

Alexander Lew

Master in Urban Planning, 2016
Harvard Graduate School of Design

Work Samples

1. Reimagining Transit at Dudley Square
2. Beyond Infrastructure: From Surge Barriers to Linear Parks
3. MBTA Map Redesign
4. Optimizing 311 Requests for Boston's Parks Department
5. Memphis BRT Alternatives Analysis

I. Reimagining Transit at Dudley Square Urban Planning Core Studio I

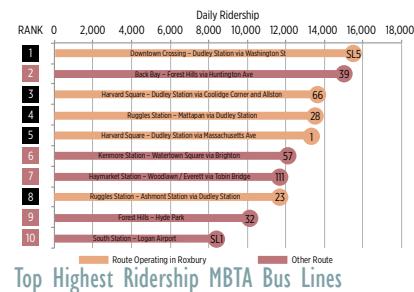
Reimagining Transit at Dudley Square is a vision to redefine and reimagine the relation between transportation, place, and neighborhood. Dudley Square is the nexus of bus lines serving Boston and is also the core of the Roxbury neighborhood. Five of the top 10 busiest bus lines of the city travel through Roxbury, far busier than any other bus hub in the city. Nearly half of households within the Dudley neighborhood do not own a car. The quality of service, however, is lacking with the majority of lines failing to meet the MBTA's established on-time performance guidelines. Transportation treats the area like a transfer point instead of a destination. This project attempts to make service more attractive at the same time as restoring a sense of place into a major transportation hub.

The Dudley Station could be a gem of the neighborhood. The current bus terminal uses the original Washington Street Elevated station, but over the years, the historic building has degraded and fails to showcase the history of the building. The removal of buses from the central part of the station would allow programming for active uses within the old station building, and residents of Roxbury and Boston to honor the historic nature of the building.

MBTA Bus Ridership by Stop



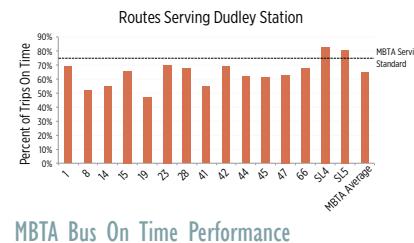
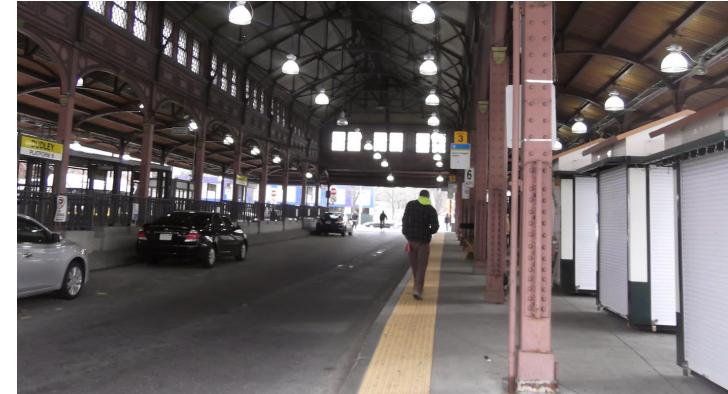
Data sources: MBTA Automatic Passenger Counts, U.S. Census American Community Survey, Miles on the MBTA (existing Dudley photograph), US. Library of Congress (historic Dudley Station photograph)



Former Dudley Elevated Railway Station



Existing Dudley Station



Proposed Re-Use of the Dudley Station Building

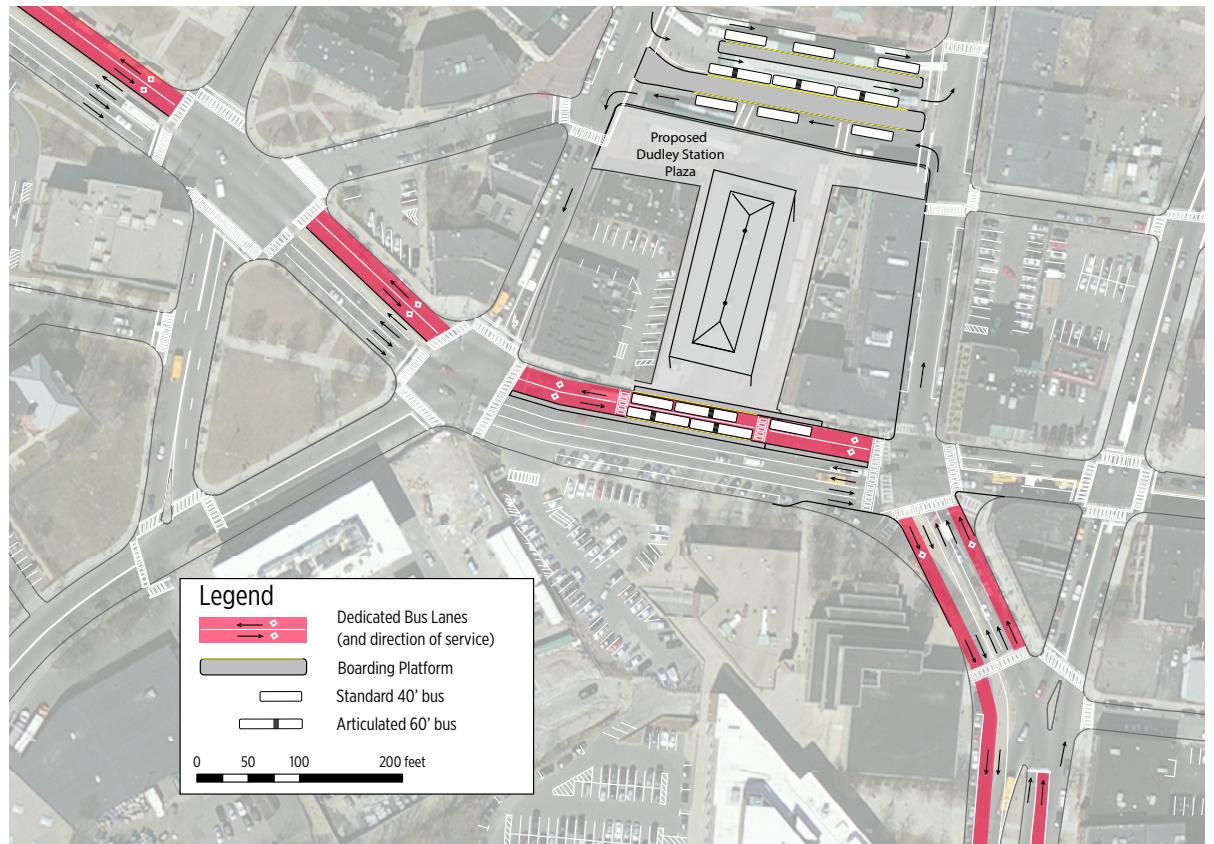


Crucial to achieving this goal are the following service improvements:

- Moving all southbound and Rug-gles-bound services to Malcolm X Boulevard and operating on a dedicated busway on the north side of the street. Bus lanes on the north side of the street, despite operating contra-flow to car traffic, would ensure front-door service to the terminal and continue to allow easy transfers. Such contra-flow lanes have been effective in Paris to self-enforce bus priority.
- Simplification of circulation around the terminal. At present, nearly all buses must circulate around terminal, adding between six and eight minutes to travel time depending on the traffic signals. Simplifying operations would not only reduce congestion, but also improve travel times and reduce bus presence within the area.

The simplified operations and re-programming of space would not only benefit those within Roxbury, but also improve reliability of service of the MBTA. The reduction of travel times translate to nearly \$6 million in operational cost savings.

Proposed Redesign of Street Circulation in Roxbury

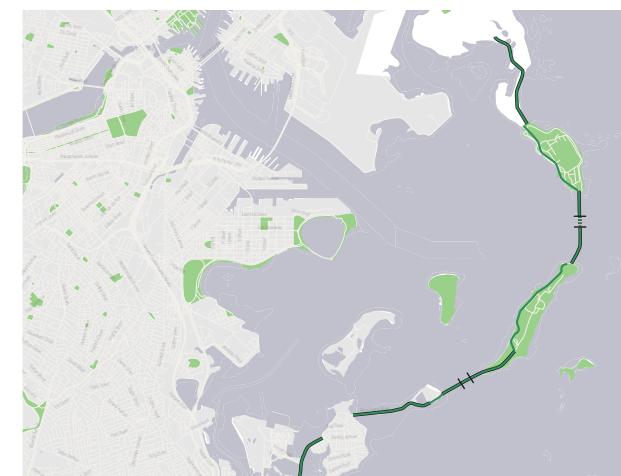
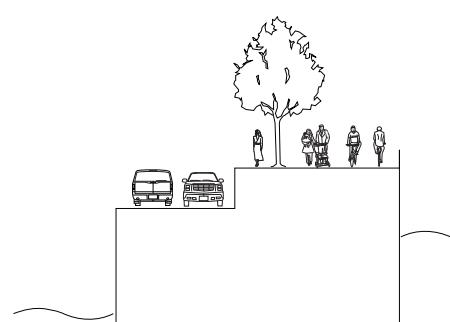


2. Beyond Infrastructure: From Surge Barrier to Linear Park

Urban Planning Core Studio 2

A Hurricane Sandy-sized storm surge could result in nearly \$35 billion worth of damages in the Boston Metropolitan regions. Even a Category II hurricane is likely to flood significant parts of the South Boston Seaport, Financial District, and Back Bay. To combat sea level rise, engineers, architects, and planners have considered building a surge barrier spanning across the Boston Harbor, protecting the areas vulnerable to a storm surge. While a giant piece of infrastructure has utility in protecting the Boston area against the rising sea level, it has the potential to go beyond just infrastructure.

This project considered using the megalithic infrastructure as a linear park, connecting the Harbor Islands and creating a new link between Dorchester and Winthrop. The park would complete a “missing link” in Charles Eliot’s original Metropolitan Park System, creating a large greenway that circles the entire Boston region. The surge barriers would allow for multiple recreational uses, including jogging, walking, and biking, and be in an ideal location for boat and plane spotting. In addition, a stronger connection to the Harbor Islands would allow for cultural and educational institutions, such as the New England Aquarium (currently looking for a new location) to relocate to the Harbor Island and have further connection to both the sea, sea level rise, and the environment.



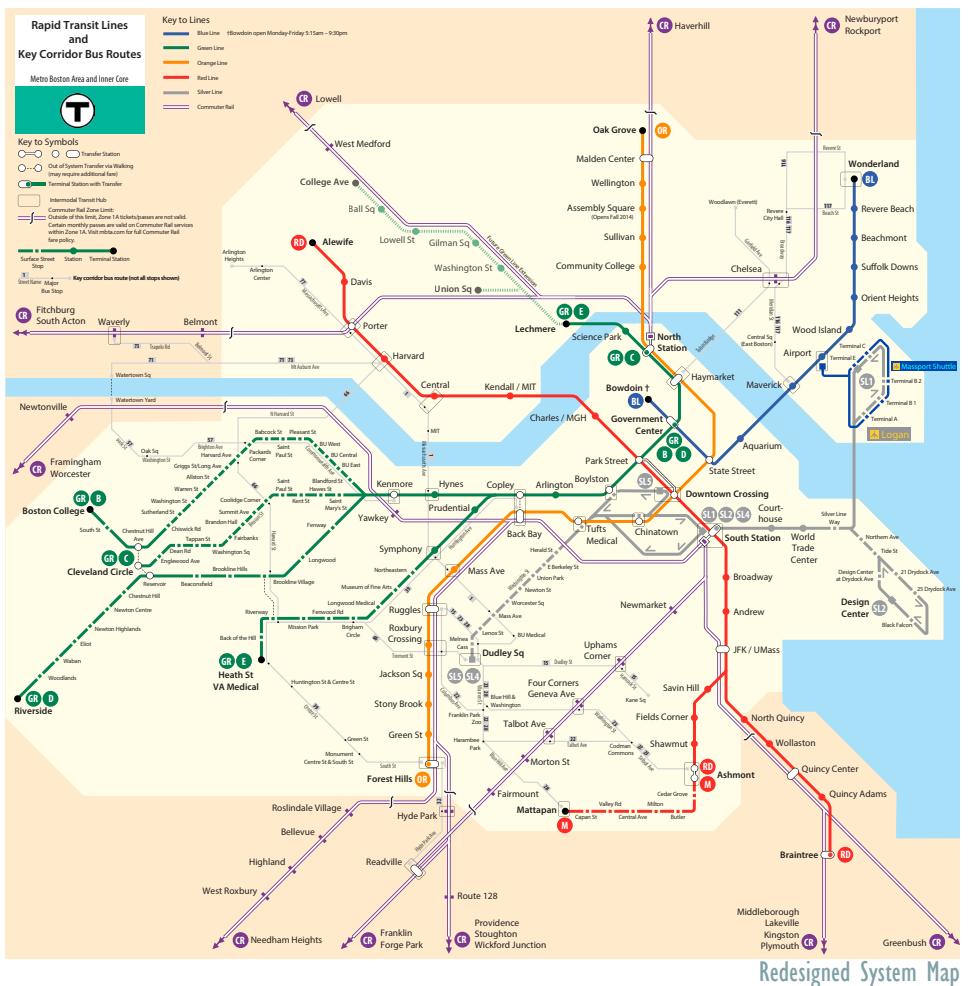
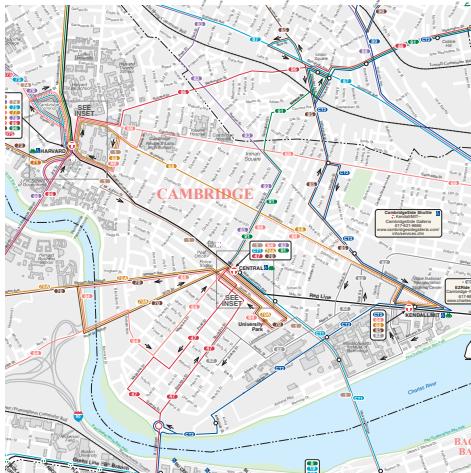


3. MBTA Map Redesign Personal Project

In 2013, the MBTA launched a campaign to redesign the system map. After being unimpressed by the results of the design competition, I decided to tackle the project on my own. The MBTA Map Redesign is a personal exploration of how maps influence travel decisions and how design of the maps impact the way people perceive space once inside the subway network.

Heavily influenced by London and Paris, my redesign of the MBTA map uses many of the principles on deciding what to show and what not to show. Key considerations were given to symbologies, line widths, and the representation of geography. This new sub way map helps to inform the user of the variety of modes within the system, such as on the Green Line where trains both operate at street level and underground. These distinctions are necessary in determining the quality of service provided throughout the system. Out of system transfers also are depicted to prevent circuitous travel patterns in the system, such as Cleveland Circle and Reservoir, which are a stones throw a way from each other but shown as far apart on the existing map.

Existing MBTA System Maps

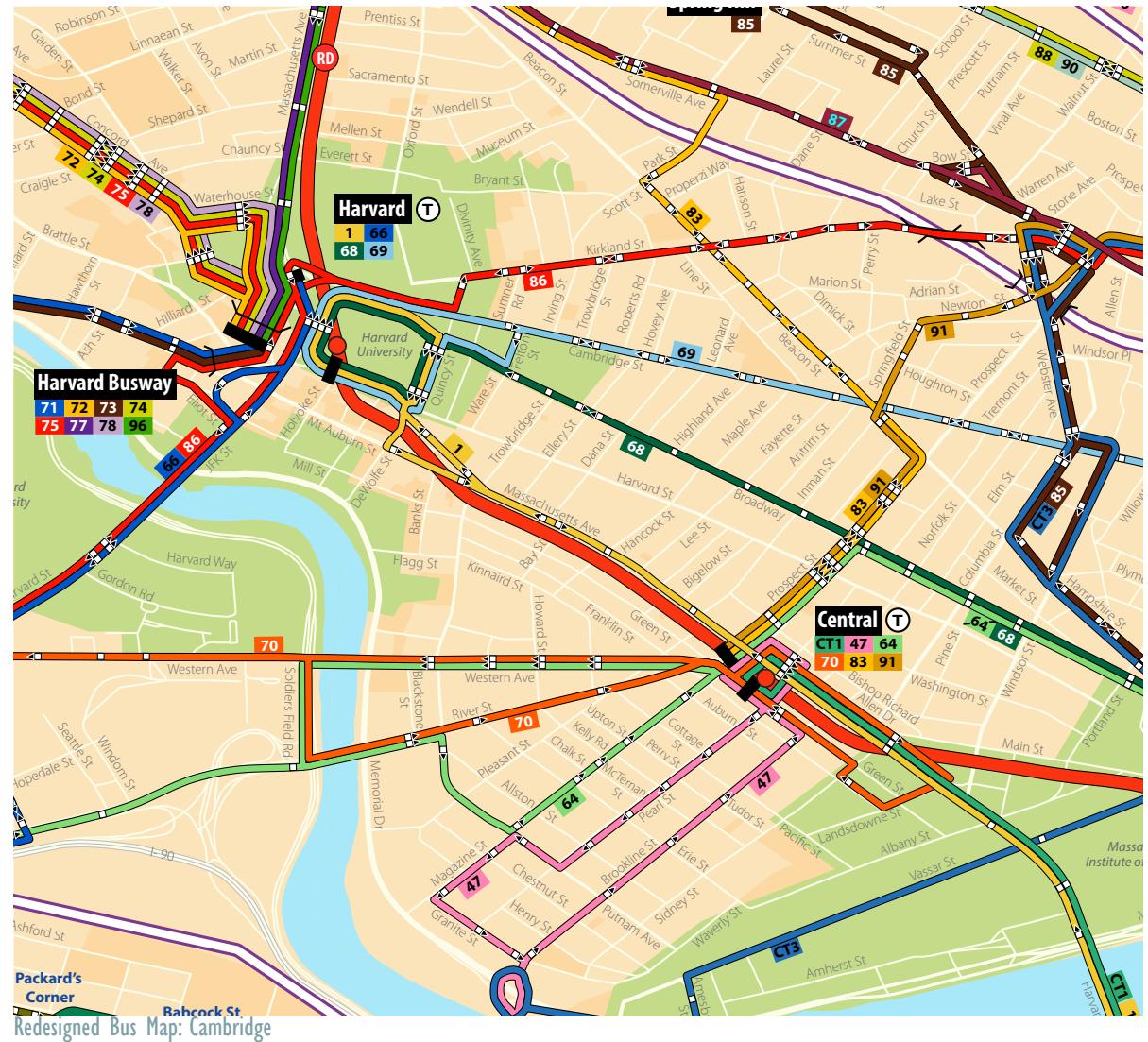


The next iteration of the MBTA Map Redesign was the region's bus network. While redesigning the bus map, considerations were given to what makes bus travel more frustrating in comparison to rail. The first is that without a smart phone, the unfamiliar traveler does not know where the bus is going as there are no tracks that symbolize the alignment. The second is that on buses, it is difficult to count the number of stops between the origin and destination. The third is that the bus can turn or operate without stopping at any time. Thus trying out a new bus system for the first time is an intimidating experience.

The new MBTA bus map seeks to tackle these frustrations. Design considerations included showing the stop locations and directions of travel on one-way streets. Recognizing that the MBTA operates a family of services that range from commuter rail to subway to bus, differences in line width help to determine the variety of options offered within the metropolitan region.

Redesigning the MBTA bus map revealed several service inefficiencies within the MBTA system and the need for a major comprehensive overhaul. A complex system requires a complex map. For nearly every MBTA bus line, a “variant” or branch exists.. Many of these variants serve only the occasional rider, but increase passenger confusion and cost the system valuable time that could be used for more productive services. The MBTA also does not have a strong database of where their stops are located. Stop locations were identified primarily through their Google Transit feed, but had to be manually confirmed with Google Streetview. In fact, the MBTA recently contracted McMahon Associates to complete a bus stop audit.

I presented these maps to service planners at the MBTA, and the design was well received.



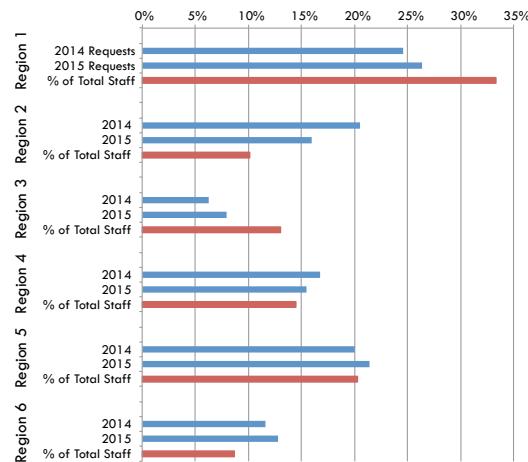
4. Optimizing 311 Requests for Boston's Parks Department Operations Management

Optimizing 311 Requests for Boston's Parks Department intended to identify inefficiencies in the department's process to fulfilling service requests. The Parks Department scope of work is beyond just the recreational facilities in the city. Any tree-related request, such as a tree falling on a street, is within the domain of the department. Thus the services offered by the Parks Department are diverse both in geography and scope. Although the Parks Department completes several thousand requests per year, the number of unfulfilled 311 requests continues to stack. This project using data analysis, interviews, and a literature helped identify some key process improvements.

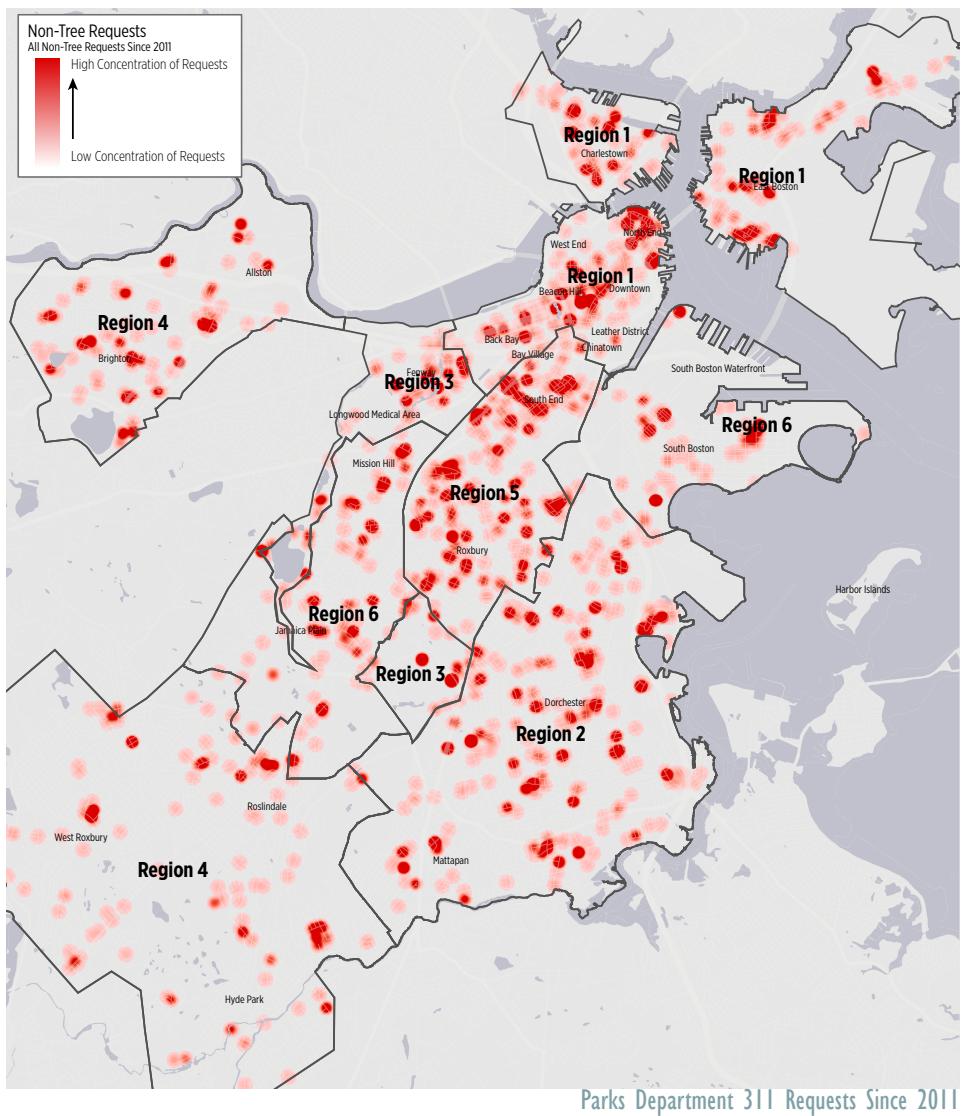
The 311 request data when mapped spatially in GIS showed inequalities across maintenance regions with some areas receiving larger allocations of requests compared to the number of staff assigned to such region. Therefore, a major part of the project considered how current maintenance boundaries are proposed, what criteria and framework the department should consider to adjust the boundaries, and a conceptual proposed map using such framework.

This project heavily used GIS to filter, clean, and process over 36,000 data records. In addition to redesigning the maintenance regions to balance service requests evenly across staff, other recommendations included service level agreements and better data collection techniques.

Breakdown of Requests and Staff by Region



Data sources: City of Boston 311



5. Memphis BRT Alternatives Analysis

Nelson\Nygaard Consulting Associates

The Memphis BRT Alternatives Analysis is assessing the feasibility for bus rapid transit in Memphis. There are major challenges in providing BRT service in Memphis. The land use is generally unsupportive towards transit, with most areas consisting of low density sprawl. However, many neighborhoods also have high transit dependency due to economic conditions. Thus, a BRT service despite its challenge would have major impact on improving the lives of the city's most vulnerable residents. This study is part of the required documents needed to apply for FTA funding.

As Nelson\Nygaard's deputy project manager on the Memphis BRT Alternatives Analysis, I am tasked with managing and performing the data analysis for a "tiered screening" of alternatives. Each potential corridor was evaluated and scored on the basis of several criteria including ridership potential, economic redevelopment, and socio-economic data. The highest scoring corridors will likely form a priority network that would be strong candidates for FTA grants.

