



Massachusetts Bay Transportation Authority

Plan for Accessible Transit Infrastructure (PATI)

Update to FMCB

February 6, 2017



PATI Overview

Identify all meaningful barriers to accessibility and develop a long-term plan for achieving an accessible system using priorities developed with community input.



PATI Key Objectives

- Identify Barriers
 - › Catalogue all meaningful barriers to access within public facing assets

- Establish Prioritization Criteria
 - › Develop a shared set of criteria for setting priorities based on community feedback
 - » What improvements, if made, would have the biggest positive impact on accessibility?

- Long-Term Planning
 - › Apply criteria/develop priorities
 - › Draft strategic plan/capital funding recommendations



PATI Schedule

February 2016

PATI External Engagement Committee convened

Bus Stop Survey Tool Development

September 2016

Bus Stop Surveys - conducted through Fall/Winter 2016

January 2017

Subway & Commuter Rail Tool Development

Bus Stop Surveys – remaining surveys through Feb. 2017

Bus Stop – data cleanup, identify service and accessibility improvements within routes and corridors

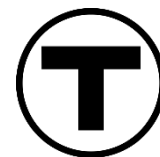
Summer 2017

Subway & Commuter Rail Surveys – conducted

Finalize scoring criteria to identify priorities with engagement committee

Early 2018

PATI long-term planning recommendations and capital funding strategy issued



Bus Stop Surveys



Developed tablet-based survey tool application, inspired by **MassDOT's** curb ramp inventory tool

Questions include assessments of:

- › Landing pad
- › Path of travel through stop and to nearest crossing
- › Condition of nearest crossing/curb ramps/signals
- › Amenities at stop (shelters, benches, etc.)
- › Potential obstructions (trees, trash cans, etc.)



Two-person field crews conducted in-person assessment using tool and **BlindWays** app (see appendix for background)



Bus Stop Sample Survey Questions

CURB RAMP #1

What is the width of the ramp (in)?

Answer: 60.0 Inches

What is the cross slope of the curb ramp?

Answer: 0.6 Percent

What is the running slope of the curb ramp?

Answer: 4.3 Percent

Is there a level landing area?

Answer: Yes

What is the width of the level landing parallel to the curb (in)?

Answer: 60.0 Inches

What is the slope of the level landing parallel to the curb?

Answer: 0.4 Percent

What is the length of the level landing perpendicular to the curb (in)?

Answer: 60.0 Inches

What is the slope of the level landing perpendicular to the curb?

Answer: 0.5 Percent

What is the counter slope of the gutter perpendicular to the curb?

Answer: 0.9 Percent

What is the vertical change at the ramp connection to the roadway (in)?

Answer: 0.3 Inches

Is there a detectable warning panel?

Answer: Yes



Bus Stop Web Management Tool

QA Review Not Reviewed ▾


Survey details for stop: 110

- Location 1
- Roadways 1
- ▼ Crossings 1
- ▼ CROSSING #1
- ▼ Curb Ramp 2
- CURB RAMP #1
- CURB RAMP #2
- 📁 Signal 0
- ▼ Signs 2
- FRONT SIGN
- BACK SIGN
- Landing Pads 1
- Shelters 1
- 📁 Seatings 0
- Sidewalks 1
- Amenities 1


Hastus Id: 110 Town: Cambridge

A new location has been reported for this stop


Survey Name: STV Crew #1 10-04-2016	Survey Time: 10:47 AM - 11:10 AM
Assigned Crew: STV Crew #1	Time to Complete: 0.39 Hours
Completed Crew: STV Crew #1	Start: 10/4/2016 10:47 AM
Completed By: nbart	End: 10/4/2016 11:10 AM
Scheduled Date: 10/4/2016	Sync Date: 10/4/2016 11:11 AM




Amenities - Photo #1




Stop #110 - Photo #1




BACK SIGN - Photo #1




FRONT SIGN - Photo #1



CURB RAMP #1 - Photo #1







Bus Stop Survey – Current Status

7588 stops surveyed
As of 1/30/17

Approx. 100 remain

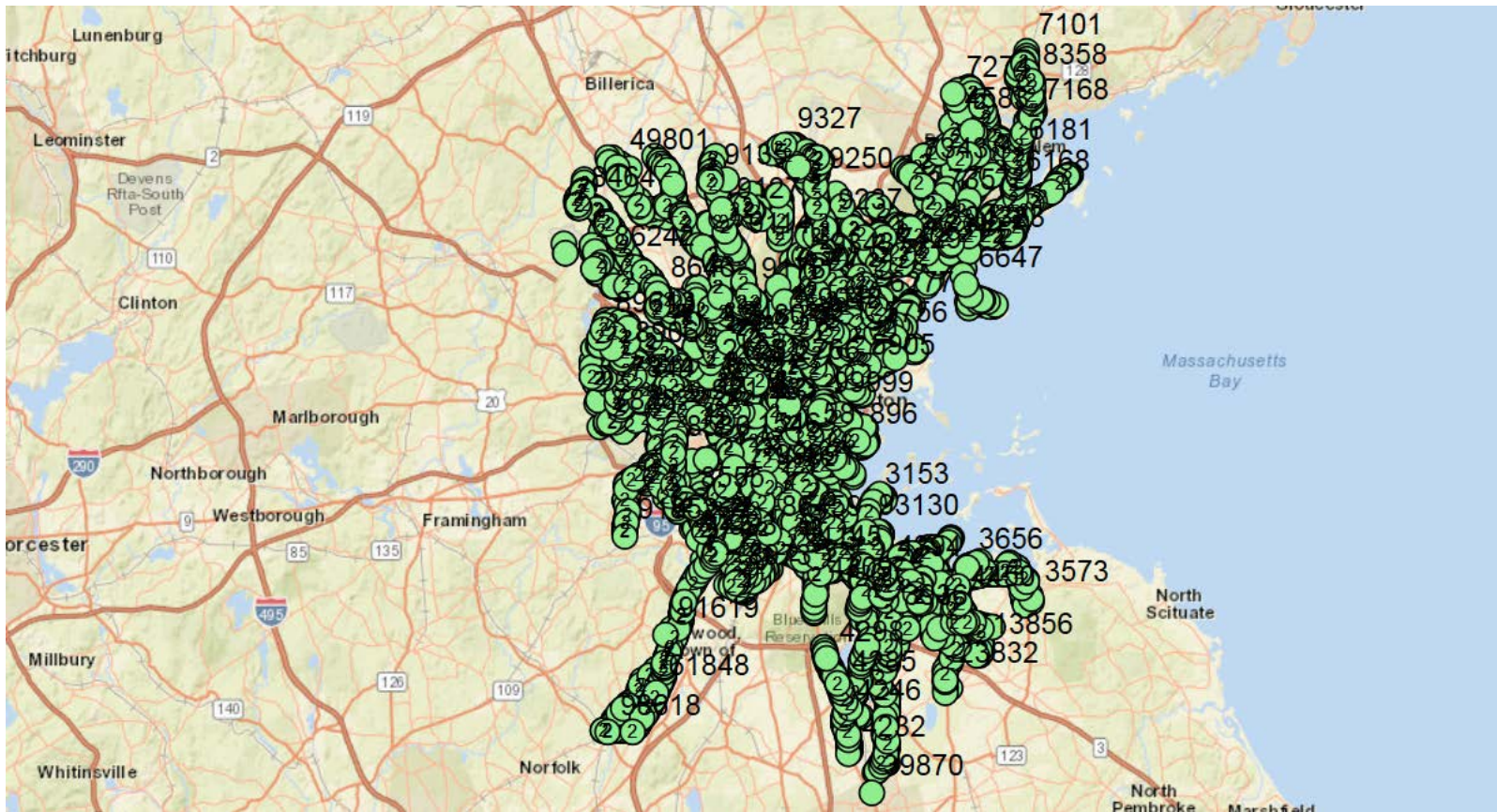


172 routes surveyed
141 routes 95% complete
As of 1/30/17



Bus Stops Surveyed

7588 stops – as of 1/30/17

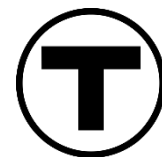




Bus Stop Sample Queries

Out of 7588 stops surveyed....

- **49% (3749)** are within 25 ft of a crossing
- **13% (1002)** are located near a crossing with a missing curb ramp
- **12% (906)** are located near a crossing with a curb ramp with a running slope greater than 12%
- **7% (508)** are located on a sidewalk less than 36" wide
- **12% (916)** are missing a front sign
- **2% (129)** have amenities blocking sidewalk
- **8% (640)** have a shelter
- **7% (560)** have a bench present (outside shelters)



Critical Bus Stops

One issue of immediate concern and requiring action is that of “critical” stops, defined as—

- There is no accessible path to/from the stop
- Boarding/exiting in the street is required

2.75% (209) of 7,588 stops surveyed deemed critical

Issue for FMCB—decide between eliminating stops or modifying these inaccessible, potentially unsafe, stop

- Elimination would not be a service cut. Customers would have access to same bus route at a nearby (<750ft) stop



Example of a Critical Bus Stop

#6716 Walnut St opp Birchwood Ave, Saugus





Example of a Critical Bus Stop

#1116 Cambridge St & Mass Pike Exit, Cambridge





Example of a Critical Bus Stop

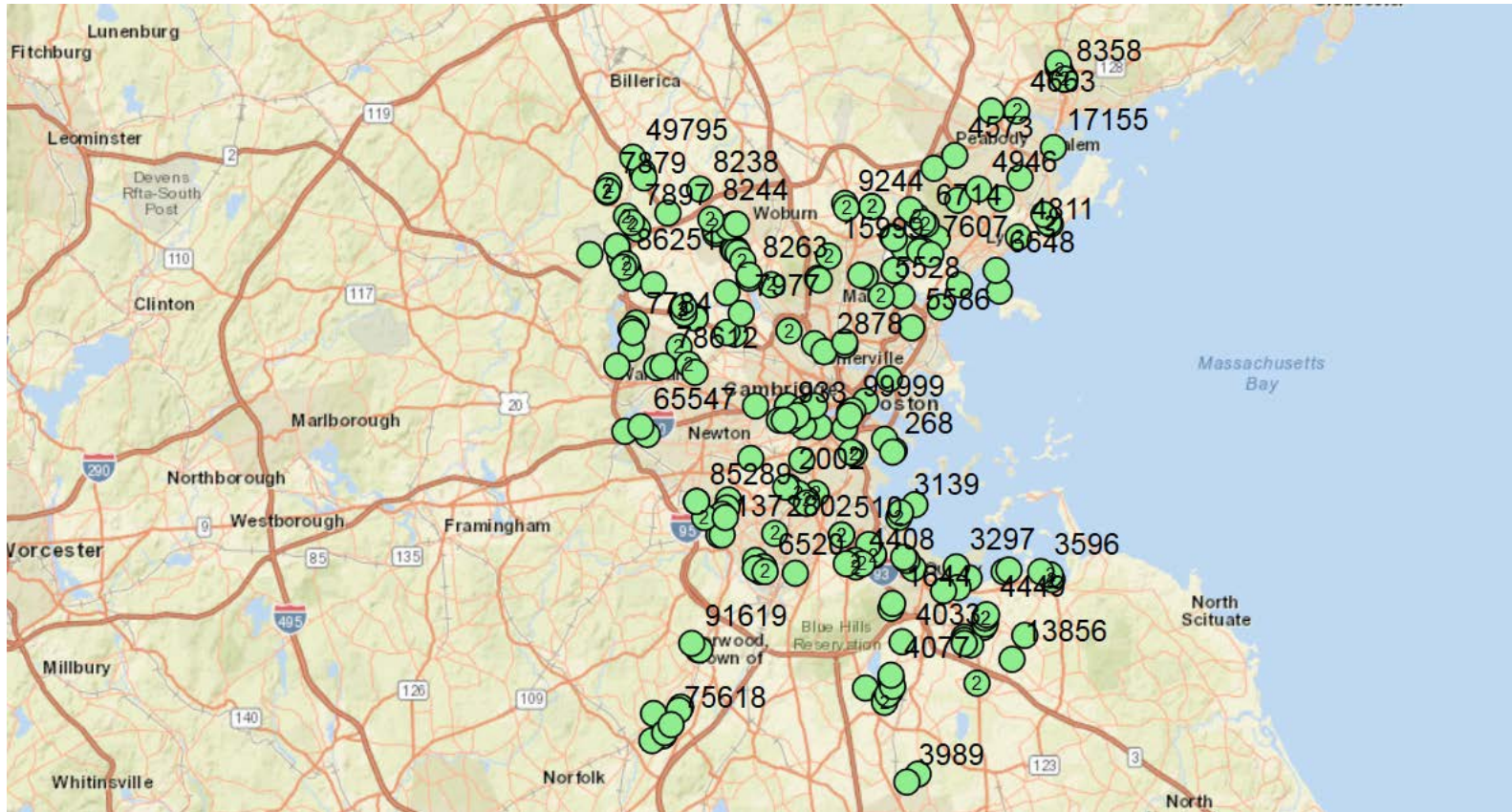
#2878 Mystic Ave Opp Fellsway, Somerville





Critical Bus Stops

209 stops – as of 1/30/17





Action Plan for Critical Bus Stops

Elimination vs. Modification

Service Planning is reviewing the following factors:

- Ridership
- Proximity to adjacent stops
- Title VI considerations
- Proximity to hospitals/health clinics and other facilities that primarily serve vulnerable users (*On-going review*)

Out of the 209 reviewed: 133 candidates for elimination

- 99% are used by less than 10 customers per weekday, average 730' to next stop
- 97% are used by less than 5 customers per weekday average 730' to next stop
- 84% are used by less than 3 customers per weekday, average 730' to next stop
- 50% are used by less than 1 customers per weekday
 - › may be fractional if only observed on sporadic days), average 760' to next stop
- 1% (1 stop) is used by greater than 10 customers per weekday (13 total) and is 280' to the adjacent stop



Proposed Process for Stop Elimination

Contact - Impacted municipalities who generally own and maintain sidewalks or other areas where stops are located. Garner support for elimination and/or ideas for modification

Signage – Post announcements on affected bus stop signs outlining proposed elimination and how to comment

Website - Elimination plan to be posted online and allow for public comment

- Service alerts/social media linking to website review.

Note: If approved bus stops would likely be recommended for removal during the Summer rating—June 24, 2017



Addendum

Blindways App Information & GIS Mapping of Sample Queries



Background on BlindWays App



How BlindWays Works | GPS technology helps users navigate to within 30 feet of their destination. BlindWays brings users within 4 to 5 feet of the bus stop with clues contributed by volunteers that describe permanent landmarks near the bus stop – a tree, a fire hydrant, a mailbox.

Accessibility first: BlindWays was built from the ground up with accessibility in mind, using VoiceOver audio output to help users navigate to bus stops.

Navigational tips: The app provides navigational clues based on permanent landmarks located near the bus stop and presented in a sequence aligned with the user's direction of travel.

Arrival information: BlindWays offers predictive, location-based bus arrival information.

Nearby Stops: Identifies the three bus stops closest to your current location.

Favorites: Users can easily save their most-used bus routes for future reference.

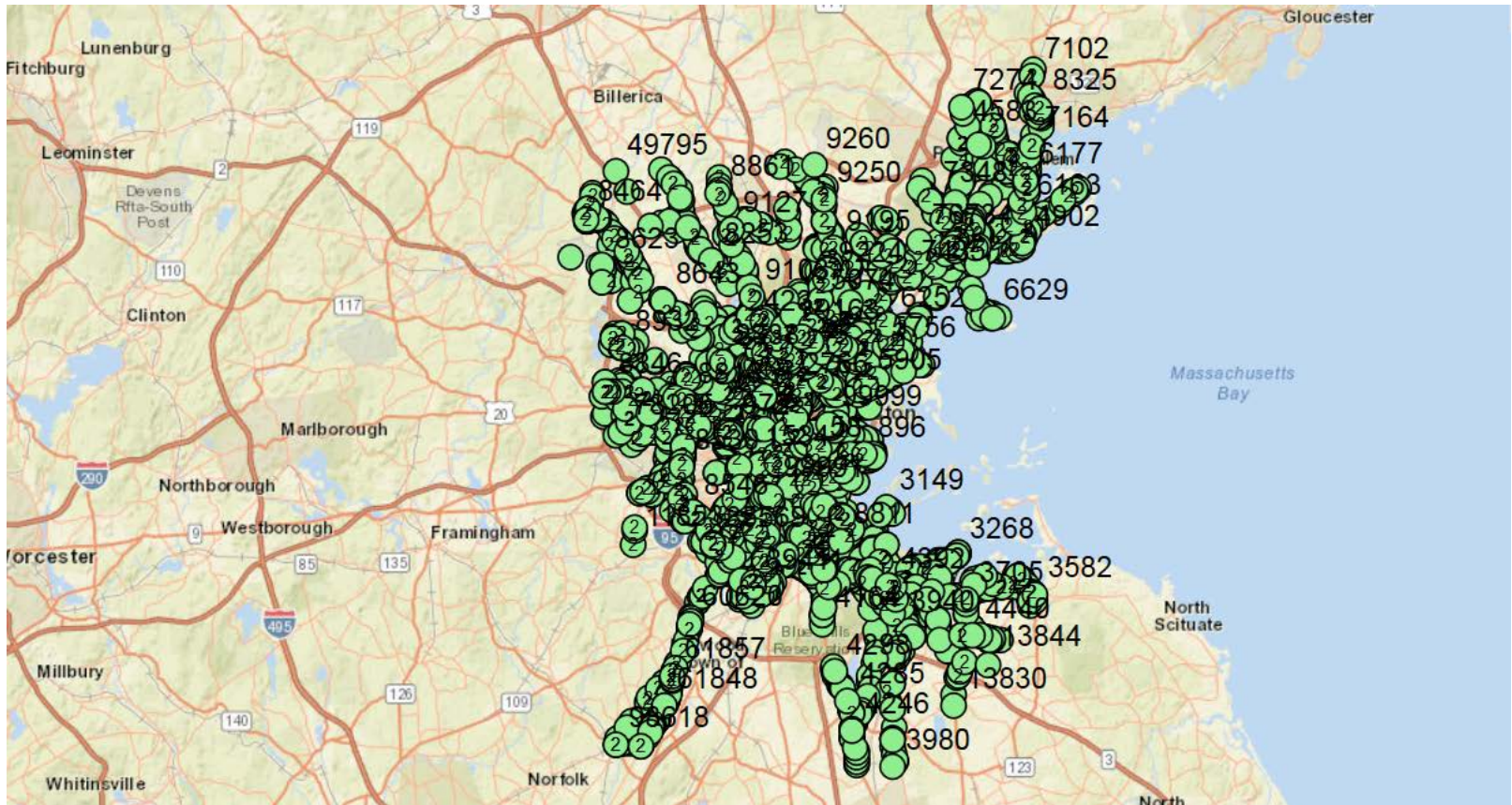
Add Clues: Simply select from a list of easily recognizable descriptions of the bus stop sign, nearby permanent landmarks, and/or enter free form text clues.

Developed by Perkins via a Google grant.



Stops with Crosswalk within 25'

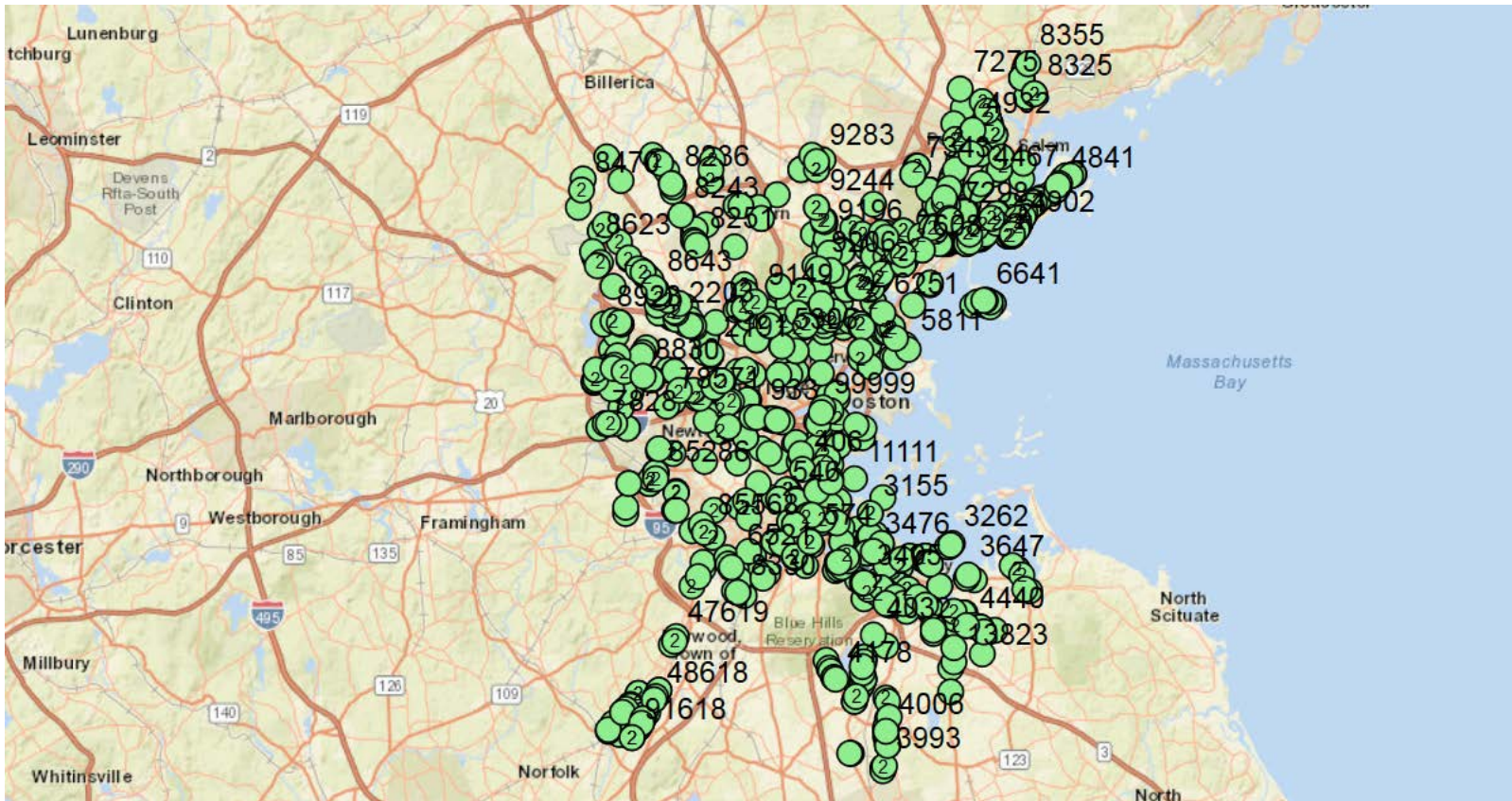
3749 stops – as of 1/30/17





Stops with Missing Curb Ramp

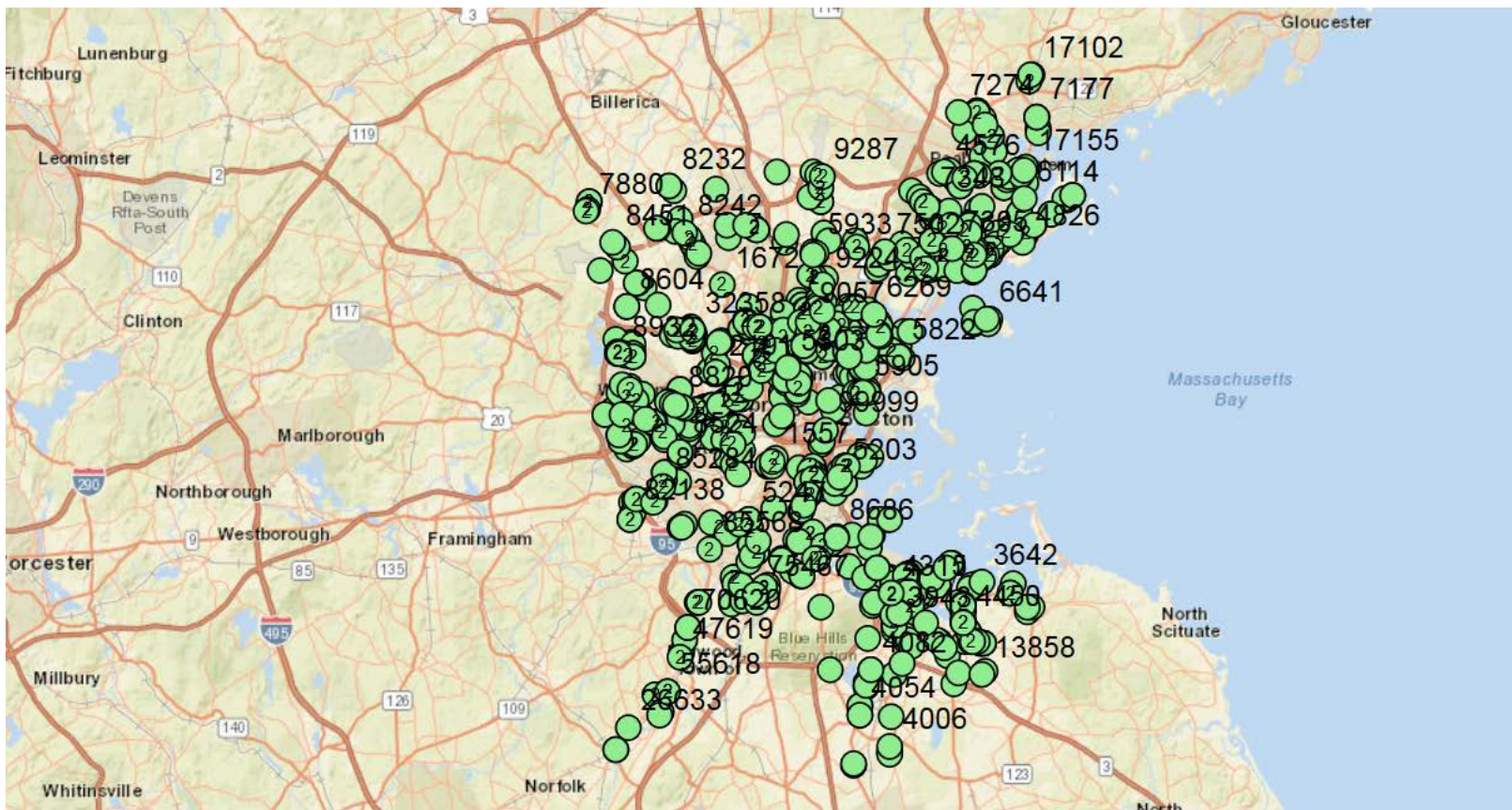
1002 stops – as of 1/30/17





Stops with Ramp Slope greater than 12%

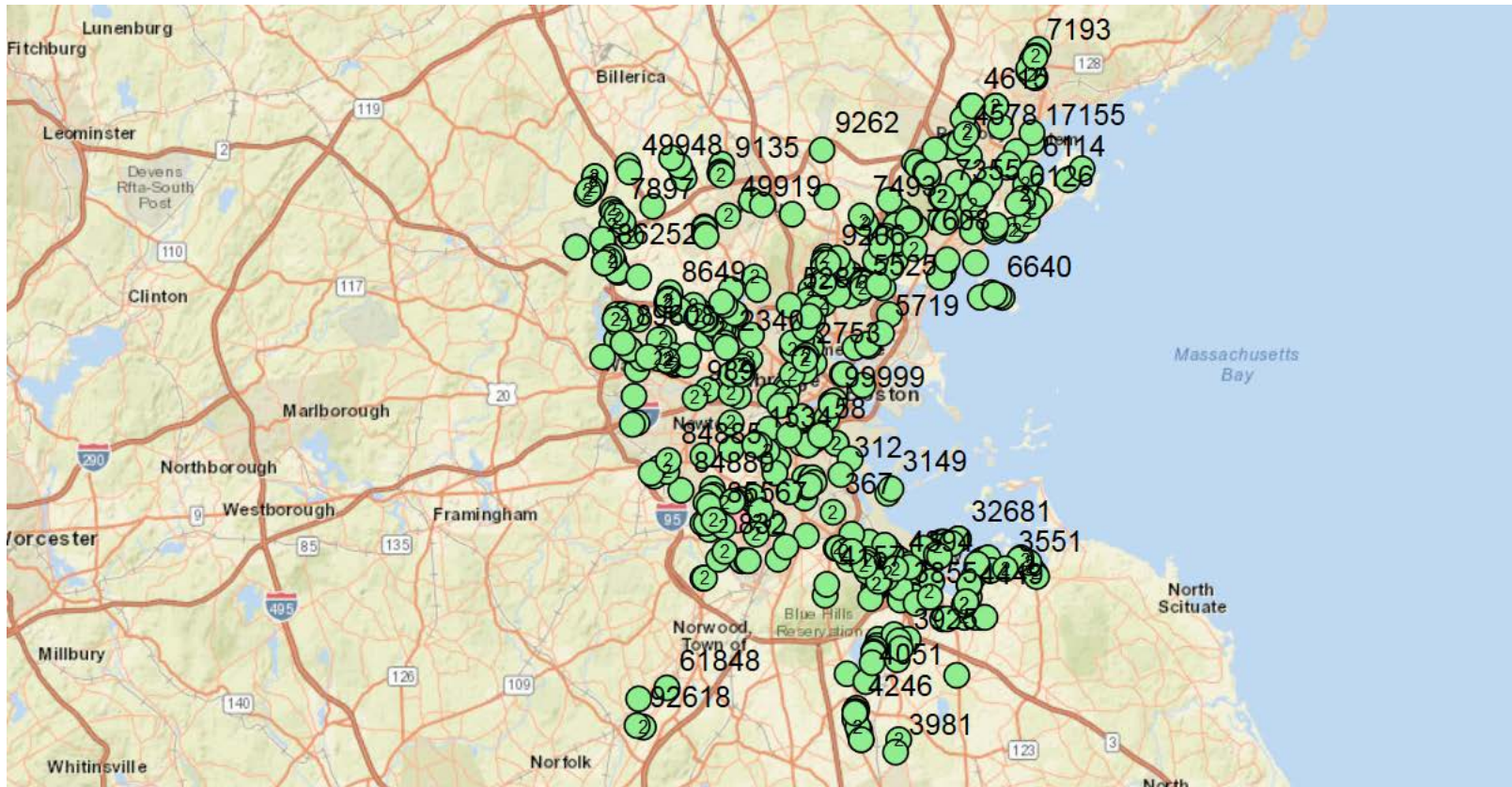
906 stops – as of 1/30/17





Stops with Less than 36" Sidewalk

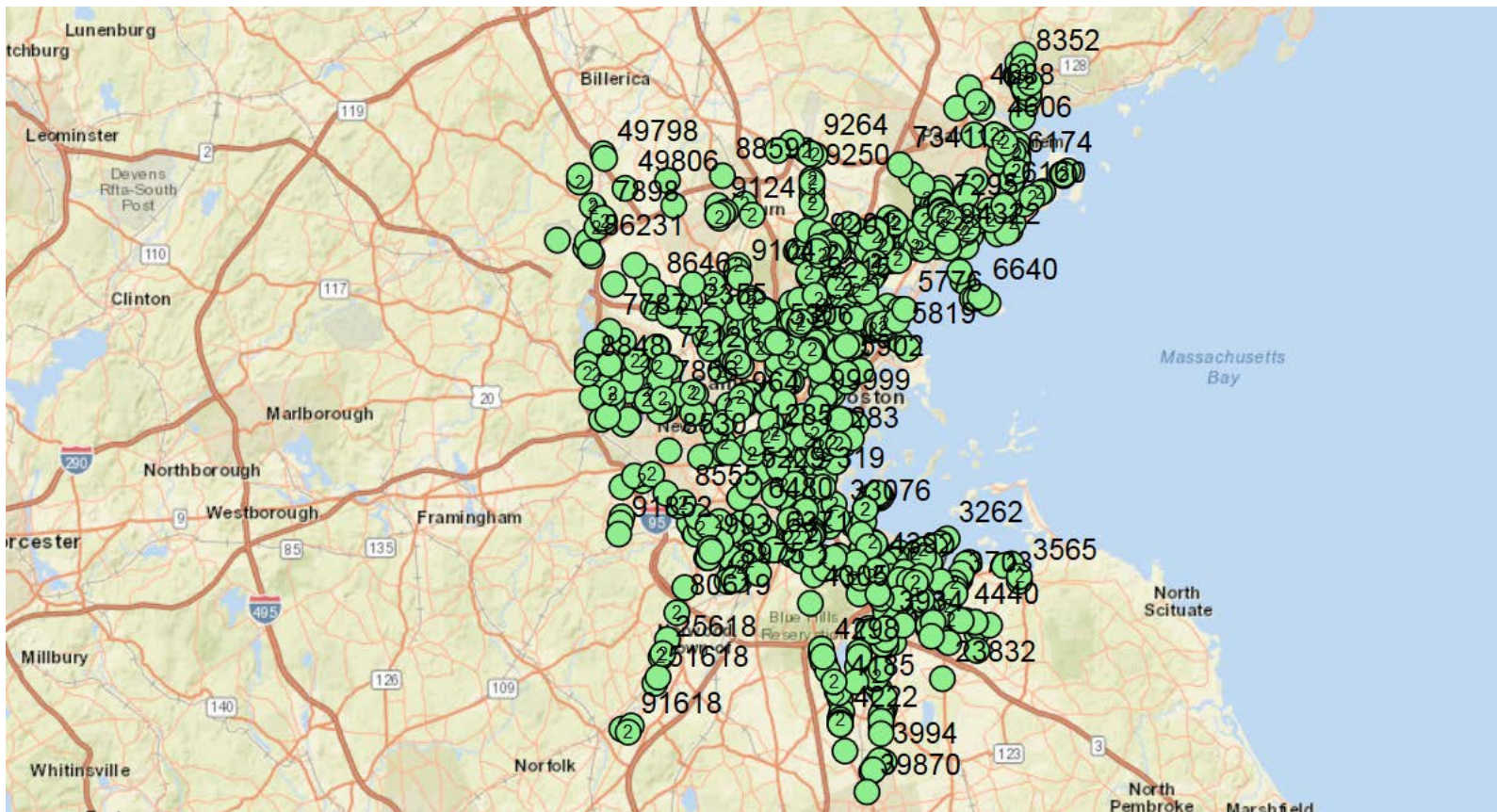
506 stops – as of 1/30/17





Stops without Front Signs

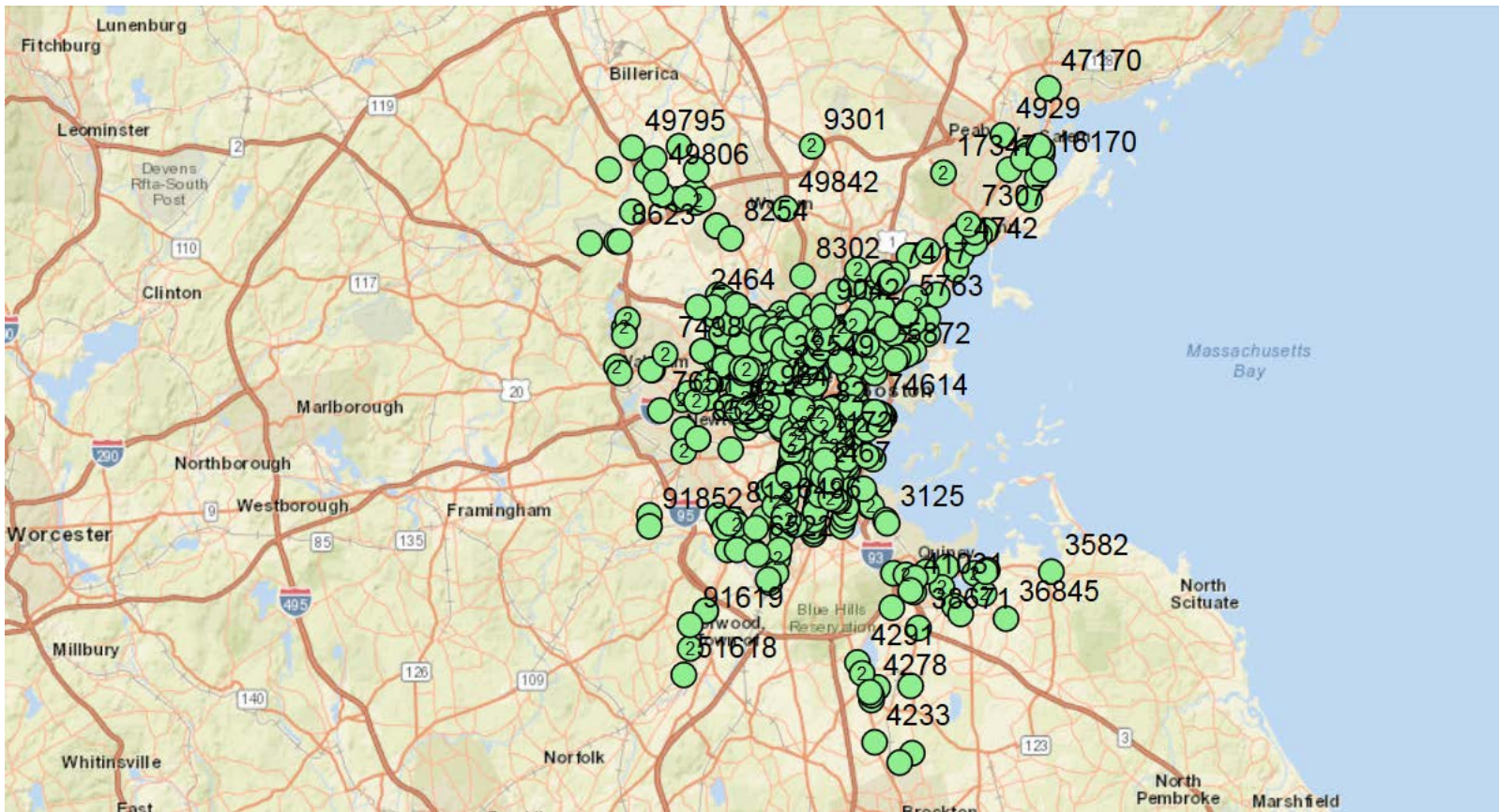
916 stops – as of 1/30/17





Stops with Shelter Present

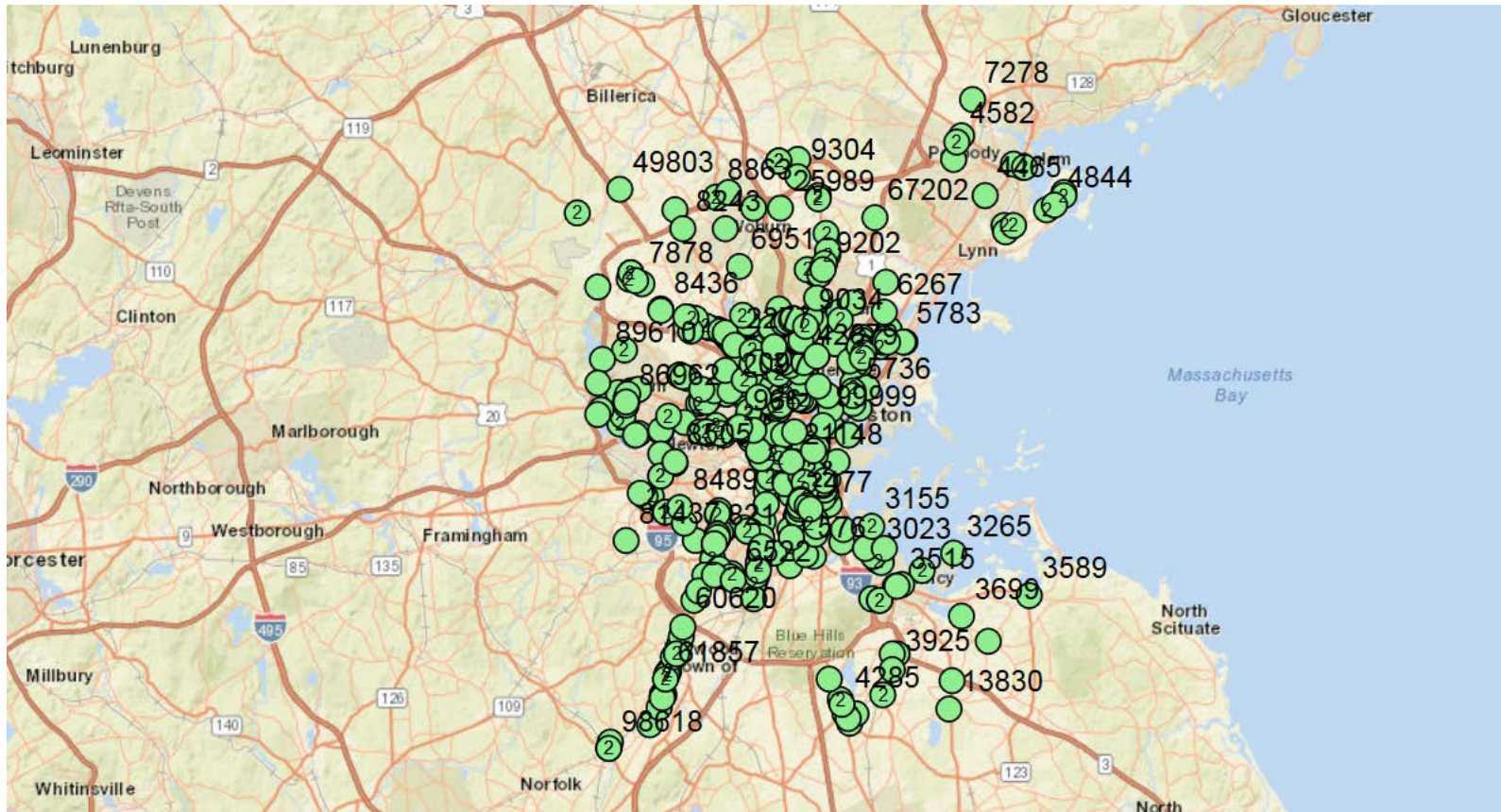
640 stops – as of 1/30/17





Stops with Bench Present

560 stops – as of 1/30/17





Stops with Amenities Blocking Sidewalk

129 stops – as of 1/30/17

