5)	Home Care (3)	Taxi Service (1)	Dry Cleaning/ Laundry (3)	Other
O'Donovan Law Office, P.C.	Family Medicine at Ball Square	Lyndell's Bakery Corp.	Bonney Automotive	Fine Wine & Liquor	Winter Hill Bank – Ball Square	Amal Niccoli Hair & Skin Salon	Ace Floor Covering Company	Arlex Yellow Cab Association	Coin Operated Laundry	Cameron Realty
	Bent Out of Shape Chiropractor	Kelly's Diner	Shield Mini Mart/Gas Station	Crowley's Liquor		Salon CU	Cambridge Lock & Security Specialists		Broadway Dry Cleaning	ERA The Norton Group (realtor)
	Lang's Dental Center	Sound Bites	Ball Square Auto Repair			Hair Salon Classic Cuts	Benjamin Moore – Supreme Paint and Wallpaper		Somerville Dry Cleaners and Tailors	Joyce Tavon Consulting Services
	Dr. George Galitis, Dentist	Sound Bites BBQ and Grill				Princess Nails				Spectrum Media
		True Grounds Café and Coffeehouse				Sunkissed Tanning				Blue Cloud Gallery
		White Hen								Broadway Realty Trust
		Victor's Deli								O'D Answering Service
		Urban Gourmet								RE/MAX Real Estate Specialists
		Powder House Pub								U.S. Travel World
		Golden Jade Chinese restaurant								Stinky Kittens & Doggies Too



	# of Commuters (age 16 and above)	# use care truck or van as transportation	# Drive alone	# bike to work	# walk to work	# use public transportation	# use bus or trolley	# use subway or elevated
<b>Census Tract 3395 Block Group 6</b>	612	94 (15%)	70 (11.4%)	5 (.8%)	413 (67.5%)	76 (12.4%)	25 (4.1%)	51 (8.3%)
<b>CT 3396 BG 1</b>	448	338 (75.4%)	317 (70.8%)	0	6 (1.3%)	96 (21.4%)	45 (10%)	40 (8.9%)
<b>CT 3396 BG 3</b>	396	258 (65.2%)	213 (53.8%)	0	16 (4%)	102 (25.8%)	29 (7.3%)	73 (18.4%)
<b>CT 3396 BG 4</b>	514	392 (76.3%)	379 (73.7%)	0	22 (4.3%)	75 (14.6%)	29 (5.6%)	46 (8.9%)
<b>CT 3396 BG 5</b>	526	400 (76%)	362 (68.8%)	0	0	109 (20.7%)	62 (11.8%)	24 (4.6%)
<b>CT 3396 BG 7</b>	489	367 (75.1%)	290 (59.3%)	0	10 (2%)	112 (22.9%)	87 (17.8%)	16 (3.3%)
<b>CT 3397 BG 3</b>	472	291 (61.7%)	214 (45.3%)	0	34 (7.2%)	147 (31.1%)	96 (20.3%)	51 (10.8%)
<b>CT 3503 BG 2</b>	416	279 (67.1%)	219 (52.6%)	0	16 (3.8%)	98 (23.6%)	23 (5.5%)	75 (18%)
<b>CT 3503 BG 3</b>	519	324 (62.4%)	293 (56.5%)	9 (1.7%)	12 (2.3%)	147 (28.3%)	52 (10%)	78 (15%)
<b>CT 3504 BG 1</b>	692	355 (51.3%)	293 (42.3%)	0	90 (13%)	225 (32.5%)	35 (5.1%)	182 (26.3%)
<b>CT 3504 BG 2</b>	761	387 (50.9%)	325 (42.7%)	16 (2.1%)	48 (6.3%)	271 (35.6%)	61 (8%)	184 (24.2%)
<b>CT 3504 BG 3</b>	666	361 (54.2%)	308 (46.2%)	8 (1.2%)	59 (8.9%)	221 (33.2%)	27 (4.1%)	163 (24.5%)
<b>CT 3504 BG 4</b>	1048	450 (42.9%)	411 (39.2%)	0	41 (3.9%)	497 (47.4%)	88 (8.4%)	382 (36.5%)
<b>CT 3504 BG 6</b>	516	301 (58.3%)	283 (54.8%)	24 (4.7%)	25 (4.8%)	151 (29.3%)	14 (2.7%)	137 (26.6%)

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### Appendix III: Bus Route Weekday Trip Detail

#### Bus Route 80: Arlington Center – Lechmere via Powder House Square

Number of weekday inbound bus trips:

- 5:00am – 9:30am : 13
- 9:30am – 4:00pm: 13
- 4:00pm – 7:00pm: 8

After 7:00pm: 7

Total: 41 weekday inbound trips.

#### Bus Route 89: Clarendon Hill – Sullivan Square Station via Broadway

Number of weekday inbound bus trips is:

5:00am – 9:30am: 21

9:30am – 4:00pm: 17

4:00pm – 7:00pm: 6

After 7:00pm: 9

Total: 53 weekday inbound trips.

Source: Beyond Lechmere, 3-30

#### Appendix IV - Tax and Deed Information for "Short Listed" Sites

Parcel Value	Site One	Site Two	Site Three	Site Four
Location	675 Broadway	645 Broadway	151 Boston Ave.	620 Broadway
Account Number	10335201	20060010	13461121	1025080
Buildings Appraised Value	44,800	115,000	238,700	82,500
Buildings Assessed Value	same	same	same	same
Outbuildings Appraised Value	4,800	0	0	60,000
Outbuildings Assessed Value	same	same	same	same
Land Appraised Value	331,800	48,600	430,800	483,100
Land Assessed Value	same	same	same	same
<b>Total</b>	<b>381,400</b>	<b>163,600</b>	<b>669,500</b>	<b>625,000</b>

#### Ownership History

Book/Page	47239/91	25892/159	21016/463	43927/339
Sale Date	4/6/2006	12/13/1995	2/22/1991	10/20/2004
Sale Price	450,000	345,000	1	1
Book/Page	12783/91	n/a	n/a	36860/226
Sale Date	2/28/1975	n/a	n/a	10/29/2002
Sale Price	65,000	n/a	n/a	530,000

#### Land Use

Land Use Code	3420	3400	3400	334S
Land Use Description	PROF BLDG	OFFICE BLD MDL-94	OFFICE BLD MDL-94	GAS ST SRV MDL-95

#### Land Line Valuation

Size	6725 SF	5000 SF	6395 SF	120000 SF
Zone	BB	NB	NB	NB

#### Building Valuation

Year Built	1950	1929	1900	1920
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Source: All data was collected from the City of Somerville's On-line Assessor's Data Base on 4/23/2007  
<http://data.visionappraisal.com/somervillema>



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## Appendix V: Site Suitability Matrix Detail

Each of the categories below has been evaluated independently. For example when evaluating retail versus commercial impacts to a particular site, a site might receive drastically different scores based on the sites suitability of the particular use based on what currently exists and future potential. If a proposed site has existing commercial on the site it will receive a low score in that category because placing a new station at that site would require that commercial use to be removed, thus having a negative impact on the existing commercial make-up of the Ball Square Study Area. But if that same site is looked at for retail solely it might receive a high score based on the site's size and the assumption that site's current use is not retail.

### GOAL ACHIVEMENT

#### *Site Visibility*

Site One: This site received a score of "3" because of the ability to easily view the proposed light rail train station from the main streets leading in to Ball Square, including Broadway and Boston Ave. It is easily visible when approaching from the bridge and or the main commercial district in Ball Square. Also transit riders have a clear view corridor of Ball Square's retail/commercial area when leaving the proposed site location.

Site Two: This site received a score of "2" because the views of the station, coming from the main retail/commercial district are compromised by the bridge. In addition transit riders exiting the station might become disoriented when departing the station as to which direction Ball Square is.

Site Three: This site received a score of "2" despite its close proximity to Ball Square because it does not have great view corridors from Boston Avenue and coming over the bridge along Broadway.

Site Four: This site received a score of "2" because it's sits on the other side of the bridge from Ball Square and is not readily apparent when a transit rider exits the station where the heart of Ball Square is located. However, this site has excellent view corridors for the Medford residents on Winchester Street.

#### *Pedestrian Access*

Site One: This site was given a score of "2" for pedestrian access because we felt that it had the least amount of challenges from a grade stand point and that there would not have to be an elaborate scheme of ramps of lifts.

Site Two: This site received a score of "1" due to the topographic landscape which poses a challenge to access the existing rail tracks and would require a complicated series of ramps and lifts.

Site Three: This site received a score of "1" due to the topographic landscape which poses a challenge to access the existing rail tracks and would require a complicated series of ramps and lifts.

Site Four: This site received a score of "1" due to the topographic landscape which poses a challenge to access the existing rail tracks and would require a complicated series of ramps and lifts.

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### ***Bus Stop Integration***

Site One: This site received a score of “3” because it appears to be large enough to have a significant bus pick up/drop of station, similar to the program at Davis Square. It appears that potential buses could develop a pull off area near Boston Avenue and Broadway intersections near the site.

Site Two: This site received a score of “2” because it does have potential area for a bus to pull off to let transit riders on or off that is separate from existing traffic patterns. However, there does appear to be the potential for designers to incorporate a bus stop schedule into the program should a station be located here.

Site Three: This site received a score of “2” because it does not have a potential area for a bus to pull off to let transit riders on or off that is separate from the existing traffic patterns. However, there does appear to be the potential for designers to incorporate a bus stop schedule into the program should a station be located here.

Site Four: This site received a score of “2” because it does not have a potential area for a bus to pull off to let transit riders on or off that is separate from the existing traffic patterns. However, there does appear to be the potential for designers to incorporate a bus stop schedule into the program should a station be located here.

### **NEIGHBORHOOD IMPACTS**

#### ***Residential***

Site One: This site received a score of “3” because it is located the greatest distance from all the residential areas near the study area. This location could potentially produce the least impacts from a light and sound pollution standpoint onto the existing communities.

Site Two: This site received a score of “3” because although it is located close to the residential areas it has terrific access for a large residential population near the Ball Square Study Area that will not require them to make any street crossings.

Site Three: This site received a score of “1” because it was located in an area where existing residential structures would have to be compromised or demolished.

Site Four: This site received a score of “1” because there was the potential that it would impact an existing residential neighborhood.

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### ***Retail***

Site One: This site received a score of “3” because it is located in close proximity to the main retail district of Ball Square. Transit riders would be able to quickly orient themselves upon arriving in Ball Square where the retail shops are located. In addition this site is large enough that it could potentially be incorporated into the new station design. This is an important element of programming and integrating the future stop.

Site Two: This site received a score of “2.” Although it is located far away from the existing retail shops located in Ball Square, the site is large enough that a retail component could potentially be incorporated into the new train station design. This is an important element of programming the future stop.

Site Three: This site received a score of “1” because it would compromise an existing retail shop. This shop should be looked at to do possible renovation to enhance the existing structures façade.

Site Four: This site received a score of “1” because it is an already existing retail shop.

### ***Commercial***

Site One: This site received a score of “2” because it would create good access to existing commercial businesses in the area.

Site Two: This site received a score of “0” because there is an operating and successful commercial business currently existing on the site today. Removing the existing business would have a significant impact to jobs and tax revenues.

Site Three: This site received a score of “2” because it would create good access to existing commercial businesses in the area.

Site Four: This site received a score of “2” because it would create good access to existing commercial businesses in the area.

## **INFRASTRUCTURE**

### ***Commuter Rail***

Site One: This site received a score of “2” because the impacts to the tracks are neither negative nor positive. However, impacts to the commuter rail tracks should be minimized and design should take into consideration safety of pedestrians. Should the design require pedestrians to cross over the commuter line tracks proper signals and signage should be incorporated into the site.

Site Two: This site received a score of “2” because the impacts to the tracks are neither negative nor positive. However, impacts to the commuter rail tracks should be minimized and design should take into consideration safety of pedestrians. Should the design require pedestrians to cross over the commuter line tracks proper signals and signage should be incorporated into the site.



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Site Three: This site received a score of “2” because the impacts to the tracks are neither negative nor positive. However, impacts to the commuter rail tracks should be minimized and design should take into consideration safety of pedestrians. Should the design require pedestrians to cross over the commuter line tracks proper signals and signage should be incorporated into the site.

Site Four: This site received a score of “2” because the impacts to the tracks are neither negative nor positive. However, impacts to the commuter rail tracks should be minimized and design should take into consideration safety of pedestrians. Should the design require pedestrians to cross over the commuter line tracks proper signals and signage should be incorporated into the site.

### ***Existing Roads***

Site One: This site received a score of “3” because we felt that this location had the best capabilities to absorb existing traffic patterns and accommodate additional circulation of pedestrians, cars and buses to the new proposed site.

Site Two: This site received as score of “2” because we felt that it would be able to handle new traffic circulation caused by the proposed station. However, additional traffic studies are recommended that might suggest additional curb cuts and signage to help with the traffic.

Site Three: This site received as score of “2” because we felt that it would be able to handle new traffic circulation caused by the proposed station. However, additional traffic studies are recommended that might suggest additional curb cuts and signage to help with the traffic.

Site Four: This site received as score of “2” because we felt that it would be able to handle new traffic circulation caused by the proposed station. However, additional traffic studies are recommended that might suggest additional curb cuts and signage to help with the traffic.