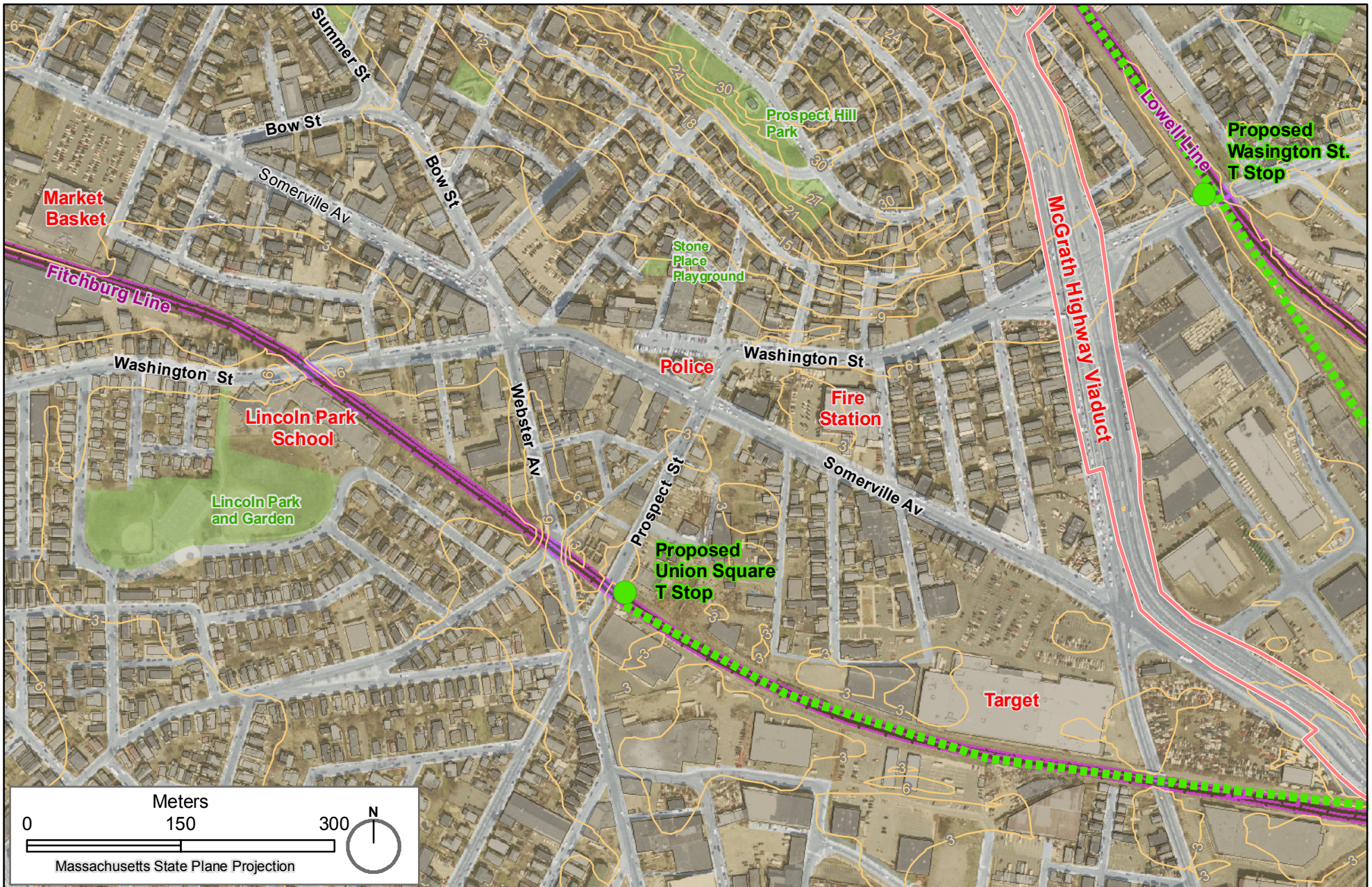


Union Square and the Green Line Extension

Just over 2 kilometers from downtown Boston and Harvard University, Union Square is a vibrant commercial center not yet served by rapid transit. The Massachusetts Executive Office of Transportation is under a federal order to extend the Green Line Trolley system through Somerville by 2014. This extension will follow the existing Lowell Line on the commuter rail and will include a spur to Union Square along the Fitchburg Line. New transit access has a potential to enliven Union Square and the Inner Belt Industrial park, located just to the east.

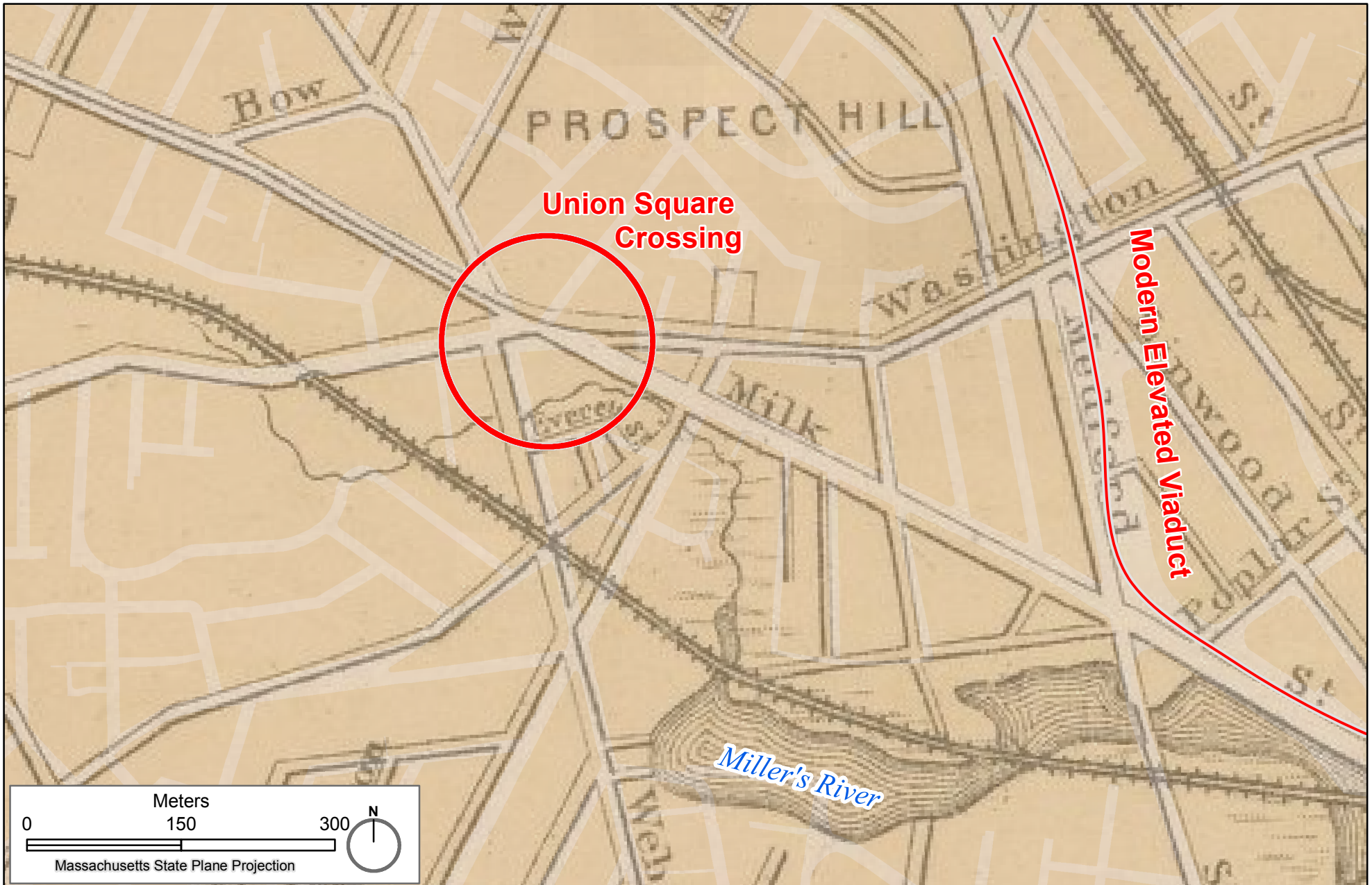
Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1; September 2009
 Roads: Massachusetts Executive Office of Transportation, 2007
 MBTA System: Massachusetts Executive Office of Transportation, 2006
 Proposed GreenLine Extension and Stops from



Union Square, Topographic Detail

The landscape of Union Square will be changed by two new light rail stops that are planned to be built as part of the Green Line Extension. The Green Line trolleys will stop on top of the railroad overpass over Washington Street, and just before the railroad underpass at Webster Avenue. McGrath Highway runs above grade in a viaduct that ascends above Washington Street. The McGrath viaduct continues to the South East another 300 meters from the edge of this map.

Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1; September 2009
 3 Meter Contours: MassGIS, 2005
 Parks: City of Somerville 2007
 Aerial Photo, MassGIS 2002

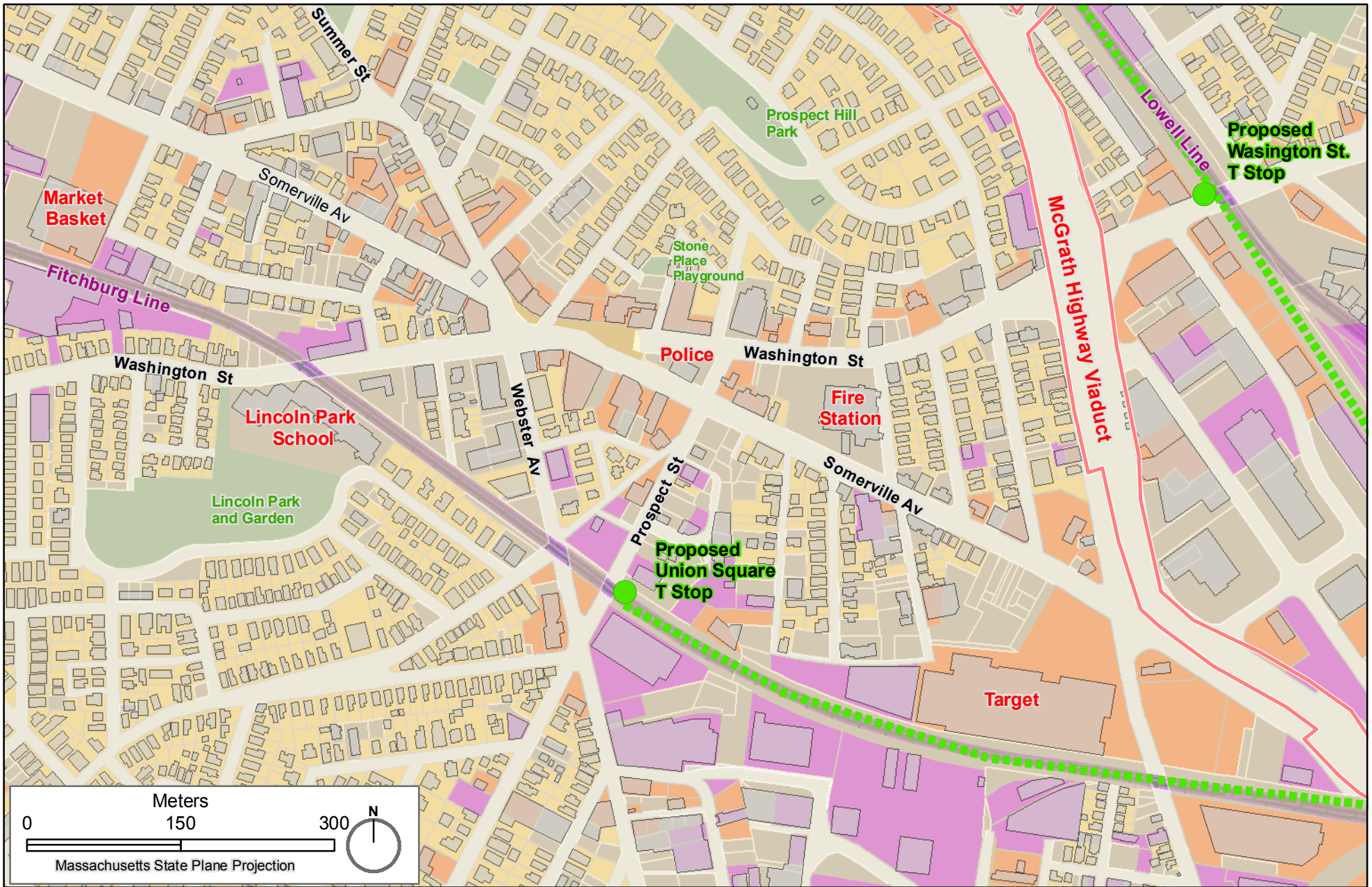


Union Square, 1871

This overlay of an 1871 map of Boston and Adjacent Cities and Towns shows the historic road alignments as represented on the old map in black outlines. The current streets, as of 2006 are shown underneath in the lighter tone. There are a couple of critical differences to note. First, is the connection of Washington Street to Milk Street (now Somerville Av.) Second, we can see how Medford Street worked before this area was transformed by the viaduct for McGrath O'Brian Highway. One wonders whether the many smaller streets that do not show up on the old map did not exist, or were deemed too small to show at the scale of Greater Boston. Also worth noting is the encroachment of Miller's River on Union Square portrayed on the old map.

Sources:

Map: Paul Cote; Fundamentals of GIS Assignment 1; September 2009
 Map of the Compact Areas of Boston and Neighboring Towns by Willis Gray and HF Walling, 1871. Courtesy David Rimsey Collection.
 Modern Roads, City of Somerville 2004



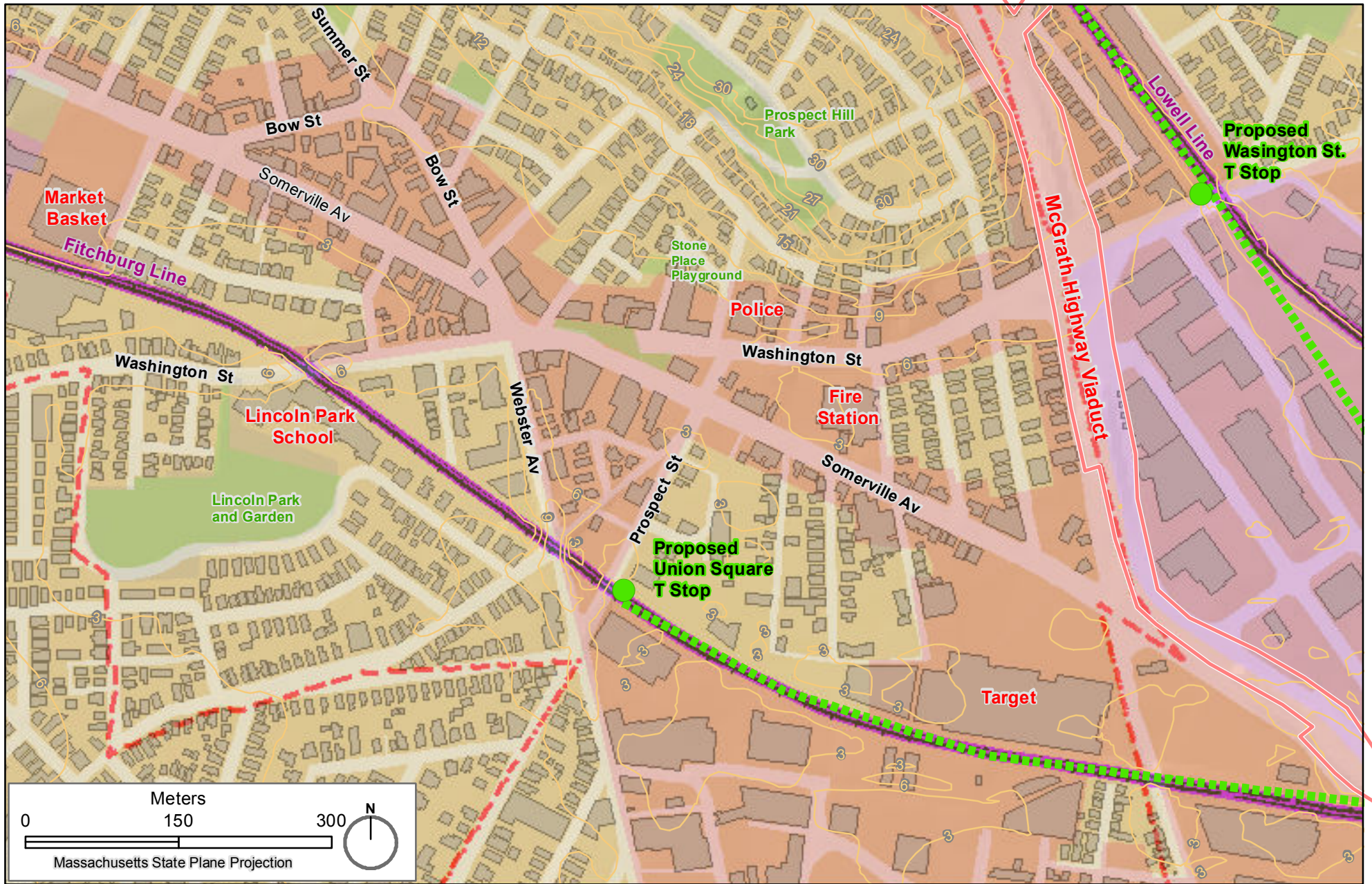
Union Square, Land Use

The 2007 property parcel data from the city of Somerville indicates that Union Square is a mixed use area with substantial proportions of Commercial Residential and Industrial, all mixed together at a fairly fine grain. This map also shows substantial areas whose land use is defined as "Tax Exempt." Many of these parcels appear to be vacant, others are occupied by city services, yet others require further investigation.

Generalized Land Use

- Residential
- Commercial
- Exempt
- Industrial

Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1; September 2009
 Property Parcel Land Use: 2007 Somerville Tax Assessor (classes generalized)
 Parks: City of Somerville 2007



Union Square, Zoning

While Land Use may be seen as a reflection of "What Is," zoning may be interpreted as a reflection of "What May Be." The zoning data mapped here is from a dataset that was collected from city sources by the Massachusetts GIS. MassGIS generalized some of the zoning categories to create a normalized categorization scheme that can be used to compare zoning across towns. It is interesting to compare this zoning map with the map of Land Use.

Generalized Zoning

- Multifamily
- Commercial
- Not Zoned
- Light Industrial

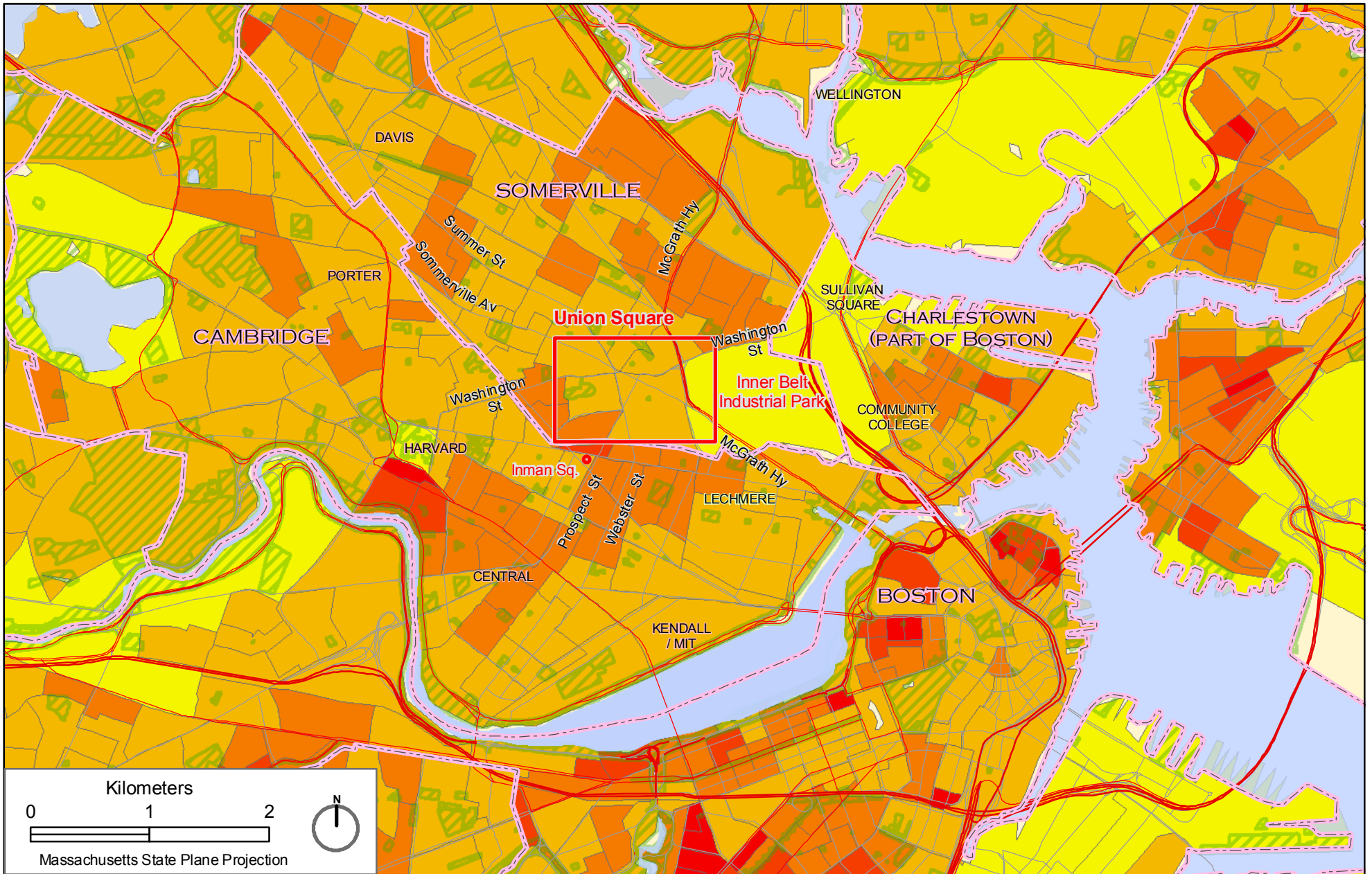
Sources:

Map: Paul Cote; Fundamentals of GIS Assignment 1; September 2009

Zoning: MassGIS, 2007

3 Meter Contours: MassGIS, 2005

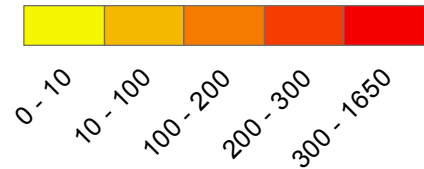
Parks: City of Somerville 2007



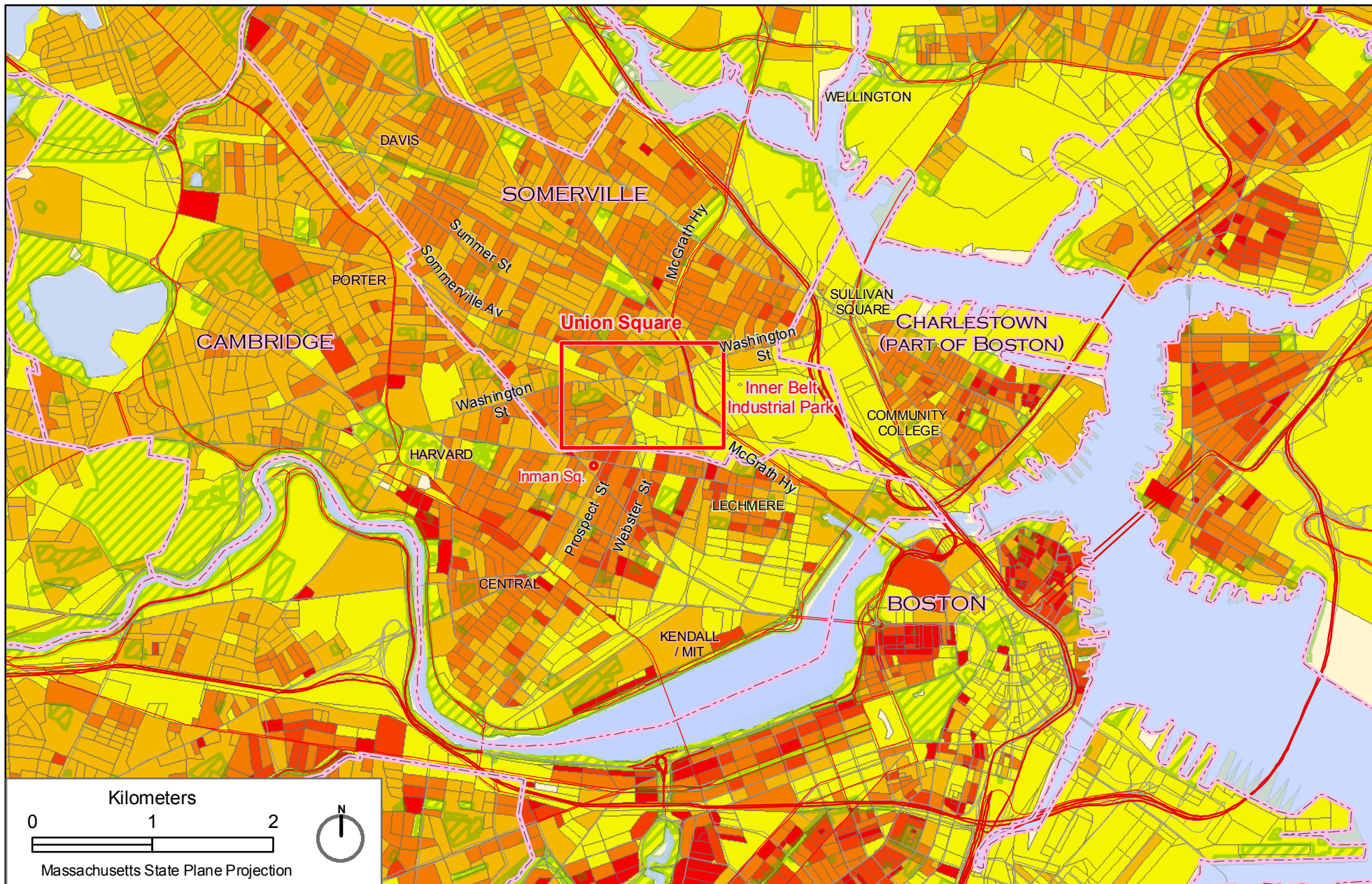
2000 Population Density

At a blockgroup level of aggregation, union square does not appear to be a particularly densely populated place. This pattern may not be entirely accurate, since some blockgroups include large areas of industrial land.

People per Hectare (Blockgroup) Parks



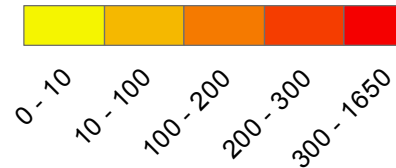
Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1;
 September 2009
 Blockgroup Population Density: US Census Bureau, 2000 via
 Geolytics.



2000 Population Density

When viewed at a block level of aggregation, we can see that those areas of union square that are not primarily industrial or commercial do have a relatively high residential population density, between two hundred and three hundred persons per hectare.

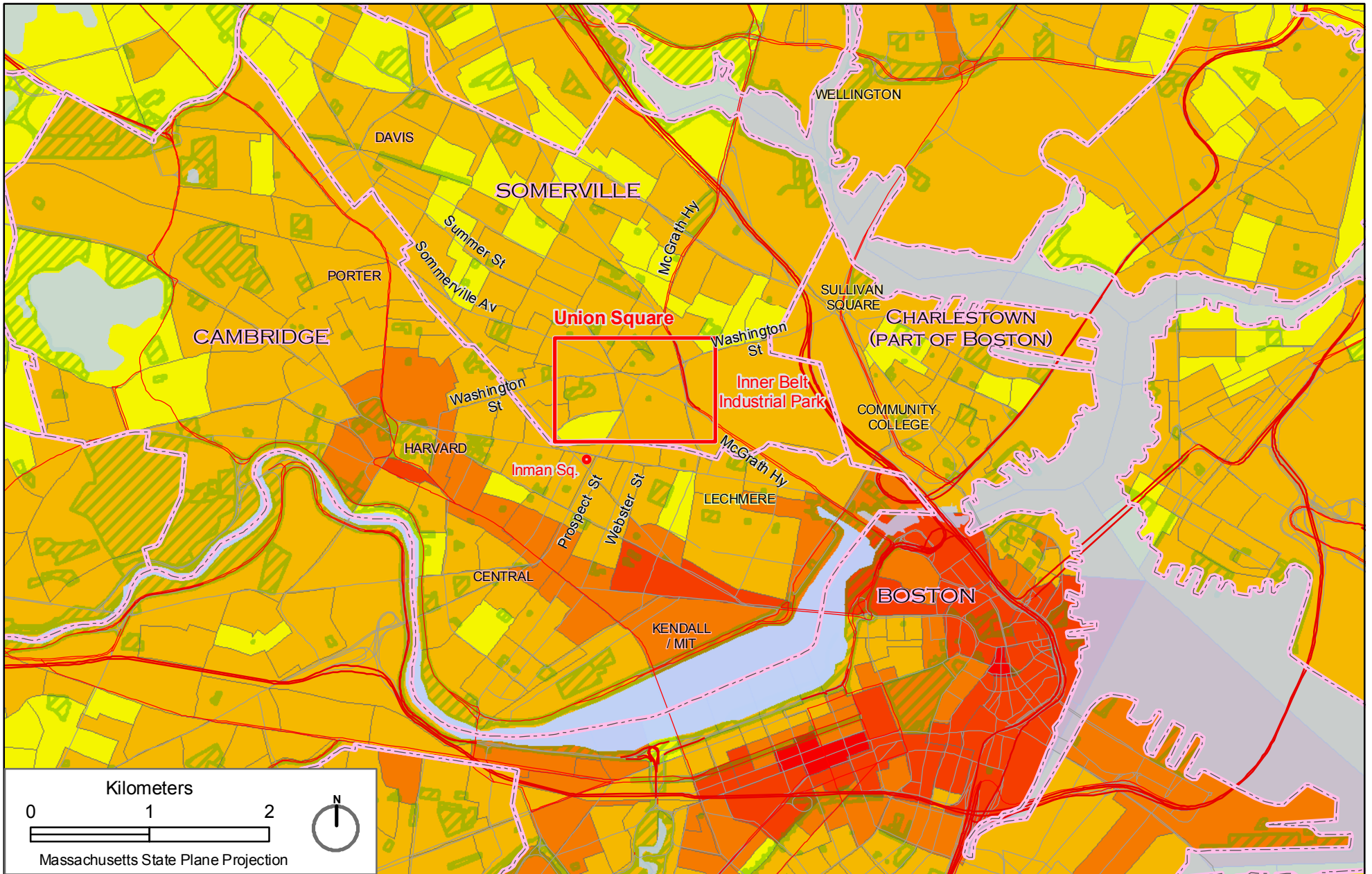
People per Hectare (Block)



Parks



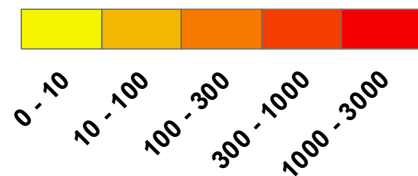
Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1;
 September 2009
 Block Population Density: US Census Bureau, 2000 via
 Geolytics.



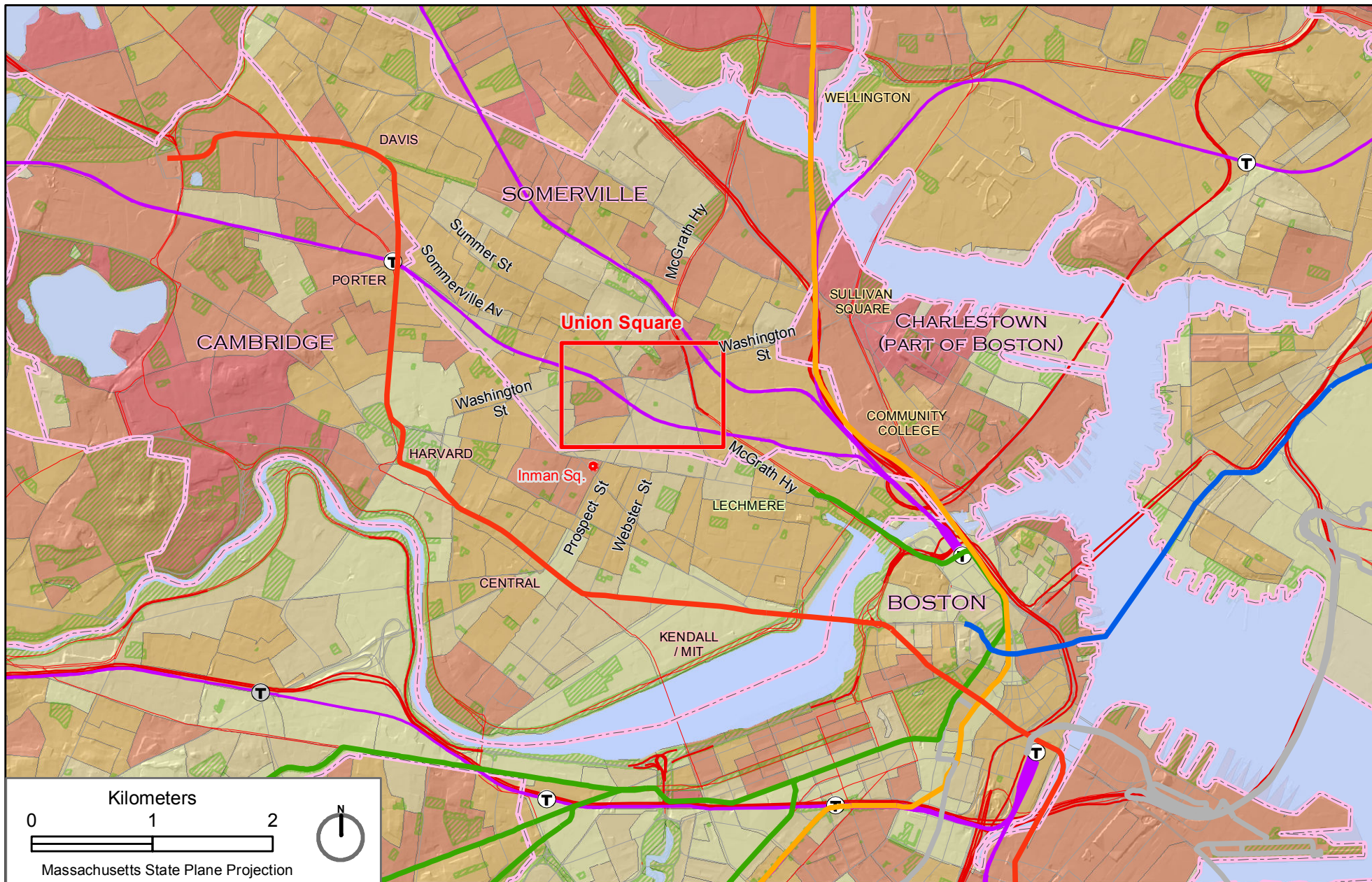
2000 Employment Density

Union Square is not one of the chief employment centers of the Boston / Cambridge / Somerville area. 2000 census data imputed from the 15% household sample of the Long Form recipients, aggregated to the blockgroup indicates that generally speaking, the employment density of blockgroups making up union square is less than 100 employees per hectare. The city of Somerville has hopes that the Inner Belt Industrial Park, located to the East of Union Square may eventually become a regional employment center, similar to Kendall Square.

Employees per Hectare (Blockgroup) Parks



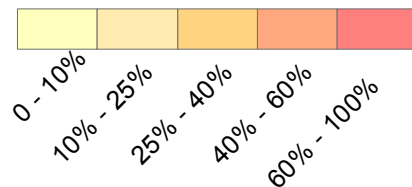
Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1;
 September 2009
 Employment Data, Bureau of Transportation Statistics Census
 Transportation Planning Package, 2000, Aggregated to



2000 Census: Housing Tenure

These data from the 2000 census show the general pattern of housing tenure in the Boston / Cambridge / Somerville Area. There may be finer patterns of ownership that are washed out by the relatively coarse aggregation of household data to blockgroups. Interpreters of this map should be cautioned that areas with a high percentage of rental or owner occupied properties may not necessarily have large numbers of units.

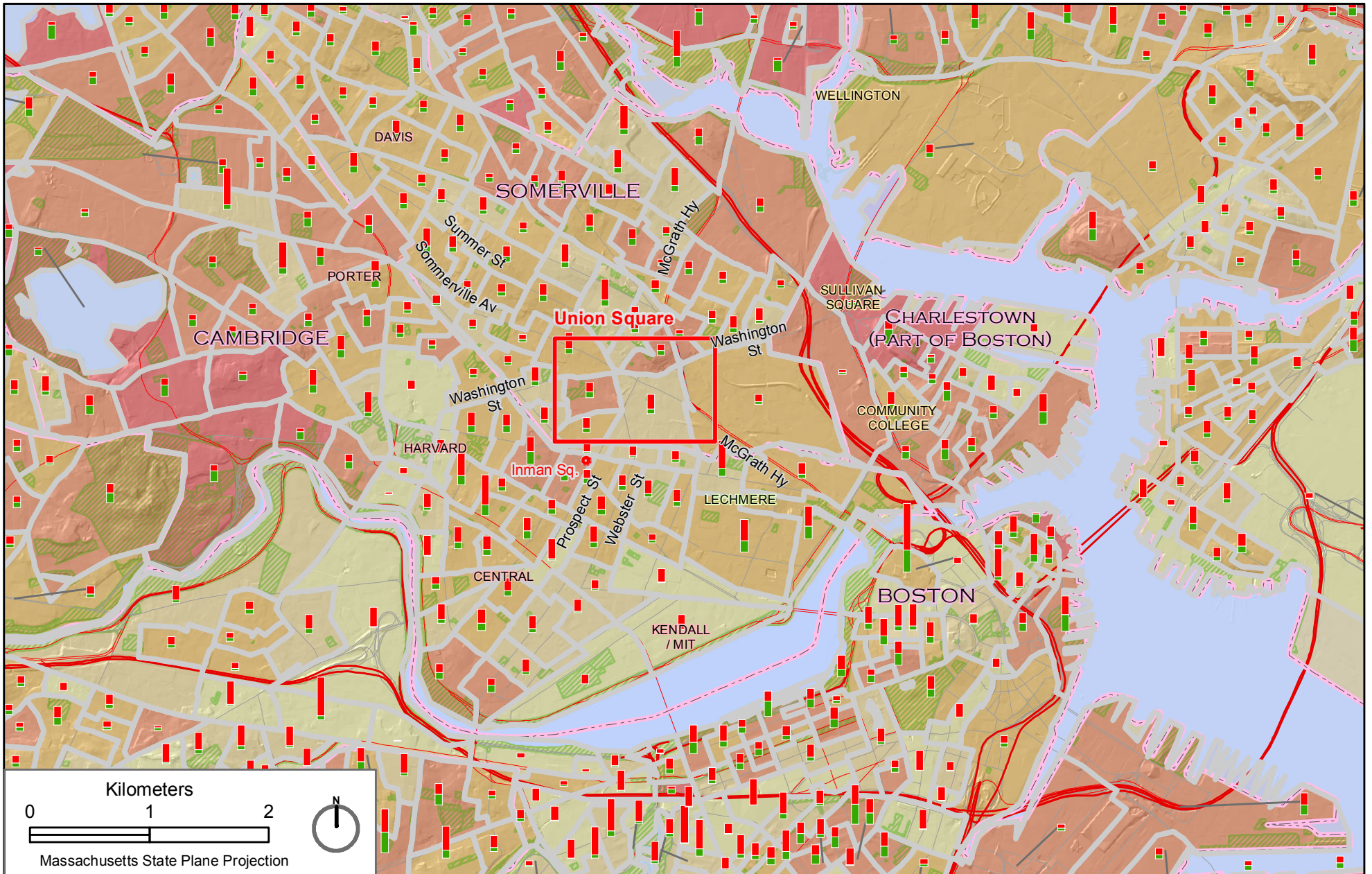
Households: Percent Owner Occupied (Blockgroup)



Sources:

Map: Paul Cote; Fundamentals of GIS Assignment 1;
September 2009

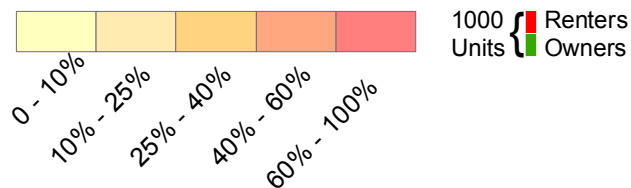
Housing Tenure Data: 200 US. Census Blockgroup data via Geolytics



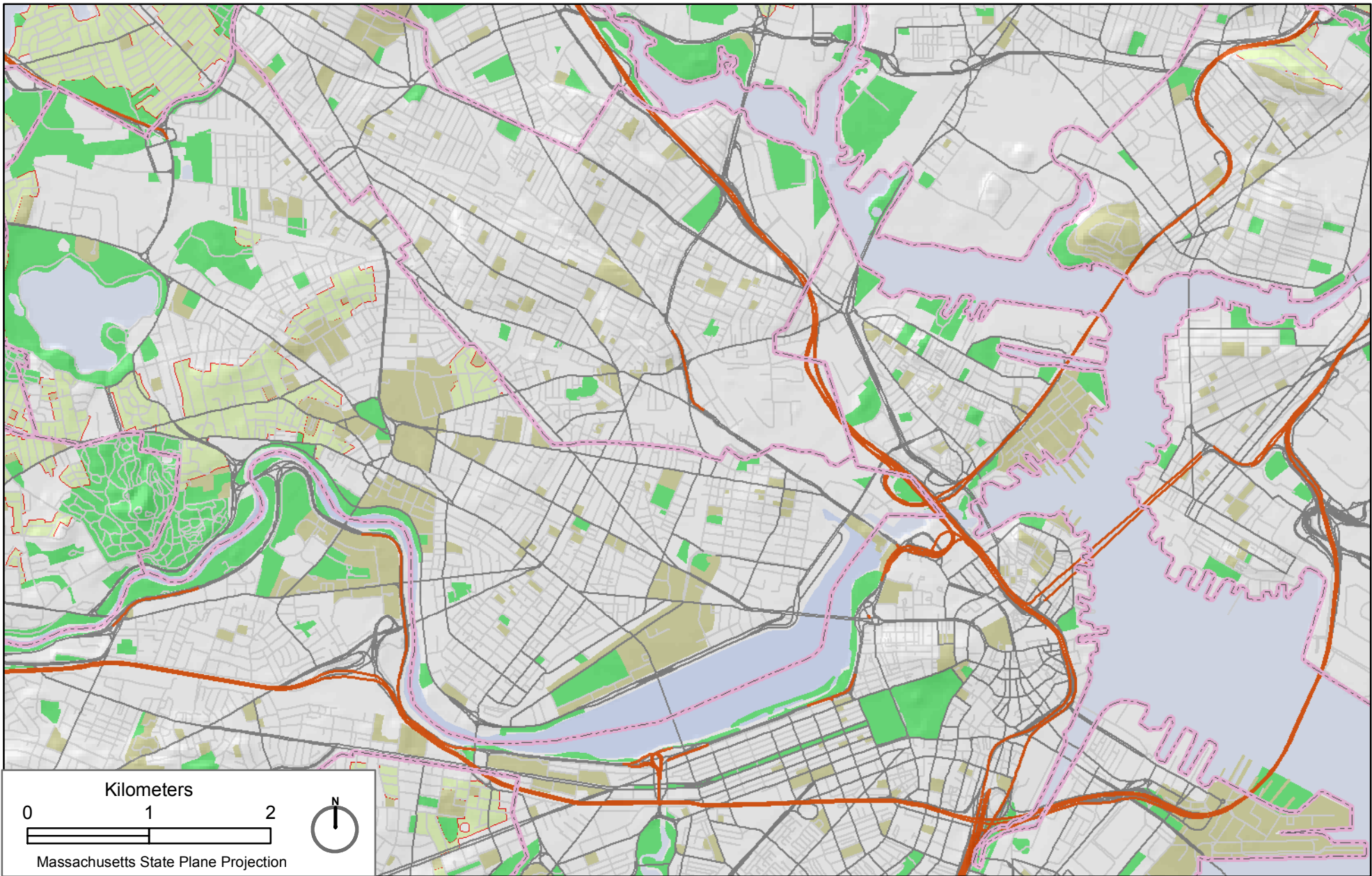
2000 Census: Housing Tenure

These data from the 2000 census show the general pattern of housing tenure in the Boston / Cambridge / Somerville Area. There may be finer patterns of ownership that are washed out by the relatively coarse aggregation of household data to blockgroups. Interpreters of this map should be cautioned that areas with a high percentage of rental or owner occupied properties may not necessarily have large numbers of units. The inclusion of proportional symbols on this map facilitates a reading of the proportion and the actual amounts of units involved.

Households: Percent Owner Occupied (Blockgroup)



Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1;
 September 2009
 Housing Tenure Data: 200 US. Census Blockgroup data via Geolytics



Aerial Interpretation of Natural Patches

The MassGIS Land Use layer reflects an aerial photo interpretation conducted in 1999. This database has several classifications that may be useful for understanding natural patches in the city: Within this frame, the areas classified as Ambient Natural include cemeteries and public parks. The land use layer also identifies Single Family Residential areas, which on inspection of the aerial typically have yards with trees. Campuses are classified as Urban Open. Because the classification of this data did not consider patches any smaller than one acre we can expect that smaller potential natural patches may have been missed. Because campuses contain many areas that are not natural, this layer may overestimate natural patches in these areas.

MassGIS Land Use 1999

Natural Classification

- Ambient Natural
- Campus (Urban Open)
- Single Family Residential

Sources:
 Map: Paul Cote; Fundamentals of GIS Assignment 1; September 2009
 Land Use: Massachusetts GIS, 1999.
 Reclassified to Natural Patches