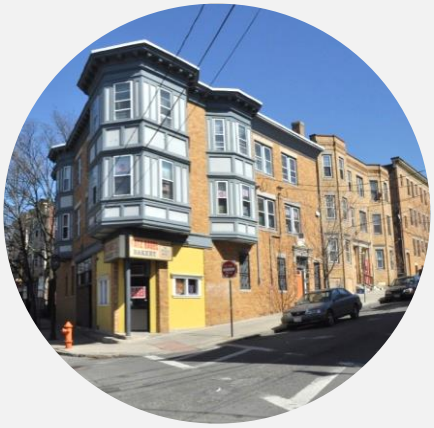
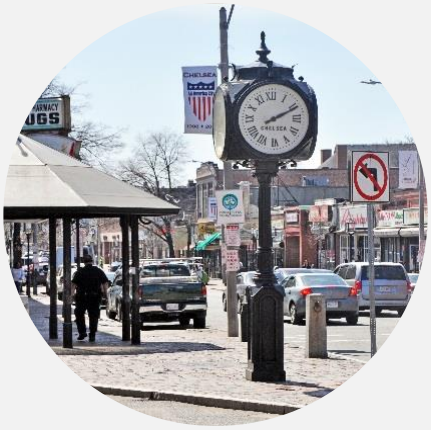
Chelsea Silver Line Corridor
Transit-Oriented Development Action Plan

January 2017





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Acknowledgements

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Overview

The goal of the ***Chelsea Silver Line Corridor Transit-Oriented Development (TOD) Action Plan*** is to provide the City of Chelsea and partners with an implementable seven-year Action Plan that will ensure that the forthcoming Silver Line and the investments it will spur promote fair access to housing, jobs, and other amenities in alignment with City and community values.

The Silver Line Gateway bus service and shared-use path in Chelsea will bring new life to the area by attracting new businesses and creating jobs, increasing interest in housing, and creating amenities that can improve the health of residents. The area is likely to change, and it is important that to ensure that the change will be beneficial and prosperous for the current residents and businesses of Chelsea. This Action Plan seeks to answer the question: *How can we increase the positive opportunities that will be created by the Silver Line for all who live, work, play, or go to school here?*

The Chelsea Silver Line Corridor Transit-Oriented Development (TOD) Vision

The Silver Line Corridor is a network of unique neighborhoods and multiple land uses, where people from diverse backgrounds can meet, connect, and build community. The new Silver Line bus rapid transit service and shared-use path is anticipated to facilitate beneficial community changes, and the City of Chelsea is harnessing this opportunity to implement a vision of equitable transit-oriented development (TOD).

Chelsea's vision of equitable TOD in the Silver Line Corridor is one where people have fair access to diverse and affordable housing options, business and workforce development opportunities, and recreational opportunities that help them to live healthy and prosperous lives. The City is committed to implementing the vision through the advancement of the following principles:

- Leadership: Engaging the private and public sectors to implement the vision and securing resources to advance the vision.
- Equity: Promoting policies and programs that help ensure that the diverse people who live, work, play, and go to school in Chelsea can participate in and benefit from decisions that shape their neighborhoods.
- Accountability: Creating effective systems for measuring community change and identifying indicators and outcomes to track implementation of strategies within the Chelsea Silver Line Corridor TOD Action Plan.

Planning Value: Equitable Transit-Oriented Development

Transit-Oriented Development (TOD) is the process of concentrating residential and commercial development and other amenities within a half-mile of public transit to promote walkability and smart growth principles. Equitable TOD is an approach to transit-oriented development aimed at creating healthy, vibrant, communities of opportunity. Equitable TOD is accomplished when smart, intentional

strategies are put in place to ensure that everyone can participate in and benefit from decisions that shape their neighborhoods.[1]

It is important to develop a practical strategy to guide equitable redevelopment adjacent to the new Silver Line bus route and shared-use path in Chelsea. Such corridor planning can mitigate displacement and plan for the influx of more housing and jobs in this dense and ethnically diverse city. In addition, it is crucial that residents benefit from the economic development that will be invested along the corridor and that they have increased access to employment and opportunities to play, exercise, and travel via the shared-use path.

Planning Value: Managing Neighborhood Change

New investment in housing, businesses, or—in Chelsea's case—infrastructure typically brings change to a community. History shows that investment in transit infrastructure and service often coincides with transit-oriented development and other amenities. The Silver Line extension will dramatically improve transit mobility and connect residents and visitors to patronize businesses and pursue job opportunities both within Chelsea and Boston. New development attracted to the Silver Line corridor by this improved accessibility will likely increase ridership and fare revenue, bolster municipal finances with new tax revenue, and expand Chelsea's housing stock by fostering new development and redevelopment.

But neighborhood change is not always positive. Because Chelsea is statistically a lower-income community, it is likely that this reinvestment will lead to or accelerate gentrification, a particular type of neighborhood change defined by an increase in housing costs and an influx of new, higher-income residents. Because of shifting trends in housing costs and household income, gentrification is already happening in Chelsea to some degree.

Chelsea can plan ahead to leverage the investment that follows the Silver Line extension and shared-use path, and begin to prioritize strategies for the negative impacts of gentrification in the City's neighborhoods. Ideally, this will result in a more equitable distribution of the benefits of new investment among current residents and new ones. In Chelsea, this would mean the City maintains its diversity and vibrancy, while offering new opportunities to all those who call it home. This Action Plan outlines a number of policy recommendations that aim to manage neighborhood change and mitigate displacement for current and future residents.

Planning Elements

MAPC conducted data analysis and mapping to understand existing conditions in terms of land use, zoning, transportation assets and connectivity, and resident demographics. This Action Plan also builds on qualitative and quantitative findings from focus groups and public meetings and three in-depth analyses produced by MAPC to better understand conditions in the Chelsea TOD corridor: a Residential and Retail Market Analysis, a Health Impact Assessment (HIA), and Managing Neighborhood Change Analysis. Key findings are included in the body of this Action Plan; maps produced can be found in Appendix A; a summary of public engagement activities and public feedback can be found in Appendix B; and standalone report versions of each analysis are included as Appendices C, D, and E.

The **Managing Neighborhood Change Analysis** explored the changes that are most likely to occur in Chelsea as a result of the Silver Line extension and why. Building on robust community engagement and

[1] Adapted from - Reconnecting America and PolicyLink's definition of Equitable Development.

data analysis, MAPC identified and analyzed key neighborhood changes that may occur in Chelsea, including those impacting the private housing market, affordable housing supply, and local business environment. Findings from the analysis informed action plan strategies to manage change in Chelsea and mitigating displacement risk. A summary of key findings from the analysis is included in the body of the Action Plan and a broader overview of findings and proposed indicators for monitoring neighborhood change is provided in Appendix E.

The **Health Impact Assessment (HIA)** was made possible by a Massachusetts Department of Public Health (MDPH) program to integrate health into priority mapping processes and actions to better inform priority areas for development and preservation. The Chelsea TOD HIA is focused on integrating health into a local planning technical assistance project for rezoning around Silver Line station areas. The HIA methodology utilized stakeholder input and engagement from and current public health research to measure potential changes in the health potential of Chelsea, in relation to the Chelsea Silver Line Gateway Project. This analysis provides recommendations to improve the health outcomes through the proposed development. Findings from the analysis informed action plan strategies and the assessment is attached in its entirety as Appendix C.

The **Residential and Retail Market Analysis** was undertaken as part of the Chelsea Silver Line TOD Study to identify the amount of development that could potentially occur given current market conditions. This is not a prediction of what will occur in Chelsea; rather, it reflects what may be possible given current market trends and demand. Thus, the intent of this market assessment is to help inform the larger Silver Line TOD study, and aid in the decision making that will encourage development where desired and supportable, and manage neighborhood change by providing strategies to help existing residents and business owners who will be most vulnerable. A summary of key findings from the market analysis is included in the body of the Action Plan and attached in its entirety as Appendix D.

Figure 1: Action Planning Components

Planning Process: Outreach and Engagement

Community engagement played a major role in the creation of the Action Plan. MAPC spoke directly with the community to better understand resident's experiences, visions, and concerns. This engagement took multiple forms: a survey distributed in both Spanish and English, and in paper and online formats; focus groups conducted in both Spanish and English; and two public forums. A diverse group was engaged across race, ethnicity, age, gender, and income.

During various engagement exercises, we asked participants a series of questions about neighborhood change in Chelsea. Discussion prompts focused on housing, such as whether rent and housing availability have changed in the last five years; on the economy, such as where people frequently shop in the city and whether the retail mix has changed and how; and what local services people use and groups or organizations they participate in. More broadly, people talked about how the City is changing, the concerns they have about change in Chelsea, what changes they'd like to see, and what they'd like to keep the same. Please see Appendix B for more information.

Action Plan Goals

MAPC identified five overarching goals to guide the planning process during and after the Silver Line extension into Chelsea. Each goal was then broken down into action items, strategies, implementation partners, a timeline, and possible funding sources. The full action plan recommendations are located in the Chelsea TOD Action Plan Matrix section.

GOAL 1: Chelsea residents and visitors will have safe access to different modes of transportation in the Corridor. The first goal of this TOD Action Plan is to develop methods of safe access to different modes of transportation in the Corridor for all Chelsea residents and visitors. Strategies necessary for achieving this goal include promoting walkability and equitable access to the sidewalk network, better education for all on the "rules of the road", as well as identifying priority sidewalk improvements to facilitate safe routes to school and compliance with ADA accessibility requirements. The City can improve perceptions of safety in the area by maintaining Silver Line Corridor lighting and expanding green infrastructure and landscaping buffers. Green infrastructure and landscape buffering can additionally mitigate air and noise pollution from the City's transportation infrastructure. Chelsea's community-based organizations can help facilitate active resident participation with the MBTA Focus40 Capital Planning Process and can advocate for improvements to critical bus lines. An additional strategy for achieving the first goal involves adopting a policy that promotes safe access for all users and the concepts embodied in "complete streets" with an accompanying communications and public education campaign. The City can calm vehicular traffic and manage parking along the Corridor by exploring adjustments to parking requirements for retail and commercial uses and improving street signage. Improved bike infrastructure may promote cycling as a safe choice and as a commuting option over driving.

GOAL 2: Chelsea residents from different generations and walks of life will have safe places and fun opportunities within the Corridor to convene, interact, and get to know their neighbors. The second goal of the Action Plan is to provide Chelsea residents, from different generations and walks of life, with safe places and opportunities within the Corridor to convene, interact, and get to know their neighbors. An important strategy for achieving this goal is to address public safety and usage concerns in Bellingham Square through creative short-term and long-term investments that help build ownership and community such as public art and festivals. Expanding community gardening opportunities in

the Corridor on parcels located away from heavily trafficked roads can help promote healthy eating and social interaction. To promote usage and stewardship of the Silver Line Shared-Use Path and open spaces in the Corridor, the City can establish a Working Group to develop park programming and maintenance opportunities for youth as well as update the Chelsea Open Space and Recreation Plan to include assessment of parks and open spaces in the Corridor. Additional strategies for reaching this goal are to work with the Department of Public Works to maintain lighting and green space, the Economic Development Board to stimulate economic development and activate storefronts, and the Police Department to install safety cameras along the corridor.

GOAL 3: City policies, guidelines, and programs will facilitate a vibrant mix of housing, business, and recreational opportunities within the Corridor. The third goal is that City policies, guidelines, and programs will facilitate a civically beneficial mix of housing, business, and recreational opportunities within the Corridor. Strategies for achieving this goal include adopting an inclusionary housing policy and program, a local ordinance or bylaw that regulates condominium conversion more strongly than the statewide law, a commercial linkage fee program that would be applicable to large-scale development projects, and adopting a policy that requires landlords to identify a just cause in order to evict a tenant. Further strategies include adopting a standard for negotiating Community Benefits Agreements with developers, strengthening the Problem Properties Targeted Code Enforcement Program, adopting green building criteria and incentives reflecting the State's Stretch Building Code, and adopting design guidelines for the area with a focus on the Broadway business corridor. The City should implement a housing program/strategy that facilitates the production and preservation of housing affordable to low- to moderate-income households. The City should work with regional and state partners and developers to promote access to TOD funding programs that support mixed-income multifamily housing. Lastly, the City can partner with community-based organizations and realtors to implement a fair housing education program so that all residents are aware of their legal rights to housing.

GOAL 4: Chelsea residents have multiple options for staying informed about and participating in planning and community development efforts in the Corridor. The Chelsea Silver Line Corridor TOD Action Plan's fourth goal is that Chelsea residents have multiple options for staying informed about and participating in planning and community development efforts in the Corridor. Relevant strategies include establishing a Chelsea Community Planning Advisory Group, offering trainings that prepare residents for civic leadership opportunities with the City, and developing a multi-lingual communications and engagement strategy to inform and engage residents in civic processes.

GOAL 5: Workers and small businesses will be able to access opportunities and grow within the local and regional economy. The final goal of this plan is that workers and small businesses will be able to access opportunities and grow within the local and regional economy. A strategy for achieving this goal involves encouraging local hiring practices through collaborations between new businesses, social service providers, and schools. Additional strategies include facilitating workforce training and placement partnerships, implementing business improvement and development programs for the Broadway corridor, and providing incentives to attract farms and food trucks with healthy options to contribute to the mix of food options in the corridor.

Context

About Chelsea

Chelsea is a diverse, waterfront city located just two miles from the City of Boston and three miles from Logan International Airport. While it is the smallest city in Massachusetts by total area (2.2 square miles of land), it is the second densest after Somerville with 35,177 residents and 15,989 residents per square mile.[2] The City of Chelsea, one of the oldest settlements in the Commonwealth, flourished as an industrial center due to its strategic waterfront location beginning in the 1850s. Like other industrial cities, it attracted a multitude of immigrant communities. During the City's peak population in 1919, almost half of its population was foreign-born. While industry has been absent from the City for many decades, Chelsea has remained a welcoming community for immigrants of all ethnicities. The City of Chelsea has worked to improve the quality of life for its residents while also maintaining its unique diversity and character.

Chelsea Silver Line Bus Rapid Transit (BRT) Gateway Service

The Silver Line Gateway Project will extend Silver Line bus rapid transit (BRT) service from its current termination at Logan Airport in East Boston to neighborhoods in Chelsea. The project also includes the construction of a shared-use path from Downtown Chelsea to Eastern Avenue. This project will increase accessibility and travel between Chelsea and Boston and better connect residents and workers to housing, job, and recreational opportunities in each of these communities and the greater region. This project advances the Massachusetts Department of Transportation priorities to encourage use of public transportation, to improve air quality, and to increase access to jobs.

Awarded the Massachusetts APA Planning Project of the Year in 2014, the Silver Line Gateway will dramatically improve reliability of service while decreasing travel time and number of transfers for riders. With the new Silver Line busway, it will take 15-19 minutes to travel from Downtown Chelsea to Boston's World Trade Center with zero transfers and high reliability. By comparison, it would take 39 minutes to make this journey on the 111 Bus and require three transfers under a "no build" scenario in which the Silver Line Gateway is not implemented. It would take 37 minutes via the Blue Line with two transfers and take 36 minutes via the Commuter Rail. It is expected that the busway to Mystic Mall in Chelsea will add 2,500 new transit trips, bringing the Silver Line Gateway total daily ridership up to 8,730.

Busway and shared-use path development in Chelsea is taking place in three different stages. Phase 1 involves the Washington Avenue bridge replacement, busway construction, shared-use path construction, identification of neighborhood connections to the shared-use path, and construction of three bus stations. This work began in April 2015. Phase 2 will involve the relocation of the Chelsea Commuter Rail Station to the Mystic Mall, in Downtown Chelsea, where a new station is scheduled to be built. During this phase, the new station will be constructed to include a Transit Signal Priority (TSP) system. This TSP system will enable the Silver Line to travel, without inhibition, through grade crossings, with the system communicating with the traffic signals to halt oncoming vehicles and pedestrians. This work is contingent upon funding availability, specifically the procurement of federal grant funding, as it is not presently within the MBTA's capital plan. Lastly, Phase 3 will include enhanced gateway additions, in the form of refined landscape and urban design elements stretching into the abutting neighborhoods, for the bus stations and shared-use path entrances. This work will begin in 2017 and is funded by a Gateway Cities Park Grant from EEA.

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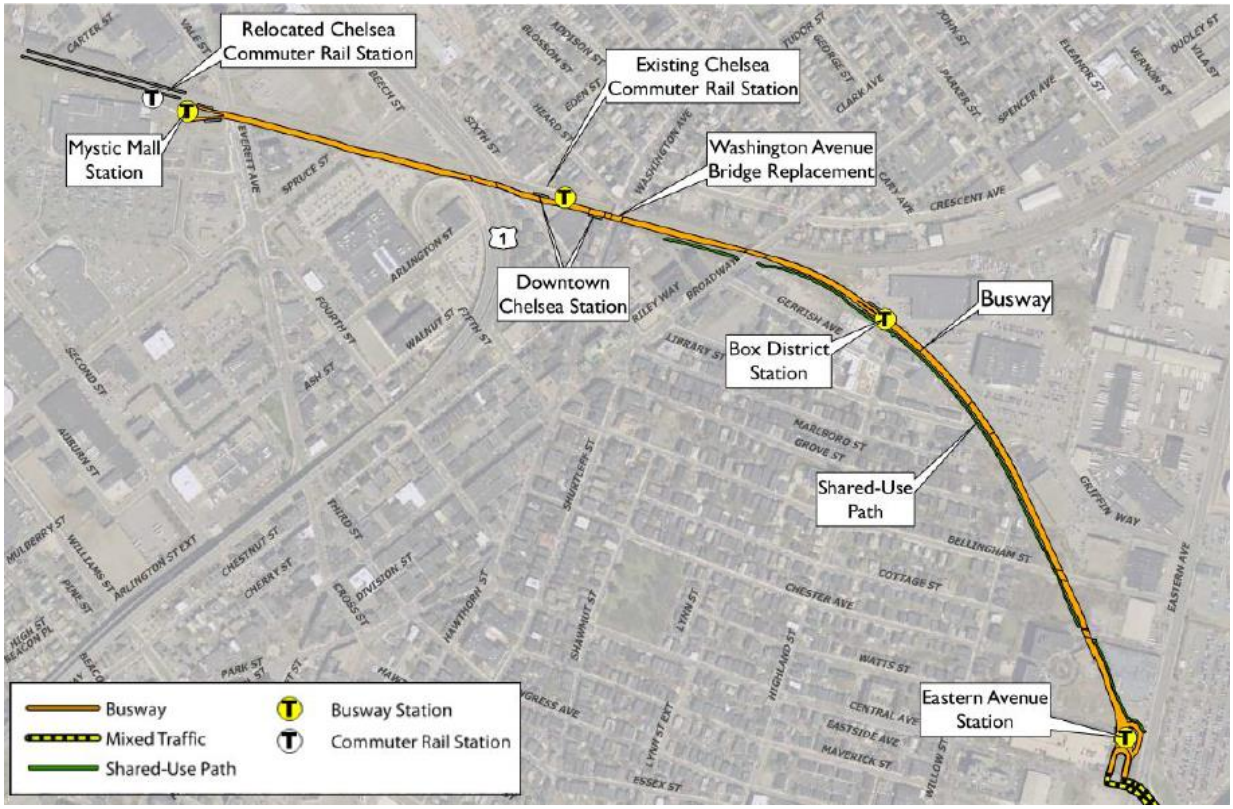
[2] U.S. Census Bureau. (2010). *Chelsea: Total population.* Retrieved from http://www.census.gov/data/2010

The Silver Line Gateway Bus Service will include all SL1 station stops in South Boston: Courthouse, World Trade Center, and Silver Line Way. Bus service will continue through the Williams Tunnel to East Boston, stopping at the Airport Blue Line Station, and making stops at the following locations in Chelsea: Eastern Avenue Station, Box District Station, Downtown Chelsea Station, Mystic Mall Station, and Chelsea Commuter Rail Station (relocated). A number of improvements are being made to accommodate the busway and shared-use path. This includes construction in the former Grand Railroad Junction right-of-way and changes to the Chelsea Street Bridge and Airport Blue Line Station. In addition, the Chelsea Commuter Rail Station is being relocated in order to create a modern station that meets federal and state accessibility guidelines.

Figure 1: Chelsea Silver Line Stations



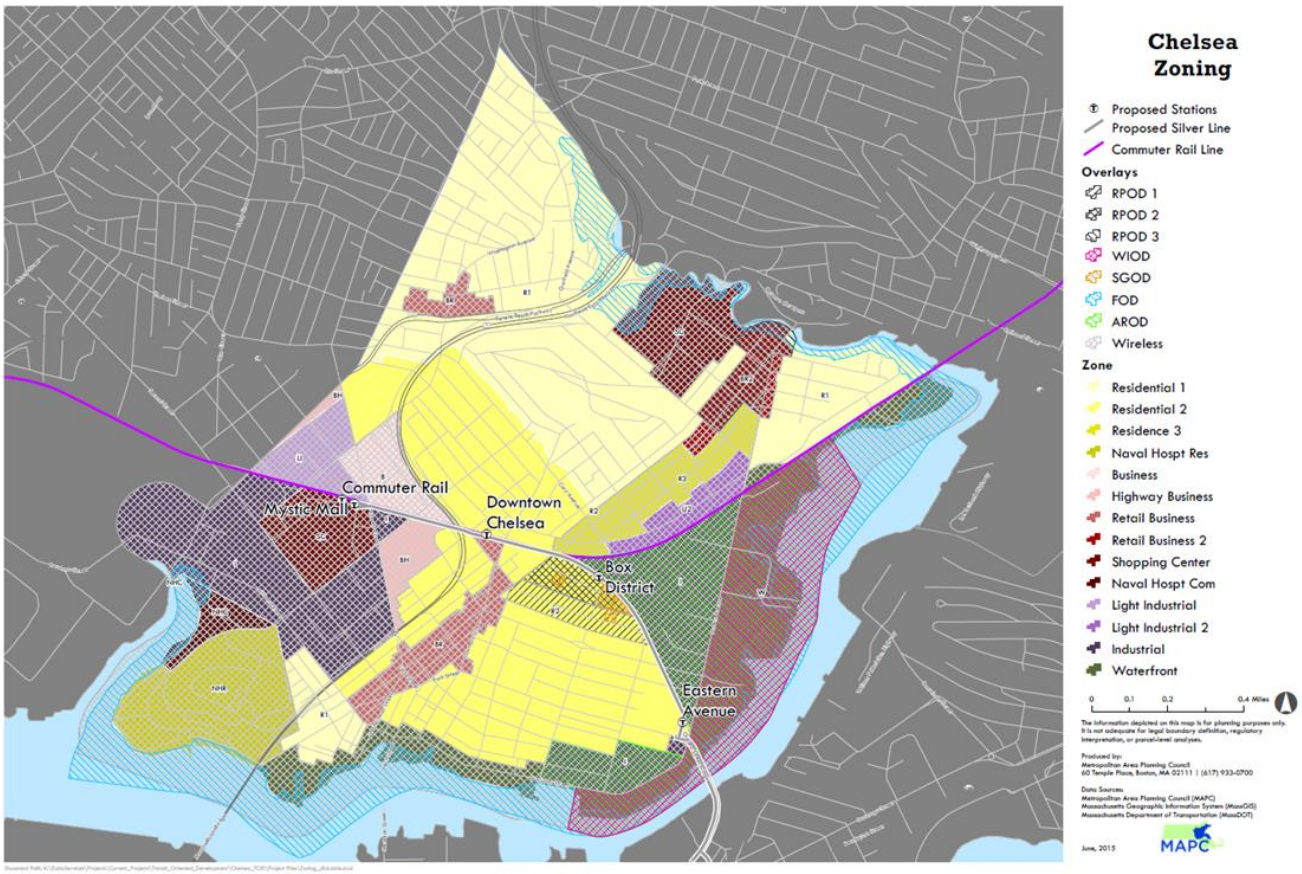
The City of Chelsea and the Executive Office of Energy and Environmental Affairs (through the Gateway Cities Parks Program) worked with MassDOT to incorporate a shared-use path adjacent to the proposed busway. The path will extend from the Chelsea River waterfront to Downtown Chelsea and will include an on-road shared-use portion and off-road segments making use of the former Grand Railroad Junction right-of-way. Construction of the path is scheduled to be completed by June 2016. The shared-use path will be a transportation alternative and recreational facility for biking, running, walking, skating, strolling, and more. The path will enhance connections among residential, commercial, and recreational areas in the community.

Chelsea Silver Line TOD Study Area

The Eastern Avenue Station, Box District Station, Downtown Chelsea Station, Mystic Mall Station, and Chelsea Commuter Rail Station stops of the Silver Line Gateway Bus Service will serve a diverse array of residential, business, and industrials areas in Chelsea. Neighborhoods within the Chelsea Silver Line TOD Study Area delineated by MAPC include Box District, Shurtleff-Bellingham, Downtown, and a section of

Addison-Orange. Whenever possible, MAPC examined census tract data for the study area. These were tracts identified as encompassing the ½ mile walkshed around each Silver Line station. When such data was not available or appropriate for a given set of data, Chelsea-wide data was examined. See Appendix A for additional maps on existing conditions.

Figure 2: Zoning in the Chelsea Silver Line TOD Study Area



Previous Plans and Studies Pertaining to the TOD Study Area

A number of plans and studies have been completed in the last decade that pertain to the TOD study area. Completed in 2009, the Addison-Orange Neighborhood Revitalization Strategic Plan focused on addressing housing foreclosures, overcrowding, and illegal rooming houses through infrastructure and open space needs and the redevelopment of a seven-acre portion of the Everett Avenue Urban Renewal District. The Addison-Orange neighborhood is located just north of Downtown Chelsea and the current Commuter Rail station (soon to be the Downtown Chelsea Silver Line Station). It is a low to moderate-income neighborhood with primarily renter households. The Strategic Plan puts forth a number of relevant recommendations related to neighborhood character, public realm and urban design, open space and recreation, housing, and public safety. For example, since this neighborhood had the highest foreclosure rate in Chelsea, the plan recommended targeting Addison-Orange for foreclosure prevention services by Chelsea Restoration Corporation, partnering with local non-profits for acquisition and rehabilitation of larger foreclosed and abandoned properties, and exploring options to promote home ownership in the neighborhood.

Also completed in 2009, the North Bellingham Hill Revitalization Plan was a joint project between the City of Chelsea and the Chelsea Neighborhood Developers to create a new vision for the northern side of Bellingham Hill neighboring the Box District. This neighborhood had been greatly affected by foreclosures,

illegal apartments, trash, crime, poor road infrastructure, traffic, and a lack of parking. The Revitalization Plan put forth a number of relevant recommendations such as partnering with the Traffic and Parking Commission to reduce speed limits, step up speed enforcement, and implement resident-only parking; install security cameras, add additional street lights and implement a Front Porch Light Program; and create a financial education and savings program along with community engagement initiatives.

In 2011, the City of Chelsea used a Gateway Cities Park Grant to conduct a Multi-Use Path Feasibility/Conceptual Design Study for the former CSX Grand Junction Secondary Track right-of-way (ROW), the area that will accommodate the new Silver Line Gateway Bus Service and shared-use path. This study identified the opportunity for a multi-use path for safe pedestrian and bicycle connections alongside the BRT route in the CSX ROW. The study found that a path on the ROW segment from Chelsea River to Box District was the best option for creating a multi-use path with recreational opportunities because the BRT is not proposed along this section and that the ROW from the Box District to Downtown Chelsea could accommodate both BRT and a multi-use path. The study also identified ways to accommodate bicyclists and pedestrians from Downtown Chelsea to Mystic Mall along local roadways where there would not be room for a multi-use path. Here, the consultants proposed the installation of bike route signage/pavement markings along the roadways, accessibility upgrades to sidewalks, and intersection improvements. The City will be implementing these recommendations in the upcoming year through a bidding process to identify a suitable contractor.

Working with the Chelsea Neighborhood Developers, residents, and businesses, the City put forth the Broadway Corridor Action Plan in 2014 to determine how the corridor can better serve existing residents and nearby employees. Part of the area addressed by the Action Plan includes the Business District along Broadway and neighborhoods next to Bellingham Square and the future Bellingham Square Silver Line Station. This shopping district is a destination for tens of thousands of residents who live under a ten minute walk away. There is a mix of retail including many locally owned shops and ethnic restaurants with almost no vacancies. However, the area also suffers from vehicular and pedestrian traffic, crime and other negative activity, and the poor outward appearance of otherwise successful businesses. As such, some of the recommendations from the plan include working with business owners to ensure a “see in/see out” policy where not more than 10% of window area is covered by signs or other opaque materials and adapting current parking meter limits to encourage patrons to shop and eat at businesses on Broadway. In addition, the City can pursue enhanced street lighting and green infrastructure programs to improve the perception of safety along the Corridor. Other plans include the Chelsea Open Space and Recreation Plan, updated in 2010, which is a seven-year action agenda that prioritizes improvements in open space, park rehabilitation, policies, and programs and allows the City to be eligible for open space funds through 2016. The Mystic Mall and Parkway Shopping Center Study from 2005 examined the existing and potential development in and around the Mystic Mall and Parkway Plaza with significant redevelopment opportunities. Chelsea’s 2014 Community Development Strategy summarizes all these plans and more, in addition to identifying activities that will stabilize blighted areas, enhance quality of life and safety for residents, upgrade the city’s infrastructure, improve open space and recreation opportunities, and preserve existing and develop additional affordable housing.

Current Conditions in the Silver Line Corridor

Demographics

Population

At the time of the 2010 U.S. Census, Chelsea's population was 35,177 people. Between 2000 and 2010, Chelsea's population increased slightly, with just over 1,000 additional residents, or 3% growth. This was lower than surrounding communities like Boston and Everett, each of which experienced at least a 10% growth in population. However, based on MAPC projections, Chelsea's population is projected to increase modestly by 2030, adding roughly 5,000 more residents or a 14% increase.[3] Again, this is lower than what is projected in surrounding communities, with the exception of Winthrop.

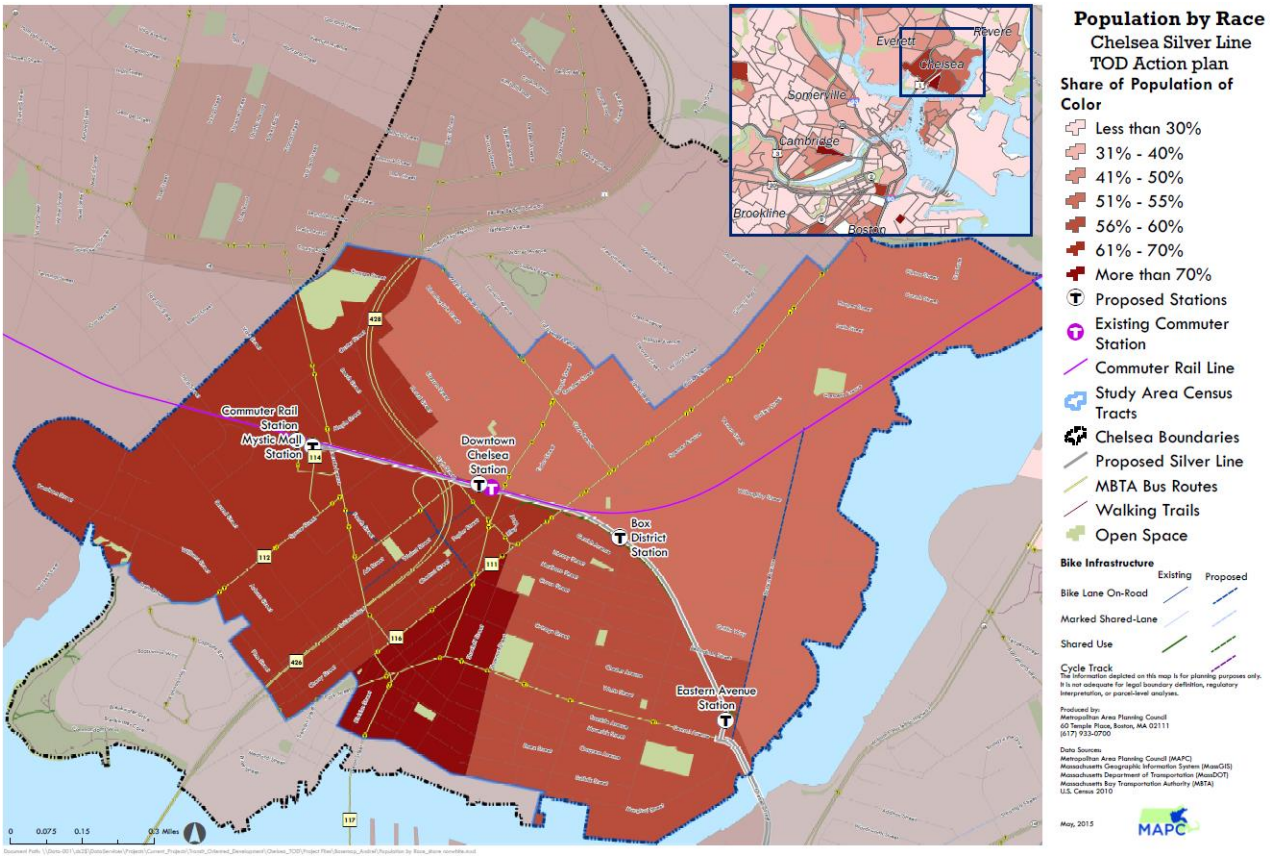
Chelsea's population is aging, but not as significantly as in other parts of the MAPC region. In fact, between 2000 and 2010, the majority of population growth in Chelsea was persons 20 to 64. While the population above 65 has decreased. Although population growth through 2030 is projected to be older residents (residents 65+) for many municipalities in the region, Chelsea will experience more balanced growth. The highest growth will be in persons 35 to 54 (+1,785 people, 29%), but the population over 55, and especially over 65, is also projected to increase significantly. The school-aged population has decreased slightly (-10%).

Approximately 69% of Chelsea's total population lives within a half-mile radius of the proposed Silver Line stations. Of these residents, 73% are Hispanic or Latino, 16% are Non-Hispanic White, 6% are Black or African American, and 2% are Asian.[4] This is slightly different when compared to Chelsea as a whole, where 62% of residents are Hispanic or Latino, 25% are Non-Hispanic White, 7% are Black or African American, and 3% are Asian. Foreign-born residents make up 51% of the population surrounding proposed station areas, while they comprise 45% within the entire municipality.

[3] MetroFuture Stronger Region projections were developed for MAPC's regional plan, and are based on extensive technical analysis developed to quantitatively analyze patterns of future growth as envisioned in the region, including focusing growth in already developed areas to use land more efficiently, protecting open space, and reducing the need for new infrastructure. MAPC projections are based on an analysis of how changing trends in birth rates, deaths, migration, and housing occupancy might result in higher population growth, greater housing demand, and a substantially larger workforce. In 2012, the Executive Office of Housing and Economic Development adopted the Stronger Region scenario as the basis for the Commonwealth's multifamily housing production goal, and is now working to coordinate local and state policies to support its achievement.

[4] U.S. Census Bureau. (2010). *Chelsea: Total population*. Retrieved from http://www.census.gov/data/2010

Figure 3: Population by Race, Chelsea Silver Line TOD Study Area



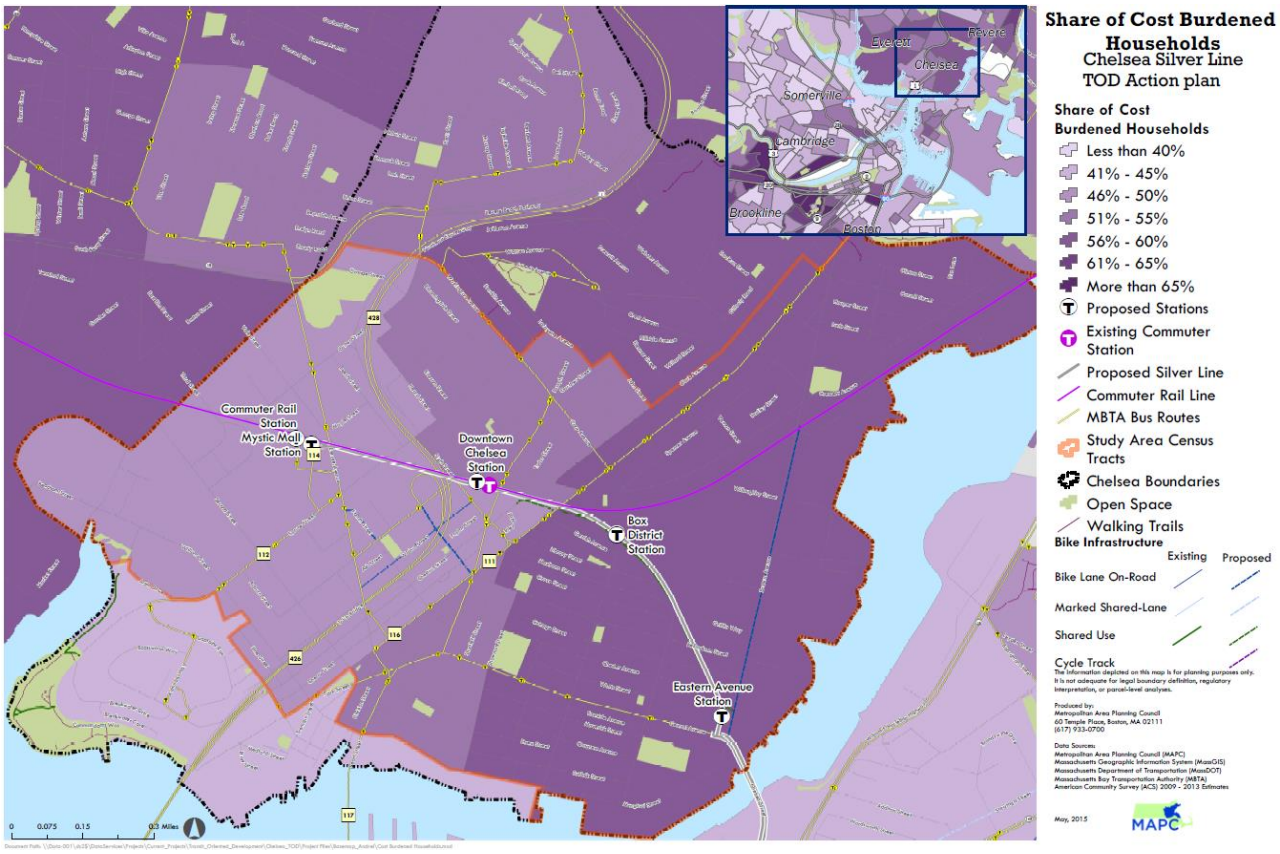
Income

Household income is an important determinant of how much a household can afford to pay for housing, the type of dwelling unit (rental or owner-occupied) they are able to afford, and their eligibility for housing assistance. Chelsea's median household income is just over $47,000, lower than all surrounding communities and significantly lower than the State ($66,866). However, income increased in Chelsea over the last decade at a far higher percentage than in other municipalities. This may be indicative of many factors, such as increasing educational levels and job opportunities for existing residents, or new higher income residents moving to the community. Median family income is lower in Chelsea ($48,849) than in both Suffolk County ($61,449) and the State ($84,900). This is not surprising given the high number of single parent households in the City. Within Chelsea, 19.6% of households are single-parent compared to 11.8% in Suffolk County and 8.6% in the State.

According to the American Community Survey (2013), Chelsea's highest earners by percentage are households headed by persons 25 to 54 years of age. Approximately a third of these households are earning more than $75,000 annually. At the same time, over a third are earning lower than $40,000. Within the Silver Line station areas, 46% of all households are earning under $40,000 a year. Thus, there is a wide range of unit types needed—market rate and affordable—just for these age groups. Additionally, more than half of households under 25 years of age and 75% of households 65+ earn less than $40,000 a year. Interestingly, roughly a third of households under 35 are earning more than $75,000 annually. Based on discussions with community stakeholders, this may indicate a growth in higher earning younger residents that have moved to Chelsea in recent years.

Cost-burdened households are those paying between 30 and 50% of their income on housing-related expenses, including mortgage or rental payments and the cost of utilities. Cost-burdened households may have difficulty affording other necessities such as food, medical care, and transportation due to high housing costs. Those paying over 50% of their income on housing-related expenses are considered severely cost-burdened. Within the station areas, 1,585 renter households and 461 owner occupied households are paying 30 to 49% of their income on housing expenses. 1,418 renter households and 422 owner occupied households pay over 50% of their income on housing expenses. There are 2,339 cost burdened households with incomes under $35,000, 1,300 cost burdened households with incomes of $35,000 to $74,999, and 217 cost burdened households with income $75,000 or higher. About two-thirds of cost burdened housing units are renter-occupied (approximately 8,000 households) while a third are owner-occupied.

Figure 4: Share of Cost Burdened Households in the Chelsea Silver Line TOD Study Area



Education and Employment

The low incomes of Chelsea households are not surprising, given the lower levels of educational attainment of persons 25 and older. Over a third of residents lack a high school diploma, more than double that of Suffolk County and triple that of the State. In fact, this is one of the highest levels of residents who have not completed high school in the State. Further, only 16% of residents hold a bachelor's degree or higher, significantly less than the County (40%) and State (39%). Lower educational levels often limit job opportunities, particularly for higher wage professional jobs that require a college education, but also for high skilled jobs which require training beyond a high school diploma.

Within the Silver Line station areas, the majority of residents are employed in health care and social assistance (22%), administrative and waste services (15%), and educational services (15%). The total number of industries in Chelsea has grown significantly since 2009, from 13,336 to 15,444 in 2013. As of April 2014, Chelsea's unemployment rate was at 4.4%. This is a sharp decline from its recent peak after the Great Recession in December 2009 when the employment rate was at 10.6%.

Households

Between 2000 and 2010, the number of households in Chelsea decreased slightly from 11,888 to 11,831 (less than 1%) and household size grew slightly. Household sizes are often larger in communities with large immigrant communities, as more multigenerational households are common. However, based on MAPC projections, household size is anticipated to decrease in Chelsea over the next 10 to 20 years, from 2.92 persons per household to 2.72. Thus, even though population is projected to increase by only 7%, the number of households will increase by 22%, a projected 2,652 more households by 2030. More housing units will be needed to keep up with the growing number of smaller households.

Similar to population trends, households are aging, but in a more balanced manner than surrounding communities. Households headed by persons 35 to 54 will see the largest growth in total numbers (+1,532); households headed by those 55 and older will increase by just over 1,200. These age cohorts often prefer different housing types. The 35 to 54 year olds may seek larger units with more bedrooms as they are more likely to have children residing at home. Households 55 and over, some of which are potentially downsizing, may seek out smaller units with more amenities.

The percentage of family households in Chelsea is significantly higher than that of surrounding Suffolk County; over 62% of households (7,210) are family households. Further, nearly 38% of all households are families with children (4,437), significantly higher than that of either Suffolk County or the State. More significantly, Chelsea has a far higher percentage of single parent households compared to the County or State. This means that over half of family households with children are headed by a single parent. Single parent households, as with many other households, may prefer units that require less upkeep and maintenance, particularly given their one income status and time constraints.

The percentage of non-family households in Chelsea is also lower than in Suffolk County. However, the percent of householders living alone is only slightly lower than that of the County and the majority of single person households are younger. Both younger and senior householders living alone tend to prefer smaller housing units that are easier to maintain for cost and/or time savings.

Health

According to Massachusetts General Hospital (MGH) 2015 Community Health Assessment (CHA) Quality of Life survey, Chelsea residents rank their physical, mental, and general health relatively poorly. The perception of Chelsea as unhealthy persists on a community level as well. In 2015 more than 80% of MGH's survey respondents ranked Chelsea as "unhealthy" or "very unhealthy," a number which increased slightly compared to the 2012 CHA where this total was 75%.

Hospitalization rates amongst adults in Chelsea are statistically significantly higher when compared to state-wide rates in nearly every category. In particularly, Mental Health ER Visits, Cardiovascular Disease, and Chronic Obstructive Pulmonary Disease (COPD) have rates that are excessively higher than the state rate. Adult Asthma (not ER visits), Coronary Heart Disease, Alcohol/Substance Abuse, and Diabetes rates are all substantially higher than the state rates. In 2010, the mortality rate in Chelsea was 779.6 deaths per year, compared to Massachusetts' rate of 704 deaths per 100,000 per year. Adjusting for age,

Chelsea's premature mortality rate is 1.5 times higher than that of the state as a whole (425.16 deaths per 100,000 people, compared to 275.83).[5]

According to MGH's Community Health Assessment, 94% of Chelsea's adults have health care insurance compared to 96.6% of all adults in the state. In fact, most people in Chelsea ranked their health care access and quality of care as above average. The fact that there are still such stark health issues in Chelsea highlights the importance of looking at other public health factors besides health care such as transportation access, equity, housing, and employment to improve health in the city, which are all studied in depth in the Health Impact Assessment.

84% of Chelsea's housing stock was built before the lead paint abatement law of 1978 and 67% was built prior to 1939, leading to a high potential for lead exposure. [6] Lead poisoning can cause permanent damage to a child's brain, kidneys, and nervous system. It can also result in serious learning and behavior problems. In adults, lead exposure can also have toxic effects, primarily on the nervous system and cognition. The lead law protects children's right to a lead-safe home. In a report on lead poisoning risk, BEH identified Chelsea as one of the 18 highest risk communities in Massachusetts for childhood lead poisoning.

Environment

Communities designated as Environmental Justice (EJ) communities are the most exposed and vulnerable to environmental harms. All of the census tracts in Chelsea meet the criteria necessary to be considered an Environmental Justice community. [7]

According to the Massachusetts Department of Environmental Protection, there are 439 contaminated (also known as 21E) sites in Chelsea. 52 (12%) of these have been remediated while the remaining 387 are still active. However, Chelsea has remediated a higher percentage of its brownfields compared to the nearby cities of Everett (9.4%) and Boston (8.7%). Development along the corridor could lead to the remediation of more brownfields, promoting the development of healthy buildings and an efficient use of contaminated land.

Although parks have been highlighted as one of the most important local resources, the amount of open space per capita for Chelsea is one of the lowest in the State. While Chelsea residents highly value the space to which they currently have access, there is significant desire to add more public space of this kind. Chelsea, however, only contains 2.2 square miles and its residential neighborhoods are very den sely developed. With many of the City's parcels already developed, and certain parcels limited by contamination or other restrictions, it may be challenging to add a significant amount of new usable open space. The City Silver Line Gateway project provides a unique opportunity to integrate green space into the dense city. According to the HIA analysis, the integration of a green space into the TOD project could improve health outcomes, particularly mental health, social cohesion, respiratory health, cardiovascular health, and melanomas.

[5] Premature mortality is calculated based on the number of deaths before the age of 75

[6] http://www.mass.gov/eohhs/docs/dph/environmental/lead/stats/lead-high-risk-report-cy14.pdf

[7] Environmental Justice (EJ) communities are defined as U.S. Census block groups that meet one or more of the following criteria: 1) the median annual household income is at or below 65% of the statewide median income for Massachusetts, 2) 25% of the residents are minority or 25% of residents are foreign born, or 3) 25% of residents are lacking English language proficiency.

As a coastal city, Chelsea is vulnerable to flooding and the impacts of global climate change such as sea level rise and increased storm surge. The proposed Eastern Avenue Silver Line station would be located within FEMA's Zone X, the 500-year floodplain. There is currently a 0.2% annual chance of flooding in this area. Looking forward to 2050, should the Boston area experience two feet of sea level rise and five feet of storm surge during a major storm, much of Chelsea would be flooded. By 2100, five or six feet of sea level rise would impact Chelsea, including some residential neighborhoods like Addison-Orange.[8]

Chelsea is a very urban area with a great deal of impervious cover and few natural areas to absorb storm water. As such, the City has begun utilizing green infrastructure—practices that employ vegetation, soils, and other natural features to mimic natural systems—to manage runoff and conserve rainwater for re-use. In 2011, the City of Chelsea announced its green infrastructure partnership with the Environmental Protection Agency. A successful project has been the installation of tree boxes along Chester Avenue.[9]

Transportation

The City of Chelsea is currently served by MBTA bus service and the Commuter Rail. The most utilized bus is the 111 route which connects Chelsea and Downtown Boston. It is within the top 10 bus routes in the region with the highest ridership rates. The second most utilized bus is the 116 which provides connections between East Boston and Revere. Additional routes that serve Chelsea include the 112, 114, and 117 buses which provide additional connections to Medford and Everett.[10]Just north of Downtown Chelsea is a passenger rail station on the MBTA Commuter Rail Newburyport/ Rockport Line. First opened in 1985, it is one of the least used stops along its line. According to a 2013 count, the station had 179 daily boardings.[11] The Chelsea Commuter Rail Station is not handicap accessible and service is less frequent throughout the day than on bus routes. In addition, a regular one-way adult fare to Boston on the Commuter Rail costs $2.25, while local bus fares are $1.70 with a CharlieCard. This difference in accessibility and affordability, as well as feedback from community stakeholders, may indicate why many residents prefer to travel to Boston, and back, via the 111 bus route.

Compared to Chelsea as a whole, more people in the proposed station areas take public transportation or walk to work. Within the proposed corridor, 27% of commuters take public transportation and 12% walk, compared to all of Chelsea where 24% take public transportation and 9% walk. About 64% of all Chelsea residents and 58% within the proposed corridor drive to work. The number of registered vehicles per home in Chelsea is 0.88 and Chelsea households drive on average 21.5 miles per day. Most residents in the proposed corridor have a 15-30 minute commute (28%) or a 30-45 minute commute (29%). Another 21% have commute of less than 15 minutes, 13% have a commute time of 60-90 minutes, 7% have a commute time of 45-60 minutes, and 2% have a commute time of 90 minutes or more. Forty percent of households that live within a mile of the proposed Silver Line stations do not have access to a personal vehicle. The results of the HIA indicate that this project would enhance active transportation and improve resident's health outcomes by shifting travel mode share to more public transit and walkable commutes. The Route 1 North Expressway is a limited access highway that cuts Chelsea in half. U.S. Route 1 is a major north-south corridor through Boston. Route 1 crosses the Mystic River via the Tobin Bridge from Charlestown to Chelsea. Route 16, an east-west state highway, runs through the northern area of the city. It is also called Revere Beach Parkway in Chelsea.

[8] http://seachange.sasaki.com/
[9] http://www.chelseama.gov/Public_Documents/ChelseaMA_Planning/EPA%20GI
[10] "Ridership and Service Statistics" (14 ed.). Massachusetts Bay Transportation Authority. 2014.
[11] "Ridership and Service Statistics" (14 ed.). Massachusetts Bay Transportation Authority. 2014.

Arts and Culture

The City of Chelsea has a thriving arts community. Celebrating this is the Chelsea Art Walk, an annual event that features open studios, restaurants, and alternative venues which offer art, theater, music, and historic exhibits. The public can visit Chelsea's galleries and venues for free during this exciting weekend every June.

Many arts and cultural attractions are located in proximity to the Silver Line station areas. Built in 1659, the Governor Bellingham-Cary House is a historic house museum displaying the work of artisans from as far back as the 1700s. The house is a registered National Landmark which receives over 1,000 visitors a year, including schoolchildren from Chelsea.

Located close to the Tobin Bridge and the Chelsea waterfront, the Pearl Street Gallery showcases seasoned and emerging artists in every medium. Farther north near Merritt Park is The Gallery @ Spencer Lofts, which also exhibits artwork in a variety of media. Other venues in Chelsea proudly exhibit art by local artists during the annual Art Walk, including One North of Boston apartments, Mystic Brewery, and Chelsea City Café.

Apollinaire Theatre Company, based in Chelsea, has a professional theatre venue located just off of the Broadway Corridor. Apollinaire purchased the historic 1906 Old Post Office Building/Odd Fellows Hall in Chelsea Square in 1999 in order to create a new performing arts center in the city, Chelsea Theatre Works. Apollinaire moves outdoors during the summer for Apollinaire in the Park which is performed on alternating days in English and Spanish. They host the Chelsea Youth Theatre Program and are working to create two new theater spaces in the ground floor storefronts of the Chelsea Theatre Works.

Economy

According to the City of Chelsea's Comprehensive Annual Financial Report for 2014, the City is the principal employer in Chelsea. It employs 1,249 people which represent 9% of the total city employment. The second largest employer is Market Basket with 1,100 employees, followed by Mass Information Technology Center (1,000), Massachusetts Water Resources Authority (549), State Garden (500), Kayem Foods (323), and Massachusetts General Hospital (248). The most common jobs sectors within the proposed corridor are health care and social assistance, administrative and waste services, and educational services. The average weekly wage for residents working within the health care/social service sector is $735, for administrative and waste services is $478, and for educational services is $1,018. The three lowest-paying sectors in Chelsea are Arts/Entertainment/Recreation, Accommodation/Food Services, and Administrative/Food Services in which average weekly wages range from $308-478. These three sectors employ 15% of the Chelsea workforce.

Housing

This section summarizes key findings from the residential market analysis and managing neighborhood change analysis. Additional information from these analyses can be found in appendices B and D.

Unit Characteristics

Chelsea has a relatively diverse housing supply. While there are significantly fewer single family homes compared to surrounding communities, roughly half of units are in 2 to 4 unit structures, 17% are in smaller multifamily buildings with 5 to 19 units, and over 20% are in structures with more than 20 units. Within the Silver Line station areas, 97% of building permits issued between 2009 and 2014 were for multifamily buildings with 5 units or more.

Chelsea's housing is also relatively old, with nearly 70% of units built before 1940. In the proposed station areas specifically, 68% of multi-unit households were built before 1940 compared to 55% of single unit households. Interestingly, Chelsea also has the second highest percentage of newer units in the area after Revere: 9% were built since 2000. This is a higher percentage than in Boston. Given the cost of new construction, most of these units are affordable primarily to higher income households, except where deed restricted units were constructed.

Smaller rental multifamily structures (2 to 4 units) that are older and occupied by renters are often attractive to investors for condominium conversions. If a significant portion of occupants in these structures are renters, significant displacement could occur, particularly given the low incomes of existing households.

According to the Massachusetts Department of Revenue, which tracks total parcels by types (and number of condominiums), the total number of parcels with single-family and multifamily (2 to 4 units) units has remained relatively stable over the last 12 years. However, the number of condominiums increased by over 62%, or nearly 700 units. At the same time, the total number of larger apartment buildings decreased by 4%. Thus, with the exception of recent apartment construction in locations like the Box District and One North, the majority of new unit creation over the last decade has been in condominiums, either by new construction or loft redevelopment. Given this increase in total units, combined with increasing prices, condos appear to be growing in popularity within Chelsea. Based on current listings, 2 to 4 unit multifamily structures are increasingly marketed as "investor opportunities" for developers interested in purchasing and converting them to condominiums.

Occupancy Characteristics

The housing market in Chelsea is primarily a rental housing market. In fact, the overwhelming majority of households in Chelsea rent their homes, 73%, which is higher than in all surrounding communities, Suffolk County (64%) and especially the State (37%).

Chelsea's vacancy rate of 8% is consistent with all of Suffolk County, and lower than the State as a whole. While this may point to a healthy, but not booming, housing market, it may also indicate that demand for a significant increase in new units is moderate. However, when looking more specifically at rental units, vacancy is at 4%. Typically, vacancy below 5% indicates a strong market for additional unit development. Further, based on discussions with stakeholders with knowledge of the market, rents are increasing, and rental households are increasingly getting priced out and leaving Chelsea for more affordable areas, including the Cities of Lynn and Revere to the north. This outreach would suggest that more affordable rental housing development could be supported in Chelsea.

Renter households are particularly vulnerable to displacement. In Chelsea, as in many places, people of color make up a disproportionate share of renters. While the homeownership rate for White, Non-Hispanic

households in the station areas is 42%, this rate drops for Asian (30%), African American (24%), and Hispanic households (23%).

Rents and Housing Prices

With a median gross rent of $1,132, Chelsea's rental market appears to be somewhat more affordable compared to most surrounding communities. Chelsea's median gross rent is significantly lower than in Boston ($1,281 a month), which had the highest gross rent, and slightly lower than in Everett ($1,181) and Revere ($1,192). However, the gross rent figure for Chelsea may be misleading, as market research indicates it is likely higher. Based on current listings identified through online sources including Zillow, Craigslist, and Padmapper, median rent in Chelsea is closer to $1,800 for all units.

However, online listings may not be truly representative of Chelsea rents. Based on discussions with local housing developers and community organizations, the informal rental market is strong in Chelsea, particularly among immigrant groups who often find housing often through word of mouth. However, although many properties are likely renting at lower levels than in the new developments, it was noted by local groups that more and more people are getting priced out of the area, with many moving to other more affordable cities. Lynn and Revere were both mentioned.

Rents have been increasing in Chelsea. Between 2000 and 2013, median rent in the city rose 63%, a rate higher than in most surrounding communities, the county, and the state. Moreover, the true rate of inflation is likely even higher because ACS data does not reflect rents of listings currently on the market, but rather those of units that are leased.

Over the last two decades, housing prices in Chelsea have risen considerably. Overall, between 1995 and 2015, sales prices have increased by nearly 315% from $70,000 to $291,250. And although overall prices have not fully recovered since the recession (they are very close), median sales prices have increased consistently since the bottom of the market in 2009. Condominium prices in particular have grown, and in 2015 are selling at an all-time high of $235,000.

Sales prices have increased as sales volumes have decreased. Higher prices are likely to continue; inventories have been and continue to be low compared to peak years (2005 to 2006), likely accelerating an already growing market. Further, for-sale units also sell for significantly lower than in neighboring Boston (e.g. East Boston) which may make them appealing for first time homeowners who may be priced out of other Boston or other Inner Core markets, or for investors. Chelsea is experiencing its highest number of sales since 2000.

Recent sales of multifamily buildings in Chelsea for prices high above the median indicate real estate speculation. Such buildings have the potential for condominium conversion, and units could be put back on the market at much higher prices than when they were last purchased.

Significant increases in housing sale prices can be both positive and negative for current homeowners. On the one hand, they stand to make a substantial return on their investment. On the other, the windfall is often not substantial enough to buy another home in either the same market or comparable higher-cost markets elsewhere. So homeowners are incentivized to sell, but not usually able to become homeowners again unless they relocate to lower-cost markets. This can result in high rates of population turnover as longer-time residents out-migrate and new ones move in.

Research establishes a link between high housing costs and proximity to public transit. The extension of the Silver Line BRT in Chelsea will likely further inflate the city's residential market. As shown in the Economy section, wages in Chelsea have been stagnant over the years as housing costs continue to rise. Should wages remain stagnant, current cost-burdened and/or low-income renters will be adversely impacted by such a change.

Affordable Housing

Based on data from the Commonwealth's Subsidized Housing Inventory (SHI), Chelsea's affordable housing stock has remained around 17% of the total housing stock since the late 1990s. As the city's overall housing supply has increased 8% over since the 1990s, its affordable housing supply has not kept apace. A combination of expiring affordable housing units and slower affordable housing production compared to market-rate housing construction has caused the proportion of subsidized housing to remain stagnant. As the market-rate housing stock increases in price, below-market-rate housing becomes even more important to the goal of maintaining a diverse city.

As rents and sale prices rise, rental units are converted to condominiums, and new units are added at the high end of the market, publicly subsidized housing increasingly provides the primary means for low-income households to remain in Chelsea. Fortunately, the number of units listed on the SHI is 2,183 units, approximately 17% of year-round housing. This percentage is high compared to many communities in the Commonwealth and exceeds the State recommended 10%.

Many deed restrictions have a specified term, often ranging from 30 to 100 years, after which the units can be rented or sold at market rates. Owners can choose to renew their affordability contracts before they expire by refinancing, but there is less incentive to do so in appreciating housing markets like Chelsea. If they do not, lower-income households with few affordable alternatives can be displaced. The HIA analysis identified that a loss of affordable housing could negatively impact health particularly mental health, substance abuse, and child health and development. Approximately 48% of Chelsea's subsidized units are not restricted in perpetuity, meaning that about half of the existing subsidized units may be at risk. Between now and 2032, 807 units could expire, while another 217 units could expire between 2040 and 2095. Considering that Chelsea's inventory of affordable housing, though large, is insufficient to meet the needs of existing residents—2,125 units for 7,235 eligible households—it is vital that this stock be preserved. Towards that end, the City is working with property owners to extend affordability, and with developers to construct new affordable housing units.

The number of deed-restricted affordable units (2,125) does not indicate actual need. For example, according to Comprehensive Housing Affordability Strategy data (CHAS), approximately 64% of Chelsea families could potentially qualify for affordable housing, meaning they earn below 80% area median income. Given this discrepancy, there is likely considerable need for more affordable units in the city, particularly those near amenities and transportation connections that increase access to job opportunities. However, although many households could potentially qualify for affordable housing, existing market rate units may be leasing at rents affordable to these households. Therefore, looking at housing cost burden is also very important.

Managing Neighborhood Change

The Silver Line extension will dramatically improve transit mobility, bringing visitors to patronize city businesses and residents to work at Boston jobs. But neighborhood change is not always positive. Reinvestment in Chelsea may accelerate gentrification, a particular type of neighborhood change defined by an increase in housing costs and an influx of new, higher-income residents. Gentrification usually coincides with one of two changes in housing occupancy:

- Replacement: Replacement occurs when the number and composition of out-migrants does not change, but the people who move in have different demographics from those who moved out. With this pattern, current residents do not face pressure to leave, but those who choose to relocate

are replaced by residents with a different demographic profile.

- Displacement: Displacement occurs when the rate of outmigration is higher than it otherwise would be because lower-income residents move due to increases in housing costs and a lack of affordable options. In-migrants can afford a higher cost of living and tend to have a different demographic profile from those who move out.[12]

The differences between these kinds of housing occupancy changes can be subtle, but meaningful. Importantly, either of them—not just displacement—result in profound changes in the demographic composition and social cohesion of a community. It is likely that one or both of these changes in housing occupancy and the associated changes in demographic composition, as well as other changes described below, will be spurred in Chelsea as an indirect result of the Silver Line. The challenge, presented by the opportunities that come with reinvestment, is to manage the associated market inflation, or increases in real estate values, that can otherwise result in relocation of low- and moderate-income residents to less accessible areas where housing is more affordable.

While change has been a constant in Chelsea's long history—with each successive wave of immigration—the city has been a stable community with relatively low mobility rates in the years leading up to the Silver Line extension.[13] Mobility, as defined by the U.S. Census Bureau, refers to the movement of people within the United States from one location to another at various geographic levels. MAPC analyzed American Community Survey (ACS) data on mobility gathered between 2009 and 2013. ACS respondents were asked whether the house they currently occupy is the same one they occupied a year ago.

Findings:

- Residents in Chelsea tend to stay in Chelsea. Chelsea has lower rates of mobility compared to many of the surrounding municipalities. During this five-year period, a majority of Chelsea (80-89%) residents in four out of five study area Census tracts had not moved within the past year.
- There are no notable differences in mobility by race/ethnicity. As with overall mobility, Chelsea generally has lower rates than in many surrounding communities, including Boston and Cambridge. In most of the study area, 80-89% of both whites and Latinos had not moved within the year. Fewer African-Americans remained in the same home, though the margin of error on this estimate is high because this population is small in Chelsea. In some tracts 90-100% of African Americans hadn't moved; in others, the rate was 0-49%.
- Renters are more likely to move but are generally more stable than in surrounding municipalities. Chelsea residents of either tenure had low mobility rates during this time period, but 80-89% of renters hadn't moved in the last year compared to 90-100% of homeowners. In surrounding communities, homeowners experienced similar stability in, but renters were much more likely to have moved within the past year.
- The incomes of individuals who move into the study area vary only slightly from the incomes of those who have been in their homes for at least one year.
- We also compared the median income of those who did not move from their home in the study area within the past year to that of the overall population. Again, Chelsea has been stable, with the median income of those moving into the study area varying only slightly from that of those who have been in their homes for at least the past year. In most Census tracts, there was almost no

[12] MAPC, "The Dimensions of Displacement: Baseline Data for Managing Neighborhood Change in Somerville's Green Line Corridor." February 2014.

[13] Mobility is notoriously hard to measure, and people around the country struggle to do so accurately due to highly limited data availability. The American Community Survey (ACS) 2009-2013 5-year estimates used in this analysis is the most comprehensive and vetted data set that is publicly available. Nevertheless, it has a high margin of error because only a subset of the population that may not be representative was surveyed, so findings should be considered with caution.

difference, and in one tract those moving in were lower income than current residents (the difference was between $1,000 and $3,999 annually). Only in one tract in the city, which is outside the study area, were those who moved in higher-income than current residents (the difference was between $1,000 and $4,000 annually).

It is important to note that these mobility rates reflect only a snapshot in time, not longitudinal trends. We do not know, due to limited data availability, whether Chelsea's relative stability has increased or decreased over time. We do know, however, that long-term trends indicate population growth, an increase in median income, and shifts in the community's racial and ethnic composition. These changes have been confirmed by quantitative data analysis elsewhere in this plan, and observed by members of the community. They are likely to continue, perhaps at a faster rate, with the extension of the Silver Line.

Residential Market Conditions and Potential

Recent Sales and Listings

Chelsea has seen an uptick in sales over the last few years. Looking at recent sales identified through Banker and Tradesman, Zillow, and Trulia, trends emerged. Several smaller units are selling in the $250,000 range, which is at the current median. Condo sales are also consistent; however, prices appear to be moving upward. Additionally, multifamily rental buildings are selling briskly, indicating real estate speculation is active. Two multifamily structures containing 6 to 9 units each, both close to future Silver Line stations, each sold in excess of $1 million dollars and were noted to have potential for condominium conversions. A third property—a former convent—was sold for $400,000 and advertised as holding potential for new condominium or mixed-use redevelopment. These larger structures sold for up to $133 per square foot.

Units currently on the market, particularly condos, are listed for significantly higher per square foot prices as those recently sold and holding potential for conversion. For example, per square foot prices range from a low of $194 to a high of $506. Potential for return on investment on recently sold multifamily structures appears strong. Further research shows that although few smaller multifamily structures (2 to 4 units) are currently for sale, there are numerous properties of this size sprinkled throughout the study area that are in some stage of the foreclosure process. Foreclosures have impacted Chelsea significantly over the last decade. During the recession, Chelsea was among the most distressed communities in the Commonwealth according to the Massachusetts Housing Partnership's Foreclosure Monitor. Although at the time the rate of foreclosure was 13 of every 1,000 units, today's 6 out of 1,000 rate remains high. These units, should they go to auction, may be attractive to developers.

Recent Development and Pipeline Projects

Chelsea has experienced significant residential development over the last decade. According to the Census Building Permit survey, the City of Chelsea has permitted nearly 1,500 new residential units since 2000, nearly all of which were permitted after 2007. Over two-thirds were permitted since 2010 (995 units). Practically all units permitted were in multifamily structures (1,358, or 95% of total permitted units). There were only 3 single family homes, 50 units in two-family structures, and 31 units permitted in 3 to 4 family homes.

The vast majority of multifamily development has been market rate rental properties including recent large projects such as One North. Notably, a local CDC, The Neighborhood Developers, has developed several affordable housing developments in Chelsea, including in the Box District: Janus Highland, Box

Works Homes, and Highland Terrace. Given that units in all of these developments have leased successfully, with lottery applicants far exceeding units available, demand for significantly more affordable multifamily will continue. For example, according to City officials, more than 2,000 applicants applied for fewer than 50 deed-restricted units on Gerrish Avenue.

More development is on the way. Several projects under construction, planned or proposed, could bring nearly 1,500 more units to the study area over the next 2 to 3 years. This includes 222 units under construction as part of One North's second phase, 34 affordable units at the former French Club location, 692 market rate units along Everett Avenue at Carter Street, and a 10 unit adaptive reuse project at 49 Webster Avenue at the corner of Spencer Avenue.

Housing Market Potential

Estimating future unit demand is not a precise science. Analysis of current conditions, population and household projections for the future, residential preference indicators, and other qualitative factors leads to an estimate of not only the number, but the type of housing needed in a community.

To identify the number of potential new units that could be supported in Chelsea, MAPC first defined a broader focus area of housing markets that might reasonably compete with Chelsea in housing residents. This area identified included all communities that surround Chelsea—Boston, Everett, Revere, and Winthrop—with a focus on those that Chelsea will now be better connected to via the Silver Line and Blue Line connection (Chelsea, Boston, and Revere). Next, we considered projected housing unit demand through 2020 for the focus area by both housing type and tenure.

Total projected demand for the residential trade area was identified to be 33,753 by 2020. Of that number, approximately 1,391 units were projected for Chelsea. The largest number of units is projected to be in Boston (over 25,000). To better understand recent housing development trends, we then assessed housing supply added in the focus area since 2010 per Census permit data. Chelsea permitted nearly 1,000 units between 2011 and 2014, or 72% of its projected 10-year demand in 4 years. All of those permits were for multifamily housing. Within the residential trade area, Chelsea captured nearly 10% of total unit development, more than double the percentage originally projected for the city. This means that Chelsea has attracted housing development originally projected for other communities. Most likely, given Chelsea's proximity to Boston, Chelsea has captured development that might have otherwise occurred in Boston, or perhaps in other inner core communities such as Somerville or Cambridge.

We next subtracted the number of permits issued from each community to better indicate how much additional supply could be supported within the larger trade area. There is a significant unmet regional demand for housing. Due to Chelsea's recent share (or capture) of housing development within the residential trade area, and continued developer interest in the community, we anticipate Chelsea will continue to capture a higher share of development than initially projected. Thus, should Chelsea's trade area capture continue, an additional 2,317 units could be captured by 2020 (a total of 3,312 units between 2011 and 2020). Further, should interest grow due to the new Silver Line transit connection—even by just a few percentage points to 11% of area capture—over 2,600 additional units could be expected. Based on an average unit size of 1,000 square feet for a 2-bedroom unit, these unit estimates would translate into an additional 2.3 million to 2.6 million square feet of residential development.

While some of this demand could be captured through smaller infill development or adaptive reuse of commercial buildings along Broadway, for example, developments with substantial numbers of new housing units would likely occur through redevelopment of larger underutilized parcels. For example, there may be development opportunities west of Route 1where new residential projects have been permitted or proposed in and adjacent to the City's Everett Avenue Urban Renewal Area. Additionally, there may be the possibility of residential development along or adjacent to the waterfront closest to future Silver Line stations. In particular, areas including and around the Mystic Mall may be attractive to developers for infill opportunities, particularly given the amount of surface parking, and the future Silver Line and Commuter Rail station, which will be immediately adjacent to the parcel. Additionally, many of the adjacent office uses include large surface parking areas. Should market opportunity increase, structured or underground parking may be feasible. Large parking lots near the waterfront could also prove attractive. Re-zoning may be necessary, depending on the project size and location, as residential development is not permitted by right in all areas described above.

In summary, the potential for a higher density, mixed-use, transit-oriented neighborhood is strong. The overwhelming demand for newly constructed units in Chelsea will be for multifamily units in apartments and/or condominium structures, similar to larger recent developments. Townhouse development could also be attractive, particularly through residential conversion of existing 2 to 4 unit structures, and through infill development.

Given the diversity of households interested in urban living at all income levels, particularly in areas with strong transit connections to job centers, it is crucial that new residential development include a mix of unit types, including one-, two-, and three-bedroom options. One- and two-bedroom units in larger apartment and condominium developments will be most attractive to smaller households. This includes downsizing seniors and younger singles and couples, many of whom may wish to use Silver Line transit, but also existing buses and commuter rail, for access to job opportunities and cultural offerings in Boston and Cambridge. Given the larger household sizes in Chelsea, it is crucial that three-bedroom units—both market-rate and affordable—be included in the unit mix, either in larger multifamily developments or in townhouse-style properties. These larger units could be appealing to families with children in Chelsea, including families looking outside of Chelsea for more affordable options in Lynn and Revere. To a lesser extent, these units may be appealing to downsizing households interested in smaller urban living spaces that still offer bedrooms for family members who either live with them (e.g. multigenerational households), or for family visitors (e.g. grandchildren).

Retail Market Conditions and Potential

Chelsea's Retail Inventory

Approximately 175 retail and professional office establishments within the study area were identified by MAPC. This includes a range of retail, professional office, and institutional uses (e.g. police station, non-profits, etc.). The retail composition of the area is relatively balanced given the population it currently serves: primarily persons of Latino ethnicity and lower income residents. For this population, there is a sufficient mix of shoppers' goods (25% of stores), food service (21%), and personal services (21%). However, there are a lower percentage of convenience goods (13%) than would be expected, and a higher percentage of professional services (21%).

However, just looking at the numbers and percentages does not tell the full story, particularly given the changing demographics of higher income residents moving into newer developments. For example, although the percentage of food service establishments is around the normal range of 10-20% for a

typical neighborhood/community center mix, there is little variety in the types of food served. The vast majority offer Latino cuisines, or are limited service chain establishments like McDonald's and Dunkin Donuts.

Further, there is a high percentage of professional service establishments, nearly double what is typically found in a community center mix (10%). This is almost entirely due to the large number of "multiservice" establishments that provide everything from immigration assistance to tax services to check cashing; there are also many dental clinics. Given the large number of these establishments, and minimal traffic observed, it is difficult to determine if these establishments are successful. And once again, although the number of shoppers' goods was slightly lower than would be expected (30-40%), many sold discount merchandise catering to incomes of the neighborhoods. And finally, although there was not an overabundance of personal service establishments by the total count (10-20% is the typical community mix), many hair and nail salons were observed. While a large number of hair and nail salons are increasingly typical in many retail locations, it is often a sign of low retail rental rates.

The retail environment appears to reflect and serve the existing community adequately. There is a solid mix of businesses and services that cater to the predominantly Latino population. However, the retail environment does not yet reflect or cater to new residential populations—many of which are higher income households—that are moving into new developments closest to the Bellingham Square area of Broadway. And while some noted during this study that these new residents would be more likely to explore the existing retail environment, particularly ethnic restaurants, and may even be attracted to the area for this reason, it is important to state that all of their retail needs are unlikely to be met in existing retail establishments. Thus, as more market rate residential development continues, the existing retail environment is likely to adapt to some extent to appeal to higher earning households with more disposable income. Should existing and new retail and service establishments increasingly catering to these residents succeed, higher income earners may be attracted to the area and further change the retail environment.

Opportunity Gap Analysis

To best identify retail opportunities within the Chelsea TOD Trade Area, a retail gap analysis was performed. A retail opportunity or gap analysis looks at the overall demand for retail goods and services within a designated trade area based on the spending potential of existing households (demand), and the actual sales for those goods and services within the market area (supply). The difference between the demand and supply is the retail "gap." When the demand exceeds the supply, there is "leakage," meaning residents must travel outside the area to purchase those goods. In such cases, there is likely an opportunity to capture some of this spending within the market area to support new retail investment. When there is greater supply than demand, there is a "surplus," meaning consumers from outside the market area are coming in to purchase these goods and services. In such cases, there is limited or no opportunity for additional retail development. Thus, the retail gap analysis provides a snapshot of potential opportunities for retailers to locate within an area.

There is limited opportunity for new retail that can be supported solely by residents currently residing within the trade area, households within ½-mile of the future Silver Line stations. In general, there is some opportunity for an additional 5 clothing and accessories stores, 1 sporting goods and hobby shops, 1 to 2 small electronics stores (not cell phones), and to some extent restaurants.[14] Restaurants were included as holding some opportunity because there is little diversity in current offerings. There would not be a net

[14] Number of stores is based on a sales per square analysis and capture rate.

gain, rather a replacement factor as existing establishments close. Restaurateurs offering non-Central American or Caribbean options may be attractive to existing and new residents alike.

Based on the gap analysis, existing households could not support additional health or personal care establishments (e.g. pharmacies or beauty supply stores), multi-service financial centers, grocery stores, furniture or home furnishing stores, or miscellaneous retailers. Essentially, given the lower incomes of area households along with the large number and relative diversity of stores, the area adequately serves the local population.

There is likely an opportunity for some additional regional retail based on the gap figures. However, many of the opportunities are auto-related, including motor vehicle dealers and gas stations, which are not ideal tenants in transit-oriented areas. Additionally, there is opportunity for big box store types, in particular for building materials and for general merchandise. Although the big or medium-box store types would be consistent with the Mystic Mall, given the public transit investment and opportunity to locate residential within walking distance, these types of uses may be better suited to other areas unless they could be incorporated into a more urban style mixed-use development. However, big box retail would likely only be feasible through lower parking requirements, shared parking agreements, or combinations of strategies. Interestingly, there is no opportunity for additional regional food services (e.g. restaurants). This is likely due to the numerous eating establishments north along Route 1, as well as those in nearby Boston, Cambridge, and Somerville, all of which are located within a 15-minute drive time.

Retail Market Potential

There is the potential for thousands of more units of housing, the majority of which will be market-rate units. These households will bring spending power to Chelsea. If the area captures a portion of their spending, along with that of recently arrived households, more retail could be supported. Thus far, the retail landscape has not done much to attract spending of new residents locally.

Based on estimated square footage that can be supported by a household in a walkable, local setting (15.2 square feet), we estimate that potential new (and future) residents could support at least 13 new establishments in the study area. This would include approximately 7 restaurants and drinking places, 1 to 2 clothing and accessories stores (including shoes), one home furnishings store, a small to mid-size specialty grocery store, and 2 gift/hobby store. The 995 new households in permitted developments can support 15,124 square feet of retail while the 2,317 estimated new additional households can support another 35,218 square feet.

Chelsea TOD Action Plan Implementation Matrix

Overview

The Chelsea Silver Line Gateway Projects will be an important resource for Chelsea residents and the Greater Boston Region by enhancing connectivity, boosting economic development, and promoting a healthier and walkable city center. As highlighted in the residential analysis, health impact assessment, and neighborhood change analysis there are significant opportunities to address current conditions within the proposed corridor, while preserving Chelsea's diversity and character. The following recommended action outlined within this section are meant to meet the goals:

- GOAL 1: Chelsea residents and visitors will have safe access to different modes of transportation in the Corridor
- GOAL 2: Chelsea residents from different generations and walks of life will have safe places and fun opportunities within the Corridor to convene, interact, and get to know their neighbors
- GOAL 3: City policies, guidelines, and programs will facilitate a vibrant mix of housing, business, and recreational opportunities within the Corridor
- GOAL 4: Chelsea residents have multiple options for staying informed about and participating in planning and community development efforts in the Corridor
- GOAL 5: Workers and small businesses will be able to access opportunities and grow within the local and regional economy

In cities across the nation, transportation investments have often led to neighborhood change that disadvantages vulnerable populations. Chelsea residents are particularly vulnerable to displacement pressures because approximately 73% of the population are renters (ACS 2013). Median rent in Chelsea is currently lower than median rents in Suffolk County and Boston, even though median rent in Chelsea has increased 63% since 2010. As demonstrated in the Residential Markey Analysis, many recent property sales have advertised properties that are suitable for condominium conversion. Many other properties within the City are vulnerable to condominium conversion since about 50% of the housing stock consists on 2-4 unit buildings and approximately 70% of the existing housing stock was built before 1940. Multifamily rental prices in recent condominium conversions and new construction developments are higher ($1,350-$2,200) than gross median rents ($1,132). In addition, a loss of affordable housing could negatively impact mental health and substance abuse, and child health and development.

Community engagement with current residents revealed that they would welcome certain changes, such as more variety in businesses, improved quality of goods, and higher design standards for storefronts. According to the HIA analysis, new economic development could increase job opportunities for residents, and since income is a social determinant of health this could lead to improve health outcomes. The new opportunities must be balanced with potential changes to the existing commercial landscape. Small local businesses will continue to thrive when they remain connected to their existing customer base and are able to afford commercial rents. If small local businesses are not able to adapt —either due to lack of resources or support—then these local businesses may close, which could have a significant impact on the existing character of the City. In addition, lower-income residents may find themselves with fewer businesses catering to their needs, making it more difficult to access important social and community resources. Results from the HIA analysis demonstrate that potential residential and commercial displacement may negatively impact mental health, social cohesion, child health and development.

In order to harness the most benefits from new development and mitigate unintended consequences on vulnerable populations, it is important for the City of Chelsea to establish preemptive policies and initiatives to guide equitable development. The following actions focus on using the Chelsea Silver Line Gateway Project as an opportunity to improve social cohesion, prosperity, health, safety, and accessibility making the corridor a thriving center of activity for Chelsea residents and visitors.

Action Plan Matrix and Timeline for Implementation

- Short-term actions are recommended for start-up and implementation within the first two years of plan adoption
- Mid-term actions are recommended for implementation within the 2-4 years of plan adoption
- Long-term actions are recommended for implementation within the 5-7 years of plan adoption

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
GOAL 1: Chelsea residents and visitors will have safe access to different modes of transportation in the Corridor							

1A	Promote walkability through sidewalk improvements	• Promote walkability and equitable access to sidewalk networks in two ways.
		  ○ Conduct a short-term assessment via survey to understand why residents may or may not use sidewalks and if so, how they use them.
		  ○ Establish a plan and protocol for a regular inventory of physical conditions of sidewalks in the corridor.
		• Identify priority sidewalk improvements to facilitate safe routes to school and compliance with accessibility requirements; work this process into the Capital Improvement Plan development process.
			LEAD: Chelsea Department of Planning and Development
			
			PARTNERS: Chelsea Department of Public Works; MGH Healthy Chelsea Coalition; Green Roots; Chelsea Mass in Motion; WalkBoston
					x	x	Community Compact

1B	Increase public safety	• Improve perceptions of safety by working with DPW to maintain Silver Line Corridor lighting and green space, the Economic Development Board to stimulate economic development and activate storefronts, and the Police Department to install safety cameras.	LEADS: Chelsea Department of Planning & Development; Chelsea Department of Public Works PARTNERS: Chelsea Economic Development Board; MBTA Police; Chamber of Commerce	x			

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
1C	Advocate for continued improvements to MBTA service, infrastructure design, and fare policy	• Facilitate active resident participation with the MBTA Focus40 Capital Planning Process, which is a forum for advocating for improvements to service delivery and fare policy. • Advocate for improvements to popular bus lines that will address overcrowding and service reliability issues and concerns, e.g., increase frequency, bus shelters, lighting, wayfinding signage, etc.) Build on recent advocacy that secured youth passes and advocate for tiered fare system for shorter trips.	LEAD: Chelsea Collaborative; T Rider's Union	x			
1D	Adopt and Implement a Complete Streets Policy	• Adopt a policy that promotes "complete" streets: roadways that are safe, comfortable, and accessible for everyone, regardless of age, ability, income, or how they choose to travel. Build on connectivity offered by the shared-use path and construct bike lanes on major roads in the Silver Line corridor neighborhoods.	LEAD: Chelsea Department of Planning and Development PARTNER: Chelsea Department of Public Works	x	x	x	MAPC's Unified Planning Work Program
1E	Implement strategies to calm vehicular traffic and manage parking	• Explore adjustments to parking requirements for retail and commercial uses in the corridor by utilizing the MAPC Right-Size Parking Calculator, which can generate a more accurate estimate of parking/unit ratios. Install signage to reflect parking spots and loading zones. • Develop and implement a communications and education strategy to help build public knowledge of Complete Streets principles and build support for parking changes.	LEAD: Chelsea Department of Planning and Development PARTNERS: Chelsea Traffic and Parking Commission; Chelsea Chamber of Commerce; MAPC	x			MAPC's Unified Planning Work Program
1F	Promote bicycling	• Improve bike infrastructure to promote cycling as a safe choice and as a commuting option over driving. Secure funds for provision of bike parking, bike racks, and bike lane markings.	LEAD: Chelsea Department of Planning and Development; Chelsea Department of Public Works PARTNERS: MAPC Bike Parking Program; MassDOT	x	x		MassDOT/MAPC Bike Parking Program

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
1G	Expand requirements for and/or incentivize the retention of green space on public and private developments	• Mitigate exposure to health problems associated with air and noise pollution by expanding landscape buffering requirements for parcels adjacent to Route 1, the existing Commuter Rail line, and the Silver Line BRT route.	LEAD: Chelsea Department of Planning and Development PARTNERS: Chelsea Health and Human Services, Massachusetts Department of Conservation and Recreation	x			
GOAL 2: Chelsea residents from different generations and walks of life will have safe places and fun opportunities within the Corridor to convene, interact, and get to know their neighbors							
2A	Integrate art/creative placemaking into Bellingham Square	• Address public safety and usage concerns in Bellingham Square through creative short-term and long-term investments that help build ownership and community. This includes events, festivals, and short- and long-term installations of public art that will transform spaces in the Square and in the Broadway corridor. • Allocate increased resources to Chelsea Cultural Council to increase pool of funding available to fund creative activities in priority locations in Chelsea and by Chelsea artists.	LEAD: Chelsea Department of Planning and Development, Chelsea Cultural Council PARTNERS: The Neighborhood Developers, Chelsea Collaborative, Chelsea Police Department, Chelsea Artists Collaborative	x	x	x	MAPC's Technical Assistance program; National Endowment for the Arts OurTown program; ArtPlace America National Creative Placemaking Fund

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
2B	Promote healthy eating and social interaction by expanding community gardening opportunities in the Corridor	• Update the Open Space and Recreation Plan to include identification of publicly and privately accessible spaces -- underutilized parcels and parcels with redevelopment potential -- located more than 500 feet from heavily trafficked roadways that have an average daily traffic count of 30,000 vehicles or more. • Work with partners to identify, create, and manage community gardening plots on underutilized parcels and vacant parcels that can be suitable for community gardening, with a focus on neighborhoods between Broadway and the Silver Line Corridor that are currently less well served by fresh food access and located more than 500 feet from heavily trafficked roadways with an average daily traffic count of 30,000 vehicles or more.	LEAD: Chelsea Chamber of Commerce PARTNERS: MGH Healthy Chelsea Coalition; Green Roots; Chelsea Public Schools; Chelsea Department of Planning & Development; FoodCorps; Community Action Programs Inter-City		x	x	

2C	Promote usage and stewardship of the Silver Line Shared-Use Path and open spaces in the Corridor	• Establish a Working Group to develop job opportunities for youth that will activate and maintain the Path. Explore creation of an "Adopt the Path" program and expand the "Park Ranger Program" to include the Path.
		• Update the Open Space and Recreation Plan to research open space development and recreational opportunities in the Corridor. The update can explore:
		  ○ An assessment of existing parks in the Corridor to inform improvements in the next ten years.
		  ○ Suitable locations for programming and public art that can promote use of the Path and facilitate interactions between Chelsea residents and visitors.
		  ○ Silver Line Shared-Use Path connectivity to paths in adjacent communities, i.e., Northern Strand Trail.
			LEAD: Chelsea DPW; Green Roots
			
			PARTNERS: Chelsea Cultural Council; Chelsea Public Schools; The Neighborhood Developers; Chelsea Collaborative; MAPC
				x	x		State and Private Funding from Community Benefits Agreements

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
2D	Increase public safety through programming	• Continue to apply for Shannon Grant funding to reduce youth and gang violence through community-based initiatives • Conduct a walking assessment of areas in the Corridor to pinpoint specific areas that require interventions to improve safety (cameras, lighting, programming, etc.)	LEAD: Chelsea Police Department; Roca PARTNERS: MGH Healthy Chelsea Coalition; The Neighborhood Developers	x	x		Shannon Grant
GOAL 3: City policies, guidelines, and programs will facilitate a vibrant mix of housing, business, and recreational opportunities within the Corridor							
3A	Adopt Inclusionary Housing Policy and Program	• Adopt an inclusionary housing policy and program to ensure that all new market-rate residential development includes a minimum percentage of affordable units.	LEAD: Chelsea Department of Planning & Development PARTNERS: MAPC; Chelsea Planning Board; Fair Housing Center of Greater Boston	x			DHCD Planning Ahead Towards Housing (PATH) Program
3B	Adopt a Condominium Conversion Ordinance	• Adopt a local ordinance or bylaw that regulates condominium conversion more strongly than the statewide law. Massachusetts state law allows cities and towns to adopt local regulations for condominium conversion. A condominium conversion ordinance can specify the percentage of units in any building or structure may be converted within a calendar year and extend the required timeframe for notice of conversion for tenants.	LEAD: Chelsea Department of Planning & Development PARTNERS: MAPC; Chelsea Planning Board	x			DHCD Planning Ahead Towards Housing (PATH) Program
3C	Adopt Commercial Linkage Fee	• Adopt a commercial linkage fee program, which would be applicable to large-scale development projects. This program can establish standard project mitigation contributions applying to projects of a certain size and generate payments into an Affordable Housing Trust Fund or other entity. These funds can be allocated towards the construction of affordable rental and homeownership units.	LEAD: Chelsea Department of Planning & Development PARTNERS: MAPC; Chelsea Planning Board; Chelsea	x	x		DHCD Planning Ahead Towards Housing (PATH) Program

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
			Economic Development Board				
3D	Adopt Just Cause Eviction Controls	• Adopt a policy that requires landlords to identify a proper cause in order to evict a tenant, such as failure to pay rent or destruction of property. This policy can promote stability in the housing market and deter landlords who may be motivated to evict current tenants in order to raise rents. Determine the most appropriate entity to enforce this policy.	LEAD: Chelsea Department of Planning & Development PARTNERS: MAPC; Chelsea Inspectional Services Department; Fair Housing Center of Greater Boston Chelsea Planning Board; Chelsea Collaborative; City Life/Vida Urbana; Community Action Programs Inter-City	x	x		DHCD Planning Ahead Towards Housing (PATH) Program
3E	Use Community Benefits Agreements	• Adopt a standard articulating City of Chelsea values for negotiating Community Benefits Agreements (CBAs) with developers to generate resources and amenities that advance equity in the Corridor. CBAs may include public realm improvements, funding and space for programming and meeting spaces for the community.	LEAD: Chelsea Department of Planning and Development PARTNERS: MAPC; Chelsea Planning Board; Chelsea Cultural Council Chelsea Collaborative; Community Acton Programs Inter-City; Fair Housing Center of Greater Boston; Roca	x	x		DHCD Planning Ahead Towards Housing (PATH) Program

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
3F	Strengthen the Problem Properties Targeted Code Enforcement Program	• Continue to protect residents' right to a healthy and safe home by increasing funding to the Problem Properties Task Force. • Maintain two housing inspector positions to enforce building and sanitary codes in problem properties. Seek stable funding for these positions from the city budget so that CDBG funds can be dedicated to funding ongoing housing programs. • Continue outreach with community-based organizations that work with tenants, who can disseminate information to inform public understanding of building and sanitary codes in the City.	LEAD: Chelsea Inspectional Services Department and City Manager PARTNERS: Chelsea Department of Planning and Development; Chelsea Collaborative; Community Acton Programs Inter-City; Chelsea Police Department; Chelsea Fire Department	x	x	x	City CDBG funds
3G	Establish Green Building Criteria and Incentives	• Adopt green building criteria that is applicable to TOD over a certain size and create incentives for green building for smaller properties with a particular focus on underserved neighborhoods in the southern portion of the Silver Line Corridor. Green building criteria can create a residential environment that reduces exposure to airborne contaminants, pests, moisture, and harmful chemicals while prioritizing natural lighting, improved ventilation systems, and more recently, designing site locations to include bicycle and pedestrian accommodations.	LEAD: Chelsea Department of Planning & Development PARTNERS: MAPC; Chelsea Planning Board; Chelsea Health and Human Services; GreenRoots	x	x		
3H	Adopt Design Guidelines/Standards	• Develop and adopt design guidelines applicable to different neighborhoods in the Corridor with a focus on the Broadway business corridor. Specify standards regarding facade treatments and signage that are consistent and compatible with the historic district designations for these areas by the Massachusetts Historical Commission. These standards will contribute to maintaining a certain design standard for TOD development that fits with Chelsea's community character.	LEAD: Chelsea Department of Planning & Development PARTNER: MAPC	x			MAPC DLTA Program

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Short-Term (1-2 years)	Medium-Term (2-4 years)	Long-Term (5-7 years)	Possible Funding Sources
3I	Continue to implement a diverse housing production program/strategy	• Continue to implement housing program/strategy that facilitates the production and preservation of housing affordable to low- and moderate-income households in order to maintain affordable housing stock. • Continue to identify owners of properties with units at risk of expiring affordability and work with these owners and their subsidy providers to negotiate an extension of affordability terms to preserve current stock of affordable housing.	LEAD: Chelsea Department of Planning & Development PARTNER: The Neighborhood Developers	x	x	x	
3J	Promote developer access to capital for workforce housing in Corridor	• Work with regional and state partners and developers to promote access to TOD funding programs that support mixed-income multifamily housing that includes affordable, moderate income, and market rate housing units. Promote programs such as the Executive Office of Housing and Economic Development (EOHED)'s Gateway Cities Housing Development Incentive Program, the Local Initiatives Support Corporation (LISC) Equitable Transit-Oriented Development Accelerator Fund, and the Massachusetts Housing Investment Corporation (MHIC)/Conservation Law Foundation (CLF) Healthy Neighborhoods Equity Fund.	LEAD: Chelsea Department of Planning & Development PARTNER: MAPC; The Neighborhood Developers	x	x	x	EOHED; LISC; MHIC
3K	Promote fair access to housing opportunity	• Implement a fair housing education program in partnership with tenant organizers. Ensure that residents understand their legal housing rights and legal mechanisms for reporting violations • Work with community partners to host community engagement events to build relationships between municipal staff and community residents to address their housing needs and concerns.	LEAD: Chelsea Department of Planning & Development PARTNERS: Chelsea Collaborative; MAPC; Fair Housing Center of Greater Boston	x	x	x	The Boston Foundation

GOAL 4: Chelsea residents have multiple options for staying informed about and participating in planning and community development efforts in the Corridor							
4A	Create civic leadership opportunities to steward plan implementation	• Establish a standing Chelsea Community Planning Advisory Group that will operate as a subcommittee of the Planning Board. This group will advise on implementation of the Corridor Action Plan and other plans and studies pertaining to areas in the Corridor. The Advisory Group can also serve as a pipeline of future leaders who may apply to leadership opportunities on boards, committees, and commissions.	LEAD: Chelsea Department of Planning & Development PARTNERS: Chelsea Collaborative	x	x	x	
4B	Promote civic education	• Offer trainings that prepare residents for civic leadership opportunities with the City. Partner with MAPC to deliver Institute on Leadership in Equity and Development (I-LEAD) trainings to residents and support continued local trainings through a train-the-trainer model.	LEAD: Chelsea Collaborative PARTNER: Chelsea Department of Planning & Development; Chelsea Planning Board; Chelsea Conservation Commission; Chelsea Economic Development Board; MAPC	x	x		Hyams Foundation
4C	Increase communications between government and members of the public	• Develop a multi-lingual communications and engagement strategy to inform and engage residents in civic processes, with an emphasis on corridor plan implementation. • Utilize websites, listserves, and social media and secure translation and interpretation as standard practice for all major public meetings.	LEAD: Chelsea City Manager's Office PARTNERS: Chelsea Department of Planning & Development; Chelsea Information Technology Department, MGH Healthy Chelsea Coalition; Chelsea Health and Human Services; the Chelsea Record	x	x		
GOAL 5: Workers and small businesses will be able to access opportunities and grow within the local and regional economy							
5A	Encourage local hiring practices	• Collect data on local hiring interests and needs from businesses and workers. Facilitate communication	LEAD: Chelsea Chamber of Commerce		x	x	

		and collaboration between new businesses, social service providers, and schools to understand workforce needs and transmit knowledge of these opportunities to residents.	PARTNERS: The Neighborhood Developers; Community Action Programs Inter-City; Bunker Hill Community College; Connect Partnership; Chelsea Public Schools; MAPC				
5B	Facilitate workforce training and placement partnerships	• Establish and implement programs in partnership with major employers and local educational institutions such as Bunker Hill Community College to facilitate the training and placement of a pipeline of skilled workers for jobs in TOD businesses. • Develop a youth workforce engagement strategy that can be linked with the maintenance and programming on the shared-use path.	LEAD: Chelsea Department of Planning & Development PARTNERS: The Neighborhood Developers; Bunker Hill Community College; Chelsea Department of Public Works; Chelsea Green Roots	x	x	x	
5C	Implement corridor business improvement and business development programs	• Work with community partners to implement a program for the Broadway business corridor that is modeled after Main Streets principles. Identify interest in and prioritize provision of services such as small business development and beautification programs such as neighborhood clean-up, recycling, and composting programs. • Partner with community advocates to make resources and programs accessible to immigrants. Implement business development programs targeted to immigrant business owners and entrepreneurs. • Market opportunities for enhanced eating and drinking establishments, clothing stores, and specialty retailers -- consistent with market analysis findings.	LEAD: Chelsea Department of Planning & Development PARTNERS: Chelsea Chamber of Commerce; Chelsea Collaborative; The Neighborhood Developers; Connect Partnership	x	x	x	

5D	Promote provision of healthy foods in the Corridor	• Provide incentives to attract farms and food trucks with healthy options to contribute to the mix of food options in the corridor. Identify opportunity to engage new vendors as part of programming in corridor parks and the shared-use path. • Work with Mass in Motion to identify other opportunities, including promotion of healthy eating amongst school-aged children.	LEAD: Chelsea Mass in Motion PARTNERS: Chelsea Health and Human Services; FoodCorps; Green Roots		x		

Monitoring Plan Implementation: Managing Neighborhood Change Indicators

The City of Chelsea can work with community partners to monitor the effectiveness of the policies, programs, and activities outlined in this Action Plan by tracking changes in Chelsea's demographics, housing stock, and local economy over time.

MAPC has identified a set of indicators that can be monitored going forward. Please see Appendix E for a detailed description and methodology of each indicator. An overview of the indicators for tracking neighborhood changes is provided below.

The indicators are organized into four broad categories:

- Demographics
- Housing
- Transportation
- Social cohesion

The 14 indicators chosen are: economic diversity, racial and ethnic diversity, families with children, mobility, rent, sale prices, condominium conversions, equitable homeownership, housing cost burden, designated affordable housing, vehicle ownership and mileage, commute mode share, transit commute times, and social cohesion.

Demographics

- The **economic diversity** indicator tracks the number and share of low-income households in the city and can help gauge the degree to which population replacement is occurring. This can assess if increasing housing costs and values due to the Silver Line extension are causing low-income households to have a harder time finding housing they can afford, and therefore causing them to relocate.
- The **racial and ethnic diversity** indicator tracks the proportion of residents of color in Chelsea over time to see if they are being replaced by white residents. This is relevant because market inflation negatively impacts lower-income households, but because they tend to be disproportionately non-white, it also disproportionately impacts non-white households.
- **Families with children** can be tracked to see how the inflating market in Chelsea is preserving and creating family housing.
- Lastly, the **mobility** indicator helps understand which racial and ethnic groups are increasing or decreasing as a result of migration. An analysis of which groups move least helps develop an understanding of how the representation of different populations is changing in the city.

Housing

- The **rent** indicator tracks rental rates in order to determine the need for affordable housing in the city and how best to leverage the market to meet that need.
- Similarly to rent, housing **sale prices** can be monitored to determine the how need for affordable housing is or is not changing.
- The **condominium conversions** indicator can be used to assess if there is a loss in existing in rental units and an increase in costlier housing since units are updated and improved before they are sold.
- Tracking **equitable homeownership** assesses the difference in homeownership rates between whites and people of color to see if inequity in ownership is rising or declining over time.
- The **housing cost burden** indicator can be used to monitor if low-income households are having difficulty finding housing they can afford.
- Lastly, **designated affordable housing** can indicate if the supply of deed-restricted affordable housing in the city, a vital resource for Chelsea's low-income households, is secure.

Transportation

- The **vehicle ownership and mileage** indicator tracks if the provision of transit service (the Silver Line extension) has successfully reduced the necessity to own a private vehicle.
- **Commute mode share** can be tracked to monitor how people commute to work and if there is a reduced dependence on private vehicles for traveling to work.
- Lastly, the **transit commute times** indicator can track if the Silver Line is operating speedily and if it is decreasing residents' commute to work.

Social Cohesion

There are several indicators that impact **social cohesion** and can be tracked over time. Higher degrees of self-reported feelings of neighborhood and community connectedness, self-efficacy, and perceived safety imply an increase in social cohesion; lower degrees of these feelings indicate less social cohesion. Decreases in violent crime and property crime indicate an increase in social cohesion, while increases in the former indicate a decrease in the latter.

Appendices

Appendix A: Maps

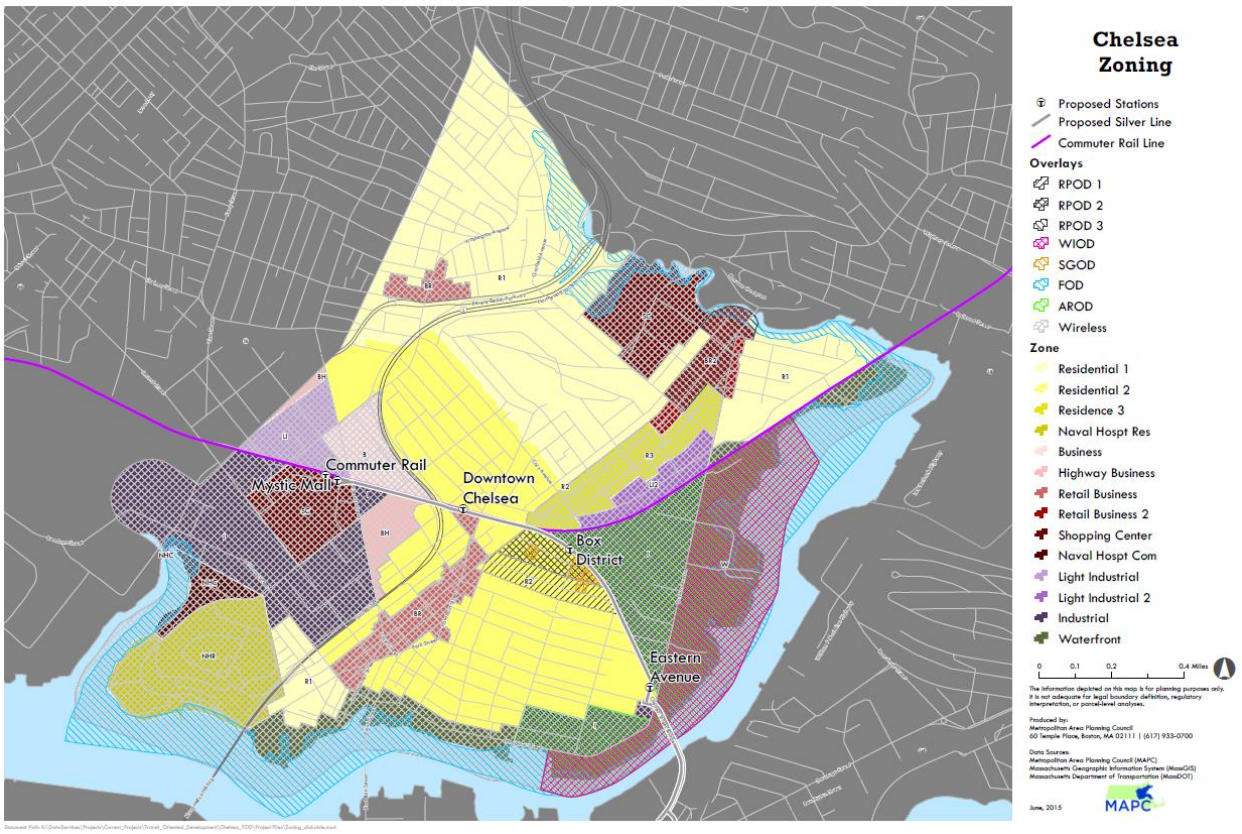
Appendix B: Public Meeting Notes

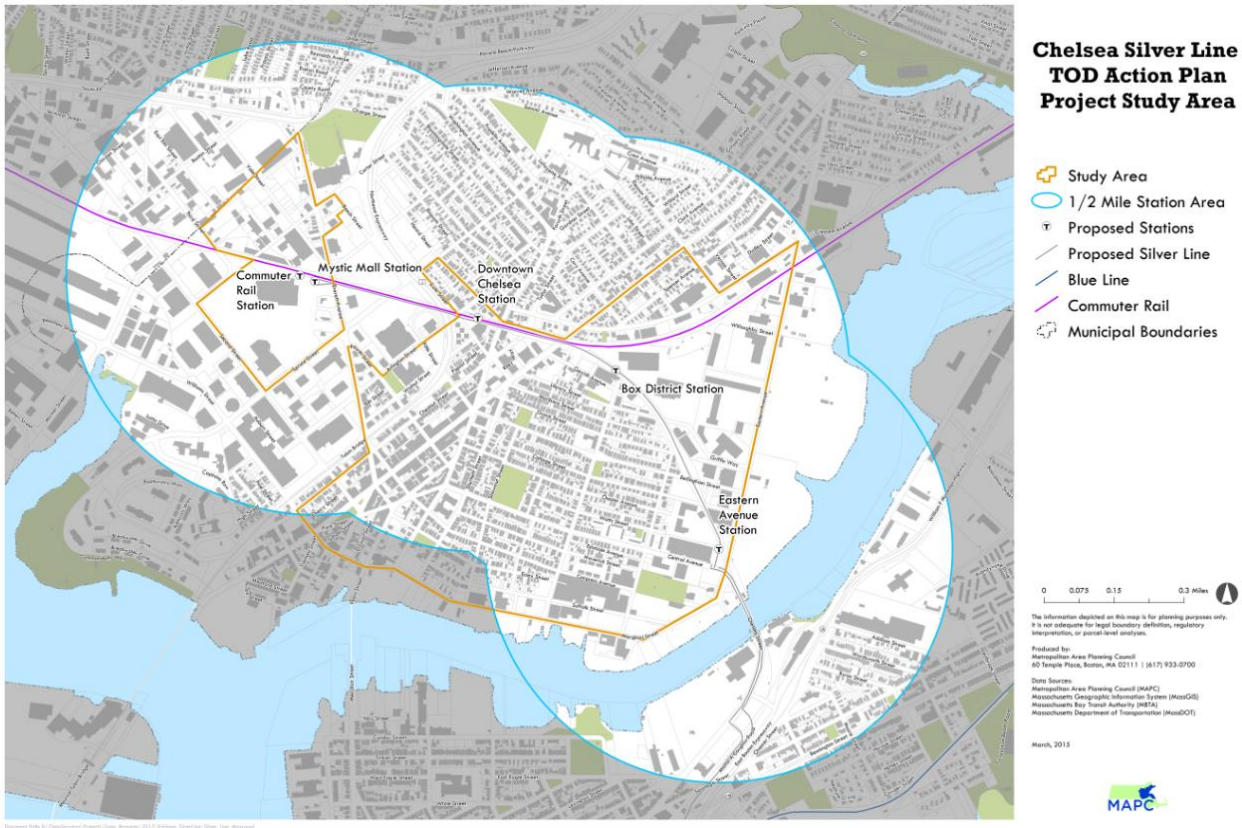
Appendix C: Chelsea TOD Corridor Health Impact Assessment

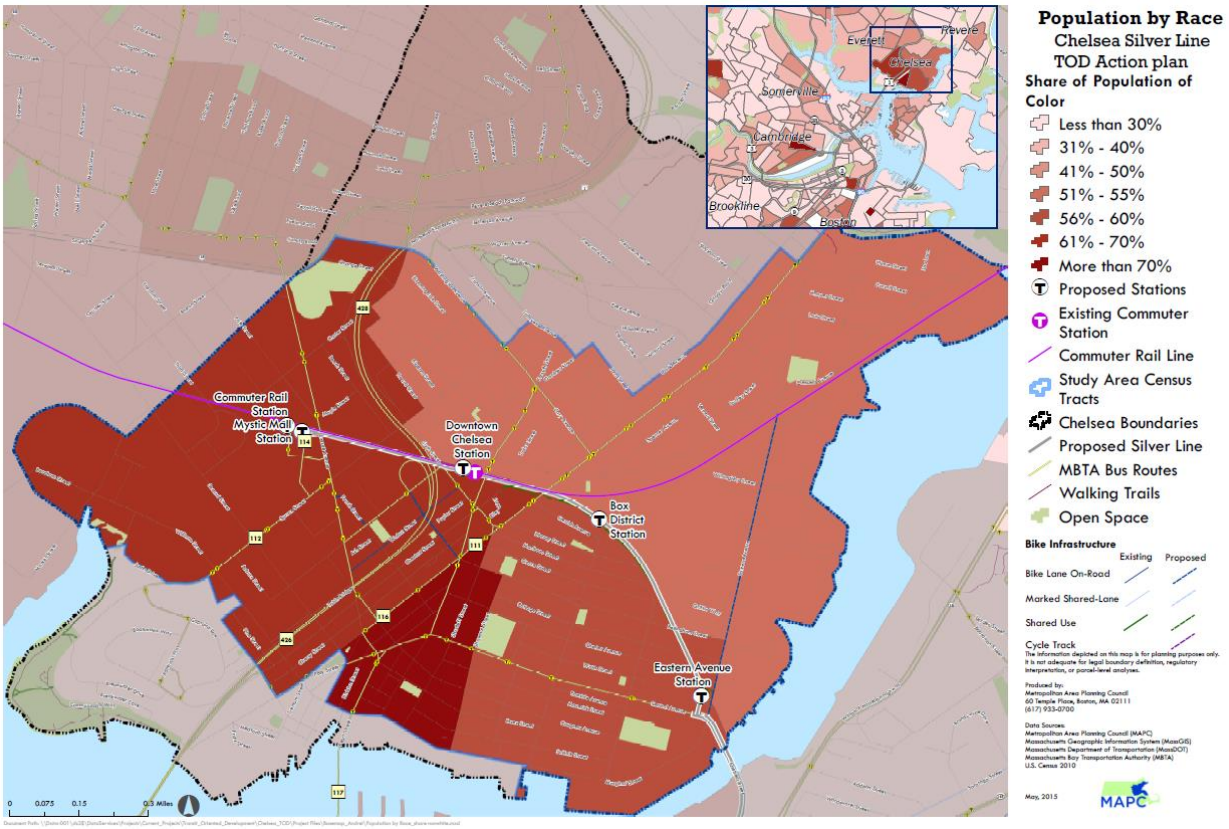
Appendix D: Retail and Residential Market Analysis

Appendix E: Managing Neighborhood Change Analysis and Indicators

Appendix A: Maps of Existing Conditions







Population by Race
Chelsea Silver Line
TOD Action plan

Share of Population of Color
- Less than 30%
- 31% - 40%
- 41% - 50%
- 51% - 55%
- 56% - 60%
- 61% - 70%
- More than 70%
- Proposed Stations
- Existing Commuter Station
- Commuter Rail Line
- Study Area Census Tracts
- Chelsea Boundaries
- Proposed Silver Line
- MBTA Bus Routes
- Walking Trails
- Open Space

Bike Infrastructure

	Existing	Proposed
Bike Lane On-Road		
Marked Shared-Lane		
Shared Use		
Cycle Track		

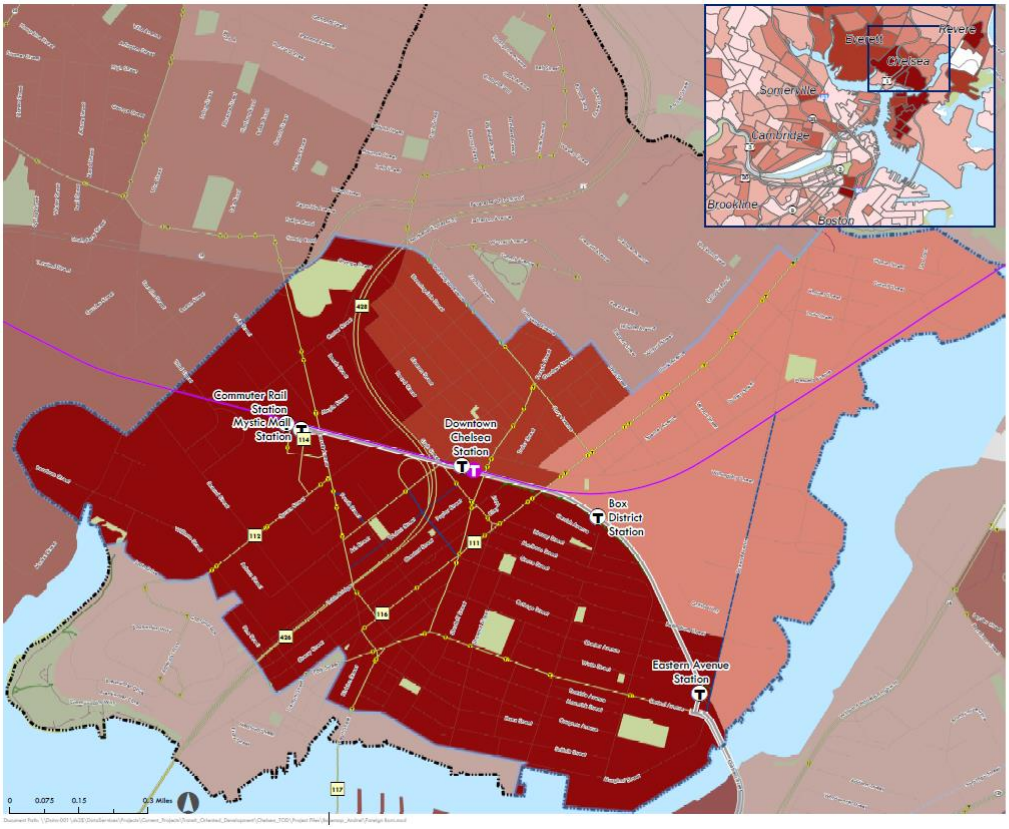
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Produced by:
Metropolitan Area Planning Council
60 Temple Place, Boston, MA 02111
(617) 933-0700

Data Sources:
Metropolitan Area Planning Council (MAPC)
Massachusetts Geographic Information System (MassGIS)
Massachusetts Department of Transportation (MassDOT)
Massachusetts Bay Transportation Authority (MBTA)
U.S. Census 2010

May, 2015

MAPC



Foreign Born Population
Chelsea Silver Line
TOD Action plan

- Less than 20%
- 21% - 30%
- 31% - 40%
- 41% - 45%
- 46% - 50%
- More than 50%
- Proposed Stations
- Existing Commuter Station
- Proposed Silver Line
- Commuter Rail Line
- MBTA Bus Routes
- Study Area Census Tracts
- Chelsea Boundaries
- Open Space
- Walking Trails

Bike Infrastructure

	Existing	Proposed
Bike Lane On-Road		
Marked Shared-Lane		
Shared Use		
Cycle Track		

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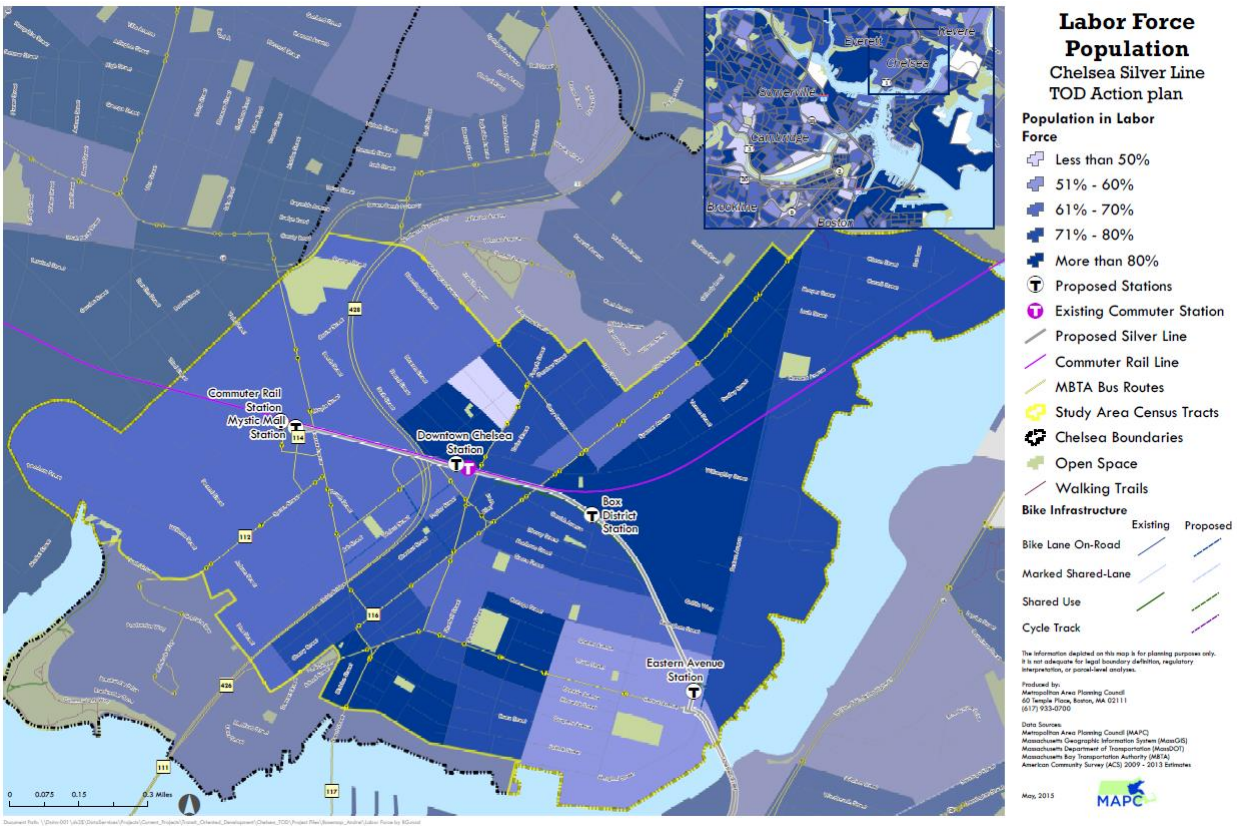
Massachusetts Bay Transportation Authority (MBTA)
American Community Survey (ACS) 2009 - 2013 Estimates

May, 2015

MAPC


Everett
Revere
Chelsea
Somerville
Cambridge
Brookline
Boston
Commuter Rail Station
Mystic Mall Station
Downtown Chelsea Station
Box District Station
Eastern Avenue Station
0 0.075 0.15 0.3 Miles
Labor Force Population
Chelsea Silver Line TOD Action plan
Population in Labor Force
Less than 50%
51% - 60%
61% - 70%
71% - 80%
More than 80%
Proposed Stations
Existing Commuter Station
Proposed Silver Line
Commuter Rail Line
MBTA Bus Routes
Study Area Census Tracts
Chelsea Boundaries
Open Space
Walking Trails
Bike Infrastructure
Existing
Proposed
Bike Lane On-Road
Marked Shared-Lane
Shared Use
Cycle Track
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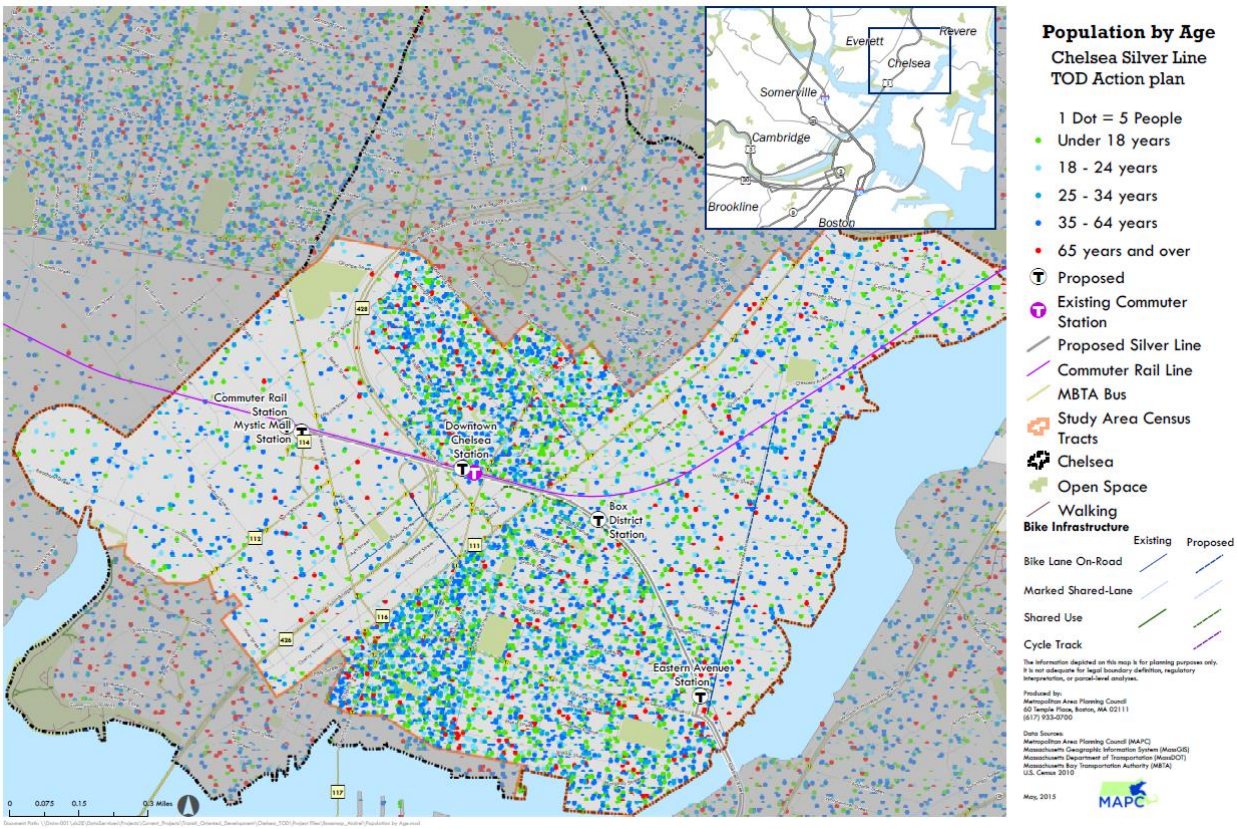
May, 2015
MAPC


Everett
Revere
Chelsea
Somerville
Cambridge
Brookline
Boston
Commuter Rail Station
Mystic Mall Station
Downtown Chelsea Station
Box District Station
Eastern Avenue Station
0 0.075 0.15 0.3 Miles
Population by Age
Chelsea Silver Line TOD Action plan
1 Dot = 5 People
Under 18 years
18 - 24 years
25 - 34 years
35 - 64 years
65 years and over
Proposed
Existing Commuter Station
Proposed Silver Line
Commuter Rail Line
MBTA Bus
Study Area Census Tracts
Chelsea
Open Space
Walking
Bike Infrastructure
Existing
Proposed
Bike Lane On-Road
Marked Shared-Lane
Shared Use
Cycle Track
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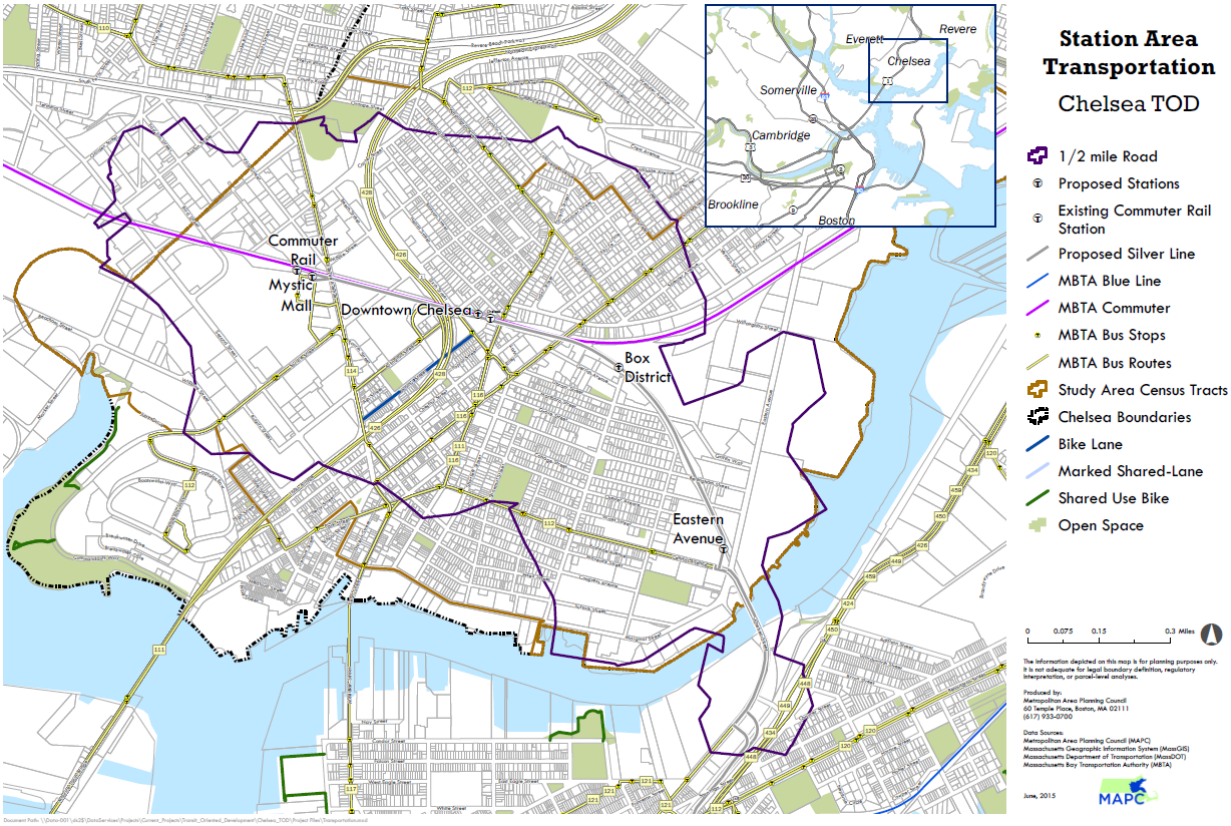
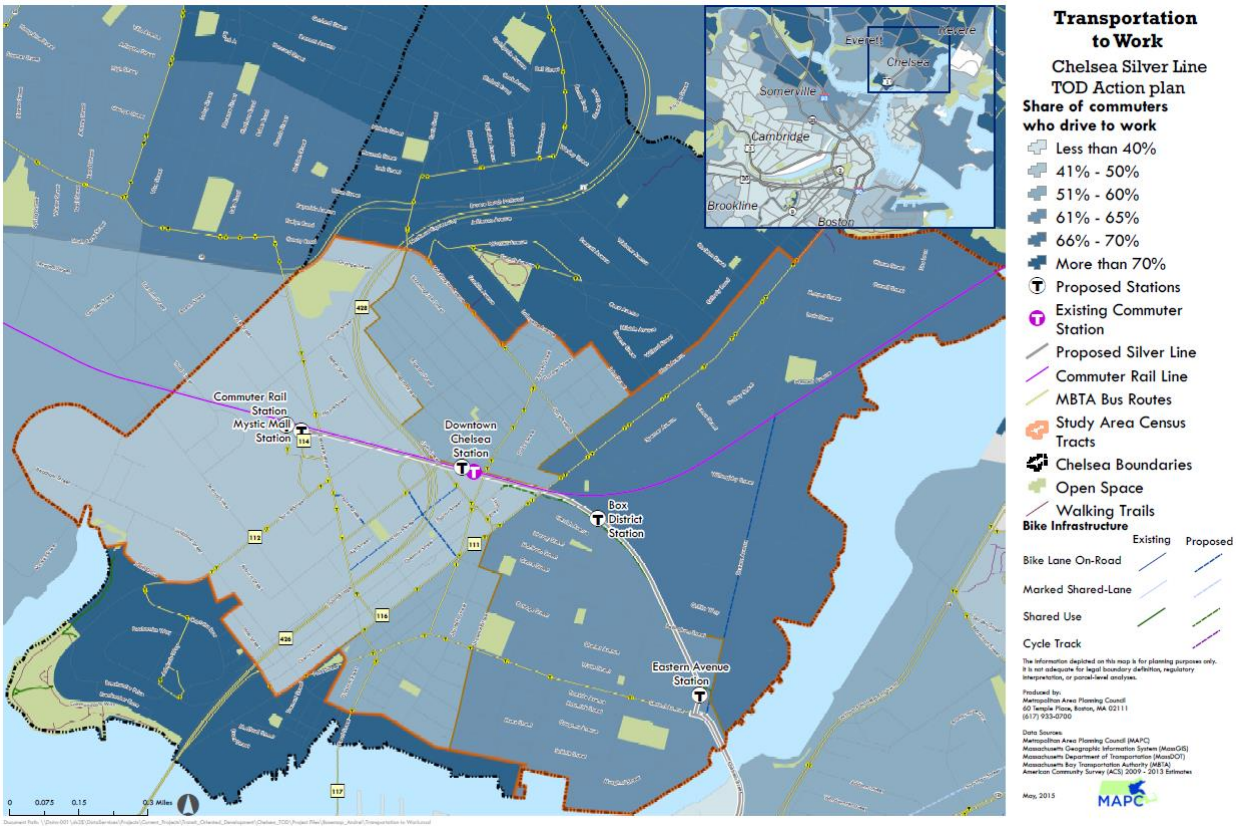
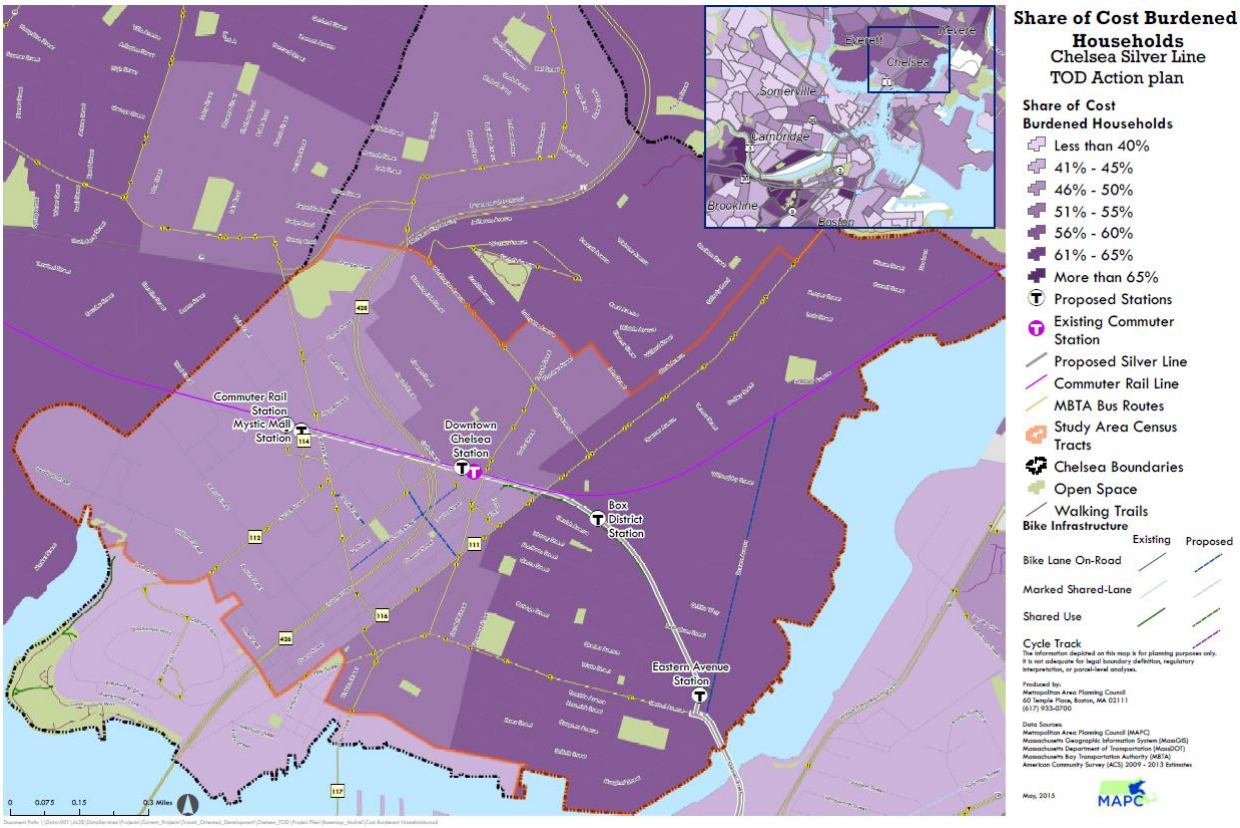
May, 2015
MAPC


Everett
Revere
Chelsea
Somerville
Cambridge
Brookline
Boston
Commuter Rail
Mystic Mall
Downtown Chelsea
Box District
Eastern Avenue
Station Area Transportation
Chelsea TOD
1/2 mile Road
Proposed Stations
Existing Commuter Rail Station
Proposed Silver Line
MBTA Blue Line
MBTA Commuter
MBTA Bus Stops
MBTA Bus Routes
Study Area Census Tracts
Chelsea Boundaries
Bike Lane
Marked Shared-Lane
Shared Use Bike
Open Space
0 0.075 0.15 0.3 Miles
MAPC


Everett
Revere
Chelsea
Somerville
Cambridge
Brookline
Boston
Commuter Rail Station
Mystic Mall Station
Downtown Chelsea Station
Box District Station
Eastern Avenue Station
Transportation to Work
Chelsea Silver Line
TOD Action plan
Share of commuters who drive to work
Less than 40%
41% - 50%
51% - 60%
61% - 65%
66% - 70%
More than 70%
Proposed Stations
Existing Commuter Station
Proposed Silver Line
Commuter Rail Line
MBTA Bus Routes
Study Area Census Tracts
Chelsea Boundaries
Open Space
Walking Trails
Bike Infrastructure
Existing
Proposed
Bike Lane On-Road
Marked Shared-Lane
Shared Use
Cycle Track
0 0.075 0.15 0.3 Miles
MAPC


Share of Cost Burdened Households
Chelsea Silver Line
TOD Action plan
Share of Cost Burdened Households
Less than 40%
41% - 45%
46% - 50%
51% - 55%
56% - 60%
61% - 65%
More than 65%
Proposed Stations
Existing Commuter Station
Proposed Silver Line
Commuter Rail Line
MBTA Bus Routes
Study Area Census Tracts
Chelsea Boundaries
Open Space
Walking Trails
Bike Infrastructure
Existing
Proposed
Bike Lane On-Road
Marked Shared-Lane
Shared Use
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Everett
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Chelsea
Somerville
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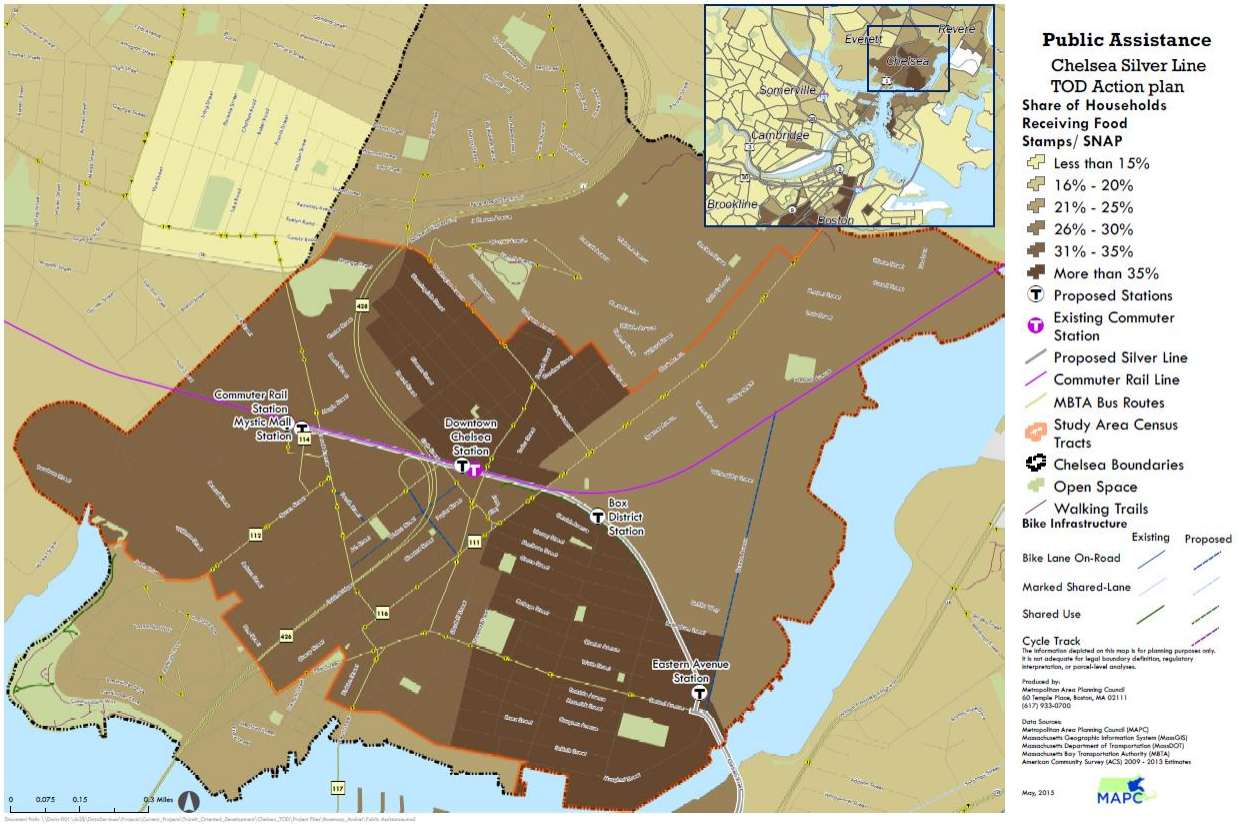
Box District Station
Eastern Avenue Station
0 0.075 0.15 0.3 Miles
MAPC


Public Assistance
Chelsea Silver Line
TOD Action plan
Share of Households Receiving Food Stamps/ SNAP
Less than 15%
16% - 20%
21% - 25%
26% - 30%
31% - 35%
More than 35%
Proposed Stations
Existing Commuter Station
Proposed Silver Line
Commuter Rail Line
MBTA Bus Routes
Study Area Census Tracts
Chelsea Boundaries
Open Space
Walking Trails
Bike Infrastructure
Existing
Proposed
Bike Lane On-Road
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Shared Use
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Everett
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Chelsea
Somerville
Cambridge
Brookline
Boston
Commuter Rail Station
Mystic Mall Station
Downtown Chelsea Station
Box District Station
Eastern Avenue Station
0 0.075 0.15 0.3 Miles
MAPC

Appendix B: Public Meeting Notes

June 24th Public Meeting Summary

Chelsea Silver Line TOD Action Plan – Public Meeting #1
Wednesday, June 24, 2015, 6:30 – 9:00 pm
Chelsea Senior Center
10 Riley Way, Chelsea, MA

About 45 people attended the first public meeting for the Chelsea Silver Line TOD Action Plan. After an introductory presentation, the meeting broke out into four discussion stations. Participants had the opportunity to learn, ask questions, and provide feedback about different elements of the TOD planning process and eventual Action Plan. After about an hour of rotating amongst discussion stations, attendees divided into groups for a discussion about neighborhood change. This document summarizes notes from the four different discussions stations along with the notes from the neighborhood change discussion.

Community Organizing and Planning:
Emma and Toni Pignatelli shared highlights from recent planning projects in Chelsea and how we are seeking to build on those findings and recommendations.

- Concern about not always seeing the results of surveys and other input given during past planning efforts in Chelsea
    - Silver Line project has been the best at keeping people informed
- Would like to see mural space, garden plazas around stations
    - Work with Chelsea Collaborative to paint murals
    - Toni: MAPC has made money available for this
    - ^Cultural Council hasn't heard anything about this
- So many different plans going around, lack of coordination
    - How do they connect?
    - Hard for residents to know what's going on and how everything ties together
- Concern from Chelsea about casino going into Everett
    - Chelsea is on Mitigation Committee which will provide money to help pay for casino mitigation efforts in Chelsea
- Chelsea is a tiny little city, people are interested in what is going on in neighborhoods that they might not actually live in
- Use the Silver Line to light the fire under past plans
- What will happen near Chelsea Creek – hotel coming next to Silver Line?
    - Parking lot on other side of the street?
    - Change the zoning
- Disappointed that there is no discussion about office, retail, and industrial in the Market Basket, Mystic Mall area
    - Don't replace it with only housing

    - Mixed-use in this area like Assembly Square
- There isn't enough green space in Chelsea for community gardens and urban agriculture
    - Rooftop farms?
    - Number of green spaces keeps getting cut down
- If we are building dense housing, what about parking?
    - Concern about parking underground – epidemic in Chelsea with rats and mice will be worsened if you start digging up underground
- Why do you tell people to remove signage from inside windows? Plenty of people still shop in those stores
- Doesn't make sense where the Silver Line is passing through – not good for the neighborhoods that have a lot of families with children
    - Could be an opportunity for people to start walking more
- 111 bus to Boston is impossible and so crowded – excited about the Silver Line for that reason
- Concern about overcrowding and street parking
- Current growth of market rate housing is at a much faster rate than expected
    - Is the city amenable to mandating linkage or inclusionary zoning to allow for affordable housing?
- There was recently a fire in a building with 12 rooms and 63 people came out
- Beautiful new apartments being built that people can't afford to live in so they are moving to Brockton and Worcester
- Make the Silver Line buses electric in the more dense areas so there is less pollution from diesel
- Provide a local shuttle to Silver Line stops

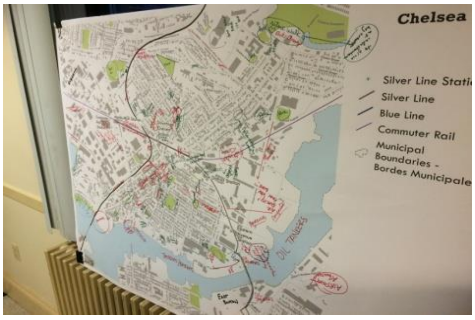
Silver Line Bus Route and Greenway:
Mark and John DePriest briefed the public on the bus route and greenway route and connections in the neighborhood; shared timeline for construction.

- Will SL be running gas or electric? (Gas)
    - To prevent pollution?
    - What will on-road Greenway include?
- Will SLX or Greenway extend to Everett?
    - Want it to connect to Bike to Sea and East Boston Greenway
    - But want Bus to connect to Everett
- What about bike and pedestrian to Boston on/under Rt. 1 Bridge?
- Air Quality issues with SLX Gas power running near housing?
- Any talk of shuttle from Waterfront neighborhood (Medford St.) to Silver line? (1.5 Miles)
    - None of existing bus routes will change
- Will there be bike racks/cages at SLX Station?
- Waterfront Area- "get us in on commuter boat!"
- What is frequency of service?
    - Every 10 minutes
- Timing of Greenway construction

    - Can Apples Hill be connected to SLX? 112 bus is terrible
- Moving Commuter Rail station will provide better access to more people
- Maybe need Orange Line extension? Or boat?
- Market Basket should be more professional offices
    - Have it be folks that will buy lunch and "pick up their shirts" (dry cleaning)
- Only in Planned Development can Chelsea ask for percentage of affordable units
    - Chelsea does not have Inclusionary Zoning bylaw
- Can there be public Art on the greenway?
    - Likely at stops and at intersection of main streets
    - Sharleen McLean (Cultural Council)

Community Health:
Noemie and Barry introduced why we are looking at health and what we plan to do: social determinants of health, HIA, and framework for Chelsea. By using charts, ask participants to circle "good" (in green) and "bad" (in red) – locations in the community that might contribute to healthy living, and why.

- Themes that were "bad" for health and wellbeing:
    - Air and land pollution/environmental contamination
    - Crime and substance use
- Themes that were "good" for health and wellbeing:
    - Lots of parks and green space
    - Various community centers



Housing and Economic Development:
Matt and Karina presented the preliminary data: basic retail inventory data and gap analysis and housing market data; asked questions to residents and business owners.

Neighborhood Change Discussion:
Facilitators asked three questions with which participants had two minutes to respond to each question. Responses were written on post-its and then placed on boards within their appropriate topic category. After all the post-its were placed on the boards, the facilitators invited participants to elaborate more on their ideas.

- We need to stabilize housing production rate
- I see a lot of turnover in new housing – people abandoning ship for new, better options
- Pocket of area around Beacon used to be very tight-knit with people who had lived there a long time
- I feel like I'm picking up trash after everyone
- I work in subsidized housing – people come in every day looking for housing or they are out on the streets
- New high-rise apartments need to fit in here so they don't become a burden
    - Developers don't say Chelsea – they say "One North"
    - People live here but their money isn't getting spent in Chelsea
- People come here because Chelsea is affordable—that's why I moved here—but should we keep building?
    - Is there even enough room for new development?
- Developers only advertise proximity to Boston, not the good things about Chelsea
- Too much traffic getting in and out of Boston
- At least we have bus service
- It would be great to have an actual park around Soldiers Field – I have to get in the car and drive my kids to other parks
- Parents don't want their kids to go to parks because of safety issues like gangs and drug use
    - Gang activity is increasing, especially for younger kids
    - Lack of places for kids to go – gym closes on Saturdays, would be completely filled otherwise
- People need more education about what is going on outside and around city
- Weird hours of the night that you can't park on street during – hard to have guests visit
- Charge more for littering tickets
- Want a community center where we can take our kids, go swimming, and take classes

Things to change:

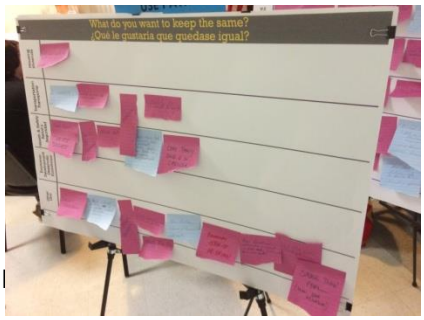
- Adequate resources for people to be involved in all the efforts in the city. It's really hard to keep track of everything that's happening and stay involved.
- Crime, Drugs

Trends that aren't good:

- Sharp increases in rent that have already started leading to major displacement over the past year

Things to keep the same:

- Preserve character of city
- Preserve housing affordability
- Diversity of ethnicities and uses in the city



August 27th Focus Group Summary

Chelsea Silver Line TOD Action Plan - Focus Group #1
August 27, 2015
Managing Neighborhood Change Discussion Notes

On August 27th, the Chelsea Collaborative organized a Transportation Forum for its membership. The Collaborative invited the MBTA and MAPC attend. MAPC was invited to facilitate a discussion about the Chelsea TOD project with a group of 15-20 Chelsea residents. We discussed the Silver Line Gateway bus rapid transit service, asked people to talk about the neighborhood changes they are seeing in Chelsea, and their ideas for the types of improvements and opportunities they want to see.

Icebreaker Questions:

How do you get around for your day to day activities? Como to mobilizes dia a dia?

- Bus: Boston to Cambridge T train
- Car- local
- Train to school/work
- Walking
- Salem- job- bus- work in cleaning (?) 30 min
- Bus- parents car- walk to school
- Summer- leave car at home- walk
- Downtown- Commuter Rail- weekly Boston. Pass on weekend T DOES NOT ADVERTISE
- Bus 11 takes too long! That's why I drive
- 450- too long to wait takes hour 1 late!

What do you like about living in Chelsea? Por que te gusta vivir en Chelsea?

- Close to everything
- Convenient- things are close
- Good school system and opportunities x
- I love working with the community
- Love the opportunities (ex: English class)
- T- but important buses
- Close to work
- Culture rich
- Lots of things are central (market basket)
- Affordable rent
- Access to Boston

Managing Neighborhood Change Questions:

What concerns do you have about neighborhood change? Que precupa ciones tienes sobre los cambios en sus vecindarios?

- New construction not for families
    - Studios and one bedroom
- Housing for families not appealing to developers
- List of waiting- students- very long!
- Can we make a new school?
    - No Because not enough students

- If we make apartments with 3-4 Bedrooms where are we going to send students [to live]
- No more development on rich and poor side- bus crowded- schools crowded- professionals market crashes…what happens? What does the housing become? Increase value [and conditions] of [current] property first before adding properties
- We should be talking about how to get people to Chelsea [economic development] - attracting people here versus talking about the Silver Line in terms of how it will bring people to Boston's Seaport for opportunities
- I wouldn't want Chelsea to lose the rich culture
- Chelsea needs to stay funky
- We don't need:
    - Drugs, prostitution
    - Communities [locating here] behind a gate to go in and out because of proximity to Boston
    - There are parts of Chelsea that feel safer and not safe- if I did not grow up here I would not know where to take my family

What would you change about Chelsea? Que te gustaria cambiar de Chelsea?

- Dislike- overcrowding- services- reflect that it shows racist entitlement by power that be- reflects lack of voice municipality people feel can't speak out by state Joshua- CT
- Toliet cleaners need to have a voice
    - Ex: historic irish and polish need stronger voice
- Bus 111- can take as long as 2 hours- someone waited that long, a chaotic wait! "It sucks! It's horrible!"

What changes to Chelsea/your neighborhood have you noticed in the last few years? Que cambios has notado en los ultimos anos en Chelsea/su vcindario?

- More white people (not townies)
- New condos/buildings
- New park- small (2) near condos on Corner made by Chelsea collaborative
- Last months- bus service has worsened
- Rent is going up
- Landlord raises rent when he wants!
- $800 2 bedroom higher $200 in 2 months heightened
- Roy- Housing Court advocating for Avellenda
    - 1. Gentrification argument doesn't sit well with me
        - Not happeneing in Chelsea…cost of housing…landlords extort money from families
    - 2. Quality of life is still bad "junkies on street"
- City is trying to get Latinos out of Chelsea by heightening taxes
- Higher rent to get rid of people
- I raise rent because of water bill
- Lights/ electric $700 winter/$400 summer
- Check numbers on housing stats-owners

What are some Ideas you have for improving Chelsea neighborhoods; what are some opportunities you'd like to see created?

- Control of evictions

- Preserve small businesses
- Rent get together with reps to get more money
- affordable housing funds for people who need help
- New jobs! (jobs to offer) add local jobs
- Employees of City are not residents and not because there are not professional workers here
- Why are people not coming? In my opinion think about JP; JP succeeded in promoting itself as a happening Latino neighborhood; it is now a trendy place [can Chelsea promote its culture in this way too]; [but there is also] racism based on the color of people's skin

September 9th Focus Group Summary

Chelsea Silver Line TOD Action Plan - Focus Group #2
September 9, 2015
Managing Neighborhood Change Meeting Summary

As part of the Managing Neighborhood Change component of the Action Plan, MAPC hosted a focus group to hear from current residents about what changes they've noticed, what their concerns are about neighborhood change, what changes they'd welcome in the community, and what they would like to preserve. Thirty four residents attended the event, held on September 9th from 6-8 pm at the public library. Food was provided. For ease of discussion, we split into two groups—one English-speaking and one Spanish-speaking.

Each group began with an icebreaker exercise. Residents were asked to write down three single words, each on a separate piece of paper, that they feel describe Chelsea. Next, residents organized those terms into "positive" and "less positive" categories. This gave a good sense of what people appreciate about Chelsea (and therefore may want to preserve) and where there might be space for welcome change. Here are the terms from both groups:

POSITIVE
convenient community, housing, unity, convenient, small, diverse, convenient, transportation options, accessible, programs, multicultural, unity, assistance, diversity, home, place to live, community oriented, enthusiastic new city manager, promising, community, diverse, compact, accessible, Chelsea is home, changing, welcoming, progressive, convenient, small, multicultural, history, evolving, economical, nice, quiet, family-oriented, home, diversity, multi-cultural, changing, economical, welcoming, nice, green environment

LESS POSITIVE
need space for seniors, endangered, gentrification, dirty, overpopulated, hotels, crime, no parking, littered, unpredictable, over-populated, crime, gentrification, displacement, litter , dirty, need space for seniors, parking, need for parks and green spaces, no comfortable housing, low income, expensive, mice, injustice, few resources for immigrants, lack of representation, need, dirty streets
Next, we engaged in an hour-long discussion. Conversation focused on what changes to Chelsea/a given neighborhood residents have noticed in the last few years; what concerns they may have about neighborhood changes; what they would like to keep the same; and what changes they would like to see. The following matrix summarizes the primary themes that emerged from this discussion.

Community Sentiment on Neighborhood Change			
	Concerns	**Welcome Changes**	**Qualities To Preserve**
Housing	New housing development; rising housing costs; lack of subsidized housing; lack of homeownership opportunities; housing turnover; population turnover; overcrowding	More affordability; more housing options; less housing development; more accountability of landlords	Affordable housing
Economy	New development; people who live here spend their money elsewhere; rising rents for businesses	Placemaking; more diversity of businesses; education and employment opportunities for all	Small businesses; affordable businesses; jobs near housing; vibrant Broadway
Transit	Overcrowded; insufficient service; traffic; insufficient parking; Silver Line	Greater transit services; more parking; less traffic; protected bike lanes	Good access to public transit; reliable public transit; good access to Boston
Health & Safety	Increased criminal and delinquent behavior; litter; increased pollution	Safer; cleaner; improved healthcare and other services	Friendly police force; health centers
Government & Civic Engagement	Lack of interest in participation	Transparency and accountability of local government; greater public involvement	City manager form of government
Recreation	Lack of recreational opportunities for youth; lack of green space	More entertainment and socializing venues; more activities for teens	Artists' community; green spaces
Other	Rebranding of Chelsea; capacity of public services; gentrification	--	Diversity; character; community organizations; basic layout; historic preservation

More detail and analysis of these comments is included in the draft report.

We concluded the evening by rejoining the two groups for report-outs. People stood in a circle and a representative from each group shared the highlights of their respective discussions. There was a surprising amount of consensus around changes already observed in Chelsea, concerns, what people would like to see change, and what people would like to see preserved.

Chelsea Silver Line TOD Action Plan - Public Meeting #2
October 28, 2015
Draft Action Plan Goals, Actions, Strategies - Raw Summary of Public Comments

Note: content in brackets has been added by MAPC facilitators in order to clarify the content of the comment.

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
GOAL 1: Chelsea residents and visitors will have safe access to different modes of transportation in the Corridor				
1A	Promote walkability through sidewalk improvements	Promote walkability and equitable access to sidewalk networks in two ways. Survey residents to understand why they may or may not use sidewalks and if so, how they use them. Conduct an inventory physical conditions of sidewalks in the corridor. Prioritize sidewalk improvements and sidewalk widening to facilitate safe routes to school and compliance with accessibility requirements in the context of needs voiced by residents.	LEAD: Chelsea Planning and Development, Department of Public Works; WalkBoston	<u>Parking and circulation</u> • The current bus routes and schedules must be changed to hook up with the SL • Enforce designated loading zones • Can we build a municipal parking garage? • Lighting sideway access (show) auto traffic vs pedestrians • Jitney buses to hook up with SL because the T won't do this • Traffic light turning left at Eastern Ave from Bellingham St on Cottage • Fix second street <u>Sidewalks and crosswalks</u> • Widening sidewalk structures • Accessibility and convenience to get silver line by bus (111, 112, etc) crosswalks routes • There needs to be investments to fix sidewalks • Totally fix sidewalks don't just repair
1B	Increase public safety	Improve perceptions of safety by maintaining Silver Line Corridor lighting along the bus route throughout the night even while the bus is no longer in operation.	LEAD: Department of Public Work	Programming • How will public safety be strictly enforced? What exactly will be the measure to be taken? • Revamp all in Chelsea move transparency on crime data/reports/data • Que por las hayan arboles

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				• Regular CPD patrols of greenway • Second street by Spring Air: cars using the sidewalk to avoid cobblestone street • Working with existing organizations and create subcommittees to get items done. <u>Infrastructure</u> • Crosswalks creation: pedestrian walks on cottage st to garage stop set of lights • Safety call boxes in greenway • Very important lighting
1C	Advocate for continued improvements to MBTA service, infrastructure design, and fare policy	Facilitate active resident participation with the MBTA Focus40 Capital Planning Process, which is a forum for advocating for improvements to service delivery and fare policy. Advocate for improvements to popular bus lines that will address overcrowding and service reliability issues and concerns, e.g., increase frequency, bus shelters, lighting, wayfinding signage, etc.) Build on recent advocacy that secured youth passes and advocate for tiered fare system for shorter trips.	LEAD: The Chelsea Collaborative; Chelsea Planning and Development	<u>Service, upkeep</u> • Keep the trains stopping at sixth and Arlington along with the bus stop- it serves a great part of the city • Policing and upkeep of greenway <u>Education regarding safety</u> • Increase pedestrian safety awareness • How are the bikes gonna get to southie? <u>Fares</u> • Lower fares on silver line in Chelsea for Chelsea residents • Fares can't be same for short trips within Chelsea and outside Chelsea
1D	Adopt and Implement a Complete Streets Policy	Adopt a policy that promotes "complete" streets: roadways that are safe, comfortable, and accessible for everyone, regardless of age, ability, income, or how they choose to travel. Build on connectivity offered by the shared-use path and construct bike lanes on major roads in	LEAD: Chelsea Planning and Development; Department of Public Works	• This also involves some sort of investment or grants but from where? • Pave sheets and create sidewalk on Beacham st. • Complete streets=no brainer • The new $143 million drawbridge negates the speed of the commute!

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
		the Silver Line corridor neighborhoods. Develop a communications and education strategy concurrent with development of the policy to help build public knowledge of the principles.		
1E	Implement strategies to calm vehicular traffic and manage parking	Explore adjustments to parking requirements for retail and commercial uses in the corridor by utilizing the MAPC Right-Size Parking Calculator, which can generate a more accurate estimate of parking/unit ratios. Expand parking meter limits to facilitate patronage at Broadway businesses.	LEAD: Chelsea Planning and Development; Metropolitan Area Planning Council	• Un pargueo grande por donde comiense a corer el bus • City/private central lot • Create/build parking lots • More parking! Garages connected to frequent and rehable and pleasant public transit • Designar un espacio de difrentes niveles para paquearce • Stap all future development until we solve the parking problems in the city • Municipal parking lot near silver line • City owned parking lot away from main roads
1F	Promote bicycling	Improve bike infrastructure to promote cycling as a safe choice and as a commuting option over driving. Secure funds for provision of bike parking, bike racks, and bike lane markings.	LEAD: Chelsea Planning and Development; Department of Public Works	• Don't encourage biking until proper traffic and biking striping can be laid. Traffic patterns are currently guesswork Not Safe. • Encourage private development of parking garages in both residential and office/business development • Bike path on Rt 10 to connect bike path on Rt 99 • Bike theft well designed and secure racks • Bring hubway more signage for cyclists • Overnight resident parking is a challenge • Bike rack, programs • Rent bikes • We need bike lanes • Will all bus stops have bike racks? • Add bike lanes to do that they must do something to give riders sufficient space to ride • Fix a bike, get a bike events so all kids can have a like and no one will steal anymore

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				• Combine with other bike routes with ones in other areas.
1G	Expand requirements for and/or incentivize the retention of green space on public and private developments	Mitigate exposure to health problems associated with noise and pollution by expanding landscape buffering requirements for parcels adjacent to Route 1, the existing Commuter Rail line, and the Silver Line BRT route.	LEAD: Chelsea Planning and Development	• Bike rental? Chelsea version of hubway • Work with existing organizations • Fair policy very important (sidewalks Beckham st) • Tax breaks for family farms • Make library street one way • Public spaces needed for older youth talk of a skate park has been happening forever- where is it • Have matching storefront grants for improvement of property on Maine Street • Plant flowers in windows and stores with a tax incentive for ones that do • Community benefits agreements • Fund long term cross guards for major intersections
• **GOAL 2: Chelsea residents from different generations and walks of life will have safe places and fun opportunities within the Corridor to convene, interact, and get to know their neighbors**				
2A	Integrate art/creative placemaking into Bellingham Square	Address public safety and usage concerns in Bellingham Square through creative short-term and long-term (infrastructure) investments that help build ownership and community.	LEAD: Chelsea Planning and Development; The Neighborhood Developers, Chelsea Collaborative	• The clear trend to all the comments in this section is that substance abuse issues and violence <u>need to be addressed *BEFORE* anything else can change.</u> • Clean up Bellingham Square and Broadway area* • More specific visions about Bellingham Sq redevelopment scale? What type of programming? • Solution needs to be sustainable • Artistic/branded wayfinding and signage for Broadway • Sidewalk and crosswalk art • Bring music and cultural events back to city center • Need programming and enforcement (targeted is littering) • Physical appeal • No drug use CPD, [there are police in Bellingham square but they don't enforce the existing laws. This comment refers to

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				getting police to actually enforce those.]* • Community taking back the square • Awesome murals more eboxes activate alleys THE BEAN link in Chicago • Food trucks and Farmers' Market • Public art= yes, but need to pay attention to previous projects, some public art was already installed but it was taken down/ruined. Anecdotal experience from the "painting the electric box" program suggests that these don't get graffitied though. • Address substance abuse in Bellingham [FIRST. Can't do anything else without this.]* • Art to Brighton Bellingham Square (prevent graffiti)- mixed responses to this • Art can't be too fragile, could be destroyed but doesn't mean it shouldn't happen. This has happened before • Art on shared path • Artistic wayfunding and signage, [there's no clear signage or wayfinding right now, focus is on tourism that highlights Chelsea's character. Hard for tourists to get around.] • Multicultural events in square • More vendors for street food • Bellingham face lift* • Bellingham sq overcrowded unsafe for walking • Give people in sros a place to hang out, [they currently don't have any space of their own and just spend time in the Square] • Take back in Bellingham sq with music/art • Not a lot of reason to spend time in Bellingham square • Address absent slumlords • Bellingham square needs to address garbage issues • Secure resources to support this, both land acquisition and program organizing for CBOS

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				• Better lighting of City Hall @night* • The only downside here is that these investments may be vandalized, which defeats the purpose of having art or something creative • [MAPC facilitator comment: A lot of comments about the unhealthy food in Bellingham Square. Too many chains, McDonalds is a place where drug users congregate.] • Utilize produce center business as a source for lower cost fresh foods or farmers market • Farmers market • Yes, of course. Stop playing the blame game • Art won't stay up- people take it/destroy it • Elementary schools light up • Create healthy restaurant options- address overabundance of fast food • Close McDonalds,[it's a place where drug users congregate.Replace it with farmers market] • Chelsea seen as a vice area, [substance users c*ome in from the outside*]* • Bellingham needs investment in physical environment* • Need investment in services for residents of the square, they currently have nowhere to go • Too many bars in Bellingham square • APP for when the the [Washington Street] bridge goes up [to let residents know] • Partners lists are incomplete or inadequate • Design app to inform public as to when bridges go up • Have a goal that specifically directly addresses substance abuse * • Funding concerns lack of money shortage, [most activities are grant funded and cycles end. Need sustainable funding source] • Go slow start small [with programs] (don't overextend be

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				sustainable)
2B	Promote healthy eating and social interaction by expanding community gardening opportunities in the Corridor	Update the Chelsea Open Space and Recreation Plan to include identification of publicly and privately accessible spaces -- underutilized parcels and parcels with redevelopment potential -- located more than 500 feet from heavily trafficked roadways that have an average daily traffic count of 30,000 vehicles or more. Advocate for inclusion of community gardening in these parcels with a focus on neighborhoods between Broadway and the Silver Line Corridor that are currently less well served by fresh food access. Encourage schools to create and/or access Chelsea Community Garden plots that are located more than 500 feet from heavily trafficked roadways that have an average daily traffic count of 30,000 vehicles or more.	LEAD: Chelsea Community Garden; Chelsea Collaborative Greenspace Group; Chelsea Public Schools; MGH Healthy Chelsea; The Neighborhood Developers; Chelsea Planning and Development	• Use schools as starting point for gardens • Need farmers market • Love the idea of art/creative placemaking • Can we create loop path • Yes • Can youth not a part of the park ranger programs participate? • YAASS youth job opportunities • More gardens, [but not clear how this will be implemented. Current community garden is entirely volunteer run and huge resource suck. Without Margaret, it would all fall apart. Need designated person to run gardens.]* • Glad CCG is leading this • Community gardens • Healthy eating has fallen as priority bring it back • Increase healthy food affordability • Garden should offer volunteer opportunities for people to become involved • Expansion of Gardens • Tweak public food programs to allow only healthy food vs. candy, soda, and junk food • Actively market healthfulness • We had more community gardens! Walkable for all residents • Community gardening needs to be expanded but exhausting to organize who? [Needs to be sustainably funded.]* • Adding gardens
2C	Promote usage and stewardship of the Silver Line Shared-Use	Work with Chelsea planning staff, the Chelsea Collaborative Greenspace Group, and the Chelsea Cultural Council to create jobs, implement programs, and maintain	LEAD: Chelsea Planning and Development; Chelsea Collaborative	• Community events and programming • Opportunities for exercise • Connect with ex pathways (P. Dudley) • Negative; lighting In the corridor can cost a lot interaction

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
	Path and open spaces in the Corridor	the Path. Implement programming and public art that can attract and promote use of the path and facilitate interactions between diverse residents in Chelsea. Update the Chelsea Open Space and Recreation Plan to include development of an "Adopt the Path" program for the Silver Line Shared-Use Path. Create park programming and maintenance job opportunities for youth. Seek funding from state and corporate sources. Conduct a new capital assessment of existing parks in the City to determine what needs to upgraded in the next ten years. Coordinate with DPW to maintain cleanliness along Shared Use Path. Expand Health Department and Chelsea Collaborative "Park Ranger Program" to include the path. Expand advocacy for connectivity to paths in adjacent communities, i.e., Northern Strand Trail.	Greenspace Group, The Neighborhood Developers, Chelsea Cultural Council	needs a tax funded building • Chelsea has mostly been a transient stepping stone for a hundred years. Will the corridor really keep people here • Ensure inclusive public process for updating the open space plan • Park for older youth- skate park • The community working together for the project • Use roof for gardens • Affordable housing • Que la ciudad se preocuper para enbellecer aunque sealas calles principales • Yes • Constant, consistent funding for jobs • How would [the proposed partners] "create jobs"? [MAPC facilitator comment: This comment was somewhat addressed by other residents.] • Fresh food bodegas/trucks • Concept of developing partnership • Positive a literally greenway jobs for youth maybe in agriculture industries
2D	Increase public safety through programming	Continue to apply for Shannon Grant funding to foster relationships between police and youth to help increase reporting of crimes and mitigate criminal and delinquent behavior.	LEAD: Chelsea Police Department	• Yes, critical to continue Shannon grant • Mas iluminacion y camaras • Silver line plays a big part in usage of any public transportation. Why would someone use the T if many have cars? • Increase public safety thru community organization involvement • Use girl scouts as model [to improve police and youth relations] • I like the idea of having relationships between youth and police

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				• How will this be enforced? • [MAPC facilitator comment: This action and strategy need to be more specific. It's unclear what "programming" means.]
• **GOAL 3: City policies, guidelines, and programs will facilitate a vibrant mix of housing, business, and recreational opportunities within the Corridor**				
3A	Investigate new zoning tools and develop and adopt zoning amendments	In spring 2016, develop and adopt corridor zoning amendments that facilitate TOD development consistent with housing and mixed use redevelopment priorities and managing neighborhood change findings. Changes adopted may replace some of the many overlays that are currently applicable to parcels in the corridor.	LEAD: Chelsea Planning and Development, Metropolitan Area Planning Council	• I worry about direct community input in all of these areas. Many residents have no direct voice, and we know that established organizations do a poor job of [doing outreach] • Next I'm choosing #2. I just have a problem with this narrative of voucher= problem. Way too broad of a brush. • Repurpose historical preservation [MAPC facilitator comment: I believe they meant that older buildings should be re-purposed for preservation of historic features while also providing for additional housing – see last comments under 3A below] • Zoning- minimum SF, encourage smaller "naturally affordable" housing • Parking requirement for each housing unit [this may mean parking by bedroom size or square footage? Otherwise I interpret it as more parking is needed – see next comment] • Parking issues related to higher density • Make sure infrastructure water/sewer is adequate to handle redevelopment • New zoning tools-[e.g., allow food trucks to improve the square [MAPC facilitator comment: this was part of a much broader zoning conversation; they weren't requesting just food trucks] • Reuse non residential for residential

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
3B	Adopt Commercial Linkage Fee	Adopt a commercial linkage fee program, which would be applicable to large-scale development projects. This program can establish standard project mitigation contributions applying to projects of a certain size and generate payments into an Affordable Housing Trust Fund or other entity. These funds can be allocated towards the construction of affordable rental and homeownership units.	LEAD: Chelsea Planning and Development, Chelsea City Council	• Issue of too much impact fees on linkage fees- will not promote enough commercial [MAPC facilitator comment: this means there's a concern that a linkage fee would discourage commercial development; that the market isn't strong enough yet]
3C	Adopt Just Cause Eviction Controls	Adopt a policy that requires landlords to identify a proper cause in order to evict a tenant, such as failure to pay rent or destruction of property. This policy can promote stability in the housing market and deter landlords who may be motivated to evict current tenants in order to raise rents. This policy would likely be enforced by the Affordable Housing Trust Fund (AHTF). Re-establish the AHTF by appointing new members.	LEAD: Chelsea Planning and Development, Chelsea City Council	• Is this legal in MA [city lawyer was saying municipalities can't establish their own eviction controls; only state level] –[MAPC facilitator comment: The legality of these controls was questioned by Tom Ambrosino - the new city manager] • How to control absentee landlords renting to large groups? [this is about over crowding] [MAPC facilitator comment: it was pointed out that enforcement of regulations should address this] • Absent landlords how to control rental increase [this refers to landlords who don't care about the community; only the bottom line. There was a lot of discussion of absentee landlords in general]
3D	Use Community Benefits Agreements	Adopt a standard articulating City of Chelsea values for negotiating Community Benefits Agreements (CBAs) with developers to generate resources and amenities that advance equity in the Corridor. CBAs may include public realm improvements, funding and space for programming and meeting spaces for the community.	LEAD: Chelsea Planning and Development	• Consider Chelsea public schools CBAs • Community benefits/agreements must be invited into the development [MAPC facilitator comment: I believe that it referred to the fact that the non-profit that was negotiating the agreements must be invited into the process by the city – and enabled by regulations]

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
3E	Adopt Inclusionary Housing Policy and Program	Adopt an inclusionary housing policy and program to ensure that all new market-rate residential development includes a minimum of 10 percent affordable units.	LEAD: Chelsea Planning and Development, Chelsea City Council	• City manager proposing to advance inclusionary zoning in early 2016 • Need for more home ownership properties ○ Inclusionary zoning always seems to take a 2nd seat to market rate linkage fees must be changeable legally • [MAPC facilitator comment: There was a lot of discussion of first-time homeownership programs and supports needed, as well as supporting current homeowners with rehab and retrofitting]
3F	Expand Problem Properties Program	Protect residents' right to a healthy and safe home by expanding the Problem Properties Task Force. Continue to fund two housing inspectors who conduct code enforcement of problem properties. Include consultation with community-based organizations that work with tenants, who can serve as a bridge to share resident's housing issues and build knowledge about the city's program. Continue to institute systematic checks for housing in known overcrowded areas as well as instituting appropriate penalties for landlords who are caught violating the standards. Seek stable funding for housing inspectors from the city budget so CDBG funds can be freed to fund ongoing housing programs.	LEAD: Chelsea Planning and Development, Inspectional Services (includes Health), Police Department, Fire Department, Public Schools	• In favor of expansion of problem properties of program • Absentee landlords! • Capacity to enforce? [MAPC facilitator comment: People feel like this program exists and yet there are so many problem properties. Also that it's unevenly enforced; sometimes yes, sometimes no] • How can city fine absentee landlords and derelict properties • Update/improve the housing that is already here (Bellingham was vacant but now improve)
3G	Establish Green Building Criteria and Incentives	Adopt green building criteria that are applicable to TOD over a certain size and create incentives for green building for smaller properties with a particular focus on underserved neighborhoods in the southern portion of the Silver Line Corridor. Green	LEAD: Chelsea Planning and Development	• Restoration and Greening funds for existing properties • Green building can slow greedy development in hot market, but what about in a cold market. Cost of green vs $ out • Support 3G! • No room for large scale development • New pollution free lite industry along the corridor will give

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
		building criteria can create a residential environment that reduces exposure to airborne contaminants, pests, moisture, and harmful chemicals while prioritizing natural lighting, improved ventilation systems, and more recently, designing site locations to include bicycle and pedestrian accommodations.		better bang for buck than retail • Funds/opportunity for existing homeowners to make homes more green • Help home owners/business owners connect with programs for going green • New retail is a tough sell with new public transit (Fairmont line) •
3H	Adopt Design Guidelines/Standards	In spring 2016, in concert with zoning amendments, develop and adopt design guidelines applicable to different neighborhoods and the Broadway business corridor that specify standards regarding facade treatments and signage. These standards will contribute to maintaining a certain design standard for TOD development that fits with Chelsea's community character.	Chelsea Planning and Development (LEAD), Metropolitan Area Planning Council	• Would love to know in April what these guidelines are for (look like) 1) urge housing developments 2) 3 family houses 3)let's development center and skate park along the way • Why not eminent domain specifically for the square? Otherwise it won't be a desirable destination • Funds for home restoration especially for historical detail
3I	Continue to implement robust housing production program/strategy	Continue to implement housing program/strategy that facilitates the production and preservation of housing affordable to low-, moderate-income households in order to maintain affordable housing stock. Continue to identify owners of properties with units at risk of expiring affordability and work with these owners and their subsidy providers to negotiate an extension of affordability terms to preserve current stock of affordable housing.	LEAD: Chelsea Planning and Development, Law Department	• Affordable homeownership more support by community • Too many units being built- too crowded but no outside space site new housing appropriately [MAPC facilitator comment: this refers to density, not overcrowding of units][needs to be open space associated with more units] • Officials are floating voluntary kick-ins. For the Somerville green line corridor businesses. If this project runs into budget problems • Guaranteed minimum # of Southie jobs (for Chelsea residents) • Why not money incentives for new employers to live along the new corridor • Reform/Repair Chelsea Housing Authority • Work-Force Housing [employer-sponsored]

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				• Affordable housing stock • Connect residents with home buying (1st time) programs • Infrastructure to handle all the large housing buildings • More Housing does not = lower rents/costs
3J	Promote developer access to capital for workforce housing in Corridor	Promote developer participation in funding programs that support mixed-income multifamily housing that includes affordable, moderate income, and market rate housing units. Promote participation in the Gateway Tax Credit program, the Local Initiatives Support Corporation Equitable Transit-Oriented Development Accelerator Fund, and the Conservation Law Foundation Healthy Neighborhoods Equity Fund. Advocate for funding for these programs.	Chelsea Planning and Development (LEAD), Metropolitan Area Planning Council	• Businesses cash incentives tied to long term business presence in city • Will the same desperate tactics work in Chelsea? • Gateway tax credit? How does it work?
3K	Promote fair access to housing opportunity	Implement a fair housing education program in partnership with tenant organizers. Ensure that residents understand their fair housing rights and understand their options for reporting violations in order to reduce exploitation by landlords.	LEAD: Chelsea Planning and Development, Chelsea Collaborative, Fair Housing Center of Greater Boston, Metropolitan Area Planning Council	• Affordable vs public vs workforce [MAPC facilitator comment: this has to do with education on the distinction between each, and clarifying what is needed/wanted in Chelsea] • Unit mix- 3BR family housing [require so there's some family housing, not all studios-2BR] • Limit resale prices of homes to a specific %/year do this via tax incentives/rates • Improve community awareness of affordable housing- affordable + workforce • Need for private parking garage to house cars for developments that do not have parking • Controls on turnover of properties- fees paid if flipped too

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				soon • Can you legally give financial incentives to residents who work here? No guarantee that residents will get hired in Southie! • Parking- Garage development day workforce night- residential • Strategy for improving problem properties- program for rehab of properties not being maintained • Housing Court • Keep T at Arlington and 6th closer to population density [this was from a resident who noted that the relocation of the Train Station would place it farther from a dense neighborhood and move it into a lower density area] • Regulate resale to address flipping/encourage long term • Supporting home improvements b/f they become problem properties and maintenance agreement
• **GOAL 4: Chelsea residents have multiple options for staying informed about and participating in planning and community development efforts in the Corridor**				
4A	Create civic leadership opportunities to steward plan implementation	Establish a standing Chelsea Community Planning Advisory Group that will \ operate as a subcommittee of the Planning Board. This group will advise on implementation of the Corridor Action Plan and other plans and studies pertaining to areas in the Corridor. The Advisory Group can also serve as a pipeline of future leaders who may apply to leadership opportunities on boards, committees, and commissions.	LEAD: Chelsea Planning and Development, Planning Board	• Add partnerships • Whepa! • Get non-absentee property owners who live here to act as liaisons • Billboard- electronic at high volume/high traffic areas. i.e. Market Basket, Bellingham Square to inform the community about upcoming meetings/events. Funded by merchant ads • Target each group according to their particular vested interests • Not everything goes through the Planning Board. I shudder at the thought of forming a subcommittee • Information monitor for programs and civic meeting at Market Basket with Ads from local businesses • Need investments • Like the market basket idea • The Chelsea community planning advisory group would only

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
				be good and worth the time if they have power/authority. Otherwise, just expand the planning department. • Advisory group needs empowerment. Group needs to be able to have an effective voice in plans
4B	Promote civic education	The City of Chelsea and community partners will collaborate to offer trainings that prepare residents for these civic leadership opportunities. Partner with MAPC to deliver Institute on Leadership in Equity and Develop (I-LEAD) trainings to residents.	Chelsea Collaborative, The Neighborhood Developers, Metropolitan Area Planning Council	• Get students involved, offer credits in school • How would you make sure this was actually being done? What schools? • Will students be taken into account? • At the bus stops, place small tvs that provide announcements on what the city needs its people to know • Will new corridor businesses compete with Broadway businesses? • Provide citizens with information by providing physical sources (paper visuals)
4C	Increase communications between government and members of the public	Develop a multi-lingual communications and engagement strategy to inform and engage residents in civic processes, with an emphasis on corridor plan implementation. Utilize websites, listserves, and social media and secure translation and interpretation as standard practice for all major public meetings.	LEAD: Chelsea City Manager's Office; Chelsea Planning and Development; MGH Healthy Chelsea	• The strongest stakeholders in Chelsea are resident PARENTS • Create an Office of New Chelsea Residents • Construction jobs/city residence preference • City of Chelsea to expand their website • Informative: 1) online sources 2) newsletters 3) To monitor slides in some of the local businesses that are most frequently visited by the citizens of Chelsea • Create pages for all languages we have in Chelsea • Create APP for Chelsea residents • Make sure 4B+4C are city funding priorities • Promote city online calendar • The T has not been talking with residents! Look at the bus route mess since the bridge construction. • Please ensure that we reach beyond current local community organizations to engage residents in civic participation. We have too many disengaged residents • Reach out to Church communities! Reach out to the new tenants at One North

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
• **GOAL 5: Workers and small businesses will be able to access opportunities and grow within the local and regional economy**				
5A	Encourage local hiring practices	Facilitate communication and collaboration between new businesses, social service providers, and schools to understand workforce needs and transmit knowledge of these opportunities to residents.	LEAD: Chamber of Commerce; The Neighborhood Developers; Bunker Hill Community College; Chelsea Public Schools	• City hall employees are 5% Latinos, while there are 62% Latinos in the city • We need jobs for people who live in Chelsea. They should bethe priority • Require the production of "Healthy Foods" when food vendors request a citylicense • Think about vocational schools • Hire Chelsea youth for Market Basket, Stop and Shop, and other businesses in Chelsea
5B	Facilitate workforce training and placement partnerships	Establish and implement programs in partnership with major employers and local educational institutions such as Bunker Hill Community College to facilitate the training and placement of a pipeline of skilled workers for jobs in TOD businesses. Develop a youth workforce engagement strategy that can be linked with the maintenance and programming on the shared-use path.	LEAD: Chamber of Commerce; The Neighborhood Developers; Bunker Hill Community College; ROCA Transitional Employment Program	• Create workforce training facility in Chelsea • Bunker hill needs to be engaged to a much greater extent • Work with existing Board at TOD • Main Streets Chelsea

	ACTION	STRATEGIES	IMPLEMENTATION PARTNERS	Public Comments from 10/28 Meeting
5C	Implement corridor business improvement and business development programs	Work with community partners to implement a Main Streets Program for the Broadway business corridor. Main Streets programs can administer small business development, community development, and beautification programs, including neighborhood clean-up, recycling, and composting programs. Partner with Chamber of Commerce and community advocates to make resources and programs accessible to immigrants. Implement business development programs targeted to Chelsea business owners and immigrant entrepreneurs. Market opportunities for enhanced eating and drinking establishments, clothing stores, and specialty retailers -- consistent with market analysis findings.	LEAD: Chamber of Commerce; The Neighborhood Developers; Bunker Hill Community College	• Create SBA programs. Specifically a Latino SBA program office • See downtown revitalization plan on Chamber website
5D	Promote provision of healthy foods in the corridor	Provide incentives to attract farms and food trucks with healthy options to contribute to the mix of food options in the corridor. Identify opportunity to engage new vendors as part of programming in corridor parks and the shared-use path. Work with Mass in Motion to identify other opportunities, including promotion of healthy eating amongst school-aged children.	LEAD: Mass in Motion; The Neighborhood Developers	• Change our zoning laws so we can have food trucks and access to healthy food along the corridors • Changing laws regarding food trucks • How to engage residents not reached by community orgs? • Where can food trucks go? • This is important. Education about health and nutrition is critical • City tax rebate for healthy restaurants and stores • Farmers market in the corridor

CHELSEA TOD + Health

A Health Impact Assessment of Transit Oriented Development for the City of Chelsea using the Healthy Neighborhoods Equity Fund Framework

Prepared for the City of Chelsea

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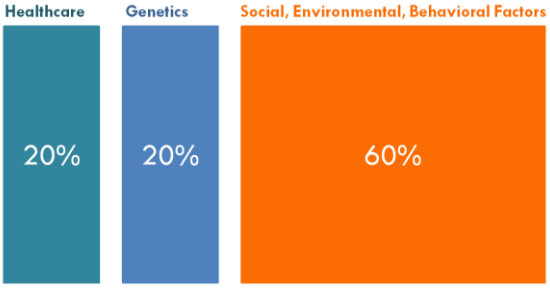
Part I: Background

The Chelsea Silver Line Transit Oriented Development (TOD) Health Impact Assessment (HIA) is part of a project funded by the Massachusetts Department of Public Health (MDPH) to integrate health into priority mapping processes and actions to support identified priority areas for development and preservation. The Chelsea TOD HIA is focused on integrating health into a local planning technical assistance project for rezoning around transit station areas.

Why look at health?

Research suggests that roughly 60% of our health is determined by social, environmental and behavioral factors shaped by the context in which we live.[1] By altering our physical and social environments, urban development such as TOD and associated governance likely play an important role in determining population health.



TOD is a type of development that includes a mixture of housing, office, retail, and other amenities integrated into a walkable neighborhood and located within a half-mile of quality public transportation (Reconnecting America 2013). Creating neighborhoods through TOD may therefore improve public health by reducing household driving and congestion and improving air quality, encourage healthier and more active lifestyles by making walking and other active transit more accessible which may also help reduce crime by increasing the number of "eyes on the street". It can also increase access to jobs and economic opportunity for low-income people and working families (Reconnecting America 2013). Because TOD has been gaining attention in recent years as more people shift back to urban from suburban living, it can also lead to less affordable housing and eventually displacement, however.

In Chelsea's case, here is how residents who responded to Massachusetts General Hospital's (MGH) 2015 Community Health Assessment described the Characteristics of Healthy Community:

The top priorities highlighted were

Low crime & safe neighborhoods (67%)
Good Schools (43.7%)
Affordable Housing (25%)

Project Goals

The goal of the overall Chelsea Silver Line TOD corridor study is to understand the impacts related to new development and redevelopment, including the provision of public space, in the station areas for the MBTA Silver Line extension to Chelsea in order to provide zoning and other recommendations and an action plan for the city of Chelsea to help plan for any upcoming infrastructure change(s). This project incorporates a breadth of expertise and analysis. In addition to the typical components of a DLTA study, this project will also consist of:

- **A Market Analysis** to analyze the city's current market and market potential as well as predict any risk for displacement

[1] McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. Health Affairs, 21(2), 78-93.

- **This HIA**, to predict the health impacts associated with the projected changes to the city over the next 15 years
- **A Managing Neighborhood Change Analysis**, to help the city manage and adequately mitigate any negative consequences associated with these changes

Project leaders have expertise in land use, economic development, housing, and public health, and others contribute experience with community engagement, transportation, food systems, environmental planning and data analysis.

The construction of the Silver Line Gateway service—which is still in progress—is the likely impetus for the increasing demand for development and other pressures in Chelsea that are already occurring in the vicinity of the station areas, as well as other part of the city. See page 6 for a full map of the proposed silver line expansion.

Given this context, the HIA assumes that:

- The Silver Line Gateway service is a driving force for land use, environmental, social, and economic changes in Chelsea along the planned corridor
- The Silver Line Gateway is not the lone driving force for these changes
- Impacts from the Silver Line Gateway and accompanying land use, environmental, social, and economic changes are complex and interrelated
- This HIA is occurring at a point in time and reflects the current understanding of these changes and how they may relate the Silver Line extension and the accompanying development either solely or in combination

The time frames for projections vary depending on the health determinant we examine based on available data and projections. This HIA was conducted in accordance with the five steps of the HIA process, below. For more information, please visit the Pew Charitable Trusts website on HIA.[2] This document will focus primarily on the assessment and recommendations portions of the HIA process. The remaining steps will be described as part of the overall TOD project document.

- **Screening**
- **Scoping**
- **Assessment and Recommendations**
- **Reporting**
- **Monitoring**

Stakeholder Engagement

Stakeholder participation is an important component of the HIA process. Broad inclusion of stakeholders enhances the expression of HIA core values: democracy, equity, sustainable development, and ethical use of evidence, as described by the World Health Organization. Ensuring stakeholder involvement and leadership helps promote a vision of an inclusive, healthy, and equitable community, in which all people, regardless of income, race, gender, or ability, can participate and prosper.

Stakeholder engagement was a priority for all components of this project. For full details on those, please see the final Zoning Action Plan report prepared for the city of Chelsea. As part of the HIA, we obtained feedback from several public meetings and conducted key informant interviews with stakeholders at organizations in Chelsea including: the Neighborhood Developers (TND), the Chelsea Collaborative, City Planning Staff, the Chelsea Police Department, the Chelsea Fire Department, Massachusetts General Hospital (MGH) Center for Community Health Improvement: Healthy Chelsea, and the Department of Health and Human Services. We also used stakeholder feedback gathered as part of the other components of this project to engage

[2] http://www.pewtrusts.org/en/projects/health-impact-project/health-impact-assessment/hia-process

groups, prioritize issues, and contextualize the data presented in this report.

Input from Chelsea residents through the HIA process was gathered primarily on the first public meeting on June 24th 2015. To gather this input, the public health team used a Human Impact Partners exercise where we asked residents to circle places that were "good" and "bad" for their health and wellbeing on a map of the city. See Appendix A for a full description of the exercise and the results.

Adapted HNEF Methods

This project will pilot a new model of rapid HIA that is based on a comprehensive HIA framework so that it can be more sustainably incorporated into similar future planning projects. The HIA will move quickly through the 5 phases of HIA by using the framework developed as part of the Healthy Neighborhoods Equity Fund (HNEF) HIA by the Metropolitan Area Planning Council (MAPC), MDPH and Conservation Law Foundation (CLF) by leveraging existing stakeholder engagement opportunities, data, and expertise from the planning team providing the technical assistance for the rezoning.

The HNEF HIA indicators were developed through a combination of stakeholder input and current public health research in order to measure any changes in the health potential of a neighborhood. Factors that influence health are broadly defined to include social elements such as crime, mental health such as social cohesion, and physical health such as neighborhood walkability/active transit. The methodology for these indicators was designed to be broadly applicable to place-based projects. The Chelsea TOD HIA used and further developed these indicators so that the inclusion of health may be easily replicable in future planning projects. Stakeholder engagement will still play a central role in this HIA, but will serve to prioritize these existing pathways and build on them rather than start them from the beginning.

For a description of adapted methods, please see our Report titled Chelsea TOD + Health Case Study: Integrating Health into a DLTA Project, which describes the process of integrating health into DLTA.

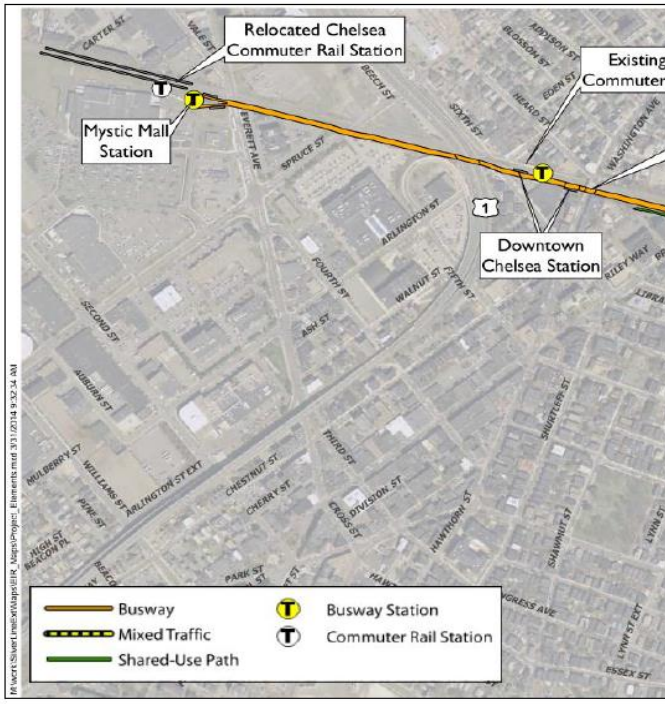
Note that not all of the cities initiatives will be included in this document but can be found in the full Zoning Action Plan.

The Impact of Equity on Health

Various studies link disparities in social and environmental conditions to specific and unjust differences in population health disparities. In fact, substantial research has linked the unequal distribution of income in a community (i.e. income inequality) to worse health for the community as a whole *including* those who are better off.[i]

For these reasons, this HIA is considering equity, and lack thereof, central to predicting the future health of Chelsea given the changes the city is and will continue to experience.

i. Adler, N. E., & Rehkopf, D. H. (2008). US disparities in health: descriptions, causes, and mechanisms. *Annu. Rev. Public Health*, *29*, 235-252.


Relocated Chelsea Commuter Rail Station
Existing Commuter
Mystic Mall Station
Downtown Chelsea Station
Busway
Mixed Traffic
Shared-Use Path
Busway Station
Commuter Rail Station

Part II: Health in Chelsea

The data below summarize the current health conditions in Chelsea. These data were collected to serve as the baseline to understand how the health of Chelsea's residents might change, if at all, over the next 5-20 years. All data sources are listed in detail in Appendix B.

To contextualize these data, we used our own public input, stakeholder feedback, MGH Community Health Assessments (CHAs) from 2012 and 2015, and public input collected for Chelsea's open space action plan 2010-2016. This information is presented throughout the document. Major themes included:

- Public safety, crime, and violence
- Drug trafficking and drug use
- Overcrowding in housing
- Displacement of residents
- Air pollution and environmental contamination

Community assets were also highlighted. These included:

- Parks and other public green space, during the day (at night, residents felt unsafe)
- The city's cultural diversity

Who lives in Chelsea?

By defining the environments and cultures we grow up in, socioeconomic and demographic factors are important predictors of lifetime health outcomes.[3]

Chelsea has a population of 37,670 and is a lower-income, less educated, and predominantly Hispanic and immigrant community. A brief summary of demographic comparisons are summarized below. Note: since most health data is only available at the municipal level, the demographic characteristics presented below are for all of Chelsea, not just the study area for the Chelsea TOD study. *Sources: U.S. Census Bureau, ACS 2005-2009, MetroBoston DataCommon*

	Chelsea	Everett	Lynn	Revere	STATE
Demographic					
2013 population	37,670	42,935	91,589	53, 756	**6,709,540**
<18 (%)	26.3	22.1	25.1	21.6	**22.3**
65+ (%)	11.0	11.6	11.4	15.5	**13.4**
White non-Hispanic (%)	32.0	65.3	54.5	70.3	**78.9**
Hispanic (%)	57.6	15.4	27.7	18.7	**8.3**
% Foreign Born	44.7	38.8	32.2	29.6	**14.7**
Non US Citizen	33.2	25.1	19.3	16.7	**7.4**
Socio-economic					
Per capita income $	18,816	22,667	20,944	23,834	**33,460**
% below 100% poverty	23.9	11.5	19.4	11.1	**10.1**
% Unemployed	8.7	7.0	8.0	7.6	**6.7**
% < High School education	31.4	23.5	22.8	20.8	**11.6**

Sources: U.S. Census Bureau, ACS 2005-2009, MetroBoston DataCommon

A note about population growth:

According to MAPC's population projections, Chelsea's population is expected to increase to 37,641 between 2010 and 2020 and to 40,224 by 2030, but Census estimates from 2013 suggest that the current population has already surpassed this 2020 estimate. In fact, Chelsea has been growing by roughly 2.22% per year, which is nearly 3 times the projected rate. It is likely that the incoming transit and infrastructure improvements will accelerate this growth, but assuming that it remains constant (i.e. 2.22% per year), Chelsea's population would be 41,861 in 2020 (+4,191). This estimate does not take out-migration or other development factors (such as increased cost of housing) into account, and not an

[3] McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. Health Affairs, 21(2), 78-93.

actual projection, but rather illustrates the large growth the city has already experienced.

How equal is Chelsea?

A robust body of evidence suggests that income inequality impacts all-cause mortality[4]. The more unequal a society is, the worse the relative impacts.

The most widely accepted measure of inequality is the called the Gini index, which measures the relative distribution of income across a population. Scores range from 0 to 1 where a score of "0" represents complete equality (i.e., every person has the same income) to a score of 1, which represents complete inequality (i.e. where one person earns all the income and others have none).

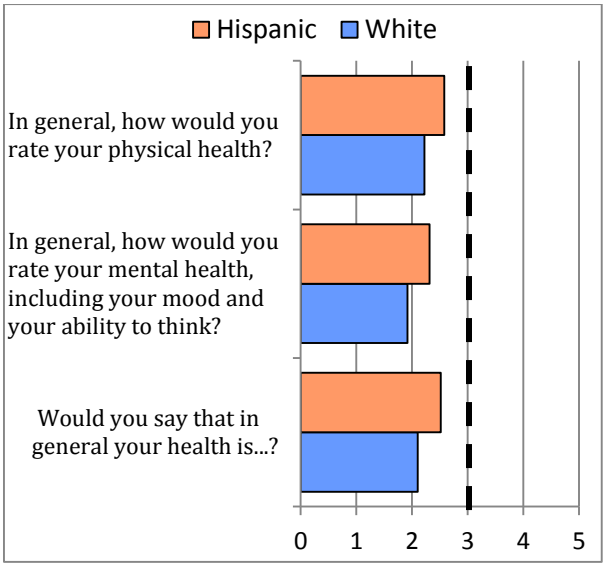
According to 5- year aggregated ACS data, Chelsea, Suffolk County and Massachusetts have all become *less* equal from 2005-2009 to 2010-2014. Of all these, Chelsea has experienced the smallest change.

Geography	2005-2009	2010-2014
Chelsea	0.441 ± 0.02	0.455+0.03
Suffolk County	0.521 ± 0.01	0.530 ± 0.01
Massachusetts	0.465	0.480

Source: ACS 2005-2009, 2010-2014

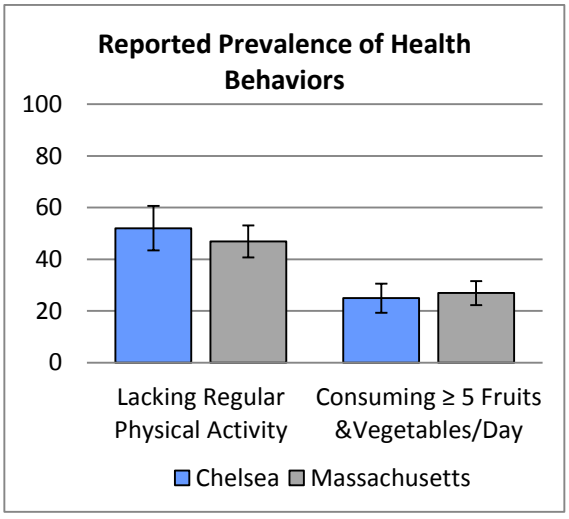
What do people report about their health & health behaviors?

According to MGH 2015 CHA Quality of Life survey, Chelsea residents rank their physical, mental, and general health relatively poorly. The figure below shows these results divided by race on a scale of 0-5 where 0 is poor and 5 is excellent. Among the over 800 survey respondents, 36% identified as Hispanic and 65% identified as white. Interestingly, white residents ranked their health slightly worse than Hispanic respondents.



Source: MGH Community Health Assessment, 2015

Behavioral Risk Factor Surveillance Survey (BRFSS) data show that Chelsea's residents report lower prevalence of healthy eating and physical activity when compared to the state (though these differences are not statistically significant).

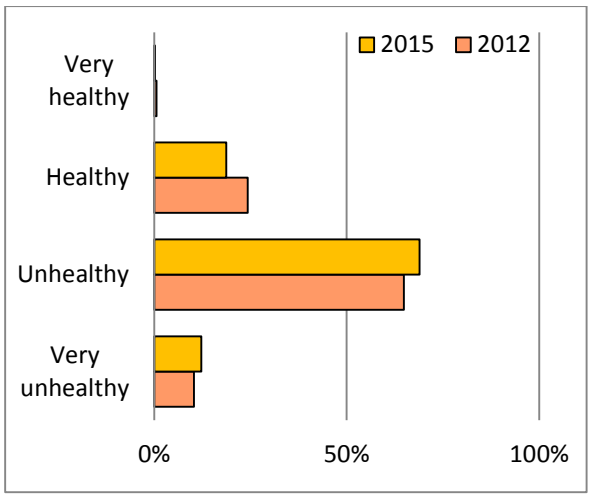


Source: BRFSS, CY 2005, 2007, 2009

The perception of Chelsea as unhealthy persists on a community level as well. In 2015 **more than 80% of MGH's survey respondents ranked Chelsea as "unhealthy" or "very unhealthy"**, a number which

[4] http://www.bmj.com/content/339/bmj.b4471

increased slightly compared to the 2012 CHA where this total was 75%.

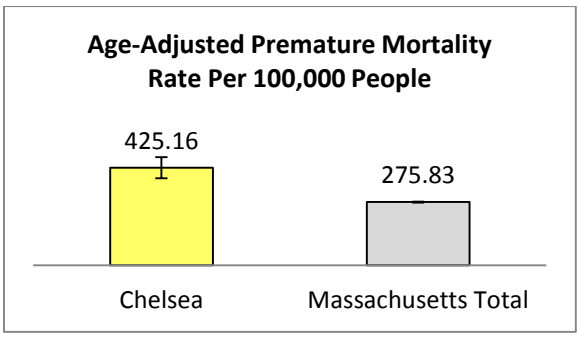


What are their health outcomes?

Infant mortality rate (IMR) and birth weight are also basic public health indicators. Although the proportion of low birth weight children is slightly higher in Chelsea (9.0%) compared to MA (7.9%), the IMR is actually lower (4.6 deaths per infant under 1 year old of 1,000 live births vs. 4.9 per 1,000 live births). Since low birth weight is one of the primary drivers of infant mortality, the lower IMR suggests that other factors—such as good health care access perhaps—are helping to mitigate the higher risk.

Hospitalizations and disease-related deaths are among the most basic indicators of how people are currently faring in terms of health outcomes. This is because these data show the rates of the most serious health conditions when hospitalization becomes necessary. These data effectively paint the "worst-case-scenario" and so by their nature don't represent the spectrum of the condition or its presence in the community.

In 2010, the mortality rate in Chelsea was 779.6 deaths per year, compared to Massachusetts' rate of 704 deaths per 100,000 per year. As the figure below shows, adjusting for age, Chelsea's premature mortality rate[5] is 1.5 times higher than that of the state as a whole.



Hospitalization rates amongst adults in Chelsea are statistically significantly higher when compared to state-wide rates in nearly every category. In particularly, Mental Health ER Visits, Cardiovascular Disease, and Chronic Obstructive Pulmonary Disease (COPD) have rates that are excessively higher than the state rate. Adult Asthma (not ER visits), Coronary Heart Disease, Alcohol/Substance Abuse, and Diabetes are all substantially higher than the state rates, however. See Appendix C for hospitalization data. Surprisingly pediatric asthma rates (also Appendix D) are consistently lower in Chelsea than they are at the State level. This may be due to lower prevalence but it may also be due to issues related to reporting.

Standard incidence ratios (SIR)[6] for common cancers that have strong evidence linking them to important

[5] Premature mortality is calculated based on the number of deaths before the age of 75

[6] To determine whether an elevation is occurring among individuals diagnosed with cancer in a community or census tract (CT), cancer incidence data are tabulated by gender according to eighteen age groups to compare the observed number of cancer diagnoses to the number that would be expected based on the statewide cancer rate. The SIR is the ratio of the observed number of cancer diagnoses in an area to the expected number of diagnoses multiplied by 100. Age-specific statewide incidence rates are applied to the population distribution of a community to calculate the number of expected cancer diagnoses. The SIR is a comparison of the number of diagnoses in the

environmental, behavioral, or other factors not purely related to genetics or radioactive exposures are presented below. Strength of evidence rankings were conducted by the National Cancer Institute[7]. The following cancers were at the expected rates (i.e. within 15% of the SIR):

Cancer	Relevant Risk Factors
Colon and Rectal	Age, excessive alcohol use, smoking, and obesity
Bladder	Smoking

Source: EPHT, 2005-2009

The following cancers statistically significantly lower than at the expected rates:

Cancer	% below	Relevant Risk Factors
Breast, Female	SIR is 15-50% lower	Obesity in older women, excessive alcohol use
Melanoma	SIR is > 50% lower	

Source: EPHT, 2005-2009

The following cancers statistically significantly higher than at the expected rates:

Cancer	% above	Relevant Risk Factors
Lung & Bronchus	SIR is 15-50% higher	Smoking, second-hand smoke exposure outdoor air pollution occupational exposure to lung carcinogens[8], outdoor air pollution
Pancreatic *	SIR is 15-50% higher	Smoking, Overweight and obesity, Exposure to workplace chemicals, Diabetes, Infection with H. Pylori

Source: EPHT, 2005-2009; *Not statistically significant

What about Health Care Access?

The proportion of adults who were screened for breast, prostate, and colorectal cancer from 2006-2008 were very similar to those at the state level, suggesting that preventive health care in Chelsea is relatively good.

	Chelsea	Everett	Lynn	Revere	**STATE**
Preventive care (2006-2008)*					
* Percent Mammography	83.5	87.4	85.9	83.5	**84.7**
* Prostate cancer screening	53.6	46.3	62.0	53.6	**60.5**
* Colorectal screening	64.4	55.4	63.7	64.4	**61.1**

Source: MGH Community Health Needs Assessment

In fact, according to MGH's Community Health Assessment, 94% of Chelsea's adults have health care insurance compared to 96.6% of all adults in the state. This is corroborated by MGH's CHA in 2015 which found that most people ranked their health care access and quality of care as above average. The fact that there are still such stark health issues in Chelsea however highlights the importance of looking at the other public health factors *besides health care* such as transportation access, equity, housing, and employment to improve health in the city. Appendix E has a list of planned developments in the city as of June 2015. Note that this may have changed since.

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specific area (i.e., community or census tract) to the number of expected diagnoses based on the statewide rate. Comparison of SIRs between communities or census tracts is not possible because each of these areas has different population characteristics.

[7] http://www.cancer.gov/types/common-cancers

[8] asbestos, arsenic, beryllium, cadmium, chromium, and nickel

Part IIIA: Summary of Projected Impacts Assessed in Part IIIB with Recommendations

The following table summarizes the direction of change, if any, for each of the 13 health determinants examined as part of this HIA as well as their eventual impact on residents' health according to current research in public health. For full details and an additional summary see Parts IIIB and IIIC.

Health Determinant	Projected City-Wide Change[9]	Population/Geographic-Specific Projections (where available)	Likely Impact of Current Plan on Equity	Time Frame Evaluated for Impact on Determinant[10]	Eventual Impact on Health & Strength of Evidence[11]	Recommendations[12]
Food						
Access to Healthy Affordable Foods	~	Most vulnerable populations in census tracts 101 and 200 will experience a greater increase in access	Advances Equity	<1-5 yrs	Healthy Eating Cardiovascular Disease Diabetes Obesity	❖ Encourage healthy food retail options as part of any upcoming developments. Examples of these include, but are not limited to, existing restaurants, grocery, or convenience stores featuring and/or increasing selections of healthy and fresh foods such as fruits and vegetables OR encouraging new food retail development that already offers a broader range of healthy food that is affordable for residents of the area ❖ In existing retail areas, focus on encouraging new and affordable healthy food retail in Bellingham Square where there are many unhealthy cheap options ❖ Consider measures that continue to increase financial and physical access to healthy affordable foods in census tracts 101 and 200 in order to promote healthy eating amongst Chelsea's most vulnerable residents. These particularly include the children of low-income, racial-ethnic minority, and/or recent immigrants residing particularly in the Shurtleff-Bellingham neighborhood, but also throughout the city
Housing						
Affordable Housing	-	Most vulnerable populations in census tracts 101 and 200 will be disproportionately affected by decreasing stock	Does not Currently Advance Equity	<1-5 yrs	Mental Health Substance Abuse Children's Health and Development	❖ Focus efforts around preserving or even increasing the current level of affordable housing units to mitigate the decrease in units in the future and to promote mental health, help decrease substance abuse, and promote healthy growth and development amongst Chelsea's children
Displacement	-	Most vulnerable populations in census tracts 101 and 200 will be disproportionately impacted.	Does not Currently Advance Equity	<1-5 yrs	Mental Health Children's Health and Development Social Cohesion[13]	❖ Consider focusing affordable housing production efforts primarily in the most vulnerable sectors of Chelsea: census tracts 101 and 200
Gentrification	+	Neighborhoods with concentrated new development	Does not	<1-5 yrs	Violent Crime Mental Health	❖ Consider developing new affordable housing units near new Silver Line BRT and Shared-Use Path so that benefits, such as better access to

[9] This is a general change for the entire city and may not necessarily reflect changes in a particular neighborhood. The direction of change indicated here shows the direction of change for health as well (e.g., if a change is projected to be negative, it will likely be accompanied by negative health impacts)

[10] Baseline for timeframe is 2015.

[11] While some may, not all health impacts would manifest within the time frame indicated. This is particularly true for the 5 year time frames. Impacts on health may manifest within a 10-20 year period.

[12] The recommendations in this report are meant to broadly inform the remainder of the recommendations given as part of MAPC's DLTA project, which will provide concrete guidance and strategies to accomplish these outcomes

[13] Some determinants may lead to changes in others that are linked to a series of important health outcomes. These are therefore listed as the impact on the determinant rather than the health outcomes to illustrate the connection between these.

		will disproportionately benefit	Currently Advance Equity		Displacement[14]	transportation, jobs, and places to be physically active, can be more broadly distributed
Healthy Housing	-	Most vulnerable populations in census tracts 101 and 200 will be disproportionately impacted	Does not Currently Advance Equity	<1-5 yrs	Asthma Mental Health Infectious Disease Children's Health & Development Personal Safety Injuries	❖ Leverage opportunities to promote healthy housing interventions that reduce lead paint exposure, overcrowding, home violence, and other factors such as smoke-free and structurally sound housing.
Environment						
Air Quality	- +	Not clear without comprehensive traffic projections or information on the Gateway bus filtration	Unclear	<1-5 yrs >5-20 yrs	Cardiovascular Disease Asthma COPD Acute Exacerbations Lung Cancer	❖ Continue to construct and maintain sidewalks, bicycle facilities, and shared use paths in order to promote active transportation and physical activity-related health behaviors that can help reduce vehicle miles travelled and therefore traffic related air pollutants by giving residents alterative modes of transportation. ❖ Consider measures to mitigate pollution from route 1 and the existing commuter rail, which may affect the health of residents that live or are physically active close to those areas
Environmental Contamination	+	Neighborhoods where new development is taking place benefit more than others	Does not Currently Advance Equity	<1-5 yrs	Asthma COPD Poisoning Social Cohesion[15]	❖ Implement incentives to remediate Brownfields in neighborhoods that are not currently benefiting from development that remediates these related to the Silver Line expansion.
Green Space	+	Neighborhoods around shared use path and Box District benefit more than others	May not Currently Advance Equity	<1-5 yrs	Mental Health Social Cohesion[16] Asthma COPD Melanoma Crime (Real or Perceived)	❖ Pursue funding opportunities to increase, enhance, and/or maintain publicly-accessible green spaces, particularly in neighborhoods that currently have lower levels of access per capita. MAPC's open space access measure can help identify these neighborhoods.
Economy						
Economic Opportunity	+	Most isolated low-income populations may benefit more	May Advance Equity	<1-5 yrs	Mental Health Children's Health and Development Social Cohesion[17]	❖ Consider local hiring laws and wage protections (e.g., living wage ordinance) to promote local employment practices that are fair and safe. Implement mitigation measures to promote and protect the health of employees no matter what the form of local employment. For example, some forms of industrial jobs expose employees to toxic chemicals or other conditions that may harm their health, so mitigation measure would need to be implemented to protect them from potential negative health impacts.

[14] Same as footnote 5.
[15] Some determinants may lead to changes in others that are linked to a series of important health outcomes. These are therefore listed as the impact on the determinant rather than the health outcomes to illustrate the connection between these
[16] Same as above.
[17] Same as above.

Transportation						
Active Transportation	+	Most vulnerable populations in census tracts 101 and 200 have the greatest change in access to affordable transportation	May Advance Equity	<1-20 yrs	Physical Activity Mental Health & Brain Development Chronic Disease (Cardiovascular Disease, Obesity, Diabetes, Pancreatic Cancer, Breast Cancer, Endometrial, Colon & Rectal Cancers)	❖ Increase opportunities for active transportation with a particular focus on promoting safe networks of biking and walking facilities that are safe and accessible for residents ❖ Build more connections between existing commercial, residential, and recreational destinations to broaden the active transportation network
Safety from Traffic	-	Not clear without comprehensive traffic projections	Unclear	<1-5 yrs >5-20 yrs	Injuries	❖ Continue to implement pedestrian and bike infrastructure that reduce traffic speeds and increase network connectivity, particularly at the pedestrian crash cluster area in Bellingham Square (highlighted in Appendix O).
Community						
Safety from Crime	+/-	+ In Box District & near Silver Line Station Areas - In most cost-burdened furthest from station areas	Does not Currently Advance Equity	<1-5 yrs	Mental Health Social Cohesion Substance Abuse	❖ Consider improving street and particularly park infrastructure in high crime areas using Crime Prevention through Environmental Design (CPTED) Principles. In particular, focus on lighting for public parks using LED minimal trespass lights (to minimize environmental pollution and energy costs), designing spaces that are open and visible in order to allow for clear sightlines and views for neighbors and passersby , and using resources – municipal, civic, and private - to maintain clean and attractive public spaces.
Social Cohesion	+/-	Changes will likely be unequally distributed, with the current low-income residents in Chelsea experiencing disproportionate negative impacts	Does not Currently Advance Equity	>5-15 yrs	Mental Health Cardiovascular Disease Substance Abuse (inc. alcohol) Crime (Real or Perceived)	❖ Promote access to safe green space and public spaces through programming ❖ Minimize displacement of current residents ❖ Promote welcoming events to allow new and long-time residents to meet each other ❖ Consider increasing opportunities for residents to volunteer as part of their communities, which may also have a positive impact

What Impact Could These Predictions Have on Health Outcomes?

Health outcomes in Chelsea—particularly adult asthma, cardiovascular disease hospitalizations, and mental health issues—are significantly worse than the state. Public health literature suggests that these could be positively impacted by changing the built environment through the health determinants listed above. Reduced environmental contamination and contamination in housing could help reduce asthma hospitalizations over time, for example. It is important to note that health outcomes will not be impacted on the same time scale as the health determinants and that not all health outcomes will be impacted on the same time scale. In fact, we have not yet been able to identify any scientific consensus around how much time it takes for a health determinant to impact the health outcomes it is thought to affect.

Legend				
Projected Change	~ No Meaningful Change Predicted	+/- Relatively Balanced Both Positive and Negative Change	+ Positive Change that is predicted to positively impact associated health conditions	- Negative Change that is predicted to negatively impact associated health conditions
Impact on Disparities	Does Not Currently Advance Equity	Advances Equity		
Relative Magnitude of Impact	N/A No impact predicted	Minimal Small relative impact	Some Medium relative impact	Substantial Large relative impact
Breadth of Impact	Low Predicted to impact specific individuals within a neighborhood or community	Medium Predicted to impact specific households or population groups in a neighborhood or community	High Predicted to impact entire neighborhood or community	
Health Impacts	Mixed or unclear evidence	Some weak or suggestive evidence; ecological or cross-sectional studies that suggest correlation at least	Medium evidence; several studies of mixed strength (e.g., case controls) suggesting relationship	Strong evidence; A robust body of prospective cohort or other strong study designs that imply causal relationship
Time Frame	<1- 5 years Short term Impact	>5-10 years Medium Term Impact	>10-20 years Long Term Impact	

Part IIIB: Social Determinants of Health in Chelsea

Food

Access to Healthy Affordable Foods

What do people do now?
Food access consists of at least two components: physical access and monetary access.

Physical Access: A full map of food access from June 2015 is included in Appendix F. Relative to other issues, stakeholder and resident feedback regarding physical food access was restricted to possible transit access and even then was very minor (see Appendix A). Feedback was concentrated on Market Basket (the "Large Grocery" item on the map above) as the most affordable place for Chelsea residents to obtain a range of fresh fruits and vegetables in the city, yet community based stakeholders reported that the poorest residents with difficult access in the south eastern portion of Chelsea frequently take a taxi to stock up on groceries once a month. This area is also where the poorest and most racially and ethnically diverse residents are concentrated. Taking regular taxis is both financially costly and limits their ability to purchase fresh produce regularly, which may be why some residents highlighted increased transit access to Market Basket as a positive with the new Silver Line (see Appendix A). It should be noted that Compare market was not highlighted during our stakeholder engagement but may have been by other groups, which is an important caveat given its central location as a full service store. Without quantified data, it isn't possible to measure the extent of current resident access or potential future benefit from the silver line. These data should therefore be interpreted as suggestion only, worthy of further exploration.

Monetary Access: As part of the MGH Community Health Assessment (CHA) data that were collected in 2015, nearly 30% of Hispanic respondents reported worrying that food would run out before they could afford to buy more. This number was statistically significantly higher amongst Hispanic when compared to White respondents, less than 5% of whom expressed a similar concern. A similar pattern exists in response to the question "In the past year, has the food you bought not lasted long enough and you couldn't buy more?"

How might this change in the next 5 years?
Since the current changes primarily impact physical access, we will only be evaluating changes related to that component. Physical access could change in two broad ways. Either new development could occur that would increase affordable access to fresh fruit and vegetables, or physical access to existing food options could improve. We evaluated both of these options using the methods described in Table IV at the start of Part IV.

- New Development: As of August 2015, no upcoming developments have explicitly proposed to build new or expand existing farmers markets, grocery stores, or other healthy food retail facilities. Several large scale developments have yet to identify which retailers will go into their substantial proposed retail space area, so this may be an opportunity to propose healthy food development.
- Access to Market Basket: Of the 24,374 (69.3%) city residents who live within a ½ mile buffer of the proposed Silver Line BRT station areas, 18,119 (75%) will have direct and reliable public transit access to Market Basket who did not have access before, which may improve their ability to purchase fresh and healthy foods on a more regular basis.
- According to the Market Analysis, there is a **-$5,120,204** gap in total food & drink retail, meaning that demand outpaces supply, and indicating that there is potential to expand these in favor of healthy options

Housing

Affordable Housing

There is significant need for more affordable deed-restricted units in Chelsea. The subsidized housing inventory (SHI) only consists of 2,125 units (16.9% to total housing stock) but is serving a potential 7,588 eligible households (64% of all households). It is not surprising then that nearly 65% (4,820) of low-income households are cost burdened and of those, nearly 40% (2,838) are severely cost burdened (See Table 1). This analysis does not include Massachusetts rental voucher program data.

Table 1. Cost-Burdened Households[18]

	% Cost Burdened	Severely
Chelsea	52.5%	25.0%
Boston	46.0%	23.4%
MA	39.3%	17.7%

Source: CHAS 2012

How might this change in the next 5-15 years?

Just over half (52%) of Chelsea's subsidized units are affordable in perpetuity, while 807 units could expire between now and 2032, while another 217 units could expire between 2040 and 2095. Considering that Chelsea's inventory of affordable housing, though large, is insufficient to meet the needs of existing residents—2,125 units for 7,235 eligible households—it is vital that this stock be preserved. Towards that end, the City is working with property owners to extend affordability, and with developers to construct new affordable housing units.

Upcoming Affordable Housing vs. Market Rate Development

As part of the city's planned development ordinance, Chelsea, through its Zoning Board of Appeals, can request that 10% of the units within a new residential development consist of affordable housing, but only in the cases where the development meets the minimum two- or four-acre size requirement for such a designation. Developers could pay out a certain sum per unit that goes to a city affordable housing fund or include affordable housing in the project itself. As the 10% affordable housing provision is not mandatory, several projects have been constructed without an affordable housing component in the past. If more market-rate housing is produced in the future without additional affordable units, this means that there may be a decrease in the ratio of affordable housing units to market rate units. If the current population of low-income and cost-burdened households remains the same or increases, ***then the relative supply of affordable housing may decrease in the next 5 years. This may continue to decrease over the next 15 years if more affordable housing is not developed to replace the expiring units.***[19] The city planning department tracks unit expiration, which will be helpful for efforts to keep affordability in place where it already exists and to strategize to replace expiring units with new ones when the opportunity arises.

Displacement

What are the current conditions?

According to the Market Analysis conducted in conjunction with this HIA, the rental market in Chelsea is cheaper than Boston but is competitive, and becoming more expensive. While this presents an opportunity for developers looking to attract higher income young professionals to new developments – successfully thus far – existing residents are increasingly priced out of the market.

Who is at risk?

Nearly three quarters (8,430) of the 11,550 households in Chelsea—4,437 (38%) of whom are families with children—are renters, who are more likely to be displaced than homeowners by rising rents. The average household size in Chelsea was 2.92 in 2010 so this roughly represents 24,600 people total, 13,000 of whom are families with children. Of these, cost-burdened and low income households are the most vulnerable to displacement.

Will residents be displaced over the next 5 years?

Although there is no way to quantify displacement or measure with any certainty that this will occur in the future, the magnitude and breadth displacement risk can be estimated based on increasing housing cost(s) and the

[18] Households spending more than 30% of their income on rent

characteristics of vulnerable populations. According to the projections of the Market Analysis summarized below, the risk of displacement is very high for a large proportion of Chelsea's population.

- Inflation of the real estate market is known to lead to displacement of cost-burdened and low-income households, who are the most vulnerable to displacement
- Roughly 7,600 households qualify as low-income. 4,820 or 64% of those are cost burdened and 2,830 or 37% are severely cost burdened.
- According to the Market Analysis, Chelsea's rental market is becoming more expensive, is mostly catering to young professionals and empty nesters, and is projected to become even less affordable to these vulnerable populations.

Gentrification

Although it is clearly established that the results of gentrification can lead to displacement, these two processes are not synonymous. In fact, gentrification—which is characterized by increasing property values and changing demographics—can have many positive impacts on a community as well. For home-owners, increased property values may lead to increased wealth, for example. Sometimes neighborhoods are perceived as more desirable by developers, which could lead to more local employment and a more vibrant economy. If gentrification leads to increased economic opportunity it may also lead to healthier children, improved mental health, and stronger social cohesion in a community; increased wealth for homeowners, increased investment that could lead to improved public facilities such as parks, schools, and transportation[19].

For this project, we will be defining gentrification as the process of a neighborhood changing in two ways: moving from a lower income to higher income and having a reduced population of racial/ethnic minorities. We will characterize income by looking at trends in cost and type of housing, demographic trends, and changes in development demand. For race, we will focus on the changing proportion of Hispanic residents since that makes up the current majority in the city.

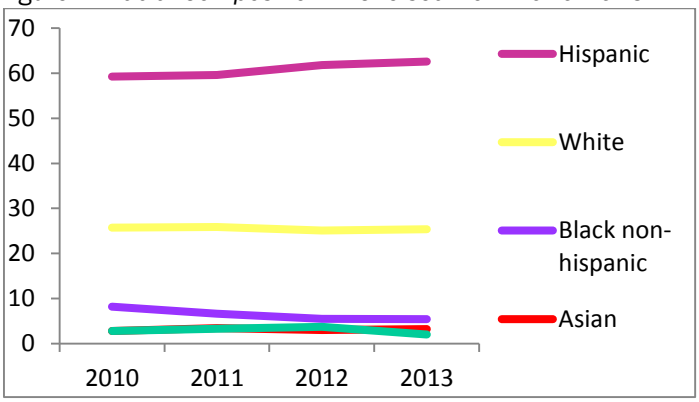
We will also be looking at trends in income inequality over the years as measured by the Gini index to predict potential impacts on health.

What is it like now?

According to analyses conducted by the Market Analysis and Managing Neighborhood Change (MNC) Analysis, Chelsea is already gentrifying. Based on online sources such as Zillow, Craigslist, and Padmapper, median rents in Chelsea may have increased significantly more (to $1800) when compared similar surrounding communities such as Lynn, Everett, and Revere, although ACS data suggest the opposite. Development trends suggest that the stock is increasingly catering to young professionals and wealthier empty nesters and that the proportion of affordable housing in Chelsea is also declining. This is reinforced by findings from MNC stakeholder engagement where residents reported changes regarding housing, including rising rents, evictions, and high instances of housing turnover.

The population metrics are more mixed. According to changes in the Gini index, Chelsea has also become *less* equal in recent years, although it isn't possible from these data to parse out exactly why. On the other hand, ACS data from 2010-2013 (see Figure 1 below) show very little change in racial composition.

Figure 1. Racial Composition in Chelsea from 2010-2013



[19] Gentrification, Displacement, and the Role of Public Investment: A Literature Review. Federal Reserve Bank of San Francisco. August 2015. http://www.frbsf.org/community-development/files/wp2015-05.pdf

Source: ACS, 2010-2013

How will it change in the next 5 years?
According to the Market and Managing Neighborhood Change Analyses, these trends will likely accelerate based on the following development changes:

- A decreasing proportion of affordable housing
- A likely continued increase in the cost of housing (owning & renting) due to increased demand by wealthier tenants

If these changes manifest, they would likely lead to a shifting demographic landscape reflected by increasing household incomes, wealth, and educational attainment measured in the population. If Chelsea does indeed continue to undergo gentrification, it would be very important to track whether the shifting demographics actually reflect a change in the existing population or if they are simply due to a new population of residents replacing the old.

Healthy Housing

We will be considering both the physical—typically defined in terms of mold, mildew, pests, risk of poisonings—and social—personal safety and overcrowding—that contribute to healthy housing. Due to available data, we were only able to consider lead poisoning, overcrowding, and personal safety. Because the strategies to address violence in homes are much more similar to supportive services that help people stay in their homes rather than violent or property crime on a community level, we will be addressing violence and personal safety in homes in this section rather than in the Safety from Crime section.[20]

How healthy is Chelsea's Housing?
Lead poisoning: 84% of housing stock[21] was built before the lead paint abatement law of 1978 and 67% was built prior to 1939, leading to a high potential for lead exposure. Lead poisoning can cause permanent damage to a child's brain, kidneys, and nervous system. It can also result in serious learning and behavior problems. In adults, lead exposure can also have toxic effects, primarily on the nervous system and cognition. The lead law protects children's right to a lead-safe home.

In a BEH report on lead poisoning risk[22], BEH identified Chelsea as one of the 18 highest risk communities in Massachusetts for childhood lead poisoning. According 2010-2014 CY data, Chelsea has an incidence rate of 3.6 new poisonings per 1,000 children aged 9-47 months over the 5 year period.

How might this change in the next 15 years?
Almost none of the upcoming development occurring in Chelsea will be rehabilitating existing housing units and is instead focused on new development. According to the city only a very small portion of development proposed by individual property owners, small developers who are expanding existing units, or non-profits (primarily TND) tend to rehabilitate existing housing. Due to the scope of this project, we only collected data from TND. According to their website, they do not have any upcoming plans to rehabilitate housing in Chelsea. Therefore with the current plans, this will likely not change in a measurable way.

Overcrowding: Overcrowding in Chelsea's poorer neighborhoods was one of the key issues raised repeatedly in our interviews with stakeholders. Unfortunately we were not able to obtain reliable data to measure this issue. The best data, which likely under-represents the issue given Chelsea's large immigrant and non-English speaking population, come from ACS data on tenure by occupants per room. We defined overcrowding based on the HUD metric of >1.0 persons per room (PPR). For the health impacts of overcrowding

[20] Trevillion et al. Disclosure of domestic violence in mental health settings: a qualitative meta-synthesis. 2014
[21] http://www.mass.gov/eohhs/docs/dph/environmental/lead/stats/lead-high-risk-report-cy14.pdf

[22] (5 Year Incidence Rate by community) * (% PIR below 2 by community / % PIR below 2 MA) * (% pre-1978 by community / % pre-1978 MA

according to different standards, please see Appendix G. We used >2.0 PPR as the standard for severe overcrowding as that correlates with the most severe health impacts[23].

	Total # of Units	% Overcrowded	% Severely Overcrowded
All Units	11,550	10.9%	1.2%
Owner-Occupied	3,162	5.2%	1.3%
Renter-Occupied	8,388	13.1%	1.1%

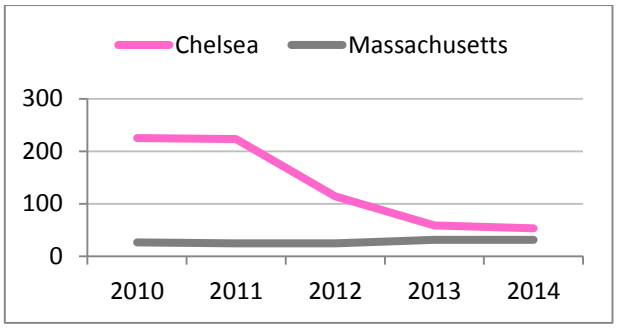
Source: ACS Table B25015, 2009-2013

Although this issue was repeatedly flagged by stakeholders, a recently enacted Housing Ordinance[24] implemented by the city in response to this issue has not uncovered significant overcrowding thus far. The program, effective April 15th 2014 requires landlords to obtain a Certificate of Habitability after having their properties expected every five years or when a property is turned over, regardless of occupancy. The initial target area was focused only on the Shurtleff-Bellingham neighborhood. The lack of random inspections and the requirement for landlords to request the inspection themselves, suggests the program would not uncover any overcrowding, but nevertheless, no current city-wide data currently exists which shows that this is an issue.

Given this conflicting evidence about overcrowding, we cannot draw a clear conclusion in this report as to whether it is a problem or not, although the city should continue monitoring the issue.

Violence in Homes: According to the Chelsea Police Department forcible rape primarily occurs in homes rather than on the street. In absolute numbers there are roughly 20 to 80 reported rapes per year, which has only recently approached the rates in other similar urban communities such as Everett, Lynn, or Revere. Although the rates have fortunately declined from more than 8 times the state rate to roughly 1.5 times the rate, this continues to be an issue of significance. We did not collect other forms of information on domestic abuse because it was out of the scope of this project.

Figure 2. Forcible Rape Rates per 100,000 people, 2010-2014



Source: Chelsea PD & FBI UCR, 2010-2014

How might this change?

Lead poisoning: A very small proportion of upcoming development in Chelsea will focus on remediating existing housing and instead focuses on new development. Thus according to the current plans, lead poisoning risk will likely not change much in the next 15 years.

Overcrowding: Increasing cost burden and the high proportion of vulnerable households suggest that the overcrowding issues in Chelsea's most vulnerable neighborhoods may increase. If overcrowding does increase, it could negatively impact health outcomes related to childhood health and development, asthma, and injuries in the home amongst others. Without clear scientific evidence we cannot predict how increased overcrowding would impact violence in the home, if at all.

Environment

Air Quality

What is the current Air Quality in Chelsea?

Certain pollutants emitted from vehicles impact local air quality, while others from vehicle exhaust or other sources, such as fine particulate matter or ozone, impact air quality across a larger scale.

[23] http://www.huduser.org/publications/pdf/measuring_overcrowding_in_hsg.pdf

[24] http://www.ci.chelsea.ma.us/Public_Documents/ChelseaMA_Inspectional/COHpage

Of these, we were able to obtain $PM_{2.5}$ and Ultrafine Particle (UPF; <0.1 micrometers diameter) counts. $PM_{2.5}$, or particulate matter smaller than 2.5 micrometers in diameter, pose particular respiratory health risks because of their small size. $PM_{2.5}$ data is only available at the regional level. The average annual $PM_{2.5}$ levels in Suffolk County were 10.5 µg/m^3, 10.4 µg/m^3, and 10.7 µg/m^3 from 2009-2011, respectively. These levels are below EPA's National Ambient Air Quality Standard (NAAQS) threshold for unhealthy PM2.5 levels, suggesting Chelsea's levels are adequate.

UFP are even finer than $PM_{2.5}$ and new evidence is emerging that they also pose a great health risk[25]. UFP data for Chelsea were obtained as part of the Puerto Rican Health Study and can be found in Appendix H. UFP exposure is worst near high volume roadways (30,000 vehicles/day or more) and increases in concentration in the winter. The data for Chelsea suggest that the city has substantial near-roadway exposure near Route 1 and Bellingham Square, particularly in the winter.[26]

How might this change?
Changes in local traffic (measured in vehicle miles traveled), regional traffic, and the addition of the bus fleet itself may all impact local air quality.

In the next 5 years (by 2020)
During the construction period, there may be additional impacts on air pollution due to idling construction vehicles and additional traffic caused by the construction, increased emissions, dust, odor and noise. For a summary of mitigation tactics suggested by MassDOT, see the SEIR.[27] UFP are not accounted for in the mitigation tactics, although exposure to these may increase near the construction sites due to idling cars and increased traffic.

Once Phase I is complete in spring 2017, the Silver Line will be in operation with a dual mode (electric-diesel hybrid) bus fleet that will eventually be 60' articulated low emission vehicles. Since the buses have yet to be contracted, their filtration mechanism is unknown. MassDOT has committed to replacing or retrofitting 100% of its transit bus fleet with hybrid systems or best in class fuel efficiency vehicles in 5-10 years in Chelsea. MassDOT's original goal was to replace the entire fleet by 2020, but issues related to vehicle procurement have delayed this process.

In the next 20 years (by 2035)
CTPS's predictions (below) are overwhelmingly positive, with the exception of VOCs, which are projected to rise. SO_2, ozone, and UFP were not predicted as part of this model. CTPS's model was based on changes in vehicle miles traveled and therefore does not predict changes in pollution distribution due to changing traffic patterns or emissions due to the dual mode buses.

Pollutant	Estimated Δ in levels in Chelsea
SO_2	Not included in analyses
VOC	Increases reported for Alternative 2
NO_x	Decrease
Ozone	Not clear from conflicting NOx & VOC changes
CO	Decrease
CO_2	Decrease
$PM_{2.5}$	No measurable change in Chelsea
PM_{10}	No change/small reductions

Source: CTPS estimates, EENF[28]

Long term changes in UFP exposure depends on shifting traffic patterns, for which we were not able to obtain a model. However, as more residential and commercial development happens along Broadway, the existing commuter rail station, and Bellingham Square, more

[25] Brugge et al. Highway proximity associated with cardiovascular disease risk: the influence of individual-level confounders and exposure misclassification. Environmental Health 2013. 12: 84. http://www.ehjournal.net/content/12/1/84

[26] Material specifically created for this project by Matt Simon from the Community Assessment of Freeway Exposure and Health (CAFEH) Study, Grant Funded by the National Heart Lung and Blood Institute (CA148612)

[27] https://www.massdot.state.ma.us/Portals/31/Docs/SLGateway_SEIR_Final_03-31-14.pdf

[28] https://www.massdot.state.ma.us/Portals/31/Docs/environNotification_111513.pdf

residents may move to and commute through this area, potentially increasing population exposures.

Environmental Contamination

What is the environment like in Chelsea now?
Communities designated as Environmental Justice (EJ) communities are the most exposed and vulnerable to environmental harms. All of the communities in Chelsea meet the criteria[29] necessary to be considered Environmental Justice communities. See Appendix I for a map of the designations.

According to the Massachusetts Department of Environmental Protection, there are 439 contaminated (also known as 21E) sites in Chelsea.[30] 52 (12%) of these have been remediated while the remaining 387 are active. See Appendix J for a map (note that most locations are not on the map).

Although Chelsea has a large concentration of sites for the size of the city, it has remediated a higher proportion of the city's brownfields.

City	Total # of Sites	Remediated (# and %)	# Still Open
Chelsea	439	52 (11.8%)	387
Everett	385	36 (9.4%)	349
Lynn	459	55 (11.9%)	404
Boston	4806	418 (8.7%)	4388

Source: Mass Department of Environmental Protection[31]

How might this change in the next 15 years?
Although we were not able to obtain an exact figure, according to the Chelsea Planning Department, most of the development in Chelsea will remediating brownfield sites. The increased demand for development may therefore notably decrease the environmental contamination due to these in the city.

Green Space

How we are defining Green Space

For the purposes of this project we will be using the definition of green space used in Swanwick et al. in 2003[32]. In their model, green space land, whether publicly or privately owned, consists of *predominantly* unsealed, permeable, 'soft' surfaces such as soil, grass, shrubs, trees and water. This is to distinguish it from "grey space", which in their model consists of predominantly sealed, impermeable, 'hard' surfaces such as concrete or tarmac.

How much green space is there in Chelsea?
Although parks were highlighted as one of the most important local resources (see June public meeting feedback in Appendix A), the amount of open space per capita is one of the lowest in the State. This suggests that while Chelsea residents highly value the space to which they currently have access, there is significant desire to add more public space of this kind. Chelsea is already a very dense city however, so whether there is potential to add a significant amount of space or not may depend on collaboration with private developers. See Appendix K for a map of current open space Chelsea and its surrounding communities.

How accessible is it?
According to MAPC's measure of green space accessibility (see Methods table for more information), open space per capita in Chelsea is relatively low compared to similar surrounding urban communities. Appendix L shows a map of open space per capita in Chelsea, Lynn, Revere, and Everett.

[29] Environmental Justice (EJ) communities are defined as U.S. Census block groups that meet one or more of the following criteria: 1) the median annual household income is at or below 65% of the statewide median income for Massachusetts, 2) 25% of the residents are minority or 25% of residents are foreign born, or 3) 25% of residents are lacking English language proficiency.
[30] Search Chelsea for map. http://public.dep.state.ma.us/SearchableSites2/Search.aspx
[31] http://public.dep.state.ma.us/SearchableSites2/Search.aspx
[32] Swanwick, C., Dunnett, N., & Woolley, H. (2003). Nature, role and value of green space in towns and cities: An overview. *Built Environment*, *29*(2), 94-106.

How might green space quantity, access, and quality changes in the next 15 years?

The construction of the **Shared-Use Path** which would extend from Eastern Ave on the eastern side of Chelsea through to Third past the western border in Everett, will add an open space amenity to the community. The proposed path is to be ¾ miles long and the width of the path will be between 8.5 and 10 feet depending on surrounding restrictions. This will add between 0.77 and 0.91 acres of new open space accessible to a significant and diverse range of Chelsea residents. The green component of the shared-use path will consist of a vegetative buffer along the shared use path with new flowers, shrubs, and bioswales to reduce water run-off, all of which will increase and help maintain a healthy space. Since this does not consist predominantly of greenery per our definition, the primary impact of the Shared-Use Path will be via the active transportation pathway rather than in the green space pathway.

Although no private developers are proposing to remediate or develop new green space that is open to the public, the city of Chelsea received a grant to redevelop part of the Highway corridor as part of the Highland Street Green Corridor Plan. These changes, listed below, will be complete by the spring of 2016.

- **Rehabilitate Bellingham Hill Park** by replacing play equipment and park furniture, repairing existing infrastructure, controlling erosion, planting new trees and adding new plantings
- **Green the Highland street corridor** and add streetscape improvements from cottage street through to the Shared-Use Path and Silver Line BRT station, to make it safer and more walkable
- **Rehabilitate the Highland Street Steps** to include new trees, replacing plantings, and preventing erosion
- **Create a pocket park on vacant lot #97**

Appendix M is the project master plan. Pending funding, the city would like to green the remainder of the Highland street corridor as well. These plans will only add a small amount of green space but could represent very important quality improvements. Bellingham Hill Park was cited as a recent nexus of substance abuse activity and well-maintained spaces are associated with a decline in poor use of public space as well as improved perceived safety, which is an important mediator for stress and mental health as well as a series of health behaviors such as physical activity,[33] which as shown in Table IV at the start of Part IV, has important consequences for cardiovascular disease, cancer, and many other health outcomes.

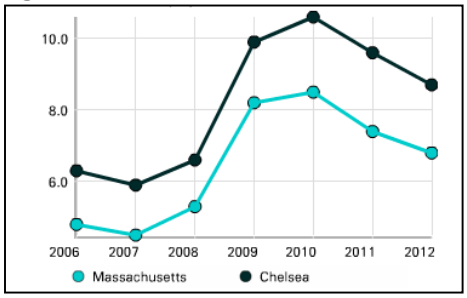
Economy

Economic Opportunity

Chelsea has high proportion low-income, immigrant population, with very low educational attainment and high linguistic isolation. Almost 24% per cent of the population is below 100% of the federal poverty line and the unemployment rate is consistently several percentage points higher than the rate in Massachusetts, as the graph below shows.

The top industries that employ Chelsea residents within a half mile radius around the five proposed Silver Line Gateway stations are highlighted in orange for the top three and light yellow for the 4th-6th top employers.

Figure 3. Resident Unemployment Rate, 2006-2012



Source: MetroBoston DataCommon

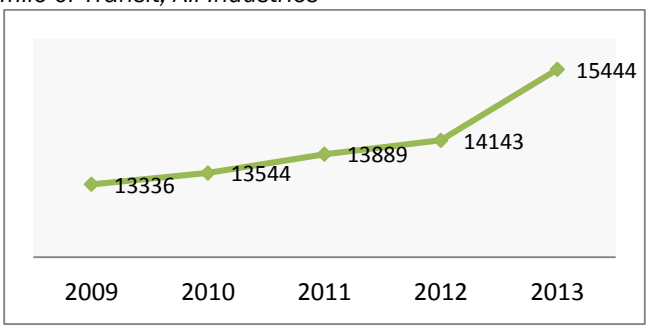
[33] Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of Public Health*, *33*(2), 212-222.

Figure 4. Average Employment by Industry Sectors within ½ mile of proposed Silver Line Gateway Transit Stations over past 5 years, 2009-2013

Construction	2%
Wholesale Trade	8%
Retail Trade	15%
Transportation and Warehousing	9%
Finance, Real Estate, and Management	5%
Professional and Technical Services	2%
Administrative and Waste Services	7%
Educational Services	5%
Health Care and Social Assistance	14%
Accommodation and Food Services	5%
Other Services, Ex. Public Admin	3%
Public Administration	9%

Total job growth from 2009-2013 in the same ½ mile buffer around the station areas is shown below.

Figure 5. Total Number of Jobs from 2009-2013 within 1/2 mile of Transit, All Industries



How might this change?

According to CTPS's Mobility and Accessibility Analyses, the Silver Line Gateway service will increase access to certain jobs for Chelsea residents within a ½ mile buffer of the transit stations. The analyses focused on the following two measures:

The analyses focused on two measures:

- The number of employment opportunities in three categories (basic, retail, and service), health care facilities (hospital beds), and higher education facilities, that can be reached within 20 minutes by car, or within 40 minutes by transit.
- The average travel time for accessing the above employment opportunities, health care, and higher education institutions.

Based on these, CTPS found:

- Travel time from and to the destinations along the Silver Line decreased by 0.5% (which is the whole city)
- Basic job access increased from 4.6% to 5.9%
- Retail job access increased from 0.4% to 0.58%
- Access to health care and educational institutions remained the same

Transportation

Active Transportation

What transportation do people currently take?

Table 2. Workers Commuting to Work

64% by Car	
24% by Transit	
9% by Walking	
0.4% by Biking	
2.6% Other	

Although car ownership is low and there are only 0.88 registered vehicles per household in Chelsea, most people (64%) still commute to work by car. Nearly 40% of households do not have a car, however, which suggests that they make up a substantial portion of workers commuting without a car. According to the Massachusetts Vehicle Census, the number of vehicle miles traveled per household in the city was 21.5 miles per day.

According to tstation.info[34], the area around the current Chelsea Commuter Rail station has a transit access score of 8 out of 15 and a walkscore of 79. Transit access scores are based on transit access, connectivity, and non-car

[34] Information Station is an MAPC data tool to help communities, state agencies, and developers to unlock the full potential of transit oriented development in the region. It provides easy access to demographic, economic, transportation, and development information for over 300 existing and planned MBTA transit station areas.

commuting. Higher scores indicate that the transit service in the station area is frequent, fast, and connected to essential destinations, relative to its peers. Higher scores indicate better access. This implies that while Chelsea is very walkable, the access to transit is currently relatively low compared to what it will be. Trailmap.mapc.org, which maps public trails in the MAPC region, shows only one Shared-Use Path by the Mary O'Malley Waterfront Park. There is a second path on private land that is open to the public along the Mill Creek at the Parkway Commons shopping center as well. Appendix N shows this path as well as the proposed Shared-Use Path and bike path connection through downtown.

How might this change in the next 5 to 15 years?
Based on CTPS's estimates of increased transit ridership[35] and daily Shared-Use Path volume[36], the Silver Line Gateway Service and Shared-Use Path would add the following. Note that these estimates only apply to current residents and don't take into account those residents that might move to the city, which may or may not have been transit users already.

- A very small net increase of roughly 283 new linked transit trips per day in Chelsea by 2035 when compared to the no-build scenario in the study area designated by CTPS which follows the proposed Silver Line Gateway service. The inputs to this calculation apply to current residents of Chelsea and not to potential future residents. They include:

New SL boardings in Chelsea	+2,810
Δ in Chelsea Commuter Rail Station	+40
Δ in bus ridership in Chelsea[37]:	--
Route 111: 61.5% of -2,230	-1,371
Route 112: no detail[38], used 100%	-460
Route 114: no detail, used 100%	-170
Route 116: 32.4% of -890	-168
Route 117: 29% of -1,060	-307
Estimated total new unlinked trips	374
Average transfers	1.32
Estimated total new linked trips	283

  Bus lines 112 and 114 also operate outside of Chelsea but so these numbers likely under-estimate increased ridership. According to the outputs in the HEAT tool, by 2035 this would:
  - Prevent 0.08 deaths due to any cause[39] per year (1.6 deaths over a 20 year period)
  - Decrease the average cardiovascular mortality risk in Chelsea by 4%

- Roughly 180 bicycle trips & 720 pedestrian trips per day on the Chelsea Shared-Use Path Based on similar neighboring paths, bicyclists may be using the path for round trips and thus roughly 90 bicyclists will be travelling in each direction.

Note that this analysis does not take into account the quality of transit experience or specific changes to people's daily routine that impact their quality and health such as such as shorter commute times or less crowded transit.

Safety from Traffic

What is Pedestrian Safety like now?
According to 2002-2011 data from MassDOT, Chelsea has the top pedestrian crash cluster[40] in the entire state (see Appendix O for map). According to these data there were 207 accidents involving pedestrians from 2002-2011, 74% (154) of which resulted in injuries. This report does not include data on any disparities in reporting between cities that may skew MassDOT traffic data. Crashes have increased when 2011 and 2012 data are included in the 10 year crash cluster data (from 2002-2010 to 2002-2012). In 2012, there were 45 crashes, 35 (78%) of which

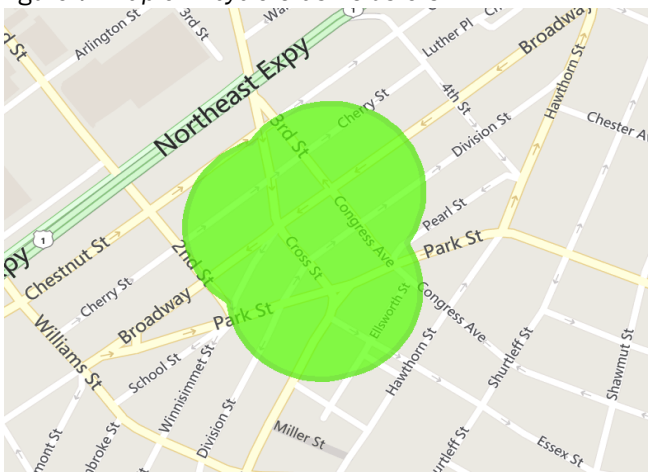
[35] For full details on CTPS's methods contact CTPS or MassDOT (full report not yet available to public)
[36] For full details on the CTPS's methods please see Silver Line Environmental Impact Review (SEIR) here: https://www.massdot.state.ma.us/Portals/31/Docs/SLGateway_SEIR_Final_03-31-14.pdf
[37] Percentage breakdowns come from MBTA Route survey http://bosmpo.ctps.org/map/www/apps/mbtaSurveyApps/busSurveyApp.html
[38] Only key bus routes considered as part of survey. 112, 114 not included
[39] HEAT calculates deaths prevented based on all-cause mortality
[40] https://www.massdot.state.ma.us/Portals/8/docs/traffic/CrashData/11TopCrashLocationsRpt.pdf

resulted in injuries, bringing the total number of crashes for this cluster up to 252, where 75% (189) resulted in injuries. The map below shows more recent crash clusters from 2002-2012, which include the top crash cluster in the state on the bottom left as well as other crash clusters further to the north. The injury rate for all pedestrian crashes in Chelsea from 2002-2012 is 76% (237 injuries for 312 total crashes).

Figure 6. Map of Pedestrian Crash Clusters

Source: MassDOT, 2002-2012

Figure 7. Map of Bicycle Crash Clusters



Source: MassDOT, 2002-2012

What is Bike Safety like now?

According to MassDOT's bicycle crash data from 2002-2012, Chelsea only had 13 crashes involving bicycles, 7 of which resulted in injuries (0 in fatalities), all in a single concentrated cluster which has not changed compared to the 2002-2010 clustered data. This is somewhat surprising considering the city has no protected bike infrastructure (bike lanes, cycle tracks, etc.) according to MAPC's Northern Strand Communities Bicycle and Pedestrian Network Plan from July 2013[41]. Bicycle ridership may be low, however, and stakeholder feedback suggests that most Chelsea residents who bike do so informally and therefore may ride on sidewalks or off roads, which may contribute to a reduction in reported bicycle collisions.

How might this change with the Silver Line Gateway Service and Shared-Use Path?

Only a few intersections were studied as part of CTPS's traffic study for the EENF. Since no comprehensive traffic analysis was conducted, we were not able to quantify how safety might change.[42]

There are no protected bike lines connecting the two sides of the Shared-Use Path at Broadway (see Appendix N), which is one of the greatest pedestrian crash cluster areas in the city. This may lead to an increased number of pedestrian and bike collisions if safe bike infrastructure is not installed.

Community

Safety from Crime

Safety from Crime focuses on crime outside of the home. We recognize that crime inside our homes is also an important factor, but because the strategies are often different for measuring, predicting, and addressing each, we are focusing on them separately for the purposes of this project. Crime inside the home, such as violence and threats to personal safety are discussed as part of the social and mental health component of the healthy housing pathway.

Although Chelsea's violent crime rates continue to be significantly higher than those at the state level (from 2010-2012 Chelsea's violent crime rate was 4 times that of the state), the numbers have declined significantly in

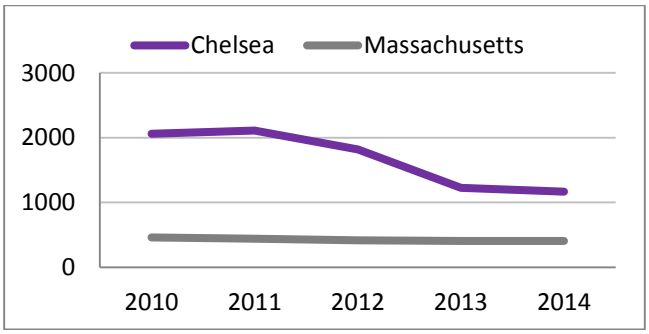
[41] http://www.mapc.org/sites/default/files/Cluster%202%20Bike-Ped%20Network%20Plan_Final-reduced2MB.pdf

[42] For full details, please see pages 6-25 to 6-34 of EENF https://www.massdot.state.ma.us/Portals/31/Docs/environNotification_111513.pdf

the past 3 years. A strong body of literature suggests that income inequality, lack of economic opportunity, and poverty are significant drivers of violent crime[43]. Other research suggests that, to a lesser extent, legal deterrents (i.e. the threat of punishment) may also play a role. [44]

The Chelsea police divide the city into four sectors (see Appendix P for a map), and 60% of all violent crime in Chelsea primarily occurs in Sector 4, which is the poorest, most racially and ethnically diverse, and most densely populated area of the city.

Figure 8. Violent Crime Rates per 100,000 people, 2010-2014



Source: Chelsea PD & FBI UCR, 2010-2014

Although we were not able to obtain data to illustrate this, the Chelsea police told us that:

- The same group of 150-200 young men between the ages of 16-24 are consistently booked as both the perpetrators and victims of violent crimes;
- Aggravated assaults and robberies often occur together and may thus be double counted in the data;
- In their experience, perpetrators of violent crimes are not the same as those who commit property crimes. Residents that commit property crimes are instead likely primarily substance users looking for additional funds.

Chelsea's vacancy rate is lower than that of the state. Although more vacant units have been linked to increased crime,[45] it seems unlikely that this is the best mechanism through which to address the high rates of crime in Chelsea.

Table 3. Vacant Units

	Chelsea	Suffolk County	State
Units	12,575	314,929	2,808,549
Vacant	1,025	26,689	278,402
Vacancy Rate	8.0%	8.5%	9.9%

Source: ACS 2009-2013

How might this change in the next 5 years?

Crime prevention through environmental design (CPTED) suggests that the following factors could help reduce crime:

- More pedestrians or "eyes on the street"
- Physical separations such as doors, fences, and shrubs to keep unauthorized persons out of a particular place.
- Clearly separating public and private areas
- Good maintenance of public spaces

Safety from crime is really a combination of actual crime and perceived crime, but they are not always linked. We therefore separated predictions for crime and perception of crime, which indicate slightly different things.

According to the following changes, we are predicting that crime and perceived crime will *decrease* in Chelsea in the next 5 years but that the impacts will be diffuse over the city, with certain areas experiencing decreases while others may actually experience increases.

Projected Changes to Actual Crime	
Trend of Decreasing Rates of Violent and Property Crime	Decrease
Improvements to Bellingham park, which is currently perceived as unsafe	Decrease*

[43] Hsieh and Pugh. Poverty, Income Inequality, and Violent Crime: A Meta-Analysis of Recent Aggregate Data Studies. 2014. http://cjr.sagepub.com/content/18/2/182.short

[44] Fajnzylber, Lederman, and Loayza. What causes violent crime? European Economic Review. 2002. http://siteresources.worldbank.org/DEC/Resources/What_Causes_Crime.pdf

[45] Krivo, L. J., & Peterson, R. D. (1996). Extremely disadvantaged neighborhoods and urban crime. *Social forces*, *75*(2), 619-648.

Better lighting and streetscape improvements along Highland corridor	Decrease*
Increased "eyes on the street" in Shurtleff-Bellingham with new Silver Line Gateway stations	Decrease*
Increased cost burden and inequality, which may drive an increase in crime by increasing neighborhood disorder in the poorer neighborhoods[46]	Increase*
Net Projected Change	Slight decrease along silver line stations and in box district. Possible increase in poorer areas further from transit

*These changes would likely be primarily local only

Perception of crime is incredibly important because it drives behavior. The following table summarizes the predictions for perceived crime.

Projected Changes to Perceived Crime	
Trend of Decreasing Rates of Violent & Property Crime	Decrease
3-year increased perception of lack of safety	Increase
Build-out of the Shared-Use Path, which will increase "eyes on the street"	Decrease
Small increase in public transportation usage with the Silver Line Gateway service which increases number of commuting pedestrians	Decrease
Maintenance improvements to Bellingham park, which is currently perceived as unsafe	Decrease*
Better lighting and streetscape improvements along the Highland corridor	Decrease*
Lack of lighting at Silver Line bus stops between 1am and 5am	Increase
No CTPED changes to Bellingham square	Maintained
Projected Net Change	Mixed, decreased near silver line stations but increased or maintained in current high crime areas

*These changes are likely local only.

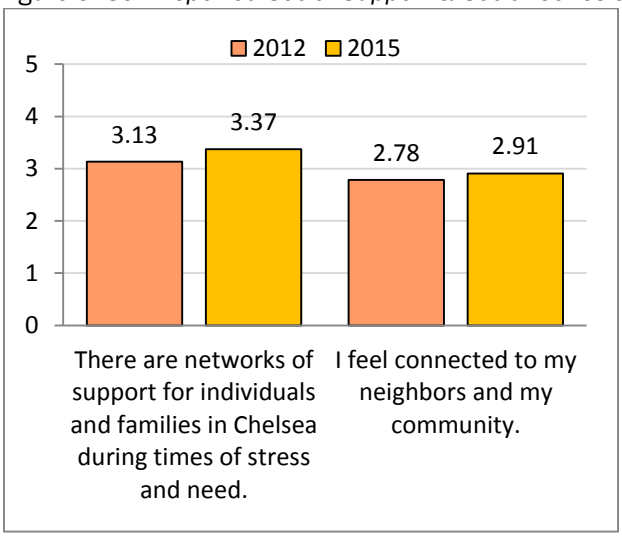
Social Cohesion

According to stakeholder feedback, social cohesion is likely rather low in Chelsea due to several factors:

- The city receives a lot of new immigrants, particularly in Census tracts 101 and 200 and this population is highly mobile. Stakeholders discussed high turnovers in neighborhoods, which impedes lasting relationships.
- Although it is declining, crime, and particularly violent crime, remains high.
- Pervasive disruptive and delinquent behavior such as public urination and ever-present drug sale was a major theme highlighted by residents through the MNC engagement process.

Although this is corroborated by MGH's Community Health Needs Assessment data, trends from 2012-2015 suggest this may be improving. Social networks and connectedness amongst neighbors, as measured by the CHA, increased. Although residents' sense of community and self-efficacy largely stayed the same, it is more positive than negative (Figure 9).

Figure 9. Self-Reported Social Support & Social Cohesion



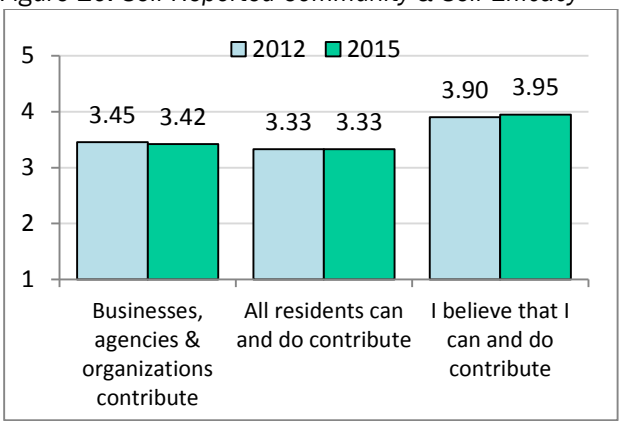
Sources: MGH Community Health Assessments, 2012, 2015

Self-efficacy describes the belief that one's actions can change one's outcome. Figure 10 below shows these results. When asked if they believe whether they and their neighbors "have the opportunity to contribute to and participate in making Chelsea a better place to live", people agreed slightly more than they disagreed. Generally survey respondents also felt that businesses,

[46] Definition of "neighborhood disorder" is

agencies, and organizations in the city contribute to making the community a better place to live as well.

Figure 10. Self-Reported Community & Self-Efficacy



Source: MGH Community Health Assessments, 2012, 2015

The only contradiction to this are residents' perception of crime. When surveyed residents felt that Chelsea was a *less* safe place to live in 2015 compared to 2012.

How might this change in the next 15 years?
Based on the following factors, our analyses suggest that social cohesion will likely not change in Chelsea over the next 15 years. The speed at which this occurs depends on the magnitude of the following changes.

Direction & Relative Magnitude of Impact		
Predicted decrease in rates of Violent & Property Crime	+	
Perceived decrease in crime around stations	+	
Perceived increased crime in Sector 4	-	
Disparities in crime perception that may exacerbate perceived inequality	-	
Predicted increase in inequality	-	
3-year increased perception of lack of safety	-	
Constant positive sense of community & self-efficacy	+	
Increased risk of displacement	-	
Creation of the Shared Use Path, Silver Line Station, and improvements to near station areas public space (e.g., Bellingham Hill park) that brings more people outside	+	
Projected Net Change	~	

Part IIIC: Summary of Findings

Health Determinant	City-Wide Projection	Population/Geographic-Specific Projections (where available)	Relative Magnitude for Time Frame	Breadth	Likelihood[47]	Summary of Findings
Access to Healthy Affordable Foods	~	Most vulnerable populations in census tracts 101 and 200 will experience a disproportionate increase in access	N/A	High	Possible	• As of August 2015, no upcoming developments have explicitly proposed to build new or expand existing farmers markets, grocery stores, or other healthy food retail facilities. • 18,119 residents (75%) have direct and reliable public transit access to Market Basket of the 24,374 (69.3%) city residents that live within a ½ mile buffer of the proposed Silver Line Gateway station are. This may improve their ability to purchase fresh and healthy foods on a more regular basis. Vulnerable populations make up more than 40% • According to the Market Analysis, there is a **-$5,120,204** gap in total food & drink retail, meaning that demand outpaces supply, and indicating that there is potential to expand these in favor of healthy options
Active Transportation	+	Most vulnerable populations in census tracts 101 and 200 have the greatest change in access to affordable transportation	Minimal	High	Likely	• 40% of households don't have cars within a ½ mile of proposed Silver Line stations • According to CTPS projections, there will be a very small net increase of 283 people taking public transportation in Chelsea by 2035 • A modest daily volume estimate for the Shared Use Path of 180 bike trips & 720 pedestrian trips per day.
Affordable Housing	-	Most vulnerable populations in census tracts 101 and 200 will be disproportionately affected by decreasing stock	Minimal	Low	Possible	• There are currently 2,125 units in the subsidized housing inventory • 33% of these will expire by 2030, which will not be replaced at the current rate of affordable housing development • If the current population of low-income and cost-burdened households remains the same or increases, the relative supply of affordable housing will decrease
Air Quality	- +	Not clear without comprehensive traffic projections or information on the Gateway bus filtration	Minimal Some	High	Possible Very Likely	• Possible short term decrease in air quality due to idling by Diesel Operated vehicles during the construction process by 2020 • Overall improved air quality in Chelsea by 2035. ↓ NO_x, CO, CO_2, Possible decrease in UFP;↑VOCs; No change in $PM_{2.5}$, PM_{10},
Displacement	-	Most vulnerable populations in census tracts X and X will be disproportionately impacted.	Minimal	Medium	Likely	• Inflation of the real estate market is known to lead to displacement of cost-burdened and low-income households, who are the most vulnerable to displacement • Roughly 7,600 households qualify as low-income. 4,820 or 64% of those are cost burdened and 2,830 or 37% are severely cost burdened. • There is a high risk of displacement in Chelsea because of the large vulnerable population and inflating rental market that is mostly catering to young professionals and empty nesters.
Economic Opportunity	+	Most isolated low-income populations may benefit more	Some	Medium	Possible	• Travel time from and to the destinations along the Silver Line decreased by 0.5% (which is the whole city) • Basic job access increased from 4.6% to 5.9% and retail job access increased from 0.4% to 0.58% • Access to health care and educational institutions remained the same
Environmental Contamination	+	Neighborhoods where new development is taking place disproportionately benefit	Some	Medium	Likely	• There are 438 contaminated 21E sites in Chelsea, 9 of which are open and the rest which are closed or closed w/limited use • Most of the development in Chelsea is new development that will be remediating brownfields • Therefore environmental contamination will likely **decrease** in Chelsea
Healthy Housing	-	Most vulnerable populations in census tracts 101 and 200 will be disproportionately impacted	Some	Medium	Possible	• According to community feedback, parks and green spaces are one of the most valued assets in the community • The construction of the Shared Use Path and the redevelopment of Bellingham Hill Park will slightly increase green space
Gentrification	+	Neighborhoods with concentrated new development will disproportionately benefit	Minimal	High	Very Likely	• Chelsea hasn't undergone as much gentrification as neighboring communities, but there are signs the process has started • Gentrification is likely to scale up quickly a could positively impact Chelsea because it will bring new investment to the area
Green Space	+	Neighborhoods around shared use path and Box District disproportionately benefit	Minimal	High	Very Likely	• Based on stakeholder feedback and available data, healthy housing focused on lead poisoning and overcrowding • Very little to no redevelopment of the existing housing stock is planned so lead poisoning levels are not likely to change • Cost burden is likely to increase as units expire however which may lead to increased overcrowding after the 5 year timeline
Safety from Crime	+/-	+ In Box District & near Silver Line Station Areas	Minimal	High	Likely	Based on Crime Prevention through Environmental Design (CPTED) principles: • Actual crime will likely decrease overall, particularly around the new station areas. Some local increases in crime may occur

[47] According to current data. These predictions may change as the overall project progresses

Health Determinant	City-Wide Projection	Population/Geographic-Specific Projections (where available)	Relative Magnitude for Time Frame	Breadth	Likelihood[47]	Summary of Findings
		- In most cost-burdened furthest from station areas				further from the station areas • Perceived crime will likely improve slightly overall, particularly for areas close to the station areas again. It may worsen for areas further from transit spots, however.
Safety from Traffic	-	Not clear without comprehensive traffic projections	Minimal	Medium	Possible	• Chelsea has the top pedestrian crash cluster in the state
Social Cohesion	+/-	Changes will likely be unequally distributed, with the current low-income residents in Chelsea experiencing disproportionate negative impacts	Minimal	Medium	Possible	Chelsea will likely experience no net change in social cohesion based on a combination of the following factors: • Changes in perceptions of crime, redevelopment of green space and streetscapes, more "eyes on the street" due to the Shared Use Path and Silver Line stations, the community's constant sense of self efficacy, and the increased risk of displacement

Legend

City-Wide Projection	~ No Meaningful Change Predicted	+/- Relatively Balanced Both Positive and Negative Change	+ Positive Change that is predicted to positively impact associated health conditions	- Negative Change that is predicted to negatively impact associated health conditions
Population/Geographic Specific Projections	Describes degrees to which specific populations will impacted			
Relative Magnitude for Time Frame*	**N/A** No impact predicted in listed time frame (note: there may be an impact *in longer time frame*)	**Minimal** Minor city-wide impact in listed time frame	**Some** A small to medium city-wide impact in listed time frame	**Substantial** Large and meaningful city-wide impact in listed time frame
Breadth of Impact	**Low** Predicted to impact only specific individuals within a neighborhood or community	**Medium** Predicted to groups of people or entire neighborhoods that total to less than half the city	**High** Predicted to impact more than 50% of the city	
Likelihood	**Possible** Some evidence supports city-wide projection	**Likely** Relatively strong evidence supports city-wide projection	**Very Likely** Compelling evidence supports city-wide projection	
Time Frame	<1- 5 years Short term Impact	>5-10 years Medium Term Impact	>10-20 years Long Term Impact	

*Note: these predictions are qualitative and only apply to the time frame listed for each determinant. The degree of impact would likely change with different time frames.

Part IV: Methods

Table 4. HNEF Framework, Links to Health, and Projection Methods

Health Determinant & *Health Behaviors and/or Conditions Most Impacted*[48]	Evidence linking Determinant to Health Outcomes[49]	Projection Methods	Time Frame
Access to Healthy Affordable Foods Healthy Eating Cardiovascular Disease Diabetes Obesity	Although some discrepancy exists in the literature, poor supermarket access has been linked to increased rates of poor health outcomes such as diabetes, cardiovascular disease, and obesity when compared to neighborhoods that have supermarkets.[50,51,52] Changes to regulation, public transportation, and general infrastructure may lead to changes in access by increasing incentives for full service grocery stores or farmers markets to locate in previously unoccupied areas or by increasing access to existing stores.	We evaluated changes to access to healthy food in two ways. • First, we documented whether any new proposed developments over the next X years included full service grocery stores or affordable farmers market options • Based on stakeholder feedback suggesting that Market Basket is a critical grocery outlet which is not equally accessible to all residents, we modeled the increased access to Market Basket based on half mile buffers around new proposed Silver Line transit stations in that neighborhood.	5 yrs
Active Transportation Physical Activity Mental Health & Brain Development Depression Chronic Disease (Cardiovascular Disease, Obesity, Diabetes, Pancreatic Cancer, Breast Cancer, Endometrial, Colon & Rectal Cancers)	Compared to the National walking average of 6 minutes per day, public transit users spend a median of 19 daily minutes walking.[53] Estimates show that an individual walks an additional 8.3 minutes per day when they switch from driving to transit.[54] Evidence suggests that good infrastructure (sidewalks, bike lanes etc.) and public transportation access leads to increases in walking and biking for transportation purposes, and therefore plays an important role in increasing population level physical activity[55]. A very robust body of literature links physical activity to a panoply of health benefits (listed on the left)[56,57,58,59]. Furthermore recent evidence suggests that while active transit may expose users to air pollution on the road, the positive benefits of physical activity outweigh the negative impacts of increased air pollution exposure.[60] By increasing active transit, mode shift associated with the Silver Line BRT may therefore lead to changes in mental health and chronic disease outcomes in Chelsea.	To understand changes in physical activity, we focused on how the inclusion of the Silver Line Gateway service and Shared-Use Path extension would change behavior. We used the following data to calculate the mortality and economic impact associated with mode shift changes via the web-based Health Economic Assessment Tool (HEAT) from the World Health Organization (WHO): • Change in daily walking per day when switching modes predicted from Edwards 2007 (increase of 8.3 minutes per person who switches to transit from driving) • Mode shift estimates based on a CTPS model of ridership in 2035. CTPS did not calculate linked trips in Chelsea specifically, so estimated linked trips in Chelsea using the following calculation. Chelsea bus ridership was estimated using the MBTA bus route survey.[61] ○ $\frac{(\#\text{ New SL boardings in Chelsea})+(\Delta\text{ in Chelsea existing bus line and commuter rail ridership})}{(\text{CTPS}'\text{ estimate for \# of average transfers})}$ • The 2010 Chelsea total mortality rate (779.6 deaths per 100,000), and • The 2012 value of a statistical life from Dockins et al. 2004 ($8.32 million). Although CTPS estimated the Without a mode shift estimate, we were not able to do a similar calculation with the Shared-Use Path extension.	20 yrs

[48] Color coding represents strength of evidence in the literature

[49] This table only provides a brief summary, for a more extensive literature review please see Healthy Neighborhood Equity Funds Health Impact Assessment.

[50] Kamphuis, C., Giskes, K., de Bruijn, G. J., Wendel-Vos, W., Brug, J., & Van Lenthe, F. J. (2006). Environmental determinants of fruit and vegetable consumption among adults: a systematic review. *British Journal of Nutrition*, *96*(04), 620-635.

[51] Rose, D., & Richards, R. (2004). Food store access and household fruit and vegetable use among participants in the US Food Stamp Program. *Public health nutrition*, *7*(08), 1081-1088.

[52] Larson, N., & Story, M. (2009). A review of environmental influences on food choices. *Annals of Behavioral Medicine*, *38*(1), 56-73.

[53] Besser, L. M., & Dannenberg, A. L. (2005). Walking to public transit: steps to help meet physical activity recommendations. *American journal of preventive medicine*, *29*(4), 273-280.

[54] Hill, J. O., Wyatt, H. R., Reed, G. W., & Peters, J. C. (2003). Obesity and the environment: where do we go from here?. *Science*, *299*(5608), 853-855.

[55] Sallis, J. F., Floyd, M. F., Rodríguez, D. A., & Saelens, B. E. (2012). Role of built environments in physical activity, obesity, and cardiovascular disease. *Circulation*, *125*(5), 729-737.

[56] Biddle, S. J., & Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *British journal of sports medicine*, bjsports90185.

[57] Li, J., & Siegrist, J. (2012). Physical activity and risk of cardiovascular disease—a meta-analysis of prospective cohort studies. *International journal of environmental research and public health*, *9*(2), 391-407.

[58] Lee, I. M. (2003). Physical activity and cancer prevention--data from epidemiologic studies. *Medicine and Science in Sports and Exercise*, *35*(11), 1823-1827.

[59] National Cancer Institute (NCI). Physical Activity and Cancer Fact Sheet. http://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/physical-activity-fact-sheet

[60] Andersen, Z. J., de Nazelle, A., Mendez, M. A., Garcia-Aymerich, J., Hertel, O., Tjønneland, A., & Nieuwenhuijsen, M. J. (2015). A Study of the Combined Effects of Physical Activity and Air Pollution on Mortality in Elderly Urban Residents: The Danish Diet, Cancer, and Health Cohort. *Environmental health perspectives*.

[61] MBTA bus route survey: http://bosmpo.ctps.org/map/www/apps/mbtaSurveyApps/busSurveyApp.html

Affordable Housing Mental Health Substance Abuse Children's Development	Ongoing development pressure in Chelsea may drive up the cost of housing, thereby decreasing options for affordable housing. Affordable housing reduces frequent moves, overcrowding, eviction and foreclosure, which are associated with higher stress levels, depression and feelings of hopelessness.[62] These problems can disproportionately affect children, as several studies found that children in low-income households not receiving housing subsidies are more likely to suffer from iron deficiencies, malnutrition and underdevelopment than children in similar households receiving housing assistance.[63]	Changes in the affordable housing stock were estimated as part of the Market Analysis conducted in parallel with this study. We relied on these figures and used the literature to predict the health impacts based on the magnitude and direction of change estimated by that analysis.	5 yrs
Air Quality Cardiovascular Disease Asthma COPD Lung Cancer Acute Exacerbations	The Environmental Protection Agency (EPA) identifies 6 criteria air pollutants that have important human health impacts: Ground level ozone (O_3), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_x), sulfur dioxide (SO_2), and lead (Pb). Of these, CO, PM, NO_2, and SO_2 are directly linked to vehicular exhaust while O_3 is indirectly linked. The Clean Air Act requires the EPA to establish public health and welfare-based exposure standards for these six criteria air pollutants and States must develop plans to achieve these standards. Although they are not accounted for the EPA's criteria, Volatile Organic Compounds (VOCs) and Ultrafine Particulate Matter (UFP) are also linked to vehicular air pollution and should be monitored. There is an extensive body of literature linking vehicular air pollution to mortality and hospitalizations due to asthma exacerbation, chronic lung disease, heart attacks, ischemic heart disease, and major cardiovascular disease.[64]	In the Extended Environmental Impact Report (EENF), CTPS estimates the impact of the Silver Line Gateway service on VOC, NO_x, CO, CO_2, $PM_{2.5}$, and PM_{10}. We used the figures from Alternative 2 to illustrate changes in air quality. Since they are the precursors to ground level ozone, we also used the VOC and NO_x figures to qualitatively predict whether ozone levels would increase or decrease as a result of the expansion. For changes in UFP, we relied on changes to CTPS's estimates on VMT and expert opinion to qualitatively predict any potential changes.	5 yrs 20 yrs
Displacement Mental Health Children's Health and Development Social Cohesion	New development can bring more economically stable households into an area by increasing the opportunities and economic value of the area, but it may also increase cost burden for lower income households and even lead to their displacement. The latter may increase families' commute times and diminish the positive health effects of existing social networks/cohesion.[65] Increasing cost burden can also increase housing insecurity which has been linked to increased risks of poor health in household members and developmental delays in children.[66] Past studies have found that 15-20% of homelessness in families resulted from eviction from rental housing.[67]	Changes related to gentrification and the risk of displacement associated with those were evaluated as part of the Market Analysis conducted in parallel with this study. We relied on these figures and used the literature to predict the health impacts based on those changes. Health considerations will also be integrated into the Managing Neighborhood Change analysis, another component of this TOD study that will follow this one.	5 yrs
Economic Opportunity Mental Health Children's Health and Development Social Cohesion	Economic opportunity may lead to better health outcomes through several mechanisms. On a community level, greater competitive economic diversity from many employers and business types can help to encourage civic participation, encourage community engagement, and improve economic outcomes such as median household income and poverty.[68] For individuals, it may decrease unemployment, which is associated with risk of cardiovascular disease,[69] depression, suicide,[70] all cause mortality,[71] and type II diabetes in men. It may also increase income, which is linked to decreased morbidity and mortality overall.[72] Growing up in poverty also increases a child's risk for school failure and poor health[73] throughout their lifetime,[74] which could be mitigated should family incomes increase.	Changes to economic opportunity were also calculated as part of the Market Analysis component of this study. We relied on these figures and used the literature to predict the health impacts based on the magnitude and direction of change estimated by that analysis.	5 yrs
Environmental Contamination Asthma COPD	Brownfields and contaminated sites can compromise healthy and safety due to abandoned structures, open foundations, other infrastructure or equipment that may be compromised due to lack of maintenance, vandalism or deterioration, controlled substance contaminated sites (i.e., methamphetamine labs) and abandoned mine sites. They can compromise social and economic health due to blight, crime, reduced social capital, reductions in the local government tax base and private property values that may reduce social services, and introduce environmental issues due to biological, physical and chemical site contamination, groundwater impacts, surface runoff or migration of contaminants as well as wastes dumped on site.[75] State brownfields program incentives are available to buyers, and sometimes sellers, of contaminated property provided there is a commitment to cleanup during redevelopment.	To evaluate whether environmental contamination due to Brownfields or other contaminated sites will change in Chelsea, we looked at whether the MBTA or private developers were suggesting the remediation of these sites as part of new development.	5 yrs

[62] Maqbool N, Viveiros J, Ault M. The Impacts of Affordable Housing on Health: A Research Summary. April 2015. http://media.wix.com/ugd/19cfbe_d31c27e13a99486e984e2b6fa3002067.pdf
[63] Frank, D. A., Neault, N. B., Skalicky, A., Cook, J. T., Wilson, J. D., Levenson, S., & Berkowitz, C. (2006). Heat or eat: the Low Income Home Energy Assistance Program and nutritional and health risks among children less than 3 years of age. *Pediatrics*, *118*(5), e1293-e1302.
[64] US Environmental Protection Agency (EPA). The Benefits and Costs of the Clean Air Act: 1990-2020. http://www2.epa.gov/sites/production/files/2015-07/documents/sept2010_fullreport_draft.pdf
[65] Cohen, S., Gottlieb, B. H., & Underwood, L. G. (2000). Social relationships and health. *Social support measurement and intervention: A guide for health and social scientists*, 1-25.
[66] Cutts, D. B., Meyers, A. F., Black, M. M., Casey, P. H., Chilton, M., Cook, J. T., & Frank, D. A. (2011). US housing insecurity and the health of very young children. *Am J Public Health*, *101*(8), 1508-1514.
[67] Shinn, M., Baumohl, J., & Hopper, K. (2001). The prevention of homelessness revisited. *Analyses of Social Issues and Public Policy*, *1*(1), 95-127.
[68] Tolbert C, Lyson T, Irwin M. Local capitalism, civic engagement, and socioeconomic well-being. Social Forces 1998;77:401-427
[69] Van Lenthe FJ, Borrell LN, Costa C, et al Neighborhood violent crime and unemployment increase the risk of coronary heart disease: a multilevel study in an urban setting
[70] Luo, F Impact of business cycles on US suicide rates, 1928-2007.
[71] Jin RL, Shah CP, Svoboda TJ. The impact of unemployment on health: a review of the evidence. CMAJ. 1995 Sep 1;153(5):529-40
[72] Krieger, N., Rehkopf, D. H., Chen, J. T., Waterman, P. D., Marcelli, E., & Kennedy, M. (2008). The fall and rise of US inequities in premature mortality: 1960–2002. *PLoS Med*, *5*(2), e46.
[73] Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The future of children*, 55-71.
[74] Conroy, K., Sandel, M., & Zuckerman, B. (2010). Poverty grown up: how childhood socioeconomic status impacts adult health. *Journal of Developmental & Behavioral Pediatrics*, *31*(2), 154-160.
[75] http://www2.epa.gov/sites/production/files/2015-09/documents/finalphandbffact.pdf

Gentrification Violent Crime Mental Health Displacement	For the purposes of this project, we will be defining gentrification as the process of a neighborhood changing from being lower income to being higher income. Unlike the other health determinants described in this project, gentrification is a process characterized by a cascade of impacts that most likely impacts health by impacting the other determinants listed in this table. There is little to no literature looking at gentrification itself, but there is evidence to suggest that increasing property values, increased economic opportunities, and a higher-income more-educated population has many positive health impacts as long as existing populations can benefit from its impacts and it does not exacerbate inequalities. Some of the potentially positive impacts could include: decreased violent crime and improved mental health if there is increased economic opportunity, less poverty, and less inequality; increased wealth for homeowners, increased investment that could lead to improved public facilities such as parks, schools, and transportation—all of which have a myriad of benefits. Some of the negative impacts could include: displacement or increased violent crime if income inequality is exacerbated.[76]	and will use the following indicators to characterize this: • Increasing cost of housing (owning & renting) • The following demographic trends: increasing household income, wealth, and educational attainment • Increasing in development demand We will also be looking at trends in income inequality over the years as measured by the Gini index to predict potential impacts on health.	5 yrs
Green Space Mental Health Social Cohesion Asthma COPD Melanoma Crime (Real or Perceived)	Access to parks, open space, and greenery may protect against poor mental health outcomes by encouraging more socializing and thus fostering greater social support and encouraging more socializing, particularly among women. Trees and other vegetation remove air pollutants and promote cleaner and more breathable air. By providing shade for streets and buildings, trees also mitigate heat islands, UV exposure and skin cancer risk. [77-78] Finally, trees in particular have been linked to positive social behavior,[79] and even to reductions in crime.[80]	To project any changes in green space, we estimated what, if any, changes in quantity or quality in green space the city will experience in the next 5 years, and then how access to those amenities might change. • To estimate increased size of the green space we used city plans to estimate the size of the proposed Shared-Use Path within Chelsea and then collected plans to rehabilitate or introduce or improve these in public city spaces where they might increase the quality and/or access to green amenities. • To estimate any changes in access, we estimated the direction of change based on an accessibility baseline calculated through MAPC's open space per capita measure which calculates accessibility based on the number of acres of green space within walking distance (calculated based on a walk shed). Park accessibility is tiered based on size, so that larger parks that were slightly further away were still counted. Parks that were counted include, all parks within a ¼ mile walk shed, parks > 1 acre within a ½ mile walk shed, parks > 10 acres within a 1 mile walk shed	5 yrs
Healthy Housing Asthma Mental Health Infectious Disease Children's Health & Development Personal Safety Injuries	Households with limited affordable housing options may live in substandard and inadequate housing which increases the risk of lead poisoning in children, asthma attacks, and injury. Poor quality or poorly maintained housing may also contain mold, dust mites, cockroaches and rodents, all allergens that contribute to asthma and other respiratory illnesses. [62-81]	Although there are many issues that impact the health of housing, focused on lead poisoning, overcrowding, and interpersonal violence in the home based on available data and stakeholder conversations on the most important issues in Chelsea. To examine the impact on healthy housing, we used analyses conducted as part of the Market Analysis to estimate the increased cost burden on low-and-moderate income households to project how this might impact overcrowding and/or unsanitary housing conditions. Since 84% of Chelsea's housing stock was built before the lead paint law of 1978, we also estimated changes to lead exposure by looking at plans to redevelop old properties.	5 yrs
Safety from Crime Mental Health Social Cohesion Substance Abuse	Well-lit and well-maintained walkable spaces with good visibility and access to shops, parks, and other amenities have been shown to reduce rates of crime and fear of crime.[82-83]	In order to predict how real and perceived safety from crime might change, we looked at how Crime Prevention through Environmental Design (CPTED) principles might change. These include: 1. **Natural surveillance** or "eyes on the street" 2. **Natural Access Control**, which uses physical elements such as doors, fences, and shrubs to keep unauthorized persons out of a particular place. 3. **Territorial Reinforcement**, or clearly separating public and private areas 4. **Maintenance and Management**, or keeping spaces well maintained, which make them less likely to attract unwanted activities (National Crime Prevention Council 2003).	5 yrs

[76] Centers for Disease Control (CDC). Health Effects of Gentrification. http://www.cdc.gov/healthyplaces/healthtopics/gentrification.htm
[77] James, P., Tzoulas, K., Adams, M. D., Barber, A., Box, J., Breuste, J. & Thompson, C. W. (2009). Towards an integrated understanding of green space in the European built environment. *Urban Forestry & Urban Greening*, *8*(2), 65-75.
[78] Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of Public Health*, *33*(2), 212-222.
[79] Taylor, A. F., Kuo, F. E., & Sullivan, W. C. (2001). Coping with ADD The surprising connection to green play settings. *Environment and Behavior*, *33*(1), 54-77.
[80] Kuo, F. E., & Sullivan, W. C. (2001). Environment and crime in the inner city does vegetation reduce crime?. *Environment and behavior*, *33*(3), 343-367.
[81] Krieger, J., & Higgins, D. L. (2002). Housing and health: time again for public health action. *American journal of public health*, *92*(5), 758-768.
[82] Dannenberg, A. L., Jackson, R. J., Frumkin, H., Schieber, R. A., Pratt, M., Kochtitzky, C., & Tilson, H. H. (2003). The impact of community design and land-use choices on public health: a scientific research agenda. *American journal of public health*, *93*(9), 1500-1508.
[83] Garvin, E. C., Cannuscio, C. C., & Branas, C. C. (2013). Greening vacant lots to reduce violent crime: a randomised controlled trial. *Injury prevention*, *19*(3), 198-203.

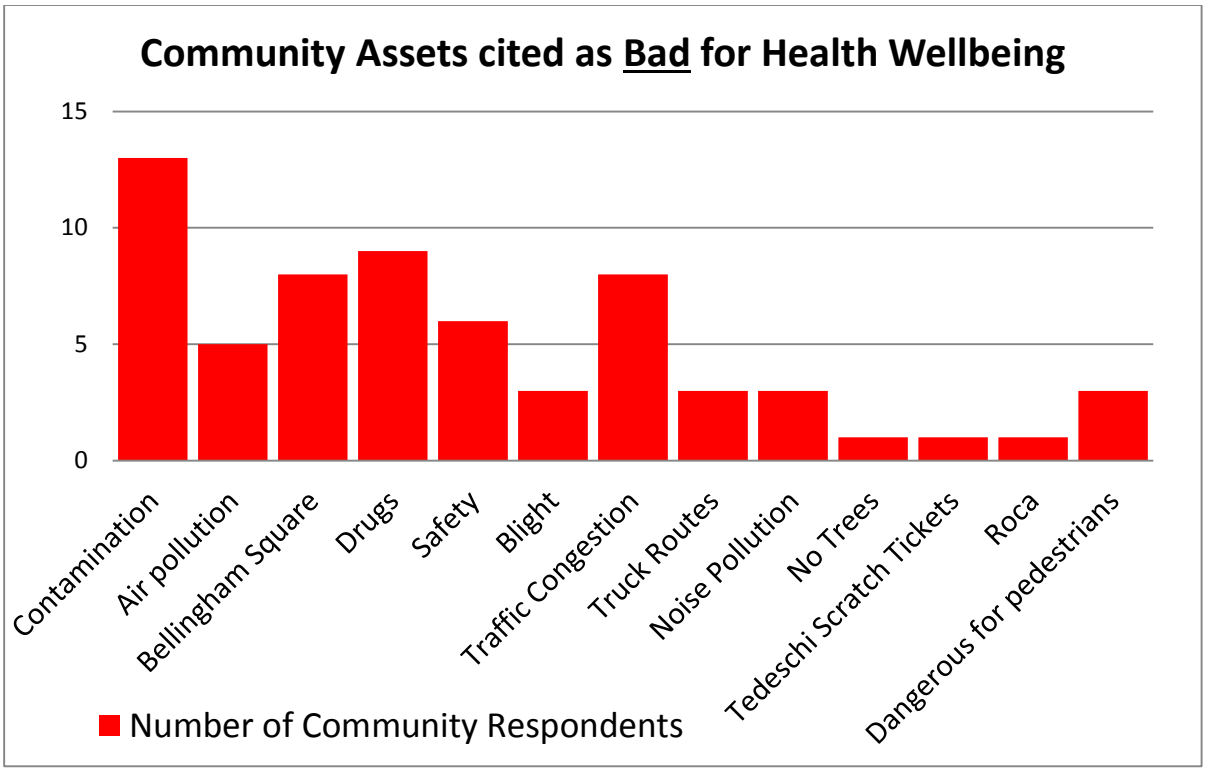
Safety from Traffic Injuries	New transportation infrastructure that increases walking as well as commercial and residential developments, especially those that involve previously vacant land or buildings, generate new trips by motorists, pedestrians, bicyclists and transit users. With the addition of new trips, there is potential for an increase in the number of traffic-related crashes that occur on the surrounding transportation system. However, traffic calming has strong evidence of injury prevention benefits.[84]	Without a comprehensive traffic model, safety from traffic was estimated based on the current Silver Line Gateway plans and qualitative evaluation of increased pedestrian and bike traffic that might expose residents to a greater risk of injury.	5 yrs 15 yrs
Social Cohesion Mental Health Cardiovascular Disease Infectious Disease Substance Abuse (including alcohol) Crime (Real or Perceived)	Negative "psychological" risk factors such as social isolation and stress can harm health, while social support and social cohesion can promote it. Social isolation can lead to greater levels of stress, which has well-documented health effects, as well as many other negative health impacts including increased risk of heart disease, mental health problems, and even death.[85-86] Conversely, those with rich social environments—who have more friends and social interactions, hold a greater level of trust in their neighbors, and are part of a more tightly knit community—have access to a greater network of social resources which in turn help them stay healthier.[85-86] Potential changes in Chelsea, such as increasing housing cost burden that results in displacement or more "eyes on the street" that reduce perceived crime, may impact social cohesion by reducing existing social networks or conversely, increasing trust in neighbors and therefore impact social cohesion.	We estimated any potential changes in social cohesion based on: • Trends in social capital data collected by Mass General Hospital in their 2012 and 2015 Community Health Assessments • Potential risk of displacement • Predicted changes to actual crime • Predicted changes to perceived crime	15 yrs

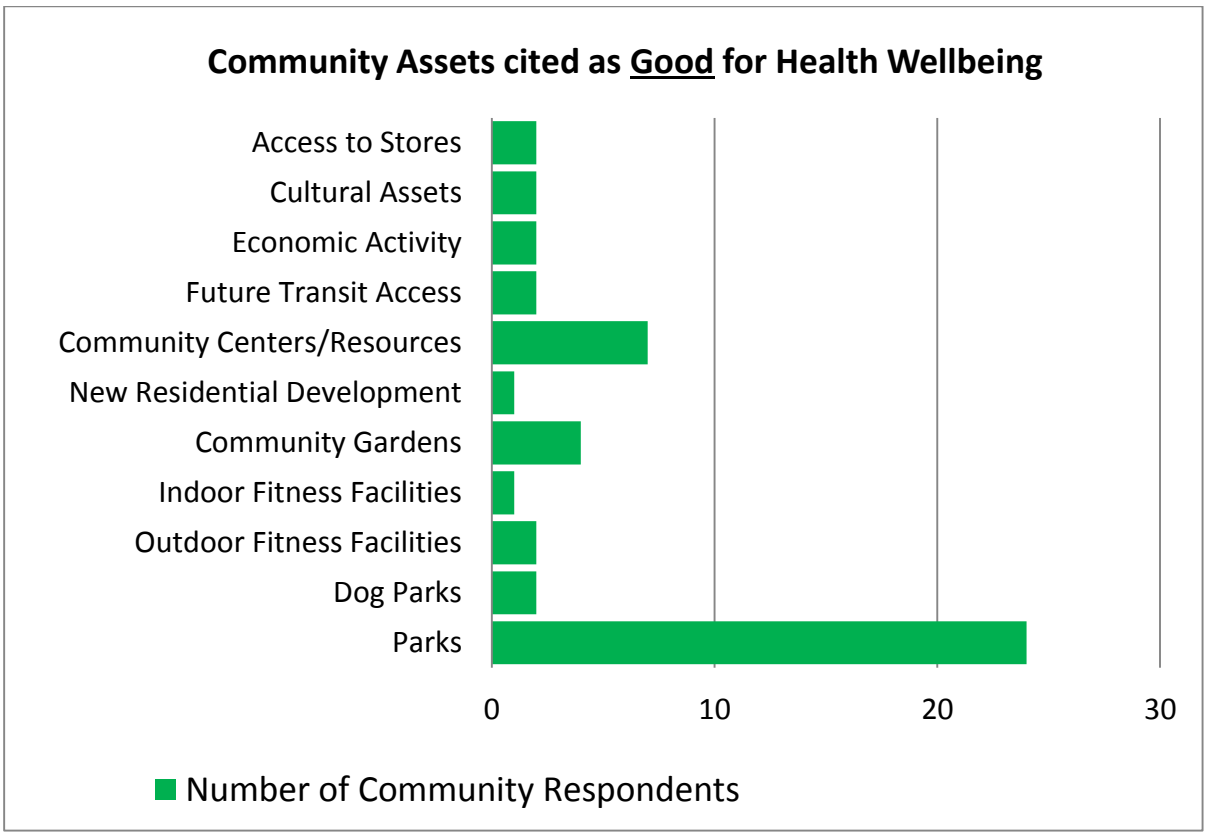
Legend				
Health Impacts	Mixed or unclear evidence	Some weak or suggestive evidence; ecological or cross-sectional studies that suggest correlation at least	Medium evidence; several studies of mixed strength (e.g., case controls) suggesting relationship	Strong evidence; A robust body of prospective cohort or other strong study designs that imply causal relationship

[84] Sallis J, Spoon C. Making the Case for Designing Active Cities. http://activelivingresearch.org/sites/default/files/MakingTheCaseReport.pdf
[85] Uchino, B. N. (2006). Social support and health: a review of physiological processes potentially underlying links to disease outcomes. *Journal of behavioral medicine*, *29*(4), 377-387.
[86] Berkman, L. F., Kawachi, I., & Glymour, M. (Eds.). (2014). *Social epidemiology*. Oxford University Press.

Appendix A. Public Input Methods and Results

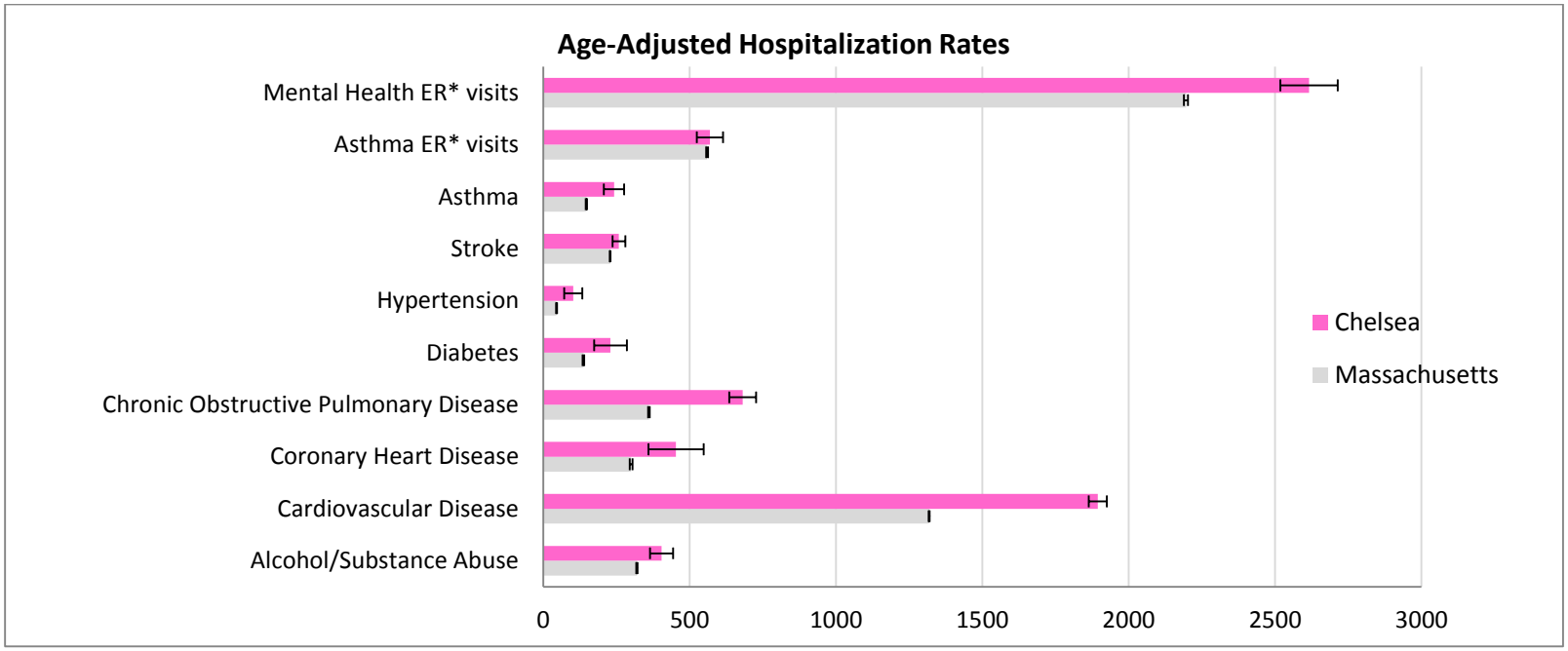
Methods: We asked participants to spend 5 minutes to circle locations that are “good” and “bad” for their health and wellbeing with a word or two describing what they were circling. There was no limit to how many locations we asked participants to circle. We asked them to put a check mark next to already circled areas they agreed with and to circle items in the other color that they disagreed with (with one or two key words as to why. We then used a “rapid” qualitative methods analysis to quantify major themes such as parks and crime. These are summarized in the bar graph.

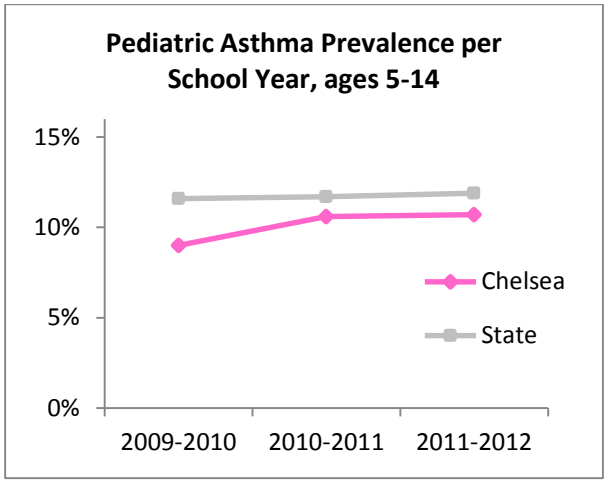

Community Assets cited as Bad for Health Wellbeing
15
10
5
0
Contamination
Air pollution
Bellingham Square
Drugs
Safety
Blight
Traffic Congestion
Truck Routes
Noise Pollution
No Trees
Tedeschi Scratch Tickets
Roca
Dangerous for pedestrians
Number of Community Respondents


Community Assets cited as Good for Health Wellbeing
Access to Stores
Cultural Assets
Economic Activity
Future Transit Access
Community Centers/Resources
New Residential Development
Community Gardens
Indoor Fitness Facilities
Outdoor Fitness Facilities
Dog Parks
Parks
0
10
20
30
Number of Community Respondents

Appendix B. Data Sources

Health Determinant	Baseline Data sources	Projection Data sources
Access to Healthy Affordable Foods	MAPC, MassGIS, MassDOT, USDA ERS	City's Development Database
Active Transportation	Mass Vehicle Census, Tstation.info, trailmap.mapc.org	For Transportation: Model of ridership changes For Shared Use Path: Projection of Daily Volume based on nearby paths
Affordable Housing	CHAS data on cost burden and housing stock	City's Development Database
Air Quality	EPHT, Local Studies	Air pollution modeling from Transportation or development plans, for remaining metrics impact based on potential or modeled changes in traffic patterns. Can also use expert opinion
Displacement & Gentrification	CHAS data on cost burden and housing stock	MAPC Market Analysis
Economic Opportunity	MAPC Market Analysis , MetroBoston Datacommon	Demographic projections, Mobility and Accessibility Analyses
Environmental Contamination	MassDEP	City's development database
Healthy Housing	MassGIS	City's development database, Transportation plans
Green Space	ACS, MDPH, EPHT, City PD, FBI UCR	City's development database
Safety from Crime	City PD, FBI UCR, Local Hospital CHA	City's development plans, Transportation plans, Trends in Local Hospital CHA
Safety from Traffic	MassDOT	Modeled changes in pedestrian and bike injury rates, EENF
Social Cohesion	Local Hospital CHA, Voting	Safety from Crime Pathway Displacement & Gentrification Pathway Green Space Pathway, Local Hospital CHA

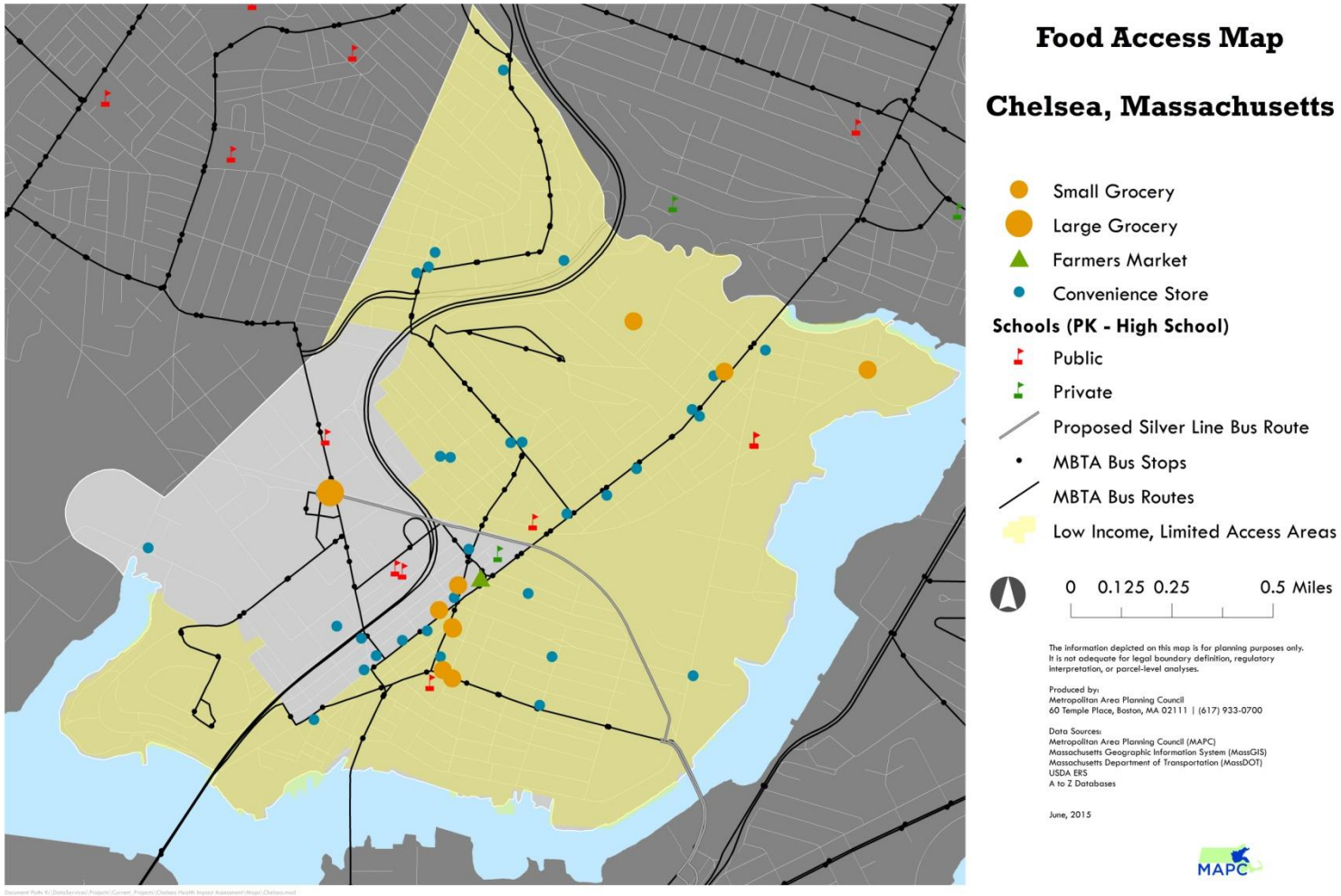

Age-Adjusted Hospitalization Rates
Mental Health ER* visits
Asthma ER* visits
Asthma
Stroke
Hypertension
Diabetes
Chronic Obstructive Pulmonary Disease
Coronary Heart Disease
Cardiovascular Disease
Alcohol/Substance Abuse
0
500
1000
1500
2000
2500
3000
Chelsea
Massachusetts


Pediatric Asthma Prevalence per School Year, ages 5-14
15%
10%
5%
0%
2009-2010
2010-2011
2011-2012
Chelsea
State

Appendix E. Timeline for current proposed developments

Address	Development Details	Developer	Projected completion date
Private			
One North	Phase II: 220 market-rate units, under construction		**Two Openings: April 2016 August 2016**
200 Maple Street	22k SF office, FBI Building; under construction	Patricia Simboli	**August 2016**
284 Everett Avenue	691 residential market-rate units & 8500 SF retail; permitting;	Thibeault Development	**Anticipated Fall 2017**
144-155 Beech Street	125 room hotel; under construction;	XXS Development	**August 2016**
1 Forbes Street	mixed-use development on 18 acres to include retail, commercial, residential, hotel; early discussions;	YIHE Group	**Full build-out 2025**
City			
8 Clark Ave	School; reconstruction and demolition	City	**Spring 2018**
Highland Street Corridor	Park rehab, pocket park creation, streetscape improvements, greening of highland corridor, and connection to Shared-Use Path	City	**Spring 2016**
GCIIP IV Infrastructure Improvements	CSO separation, water main replacement, new sanitary sewer, new drainage, full-depth roadway reclamation/reconstruction, sidewalks, lighting, street trees, dog park	City	**March 2017**
GCIIP V	CSO separation, water main replacement, new sanitary sewer, new drainage, full-depth road reconstruction, sidewalks, street trees, lighting.	City	Massworks application submitted
Non Profit			
241-242 Spencer Avenue	60 affordable residential units; permitting;	The Neighborhood Developers (TND)	**Fall 2017**

Appendix F. Food Access Map for Chelsea, MA as of June 2015.



Sources: MAPC, MassGIS, MassDOT, USDA ERS

Figure 1: Overcrowding Standards for PPR and PPB Included in the UK ODPM Report

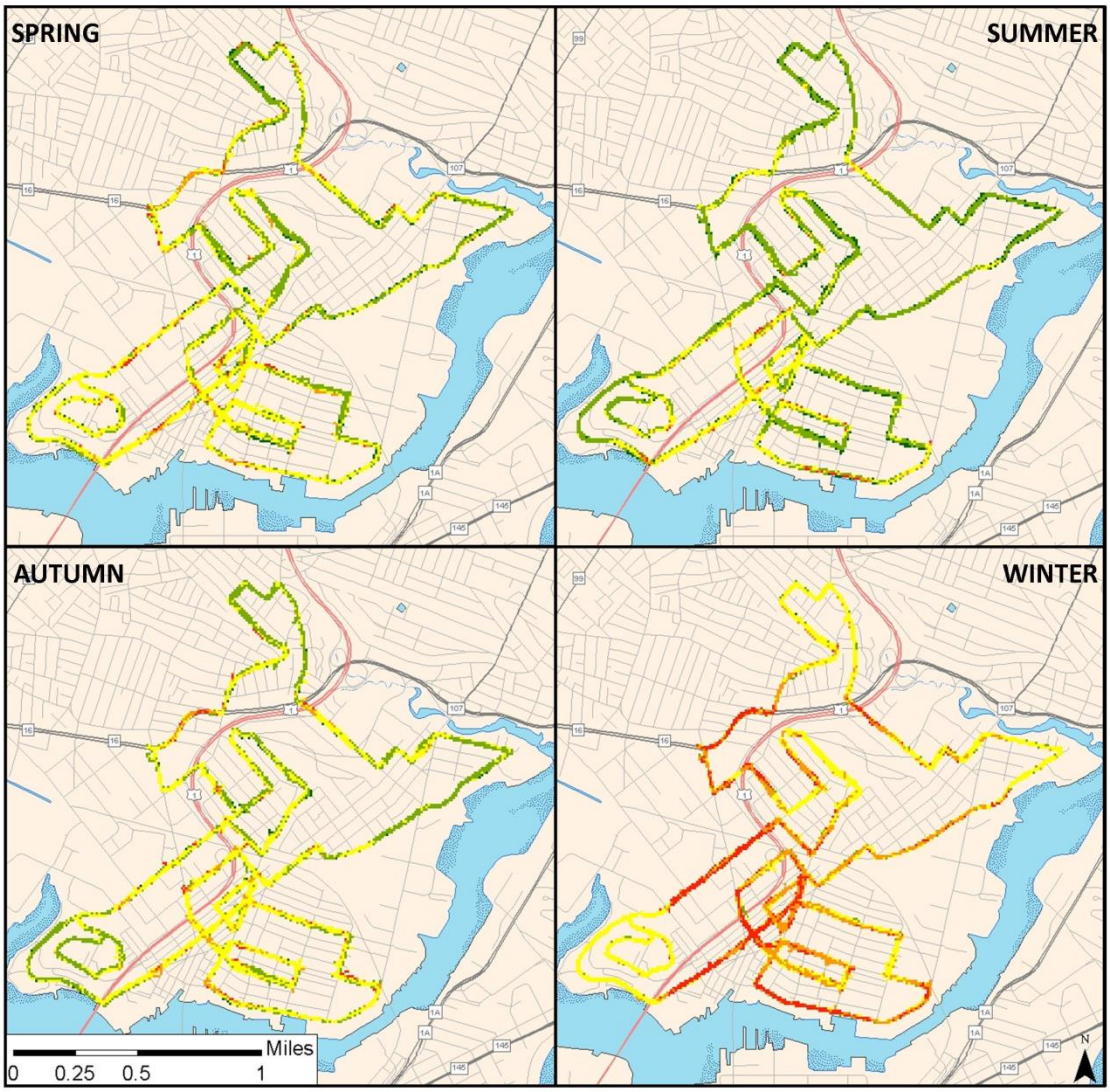
Measure	Standard
PPR	
Physical Health	
Child Mortality	>1.50
Respiratory Conditions	>1.00
Children's Bronchitis	>1.50
Meningococcal Disease in Children Under 5 yrs.	>1.50
Stomach Cancer Mortality	>1.00
Mental Health	
Psychiatric Symptoms	>1.00
Mental Illness	>0.75
Reading and Mathematical Testing	>1.50
Personal Safety	
Accidents	>1.50
Child Maltreatment	>1.00
PPB	
Physical Health	
Meningitis	Not given
H. Pylori Infection	>2.00
Childhood Health, Development, and Education	
School Performance	>2.00

Source: The United Kingdom Office of the Deputy Prime Minister. *"The Impact of Overcrowding on Health & Education: A Review of Evidence and Literature."* Office of the Deputy Prime Minister Publications, 2004.

PPR: Persons per room

PPB: Persons per bed

Appendix H. Ultrafine Particle Count Near Roadways in Chelsea

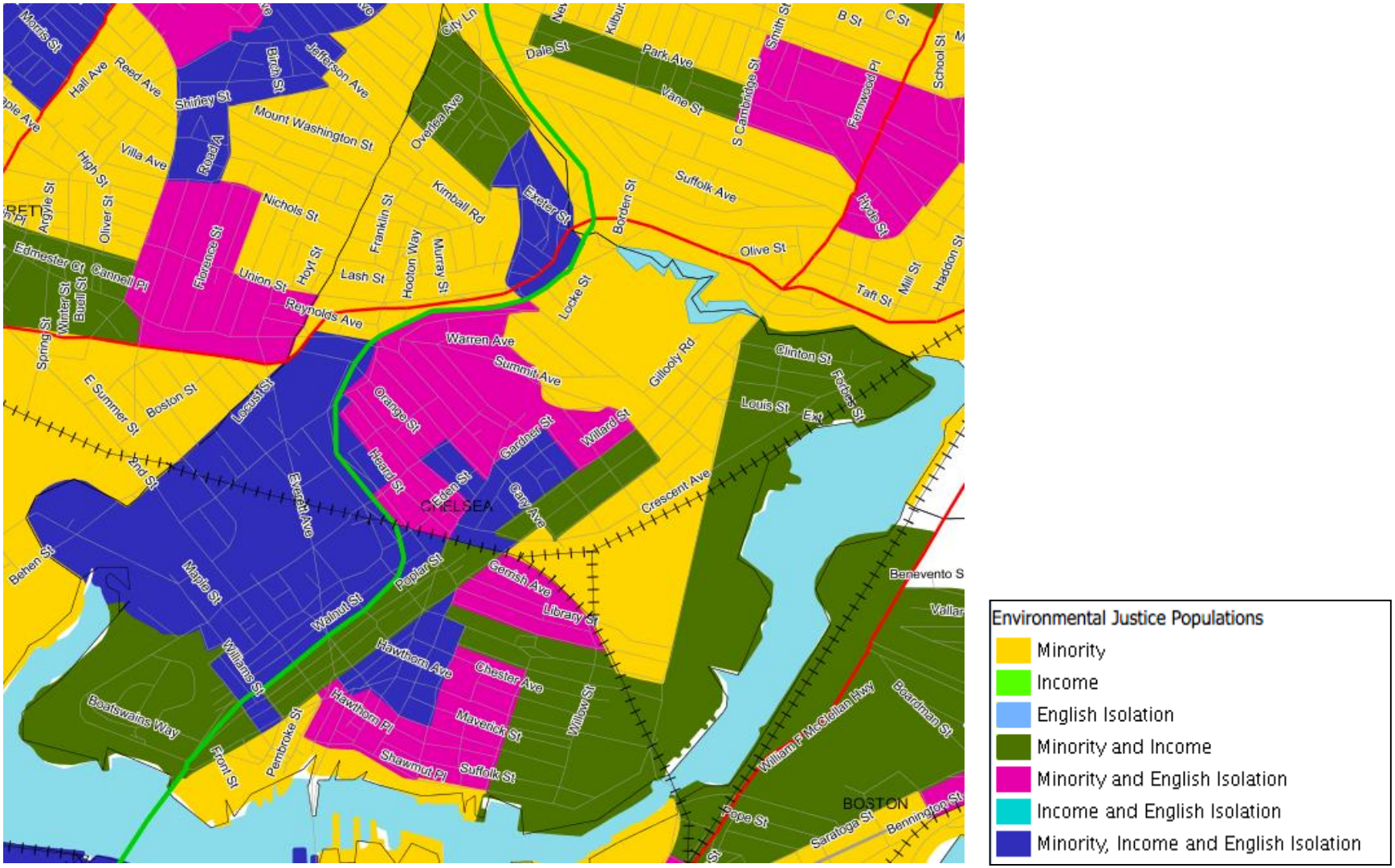


Spatial distribution of mean particle number concentration in Chelsea, MA by season.* Measurements were taken between December 2013—May 2015 by the Tufts Air Pollution Monitoring Laboratory. Monitoring occurred between 5 AM and 9 PM during all days of the week over the course of 10-13 days per season (~44-48 hours/season). (Source: unpublished data, Matthew C. Simon, Tufts University, August 2015.)

*Each colored pixel represents 15 m^2 and is the mean of all data points falling within that cell, for each season.

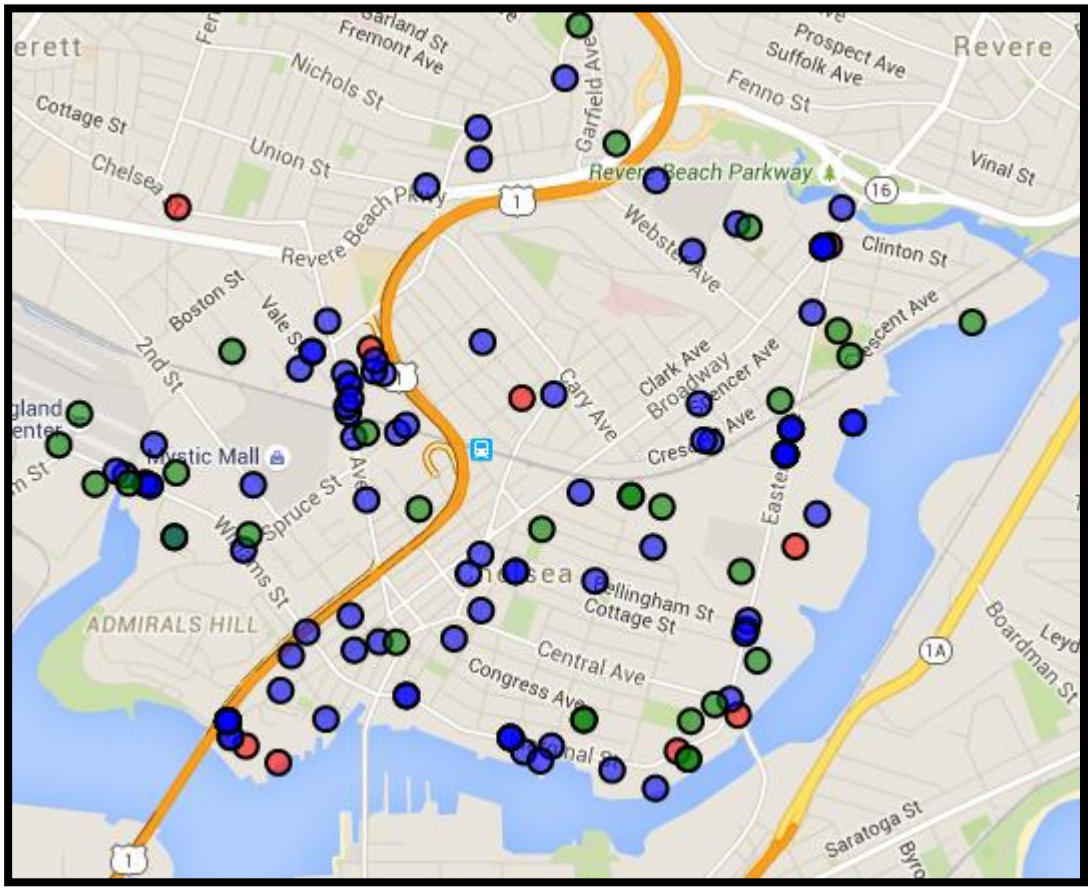
Source: Matt Simon from the Community Assessment of Freeway Exposure and Health (CAFEH) Study, Material Created for this Project, Grant Funded by the National Heart Lung and Blood Institute (CA14861

Appendix I. Map of Environmental Justice Communities in Chelsea, 2010 Census Data



Source: MassGIS; http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/cen2010ej.html

Appendix J. Map of Contaminated 21E sites in Chelsea as of 08/04/2015

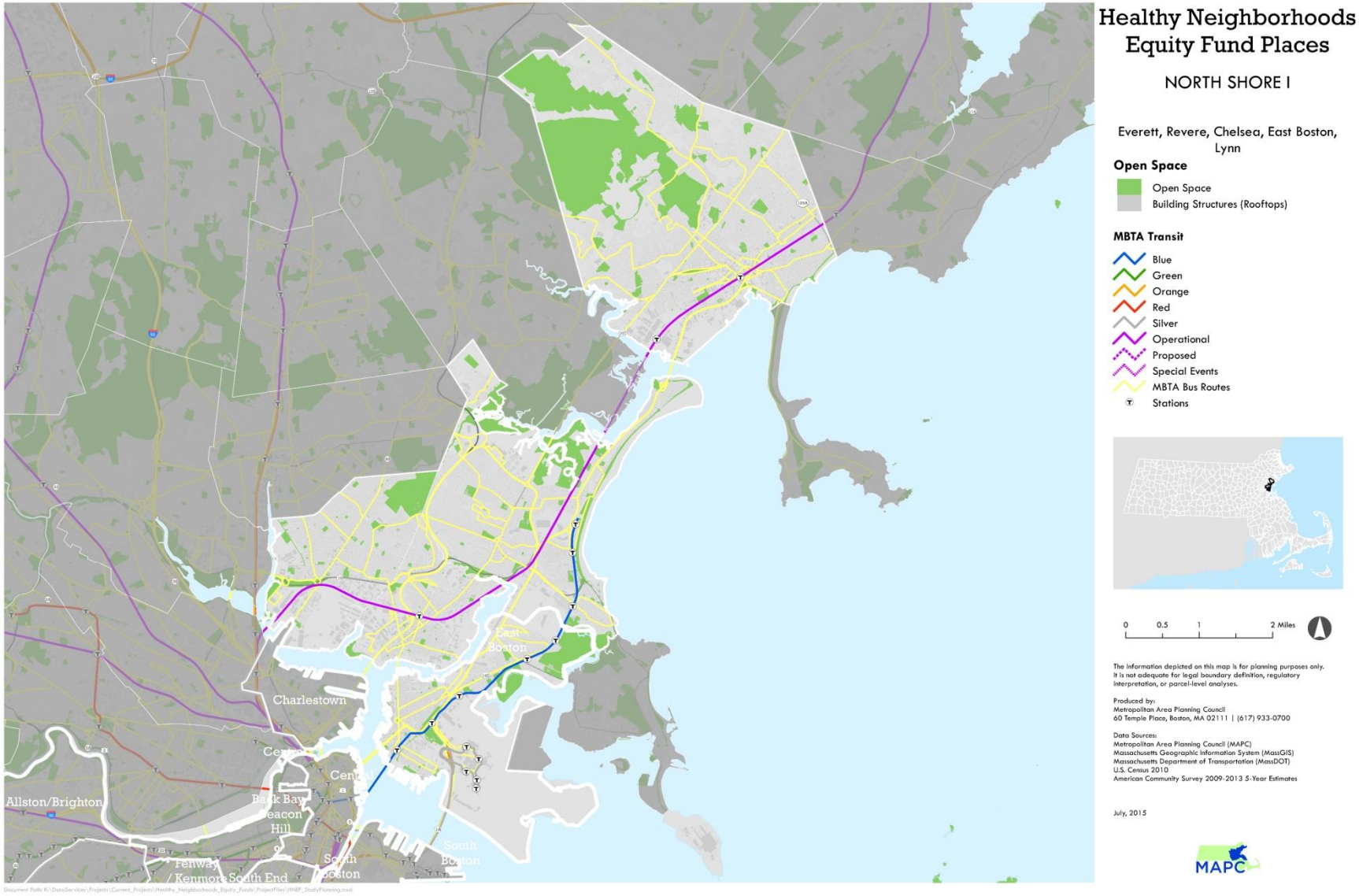


Source: MassDEP, 08/04/2015

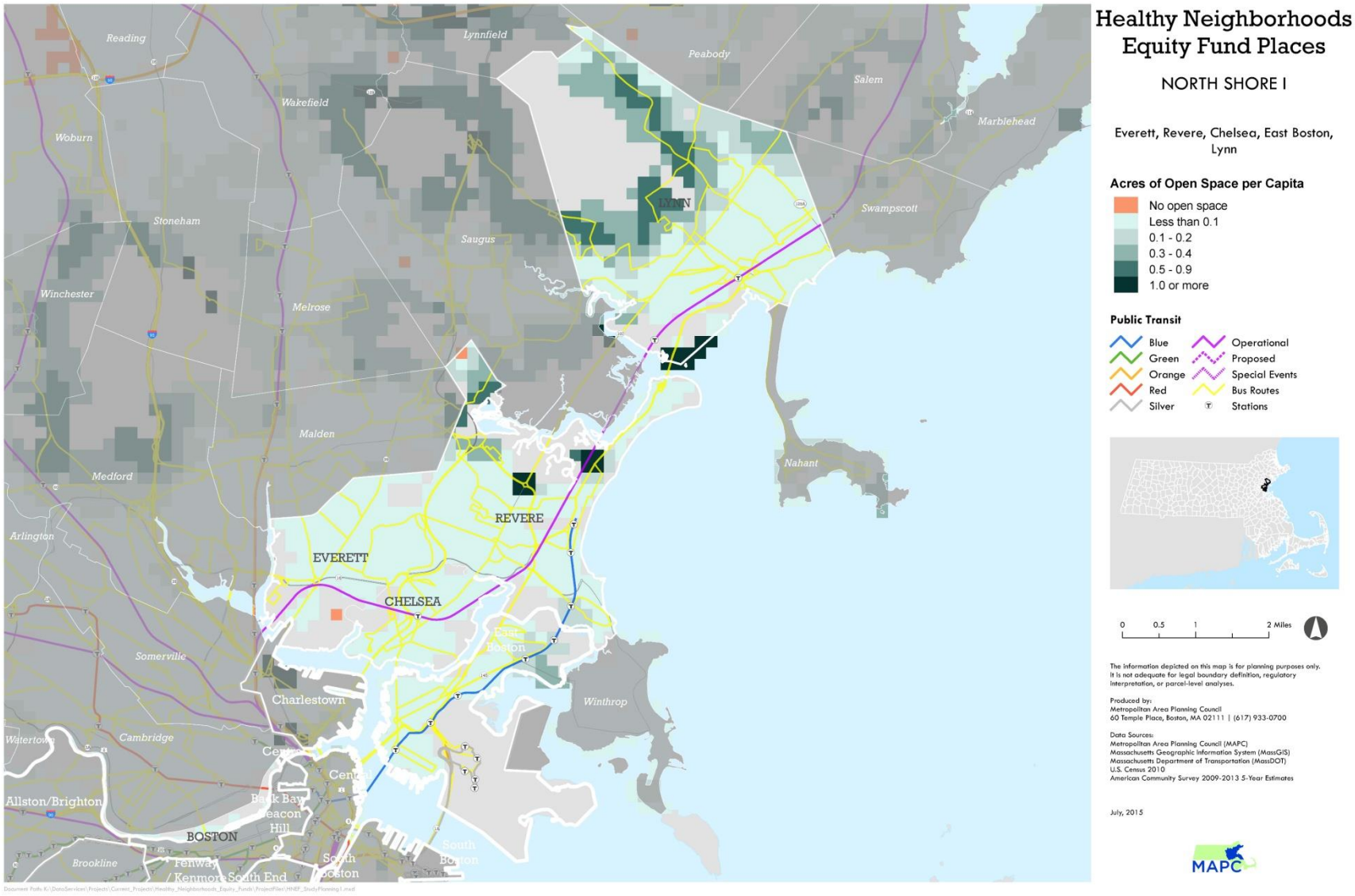
Key:

- Open Sites
- Closed Sites
- Closed Sites with Use Limitations

Appendix K. Open Space in Chelsea and Surrounding Communities



Appendix L. Open Space per Capita in Chelsea and Surrounding Communities



Appendix M. Highland Street Green Corridor Map

CBA | Landscape Architects LLC
24 THORNDIKE STREET | CAMBRIDGE MA 02141
phone 617.945.9760 | www.cbaland.com | cba@cbaland.com
landscape architecture
urban design
master planning

Highland Street Green Corridor

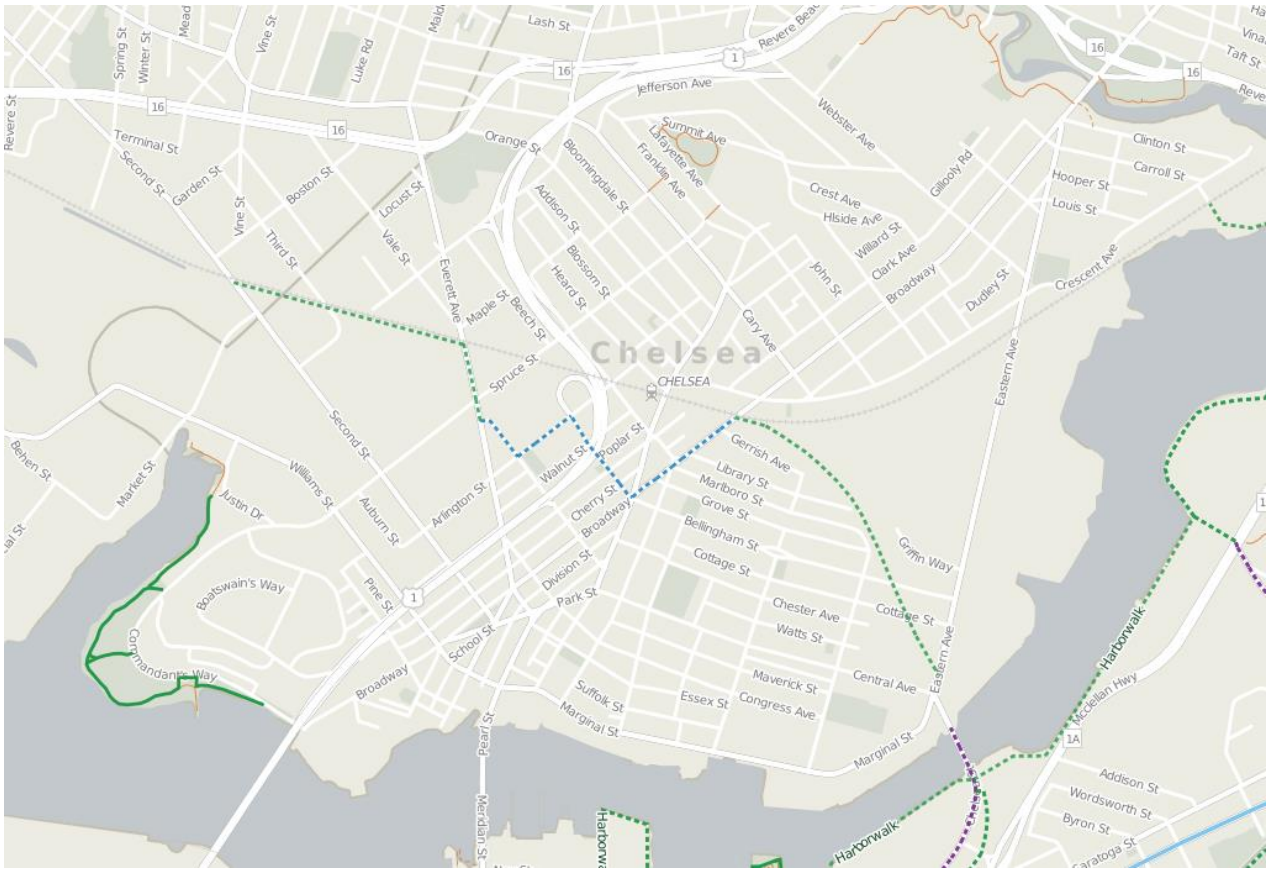
Chelsea, MA

Master Plan

DATE:	06-12-2014
SCALE:	1" = 40' - 0"
FILE:	CHSGC-base.dwg
DWN BY:	KAB
CKD BY:	CCB
PROJ. # :	1416

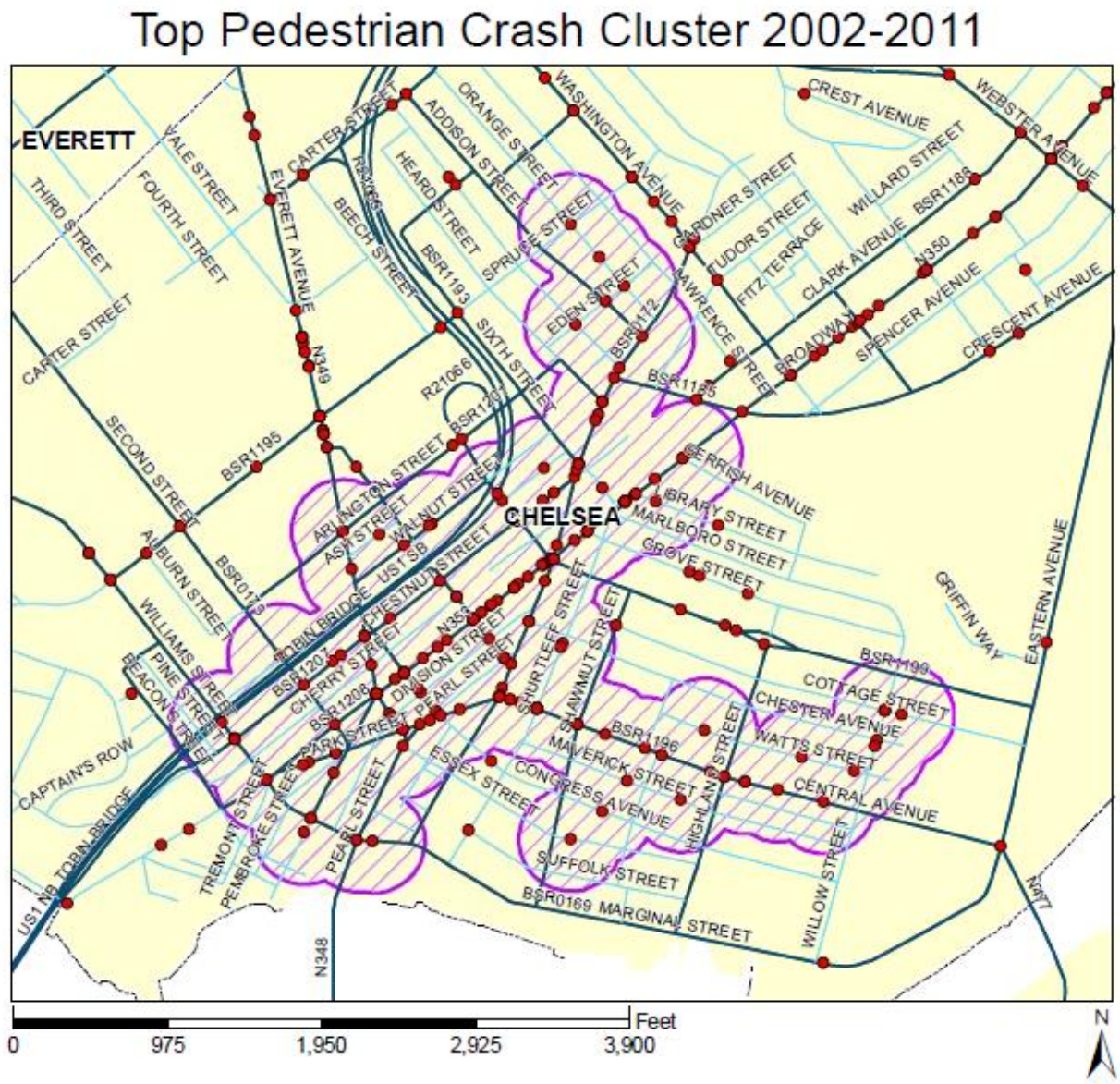
L-1

Appendix N. Existing and Proposed Shared-Use and Bike Paths in Chelsea



Source: trailmap.mapc.org

Appendix O. Map of Top Pedestrian Crash Cluster in Massachusetts



Appendix P. Map of Police Sectors in Chelsea

Chelsea Police Department

City of Chelsea Police Sector Map

Legend

- PD Sector 1
- PD Sector 2
- PD Sector 3
- PD Sector 4

World Street Map

The data contained in this report was compiled by the Chelsea Police Department's Crime Reporting and Analysis Unit.

Chelsea Market Analysis

March 2016

Prepared for:

City of Chelsea
500 Broadway
Chelsea, MA 02150

Prepared by:

Metropolitan Area Planning Council
60 Temple Place, 6th Floor
Boston, MA 02111
Tel (617) 451-2770

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A. Executive Summary

A residential and retail market assessment was undertaken as part of the Chelsea Silver Line TOD Study to identify the amount of development that could potentially occur given current market conditions. It is important to note that the information presented in this report is not a prediction of what will occur in Chelsea, rather it reflects what may be possible given current market trends and demand. Thus, the intent of this market assessment is to help inform the larger Silver Line TOD study, and aid in the decision making that will encourage development where desired and supportable, and manage neighborhood change by providing strategies to help existing residents and business owners who will be most vulnerable.

Residential

Given significant unmet regional demand for housing (market rate and affordable), Chelsea's high regional capture of housing development over the last four years, the additional of the Silver Line BRT route, and continued interest by the development community, it is anticipated that Chelsea could potentially see 2,300 to 2,600 additional residential units developed by 2020 for a total of 2.3 to 2.6 million square feet of residential development. The overwhelming demand for units, particularly given development costs, is anticipated to be for market rate multi-family units in apartment and/or condominium structures closest to future Silver Line and Commuter Rail stations. Similar to larger recent developments (e.g. One North), the target segments will be smaller households with higher incomes that can afford market rents and sales prices currently achieved in the study area for new or redeveloped housing.

However, given the diversity of households interested in urban living, particularly in areas with strong transit connections to job centers, it is crucial that new residential development include a mix of unit types, including one-, two-, and three-bedroom options affordable to a range of incomes. Specifically, given the high levels of cost burdened households already residing in Chelsea, and increased outmigration to communities offering more affordable housing, units affordable to low-, moderate- and middle income households should be included in all new developments to help address need and demand at all income levels.

Retail

The Broadway retail spine – which includes nearly 200 storefronts - is currently serving the community successfully. Given the lower incomes of current residents - there is little opportunity for additional retail establishments to serve existing household. However, the retail environment will likely see some change as existing or new merchants increasingly look to cater to the growing number of higher income residents moving into, and projected to move into future, new developments.

Based on estimates detailed in this assessment, approximately 50,000 square feet of new retail space in approximately 13 new establishments, could potentially be supported by projected new and future residents. The greatest opportunities would be for eating and drinking establishments (with cuisines not currently offered), clothing stores, and specialty retailers (e.g. card/gift and home goods). Areas closest to Silver Line and Commuter rail stations, and adjacent to new large-scale development clusters, would offer the greatest retail opportunity, as they would benefit from higher levels of pedestrian traffic and visibility.

B. Demographics

Understanding the current and projected demographic and socioeconomic characteristics of a community is essential to any market analysis. An area's households and their incomes are the key drivers that determine its market potential for housing and retail, and the community's economic position within its larger region.

To best understand future market demand, a combination of US Census 2010 data, 2009-2013 American Community Survey Data, of which MAPC projections are based upon, were used in this analysis. It should be noted that all data sources are not 100% accurate. For example, participation rates impact 2010 Decennial Census data, and ACS estimates represent the average of smaller samples over 5 year periods. However, these datasets present the best information available for analysis. It should also be noted that given Chelsea's large, diverse immigrant population, of which a number are undocumented, Census statistics likely reflect an undercount of Chelsea's population.

Population

Between 2000 and 2010, Chelsea's population increased slightly, with just over 1,000 new residents, or 3% growth. This was lower than surrounding communities like Boston, Everett and Boston, each of which experienced at least a 10% growth in population. However, based on MAPC projections[1], Chelsea's population is projected to increase modestly by 2030, roughly 5,000 more residents or a 14% increase. Again, this is lower than what is projected in surrounding communities, with the exception of Winthrop.

Table 1: Population Change, 2000-2030

	2000	2010	2020	2030	Change 2000-2010	% Change 2000-2010	Change 2010-2030	% Change
Chelsea	34,127	35,177	37,641	40,224	1,050	3%	5,047	14%
Boston	554,064	617,594	664,218	709,400	63,530	11%	91,806	15%
Everett	37,806	41,667	47,391	54,475	3,861	10%	12,808	31%
Revere	46,965	51,755	58,567	66,737	4,790	10%	14,982	29%
Winthrop	18,058	17,497	17,500	17,444	(561)	-3%	(53)	0%

Source: U.S. Census Bureau and MAPC Projections

Chelsea's population is aging, but not as significantly as in other parts of the MAPC region. In fact, between 2000 and 2010, the majority of population growth in Chelsea was persons 20 to 64. Population above 65 decreased. And although population growth through 2030 in many municipalities is projected to be older residents (residents 65+), Chelsea experience more balanced growth. As shown in Table and Figure 2, the highest growth will be in persons 35-54 (+1,785 people, 29%), but the population over 55, and especially over 65, are also projected to increase significantly. Further, although the Census shows that the number of school-aged children decreased slightly, school enrollment figures tell a different story, increasing consistently since 2005. This points to potential undercounting described earlier, and the presence of undocumented immigrants in the community.

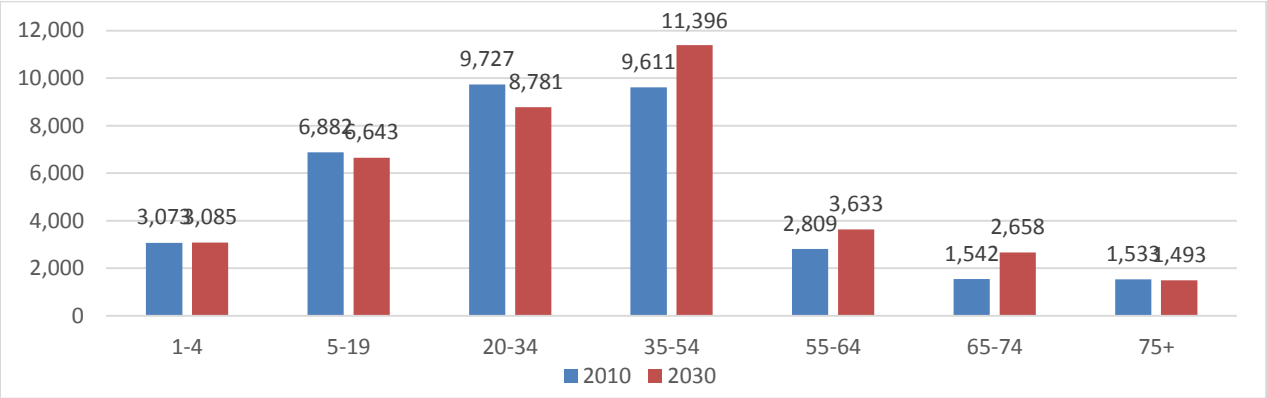
[1] MetroFuture Stronger Region projections were developed for MAPC's regional plan, and are based on extensive technical analysis developed to quantitatively analyze patterns of future growth as envisioned in the region, including focusing growth in already developed areas to use land more efficiently, protecting open space, and reducing the need for new infrastructure. MAPC projections are based on an analysis of how changing trends in birth rates, deaths, migration, and housing occupancy might result in higher population growth, greater housing demand, and a substantially larger workforce. In 2012, the Executive Office of Housing and Economic Development adopted the Stronger Region scenario as the basis for the Commonwealth's multifamily housing production goal, and is now working to coordinate local and state policies to support its achievement.

Table 2: Population by Age, Chelsea 2000-2030

Age	2000	2010	2020	2030	Change 2000-2010	% Change 2000-2010	Change 2010-2030	% Change 2010-2030
1-4	2,829	3,073	3,208	3,085	244	9%	12	0.4%
5-19	7,671	6,882	6,551	6,643	-789	-10%	-239	-3.5%
20-34	9,459	9,727	9,395	8,781	268	3%	-946	-9.7%
35-54	8,896	9,611	10,401	11,396	715	8%	1,785	18.6%
55-64	2,292	2,809	3,535	3,633	517	23%	824	29.3%
65-74	1,901	1,542	2,096	2,658	-359	-19%	1,116	72.4%
75+	2,032	1,533	1,205	1,493	-499	-25%	-40	-2.6%
Total	35,080	35,177	36,391	37,689	97	0%	2,512	7.1%

Source: U.S. Census Bureau and MAPC Projections

Figure 1: Population by Age, Chelsea, 2010-2030



Source: U.S. Census Bureau and MAPC Projections

The changing composition of Chelsea's population will have a significant impact on the type of units needed to house existing and future residents. Whereas persons 35-54 – those most likely to have children residing at home – may prefer a larger housing unit, older households often prefer and seek out smaller homes or units in multi-family structures that offer amenities and are easier to maintain. Interestingly, population projections show a decrease in persons 20-34; however, as will be discussed later, new developments have been attracting this demographic to Chelsea in larger numbers.

Households

Understanding household trends is more important than overall population figures for the purpose of conducting a housing market analysis. Every household resides in one housing unit, no matter how many people are in that household. Thus, to better understand housing needs, the current and projected number and composition of households provides insight into the amount and type of housing that needed in Chelsea and the study area.

Between 2000 and 2010, the number of households in Chelsea decreased slightly, less than 1%, and household size grew slightly. Household sizes are often larger in communities with large immigrant communities, as more multigenerational households are common. However, based on MAPC projections, household size is anticipated to decrease in Chelsea over the next 10-20 years, from 2.92 persons per household, to 2.72. Thus, even though population is projected to increase by only 7%, the number of

households will increase by 22%, or a projected 2,652 more households by 2030. More housing units will be needed to keep up with the growing number of smaller households.

Table 3: Households, Chelsea and Surrounding Communitites

	2000	2010	2020	2030	Change 2000-2010	% Change 2000-2010	Change 2010-2030	% Change 2010-2030
Chelsea	11,888	11,831	13,224	14,483	(57)	0%	2,652	22%
Boston	239,528	252,699	279,515	301,774	13,171	5%	49,075	19%
Everett	15,435	15,543	17,856	20,829	108	1%	5,286	34%
Revere	19,463	20,454	23,708	27,513	991	5%	7,059	35%
Winthrop	7,843	7,783	8,085	8,270	(60)	-1%	487	6%

Source: US Census Bureau and MAPC

Similar to population trends, households are aging, but in a more balanced manner compared to many surrounding communities. Households headed by persons 35 to 54 will see the largest growth in total numbers (+1,532); households headed by those 55 and older will increase by just over 1,200. These age cohorts often prefer different housing types. The 35-54 year olds may seek larger units with more bedrooms as they are more likely to have children residing at home. Households 55 and over, some of which are potentially downsizing, may seek out smaller units with more amenities.

Table 4: Average HH Size Over Time, Chelsea and Surrounding Communities

	2000	2010	2020	2030
Chelsea	2.87	2.92	2.79	2.72
Boston	2.31	2.26	2.21	2.19
Everett	2.45	2.67	2.64	2.60
Revere	2.41	2.52	2.46	2.41
Winthrop	2.30	2.24	2.16	2.10

Source: US Census Bureau and MAPC

Table 5: Householders by Age: 2010-2030, Chelsea

	2010	2020	2030	Change 2010-2030	Percent Change 2010-2030
Under 20	275	215	230	-45	-16.4%
20-34	2883	3095	2812	-71	-2.5%
35-54	5111	5759	6643	1532	30.0%
55-65	1651	2078	2189	538	32.6%
65-74	1001	1335	1678	677	67.6%
75+	910	742	933	23	2.5%

Source: US Census Bureau and MAPC

The percentage of family households in Chelsea is significantly higher than that of surrounding Suffolk County. Over 62% of households (7,210) are family households. Further nearly 38% of all households are families with children (4,437), significantly higher than either Suffolk County or the State (See Table 6). More significantly, Chelsea has a far higher percentage of single parent households compared to the County or State. This means that over half of family households with children are headed by a single

parent. Single parent households, as with many other households, may prefer units that require less upkeep and maintenance, particularly given their one income status and time constraints.

The percentage of non-family households in Chelsea is also lower than in Suffolk County. However, the percent of householders living alone is only slightly lower than that of the County – and the majority of single person households are younger. Both younger and senior householders living alone tend to prefer smaller housing units that are easier to maintain for cost and/or time savings.

Table 6: Household Composition

	Chelsea	Suffolk County	State
Family Households	62%	49%	64%
Families with Children	38%	22%	28%
Married Couples/No Children	13%	17%	27%
Single Parents	20%	12%	9%
Non-Family Households	38%	51%	37%
Householders Living Alone	30%	37%	29%
65 Years and over	13%	10%	11%

Source: ACS 2009-2013

Income

Household income is an important determinant of how much a household can afford to pay, and the type of dwelling unit, they choose to live - either to rent or own, whether they are eligible for housing assistance, and more.

Table 7: Median Income Change 2000-2013, Chelsea and Surrounding Communities

	2000	2013	% Change
Chelsea	$30,161	$47,291	57%
Boston	$39,629	$53,601	35%
Everett	$40,661	$49,368	21%
Revere	$37,067	$51,863	40%
Winthrop	$53,122	$64,548	22%
Suffolk County	$39,355	$53,540	36%
Massachusetts	$50,502	$66,866	32%

Source: ACS 2009-2013

Table 8: Median Incomes and Income Distribution

	Chelsea	Suffolk County	State
Median Income	$47,291	$53,540	$66,866
Median Family Income	$48,849	$61,449	$84,900
Non-Family Income	$31,051	$43,472	$38,862
Less than $20K	26%	24%	16%
$20-39,999	17%	15%	16%
$40-59,999	18%	15%	14%
$60-74,999	12%	9%	9%
$75-99,999	12%	11%	13%
$100,000 or more	15%	26%	32%

Source: ACS 2009-2013

Chelsea's median household income is just over $47,000, lower than all surrounding communities and significantly lower than the State. However, income increased in Chelsea over the last decade at a far higher percentage than in other communities. This may be indicative of many factors, such as increasing educational levels and job opportunities for existing residents, or new higher income residents moving to the community. Median family income is lower in Chelsea than in both Suffolk County and the State. This is not surprising given the high number of single parent households in the city. However, non-family incomes are also significantly lower.

According to the most recent American Community Survey, Chelsea's highest earners by percentage are households headed by persons 25 to 54 years of age. Approximately a third of these households are earning more than $75,000 annually. At the same time, over a third are earning lower than $40,000. Thus there is a wide range of unit types needed – market rate and affordable – just for these age groups. Additionally, more than half of households under 25 years of age and 75% of households 65+ earn less than $40,000. Interestingly, roughly a third of households under 35 are earning north of $75,000 annually. This may indicate a growth in higher earning younger residents attracted to Chelsea's lower rents. Based on discussions with stakeholders, this has been observed.

Table 9: Household Income by Age, Chelsea

	Householders under 25 years	Householders 25-44 years	Householders 45-64 years	Householders 65 years and over
$20K or less	35%	19%	20%	55%
$20-39,999	17%	15%	19%	20%
$40-59,999	11%	23%	12%	12%
$60-74,999	7%	12%	17%	7%
$75-99,999	30%	14%	12%	2%
$100K or more	0%	17%	19%	5%

Source: ACS 2009-2013

Educational Attainment

The low incomes of Chelsea households are not surprising, given the lower levels of educational attainment of persons 25 and older. Over a third of residents lack a high school diploma, more than double that of Suffolk County and triple that of the State. In fact, this is one of the highest levels in the State. Further, only 16% of residents hold a bachelor's degree or higher, significantly less than the County and State. Lower educational levels often limit job opportunities, particularly for higher wage professional jobs that require a college education, but also for high skilled jobs which require training beyond a high school diploma.

Table 10: Educational Attainment, Age 25 and Older

	% High School without Diploma	% High School Graduates	% College Without Degree	% Associates Degree	% Completed Bachelor's Degree or Higher
Chelsea	36%	31%	12%	5%	16%
Suffolk County	16%	24%	14%	5%	40%
Massachusetts	11%	26%	16%	8%	39%

Source: ACS 2009-2013

Poverty

Given the low wages, and low educational attainment, it is not surprising that Chelsea has a high poverty rate. Nearly a quarter of all households in the community live below the poverty level, more than in Boston or any surrounding community, and double the state rate. These households, particularly those not living in subsidized affordable units, are extremely vulnerable to increases in housing costs.

Table 11: Poverty Status, Households 2013

	2013	
	#	%
Chelsea	2,729	23.6%
Boston	53,293	21.4%
Everett	2,166	14.2%
Revere	3,194	16.2%
Winthrop	828	11.0%
Suffolk County	60,044	20.8%
Massachusetts	298,225	11.8%

Source: ACS 2009-2013

C. Residential Analysis

Existing Housing Stock

Housing Units by Type & Age

Chelsea has a relatively diverse housing supply. While there are fewer single family homes compared to surrounding communities, roughly half of units are in 2 to 4 unit structures, 17% are in smaller multifamily buildings with 5-19 units, and over 20% are in structures with more than 20 units.

Table 12: Housing Units by Type

	Single Family	Two Family	3-4 Units	5-9 Units	10-19 Units	20 or more units	Other
Chelsea	14%	20%	29%	11%	6%	21%	0%
Boston	18%	13%	26%	12%	8%	23%	0%
Everett	25%	34%	25%	5%	3%	8%	0%
Revere	34%	27%	15%	3%	2%	18%	1%
Winthrop	36%	26%	16%	6%	4%	12%	0%
Suffolk County	19%	15%	25%	11%	8%	22%	0%

Source: ACS 2009-2013

Chelsea's housing is also relatively old, with nearly 70% of units built before 1940. Interestingly, Chelsea also has the second highest percentage of newer units – 9% were built since 2000. This is higher than Boston. As will be shown in permit data later in this analysis, the majority of new unit growth since 2000 has been in multifamily structures (See Figure 6). Given the cost of new construction, most of these units are affordable primarily to higher income households, except where deed restricted units were constructed. (See Table 19 later in the document for more information.)

Table 13: Housing by Age

	Built 1939 or earlier	Built 1940-1969	Built 1970-1999	Built 2000 or after
Chelsea	67%	9%	16%	9%
Boston	55%	21%	17%	7%
Everett	63%	20%	13%	3%
Revere	33%	30%	27%	10%
Winthrop	61%	19%	17%	3%
Suffolk County	54%	21%	17%	7%
Massachusetts	35%	28%	30%	8%

Source: ACS 2009-2013

Smaller rental multifamily structures (2-4 units) that are older and occupied by renters are often attractive to investors for condominium conversions. If a significant portion of occupants in these structures are renters, significant displacement could occur, particularly given the low incomes of existing households.

Occupancy Characteristics

The housing market in Chelsea is primarily a rental housing market. In fact, the overwhelming majority of households in Chelsea rent their homes – over 70%, which is higher than in all surrounding communities, the County and especially the State. (See Table 14.)

Table 14: Tenure

	% Owner-Occupied Housing Units	% Renter-Occupied Housing Units
Chelsea	27%	73%
Boston	34%	66%
Everett	39%	61%
Revere	50%	50%
Winthrop	56%	44%
Suffolk County	36%	64%
Massachusetts	63%	37%

Source: ACS 2009-2013

Chelsea's vacancy rate of 8.0% is consistent with all of Suffolk County, and lower than the State as a whole. See Table 15. While this may point to a healthy, but not booming housing market, it may also indicate that demand for a significant increase in new units is moderate. However, when looking more specifically at rental units, vacancy is at 4%. Typically, vacancy below 5% indicates a strong market for additional unit development. Further, based on discussions with stakeholders with knowledge of the market, rents are increasing, and rental households are increasingly getting priced out and leaving Chelsea for more affordable areas, including the City of Lynn and City of Revere to the north. More rental stock can be supported.

Table 15: Vacancy Status

	Chelsea	Suffolk County	State
Total Units	12,575	314,929	2,808,549
Vacant	1,025	26,689	278,402
Vacancy Rate	8.0%	8.5%	9.9%

Source: ACS 2009-2013

Given all of the above, existing housing stock may not meet the preferences of many households (often higher income households) looking to locate in transit-adjacent, urban areas close to Boston (e.g. young professionals and empty nesters), in units with many amenities (e.g. fitness centers, elevator access, common spaces), or smaller condominium buildings. These market segments are already sought after at new developments to meet a growing demand in the inner core areas of the Boston Metro region. (See "Recent Development" for more information.) Further, if vacant units are in smaller structures, and are in poor condition, these may be attractive to developers interested in condominium conversions. (For more on condominium conversions, see "Condominium Market" later in this document.)

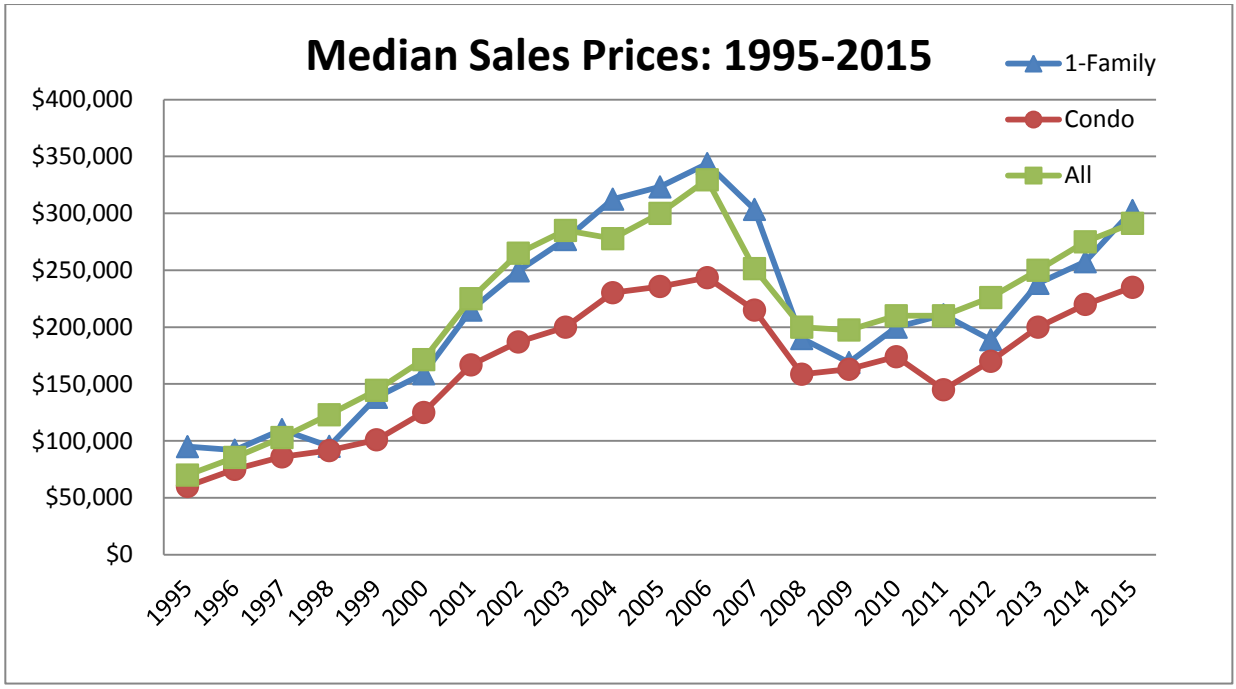
Housing Prices and Rents

Over the last two decades, housing prices in Chelsea have risen considerably. Overall, between 1995 and 2015, sales prices have increased by nearly 315%. And although overall prices have not fully recovered since the recession (they are very close), median sales prices have increased consistently since the bottom of the market in 2009. Condominium prices in particular have grown, and in 2015 are selling at an all time high.

As shown in Figure 2, sales prices have increased as sales volumes decreased. Higher prices are likely to continue, since as shown in Figure 3, inventories have been and continue to be low compared to peak years (2005-2006), likely accelerating an already growing market. Further, for-sale units also sell for

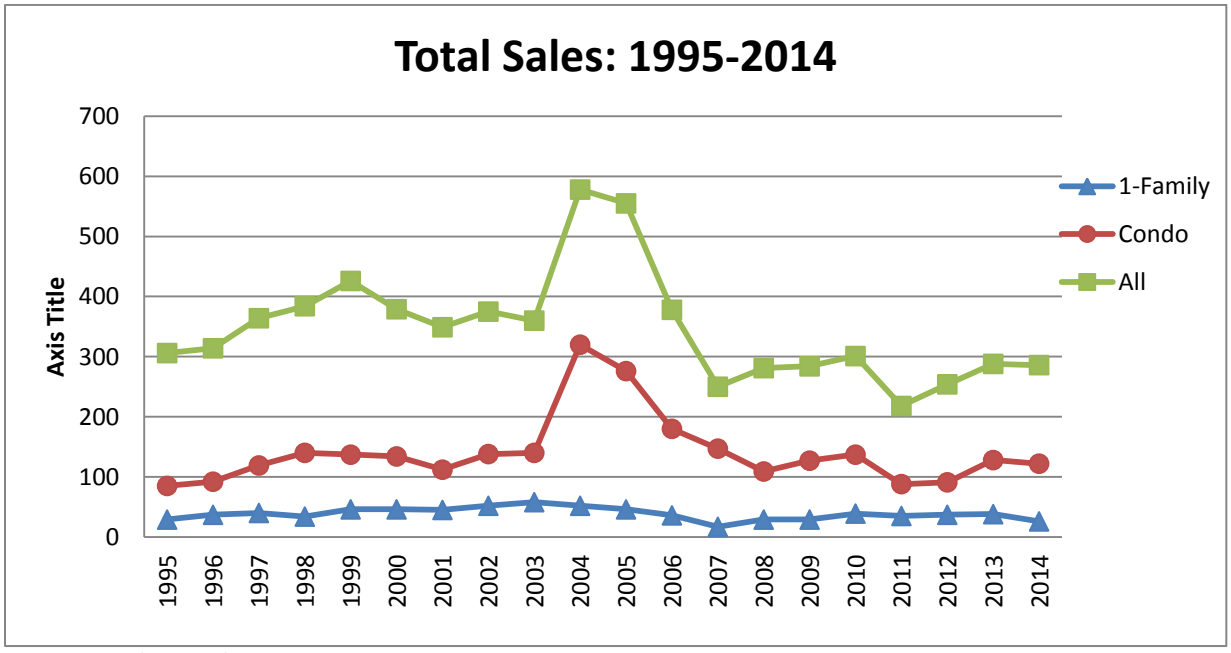
significantly lower than in neighboring Boston (e.g. East Boston) which may make them appealing for first time homeowners who may be priced out of other Boston or other Inner Core markets, or for investors. Looking at the most recent data available sales in 2015 through September, Chelsea has already seen its highest number of sales since 2000 (with three months to go) and prices have been increasing throughout the year.

Figure 2: Median Sale Prices, 1995-2014



Source: Copyright 2015 The Warren Group

Figure 3: Sales by Volume, 1995-2014



Source: Copyright 2015 The Warren Group

Recent Sales and Listings

As highlighted above, Chelsea has seen an uptick in sales over the last few years. Looking at recent sales identified through Banker and Tradesman, Zillow and Trulia, trends emerged. Single family sales were consistent with Warren Group data presented in Figures 1 and 2, with several smaller units selling in the $250,000 range, the current median. Condo sales were also consistent; however, prices appear to be moving upward. Additionally, a category not included in the Warren Group data, multifamily rental buildings, are selling briskly, indicating real estate speculation is active. Two multifamily structures containing 6-9 units each, both close to future Silver Line stations, sold in excess of $1 million dollars, each noted to have potential for condominium conversions. A third – a former convent – was sold for $400,000, and advertised as holding potential for new condominium or mixed-use redevelopment. These larger structures sold for up to $133 per square foot.

Units currently on the market – particularly condos – are listed for significantly higher per square foot prices as those recently sold and holding potential for conversion. For example, per square foot prices range from a low of $194, to a high of $506. Potential for return on investment on recently sold multifamily structures appears strong. Further research showed that although few smaller multifamily structures (2-4 units) are currently for sale, there are numerous properties of this size sprinkled throughout the study area that are in some stage in the foreclosure process. Foreclosures have impacted Chelsea significantly over the last decade. During the recession, Chelsea was among the most distressed communities in the Commonwealth according to the Massachusetts Housing Partnership's Foreclosure Monitor. Although at the time the rate of foreclosure was 13 of every 1,000 units, today's 6/1,000 remains high. These units, should they go to auction, may be attractive to developers.

Table 16: Recent Sales and Current Listings

RECENTLY SOLD	Type	Year Built	Bed	Bath	Sale Price	SF	$/SF
680 Broadway	Multi-Family	1900	6	2	$308,000	3340	$92
6 Albion Place	Single Family	1870	2	2	$161,000	756	$213
14 Eden Street	Condo	1987	3	1	$115,000	1409	$81
74 Washington Street	Multi-Family	1900	n/a	n/a	$1,008,000	9,094	$133
413 Broadway	Multi-Family	1910	n/a	n/a	$1,245,000	13,800	$90
67 Broadway	Condo	n/a	1	1	$210,000	n/a	n/a
181 Chestnut Street (St. Stanislaus)	Multi-Family	1908	n/a	n/a	$400,000	21,640	n/a
65 Orange Street	Single Family	1900	4	1	$250,000	1,394	$179
314 Spruce Street	Single Family	1900	3	2	$250,000	1,479	$169
CURRENT LISTINGS	**Type**	**Year Built**	**Bed**	**Bath**	**Sale Price**	**SF**	**$/SF**
139 Hawthorne St	Multi-Family	1910	9	3	$599,000	3,602	$166
141 Hawthorne	Multi-Family	1910	9	3	$589,000	3,572	$164
61 Hawthorne St	Multi-Family	1900	5	3	$485,000	3,333	$146
107 Shurtleff St #3	Condo		3	1	$179,000	925	$194
154 Marlborough St	Multi-Family	1920	8	4	$639,000	3,103	$206
168 Winnisimmit St, 30D	Condo	1900	3	1.5	267,500	1,155	$232
52 Beacon St	Condo	1900	2	1	$249,000	923	$270
28 Suffolk St #1	Condo	1989	3	1	$234,900	959	$245
20 Beacon St #9	Condo	1900	1	1	$229,000	453	$506
74 Essex St	Multi-Family	1920	8	3	$549,999	3,474	n/a
40 Hawthorne St	Multi-Family	1900	6	4	$584,900	2,312	n/a
42 Williams St. #C	Condo	1900	1	1	$209,900	558	$376

Source: Zillow, Trulia, July 2015, Banker and Tradesman, 2015

Condominium Market

Additional research shows a growing condo market over the last 10 years. According to the Massachusetts Department of Revenue, which tracks total parcels by types (and number of condominiums), the total number of parcels with single family and multifamily (2-4 units) units has remained relatively stable over the last 12 years. However, the number of condominiums increased by over 62%, or nearly 700 units. At the same time, the total number of larger apartment buildings decreased by 4%. Thus, with the exception of recent apartment construction in locations like the Box District and One North, the majority of new unit creation over the last decade has been in condominiums – either new construction or loft redevelopment. Given this increase in total units, combined with increasing prices, condos appear to be growing in popularity within Chelsea.

Table 17: Change in Parcels/Condominiums

	Single Family	Multi-family	Condos	Apartments
2003	843	2,164	1,118	344
2015	844	2,155	1,814	330
Change	1	-9	696	-14
% Change	0.1%	-0.4%	62.3%	-4.1%

Source: MA DOR, 2015

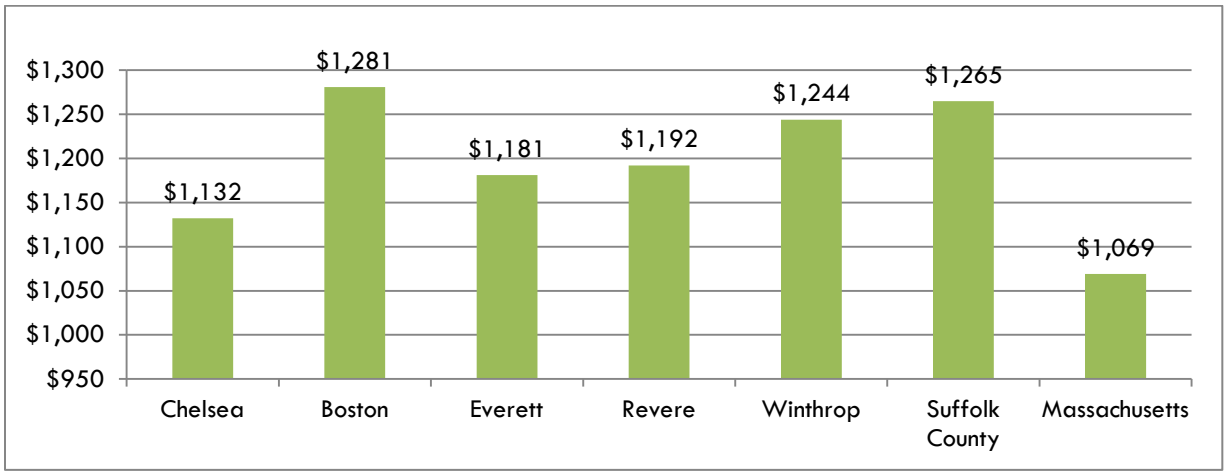
Condominium Conversions

While many condos have been built in Chelsea over the last decade, for the most part they have not been through conversions of smaller two- and three-family rental buildings. However, this appears to be changing. Research shows that between 2012 and 2015, roughly 22 condominium units were created via conversion of smaller multifamily rental structures. And although not a large number, given increasing housing prices regionally, but particularly in Boston and close-in neighborhoods/communities, the rate of conversions may increase in coming years, particularly given the predominance of the small, older multifamily housing stock that are favorable for conversion. Further, based on current listings, 2-4 unit multifamily structures are increasingly marketed as "investor opportunities" for developers interested in purchasing and converting them.

Rent

With a median gross rent of $1,132 Chelsea's rental market appears to be somewhat more affordable compared to most surrounding communities. This is significantly lower than Boston, which had the highest gross rent, and slightly lower than Everett, and Revere (See Figure 4). However, the gross rent figure for Chelsea may be misleading, as market research indicates it is likely higher. Based on current listings identified through online sources including Zillow, Craigslist and Padmapper, median rent in Chelsea is closer to $1,800 for all units.

Figure 4: Gross Rent, 2013



Source: ACS 2009-2013

As shown in Table 18, the majority of rental listings identified were in newer developments (Box District, One North, etc.) where rents begin at $1,600 for 1-bedrrom units, $1,900 for 2-bedroom units and nearly $3,000 for 3-BR units. Only two listings were identified below $1,500, and were found in smaller multifamily structures. Given incomes of existing Chelsea households, these new units are not affordable to most, and units are marketed to higher income young professionals and empty nesters looking for more affordable market rents than in highly competitive Boston submarkets, Cambridge and increasingly Somerville.

However, online listings may not be truly representative of Chelsea rents. Based on discussions with local housing developers and community organizations, the informal rental market is strong in Chelsea, particularly among immigrant groups who often find housing often through word of mouth. However, although many properties are likely renting at lower levels than in the new developments, it was noted by local groups that more and more people are getting priced out of the area, with many moving to other more affordable cities. Lynn and Revere were both mentioned.

In summary, the rental market in Chelsea is competitive, and becoming more expensive. While this presents an opportunity for developers looking to attract higher income young professionals to new developments – successfully thus far – existing residents are increasingly priced out of the market.

Table 18: Rental Listings

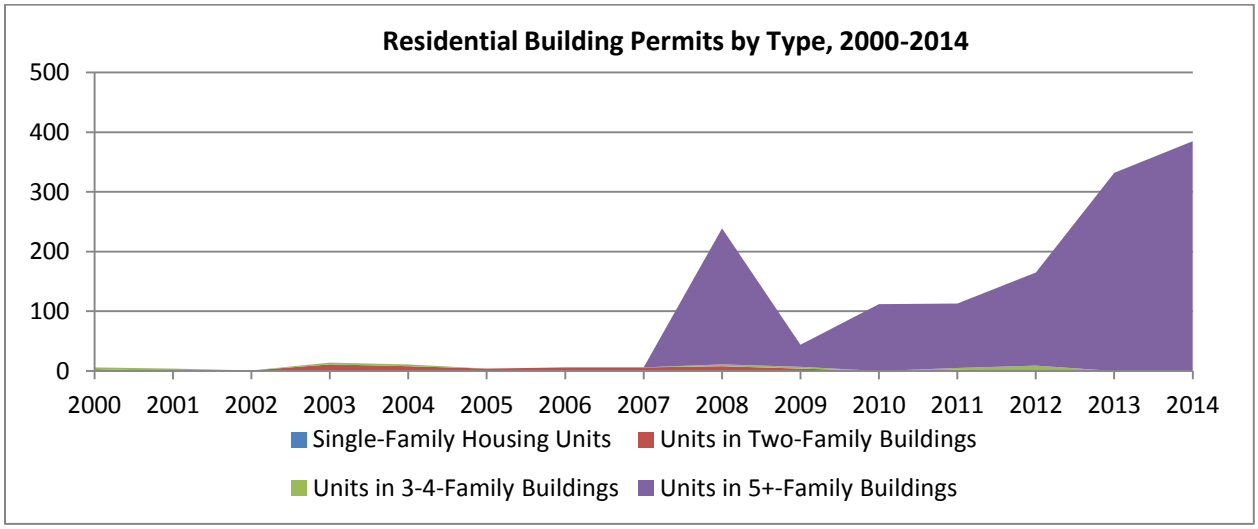
Address	Rent	Bed	Bath	SF
7 Pembroke Street	$1,350	1	1	n/a
189 Chestnut Street	$2,100	3	1	n/a
103 Shurtleff Street	$1,300	2	1	n/a
22 Marlborough Street	$2,100	4	2	1902
Marlborough Street near Highland	$2,350	4	1	1400
67 Marlborough Street, Unit 2	$1,900	4	1	1218
117 Library St, Apt. 1	$2,000	3	1	1200
Shawmut Street	$1,400	2	1	800
122 Shurtleff St	$1,725	3	1	1200
122 Shurtleff St	$1,850	4	1	1300
375 Broadway, Unit 206	$1,700	1	1	938
375 Broadway, Unit 307	$1,800	2	2	1,378
375 Broadway, Unit 303	$1,600	0	1	807
375 Broadway	$1,900	2	2	1,340
375 Broadway	$2,025	2	2	1,331
Box District	$1,990	2	2	1,151
Box District	$1,625	1	1	670
22 Gerrish Ave (Box District)	$1,675	0	1	n/a
22 Gerrish Ave (Box District)	$1,450	0	1	n/a
One North of Boston	$1,000	0	1	597
One North of Boston	$1,764	1	1	681
One North of Boston	$1,770	1	1	695
One North of Boston	$1,885	1	1	779
One North of Boston	$1,907	1	1	808
One North of Boston	$2,113	2	2	966
One North of Boston	$2,272	2	2	1,042
One North of Boston	$2,875	3	2	1,241

Source: Zillow, Craigslist, Padmapper, Building websites

Recent Development

Chelsea has experienced significant residential development over the last decade. According to the Census Building Permit survey, the City of Chelsea has permitted nearly 1,500 new residential units since 2000, nearly all of which occurred after 2007 - over two-thirds of which were permitted since 2010 (995 units). As shown in Figure 5 below, nearly all units permitted were in multifamily structures – 1,358 or 95%. (For a listing larger projects over 10 units built since 2005, see Table 19.)

Figure 5: Building Permits, Chelsea 2000-2014



Source: US Census Building Permits Survey

There were only 3 single family homes, 50 units in two-family structures, 31 units permitted in three-four family homes. Notably, the vast majority of multifamily development has been market rate rental properties including recent large projects One North, Atlas Lofts and more. Notably, local CDC, The Neighborhood Developers has developed several affordable housing developments in Chelsea including in the Box District - Janus Highland, Box Works Homes and Highland Terrace. Given that units in all of these developments have leased successfully, with lottery applicants far exceeding units available, demand for significantly more affordable multifamily will continue. For example, according to City officials, more than 2,000 applicants applied for fewer than 50 deed restricted units on Gerrish Avenue.

Table 19: Residential Development Since 2005 (Large Projects)

Development Name	Address	Market rate	Affordable	Total Units
181 Chestnut Street	181 Chestnut Street	32	0	32
183 Washington Avenue	183 Washington Avenue	20	0	20
579-583 Broadway	579-583 Broadway	0	5	5
Atlas Lofts	88 Gerrish/191 Highland	47	6	53
Box Works Homes	Gerrish Ave	10	16	26
One North: Phase 1	155 Sixth Street	230	0	230
Chelsea Place	1020 Revere Beach Pkwy	56	0	56
Creekside Commons	1010 Revere Beach Pkwy	248	0	248
Flats @ 22	22 Gerrish Avenue	50	0	50
Flats @ 44	44 Gerrish /188 Highland	20	26	46
Highland Terrace	47-55 Gerrish Avenue	0	32	32
Janus Highlands Apartments	21-27 Gerrish Avenue	0	41	41
Jefferson @ Admiral's Hill	1000 Justin Drive	160	0	160
One Webster (aka Webster Block)	Synergy	120	0	120
Spencer Green	113 Spencer Avenue	0	48	48
Spencer Lofts	221 Spencer Avenue	82	18	100
Spencer Row	205-221 Spencer Avenue	0	32	32
North Bellingham Veterans Home	215 Shurtleff	0	10	10
TOTALS		1,075	234	1,309

Source: City of Chelsea, The Neighborhood Developers website, Spencer Lofts website

Pipeline Projects

More development is on the way. Several projects under construction, planned or proposed, could bring nearly 1,500 more units to the study area over the next 2 to 3 years. This includes 220 units under construction as part of One North's second phase, 40 affordable units at the former French Club location, and over 600 market rate units along Everett Avenue at Carter Street, 10 units at Webster at Spencer, and the potential for 500 units at the 1 Forbes Street site.

Table 19: Residential Development Pipeline

Project	Address	Market Units	Affordable Units	Total Units
One North of Boston, LLC	1 North	220	0	220
Thibeault Development	284 Everett Avenue	691	TBD	691
The Neighborhood Developers	241-242 Spencer Ave	0	40	40
Church Project	Webster at Spencer	10	0	10
YIHE Group (18 acre mixed use)	1 Forbes Street	500 (TBD)	TBD	500
TOTAL		1,421	40	1,461

Source: City of Chelsea

Further, looking at new development also uncovered a trend not identified in the projections data. As highlighted earlier, initial projections for Chelsea anticipate a decrease in persons 25-34 between 2010

and 2030. However, many of those who have leased in new residential developments such as One North and the Box District fall into this category. Thus, given recent development trends, combined with younger household preferences that favor walkable urban areas especially near transit, more younger households may be attracted to Chelsea, particularly given the lower rents for similar units compared to areas of Boston, Cambridge and Somerville. Should the retail environment begin to offer more options catered towards the young professional demographic, this could increase further. (See Estimated Unit Demand analysis and the Retail Demand Analysis later in this study for more information.)

Housing Affordability and Cost Burden

To best estimate housing demand for different households, it is important to understand not only the cost of housing and incomes, but the percentage of income households are currently spending on housing in any given study area. This is particularly important in Chelsea given the high number of low-income households currently residing in the community. Compared to many communities in the Commonwealth, Chelsea has a high percentage of subsidized, deed-restricted affordable units – 2,125 or 16.9% of year round units – exceeding the State recommended 10%. However, this does not indicate actual need. For example, according to Comprehensive Housing Affordability Strategy data (CHAS), approximately 64% of Chelsea families could potentially qualify for affordable housing – meaning they earn below 80% Area Median Income. Given this discrepancy, there is likely considerable need for more affordable units in the city, particularly those near amenities and transportation connections that increase access to job opportunities.

However, although many households could potentially qualify for affordable housing, existing market rate units may be leasing at rents affordable to these households. Therefore, looking at housing cost burden is important. Cost burdened households are those that spend more than 30% of their gross income on housing costs. Those who spend more than 50% are considered to be severely housing cost burdened. Essentially, if a household is cost burdened, they have less money to spend on other necessities such as food and clothing. And housing cost-burden has a greater impact on low income households. As shown in the below chart, over half of all households in Chelsea are cost burdened, similar to all surrounding communities.

Table 20: Cost Burdened Households

	Percent Cost Burdened	Severely
Chelsea	52.5%	25.0%
Boston	46.0%	23.4%
Everett	53.6%	27.3%
Revere	53.4%	27.4%
Winthrop	42.3%	15.9%
Suffolk County	46.7%	23.6%
Massachusetts	39.3%	17.7%

Source: CHAS 2012

Looking more specifically at the housing costs of low-income households, nearly 65% of low-income households are housing cost burdened, or a total of 4,820 households. Nearly 40% are severely housing cost burdened, or 2,838 households. (See Table 21.) Thus, it is important that the City work with property owners and developers to ensure housing is built that is affordable to all income levels. Simply put, many current households are paying more than they can afford on housing costs.

Table 21: Low-Income Cost Burdened Households

Household Type	Low Income				
	Total	Cost Burdened HHs	Percent Cost Burdened	Severely Cost Burdened HHs	Percent Severely Cost Burdened
Elderly Family	535	273	51%	144	27%
Small Family	3,000	2,114	70%	1,245	42%
Large Family	900	625	69%	410	46%
Elderly Non-Family	1,694	953	56%	554	33%
Other	1,459	855	59%	485	33%
Total	7,588	4,820	64%	2,838	37%

Source: CHAS 2012

Estimated Housing Unit Demand

Estimated future unit demand is not a precise science. Analysis of current conditions, population and household projections for the future, residential preference indicators, and other qualitative factors leads to an estimate of not only the number, but the type of housing needed in a community.

To identify the number of potential new units that could be supported in Chelsea, MAPC first defined a broader focus area of housing markets that might reasonably compete with Chelsea in housing residents. This area identified included all communities that surround Chelsea – Boston, Everett, Revere and Winthrop – with a focus on those that Chelsea will now be better connected via the Silver Line and Blue Line connection (Chelsea, Boston, and Revere). Next, we considered projected housing unit demand through 2020 for the focus area by both housing type and tenure.

Table 22: Unit Demand Projections, 2010-2020

	Multifamily	Single Family	Total Units
Chelsea	1,170	221	1,391
Boston	23,683	3,018	26,701
Everett	2,309	(180)	2,129
Revere	3,049	187	3,236
Winthrop	367	(71)	296
TOTAL	30,578	3,175	33,753

Source: MAPC Projections

Total projected demand for the residential trade area was identified to be 33,753 by 2020. Of that number, approximately 1,391 units were projected for Chelsea. The largest number of units is projected to be in Boston – over 25,000.

To better understand recent housing development trends, we then assessed housing supply added in the focus area since 2010 per Census permit data. Chelsea permitted nearly 1,000 units between 2011 and 2014, or 72% of its projected 10-year demand in 4 years. All of those permits were for multifamily housing.

Within the residential trade area, Chelsea captured nearly 10% of total unit development – more than double the percentage originally projected for the city. This means Chelsea has attracted housing development originally projected for other communities. Most likely, given Chelsea's proximity to Boston,

Chelsea has captured development that might have otherwise occurred in Boston, or perhaps in other inner core communities such as Somerville, or Cambridge.

Table 23: Unit Demand Projections 2010-2020

	Projected Unit Demand 2011 - 2020	Total Units Permitted 2011-2014	Percent of Projected Units Permitted by Municipality 2011-2014	Share of Total Permitted Units - All Municipalities 2011-2014	Remaining Unit Demand – Trade Area (Not Yet Permitted)	Number of Additional Units by 2020 if Capture Continues	TOTAL PERMITTED should capture rates continue
Chelsea	1,391	995	72%	9.8%	n/a	2,317	3,312
Boston	26,701	7,963	30%	78.1%	n/a	18,546	26,509
Everettt	2,309	1,045	45%	10.3%	n/a	2,434	3,479
Revere	3,236	86	3%	0.8%	n/a	200	286
Winthrop	296	104	35%	1.0%	n/a	242	346
All - Total	33,933	10,193	30%		23,740		

Source: MAPC and Census

We next subtracted the number of permits issued from each community to better indicate how much additional supply could be supported within the larger trade area. As show in the "Remaining Unit Demand – Trade Area" column, 23,740 units could be permitted by 2020, again, with the majority constructed in Boston.

Given this significant unmet regional demand, Chelsea's recent share (or capture) of housing development within the residential trade area, and continued developer interest in the community, we anticipate Chelsea will continue to capture a higher share of development than initially projected. Thus, should Chelsea's trade area capture continue, an additional 2,317 units could be captured by 2020 (total of 3,312 units between 2011 and 2020). Further, should interest grow due to the new Silver Line transit connection – even by just a few percentage points to 11% of area capture - over 2,600 additional units could be expected. Based on an average unit size of 1,000 square feet for a 2-bedroom unit, these unit estimates would translate into an additional 2.3 million to 2.6 million square feet of residential development.

While some of this demand could be captured through smaller infill development, or adaptive reuse of commercial buildings along Broadway for example, the majority would likely be through redevelopment on larger underutilized or redevelopable parcels. For example, there are development opportunities west of Route 1 - where significant development has already occurred and is proposed; and along or adjacent to the waterfront closest to future Silver Line Stations. In particular, areas including (and around) the Mystic Mall may be attractive to developers for infill opportunities, particularly given the amount of surface parking, and the future Silver Line and Commuter Rail station, which will be immediately adjacent to the parcel. Additionally, many of the adjacent office uses include large surface parking areas. Should market opportunity increase, structured or underground parking may be feasible. Large parking lots near the waterfront could also prove attractive.

In summary, the potential for a higher density, mixed-use, transit-oriented neighborhood is strong.

Unit Demand Mix

The overwhelming demand for units in Chelsea will be for multi-family units in apartment and/or condominium structures, similar to larger recent developments. Townhouse development could also be attractive, particularly in infill situations as could smaller condominium development, particularly through residential conversion of existing 2-4 unit structures, and through infill development.

Given the diversity of households interested in urban living – at all income levels – particularly in areas with strong transit connections to job centers, it is crucial that new residential development include a mix of unit types, including one-, two-, and three-bedroom options. One- and two-bedroom units in larger apartment and condominium developments will be most attractive to smaller households including downsizing seniors and younger singles and couples, many of whom may wish to access transit including the Silver Line, but also existing buses and commuter rail access to job opportunities and cultural offerings in Boston/Cambridge. Given the larger household sizes in Chelsea, it is crucial that three-bedroom units – market and affordable – be included in the unit mix, either in larger multifamily developments or in townhouse-style properties. These units could be appealing to larger households – of which there are many in Chelsea. This includes families with children, including families looking outside of Chelsea for more affordable options in Lynn and Revere; and to a lesser extent, downsizing households interested in smaller urban living spaces that still offer bedrooms for family members who wither live with them (e.g. multigenerational households), or for family visitors (e.g. grandchildren).

D. Retail Analysis

Existing Retail Inventory

The first step in conducting the retail market analysis involved researching and analyzing the current retail inventory within the study area. MAPC staff surveyed the existing retail environment by walking the entire study area and documenting each store by type. In total, approximately 175 retail and professional office establishments were identified. This included a range of retail, professional office, and institutional uses (e.g. Police Station, Non-profits, etc.). The main finding is that the retail composition of the area is relatively balanced given the population is currently serves – primarily persons of Latino ethnicity and lower income residents (see Table 26). For this population, there is a sufficient mix of shoppers, food service and personal services. However, there is a lower percentage of convenience goods than would be expected, and a higher percentage of professional services.

Table 24: Existing Retail Inventory by Type

Type	# of Stores	% Broadway	% Typical Neighborhood/Community Center Mix
Shoppers Goods	43	25%	30-40%
Convenience Goods	23	13%	20-30%
Food Service	37	21%	10-20%
Personal Services	32	18%	10-20%
Professional Services	36	21%	10%
Vacant	3	2%	5%

Source: MAPC

However, just looking at the numbers and percentages does not tell the full story, particularly given the changing demographics highlighted in the residential analysis, in particular, higher income residents moving into newer developments. For example, although the percentage of food service establishments is within the typical range (only 1% above), there is little variety in the types of food served. The vast majority offer Latino cuisines, or limited service chain establishments like McDonald's and Dunkin Donuts. Further, there is a high percentage of Professional Service establishments, nearly double what is typically found in a community center mix. This is almost entirely due to the large number of "multiservice" establishments that provide everything from immigration assistance to tax services to check cashing, and many dental clinics. Given the large number of these establishments, and minimal traffic observed, it is difficult to determine if these establishments are successful. And once again, although the number of shoppers goods was slightly lower than would be expected, many sold discount merchandise catering to incomes of the neighborhoods. And finally, although there was not an overabundance of personal service establishments by the total count, many hair and nail salons were observed[2]. And while a larger number of hair and nail salons is increasingly typical in many retail locations, it is often a sign of low retail rental rates.

In summary, the retail environment appears to reflect and serve the existing community adequately. There is a solid mix of businesses and services that cater to the predominant Latino population. However, the retail environment does not yet reflect or cater to new residential populations – many of which are higher income households – that are moving into new developments closest to the Bellingham Square area of

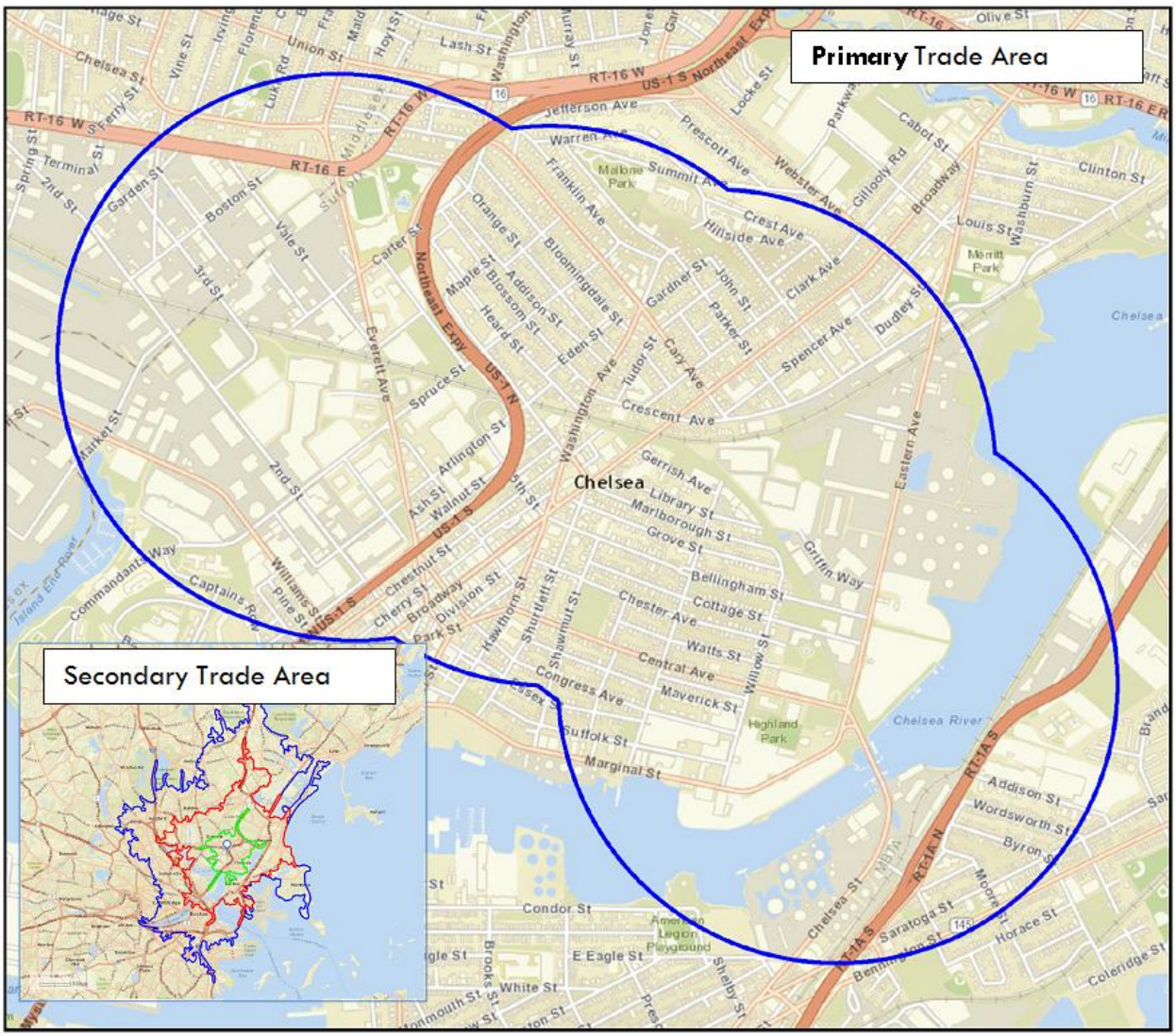
[2] Total establishment counts of hair and nail establishments only include those identified through the field survey in retail locations. It does not include those operating out of homes, which are allowed under zoning.

Broadway. And while some noted during this study that these new residents, particularly "hipsters," would be more likely to explore the existing retail environment, particularly ethnic restaurants, and may even be attracted to the area for this reason, it is important to state that all of their retail needs are unlikely to be met in existing retail establishments. Thus, as more market rate residential development continues, the existing retail environment is likely to adapt to some extent to appeal to higher earning households with more disposable income. Further, should existing and new retail and service establishments increasingly cater to these residents succeed, higher income earners may be attracted to the area, and further change the retail environment.

Trade Area

Before future potential can be identified, a trade area – the area in which businesses will draw the majority of their business – needs to be determined. Defining a trade area, or areas, is a key task as it defines the boundaries for which data is gathered and analyzed to identify potential retail opportunities.

Figure 6: Primary and Secondary Trade Areas



MAPC identified the Primary Trade Area to be all areas within a half mile of the future Silver Line stations. The half-mile study area was selected was selected because it includes the entire Broadway retail corridor, and the Mystic Mall. The half-mile study area is also very walkable, and consumers typically prefer to purchase goods and services at locations that are nearby and convenient. Beyond a 10-minute walk, people are more likely to drive or seek other means of transportation. Further, the area also does not overlap with competing retail areas in East Boston or Revere.

Given the presence of the Mystic Mall, a Secondary Trade Area was also established to estimate demand for regional retail in the study area, particularly on larger parcels in more auto-oriented sections of the study area with access to Route 1. A 15-minute drive time was used for this analysis. As shown in the Figure 6 inset, the blue line extends from I-95 to the North to I-93 to the South in Dorchester.

Retail Opportunity Gap Analysis

To best identify retail opportunities within the Chelsea TOD Trade Area, a retail gap analysis was performed. A retail opportunity or gap analysis looks at the overall demand for retail goods and services within a designated trade area based on the spending potential of existing households (demand), and the actual sales for those goods and services within the market area (supply). The difference between the demand and supply is the retail "gap". When the demand exceeds the supply, there is "leakage," meaning residents must travel outside the area to purchase those goods. In such cases, there is likely an opportunity to capture some of this spending within the market area to support new retail investment. When there is greater supply than demand, there is a "surplus", meaning consumers from outside the market area are coming in to purchase these goods and services. In such cases, there is limited or no opportunity for additional retail development. Thus, the retail gap analysis provides a snapshot of potential opportunities for retailers to locate within an area.

Gap Analysis – Primary Trade Area (1/2-mile from Stations)

Table 2 provides a summary of the retail opportunity gap analysis for the Primary Study Area. Those figures in red (and with negative signs) indicate sectors for which there is a surplus of retail sales within the given trade area (i.e. little to no opportunity). Those that are positive and in black, represent sectors where there is leakage (i.e. opportunity for more retail).

As demonstrated in Table 25, there is limited opportunity for new retail that can be supported solely by residents currently residing within the trade area – households within ½-mile of the future Silver Line stations. Table 26 provides a summary of opportunities (shaded areas with "OPPORTUNITY" noted), or lack thereof, for urban-inclined retail sectors. Automotive, nonstore retailers and gas stations were removed since these are typically not located in walkable urban settings.

In general, there is some opportunity for an additional 5 clothing and accessories stores, 1 sporting goods and hobby shops, and 1 to 2 small electronics stores (not cell phones), and to some extent restaurants.[3] Important to note, restaurants were included as holding some opportunity because there is little diversity in current offerings. There would not be a net gain, rather a replacement factor as existing establishments close. Restaurateurs offering non-Central American or Caribbean options may be attractive to existing and newer residents alike.

[3] Number of stores is based on a sales per square analysis and capture rate.

Table 25: Retail Opportunity Gap: 3-digit NAICS, Primary Trade Area (Local)

	NAICS	Demand	Supply	Retail Gap
		(Retail Potential)	(Retail Sales)	(Retail Opportunity)
Total Retail Trade and Food & Drink		$176,289,766	$369,168,517	-$192,878,751
Total Retail		$157,073,652	$344,832,199	-$187,758,547
Total Food & Drink		$19,216,114	$24,336,318	-$5,120,204
Motor Vehicle & Parts Dealers	441	$29,053,563	$15,012,086	$14,041,477
Furniture & Home Furnishings Stores	442	$3,904,155	$7,852,921	-$3,948,766
Electronics & Appliance Stores	443	$5,397,699	$591,273	$4,806,426
Building Materials, Garden Equip. & Supply	444	$4,071,332	$4,655,408	-$584,076
Food & Beverage Stores	445	$35,348,157	$164,383,394	-$129,035,237
Health and Personal Care	446	$15,190,740	$26,604,388	-$11,413,648
Gasoline Stations	447	$14,029,766	$54,475,264	-$40,445,498
Clothing & Clothing Accessories	448	$12,659,535	$6,463,019	$6,196,516
Sporting Goods, Hobby, Book and Music Stores	451	$4,448,952	$1,886,611	$2,562,341
General Merchandise Stores	452	$17,752,710	$34,957,073	-$17,204,363
Miscellaneous Store Retailers	453	$3,916,075	$6,229,642	-$2,313,567
Nonstore Retailers	454	$11,300,967	$21,721,121	-$10,420,154
Food Services & Drinking Places	722	$19,216,114	$24,336,318	-$5,120,204

Source: Dun & Bradstreet via ESRI BAO, and MAPC

Table 26: Retail Opportunities: Urban Inclined Sectors

	NAICS	PRIMARY TRADE AREA
		½-mile radius
Furniture & Home Furnishings Stores	*442*	
Electronics & Appliance Stores	*443*	*OPPORTUNITY*
Food & Beverage Stores	*445*	
Health & Personal Care Stores	*446*	
Clothing & Clothing Accessories	*448*	*OPPORTUNITY*
Sporting Goods, Hobby, Book, Music Stores	*451*	*OPPORTUNITY*
Miscellaneous Store Retailers	*453*	
Food Services & Drinking Places	*722*	*SOME OPPORTUNITY*

Source: ESRI BAO and MAPC

Based on the gap analysis, existing households could not support additional health or personal care establishments (e.g. pharmacies, beauty supply), multi-service financial centers, grocery stores, furniture or home furnishing stores, or miscellaneous retailers. Essentially, given the lower incomes of area households, the large number and relative diversity of stores, the area adequately serves the local population.

Secondary Trade Area Analysis

As highlighted earlier, a second trade area was identified to look at the regional retail demand. Given the large parcels to the west of Route 1, along with the presence of the Mystic Mall, which serves a larger market area – it was important to see if potential exists for a larger regional retail concentration.

Table 27: Retail Opportunity Gap: 3-digit NAICS, Secondary Trade Area (Regional)

	NAICS	Demand	Supply	Retail Gap
		(Retail Potential)	(Retail Sales)	(Retail Opportunity)
Total Retail Trade and Food & Drink		$7,190,530,755	$7,199,247,082	-$8,716,327
Total Retail		$6,395,860,670	$5,905,472,646	$490,388,024
Total Food & Drink		$794,670,084	$1,293,774,436	-$499,104,352
Motor Vehicle & Parts Dealers	441	$1,224,053,011	$532,555,890	$691,497,121
Furniture & Home Furnishings Stores	442	$167,019,758	$188,072,180	-$21,052,422
Electronics & Appliance Stores	443	$223,137,674	$355,439,169	-$132,301,495
Building Materials, Garden Equip. & Supply	444	$184,450,374	$127,513,570	$56,936,804
Food & Beverage Stores	445	$1,379,714,866	$1,331,413,333	$48,301,533
Health and Personal Care	446	$616,565,241	$778,810,485	-$162,245,244
Gasoline Stations	447	$550,208,420	$445,923,968	$104,284,452
Clothing & Clothing Accessories	448	$519,630,090	$814,421,959	-$294,791,869
Sporting Goods, Hobby, Book and Music Stores	451	$183,585,198	$152,569,366	$31,015,832
General Merchandise Stores	452	$711,195,683	$631,398,020	$79,797,663
Miscellaneous Store Retailers	453	$162,525,018	$153,837,380	$8,687,638
Nonstore Retailers	454	$473,775,338	$393,517,324	$80,258,014
Food Services & Drinking Places	722	$794,670,084	$1,293,774,436	-$499,104,352

Source: Dun & Bradstreet via ESRI BAO

Table 28: Retail Opportunities: Regional and Auto-Oriented

	NAICS	PRIMARY TRADE AREA
		½-mile radius
Motor Vehicle & Parts Dealers	*441*	*OPPORTUNITY*
Electronics & Appliance Stores	*443*	
Building Materials, Garden Equip. & Supply		*OPPORTUNITY*
Food & Beverage Stores	*445*	*OPPORTUNITY*
Gasoline Stations		*OPPORTUNITY*
Clothing & Clothing Accessories	*448*	
Sporting Goods, Hobby, Book, Music Stores	*451*	*OPPORTUNITY*
General Merchandise	*452*	*OPPORTUNITY*
Food Services & Drinking Places	*722*	

Source: Dun & Bradstreet via ESRI BAO

As shown above, there is likely an opportunity for some additional regional retail based on the gap figures. However, many of the opportunities are auto-related including motor vehicle dealers and gas stations, which are not ideal tenants in transit-oriented areas. Additionally, there is opportunity for big box store types as well, in particular for building materials and for general merchandise. Again, although the big or medium-box store types would be consistent with the Mystic Mall, given the public transit investment and opportunity to locate residential within walking distance, these types of uses may be better suited to other areas unless they could be incorporated into a more urban style mixed-use development. However, big box retail would likely only be feasible through lower parking requirements, shared parking agreements, or combinations of strategies. Interestingly, there is no opportunity for additional regional

food services (e.g. restaurants). This is likely due to the numerous eating establishments north along Route 1, as well as those in nearby Boston, Cambridge and Somerville, all of which are located within the 15-minute drive time.

Retail Gap Summary

In summary, the gap analysis for the ½-mile radius trade area showed limited opportunity for new retail based on existing spending/buying power of area residents. However, as more market rate development comes to Chelsea, and higher income households, more retail can likely be supported. (See Future Households Analysis later in this document.) Further, although there is opportunity for some regional retail in and around the Mystic Mall, it may not be the best use for this land given the future Silver Line terminus and improved commuter rail station.

New Resident Retail Potential

As detailed in the residential analysis, by 2020, there is the potential for at least 3,300 more units of housing, the majority of which will be market rate units. These households will bring spending power to Chelsea. Should the area capture a portion of their spending, along with that of recently arrived households, more retail could be supported. Thus far, the retail landscape has not done much to attract spending of new residents locally.

Table 29 estimates the total square footage that could potentially be supported by new households in Chelsea. Based on estimated square footage that can be supported by a household in a walkable, local setting, we estimate that potential new (and future) residents could support at least 13 new establishments in the study area. This would include approximately 7 restaurants and drinking places, 1 to 2 clothing and accessories stores (including shoes), one home furnishings store, a small to mid size specialty grocery store, and 2 gift/hobby store.

Table 29: Potential Future Households Supported Retail

	# of Households	Supportable Local Retail (SF) per HH[4]	Square footage retail	Number of supportable stores
New Households in Permitted Developments	995	15.2	15,124	4
New Households in Estimated Additional Households	2,317	15.2	35,218	9
TOTALS	3,312	15.2	50,342	13

Source: MAPC

[4] Supportable local retail square footage per HH. Hack, Gary, Prof. "Business Performance in Walkable Shopping Areas" University of Pennsylvania

E. Summary

Based on the analysis of the various market conditions highlighted throughout this document, the Chelsea TOD study area holds potential to support additional residential and some retail development. The residential market could support an additional 2,300 to 2,600 units of multifamily housing, primarily in larger multi-family complexes, but also in smaller infill multifamily structures or townhouse style units where possible. The majority of this development will likely be driven by the rental markets, particularly given the recent success of One North, and projects in the pipeline. However, given the large number of smaller 2 to 4 unit multifamily rental structures in the study area, combined with low sales prices compared to Boston, Cambridge and Somerville, condominium conversions are likely.

The Broadway retail spine is currently serving the community successfully, and there is little opportunity for additional retail to serve existing households - there isn't enough disposable income. However, the retail environment will likely see some change as existing or new merchants increasingly look to capitalize on the spending power of the new higher income residents that have recently moved into, or will move into, the new luxury rental developments, along with those who will move into planned or proposed developments anticipated by 2020. These new and future residents can support approximately 50,000 square feet of new retail space. The greatest opportunities would be for eating and drinking establishments (with cuisines not currently offered), clothing stores, and specialty retailers (e.g. card/gift and home goods). Key opportunities for these new establishments would be in areas closest to new development clusters that offer a short walk for new residents, and/or near new transit stations that would benefit from higher levels of pedestrian traffic and visibility. However, once a greater variety of retail and restaurants develops, more retail could potentially be supported as more higher income residents follow, attracted to the relatively low rents and sales prices (compared to Boston, Somerville and Cambridge). This would have a significant impact on existing low-income residents and the businesses that serve them.

Appendix E: Managing Neighborhood Change Analysis and Indicators for Monitoring Change

Introduction to Neighborhood Change: Opportunities & Challenges

New investment in housing, businesses, or—in Chelsea's case—infrastructure typically brings change to a community. History shows that investment in transit infrastructure and service often coincides with transit-oriented development and other amenities. The Silver Line extension will dramatically improve transit mobility, bringing visitors to patronize city businesses and residents to work at Boston jobs. New development attracted to the Silver Line corridor by this improved accessibility will likely increase ridership and fare revenue, bolster municipal finances with new tax revenue, and expand Chelsea's housing stock --- fostering new development and redevelopment.

But neighborhood change is not always positive. Because Chelsea is statistically a lower-income community, it is likely that this reinvestment will lead to or accelerate gentrification, a particular type of neighborhood change defined by an increase in housing costs and an influx of new, higher-income residents. As established earlier in this report by a market analysis and study of shifting demographic trends, such as changes in housing costs and household income, gentrification is already happening in Chelsea to some degree.

Gentrification usually coincides with one of two changes in housing occupancy:

> **Replacement:** Replacement occurs when the number and composition of out-migrants does not change, but the people who move in have different demographics from those who moved out. With this pattern, current residents do not face pressure to leave, but those who choose to are replaced by residents with a different demographic profile.
>
> **Displacement:** Displacement occurs when the rate of outmigration is higher than it otherwise would be because lower-income residents move due to increases in housing costs and a lack of affordable options. In-migrants can afford a higher cost of living and tend to have a different demographic profile from those who move out.[1]

The differences between these kinds of housing occupancy changes can be subtle, but meaningful. Importantly, either of them—not just displacement—result in profound changes in the demographic composition and social cohesion of a community. It is likely that one or both of these changes in housing occupancy and the associated changes in demographic composition, as well as other changes described below, will happen to some degree in Chelsea as an indirect result of the Silver Line extension.

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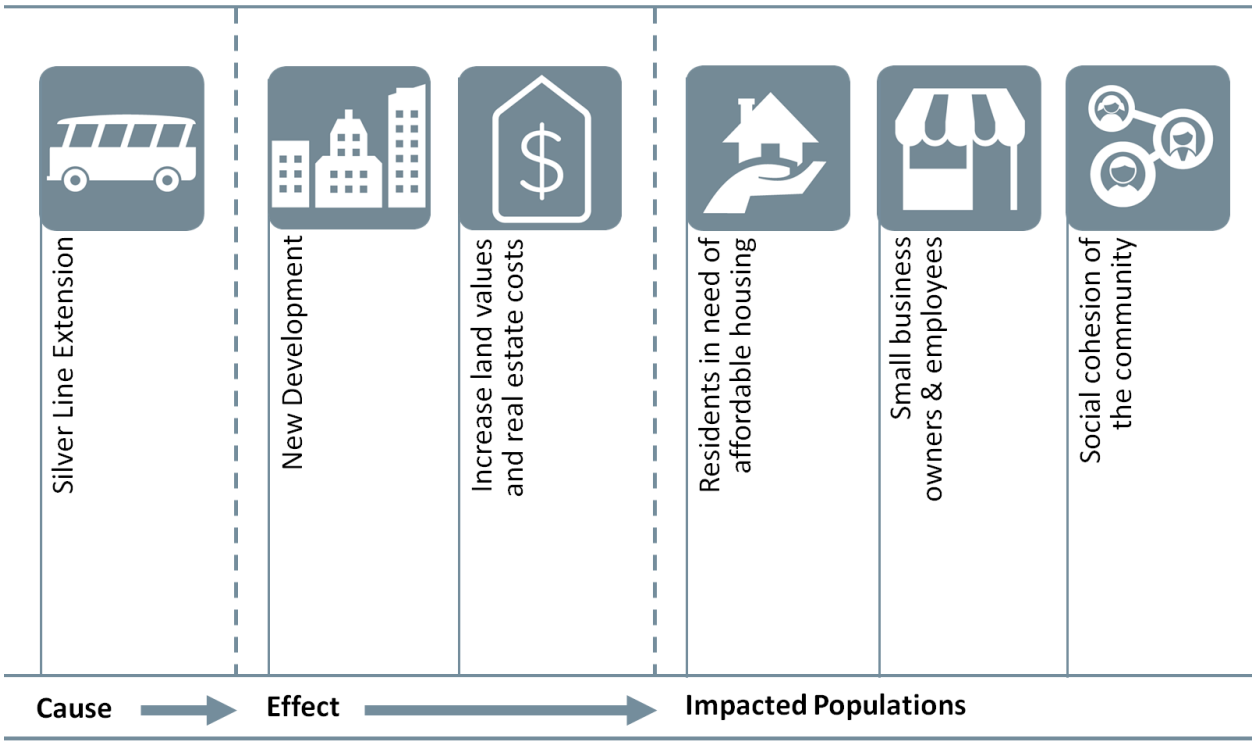
[1] MAPC, "The Dimensions of Displacement: Baseline Data for Managing Neighborhood Change in Somerville's Green Line Corridor." February 2014.

One potential pathway of neighborhood change in Chelsea.



The challenge presented by the opportunities that come with reinvestment is to manage the associated market inflation, or increases in real estate values, that can otherwise result in relocation of low- and moderate-income residents, either by choice or displacement, to less accessible areas where housing is more affordable. History shows us that cities in the Greater Boston region and across the country do not always rise to this challenge.

Chelsea can plan ahead to leverage the investment that follows the Silver Line Bus Rapid Transit (BRT) and shared-use path, and begin to prioritize strategies to address the negative impacts of gentrification in the City's neighborhoods. Ideally, this results in a more equitable distribution of the benefits of new investment among current residents and new ones. In Chelsea, this would mean the city maintains its diversity and vibrancy, while offering new opportunities to all those who call it home.

Towards that end, this section explores what changes are most likely to occur in Chelsea and why. Building on robust community engagement and data analysis, MAPC identifies and analyzes key neighborhood changes that may occur in Chelsea, including those impacting the private housing market, the affordable housing supply, and the local business environment. Ultimately, it recommends strategies to manage change in Chelsea, including leveraging opportunities and mitigating risk.

Community Context: Change amid Stability

While change has been a constant in Chelsea's long history—with each successive wave of immigration—the city has been a stable community with relatively low mobility rates in the years leading up to the Silver Line extension.[2] Mobility, as defined by the U.S. Census Bureau, refers to the movement of people within the United States from one location to another at various geographic levels. MAPC analyzed American Community Survey (ACS) data on mobility gathered between 2009 and 2013. ACS respondents were asked whether the house they currently occupy is the same one they occupied a year ago.

Findings:

- Residents in Chelsea tend to stay in Chelsea. Chelsea has lower rates of mobility compared to many of the surrounding municipalities. During this five-year period, a majority of Chelsea (80-89%) residents in four out of five study area Census tracts had not moved within the past year.
- There are no notable differences in mobility by race/ethnicity. As with overall mobility, Chelsea generally has lower rates than in many surrounding communities, including Boston and Cambridge. In most of the study area, 80-89% of both whites and Latinos had not moved within the year. Fewer African-Americans remained in the same home, though the margin of error on this estimate is high because this population is small in Chelsea. In some tracts 90-100% of African Americans hadn't moved; in others, the rate was 0-49%.
- Renters are more likely to move but are generally more stable than in surrounding municipalities. Chelsea residents of either tenure had low mobility rates during this time period, but 80-89% of renters hadn't moved in the last year compared to 90-100% of homeowners. In surrounding communities, homeowners experienced similar stability in, but renters were much more likely to have moved within the past year.
- The incomes of individuals who move into the study area vary only slightly from the incomes of those who have been in their homes for at least one year.
- We also compared the median income of those who did not move from their home in the study area within the past year to that of the overall population. Again, Chelsea has been stable, with the median income of those moving into the study area varying only slightly from that of those who have been in their homes for at least the past year. In most Census tracts, there was almost no difference, and in one tract those moving in were lower income than current residents (the difference was between $1,000 and $3,999 annually). Only in one tract in the city, which is outside the study area, were those who moved in higher-income than current residents (the difference was between $1,000 and $4,000 annually).

[2] Mobility is notoriously hard to measure, and people around the country struggle to do so accurately due to highly limited data availability. The American Community Survey (ACS) 2009-2013 5-year estimates used in this analysis is the most comprehensive and vetted data set that is publicly available. Nevertheless, it has a high margin of error because only a subset of the population that may not be representative was surveyed, so findings should be considered with caution.

While one might presume that Chelsea would experience rampant speculation in anticipation of the Silver Line extension, and some data supports that hypothesis, mobility rates documented from 2009-2013 do not indicate that people are leaving as a result of the market inflation that's typically associated with such activity. Nor does it indicate that those moving into the city differ in income level from the current population.

However, it is important to note that these mobility rates reflect only a snapshot in time, not longitudinal trends. We do not know, due to limited data availability, whether Chelsea's relative stability has increased or decreased over time. We do know, however, that long-term trends indicate population growth, an increase in median income, and shifts in the community's racial and ethnic composition. These changes have been confirmed by quantitative data analysis elsewhere in this plan, and observed by members of the community. They are likely to continue, perhaps at a faster rate, with the extension of the Silver Line.

Community Input: Welcome Changes & Causes for Concern

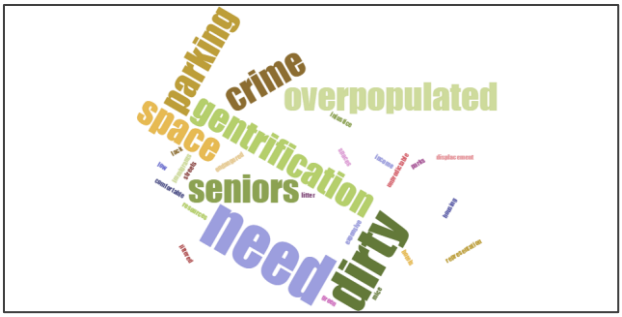
In order to better understand how Chelsea is changing and how people feel about it, MAPC spoke directly with the community. This engagement took multiple forms: a survey distributed in both Spanish and English, and in paper and online formats; focus groups conducted in both Spanish and English; and two public forums. A diverse group was engaged, with people of different ethnic backgrounds, including Caucasian, Latino, and African American; ages, from young adults to seniors; and income levels, with survey respondents[3] from various income levels.

During various engagement exercises, we asked participants a serious of questions about neighborhood change in Chelsea. Discussion prompts focused on housing, such as whether rent and housing availability have changed in the last five years; on the economy, such as where people frequently shop in the city and whether the retail mix has changed and how; and what local services people use and groups or organizations they participate in. More broadly, people talked about how the city is changing; the concerns they have about change in Chelsea; what changes they'd like to see; and what they'd like to keep the same.

At one event, attendees were asked to write down three words that describe Chelsea. Afterwards, they categorized these words as either "positive" or "less positive". There was a notable amount of consensus around these descriptors. This exercise illustrates what current residents value about their community and would like to preserve, and indicates what changes they would like to see.

Positive, left, and less positive, right, Chelsea descriptors.

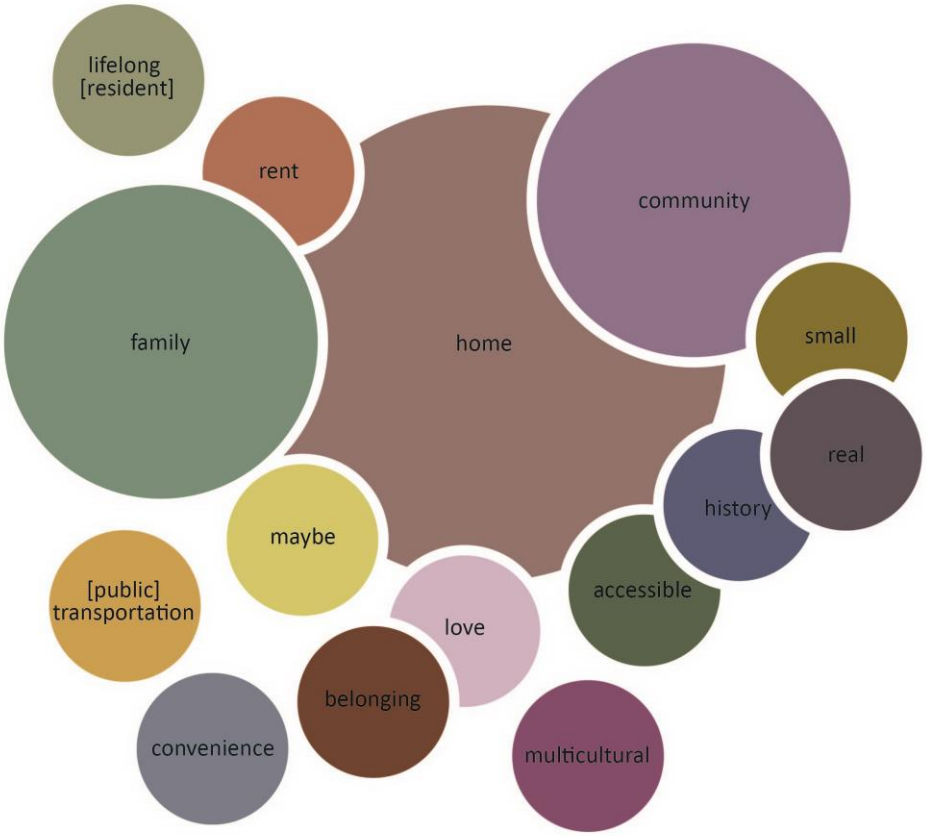
[3] Only 10 survey respondents chose to provide information on annual gross household income.



Why Do You Want to Stay in Chelsea?

At the focus group, people were asked whether they'd like to continue to live in Chelsea. Almost all answered positively. We next asked them to explain why in a single word. The top three things people said as the reasons they want to continue living in Chelsea is the identification of Chelsea as home, and because of their and a sense of community.

Current residents were asked why they want to stay in Chelsea; larger bubbles indicate agreement among multiple participants.



Community Sentiment on Neighborhood Change

What changes are considered concerning and which are welcome very much depends on who you are and where you live. For example, new housing development is a concern if your interest is limiting supply to protect property values or avoiding increased density. It is welcome, however, if your interest is in increasing supply to achieve greater affordability.

Chelsea is diverse, and therefore the community's feelings about neighborhood change are, too. On the one hand, we heard complaints of criminal behavior and feelings of being unsafe on the streets, delinquent behavior in public spaces, trash piling up, and eroding sense of community. On the other, we heard praise of new development, both new, higher-end chain businesses like Starbucks and higher-cost housing; exhibition of pride in one's home; and opportunities to meet and greet neighbors. Chelsea is experiencing both positive and negative changes, and it would seem that the benefits of new investment are not being distributed evenly.

The below matrix of public feedback captures the varying perspectives on neighborhood change in Chelsea. It is organized by topic area (row 1), including housing, economy, transit, health and safety, government and civic engagement, recreation, and community character and diversity; and by question prompt, including changes people are concerned about, those they would welcome, and what they wish to preserve. This feedback informed MAPC's analysis of key neighborhood changes to address and monitor in the coming years as Silver Line service begins and new investment follows.

Current resident perspectives on neighborhood change.

Community Sentiment on Neighborhood Change			
	Concerns	**Welcome Changes**	**Qualities To Preserve**
Housing	New housing development; rising housing costs; lack of subsidized housing; lack of homeownership opportunities; housing turnover; population turnover; overcrowding	More affordability; more housing options; less housing development; more accountability of landlords	Affordable housing
Economy	New development; people who live here spend their money elsewhere; rising rents for businesses	Placemaking; more diversity of businesses; education and employment opportunities for all	Small businesses; affordable businesses; jobs near housing; vibrant Broadway
Transit	Overcrowded; insufficient service; traffic; insufficient parking; Silver Line	Greater transit services; more parking; less traffic; protected bike lanes	Good access to public transit; reliable public transit; good access to Boston
Health & Safety	Increased criminal and delinquent behavior; litter; increased pollution	Safer; cleaner; improved healthcare and other services	Friendly police force; health centers
Government &	Lack of interest in participation due to distrust of local government	Transparency and accountability of local government; greater	City manager form of government

Civic Engagement		public involvement; better communication	
Recreation	Lack of recreational opportunities for youth; lack of green space	More entertainment and socializing venues; more activities for teens	Artists' community; green spaces
Community Character & Diversity	Rebranding of Chelsea; capacity of public services; gentrification	--	Diversity; character; community organizations; basic layout; historic preservation

Below is a synthesis of specific comments provided through various public engagement opportunities, organized by topic.

Housing

Density. Some residents are concerned that new housing development will increase density and exacerbate overcrowding issues. Residents suggested policies that would manage and stabilize the rate of housing production and called for more stringent review of housing proposals, along with a review of the capacity of current public and social services to meet the needs of a larger population.

Housing Affordability. Some residents spoke about rapidly increasing rents, with hikes occurring sometimes several times within a year. The increase in rents has led to increased demand for subsidized and market-rate affordable housing for a range of incomes (lower-middle), the supply of which is insufficient to meet need. It was observed that some homeowners are "cashing out," unable to afford the rise in property taxes. In general, current residents want to preserve and increase housing affordability and opportunities. Specifically, these residents would like lower rents, more rental units that work for families, and more homeownership opportunities and programs to support first-time homebuyers.

Housing Quality: Some residents spoke about negative experiences with absentee landlords and slumlords, and the associated erosion of housing quality. They note that the combination of these issues has led to out-migration. Residents feel the need for greater accountability of landlords.

Economy

Rate & Type of New Development. Residents expressed varying perspectives on new commercial development. Some people expressed concern over the rate of new commercial development, feeling it's unchecked and too market-driven. Others were more concerned with the type of development, especially hotels and high-cost housing, which they feel doesn't serve the existing community, but rather new/future residents and industry. Other residents view this new development as a good change, a sign of more money flowing through the city. They're pleased by the opening of chain businesses like Starbucks.

Retail Diversity. Current residents also agree they'd like more retail diversity downtown, including a range of restaurants, healthier food options, and shopping opportunities that would attract newer, higher-income residents so local money is spent locally. However, residents also want to preserve

Chelsea's existing local businesses, especially smaller mom and pop shops, affordable restaurants, and corner stores. They want Broadway to remain vibrant and avoid vacancies. People feel strongly that Market Basket should continue to serve the community.

Residents enjoy the fact that Chelsea is walkable, with jobs near housing, and wish to preserve this feature. There is also a lot of consensus that Broadway, specifically, can be made into more of a destination with better street design and more trash receptacles.

Education & Workforce Development. Many residents would welcome more education and employment opportunities for both youth and adults. Some suggest that Bunker Hill Community College play a stronger role in the city, offering academic programs for local business owners, for example, so they can learn how to remain relevant and attract a stronger customer base.

Transportation

Public Transit. While many feel public transit in Chelsea is a strong point, they also feel that service is insufficient to meet demand. Residents noted that two bus lines that offer direct service from Boston to Chelsea and provide access to the Blue, Orange, and Green lines—the 111 and the 116—are frequently overcrowded. Residents were interested in learning about how the new Silver Line route would connect to existing bus routes and whether lower-income residents who live farther away from new station stops can benefit from the new infrastructure. Some residents would like electric buses for environmental/health reasons. Residents also expressed interest in other transit options, such as a commuter boat from the waterfront and/or water taxis, to improve quality of life. Many residents are not aware that they can take the Chelsea Commuter Rail to Boston for free with their weekly or monthly bus passes.

Vehicular Traffic & Parking. Residents complain of too much traffic in the city and not enough parking.

Pedestrian & Bicycle Safety. Generally, people would like greater walkability. Cyclists would like protected bike lanes, expressing concern that sharrows are not as safe. Residents also noted vehicular speeding as a safety concern.

Health & Safety

Crime & Delinquent Behavior. There is much agreement that criminal activity and delinquent behavior has increased, including drug traffic and on-street drug use, on-street prostitution, car break-ins, gang activity, gun violence, and home invasions. People would like to see a reduction in crime, and many called for more community policing on bikes and foot patrols. Some note that the private security team hired by the City does not help, and suggest the Chelsea Police play a stronger role in increasing safety in the community. Some residents feel that the police force is unhelpful, while others note it's friendly and accessible.

Health & Cleanliness. Pollution is another issue that came up. People note that the air quality is negatively impacted by bus service, and fear contamination will worsen with the Silver Line BRT service. Residents would like the trash problem addressed through improved trash pick-up, more receptacles, and anti-littering education.

Social Services. Many would welcome more opportunities to receive healthcare, especially mental health services. Many Latino residents note the benefit of local health centers, and the fact that they are bilingual or offer translation services. Other opportunities to get help, such as pantries and soup kitchens, are desired more generally. Most agree that public services are insufficient. In addition to bus lines, schools are at capacity.

Government & Civic Engagement

Civic Participation. While residents value the City Manager form of government and don't want it to change, residents expressed a desire to be more involved in the democratic process and local government. Many residents say their neighbors lack interest in serving the community, such as on City Council or the School Committee.

Communication with City Government. Residents say it's difficult to communicate with local government, share their concerns, and learn what's going on to address them and opportunities to get involved. More generally, residents demand more transparent, accountable, and representative local government. Latino residents expressed interest in better representation of the Latino community so their concerns and interests are addressed.

Recreation

Green Spaces. Many residents want to preserve Chelsea's green spaces, particularly the community gardens, but also agree more is needed. Generally, residents would like more opportunities for recreation. In addition to more and safer green spaces, they'd like more playgrounds, small community parks, gardens, and dog parks. They'd also like improved access to the waterfront, more development such as parks and walkways there and to Chelsea Creek. More trees would help address air quality issues.

Recreational Opportunities. Many residents noted that a need for more entertainment options and activities. There is a need for more activities and places for kids and teens, in general and specifically to counteract gang activity. Programs for youth, like business training, would help them prepare for the future. A community center for kids and adults alike is also needed. Residents would also like more fitness opportunities, including health clubs/gyms and a running route. Residents would enjoy a local movie theater, bowling alley, and more dining venues. While residents enjoy the artists' presence in the community, particularly the arts district and Art Walk, they'd like a stronger arts and culture presence and the opportunity to connect with local artists at festivals and the like.

Community Character & Diversity

Above all, Chelsea residents value the city's diversity. They speak of the cultural and economic diversity, and the variety of people (racially, ethnically, and by income), businesses, and housing. They do not want to see this change. Relatedly, people want to preserve the character of the city, its "small-town feel", and the sense of community. They call for historic preservation, especially on Beacon Street, downtown, and along the waterfront.

Residents want to recapture the culture of neighborliness. Towards that end, residents feel strongly that community organizations like the Chelsea Collaborative and Centro Presente maintain their strong presence in the city. However, residents note that gentrification has begun. They're concerned that Chelsea is being rebranded as "north of Boston," and losing its identity.

Summary

Current Chelsea residents note recent developments in the community that indicate things are changing even in advance of the Silver Line extension. Many observe a growing population, overcrowding, and traffic congestion. They describe changes regarding housing, including rising rents, evictions, and high instances of housing turnover. They say there's been a lot of new construction that's not intended for the current community, such as expensive housing and hotels. Residents speak about gentrification, displacement, and people moving out of the city. They describe an increase in criminal activity, a general feeling of not being heard by authorities, corruption in local government, and a fear of participating as a result. They say there's been a decrease in neighborliness, in the sense of community, in opportunities to meet one another. People don't say 'hi' to each other on the street; no one borrows a cup of sugar from their neighbor anymore. Many comment on divisions between different neighborhoods in the city.

Together, this indicates a decrease in social cohesion, or "the extent of connectedness and solidarity among groups in society."[4] Social cohesion encompasses the strength of social networks, the number of associations that bridge social divides, and the level of social capital (meaning trust, reciprocity, and mutual aid among members of a community). Factors that degrade social cohesion include higher rates of mobility and housing instability, displacement, crime, lack of public space, lack of economic opportunity, civic disempowerment, income polarization, and fractures among different groups in the community. Significant investment in a community, like the Silver Line extension and adjacent multimodal pathway, can address some of these issues—such as lack of public space or economic opportunity—while accelerating or exacerbating others—such as housing instability or income polarization. A better understanding of the latter is imperative in order to plan to mitigate these issues in advance of their negative impacts.

Key Neighborhood Changes and Associated Risks

While many neighborhood changes bring new opportunities, some—such as new and increased demand for housing driven by new amenities like the Silver Line BRT and shared-use path—carry with them risks to certain populations. When disruptive neighborhood changes intersect with vulnerable populations, a community can transform.

In this portion of the report, we consider the potential for changes coinciding with the Silver Line extension to drive other neighborhood changes, who is most vulnerable to those changes, and implications for the community should such changes come to be pass without mitigation.

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[4] Ichiro Kawachi and Lisa Berkman, "Social Cohesion, Social Capital, and Health." P. 174. *Social Epidemiology*. Lisa F. Berkman and Ichiro Kawachi, ed. 2000.

In Chelsea, those that are especially vulnerable include low-income residents, cost-burdened householders, and low-income and/or cost-burdened renters in particular. To review:

- **Chelsea's median household income is $47,291, lower than all surrounding communities and significantly lower than the Commonwealth.** Moreover, 60% of households, or 7,235, are considered low income, meaning they earn less than 80% of AMI and therefore qualify for housing assistance.
- **Half of all Chelsea households (53%) are cost burdened**, meaning they pay more than 30% of annual income on housing costs, and a quarter of households (25%) are severely cost burdened, or pay more than 50% of annual income on housing costs. Meanwhile, more than half (64%) of low-income households are cost burdened and 37% are severely cost burdened.
- **A majority of Chelsea households who rent are low-income and cost-burdened**. Nearly three-quarters (73%) of Chelsea housing units are occupied by renters, of which 54% are cost burdened. Moreover, 74% of Chelsea renters are low-income, and 71% of those low-income renters are cost burdened.

The table below outlines potential drivers of neighborhood change identified through the MAPC *Dimensions of Displacement*[5] data analysis tool and an evaluation of Chelsea's population and built environment. They pertain to the Silver Line extension and corresponding investment in the city, encompass the populations most likely to be impacted, and include indicators that can be used to monitor both the drivers and their impact on residents over time.

Drivers of Neighborhood Change

Change	Vulnerable Population	Supported by Public Feedback?
Rent Increases	Lower-income renters who are cost-burdened or severely cost-burdened	x
Home Sale Price Increases	Lower-income homeowners who are incentivized to sell but cannot afford to re-buy in the community	x
Condominium Conversions	Lower-income renters who are cost-burdened or severely cost-burdened	
Predominately High-Cost New Residential Construction	Lower-income residents seeking housing in Chelsea	x
Expiration of Affordability Deed Restrictions	Renters living in rent-restricted units that may be converted to market-rate rents after affordability restrictions expire	
Eroding Customer Base	Local business owners catering to lower-income residents	x

[5] http://www.mapc.org/sites/default/files/Dimensions_of_Displacement_Final_Draft_2_10_14.pdf

Neighborhood Change #1: Rising Housing Costs

Rents

The majority (73%) of Chelsea households rent, a rate higher than in all surrounding communities, the county and the State. More than half of these renters are cost burdened: 54%. That rate is even higher among renter households who make less than $75,000 a year: 67%. These households have little ability to withstand rent increases.

Yet rents have been increasing in Chelsea. Between 2000 and 2013, median rent in the city has risen 63%, a rate higher than in most surrounding communities, the county, and the state. Moreover, the true rate of inflation is likely even higher because ACS data does not reflect rents of listings currently on the market, but rather those of units that are leased. The median rent of current listings is significantly higher: $1,885 compared to $1,013, or a staggering 86% higher.

Sale Prices

Over the last two decades, sale prices in Chelsea have risen considerably. Between 1995 and 2015, sales prices have increased by nearly 300%. While prices have not fully recovered since the recession, median sale prices have increased consistently since the bottom of the market in 2009.

Condominium prices in particular have risen, so that in 2015 these units are selling at an all time high. Even so, for-sale units in Chelsea are selling for significantly less than in some neighboring communities (such as East Boston), which may make them appealing for first-time homeowners who are priced out of other Inner Core markets.

Recent sales of multifamily buildings in Chelsea for prices high above the median indicate real estate speculation. Such buildings have the potential for condominium conversion, and units could be put back on the market at much higher prices than when they were last purchased.

Significant increases in housing sale prices can be both positive and negative for current homeowners. On the one hand, they stand to make a substantial return on their investment. On the other, the windfall is often not substantial enough to buy another home in either the same market or comparable or higher-cost markets elsewhere. So homeowners are incentivized to sell, but not usually able to become homeowners again unless they relocate to lower-cost markets. This can result in high rates of population turnover as longer-time residents out-migrate and new ones move in.

Research establishes a link between high housing costs and proximity to public transit.[6] The extension of the Silver Line BRT in Chelsea will likely further inflate the city's residential market.

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[6] Sources: http://www.bankrate.com/finance/real-estate/public-transportation-affects-home-values.aspx; https://www.itdp.org/wp-content/uploads/2013/11/More-Development-For-Your-Transit-Dollar_ITDP.pdf; http://www.reconnectingamerica.org/assets/Uploads/TransitImpactonHsgCostsfinal-Aug1020111.pdf; http://www.usnews.com/news/blogs/home-front/2013/03/22/study-proximity-to-public-transit-boosts-home-values; http://www.apta.com/resources/statistics/Documents/NewRealEstateMantra.pdf; http://nlihc.org/article/proximity-transit-linked-rising-cost-housing-low-income-communities; http://www.bankrate.com/finance/real-estate/public-transportation-affects-home-values.aspx

Current cost-burdened and/or low-income renters will be adversely impacted by such a change unless steps are taken to simultaneously increase the supply of housing that is affordable to them.

Neighborhood Change #2: Decreasing Proportion of Lower-Cost Housing

As rents and sale prices in Chelsea increase, there are indications that the city's proportion of lower-cost housing could shrink due to condominium conversions and new, more expensive construction. Without adequate increase in the affordable housing supply, these trends would further decrease the city's housing options for lower-income households.

Condominium Conversions

Moderate- and high-income residents attracted to Chelsea by the community's revitalization and new transit service are also more likely to have the resources and inclination to seek out for-sale rather than rental housing. If new construction does not provide the supply demanded by them, then owners of existing rental units may find it profitable to convert their properties to a condominium form of ownership and sell off the units individually rather than renting them.

Chelsea's existing housing stock is relatively old, with 67% of units built before World War II. Nearly half of units, 49%, are in smaller multifamily buildings consisting of 2-4 units total. Given that Chelsea's housing stock is majority rental, we know that many of the units in these structures are for rent. Such buildings—older, smaller multifamily structures comprised of rental units—are especially vulnerable to condominium conversions. Developers can often acquire them at competitive prices, and resell them for a considerable profit, depleting the city's rental housing stock in the process. Between 2012 and 2016,[7] roughly 22 condominium units were created in Chelsea via conversion of primarily two- and three-family buildings. This means 22 rental units were taken off the market. As options to rent dwindle, residents require greater means, in the form of a down payment, to secure housing.

Condominiums can also be created through new construction, rather than conversion of existing rental housing, which has fewer implications for displacement. Between 2003 and 2012, a whopping 692 condominium units were constructed. Between 2012 and 2016, the same period during which 22 condominium units were created via conversion, only 4 such units were created via new construction. It is unclear why new construction of condominium units slowed so dramatically in 2012, so that the rate of condominium conversion now outpaces it. It is likely that this rate will increase in the coming years due to higher demand for homeownership opportunities in Chelsea and the predominance of small, older multifamily buildings so favorable for conversion.

New Construction

While the majority of Chelsea's housing stock is quite old, the city's proportion of newer units is second highest among its neighbors. Nearly 10% of units were built since 2000, the majority of which have been in multifamily structures. Many of these units are priced and marketed to attract

[7] This is the period for which MAPC was able to attain Assessor's data on parcel conversion from rental to ownership.

higher-income householders. Such householders could include existing Chelsea residents, although income distribution indicates that only a small but growing subset of the population could afford such units, or wealthier in-migrants.[8]

As previously noted in this plan, Chelsea could add upwards of 2,000 new housing units to meet projected demand between now and 2020. If current trends in new construction and housing sales continue, then the majority of these units will be unaffordable to the majority of the city's current population unless steps are taken to put mechanisms in place that will increase Chelsea's supply of affordable housing.

Affordable Housing Supply

Based on data from the Commonwealth's Subsidized Housing Inventory, Chelsea's affordable housing stock has been decreasing in proportion to the city's overall housing since the late 1990s.

DHCD Subsidized Housing Inventory, Chelsea

Year	SHI Units	% of total housing	% Change
1997	1,918	16.58	-
2002	2,098	17.03	+ 0.45
2004	2,187	17.76	+ 0.73
2005	2,171	17.60	- 0.16
2006	2,116	17.20	- 0.40
2007	2,116	17.20	0
2008	2,116	17.20	0
2009	2,187	17.80	+ 0.60
2010	2,187	17.80	0
2011	2,187	17.40	- 0.40
2012	2,152	17.10	- 0.30
2013	2,152	17.10	0
2014	No data	No data	-
2015	2,125	16.88	- 0.22

As the city's overall housing supply has increased, its affordable housing supply has not kept apace. A combination of expiring affordable housing units and slower affordable housing production compared to market-rate housing construction has caused the proportion of subsidized housing to decrease. As the market-rate housing stock increases in price, below-market-rate housing becomes even more important to the goal of maintaining a diverse city.

Neighborhood Change #3: Expiring Affordable Housing

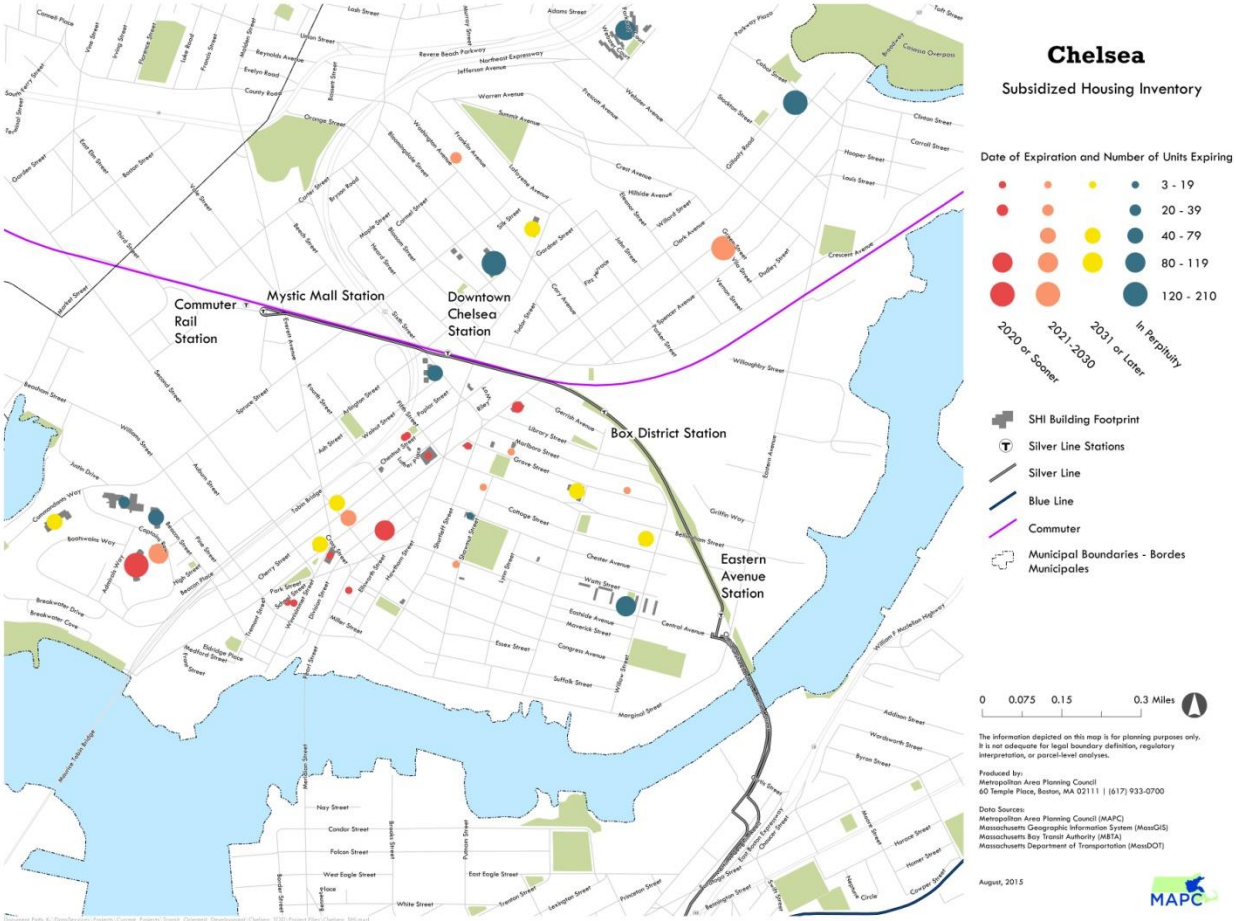
As rents and sale prices rise, rental units convert to condominiums, and new units are added at the high end of the market, publicly subsidized housing increasingly provides the primary means for low-income households to remain Chelsea. Fortunately, the city has a significant supply of project-based

[8] It's unclear whether recent changes to Chelsea's income distribution is the result of increased educational and job opportunities for existing residents or an influx of wealthier householders.

deed-restricted affordable housing: 2,125 units or nearly 17% of the year-round housing. However, a significant portion of this housing stock is at risk.

Many deed restrictions have a specified term, often ranging from 30 to 100 years, after which the units can be rented or sold at market rates. Owners can choose to renew their affordability contracts before they expire by refinancing, but there is less incentive to do so in appreciating housing markets like Chelsea. If they do not, lower-income households with few affordable alternatives can be displaced.

Chelsea Subsidized Housing Inventory by date of expiration and number of units per development.



While just over half (52%) Chelsea's subsidized units are affordable in perpetuity, 807 units could expire between now and 2032, while another 217 units could expire between 2040 and 2095. Considering that Chelsea's inventory of affordable housing, though large, is insufficient to meet the needs of existing residents—2,125 units for 7,235 eligible households—it is vital that this stock be preserved. Towards that end, the City is working with property owners to extend affordability, and with developers to construct new affordable housing units.

Neighborhood Change #4: Eroding Customer Base

MAPC's analysis shows that Chelsea's retail environment will likely change in response to the spending power of new higher-income residents. Community engagement with current residents revealed that they would welcome certain changes, such as more variety of businesses, improved quality of goods, and higher design standards for storefronts. As newer businesses set up shop in response to this demand, and residents begin to frequent them, current businesses may find their customer base decreasing. If they are not able to adapt—either due to lack of will, resources, or supports—then these local businesses may close.

This would impact not one, but two vulnerable populations. First, local business owners would face a loss of livelihood. Those who are also residents may need to relocate closer to employment opportunities or to more affordable housing markets. Second, lower-income residents would find themselves with fewer businesses catering to their needs, since new businesses may mainly serve new, higher-income residents. Both of these changes could mean the community's retail and environment and residential base dramatically changes.

Monitoring Neighborhood Change

In order to track changes in Chelsea's demographics, housing stock, and local economy over the coming years, MAPC has identified a set of local benchmark indicators that can be monitored going forward. These indicators are organized into four broad categories: demographics, housing, transportation, and social cohesion. Below, we provide directions for obtaining and analyzing the necessary data in order to track each indicator. The City should use this methodology to evaluate the efficacy of managing neighborhood change strategies recommended in this plan, and revise said strategies as needed to respond to shifting trends. There are opportunities to augment this analysis with more refined data sets and additional data points, and the City should work with MAPC to do so as opportunities arise.

Demographics

Economic Diversity

Loss of economic diversity in Chelsea is a significant potential negative impact of the market inflation anticipated as a result of the Silver Line extension. Increasing housing costs and values could mean low-income households have a harder time finding housing they can afford, and therefore may relocate. Many residents are concerned that this is already happening in Chelsea, and will only increase.

Tracking the number and share of low-income households in the city can help gauge the degree to which population replacement is occurring. A stable or increasing *number* of low-income households indicates a low rate of replacement with higher-income households; a declining number may mean this process is underway. A stable or increasing low-income *share* of households means that the city has been able to preserve or create new affordable housing opportunities as it changes; a declining share means that higher-income households are making Chelsea their home at a higher rate than others.

Data Point	Data Source	Table	Geography
Median household income	ACS	B19013	Municipal
Attributes	Median household income in the past 12 months (in 2014 inflation-adjusted dollars); margin of Error		
Data Point	**Data Source**	**Table**	**Geography**
Number of low-income households	ACS	B19001	Tract – study area
Attributes	Total: - Less than $10,000; margin of error *Repeat through $60,000*		
Analysis	Sum of households with income less than $60,000		
Notes	Low-income households approximated with HUD income limit at 80% of AMI for a 3-person household ($61,000). An alternative analysis can be performed using Comprehensive Housing Affordability Strategy (CHAS) data, which determines income thresholds with % AMI by family size, but is more difficult to access than ACS data.		
Data Point	**Data Source**	**Table**	**Geography**
Share of low-income households	ACS	B19001	Tract – study area
Attributes	(Above)		
Analysis	Percent low-income households, calculated as 100 times the sum of low-income households (above) divided by total households		

Racial and Ethnic Diversity

To date, Chelsea has been home to many waves of immigrants and communities of color. Current residents express a strong desire that this continue. Market inflation negatively impacts lower-income households, but because they tend to be disproportionately non-white, it also disproportionately impacts non-white households. The new investment associated with the Silver Line extension, therefore, potentially poses a risk to Chelsea's racial diversity.

A stable or increasing *number* of residents of color over time indicates a low rate of replacement with white residents, while a declining number may mean this process is underway. An increasing *share* of the city's population of color indicates minority groups continue to have access to Chelsea, while a decreasing share means that opportunities for them to live in Chelsea are declining.

Data Point	Data Source	Table	Geography
Population of color	Decennial Census	SF1	Tract – study area
Analysis	Sum of non-white population		
Data Point	**Data Source**	**Table**	**Geography**
Share Latino or Hispanic	Decennial Census	SF1	Tract – study area
Analysis	Latino population divided by total population		
Data Point	**Data Source**	**Table**	**Geography**
Share Black or African American	Decennial Census	SF1	Tract – study area
Analysis	Black population divided by total population		
Data Point	**Data Source**	**Table**	**Geography**

Share Asian or Pacific Island	Decennial Census	SF1	Tract – study area
Analysis	Asian population divided by total population		
Data Point	**Data Source**	**Table**	**Geography**
Share other race or multiracial	Decennial Census	SF1	Tract – study area
Analysis	Sum of Native American, other race, and multiracial populations divided by total population		

Families with Children

Many residents of Chelsea express a desire for the city to become an increasingly, rather than decreasingly, family-friendly community. However, recent real estate trends make it harder for families to find a home. Subdivision of large homes into multiple condominiums decreases the supply of family housing. Meanwhile, the smaller units being developed are not suitable to families with children. Lastly, an inflating market means lower-income families will have even more trouble securing housing in Chelsea. Tracking the number of families with children in Chelsea helps develop an understanding of how a changing city is accommodating them.

A smaller number of families with children means that this population is on the decline. Since these households are likely to decline region-wide, regardless of market trends, it is also useful to compare Chelsea to its neighbors to see if the local decline is representation of regional trends or occurring at a faster rate.

Data Point	**Data Source**	**Table**	**Geography**
Number of families with children	Decennial Census	SF1 P10	Tract – study area
Attributes	2-or-more-person household: -Family households: - Husband-wife family: - With own children under 18 years 2-or-more-person household: - Family households: - Other family: - Male householder, no wife present: - With own children under 18 years 2-or-more-person household: - Family households: - Other family: - Female householder, no husband present: - With own children under 18 years		
Analysis	Sum of husband-wife families with children; male householder, no wife present, with children; and female householder, no husband present, with children		

Mobility

In addition to the city's racial and ethnic composition, it's important to understand which groups are increasing or decreasing as a result of migration. A decline in one group due to outmigration, as opposed to death and low rates of inmigration, could indicate certain households are struggling more than others to make Chelsea their home. Changes in the characteristics of in-migrants could cause a dramatic change in the city's demographic profile, even if the pace of outmigration remains constant.

An analysis of which racial and ethnic groups move least helps develop an understanding of how the representation of different populations is changing in the city. A decline in non-movers of any one group indicates it is becoming more transient. An increase in non-movers indicates that group is stable.

Data Point	Data Source	Table	Geography
Non-movers share of Non-Latino White population	ACS	B070041	Tract – study area
Attributes	Total; margin of error Total: - Same house 1 year ago; margin of error		
Analysis	Percent Non-Latino White non-movers is calculated as 100 times the population of Non-Latino White residents living in the same house as one year ago, divided by the total Non-Latino White population		
Notes	It is best practice to calculate the margin of error for all indicators for which it is available. For guidance on how to calculate and interpret margins of error, see the ACS guide.		
Data Point	**Data Source**	**Table**	**Geography**
Non-movers share of Latino Population	ACS	B07004H	Tract – study area
Attributes	Total; margin of error Total: - Same house 1 year ago; margin of error		
Analysis	Percent Latino non-movers is calculated as 100 times the population of Latino residents living in the same house as one year ago, divided by the total Latino population		
Data Point	**Data Source**	**Table**	**Geography**
Non-movers share of Black Population	ACS	B07004B	Tract – study area
Attributes	Total; margin of error Total: - Same house 1 year ago; margin of error		
Analysis	Percent Black non-movers is calculated as 100 times the population of Black residents living in the same house as one year ago, divided by the total Black population		
Data Point	**Data Source**	**Table**	**Geography**
Non-movers share of renter households	ACS	B07013	Tract – study area
Attributes	Total: - Householder lived in renter-occupied housing units; margin of error Total: - Same house 1 year ago: - Householder lived in renter-occupied housing units; margin of error		
Analysis	Percent renter non-movers if calculated as 100 times the population of renter householders living in the same house as one year ago, divided by the total renter householder population		

Housing

Rent

When a community's housing costs exceed the population's means, households either become increasingly cost-burdened, impacting their household budgets, or they relocate to areas with more affordable housing. In order to maintain Chelsea's diversity, rental rates must be monitored to determine the need for affordable housing and how best to leverage the market to meet that need.

An increase in rental rates requires higher household incomes to access this housing tenure, and therefore indicates the need for alternative housing for lower-income households. In strong housing markets, it is possible to require developers to contribute to the City's affordable housing efforts. A decrease in rental rates indicates housing is becoming more available to lower-income households, and that the City is in less of a position to make affordable housing demands of developers.

Data Point	Data Source	Geography
Rental rate	Zillow	Municipality
Analysis	Calculate annual rental average based on Zillow's monthly rental averages.	
Notes	See link for more information on methodology: http://www.zillow.com/research/zillow-rent-index-methodology-2393/. Additional data can be found here: http://www.zillow.com/research/data/. Use the "ZRI Summary: Multifamily, SFR, Condo/Co-op (Current Month)" release at the "City" level to track rental averages for each month.	

Sale Prices

Similarly to rent, housing sale prices must be monitored to determine the how need for affordable housing is or is not changing.

An increase in sale prices indicates homeownership has become less attainable for lower-income households, and alternative housing is needed in order to retain this population. A decrease in sale prices indicates this housing tenure has become more affordable to them.

Data Point	Data Source	Geography
Median sales price	The Warren Group	Municipality
Attributes	1-Family, Condo, All	
Analysis	Select "Median Sales Price" and the relevant "Calendar Year" time period. Use the "All" column for year-to-year comparison.	
Notes	www.bankerandtradesman.com/real-estate-transactions/town-stats/	

Condominium Conversions

As rental units are converted to condominiums, rental housing—which requires fewer resources to occupy than homeownership—is lost. Additionally, new condos are typically updated before going on the market, resulting in housing that is costlier not only because it is for sale rather than rent, but because its quality is improved. Similarly to the rationale for monitoring rents and sale prices, condo conversions should be tracked because they are associated with increased cost of market-rate housing, which corresponds with increased need for subsidized affordable housing.

An increase in condominium conversions indicates a loss of existing rental units and likely an increase in costlier housing stock.

Data Point	Data Source	Geography
	MAPC Parcel Database, City of Chelsea Assessor Records	Parcel
Analysis	Identify parcels that meet the following criteria: (1) Assessor's land use code was residential and non-condominium in 2016; (2) Assessor's land	

	use code was residential condominium in current year; (3) "Year Built" as recorded by the Assessor precedes 2016. Parcels meeting these criteria were then multiplied by the number of units built to estimate the number of condominium conversions.

Equitable Homeownership

Renter households are particularly vulnerable to displacement and population replacement, for the many reasons discussed in this report. Since people of color make up a disproportionate share of renter households, these communities are at greater risk. Furthermore, to own a home is to own an asset and thereby build wealth; without this opportunity, minority groups struggle to build wealth.

A greater parity in homeownership rates between whites and people of color means this inequity is on the decline. Because of Chelsea racial and ethnic composition, focus should be on Latino homeowners. It is beneficial to track this indicator at the study area level and citywide in order to understand whether access to homeownership opportunities is more constrained in areas most immediately impacted by the Silver Line extension.

Data Point	Data Source	Table	Geography
Latino-to-White homeownership gap	ACS	B25003B; B205531	Tract – study area
Attributes	Total; margin of error Total: - Owner occupied; margin of error Total: - Renter occupied; margin of error		
Analysis	Gap in homeownership rate between White households and Latino households. Calculate White homeownership rate as 100 times the sum of owner-occupied households headed by a White householder for study area tracts, divided by the total number of households headed by a White householder in study area tracts. Subtract Latino homeownership rate, which is 100 times the sum of owner-occupied households headed by a Latino householder for study area tracts, divided by the total number of households headed by a Latino householder in study area tracts.		
Data Point	**Data Source**	**Table**	**Geography**
Latino-to-White homeownership gap	ACS	B25003H, B205531	Municipality
Attributes	Total; margin of error Total: - Owner occupied; margin of error Total: - Renter occupied; margin of error		
Analysis	Gap in homeownership rate between White households and Latino households. Calculate White homeownership rate as 100 times the number of owner-occupied households headed by a White householder in Chelsea, divided by the total number of households headed by a White householder in Chelsea. Subtract Latino homeownership rate, which is 100 times the number of owner-occupied households headed by a Latino householder in Chelsea, divided by the total number of households headed by a Latino householder in Chelsea.		

Housing Cost Burden

Chelsea is already home to a considerable housing cost-burdened population. This is likely due to the combination of a lower-income population and inflating housing costs. It is important to monitor the rate of cost burden among low-income households in particular, because they can least afford increases in housing costs.

An increase in the share of cost-burdened low-income households indicates they are having difficulty finding housing they can afford. A decline could indicate that these households are able to secure affordable housing or that they have simply left the city. In order to distinguish between these two explanations, it is important to track not just the rate but the number of non-cost-burdened low-income households. An increase in this number means that more low-income households can live in the city without suffering housing cost burden.

Data Point	Data Source	Table	Geography
Percent of low-income households with high housing cost burden	ACS	B25106	Tract – study area
Attributes	Owner-occupied house units: - Less than $20,000; margin of error Owner-occupied housing units: - Less than $20,000; - 30% or more; margin of error *Repeat through $50-000-$74,999 and then for renter-occupied housing units with the same income range*		
Analysis	Calculate the percent of low-income households with cost burden by adding together the owner-occupied and renter-occupied households with income less than $75,000 that pay 30% or more on housing costs, and divide by the sum of the total number of owner- and renter-occupied households with income less than $75,000. Multiply by 100 to get percent.		
Notes	Low-income households approximated with HUD income limit at 80% of AMI for a 3-person household ($61,000). The closest comparable income category in ACS data is $75,000. Our definition of "low income" for the purpose of this calculation is therefore more expansive than the strict HUD definition, and as a result our methods may slightly overstate the *number* of cost-burden low-income households (by including some cost-burdened moderate-income households) while slightly underestimating the *rate* of cost burden (since the rate is slightly lower for those moderate-income households). Alternatively, an analysis can be performed using Comprehensive Housing Affordability Strategy (CHAS) data, which determines income thresholds with % AMI by family size, but is more difficult to access than ACS data.		
Data Point	**Data Source**	**Table**	**Geography**
Number of low-income households not cost burdened	ACS	B25106	Tract – study area
Attributes	Owner-occupied housing units: - Less than $20,000; - Less than 20%; margin of error Owner-occupied housing units: - Less than $20,000; - Less than 20-29%;		

	margin of error *Repeat through $50-000-$74,999 and then for renter-occupied housing units with the same income range*
Analysis	Add together all owner- and renter-occupied households with income less than $75,000 that pay less than 20% and 20-29% on housing
Notes	Same as above

Designated Affordable Housing

Designated affordable housing is a critical resource for Chelsea's low-income population. As the market inflates, this housing stock becomes even more important. The City should take steps to preserve this housing stock and increase it along with market-rate housing.

If the absolute number of deed-restricted affordable units rises and its share of total units is stable, the supply of deed-restricted affordable housing in the city is secure. If the absolute number of subsidized units increases, but the share of total units declines, then the city is not producing affordable housing at a rate commensurate with market-rate production. If the number and share of affordable units declines, then the city's low-income households face fewer housing options.

Data Point	Data Source	Geography
Number of deed-restricted affordable housing units	DHCD	Municipality
Analysis	See value in "Total SHI units" column	
Notes	Request updated inventory numbers from the Department of Housing and Community Development (DHCD).	
Data Point	**Data Source**	**Geography**
Share of deed-restricted units	DHCD	Municipality
Analysis	See value under "Percent Subsidized"	
Notes	Same as above	

Transportation

Vehicle Ownership and Mileage

The extension of the Silver Line through Chelsea should help reduce residents' dependency on automobiles by providing them with alternative mobility modes, including the bus and shared-use path. Lower-income households are more dependent on public transit for mobility. If these households leave Chelsea, relocating to less transit-accessible areas where housing prices are lower but transportation costs are higher, then ridership levels will decrease.

A decline in the rate of vehicle ownership per household could indicate that the provision of transit service has successfully reduced the necessity to own a private vehicle. However, an increase in vehicle ownership could indicate that the Silver Line is not sufficiently meeting residents' needs, or that high-income, less transit-dependent households make up an increasing share of the population. The associated estimated daily mileage per household is an indicator of actual vehicle usage, and should decline over time if residents opt to use the Silver Line; if not, this indicator could remain stable or increase.

Data Point	Data Source	Table	Geography
Registered vehicles per household	MAPC	MA Vehicle Census	Tract – study area
Attributes	hh10 (Households, 2010) pass_veh (Passenger Vehicles)		
Analysis	Sum of passenger vehicles in study area tracts divided by sum of households in study area tracts		
Data Point	**Data Source**	**Table**	**Geography**
Vehicle miles traveled per household	MAPC	MA Vehicle Census	Tract – study area
Attributes	hh10 (Households, 2010) mipdaypass (Miles per Day Passenger Vehicles)		
Analysis	Sum of miles per day passenger vehicles in study area tracts divided by sum of households in study area tracts		

Commute Mode Share

The City should also monitor how people commute to work, specifically, because this is the trip purpose that accounts for the largest share of unique riders on public transit.

An increase in the share of workers commuting by transit, on foot, or by bike indicates reduced dependence on private vehicles for traveling to work.

Data Point	Data Source	Table	Geography
Percent of workers commuting by transit	ACS	B08301	Tract – study area
Attributes	Total; margin of error Public transportation (excluding taxicab); margin of error		
Analysis	Percent workers commuting by transit is calculated as 100 times the number of workers commuting by transit, divided by the total number of workers		
Data Point	**Data Source**	**Table**	**Geography**
Percent of workers commuting on foot	ACS	B0831	Tract – study area
Attributes	Total; margin of error Walked; margin of error		
Analysis	Percent workers commuting on foot is calculated as 100 times the number of workers commuting on foot, divided by the total number of workers		
Data Point	**Data Source**	**Table**	**Geography**
Percent of workers commuting by bike	ACS	B0831	Tract – study area
Attributes	Total; margin of error Bicycle; margin of error		
Analysis	Percent workers commuting by bike is calculated as 100 times the number of workers commuting by bike, divided by the total number of		

	workers

Transit Commute Times

Currently, the only public transit in Chelsea is bus. Because of longer wait times and more frequent stops, traditional bus commutes are typically longer than rail or BRT commutes. Theoretically, the Silver Line will shorten commute times for nearby residents, especially those who currently travel by bus or take the bus to a train station and then transfer for the remainder of their commute.

A decrease in transit commute time could indicate the speedy operation of the Silver Line.

Data Point	Data Source	Table	Geography
Average commute time for Chelsea transit commuters	ACS	B08136, B08301	Tract – study area
Attributes	B08136 (Aggregate travel time to work, in minutes): Public transportation (excluding taxicab); margin of error B08301 (Means of transportation to work): Public transportation (excluding taxicab); margin of error		
Analysis	To calculate the mean (average) commute time for transit commuters, sum the aggregate travel time to work for each Census tract and divided by the total number of public transit commuters in those Census tracts.		
Data Point	**Data Source**	**Table**	**Geography**
Percent of Chelsea transit commutes 30 minutes or longer	ACS	B08134	Tract – study area
Attributes	Total: - Public transportation (excluding taxicab); margin of error Total: - Public transportation (excluding taxicab): - 30-34 minutes *Repeat through 60 or more minutes*		
Analysis	Percent of transit commutes 30 minutes or longer is calculated as 100 times the sum of transit commutes 30 minutes or greater divided by the total number of transit commutes		

Social Cohesion

The social cohesion of a community is linked to myriad health benefits. High rates of population replacement or displacement have a diminishing effect on social cohesion. This translates to a reduction in residents' sense of connection to and investment and trust in their community, and, by association, negatively impacts public health.

Current Chelsea residents are mixed in their sense of social cohesion: some feel it strongly, while others feel it diminishing as the composition of the population changes. As the community becomes more mixed, it is important for bridges to be built. In the absence of this, changes in the population could result in decreased social cohesion. Because social cohesion takes time to develop, a decrease is not quickly reversed.

There are several indicators that impact social cohesion and should be tracked over time using the following data. Higher degrees of self-reported feelings of neighborhood and community connectedness, self-efficacy, and perceived safety imply an increase in social cohesion; lower

degrees of these feelings indicate less social cohesion. Decreases in violent crime and property crime indicate an increase in social cohesion, while increases in the former indicate a decrease in the latter.

Data Point	Data Source	Table	Geography
Neighborhood and community connectedness	MGH Quality of Life Survey	Health Statements	Municipal
Attributes	Feeling of connection to neighbors and community Networks of support for individuals and families during times of stress and need		
Notes	Survey conducted every 3 years; 2018, 2021, and 2024 forthcoming		
Data Point	**Data Source**	**Table**	**Geography**
Self-efficacy	MGH Quality of Life Survey	Health Statements	Municipal
Attributes	Individual opportunity to contribute to and participate in making Chelsea a better place to live Community opportunity to contribute to and participate in making Chelsea a better place to live The businesses, agencies, and organizations in Chelsea contribute to making the community a better place to live		
Data Point	**Data Source**	**Table**	**Geography**
Changes in perceived crime	MGH Quality of Life Survey	Health Statements	Municipal
Attributes	Resident feeling of safety		
Data Point	**Data Source**		**Geography**
Changes in actual violent crime	FBI UCR database; Chelsea PD		Municipal
Attributes	Rate of violent crimes per 100,000 people		
Data Point	**Data Source**		**Geography**
Changes in property crime	FBI UCR database; Chelsea PD		Municipal
Attributes	Rate of property crimes per 100,000 people		