Visualizing Potholes in Boston Streets

HP Vertica Place Development Team

The `Boston_Pothole_Git.sql` file used Vertica Place to determine the locations of the potholes reported and addressed by the city of Boston, with a focus on determining the intersection of each point location of a pothole and the region in which the pothole occurs. Work through the Place analysis in order to examine how Place formats the data.

Here, we bring the data into R for visualization. We will use the `ggmap` and `ggplot2` packages in order to create spatial maps of pothole occurrences, using a color gradient to examine the number of potholes per US Census Block.

Code chunks displayed below can be run in your local R instance, provided you've downloaded the corresponding data available in the Vertica/Place Github repository.

Loading required libraries

```
library(ggplot2)
library(ggmap)
```

Importing data output from Place

```
new_potholes = read.csv("heatmap.dat")
```

Next, we'll need to use `ggmap` to obtain a map of downtown Boston and the greater Boston metropolitan area. We then plot pothole occurrences on top of these maps.

```
# Return the maps for different locations
metro <- get_map(location = "Boston, MA", zoom = 11, maptype='toner-hybrid')
downtown <- get_map(location = "Boston, MA", zoom = 15, maptype='toner-hybrid')

# Create the heatmap
heatMapDowntown <- ggmap(downtown) +

  geom_polygon(data = new_potholes, aes(y = Longitude, x = Latitude,
                                        group = gid, fill = Ratio), alpha = .7) +

  scale_fill_gradient(low = "light yellow", high = "red", guide = "legend",
                      na.value="light yellow", limits = c(0,5), breaks = c(0:5))


heatMapMetro <- ggmap(metro) +

  geom_polygon(data = new_potholes, aes(y = Longitude, x = Latitude,
                                        group = gid, fill = Ratio), alpha = .7) +

  scale_fill_gradient(low = "light yellow", high = "red", guide = "legend",
                      na.value="light yellow", limits = c(0,5), breaks = c(0:5))
```

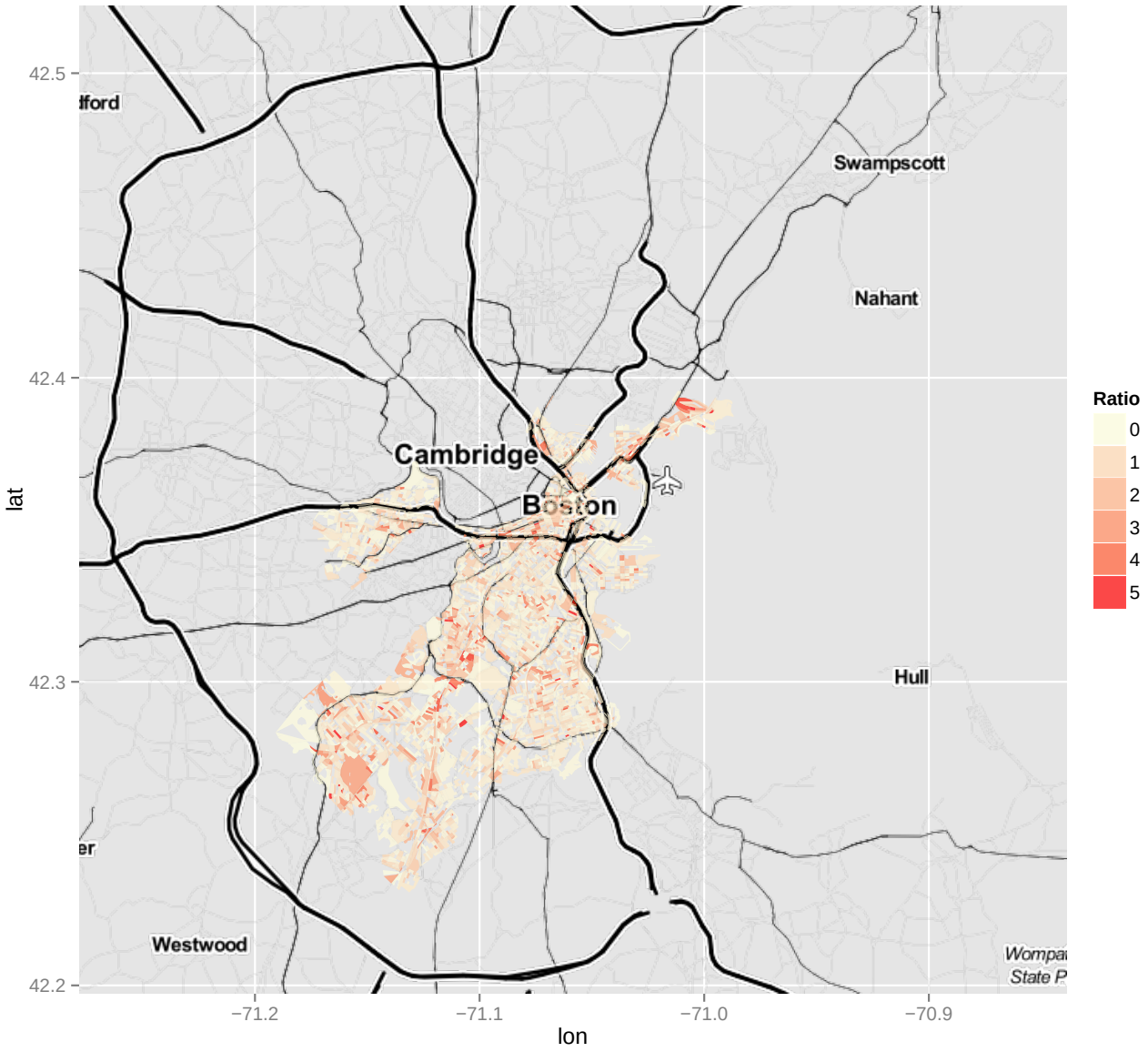

Figure 1: The spatial distribution of the number of potholes per US Census Block for the greater Boston area.

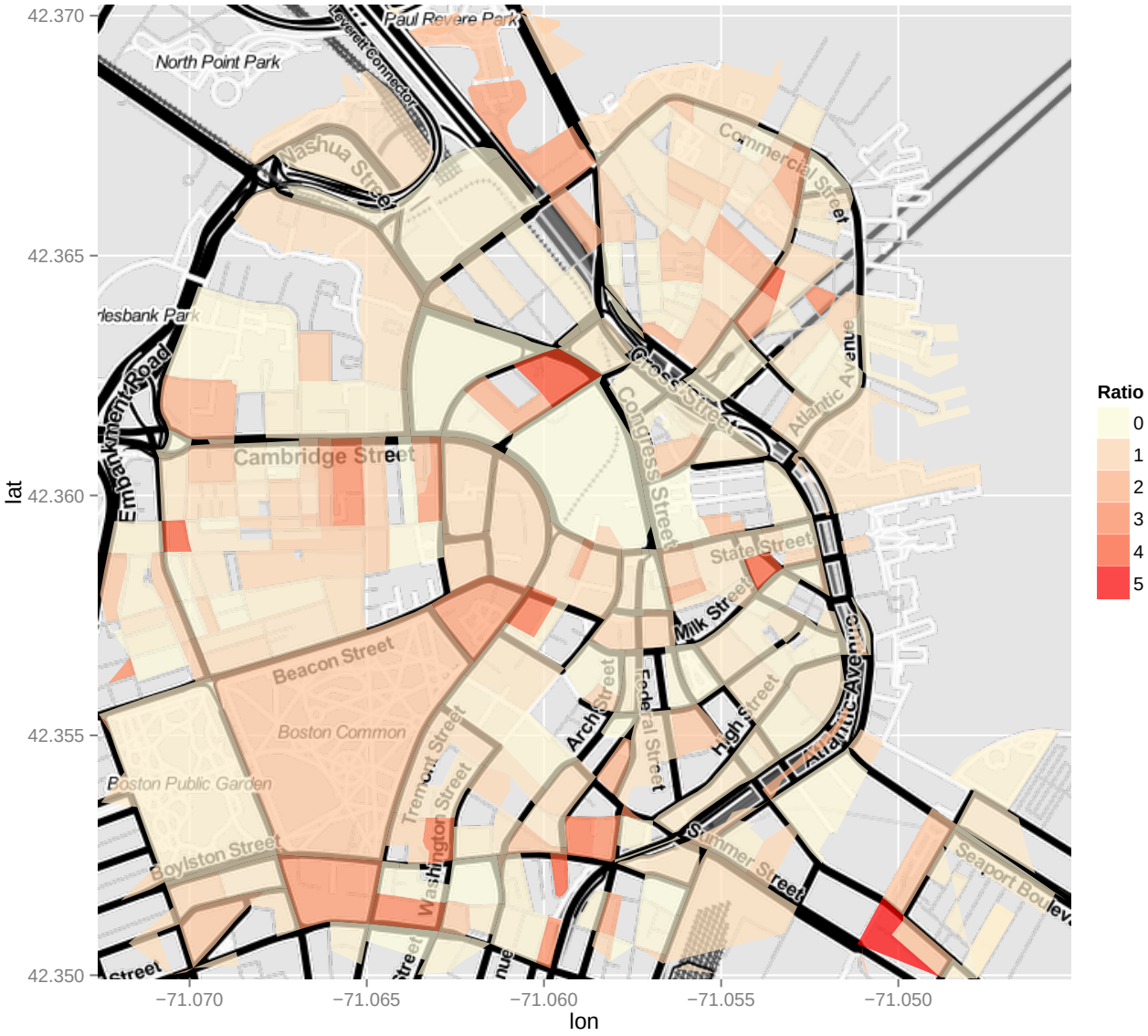

Figure 2: The spatial distribution of the number of potholes per US Census Block for downtown Boston.