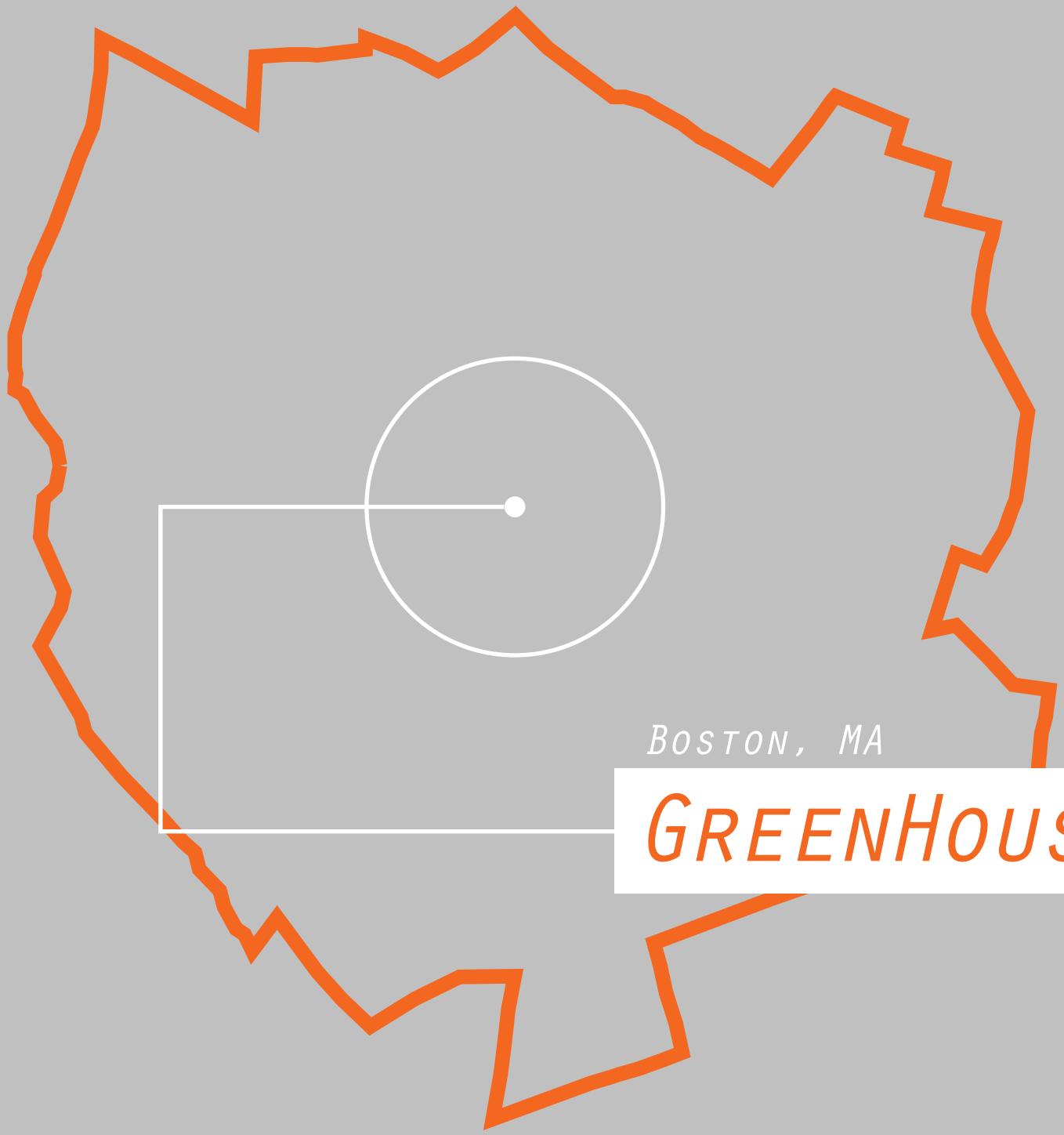
MIT Department of Urban Studies and Planning



Boston, MA

GreenHouse Studio

Spring 2010

From Crossroads to Sustainable Center

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From Crossroads to Sustainable Center

GREENHOUSE RESIDENTIAL NEIGHBORHOOD PLANNING STUDIO, SPRING 2010

COMPILED BY THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY Department of Urban Studies + Planning
IN COLLABORATION WITH Dorchester Bay Economic Development Corporation

From Crossroads to Sustainable Center:
GREENHOUSE RESIDENTIAL NEIGHBORHOOD PLANNING STUDIO, SPRING 2010

ABSTRACT

This report is the final product of MIT course 11.947, "GreenHouse" Studio. The students in this course worked with Dorchester Bay Economic Development Corporation to develop a neighborhood sustainability plan that identifies underutilized community assets and prepares to take advantage of new community development opportunities due to changes in policy and priority at the federal, state, and local levels. The proposals seek to use a newly planned commuter rail station to serve as a focal point for creating a Community Health Corridor intended to provide opportunities for community building, economic development, and environmental sustainability. The specific proposals include a Vacant Land Activation Plan, a Streetscape Redesign program, a Community Greening Center, and a Transit Station Area Plan.

ACKNOWLEDGMENTS

We would like to thank the Dorchester Bay Economic Development Corporation for presenting us with a wonderfully complex challenge. Thanks to Bob Weiss and Andy Sedensky specifically for their help and feedback. Also, many thanks to Leah Beidler from Quincy Street Missional Church, Will Dunn from Boston Street Works, Reverend Shawn Harrison from Bird Street Community Center, David Hureau from Harvard University's Program in Criminal Justice Policy and Management, and Jorge Martinez from Project R.I.G.H.T. We are grateful for the openness and support of neighborhood residents willing to share their personal concerns and hopes for their community. We would also like to thank Professor Frederick Salvucci and our studio reviewers, Brent Ryan, Amy Glasmeier, and Michael Flaxman for their insights. Lastly, we thank our indefatigable Professor Jim Buckley for his wisdom, encouragement, and humor.

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Introduction to Project

This report is the culmination of MIT course 11.947: "GreenHouse" Studio. Our class worked with Dorchester Bay Economic Development Corporation (DBEDC) to formulate a plan for advancing local neighborhood sustainability in the area surrounding a potential new commuter rail station. We defined sustainability as meeting immediate community needs, while working toward long-term environmental and economic well-being. Our definition of sustainability guided our plan for a "Community Health Corridor" originating at the intersection of Quincy Street and Columbia Road, the site of the proposed station, and extending to the surrounding neighborhood.

The Fairmount commuter rail line stops in neighborhoods in Hyde Park, Mattapan, and other sections of Dorchester on its way to South Station. The line has suffered from poor service and low ridership, but four new stations are slated for construction thanks to their inclusion in the Commonwealth's State Implementation Plan (SIP). A collaborative of community development corporations including DBEDC has also mobilized to ensure the stations' construction, viewing the new stations as an opportunity for neighborhood revitalization. In 2010, the Environmental Protection Agency (EPA) named the Fairmount Corridor one of five sites in the nation for a brownfields pilot program, which will provide technical assistance for the cleanup and redevelopment of brownfields to accommodate affordable housing, public transit, local food, and renewable energy production. Our plan responds to recent federal support for the Fairmount Corridor and imagines how a new fifth station, tentatively considered but not formally proposed by the Commonwealth, could be put to use in transforming Quincy Street and Columbia Road from a crossroads to a "sustainable center."

The federal and state government are paying greater attention to sustainable, transit-oriented development and energy efficient neighborhoods. The EPA pilot project grew out of the recent federal partnership between the Department of Transportation (DOT), the Department of Housing and Urban Development (HUD), and the EPA to coordinate policies for promoting sustainable and equitable communities. Congress allocated $150 million in the 2010 federal budget to this collaboration of federal agencies, called the Sustainable Communities Initiative, including $100 million for regional planning.

At the state level, new opportunities abound. The landmark 2008 Green Communities Act mandates that utility companies meet new demand reduction and renewable energy standards by developing energy saving programs and making efficiency improvements that cost less than generating power from older plants. A state fund—supported by a surcharge on utility bills—will help finance some of these initiatives, including partnerships with community organizations and bundling of home weatherization projects. Additional funding

is available to municipalities that meet certain "Green Communities" criteria. Our class sought to position the Columbia-Quincy neighborhood to take advantage of opportunities like the Green Communities Act that reduce household energy costs and offer employment in emerging "green" industries.

This is the second time MIT students have partnered with DBEDC and focused on the Columbia-Quincy neighborhood. In the fall of 2006, a team of students from James Hamilton's course, Environmental Management Practicum: Brownfield Redevelopment, worked with DBEDC, Quincy-Geneva Housing Development Corporation, and Project R.I.G.H.T. to develop a "neighborhood visioning" document for the intersection of Quincy Street and Columbia Road and its surroundings[1]. The students interviewed residents and representatives from local organizations about topics like jobs, transit, and amenities. Development, one respondent wisely said, "needs to do something for people living in the neighborhood now." Our neighborhood plan takes this advice to heart and attempts to build on the recommendations generated from the visioning process.

Respondents from the neighborhood survey said they did not want redevelopment to cause more unemployment, and they wanted to see vacant industrial sites used for employment generation, particularly for formerly incarcerated people. Poor transit was viewed as another barrier to job access. They also spoke about the need for a focus on more community spaces, services, local retail, and restaurants—not only new housing. The respondents indicated that the improved amenities should not price people out of the neighborhood. Some respondents advocated for a community center that would offer nighttime activities for youth and skills training for adults. A concern with crime and safety was a consistent theme across the topic area.

In addition to reviewing past surveys, we conducted our own neighborhood research and data gathering. We focused on census blocks within a half-mile radius of the proposed station. The half-mile scope enabled an understanding of the neighborhood's relationship to commercial centers in Grove Hall, Upham's Corner, and Four Corners, as well as the nearest Fairmount stops. Our analysis involved mapping community assets, land use, demographics, and social conditions. As this report details, we found a significant percentage of vacant or under-utilized land, high unemployment, a low median household income, and a prevalence of car commuters. We supplemented our data mapping with discussions with representatives from Project R.I.G.H.T., the Bird Street Youth Center, Quincy Missional Church, and the Boston Streetworkers Program regarding public safety and other quality of life issues.

The neighborhood analysis helped clarify our project goals: to strengthen the community's health, economy, safety, and connectivity. We focused our interventions on Quincy Street, Ceylon Street, and Columbia Road, which form a triangle around the proposed station area. Our four proposals respond to the neighborhood analysis and together compose a Community Health Corridor offering healthy food, job training, and community and green spaces:

(1) The Vacant Land Activation Plan sets criteria for different uses of vacant land—renewable energy production, infill development, and community gardens and parks—and identifies vacant parcels best suited for each type of development.

(2) The Streetscape Redesign Program proposes lighting and connectivity improvements to ensure residents have safe, convenient access to the station area, and green infrastructure to deliver neighborhood-wide environmental benefits.

(3) The Community Greening Center is a proposal for a two-story community center on Ceylon Street offering space for community events as well as programs in energy production and reduction and urban agriculture.

(4) The Station Area Plan details massing and uses for redevelopment of strategic sites near the proposed Columbia-Quincy station, emphasizing community services in the first phase and more traditional, mixed-use development after the station is built.

History + Neighborhood Context

Our area of intervention is located in northwest Dorchester, along the border of Roxbury. This area has seen many changes over the years, and its historical development helps to illuminate some of the current challenges facing the neighborhood.

EARLY HISTORY AND RESIDENTIAL DEVELOPMENT

Originally incorporated as a distinct village by Puritan settlers in 1630, Dorchester was annexed by the city of Boston in 1870. The town's neighborhoods, such as Savin Hill, Codman Square, and Bowdoin, were too far from the city to house commuters and thus developed as independent suburban communities. Yet the radial expansion of the streetcar rail system precipitated an influx of new settlement, creating a distinctly suburban commuter enclave. Between 1870 and 1900, housing construction followed linearly along the rail lines, a testament to the direct impact of passenger rail on the region.

By the mid 1880s, half of Dorchester was filled with suburban commuters. The overwhelming proportion of growth was residential rather than industrial, and with suburban housing came a slew of public parks and cemeteries. Compared to other early 20th century suburban communities throughout the nation, land was voluminous in Dorchester, and early developers utilized relatively large lot sizes—far larger than more established Boston neighborhoods such as Back Bay or Beacon Hill. Indeed, it is Dorchester's suburban roots—as well as the neighborhood's direct connection to the expansion of the streetcar rail system—that produced the current mix of residential and commercial space[2].

As Dorchester developed, the neighborhood maintained a strongly middle class composition. By 1905, the area became home to Boston's upwardly mobile European ethnics. A substantial Jewish population, in particular, migrated from the historic slums of the West and North Ends into Dorchester's middle and lower middle class housing stock, taking root from Grove Hall down to Morton Street in Mattapan. By the 1930s and 40s, western Dorchester was an established Jewish community, while Catholics dominated the neighborhood's eastern edges[3].

POST-WWII DEMOGRAPHIC CHANGES

Like countless other Northern and Midwestern cities, Boston experienced dramatic white flight following World War II. A synthesis of the historical literature points to a constellation of factors at the national, regional, and local levels that contributed to this demographic change. First, postwar interstate highway construction and GI Bill benefits facilitated easy mobility—both in terms of literal mobility and class mobility—from the nation's inner-cities to outlying suburban areas. Second, the Homeowners Loan Corporation (HOLC), a subsidiary of the Federal Housing Authority (FHA), initiated a rating system for urban neighborhoods in the 1930s and 1940s that enabled real estate agents to discriminate against black neighborhoods by assigning them the lowest housing value ratings. This process, known as "redlining," prompted whites fearful of decreased housing value and cultural changes to sell their homes at less than market value and unsuspecting blacks to buy homes above market value in previously-white neighborhoods[4].

Additional factors, including the dispersed, fragmented structure of Jewish religious institutions in Boston, contributed to massive white flight from the city. Compared to the Catholics of Dorchester, Jewish residents of the neighborhood left en masse between 1950 and 1960. During the same period, the growing African-American population of Roxbury began an internal migration down Blue Hill Avenue through Dorchester and Mattapan. This internal migration combined with pre-existing institutional structures and federal policy decisions to fundamentally alter Dorchester's residential population.

In recent years, an influx of West Indian and Hispanic immigrants has added complexity to western Dorchester, while a dramatic rise in Asian immigrants has altered the demographics of eastern Dorchester near Fields Corner and Savin Hill. According to 2000 US Census data, both

North and South Dorchester's population are approximately 70% racial or ethnic minorities, including blacks, Asians, and Hispanics[5].

FAIRMOUNT LINE HISTORY

Established in 1856, the present day Fairmount commuter rail line predates Boston's annexation of Dorchester. In 1944, with the rise of private automobile use and associated decrease in public transit patronage, the state ended passenger service on the line. When the Southwest Corridor construction rerouted the Attleboro and Stoughton commuter rail lines to the Fairmount Line (referred to then as the Dorchester Branch) in 1979, passenger service was restored for the duration of the project until 1987.

The Southwest Corridor project relocated the elevated Orange Line from Washington Street in the South End and Roxbury to Jamaica Plain. In 1973, Governor Francis Sargent promised a replacement light rail line that would extend from Downtown through Roxbury and Grove Hall, ending in Mattapan Square. A replacement service of this magnitude has yet to be achieved, though the Massachusetts Bay Transportation Authority (MBTA) did retain passenger service on the Fairmount Line following the 1987 completion of the Southwest Corridor project. Still, the line only contains three stops—Upham's Corner in Dorchester, Morton Street in Mattapan, and Fairmount in Hyde Park—as it lumbers through 9.2 miles of densely populated urban poverty.

At the time, the Boston Globe editorial board dubbed the Fairmount Line "the T's hush-hush line," baffled that the MBTA would increase passenger service without formal notice or announcement[6]. This secrecy persisted until 1999 when the Greater Four Corners Action Coalition sparked an 11 year long campaign for increased service, resulting in the renovation of two existing stations and culminating with the allocation of Commonwealth funds for four new stations.

POST-1999 MOBILIZATION EFFORT

In 1999, the Greater Four Corners Action Coalition, led by Marvin Martin, spearheaded an organizing campaign for "transit equity," arguing that the neighborhood of Four Corners was underserved by inadequate transportation options. Located within the larger Dorchester neighborhood, Four Corners residents are cut off from the city's extensive rail system. To make matters worse, the Fairmount line runs directly through their neighborhood without stopping—a situation City Councilman Charles Yancey referred to as "the height of insensitivity."[7]

After three years of organizing, the grassroots mobilization strategy was successful in lobbying the MBTA to conduct a Feasibility Study in 2002[8]. The Feasibility Study recommended four new stations and repairs on the existing two stations in Dorchester and Mattapan. The report stated that that projected ridership would exceed the cost of new construction, much to the surprise of MBTA officials. After noting his initial skepticism of the project, for example, MBTA general manager Mike Mulhern admitted, "Many of the advocates were right on target."[9]

In 2003, Governor Mitt Romney announced an anti-sprawl agenda emphasizing mass transit and Secretary of Transportation Vineet Gupta announced a focus on providing transit options to regions with the lowest car ownership.[10]

Yet, funding for the Fairmount project remained unclear. After two years of inaction, the MBTA published a second study titled "Fairmount Improvements Project Needs Assessment." The report concurred with the 2002 Feasibility Study's recommendations for new stops and repairs for the existing Upham's Corner and Morton Street stations.

As the state considered funding options, Jeanne Dubois, Executive Director of DBEDC, recognized the potential for a large-scale development opportunity in conjunction with the new stations. She contacted the Executive Directors of three community development corporations (CDCs) whose catchment areas fell within the Fairmount Corridor, and proposed a collaborative

to coordinate residential and commercial development along the Corridor. Each of the CDCs agreed, and a mission statement was written for a "Fairmount Collaborative."[11] After creating the Collaborative, the group of CDCs approached the Greater Four Corners Action Coalition and proposed a "Fairmount Coalition" to include grassroots community groups working on transit equity issues[12]. The group of CDCs then created a "Fairmount Greenway Task Force," including a handful of regional environmental groups into the newly coordinated organizational structure[13]. The overall goal was to coordinate development, equity, and environmental work along the Corridor under a single organized banner. This inter-organizational collaboration persists today, and has been recognized by LISC, The Boston Foundation, and the Massachusetts Non-Profit Network for excellence and innovation in community-based development.

One of the members of the Fairmount Coalition is the Conservation Law Foundation (CLF), New England's premier non-profit environmental law firm. In 1990, CLF sued the Commonwealth of Massachusetts over the environmental pollution following the Central Artery/Tunnel project (colloquially referred to as "The Big Dig"). As Governor Michael Dukakis and Secretary of Transportation Fred Salvucci were leaving office in 1991, they settled with CLF, agreeing to a massive investment in public transit. The settlement—known as the "mitigation" measures—was to offset the Big Dig's negative impact on regional air quality.

By 2005, the state had not met the terms of the settlement. In January, CLF announced an "Intent to Sue," using the federal Clean Air Act as legal leverage. In May, the state released a $770 million public transit investment plan to offset the pollution from the Big Dig and comply with the 1991 settlement with CLF. A number of projects were substituted from the original 1991 agreement, including the Fairmount Line improvements. This new list of transit projects—now including the proposed new stations for the Fairmount Line—was written into the SIP, the formal compliance with the federal Clean Air Act.

However, no timeline for the project was included. CLF officially sued the state in 2006, reaching a settlement in early 2007. The new settlement included a strict timeline for the creation of the four new stations: December 31, 2011. This new timeline was written into the state's revised SIP.

The CLF initially questioned the ability of the Fairmount improvements to have a substantial environmental impact. But since the estimated reduction in carbon emissions from the Fairmount project satisfied the federal requirements, it supplanted CLF's preferred transit investments. Moreover, the groundswell local consensus and support for the project—of which CLF was a contributing member—made the Fairmount expansion especially attractive to the state.

In sum, the decision to fund the Fairmount improvements came out of The Greater Four Corners Action Coalition's initial organizing campaign, the Fairmount Collaborative's further mobilization, and the project's substitution into the state's compliance with the Clean Air Act following the settlement with CLF in early 2007.

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Research + Findings

Our class began by researching basic information about the demographics, land use patterns, housing types, transportation access, and general livability in the area surrounding the proposed fifth station. We felt that it was necessary to understand the characteristics of the neighborhood as much as possible before making any policy proposals or development plans. We also examined some key elements of household costs, namely housing, energy, and transportation, in order to better understand the cost burden that these necessities impose on neighborhood residents.

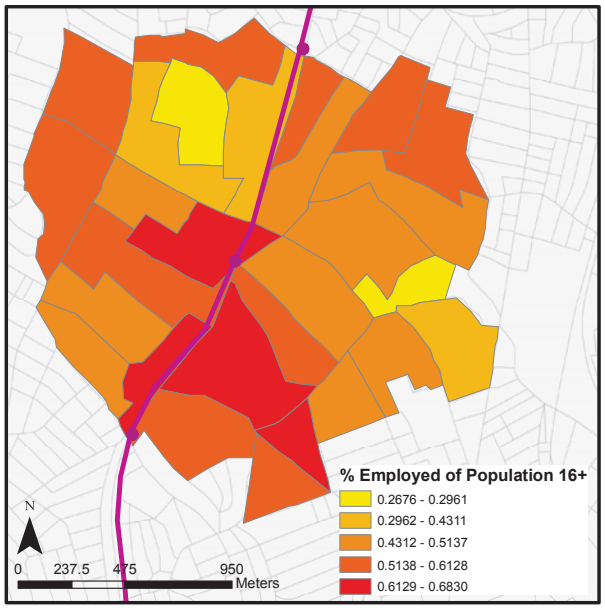
Our research focused on the census block groups within a half-mile radius from the proposed Columbia Road station. We selected a half mile radius as this distance amounts to an estimated 10 minute walk to/from the station and it is generally believed to be the area in which the introduction of a transit station has the most significant impact. We used census block groups rather than a strict half-mile radius because the census boundaries follow the form of the built environment and because it enabled us to readily use U.S. Census data.

NEIGHBORHOOD DEMOGRAPHICS

Dorchester is one of the most low-income areas in Boston. According to 2009 estimates, the median household income of the area is $30,606, which is approximately one third of the area median household income for a family of four in the city of Boston[14]. In our area of focus there is a marked difference in income levels between the east and west sides of Columbia Road. As illustrated below, census block groups to the west of Columbia Road have median household incomes closer to a much lower $16,325 to $32,705 range, whereas those on the east range from $32,705 to $42,672. This clear division between the east and west sides of Columbia Road appears repeatedly in our analysis.

The neighborhood has extremely high levels of joblessness. While the unemployment rate for Boston as a whole hovered around 8 percent for 2009, the Bureau of Labor Statistics (BLS) reported an unemployment rate of 13 percent for the census tracts covering our area of focus. Looking beyond the official unemployment rate, 2009 data for these census block groups reveals that 43 percent of people over the age of 16 are unemployed. Some portion of these people may not have employment because they are unable to work, but it is probable that most are long-term unemployed and therefore not included in the BLS estimation of unemployment.

In addition to these demographic characteristics of the area, we also analyzed some key aspects of livability in Dorchester. To get a better understanding of residents' access to fresh food, we looked at the number of grocers in the station area. While there are number of small grocers, there is a dearth of large grocery stores in the immediate station area. The map below depicts grocery stores within one mile of the proposed station.



CRIME AND HEALTH

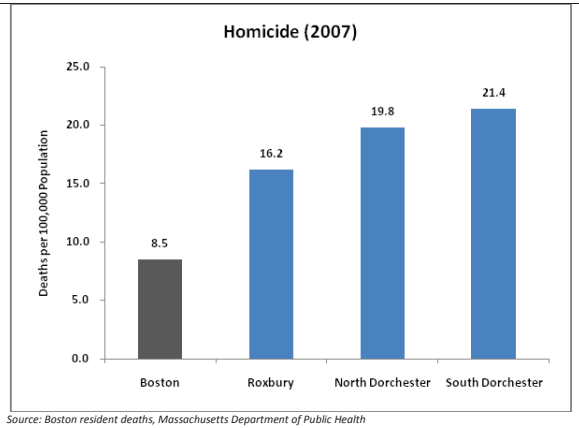
Concern about crime was a recurrent theme in our conversations with DBEDC staff and other neighborhood stakeholders. In the three neighborhoods that make up the station area, North Dorchester, South Dorchester, and Roxbury, homicide rates are two to three times higher than in Boston as a whole. Taking a more detailed look at neighborhood crime illustrates the seriousness of safety concerns. In the past year, there have been a substantial number of thefts, robberies, and violent crimes in the immediate station area.

Reported Crimes in Study Area
April 15, 2009 - April 15, 2010

Neighborhood Crime Indicators

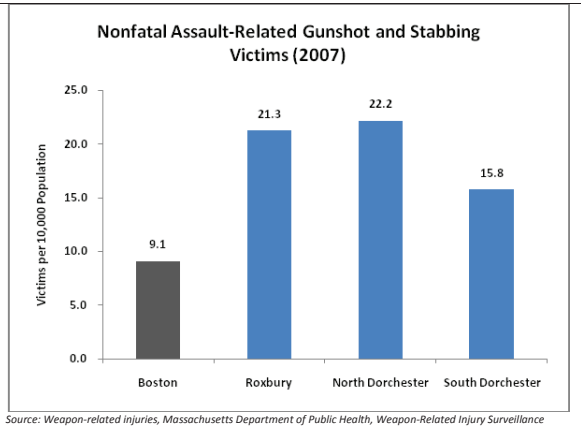
Roxbury, North Dorchester & South Dorchester vs. Boston

Homicide



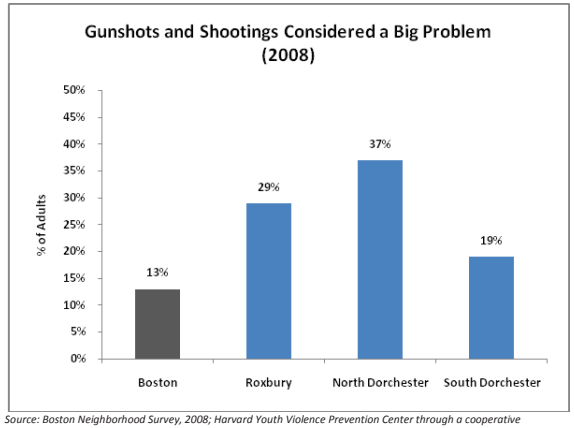
Source: Boston resident deaths, Massachusetts Department of Public Health

Assault

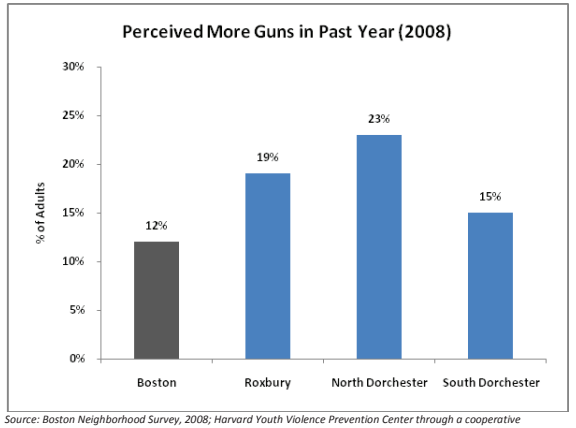


Source: Weapon-related injuries, Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System

Perceived Violence



Source: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

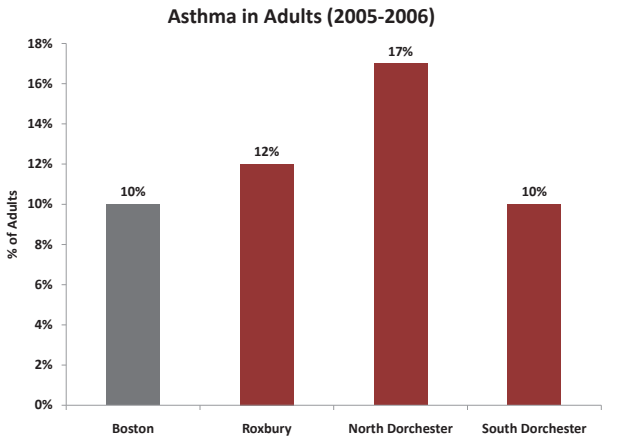


Source: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

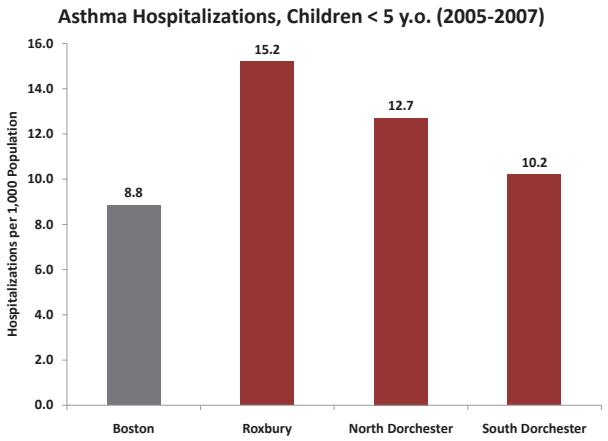
Neighborhood Health Indicators

Roxbury, North Dorchester & South Dorchester vs. Boston

Asthma

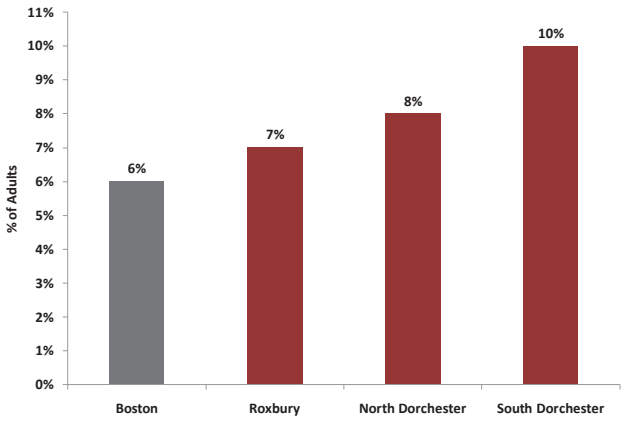


Source: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Public Health Commission Commission Research and Evaluation Office

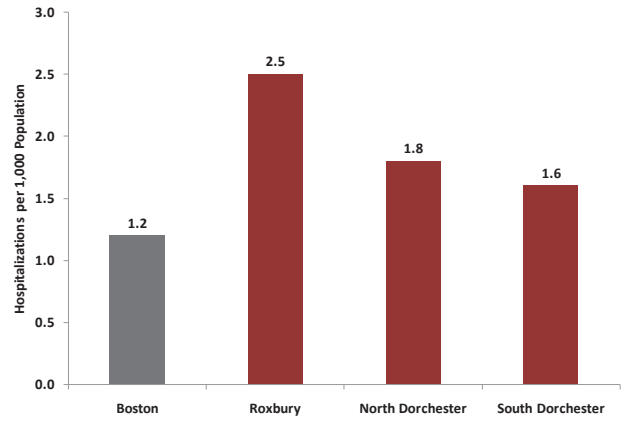


Source: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

Diabetes



Source: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Public Health Commission Commission Research and Evaluation Office

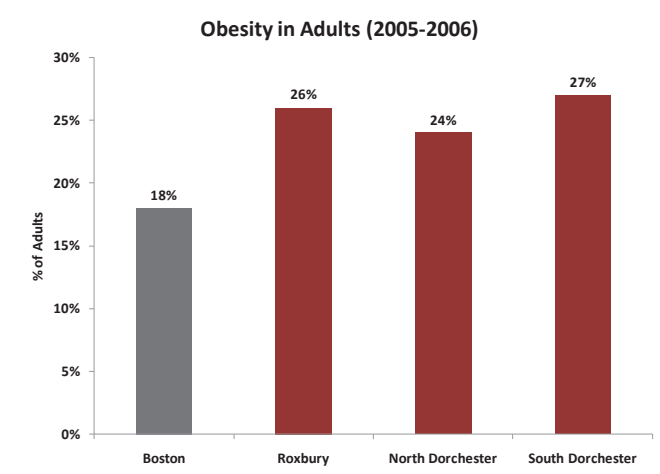


Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

Neighborhood Health Indicators

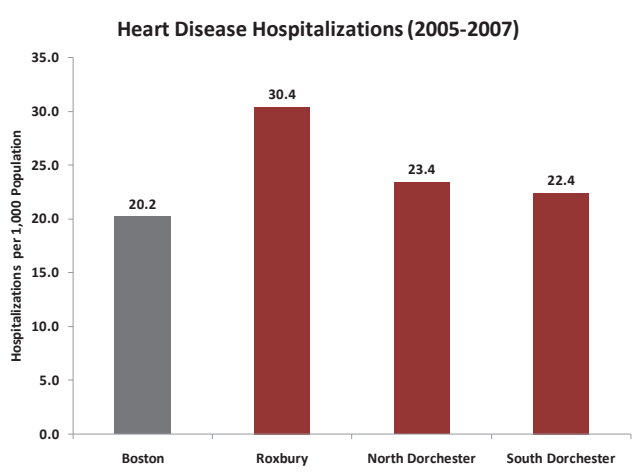
Roxbury, North Dorchester & South Dorchester vs. Boston

Obesity



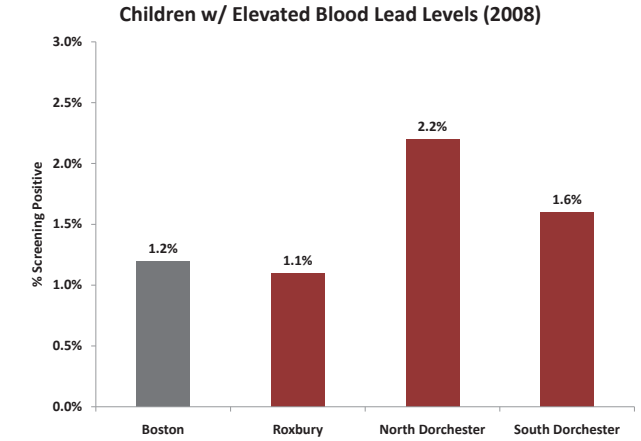
Source: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Public Health Commission Commission Research and Evaluation Office

Heart Disease



Source: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

Lead



Source: Boston Public Health Commission Office of Environmental Health

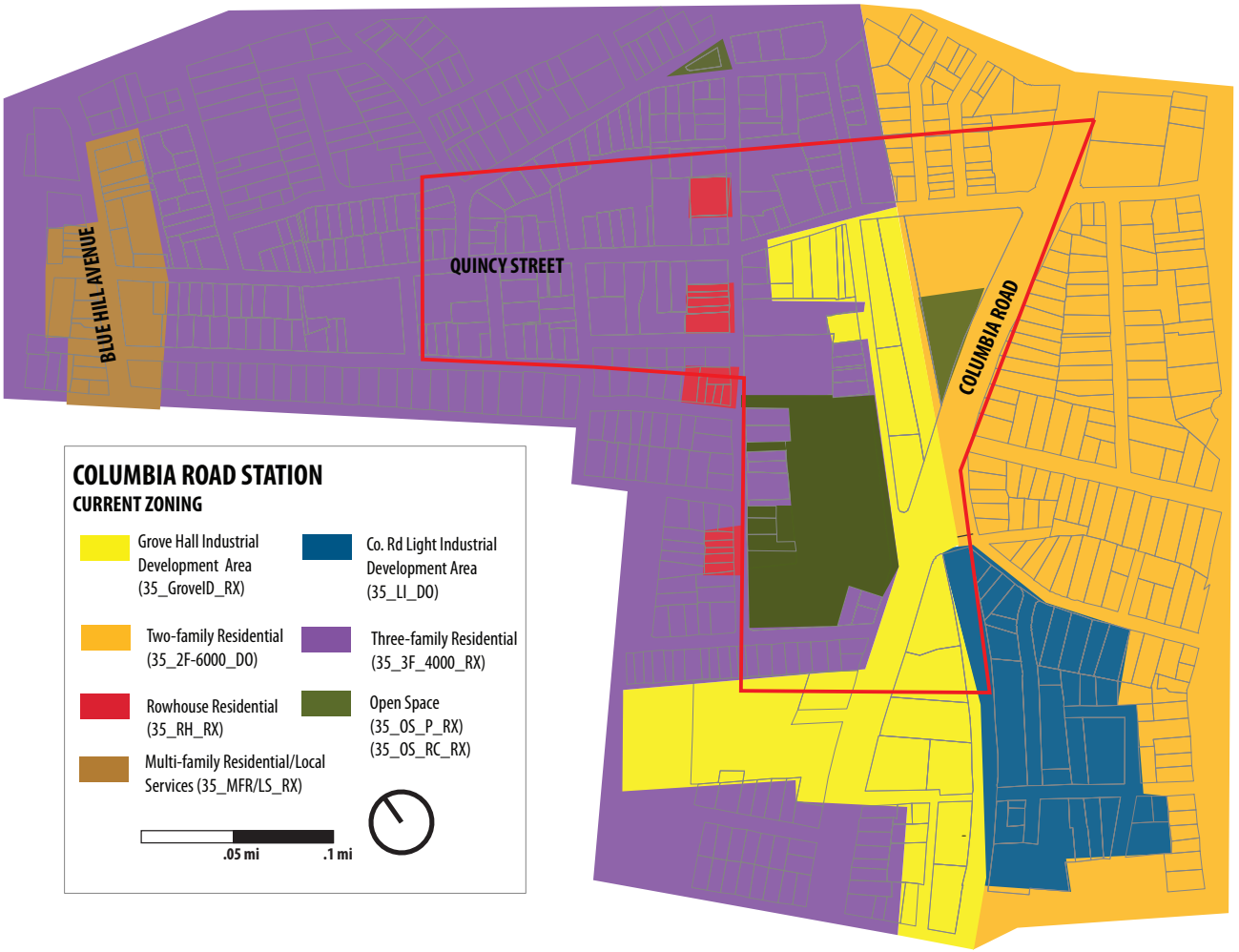
Research + Findings

LAND USE
ZONING, BROWNFIELDS, AND HAZARDOUS SITES

Our half-mile radius study area is divided by the border of the Dorchester and Roxbury planning districts, so zoning classifications in the immediate surroundings of the proposed station are inconsistent across our area of study. Dense two and three-family residential zoning dominates the neighborhood with corridors of multi-family residential apartment districts along Blue Hill Avenue and isolated zones east of Columbia Road. There is also a vibrant neighborhood shopping district on Blue Hill Avenue, about a half-mile southwest of the proposed station, and at Upham's Corner, a half-mile northeast.

A substantial area of industrial zoning exists along Columbia at the proposed station site in the Grove Hall Industrial Development Area and an adjacent light industrial zone. This zone allows for relatively dense development, but is restrictive with regard to the mixing of uses, as are the two and three-family districts in both Dorchester and Roxbury.

Not surprisingly, brownfield and hazardous sites are clustered in the area of the proposed station where industrial uses are prevalent, directly adjacent to contemporary residential development. Vacant properties are also widespread in both the residential and industrial zones. Together, these sites present unique opportunities for sustainable planning interventions as we propose below.



BROWNFIELDS + HAZMAT

LEGEND

Tier Classified Sites
- TIER 1D
- TIER 2
- EPA Brownfields
- Activity + Use Limitations
- DEP BWP Major Facilities
- Unifirst Corporation

- Stations
- Railroads (20k to 0)
- Old Industrial Warehouse
- Industrial Land
- Industrial Land (Secondary)
- Parcels
- Extent
- Building Footprints
- Station Buffer 0.5m

Tier 2 sites received a total NRS score of less than 350. Permits are not required and response action may be performed under the supervision of a Licensed Professional, without prior Departmental approval.

Tier 1D sites are sites where the responsible party fails to provide a required submittal to DEP by a specific deadline.

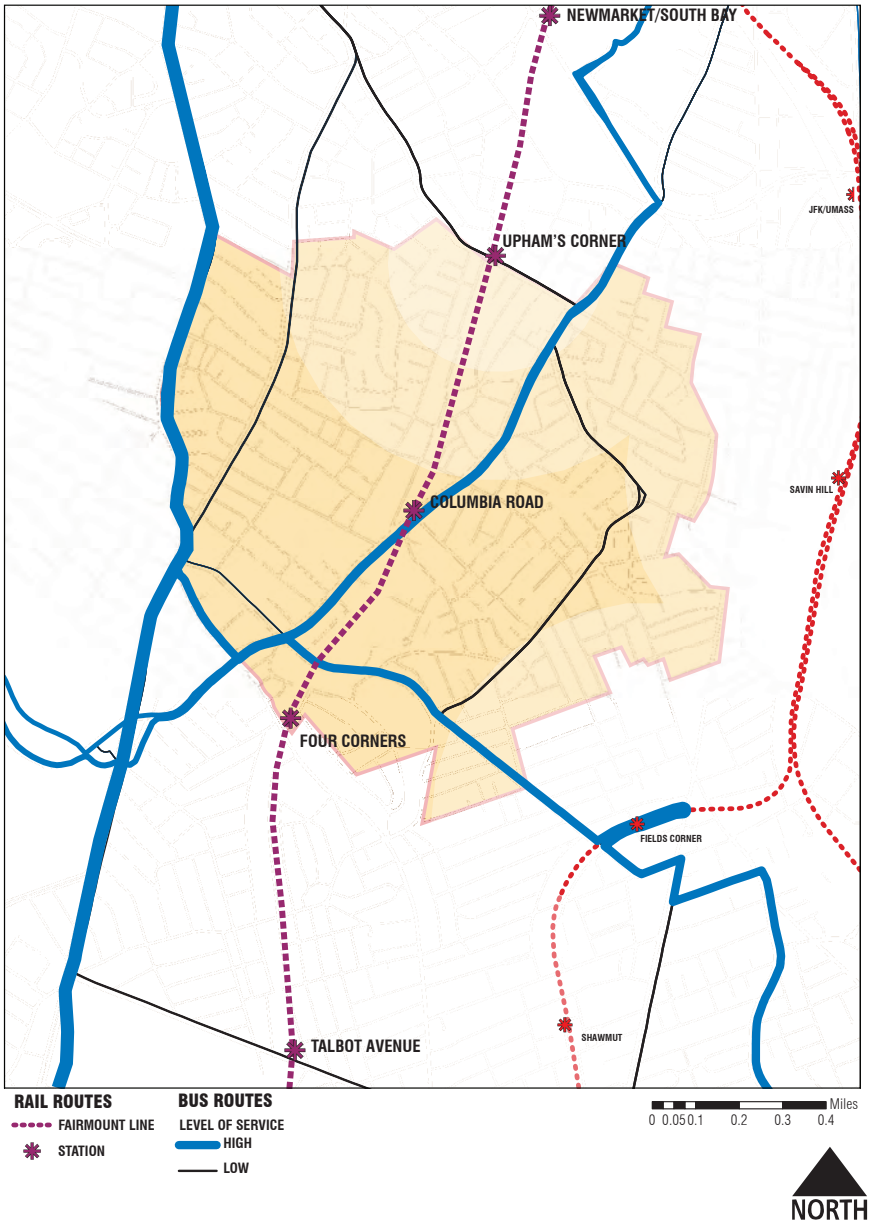
TRANSPORTATION

The neighborhood currently lacks rapid transit. As illustrated in the map below, the Orange and Red Lines of the MBTA's subway system cut a wide path around the heart of Dorchester, such that residents in this area do not have ready subway access.

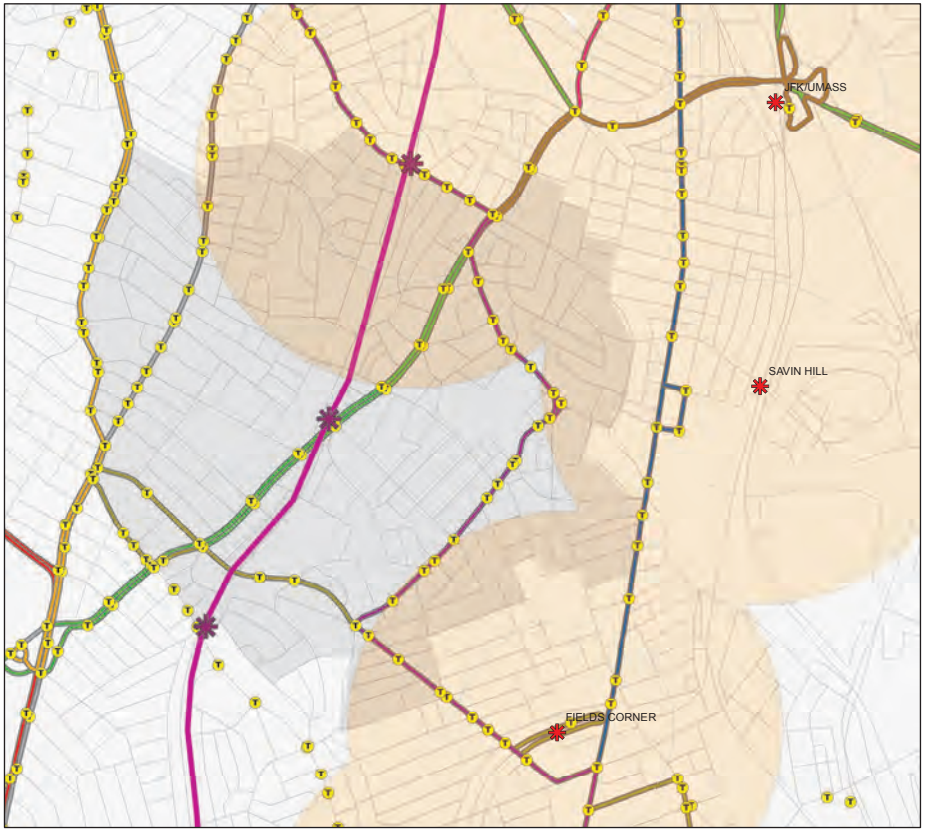
The only public transit in the immediate area is the bus. The critical bus routes are the 16, 28, and 45, which run along the closest north-south thoroughfares, Columbia Road, Warren Street, and Blue Hill Avenue. Their service levels are variable as highlighted in the image below. Residents' means of getting to work clearly reflect their access to transportation options or lack thereof. Currently, 61 percent of workers in the area drive to work, 22 percent take the bus, and a low 9 percent take the subway[15].

The Columbia Road divide is again evident when looking at the commuters who do use public transit. Neighborhood residents on the eastern side are closer to the MBTA's Red Line and use that community asset. It is also clear that residents closer to Upham's Corner benefit from the currently active Fairmount Line station there.

Overall, commute times in the station area are reasonable; most workers travel less than 40 minutes to work, which suggests that their places of work are in nearby employment centers such as Downtown Boston or Longwood Medical Center. Not surprisingly, given that the primary modes of transit are bus and car, traffic congestion in the area is substantial. Concerns about traffic and slow bus service came up often in our meetings with DBEDC. Columbia Road sustains the most traffic; it is a major four-lane road. However, both Quincy and Ceylon Streets experience serious congestion during rush hour, and their capacity for traffic is less since they are both narrow, two-lane streets. Please refer to the appendix for a study of the neighborhood's basic street typologies, and for detailed traffic counts along Quincy, Columbia and Ceylon.



MBTA BUS TRANSPORTATION



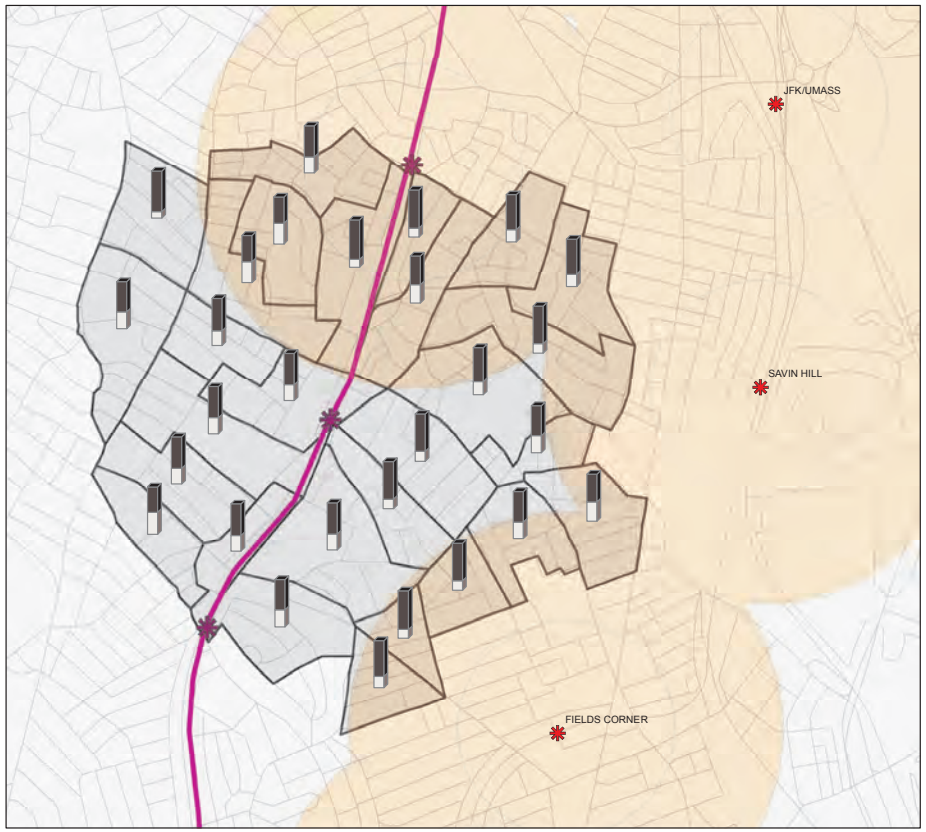
LINE
- RED
- SILVER
- 1/4 mile, 1/2 Transit Radius
- Fairmount Stations
- Fairmount Line
- Boston Blocks
- MBTA Bus Stops

MBTA Bus Routes
- 14
- 15
- 16
- 17
- 18
- 19
- 22
- 25
- 28
- 41
- 45
- 191

0 145 290 580 870 1,160 Meters

NORTH

COMMUTE TIMES



- 43
- % over 40 minutes
- % under 40 minutes

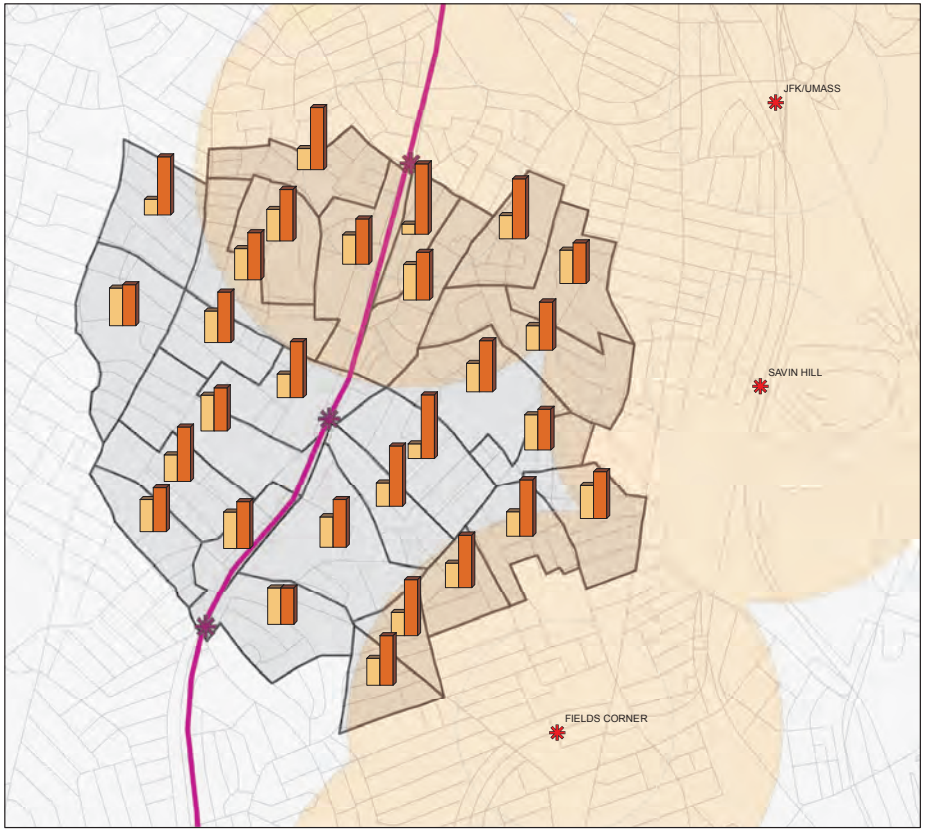
Rapid Stations

LINE
- RED
- SILVER
- Fairmount Stations
- Fairmount Line
- Boston Blocks
- 1/4 mile, 1/2 Transit Radius

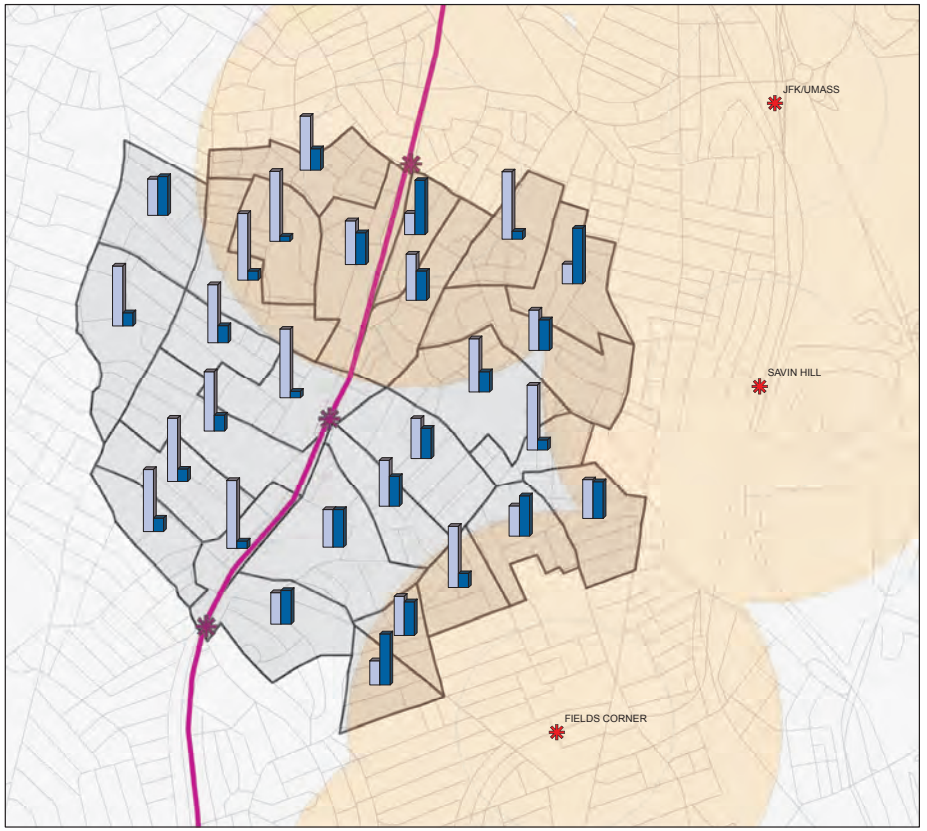
0 135 270 540 810 1,080 Meters

NORTH

OVERALL MODE SPLIT



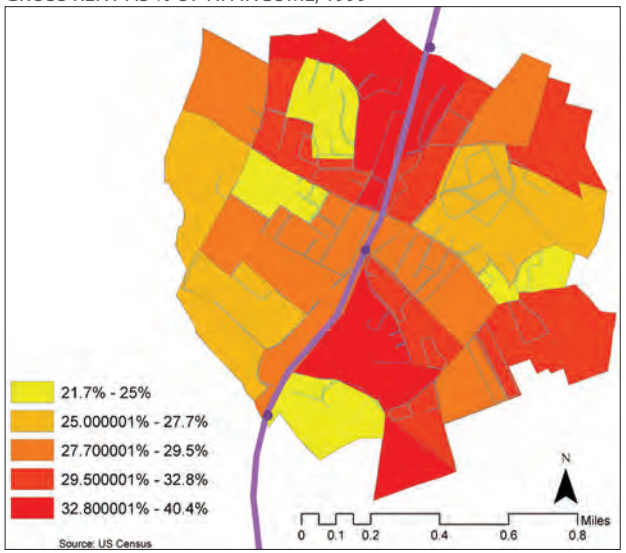
TRANSIT MODE SPLIT



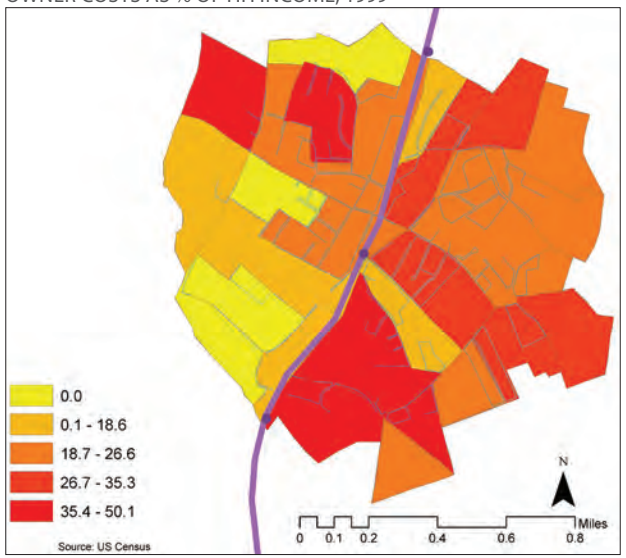
COSTS OF LIVING IN THE NEIGHBORHOOD

In order to better understand how families in the neighborhood are currently affected by the housing and sustainability elements that were the focus of our class, we conducted an in-depth analysis of current household cost burdens of housing, transportation, and energy. Housing cost burdens for both renters and owners are currently fairly reasonable, ranging between 20 percent and 40 percent on average. It will be important to preserve this level of affordability in the future. Households' annual utility costs for heat (gas or oil) and electricity range from $2,300 to $3,200 on average in our focus area[16]. Notably, annual utility costs are significantly higher for residents on the eastern side of Columbia Road. This differentiation calls for further research to better understand its cause. It could be a logical consequence of the residents on the eastern side of Columbia having higher incomes and subsequently spending more on utilities, or it could be a result of different housing types on the respective sides. Household annual transportation costs vary widely depending on the mode of transport. According to 2010 estimates, the average annual cost (including maintenance and fuel) of transportation for households that travel by car is $8,870[17]. Whereas the estimated annual cost for a two-person household that commutes by T is $1,416; a two-person household that commutes by bus would pay just $960 each year.

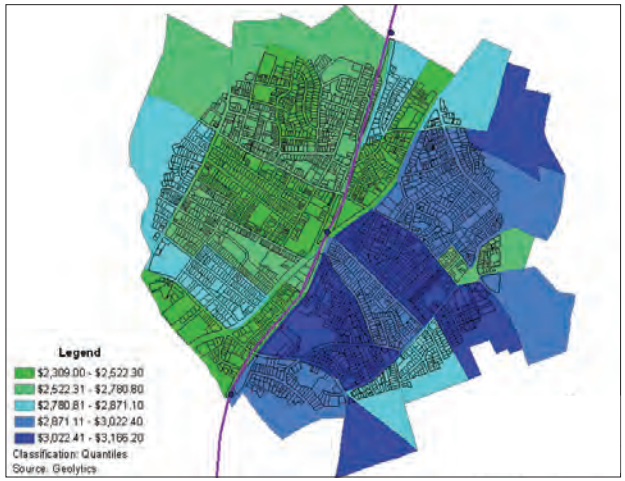
GROSS RENT AS % OF HH INCOME, 1999



OWNER COSTS AS % OF HH INCOME, 1999



AVERAGE ANNUAL UTILITY, FUEL, PUBLIC SERVICE EXPENDITURES (2009)



After compiling and analyzing this array of information about the neighborhood, we identified the key issues that our proposals should respond to: unemployment, crime, lack of public transit options, streets that are unfriendly for pedestrians, and a lack of neighborhood center for community gatherings. These issues informed our class goals: to strengthen community health, safety, economy, and connectivity. Our proposals, comprised of the Vacant Land Activation Plan, Streetscape Redesign Program, Community Greening Center, and Station Area Redevelopment Plan are intended to collectively establish a new community health corridor at the Columbia Road Station. It is our hope that the corridor creates a safe neighborhood center that improves community cohesion and economic well-being.

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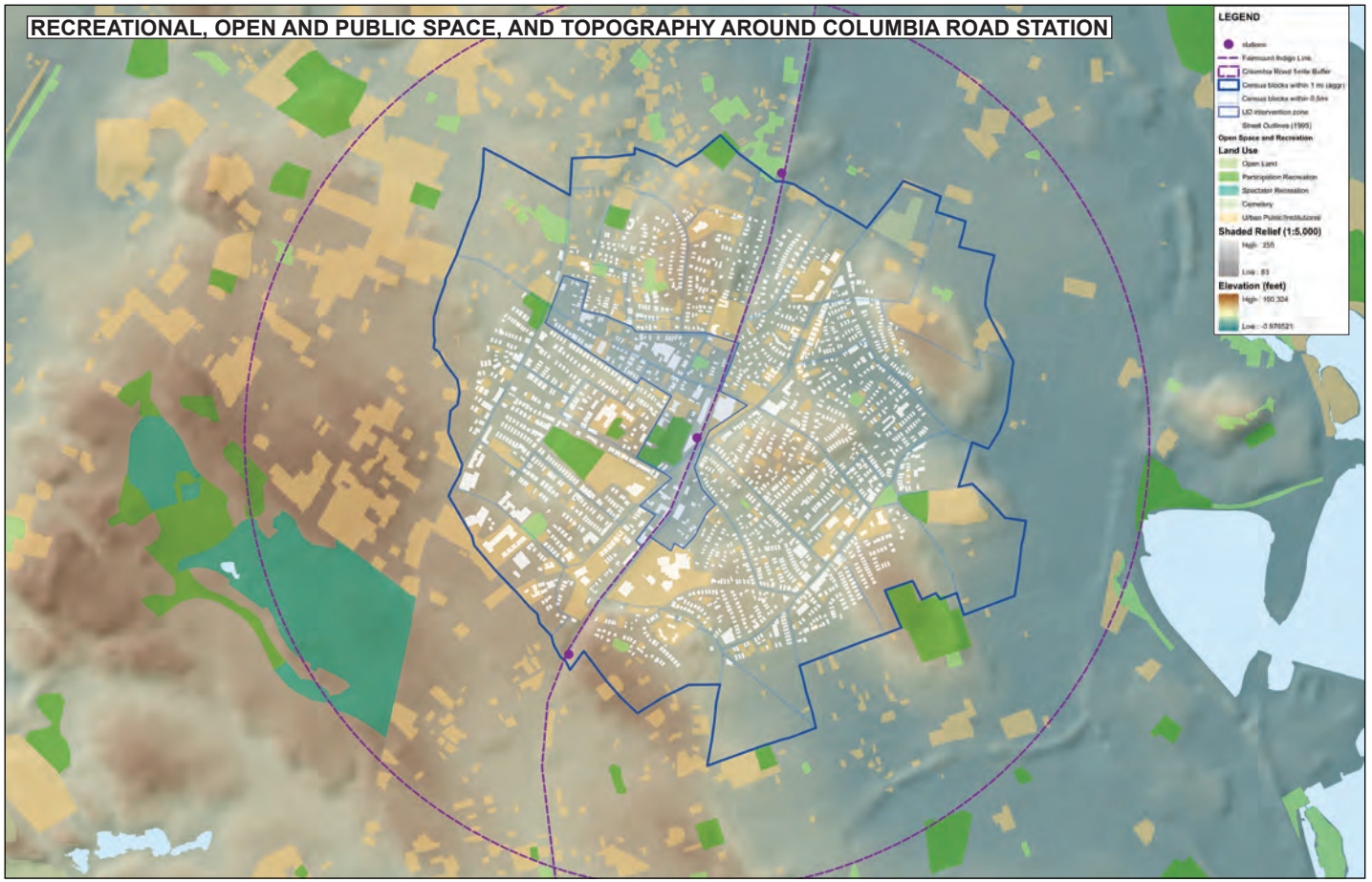
Vacant Land Activation Plan

NEEDS AND OPPORTUNITIES

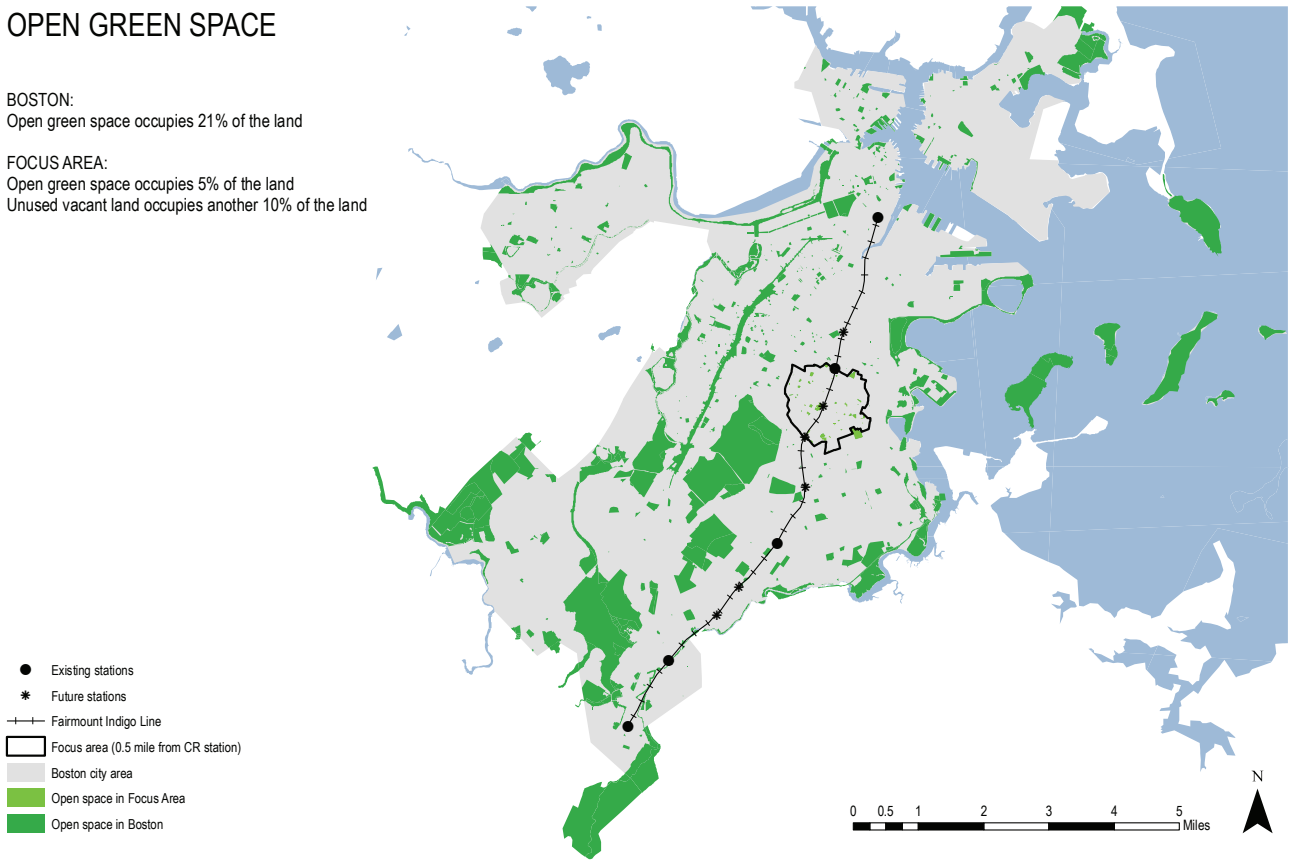
A lack of "open space" is one of the most prominent concerns raised by area residents. By this logic, past proposals to increase density have faced strong community opposition. Interestingly, an analysis of the open spaces within a half-mile radius of the potential Columbia Road Station reveals many large open spaces west of Columbia Road. However, the irregular topography of the area renders the sites rather inaccessible.



Vacant Land Activation Plan

Through neighborhood site visits, it became clear that while there are some well-functioning recreation spaces, including Ceylon Park and the Intervale Street playground, there is also abundance of underutilized open space. These vacant lots are distinctly inaccessible and/or unattractive, marked by fences, vandalism, and dumping. In sum, it is the quality rather than the quantity of open space that creates a perception of scarcity and blight. This observation is confirmed by the spatial data available. Across Boston, areas categorized as "open green space" occupy about 21 percent of the total surface of the city. In contrast, within the half-mile radius area around Columbia Road Station, this percentage is only around 5 percent. The definition of "open green space" includes parks, playgrounds, community gardens, plazas, cemeteries, and urban wild.

By contrast, much of the open land in our focus neighborhood is vacant and inaccessible without current programmed use. This vacant land is scattered throughout the neighborhood and constitutes roughly 10 percent of the total land within the half-mile radius, double the percentage of land occupied by parks, playgrounds, and other forms of usable open space. Most of these spaces are concentrated west of Columbia Road. Furthermore, due to the neighborhood's industrial past, many of the vacant parcels are potentially contaminated and officially classified as brownfield sites.

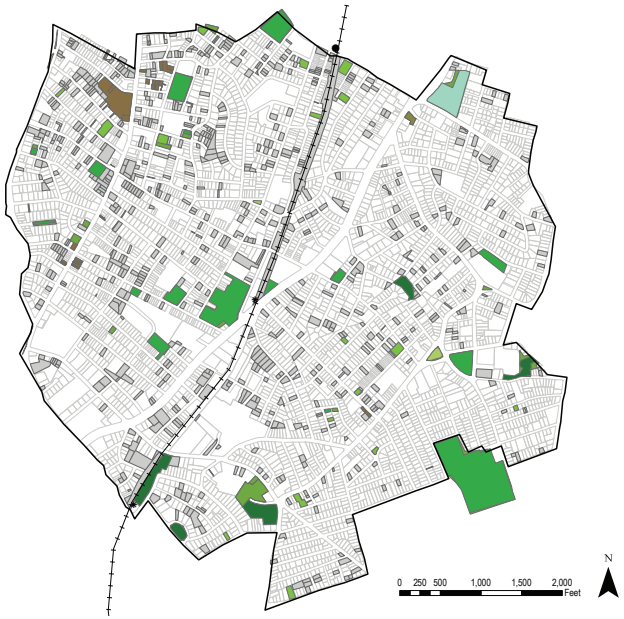


This abundance of underutilized land poses not only problems, but also tremendous opportunities. To assess the vast potential of the vacant stock, we have analyzed spatial data regarding size, use, and ownership. The results are presented in the following maps. In terms of land area, the majority of vacant parcels have an area smaller than 5,000 sf, which means that they are most suitable for small scale uses and aggregation with adjacent parcels. Aggregation could result in several medium and large scale parcels (5,000 to 50,000 sf).

Vacant Land Activation Plan

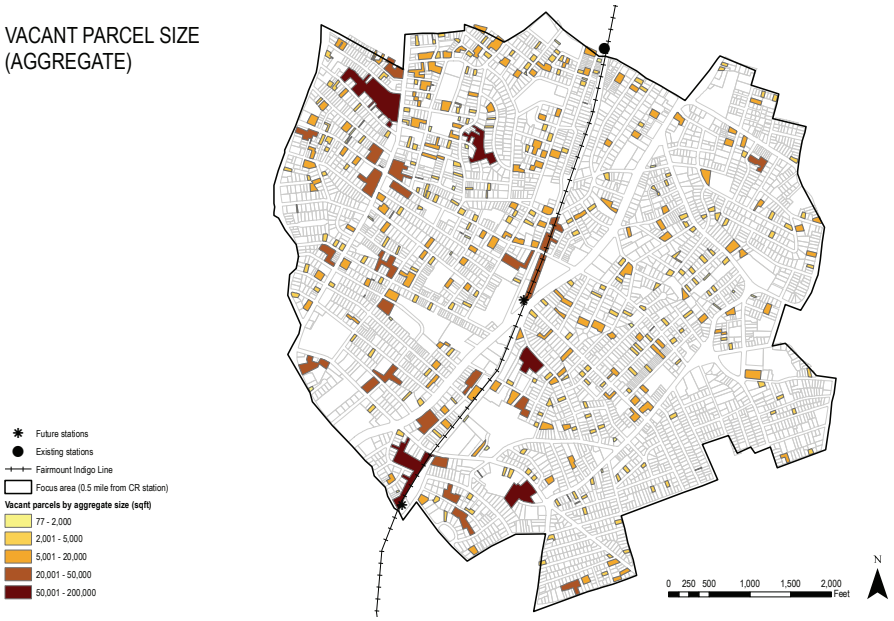
OPEN LAND TYPES

OID	open land type	number of spaces
0	Cem. & BG	1
1	Comm. Gard.	17
2	Malls Sqrs & Plzs	6
3	Pks. Plgs. & A.F.	16
4	Urban Wild	5



VACANT PARCEL SIZE

VACANT PARCEL SIZE (AGGREGATE)



According to Boston assessor data, the vast majority of parcels are vacant and exempt from taxes. Some parcels are intended for residential use, and only a few are used for commercial purposes like parking and storage. In reality, even fewer parcels are being actively used than the assessor's data indicate.

Ownership is the most complicated, but also the most important attribute of vacant land, since it indicates the potential for changing its use toward a community purpose. As seen in the map, 37 percent of the land is owned by public entities, including the City of Boston, Boston Redevelopment Authority, and Massachusetts Bay Transportation Authority. Community development corporations and other non-profit organizations own at least another 8 percent of the vacant land. Overall, almost half of the underutilized open space is owned by non-private parties. This ownership structure presents a significant opportunity for coalitions to further assess and activate vast portions of vacant land.

Vacant Land Activation Plan

OBJECTIVES

The inventory of vacant land within half-mile radius of the future Columbia Road Station is intended to serve as the basis of our Vacant Land Activation Program (VLAP). VLAP posits that the activation of currently underutilized land is an essential component of an orchestrated policy and design-driven effort to increase sustainability, safety, and the quality of the physical space of the neighborhood.

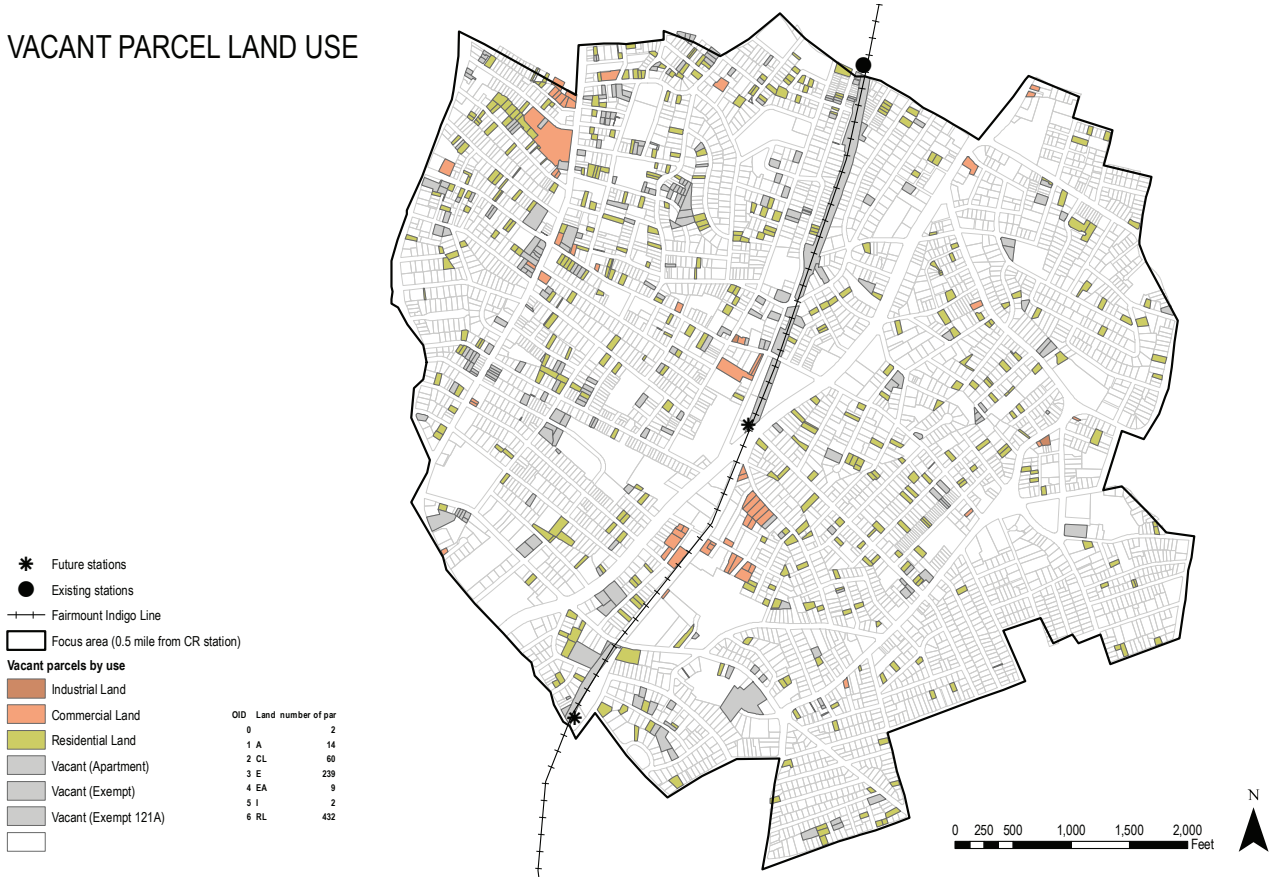
The objectives of VLAP can be summarized as follows:

(1) Raise awareness about the substantial amount of vacant land in the neighborhood

(2) Utilize vacant land in creative ways, in order to:

- Increase the sense of safety
- Provide possibilities for outdoor recreation and gathering
- Allow for a reassessment of neighborhood density preferences and goals
- Improve community health

VACANT PARCEL LAND USE



PROPOSAL

Our proposal for a Vacant Land Activation Program consists of three main components:

(1) Vacant Land Inventory

The analysis of the vacant land included in this report can serve as the basis for a more detailed inventory of underutilized properties in the neighborhood. We suggest that DBEDC maintain a permanent database of the vacant land in the neighborhood, to be updated on a frequent basis.

Vacant Land Activation Plan

(2) Coalition-building

DBEDC should seek to build coalitions with other non-profits that own land in the neighborhood, and coordinate with the City of Boston and the MBTA. This will help to consolidate adjacent vacant parcels, expedite the activation process, and prioritize re-use based on shared agendas.

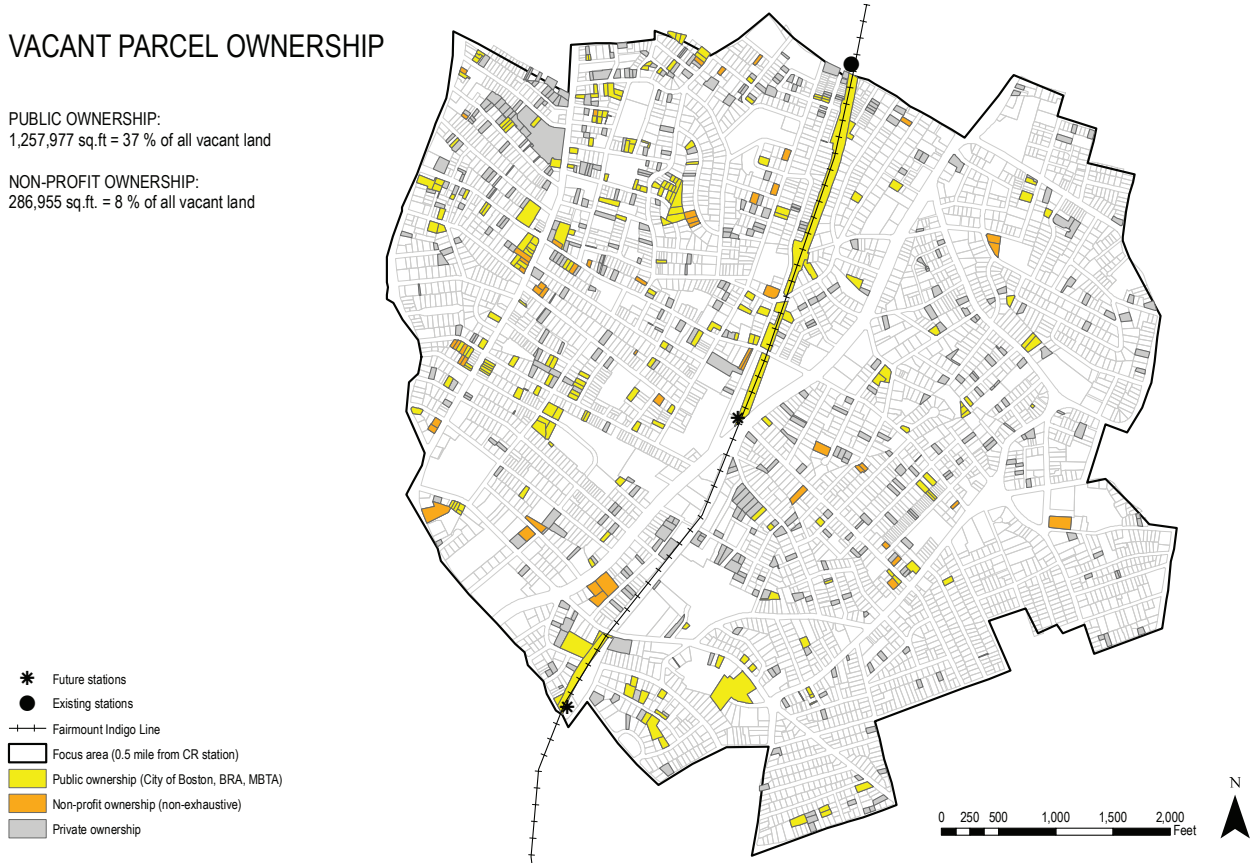
(3) Priority for re-use

We suggest that vacant land be re-used in three main ways:

- Strategic infill development
- Converting to green open space, specifically community gardens and parks
- Installing renewable energy production facilities

While each vacant parcel must be assessed individually, the following general criteria provide general guidelines for prioritizing re-use:

- Prioritize parcels that are owned by public or non-profit organizations.
- Leverage programs for funding brownfield redevelopment to convert large brownfield sites into sites for renewable energy production such as solar energy, wind, geothermal, or biomass
- Streamline the sites that are across Columbia Road, Quincy Street, Ceylon Street, and Bluehill Avenue for infill development.
- Convert small-sized parcels into community gardens and small recreation spaces.



The map on page 30 represents a way to materialize the suggestions for re-use within the 0.5-mile radius surrounding the future Columbia Road Station. This map could serve as a preliminary manual to guide neighborhood interventions.

While the conversion of all underutilized parcels will be an exhaustive and ongoing process, DBEDC can immediately encourage local community groups to appropriate select sites for temporary clean up and transformations into as artist installations, gardens, and playgrounds.

Vacant Land Activation Plan

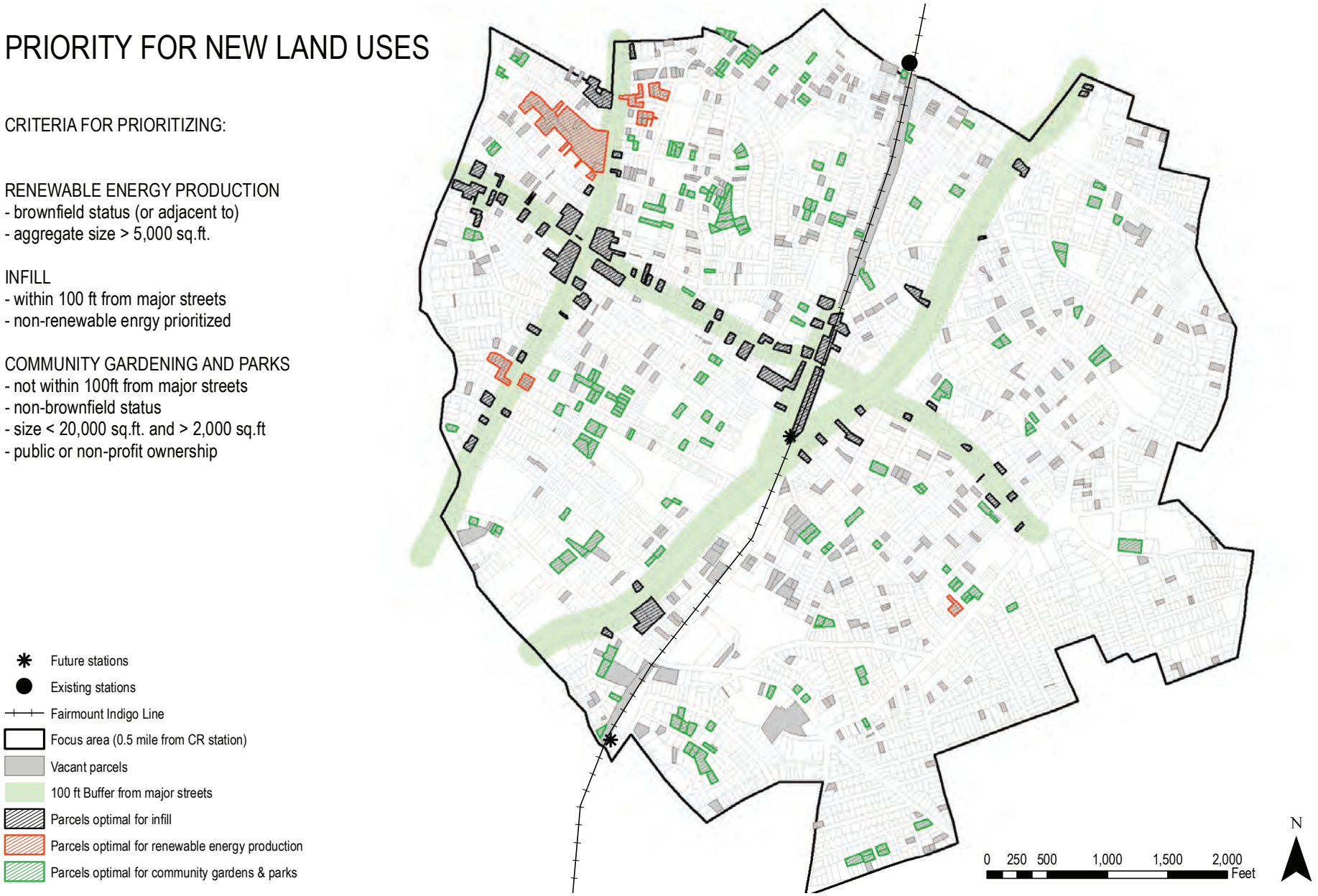
PRIORITY FOR NEW LAND USES

CRITERIA FOR PRIORITIZING:

RENEWABLE ENERGY PRODUCTION
- brownfield status (or adjacent to)
- aggregate size > 5,000 sq.ft.

INFILL
- within 100 ft from major streets
- non-renewable enrgy prioritized

COMMUNITY GARDENING AND PARKS
- not within 100ft from major streets
- non-brownfield status
- size < 20,000 sq.ft. and > 2,000 sq.ft
- public or non-profit ownership



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Streetscape Redesign Program

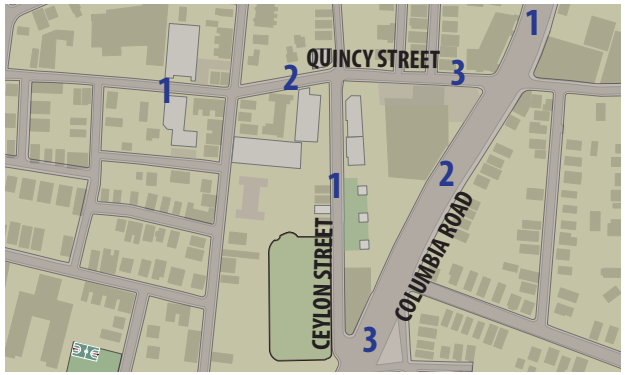
NEEDS

Our investigation of street conditions focused on the blocks of Columbia Road, Quincy Street, and Ceylon Street immediately adjacent to the proposed station area. Several factors make these streets unfriendly to pedestrians. Generally, the area is characterized by narrow sidewalks that are a remnant of mostly industrial uses on these blocks. In part because the sidewalks are narrow, street trees are scarce or non-existent; the exception is the wide and fast-paced Columbia Road, where there is opportunity to fill empty tree beds and planters. Another exception is the newly renovated Ceylon Park, where a row of small trees and plant beds lines the new sidewalk.

Below is a table summarizing the key characteristics of the Ceylon, Quincy and Columbia streetscapes, including street trees, sidewalk plantings, sidewalk width, street lights, vacancy rates along the street, setbacks, and vehicular right-of-way width.

	Street Trees	Average Sidewalk Width	Street Lights	Vacancy Rate	Setbacks	Street Width
CEYLON						
Block 1	13 small (all along Ceylon Park)	7.5' along park, 6.5' elsewhere	11	2/7 parcels	0.5-3.5'	30.5'
QUINCY						
1	0 (+5 prominent off-street)	7'	9	4/17 parcels	7.5-11'	20.5-22.5'
2	0 (+3 prominent off-street)	9.5'	3	7/11 parcels	39.5'	27'
3	4	7'	8	0/10 parcels	0.5'	29.5'
COLUMBIA						
1	2 on east, 4 on west, 3 median planters (+11 prominent off-street)	12' east, 7' west	12	0/10 parcels	12-44.5' (community health center)	93'
2	3 on east, 2 on median, 3 on west	15' east, 6' west	19	3/15 parcels	20-30'	92'
3	3 on east, 4 on west, 1 on median (+2 prominent off-street)	7' east, 7' west	6	1/10 parcels	13.6' (industrial building only)	88.5' - 96.5' - 104' (to underpass/median at Ceylon)

Streetscape Redesign Program



Representatives from local organizations tell us that safety concerns impact where and when people choose to walk in the neighborhood. Erratic building setbacks (industrial buildings pressed up against the street, and older homes set back far from the sidewalks) and a lack of unplanned lighting from most buildings make the streets feel less comfortable to walk at night. This is especially true of Quincy Street, which has a high number of vacant lots. The lack of light is not only a result of many vacant buildings and lots, but also the fact that on-street industrial and commercial uses are only active during daylight hours. The city's street lights on Quincy Street and Intervale Street are bright, but their orange light is focused on small areas and gives the impression of being designed for security concerns. Meanwhile, Ceylon Park is completely unlit at night, and subsequently there are major neighborhood concerns about safety there. The train underpasses on Quincy Street and Columbia Road could also benefit from more lighting. Vacant lots throughout the area are dark at night and also poorly maintained, attracting dumping and pests.

Traffic on all of our target area blocks moves at relatively high speeds. Crossings are dangerous for pedestrians. All of the streets have a much greater frequency of vehicular traffic than foot traffic. At Ceylon Park, on-street parking is, by our observations, inadequate. The traffic problem

on this block is exacerbated by the presence of the auto shops located at the intersection with Columbia Road, where cars back out of driveways and vehicular activity is constant.

In addition to the crash map that appears on this page, we urge the reader to refer to the appendix, which contains a street typology study of the neighborhood and detailed traffic counts along Ceylon, Columbia and Quincy.

There is a clear need to improve lighting, on-street comfort, and to address traffic safety concerns. In order for the new station to be readily accessible by neighborhood residents, these target blocks must be safer and more comfortable for people to walk along.

OPPORTUNITIES

Our streetscape plan aims to support the current active streetfront uses that attract vehicular and pedestrian activity in the station area. Ceylon Park was recently renovated and offers soccer and softball fields, a playground, and a path between Ceylon and Magnolia Streets. The park not only serves neighborhood residents, but is also busy with activity from soccer teams from all over the Boston area on warm weekends.

Pedestrian traffic on Columbia Road is consistent. Bus stops and the commercial uses on Columbia

Streetscape Redesign Program

Road at Quincy Street contribute to a greater number of pedestrians than are currently found on Ceylon or Quincy Streets. The Early Learning Center at Quincy Street and Columbia Road is also a destination with regular pedestrian traffic.

Even on the relatively quiet blocks of Quincy and Ceylon Streets, there are activities that help to activate the street: a furniture store on Quincy Street places some merchandise outdoors; residents visit the convenience store at Magnolia Street and the church at Baker Avenue; the area outside the auto body shops on Ceylon Street is used by mechanics and workers to smoke and socialize between jobs; and Ceylon Park attracts barbecuers and food vendors.

The photos on the right depict traffic patterns near newly renovated Ceylon Park (busy during daylight hours, yet dark and potentially unsafe at night), as well as major activity nodes in the neighborhood (the auto shops and barber shop at intersection with Columbia). Note the absence of street trees and erratic building frontages and setbacks.

Streetscape Redesign Program

OBJECTIVES AND PRINCIPLES

Our recommendations address four principles:

(1) Community
Streets and sidewalks should facilitate unplanned interactions and socializing, and invite public cultural expression.

(2) Safety
Design can help reduce opportunities for crime and increase pedestrian comfort on the streets. Interventions should highlight community accountability and respond sensitively to divergent day and evening uses of public space. Concurrently, we avoid strategies that stigmatize a place as dangerous.

(3) Mobility
The physical environment of the streets should improve pedestrian access to the station and new developments, balancing and addressing increased traffic and parking demands around the station area.

(4) Sustainability
Interventions should address air quality and improve the general environmental health of the station area and its residents.

PROPOSALS

Mobility

In response to our findings about the intensity of traffic and the concentration of accidents in the station area, we propose several key interventions to improve pedestrian safety in the station area. These mobility improvements aim to ensure that the station attracts a critical level of ridership and to improve general safety and comfort of people as they walk to and from the transit hub and new development in the area.

(1) Bump-outs at major crossings and most dangerous intersections

This traffic calming measure shortens the time pedestrians are in the street. It encourages crossing safely at crosswalks or designated spots, making pedestrians more visible and predictable to oncoming vehicles.

(2) Connect Ceylon Park with new Community Greening Center and station plaza through wide, patterned crosswalk

A similarly motivated intervention would place wide crosswalks mid-block on Ceylon Street, connecting the park to the Community Greening Center and community garden spaces that we propose in our Station Area Plan. This would improve pedestrian safety and create a link between similar uses within the health corridor, encouraging users of the park to engage with Community Greening Center programming and the gardens, and vice versa.

(3) Convert Ceylon Street to a one-way street with traffic flowing in the southwest direction

This change would reduce the number of cars and improve conditions for pedestrians on a block where we propose many community and family-centric uses. Ceylon Street north of Quincy Street is already one-way in this direction, so this change makes sense from a traffic planning perspective as well.

(4) Plaza and path system to improve station access

Our Station Area Plan also includes expanding a plaza and path system across the neighborhood, increasing the number of routes from the residential streets off of Magnolia Street, through and around Ceylon Park, and extending to Columbia Road. The plaza and path system increases safe options for pedestrians traveling to different sections of the neighborhood from the proposed station. Residents can also use the plazas as public space for markets and other gatherings.

Safety

Although our mobility recommendations are centered on the idea of increasing safety and comfort on the street for neighborhood residents, we propose several inexpensive lighting interventions that will further this goal during evening hours.

(1) Use wall/window treatments in vacant or industrial buildings and subsidize installation of residential porch lights to increase feeling of "eyes on the street."

(2) Install pedestrian-level street lighting specifically to brighten the sidewalks in the evenings.

(3) Paint bright, reflective colors on train track underpasses at Columbia Road and Ceylon Street and on Quincy Street.

(4) Paint murals (lit at night) on blank walls on industrial buildings along Ceylon Street and Quincy Street.

Streetscape Redesign Program

PEDESTRIAN SCALE LIGHTING

WINDOW TREATMENT

Community

We consider the activation of storefronts and community uses, as proposed in the Station Area Plan and Community Greening Center sections, to be critical streetscape improvements for the neighborhood. The Community Greening Center will have numerous programs both on and off-site, in the community gardens on Ceylon Street (and possibly elsewhere in the neighborhood), as well as on the working roof and in station area plaza areas. These street-front uses will transform sidewalks and other public spaces into places that invite expression and diverse gatherings of neighborhood residents and visitors.

Sustainability

The topography of Quincy Street, as well as its industrial and brownfield history, recommend it for stormwater interventions. We propose the introduction of bioswales, strips of vegetation that capture surface water runoff and filter out silt and pollution before the water enters the drainage system or penetrates to the groundwater level.

Studies show that increased vegetation (such as new street trees and plant cover provided in our proposed community gardens) can measurably improve air quality and heat island effects in a neighborhood[18]. We propose adding street trees where possible. Where not possible because of the narrowness of the sidewalks, we propose plantings and trees to be introduced just off the sidewalk. Advocacy for such off-street landscaping could be especially effective given the volume of new development on Quincy Street, where non-profit and city developers may be willing to make such investments in landscaping to improve street quality.

The following site plans illustrate our suggestions within the neighborhood context, based on our observations of current conditions and our Station Area Plan proposals.

BIOFILTRATION SWALES

Streetscape Redesign Program

RENDERING OF PROPOSED STREETSCAPE INTERVENTIONS ALONG QUINCY

Streetscape Redesign Program

STREETSCAPE INTERVENTION CONCEPTUAL SITE PLAN

Streetscape Redesign Program

Plaza and path system with pedestrian lighting

Active uses to be linked with Community Greening Center

Stormwater management

Key areas for new street or site edge tree plantings

LOCATION OF PLAZA, LIGHTING, ACTIVE USES, STORMWATER MANAGEMENT AND STREET TREE OR SITE EDGE PLANTING INTERVENTIONS

Streetscape Redesign Program

Neighborhood destinations and activity nodes:

- existing
- future/proposed

Streetscape interventions:

- Plaza and path system with pedestrian lighting
- Lighting treatments for blank and inactive walls
- Connectivity improvements: wide crosswalks with different pavings
- Bright painting under train tracks
- Bump out for traffic calming

COMPOSITE SITE PLAN OF STREETSCAPE INTERVENTIONS AND NEIGHBORHOOD DESTINATIONS AND ACTIVITY NODES

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Community Greening Center

NEEDS AND OPPORTUNITIES

As is outlined above, our focus area lacks a clear center of community activity, residents are concerned about crime and a lack of jobs, they have limited access to healthy food, and residents' relatively low incomes make household expenditures on items like energy difficult.

The establishment of a station at Columbia Road and Quincy Street and streetscaping along the arterial streets presents a unique opportunity to leverage these neighborhood improvements, focus community attention, and provide programming that furthers the neighborhood's health and environmental sustainability. Integrated into the fabric of the Station Area Plan described below, the Community Greening Center (CGC) and its programs are designed to provide an increased sense of security, affordable, cleaner energy for residents, and access to affordable, locally grown food. Furthermore, GCG programming will capitalize on the area's abundance of vacant land and pave the way for increased job opportunities.

PROGRAM OBJECTIVES

In envisioning a CGC in the heart of DBEDC's catchment area, it is important to first recall our holistic definition of sustainability as meeting immediate community needs, while working toward long-term environmental and economic well-being. The CGC will serve as the hub for all neighborhood sustainability initiatives, while both physically and conceptually defining the Community Health Corridor. This section provides design and programming proposals intended to green the community both ecologically and economically. These proposals are by no means exhaustive, but provide a fluid framework for assessing and establishing future initiatives.
Beyond the construction of the CGC campus, which will be outlined in further detail, we recommend a three-step process for establishing the CGC's program menu.

Community Greening Center

Step 1 Shift select DBEDC programs to the Community Greening Center

DBEDC already boasts an array of successful community outreach programs including YouthForce, L.I.F.E., Upham's-Dudley Reentry Program, Rock and Roll Seniors, Summer Day Camp, as well as tenant organizing and technology campaigns. To leverage these strengths, we recommend physically relocating some, if not all, of these programs, to the CGC. This move will centralize programs to allow for greater collaboration and more direct interaction with the community. Importantly, these trusted programs will draw residents to the CGC in the early stages of operation.

Step 2 Launch Community Greening Center Signature Programs

Once the DBEDC programs have been successfully relocated, dedicated staff will organize the launch of the CGC's two signature programs: the Energy Production + Reduction Program and the Community Gardens Program. These two initiatives are designed to reinforce the GCG's sustainability mission and provide programming to support the evolving concept of the Community Health Corridor.

Step 3: Foster partnerships to support existing community programs and implement new initiatives

The DBEDC is part of a vast network of area organizations dedicated to economic development and community empowerment. Several organizations are committed to developing a local green workforce, but they perhaps lack the administrative capacity and training facilities to optimize program impact. While the CGC Signature Programs feature an in-house job training program, these initiatives will be most effective by utilizing the knowledge and resources of existing programs. Therefore, we recommend that the DBEDC spearhead a process of establishing a formal green workforce development network that links existing programs with the CGC learning facilities and workforce trainees. This model is not just limited to workforce development initiatives. The CGC should actively work to partner with other local groups working on broadly defined sustainability initiatives, namely energy efficiency and urban agriculture.

PROPOSALS

The following proposals address the development of the CGC and its programs. A more detailed discussion of financing opportunities to realize construction of the CGC and to implement its programs can be found in the appendix to this report.

Community Greening Center Facility

The CGC is a two-story 10,600 sf mixed-use building designed to support community programs at the center and throughout the community. The proposed site, opposite Ceylon Park, is an ideal location to capitalize on the increased neighborhood mobility as a result of the streetscaping and station redevelopment.

Building Construction

The CGC building will demonstrate innovative design, sustainable construction, and resource efficiency. The envisioned CGC is a carbon neutral building that can serve as a model for the neighborhood. Natural light will pour through the rooftop skylight into the open reception hall and retracting the skylight during warm weather will allow heat to escape. Passive solar design, aggressive insulation treatments, window trellises, and in-floor solar thermal heating will mitigate the interior climate. Innovative green infrastructure including rainwater catchment, greywater reuse, and composting toilets should be considered.

Interior Spaces

Interior design will provide adaptable spaces to accommodate a variety of seating and meeting configurations. Offices are designed to host all DBEDC outreach programs and be made available

community plaza

bike sharing + storage

outdoor seating

car sharing programs

greenhouses

shared plots

beekeeping

job creation + civic activity

SITE PLAN FOR COMMUNITY GREENING CENTER LOT

for rent to other community groups, small businesses, or city programs. Additional facilities, including a small business incubator, a library, a kitchen, and Internet work-stations will serve CGC programs and the community at large.

Exterior Spaces

The immediate CGC campus will function as an extension of adjacent streetscaping interventions to provide a safe, verdant community crossroads. The campus will include adaptable gathering space, working gardens, and recreation areas. Storage and repair facilities for a community bicycle share program and dedicated parking spaces for a zipcar rideshare component will also be integrated.

Rooftop

The building's rooftop will showcase the CGC's signature programs, which are described more fully below. Photovoltaic solar and wind energy generating installations on the roof would provide for the CGC's energy needs. The rooftop would also demonstrate raised-bed garden techniques and teach cost-effective water management strategies, such as rainwater harvesting and carbon filtering.

Community Greening Center Signature Programs
The CGC will feature two signature programs: the Energy Production + Reduction Program and the Community Gardens Program. These programs are designed to dovetail with existing DBEDC outreach programs to improve the environmental health and economic well-being of the community.

Signature Program: Energy Production + Reduction
The Energy Production + Reduction Program contains two distinct elements: 1) the production of renewable energy and 2) the reduction of energy usage through the promotion of energy efficiency measures.

Energy Production at the CGC

Greater Boston boasts significant potential for renewable energy production, from solar, wind, biomass, and geothermal sources. Both the CGC campus and vacant lands identified in the VLAP present opportunities for renewable energy productions.

As was noted above, the CGC will feature a rooftop renewable energy showcase. This adaptable space is designed to produce clean energy and serve as a hands-on resource for job training and community education.

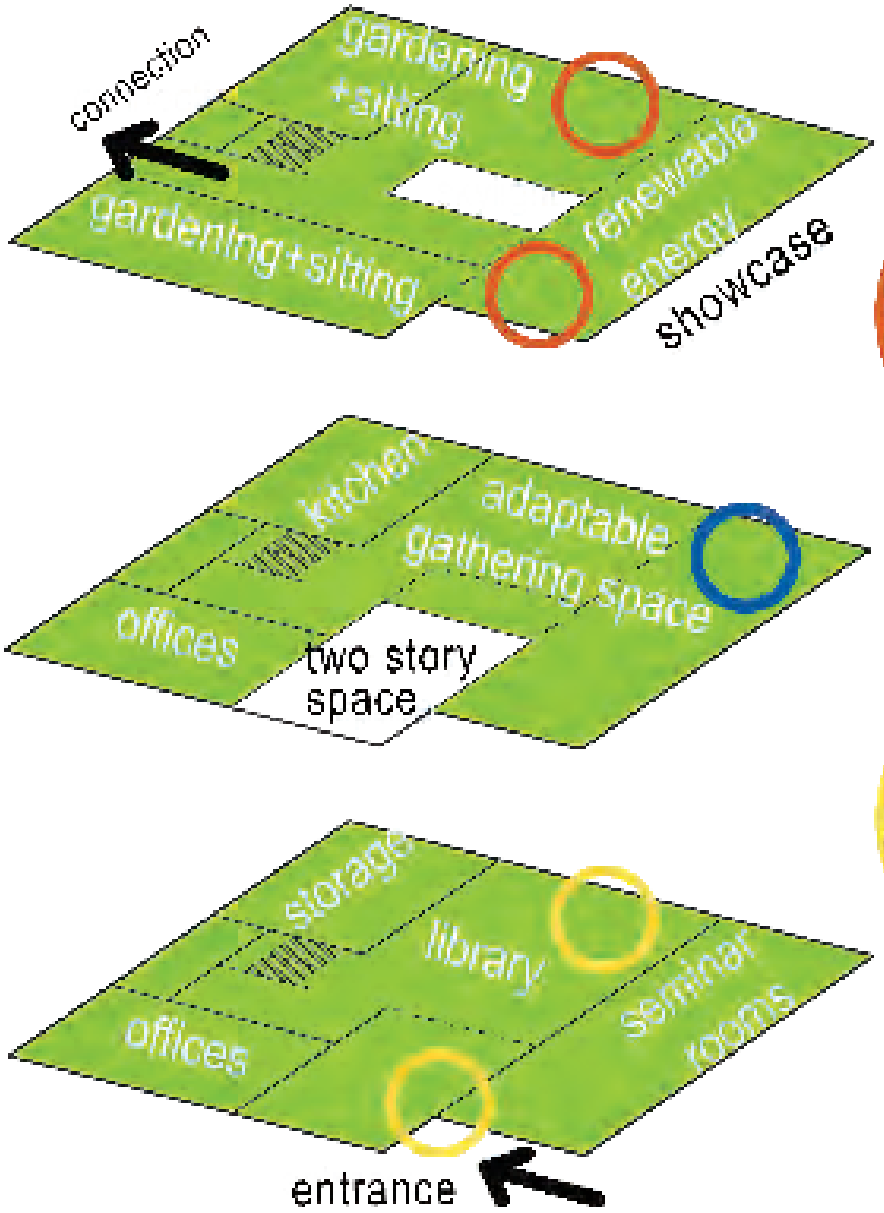
The showcase would initially feature photovoltaic solar panels and small-scale wind turbines, but will adapt to accommodate new technologies. Creating a collaborative learning laboratory, energy developers can test new technologies in the showcase, while community residents learn to install and service emerging products before they are commercialized. As previously mentioned, these installations would power the entire CGC and ideally produce excess energy to be sold back to the grid through net metering.

Energy Production Throughout the Neighborhood
Beyond the CGC campus, vacant lots identified in the VLAP and additional industrial sites present opportunities to develop larger-scale renewable energy projects, especially if smaller parcels can be aggregated. Brownfields are ideal for development because they are often located close to areas of peak energy demand, use the existing electrical infrastructure, and improvements to these often dilapidated properties frequently encounter less local opposition and fewer zoning restrictions. Moreover, most solar and wind installations can coexist with continuing soil remediation processes.[19]

Energy Reduction

To complement the renewable energy production component, we propose establishing an energy efficiency one-stop-shop at the CGC to enable community members to take advantage of programs that reduce both energy costs and carbon footprints.

There are significant opportunities for homeowners and renters to both assess and improve their home's



PROGRAMMING FOR COMMUNITY GREENING CENTER BUILDING

energy efficiency. For example, residents may be eligible for free home energy audits, weatherization services, and subsidized appliance upgrades to make their home more energy efficient. However, these resources are decentralized and it is difficult to assess one's eligibility for specific programs.

At the one-stop-shop, CGC staff will analyze available financing programs to determine the best opportunities for local residents. CGC staff will also provide interested residents with a tailored analysis of incentives for which he/she is eligible, pair residents with energy auditors and weatherization specialists, and assist with necessary paperwork.

The energy reduction program also presents significant opportunities for hands-on job training and workforce development. Residents could be trained to conduct energy audits and perform weatherization upgrades. In concert with renewable energy installation and maintenance job training, the CGC is poised to serve as the green jobs training center of Greater Boston.

Signature Program: Community Gardens

The CGC's Community Gardens program is intended to provide sustainable food generation and to support community gathering, vacant land activation, youth outreach, and income generation.

Food Production and Community Ecology at the CGC

A gardening program in the CGC's on-site greenhouses, especially when coupled with cooking opportunities at the CGC's communal kitchen, can build community by connecting cultures, generations, interests, and organizations. To expand the breadth of impact, the CGC can partner with community organizations such as the Food Project and the Revision Urban Farm in Dorchester. Partnerships with existing DBEDC programs like YouthForce and the Upham's-Dudley Reentry Program can create youth leadership opportunities.

Food Production and Community Ecology throughout the Neighborhood

In addition to the energy generation potential described above, the parcels identified in the VLAP can be transformed into productive satellite gardens. The CGC could create and support this initiative by working with the owners of these parcels to ensure access rights for gardeners and limit tax and insurance liabilities for landowners. The CGC could also coordinate the provision of water taps, security fencing, and plot allocation for the satellite gardens. The process for building public gardens on private land is complex, but the CGC can build on strategies used by the Los Angeles Community Garden Council to activate these underutilized community assets.

Community Gardens as Income Generators

As community participation in the CGC's garden program grows, there will be increased potential for income generation and greater economic opportunity.

CGC staff could develop programs enabling gardeners to sell their produce at stands at or near the CGC. By coordinating such activities among many gardeners, there may be opportunities to establish formal lunch stands or to supply area groceries, university food contracts, and restaurants. City Fresh Foods, which delivers local produce to children and elders in Boston school and residential programs, can serve as a model. When garden production reaches a high level of volume and diversity of crops, the CGC can draw upon its internal resources to finance and incubate cooperative business models.

The various green infrastructure interventions proposed in our streetscaping plan also present significant opportunities for job creation. The construction and maintenance of roadside bioswales require specific knowledge of indigenous vegetation cultivation, which could be taught through the Community Gardens program. This skilled workforce will have the opportunity to grow as other neighborhoods implement green infrastructure for its marked environmental and

economic benefits.

Other Future Programs

Business Incubation + Employment

The DBEDC already provides technical assistance to small business startups and business loans through its Dorchester Bay Neighborhood Loan Fund. By combining its existing programs in the CGC, the DBEDC can provide a much more comprehensive basket of services to incubate business startups. These potential services include providing meeting spaces for entrepreneurs to develop business plans, refining production strategies, and engaging commercial markets without prohibitive upfront costs that stunt small business growth. Additionally, the CGC staff can build a database of community residents seeking work. This database would connect residents to workforce training, apprenticeship programs, and available job postings. By providing access to facilities and creating a fertile environment for new business growth, the CGC can foster new employment sources for the community and retain more local spending to benefit existing neighborhood businesses.

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Station Area Plan

FINDINGS, NEEDS AND OPPORTUNITIES

We began our work on the station area with a site visit to better understand the existing conditions. We observed existing uses like the auto repair shop at the corner of Ceylon Street and Columbia Road, the newly refurbished Ceylon Park, and Ortega Furniture at 253 Quincy Street. Despite these active uses, the area surrounding the proposed station is generally characterized by vacant lots and underutilized land. Despite the busy intersection at Columbia Road and Quincy Street, the area lacks of defined center of activity. Neighborhood amenities like retail and grocery stores are also scarce.

To supplement our personal observations we considered the current zoning of the station area, noting that two and three-family residential zoning dominates the area. The Grove Hall Industrial Development Area (Grove Hall IDA) also covers a substantial portion of the area directly along the Fairmount line. While this zone allows for relatively dense development, with a maximum floor-area-ratio of 2.0, the Grove Hall IDA and the more predominant residential zoning is restrictive with regard to the mixing of uses. For example, residential units are prohibited in the Grove Hall IDA, while retail, restaurant, and office uses are prohibited in the two and three-family residential zones. Given the possibility of variances, we did not restrict our plan to conform with existing zoning. Rezoning may be necessary in the future as the station area evolves, specifically through the creation of a Fairmount line overlay district. An overlay around the new station stops could support and incentivize the type of mixed use, dense development that encourages transit ridership and high quality service.

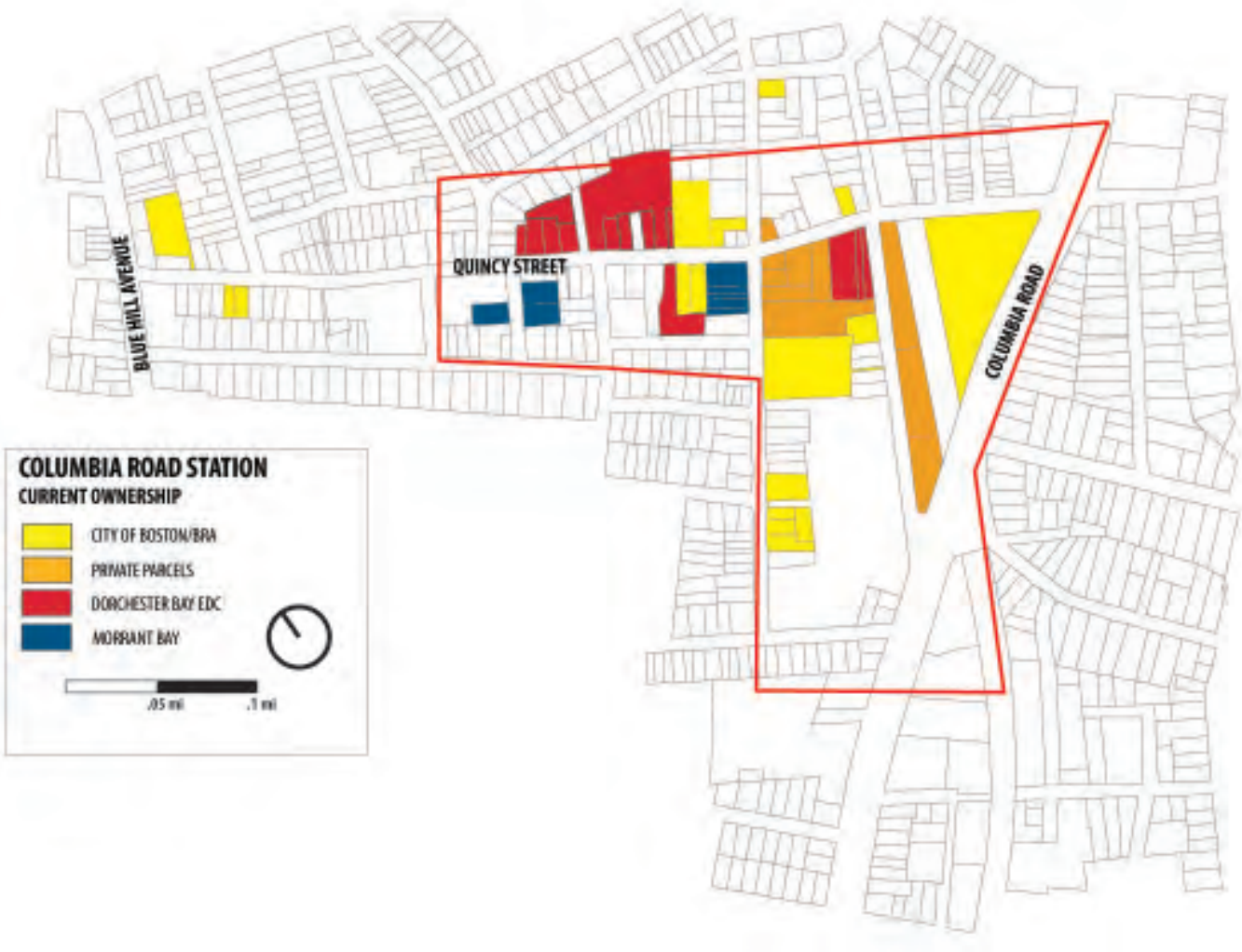
Identifying parcel ownership, we found that the City of Boston, the Boston Redevelopment Authority, and DBEDC own a critical mass of parcels within close proximity to the station. We determined some of the private owners in the area, most notably the New Testament Church of God at the yet to be developed 51 Ceylon Street site. Beyond the immediate station area, a cluster of publicly owned parcels also stood out at the intersection of Quincy Street and Blue Hill Avenue[20]. This area could function as a western gateway to the station area, channeling people from the already active Blue Hill Avenue corridor.

Station Area Plan

Our analysis of parcel ownership highlighted the opportunities and neighborhood assets on which to build. DBEDC is moving forward with a plan for the New England Center for Arts and Technology to open a culinary training program in a refurbished structure at 259 Quincy Street. Additionally, DBEDC owns the Pearl Meats site, a 2-acre property at 196 Quincy Street that includes a 50-year old 35,000 sf former meat packing building. DBEDC is actively recruiting food-related commercial tenants to occupy the site. We view both of these projects, as well as Ceylon Park, as the foundation for a larger Community Health Corridor that would feature other food related businesses like neighborhood restaurants, a co-op/grocery, and community gardens. We also recognized the potential of the city-owned triangular parcel bordered by Ceylon Street, Quincy Street, and Columbia Road. Formerly home of the Boston Public Schools Central Kitchen and currently housing an early learning center, this parcel could support a significant amount of infill development with the construction of an adjacent station.

OBJECTIVES AND PRINCIPLES

To guide our vision for the development of the station area, we identified several specific objectives that align with our project's overall goal of strengthening community health, safety, economy, and connectivity.



CURRENT OWNERSHIP ANALYSIS

Create a Neighborhood Center

Creating a recognizable neighborhood center would allow for increased resident interaction among diverse sets of community members, while creating the prominent hub of activity that is currently absent in the neighborhood. The physical space of public buildings, plazas, and gardens can serve as a platform for building community cohesion and provide the conditions necessary for residents to organize and address issues facing the neighborhood. While physical revitalization alone will not solve these underlying social and economic issues, the station area development does have the potential to foster and support resident-led initiatives and activism. Furthermore, a defined neighborhood center would help build a "critical mass" of activity to justify the construction of a station and help to attract additional investment to the neighborhood.

Activate Vacant and Underutilized Parcels

Given the number of vacant and underutilized parcels that we identified in the station area, particularly on Quincy Street, infill development became an important objective in the station area plan. As noted by DBEDC, vacant parcels often act as physical barriers in the community and can become magnets for trash and pests. Developing active uses for these sites would eliminate neighborhood eyesores and help create a more welcoming environment for residents.

Increase Neighborhood Amenities

As we identified during our initial analysis, the station area lacks important amenities, such as a grocery store and other sources for fresh food. If programmed with appropriate uses and tenants, infill development of vacant parcels can help address gaps in amenities and provide more readily accessible services for residents.

PROPOSALS

In developing a plan for the station area, we sought to address the above objectives in a manner that accounted for the uncertainty regarding the timing of the construction of the Columbia Road station. We acknowledge that the construction of the station is subject to a variety of influences, including local politics and issues of feasibility and ridership. However, we also understand that many of the community needs can be addressed before the building of a station by using the existing assets and opportunities in the neighborhood, such as 259 Quincy Street, the Pearl Meats site, and Ceylon Park, as the foundation for a pre-station development stage.

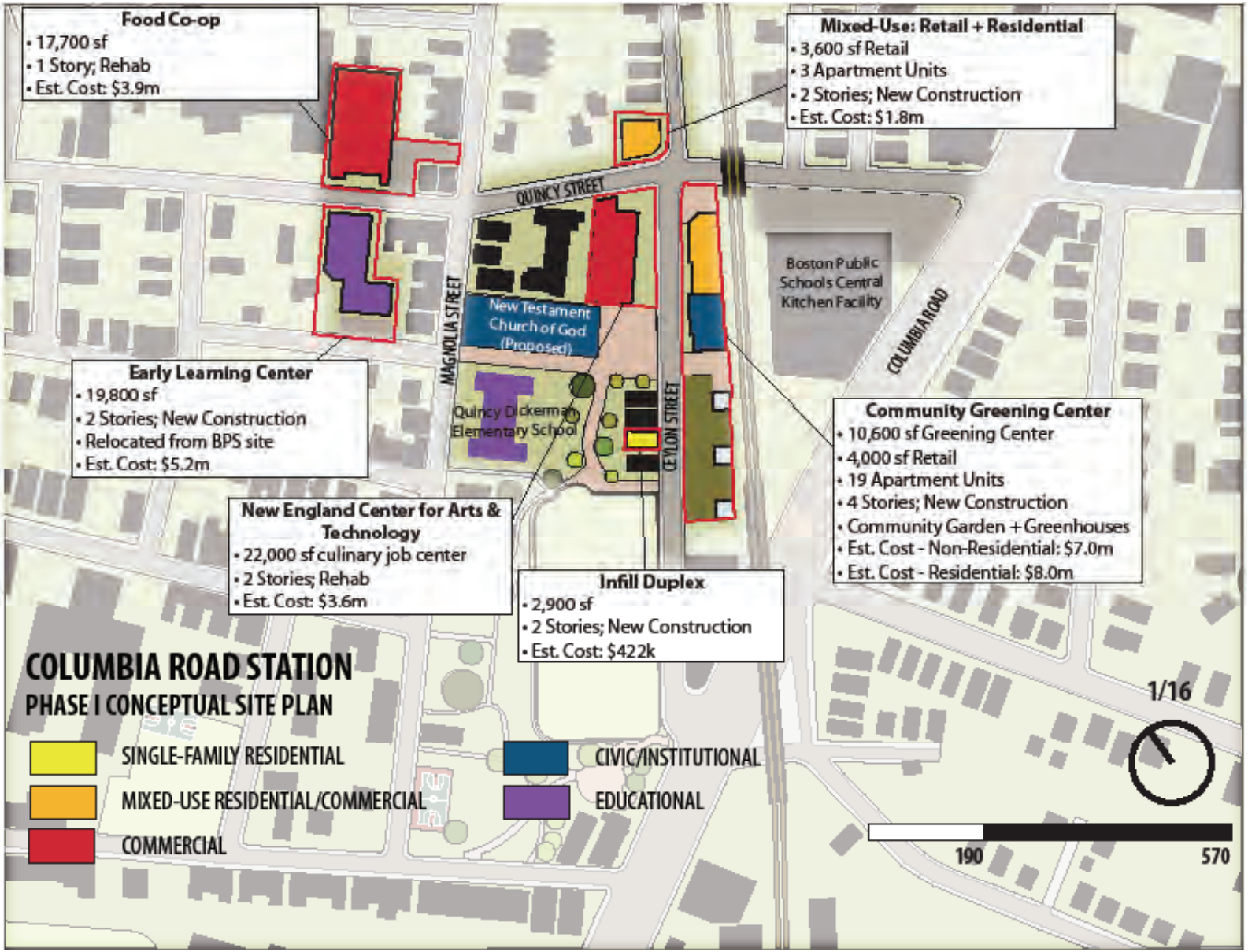
With this perspective, we formulated a station area plan that could be implemented in multiple phases. Phase 1 focuses on creating a central hub of activity in the neighborhood, anchored by the Community Greening Center and 259 Quincy Street projects, and establishing the aforementioned Community Health Corridor. The phase will also create active uses for several underutilized parcels in the area and will add important amenities to the neighborhood, including a food co-op and retail space. This phase would help create the activity necessary to justify the building of a station, but our intent is that it could also thrive as a stand alone development.

COMPONENTS OF PHASE ONE

Community Greening Center

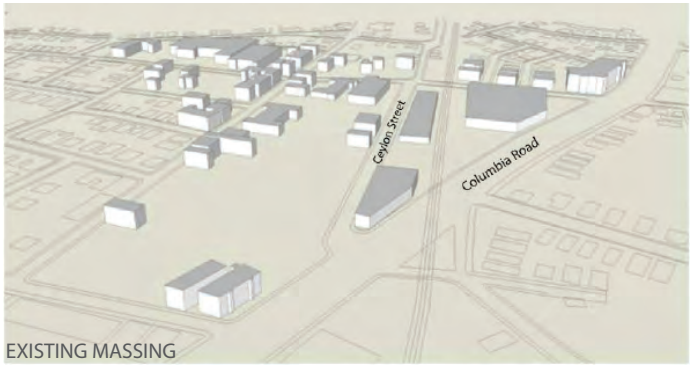
The 4-story Community Greening Center will be part of a mixed-use building consisting of 10,600 sf for the Community Greening Center functions, 4,000 sf of ground floor retail space, and 19 residential units. The site will also contain a community garden and greenhouses, as described earlier in the report. The retail space would be ideal for a café or restaurant use that could draw upon the culinary arts activities across Ceylon Street at the 259 Quincy Street site, while the residential units could also serve as showcases for energy-saving and energy-producing technologies and services coming out of the Community Greening Center. The site is currently occupied by an industrial storage structure and is owned by a private party. Estimated development costs are $7 million for

Station Area Plan

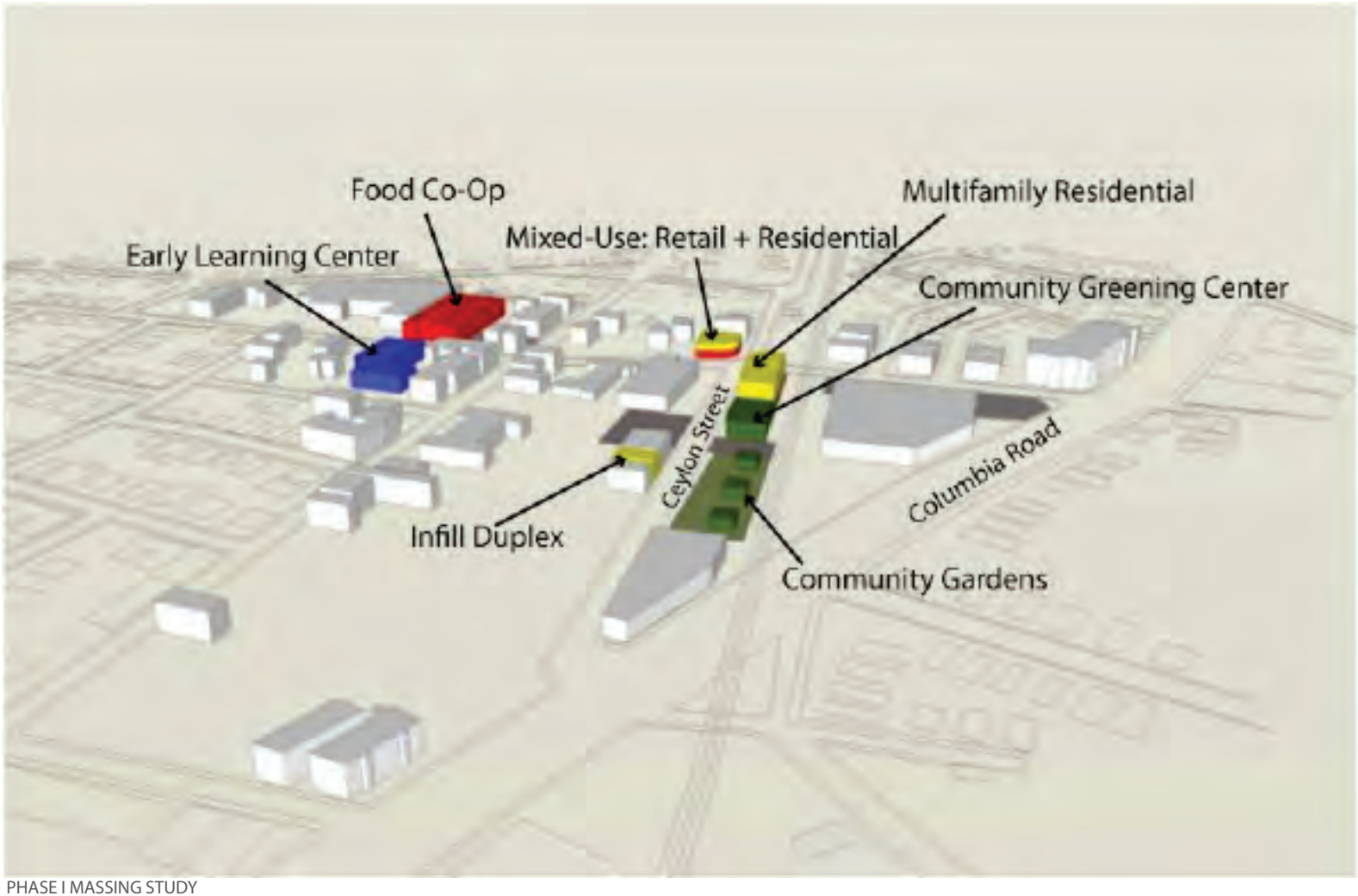


PHASE I SITE PLAN

Station Area Plan



EXISTING MASSING



PHASE I MASSING STUDY

EXISTING PERSPECTIVE: LOOKING SOUTHEAST FROM CEYLON AND QUINCY STREETS

PROPOSED PHASE I PERSPECTIVE: LOOKING SOUTHEAST FROM CEYLON AND QUINCY STREETS

the non-residential portion and $8 million for the residential portion.

259 Quincy Street (New England Center for Arts & Technology)

DBEDC is currently developing this site into a jobs center with a focus on culinary arts. When rehabilitation of the existing 22,000 sf building is complete, the New England Center for Arts & Technology is anticipated to occupy the site and operate a culinary job training program that is intended to create employment opportunities for neighborhood residents. Estimated development costs are $3.6 million.[21]

Food Co-op

We propose that the existing 17,700 sf building located at 222 Quincy (adjacent to the Pearl Meats site) be redeveloped into a food coop that could be cooperatively owned and operated by neighborhood residents. Such a use would be a valuable neighborhood amenity that would complement the other proposed food-related initiatives in the area and could help address the area's need for greater access to fresh food sources. The site is currently owned by the City of Boston through foreclosure, which could present an opportunity for cost-effective site acquisition. Estimated development costs are $3.9 million.

Early Learning Center

A new Early Learning Center is proposed at 223 Quincy Street on a set of parcels currently owned by the City of Boston and DBEDC. The proposed 19,800 sf center would house the Early Learning Center currently located in the Boston Public Schools Central Kitchen Facility, allowing that site to be programmed in a future Phase 2. Located next to the Morrant Bay properties, the Early Learning Center could also incorporate a new playground for both residents of the buildings and learning center enrollees. Estimated development costs are $5.2 million.

260-262 Quincy Street

Located at the northwest corner of Quincy and Ceylon Streets are two vacant parcels owned by City of Boston. We propose developing a mixed-use building on this site consisting of 3,600 sf of ground floor retail and three apartment units on the second floor. The retail space would help activate the important Quincy-Ceylon intersection and could be programmed as a café or other use that could complement the Community Greening Center and 259 Quincy Street projects located at the opposite corners of the intersection. Estimated development costs are $1.8 million.

65 Ceylon Street

A new 2,900 sf duplex home is proposed on this empty parcel (currently owned by a private party) located across Ceylon Street from the proposed Community Greening Center. Infill development of this lot will eliminate a vacant site and create greater continuity of development across from the proposed community garden linked to the Community Greening Center. Estimated development costs are $422,000.

Under Article 50 of the Boston Zoning Code, the above development would require approximately 130-off street parking spaces. While surface parking spaces could be built into the 259 Quincy Street project, Food Coop, and Early Learning Center, the Community Greening Center would require other space to accommodate off-street parking. One option would be to build a temporary surface parking lot along the Quincy Street side of the Boston Public Schools Kitchen Facility parcel. This would require control of the site as part of Phase 1 as well as demolition of ~8,000 sf of existing structure. If this is not possible, however, other parking options for Phase 1 could be explored, including shared parking at the Pearl Meats site at 196 Quincy Street.

Phase 2 of the development plan assumes that the Columbia Road station is built and that

Boston Public Schools Central Kitchen Facility to the east of the proposed station is available for redevelopment. Given the increased activity that a new station would presumably bring, Phase 2 resembles a more traditional transit-oriented development pattern, with a significant residential component as well as service retail space to serve those residents as well as Fairmount Line commuters.

COMPONENTS OF PHASE TWO

370 Columbia Road

This proposed development would consist of three buildings that would add a total of ~30,000 sf of retail space and 76 apartment units. The retail component would line a new plaza adjacent to the proposed station and could be programmed with a mix of service and food amenities. The significant residential component would capitalize on the site's location next to a transit stop. Given that the land on which the project is proposed is currently owned by the City, the residential units would likely have affordability restrictions linked to the land disposition. Estimated costs for the three buildings are $34.8 million.

350 Columbia Road

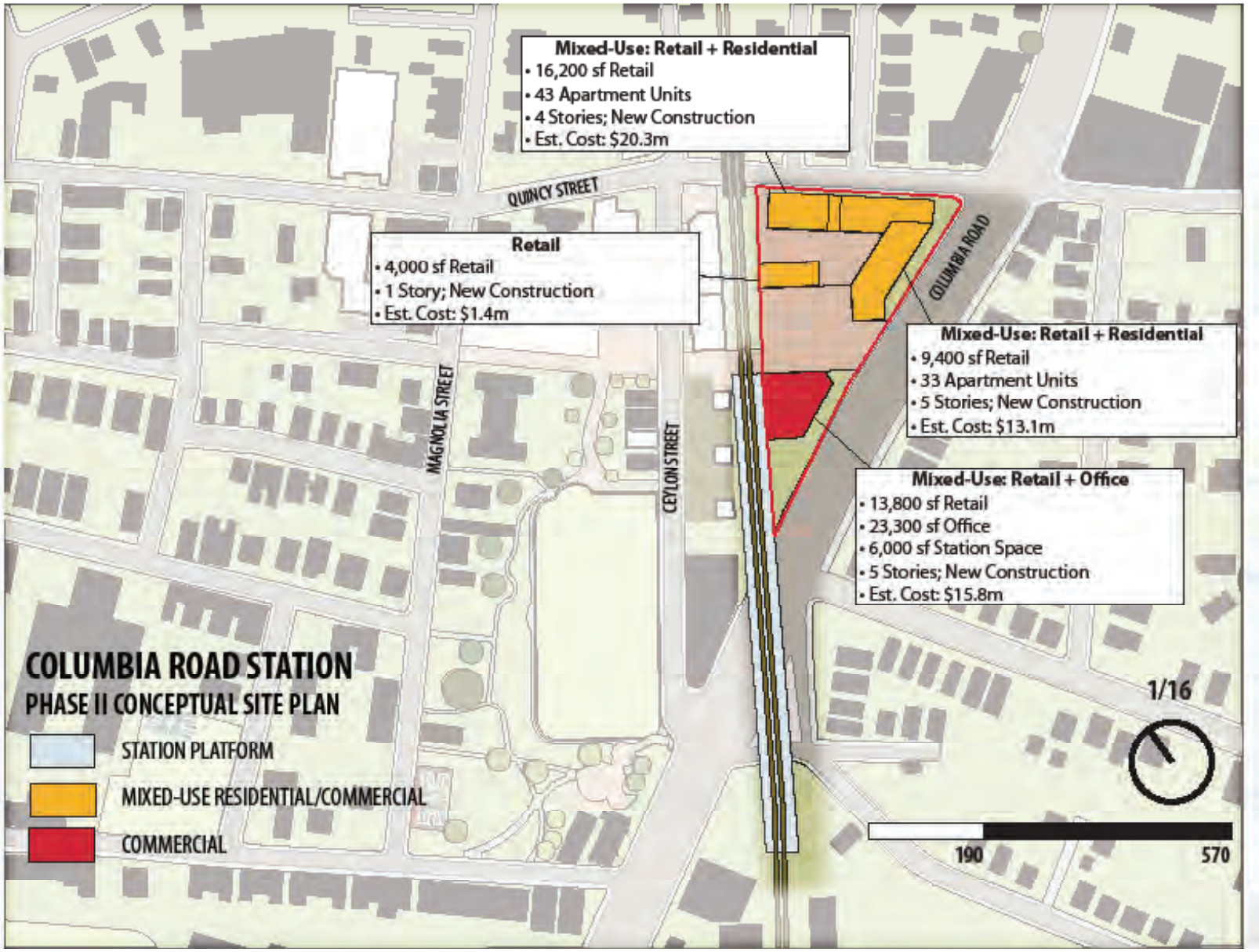
This proposed 5-story retail/office building would contain 13,800 sf of retail space and 23,300 sf of office space. The building would provide access to the proposed station platform and the street level and would include approximately 6,000 sf of space to accommodate circulation for commuters. Located across the rail from the Community Greening Center, the office space could house start-up ventures linked to the Greening Center and could also be an attractive location for businesses looking to locate near public transit. Estimated costs are $15.8 million. See this report's appendix for additional detail on cost estimates.

The Phase 2 development would require 185 off-street parking spaces per Article 50 of the Boston Zoning Code. The station plan assumes that Phase 2 would eliminate the temporary surface parking lot constructed on the Boston Public Schools Central Kitchen Facility site; thus, other parking options would need to be explored to accommodate the additional development in Phase 2. One option is to construct underground parking below the 350-370 Columbia Road projects. While this would be considerably more expensive than surface parking (our analysis assumes a cost of $60,000 per space vs. $3,500 per space for unstructured surface parking), the overall cost could be mitigated by considerable zoning relief on parking requirements. Given the transit-oriented location of the Boston Public Schools Central Kitchen facility site, there is a strong case for a reduction in the required number of off-street parking spaces. For the purposes of our cost estimates, we have assumed a 50% reduction in required off-street parking spaces for Phase 2.

FUTURE OPPORTUNITIES

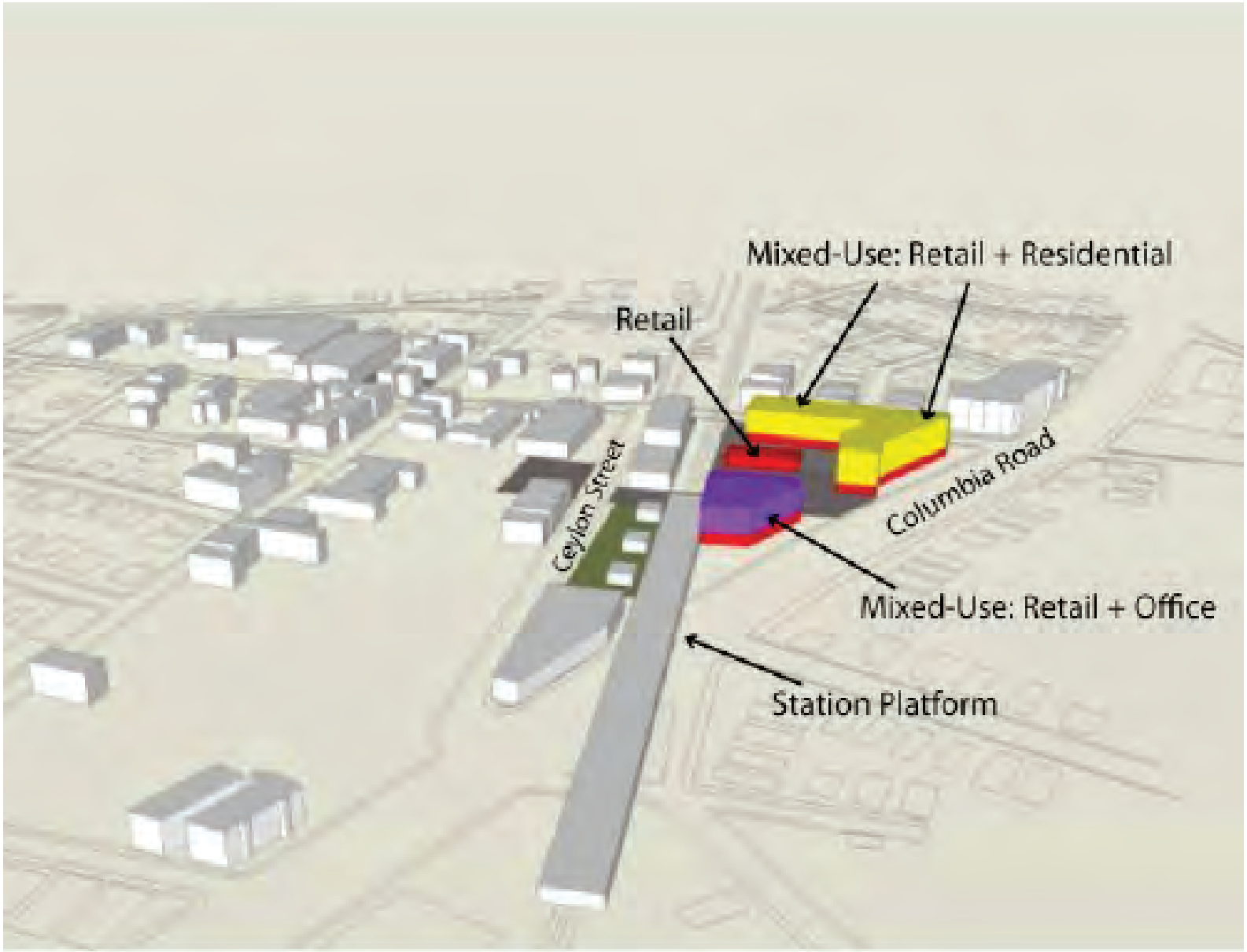
Beyond Phase 2, we anticipate that the owners of private parcels surrounding the Columbia Road station may choose to sell or redevelop their properties. In particular, parcels with currently vacant structures stand out as future opportunities. For example, multiple residential lots on the southern side of Quincy Street at the intersection of Blue Hill Avenue could be redeveloped. Several are privately owned but others are currently owned by the City. Underutilized parcels to the southeast of the station on Columbia Road could also be redeveloped into denser commercial, residential, and office uses.

Station Area Plan



PHASE II SITE PLAN

Station Area Plan



PHASE II MASSING

EXISTING PERSPECTIVE: LOOKING SOUTHWEST FROM COLUMBIA AND CEYLON STREETS

PROPOSED PHASE II PERSPECTIVE: LOOKING SOUTHWEST FROM CEYLON AND QUINCY STREETS

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Measuring Impacts

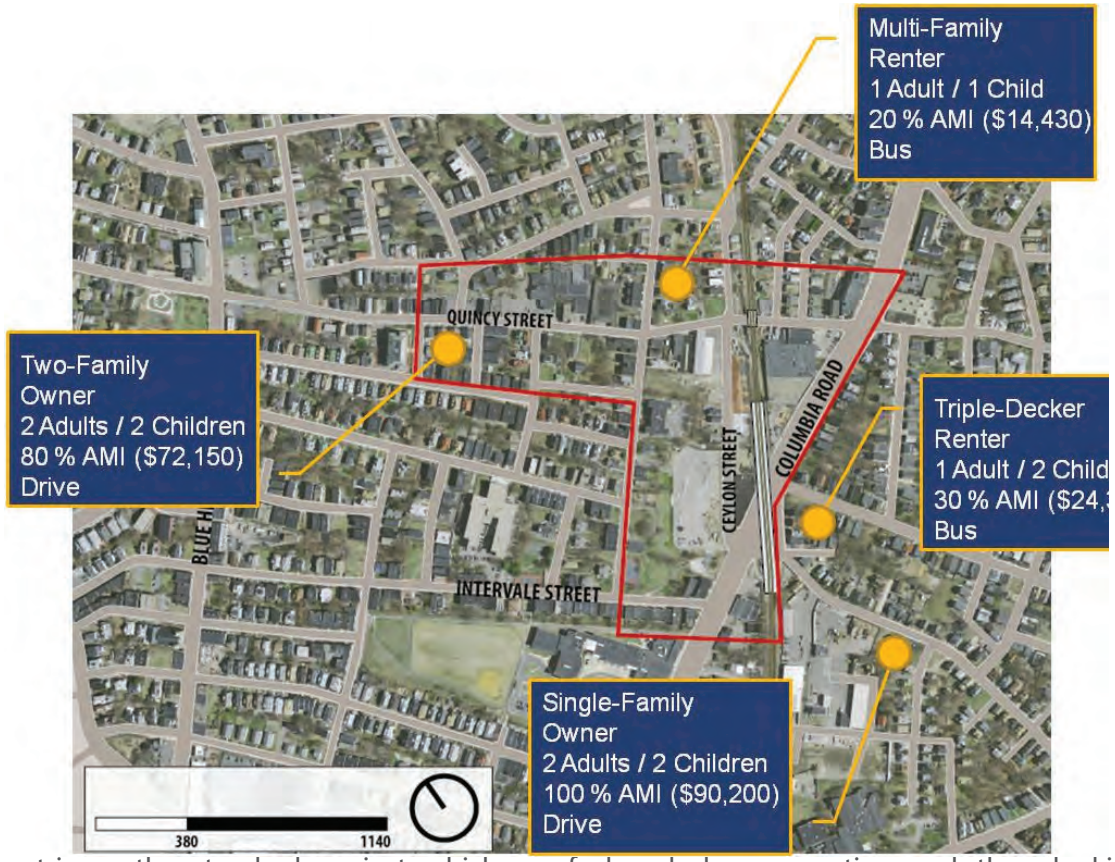
While developing our proposals and phasing over the next ten years, we project that the neighborhood will undergo physical and social transformation. The proposals, if implemented, will have direct and indirect impacts on a range of areas. For each of our proposals, some of the most pronounced impacts would be the following:

Proposal	Projected Increase	Projected Decrease	Potential Phasing
Streetscape Redesign	▪ Walkability ▪ Infrastructure Capacity ▪ Green Infrastructure ▪ Landscaping/Trees ▪ Social Space	▪ Criminal Activity ▪ Vehicular Congestion ▪ Vehicular Accidents ▪ Water Runoff	0 – 3 years
Vacant Land Activation Plan	▪ Programmed Land ▪ Infill Commercial and Housing Development ▪ Commercial Gardening Jobs ▪ Energy Production	▪ Underutilized Lots ▪ Criminal Activity ▪ Dumping/Litter ▪ Brownfields	0 – 10 years
Community Greening Center	▪ Renewable Energy ▪ Local Fresh Food ▪ Workforce Development ▪ Program Offices ▪ Meeting Space ▪ Support for Transit Station/Service Expansion ▪ General Amenities	▪ Greenhouse Gas Emissions ▪ Vehicular Use ▪ Ride-Alone Drivers ▪ Underutilized Lots	2 – 5 years
Station Area Plan	▪ Centralized Activity ▪ Support for Transit Station/Service Expansion ▪ Real Estate Investment ▪ Transit Oriented Affordable Housing Development	▪ Vehicular Use ▪ Criminal Activity ▪ Vacant Land ▪ Commute Time ▪ Bus Congestion ▪ Green House Gas Emissions	5 – 10 years

Measuring Impacts

For our definition of sustainability, it was important that there be a particular focus on how an individual's or household's economy may be impacted. We believe that such an understanding makes it easier to communicate the impact of these program proposals to area residents and stakeholders as household costs are readily understood and decreasing household costs is a critical argument for increasing neighborhood sustainability.

One benchmark widely recognized when considering affordable living situations is a household's housing cost burden. According to HUD, housing affordability is defined by not having to allocate more than 30 percent of your income towards the cost of housing (Cranston-Gonzalez National Affordable Housing Act, SEC. 215). As utility costs rise and the cost of gasoline increases, the efficiency and location of one's home has become increasingly important in determining the affordability of one's living situation. The Obama Administration, through the HUD-DOT-EPA Partnership for Sustainable Communities, has also shifted to consider a more holistic cost burden. We define "cost burden" as a household's expenditures on housing, transportation and utilities as a percentage of the household's income. A 45 percent cost burden has become generally accepted by a number of planning bodies, such as the Center for Neighborhood Technology of Chicago. We adopt this 45 percent cost burden metric as the standard against which we feel neighborhood affordability and our proposals should be measured.



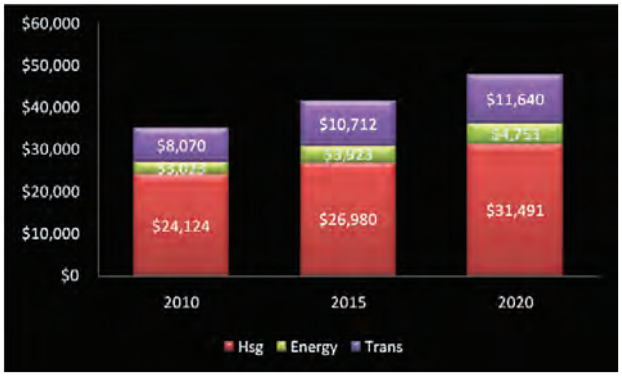
HOUSEHOLD PROFILE TYPES

Using current Census data, we constructed typical household profiles that one might find in our focus area. We considered housing type, household size, tenure, income, and primary means of transport. By considering the most prevalent housing characteristics in our focus area, such as triple-decker properties, and then looking at some typical conditions that may be represented in that building type, such as a low to moderate income renter who uses public transportation, we spatially connected those profile types with the Census block groups in which you would most likely find such households. The four profiles we constructed are illustrated above.

We examine these representative profiles in the context of our proposed program interventions, and project the impact of our proposals in 2015

and 2020. Our data sources for these projections include the Census, Geolytics, the Bureau of Labor Statistics, and the MBTA. When projected data was not available, we estimated a multiplier based on historical data. The goal of these profiles is to communicate what some households may experience. These profiles should not be assumed to represent the average or mean experience of households in the area.

Single-Family Owner



Single-Family					
Existing	Hsg	Energy	Trans	Total	Indicator
2010	$24,124	$3,023	$8,070	$35,217	39%
2015	$26,980	$3,923	$10,712	$41,616	40%
2020	$31,491	$4,753	$11,640	$47,885	40%

This Single-Family Owner has an income of $90,200, or 100 percent of the Area Median Income (AMI), and drives to work. Without any of the interventions discussed above we would project that this household's housing, energy, and transportation costs would increase slightly in the next 10 years. Their cost burden hovers around 40 percent from 2010 to 2020 because their costs and incomes tend to increase at similar rates.

Single-Family (predicted)					
Impact	Hsg	Energy	Trans	Total	Indicator
2010	$24,124	$3,023	$8,070	$35,217	39%
2015i	$29,173	$1,569	$7,480	$38,222	37%
2020i	$40,919	$1,901	$3,632	$46,453	29%

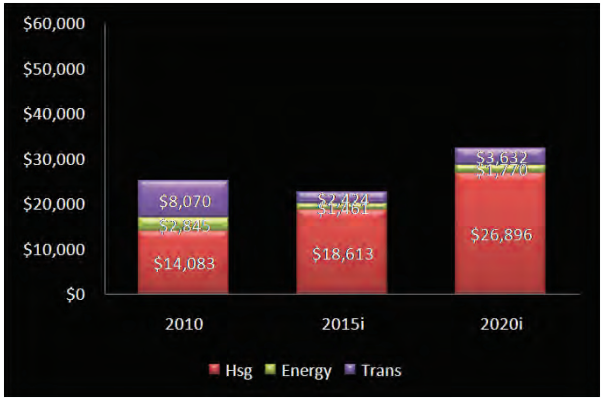
The impact of the proposals on this household are: reduced energy expenditures because of a building energy retrofit; reduced transportation costs because of a switch to the new rail transit; an increased cost of owning because rising land values may result in increased property taxes, but an increase in discounted income from the sale of a higher valued property in 2020. The cost burden for this household steadily falls to 27 percent as the CGC comes online in 2015 and there is increased transportation access in 2020.

Two-Family Owner

Two-Family					
Existing	Hsg	Energy	Trans	Total	Indicator
2010	$14,083	$2,845	$8,070	$24,998	35%
2015	$16,578	$3,652	$10,712	$30,942	37%
2020	$19,526	$4,424	$13,080	$37,030	38%

This Two-Family Owner has an income of $72,150, or 80 percent of AMI, drives to work, and would experience increasing housing, energy, and transportation costs during the next 10 years without any of the interventions discussed above. The household's cost burden rises slightly as their income, inclusive of rental income from their second unit, does not increase at a high enough rate to offset rising energy costs for the two-family structure.

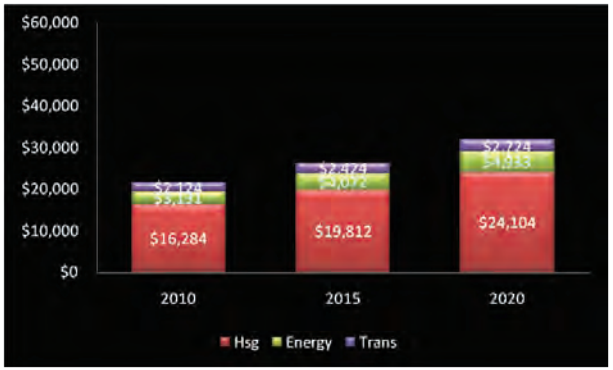
Measuring Impacts



Two-Family (predicted)					
Impact	Hsg	Energy	Trans	Total	Indicator
2010	$14,083	$2,845	$8,070	$24,998	35%
2015i	$18,613	$1,461	$2,424	$22,498	27%
2020i	$26,896	$1,770	$3,632	$32,298	24%

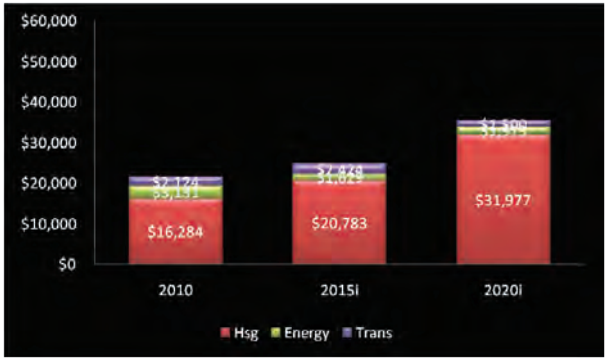
The impact of our proposals on this household are: reduced energy expenditures through an energy efficiency retrofit and the use of subsidized renewable energy resources, possibly produced onsite through photovoltaics and light wind generation on the property's roof; reduced transportation expenditures due to a switch to bus transit as neighborhood walkability and safety increases; and an increase in housing expenditure as the cost of ownership increases due to rising land values. Assuming an increase in rental income for this owner by 2020, when the area is safer, has more neighborhood amenities, and has increased transportation access, the cost burden for this household falls from its current 35 percent to 24 percent.

Triple-Decker Renter



Triple-Decker Renter					
Existing	Hsg	Energy	Trans	Total	Indicator
2010	$16,284	$3,131	$2,124	$21,539	88%
2015	$19,812	$4,072	$2,424	$26,308	93%
2020	$24,104	$4,933	$2,724	$31,761	97%

The Triple-Decker Renter who has an income of $24,350, or 30 percent of the AMI, and tends to take the bus to work would experience substantial rises in overall cost burden without our proposed interventions. As this renter is low-income, rises in utilities and public transportation costs use up a larger percentage of income relative to the impact of the same increases on a higher income household. By 2020, almost all of this household's income is absorbed by housing, energy, and transportation expenses.



Triple Decker Renter (predicted)					
Impact	Hsg	Energy	Trans	Total	Indicator
2010	$16,284	$3,131	$2,124	$21,539	88%
2015i	$20,783	$1,629	$2,424	$24,836	71%
2020i	$31,977	$1,973	$1,500	$35,450	92%

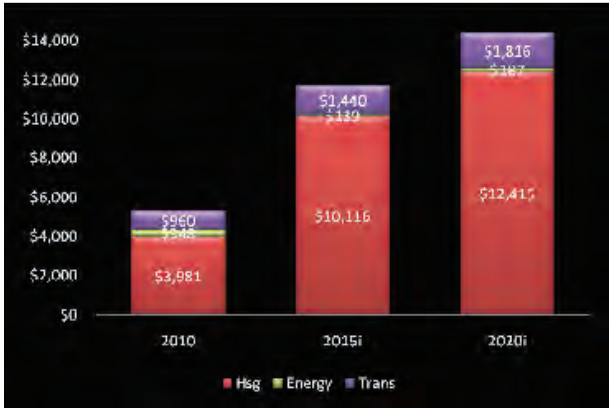
The impact of the proposals on this household are: reduced energy expenditures through the introduction of efficiencies; reduced transportation expenditures as this household uses less public transportation and uses more ride-sharing programs, bicycle commuting, and walking; increased income as a beneficiary of increased job opportunities and workforce development from the CGC in 2015; but increased housing costs as the area becomes a more desirable place to live in 2020.

Measuring Impacts

Multi-Family Affordable Renter

Mulit-family Affordable Renter					
Existing	Hsg	Energy	Trans	Total	Indicator
2010	$3,981	$348	$960	$5,289	37%
2015	$4,670	$402	$1,440	$6,512	39%
2020	$6,320	$424	$1,920	$8,664	39%

The Multi-Family Renter who has an income of $14,430, or 20 percent of the AMI, and tends to use the bus as their primary means of transportation would experience only a slight rise in cost burden from 37 to 39 percent under current conditions. The rising cost of transportation has a disproportionate impact on low-income households, but otherwise housing and energy cost burdens do not rise because this person is assumed to be in a regulated housing unit where housing and energy expenditures are capped at 30 percent on the household's income.



Mulit-family Affordable Renter (predicted)					
Impact	Hsg	Energy	Trans	Total	Indicator
2010	$3,981	$348	$960	$5,289	37%
2015i	$10,116	$139	$1,440	$11,695	28%
2020i	$12,415	$187	$1,816	$14,418	28%

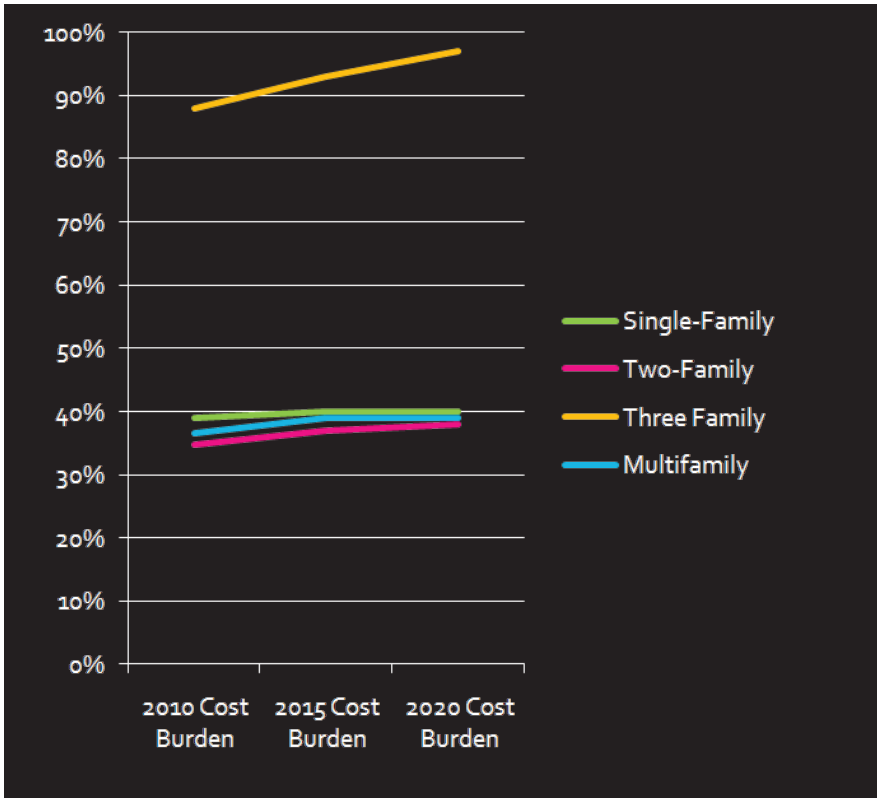
The impact of the proposals on this household are: slightly reduced energy expenditures as the building owner upgrades building systems based off showcased technology at the CGC; slightly reduced transportation costs as bicycle usage and walking increase; increased income from being a beneficiary of increased job opportunities and workforce development from the CGC in 2015, and an increase in overall housing costs as this household's housing costs are tied to income. (Note that this household's housing expenditures, as a percentage of income, will remain the same). The overall cost burden for this household drops from 37 to 28 percent.

SYNTHESIS OF IMPACT METRICS

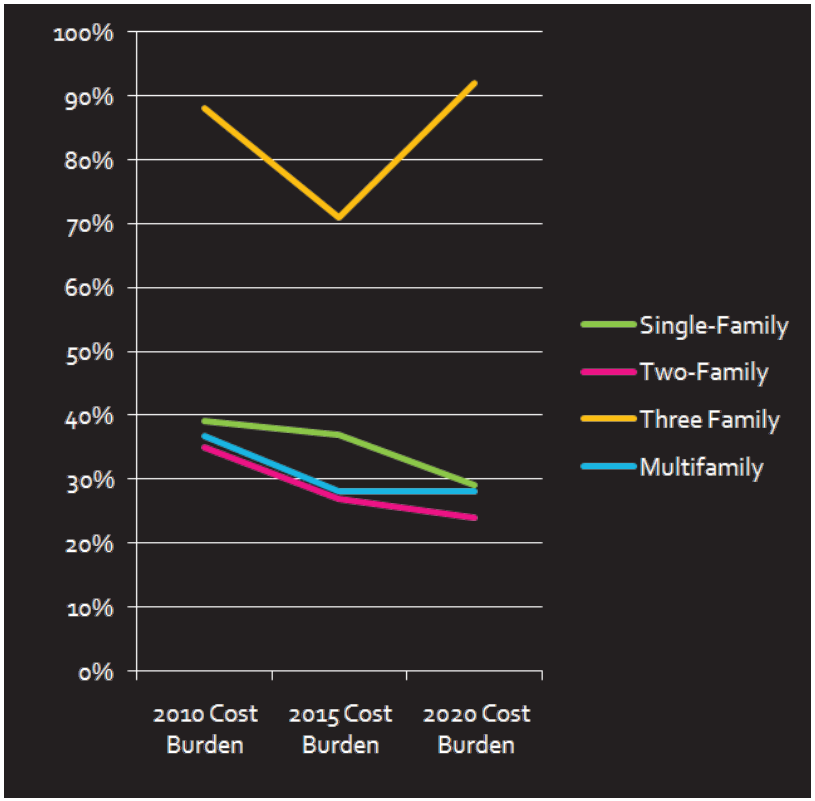
Household cost burdens over time are expected to rise moderately across all household types under existing conditions, meaning that it will be harder for different types of families to afford their current living conditions. This is largely due to expected increases in the cost of energy and vehicular transport. Housing costs are expected to rise, but there are also expected increases in income that mitigate rising housing costs. The Triple-Decker Renter is a low-income household living paycheck to paycheck and is already at great risk. Any cost increase has a significant impact on affordabliity.

We expect most households to benefit from the introduction of our program proposals. Three of four of the profiled housing cost burdens fall below 30 percent, below the 45 percent above-mentioned threshhold, meaning that affordability is high and it increases over time for these target populations. However, the Triple-Decker Renter household is an exeption. Cost burden falls with the introduction of the CGC in 2015, a rise in income, and decreases in energy and transportation expenditures, but gains do not sufficiently counter the impact of rising rents as increased transporation access become available in 2020. These conclusions are summarized in the graphs and tables on the following page.

Measuring Impacts



Household Profile	2010 Cost Burden	2015 Cost Burden	2020 Cost Burden
Single-Family	39%	40%	40%
Two-Family	35%	37%	38%
Three Family	88%	93%	97%
Multifamily	37%	39%	39%



Household Profile	2010 Cost Burden	2015 Cost Burden	2020 Cost Burden
Single-Family	39%	37%	29%
Two-Family	35%	27%	24%
Three Family	88%	71%	92%
Multifamily	37%	28%	28%

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Conclusion

These proposals are intended to support the residents of Dorchester's Columbia-Quincy neighborhood and to enable DBEDC to use existing community assets and generate new opportunities for neighborhood development. The proposals are designed to create a more vibrant, sustainable community which meets residents' immediate needs and works toward long-term environmental and economic well-being.

Our quantitative and qualitative research undergirds the calls of residents and DBEDC staff for a safer, more environmentally sustainable neighborhood that provides increased opportunities for community building and economic development. We hope that our four proposals, the Vacant Land Activation Plan, the Streetscape Redesign, the Community Greening Center, and the Station Area Plan, will complement the efforts of individuals and organizations already working to develop a sustainable future for the neighborhood.

The opportunities are many. Yet so are the challenges, as the estimated increase in the cost burden of a low-income renter in a triple-decker apartment indicates. A collaborative effort will be needed to implement the neighborhood's plans and face the many anticipated and unforeseen challenges. We hope that our contribution supports the collective effort of all individuals and organizations in the area.

As students, we have sincerely appreciated the opportunity to work with the community and to learn from your experiences. We hope this report presents new ideas and sparks conversations among those living and working in this community, and that these ideas can help to further clarify residents' vision for the Dorchester's Columbia-Quincy neighborhood.

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Appendix A: Works Cited

1. See report here: http://ocw.mit.edu/NR/rdonlyres/Urban-Studies-and-Planning/11-362Fall-2006/1D282FB2-1847-487C-A659-E034EDC8A0C8/0/report.pdf

2. Warner, Sam Bass Jr. Streetcar Suburbs: The Process of Growth in Boston (1870-1900) (Cambridge: Harvard University Press, 1962)

3. Gamm, Gerald. Urban Exodus: Why the Jews Left Boston and the Catholics Stayed (Cambridge: Harvard University Press, 1999)

4. Jackson, Kenneth T. Crabgrass Frontier: The Suburbanization of the United States (New York: Oxford University Press, 1987). Levine, Hillel and Lawrence Harmon. The Death of an American Jewish Community: A Tragedy of Good Intentions (New York: The Free Press, 1992)

5. Boston Indicators project: http://www.bostonhomerule.org/Indicators2006/GeographyAtAGlance/Default.aspx?id=2364

6. Boston Globe, "The T's Hush-Hush Line." November 10, 1987.

7. Daniel, Mac. "More Trains, Stations in Fairmount Plan." Boston Globe, August 31, 2002

8. See report here: http://www.mbta.com/uploadedFiles/documents/ExecutiveSummaryFairmountOct02.pdf

9. Hanchett, Doug. "T Jumps on Fairmount Upgrade; $70M Plan Will Add Stops, Stations." Boston Herald, September 1, 2002

10. Gupta, Vineet. "Vineet Gupta Transportation." Boston Globe, September 31, 2003

11. The current members of the Collaborative include the Dorchester Bay Economic Development Corporation (DBEDC), Codman Square Neighborhood Development Corporation (CSNDC), Mattapan Community Development Corporation (MCDC), and Southwest Boston Community Development Corporation (SWBCDC).

12. The current members of the Coalition include the Collaborative CDCs, Greater Four Corners Action Coalition, Dudley Street Neighborhood Initiative (DSNI), Project RIGHT, Alternatives for Community and Environment (ACE), Quincy Geneva Housing Corporation, and Conservation Law Foundation.

13. The current members of the Greenway Task Force include the Collaborative CDCs, Greater Four Corners Action Coalition, Dudley Street Neighborhood Initiative (DSNI), Project RIGHT, Quincy Geneva Housing Corporation, Boston Natural Areas Network (BNAN), and "02136"-All Things Hyde Park.

14. Based on Geolytics data, which is based on data from the Bureau of Labor Statistics.

15. Authors' calculations based on 2000 US Census data.

16. Authors' calculations based on Geolytics estimated expenditures, 2009.

17. Authors' calculations based on Geolytics estimated expenditures, 2009.

18. See http://www.milliontreesnyc.org/html/urban_forest/urban_forest.shtml for a few resources.

19. Jensen, Bjorn. Thesis Presentation: 'Brownfields to Green Energy: Redeveloping Contaminated Lands with Large-Scale Renewable Energy Facilities,' April 27, 2010.

20. We later learned that Nuestra Communidad controls the parcels on the north side of Quincy Street and plans to develop the site as senior housing.

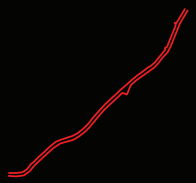
21. Fairmount/Indigo Line CDC Collaborative Document, March 2010, Project Pipeline p. 1.

Appendix B: Population & Building Densities

Appendix C: Housing Stock Characteristics

Appendix D: Neighborhood Street Typologies

Dorchester Bay Basic Street Typologies



Type | Primary Street

Examples | Columbia Road
Blue Hill Ave.

General characteristics and oberservations | Takes on the bulk and speed of existing vehicular traffic. Mix of uses, however due to underutilized parcels, vehicular traffic tends to be faster than the street was originally designed to accomodate.

Type | Secondary Street

Examples | Intervale Street
Quincy Street

General characteristics and observations | Branches off from Primary Street. Forms critical latitudinal connections that support inner-neighborhood connectivity and cohesion and strings together existing and projected traffic generators. Also exhibits faster speeds than originally designed to accomodate, and would benefit from traffic calming and streetscape design.

Type | Tertiary Street

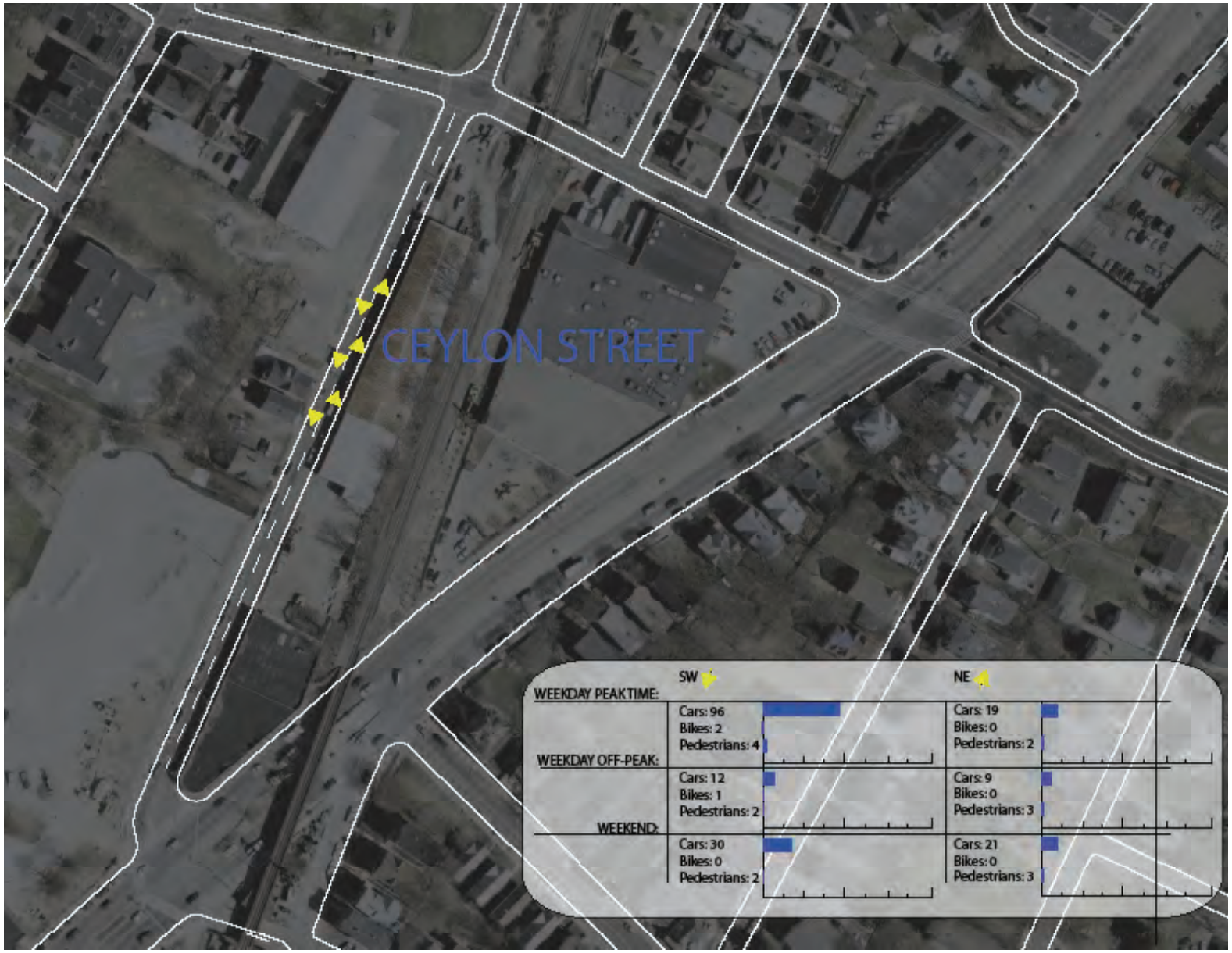
Examples | Mascoma Street
Cunningham Street

General characteristics and oberservations | More residential and private in character. Pedestrian-use of street is elevated, as vehicular traffic is not as fast or abundant. Street is used as a shared public space.

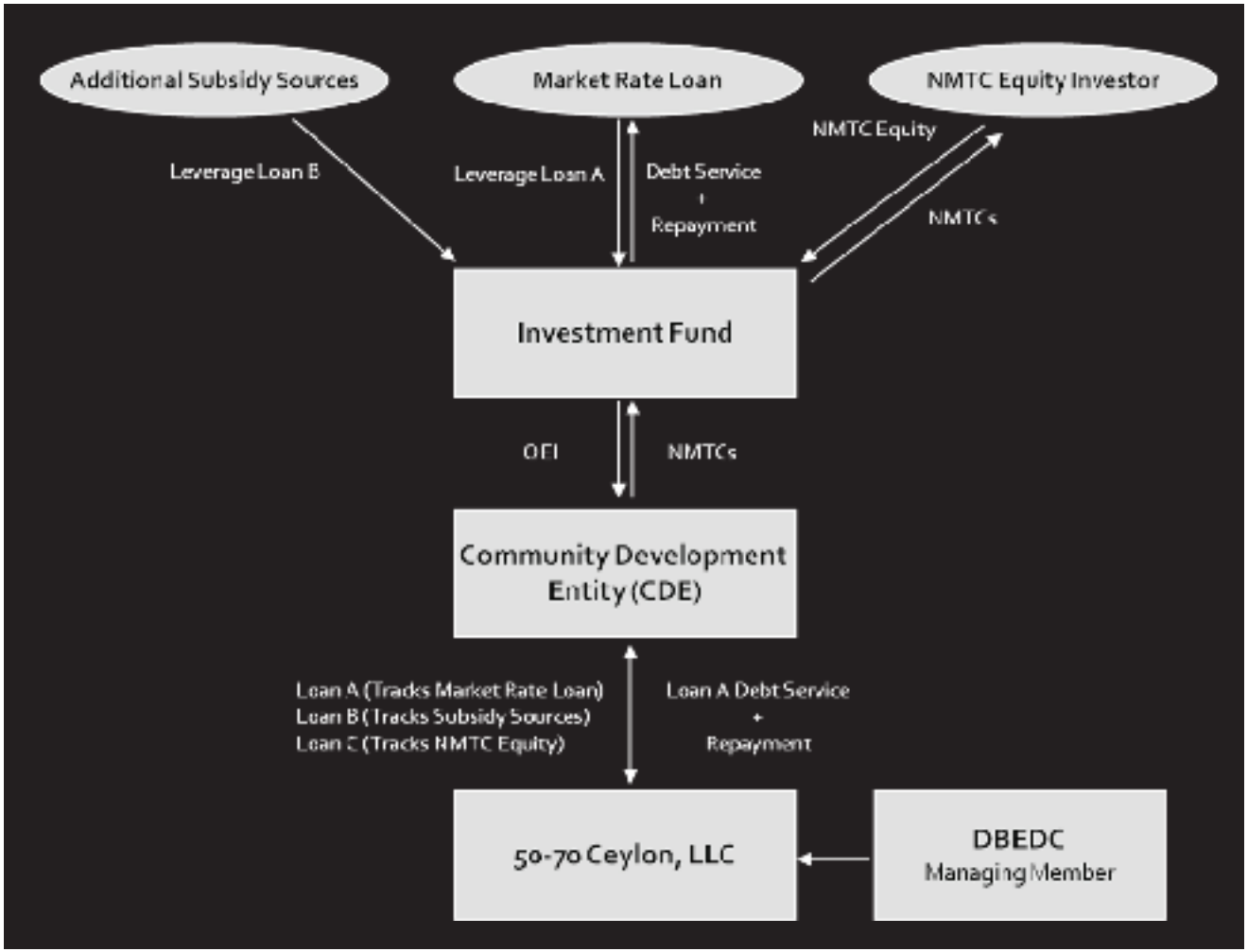
Appendix E: Columbia Road Traffic Counts

Appendix F: Quincy Street Traffic Counts

Appendix G: Ceylon Street Traffic Counts



Appendix H: Greening Center Financing Model



Capital Sources

- Market Rate Loan
- New Markets Tax Credit Equity

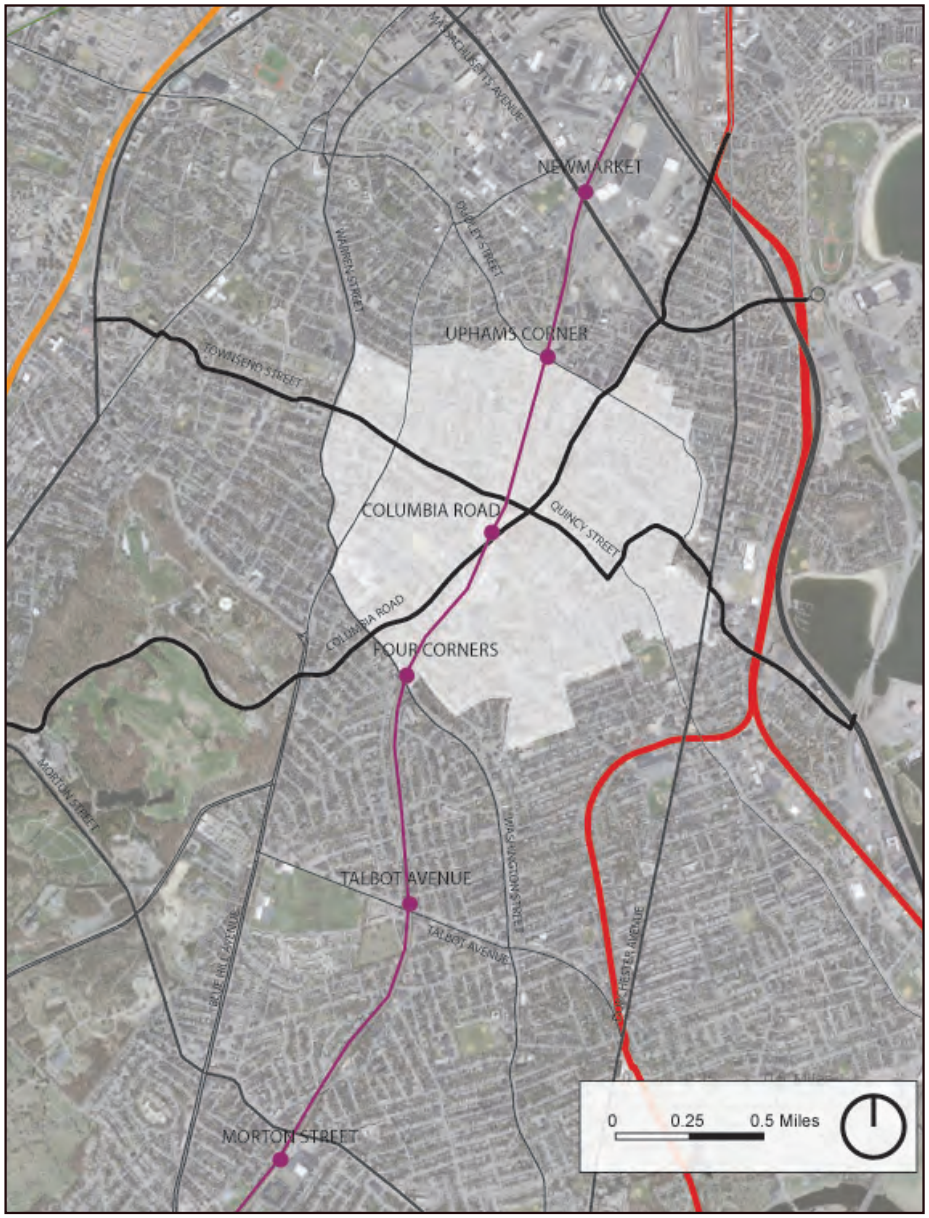
Other subsidy sources

- Green Communities Act
- HUD/Boston Grassroots Program
- EPA Brownfields Pilot Program
- Utility sponsorships

Sources of Funds		
Market Rate Leverage Loan	$	1,639,424
Additional Subsidy Sources	$	3,349,893
NMTC Equity	$	1,985,822
Total Sources	**$**	**6,975,139**

Uses of Funds		
Acquisition Cost	$	502,662
Hard Costs	$	4,659,356
Soft Costs	$	792,437
Financing Costs	$	1,020,684
Total Uses	**$**	**6,975,139**

Appendix I: MBTA Rail Corridors



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List of Images

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