

Catalyzing Economic Development in Somerville's Brickbottom District



From a Waste Transfer Facility to a 21st Century Economy

A Report Prepared for the City of Somerville's
Office of Strategic Planning and Community Development

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Abstract

The City of Somerville is seeking alternative uses for a city-owned parcel at 10 Poplar Street. This site is located within the Brickbottom District of East Somerville, and currently hosts a waste transfer facility. The lease for this facility is set to expire in October of 2012, and the city is exploring possible alternatives to this use and how this site and the Brickbottom District in general can contribute to the city's goals as laid out in the Somerville comprehensive plan, SomerVision. This report is the result of research undertaken to explore four key considerations for the City of Somerville as they approach reuse of the site: brownfield remediation, business district development, zoning, and urban design. Based on research into these focus areas, our team recommends which of the three possible re-use scenarios proposed might most successfully meet the city's goals. The purpose of the report is to provide municipal officials in Somerville with both a vision for what is possible on the site and with a guide as to what strategies to reach their goals.

Executive Summary

The Mayor's Office of Strategic Planning and Community Development in the City of Somerville is interested in the reuse of a city-owned parcel currently leased to the company, Waste Management Massachusetts. The industrially zoned site is located at 10 Poplar Street in the city's Brickbottom neighborhood and has been functioning as a waste transfer station for decades. The reuse of the 10 Poplar Street site and the larger Brickbottom corridor is a popular topic of discussion amongst Somerville residents, community leaders, public officials and private developers. With the lease of the parcel expected to end on October 2012, community leaders, residents and private-interest developers speculate what types of land uses might replace the current waste transfer station. While stakeholders have diverging ideas on what types of reuses would ultimately be the best fit for the community and city at large, interest groups do largely agree on three points.¹ Firstly, Somerville would be well served in moving away from the industrially based economy present in the corridor. Secondly, the Brickbottom neighborhood has the potential to become Somerville's epicenter for employment, recreational and residential opportunities. Lastly, the new land use for 10 Poplar Street should prioritize mixed-use development that encourages the surrounding neighborhood to develop non-industrial commercial clusters and residential options that can be reached on foot, by bicycle or public transit.

The City of Somerville is seeking recommendations from a Tufts University, Urban Environmental Policy and Planning graduate student group on future land uses that will make the neighborhood a desirable destination for commercial, residential and recreational activity. In addition, city management is prioritizing land uses that will generate new opportunities for bolstering the city's tax base.² Lastly, the Mayor's Office is committed to the long term success of this project and therefore aims to present possibilities to neighborhood stakeholders that align

¹ Based on interviews with: metro-Boston business sector developers, the Somerville Community Development Corporation, a Brickbottom residential representative, and public official representatives from Somerville, Cambridge and Boston, it is clear that public sentiment points to the potential for growth opportunities in Brickbottom. Points that these interest groups raise as possible new uses include: employment, housing, public space and cultural activities. We also looked at focus group data compiled by the planning firm, Goody Clancy from the report.

² In the article, "City Gives Waste Management One-year Notice to Close Transfer Station", published on Oct 04, 2011, Somerville Mayor, Joe Curtatone stated that in regards to the termination of the lease with Waste Management Massachusetts, "This represents an opportunity to build a new gateway to the city, to create thousands of new jobs, to build new housing, and to bolster local tax revenues to support our schools and other City programs."

with the surrounding community's vision for both the city-owned parcel and the larger Brickbottom District. In keeping with the Mayor's goals, Team 8 is proposing three reuse scenarios that seek to meet the interest of both 10 Poplar Street stakeholders and the Department of Strategic Planning and Community Development. There are two main questions that underline these proposals; how do the reuse scenarios support community goals and how does the city manage priorities for conflicting financial decisions?

The three reuse scenarios are part of Somerville's larger vision of reducing the McGrath Highway to an at-grade solution that seeks to balance pedestrian activity, bicycling and public transit with the automobile. Being as this transformation of the built environment will take many years to implement, the scenarios should be viewed as a multi-phased project that will redefine Brickbottom from an industrial corridor to a regional destination for commercial, residential and recreational activity.

The inspiration for the reuse scenarios is derived from research on two metro-Boston business districts; the Innovation District situated along the South Boston waterfront in Boston and Kendall Square along the Charles River in Cambridge. Both business districts share a similar industrial history with Brickbottom and generate a sizeable tax base for Boston and Cambridge.³ Based on interviews with the City of Somerville, attracting land uses that will bring new revenue sources to the city is a priority.⁴ For this reason, development scenarios focus on industries that can kick-start the transformative process for the Brickbottom District. Research was also guided by interviews with representatives from Boston and Cambridge's planning divisions, community groups associated with the Brickbottom neighborhood and business associations that focus on Kendall Square and the Innovation District.

The Brickbottom neighborhood has the potential of developing a new identity for Somerville. With the 10 Poplar Street site as a starting point, the Mayor's office envisions the rebranding of a district that attracts innovative land uses for a new Somerville economy. Brickbottom can evolve

³ In interviews with the Kendall Square Business Association, the City of Cambridge, the Boston Redevelopment Authority, A Better City and the Somerville Transportation Equity Partnership, there was a shared sentiment that these business districts contributed a significant amount of money to the Boston and Cambridge tax base.

⁴ Unlike in Boston and Cambridge, Somerville lacks a central district dedicated to the types of business that they would like to attract to the city; specifically jobs that would contribute at a higher rate to the city's tax base.

into Somerville's incubator for new industries; a district that attracts and retains talent and offers residents opportunities for employment, housing, recreational and cultural activities.

Project Scope

Location

The 10 Poplar Street parcel is located in the Brickbottom District on the corner of Linwood Street in East Somerville. Brickbottom is bordered on the north by Washington Street, on the west by the McGrath Highway/ Route 28 and on the south and east by railroad tracks. The site takes up 2 acres of the total 25 acres in the Brickbottom neighborhood. Compared to neighboring sites, Brickbottom is more than twice the size of Kendall Square which makes up 10 acres. In addition, Brickbottom is a fraction of the size of the Innovation District which comprises 1,000 acres along the South Boston Waterfront.

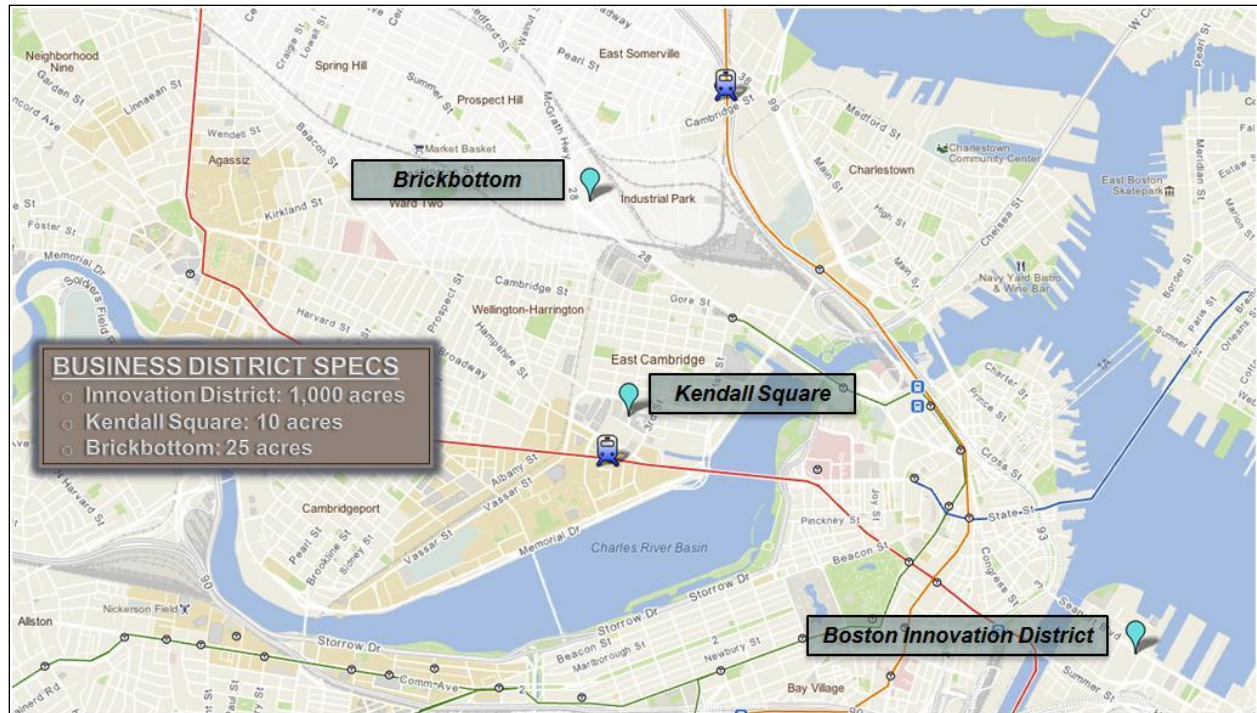


Figure 1: Locations and sizes of business districts near downtown Boston.

Brickbottom is surrounded by a high density corridor that includes both residential and commercial land uses. It is located 0.5 miles to the east of Union Square where there are opportunities for nightlife, restaurants, open space and retail shopping. In addition, there are a number of busses that connect 10 Poplar Street visitors to points throughout the Metro-Boston region. Within one mile to the east of Brickbottom is the Massachusetts Bay Transit Authority, (MBTA), Orange Line, Sullivan Square subway station. Access to Sullivan Square connects

Brickbottom visitors to commuter rail service and additional bus lines. Brickbottom is accessible by public transit to both Sullivan Square and Union Square.

In 2016, a MBTA Green Line station will open up along Washington Street that will further improve public transit access to the district. This improved connection within the MBTA service area positions the Brickbottom District to be a workplace destination from points north, south, east and west of the parcel. In addition, residents who currently live in Brickbottom will be able to better access opportunities outside of the corridor through the new MBTA Green Line Station.

History

Like many areas in today's modern cities, the Brickbottom District bears little resemblance to what the area looked like when it was first being settled. The area was primarily marshland and Miller's River, which has since been filled in, flowed along the southern edge. As industry began to enter into the area in the early- to mid-1800s, the landscape was changed to suit the needs of new businesses. Cobble Hill was brought down and used to fill in the marshes. Miller's River was used first by the new industries to discharge their pollutants, and was eventually filled as well. (Bokov 2007)

Along with new factories came new residents. Immigrants who found work in Brickbottom chose to live there as well. The network of streets formed by these communities is still present in the area. The biggest change to this pattern of development came at the turn of the twentieth century when planning began for what would become the McGrath/O'Brien Elevated Highway. This project was supposed to connect Cambridge and Somerville to cities and towns further north and west, but it had the unfortunate effect of separating Brickbottom from the rest of the city. (Bokov 2007)

While the McGrath/O'Brien Elevated Highway made connections to the rest of the city more difficult, the Inner Belt Expressway would have made connections within Brickbottom more difficult. The Inner Belt Expressway, or I-695, was to mimic Interstate 495, which forms a ring around most of the metropolitan Boston area. As its name implies, the Inner Belt would have been located much closer to downtown Boston and would have cut through Somerville,

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Cambridge, Brookline and multiple neighborhoods in Boston. In anticipation of this new highway, huge swaths of land were cleared in Somerville, primarily in Brickbottom. When the new highway was stopped in 1970, these parcels either remained undeveloped, or saw much more scaled back development than what was anticipated. (Bokov 2007)

The next major development in the area came in 1988 with the creation of the Brickbottom Artists Cooperative. This live-work space was the first return of residential use to Brickbottom since the 1940s. An effort was made in 2001 to attract telecommunications companies to the district, but despite the installation of a fiber optic network, the developments never materialized. (Bokov 2007)

All of this has led to the Brickbottom of today, where 10 Poplar Street is located. Currently, the site hosts a waste transfer facility, but the City of Somerville has decided that this is not the best use of a parcel located at what is essentially the front door to Somerville. Development of this site will need to keep in mind not only its recent history – an environmental assessment and any required clean-up are extremely likely – but also the more distant history – given that this land began as a marsh, drainage issues will need to be considered very closely, and any project should work to mitigate any potential problems.

The entire Brickbottom district is rich in the history of Somerville, and with the right vision can contribute just as much to Somerville's future.

Municipal Data

The City of Somerville is a very densely populated urban area - the city's population of over 75,000 lives within only 4.12 square miles. (U.S. Census Bureau) Thus, opportunities for new development are not as readily available as they would be in less dense areas. This means that reuse of sites such as those found in Brickbottom needs to be carefully thought out and should make the most of Somerville's large, educated workforce.

As of the 2010 Census, 52.3% of Somerville's population held a bachelor's degree or higher, and nearly 90% of the population had completed high school. Additionally, nearly 80% of the population is between the ages of 18 and 65. (U.S. Census Bureau) These two demographics combine to give Somerville a large, relatively well-educated workforce. This positions Somerville to do well in the 21st century economy, with its emphasis on new jobs that require some form of higher education.

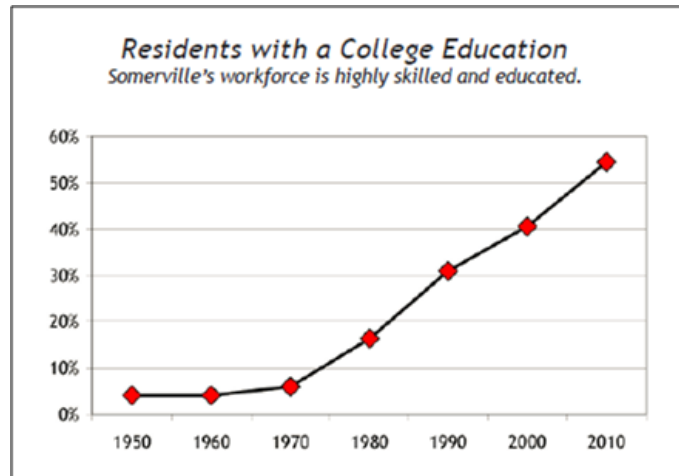


Figure 2: Percentage of Somerville residents with a college education. (City of Somerville 2009)

As of today, Somerville does not have enough jobs for its educated workforce. (City of Somerville 2009) The average travel time to work for residents is nearly 30 minutes (U.S. Census Bureau), an indication that many residents are traveling outside of the city to work. This is not only a drain on their time and resources, but can also have negative environmental impacts. Projects looking to bring jobs to Somerville ought to be focused on attracting the kind of educated workforce present in Somerville, allowing residents to have shorter and more environmentally friendly commutes to work.

It is unlikely that Somerville will have enough jobs for its entire workforce, so transportation is an extremely important aspect of the city's ability to attract new residents who may work elsewhere. While a number of bus lines criss-cross the city, residents and workers are woefully underserved by mass transit. Only one rapid transit stop is currently within the city limits - the Davis Square stop of the MBTA's Red Line. (SomerVision, p. 19) Sullivan Square on the Orange Line and Porter Square on the Red Line both serve parts of the city, but the two stations are on the eastern and western borders, leaving much of the city underserved. (SomerVision, p. 19) Somerville officials have been adamant supporters of the Green Line Extension, which would add 5 new stations on the MBTA's Green Line within the city. Also, the Assembly Square project would add a new Orange Line station as well. (SomerVision, p. 19) Once completed,

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these projects will allow residents to move more easily around their city and the region to access jobs. The new stations will also attract development that will bring new jobs to the city.

Somerville is a city very much on the verge of monumental change. Residents and city officials have recognized this, and have already begun taking the steps necessary to ensure that this change does not detrimentally alter the character of the city and its neighborhoods. These efforts have culminated in SomerVision, the city's first comprehensive planning effort.

Somerville Master Plan

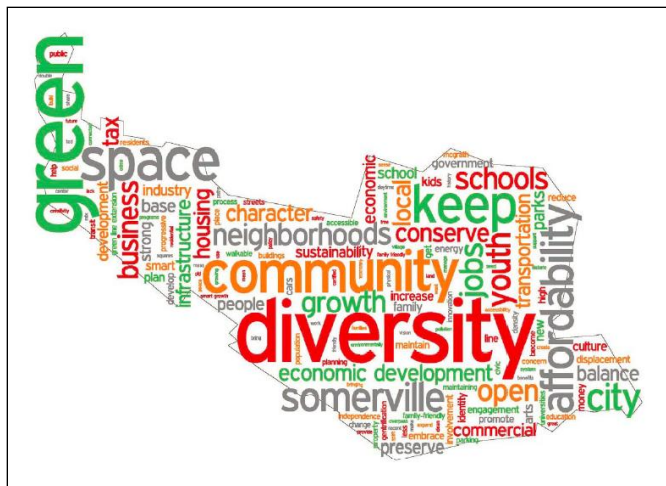


Figure 3: A word cloud generated from input given at the SomerVision community meetings.

Somerville's comprehensive plan, SomerVision, was created in order to provide the community with a tool to guide planning and development within the city for the next twenty years. The guiding principles of SomerVision are to celebrate diversity, foster a sense of community, invest in the city's economic base, promote accessibility, build sustainably, and commit to innovation.

(SomerVision, p. 4) The plan was created

over the course of three years with input from residents, business leaders, non-profits based in Somerville, and municipal officials. The plan identifies shared values and goals, as mentioned above, and then acts as a guide for development.

To reach these conclusions, municipal officials in Somerville held 10 community meetings in 2009, a total of 9 community workshops in 2010 and 2009, and have 10 community presentations scheduled for 2012. Simultaneously, the SomerVision Steering Committee met a total of 26 times. This steering committee is comprised of sixty members representing Somerville's various neighborhoods, non-profit organizations, business interests, and elected officials. This committee's meetings have been open to the public and also broadcast on public television.

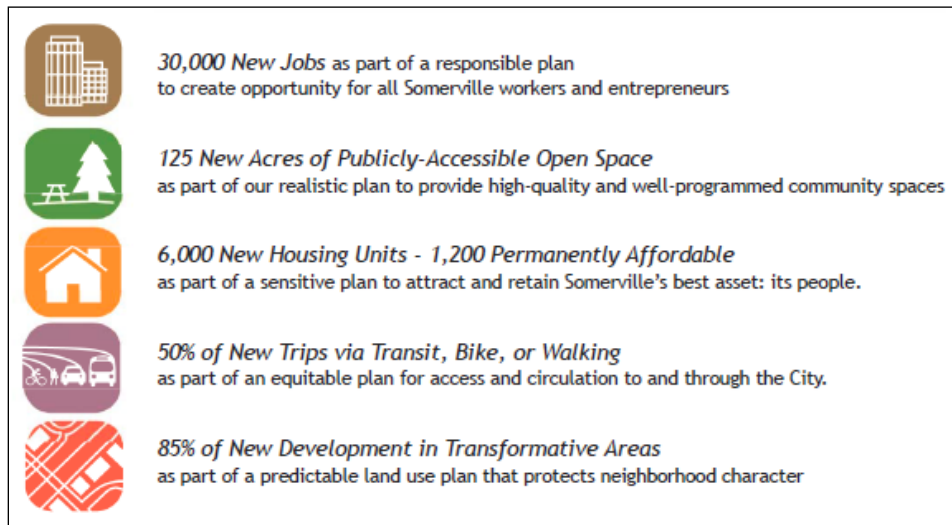


Figure 4: Goals for the City of Somerville as laid out in SomerVision.

Within SomerVision, a number of districts within the city are highlighted and given designations for future development. The waste transfer facility site and the entire Brickbottom neighborhood are designated as one of the growth districts, specifically being an area where transformative change is desired. In the areas designated as being in need of transformative, the city hopes to create transit-oriented districts that are mixed use and can serve as economic engines for the entire city. (SomerVision, p. 19)

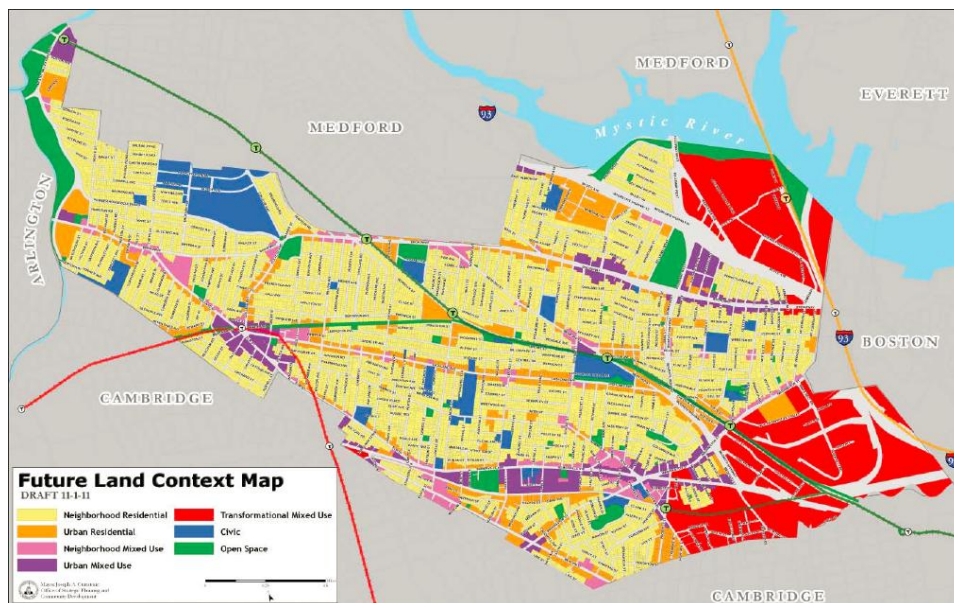


Figure 5: A map from SomerVision indicating goals for certain areas. 10 Poplar Street is within the red area near the bottom right corner, designated for "transformational mixed use."

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SomerVision also lays out a number of proposed policies and objectives that would make these transformative efforts successful. These include: changes to the zoning code to expand the commercial tax base; using city-owned property to stimulate economic development where appropriate; promoting job creation, especially in those sectors that will continue to drive a 21st century economy; providing workforce development for job seekers not well-suited for the new economy; and enhancing connections between clusters of business and innovation, such as local universities and Kendall Square.

Each of these stated goals and policies are applicable to our site. Currently zoned for industrial use, our site and the Brickbottom will need to be rezoned to spur the type of development the city wishes to see enter the area. The proposed overhaul of the zoning code protects Somerville's character, while recognizing its position as an urban city that should be densely developed, provide a pleasant experience for walkers and bikers, and encourage residents to use sustainable transportation modes. (SomerVision, p. 26)

Other aspects of the plan would also be extremely beneficial for the site. A focus on transportation and infrastructure is key to the long term success of Brickbottom and any development at 10 Poplar Street. More specifically, the planning for the areas immediately surrounding the forthcoming stations on the Green Line Extension will have a huge impact on development in Brickbottom. While 10 Poplar Street is not immediately adjacent to the proposed stations, Brickbottom's northeastern boundary is the right of way in which the Green Line Extension will be implemented, and Brickbottom station will be at the northern boundary of the district. It is important that the specific planning for the area surrounding the station meshes with the vision for the entire district.

There is also a focus on the public realm present in SomerVision. This is pertinent to 10 Poplar Street in that currently the public realm in the area is lacking, but for the area to move in the direction the city wants, careful attention is required. This includes street renovations that favor sustainable modes of transportation, environmentally sustainable landscaping practices, and urban design that fosters community connection. (SomerVision, p. 78) For 10 Poplar Street, this means enhanced pedestrian facilities, and improved streetscaping.

Perhaps the most impactful change to Brickbottom put forth by SomerVision is the grounding of the McGrath/O'Brien Elevated Highway. (SomerVision, p. 128) Grounding this highway has the potential to reconnect Brickbottom to the rest of the city so long as it is done with pedestrians, cyclists, and public transit in mind.

One last aspect of SomerVision that is applicable to the reuse of 10 Poplar Street is promoting not only growth in jobs for the 21st century economy, but also promoting a mix of jobs created by small businesses and entrepreneurs. (SomerVision, p. 35) While redevelopment of 10 Poplar Street should be conducted to attract jobs for an educated workforce, it should also provide an attractive, active street level experience. This means a mix of offices for large companies and space for shops that serve both the office workers and residents in the area.

The waste transfer facility site encompasses nearly all of the various aspects that SomerVision identifies as being key to Somerville's continued growth and success. If followed generally throughout the city, and specifically at 10 Poplar Street, SomerVision can position the city to be ready to compete in the 21st century.

Transit

The transportation needs of the community will shift as activity around 10 Poplar Street transitions from industrial uses to land uses that are inviting to pedestrian and bicycling activity. In the short term, Somerville should look to develop ways to make pedestrian and bicycle travel safe within this heavily industrial corridor. As the district prepares to attract increased foot traffic it is important to recognize the role public transit plays in opening the doors to a community like Brickbottom. Below outlined are the current pedestrian, bicycle and public transportation options for Brickbottom visitors. In 2016, a MBTA Green Line station will be opening along Washington Street which will further improve access to the neighborhood.

The immediate area surrounding the site does not have a suitable environment for Brickbottom visitors traveling to the site on foot or by bicycle. Pedestrian transition points such as crosswalks are poorly marked. In addition sidewalks vary in width and lack continuity in form. Lastly, walking in the district is unpleasant due to cracks and breaks in the sidewalk surface that act as

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barriers to visitors who may have special mobility needs. From the perspective of a cyclist, the roadway lacks on-street lanes or signage that indicates the area is inviting to bicycling traffic.



Figure 6: Current conditions of pedestrian facilities surrounding 10 Poplar Street.

It is paramount to the success of the Brickbottom District that the neighborhood is physically accessible and inclusive to all users. This means that Somerville will need to address the inadequate walking and bicycling conditions. To Somerville's credit, as a city they do know how to make public sphere spaces that are inviting to all types of transportation modes. A prime example of a desirable public infrastructure improvement project is Somerville Avenue approaching Union Square. The streetscape expertly balances bicycling, walking, transit and automobile usage. This is evident in the on-street bike lanes, wide, smooth sidewalks, and visible transit stops for bus traffic. In addition, Union Square provides infrastructure for public events, seating and recreating.

Access to Transit

No bus line currently travels through the Brickbottom neighborhood. However, buses do run along McGrath Highway/ Route 28 and Washington Street. According to interviews with 10 Poplar Street stakeholders, these bus stops can be difficult to reach due to unsuitable pedestrian crossing points across Washington Street or McGrath Highway/ Route 28.

Bus access on the corner of McGrath and Poplar:

- 80 traveling between Arlington Center (*Arlington*) and Lechmere Station (*Cambridge*)

- 87 traveling between Arlington Center (*Arlington*) and Lechmere Station (*Cambridge*)
- 88 traveling between Clarendon Hill (*Route 16 on Cambridge/ Arlington border*) and Lechmere Station (*Cambridge*)

Bus access on the corner of Washington and Joy Street:

- 86 traveling between Sullivan Square (*Somerville*) and Cleveland Circle (*Brookline*)
- 91 traveling between Sullivan Square (*Somerville*) and Central Square (*Cambridge*)
- CT2 traveling between Sullivan Square (*Somerville*) and Ruggles Station (*Boston*)

Methods & Research Question

The City of Somerville has indicated that they envision new types of land uses being introduced to the Brickbottom District. In specific, the Mayor's Office is interested in land uses that will generate new forms of revenue for the city. This report aims to address the question, "What types of reuse options exist for the 10 Poplar Street site that will generate new types of revenue for the city and catalyzing economic development in the Brickbottom neighborhood?"

Insights on Brickbottom from Neighborhood Stakeholders:

"There is potential for new activity in the neighborhood...you just have to be able to look beyond all of the trash on the street"

"The redevelopment of Brickbottom represents a larger scope of work. The bigger question here is, 'Where does Somerville want to go in terms of city-wide land uses?'"

"Brickbottom is going through a process of transformation. In order to make sure that the changes to this neighborhood are equitable, the community needs to be involved in the process. And the community is eager to be involved."

"You know what would be great? To be able to get a good cup of coffee or a beer without having to cross McGrath or Washington."

A diverse group of stakeholders is invested in the success of the 10 Poplar Street site. Research for the reuse scenarios was aided by interviews with seven representatives from the following organizations listed below.

Organizations were chosen based on their expertise in the business district

development industry, involvement in the municipal planning process, or perspective as local neighborhood advocates. All interview subjects were leaders within their organizations or departments and therefore could speak on authority as organizational representatives. Interviews were all conducted in person apart from one which was over the phone. Responses were transcribed and organized into thematic categories.

- Boston Redevelopment Authority
- Cambridge Department of Community Development
- A Better City
- Kendall Square Business Association
- Somerville Community Development Corporation
- Brickbottom Artists Association
- Somerville Transportation Equity Partnership

While interview participants did have distinct perspectives on the redevelopment of the 10 Poplar Street site there was consensus around this parcel's future being tied to the success of the larger Brickbottom neighborhood. Stakeholders indicate that the reuse of 10 Poplar Street is part of a larger transformative process of the Brickbottom District. Parcel abutters recognize that there is potential for new land uses, however you have to be able to look beyond the prevailing industrial character of the neighborhood.

The Mayor's Office of Strategic Planning and Community Development is interested in generating new types of revenue for the city through urban development projects.⁵ As such, the Brickbottom neighborhood has been identified by the Mayor as a future district where urban expansion projects can take place.⁶ This report explores the options



Figure 7: The waste transfer facility at 10 Poplar Street.

for types of revenue growth through the introduction of commercial land use into the Brickbottom neighborhood. Specifically this report focuses on the reuse options for 10 Poplar Street that will move Somerville towards its goal of catalyzing economic development within a 21st century economy. Three reuse scenarios are proposed that specifically focus on Commercial Office or Research & Development uses with the possibility for retail space on the ground floor. The reason this report focuses specifically on commercial opportunities is because the only parcel owned by the city in the Brickbottom neighborhood is 10 Poplar Street. Outlined in this report is the rationalization that one way for the city to maximize investment in what could potentially be a costly project is to attract business oriented tenants who can occupy the parcel quickly and generate new sources of revenue for the city. This conclusion was arrived at by researching urban development projects in the context of brownfield remediation, economic development, zoning policy and urban design. In addition, this research was supported by a

⁵ Derived based on conversations with the client

⁶ Brickbottom was designated as a desirable location for the reason that it is slated to have improved public transportation access through the Green Line, and the city owns the 10 Poplar Street parcel that has potential for redevelopment.

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photographic analysis that gave a context to the current conditions as well as interviews with stakeholder groups who can speak to the on the ground conditions of the site.

In regards to short versus long-term plans for the district, it is important to keep in mind that the city is focusing on commercial as opposed to residential opportunities for two reasons. The first reason is that the Mayor's Office of Strategic Planning and Community Development has indicated that the city currently has adequate housing stock for affordable and market rate housing. Furthermore, the city has indicated that they want to move away from a tax base that is primarily supported by residential property tax. The second reason that the city is focusing on commercial development has to do with the types of traffic commercial versus residential land uses attract. It is important to note that the work-day and residential land uses place different demands on a neighborhood. Work-day traffic from commuters coming into the district is for a limited period of time and doesn't require the extensive types of services that are customary in a thriving residential neighborhood. One example that highlights the differences between these two types of land uses is the need for amenities such as public spaces or retail options that cater to households. In other words, it is not as essential to have a pharmacy, playground or grocery store in a business district as it might be in a residential neighborhood.

As it stands now, Brickbottom is not a thriving residential neighborhood. While there are 150 residential units located in the Brickbottom artist loft space, residents need to leave the area for amenities such as open space, retail opportunities or recreational activities.⁷ This report is based on the assumption that a suitable short term use of 10 Poplar Street would be to focus on commercial as opposed to residential opportunities as the work-day activity can serve as the initial catalyst that brings economic opportunity. In addition, the commercial foot traffic can later be used to create residential housing options in a neighborhood that will thrive 24 hours a day with options for employment, recreation and public space. It is important to note that these proposed scenarios do not preclude other types of land uses in the Brickbottom neighborhood. Similar to the development in Kendall Square and the Innovation District, the transformation of the Brickbottom District will take years to achieve. With this in mind, the reuse of 10 Poplar

⁷ According to a representative from the Brickbottom Artist Lofts, it is not possible to conduct utilitarian errands such as grocery shopping within the neighborhood

Street should be considered as part of a multi-phased project that will lead to the creation of a new gateway for Somerville. The Mayor's Office can begin with the redevelopment of 10 Poplar Street and then continue to facilitate neighborhood transformation by channeling future resources towards projects that are within the responsibilities of city government such as improving public sphere infrastructure and updating zoning codes.

Brownfield Remediation

"This represents an opportunity to build a new gateway to the city, to create thousands of new jobs, to build new housing, and to bolster local tax revenues to support our schools and other city programs."

— Somerville Mayor Joseph Curtatone, in reference to the redevelopment of Brickbottom

The transition of a neighborhood like Brickbottom from an industry-heavy corridor to a desirable location for housing and new types of employment,

albeit risky, can provide great financial and social benefits for a city such as Somerville (Meyer and VanLandingham 2000). Because the 10 Poplar Street site is the only city-owned parcel within the Brickbottom corridor, the Mayor's office is focusing on this location as the beginning of redevelopment within the neighborhood.⁸ However, before Brickbottom can be transformed into Somerville's new "gateway" the city needs to first make the area safe for non-industrial uses. As a result of the long-term waste management function of the current occupant at 10 Poplar Street, the city can most likely consider the parcel to be a Brownfield⁹ and therefore will need to address any subsequent contamination issues (Meyer and VanLandingham 2000).

Brownfield parcels contribute to "community blight, lower property values, and decreased tax revenues" according to the **House of Representatives from the 109th Congress**.

Without a complete environmental analysis it will be impossible to determine the type and degree of

contamination of 10 Poplar Street. In addition, it will be difficult for a city like Somerville to move forward with reuse plans as they are contingent upon an environmental analysis of a contaminated parcel (Meyer 1998). One of the main barriers to site cleanup is that the unknown contaminants will not only dictate remediation plans but also determine what kinds of reuses are actually feasible. What is clear from research on contaminated Brownfields is that they contribute to, "community blight, lower property values and decreased tax revenues", in surrounding neighborhoods adjacent to the site (House of Representatives, 109th Congress). It is important to remember that in Brownfield remediation projects, there is not just one sector that is

⁸ In the article, "City Gives Waste Management One-year Notice to Close Transfer Station" published on Oct 04, 2011, Somerville Mayor, Joe Curtatone stated that the city would terminate its lease with Waste Management of Massachusetts, a company that operates a waste transfer station at 10 Poplar Street in Somerville. The Mayor says in regards to the termination of the lease, "We aim to reclaim the Brickbottom and this is an essential step to making that happen...With the Green Line extension slated to go through this part of the city, we have the opportunity to redevelop this area along with the Inner Belt, Union Square and Boynton Yards. This represents an opportunity to build a new gateway to the city, to create thousands of new jobs, to build new housing, and to bolster local tax revenues to support our schools and other City programs."

⁹ As defined by the Environmental Protection Agency (EPA), a Brownfield is land that is, "abandoned, idled or underutilized industrial and/or commercial facilities where expansion or redevelopment is complicated by real or perceived contamination."

affected. Remediation is a complex issue in which the impacts of a reuse type need to be carefully considered. Impacts specifically need to take account of economic opportunity, community well being and the health of the natural environment (Meyer 1998). Therefore, regardless of what the city decides as a future course of action for Brickbottom, it is essential that the City of Somerville strongly consider the implications of remediation.

Components of Brownfield Remediation

There are five basic components of Brownfield remediation; conducting an environmental assessment, developing a property remediation strategy, demolition, site preparation and finally construction (US EPA 2007). In addition to the basic components of a remediation plan, it is also important to consider the social implications of such plans. For this reason, a remediation strategy should also include the steps of identifying the parties who will be involved in the orchestration of the project as well as creating an outreach plan to the community (Hollander and Kirkwood and Gold 2010). It is important that the 10 Poplar Street abutters and the City of Somerville share a common vision for the parcel. While the community might not be involved in all aspects of planning work it is nevertheless vital to provide stakeholders with the space to raise concerns and offer comment (Hollander and Kirkwood and Gold 2010). Not providing the community the opportunity to be vested in a project can work against the ultimate success of the plan as stakeholders can delay completion of projects that don't fit their community's needs (Hollander and Kirkwood and Gold 2010). Once a shared vision is in place, the project team can focus on the next challenge of securing financial support.

By and large, the most significant barrier to development is going to be securing funding for the project. Research demonstrates that a financial lender will be less likely to back a project that can't provide a reliable return on the initial investment (US EPA 2007). Furthermore, it would benefit the project managers to seek out funding from the federal level as without this level of support it is unlikely projects will be successful (US EPA 2007). Brownfield remediation projects can be expensive and it is unlikely a local municipality can provide the same level of financial support as a federally backed program (US EPA 2007). While local governments may lack the funds to support a project, they can assist the project by creating incentives for development to take place (US EPA 2008). It is wise for a local municipality to spur this type of

development, as it will create employment opportunities that are centered on the local construction industry (US EPA 2008).

Benefits of Brownfield Remediation

Benefits of Brownfield Remediation:

1. Spurs local economic development
2. Supports urban infill practices
3. Improves municipal tax base by introducing new commercial property

While the redevelopment of 10 Poplar Street presents a financial risk, the City of Somerville needs to also weigh the social, environmental and economic benefits

to the immediate community surrounding Brickbottom and the city at large. Research shows that Brownfield redevelopment is a cost-effective means of spurring local economic development in formerly industrial corridors (Meyer and Van Landingham 2000). Research also shows that the three most frequently cited benefits of remediation are the increase of a city's tax base, neighborhood revitalization and job creation (Heberle and Wernstedt 2006). It is important to note that Brownfield remediation can sometimes be more cost effective because it locates development in an area that is already connected into urban public infrastructure (Meyer and Van Landingham 2000). In this sense reuse of a Brownfield site like 10 Poplar Street in Brickbottom can be considered as infill development since previously utilized land is being developed as opposed to development on untouched land.

Urban infill is desirable for two reasons. For starters, urban expansion is expensive, and Somerville might not have undeveloped property to expand within (Meyer and Van Landingham 2000). Secondly, infill development promotes and preserves density by reconnecting disjointed neighborhoods. In its current state, the Brickbottom district is an industrial island nestled between the high-density neighborhoods of East Cambridge, Union Square, Prospect Hill and East Somerville. The promotion of a future high-density Brickbottom will be further supported with transportation infrastructure improvement projects such as the addition of the MBTA Green Line in November 2016 and the razing of the Monsignor McGrath highway. The successful implementation of both projects will only further support the high-density nature of the corridor by prioritizing pedestrian, bicycling and public transit options in line with personal automobile access to the neighborhood.

In addition to promoting density, the remediation of 10 Poplar Street is also important in terms of developing a new tax-base for the city (House of Representatives, 109th Congress). The immediate effect of remediating the parcel will be the improvement of what is now considered to be a neighborhood eyesore.¹⁰ In its current state, the industrial character of the land parcel is incompatible with Somerville's vision for the future land uses envisioned for the Brickbottom neighborhood (Somerville 2011). And, attracting new development opportunities for housing, employment, commercial activity or research & development will be difficult to achieve in light of having a waste transfer station as a neighbor. If Somerville is going to attract the sort of businesses that will increase the city's tax base they will need to focus on making 10 Poplar Street an attractive parcel that serves as a magnet for more desirable land uses (Meyer & VanLandingham). More importantly however, Somerville needs to consider how the new land uses will be received by 10 Poplar Street abutters. Sometimes, what appears to be the highest financially yielding use for a remediated Brownfield might not be compatible with stakeholder's vision for the parcel.

Financing Remediation & Barriers

As Somerville thinks about the reuse potential of 10 Poplar Street it needs to consider the economic risk associated with pursuing Brownfield remediation. Research suggests that there are three main reasons why the cost of remediation can be a barrier to development.

Barriers to Brownfield Remediation:

1. Costly and can become more so as the extent of contamination is revealed
2. Projects can be delayed due to extensive testing required
3. Lending institutions may be hesitant to back projects without a quick return on investment

Suspected contaminated sites are subject to rigorous environmental testing prior to the sale or financial development of a parcel. The purpose of these stringent environmental regulations is to determine the type and extent of contamination that exists within the parcel. An environmental assessment can increase the initial cleanup cost and can bring up issues of liability in the event that an entity is harmed by the contamination (Meyer and VanLandingham 2000). Secondly, since there are so many steps within the testing process that can be held up due to what types of contaminants are found, the regulatory process can be indefinitely delayed (Meyer and

¹⁰ In an interview with a representative from the Brickbottom Artist Association the interview subject indicated that, "**any** other land use would be better than the dump", that is currently at 10 Poplar Street. In addition, in the interview they talked about the associated noise pollution, trash and foul smell emanating from the facility. Conversations with the Somerville Community Development Corporation indicated similar concerns about the presence of the waste transfer station.

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VanLandingham 2000). Subsequently, developers concerned about the length of time required to complete the regulatory process might be dissuaded from Brownfield development. Lastly, lending institutions might be hesitant to financially back projects that are not able to reliably provide a quick return on investment (Meyer and VanLandingham 2000). This being the case, how might Somerville finance the remediation of 10 Poplar Street? Research suggests there is no single right way to finance Brownfield remediation; and opportunities are open to all levels of government (House of Representatives, 109th Congress). In fact, the future success of remediation projects is predicated on the creation of public/ private partnerships. It is in the best interest of a remediation project to be supported through such partnerships as government has the ability to create development incentives and developers can provide financing capital for the project (House of Representatives, 109th Congress).

Case Studies

Somerville is trying to develop a thriving, technologically advanced business district in Brickbottom, similar to what exists in Kendall Square and is being developed around the South Boston Waterfront. Given these aspirations, we felt it would be informative to use these business districts as case studies. We researched the history of each neighborhood using academic literature, newspaper reports, and by interviewing people with knowledge of their development. Using this research, we determined what factors we felt were the most important to their success and how these relate to Somerville's plans to develop a similar type of district in Brickbottom.

Kendall Square

Kendall Square is a neighborhood in Cambridge, MA. It is the site of major business clusters in the high-tech and biotech sectors. The current level of development is the result of a major redevelopment initiative that started with Urban Renewal. Starting in the early 1980s, the area started seeing a significant amount of development, which has continued through the present day. The success of the redevelopment efforts in the Kendall Square area has occurred in large part due to the planning efforts of the City of Cambridge, its proximity to major research/educational institutions such as MIT and Harvard, and investment in public infrastructure in the area.

History

Kendall Square has been a major transportation hub since the West Boston Bridge was constructed in 1793. It became a major industrial center in the 19th and early 20th centuries. By the middle of the 20th century though, the area had become "blighted," with high vacancy rates and deteriorating infrastructure. As a result, the area was identified as a target for Urban Renewal (Tercyak 1982). While Urban Renewal as a whole was considered a failure, the resulting development of Kendall Square has been considered an overwhelming success story.

The Cambridge Redevelopment Authority (CRA) was created to oversee Urban Renewal projects in Cambridge Square. NASA quickly agreed to build its headquarters in Kendall Square. The original plan was for NASA to develop 29 acres. Private developers were to develop the

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remaining 14 acres. NASA backed out due to budget cuts in 1969, after having developed 15 of its allotted acres. Following the CRA's negotiations with the Federal Government, it was determined that the U.S. Department of Transportation would move into the space developed by NASA and the remaining 14 acres previously reserved for the Federal Government would be re-designated for private development (Tercyak 1982).

Following this agreement, which doubled the amount of land on which private development could occur, the CRA presented a revised plan for the area to the Cambridge City Council in 1972. This plan was quickly abandoned due to community opposition. In 1973 the Cambridge City Council set new development priorities for the Kendall Square neighborhood. These included increasing tax revenue and providing both blue and white collar jobs. The City Council set up a task force consisting of local citizen groups to advise the CRA. In October of 1974, the Cambridge City Council was presented with 3 new prospective plans and endorsed the "Neighborhood Plan," which was supported by the East Cambridge Planning Team, MIT, and the Kendall Square Businessmen's Association. The CRA had the Urban Land Institute review the 3 proposed plans (with the Neighborhood Plan as the "preferred" plan). They proposed an amended version of the Neighborhood Plan, which was then adopted by the Cambridge City Council in October 1977. The new plan allowed for light industrial development on the undeveloped NASA land and high density, mixed-use private development on the rest of the land (Tercyak 1982).

By 1979, the CRA had completed its land acquisitions and clearances. This resulted in the acquisition of 70 parcels, the relocation of over 100 businesses and the clearing of 43 acres of land. Later in 1979 they reached an agreement with Boston Properties to develop the 14 "non-NASA" acres of land. The plans included 1.5 million square feet of gross floor area, with mixed uses including office (600k-1.2million square feet), retail (50k-250k square feet), a hotel (200 rooms, 300k square feet), and residential development (100k-300k square feet). In 1981 the CRA awarded \$5million in contracts for public infrastructure improvements including new streets, the widening of existing streets, new trees, sodding, brick sidewalks, and crosswalks. Both private development and public improvements continued at a rapid pace throughout the 1980s (Tercyak 1982). By 1989, the CRA had invested \$10 million in infrastructure and much of the planned

private development was completed or underway. The CRA, MBTA and Boston Properties collaborated redesign and renovated the Kendall Square subway station (Tercyak 1989).

The CRA also developed “Public Sector Design Improvements Guidelines Manual” establishing criteria for all paving, lighting, planting, signage, street furniture, and open space elements. This was the basis for street improvement plans public streets, pedestrian ways, open spaces, and plazas. Developers were required to abide by guidelines for private developments too, which resulted in essentially no distinction between private and public areas in appearance and quality of improvements in the urban landscape (Tercyak 1989).



Figure 8: Kendall Square.

Development of the Kendall Square neighborhood has continued to the present. “Biotech companies are expected to develop 2.6 million square feet of mostly build-to-suit office space in Boston's Cambridge submarket this year,” reports the Real Estate Finance and Investment (Duncan, 2012). In an interview, a planner with the City of Cambridge explained that the original 43 acres of land was built out almost exactly as planned, which is relatively rare. Established, highly successful pharmaceutical, high-tech, and biotech companies such as InVivo Therapeutics, Novartis, and Skanska USA Commercial Development continue to locate their headquarters and/or research and development facilities in Kendall Square (Pharma 2011; Duncan 2012; Lawler 2002).



Figure 9: Kendall Square from across the Charles River.

Lessons Learned

There are a number of applicable lessons from the history of development in Kendall Square. Perhaps the most important takeaway is the importance of having a plan and sticking to it. Kendall Square was built almost exactly according to the revised “Neighborhood Plan” that was agreed upon in the late 1970s. Prior to the specific plan being established, the Cambridge City Council set a number of redevelopment priorities for the area. The most important of these were to create both blue and white collar jobs and to generate tax revenue. Establishing these priorities was what kept everyone on the same page in developing plans for the district. Following NASA’s backing out from their agreement to establish their headquarters there, there was a long and at times difficult period of re-planning. It would have been easy to jump at the first offer to build something there, regardless of what it was, but by sticking to their stated priorities and carrying out an inclusive planning process, Cambridge ended up with lots of job-creating, tax-generating development. It should be noted, however, that the City’s ability to stick to its plan so closely was in large part due to the fact that the CRA was able to obtain ownership of the original 43 acres of land through urban renewal. Since Somerville only owns the parcel at 10 Poplar Street in the Brickbottom Neighborhood, it will have less control over what happens in the surrounding neighborhood. The zoning code may be one tool the City can use to exert some control over the development in the area.

Another major factor in Kendall Square’s success is its proximity to major educational and research institutions. Harvard and MIT are two of the most prestigious such institutions in the world and are both located very close to Kendall Square. Other highly regarded universities such as Tufts University, Boston University, Boston College, and numerous others are also located in the Boston Metro area. The presence of these universities, particularly Harvard and MIT, is important for two reasons. First, they are the sites of cutting edge research, which is instrumental for high-tech and biotech businesses. And second, they provide firms the opportunity to recruit some of the most promising young minds in the worlds of both business and science.

High-tech and biotech companies prefer to locate near each other in “clusters.” Firms in these sectors can be highly specialized; so two companies can be similar to each other without necessarily being in direct competition with one another. At the same time, scientific

advancements in one field can often directly or indirectly lead to advancements in other related fields. When firms in these industries locate near each other it promotes the sharing of ideas and provides companies the ability to feed off the research of nearby companies. In this way, technological advancements happen at a faster pace and firms that rely on them benefit from them more quickly. The waste transfer facility site's distance from Kendall and Boston's Innovation District could be both a strength and a weakness. The fact that it is one site that is approximately 2 acres of land means it is unlikely there will be a cluster in the area anytime soon. Therefore it is unlikely any "big name" firms in the high-tech or biotech sectors would be attracted to the area. However, smaller start up firms that are looking for cheaper space that is still close enough to other similar firms to benefit from some level of cluster effects might find the site attractive.

Boston Innovation District

Boston's Innovation District is a 1,000-acre area of Boston along the South Boston Waterfront. Most of the 1,000 acres was vacant or underutilized until the city began investing in the development of the neighborhood. Significant infrastructure improvements, a few state and federally funded projects to get things started, and an extensive marketing campaign have transformed the area into an attractive place for development projects (Save the Harbor/Save the Bay 2005). Development has been slow since the recession that began in 2007, but is starting to pick up again (Duncan 2012). While a lot of development has occurred or is underway, there is still plenty of vacant land for further development projects. Mayor Menino branded it the Innovation District in 2010, a reference to the innovative, high-tech economy the city is trying to develop in the area (Diesenhouse 2011).

History

Boston's Innovation District is located along the South Boston Waterfront. As we learned in an interview with a leader in Boston's business community, the seaport was once an essential access point to the city for a wide range of commercial activities. However, in the late 1950's, maritime activity along the waterfront began to dwindle. Eventually, the neighborhood became the site of 1,000 acres of vacant land. Per a member of the staff at the Boston Redevelopment Authority (BRA), The City of Boston and the BRA began planning for large-scale redevelopment in the

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area in the early 1990s.

In the late 1980s, The Central Artery/Tunnel Project, more commonly known as the “Big Dig,” was started. The project buried the previously elevated highway that ran through the center of Boston. About \$20 billion of federal, state and local funds were invested throughout the 1990s in rebuilding the land transport network that runs through downtown Boston, including a new tunnel linking the South Boston Waterfront to Logan Airport. New sewer, water, electric, and telecommunications lines were also installed underground. Funds were also used to upgrade facilities at Logan Airport (Diesenhouse 2000). \$4 billion went towards cleaning up Boston Harbor, transforming the water there from the dirtiest in the nation to possibly the cleanest (Goldberg 1998). These public investments made the South Boston Waterfront a much more attractive site for redevelopment, due to the improved transportation connections to the area.



Figure 10: The World Trade in Boston's Seaport District.

Between the mid 1990s and the early 2000s, the new \$220 million Federal Courthouse, the World Trade Center exhibition complex and the Seaport Hotel opened in the district (Goldberg 1998). These initial investments helped make the district more attractive to private developers to invest in the area. Essentially, they “got the ball rolling” by signaling to other developers that the area

was a viable area for development. They also provided destinations in the area so developers did not have to fear building something that no one wanted to buy or lease because there was nothing else in the area.

Development started to occur at a fairly rapid pace starting in the late 1990s, as portions of the Big Dig started to be completed (Diesenhouse 2000). Development continued through the mid-2000s, until the recession slowed new construction projects everywhere. In 2011, the Innovation District (branded as such by Mayor Menino in 2010) scored a major victory when the major

pharmaceutical company Vertex agreed to relocate its headquarters from Cambridge, MA to the South Boston Waterfront. The two 18-story office buildings totaling approximately 1.1 million square feet of laboratory and office space, plus 60,000 square feet of ground-floor restaurant and retail space - represents, among other achievements of note: the largest private sector construction project commenced in the U.S. in 2011 and the largest commercial lease in Boston's history (Reilly 2011) at \$72.5 million per year (Diesenhouse 2011).

Lessons Learned

Infrastructure improvements were a vital aspect of the redevelopment of the South Boston Waterfront. The “Big Dig” improved transportation connections to the area for both auto traffic and public transportation significantly. Improved connections to Logan Airport made the South Boston Waterfront easily accessible by land, air or sea transportation. This further accentuates the point that transportation access is a major key in attracting private companies to an area and spurring large-scale redevelopment. With this in mind, the lowering of McGrath and the Green Line Extension projects will be vital to making the Brickbottom neighborhood more accessible for pedestrians, public transit users, and drivers.

Like the Kendall Square case, the redevelopment efforts at the South Boston Waterfront were helped significantly by the city’s ability to obtain ownership of a significant amount of vacant land. This allowed them to control the type of development that occurred there. Another big key to the success of the redevelopment efforts thus far has been a successful marketing campaign. While there is no dedicated marketing staff for the project, Mayor Menino himself, as well as his Chief of Staff, Mitchell Weiss, and the BRA have “actively reached out to entrepreneurs, retailers, and real estate developers about Boston’s strengths and showed off the community of startups and its collaborative culture” (Wong 2012).

Again like Kendall Square, the Innovation District case emphasizes the importance of industry clusters, particularly in highly innovative sectors. In fact, part of the early success of the district in attracting high-tech companies has been the scarcity of remaining space in Kendall Square. With Kendall almost completely built out, the Innovation District is an attractive alternative for high-tech companies, especially as a few similar firms (most notably, Vertex) have started to

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locate there, forming the beginnings of a potential cluster. It is likely that going forward, as new firms are started or re-locate to the Boston area, those that will derive benefits from having MIT and Harvard next door will be attracted to Kendall Square, while those that benefit mainly from cluster effects will gravitate towards the Innovation District.

Takeaways for Somerville

The two above case studies provide some insights for Somerville's goal of creating an "innovation district" of its own in the Brickbottom neighborhood. The first is that transportation connections are key. The district will need to be easily reachable by as many people as possible. There should be access by means of automobile, public transportation, bicycles and walking. The lowering of McGrath Highway and the Green Line Extension will be key projects that can make the area attractive to potential developers. Improving the streetscape of the neighborhood so that it is more pedestrian and bike friendly will also be important.

The case studies also highlight the importance of industry clusters. Both Kendall Square and the South Boston Waterfront have benefited from similar businesses wanting to locate near each other. It will take time to develop a cluster in Brickbottom, especially considering the waste transfer facility is the only parcel owned by the city currently. Firms that want to be part of a cluster are likely to locate in the South Boston Waterfront; as a cluster is starting to form there and there is still space that is available to be developed. Somerville's advantage is that the land in Brickbottom is cheap relative to Kendall Square or the Waterfront. Incubator space or office space for firms that do not find it as important to be part of a cluster might be good options for the current waste transfer facility site. This could play the part (on a smaller scale) of the federal investments that got things started in both case studies (the NASA/US DOT building for Kendall and the Federal Courthouse in South Boston). The combination of mixed-use commercial development, the lowering of McGrath and the Green Line Extension could transform the identity of Brickbottom and lead to further development. It will also be important for any office/lab space that is developed to be flexible enough to be easily converted into other types of business use. The needs of innovative and technologically advanced companies are constantly changing and the ability to update their space as needed will keep them from relocating

altogether if and when their spatial needs change.

An obstacle Somerville is likely to face that did not affect Kendall and South Boston is the fact that they do not own much of the land in Brickbottom. Their status as major landowners allowed Cambridge and Boston to exert a significant amount of control over the type of development that occurred. Unless Somerville is able to obtain ownership of other parcels in the area, the city will need to use other means, such as the zoning code and perhaps tax incentives, to influence the type of development that occurs in Brickbottom.

Zoning

Zoning is an important aspect of attracting new development to an area. It goes without saying that in order for a particular type of development to be feasible, first and foremost, it must be legally allowed. Somerville is interested in attracting mixed use, pedestrian friendly development. There are two main requirements that will allow for the greatest chance of success of this type of development. The first is fairly apparent in the term “mixed-use.” A wide variety of uses must be allowed in order to foster mixed-use development (Staley & Scarlett 1998). The second requirement is density. The type of neighborhood serving, pedestrian oriented businesses that are a key characteristic of successful mixed use districts require locations where there are lots of potential customers within a relatively small area. These customers can be residents, employees who work in the neighborhood, tourists, or people who have come to see a particular attraction. Preferably there will be a mix of all these types of customers, as this promotes an active street level from early morning until late at night. The more people who live and work in the area, the more opportunity there will be for neighborhood serving retail to be successful (Brion & Associates 2004).

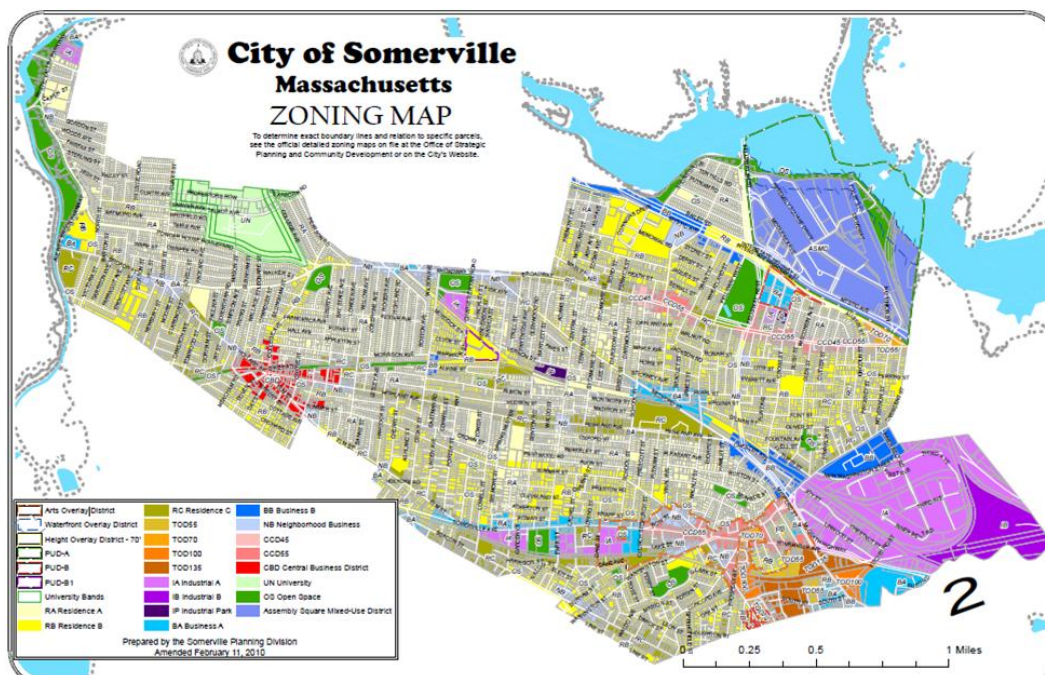


Figure 11: City of Somerville zoning map.

In order to attract mixed-use development, Somerville will need to allow a variety of uses in Brickbottom. Under Somerville's existing zoning conventions, the TOD zones meet this requirement. Pedestrian friendly, transit-oriented development will require a large number of potential customers being present in the neighborhood (Brion & Associates 2004). This means zoning for dense development, both of commercial and residential space. For this reason we suggest the highest density TOD zone, TOD 135, which allows development up to a height of 135 feet.

One adjustment we would make to the current parameters of TOD zones is to relax the parking requirements associated with them. Currently, TOD zones require developers to provide all parking on site in a structure. Building parking can add \$20,000 to \$60,000 per space to development costs, creating a significant obstacle to project feasibility. It is true that parking will be needed in order to attract businesses to lease the space that is developed. However, we believe the city can make its parking requirements more flexible and still meet the needs of future residents and employees who will choose to commute by car.

In general, flexible parking requirements vary the amount of parking required based on the level of contribution by a developer to public facilities and amenities. This is similar to height or square footage bonuses based on provision of pedestrian facilities or open space. They allow developers to provide less parking than is required by the zoning code, in exchange for helping to fund public parking, rideshare programs, or transit/pedestrian improvements (Higgins 1985). The most promising strategy that falls into this category is charging developers in-lieu fees. These are fees that allow the developer to pay the city a fee for every required parking space that is not provided. Typically, the funds raised through these fees are then used to construct district serving parking structures. There are several advantages to this approach:

- More options for developers: If providing the required number of parking spaces would be difficult or expensive, the developer can simply choose to pay the fee instead. The fact that the building being constructed may require more than the parking than ends up being built on site is less of an issue if the fees paid go toward a district serving parking structure (Shoup 1999).

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- Improved efficiency: A shared parking structure serving an entire neighborhood is more efficient than having one parking structure per development, each of which provides 100% of the parking for that particular site. Fixed construction costs such as those for ramps, elevators and stairwells are shared among a larger number of parking spaces, reducing the per-space cost of constructing the facility. Additionally, as the different businesses and activities happening throughout the neighborhood likely have their peak hours at different times, a shared facility can provide fewer spaces and still meet the parking needs of the district (Shoup 1999).
- Better Urban Design: A city can locate parking facilities in places where they will have the least impact on auto and pedestrian traffic. A smaller number of parking facilities also allows for continuous storefronts, rather than having gaps containing surface parking (Shoup 1999).

In addition to a district serving parking garage, these fees could be used to start a Transportation Management Association (TMA). A TMA is non-profit member organization comprised of businesses and/or property owners from a particular neighborhood. Members pay dues to the TMA, which are used to fund things such as a free shuttle from a transit station to the different businesses and office buildings in the area (Loveless & Welch 1999; Hendricks 2004). If Brickbottom is to become a thriving business sector with a cluster of high-tech, bio-tech and research and development offices, a TMA might also run a shuttle to Kendall Square, fostering an enhanced physical connection to the existing cluster that is currently thriving there. In this scenario, the in-lieu fees might provide the startup costs of the TMA, after which the members' dues would fund the program.

It would not be feasible for Somerville to build a district serving parking garage at this early stage in the process of Brickbottom's development. However, the development that occurs on the waste transfer facility site will need enough parking to accommodate potential tenants. An interim solution that could be used early in the process is a land banking system. This is a process in which a developer secures off-site parking rather than building an on-site parking facility. Typically, the off site location is an undeveloped parcel that will be developed in the future. It is used as parking in the short term to decrease the need for on-site parking for

development happening in the present (Tappendorf & Denzin 2011). In the future, a different parking solution is reached, such as a district serving parking facility, which allows the land that had been used as parking to be developed. This concept was successfully put into practice in the development of Kendall Square.

There are also alternative zoning models that can be used to encourage mixed-use development. Form based codes have been used to essentially codify a community's vision of what it wants its neighborhood to look like. It begins with a community visioning process, where the desired character of the neighborhood is determined. From this, a zoning code is developed that allows for development that is consistent with the urban form that the community has decided upon. Typically, certain building types, which are compatible with the vision, are allowed. As long as the development conforms to the design requirements, the regulation of specific uses is secondary, allowing for a wide variety of activities on any given site (Duany & Talen 2001; Katz 2004). If, after the community process that has already been conducted, as well as future meetings that will be held, Somerville believes it can arrive at a consensus for a unified vision of what they would like the neighborhood to look like in terms of the urban design and character, the city could consider a form based code for Brickbottom.

Business District Development

The type of neighborhood transformation process Somerville is trying to affect through the reuse of the waste transfer facility site is called property led regeneration. Through this process, the reuse of one property in a neighborhood becomes a catalyst for further development (Jones 1996; Sager 2011). This happens through what is called the demonstration effect. That is, a successful project in an area that had not previously been considered an attractive area for investment demonstrates that development projects in the surrounding area can be profitable. This creates demand for nearby sites, driving up property values and increasing the tax base. Over time, the neighborhood is transformed by an influx of new development (Singhal, Berry & McGreal 2009; Tasan-Kok 2010). See the flowchart below describing this process. It is important to note that this is a process that occurs over a long period of time, taking anywhere from 15 to 30 years and sometimes even longer. This is something that was expressed in an interview with a local economic development expert, and is confirmed by our case studies of Kendall Square and the Innovation District, which have both taken many years get to the point they are at now (with the Innovation District still a long way from being built out completely).

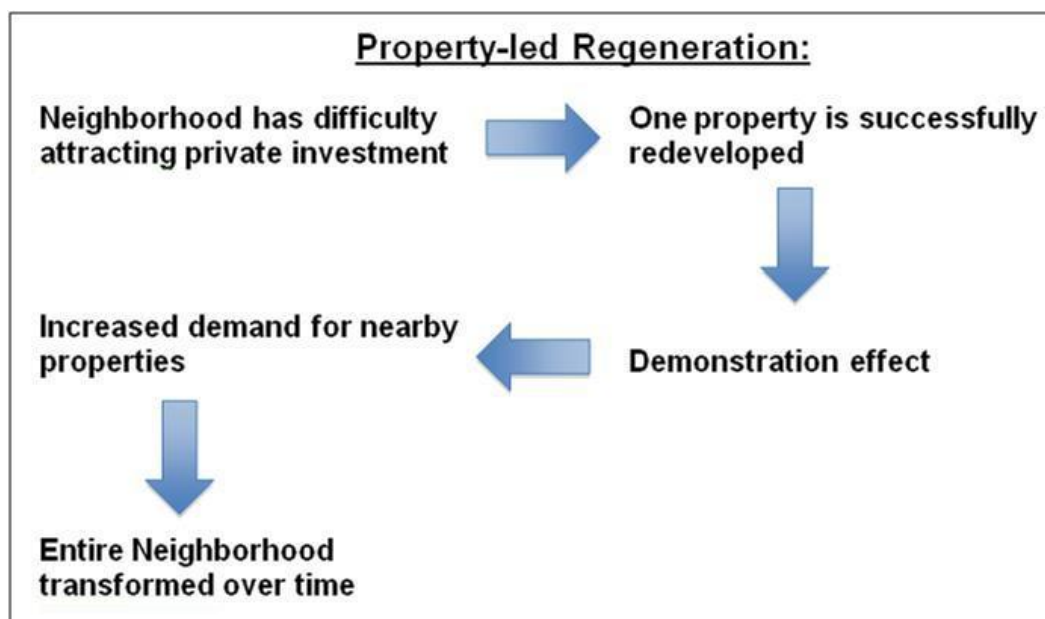


Figure 12: A flow chart showing how a single property can influence development over a large area.

The Innovation District is a good example of property led regeneration. Early projects in the area, such as the Federal Courthouse, the Exhibition Center and the Seaport World Trade Center

and Hotel, have spurred demand and led to significant interest in developing property from private developers, as well as interest from large corporations such as Vertex in locating their headquarters there. Today, there are over 400 restaurants in the South Boston Waterfront, with 50 of them located the Central Waterfront area, the section Mayor Menino branded as the Innovation District (Save the Harbor/Save the Bay 2005), to go along with the significant office and residential space that has been developed.

There are a number of ways a municipality can encourage economic district development in an area. One important way, which was evident both from the literature on business district development and the Kendall Square and Innovation District case studies, is infrastructure improvements. Businesses need to locate in places where their employees have an easy time getting to. Improved transit and auto connections preceded development in both Kendall and the Innovation District (Tercyak 1982; Goldberg 1998). On this front, Somerville is already in a good position, with the Green Line Extension on its way within the next five years. The grounding of McGrath should also be made a priority. Somerville is interested in creating a walkable, transit-oriented neighborhood in Brickbottom, and auto access will need to be improved as well. If done well, the grounding of McGrath can promote help support both of these goals.

Offering financial incentives is another important strategy for encouraging the development of thriving business districts. An important concept in land use planning is the “highest and best use” of land. The idea is that a particular piece of land should be used in the way that is most beneficial for society. Ideally, land will have the most value to an individual or business that would like to make use of the land in this socially optimal way (Malizia 2009). With this in mind, one way to promote the type of mixed use, high value development Somerville would like to see in Brickbottom, is to employ incentives that would make the land in Brickbottom more valuable to developers who want to do that type of development than it is to business owners involved in uses that are currently present in Brickbottom. There are a number of ways this can be done. One important step is to change the zoning code, as mentioned previously. To create additional value, the city can use a number of financial incentives to private developers who

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want to do the kind of development Somerville wants to see. Some of the most intriguing options include:

- Reduced price sale: When the current owner of a piece of property is a stakeholder in the potential re-use of that property upon its sale (as is the case for the City of Somerville with the Waste Transfer Facility), the owner can offer to sell the land to a developer at below the property's market value, on the condition that the development that occurs be compatible with the community's vision for the neighborhood. This lowers the upfront cost for the developer and decreases the amount of money they will need to borrow (McIntosh 2006).
- Tax abatements - Tax abatements are a temporary reduction or elimination of property taxes for particular kinds of development. The reduction in tax liability for the property owner increases the cash flow of a development project. This allows a developer to borrow more money to finance a project. If successful, by the time the tax abatement period runs out (abatements are usually offered for periods of between 5 and 15 years), property values in the targeted neighborhood will have increased significantly, meaning tax revenue for the city will also increase a great deal (McIntosh 2006).
- Low interest loans - A municipality can offer loans to a developer at lower interest rates than the developer would receive at a profit-maximizing financial institution. This serves to decrease the cost of capital for the developer, making the project more likely to be feasible. This is a tool that can be used to fill a financing gap in the case that a private developer cannot attract enough debt to cover the full cost of site acquisition and construction (Fine Point Associates).
- Loan guarantees - Instead of directly providing a loan to a developer, a municipality can guarantee a loan from a private source. This means if the developer were to default on the loan, the city would become financially responsible for repaying the loan. Having a guarantor is another way in which a developer can borrow more money, than if they had to secure financing completely on their own (Fine Point Associates).
- Tax increment financing - Tax increment financing allows a city to allocate future increases in tax revenue in a designated area to invest in current improvements in that area. The money allocated can be used to fund infrastructure improvements, marketing

efforts, or other investments made in attempts to attract new development, such as the low income loans mentioned above (Adair, Berry & McGreal 2003).

Finally, in order to attract wide scale redevelopment of a neighborhood, a city needs to really “sell” the new district. It is important to get the word out to developers that a particular neighborhood is a target for redevelopment (Walker 2000). This lets developers know that if they plan to do the kind of development the city is interested in encouraging, they will be supported by the city. Once one or two projects are completed, it will be easier to attract new clients, because there will already be developments the city can point to in support of its claims that this is the newest hotspot for a particular type of development. This is the demonstration effect mentioned previously (Jones 1996). The City of Boston has done a particularly good job of marketing the South Boston Waterfront. Mayor Menino branded the area the “Innovation District” to make known the vision the city had for the neighborhood. While there are no dedicated marketing personnel, the mayor and his staff have actively contacted businesses who may be interested in locating their operations in the neighborhood and developers who might be interested in developing property there. They also created a website, www.innovationdistrict.org, which makes information about the goals and results of the redevelopment plan for the neighborhood publicly available. The city also hosts and promotes events in the district, in attempts to get people into the area, thus creating further awareness of the area as a center for business, tourism and social life (Wong 2012). Somerville will need to actively promote Brickbottom as the next great mixed-use, pedestrian friendly area in the Metro Boston region, similar to how Boston continues to promote the Innovation District.

Development Scenarios

Three scenarios are presented in this report that are based on the assumption that the McGrath/O'Brien Elevated Highway/Route 28 will be razed and replaced with an at-grade solution in the future. Research and interviews with stakeholders indicate that the highway is a barrier to development in the district. An at-grade replacement corridor will open the Brickbottom District up to improved pedestrian, transit and bicycle access.

The immediate area surrounding Brickbottom is characteristically dense. This is a feature the City of Somerville wants to replicate through infill development in the Brickbottom District as it provides a close proximity to housing, points of interest and employment opportunities. The first two scenarios maintain the roadway infrastructure of Poplar Street in its current configuration. The third scenario includes a realignment of Poplar Street. The reconfiguration of Poplar Street and the subsequent 3rd proposal comes from a roadway redesign session from within Somerville's planning department.

Urban Design Principles

While our project is considering three different scenarios for development, there are a number of urban design elements that remain consistent from one scenario to the next. Chief among these elements is the grounding of the McGrath/O'Brien Elevated Highway. City officials from Somerville have made it clear that they want to see McGrath grounded, and provided our team with a number of different options for what form a grounded McGrath may take. (See Appendix A) Of these options, we determined that the "Boulevard Road Diet" concept would be most beneficial to the area and to our site. This option shrinks the width of the road, and adds much needed green space to the neighborhood.

One design change we would make to this option is reducing the number of travel lanes from three to two on both the northbound and southbound sides of the road. While some might argue this reduction in capacity is not appropriate, the concept of "disappearing traffic" is applicable and justifies the removal of a travel lane. (Atkins, "Disappearing Traffic") In place of the lost travel lane, on-street parking would be added. This change ought to be considered as the process

to ground McGrath moves forward. It will provide parking for businesses in the area, but also act as a traffic calming measure. (Massachusetts Highway Dept. p. 16-13) Traffic calming is important if Brickbottom is going to be accessible for pedestrians. A grounded McGrath can be just as much of a barrier as an elevated McGrath if pedestrians and cyclists do not feel safe crossing.

Other traffic calming measures that should be included for developments in Brickbottom and specifically our site at the current waste transfer facility include narrow travel lanes (p. 16-7, p. 16-19), the addition of bicycle facilities (p. 16-19), raised curbs (p. 16-12), street accessories such as furniture, trees, and lighting (p. 16-11), and curb extensions (p. 16-28). Each of these measures serves to slow traffic, making the roadway safer for pedestrians and cyclists. (U.S. Dept. of Transportation) By completing sidewalk networks (Hess, “Site Design & Pedestrian Travel) which are current in a state of disrepair (See Photographic Analysis), the city can encourage more pedestrian use which will further enhance safety for pedestrians and cyclist. (Jacobsen, “Safety in Numbers”)

Just as important as pedestrian safety is pedestrian friendliness, i.e. the extent to which the built environment favors pedestrians and is oriented to pedestrians. While not solely related to making pedestrians safer, these elements which we have included in our design would attract more pedestrians and that in and of itself has been shown to enhance pedestrian safety. (Jacobsen, “Safety in Numbers”) These elements include designing areas with medium-to-high density mixed-uses on short-to-medium blocks. (Ewing, Pedestrian- and Transit-Friendly Design, p. 2-3) Sidewalks should be wide and continuous (Ewing, p. 6), allow for safe crossings (Ewing, p. 8) and be buffered from traffic (Ewing, p. 10). Buildings should be street-oriented (Ewing, p. 10) with active uses at the street level.

Each of the three scenarios we put forth incorporates the design elements discussed above. By using all of these elements in each scenario, our project can be used as a guide for development not only at our site, but throughout Brickbottom. Even if our site is not developed with one of our scenarios in mind, these design elements should be included to ensure that Brickbottom

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becomes a neighborhood that favors sustainable transportation modes like walking and cycling and is focused on the pedestrian experience.

Scenario 1

The first scenario maintains the current roadway structure of Poplar Street. It is advisable that the parcel be sold to a private developer so that the city can put the payment towards the remediation cost of the site. The suggested land use is for a commercial site with ground floor retail space and commercial activity such as office space or Research & Development on the upper floors. Examples could include: small businesses, family-oriented programming, artist studios or incubator businesses. The goal of the space is to attract creative-minded tenants that will attract like-minded employers to the district. Due to the spatial limitations of the building and lack of amenities, it is unlikely the Brickbottom neighborhood will initially be able to attract the large scale corporations present in Kendall Square or the Innovation District. It is for this reason that in the redevelopment of 10 Poplar Street, Somerville focus on attracting smaller business that can benefit from the reduced rental rates and be committed to building a viable business community within the district. In addition, 10 Poplar Street can foster a service industry economy that will serve daytime needs. Examples of retail opportunities include restaurants/ cafes, barber shop or salons or other similar storefronts. Since the additional traffic in the neighborhood is going to be primarily commuter based, it is important to insert land uses that will keep the space busy. Attractive land uses will enliven the space and make it a magnet for neighborhood activity. The development will also include a publicly accessible plaza with seating. In addition, efforts should be made to include features that work to minimize roadway distractions such as noise.

Scenario 1 Site Plan

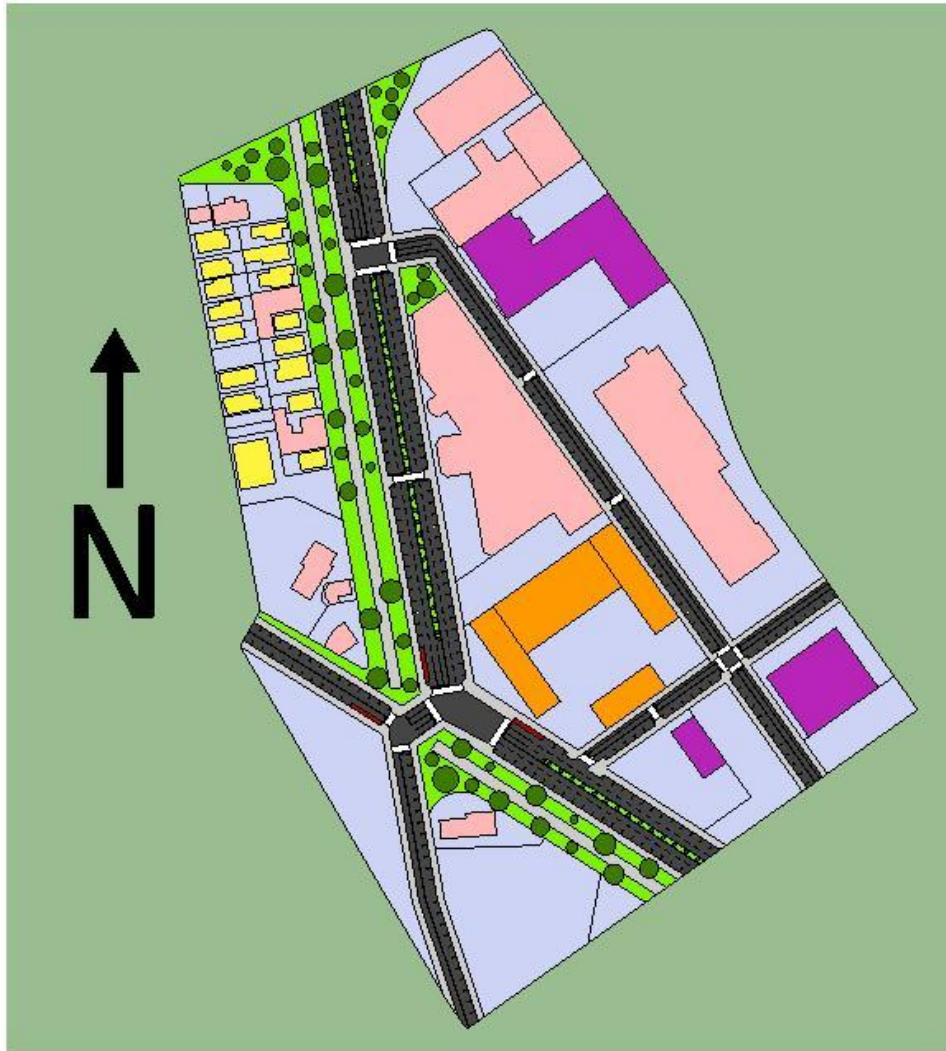


Figure 13: Site plan for Scenario 1. Residential buildings are marked in yellow, commercial in pink, and industrial in purple. 10 Poplar Street redevelopment is shown in orange.

Scenario 2

The second scenario maintains the current roadway structure of Poplar Street. It is advisable that the city remains the owner of the parcel and finances the construction of a new municipal building. The municipal building will consolidate Somerville's public safety departments. It is recommended that the building include retail space for service industry jobs so as to provide commercial opportunity for site employees and visitors. Similar to the first scenario, this building will also include a public space component with options for seating and separation from roadway activity.

Scenario 2 Site Plan

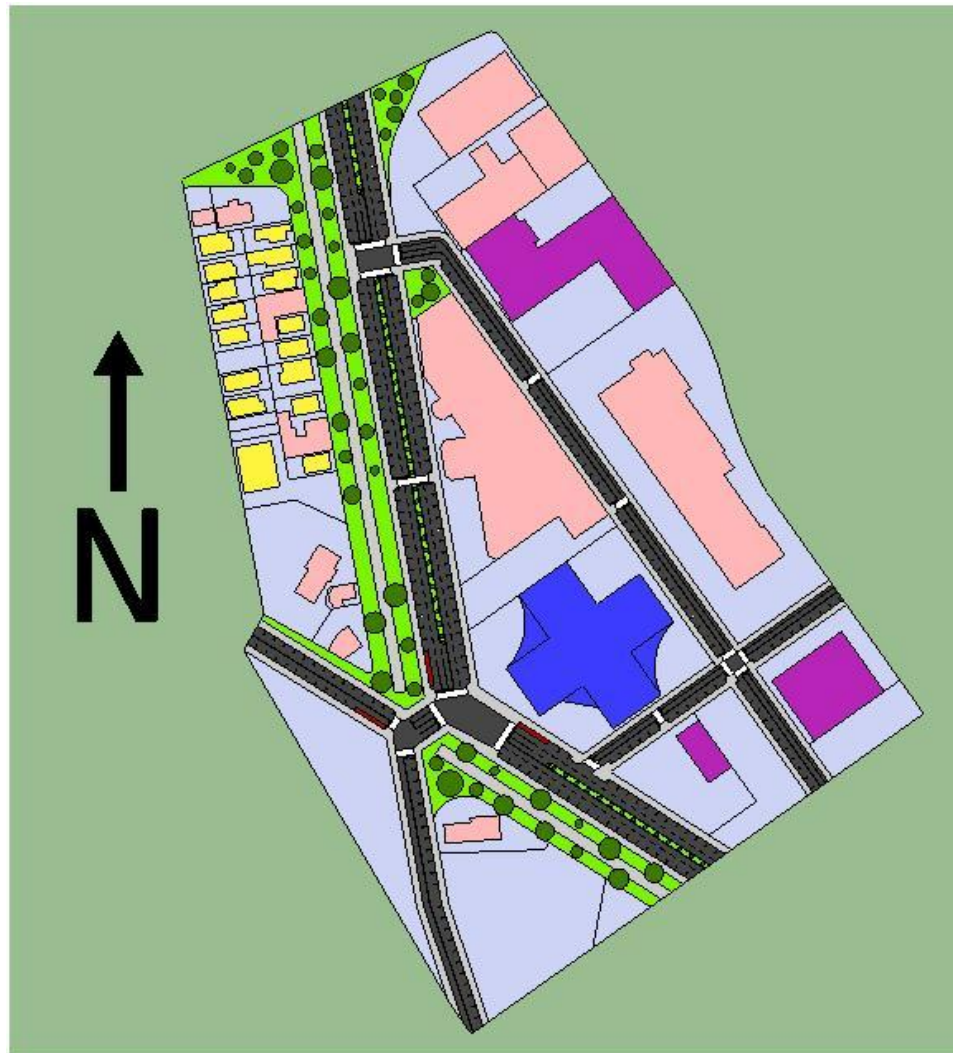


Figure 14: Site plan for Scenario 2. Residential buildings are marked in yellow, commercial in pink, and industrial in purple. 10 Poplar Street redevelopment is shown in blue.

Scenario 3

For the third scenario, the current location of Poplar Street will be shifted slightly east to intersect with the newly designed McGrath Highway/ Route 28. Subsequently, the 10 Poplar Street site will be divided into two parts. It is suggested that the city reclaim the former Poplar Street right of way and incorporate that into the 10 Poplar Street parcels. As a result, there will be two city-owned parcels separated by a realigned Poplar Street. It is advised that the parcels be sold to a private developer so that the city can put the payment towards the remediation cost. The western parcel should follow the building plans for scenario one; a commercial building

occupied by office or Research & Development tenants with retail space on the ground floor. The eastern parcel should be designed to meet short term parking needs. The proposed commercial land uses will bring many new commuters to the Brickbottom District on a daily basis. While Somerville is working to improve public transit, bicycling and pedestrian access to the site, many commuters will choose to travel in personal vehicles. As alternative transportation options improve and commercial occupancy prospects increase, the parking lot can either be improved as a permanent city-run parking facility or converted into more commercial office space.

Scenario 3 Site Plan

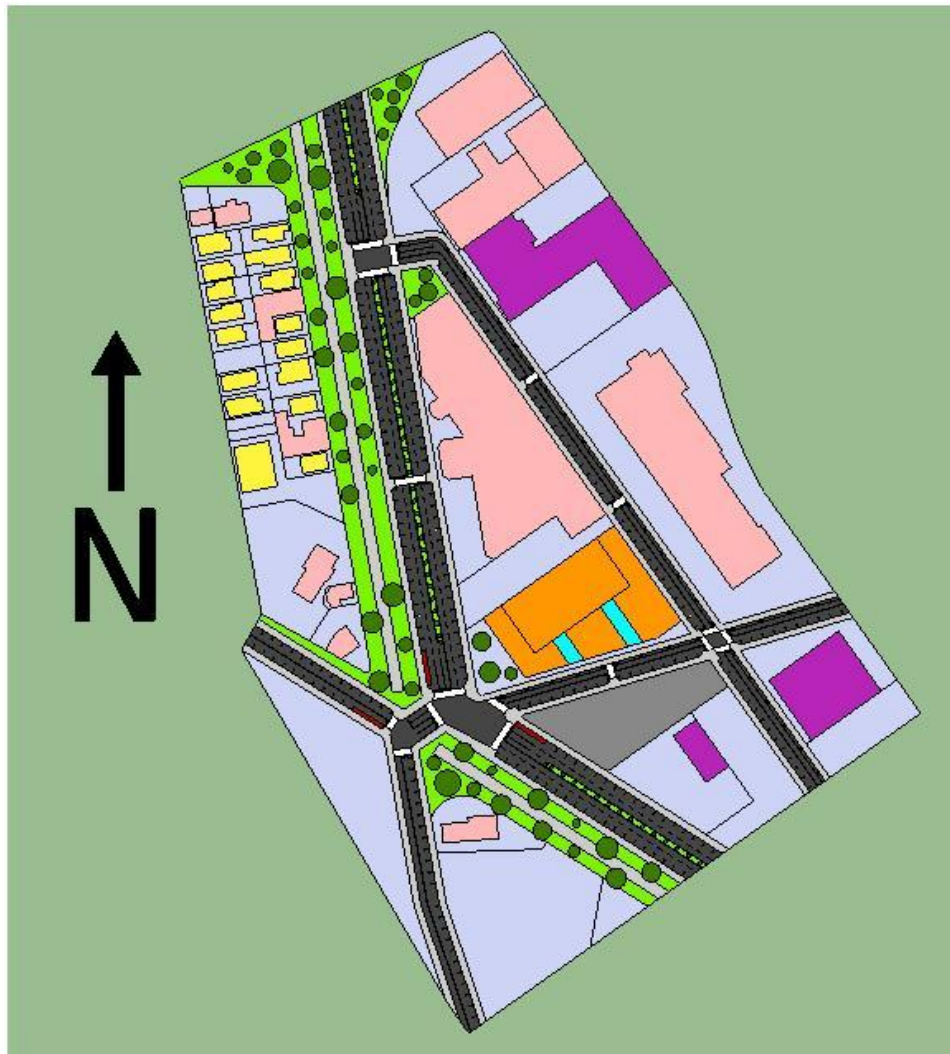


Figure 15: Site plan for Scenario 3. Residential buildings are marked in yellow, commercial in pink, and industrial in purple. 10 Poplar Street redevelopment is shown in orange. The dark gray parcel south of 10 Poplar Street is the parcel created by a re-aligned Poplar Street.

Preferred Scenario & Recommendations

Preferred Scenario

Based on the research conducted for this report, Scenario 3 is being recommended and the preferred development scenario. While a possible consolidation of public safety facilities was mentioned by municipal officials early on as a possibility, subsequent conversations revealed that the city's goals for the area would not be met with that particular use.

Scenario 3 is being recommended over Scenario 1 due to the flexibility it allows the city. By creating two parcels from one, the city can play a role in multiple development projects in Brickbottom over a longer period of time. Additionally, Scenario 3 provides a key benefit not present in the other scenarios. Dividing the parcel in two would allow one parcel to be used as a surface parking lot. While this is not an ideal use for the long-term, it can potentially address some issues short-term, namely attracting large businesses to the Brickbottom District.



Figure 16: A massing of a possible development under Scenario 3. The building shown is 10 stories, with a height of 155 ft.

Until the Green Line Extension is complete, Brickbottom will be lacking in public transit options. This makes the area less appealing to large-scale employers. Developers may not be interested due to the fact that they would need to include some type of structured parking for any potential tenants. Creating this surface parking lot would allow developers to forgo expensive structured parking and provide the necessary space for larger employers in the interim between now and completion of the Green Line Extension. At that time, the city can consider other

options for this second parcel, such as additional commercial development or adding a residential component. Essentially, this scenario allows part of the parcel to remain in development fallow until the area is ready for a more substantial use.

Financial Analysis

We have done some rough financial modeling to make an initial assessment of the feasibility of this development scenario. Our model is not based on an in depth market study. As Somerville has already contracted with Goody Clancy to provide that type of analysis, the city should rely on that work in assessing market opportunities and developing a financing strategy. Our model is based on some basic assumptions regarding construction costs, rents, interest rates, and a variety of other variables. These estimates were provided to us by our contact, Brad Rawson. To view a complete set of our financial assumptions, please see appendix X. Some of the most relevant assumptions include:

	Construction Costs	Rents
Office	\$200 per sq. ft.	\$40 per sq. ft.
Neighborhood Retail	\$200 per sq. ft.	\$30 per sq. ft.
Lab/R&D	\$350 per sq. ft.	\$50 per sq. ft.

Acquisition Cost: \$1.5 million

Leasable Space: 90% of total square footage

Vacancy Allowance: 10%

Market Capitalization Rate: 6%

Construction Loan Interest Rate: 7%

Loan-to-Value Ratio: 70%

Developer Required Return on Investment: 25%

An important factor we have not accounted for in our model is potential remediation costs. At this point, there is not enough information to determine what these costs may be, as an environmental assessment has yet to be completed. Once a concrete estimate of remediation costs has been established, a variety of public and private funding sources can be used to fund any necessary site cleanup and preparation. The acquisition cost, which is the price the city will receive for the sale of the property is also uncertain at this point, and should be determined by the level of interest from private developers in undertaking the project.

The figures below show the results of our basic financial modeling. They show that based on our basic assumptions, development of office/lab space with neighborhood retail on the ground floor

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is likely to be feasible for a private developer. They also indicate that this type of development would be financially beneficial for the city. While Somerville will forego lease payments from the waste transfer facility of approximately \$240,000, the additional tax revenue from the mixed-use development more than makes up for this loss, at \$3.2 million per year. While these numbers appear promising, we reiterate that these are very rough estimates, and the city should use the Goody Clancy reports for more thorough market and financial data.

Summary Analysis	
PRIVATE DEVELOPER	
Project Viable?	YES
Net Present Value to Developer	\$19,933,815
Cost of Capital	10.44%
Return on Capital (IRR)	29.03%
CITY OF SOMERVILLE	
Ongoing Annual Revenues	\$3,247,675
Ongoing Annual Costs	\$99,521
Ongoing Annual Net	\$3,148,154
One Time Revenues	\$73,000
One Time Costs	\$0
One Time Net	\$73,000
Net Present Value to City	\$56,991,386
Present Value Cost of Delays	\$4,866,346
OTHER PROJECT METRICS	
Transferable Impact Costs	\$19,933,815
FAR	3.209
EXTERNALITIES	
New Residents to Somerville	0
New Students	0
Entry Level Jobs Created	307
Skilled Jobs Created	667
Total Jobs	973
Affordable Housing Units	0

Figure 17: The above chart represents a summary of the feasibility and financial impact of this development scenario.

City Financial Analysis	
Discount Rate	6.00%
Revenue Growth Rate	2.50%
Cost Growth Rate	5.00%
ONGOING REVENUES AND COSTS	
Ongoing Revenues	\$3,247,675
Ongoing Costs	\$99,521
Ongoing Increase (Decrease)	\$3,148,154
ONE TIME REVENUES AND COSTS	
Revenues	\$73,000
Costs	\$0
Net Benefit	\$73,000
Project Net Present Value	\$56,991,386
Present Value Cost of Delays	\$4,866,346

Figure 18: The above chart shows the public fiscal impact of this development scenario.

Private Developer Analysis		
	Leveraged	Unleveraged
Total Project Value	\$137,808,000	\$137,808,000
Total Project Cost	\$104,719,157	\$99,404,660
Total Profit	\$33,088,843	\$38,403,340
Developer Cash In	\$31,415,747	\$99,404,660
Debt	\$73,303,410	\$0
Developer Cash Out	\$64,504,590	\$137,808,000
Total Project Length in Months	30	
Total Project Length in Years	2.5	
	Over Project	Annualized
<i>(These are biased by simplified timing of cash flow assumption - use IRR instead)</i>		
Simple Return on Assets	39%	14%
Simple Return on Equity	105%	33%
Net Present Value	\$19,933,815	
IRR	29%	

Figure 19: The above chart shows the value of this project to a private developer.

Brownfield Remediation Recommendations

“The reality is no one is going to want to locate a new corporate headquarters or new housing or a new restaurant right next to a trash handling facility...This is some of the best-located property in our urban region, but it has remained dormant and undervalued because we have not moved completely beyond the dirty, industrial legacy that caused Brickbottom to deteriorate.” – Somerville Mayor Joseph Curtatone

In its current state, the 10 Poplar Street parcel is not fulfilling the desired land uses of a 21st century economy for the City of Somerville. Somerville is

seeking to bring commercial or research and development uses to the Brickbottom District that will generate new sources of revenue for the city.¹¹ The fact remains that the waste transfer station is incompatible with the direction Somerville is headed. Furthermore, the transfer station is a barrier to attracting the new types of neighborhood development that the city seeks.

Somerville can begin to transform the land use character of Brickbottom into a sought out district for innovative entrepreneurs and a desired location for housing and cultural activity. But first the parcel will need to be safe for non-industrial uses. Somerville needs to address the environmental contamination and Brownfield remediation of 10 Poplar Street. Strategies for developing 10 Poplar Street will all depend on what Somerville designates as the desired use of the site. And,

¹¹ In the article, “City Gives Waste Management One-year Notice to Close Transfer Station” published on Oct 04, 2011, Somerville Mayor, Joe Curtatone states that the waste transfer facility is a barrier to new types of development in the district.

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in many respects what land uses are actually possible will depend on the types and extent of contaminants present. Secondly, Somerville should consider how they might leverage private investment while limiting public spending. Brownfield Remediation projects are costly. Therefore, the city should sell the property to private developers and seek to form a public/private partnership. What Somerville brings to the table is their ability to create incentives for private sector development. The private sector compliments this by having more feasibility in raising capital for a project. Somerville can then take the payments from sale and reinvest that into site remediation cost. Thirdly, while financing is a vital component of the project, equally important is the long-term investment on the part of the local community. Interview research indicates that Brickbottom stakeholders want to be involved with the redevelopment of the 10 Poplar Street parcel. Therefore, it is important that whatever project the city chooses that it matches the vision of the community.

Zoning Recommendations

We recommend that Somerville change the zoning designation of Brickbottom from Industrial A to TOD 135. A TOD designation will allow a wide variety of uses. We recommend the 135 designation to allow for enough density to attract commercial developers and neighborhood retailers. High density and a mix of uses will be necessary to meet the goals the city has laid out for the development of the neighborhood, which include developing pedestrian oriented spaces and locally owned businesses and providing blue and white collar jobs.

One adjustment the city should make to the TOD 135 designation is a relaxation of parking requirements that require all parking to be provided in an on-site structure. We recommend implementing in-lieu fees to prevent a shortage of off street parking. Somerville can charge developers a fee for each required on-site parking space not provided. These funds can eventually be used to construct a district serving parking garage. As an interim solution prior to the district serving facility being built, the city can implement a land banking system. This would entail requiring developers to secure off-site parking in place of providing an on-site facility. Our preferred scenario would work very well for a system like this. With the Waste Transfer Facility site being split into two parcels, one could be developed while the other is used for parking. As

more development occurs in Brickbottom, a district serving parking garage can be constructed, freeing up the second parcel to be developed as well.

Business District Development Recommendations

There are three categories of strategies that can be used to encourage the development of thriving business districts: infrastructure improvements, financial incentives and marketing. All three are important and should be used to encourage the development of Brickbottom. Infrastructure improvements are already planned for Brickbottom in the form of the Green Line extension and the grounding of McGrath. Somerville needs to continue its efforts to make sure those projects are completed in a timely manner. This is particularly true for the McGrath project, for which there is no official plan or timeline as of yet. It will be important to make sure these projects are compatible with Somerville's plan to create a walkable, pedestrian-oriented neighborhood.

What types of financial incentives should be used will depend on the demand from developers to build commercial space. If the demand is strong, there may not be a major need for significant incentives. If it is more difficult to find developers who are willing to develop the waste transfer facility site, Somerville should consider decreasing the sale price, using tax abatements, offering loan guarantees or low interest loans, tax increment financing to fund infrastructure improvements, and other financial incentives to make developing the site more attractive to developers.

Finally, Somerville will need to market Brickbottom as the next great mixed use neighborhood in the Metro Boston area. The city should network with potential developers and businesses that might be willing to lease space in Brickbottom, and promote the investment that will be happening there over the years to come. Once a few developments occur and Brickbottom starts to become a more pleasant place to spend time, Somerville should attempt to attract people to the area with events that will showcase the neighborhood. An example might be a showcase of the work done by the local artists living in the artist lofts.

Urban Design Recommendations

From an urban design perspective, all three proposed scenarios represent an improvement over the current conditions at 10 Poplar Street. Sidewalks wide enough for groups to use, as opposed to sidewalks that are essentially impassable will encourage more walking. The inclusion of bicycle facilities will encourage more cycling. The narrowing of McGrath Highway into McGrath Boulevard allows for shorter pedestrian crossing distances and the creation of a new linear park in an area desperately in need of green space.

The city has identified this area as being in need of transformative development, and these urban design changes are the physical manifestation of that goal. An area currently dominated by the automobile can become a haven for walkers, bikers, and public transit users.

The preferred scenario does have some advantages over Scenarios 1 and 2. The re-alignment of Poplar Street creates a single intersection with the new McGrath Boulevard, Somerville Avenue, and Medford Street. This creates a logical space for the buses that pass through the area to stop, and provides easy access to the Brickbottom District and East Somerville. The re-alignment also allows for easier connections to be made through and across Brickbottom and the Inner Belt area.

The building proposed in Scenario 3 takes its design cues from Atlantic Wharf in Boston. Atlantic Wharf has combined pedestrian friendly businesses along its street level with office spaces above. The design allows for a pedestrian oriented lower section and sets back the taller section more from the streets and sidewalks to reduce its impact. Given that the city is hoping for higher density development, following this design, albeit in a smaller scale, allows for both goals to be met simultaneously.

The re-alignment of Poplar Street also allows for the city-owned parcel to be divided into two smaller sites. The northern of the two sites would be developed first. While this site and the rest of Brickbottom are in the process of being redeveloped, the newly created southern parcel could be used as surface parking lot. This would lessen the need for a parking structure to be included in the redevelopment of the northern parcel. Additionally, it would fill the need for transportation

options to and from the site in the interim between when redevelopment of Brickbottom begins and when the Green Line Extension is completed in 2018. Once the Green Line Extension is complete, the need for automobile oriented transportation will be less, and the southern parcel can be redeveloped, possibly into new housing for the area if needed. In essence, the realignment of Poplar Street allows part of the city-owned parcel to be left fallow, until the surrounding area is ready for additional development and no longer needs additional parking.

Conclusion

The 10 Poplar Street parcel in Somerville's Brickbottom neighborhood provides the City of Somerville a unique opportunity to steer economic development efforts in an industrial corridor. Given that the site is owned by the city, municipal officials can play a more direct role in the parcel redevelopment than they would have otherwise. This means the city can potentially set the tone for redevelopment in the vicinity of 10 Poplar Street and the entire Brickbottom District.

The redevelopment of the Brickbottom District is a part of Somerville's comprehensive plan, SomerVision. The development of SomerVision is the result of an extensive community driven process. In order for the redevelopment of 10 Poplar Street to be successful, it is important that the planning process be approached with the same caution and purpose demonstrated in SomerVision. In addition, the city can bring that same success to other projects within the Brickbottom neighborhood by applying the lessons learned from the SomerVision project.

It is also equally important that the city take into account the four focus areas discussed in this report: brownfield remediation, business district development, zoning, and urban design. While each topical area was chosen for its relevance to 10 Poplar Street, lessons learned can be applied to projects throughout the city. It is highly likely that other potential sites for redevelopment in Brickbottom, the Inner Belt, and elsewhere in the city will be brownfield redevelopment projects. The research shows these projects can be beneficial for cities and towns, but only if the underlying environmental risks are addressed appropriately. Somerville has already demonstrated its inclination towards progressive zoning policies such as transit oriented development. Continuing that trend where appropriate will allow the city to attract additional employment opportunities for residents.

The city ought to apply this same progressive attitude towards developing financial incentives and marketing strategies for developing business districts throughout the city. Especially in an area long overlooked such as Brickbottom, these efforts could be the difference between a developer choosing a site in Somerville as opposed to Kendall Square or the Boston Innovation

District. For the same reason, infrastructure improvements are necessary to attract development. If an area is in disrepair, private businesses will not be inclined to relocate there. However, if a city has invested in infrastructure improvements such as improved facilities for pedestrians, cyclists, and public transit, it demonstrates to the private sector that the public sector is committed to the area in question.

It is here that business district development and urban design overlap one another. Simply fixing the current infrastructure is often insufficient. Somerville should design for the type of district it wants, not what is necessarily present today. This means despite the fact that Brickbottom is dominated by automobiles, the city should begin to implement urban design infrastructure that favors more sustainable modes of transportation, namely walking, cycling, and public transit.

The site at 10 Poplar Street can be one at which the City of Somerville begins to physically implement the aspirations laid out in SomerVision. This report shows a possible path towards those aspirations becoming reality. While a final redevelopment may take a different form than what is proposed above, the four areas of brownfield remediation, business district development, zoning, and urban design must be considered for 10 Poplar Street to reach its full potential of catalyzing economic development in Somerville's Brickbottom District.

References

2011. "InVivo Therapeutics leases new headquarters building." Pharma. LexisNexis Academic. Web. Date Accessed: 2012/04/03.
- Adair, Alastair, Berry, Jim, & McGreal, Stanley. 2003. "Financing property's contribution to regeneration." *Urban Studies* 40(5-6): 1065-1080.
- Atkins, Stephen, Sally Cairns, and Phil Goodwin. "Disappearing Traffic? The Story So Far." *Proceedings of the Institution of Civil Engineers* Issue 1. (March 2002). 13-22.
- Bokov, Anya, ed. 2007. *Edge as Center: Envisioning the Post-Industrial Landscape; Somerville, Massachusetts*. Recycled Paper Printing. Newburyport, MA.
- Brion & Associates. 2004. *Retail and Transit-Oriented Development Case Studies*. Retrieved from http://www.downtownberkeley.org/downtown_berkeley_document_library/econ_retail/TransitOrientedDevelopment_Brion_04.pdf.
- City of Somerville. "City Gives Waste Management One-year Notice to Close Transfer Station" published on Oct 04, 2011. Assessing regeneration, business strategies and urban competitiveness. Local Economy, 24(2), 111-124. Retrieved from <http://www.ci.somerville.ma.us/news/city-gives-waste-management-one-year-notice-close-transfer-station>.
- City of Somerville. 2012. "SomerVision - City of Somerville, Massachusetts, Comprehensive Plan 2010-2030." Retrieved from <http://www.somervillema.gov/compplan>.
- City of Somerville Office of Strategic Planning and Community Development. 2009. "Trends in Somerville: Economic Trends Technical Report – June 2009." Retrieved from <http://www.somervillema.gov/sites/default/files/CompPlan/EconomicTrendsReport1.pdf>.
- Diesenhouse, Susan. 2000. "Convention Center Shapes Boston Harbor Area." *The New York Times*. Retrieved from <http://www.lexisnexis.com.ezproxy.library.tufts.edu/hottopics/lnacademic>
- Diesenhouse, Susan. 2011. "Spurring Growth on Boston's Waterfront." *The New York Times*. Retrieved from <http://www.lexisnexis.com.ezproxy.library.tufts.edu/hottopics/lnacademic>
- Duany, Andres & Talen, Emily. 2001. "Making the Good Easy: The Smart Code Alternative." *Fordham Urban Law Journal* 29(4): 1445-1468.
- Duncan, Eleanor. 2012. "Boston Sees Biotech Development Boom." *Real Estate Finance and Investment*, Retrieved from <http://www.lexisnexis.com.ezproxy.library.tufts.edu/hottopics/lnacademic>.
- Duany, A. & Talen, E. (2001). Making the Good Easy: The Smart Code Alternative. *Fordham Urban Law Journal*, 29(4), 1445-1468.
- Ewing, Reid. 1991. "Pedestrian- and Transit-Friendly Design: A Primer for Smart Growth." *International City/County Management Association*. 1-26.
- Fine Point Associates. *Economic Development Toolkit*.

- Gaber, John and Sharon Gaber. 2007. *Qualitative analysis for planning & policy: Beyond the numbers*. Chicago: APA Planners Press.
- Goldberg, Cary. 1998. "Boston Leading a Renewal of Old Northern Cities." *The New York Times*, Retrieved from <http://www.lexisnexis.com.ezproxy.library.tufts.edu/hottopics/lnacademic>.
- Heberle, Lauren. Wernstedt, Kris. 2006. "Understanding brownfields regeneration in the US." *Local Environment: The International Journal of Justice and Sustainability*, 11:5, 479-497
- Hendricks, S. J. 2004. *Results of 2003 Transportation Management Association Survey: Analysis of Evolving Characteristics of Transportation Management Associations* Retrieved from www.scopus.com.
- Hess, Paul M., Anne Vernez Moudon, Mary Catherine Snyder, and Kiril Stanilov. 1997. "Site Design and Pedestrian Travel." *Transportation Research Record*. 9-19.
- Higgins, T.J. 1985. "Flexible Parking Requirements for Office Development: New Support for Public Parking and Ridesharing." *Transportation* 12: 343-359
- Hollander, Justin B. Kirkwood, Niall G. Gold, Julia L. 2010. "Principles of Brownfield Regeneration: Cleanup, Design, and Reuse of Derelict Land." *Island Press*.
- House of Representatives, 109th Congress. September 13th 2005. "Brownfields and the 50 States: Are State Incentive Programs Capable of Solving America's Brownfield Problem?" Hearing before the Subcommittee on Federalism and the Census. The Committee on Government Reform. Serial No. 109-113
- Institute of Transportation Engineers. 2010. "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach." 1-215.
- Jacobsen, P.L. 2003. "Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling." *Injury Prevention*. 205-209.
- Jones, Colin. 1996. "The Theory of Property-led Local Economic Development Policies." *Regional Studies* 30(8): 797-801.
- Katz, Peter. 2004. "Form first." *Planning* 70(10): 16-21. Retrieved from www.scopus.com.
- Lawler, Andrew. 2002. "Novartis Sows its Future in U.S. Soil. (Drug Research)." *Science* 296.5571: 1216
- Academic OneFile*. Web. 2 Apr. 2012.
- Loveless, S. M., & Welch, J. S. 1999. "Growing to meet the challenges: Emerging Roles for Transportation Management Associations." *Transportation Research Record* (1659): 121-128. Retrieved from www.scopus.com.
- Malizia, Emil. 2009. "Site Use in a Redeveloping Area." *Journal of Real Estate Practice and Education* 12(1): 81-104. Retrieved from www.scopus.com.
- Massachusetts Highway Department. 2006. *Massachusetts Highway Department Street Design Manual*. 16-1-16-30.

Catalyzing Economic Development in Somerville's Brickbottom District

McIntosh, C. L. 2006. "Where does the reuse money come from?" *Land Contamination and Reclamation* 14(2): 361. Retrieved from www.scopus.com.

Meyer, Peter. 1998. "Accounting for Differential Neighborhood Economic Development Impacts in Site-Specific or Area-Based Approaches to Urban Brownfield Regeneration." Center for Environmental Policy and Management, Kentucky Institute for the Environment and Sustainable Development.

Meyer, Peter. VanLandingham, H. Wade. 2000. "Reclamation and Economic Regeneration of Brownfields." The E.P. Systems Group, Inc. *U.S. Economic Development Administration*.

Reilly, D. 2011. "Three Little Words*." *Real Estate Finance and Investment*. Retrieved from <http://www.lexisnexis.com.ezproxy.library.tufts.edu/hottopics/lnacademic>.

Save the Harbor/Save the Bay. 2005. *Boston's Harbor and Waterfront, A Renaissance Underway: A Special Indicators Report with an Initial Framework for Measuring Success*. Retrieved from www.tbf.org.

Shoup, Donald. 1999. "In lieu of Required Parking." *Journal of Planning Education and Research* 18: 307.

Singhal, Shaleen, Berry, Jim, & McGreal, Stanley. 2009. "A framework for assessing regeneration, business strategies and urban competitiveness." *Local Economy* 24(2): 111–124.

Staley, Samuel, & Scarlett, Lynn. 1998. "Market-oriented planning: Principles and tools for the 21st century." *Planning and Markets*. Retrieved from <http://www.pam.usc.edu/volume1/v1i1a5s1.html>.

Tappendorf, Julie & Denzin, Brent. 2011. "Turning vacant properties into community assets through land banking." *Urban Lawyer* 43(3): 801-812. Retrieved from www.scopus.com.

Tassan-Kok, Tuna. 2010. "Entrepreneurial Governance: Challenges of Large-scale Property-led Urban Regeneration Projects." *Tijdschrift voor Economische en Sociale Geografie* 101(2): 126–149.

Tercyak, T.J. 1982. "Kendall Square; An Urban Renewal Success." *Journal of Housing* 39 (1982): 141-145.

U.S. Census Bureau. 2012. "State and County Quick Facts – Somerville, MA." Last revised Jan. 2012. Retrieved from <http://quickfacts.census.gov/qfd/states/25000.html>.

U.S. Department of Transportation Federal Highway Administration Highway Safety Information System. 2010. "Evaluation of Lane Reduction 'Road Diet' Measures and Their Effects on Crashes and Injuries." 1-6. Retrieved from <http://www.fhwa.dot.gov/publications/research/safety/10053/index.cfm>.

U.S. Environmental Protection Agency. 2007. "Financing Brownfields: State Program Highlights, United States Environmental Protection Agency." Prepared by ICF International for the United States Environmental Protection Agency. Office of Solid Waste and Emergency Response. September. EPA 560-F-07-252

U.S. Environmental Protection Agency. 2008. "Unlocking Brownfields Redevelopment, Establishing a Local Revolving Loan Fund Program." United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-560-F-08-280.

Walker, Marian. 2000. "Place marketing and local proactivity in the economic development of Benoni." *Urban Forum* 11(1): 73–99

Wickersham, Jay. 2001. "Jane Jacob's Critique of Zoning: From Euclid to Portland and Beyond." *Boston College Environmental Affairs Law Review*. Volume 28. Urban Ecology, Article 5

Wong, Vanessa. 2012. "Boston's 'Innovation District' Eagerly Awaits More Innovators." *Businessweek*. Retrieved from <http://www.businessweek.com/articles/2012-03-21/bostons-so-called-innovation-district-eagerly-awaits-more-innovator>.

Photography & Graphic Credits

- Figure 1: Base map from Google Maps
- Figure 2: City of Somerville economic trends report
- Figure 3: City of Somerville comprehensive plan, SomerVision
- Figure 4: City of Somerville comprehensive plan, SomerVision
- Figure 5: City of Somerville comprehensive plan, SomerVision
- Figure 6: Dorothy Fennell
- Figure 7: Dorothy Fennell
- Figure 8: Public domain
- Figure 9: Public domain
- Figure 10: John Phelan
- Figure 11: City of Somerville
- Figure 12: Matthew Missett
- Figure 13: Nicholas Downing
- Figure 14: Nicholas Downing
- Figure 15: Nicholas Downing
- Figure 16: Nicholas Downing
- Figure 17: Matthew Missett
- Figure 18: Matthew Missett
- Figure 19: Matthew Missett
- Figure 20: City of Somerville
- Figure 21: City of Somerville
- Figure 22: City of Somerville
- Figure 23: City of Somerville
- Figure 24: City of Somerville
- Figure 25: Matthew Missett
- Figure 26: Matthew Missett
- Figure 27: Matthew Missett
- Figure 28: Matthew Missett
- Figure 29: Matthew Missett
- Figure 30: Matthew Missett

Appendix A:

Options for a Lowered McGrath/O'Brien Elevated Highway

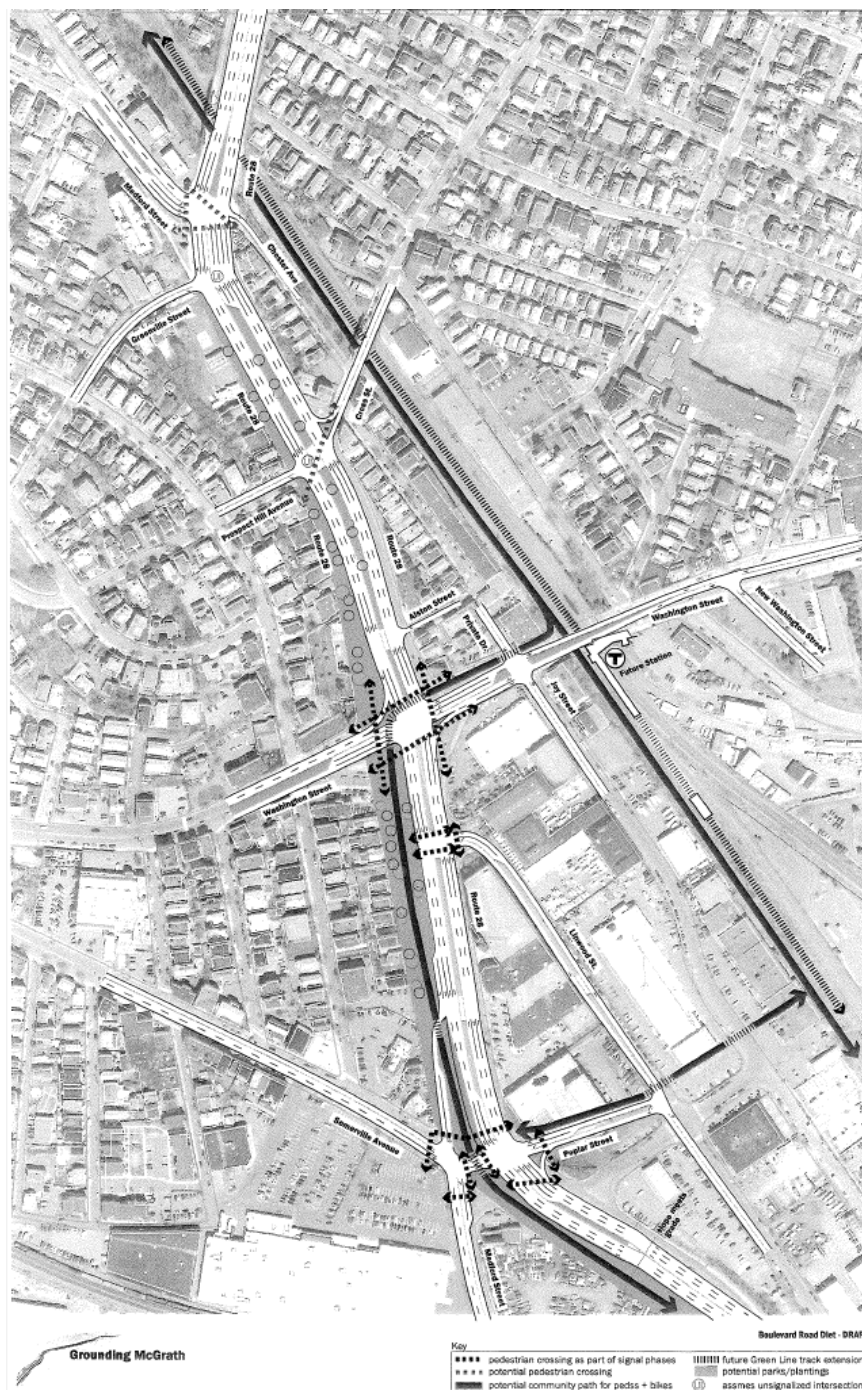


Figure 20: Boulevard road-diet concept for a lowered McGrath/O'Brien Elevated Highway, Preferred concept.

Catalyzing Economic Development in Somerville's Brickbottom District

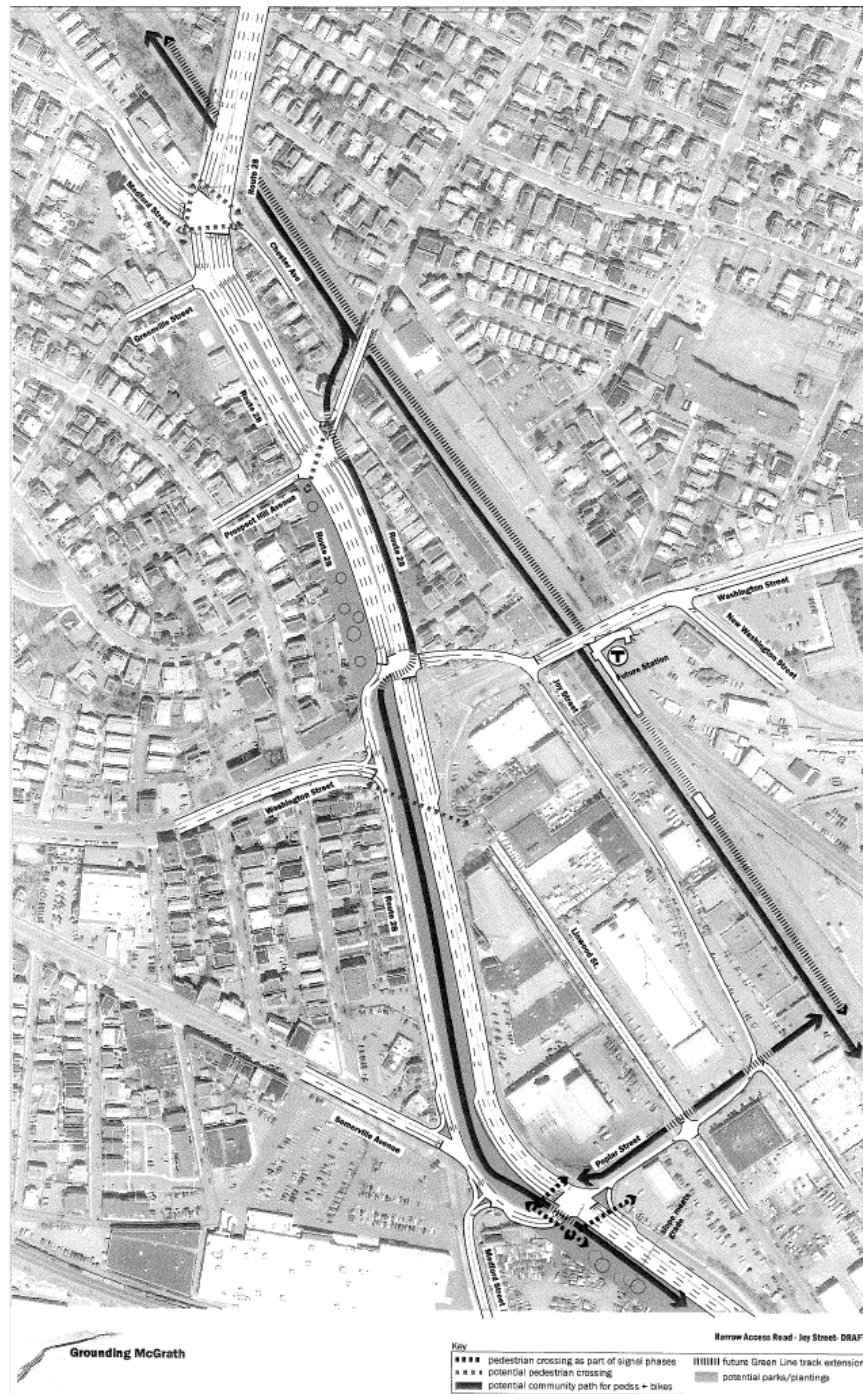


Figure 21: Joy Street access road concept for a lowered McGrath/O'Brien Elevated Highway.

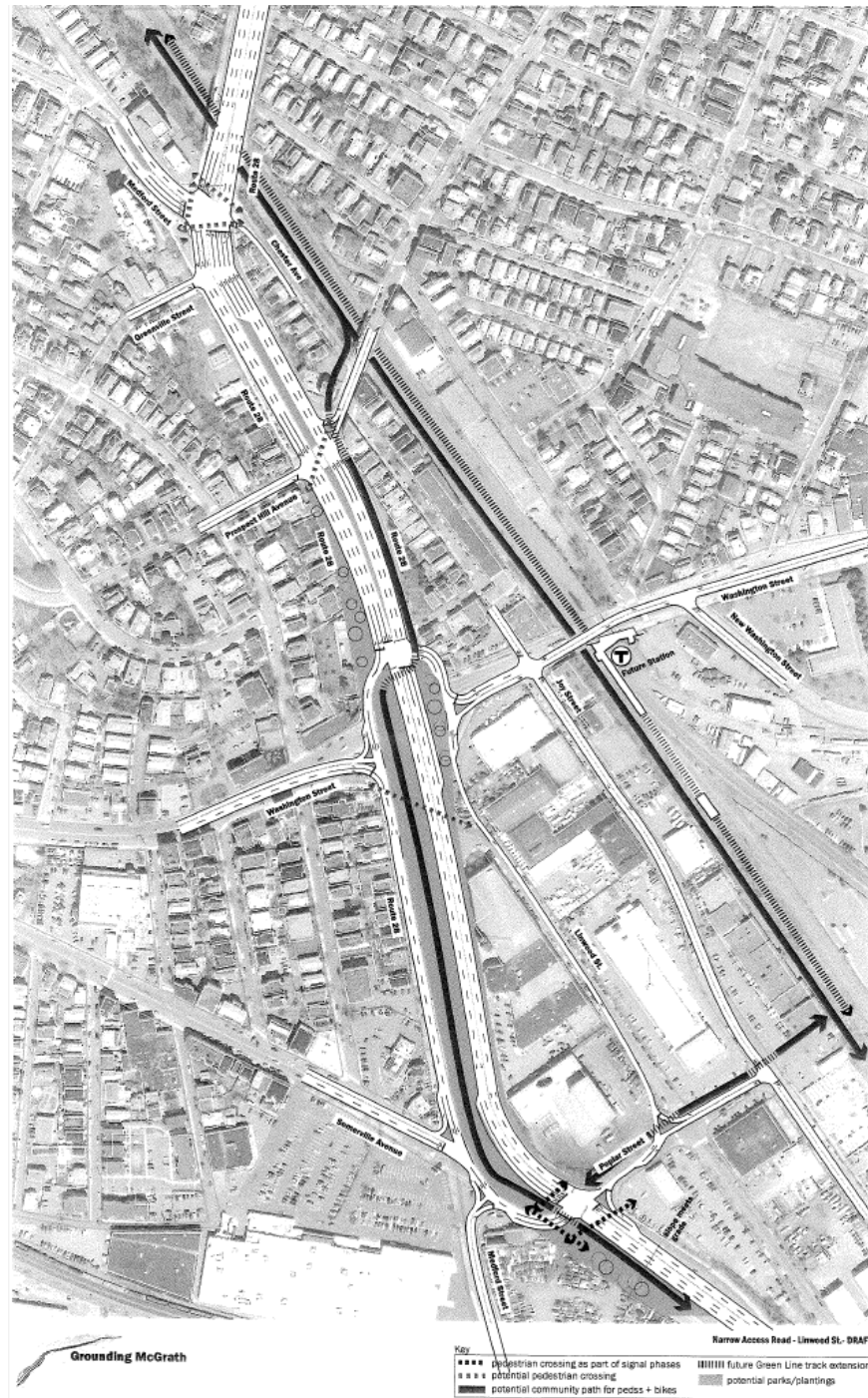


Figure 22: Linwood Street access road concept for a lowered McGrath/O'Brien Elevated Highway

Catalyzing Economic Development in Somerville's Brickbottom District

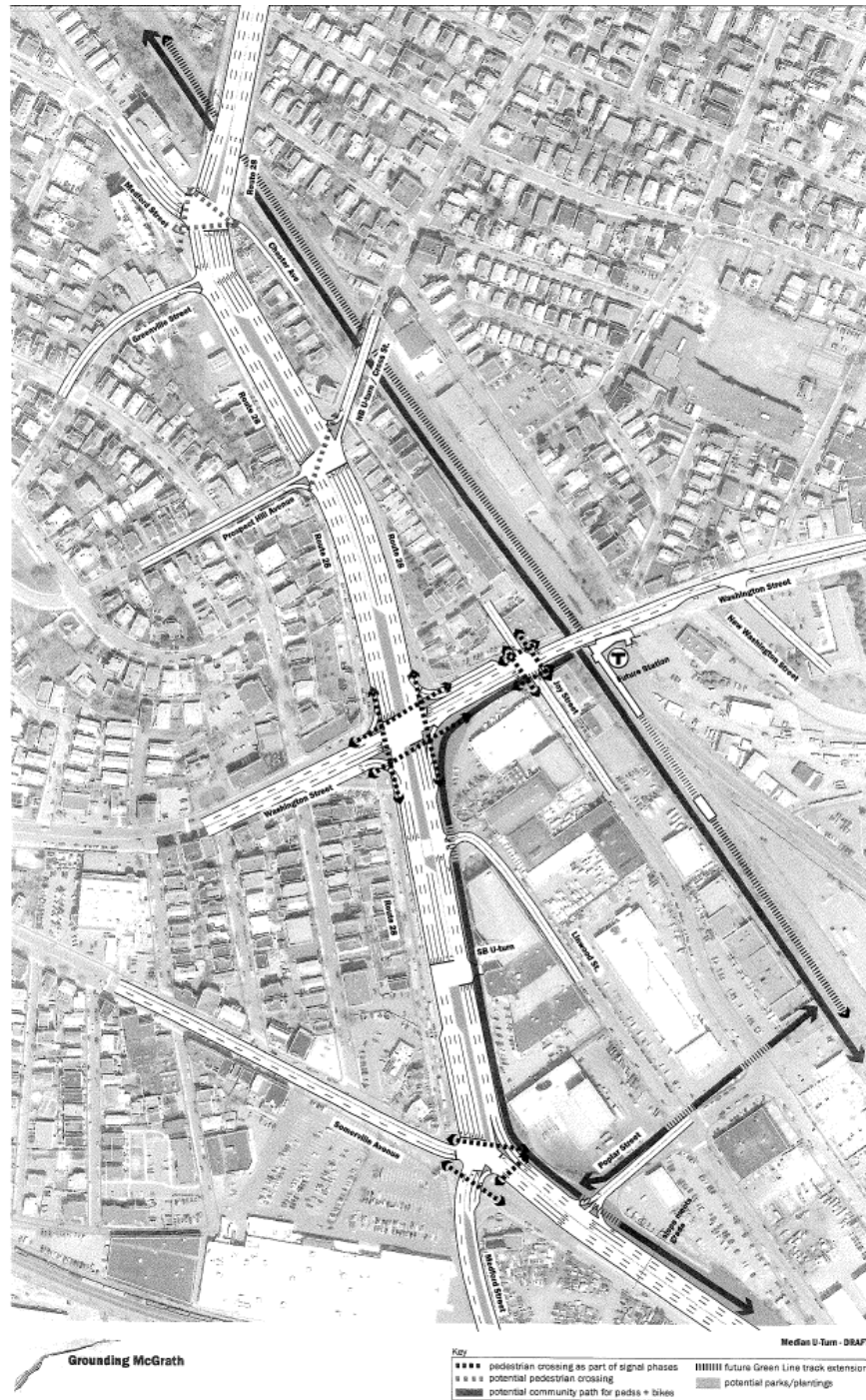


Figure 23: Median U-Turn concept for a lowered McGrath/O'Brien Elevated Highway.

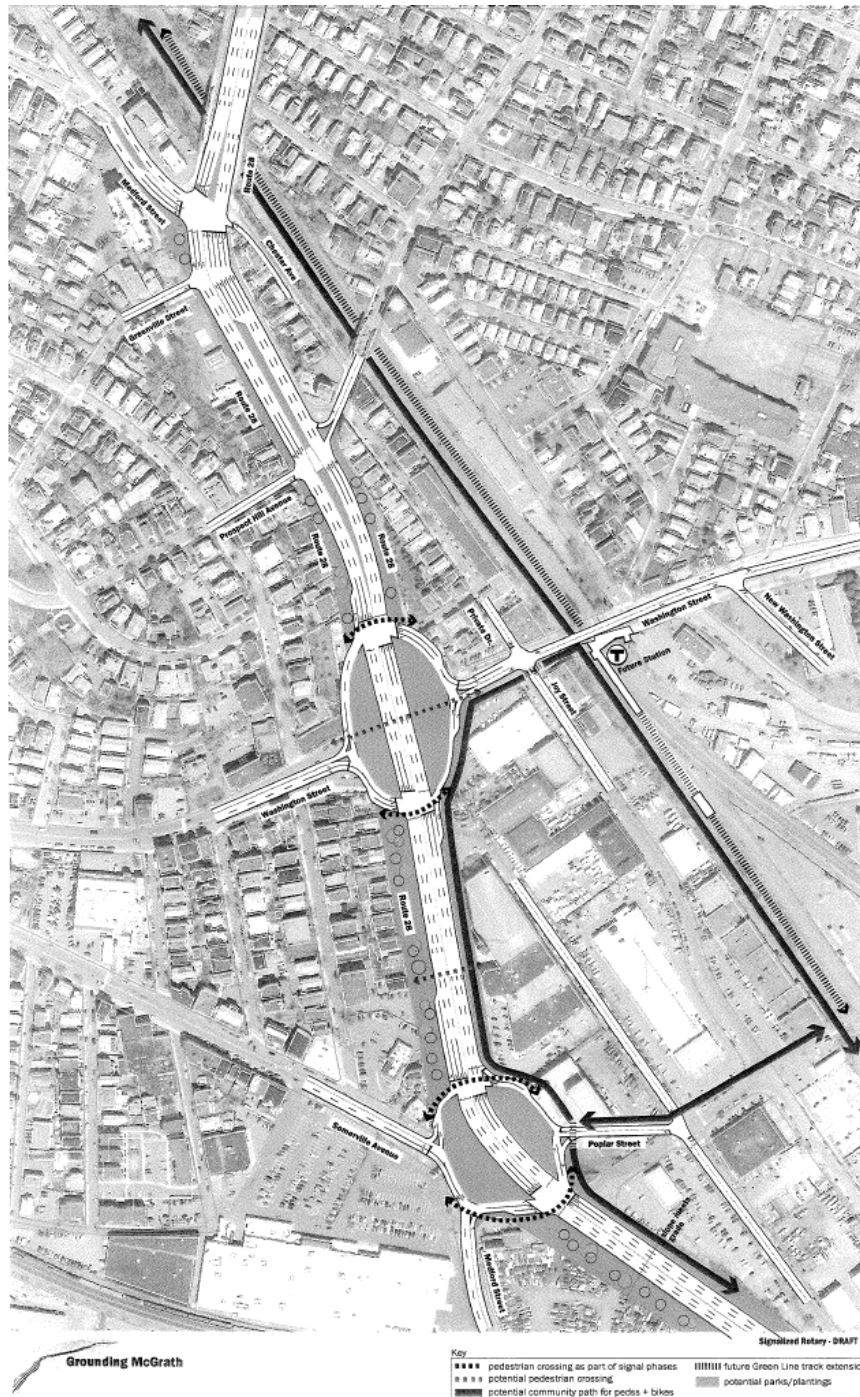


Figure 24: Signalized rotary concept for a lowered McGrath/O'Brien Elevated Highway.

Appendix B:

Financial Assumptions and Definitions of Select Financial Terms

Definitions

Leasable space: Percentage of total developed space that can be leased.

Vacancy allowance: Percentage of leasable space that we assume will remain vacant at any given time.

Market capitalization rate: Net operating income of an investment divided by the cost of acquisition. In our case, the income earned through leasing space divided by the acquisition cost.

Construction loan interest rate: Interest rate charged by financial institutions for construction loans.

Loan-to-value ratio: Percentage of the value of a property that a private financial institution will be willing to finance by providing loans.

Developer required Return on investment: Return on investment required by a developer to make a project worth investing in.

Assumptions

BASIC ASSUMPTIONS		
Project Name	10 Poplar Street	
City Population		72,987
City Household Size		2.35
Students Served		4,839
City Average Students / Household		0.1558
Expected Students / Household		0.1558
School Cost Inflator	1.0x	
Emergency Svcs Cost Inflator	1.0x	
City Revenue Growth Rate		2.50%
City Cost Growth Rate		5.00%
City Discount Rate		6.00%
Housing Units to SF Conversion	Average SF	
Studio		450
1 Bedroom		800
2 Bedroom		1050
3 Bedroom		1200
4 Bedroom		1500
New Resident %		90%
Car Ownership %		75%

Figure 25: Basic financial assumptions.

DEVELOPER ASSUMPTIONS	
Months to Build	12
Months to Lease-up	6
Operating Expenses (% of EGI)	
Office	20%
Neighborhood Retail	20%
Bix Box Retail	20%
Industrial	20%
Other Commercial	20%
Institutional	20%
Exempt	20%
Rental Housing	20%
Leverage	
Construction Loan Interest Rate	7%
LTV	70%
Development Fee %	5%
Developer Required ROE	25%
Tax Rate	40%

Figure 26: Developer assumptions.

PUBLIC REVENUE	
Property Tax Rates	
Residential Rate	\$12.71
Commercial Rate	\$21.21
Residential Exemption	\$136,744
Condo Owner Occupant %	100%
<u>Assessed / MV Ratio</u>	
<i>(=1 unless Assessing different from market value)</i>	
Residential	1.000
Commercial	1.000
Average Car Value	\$10,000
Annual Revenue / Car	\$290
Parking Meters	
New Parking Meters	0
Avg. Daily Utilization %	30%
Hourly Meter Cost	\$1
Hours of Operation	10
Operation Days Per Year	312
Tickets / Meter Fee Multiplier	2.2x

Figure 27: Public revenue considerations.

CONSTRUCTION COSTS		
	Cost / SF	Total Cost
Office	\$200	\$0
Neighborhood Retail	\$200	\$18,400,000
Lab	\$350	\$70,000,000
Industrial	\$150	\$0
Other Commercial	\$200	\$0
Institutional	\$200	\$0
Exempt	\$200	\$0
<i>(City pays for these two)</i>		
Active Green Space	\$30	\$0
Passive Green Space	\$15	\$0
Soft Costs		
	Cost / SF	
Legal	\$1.00	\$292,000
Accounting	\$0.35	\$102,200
Title	\$0.80	\$233,600
Permits	\$0.25	\$73,000
Architect	\$3.00	\$876,000
Engineer	\$1.25	\$365,000
Insurance	\$0.15	\$43,800
Real estate taxes	\$0.75	\$219,000
Leasing	\$4.50	\$1,314,000
Marketing	\$0.50	\$146,000

Figure 28: Construction costs.

RENTS		
Market Cap Rate	6%	
Leaseable / Gross SF Percent	90%	
Vacancy Rate	10%	
<u>Annual Rents / SF</u>		<u>Implied Market Value / SF</u>
<i>(Implied values should be in ballpark of appropriate recent sales comps value / SF)</i>		
Office	\$40	\$480
Neighborhood Retail	\$30	\$360
Lab	\$50	\$600
Industrial	\$30	\$360
Other Commercial	\$35	\$420
Institutional	\$30	\$360
Exempt	\$25	\$300

Figure 29: Rents generated by use.

EXTERNALITIES	
Jobs per SF	
Skilled Jobs / Office SF	0.0040
Entry Level Jobs / N Retail SF	0.0033
Entry Level Jobs / Lab SF	0.0033
Entry Level Jobs / Industrial SF	0.0025
Entry Level Jobs / Other Commercial	0.0033

Figure 30: Externalities to consider.

MEMORANDUM OF UNDERSTANDING BETWEEN THE TUFTS UNIVERSITY FIELD PROJECTS TEAM NO. 8 AND THE CITY OF SOMERVILLE

I. Introduction

Project number: 8

Title: Redevelopment of Waste Transfer Facility in Somerville's Brickbottom neighborhood

Client: City of Somerville, Mayor's Office of Strategic Planning & Community Development

This Memorandum of Understanding (the "MOU") summarizes the scope of work, work product(s) and deliverables, timeline, work processes and methods, and lines of authority, supervision and communication relating to the Field Project identified above (the "Project"), as agreed to between (i) the UEP graduate students enrolled in the Field Projects and Planning course (UEP-255) (the "Course") offered by the Tufts University Department of Urban and Environmental Policy and Planning ("UEP") who are identified in Paragraph II(1) below (the "Field Projects Team"); (ii) Dorothy Fennell, Nicholas Downing and Matthew Missett, further identified in Paragraph II(2) below (the "Client"); and (iii) UEP, as represented by a Tufts faculty member directly involved in teaching the Course during the spring 2012 semester.

II. Specific Provisions

(1) ***The Field Projects team members working on the Project consists of the following individuals:***

1. ***Dorothy Fennell***
2. ***Nicholas Downing***
3. ***Matthew Missett***

email address: [REDACTED]
email address: [REDACTED]
email address: [REDACTED]

(2) ***Client's contact information is as follows:***

City of Somerville, Mayor's Office of Strategic Planning & Community Development

Key contact/supervisor: Brad Rawson, Senior Planner, Economic Development

Email address: [REDACTED]
[REDACTED]

FAX number: [REDACTED]

[REDACTED] Somerville MA 02143

Web site: <http://www.somervillema.gov/departments/ospcd>

(3) ***The goal of the Project is:***

The goal of Team 8 is to propose redevelopment options for a city owned parcel located at 10 Poplar Street Somerville, MA. The parcel, which is located in the Brickbottom neighborhood, is currently rented to a privately owned waste management facility. The lease for this property is scheduled to end by late 2012. This being the case, the Mayor's Office of Strategic Planning and Community Development is exploring other types of usage opportunities for the site. Team 8 believes this parcel has the opportunity to be redeveloped for mixed-use purposes. In addition, the team also believes this parcel has potential to function in some capacity as a space for public use. Specifically, Team 8 will propose creative mixed-use commercial, residential and public usage for the parcel as well as the immediate surrounding area to the parcel.

(4) ***The methods and processes – including the methodologies -- through which the Field Projects Team intends to achieve outlined goal:***

- Conduct interviews with at least one representative from the following organizations or governmental departments:
 - **Boston Redevelopment Authority, (BRA)**
 - **A Better City**
 - **City of Cambridge, Department of Community Development**
 - **Kendall Square Business Association**
 - **Brickbottom Artist Association**

The purpose of utilizing interviews as part of our research process is to gain a better understanding of the economic, political and social motivations that factor into decisions about urban development. As part of our process in understanding the redevelopment potential of the Brickbottom district we will be exploring the development history of two similar sites located in Boston, MA and Cambridge, MA. In Boston we will be looking at the South Boston Waterfront and in Cambridge we will be looking at Kendall Square. These neighborhoods have been chosen based on their success as economic districts where both the cities of Boston and Cambridge are dedicating a significant amount of resources.

We have identified the above listed organizations and local governmental departments based on their roles as stakeholders in either the development of Kendall Square or the South Boston Waterfront. It is the team's belief that the professional expertise of these department and organizational representatives will give context to the benefits and/ or risk associated with different developmental scenarios. It is our intent to interview at least one, (but no more than two), representative from each organization/ department.

- Conduct photographic analysis of the site as well as immediate surrounding area.

A thorough photographic analysis of the site is imperative as it will give context to the present conditions of the parcel occupied by the waste transfer facility as well as the facility's surrounding area. Having this sense of place will assist the team in envisioning redevelopment scenarios that work with the larger Brickbottom district in which the parcel is located.

- Review case studies for similarly situated former industrial sites that were successfully reused for mixed-use redevelopment, such as Kendall Square in Cambridge and the South Boston Waterfront in Boston.
- Analyze data related to current zoning codes and local demographics/ incorporate GIS technology into that analysis.

The analysis of current zoning codes is an important part of our research as it will aid the team in understanding what the current limitations to development are for the district. In addition, in the event that we are restricted by current zoning ordinances, an understanding of zoning codes will be beneficial in proposing uses that fit current guidelines. Local demographic information from the 2010 census will be instrumental in understanding what type of development is most likely to succeed in this district.

(5) *The work products and deliverables of the Project are:*

- Examples of similar projects undertaken in comparable locales
 - South Boston
 - Kendall Square
- Recommendations for two potential physical planning and design scenarios
- Analysis of current zoning codes and recommendations for redevelopment
- Presentation of two redevelopment scenarios including:
 - Preliminary sketch plans, sections and elevation drawings
 - Google Sketch Up 3-D site model
- Traffic Management Plan
 - Analysis of transportation access
 - Recommendations for managing parking

(6) *The anticipated Project timeline:*

- **February 29th, 2012:**
 - background of targeted interview subjects completed
 - interviews & photographic analysis completed

- **March 7th, 2012:**
 - conclude preliminary research on Innovation District and Kendall Square
 - conclude preliminary analysis of zoning ordinances for Somerville site
- **March 14th, 2012:**
 - preliminary synopsis of project proposal due
- **April 18th, 2012:**
 - first draft of report
- **April 25th, 2012:**
 - final presentation
- **May 4th, 2012:**
 - final report due

(7) ***The lines of authority, supervision and communication between the Client and the Field Projects Team are:***

The team has agreed that there is not one primary contact when communicating with the contact from the City of Somerville. This task will be shared between the team.

(8) ***The understanding with regard to payment/reimbursement by the client to the Field Projects Team of any Project-related expenses is:***

The Urban Environmental Policy and Planning Department at Tufts will reimburse up to \$100.00 for incurred expenses. Any additional reimbursement above \$100.00 will be discussed on an as needed basis with the City of Somerville. The amount to which the City of Somerville may potentially reimburse for will not surpass \$100.00.

(9) ***Additional Representation and Understanding***

Since the Project is part of an academic program, it is understood the final work product and deliverables may be shared within and beyond the Tufts community. This may include, without limitation, the distribution of the Work Product to other students, faculty and staff, release to community groups or public agencies, general publication, and posting on the Web. In addition, the Client has the permission from the Team to review any and all research materials and drafts of the final work product. The Client is given the permission to both advise and if they see fit, have editing power on the final work product. No information in this report is considered to be confidential in nature.

IV. Signatures

For: City of Somerville, Mayor's Office of Strategic Planning & Community Development
By: Brad Rawson

Date: _____, 2012

Representative of the Field Projects Team
By: Dorothy Fennell

Date: _____, 2012

Tufts UEP Faculty Representative
By: Justin Hollander

Date: _____, 2012

Social, Behavioral & Educational Research IRB PROTOCOL APPLICATION FOR EXEMPT STATUS

*This form must be typed. Please submit the Protocol Cover Sheet with your Protocol Application for Exempt Status.
Professional and complete applications advance the review process.*

Research must be "minimal risk" in order to qualify for exempt status. Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during performance of routine or psychological examinations or tests.

I. Check the box in the appropriate exempt status category:

- ☐ (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as:
(i) Research on regular and special education instructional strategies, **or**
(ii) Research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- ☐ (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, **unless**:
(i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **and**
(ii) Any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employment, or reputation.
Note: This exempt status category, for research involving survey or interview procedures or observation of public behavior, does not apply to research with children, Subpart D, except for research involving observations of public behavior when the investigator(s) do not participate in the activities being observed.
- ☐ (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if:
(i) The human subjects are elected or appointed public officials or candidates for public office; **or**
(ii) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- ☐ (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available **or** if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
- ☐ (5) Research and demonstration projects which are conducted by or subject to the approval of Department or Agency heads, and which are designed to study, evaluate, or otherwise examine:
(i) Public benefit or service programs; **or**
(ii) Procedures for obtaining benefits or services under those programs; **or**
(iii) Possible changes in or alternatives to those programs or procedures; **or**
(iv) Possible changes in methods or levels of payment for benefits or services under those programs.
- ☐ (6) Taste and food quality evaluation and consumer acceptance studies,
(i) If wholesome foods without additives are consumed **or**
(ii) If a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental containment at or below the level found to be safe, by the Food and Drug Administration or approved by the EPA of the Food Safety and Inspection Service of the U.S. Department of Agriculture.

II. Justifications

A. Provide a justification for the exemption category you have selected:

B. Explain how this research is minimal risk:

This research in which we will be interviewing local public officials about their professional experience on public projects is minimal in that we will not be requesting personal information. In addition, we will be maintaining the unidentifiability of those professionals that we do interview. Please see an attached list of questions.

III. Research Description

A. Provide a comprehensive description of the research that includes background, objectives, subject population, recruitment process, consent process, and description of how the research will be conducted (at least a ½ page description). Be sure to also attach all questionnaires, interview protocols, recruitment documents, etc. that will be used.

Social, Behavioral & Educational Research IRB PROTOCOL APPLICATION FOR EXEMPT STATUS

*This form must be typed. Please submit the Protocol Cover Sheet with your Protocol Application for Exempt Status.
Professional and complete applications advance the review process.*

For our class project we are examining the redevelopment potential of a parcel of land located in Somerville MA. Our research methods include looking at relevant city data (demographics, zoning ordinances, etc...), photographic analysis relevant case studies and interviews. We are interviewing representatives from the City of Cambridge, City of Boston as well as representatives from business associations in Boston and Cambridge. All questions (please view attached form) are specifically related to the interviews subjects direct experience as it pertains to the case studies that we are examining. The case studies are the redevelopment of the South Boston Waterfront and the redevelopment of Kendall Square in Cambridge.

B. What is the age range of the participants?

adult, 35+

C. Does this research involve prisoners, fetuses, pregnant women or human in vitro fertilization?

☐ Yes ☒ No

If yes, please contact the IRB Administrator as this research may not qualify for exemption.

IV. Confidentiality

A. Specify how confidentiality will be maintained. If confidentiality is not maintained, explain the reason for identifying participants.

A report of our research will be provided to the City of Somerville upon completion of the class. We will not be identifying our research subjects in the report. At the beginning of the report we will include text that indicates we are maintaining the anonymity of our interview subjects.

B. Where will the data be stored and who will have access to the data? Data must be stored in a secure location.

Our research data, (zoning codes, demographics, etc....) is all public information. The content of our interviews will be stored on the personal computers of the UEP team mates (Matthew Missett, Nicholas Downing and Dorothy Fennell). Following the completion of the study, these interviews will be deleted.

C. Will identifiers be used to code data? (Identifiers are, for example, name, birth date, social security number, address, etc.)

☐ Yes ☒ No

If yes, will identifiers be stored with or separate from the data?

This is not relevant to our project

D. Will you be accessing health records?

☐ Yes ☒ No

If yes, complete the "HIPAA Compliance" form (<http://www.tufts.edu/central/research/IRB/Forms.htm>) Send any agreements regarding the use of PHI (protected health information) to the IRB office.

V. Potential Benefits

A. Are there any potential direct benefits to participants that would result from participation in this research?

☐ Yes ☒ No

If yes, please describe the potential benefit to participants. Compensation is not a benefit.

B. Are there any potential benefits to society that would result from this research?

☒ Yes ☐ No

If yes, please describe the potential benefits to society. Compensation is not a benefit.

we are conducting research that the City of Somerville may potentially use in redeveloping a city owned parcel.

VI. Conflict of Interest

A. Do you or will you, your spouse or dependent children, or any investigator participating in this study have, or anticipate having, any income from, or financial interest in, the sponsor of this research protocol or supporting organization (financial interest includes, but is not limited to, consulting, speaking, or other fees; honoraria; gifts; licensing revenues; or equity interests/stock options of an annual or fair market value of \$10,000 or more)?

☐ Yes ☒ No

If yes, please specify the nature and extent of involvement.

B. Do you or will you, your spouse or dependent children, or any investigator participating in this study have, or anticipate having, any income from, or financial interest in, a company that owns or licenses the technology being studied (technology includes but is not limited to pharmaceuticals, procedures, or devices)? Income and financial interest is defined above

☐ Yes ☒ No

Social, Behavioral & Educational Research IRB
PROTOCOL APPLICATION FOR EXEMPT STATUS

*This form must be typed. Please submit the Protocol Cover Sheet with your Protocol Application for Exempt Status.
Professional and complete applications advance the review process.*

If yes, please specify the nature and extent of involvement.

- C. For those projects funded by NIH, NSF, or commercial entities, do you have a current, up-to-date Conflict of Interest Disclosure on file with the Office of the Vice Provost that describes this financial relationship?**

☐ Yes ☐ No
☒ Not Applicable

VII. Further Information

- A. To your knowledge has this research study previously been reviewed by any IRB?**

☐ Yes ☒ No

If yes, which IRB reviewed the study?

When was it reviewed?

Protocol #:

What was the outcome?

- B. Please attach any additional relevant information that will be useful to the IRB committee when reviewing your protocol.**

Thesis or dissertation proposals may be helpful for the committee.

Please Note: Protocols determined not to be exempt will require a resubmission of a full protocol Application. The application can be found at: <http://www.tufts.edu/central/research/IRB/Forms.htm> Investigators will be notified as soon as possible if this is required.

Tufts IRB review process

COURSE: UEP 255 (Field Projects)

Students: *Dorothy Fennell, Matthew Missett, Nicholas Downing*

Sample questions: Redevelopment of Somerville's Brickbottom district

Questions for members of the business community/ city officials

1. What is your role with (organization name)?
2. What has (organization name) role been in the redevelopment of the (South Boston Waterfront/ Kendall Square)?
3. What are the ultimate goals for the district?
4. How would you characterize the attractiveness of the (South Boston Waterfront/ Kendall Square) as a target for redevelopment?
5. What strategies have been used in getting redevelopment under way and sustaining it?
6. Who have been the major players in redeveloping the district?
7. Was the (South Boston Waterfront/ Kendall Square) targeted specifically by the City of (Boston/ Cambridge) from the beginning, or did it become an attractive redevelopment target after private developers started the process by investing in the area?
8. What role, if any, has transit played in the redevelopment efforts?
9. What types of investments have been made by the city to make the area attractive to developers?
10. Have there been any obstacles in the process of attracting new development?
11. Were there any complications associated with redeveloping sites that had previously been used for other uses?
12. How do you work with developers to determine what their needs are for particular projects?
13. Is there anything else you think is important regarding the district?
14. Do you have any suggestions for other people who I may be able to talk to about the (South Boston Waterfront/ Kendall Square)?

Questions for members of Brickbottom's management association/ board

1. What is your connection to the Brickbottom Artists' Association?
2. When was the Association started?
3. What are the goals of the Association?
4. Why did the Association choose this location?
5. In the time the Association has been here, what changes have been made to the surrounding area? What are some of the impending changes currently planned?
6. Are there any characteristics of the neighborhood negatively impacting the quality of life for members of the association? (prompts listed below)

- a. Streetscape
- b. Transportation
- c. New businesses
- d. New residential

7. What changes would you make to improve the quality of life in the area? (prompts listed below)

- a. Streetscape
- b. Transportation
- c. New businesses
- d. New residential

8. Is there anything else about your Association or the neighborhood you would like to share with us?

9. Do you have any questions for us?