An Investigation of People's Attitudes about Bicycling in Urban Areas in the US: An Exploratory Case Study in Washington DC

A thesis submitted by

YAQI SHEN

In partial fulfillment of the requirements of the degree of Master of Arts

in

Urban and Environmental policy and planning

Tufts University

May 2016

Advisor: Justin Hollander, Reader: Sumeeta Srinivasan

Abstract

Biking as the travel mode has become more and more common and popular recently. However, some problems occurred in development of cycling. This thesis explores the use of mico-blog data in the form of sentiment analysis and statistical analysis to determine if there are relationships existed between people's attitude, bicycling index, and locations where people talking about bicycling. Furthermore, this thesis lays the groundwork for a deeper understanding of bikeability by making quantitative analysis. My results demonstrate that there is relationship existed between peoples' attitude and few bicycling facilities and physical environment factors. Furthermore, some correlation results between each independent variables and sentiment scores indicated. I also provide suggestions about some good strategies of developing cycling for bicycling planners and policy makers by using the results indicated in this study.

Acknowledgements

I would first like to thank my Thesis Advisor, Justin Hollander for patience, support and always being willing to give me suggestions of my research framework and questions throughout the whole process. I would also like to thank my Reader, Sumeeta Srinivasan, for teaching me how to use ArcMap, giving me suggestion about spacial analysis, and provide comments into my research. I would especially like to thank my parents, Hui Shen and Yan Zhang, for funding me through graduate school, for always being supportive and positive, for encouraging me anytime.

TABLE OF CONTENTS

List of Tables

List of Figures

Chapter 1: Introduction

Recently, non-motorized modes of travel, particularly bicycling, have become more common and popular. Bicycle use increased 39 percent nationally from 2001 to 2011, because riding a bike saves on the cost of living in urban areas, and also, bikes are available readily, and are convenient to ride anywhere and anytime compared to public transportation (Ben, 2011). Cities such as San Francisco, Chicago, and Washington DC have seen huge increases in cycling (Ben, 2011); however, cycling plans in urban areas have some problems and the development of such plans has not kept pace with the massive rise in cyclists.

Through a case study in Washington, DC, this thesis evaluated the ways in which bicycling facilities and city cycling plans influence people's attitudes and behaviors. The study includes a discussion of the Bicycling Score in Washington, an analysis of people's attitudes from Twitter data collected from March 3 to April 10, 2015, and an analysis of the relationship between cyclists' attitudes, cycling facilities, and city bike plans. Finally, the thesis provides a detailed discussion and evaluation of the current research on cyclists' attitudes about bicycling.

The following research questions were explored:

1. How is bicycling ability represented in Washington DC?
    - What is the Bicycling Score in Washington, DC, and how is the index

used?

- What factors enter into the index, such as cycling infrastructures, hilliness, desirable amenities, and road connectivity?

2. What are people's attitudes (positive or negative) about bicycling in Washington?
3. Is there a relationship between people's attitudes, the bicycling index (cycling infrastructures, hilliness, desirable amenities, and road connectivity), and locations where people talk about bicycling?

The thesis also discusses the implications of these research questions with respect to bicyclists, bicycling facilities, and bicycling planning within the Washington DC area. I will also draw conclusions from the Washington data for application to the rest of the US, and provide some useful guidelines for future planning about bicycling based on human and social considerations.

Twitter data collected from March 3 to April 10, 2015 provide the most recent data, and thus represent people's attitudes well. Current attitudes about bicycling contributed to the analysis of the research questions and identified problems better.

To answer the research questions above, the following software was used: ArcMap, SentiStrengh, and STATA. ArcMap was used to produce maps of current

bikability in Washington DC, and helped calculate the bicycling score there as well. In addition, the data created by ArcMap contributed to other statistical analyses. SentiStrengh was used to estimate the sentiment score for each Twitter post, while STATA provided the ability to conduct statistical analyses of the sentiment scores and other biking data calculated by ArcMap. The methods with which these software programs were used is described in detail in the next chapters.

This thesis is presented as follows. Chapter 2 includes a literature review that provides a description of the benefits of bicycling and its status in the US at present. The chapter also discusses several case studies of people's attitudes about bicycling in urban areas and the ways in which bikeability affects those attitudes. Chapter 3 offers an overview of current bikeability in Washington DC, and includes maps to make the results more straightforward. The methods of determining factors, collecting data, and producing maps also are detailed and described specifically in Chapter 3. Chapter 4 presents the methodologies employed in the thesis for data collection, determination of sentiment scores, and the relationship between sentiment scores and factors associated with biking. Chapter 6 describes the conclusions and limitation of the study, and offers ideas for future relevant studies.

Chapter 2: Literature Review

Background

Bicycling has become a popular topic of discussion on social media today. Many transportation institutes and government agencies have realized that non-motorized travel can benefit communities in many ways, and have determined that current cycling plans are problematic and provide considerable scope for improvement (VTPI, 2015; Grabow, 2013). More than 90% of commuting trips in the US are made in private motor vehicles, and the balance of commuting trips are made on foot, and by bicycle and public transit (NHTS, 2009).

A strong movement has developed over the past decade to increase bicycling in order to improve health through greater activity, reduce vehicle miles travelled, and improve air quality, among other benefits (Gotschi, 2011; Krizek 2007; Dill & Carr, 2003). Although bicycling can make significant contributions to social goals related to public health, energy independence, climate change, air quality, traffic congestion, mobility, and economy, only mass cycling can reach those goals (Furth, 2012).

This literature review includes a brief description of the benefits of bicycling, the status of bicycling in the US today, and findings about the relationship between people's attitudes, bicycling, and other urban issues.

Benefits of Bicycling: Health, Social, Environmental

The bicycle plays an important role in the transportation system today. First, it is a low cost, non-polluting transportation option that makes efficient use of limited roadway capacity. Further, for those individuals who do not have a vehicle, the bicycle is an effective means of transport, particularly for trips that are too long for walking or are not served by quality public transit (Murphy& Knoblauch, 2004).

Another major benefit is that bicycling contributes to public health. Physical activities reduce obesity, which has reached epidemic proportions in the nation, and bicycling is an excellent form of physical exercise (Killingsworth, 2003). Many case studies have shown that the health benefits of bicycling far exceed the risk of traffic injuries; moreover, as levels of bicycling increase, the rate of injuries decreases (Elvik, 2009; Jacobsen, 2003; Robinson, 2005).

Bicycling also is an efficient way to reduce vehicular pollution, which is a major contributor to greenhouse gas emissions; based on a 2013 EPA report on total US greenhouse gas emissions, 27% of such emissions result from vehicles. Thus, non-motorized transportation, including bicycling, can help alleviate this problem.

In conclusion, bicycling offers numerous benefits. It can ameliorate certain environmental issues, and as a means of transport and recreation, is beneficial to people's health. Bicycling also is an efficient transportation alternative to driving or

walking.

Status of Bicycling in the US

At present, the bicycle is not a common mode of daily transportation in the US. Only one percent of all one-way trips in 2009 were made by bicycle (NHTS, 2009). However, increasing evidence has confirmed that bicycling should be considered a viable transportation option. First, it is easy to engage in bicycling, as it requires less exertion than does other physical modes of transportation (Frank, Engelke, & Schmid, 2003). In addition, bicycling can be a relaxing and enjoyable activity that helps people relieve stress and increase work productivity. However, based on the current situation, there are several barriers to bicycling in the US, primarily the fact that bicycle facilities remain rudimentary, and the implementation of bicycling plans requires an investment of financial resources (Grabow, 2013).

The greatest obstacle to bicycle planning is the lack of "separation criteria" for cyclists in the US. Currently, there are no criteria related to when cyclists should be separated from fast or heavy traffic (American Association of State Highway Transportation Officials, 1999). Further, there are no limits to the speed or number of lanes on roads that incorporate bike lanes, or even those designated as "shared lanes" (Furth, 2012). A primary goal of any bicycle infrastructure program must be to provide sufficient separation from traffic, such that it attracts the mainstream

population (Furth, 2012). Some shortcomings and strengths of planning are obvious in urban areas in the US; in the next few chapters, I will discuss using social media data to make future suggestions for bicycle planning.

Currently, because of the increasing confirmed benefits associated with bicycling, more US municipalities are beginning to promote and develop policies and plans to make bicycling a safer and easier form of transport. Transportation planners have begun to realize that public participation in planning bicycle projects is an important part of the process, specifically with respect to the demand for bicycle facilities, network planning, suitability modeling, and other related issues (Molina, 2014). In the next few chapters, I will argue that data collected from Twitter can be an effective method of public participation. Using social networks is helpful in tracking people's attitudes on many bjects, and acquiring feedback and suggestions. An analysis of Twitter data specifically could contribute to future bicycle planning.

What are People's Attitudes about Bicycling in Urban Areas? Does the Ability to Bicycle Affect their Attitudes?

Empirical study of people's travel attitudes and urban design features

There is a consensus within planning and urban design policy that the design of a sustainable urban environment would encourage people to reduce the use of automobiles and choose more sustainable modes of travel. However, based on one

case study in the UK, sustainable features of urban design did not cause people to change their behavior, although such features may change their attitudes about walking and bicycling in the long-term (Susilo, Williams, Morag, & Dair, 2012). Some sustainable features of urban design relevant to people's attitudes and behaviors, including secured bike storage, high connectivity of neighborhoods to nearby areas, natural surveillance, high quality public realm, and issues of heavy traffic will be discussed.

Facts from Survey of People's Attitudes and Behaviors about Bicycling

Data from the 2012 National Survey of Bicyclist and Pedestrian Attitudes and Behavior are worth mentioning: 46% of 7,509 respondents have bicycles paths available within a quarter mile of where they live, and 39% have bicycle lanes available on roads within a quarter mile of where they live (NHTSA, 2012). Among the 1,350 respondents who do not have bicycle paths nearby, 40% never ride on bike paths. Further, among the 1,176 people who do have bicycle paths nearby, only 12% of them always ride on bicycle paths, and another 11% never use these paths (NHTSA, 2012). Moreover, the same report indicated that 38% of 1,551 respondents ride a bike more often by comparison to a year ago, while 20% ride a bike less often than in 2011 (NHTSA, 2012). These facts and case studies show that, although people's bicycling behaviors are changing, there still is no clear pattern in their

attitudes about bicycling as it relates to the ability to bike in urban areas.

Conceptual Model from Previous Case Studies in the US

There is a conceptual framework that is used widely in research on physical activity, specifically in the field of public health (Sallis & Owen, 2008). This framework is composed of three factors—individual, social-environmental, and physical-environmental—that are used to explain people's behavior and attitudes (Handy, Xing, & Buehler, 2010). Individual factors (e.g., attitudes) about the physical-environmental factors in transportation infrastructures and land use patterns both offer strong support for the arguments in the next sections in this thesis.

Figure 1 shows that these three factors are hypothesized to affect bicycling behaviors directly (Handy et al., 2010). Individual factors contribute to the motivation to bicycle, and social and physical environments are key factors in determining the quality of bicycling conditions that may enable and encourage people to bicycle (Handy 1996, 2009). These factors are interrelated, and all influence bicycling behaviors. For example, bicycle infrastructure, one of the physical-environmental factors, influences an individual's attitudes and behaviors with respect to bicycling; because bicycle infrastructure affects travel time, safety, enjoyment, and other related bicycling experiences, it has an important influence on whether or not people decide to bicycle. In turn, increasing individual bicycling

would help generate a supportive physical environment.

While individual factors are important in explaining bicycling behaviors (Handy et al., 2010), aspects of the physical environment also are important, including the distance to destinations as determined by land use patterns in transportation bicycling, and the presence of a network of off-street bicycle paths for both transportation and recreational purposes (Handy et al., 2010).

All of these are useful pieces of evidence that directed the research and analysis in the next few chapters.

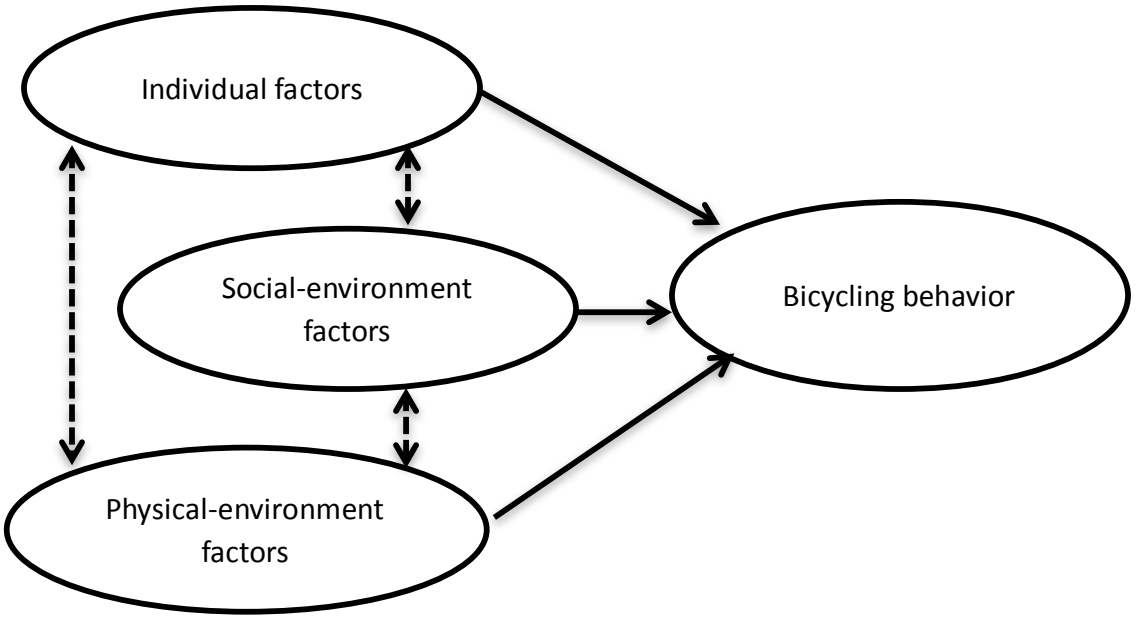


Figure 1. Conceptual model (Handy, Xing, & Buehler, 2010)

Approaches to Measure People's Attitudes about Bicycling and Other Urban Issues

Because people's attitudes about bicycling and other urban issues are complex, an analysis of those attitudes is necessary and helpful in understanding people's perceptions. Moreover, social networking provides good tools for exploring people's attitudes, because of how much they share. I will use data from Twitter, because Twitter has 320 million monthly active users and supports more than 35 languages (Twitter.com, 2015). Thus, this large number of users will provide a sufficient sample size for exploring and analyzing attitudes. In the article "You are what your friends eat," the authors use social media data to track attitudes and explore changes in eating behavior and body weight (Adam, Chris, & Annik, 2011). This is a good example and provides evidence to show that social media are a powerful tool to identify people's attitudes and for research.

People's attitudes may be measured by either qualitative or quantitative methods. Qualitative methods are powerful tools to explore such complex issues because they allow investigation of an individual's own explanations of their behavior and attitudes (Beirao & Cabral, 2007; Clifton & Handy, 2001). Qualitative methods include participant observation, direct observation, unstructured interviews, and case studies.

Quantitative approaches have the advantage of measuring the responses of many subjects to a limited set of questions, and thus allow comparison and statistical aggregation of the data (Patton, 1990).

Qualitative Case Study

One qualitative study addressed travelers' attitudes about transport (Beirao & Cabral, 2007). They used in-depth interviews of 24 individuals who ranged from 18 to 70 years of age and conducted a comparative analysis of the respondents' demographics (e.g., work status, car status, and income level).

Quantitative Case Study

In contrast, a quantitative study by Grabow (2013) presented predictors from urban design and used them to model commuting behavior. The author developed the "active transportation index" (ATI) by using data from surveys and geographic information system (GIS) sources.

A brief description of these studies will be helpful in demonstrating the methodology employed in this thesis. The thesis combined both of these methods and included data collection, quantitative analysis by SPSS, and spatial analysis by GIS.

Findings and Conclusions

Thus far, the literature has shown that the benefits of bicycling cannot be

ignored, but that there are significant shortcomings in urban bicycle planning at present. Data from Twitter will be useful in obtaining feedback from current bicyclists, and suggesting options that will facilitate bicycle planning.

Further, individual, social-environmental, and physical-environmental factors all affect people's attitudes, which provided strong support for the purpose of this thesis, to evaluate how bicycling facilities and city cycling planning influence people's attitudes and behaviors through a case study in Washington, DC.

Moreover, the literature related to the various methodologies used to assess attitudes and urban issues was helpful in the selection of the methods used in this thesis. Ultimately, I concluded that a mixed quantitative and qualitative design would be an ideal way to address the hypotheses and perform the analyses.

Chapter 3: Overview of Current Bikeability in Washington DC

Description

The primary focus of this study was an exploration of the relationship between people's attitudes about biking and bicycling facilities and city cycling planning in Washington DC. In preparation for the remainder of the analyses, I first conducted a bikeability analysis in Washington DC using GIS data.

The data for this analysis were derived from four main resources that contributed to six individual maps. The main goals of this analysis were to obtain an overview of bikeability in Washington DC in a map format that makes the results easy to interpret. Further, this analysis identified the best aspects of six indices separately and represented the highest biking score area as maps as well. Moreover, parts of these maps were used in data collection and the statistical analyses.

The physical environment is an important variable in explaining bicycling behaviors, particularly the distances to destinations as determined by land use patterns for transportation bicycling, and the network of off-street bicycle paths for bicycling for both transportation and recreational purposes (Handy et al., 2010). According to the empirical evidence from the opinion survey, and travel behavior analyses, four main domains combined to identify bikeability: bicycle facilities, street connectivity, topography, and neighborhood land use (Megan, Michael,

Eleanor, & Kay, 2012).

Thus, based on this evidence and the references, I used six physical environment factors in this analysis to evaluate bikeability in Washington DC: bike trails, signed bike routes, Capital Bikeshare locations, hilliness, destination density, and intersection density. This resulted in individual maps for the six factors, after which I calculated an overall score (scale of 1 to 5, with 5 the highest) to identify the best biking areas in Washington.

The reasons for using the Capital Bikeshare locations should be mentioned here. The Capital Bikeshare location is organized by the Capital Bikeshare (CaBi) system, which has operated since 2010 as a public-private partnership with Alta Bicycle Share, and is a bicycle sharing system that provides service in Washington DC, and in some cities in Virginia and Maryland. This system has more than 300 stations and 2,500 bikes, all of which are owned by local governments (Capital Bikeshare, 2016). This system improved the development of bicycle transportation and enhanced people's attitudes about biking as well. Therefore, I used the Capital Bikeshare locations as one of the factors to evaluate bikeability in Washington DC.

Data Resources

In this analysis, four main data resources were used to construct six individual maps: DCGIS open Data (opendata.dc.gov), ReferenceUSA, Social

Explorer, and census.gov. The DC Open Data is a program that belongs to the Office of Open Government (OOG), an independent office under the Board of Ethics and Government Accountability (BEGA) charged with advancing open governance in the District of Columbia. All of the data from GOS Open Data are updated and added to at regular periods, so that the data used in this analysis were all recent. The original data on the distribution of bike trails and signed bike routes, Capital Bikeshare locations, and spot locations were downloaded as shapefiles (.SHP) directly from the DC Open Data website.

The data used to make destination density maps were drawn from ReferenceUSA. The research focused on two groups (retail trade and services) among major industry groups that encompass over ten categories. In these two groups, I selected reasonable destinations within the retail trade, such as grocery stores, meat and fish markets, and fruit and vegetable markets; within the category of services, colleges and universities, libraries, schools, and educational services were selected (Appendix I). After filtering the results, I downloaded the data with longitude and latitude columns, and then processed them in GIS. In addition, other useful data from Social Explorer and census.gov were downloaded directly as .CRV files or Shapefiles in preparation for the next steps in the analyses.

Primary Methods

The primary steps used to produce different maps differed slightly, and are summarized in the following table.

Factors	Methods
Destination Density Score	Point data from ReferenceUSA were processed with the "Display XY Data" and "Point Density" tools to rank proximity to existing destinations
Intersection Density Score	Line data from M Drive in GIS Lab operated by Tufts University were calculated with the "intersect" tool, and then the results were filtered with "Selection" when more than two lines intersected (ICOUNT>=3); I then processed the layers created in the previous steps with the "Point Density" tool to rank proximity to existing intersection points.
Hilliness Score	Spot elevation data were processed with the IDW interpolation and Slope tools to rank hilliness.
Signed Bike Routes Score	A line shapefile was processed with the Line Density tool to rank proximity to existing signed bike routes.
Capital Bikeshare Location Score	Point shapefiles of Capital Bikeshare locations were processed with the Point Density tool to rank proximity to existing Capital Bikeshare locations.
Bike Trail Score	A line shapefile of bike trails was processed with the Line Density tool to rank proximity to existing bike trails.
Overall Biking Score	"Raster Calculator" was used to calculate the biking score overall by the six factors described above, which were given equal weights (100/6).

Table1. Steps in producing score maps

Results and Analyses

A comparison of Figures 1 to 6 shows that there was no clear pattern among the maps of these six factors. The highest score for destination density was located in central Washington DC, and decreased gradually around that area (see Figure 2). Most of the area in the map is green, which indicates that in Washington DC, most areas have low scores. Thus, from the perspective of destination density, except in the central area, most areas of Washington DC are not suitable for biking.

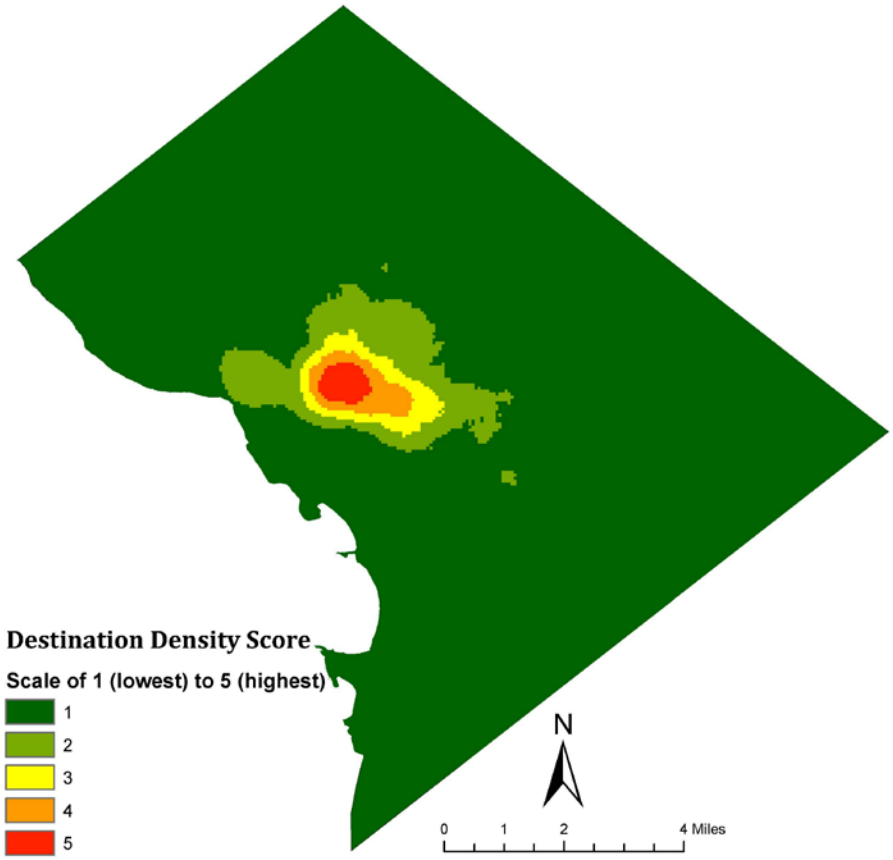


Figure 2. Destination density scores

There also was no clear pattern in the map of intersection density (see Figure

3). The red area on the map had the highest score, and most of the red areas were located in central Washington. In addition to these red areas, one can see some dense orange areas on the map. Most areas on the map are yellow, which indicates that most areas in Washington DC have scores of 3 or higher. From the point of view of this factor, Washington DC is suitable for biking.

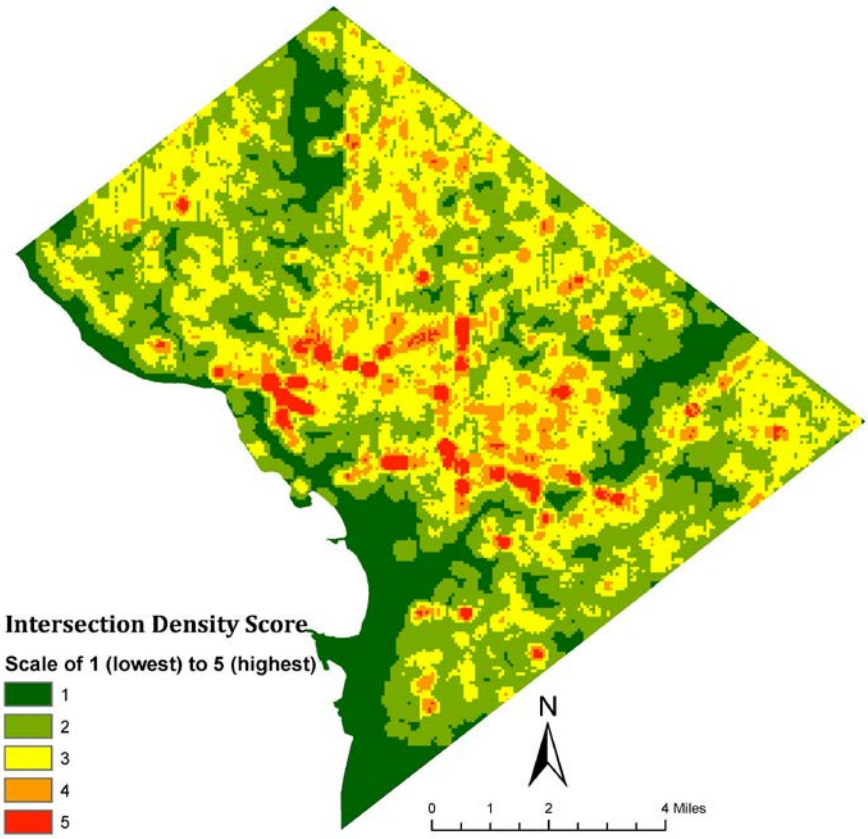


Figure 3. Intersection density scores

Figure 4 indicates the hilliness score, which was higher than the other factors; nearly half of the areas were red, and most parts of Washington were yellow, orange, and red. Therefore, when we consider only hilliness as the factor in

evaluating bikeability, the bikeability in Washington DC is positive and strong.

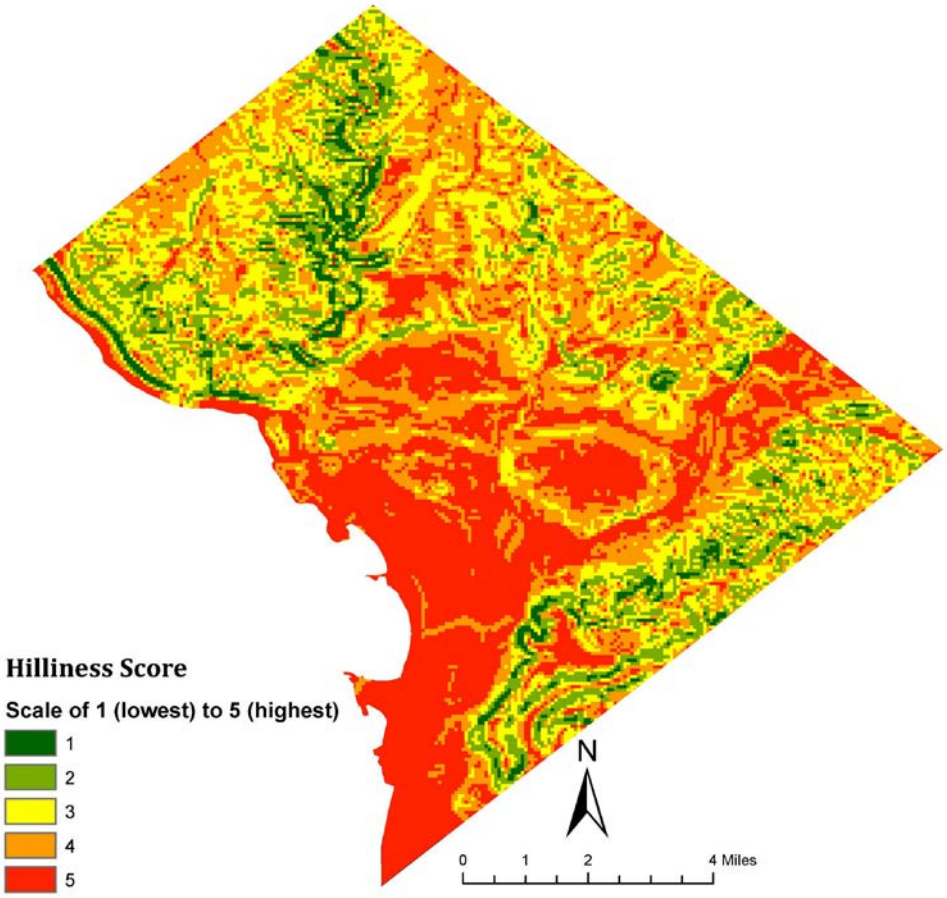


Figure 4. Hilliness scores

Compared with other factors described before, the map of signed bike routes was different (see Figure 5), and the trend in the density was consistent with the signed bike routes. Most areas in Washington DC have a low score, indicating that, in general, there are few signed bike routes in Washington.

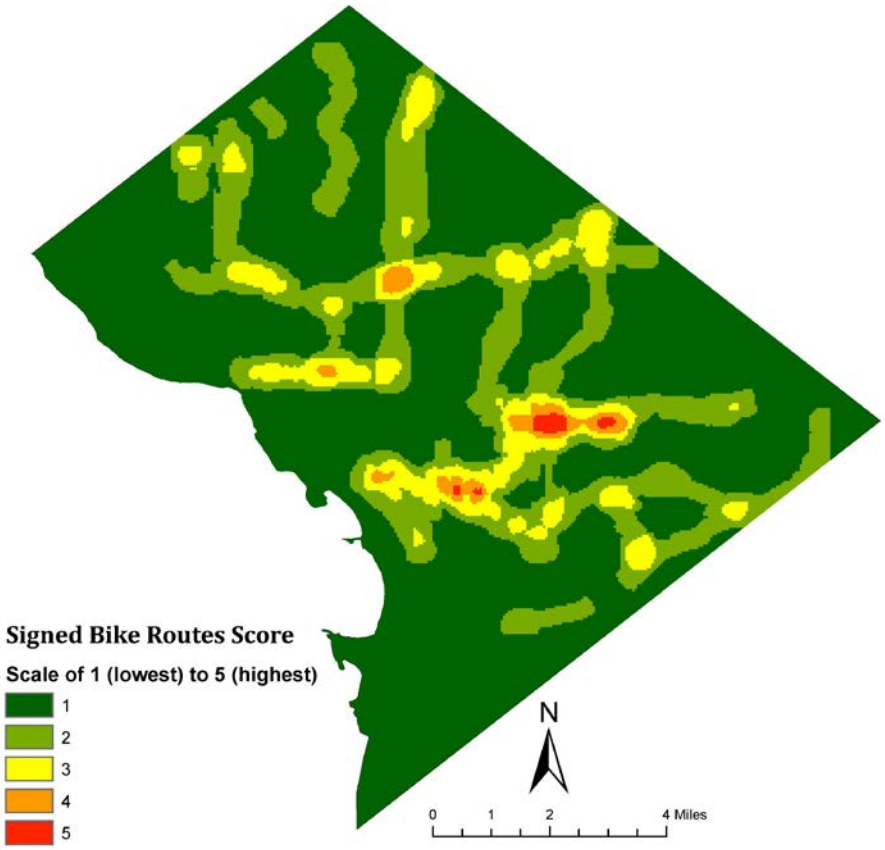


Figure 5. Signed bike routes scores

In Figure 6, the area with the highest score was located in central Washington, and was similar to the map of destination density scores. Generally, the Capital Bikeshare locations are distributed centrally, with fewer locations outside the central area.

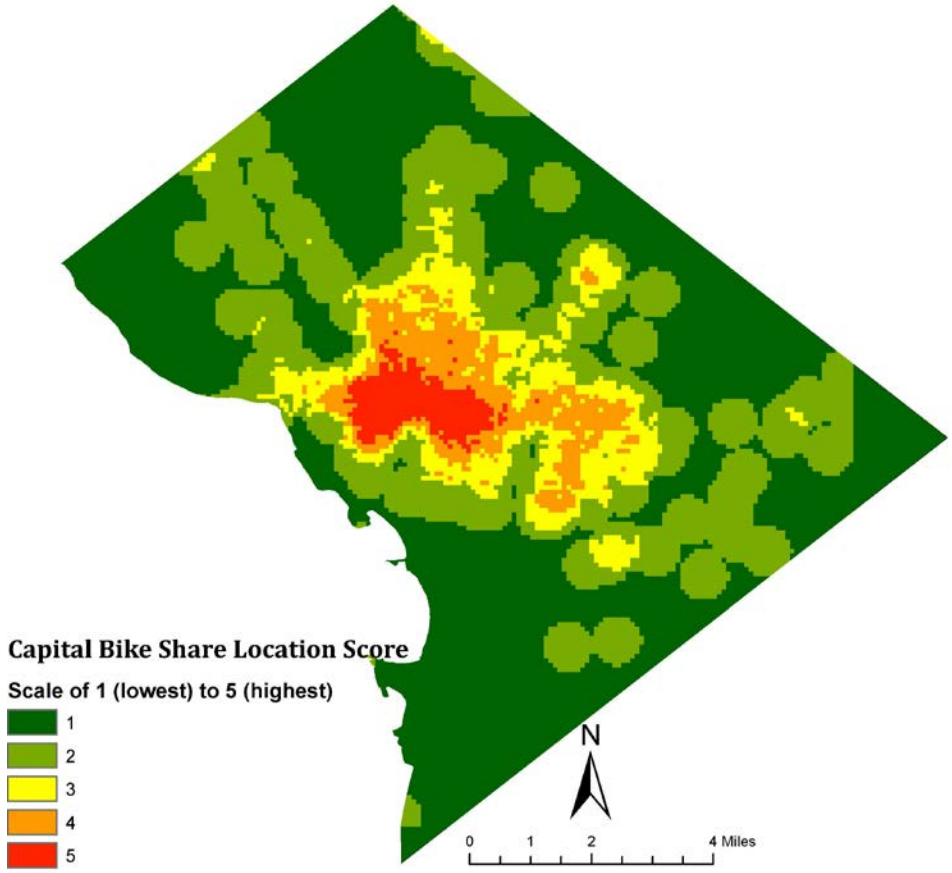


Figure 6. Capital Bikeshare location scores

Similar to the map of signed bike routes, the trend in density was consistent with the bike trail distribution (see Figure 7), with the high-density area located around the edges of the Washington DC boundary.

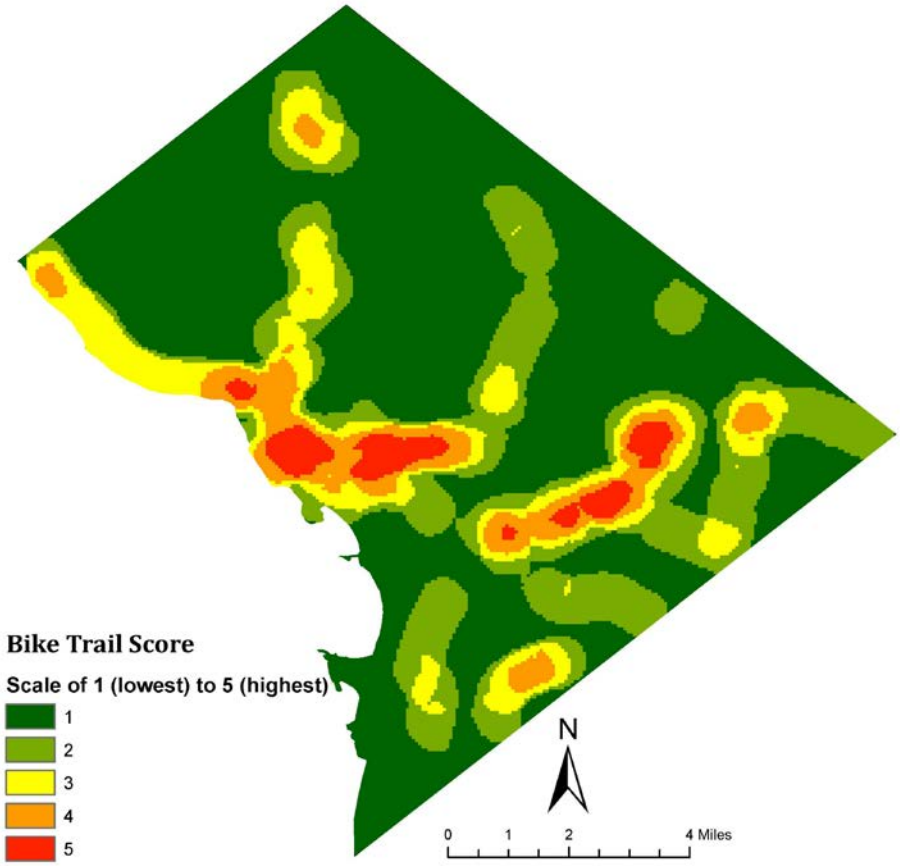


Figure 7. Bike trail scores

In evaluating the biking scores, I used all six factors in the following formula: *Biking Score= Destination Density Score * (100/6) + Intersection Density Score * (100/6) +Hilliness Score *(100/6) +Signed Bike Routes Score*(100/6) + Capital Bike Share Location Score*(100/6) + Bike Trail Score*(100/6).* The best biking areas were adjacent, and biking scores between 3 and 5 were located primarily in central Washington. Compared to the individual maps of the other six factors, the destination density score and Capital Bikeshare location scores followed a pattern similar to the biking scores (see Figure 8).

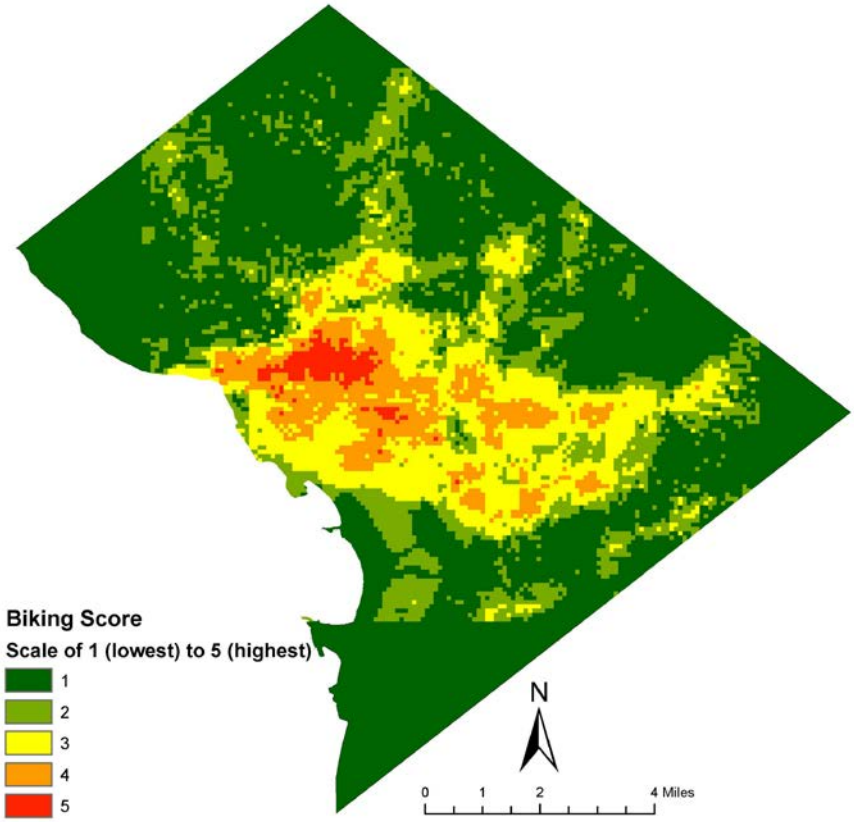


Figure 8. Biking scores

To explain this more deeply and to give a better understanding, I use population density as the reference in Figure 9. The top left-hand map shows the population density in Washington DC. The red areas have a high population density and the green areas have a low population density. The top right-hand map is overlaid with the census tract number. We can see that the highest population density areas are located in Census Tracts 50.02, 37, 28.02, and 28.01. Furthermore, another seven of the second highest population density areas are located adjacent to the highest population density areas. The map on the bottom of the figure is a biking

score map overlaid with the census tract number. The best biking area is in Census Tract 107 and adjacent areas. Although Census Tract 107 has a low population density, the surrounding areas have a high population density. To conclude, the higher population density areas do not exactly match the best biking areas, but they are closed.

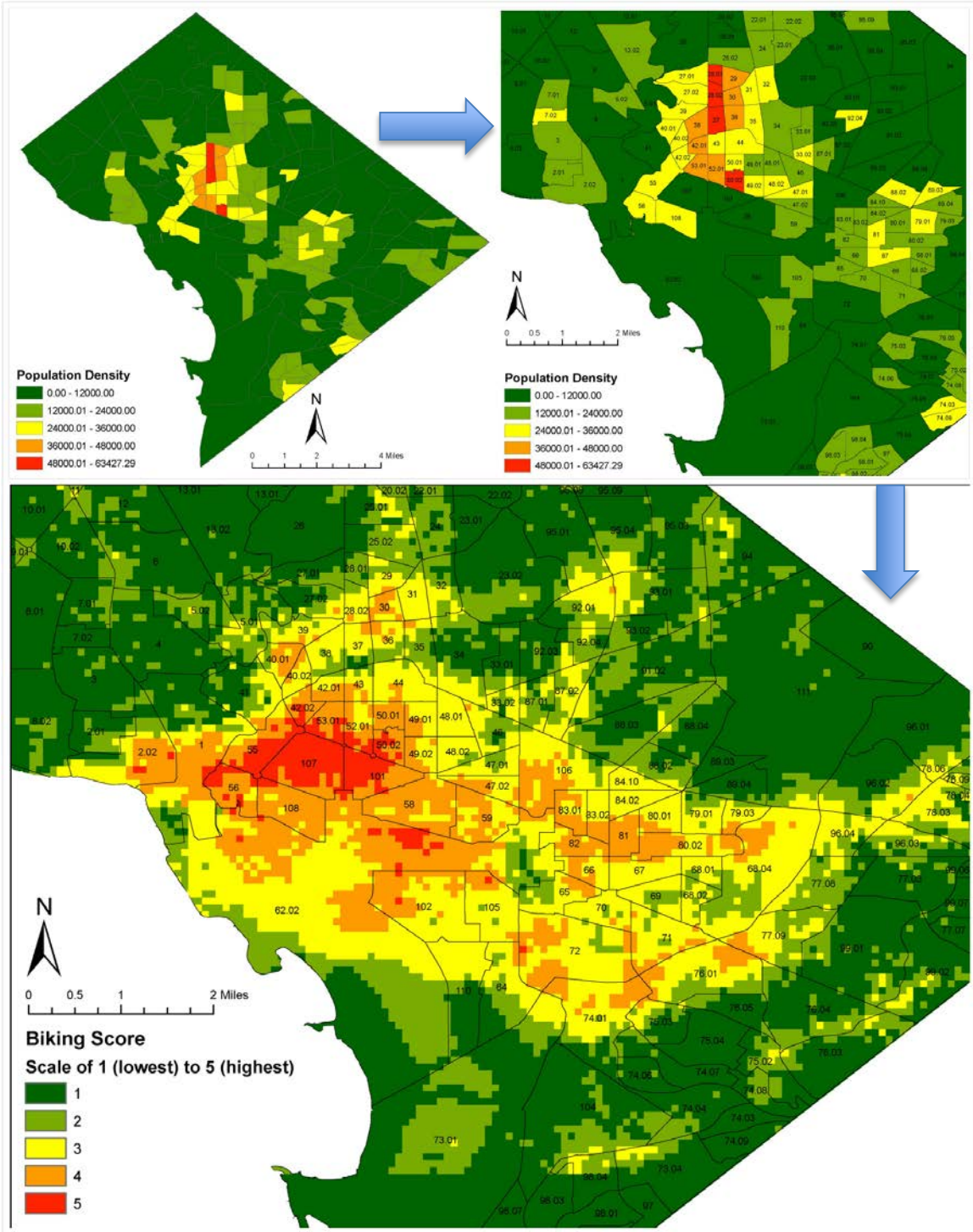


Figure 9. Biking Scores with Census Tract Overlay

Figure 10 shows the census tract number overlaid on a Washington DC street map. The highlighted area is Census Tract 107, which is at the core of the best biking area in DC. It is easy to observe that the White House is adjacent to Census Tract 107 and that George Washington University is located in Census Tract 108. There is lots of green space surrounding the best biking areas. To conclude, there are lots of suitable spaces for biking around the best biking areas, such as the university and parks.

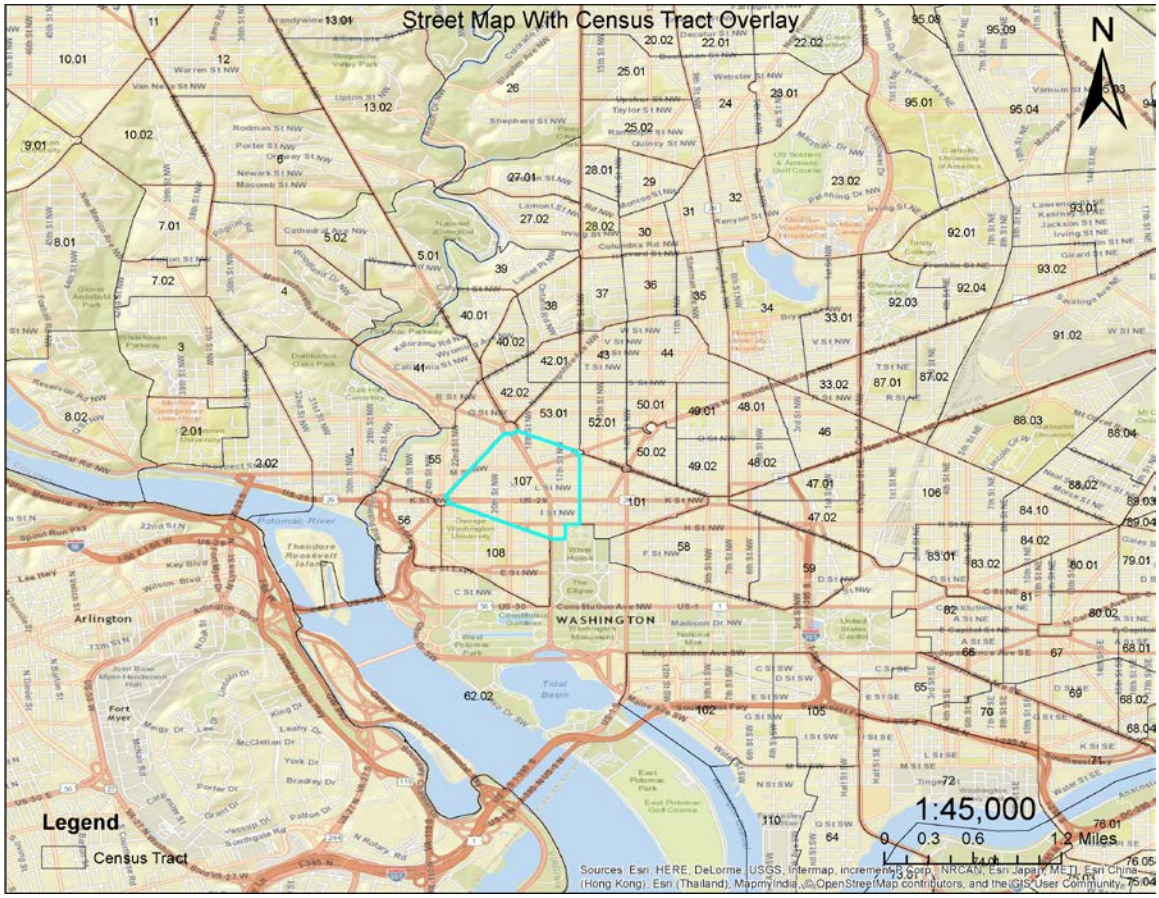


Figure 10. Street Map with Census Tract Overlay

Chapter 4: Methodology

As mentioned in the previous chapters, the final primary purpose of this study was to investigate people's attitudes about bicycling in urban areas in Washington DC. In order to collect these data, I used the following method, based on the Tufts Urban Attitudes lab (UAL), a research team affiliated with the department of Urban and Environment Policy and Planning at Tufts University, directed by Dr. Justin Hollander. Those methods described below are correlated closely, and should be considered together.

Data Collection

In order to collect and filter the micro-blog data, I used a computer program developed by the UAL to collect data from the Twitter Streaming API. This program collects and indexes a continuous stream of Tweets available publicly, which total less than 1% of all Tweets generated at a given location (Hollander, Graves, Levanthal, 2014). Geotagged Tweets were collected from March 3 to April 10, 2015 (total of 13 .CSV files). Figure 11 shows a small set of sample Tweets as displayed within UAL that were exported to Excel in the .CSV file format. Column A is the Twitter ID, column B is the user's ID, column C is Tweets, columns D and E display longitude and latitude, and column F is the time the Tweets were posted.

A	B	C	D	E	F	G
5.73E+17	2802200413	@heartoutlander @beulahcrusoe @stenbergmika @Heughliots @heughanize	-77.086826	38.889995	2015-03-03	15:32:36
5.73E+17	996017294	Back |||	-77.000631	38.925059	2015-03-03	15:32:38
5.73E+17	190787153	Aint going tell u twice I'm tell u once	-76.917868	38.853918	2015-03-03	15:33:05
5.73E+17	349921132	Nancy Pelosi is in the house. #Israel #IranDeal #jpost	-77.009266	38.88853	2015-03-03	15:33:16
5.73E+17	180458590	Este sue#o me tiene de muy mal humor y CERO tolerancia y CERO paci	-77.026458	38.99114	2015-03-03	15:33:16
5.73E+17	375383005	@georgetown @RobertMGroves if we want to reach all survivors confi	-77.070697	38.907674	2015-03-03	15:33:19
5.73E+17	1387436876	#AAP shld consider replacing the Jhadu with the scorpion as their s	-77.039532	38.905299	2015-03-03	15:33:22
5.73E+17	190787153	@RafielVistaGWO: What's understood don't gotta be explained _ _	-76.917899	38.85392	2015-03-03	15:33:47
5.73E+17	2802200413	@beulahcrusoe @stenbergmika @Heughliots @heughanizers @FansOSamHeug	-77.086826	38.889995	2015-03-03	15:33:48
5.73E+17	2641339091	Friendship height we here's today.!!! http://t.co/XdZk8gH1JK	-77.085308	38.959943	2015-03-03	15:33:50
5.73E+17	311267542	Im So Over These Big Ass Prenatal Pill	-76.978076	38.845022	2015-03-03	15:34:04
5.73E+17	380290690	Because cat Sabi swim no mean say E be catfish this Wan sef na pun	-76.99386	38.926592	2015-03-03	15:34:08
5.73E+17	128467838	Never get sloppy drunk but alcohol is problem solving!	-77.011489	38.895257	2015-03-03	15:34:10
5.73E+17	2587789764	#Nursing #Job alert: RN / Registered Nurse / Travel RN job | Supple	-77.052129	38.904237	2015-03-03	15:34:15
5.73E+17	450113186	Cannot stand it when people in college brag about their grades #not	-76.996555	38.9341	2015-03-03	15:34:20
5.73E+17	59785902	_ @qweenpush: http://t.co/VHUcoitZiK_ me	-77.020233	38.924031	2015-03-03	15:34:23

Figure 11. Sample Tweets from Washington DC

All 13 .CSV files included more than 400,000 rows of data, and thus, it was necessary to select only those Tweets related to "biking." Therefore, all data were filtered by the following key words: bike; bicycling/cycling; biking; bicycle; cyclists/bicyclists; bike facilities; bike infrastructure; bikeability/bikeabilities. Ultimately, 366 data points were obtained. Further, I collected the same number of randomly selected data points (366) from the original data, except the 366 Tweets about biking selected previously. This helped compare people's attitudes about biking to that about other subjects.

The location of all 366 Bike-focus sample Tweets and 366 random sample Tweets was determined by longitude and latitude; Twitter has a setting that users can turn on or off to post the geolocations of their Tweets. Thus, I used ArcGIS to geolocate all Tweets (see Figure 12). The green dots shows the Bike-focus samples, and the red dots are random samples. From the figure 12, we cannot observe any strong patterns of distribution for both bike-focus samples and random samples, and these tweets

just posted everywhere in Washington DC. The Figure 13 and 14 shows the example of the Bike-focus tweets and random sample tweets in excel file (detailed excel file in Appendix II). In Figure 13, we can see people talked about "bike" in many ways, such as someone complained drivers, and someone expressed their love of biking.

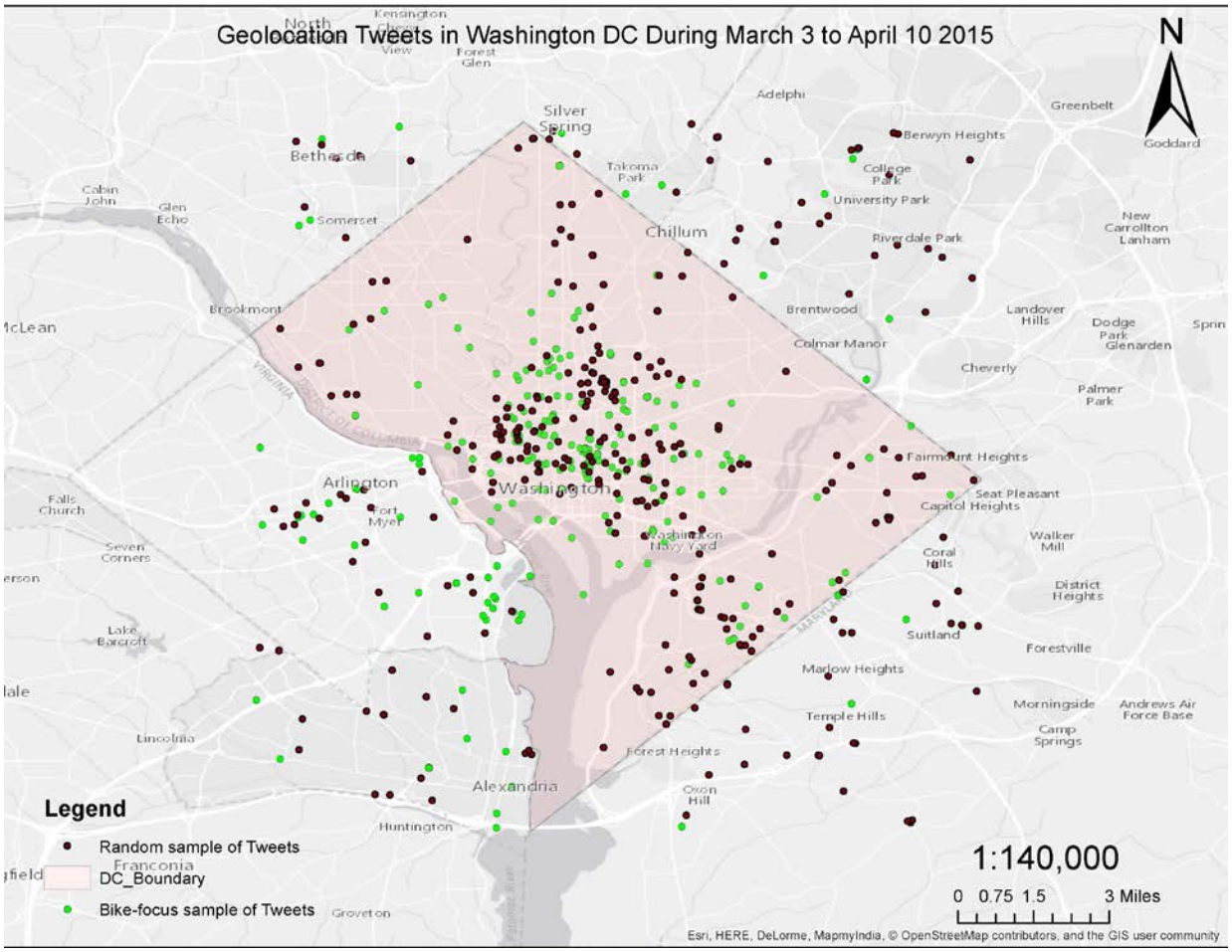


Figure 12. Geolocation of Tweets in Washington DC (Random sample and Bike-focus sample of Tweets)

5.72787E+17	299467435.00	Things I'm going to do in spring: read outside. Picnic. Ride my bike to school like it's the 90's all over again.	38.951828	-77.002712
5.73123E+17	237996608.00	Amazing any if us are alive 2day @oldpicsarchive: Einstein riding a bicycle down range from a nuclear bomb test. http://t.co/xLqc4x9PAj	38.897955	-77.010209
5.7287E+17	259340026.00	⧫@USBicycleRoutes: RT @acaroutes: Time to act! US Reps voting Amtrak bill. Tell ur rep to support roll-on 4 bikes http://t.co/cqVmusKr9E	38.916799	-77.005173
5.72899E+17	282196492.00	Moeen Khan talking about #RediscoveringPakistan-untold tale: Motorbike journey through Pakistan http://t.co/Tgyz3SOhJF	38.943397	-77.068232
5.72899E+17	282196492.00	Moeen Khan talking about #RediscoveringPakistan-untold tale.at#PakEmbassy.Motorbike journey through Pak http://t.co/MECRHOAKTC	38.943397	-77.068232
5.73107E+17	12609882.00	#bikedc has anyone been on mt vernon trail btwn alexandria and bridges lately? How are conditions?	38.818375	-77.057225
5.7319E+17	16987475.00	DDOTDC a reminder that the paint at 19th and M NW is usually ignored. Drivers make up their own rules in DC #bikedc http://t.co/IahO7fwoic	38.905925	-77.043672
5.73195E+17	498852873.00	Why is Arlington even considering cuts to walking/biking improvements? The story coming up at 4:30 on @wamu885news #bikeva	38.882074	-77.076369
5.73199E+17	384657755.00	Few things have made me as happy as riding my bike in Amsterdam did âŒ	38.951653	-76.972017
5.73203E+17	556246838.00	Bike is being transported to dc.. #nicee	38.908302	-76.997939
5.73232E+17	498852873.00	Tune to @wamu885news at 4:30 for my story on Arlington County considering cuts to bike/walk improvements. #bikedc #bikeva	38.928067	-77.034041
5.73233E+17	81913437.00	Gear Prudence: Why Donâ€™t Cyclists Use Available Bike Lanes?: Gear Prudence: Occasionally when Iâ€™m driving alongâ€¦ http://t.co/hULbgYSW0p	38.901815	-77.037336
5.73283E+17	58186248.00	#Pakistani biker & director #MoinKhan introducing his doc Rediscovering Pakistan @DifferentAgenda @GirlRisingPak http://t.co/AZHbgfHrY7	38.898846	-77.047954
5.73291E+17	215452671.00	Shattered. #BikeDC #AnacoastiaRiver @ Frederick Douglass National Historic Site https://t.co/YVgnxihpjp	38.863704	-76.984425
5.73312E+17	21544197.00	Best bike for a winter unsanctioned underground parking garage criterium?@Van_Dessel #Aloominator of course.	38.864729	-77.051082
5.73347E+17	308802453.00	Only thing im missin is a car. I refuse ta ride up ona bike. Lmtao.	38.852656	-76.930918
5.73375E+17	133487008.00	MJHershey09 in response to that favorite I did NOT fall off the bike the boys just made that up cuz they're mean ðŸ™ ...ðŸ™ ...ðŸ™ ...	38.89956	-77.04869

Figure 13. Example of bike-focus sample Tweets from Washington DC

5.73E+17	2802200413	@heartoutlander @beulahcrusoe @stenbergmika @Heughliots @heughanizers @FansOSamHeughan thank u!	38.889995	-77.086826
5.73E+17	1606990741	Deberian exportar Paso de los Toros. Estoy necesitada.	38.986135	-77.088226
5.73E+17	185434420	I like doing what we do when nobody around _"$	38.923723	-77.021206
5.73E+17	49530624	@TalkerNewYorker amazing. Same w/ Ted. Those who fought the nazis and saved others displayed an incredible level of bravery and courage.	38.888833	-77.030566
5.73E+17	152819240	When bitches make mistake do yall feel bad about it	38.860555	-76.949044
5.73E+17	47081057	@shawnblanc oh yea! I_"'ll start reading it__omorrow I think.	38.90382	-77.030916
5.73E+17	1890536647	Just woke up	38.925295	-77.004527
5.73E+17	427630477	Thanks for everything @CutonDime25.	38.900051	-77.048335
5.73E+17	66604591	@Chantellesay guilty_'"	38.936029	-77.024647
5.73E+17	17931851	Big sappy pinot fruit #delectableapp @ Rasika West End https://t.co/9b44NkC0u5	38.905468	-77.047572
5.73E+17	2367317738	B5 Ref's!	38.884446	-77.112641
5.73E+17	19913575	Nini Krever and me at #AIPAC. We met in early1960s at Bay Beach in Ontario Canada where our__https://t.co/IUqwIn3JIU	38.814138	-77.040446
5.73E+17	532286836	@jonkarl @jasoninthehouse You are a political hack. Surprised ABC hasn't promoted you after this hit piece.	38.831993	-77.007542
5.73E+17	419810713	lmao luv life	38.995274	-76.992621
5.73E+17	220508211	@imfreddiemac already	38.802371	-77.08365
5.73E+17	232673125	I stayed with the latest BabyPhat on my back	38.922069	-77.018206
5.73E+17	279272025	911 I've heard the word millennials three times before 9 am.	38.939251	-77.084953

Figure 14. Example of random sample Tweets from Washington DC

Sentiment Analysis

Once I collected all of the "biking" Tweets, I conducted a sentiment analysis using SentiStrength, which uses a set of Tweets and processes the dataset line by line to match words in a sentiment dictionary, after which it assigns either a positive or negative score to each Tweet.

SentiStrengh is available in ten languages, among them English, Arabic, French, Greek, Italian, Persian, Polish, Portuguese, and Swedish, and it is possible to apply Tweets in each language to the same scale. This software also can apply certain emoticons, such as ":(", ":)", "^_^" and "<3." This lexicon has been used in a number of peer-reviewed articles and multiple studies and projects, and thus is

respected academically (Thelwall, Buckley, & Paltoglou, 2011; Pfitzner, Garas, & Schweitzer, 2012; Garas, Garcia, Skowron, & Schweitzer, 2012).

For each Tweet, SentiStrength (2016) reports negative emotion scores from -1 (not negative) to -5 (extremely negative), and positive emotion scores from 1 (not positive) to 5 (extremely positive). For the purposes of this study, I used positive, negative, and overall emotion scores, and analyzed them separately; the overall score was equal to the sum of the positive and negative scores. Figure 15 shows an example of the sentiment score for a single Tweet; the overall score for this sample would be 1, because the positive emotion score was 2, and the negative emotion score was -1. When a large number of data are processed, the software creates a .txt file with the same concept as the example. To begin the sentiment analysis, I used SentiStrength to process the data needed, and exported them to a .txt file. Then, I modified it as an Excel file (see Figure 16) to prepare for the next statistical analyses.

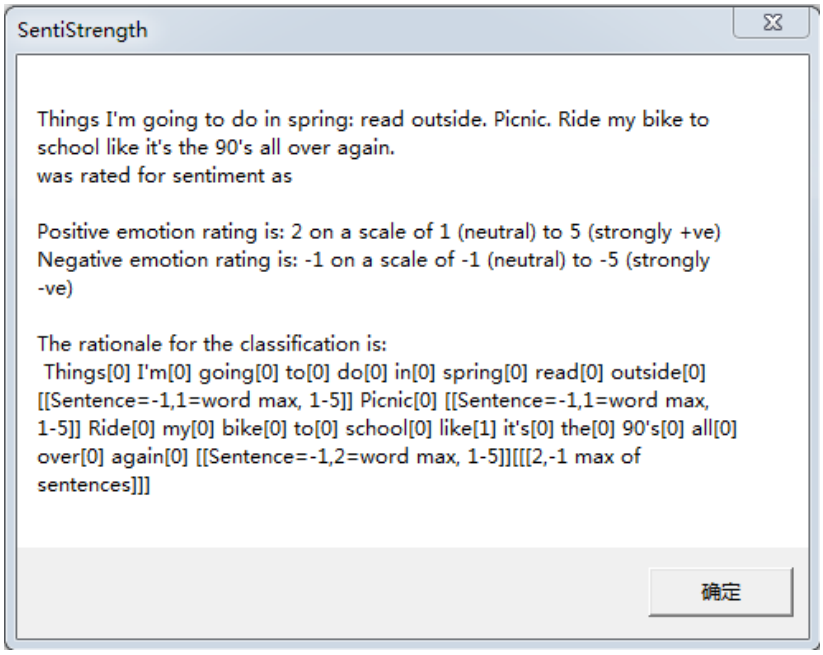


Figure 15. Example of the sentiment analysis for a single Tweet

A	B	C	D	E	F	G
Twitter	TwitterUserID	Tweets	latitute	longitude	positive_e	negative_e
5.73596E+17	275797956	Adult (barely) snow day #dcwx #running @ Rock Creek Park Bike Trail https://t.co/UUfi14mk	38.9235	-77.0487	2	-1
5.73611E+17	59793427	Trying to enjoy the winter weather. @ Rock Creek Park Bike Trail https://t.co/yoS71xLEkC	38.9235	-77.0487	3	-1
5.74193E+17	3014630120	The ole girl Is steady for spring. #bicycle #fitnessgirls #npcbikini #fitnessmotivation http://t.c	38.90372	-77.05855	1	-1
5.7495E+17	1055491120	Today's bike adventure. Somehow I cut my thumb. SE is not very bike friendly. Lol @ Frederick	38.86875	-77.00523	2	-2
5.7503E+17	10400902	Oh so good #BikeDC #Bliss @ Washington Monument National Monument https://t.co/psUDw	38.88988	-77.03458	2	-1
5.75033E+17	556246838	The bike scene out here is litt	38.90788	-77.00308	1	-1
5.75033E+17	10400902	It's melting... It's melting #BikeDC @ Potamic River https://t.co/aQbJw02LQ8	38.88091	-77.05033	1	-1
5.75048E+17	182447811	I love SE when that weather breaks ðŸ˜† 4 wheelers....bike.....ALL the weed men be out.....	38.83985	-76.99352	3	-2
5.75051E+17	296404744	I want an uber bike service where I hop on the back of some pegs	38.90254	-77.06257	1	-1
5.75799E+17	279211139	Sunset in DC behind Kennedy Center #BikeDC @ Watergate complex https://t.co/OZdm6DGXII	38.89876	-77.05555	1	-1
5.75815E+17	9314472	First late night bike trek of the season around the National Mall. So happy right now #bikeDC @	38.8893	-77.05012	2	-1
5.7583E+17	387881212	Lookin for A Dirtbike Shop or Website No Pit Bikes	38.8992	-76.94164	1	-1
5.75832E+17	387881212	â€œ@_Bigpoppingmils: @CHB_Hugo16 I'm pullin the 4wheels out this summer brah ðŸ"ðŸ"Œ	38.89919	-76.94151	1	-1
5.76109E+17	1042533690	Riding in circles around the Washington Monument with @bikeshare #bikeDC #biketravel #bi	38.88988	-77.03458	1	-1

Figure 16. Example of sentiment analysis for Tweets after modification

While this method is the best way to process large amounts of data, it does have several weaknesses. Firstly, although this software can be applied in ten languages, the number of words in each lexicon in the software differs. For example, there is a total of 1,964 words in the Portuguese lexicon, of which 1,627 words (83%) are negative (SentiStrength, 2016). By comparison, 2,476 words were found in the English lexicon, and 1, 585 (64%) of those were negative (SentiStrength,

2016). Although these biking data all used English, some of the random data selected used other languages. Further, emoji (see Figure 17) have become more and more popular in social media, but SentiStrengh does not yet have a lexicon of emoji. In addition, the software can perform a sentiment analysis on only 122 emoticons; therefore, it has limited ability to test the remainder of the emoticons used. Thus, these weaknesses might have influenced the outcome of the sentiment analysis.

Figure 17. Examples of Emoji

ArcMap

I used ArcMap to connect the sentiment scores and six physical environment factors: destination density; intersection density; hilliness; signed bike routes; Capital Bikeshare locations, and bike trails. The main purpose of using this method was to be able to input the geolocation of the Tweets into the maps, and to view the number of Tweets located in the areas identified; these results also were combined with the sentiment scores to prepare for the next part of the analysis. The table below presents a simple explanation:

Factors	Methods
Signed bike routes, Capital Bikeshare locations, & Bike trails	**1)** Imported geolocation Tweets into the ArcMap file **2)** Imported line/point shapefile about signed bike routes/ Capital Bikeshare location/bike trail from DCGIS Open Data **3)** Created four buffers and a line or point shapefile: 0.05 mile, 0.1 mile, 0.15 mile, and 0.2 mile **4)** Selected points located within the 0-0.05, 0.05-0.1 mile, 0.1-0.15 mile, and 0.15-0.2 mile buffers (see examples in Figures 18 & 19) within Washington DC, and 0.2 mile was the bikeable distance **5)** Exported results as .txt file **6)** Modified .txt file and saved as Excel file: **7)** Provided the distance score for all points: 1 for points located within 0-0.05 mile, 2 for points within 0.05-0.1 mile, 3 for those within 0.1-0.15 mile, and 4 for those within 0.15-0.2 mile.
Destination density, Intersection density, & Hilliness	**1)** Imported geolocation Tweets into the ArcMap file **2)** Imported shapefile of destination density score/intersection density score/hilliness score created from bikeability analysis (Chapter 3) **3)** Transferred raster to polygon **4)** Selected points located in score areas 1 to 5 individually within Washington Exported results as .txt file **5)** Modified .txt file and saved as Excel file: **6)** Provided the scores for all points: 1 for points located in area 1, 2 for points in area 2, 3 for points in area 3, and 4 for points in area 4.

Table 2. Methods of creating distance/value score variables

A distance/value score was calculated to create an independent variable for quantitative analysis.

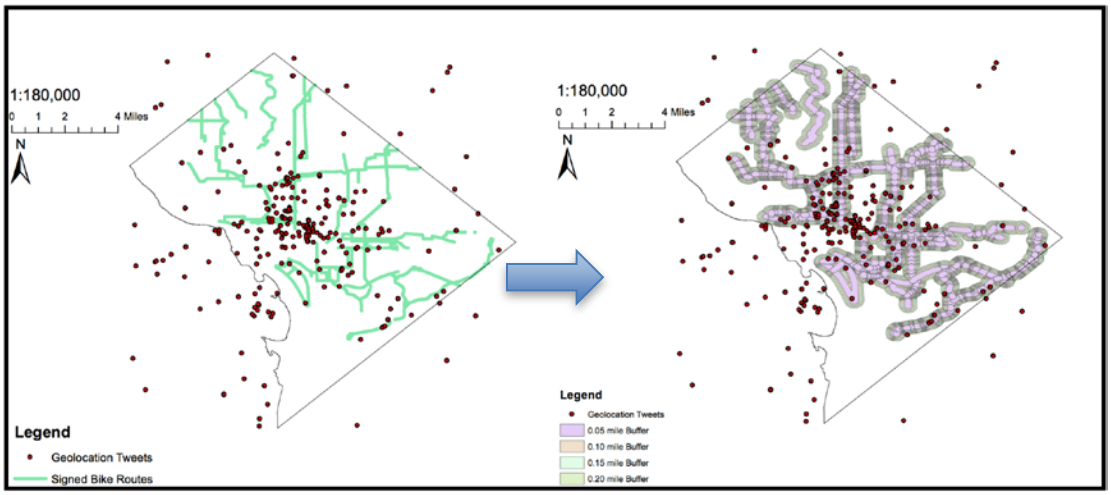


Figure 18. Example of creating buffers with line shapefile (signed bike routes)

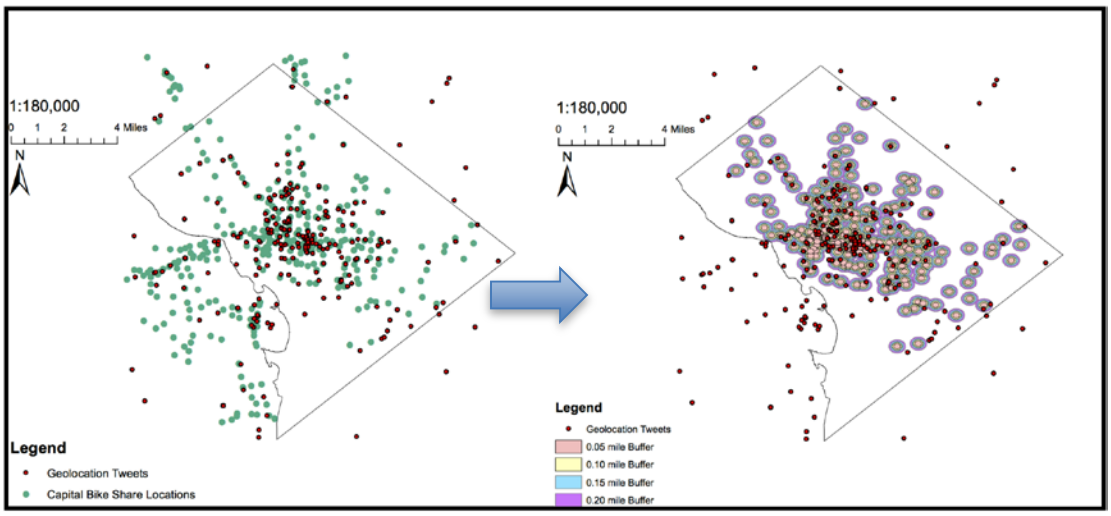


Figure 19. Example of creating buffers with points shapefile (Capital Bikeshare locations)

Statistical Analyses

Based on all data collected, I performed a sentiment analysis, and used

ArcMap to create the independent variable. Then, I began the analysis using the general-purpose statistical software, STATA.

Firstly, I used the summarizing tool to obtain detailed summary statistics and tables that were constructed to compare positive and negative sentiment scores across the various distances/values to determine whether there were noticeable differences in the scores across these categories. Moreover, I used the graphic tool to create histograms used to evaluate the sentiment scores visually for trends across the distance/value measures. Moreover, a series of Chi-squared and Kruskal Wallis tests was used to explore whether the differences were statistically significant. In addition, Spearman correlations were used to explore the statistical relationship between variables. Finally, a univariate linear regression model was performed to explore the linear relationship between the sentiment scores and the six physical environment variables.

Chapter 5: Results and Analyses

In this chapter, I first present the results of the comparison between all data collected related to biking and the data selected randomly from all original data. Then, I present the analysis of the sentiment scores for the six individual physical environment variables in several ways. Finally, I describe the results of a linear regression used to test the relationship between the sentiment score and those six variables.

Section 1: Biking data vs. Random data

The purpose of comparing bike-focus sample Tweets and random sample Tweets was to determine whether people's attitudes about biking were below or above a standard level. Thus, because the original database was large, I selected another 366 Tweets from over 450,000 Tweets. The results of the data selected randomly from the original database represented the sentiment level of all Tweets.

Table 3 shows the comparison between these two datasets. The mean score of the random sample overall was -0.44, and the mean of the biking sample was 0.26. Thus, people's attitudes about biking were positive and higher than the sentiment level of all Tweets.

	Random sample Tweets			Bike-focus sample Tweets		
	Positive emotional score	Negative emotional score	Overall score	Positive emotional score	Negative emotional score	Overall Score
Observation	366	366	366	366	366	366
Median	1	-1	0	1	-1	0
Mean	1.44	-1.49	-0.44	1.54	-1.28	0.26
Standard deviation	0.69	0.85	1.10	0.74	0.61	0.94

Table 3. Sentiment analysis results: Random sample Tweets vs. bike-focus sample Tweets

Section 2: Six factors analysis

- **Bike Trails**

Figure 20 shows that nearly half of the Tweets posted were within 0-0.05 mile of a bike trail, while only 8 Tweets were located between 0.1-0.15 mile from a bike trail. The figure shows no clear trend in the relationship between the number of Tweets posted and the distance to a bike trail. Further, because the total data sample is 366, and we can calculate that only 67 of the Tweets were posted within the distance identified, 299 Tweets were posted more than 0.2 miles from a bike trail.

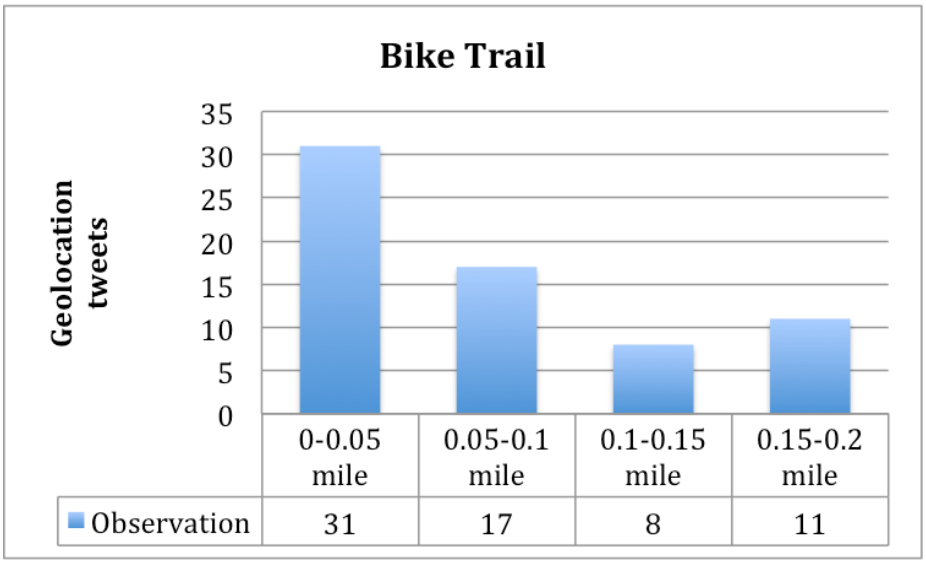


Figure 20. Distribution of geolocated Tweets by bike trails

Table 4 shows the detailed statistical summary of sentiment scores based on the distance to a bike trail. The mean of the sentiment scores overall for all four distance ranges was greater than 0, which indicates that people's attitudes about biking on bike trails in Washington are positive. However, there was no specific pattern in those numbers.

Distance	Mean			Standard deviation		
	Positive score	Negative score	Overall Score	Positive score	Negative score	Overall score
0-0.05 mile	**1.58**	**-1.16**	**0.42**	**0.84**	**0.37**	**0.89**
0.05-0.1 mile	**1.47**	**-1.41**	**0.06**	**0.62**	**0.71**	**1.00**
0.1-0.15 mile	**1.62**	**-1.25**	**0.38**	**0.92**	**0.46**	**0.92**
0.15-0.2 mile	**1.36**	**-1.36**	**0**	**0.67**	**0.50**	**1.00**

Table 4. Sentiment analysis results: Sentiment scores and distance from bike trails

In order to understand the extent of the association between the independent and dependent variables, we must look at the correlations in Table 5. The hypotheses were that there is no association between the dependent and independent variables, respectively, and the null hypothesis was rejected at $p<0.05$.

The p-values between the following variables were all greater than 0.05: "distance" and "positive score," "distance" and "negative score," "distance" and "overall score," and "negative score" and "positive score," which indicates that they were not statistically significant associated with each other. In addition, the p-value was 0.17 between the "negative score" and "distance," and although it was greater than 0.05, it can be considered only marginally significant. Thus, this suggests that there was a very slight inverse relationship between "distance" and "negative score."

Several measures had a $p=0$: "overall score" and "positive score," and "overall

score" and "negative score;" further, their r-values all were greater than 0.5, indicating that there was a very high and positive relationship between "distance" and "positive score" and "negative score."

	1	2	3	4
1.distance	r=1.00			
2. positive score	r=-0.07 *p*=0.60	r=1.00		
3. negative score	r=-0.17 *p*=0.17	r=0.00 *p*=0.10	r=1.00	
4.overall score	r=-0.15 *p*=0.23	r=0.80 *p*=0.000	r=0.57 *p*=0.000	r=1.00

Table 5.Correlation between distance to bike trail and sentiment scores

- **Capital Bikeshare Locations**

Figure 21 shows that a total of 207 Tweets was posted within 0.1 mile of Capital Bikeshare locations, and 111 Tweets were within the range of 0.05 to 0.1 mile. Only 40 Tweets were within 0.1 to 0.15 miles, and 19 Tweets were within 0.15 to 0.2 mile. Moreover, 266 (73%) of the 366 Tweet samples were located within 0.2 mile of a Capital Bikeshare location. Thus, over 70% of Tweets were posted within the range identified, and 111 (30%) were located in the 0.05 to 0.1 mile range. Figure 16 does not show any trend in the distribution of Tweets, and we can say only that over 50% of Tweets (207) were posted within 0.1 mile of a Capital Bikeshare

location.

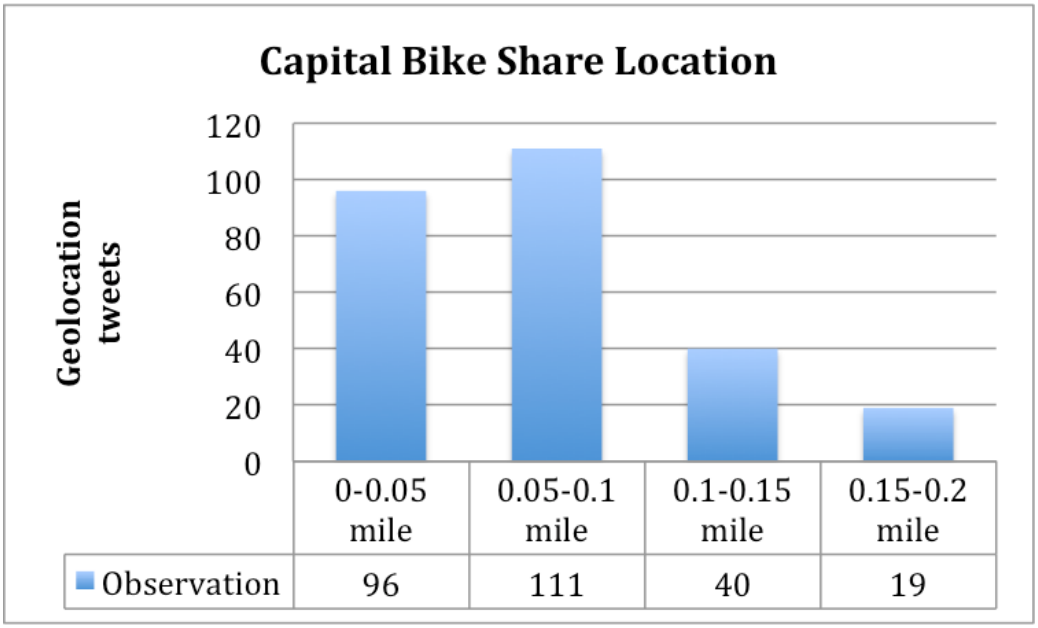


Figure 21. Distribution of geolocated Tweets by Capital Bikeshare locations

Table 6 indicates that the means of the overall scores were positive in the following distance ranges: 0-0.05 mile, 0.05-0.1 mile, and 0.15-0.2 mile, while the mean of the overall score was negative between 0.15 mile and 0.2 mile from a Capital Bikeshare location. This suggests that people's attitudes were positive in posts within 0.15 mile of these locations; however, beyond a distance of 0.15 mile, people's attitudes became negative. Because of the limitations of this study, we do not have any data for distances over 0.2 mile, and thus this result has possible to be inaccurate.

Distance	Mean			Standard deviation		
	Positive score	Negative score	Overall score	Positive score	Negative score	Overall score
0-0.05 mile	**1.69**	**-1.34**	**0.42**	**0.85**	**0.37**	**0.89**
0.05-0.1 mile	**1.50**	**-1.18**	**0.32**	**0.75**	**0.49**	**0.82**
0.1-0.15 mile	**1.55**	**-1.20**	**0.35**	**0.64**	**0.52**	**0.89**
0.15-0.2 mile	**1.11**	**-1.32**	**-0.21**	**0.32**	**0.58**	**0.54**

Table 6. Sentiment analysis: Sentiment scores and distance from Capital Bikeshare locations

Table 7 indicates that the *p*-value exceeded 0.05 for the following: "negative score" and "distance," "overall score" and "distance," and "positive score" and "negative score," indicating that there was statistically insignificant association between them.

However, the *p*-value between "positive score" and "distance" was less than 0.05 (p=0.03), and they had a low association (r=0.14). Further, there was a significant inverse association between the positive sentiment score and distance to a Capital Bikeshare location. Thus, an increase in the distance to a Capital Bikeshare location decreased the positive sentiment score. In addition, there was a strong, positive association between "overall score" and "positive score," and between "overall score" and "negative score."

	1	2	3	4
1. Distance	r=1.00			
2. Positive score	r=-0.14 *p*=0.03	r=1.00		
3. Negative score	r=0.08 *p*=0.21	r=0.03 *p*=0.65	r=1.00	
4. Overall score	r=-0.08 *p*=0.20	r=0.81 *p*=0.000	r=0.57 *p*=0.000	r=1.00

Table 7. Correlation between distance to Capital Bikeshare locations and sentiment scores

- **Signed Bike Routes**

Figure 22 indicates that 72 Tweets were located in the 0 to 0.05 mile distance range, 32 were located between 0.05 to 0.1 mile, 16 were located between 0.1 to 0.15 mile, and 65 were located between 0.15 to 0.2 mile from a signed bike route. There was no significant or clear pattern in the relationship between distance and the number of Tweets. Further, 185 (51 %) of all Tweets were located within 0.2 mile of signed bike routes.

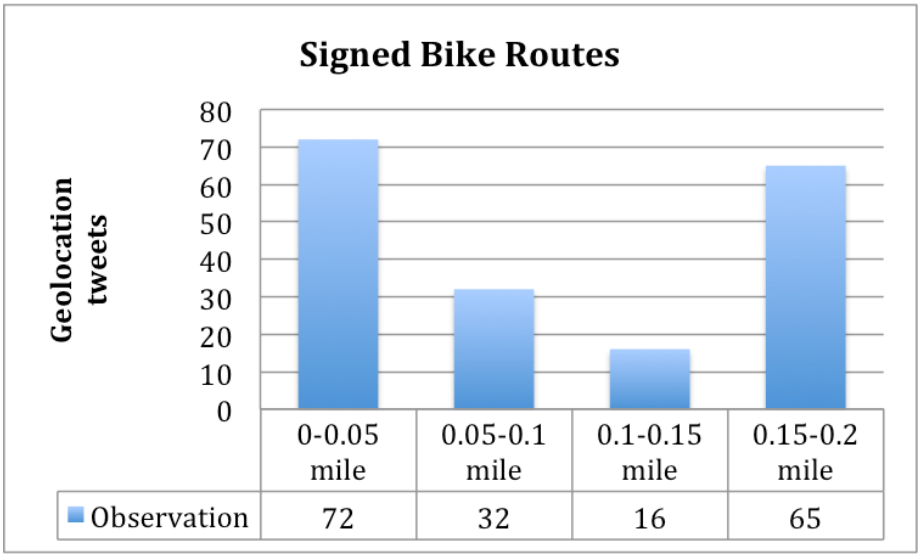


Figure 22. Distribution of geolocated Tweets by signed bike routes

Table 8 shows that the means of the overall scores in all four distance ranges did not follow any specific pattern. Within the distance range of 0 to 0.05 mile and 0.15 to 0.2 mile, the means of the sentiment score overall were positive (0.42 and 0.35). Between 0.05 mile to 0.1 mile, the mean of the score overall was 0, indicating that people had neutral attitudes and no preference in biking when only the factor of signed bike routes was considered. However, for the distance range of 0.1 to 0.15 mile, the mean of the overall sentiment became negative (-0.125), which suggests that people's attitudes were negative overall with respect to biking in this distance range.

Distance	Mean			Standard deviation		
	Positive score	Negative score	Overall score	Positive score	Negative score	Overall score
0-0.05 mile	**1.61**	**-1.19**	**0.42**	**0.85**	**0.49**	**0.98**
0.05-0.1 mile	**1.41**	**-1.41**	**0**	**0.61**	**0.84**	**0.98**
0.1-0.15 mile	**1.13**	**-1.25**	**-0.125**	**0.50**	**0.45**	**0.72**
0.15-0.2 mile	**1.58**	**-1.23**	**0.35**	**0.70**	**0.49**	**0.92**

Table 8. Sentiment analysis: Sentiment score and distance to signed bike routes

Table 9 shows the results of the correlations between distance to signed bike routes and the three dependent variables. From the table, we can see that the *p*-value was clearly insignificant between the following variables: "distance" and "positive score," "distance" and "negative score," "distance" and "overall score," and "positive score" and "negative score." Thus, there was no statistically significant association between the variables listed above. Two sets of data in the table had *p*-values less than 0.05: "positive score" and "overall score," and "negative score" and "overall score." These had a strong positive association.

	1	2	3	4
1. Distance	r=1.00			
2. Positive score	r=-0.00 *p*=0.98	r=1.00		
3. Negative score	r=-0.04 *p*=0.60	r= 0.05 *p*=0.52	r=1.00	
4. Overall score	r=-0.03 *p*=0.71	r=0.83 *p*=0.000	r=0.56 *p*=0.000	r=1.00

Table 9. Correlation between distances to signed bike routes and sentiment score

In comparing the three variables above, we can see that 67 of the Tweets were posted within 0.2 mile of bike trails, 111 Tweets were within 0.2 mile of Capital Bikeshare locations, and 185 Tweets were located within 0.2 mile of signed bike routes. Thus, more people Tweeted close to signed bike routes, and fewer people Tweeted close to bike trails.

- **Intersection Density**

Figure 23 indicates that 184 (52%) of the total Tweets posted were located in an area where the intersection density score was equal to 3. The second highest number of Tweets (67) was distributed in areas with a score of 2. There were 56 Tweets in score 1 areas, 33 Tweets in score 4 areas, and 13 Tweets in score 5 areas. In addition, 353 Tweets were posted in score areas 1 to 5, and only 13 Tweets were posted outside those signed areas. Thus, almost all Tweets were located in signed score areas 1 to 5. Moreover, there was no clear trend in the distribution of these

Tweets and intersection density scores.

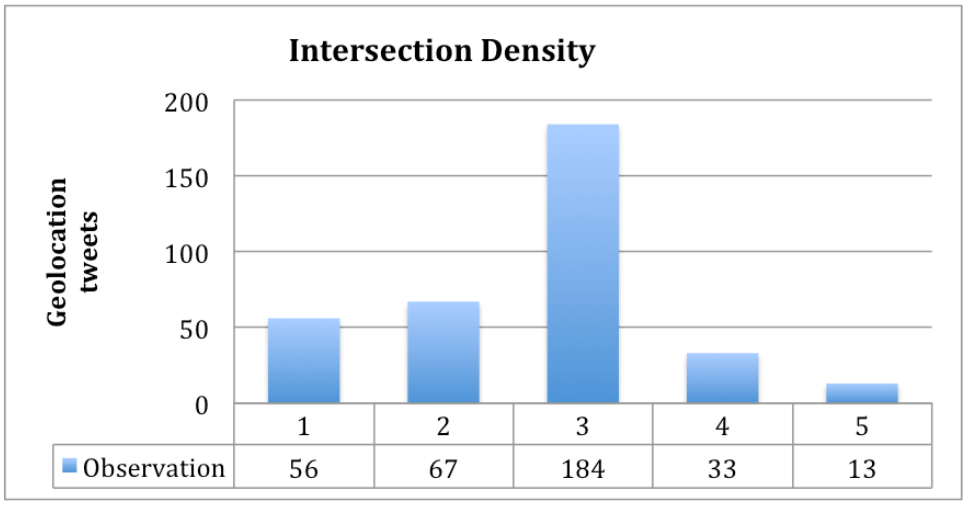


Figure 23. Distribution of geolocated Tweets by intersection density

Table 10 shows that the means of the overall scores in all five identified areas were positive. Thus, considering intersection density alone, people's attitudes about biking were positive. However, although the mean of the overall score for area 5 was positive, it was significantly lower than the others (mean= 0.08), suggesting that people's attitudes in this area were close to neutral. Moreover, there was no clear pattern among those numbers in the five areas.

Intersection Score	Mean			Standard deviation		
	Positive score	Negative score	Overall score	Positive score	Negative score	Overall score
1	**1.57**	**-1.23**	**0.34**	**0.63**	**0.50**	**0.67**
2	**1.39**	**-1.24**	**0.15**	**0.67**	**0.55**	**0.89**
3	**1.63**	**-1.26**	**0.37**	**0.81**	**0.61**	**1.00**
4	**1.45**	**-1.27**	**0.18**	**0.67**	**0.57**	**0.85**
5	**1.31**	**-1.23**	**0.077**	**0.63**	**0.44**	**0.76**

Table 10. Sentiment analysis results: Sentiment and intersection density scores

Table 11 shows the correlations between the intersection density scores and the three independent variables: positive score, negative score, and overall score. The *p*-value between the following variables far exceeded 0.05: "intersection density score" and "positive score," "intersection density score" and "negative score," "intersection density score" and "overall score," and "positive score" and "negative score." Thus, these variables were not statistically significant associated.

However, two sets of data in the table had *p*-values less than 0.05: "positive score" and "overall score," and "negative score" and "overall score." Therefore, they were associated strongly and positively.

	1	2	3	4
1. Intersction density score	r=1.00			
2. Positive score	r=-0.06 *p*=0.92	r=1.00		
3. Negative score	r=-0.01 *p*=0.82	r= -0.03 *p*=0.59	r=1.00	
4. Overall score	r=-0.01 *p*=0.85	r=0.81 *p*=0.000	r=0.53 *p*=0.000	r=1.00

Table 11. Correlation between Intersection density scores and sentiment scores

- **Hilliness**

Figure 24 illustrates that 363 (99%) Tweets were posted in all five signed areas. Thus, only 3 Tweets were posted outside these areas. 143 Tweets were posted in score 1 areas, and 178 Tweets in score 2 areas; therefore, nearly 90% (321) of Tweets were posted in these two areas. It is worth mentioning here that only 8 and 6 Tweets, respectively, were posted in score areas 4 and 5; this might affect the sentiment analysis in the next part because of the small sample size.

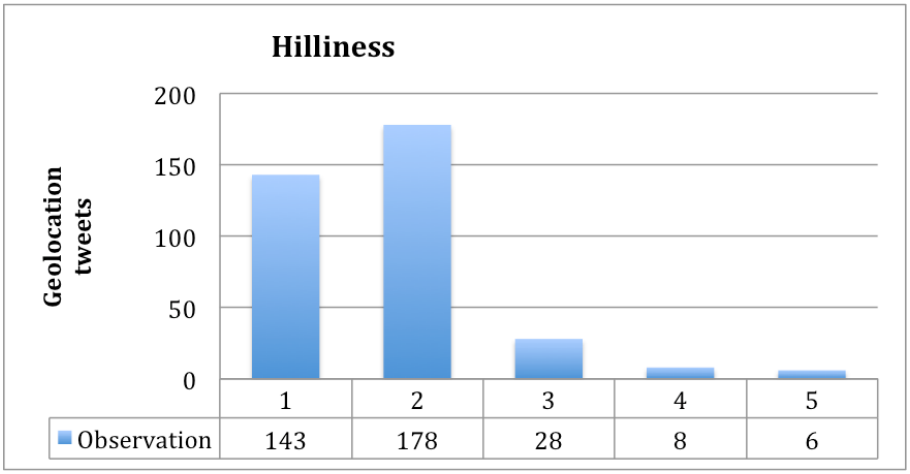


Figure 24. Distribution of geolocated Tweets by hilliness

Table 12 presents a detailed summary of the sentiment and hilliness scores. There was no significant clear trend, although the means of the overall scores were all equal to or greater than 0. The highest mean score overall, 1, occurred in score 5 areas. The means of the overall scores in areas 1, 2, and 3 were positive, indicating that people's attitudes about biking with respect to hilliness were positive in those areas. In score 4 areas, the means of the overall score were 0, indicating that people's attitudes were neutral. As mentioned before, the samples for score 4 and 5 areas were very small; thus, the results might be erroneous.

Hilliness Score	Mean			Standard deviation		
	Positive score	Negative score	Overall score	Positive score	Negative score	Overall score
1	**1.52**	**-1.37**	**0.15**	**0.73**	**0.73**	**1.03**
2	**1.55**	**-1.21**	**0.34**	**0.75**	**0.52**	**0.88**
3	**1.5**	**-1.25**	**0.25**	**0.69**	**0.58**	**0.93**
4	**1.25**	**-1.25**	**0**	**0.71**	**0.46**	**0.53**
5	**2**	**-1**	**1**	**0.89**	**0**	**0.89**

Table 12. Sentiment analysis: Sentiment and hilliness scores

Table 13 shows the results of the correlations between hilliness score and the three independent variables. There was statistically insignificant association between "positive score" and "hilliness score," and "negative score" and "positive score," because their *p*-values were 0.87 and 0.76, respectively.

Because the *p*-value for the hilliness and negative sentiment scores was 0.06, it was marginally significant. However, their association was significant, as the r value was 0.10. Further, the *p*-value between the "overall score" and "hilliness score" was 0.20, which was marginally significant, indicating a weak relationship between the two. The *p*-value was 0 between the "overall score" and "positive score," and "overall score" and "negative score," indicating a strong, positive association between the two.

	1	2	3	4
1. Hilliness score	r=1.00			
2. Positive score	r=0.01 *p*=0.87	r=1.00		
3. Negative score	r=0.10 *p*=0.06	r=-0.02 *p*=0.76	r=1.00	
4. Overall score	r=0.07 *p*=0.20	r=0.80 *p*=0.000	r=0.56 *p*=0.000	r=1.00

Table 13. Correlation between hilliness scores and sentiment scores

- **Destination density**

Figure 25 shows no straightforward pattern in the results, as the Tweets were posted randomly in the five categories. A total of 175 Tweets was posted in score 1 destination density areas, and 113 Tweets were posted in score 3 areas. Only a few Tweets were located in score 2, 4, and 5 areas compared to the other two areas (34, 14, and 16). Thus, nearly all of the Tweets (352) were posted in the areas identified.

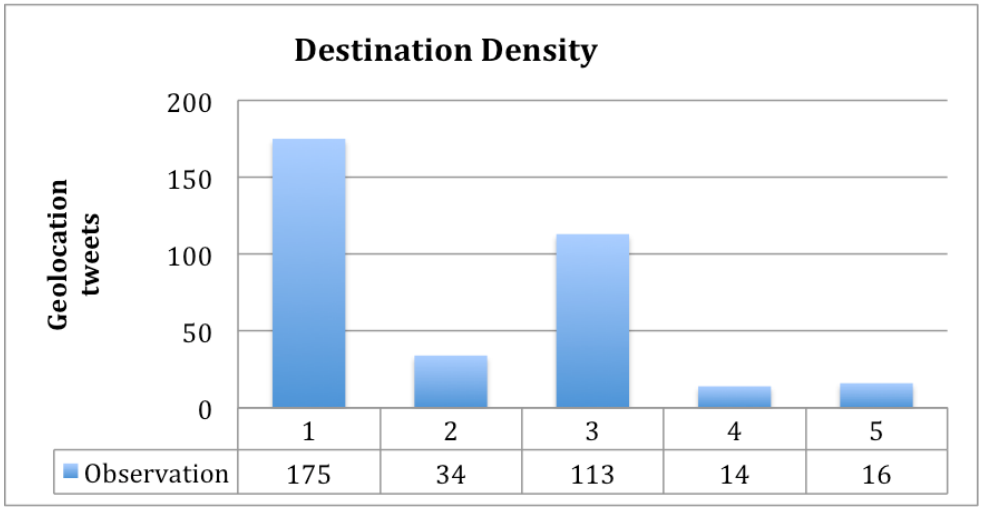


Figure 25. Distribution of geolocated Tweets by destination density

Table 14 shows that the means of the overall sentiment scores were positive in score areas 1, 2, 3, and 4, and all four were similar. Thus, we can conclude that, with respect to destination density, people's attitudes about biking were similarly positive in those score areas. The mean of the overall sentiment score was negative in score area 5, indicating that people's attitudes about biking became negative at that destination density.

Destination density Score	Mean			Standard deviation		
	Positive score	Negative score	Overall score	Positive score	Negative score	Overall score
1	1.54	-1.26	0.28	0.73	0.55	0.88
2	1.5	-1.18	0.32	0.82	0.45	0.88
3	1.6	-1.26	0.34	0.75	0.65	0.96
4	1.57	-1.14	0.43	0.85	0.36	1.02
5	1.25	-1.375	-0.125	0.44	0.62	0.89

Table 14. Sentiment analysis: Sentiment and destination density scores

Table 15 presents the correlations between the destination density scores and the three categories of sentiment scores. The *p*-value was extremely high between the following variables: "destination density score" and "positive score," "destination density score" and "negative score," "destination density score" and "overall score," and "positive score" and "negative score," indicating that there were no significant associations among them statistically.

Similar to all of the variables above, a strong association existed between "overall score" and "positive score," and "overall score" and "negative score." The reason for this was that the overall score was calculated by adding the positive and negative scores, as mentioned in Chapter 4.

	1	2	3	4
1. Destination density score	r=1.00			
2. Positive score	r=-0.01 *p*=0.88	r=1.00		
3. Negative score	r=0.03 *p*=0.60	r=-0.03 *p*=0.57	r=1.00	
4. Overall score	r=0.00 *p*=0.99	r=0.81 *p*=0.000	r=0.53 *p*=0.000	r=1.00

Table 15. Correlation between destination density scores and sentiment scores

Section 3: Linear Regression

Table 16 shows the results of the regression between the sentiment scores and the six individual independent variables. The hypothesis was that there is no significant relationship between the dependent and independent variables. As the table shows, most *p*-values were higher than 0.05, and thus, the null hypothesis was accepted.

However, two *p*-values less than 0.05 are highlighted in the table. The *p*-value between the hilliness and negative sentiment scores was 0.04, and thus, the null hypothesis was rejected in that case. When the hilliness score increased by 1, the negative sentiment score increased by 0.08, indicating that a higher hilliness score reduced people's negative attitudes about biking (detailed tables in Appendix IV). The r-squared were very low in this case, and they were around 0.01 and 0.03

shown in the table 16. It means the model explains only 1% and 3% of the response data around their means.

There was another significant relationship between the distance to Capital Bikeshare locations and the positive sentiment score. The *p*-value between them was 0.01, and thus, the null hypothesis was rejected. When the distance to a Capital Bikeshare location increased by 1 unit, the positive sentiment score fell by 0.14. Thus, the greater the distance to a Capital Bikeshare location, the more negative people's attitudes about biking (detailed tables in Appendix IV).

Six independent variables	***p*-value**		
	Positive score	Negative score	Overall score
Intersection density score	0.92	0.76	0.78
Destination density score	0.69	0.91	0.69
Hilliness score	0.68	0.04 coeff.=0.82 R-squared=0.0119	0.10
Distance to signed bike routes	0.72	0.87	0.71
Distance to Capital Bikeshare locations	0.01 coeff. =-0.14 R-squared=0.0280	0.31	0.12
Distance to bike trail	0.53	0.26	0.25

Table 16. Results of linear regression between independent and dependent variables

Chapter 6: Conclusions, Limitations, and Recommendations for Future Research

In this concluding section, I will discuss the results of the research in light of the research questions. I will also discuss the limitations of this study, and will make recommendations for future relevant studies.

Conclusions

The first research question asked, "How is bicycling ability presented in Washington DC?" To address the question, I used six indices to calculate bicycling scores in Washington: intersection and destination density, hilliness, bike trails, signed bike routes, and Capital Bikeshare locations. I was unable to provide specific scores for the whole city, but by using these six individual factors and processing ArcMap, I found that the best biking areas were adjacent, and were located primarily in the central areas of the city.

The second research question was, "What are people's attitudes (positive or negative) about bicycling in Washington?" and the answer overall was "positive." As Chapter 5 mentioned, by comparing the biking data to random data, the sentiment scores for biking data were positive and higher than were those for random data. Based on the results presented in Chapter 5, I concluded that people's attitudes towards biking in Washington are positive.

The last research question asked, "Is there a relationship between people's

attitudes, the bicycling index (cycling infrastructures, hilliness, desirable amenities, and road connectivity), and locations where people talk about bicycling?" Because the answer is complex, I will describe it specifically as follows, based on the six biking indices. Firstly, there was no clear pattern between people's attitudes and the distance to bike trails and signed bike routes. Further, the results showed no relationship between people's attitudes and different scores for intersection and destination densities.

However, the analyses did demonstrate some significant relationships. The linear regression showed relationships between the hilliness score and negative sentiment scores, and distance to Capital Bikeshare locations and positive sentiment scores. When the hilliness score increased by 1, the negative sentiment score increased by 0.08, indicating that a higher hilliness score reduced people's negative attitudes about biking. Another set of data were related to the distance to Capital Bikeshare locations and positive sentiment scores. When the distance to Capital Bikeshare location increased by 1 unit, positive sentiment scores fell by 0.14, suggesting that greater distances to Capital Bikeshare locations reduced positive attitudes.

Thus, the answers to the research questions were relatively conclusive. However, these results could be improved further by optimizing the whole process. I

discuss the limitations of this study in the next section.

Limitations

- *Data collection*

Some limitations in the process overall included the ways in which the data were collected, as well as the statistical analyses, either or both of which may have influenced the outcomes of the study.

The first limitation relates to data collection. Firstly, I collected Twitter data for only 5 weeks. Thus, the sample size was not sufficiently large to be representative. In addition, all of the data collected were from Twitter, and contained words and emoticons only. Therefore, some pictures, videos, and emoji were not considered and applied in the sentiment analysis. Further, within the small sample size (366), some samples came from one Twitter user. Thus, if a user was overrepresented, some elements of his/her personality may have biased the data. For example, if a user was a negative person, s/he might be likely to complain about everything, and thus, his/her Tweets might skew the results negatively, given that the sample size was small already. The Figure 26 is the example of selected Tweets from one users. I pick up user 46416755 as the example here. The user 46416755 posted 27 tweets during 5 weeks about biking, and the mean of positive score from these tweets is 1.52, and the mean of negative score from these tweets is -1.19.

Based on these evidences, the attitudes of user 46416755 is tend to positive, and have possible to influence the results.

TwitterID	TwitterUserID	Tweets	positive emotion rating	negative emotion rating
573195000000000000	498852873	Why is Arlington even considering cuts to walking/biking improvements? The story coming up at 4:30 on @wamu	2	-1
573232000000000000	498852873	Tune to @wamu885news at 4:30 for my story on Arlington County considering cuts to bike/walk improvements. #	2	-1
573472000000000000	498852873	Progressive Arlington may cut funding for bike/pedestrian programs: http://t.co/GLeFnUoNK4 @wamu885news #	1	-1
573909646999744000	498852873	.@WABADC says @DDOTDC not effectively implementing bike projects at a pace that meets demands of growing	1	-1
573910303253086000	498852873	.@WABADC's Greg Billing says DDOT can't get projects done. And now... they're attempting to lower expectations	1	-1
573911440500854000	498852873	@darsal @beyonddc I didn't realize there were bike lanes there.	1	-1
573916116839448000	498852873	Oversight hearing continues. Dormsjo yet to testify. Lots of testimony from bike advocates ANCs re: need for bett	2	-2
573916330719603000	498852873	@darsal @beyonddc The number of miles of protected bike lanes is rather small. Can't remember off top of my h	1	-1
573918034215235000	498852873	.@marycheh says we still don't have comprehensive bike lane network. Key word: network. Also mentioned lack	1	-2
576374174110862000	498852873	Look at all that traffic! #bikedc http://t.co/FRvg7kbvVW	1	-1
576374604572332000	498852873	Look who is riding a bike to work today. (Hint: @marycheh) http://t.co/RHwfoYteFJ	1	-1
576380878324161000	498852873	Is @DDOTDC moving fast enough to build a protected bike lane network? Tune in Monday to @wamu885news fo	1	-1
576410565482000000	498852873	@jeffreyanders19 @maustermuhle Protected bike lanes are the clincher for some riders who are iffy about doing	1	-1
574271447222321000	896556121	It's all good @ewilliams0305! Always great riding mighty #HillsOfAnacostia w/ you & @moeherbs! @BicycleS	3	-1
574286354374355000	896556121	Frederick Douglas Bridge a #bikedc @DDOTDC disaster! Today's @BicycleSPACE #HillsOfAnacostia ride w/ @ewilli	1	-2
574334957075700000	896556121	My @jamisbicycles I rode on the mighty #HillsOfAnacostia today! @BicycleSPACE @ewilliams0305 @moeherbs #b	1	-1
574364168654076000	896556121	It was all @jamisbicycles riding the mighty #HillsOfAnacostia today! @BicycleSPACE #JamisBikesDC #bikedc http://	1	-1
574615748624171000	896556121	On @BicycleSPACE #CityExplorers ride! @MOMsOrganicMrkt food stop! @CrMoBike @KuglerCycles @jrkinsella #	1	-1
576697318763814000	896556121	Rain or shine! Its no jive! I am riding the mighty #HillsOfAnacostia today! 8a @BicycleSPACE @moeherbs #bikedc	1	-1
576832105784717000	896556121	Stoked! to see @bikeshare carrying @jamisbicycles! Nice! #JamisBikesDC #bikedc http://t.co/36HxcMOnFM	2	-1
577238546362269000	896556121	Mighty @PhilKinDC showing off his old school racing strip sweats on @BicycleSPACE #CityExplorers ride today! #b	1	-1
585550708667211000	896556121	Walking enriches your life! Just found 1989 Lincoln Penney on the National Mall! @allwalksdc @BikeWalk #walkd	1	-1
585780020402114000	896556121	My @GiantBicycle riding across the giant Frederick Douglass Bridge! Wrong Mayor on sign! @DDOTDC @MayorB	1	-2
585952071901392000	896556121	Today @DCPoliceDept #bikedc patrol officer showed me proper way to carry my bike up the stairs in John Marsha	2	-1
586140799060024000	896556121	Wal-Mart on H St in #bikedc no customer parking for bike riders! No bike racks in parking garage! Thanks @Walm	2	-1
575352290124566000	46416755	This is a removable/lockable rear trunk! The design is sweet! #womenbike #NBS15 http://t.co/UWTwx3N8Lj	2	-1
575360082713571000	46416755	.@MCMHandles worked on advocacy in Boyle Heights- all the people selected for leading the project were from B	1	-1
575360373903126000	46416755	If you are asking community leaders to do outreach for your Transpo project make sure you fund them for their t	1	-1
575362938388619000	46416755	To reach the Boyle Heights community @MCMHandles went to local businesses- not come to me but go to them	1	-1
575367220257161000	46416755	Just had a presenter drop #KeepIt100 at the National Bike Summit. #nbs15 #womenbike	1	-2
575377683120422000	46416755	The entire room at #womenbike just chanted outdoor Afro #NBS15	1	-1
575378317701873000	46416755	@ambrown @qpdx definitely is- @peopleforbikes study says Women are more likely to bike for rec alone and rec	1	-1
575379289903750000	46416755	All of these discussions at #NBS15 confirm for me: bike fun is the future of coalition building for bike advocacy. #w	2	-1
575379663024881000	46416755	@BikePortland lots of people still don't think that's true! And sadly many of them are the people working on this	2	-2
575381164258561000	46416755	@GoddardTara I'm not quite sure what your question is but what I mean is our biggest potential for growth is cul	2	-1
575381854250884000	46416755	@ambrown I agree we need more family friendly bike fun- but I think the advantage of bike fun it is specifically tu	2	-1
575382085357019000	46416755	@gerikkransky @GoddardTara should've come to my talk on Bike Fun building advocates last year ;)	2	-1
575382334721014000	46416755	@GoddardTara I'm not saying replacing car trips- that's the. Broadening the bike community means focusing on b	1	-1
575383468672057000	46416755	@GoddardTara @gerikkransky If we focus on only commute trips we lose those that can't commute by bike beca	1	-2
575383797174140000	46416755	@GoddardTara @gerikkransky we find women are more likely to participate in activities/recreation in groups- he	2	-1
575384514085580000	46416755	@GoddardTara @gerikkransky Utility=Fun isn't what I was saying. Bike Fun- community based rides specially by&a	2	-1
575384948971953000	46416755	@gerikkransky @GoddardTara To build women&minority bike leaders we first need to get them on bikes. Bi	2	-1
575385921916264000	46416755	@GoddardTara @gerikkransky Andando en Bicicletas en Cully and We all Can Ride and Black Women Bike- great	3	-1
575386316646416000	46416755	@GoddardTara @gerikkransky The #womenbike keynote last year talked about how in the 1970s no women ran	1	-1
575386564215230000	46416755	@gerikkransky @GoddardTara I didn't say Bike Fun is the only key to getting people on bikes. But it absolutely car	2	-1
575386915089873000	46416755	@gerikkransky @GoddardTara It's much easier to invite someone to a neighborhood bike ride than to a city coun	1	-1
575386316646416000	46416755	@GoddardTara @gerikkransky The #womenbike keynote last year talked about how in the 1970s no women ran	1	-1
575386564215230000	46416755	@gerikkransky @GoddardTara I didn't say Bike Fun is the only key to getting people on bikes. But it absolutely car	2	-1
575386915089873000	46416755	@gerikkransky @GoddardTara It's much easier to invite someone to a neighborhood bike ride than to a city coun	1	-1
575387246112587000	46416755	@gerikkransky @GoddardTara really? How about ABC members who lead Day of the dead rides and also write gr	1	-3
575388389161049000	46416755	@gerikkransky @GoddardTara it's the first step - fee want to advocate for bikes until they start riding them.	1	-1
575402978133307000	46416755	@ladyfleur @cyclelicious here's the bike fun podcast! http://t.co/6AOss2R6MZ	2	-1

Figure 26. Example of Bike-focus sample Tweets from one user

Another limitation resulted from setting the distance variable. Further, when I created buffers on the bike trail map, Capital Bikeshare location map, and signed bike routes map, I created four buffers from 0 to 0.2 mile, and thus, only partial data were included in the statistical analyses. For example, four buffers were created for bike trails, and only 67 Tweets were posted within 0.2 mile, while 299 samples

(81%) were not controlled in this case. Consequently, these data collection and modification methods would have affected the accuracy of the results.

Moreover, as mentioned previously, only 67 Tweets were posted within 0.2 mile from bike trails, 111 Tweets were posted within 0.2 mile from a Capital Bikeshare location, and 185 Tweets were posted within 0.2 mile from signed bike routes. Therefore, different sample sizes were used in the sentiment analysis and statistical analyses, and the sample size was reduced further by filtering. These factors also may have biased the results.

When I made the bicycling score map in Chapter 3, I gave six physical environmental factors equal weights when calculating the score, which may have affected the map's accuracy.

Finally, I used longitude and latitude to geolocate Tweets, but the locations where the Tweets were posted are not necessarily the same as the locations to which the people were referring. For example, people may talk about a bike trail when they are at home. The user's location in this case would have been tracked as his/her home address rather than the location s/he discussed. Although I faced this limitation from the beginning, at present, there are no methods to address the problem.

- *Methodology*

Some other methods used in this thesis have limitations as well. First, for each set of data in the statistical analyses, there was only one independent and dependent variable each. Therefore, I considered only one factor when I conducted the statistical analyses, and fewer independent variables will create some biases in the results.

Further, the software I used to obtain the sentiment score has limitations. This software uses different scales for positive and negative words in different languages. Although my biking data included only Tweets in English, the random data included other languages. In addition, this software cannot be applied to mixed-language Tweets, both of which factors might be reflected in the results.

Future recommendations

Although the study had some limitations, some suggestions and recommendations can be offered. The first suggestion addresses future relevant studies. Based on the limitations described above, future studies may be able to overcome or minimize the limitations in this study. For example, adding more physical environmental factors would address some of the potential biases in the statistical analyses. The sample size also should be expanded considerably. Moreover, identifying more relationships or including more factors in the analysis would help cycling planners and policymakers make decisions in the development of

biking.

In Chapter 5, I indicated that the distance to Capital Bikeshare locations was related negatively to the positive sentiment score. Thus, it is clear that Capital Bikeshare locations are very important to bicyclists in Washington DC. Some urban areas have already implemented Capital Bikeshare location programs or similar programs, and increasing the number of such programs might be a good strategy to meet bicyclists' needs. In cities that do not yet have such a program, planners can begin to develop them as a good start in implementing effective bicycling plans.

Further, higher hilliness scores were found to have a statistically significant relationship with peoples' negative attitudes. While this analysis was limited and many variables were not included, there may be an important relationship between topography and bike user attitudes that deserves further exploration by local government planners. But more than anything, the findings presented here illustrate the remarkable power of social media data to shed light on urban policy issues and help shape the way that planning can happen.

References

American Association of State Highway and Transportation Officials. (1999). *Guide for the development of bicycle facilities.* Washington DC: American Association of State Highway and Transportation Officials.

Adam,F, Chris, B.&Annik, S. (2011). You are what your friends eat: systematic review of social network analyses of young people's eating behaviours and bodyweight. *BMJ Global Health*, 1-8.

Beirao, G. & Gavral, J. A. S. (2007). Understanding attitudes towards public transport and private cars: A qualitative study. *Transport Policy, 14*, 478-489.

Ben, A. (2011). The Rise of Urban Biking. The Nation Instigating progress Daily. Retrieved from http://www.thenation.com/article/rise-urban-biking/

Clifton, K. L. & Handy, S. L. (2001). *Qualitative methods in travel behavior research.* Paper presented at the International Conference on Transport Survey Quality and Innovation, Kruger National Park, South Africa.

Dill, J. & Carr, T. (2003). Bicycle commuting and facilities in major US cities: If you build them, commuters will use them. *Journal of the Transportation Research Board*, *1828*(1), 116-123.

Eivik, R. (2009). The non-linearity of risk and the promotion of environmentally sustainable transport. *Accid. Anal. Prev., 41*, 849-855.

Frank, L. D., Engelke, P. O., & Schmid, T. L. (2003). *Health and community design: The*

impact of the built environment on physical activity. Washington, DC: Island Press.

Furth, P. G. (2012). *City cycling: Chapter 6: Bicycling infrastructure for mass cycling: A transatlantic comparison.* Boston, MA: MIT Press. pp. 105-139.

Gotschi, T. (2011). Cost and benefits of bicycling investments in Portland, Oregon. *Journal of Physical Activity and Health*, *8*(1), 49-58.

Grabow, M. L. (2013). *Active transportation and health: Predictors from urban design and modeled commuting behavior.* ProQuest LLC. 1-140.

Garas, A., Garcia, D., Skowron, M., & Schweitzer, F. (2012). Emotional persistence in online chatting communities. *Scientific Report, 2*, article 402.

Handy, S. L. (1996). Urban form and pedestrian choices: A study of Austin neighborhood. *Transp. Res. Rec., 1552*, 135-144.

Handy, S. L. (2009). *Walking, bicycling, and health.* Healthy Equitable Transportation Policy. Oakland, CA: PolicyLink.

Handy, S. L., Xing, Y., & Buehler, T. J. (2010). Factors associated with bicycle ownership and use: A study of six small U.S. cities. *Transportation, 37*, 967-985.

Hollander, J., Graves, E., & Levanthal, T. (2014). Using big data to study urban sentiments: Twitter data vs. published meeting minutes. Tufts University.

Jacobsen, P. (2003). Safety in numbers: More walkers and bicyclists, safer walking and bicycling. *Inj. Prev., 9*, 205-209.

Killingsworth, R. E. (2003). Health promoting community design: A new paradigm to promote healthy and active communities*. Am. J. Health Promote., 17*, 169-170.

Krizek, K. J., Wl-Geneidy, A., & Thompson, K. (2007). A detailed analysis of how an urban trail system affects cyclist's travel*. Transportation*, *34*(5), 611-624.

Litman, T., Blair, R., Demopoulos, B., Eddy, N., Fritzel, A., Laidlaw, D.,…& Forster, K. (2015). *Pedestrian and bicycle planning: A guide to best practices.* Canada: Victoria Transport Policy Institute.

Molina, J. (2014). *The case for crowdsourcing in bicycle planning: An exploratory study.* ProQuest LLC. 2-135.

Murphy, N. B. & Knoblauch, R. (2004). *Hispanic pedestrian and bicycle safety.* Washington DC: The Federal Highway Administration (FHWA) and National Highway Transportation Safety Administration.

Meghan,W., Michael, B., Eleanor, M.B., & Kay, T. (2012). Mapping bikeability: A spatial tool to support sustainable travel*.* Environment and Planning B: *Planning and Design 2013*, *40*, 865-883.

National Household Travel Survey (NHTS). (2009). US Department of Transportation and Federal Highway Administration, 2001.

Patton, M. Q. (1990). *Qualitative evaluation and research methods.* Newbury Park, CA: Sage Publications.

Pfitzner, R., Garas, A., & Schweitzer, F. (2012). Emotional divergence influences information spreading in Twitter, ICWSM-12.

Robinson, D. (2005). *Safer in numbers in Australia: More walkers and bicyclists, safer walking and cycling. Health Promot. J. Austr., 16*, 47-51.

Schroeder, P. & Wilbur, M. (2013). *2012 National survey of bicyclist and pedestrian attitudes and behavior, Volume 1: Summary report*. Report No. DOT HS 811 841 A. Washington, DC: National Highway Traffic Safety Administration.

Susilo, Y. O., Williams, K., Morag, L., & Dair, C. (2012). The influence of individuals' environmental attitudes and urban design features on their travel patterns in sustainable neighborhoods in the UK. *Transportation Research Part D, 17*, 190-200.

Sallis, J.F., Owen, N. (2008). Ecological models of health behavior. *Health behavior and health education: theory, reseach, and practice,4,* 465-486.

Sentistrength. (2016). About Sentistrengh. Retrieved from http://sentistrength.wlv.ac.uk/#About

Thelwall, M., Buckley, K., & Paltohlou, G. (2011). Sentiment in Twitter events. *Journal of the American Society for Information Science and Technology, 62*(2), 406-

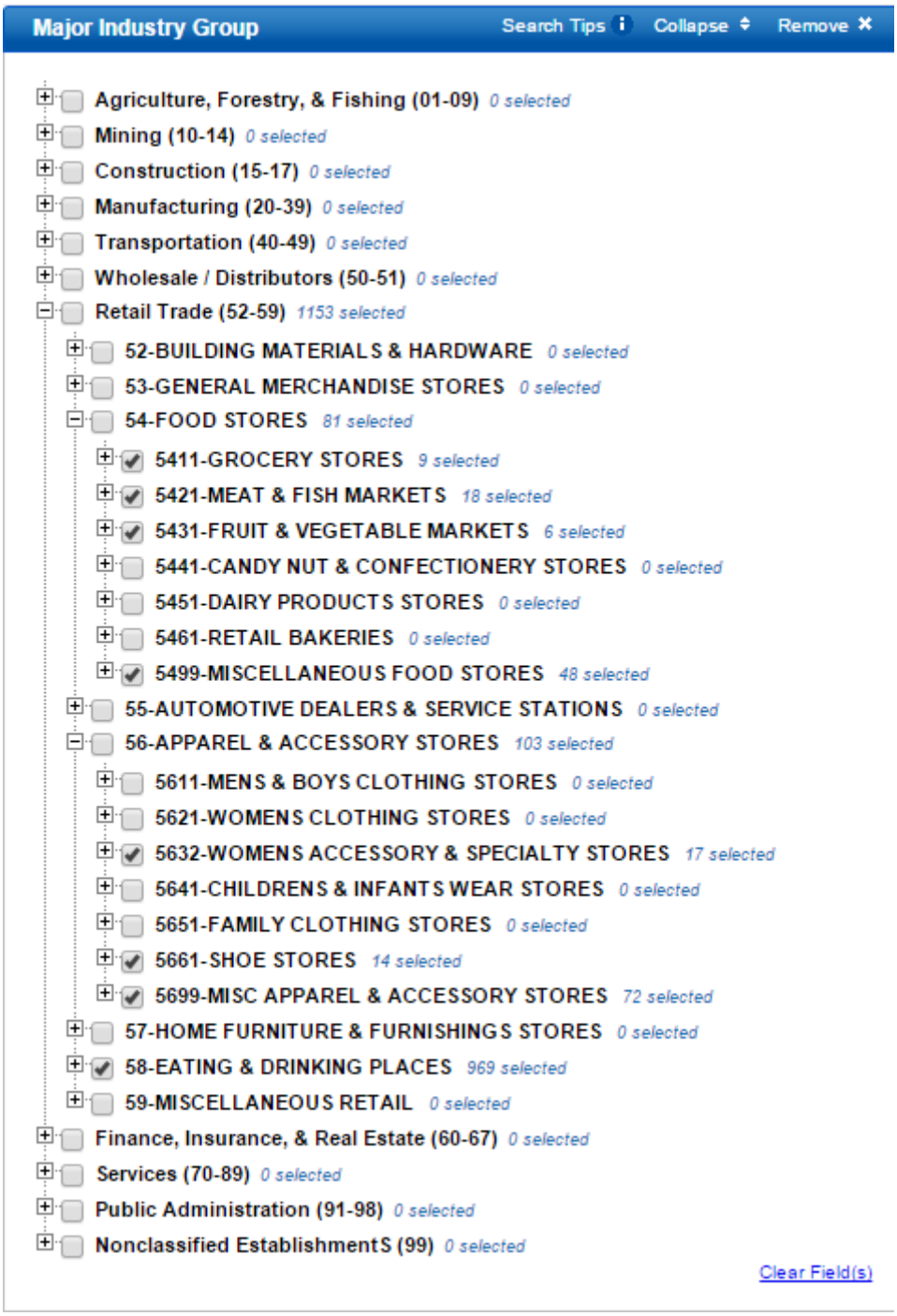
418.

Twitter.com. (2015).About Twitter. Retrieved fromhttps://about.twitter.com/company

United States Environmental Protection Agency. (2013). *Sources of Greenhouse Gas Emissions.* Washington DC: United States Environmental Protection Agency.

Appendices

Appendix I



Filter results in retail trade

- [ ] Services (70-89) *161 selected*
  - [ ] 70-HOTELS ROOMING HOUSES & CAMPS *0 selected*
  - [ ] 72-PERSONAL SERVICES *0 selected*
  - [ ] 73-BUSINESS SERVICES *0 selected*
  - [ ] 75-AUTO REPAIR SERVICES & PARKING *0 selected*
  - [ ] 76-MISCELLANEOUS REPAIR SERVICES *0 selected*
  - [ ] 78-MOTION PICTURES *0 selected*
  - [ ] 79-AMUSEMENT & RECREATION SERVICES *0 selected*
  - [ ] 80-HEALTH SERVICES *0 selected*
  - [ ] 81-LEGAL SERVICES *0 selected*
  - [ ] 82-EDUCATIONAL SERVICES *161 selected*
    - [ ] 8211-ELEMENTARY & SECONDARY SCHOOLS *0 selected*
    - [x] 8221-COLLEGES & UNIVERSITIES *12 selected*
    - [x] 8222-JUNIOR COLLEGES & TECHNICAL INSTITUTES *3 selected*
    - [x] 8231-LIBRARIES *14 selected*
    - [x] 8243-DATA PROCESSING SCHOOLS *3 selected*
    - [x] 8244-BUSINESS & SECRETARIAL SCHOOLS *8 selected*
    - [x] 8249-VOCATIONAL SCHOOLS NEC *31 selected*
    - [x] 8299-SCHOOLS & EDUCATIONAL SERVICES NEC *90 selected*
  - [ ] 83-SOCIAL SERVICES *0 selected*
  - [ ] 84-MUSEUMS ART GALLERIES & GARDENS *0 selected*
  - [ ] 86-MEMBERSHIP ORGANIZATIONS *0 selected*
    - [ ] 8611-BUSINESS ASSOCIATIONS *0 selected*
    - [ ] 8621-PROFESSIONAL MEMBERSHIP ORGANIZATIONS *0 selected*
    - [ ] 8631-LABOR UNIONS & SIMILAR ORGANIZATIONS *0 selected*
    - [ ] 8641-CIVIC SOCIAL & FRATERNAL ASSOCIATIONS *0 selected*
    - [ ] 8651-POLITICAL ORGANIZATIONS *0 selected*
    - [ ] 8661-RELIGIOUS ORGANIZATIONS *0 selected*
    - [ ] 8699-MEMBERSHIP ORGANIZATIONS NEC *0 selected*
  - [ ] 87-ENGINEERING & ACCOUNTING & MGMT SVCS *0 selected*
  - [ ] 89-MISCELLANEOUS SERVICES NEC *0 selected*
- [ ] Public Administration (91-98) *0 selected*
- [ ] Nonclassified Establishments (99) *0 selected*

Clear Field(s)

Filter results in services

Appendix II

Appendix II

TwitterID	TUserID	Twitter	latitude	longitude
3.72787E+17	29996733.0	Things I'm going to do in spring: read outside. Picnic. Ride my bike to school like it's the 90's all over again.	38.951828	-77.002712
3.73233E+17	2579696780	Amazing why it's rare after 2day @kitpisson Nice! Biketch riding a bicycle down range from a nuclear bomb test. http://t.co/ivLqvkeWAj	38.952955	-77.010266
3.72787E+17	23694026.0	◆m@USBicycleRoutesRT @bicycoutcome: Time to act! US Reps voting Aerotrak II. Tell ur rep to support roll-on 4 bikes http://t.co/oVnxu4r9E	38.959759	-77.005173
3.72869E+17	282169492.0	Moeen Khan talking about #RediscoveringPakistan untold tales. Motorbike journey through Pakistan http://t.co/FlqqI3ChiF	38.945357	-77.038232
3.72869E+17	282169492.0	Moeen Khan talking about #RediscoveringPakistan untold tales.#RedefiningMy Motorbike journey through Pak http://t.co/N5CIDKDAFC	38.945357	-77.038232
3.73167E+17	12900880.0	#bikeds has anyone been on mt vernon trail bitumi ewanda and bridges lately? How are conditions?	38.933375	-77.037225
3.73356E+17	1368747140	@DDOTDC a reminder that the paint at 16th and N NW is usually ignored. Drivers make up their own rules in DC #bikeds http://t.co/aPnG7Nwo1c	38.925925	-77.043072
3.73356E+17	49885287.0	Why is Arlington even considering cuts to walking/biking improvements? The story coming up at 4:30 on @wamu885news #bikeva	38.882074	-77.076369
3.73359E+17	38465755.0	Few things have made me as happy as riding my bike in Amsterdam :)) ◆◆	38.921655	-76.972017
3.73203E+17	56424838.0	Bike is being transported to do... #hope	38.908302	-76.997019
3.73233E+17	46885287.0	Tune to @wamu885news at 4:30 for my story on Arlington County considering cuts to bike/walk improvements. #bikeds #bikeva	38.928967	-77.034041
3.73233E+17	8591343.0	Gear Prudence: Why Don't We Cyclists Use Available Bike Lanes?: Gear Prudence: Do cyclists/drivers ever ignore the rules of the road while riding along the ... http://t.co/HUUgYWOp	38.901815	-77.037356
3.73286E+17	34186248.0	@Pakistani biker & director @MoeenKhan introducing his doc #RediscoveringPakistan @DiferentAgenda @GirlKiingPak http://t.co/KZHEgFnY7	38.908846	-77.047034
3.73265E+17	21545267.0	Shattered. #BikeDC #Anacostia River @ Frederick Douglass National Historic Site https://t.co/YVgraIhpjp	38.863704	-76.989425
3.73312E+17	21544197.0	Best bike for a winter unsanctioned underground parking garage criterium? @Van_Dessel RAcoordinator of courses.	38.864729	-77.051082
3.73347E+17	36882458.0	Only thing I'm missin is a car. I refuse tai fide up one bike. Lmfao.	38.852656	-76.955938
3.73374E+17	1134870180	@MichaelHeyd Kin response to that tweet I did NOT fall off the bike the boys just made that up cuz they're mean :)(^_^)/ ^_^	38.88926	-77.04869
3.73472E+17	46885287.0	Progressive Arlington may cut funding for bike/pedestrian programs http://t.co/GLeMLoNK4 @wamu885news #bikeds	38.927666	-77.030452
3.73484E+17	3865822.0	Today's dedition: trainer or snow bike.	38.985283	-77.030752
3.73565E+17	18100936.0	@bikeshare across from the Zoo! @ycontake @HowsWashington @WTOP @capitalweather @pcalocal @wcp @douglasmeier @fox5newsdc	38.93002	-77.056448
3.73586E+17	27576766.0	Adult (barely) snow day #bike #running @ Rock Creek Park Bike Trail http://t.co/uUK14mKUID	38.923502	-77.048705
3.73664E+17	2658870158.0	Tough day for all bike ride... @capitalweather @WTOP @washingtonpost http://t.co/UBnHDZcTO8	38.906842	-77.031234
3.73651E+17	16293427.0	Trying to enjoy the winter weather. @ Rock Creek Park Bike Trail https://t.co/Vv67LxEKiC	38.923502	-77.048705
3.73653E+17	23028698.0	@dwhitphoto snapping @NatCapWeloClub last night for @BikeArlington @cobild and @CKHills 1st edof #WednesdayNightSpins http://t.co/fzdc3NmvM	38.867999	-77.048997
3.73654E+17	1085468.0	.@bikepedantic @BicycleSPACE @pcbaoard I've carried a pug that way http://t.co/KNkdaRzeld	38.945495	-77.025541
3.73621E+17	4317261.0	It's a great day for a bike ride! @bikeshare #bikeds #snowday http://t.co/tcoAcoTeRy	38.889655	-76.932536
3.73621E+17	94004486.0	This is how we're getting to our #DCBocce playoff matches this #snowDay. @bikeshare https://t.co/KRKJA007FK	38.91194	-77.032902
3.73633E+17	27387528.0	Slow day for Capital Bike Share. @NRLnewDDTcom @capitalweather http://t.co/JOCYbzBlg3	38.886182	-77.096977
3.73637E+17	18436710.0	Hard to believe it was 50 yesterday! The bike lanes just finally melted...#FF" #capitalbikeshare #NOwnore #springplease http://t.co/yo9E9VwN	38.906447	-77.031598
3.73636E+17	3865822.0	@rochelcennongan a fat bike! I got nothing but love and photos today.	38.985384	-77.030376
3.73649E+17	15280637.0	@ebookkeyworm @thenewDC @dahrancomeur Studs. Fatbikes and Dgrees only.	38.951454	-77.085298
3.73678E+17	15280637.0	@patriotsolaley my entire bike commute today. Who knew studs were so good for an icy?	38.951206	-77.08623
3.73768E+17	61355703.0	He sneak dissis 8^_8^)=3^D you was the bike ride	38.908349	-76.925505
3.73833E+17	14726763.0	Use the mail - nothing stops #bikeds @ Johns Hopkins University Advanced Academic Programs https://t.co/HLG7eWdHrC	38.908752	-77.036495
3.73837E+17	30145.943.0	It's fingic fingling Bros. to stop using circus elephants: a Capital Bikeshare rate hike. Good morning and welcome to&C http://t.co/aXoyOsIRN0	38.903825	-77.033536
3.73824E+17	24429342.0	sorr! It, fell on ice while on a bike 8^8^8^	38.887879	-76.936496
3.73838E+17	11343040.0	Will the S.Sus Antech My life and Times Without a Bike	38.923307	-77.036371
3.73869E+17	17429120.0	Still a bargain! RT @Kofarai: Capital Bikeshare approves first membership price increase since its launch. http://t.co/jUUL28cQ	38.905129	-77.032193
3.7391E+17	46885287.0	.@WABAOC says @DDOTDC not effectively implementing bike projects at a pace that meets demands of growing ridership. #bikeds #dotovernight	38.890049	-77.036371
3.73916E+17	46885287.0	.@WABAOC's Greg Billing says DDOT can't get projects done. And now... they're attempting to lower expectations. #bikeds	38.890049	-77.036371
3.73915E+17	46885287.0	@danal @reyondc I didn't realize there were blue lanes there.	38.890049	-77.036371
3.73915E+17	46885287.0	Overnight hearing continues. Dominic yet to testify. Lots of testimony from bike advocates. ANCs need for better safer infrastructure.	38.890049	-77.036371
3.73915E+17	46885287.0	@danal @reyondc The number of miles of protected bike lanes is rather small. Can't remember off top of my head the exact figure.	38.890049	-77.036371
3.73915E+17	46885287.0	.@marychelsays we still don't have comprehensive bike lane network. Keywords: network. Also mentioned lack of bike lanes in Ward 8.	38.890049	-77.036371
3.73871E+17	609471.0K	On the buys until my motorcycle makes sense. Will ride my bicycle until my moto is safe to ride&C http://t.co/eNYOCJiF	38.913983	-77.036218
3.73947E+17	18436710.0	@BicycleSPACE I read this as a beginner's version of the #HillsOfAnacostia ride and my first thought was wi drop instead of no drop 8^_	38.88852	-77.02414
3.7396E+17	609471.0K	On the buys until my motorcycle makes sense. Will ride my bicycle until my moto is safe to ride again.DC http://t.co/eNYOCJiF	38.903085	-77.036218
3.73968E+17	23694026.0	@BicycleSPACE when you say "beginning" for the #HillsOfAnacostia - what do you mean? Haven't been on my bike since Oct	38.916782	-77.00519
3.74021E+17	15280637.0	@Bicycleflag @Rootchopper @dirtang @RyanSigworth only 1 Tis 24 hrs straight. Fixed gear. #2nd time sacham	38.911315	-77.086293
3.74022E+17	15280637.0	@RyanSigworth @Bicycleflag @Rootchopper @dirtang joking aside @GAP_Trail and @CCCoastal NS from PGH to DC is well worth it.	38.915426	-77.08029
3.74036E+17	3094810016.0	The weight is steady for spring. #bicycle #fitness gals #rockclimb #fitness motivation http://t.co/OHOcUgLbC3	38.93219	-77.038947
3.74127E+17	17847875.0	Had to go and get my Bentley serviced! Thanks @"alonsoBicycle 8^)_http://t.co/ERKcyAqsnD	38.905185	-77.015531
3.74271E+17	89655121.0	It's all good @ewilliams0303! Always great riding mighty #HillsOfAnacostia w/you & @mcneherbal @BicycleSPACE #bikeds http://t.co/S43KO7dEY	38.876359	-76.998245
3.74286E+17	89655121.0	Frederick Douglas Bridge a #bikeds @DDOTDC closer? Today's @BicycleSPACE #HillsOfAnacostia ride w/ @ewilliams0303 http://t.co/SZKOKgyGC	38.876359	-76.998245
3.74335E+17	89655121.0	My @jimlsbicycles I rode on the mighty #HillsOfAnacostia today! @BicycleSPACE @ewilliams0303 @mcneherbal #bikeds http://t.co/z0ODaAaOdV	38.800643	-76.9787
3.74364E+17	89655121.0	It was at @jimlsbicycles riding the mighty #HillsOfAnacostia today! @BicycleSPACE #JimlsBikesDC #bikeds http://t.co/FgrcLb3Tey	38.800657	-76.978717

3.74616E+17	8865616121.0	On @BicycleSPACE #CityExplorers ride! @MOMoDongarloMrkt food stop! @GrMotBike @LugerCycles @jkinoela #bikeds http://t.co/Q6AcqUCCIQ	38.954969	-76.988119
3.74619E+17	14139029.0	Hey @DDOTDC as the snow is melting friendly reminder that you shd prioritize fixing potholes in bike lanes. Almost got thrown on Champlain	38.957031	-77.031316
3.74622E+17	130359696.0	While pot love jogging riding bikes having dogs wearing sandals in the winter time and calling the police	38.928644	-77.027933
3.74951E+17	105949512.0	Today's bike adventure. Somehow I cut my thumb. SE is not very bike friendly. Lol @ FrederickDC http://t.co/f6aDXXGeF	38.98825	-77.005234
3.74698E+17	19030085.0	Today is perfect for taking @Bikeshare to all meetings. Schedule lots of meetings.	38.93082	-77.043222
3.74675E+17	19400902.0	The first ever school pick up by bike and the #Bike DC @ National Presbyterian School http://t.co/JBwouIJ9S	38.941564	-77.080313
3.75386E+17	49139965.0	OMG! The Ass on that biker @ Bloomingdale Washington DC in Washington DC! http://t.co/CLSOcooPLc	38.953613	-77.012373
3.75392E+17	49419750.0	This is a removable/foldable rear trunk! The design is sweet! #womenbike #NB615 http://t.co/UWTwx3NBL2	38.901540	-77.022319
3.75394E+17	163884245.0	Great to see so many men (and women) here supporting more women in bicycling! #womenbike #NB615	38.901578	-77.022167
3.75402E+17	108113693.0	So stoked! happy and grateful to be at the #womenbike forum at the National Bike Summit - #NB615 - a[http://t.co/rHOxrRdeC1	38.90177	-77.022904
3.75406E+17	232862740.0	Excited to hear from our #LA friends at @MLMWandes on how they engage, empower & educate voices. #womenbike #NB615 http://t.co/aJ3DbeUPS8	38.901508	-77.022281
3.75396E+17	163884245.0	Households with children much more likely to bike according to @peopleforbikes report. #familyriding #womenbike #NB615	38.901584	-77.022346
3.72961E+17	49419750.0	.@MCMWandes worked on advocacy in Boyle Heights - all the people selected for leading the project were from Boyle Heights #womenbike #NB615	38.901500	-77.022297
3.72961E+17	49419750.0	If you are asking community leaders to do outreach for your Transpo project, make sure you fund them for their time. #womenbike #NB615	38.901540	-77.022274
3.75362E+17	16932762.0	Time to catch up w/ the what's happening at Nat'l Bike Summit. So many amazing lessons and backed #NB615 #womenbike http://t.co/crQ3ha65	38.901505	-77.022135
3.75369E+17	49419750.0	To reach the Boyle Heights community @MCMWandes went to local businesses - not come to me but go to them #womenbike #NB615	38.901543	-77.022229
3.75365E+17	44734494.0	#NB615 How can we quantify the success of building a #womenbike culture/community? What are the metrics for empowerment?	38.901519	-77.022255
3.75367E+17	49419755.0	Just had a presenter drop #keepit100 at the National Bike Summit. #nbs15 #womenbike	38.90148	-77.022269
3.75373E+17	118970204.0	Let's go girls. @lucaskoot @WomenBike @bicycle #NB615 http://t.co/eVt1FMMTH7	38.901503	-77.022489
3.75377E+17	33664466.0	Hey #NB615 #womenbike I am using the dead hour between 4 and 5 to wander to a neighborhood tavern. Someone join me!	38.898024	-77.022341
3.75378E+17	49419755.0	The entire room at #womenbike just shared our bicycle stories #NB615	38.901566	-77.022319
3.75378E+17	49419750.0	@mbrown @ipode @firlitsky @peopleforbikes study says Women are more likely to bike for rec alone and rec&transport than transport alone	38.901907	-77.022262
3.75379E+17	49419755.0	All of these discussions at #NB615 confirm for me bike fun is the future of coalition building for bike advocacy. #womenbike	38.901508	-77.022269
3.75385E+17	49419755.0	@BikePortland lots of people still don't think that's true! And sadly, many of them are the people working on this for a job. #NB615	38.901864	-77.022261
3.75381E+17	49419750.0	@GoddardTara I'm not quite sure what your question is. But what I mean is our biggest potential for growth is culturally competent bike fun.	38.901880	-77.022247
3.75382E+17	49419755.0	@mbrown I agree we need more family friendly bike fun. But I think the advantage of bike fun is it's specifically tuned to the community.	38.901890	-77.022221
3.75382E+17	49419755.0	@gerilorainsky @GoddardTara doubt the women to my talk on Bike Fun building advocates last year :)	38.901907	-77.022285
3.75382E+17	49419755.0	@GoddardTara I'm not saying replacing car trips - that's the. Broadening the bike community means focusing on building community first.	38.901899	-77.022263
3.75383E+17	49419755.0	@GoddardTara @gerilorainsky If we focus on only commute trips we lose those that can't commute by bike because of work/kids/errands #nbs15	38.901877	-77.022285
3.75384E+17	49419755.0	@GoddardTara @gerilorainsky we find women are more likely to participate in activities/recreation ingroups - hence bike fun. #NB615	38.901907	-77.022261
3.75383E+17	49419755.0	@GoddardTara @gerilorainsky Utility-fun left what I was saying. Bike Fun - community based rides specifically by&for particular communities.	38.901942	-77.022251
3.75385E+17	49419755.0	@gerilorainsky @GoddardTara To build women&family bike leaders we first need to get them on bikes. Bike Fun is a first step.	38.901868	-77.022071
3.75385E+17	1963290.0	What am I going to STOP doing? I'm gonna stop complaining about how busy or overwhelmed I am. #womenbike #nbs15	38.902845	-77.021561
3.75386E+17	49419755.0	@GoddardTara @gerilorainsky Andando en Bicicleta en Cully and We all Can Ride and Black Women Bike - great examples bike fun& bike advocacy	38.9019	-77.022355
3.75386E+17	49419755.0	@GoddardTara @gerilorainsky The #womenbike keynote last year talked about how in the 1970s no women ran. Now most run participants are women	38.901859	-77.022069
3.75387E+17	49419755.0	@gerilorainsky @GoddardTara I didn't say Bike Fun is the only key to getting people on bikes. But it absolutely cannot be ignored. #NB615	38.90187	-77.022235
3.75387E+17	49419755.0	@gerilorainsky @GoddardTara It's much easier to invite someone to a neighborhood bike ride than to a city council hearing or agency event	38.901906	-77.022362
3.75101E+17	19400902.0	Oh so good #BikeDC #Bike @ Washington Monument National Monument https://t.co/pzUDwtmrv4	38.889883	-77.034579
3.75033E+17	356248838.0	The bike scene out here is lit!	38.902882	-77.033077
3.75033E+17	19400902.0	It's melting... It's melting #BikeDC @ Potomac River https://t.co/aOBcNcOZQB	38.880607	-77.050329
3.75048E+17	182447811.0	I love SE when that weather breaks 8^" 4 wheelers....bike.... ALL the weed men lie out.....	38.893848	-76.99332
3.75043E+17	159404744.0	I want a tuber bike service where I hop on the back of some pegs	38.902515	-77.062574
3.75051E+17	2768868416.0	Spent the day tooling around DC taking in the sites with back_teach. Thanks @bikeshare1 @ The White&C http://t.co/w8Z1R0mWCT	38.892732	-77.035704
3.75032E+17	20792744.0	#Bike enthusiasts are cheering cyclists at 14th and P. #endlessscar	38.903844	-77.034702
3.75066E+17	229883665.0	Illegal lane change AND blocking the bike lane - tsk tsk. Kurt. http://t.co/5jjqy8ob9	38.90879	-77.042004
3.75030E+17	16713331.0	On Thursday I was in an epic snowball fights. Today I was on an epic bike ride. DC weather level: New England.	38.932717	-77.038048
3.75072E+17	180457938.0	#remoteone no. 8: perfect ride home from work. Not the best ride but really enjoyed the group cheering on #bikeds ! http://t.co/WHYuHCB3KC	38.903488	-77.015328
3.75142E+17	282716308.0	rico_sanchez_ma #WeDoWhatWeWant #Bike Life family sebastjapopson #DC to #London #Newcastle @ UK https://t.co/wWvQjRzfpd	38.903421	-77.024508
3.75296E+17	118970204.0	Joining the conversation at the National Biking Summit! #womenbike #NB615 #airdrow @Womenbike http://t.co/OHCjjmSuMg	38.901593	-77.02259
3.75271E+17	118970204.0	Cover your sweet spot! #womenbike #nbs15 http://t.co/wcWyceeSos	38.901567	-77.022419
3.75271E+17	1663362520	My best friend Ren is a keynote speaker at the national forum on women and bicycling! #NB615 #womenbike http://t.co/5R8TyjcHH	38.901859	-77.022286
3.75272E+17	2308215.0	#womenbike begins! #nbs15 @jbyoke opens the Forum @ Renaissance Washington DC Downtown Hotel https://t.co/XkIOwJrr09	38.90177	-77.022564
3.75275E+17	49734123.0	Sara Bannon movement is essential to the human condition #NB615 #womenbike	38.901764	-77.022187
3.75277E+17	49734123.0	@TulsaHub: people who have the privilege to know have the responsibility to act - Albert Einstein #nbs15 #womenbike	38.901589	-77.023122
3.75277E+17	49734123.0	@TulsaHub: I ease the suffering of those around me by loving them through cycling. #nbs15 #womenbike	38.901776	-77.023072
3.75278E+17	1042533692.0	#womenbike Pop Up shop is open for business! #bicomensatlestyle #bikeforNon #cycledc @bikE! http://t.co/kdwOwJ6jKN	38.90177	-77.022554
3.75278E+17	275579706.0	Wonderful #NB615 opening keynote from @TulsaHub: those who have the privilege to know must act. #womenbike	38.901859	-77.022259

3.75279E+17	1978158E.00	One last DC stop courtesy of @BoeshareDC @US Department of the Treasury - @uscmeasurydept https://t.co/jn3Ic8rRp6D http://t.co/ocT2lGcvQjU	38.867571	-77.034306
3.75281E+17	46754123.00	@TulsaHub vision: stabilize and grow a healthy organization #NB515 #WomenBike	38.901917	-77.021259
3.75282E+17	24277622.00	Bike Law commute to the National Bike Summit, lenysuharry #cargobike #nbs15 #bikelaw @BikeLeague @BikE[https://t.co/XTgnOwrBEH	38.897232	-77.035704
3.75282E+17	46754123.00	@TulsaHub defines a healthy organization based on clear communication #nbs15 #womenbike http://t.co/7rpQjaJiIR	38.901917	-77.021259
3.75287E+17	15082415.00	#womenbike@nps is ON! #womenbike @ Renaissance Washington DC Downtown Hotel https://t.co/RpCbrrMdrP	38.9177	-77.021654
3.75289E+17	118970204.00	Stylish and practical #women bike #nbs15 http://t.co/QzbvMXkcks	38.901578	-77.022377
3.75311E+17	8503437.00	London's conservative mayor tells DC to go all in on transit and bikes: by Tracey Johnstone Conservative#[http://t.co/DxkwOUrLts	38.901815	-77.037336
3.75341E+17	44734994.00	The norm is not to be normal. -Odessa Phillips #womenbike #NB515 http://t.co/NFq7BnE3w	38.901712	-77.022937
3.75343E+17	44734994.00	Do we keep using labels? Or do we just become inclusive? That just is the lynchpin. #womenbike #NB515	38.904926	-77.022135
3.75349E+17	44734994.00	Where do we go from here? Seek info. Ask questions. Support. Incorporate all voices. Push forward. #womenbike #NB515 http://t.co/VLNuaMXpJ5	38.901712	-77.02315
3.75358E+17	46415753.00	@GoodardTara @perkiness9 The #womenbike keynote last year talked about how the 19/20s no women ran. Now most our participants are women	38.901853	-77.021099
3.75387E+17	46415753.00	@perkiness9 @GoodardTara I didn't say Bike Fun is the only key to getting people on bikes. But it absolutely cannot be ignored. #NB515	38.90187	-77.021233
3.75387E+17	46415753.00	@perkiness9 @GoodardTara It's much easier to invite someone to a neighborhood bike ride than to a city council hearing or a grocery errand	38.901906	-77.021302
3.75387E+17	46415753.00	@perkiness9 @GoodardTara really? How about ABC members who lead Day of the dead rides and also write grants for bike parking?	38.901906	-77.021287
3.75388E+17	46415753.00	@perkiness9 @GoodardTara It's the first step - feel want to advocate for bikes until they start riding them.	38.901903	-77.02329
3.75408E+17	46415753.00	@andyfeur @cycledelicious here's the bike fun podcast! http://t.co/bA0ozJR9MZ	38.894236	-77.022812
3.75415E+17	307579370.00	my header is cool AF? cause we are cool terms.$F? they needs to free Mr. $F* so summer time is... he can bring the bikes out. FF	38.828804	-76.646735
3.75421E+17	18679286.00	All I can do w/ my free time is watch Sons of Anarchy. Why didn't anyone tell me it was basically the Sopranos w/ bikers instead of Italians	38.906686	-77.036367
3.75421E+17	18679286.00	Italians are way more gangster than bikers though. #lesbehonest	38.906667	-77.036437
3.75421E+17	307579370.00	free jumbo $F? he going bring the bikes out FF$... I pray on it	38.828804	-76.646682
3.75433E+17	52274546.00	@UsaKrankz @WomenBike You need to come to more of our bike events! =)	38.852518	-77.06171
3.75446E+17	15633250.00	The reason bike facilities started in Ward 1 in DC is because I went to transportation meetings in my neighborhood and demanded them. #NB515	38.901789	-77.021244
3.75451E+17	1496718308.00	@MidCommission speaking at #nbs15. Great speech about DDC & arrive bikes http://t.co/YzrVAgrqbl	38.90156	-77.021136
3.75477E+17	1011968916.00	Bike advocacy award campaign from @BikeWalk goes to @BikeEastBay for Measure BB http://t.co/eVSPJUtnMM	38.903226	-77.022874
3.75641E+17	15633250.00	If you wanna do something for bikes stop thinking about bikes. Multimodal and integrated transportation system is the way to go. #nbs15	38.904526	-77.021244
3.75641E+17	14611003.00	.@R_T_Rybak: Bikes are no longer counterculture. Bikes are the new normal #NB515	38.901928	-77.021144
3.75642E+17	302151376.00	@BikeTVCA It's my honor to be representing bicycling in the Treasure Valley! Everyone should be here!	38.901765	-77.02323
3.75642E+17	26319276.00	NO BIKES at 15th and F St NE @boeshare station. When can we get a dock at the Rosedale Recreation Center? #bikedc #boeshare @HillEaster	38.897547	-76.985673
3.75644E+17	15633250.00	#peopleforbikes @LaceforNoes how about #publicbikers @peopleforbikes? :) #NB515	38.904526	-77.021244
3.75644E+17	302151376.00	People for bikes. Places for Bikes @peopleforbikes #NB515 @rfmsiu	38.901778	-77.023156
3.75645E+17	1046724788.00	Let's abolish 1 way streets in USA. Do we need so many lanes to get out of town? Let's offer 1 lane to bikes?#NB515 http://t.co/f3bMr75JgFx	38.901837	-77.023116
3.75646E+17	14565808.00	Via @ChrisBlaeHone:11 Illuminating Facts About Race Ethnicity Income & Bicycling http://t.co/eJvcOKwW #NB515 #bikeAsi	38.901664	-77.021332
3.75646E+17	302151376.00	Let's go Vision Zero? Setting the bar at the highest standard for bike/walk as well as car drivers. #NB515 #VisionZero #safe4allusers	38.901719	-77.023148
3.75647E+17	161836240.00	Deputy Secretary of Transportation Victor Mendez doesn't feel safe riding his bike on the street. Says we need to do more. #NB515	38.901769	-77.023142
3.75647E+17	161836240.00	@usdoscom 1/3: commuters have signed on to @secretaryfox's Mayor's Challenge for bike/ped safety! #NB515 @USDOTBikeWalk not San Diego?	38.901961	-77.022846
3.75664E+17	42873686.00	Army Navy Dr. is great to ride on and gets $BeAPAL messaging to traffic on 1395. @BikeArlingtonA[https://t.co/1cetLrDzaV	38.8809308	-77.08699
3.75665E+17	42873686.00	Covered bike parking at Pentagon City metro! @BikeArlington @WABADC #BeAPAL @ Pentagon City https://t.co/EJ8xqB9CCO	38.863084	-77.060212
3.75666E+17	42873686.00	Crystal City bike repair station. Thanks @CrystalCityBID #BeAPAL @WABADC @BikeArlington @ Crystal[https://t.co/5PDO9SOyr	38.858573	-77.048894
3.75675E+17	101224886.00	... I had a magic biker glove that let me falcon punch political leaders. RT @Raury: What'd you dream about	38.885275	-76.945279
3.75682E+17	42873686.00	@ArlingtonVA doing pothole repair on Army Navy Dr. #BeAPAL @WABADC @BikeArlington http://t.co/nuCAWWNVD4	38.863128	-77.071027
3.75686E+17	235941026.00	Sign the @wabadc petition for @bikeddc to extend the 15th St. Protected Bike Lane http://t.co/YJ0ISTEnNr	38.915448	-77.035408
3.75687E+17	302151376.00	Pecha Kucha Local Innovations2 Protected bike lanes in suburban areas #notjustdowntown #NB515	38.90183	-77.023563
3.75688E+17	302151376.00	Protected bike lanes = transit/suburbs success #NB515	38.901853	-77.023573
3.7569E+17	18466719.00	The newest trend in bike commuter safety? Puppies! @bikeyface @KenBisNo #NB515 http://t.co/nsbA4DRgS	38.892847	-77.021588
3.75708E+17	136068116.00	Me and Ann just biked uphill for like 2 miles and I was in my high gears for the whole time until someone told me to switch to low gears$#*...	38.886919	-77.003403
3.75712E+17	27107970.00	Lesson from @transact: transportation takes people from A to B. #Bikes and #boats take people from A to Beyond.	38.901792	-77.021203
3.75734E+17	1046233692.00	Excited to be using my @boscar3 #ad2 #bikeshare bag & classic helmet from @bikesafety here in DC with $#[https://t.co/RF6rNBmKl	38.901769	-77.023654
3.75739E+17	14565808.00	It's not just about the bike lane says @DrAlethaMaybank. History includes exclusion displacement opportunity triumph. #NB515	38.901999	-77.023424
3.75716E+17	14565808.00	Can't anything to change history but it's important to acknowledge it. - @DrAlethaMaybank #NB515 #bikeAsi	38.901733	-77.023253
3.75717E+17	14565808.00	More than bike lanes: Privilege plays a role in bicycling we don't often acknowledge. #bikeAsi http://t.co/PwDnfacpPV via @WABikes	38.90171	-77.021267
3.75717E+17	5865822.00	Hey @anthonyrichardson wanna biking #NB515 and #bikewalktn out to some hip #bikedc culture? http://t.co/TR2WnfnxX3	38.894548	-76.972251
3.75719E+17	302151376.00	@BikeTVCA let's find out where people want more bike? Ped service? still livemeter #NB515	38.901844	-77.021254
3.75721E+17	14611003.00	Culver City Calif. Mayor M_Sahli_Wells: Improving conditions for people who ride bikes improves quality of life for all. #NB515	38.901849	-77.021282
3.75721E+17	26504077.00	Librarian in the Wild Emily Week of Mountain View Public Library shows how bikes and books enrich a$#[http://t.co/NrcTPqfur	38.901843	-77.021236
3.75722E+17	1046233692.00	Way to represent Meghan Sahli-Wells Mayor of Culver City speaking at the National Bike Summit$#[https://t.co/MuoaOcomIZ	38.901769	-77.023654
3.75722E+17	14611003.00	Culver City Calif. Mayor @M_SahliWells: Improving conditions for people who ride bikes improves quality of life for all. #NB515	38.901884	-77.021359
3.75724E+17	1365701693.00	Just exploring the city today via bikes...SO MUCH FUN$?$ http://t.co/LpKWrOFqhN	38.88377	-76.989474

5.72734E+17	16430692.00	Bike parking at #DCA is actually farther away than car parking #Irony #BikeDC @ Ronald Reagan#[https://t.co/3d09Kmlyw	38.852342	-77.042369
5.72735E+17	302151376.00	@boisegreenbike @MCHD @BoiseCoop nice work! The buzz in DC is bike share and I couldn't be more proud of our city! #NB515	38.901889	-77.023525
5.72736E+17	72440648.00	@DubsTrash! there's support from @CharlesAllenWB we just need the @bikeshare folks to begin the install! And don't forget #ping!nanpark	38.9288	-77.015957
5.72741E+17	194253662.00	Great day to bike around our nation's Capitol! #Bikeshare #BikeDC #bikeyoyo #bikepretty - love this$[https://t.co/ZV4Z2Ldo6F	38.90566	-77.03196
5.72741E+17	72440648.00	@bikeshare @DubsTrash! so according to that article there will be no new stations until you find a new supplier?	38.928867	-77.01508
5.72743E+17	72440648.00	@bikeshare @DubsTrash! not sure but it appears there may be a story here @MartinDChris @mauermuhle @Andrew_J @Bag	38.928612	-77.015644
5.72752E+17	8621360.00	Great panel w/ Inspirational @R_T_Rybak @DrAlethaMaybank creating healthy equitable cities #NB515 @BikeLeague @lacbc http://t.co/YNPQCuuAxw	38.901803	-77.023541
5.72752E+17	12633293.00	In order to get more Metro Detroiters onto bikes more often we need to connect subdivisions and cul de sac by bike/ped paths. #nbs15	38.901607	-77.022134
5.72761E+17	86145694.00	@stephenesmith talk more about those poor on the field decisions and less about the man riding a bike with a torn MCL. And diabetes? Wtf?Lol	38.916734	-77.030447
5.72771E+17	215452671.00	The Archives. #DC #BikeDC @ National Archives and Records Administration https://t.co/sKFKuHHVKc3	38.89719	-77.022124
5.72775E+17	245753685.00	Today's a perfect bike riding day	38.812563	-77.110628
5.72777E+17	26225613.00	Happy to be hanging out with the all powerful bike lobby in preparation for Bike Hack Night III cfp @nwi202 and @techieDC	38.900475	-77.023386
5.72785E+17	244294802.00	@slmkeep my ride... love bikers... just can't pedale fast... Bourbon handicapped... my ride is slow &lowe. http://t.co/YooSVqQ0VB	38.889468	-76.996064
5.72781E+17	18466719.00	#NB515 bikers: Join me at Capitol City Brewing Co. Now. Make like take a little stop/brew tour tonight :)	38.901853	-77.023332
5.72786E+17	6743362.00	One more quick #bike tour before meeting the southern state delegates. #kentucky in #dc #louisville#[http://t.co/n4dNN5fnK	38.900085	-77.023634
5.72793E+17	153603217.00	bike trail open again all the snow gone #cycling #wednesday	38.927742	-77.002216
5.72794E+17	106637721.00	Dirt Bikes Jump At Busting 12 Ass Coming Down 10th. $F*,$F*,$F*,$F*,	38.90108	-76.992644
5.72796E+17	8154472.00	Bike Hack night Meet up as part of NaTi Bike Summit. #bikehack #nbs15 http://t.co/cZWWGw21P	38.901699	-77.023762
5.72799E+17	276211139.00	Sunset in DC behind Kennedy Center #BikeDC @ Watergate complex https://t.co/0Zdm6DQ4Ol	38.898769	-77.050102
5.73815E+17	8154472.00	First late night bike trek of the season around the National Mall. So happy right now #bikeDC @$#[https://t.co/WP9UEvXA	38.8893	-77.035122
5.7383E+17	187885212.00	Lockin for A Dirtbike Shop or Wide'se No Pit Bikes	38.899167	-76.941445
5.73802E+17	187885212.00	Slide@_Bigpopkingrilla: @CHB_Hagg16: I'm pulin the #wheels out this summer bish $F*$$F*G$F*$E$F* $$$Stop Get A Bike If You Bringing The #wheeler out	38.899139	-76.941551
5.73477E+17	6743362.00	Alliance for Biking and Walking awards reception #nbs15 #bicycle delegates representing @ BTO https://t.co/ND-2TwrTtZ	38.900908	-77.022113
5.73796E+17	6743362.00	Andy Clark president of the League of American Bicyclists took some time out to say howdy to heck[https://t.co/eAU3oKc2W9	38.901769	-77.023654
5.73479E+17	26504077.00	Mayor Mick Cornett of OK City tells the league of American Bicyclists how the city turned around bike[https://t.co/TC0ryO1LVp	38.901845	-77.022239
5.76104E+17	1042233692.00	What a beautiful bike ride I enjoyed this morning! #bikeDC #biketo your conference #biketo everywhere $#[https://t.co/e3PSHeitaN	38.885389	-77.030667
5.76106E+17	1042233692.00	Riding in circles around the Washington Monument with @bikeshare #bikeDC #bikeTravel #bikeshare$#[https://t.co/NcDQ3kcrCg	38.888885	-77.035279
5.76154E+17	304683000.00	Rt #bike path ride meet Kevin Roberts at jail and parking lot 580	38.88914	-77.01335
5.76122E+17	1935258803.00	Having fun today @BicycleSPACE telling our @Bikedc story to @MarinBcoal today http://t.co/eTgmFcNv	38.929439	-77.05651
5.76123E+17	66445557.00	I couldn't even get across campus on my bike without wheezing and stuff	38.93659	-77.060044
5.76126E+17	425375374.00	#Pennyfarthing on Capitol Hill? The @BikeLeague's National #Bike Summit must be going on. #NB515 http://t.co/lkSzeeKtmR	38.893473	-77.005033
5.76147E+17	36937628.00	Hit the real road for the first time this spring today. Got my self tuned at @rosepatic - now clearly need the bike tuned at @bikerackdc! $#%	38.902882	-77.014811
5.76147E+17	233732886.00	#orbicsbike #washington @ National Mall and Memorial Parks https://t.co/3QXSirZ1P5	38.885158	-77.032197
5.76147E+17	18966719.00	Hey #NB515 Guerilla brewery tour by @bikeshare after the reception. First stop: Blue Jacket. ?:)A	38.890471	-77.003618
5.76156E+17	206655452.00	When you are in DC for bike week, it is proper etiquette to use a Capital bike share bike instead of $[https://t.co/TgCCCAjPCa	38.895953	-77.015443
5.76164E+17	2698770.00	@CVS_Extra Helping block people's path to better health by parking delivery trucks in protected bike lane on L St. DC http://t.co/5E2ejJ7FFK	38.914509	-76.997607
5.76176E+17	1046724788.00	$#Goo@jadog: #ordinaryparty! #NB515 Guerilla brewery tour by @bikeshare after the reception. Get urbeer & food on$#[	38.896201	-77.027064
5.76183E+17	18466719.00	Next stop on #NB515 @bikeshare brew tour. Capital Brewing Co. Ssh or something.	38.824797	-77.000435
5.76185E+17	1073426567.00	So wish I still had my bike to ride around :) http://t.co/22hPkuawrz	38.910488	-77.043688
5.76206E+17	14960808.00	@bikes_r_great: @carolsenry meets twitter DFF @baltimorebikeforlife #wsf #ffsw #NB515 http://t.co/KHyhfTUJ7n	38.916874	-77.027883
5.76211E+17	302151376.00	So honored to be part of the #BikeowerMBikeobject #NB515	38.901898	-77.023711
5.76219E+17	18966719.00	Next stop on #NB515 @bikeshare brew tour: Right Proper Brewing Co	38.915974	-77.024703
5.76375E+17	14448803.00	Bikes of DC @ Freedom Plaza https://t.co/rrB3qbre4j	38.895779	-77.030434
5.76374E+17	218546719.00	Good morning DC so excited the warm weather is coming bike riding summer breeze makes me feel fine$?*,	38.949035	-77.032803
5.76374E+17	498802873.00	Look at all that traffic! #bikedc http://t.co/FRwg7kbvVW	38.906249	-77.036187
5.76375E+17	498802873.00	Look who is riding a bike to work today. (Hint: @marychelli) http://t.co/R4eJoYtsFi	38.905739	-77.035047
5.76376E+17	260815680.00	#BoomingtonDC: 1 of our few neighbors in #Arlington DC had her bike stolen Please keep eye out not on fancy bike. https://t.co/UeAUsSTOd	38.913193	-77.012211
5.76381E+17	498802873.00	Is @DDOTDC moving fast enough to build a protected bike lane network? Tune in Monday to @wamu88fm news for my report. #bikedc	38.905721	-77.034824
5.76382E+17	115429647.00	$#Joe@RO$#*"party bike" debuts in Albuquerque Friday http://t.co/MKgpvT5OZ http://t.co/UeGHs1JB4 #Walk instead and use the $390 fee on DRINKS	38.926689	-77.034118
5.76411E+17	498802873.00	@jeffreyanderson19 @meusermuhle Protected bike lanes are the clincher for some riders who are iffy about going or everyday.	38.899316	-77.038131
5.76411E+17	1042233692.00	Biking the mall. #bikeDC #bikeshare #bikeTravel @ National Mall and Memorial Parks https://t.co/QQIO9sDmw	38.882018	-77.032197
5.76415E+17	1042233692.00	@TriLizzieBikes @lovehoods @velojoy @pedaloric thanks for the #bikeSF #Bicomers love! Enjoyed our visit at the pop up. Ride on!	38.902667	-77.033342
5.76417E+17	322532813.00	Awesome day biking all around Washington D.C. $?$... #springbreak #bike #DC #whitehouse @DC[https://t.co/5cEuRwOAX6	38.895131	-77.036667
5.76426E+17	302151376.00	Sad that #NB515 is over but stoked to have fresh load @BikeTVCA #SunnyDayDC	38.897185	-77.023062
5.76448E+17	125672742.00	@stewvance @ClerkRNo permit? Maybe the purpose is to give cyclists a convenient place to dispose of their bikes after they hit a dumpster.	38.890232	-77.030139
5.76461E+17	154382923.00	@Bike @DDOTDC make it a bike lane problem solved! Then everyone could use it.	38.921139	-77.012127
5.76426E+17	70820335.00	Loved riding bikes all around Washington DC and spending time with these lovely ladies $?$[@[illegible] http://t.co/0Sn6kHXKB	38.8893	-77.050122

5.76518E+17	9894162.00	Can you also see yoga here #Bikedc? Excited for Bicycle space new location! @Bicycle space https://t.co/n01EWHnys	38.901611	-77.042538
5.76566E+17	2982876522.00	I Thought It Was Funny Cus Why is She One Bike ðŸ‘ðŸ‘ðŸ‘? http://t.co/H6SRKq1U1	38.901154	-76.98259
5.76697E+17	896350121.00	Rain or snow! Rain or Ïœ? I am riding the mighty #FitBoC#Anacostia today! Ba @BicycleSPACE @mosehetts #Bikedc http://t.co/UDMnfhoO	38.877276	-77.00428
5.76703E+17	15110453.00	Wet rainy &; wet we rode the mighty #FitBoC#Anacostia today! Thanks @mosehetts for leading! #Bikedc #BikeHill #Bikeva http://t.co/CRbbJkVNEE	38.901021	-77.018937
5.76787E+17	38502160.00	#nomadicore #BikePanel ðŸ‘Ðµ@ðŸ‘ @DengoCycle in Washington DC! http://t.co/jnk MPTYdV	38.909678	-77.032001
5.76798E+17	497924642.00	#BAPS Ride enjoying the @cemaple tasty pie #bikedc http://t.co/BLVnNXa5o	38.893351	-77.085123
5.76815E+17	303805734.00	@angiforeg I feel like meek mill ðŸ‘Ž in my city ðŸ‘ Boy might just get bike ðŸ‘ and pop a wheelie ðŸ‘ðŸ‘	38.959278	-76.933818
5.76826E+17	302111376.00	@BicycleSPACE I'd be there every day if I lived in DC. Best bike shop I've ever been in!	38.924060	-77.04116
5.76828E+17	242944820.00	We just did that arrogant. TWEAKEN on a Bike 15 sweaty sweaty sweaty bodies. My first cyclingâ€¦ https://t.co/nbbYf002e	38.922601	-77.041018
5.76832E+17	896356121.00	Stoked! to see @bikeshare carrying @jamisbicycled Nice! #turnsBikeDC #Bikedc http://t.co/B4HeCMOrPM	38.925204	-77.032568
5.76842E+17	233388670.00	@Footmates & Ronald's hoodie it up. But get more bikers. ðŸ‘	38.924251	-77.032764
5.76856E+17	20896745.00	Who cares about bikes? PEE PEOw @bikeradio http://t.co/AZsTzMM	38.91111	-77.032587
5.76863E+17	216732245.00	We froze. We fell. - But we biked like hell. #why #HRDC Marathon bike pacers.	38.759829	-77.048668
5.76952E+17	2364604230.00	And when the biker lets his bais hang out.	38.898219	-76.982342
5.77125E+17	1833361200.00	#dancingonabike this morning. #zengoopen #sundaysunday #zengocycle @ZengoCycle in Washington DC! http://t.co/OC6dNQyI39	38.909678	-77.032001
5.77127E+17	15110453.00	Our #biconeer ride rolling &; going this morning! @pewpewblue @Chris_Roell @brompton usa #brompton #bikedc http://t.co/Ia3BFRHR2	38.900031	-77.015887
5.77153E+17	2182447196.00	So Spring is here we've been thru a long winter not as long as some places but long enough if you enjoy the out doors like I do Bike ðŸ‘,	38.898997	-77.0219
5.77189E+17	82369955.00	Wonderful bike tour with @BikeandRollDC - We really does know his stuff! We will keep sending our clients on all their tours! #greatfun	38.901491	-77.090118
5.77189E+17	93084936.00	Biking on the urban ride and came across a pretty hot house #bikedc (@ The @WhitehouseÂ) https://t.co/jHcTcoqh http://t.co/5A12NcCRDt	38.897038	-77.036367
5.77102E+17	15110453.00	Rolling along on the western loop on today's #CityExplorers ride! @jkhinelle @HillHDC @brompton usa #bikedc http://t.co/uQ6lqHjkc	38.903223	-77.019741
5.77196E+17	746314345.00	Ooooh, yall are getting AT IT this week huh? Only 5 bikers total left in my morn/tues classes @LetsRideDC #cycling #sweating #killing!	38.914032	-77.024566
5.77205E+17	1385075800.00	Riding a bike is like doing drugs. If you haven't done it in a couple months you should take it easy.	38.885671	-77.110715
5.77208E+17	131104033.00	Our @HRHDC helping some fellow cyclists on the Capital Crescent Trail on our #CityExplorers ride! today! #bikedc http://t.co/zTOVRcdrdi	38.889696	-77.019891
5.77208E+17	2282839604.00	I Really Wanna Go Bike Riding ðŸ‘	38.903990	-76.973307
5.77211E+17	250340028.00	Bike art in my neighborhood. Ready for St. Patrick's Day! Lovely way to run errands on foot (or on bike). #cityTV http://t.co/vHAGeNEF	38.916705	-77.035463
5.77215E+17	2282839604.00	My Dad Said He is Getting Me A Bike ðŸ‘, ðŸ‘	38.882119	-76.973803
5.77216E+17	2282839604.00	Bike Life ðŸ‘	38.882160	-76.973275
5.77218E+17	131104033.00	Thanks @jkhinelle for riding with us today! You help to make our #CityExplorers ride the ride that it is! #bikedc http://t.co/ZL2mwLDTe	38.903223	-77.019741
5.77231E+17	2485969501.00	If someone don't wanna ride bike... I'd be riding it right now ðŸ‘ ðŸ‘Ñ hoodiums lmaooo	38.896043	-76.948579
5.77233E+17	75825896.00	Just went on a terrifying 2 mile ride &; I fell off my bike but hey it was an adventure #cocoldas2015 http://t.co/24f9EeAcLD	38.912555	-77.040897
5.77236E+17	896356121.00	Mighty @FHRHDC showing off his old school racing strip sweats on @BicycleSPACE #CityExplorers ride today! #bikedc http://t.co/S9T1mxRcv	38.847133	-76.980556
5.77239E+17	16534300.00	#bikedc @ Whole Foods Market P Street http://t.co/XcPoysCeBu	38.909672	-77.033307
5.77245E+17	2482969501.00	@aaash_badrhh It's not funny you jerk. It's ok watch I'm about to go to your house and steal your bikeÃ	38.953323	-76.932749
5.77249E+17	1382086600.00	Thing that should be removed and made into sidewalk/bike path: Connecticut Ave service lane. Hardlier to pal+bike. http://t.co/twJnyKdfz	38.903639	-77.05988
5.77242E+17	2485969501.00	@tonØaaash_badrhh @romaine_goddess go ahead.... I don't have a bikeðŸ‘ðŸ‘ ðŸ‘ðŸ‘@Dawnormal lol	38.896418	-76.950469
5.77262E+17	18374460.00	Bike riding along the national mall at sunset. what a fun day :) http://t.co/mbUBRdNo	38.886280	-77.021894
5.77202E+17	7903715200.00	Anyone missing a bike? #nobike #wheel #bike #bicycle #bicycle #gdc #nine #lightroom #dmv&; http://t.co/AWBPNcWAA	38.903456	-76.99472
5.77446E+17	215452671.00	Washington Monument at dawn. #BikeDC #WDC #DC #BeyLines #CommuterVibes #RadHour @ National Mall &; https://t.co/eUqnOHHN	38.885038	-77.032887
5.77447E+17	215452671.00	#Down hero! Bike lanes on Pennsylvania Ave. NW. ðŸ‘ðŸ‘ #bike" #BikeDC #WDC #CommuterVibes #RadHour #BayLines&; https://t.co/fTvD3HRqp	38.892656	-77.019378
5.77466E+17	14948202.00	Getting some repairs done. #DC #BikeLife @ Bikesation Washington DC in Washington DC! http://t.co/TVDYw3kmWM	38.867346	-77.037122
5.77507E+17	215452671.00	Reflection on Sunrise: Current and unbiased. Trendy yet Timeless. #DC #WDC #BikeDC #RadHour&; http://t.co/1dOcfCl4d	38.895111	-77.036667
5.77556E+17	437.7995E+00	Perfect time to hop off the SM and onto a bike. RT @dingdibock: Commuters Beware of upcoming 16th St. Bridge project http://t.co/NowRGi8vW	38.854822	-77.043883
5.77526E+17	42355225.00	Nice Ulock @ellequeenmental #bikedc http://t.co/YxuWE3MX	38.904388	-77.040127
5.77578E+17	38503738.00	I just signed up for Bike to Work Day and you should too! It's May 15th. http://t.co/ECqBPKXJer #Fitness	38.889537	-76.918275
5.77573E+17	38806030.00	Omfgâ€¦ â€¦ This Man Just Got Hit By A Taxi On A Bikeâ€¦	38.893331	-77.022601
5.77615E+17	226792204.00	Bike night in Studio 1. :) #bicycnight http://t.co/WsKGwwc]	38.902727	-77.04877
5.77612E+17	19262734.00	Back to the bike commute. #bikedc @ Gravelly Point Park https://t.co/YSQ1S81oX	38.8651	-77.0331
5.77624E+17	85453432.00	Proposal for Bike Lanes. Pedestrian improvements in Tysons. Some are applauding a plan by Fairfax County to add bikeâ€¦ http://t.co/5LrRDQwkDX	38.901815	-77.01539
5.77633E+17	85453432.00	I carried this beer (and this... and a corned beef sandwich) in my bike. #remindmee @ @Arch Gardenâ€¦ http://t.co/UKqrUL1hZ	38.914142	-77.041561
5.80094E+17	79645174.00	Exploring the city one bike ride at a time ðŸ‘ðŸ‘ #adventure #southere #LocalesDC #WashingtonDC #BikingâˆÂ http://t.co/dNNvFIPYc	38.894888	-77.023177
5.80095E+17	74794458.00	My cycling skills outside of the dispinning studio...not so good! LOL! ðŸ™ðŸ™ðŸ™ #CityBike with a â€¦ http://t.co/GHDRQCBN7	38.881058	-77.032367
5.80137E+17	14013126.00	@bikeshare Spotted at my home dock @ Capitol Hill! The dock is full - someone come grab it so I can pend ðŸ™ #bikeinbloom http://t.co/11mmT5gMl	38.88891	-76.995365
5.80138E+17	596749761.00	@pgcpublling @phenningan @Silver Bike Infrastructure is much cheaper than $Metro - why should @AlexandriaVAGov &; @ArlingtonVA put @wmata $$!?	38.859596	-77.058042
5.80139E+17	2287263723.00	OFFLLL! Whooped her ass then pulled off on a beerbike bike! ðŸ™	38.973139	-76.904439
5.80146E+17	596749761.00	@wmbike @pgcpublling @phenningan @AlexandriaVAGov @ArlingtonVA @wmata Key is to build separate #Bike Infrastructure as done in #Netherlands.	38.859117	-77.058122
5.80172E+17	100428059.00	My eternal optimism about DC's weather has led to some painful bike rides home.	38.873639	-77.086471
5.80185E+17	22130769.00	Biciclettando per la capitale ðŸ‘ðŸ‘ðŸ‘ #bike #sharing #capital #bikeshare #Washington #DC #trip #travelâ€¦ http://t.co/yEt51AHyyO	38.8861	-77.050122
5.80218E+17	159180787.00	Bikes adventure. ðŸ™Ð² @ Washington D.C. http://t.co/UOLSpIsuTY	38.863511	-77.086657
5.80323E+17	117685640.00	@bikeshare Have the new National Mall Circulator routes started running?	38.878052	-77.019637
5.80335E+17	41873686.00	Red and Cyclist Safety initiative is under way! #BeAFIL @BikeArlington @WABADC http://t.co/frrMAfgKRh	38.896924	-77.07098
5.80331E+17	41873686.00	Thanks @bikeshack for the breakfast of champions. @BikeArlington @WABADC #BeAFIL http://t.co/zWvXxpuJH	38.89022	-77.088976
5.80361E+17	237574570.00	Buying a professional biking outfit complete with sponsors does not make you a pro biker! Slow the heck down #WBamp;CO riders.	38.829532	-77.117715
5.80438E+17	42355225.00	Some say No Jon you can't carry two pushbrooms in a Burley trailer. I say Hogwash. #bikedc http://t.co/cKRJLXc5K	38.92056	-76.99531
5.80465E+17	85453432.00	Violent armed robberies along popular DC bike trail: D.C. police are investigating a series of armed robberies that â€¦ http://t.co/qcwGxxxd	38.903815	-77.037138
5.8051E+17	100332224.00	This is great really about that bike life	38.859696	-76.978118
5.80522E+17	196759837.00	Congrats to #bikedc for being named 2nd best biking city http://t.co/enBWHSMtm0	38.904523	-77.039736
5.80552E+17	149782438.00	Very informative bike maintenance class at @BicycleSPACE Thank you! And yes, that's my old Schwinn! http://t.co/GHcCBgOzeR	38.883334	-77.01932
5.80731E+17	2731273407.00	@bgwash @bikeshare No. The PASSENGER damaged to car door by footing the CYCLIST.	38.92022	-77.071227
5.80733E+17	251952140.00	Yes!!! #dmv@BicPulse: The Bike Rack/Filter Coffeehouse Opening in Brookland April 18th! #Bikedc #brookland #coffee http://t.co/FZb7VBJRmbE•	38.920154	-76.99819
5.80738E+17	296359158.00	Stop by and see us at #DSC35 and get a free @Bikeshare pass! @InnerDMV.	38.894857	-77.119074
5.80788E+17	147269756.00	One day this will be part of the Metropolitan Branch Trail #bikes! #dmv @ MARC Silver Spring Station http://t.co/HwcUwVKh	38.912708	-77.039642
5.80805E+17	81913437.00	Gear Prudence: When is a Bike Considered Abandoned? Gear Prudence: â€œWe recently noticed at the bike rack in myâ€¦ http://t.co/NCwkLOeoK	38.901815	-77.037336
5.80814E+17	32298723.00	Dieting is easy. It's like riding a bike. And the bike is on fire. And the ground is on fire. And everything is on fire because you're in hell.	38.859692	-77.052385
5.80829E+17	154582520.00	Great advice funny too. @Cop@girls: What to do if you're hit by a car while riding your bike http://t.co/aOkWnDsxM http://t.co/Mu6ol DIlnBE•	38.945125	-77.03976
5.8306E+17	29125041.00	@sharrowsDC My bike has been at work since I was sidelined by an injury in October. Looking forward to warmer weather next week!	38.894727	-77.003382
5.83561E+17	196963735.00	Fire ðŸ‘ @sharrowsDC If you don't drink in this outdoor yoga/pretty much anent'h taking safety vest/cady when you walk or bike	38.925732	-76.94276
5.83576E+17	22105573.00	#TheWeWHop @UMDS#Hondurasc check out our bikes http://t.co/IGRJAWgNSL	38.98792	-76.945038
5.83134E+17	44802870.00	Girls don't like boys. girls like #bikes and #shoes. #hoodrich ðŸ™ @ Bloomingdale https://t.co/e4KKAX8B6i	38.962648	-77.019265
5.83172E+17	19614201.00	Inspired by @DAntos: I strapped Hugo's stroller onto a non-existy bicycle. It works but could use more bungee #bikedc http://t.co/0ARTyzzqMh	38.857607	-77.01476
5.83121E+17	8544422.00	Home laps with #bikedc! @ East Potomac Park in Washington, DC) http://t.co/hoo0Ba4KB	38.876265	-77.027135
5.83227E+17	159602032.00	Will this ice cream melt during my 20-minute 75-degree bike ride home? NOT IF I CAN HELP IT ðŸ™	38.904515	-77.043698
5.83235E+17	21696720.00	Looking to buy a road bike. They're chic and all the cool kids are doing it.	38.919047	-77.026732
5.83265E+17	5865822.00	@taylorjonesok fair enough. I just love the later Kanye reel bike they made.	38.985355	-77.035487
5.83261E+17	15545577.00	#realthyperachermovement. Rode my bike in DC today. http://t.co/USQJTTZKSO	38.915502	-77.002583
5.83071E+17	190461796.00	Me: I had a passion to do things in my college days #rnd. Now you don't have passion? Me: No #rnd. What went wrong? Me: Somebody stole my bike	38.882038	-77.104823
5.83434E+17	147269756.00	I've been awarded the coveted #remandonnee patch! #bikedc @ Dat'ngo's Coffee http://t.co/WuLEMqGoG	38.863275	-77.039833
5.83488E+17	81913437.00	A sliceable suburban highway? One Ohio town pulled it off by Don Metcalf! Wide suburban highways lined with bigâ€¦ http://t.co/J1J7mVWF	38.901815	-77.037336
5.83489E+17	52290307.00	Commuting by bike in Johannesburg: how hard is it? @nicol_wilson finds out http://t.co/NTnM5SKIJT #cyclingtowork http://t.co/BWIOVT4WY3	38.922755	-77.030236
5.83535E+17	16034546.00	Bought Look carbon-frame road bike with 2 pairs of bike shoes with cleats for outside &; for spinning &; wetsuit. https://t.co/Y04uu2ot0	38.95109	-77.032106
5.82947E+17	74631434.00	For the month of April only. Pin back on the bike @LetsRideDC Thursday at 7:5p!! See you there this week. #Bikeride #butterfliedrho	38.917	-77.03978
5.82947E+17	113429647.00	@patralvell Wow. I had no idea biker gangs liked chain restaurants!!	38.922036	-77.034388
5.82949E+17	113429647.00	@patralvell Back in my day real biker gangs would don't be seen at Applebee's. Ha ha.	38.929649	-77.034139
5.82967E+17	19400902.00	Happy Spring #BikeDC @ Arlington Memorial Bridge https://t.co/GBuzRPL1P	38.886667	-77.060833
5.82985E+17	563137844.00	Guy on a bike arrested outside the office. Now getting the pat down. https://t.co/0StkSoaoD8	38.897472	-77.03892
5.8304E+17	141909448.00	@MonicaNKray I just biked by there!	38.921888	-77.03229
5.83042E+17	174673188.00	#newlineds for 730 #spinning: weather not cooperating for late afternoon ride. @bikeviacoject #rainincc	38.882883	-77.061297
5.83046E+17	229827910.00	@CommuteCar_VA Not giving up car. Just committing to ride my bike every day in April! Who knows where it will lead...	38.962106	-77.119631
5.83065E+17	308827026.00	I had such a great time riding my bike around Washington DC today, as I admired all of the memorials! http://t.co/OsqSqXKT	38.864528	-77.044101
5.83555E+17	896356121.00	Walking enriches your life! Just found 1989 Lincoln Penney on the National Mall! @shawstack @BlueWalk #walkdc http://t.co/Hr7mvdEw	38.886405	-77.017417
5.83504E+17	10400902.00	The #CherryBlossom report - they're coming - looking pretty #BikeDC @ Martin Luther King Jr. Memorial https://t.co/afdb2ozVRn	38.885511	-77.043167
5.83566E+17	24610304.00	@bikeprofit biking doesn't seem for a boy to arrive? Seems like it is raising forever!!	38.878915	-77.07501
5.83565E+17	118272390.00	they starting to bring the bikes out round here ðŸ™	38.913038	-76.965444
5.83566E+17	24610304.00	@bikeshare last Wednesday.	38.878812	-77.003338
5.83585E+17	14948202.00	Here for Zen Around the City 1 teach a class on biking. #BikeDC #BikeLife @ Crystal City) https://t.co/HKqmrTON http://t.co/mgyOcPHKZu	38.857422	-77.051238
5.83587E+17	18703673.00	Still trying to get it under an hr #bikedc #bravo http://t.co/2qu7FFVAIS	38.913502	-77.01639
5.83588E+17	18703673.00	Rise from your bed by #bravo #bikedc http://t.co/wkc4ZHdZ	38.913502	-77.016948
5.83589E+17	18703673.00	Brain bucket still feels well-used but I know I just have to get over it #bikedc #highead #strava http://t.co/KHHcfQ0Hs http://t.co/FPpvDVEN9	38.913482	-77.016938
5.8366E+17	52097874.00	They say cycling is the new golf and beer is the new wine @bicycleforbikes http://t.co/eTTDdC59GH	38.906033	-77.012638
5.83638E+17	15231855.00	I can't see these kids (mostly pre-teens) zip in &; out of traffic on dirt bikes &; 4-wheelers without worrying they're going to get killed.	38.846442	-76.981807
5.83669E+17	15231855.00	One kid can't be more than 5-6-12 &; rides this tiny little minibike in traffic on Alabama all the time. Lower than height of a sedan. Insane.	38.842015	-76.989005
5.83642E+17	48072745.00	My creepy blue ride back home. take a look @bgwashing @bikeshare @SocialDC #MidMnfnglvle @FriendlyWA http://t.co/ecSjkwZ0DY	38.915854	-77.049738
5.83738E+17	896356121.00	My @SunBicycle riding across the giant Frederick Douglass Bridge! Wrong. Major on sign! @DDOTDC @Mayor Bowser #Bikedc http://t.co/Rf4Hwy1Ur	38.864652	-77.017218
5.83792E+17	596749761.00	@bgwash @bikeshare Too bad Vice Mayor @A_Silberberg opposes #sustainability based on her votes for #BikeDC foes on Traffic &; Parking Board.	38.859008	-77.058196
5.83789E+17	596749761.00	@bgwash @bikeshare @A_Silberberg may succeed in intimidating her fellow Council members into cutting #Bike share if #BikeDC doesn't speak up.	38.859596	-77.058194

5.85794E+17	14824535.00	@Alexsheve I just parked a bike at the Dupont north station but it wouldn't keep. at all. think the station is down.	38.91690	-77.044612
5.8588E+17	1614641.00	It's a @WABADC sweet the office here at @WholeFoods Bethesda. Come share your #metaphoricounty bike experiences! http://t.co/DMUdf0ZUG	38.987216	-77.102165
5.85883E+17	187946740.00	Take me to your leader. @aceehelmets #wasp #bikeclc #bikeradclc #scooro @ Bike Rack http://t.co/RE2ZTSDAV	38.910898	-77.032612
5.85894E+17	596746761.00	#DC suburb #bike funds on chopping block: #Tourism threatened by cuts to @bikeshare operating & capital budget. http://t.co/WBWMr0K5	38.810067	-77.068106
5.85895E+17	896146938.00	Missing my @dukeBikes in #mke but dig how I see the same concept in #dc with Inch/duals taking advantage of them. http://t.co/ACXSQurdke	38.88497	-77.048593
5.85896E+17	1614641.00	Getting ready to bike home! Ride the CCT to @WholeFoods Bethesda and check up! It's #5% day for @WABADC still some swag left!	38.966086	-77.105478
5.85915E+17	326988128.00	Most embarrassing google query as of late? It's a toss up between how to stop my bike and how to make brownies bake faster. #HOG	38.898918	-76.997196
5.85952E+17	896356121.00	Today @DCPublicDept Bikeclc patrol officer showed me proper way to carry my bike up the stairs in John Marshal Place Park! Cool beans...	38.850645	-76.978691
5.85958E+17	1614641.00	What a day! @WABADC gave out more than 75 maps all our goodly bags from @WFM_MoCo lots of bike to work day flyers and met new friends.	38.888512	-76.086856
5.85965E+17	196756837.00	Waiting for the #dclap outside @PennSocialDC getting excited! #bikeclc	38.896193	-77.023540
5.85966E+17	16901483.00	At Haynes Point #DCBikeParty cherry blossoms blooming and #turnpoorade in the mix http://t.co/RO1gJjvo	38.850746	-77.023663
5.85983E+17	296980412.00	Prepared for #biketo work day today by riding to work. Photo of the cherry blossoms across Potomac on my way home #MFBRIDE. http://t.co/aa3cHS2vN	38.834731	-77.046027
5.85997E+17	424837580.0	@helloeatlanta those are teeny #bikes! Hm...	38.872101	-77.134032
5.85998E+17	16987475.00	Just witnessed 4 consecutive motorists turn right without stopping on a red arrow from 18th to L nw. Cyclists aren't the problem. #bikeclc	38.905526	-77.042017
5.86141E+17	896356121.00	Wal-Mart on H St in #bikeclc no customer parking for bike riders! No bike racks in parking garage! Thanks @Walmart! http://t.co/ooobuwoTZe	38.850648	-76.978657
5.86182E+17	303097811.00	Audrey and I in front of the White House. This was the first stop on our bike tour. @ Washington DC--DC http://t.co/nwtQ2NDUO	38.896107	-77.072901
5.86186E+17	1031427780.00	Taking a tour of the Capital #bikeshare headquarters for #standup4transportation. Bikes are transit! http://t.co/NyVkyOC8B	38.896497	-77.013408
5.86204E+17	596746761.00	@kingbilling I wish @FedExHelp or @FedEx would explain why their company hates #bikes. @BikeLeague @BikeWalk #VisionZero #CompleteStreets	38.836677	-77.048127
5.86216E+17	93001363.00	Just worth mentioning my fancy bike (recently sold my car so I have some extra $) or should I just get a cheap one off Craigslist?	38.900285	-76.090641
5.86251E+17	457934140.00	Too bad @GreyFRegina ending bike licenses! Glad I got mine yrs ago! good souvenir of home town. http://t.co/mcWjxcdq1 http://t.co/mKbw4Q98y	38.990987	-77.098881
5.86285E+17	42363419.00	New bike route home passes a dog park. #bikeclc #winning	38.912354	-77.011166
5.86292E+17	910998591.00	And they love trailer bikes !!***	38.927865	-77.033179
5.86315E+17	12809882.00	And then when I inevitably caught up with them at next light telling me bikes don't belong on the road.	38.832374	-77.038635
5.86350E+17	2298276106.00	Detour on bike commute to see Cherry Blossoms!! #bikeyschlicing @Conversate_by_Bike @BikeArlington @BikeArlingtonv @BikeArlington http://t.co/6MOc67Ucm	38.851231	-77.049478
5.86364E+17	131104332.00	Come ride the mighty #HillsOfPeacoctle w/ us tomorrow on Saturday! 8am we roll from shop! #bikeclc #bikemd #bikeva http://t.co/cVWWCJbyN0z	38.896478	-77.01551

Detailed excel file of 366 Bike-focus sample Tweets from Washington DC

TwitterID	TwitterUser ID	Tweets	latitude	longitude
5.73E+17	2802200413	@heartoutlander @beulahcrusoe @stenbergmika @Heughliots @heughanizers @FansOSamHeughan thank u!	38.889995	-77.086826
5.73E+17	1606990741	Deberian exportar Paso de los Toros. Estoy necesitada.	38.986135	-77.088226
5.73E+17	105434420	I like doing what we do when nobody around _"$	38.923723	-77.021206
5.73E+17	49530624	@TalkerNewYorker amazing. Same w/ Ted. Those who fought the nazis and saved others displayed an incredible level of bravery and courage.	38.889933	-77.030568
5.73E+17	152919240	When bitches make mistake do yall feel bad about it	38.860555	-76.949044
5.73E+17	47081057	@shawnblanc oh yea! I_"'ll start reading it omorrow I think.	38.90382	-77.030916
5.73E+17	1890536647	Just woke up	38.925295	-77.004522
5.73E+17	427630477	Thanks for everything @CutonDime25.	38.900051	-77.048335
5.73E+17	66604591	@Chantellesay guilty_'"	38.936029	-77.024647
5.73E+17	17931851	Big sappy pinot fruit #delectableapp @ Rasika West End https://t.co/9b44NkC0u5	38.905468	-77.047572
5.73E+17	2367317738	BS Ref's!	38.884446	-77.112641
5.73E+17	19913575	Nini Krever and me at #AIPAC. We met in early1960s at Bay Beach in Ontario Canada where our https://t.co/lUqwIn3JIU	38.814138	-77.040446
5.73E+17	532286836	@jonkarl @jasoninthehouse You are a political hack. Surprised ABC hasn't promoted you after this hit piece.	38.831993	-77.007542
5.73E+17	419810713	lmao luv life	38.995274	-76.992621
5.73E+17	220508211	@imfreddiemac already	38.802371	-77.08365
5.73E+17	202673125	I stayed with the latest BabyPhat on my back	38.922069	-77.010206
5.73E+17	279272025	911 I've heard the word millennials three times before 9 am.	38.939251	-77.084959
5.73E+17	98474547	My alarm didnt go off _"'	38.927309	-77.020993
5.73E+17	172840878	Chris Messina-Boyer speaking with the students at the Newseum before we take our tour. @ Newseum https://t.co/izaqLsiuQl	38.892732	-77.019344
5.73E+17	1935505438	!!!!! Yes !!!!! @Newseum @NewseumEdhttp://t. co/XB0bAmr5Fe	38.888892	-77.014101
5.73E+17	2591880962	Snow day â"®â•aka my spring break has begun!	38.899506	-77.04931
5.73E+17	15582074	Well this is intriguing http://t.co/8ymIjgS4QF Global copyright determinations	38.904228	-77.042458
5.73E+17	189614954	These girls are really crying ðŸ˜‚,ðŸ˜‚,ðŸ€ðŸ€ðŸ€ðŸ€ðŸ€	38.921109	-77.017133
5.73E+17	223922535	Just posted a photo @ Lincoln Memorial https://t.co/kXzaDzkfQG	38.8893	-77.050122
5.73E+17	556126496	Hot Seller: International Spy Museum: The Permanent Exhibit @ International Spy Museum (Washington DC) http://t.co/JonmKezbFR	38.896945	-77.023617
5.73E+17	2765611039	Dat juss blew me bruhhhðŸ"¤ðŸ"¤ðŸ"¤	38.907904	-77.013634
5.73E+17	610185044	My math teacher is so much kiix eh...it's a pity I don't come to this class more often lol	38.923563	-77.020782
5.73E+17	66711859	Missing my seniors. Kinda wishing I took mike up on his New York offer. Oh well. Spring Break will go onðŸ"'	38.908142	-77.03558
5.73E+17	2314156260	COI: Business Objects Developer (#WashingtonDC) http://t.co/vKOQdm6ALE #IT #Job #Jobs #TweetMyJobs	38.895112	-77.036366
5.73E+17	174377381	@JuliannsMine Love you more Abby Boo! â•â••	38.845235	-76.978495
5.73E+17	42111754	Not even a weather-related DC shutdown can stop my fitness flow! #MarchMotivation http://t.co/AVgrEY588j	38.886238	-77.003013
5.73E+17	29765306	Snapchat: yeahcri	38.957457	-76.939952
5.73E+17	1493082482	Anyways bout to wash my hair.	38.905037	-77.009731
5.73E+17	14311729	Day 6 of no Internet or Cable and Verizon is back to saying what they said on Day 6: We're sending a technician tomorrow. (Con't)	38.975706	-76.997072
5.73E+17	488727238	Thanks for coming out today Farragut friends! Tomorrow - weather be damned - we will be at West End.	38.915991	-77.033733
5.73513E+17	2240878468	Bitches say dey wantðŸ"» but I fuck em den I duck emðŸ"œ cuhz i ain't no bitch in da world out here worth cuffinðŸ"	38.922648	-77.002737
5.73529E+17	22144393	Big red my faithful SUV is currently covered in snow :-)â€¦ She loves snow as much as Iâ€¦ https://t.co/dAdk2xlsrZ	38.885152	-77.005274
5.73514E+17	2970821661	How to NOT get re-routed by a physical DB. (Jimbo Fisher). LETS GET IT !! http://t.co/77WliiIVRx	38.924125	-76.965482
5.73762E+17	2502443854	@Cbebitchh: @BaddGalTy ðŸ"¶ðŸ"¶ðŸ"¶ðŸ"¶ no after I talk to Regus I gotta call Donnie back I'm up off the boot ðŸ"¶ðŸ"¶ðŸ"¶ðŸ"¶Its you need to go headdd	38.921567	-77.008987
5.73835E+17	45486309	This is my favorite picture ever to exist @Angellicasata http://t.co/QgzX0MoGxJ	38.921192	-77.017258
5.73955E+17	2874636999	â€œ@Banrond: S/O my man Jesus Christ	38.903814	-77.018857
5.74221E+17	294799358	baby girl you a blessing ðŸ"¶	38.817003	-76.945564
5.74411E+17	322059787	@I_OchoNachosLo I think I got a stomach virus threw up Dnt have no type of appetite	38.822566	-76.999899
5.74003E+17	2186791493	â€œ@oohsaiah: 60. Spongebob character that you relate toâ€•Sandyâ€	38.810981	-76.977448
5.74084E+17	174377381	@DenzelPhoenix ðŸ"¸ðŸ"¸. Youfunny as shit. I feel youtho.	38.845251	-76.978489
5.73642E+17	253410333	@Frank39330: We have to have the most delusional fanbase in the NFL it's not even close imo. Cowboys and Redskins are the top 2	38.85268	-76.951777
5.74475E+17	294799358	tummy hurt ðŸ"«ðŸ"«	38.817143	-76.946098
5.74625E+17	59785902	â€œ@No_Cut_Card: LOL Foxy Brown titties look like Musiq's eyes.â€•BRUH	38.9575	-77.021057
5.7361E+17	174377381	Jessâ€¦.. RT @JessicaSaidSTFU: :(http://t.co/a5dvnx5IVE	38.84506	-76.978471
5.74545E+17	389574601	Same Shit Different Day	38.882126	-76.936234
5.74435E+17	410445325	I added yall with the quickness so add me back or you sus	38.918066	-77.014791
5.73703E+17	3069273557	brian what hell! ðŸ",	38.881933	-76.935587
5.74104E+17	350269445	Putting everybody on the block list ðŸ"µâœ<	38.807977	-76.987689
5.74037E+17	16528755	@gpleahy thank u	38.897586	-77.031668
5.74269E+17	94240866	25 this is only the beginning.ðŸ'«ðŸ"' @ Madhatter https://t.co/g9dhLFAL0h	38.907844	-77.042102
5.74011E+17	1921924434	When you're too cute @ mavis @ðŸ'‡ðŸ'§ https://t.co/UxqtZiew0K	38.030459	-77.0689
5.74011E+17	581476463	â€œ@2Trinzz: 8). taken or single or complicated ?â€•takenman	38.827248	-76.991703
5.73992E+17	3030684957	My MF BestFriend ðŸ"¶ðŸ"¶ðŸ"¶ŒðŸ"¨ðŸ'œ http://t.co/2GtA7MzP3c	38.850726	-76.910251
5.74093E+17	2372134292	Let's see if the Madison WI police department learned anything from this week's #Scandal episode...	38.915586	-77.022482
5.73641E+17	2304184395	This guy still trynabe Indiana Jones. Now that's just plane stupid	38.91743	-77.031753
5.74337E+17	189614954	Stop being a fuckboy so i can loveyou	38.921246	-77.017327
5.74593E+17	1172892470	I'm just all fucked up ðŸ"	38.851497	-76.917998
5.74564E+17	317122648	@BillyCocaine dead ass head my brain on overload but he's on the verge of breaking the secrets of our existence. Pay attention guysðŸ"Œ	38.85714	-76.964385
5.73976E+17	15431098	@CuseCheer @kimincuse @CuseGrad @SyracuseU @SUCollegeofLaw SU Basketball is LIFE the rest is just details. #OrangeNation ðŸ"¶ŒðŸ€#CuseMode #NCAA	38.901523	-77.001199
5.74248E+17	239990178	@BIGGxGOVLV @ChristianDenoir @FlyGuyIvey ðŸ",ðŸ",ðŸ",	38.958329	-76.993767
5.74463E+17	142268066	@AndrewLeeClark // Kimmy Schmidt?	38.917399	-77.023969
5.73999E+17	269018961	Finally out the house! @ Gordon Biersch Navy Yard https://t.co/9cwRPOZo94	38.876656	-77.005784

5.74221E+17	75753952	@PrabhuChawla @NewIndianXpress while the administration and leadership twiddled thumbs	38.916316	-77.040758
5.74205E+17	15266838	Well of course. #MoMoney @danamo: Instagram Ads Will Soon Include Links http://t.co/RKWhD35vcs	38.863973	-76.950211
5.74343E+17	2686346600	Wish there were more sweethearts in the world like @danleeh1984 <3 you baby	38.904963	-77.01773
5.7462E+17	472538042	They way y'all limit women to being sexual objects while simultaneously forcing us to suppress our sexuality is amazing	38.92857	-77.008134
5.73867E+17	2792395594	Now it's up to me if I'm going to â€"	38.034252	-76.982323
5.7393E+17	509132829	Got my cakeðŸ˜‹ðŸ˜‹	38.955145	-76.983257
5.74496E+17	382296252	Yo Hustle Will Determine How Well U Eat.....	38.916835	-77.01537
5.73915E+17	1510862665	Bestfriend coming over rn and the rest my bitches coming tomorrowðŸ˜©ðŸ˜	38.832059	-76.910607
5.73919E+17	14824337	#Ravens: Jarret Johnson Will Sign One-Day Contract To Retire A Raven http://t.co/UTpuHjFXhP	38.989293	-77.098974
5.74589E+17	417006076	I'm at Maryland Buddhist Center in Hyattsville MD https://t.co/aDsbu8O1rM	38.966583	-76.955727
5.73694E+17	258439809	#Oomf Was Telling Me That Too ðŸ˜	38.880442	-76.939696
5.74067E+17	3050473521	@ipeepeeonu I miss your lame ass	38.956934	-76.920544
5.74344E+17	304604364	It's official...Chaplain Agnes Kyozaire Lugira...at your service praise the Lord @ Arlington VAhttps://t.co/CbGWAgasVt	38.848729	-77.052061
5.74624E+17	1003173584	Pleased to see this up from the London Review-â€œ@LRB: Elaine Showalter (@ecshowalter) on Sylvia Plath http://t.co/LhOP0iCvk0 #1WD2015â€•	38.962579	-77.092082
5.74448E+17	2939869335	HELLO MOTHERFUCKERS ðŸ˜‹ðŸ˜‹	38.949017	-77.017596
5.74588E+17	40857714	That's my muthafuckin baby ðŸˆ	38.899939	-76.917981
5.74026E+17	238691664	Sneakyyyyyy	38.889789	-76.954004
5.74408E+17	908860536	"Toyota Hyundai and Audi drive by" @_ShelsPoison : Was that a Honda?	38.902625	-77.055547
5.74312E+17	582198153	What a glorious task we are given. To continuously improve this great nation of ours. #Selma50	38.913643	-77.041679
5.74229E+17	27108396	@FoolimaFool ðŸŒ§na. No pussy for a ride	38.905743	-77.062743
5.73879E+17	139905865	Celebrating men who support women! TY @Joel_Kaplan #LeanInTogether @Bob_Moritz @Dennis_Nally @PwC_LLP #HeForShe http://t.co/EjlmTjyYND	38.984757	-77.079387
5.73563E+17	21867024	All the best planets have one RT @nytimesscience: Mars Had an Ocean Scientists Say Pointing to New Data http://t.co/1eZc9f36if	38.888235	-77.000574
5.74075E+17	1554354618	IM TIRED OF FUCKING STARVING.....TIME TO EATðŸ´ðŸ´ðŸ˜	38.841028	-76.992705
5.74371E+17	20731951	@Nineofthestate1 @jaketapper to grant legitimacy to the civil rights movement.	38.960448	-76.933458
5.74606E+17	617769938	@Ebbbbie_E get your friend sahn ðŸˆ, http://t.co/Hzf27Kn4bU	38.815267	-77.105459
5.74925E+17	3041616867	I don't tryst nobody	38.81585	-77.017924
5.7497E+17	303585091	@HeroOfTime_ but we love each other...	38.917411	-77.08895
5.74915E+17	36476713	Save $50 w/PromoCode: friendly50 Payment Plans are available & pay in full at time of booking save an additional 5% http://t.co/QSpjvYOq2e	38.904312	-77.047261
5.75109E+17	24480432	@Naims_View I already know. But you shaky on and off the court Bro	38.929284	-77.01914
5.75111E+17	3034923623	@SendEmToMars -.-t	38.962001	-77.027317
5.75087E+17	2751064179	If your secondary ref corrects you and you don't listen you're an idiot	38.907827	-76.94671
5.75121E+17	48376756	@RustledJim Championship will be in DC good sir!! #TakeARoadTrip#DC	38.937583	-77.089854
5.75053E+17	1834783722	@NoChillPosts @gruglax	38.962028	-77.057032
5.75136E+17	344644446	@Jimmy_Battle Yep. Babies!!!	38.918297	-77.01748
5.75174E+17	61699674	#TeamApple I want the #iWatch and #Macbookproð•¹	38.991177	-77.037951
5.75343E+17	73510884	Re-fueled with some lunch :) more meetings to go#safcsd	38.806697	-77.00044
5.75E+17	325823230	There is nothing but Hispanics in Adelphi mc Donald's ðŸˆ,	38.984548	-76.970649
5.74909E+17	120915785	#ALEXANDRIA VA #Nursing #Job: Monitor Nurse - PRN RN Inova Alexandria Hospital at Inova Health System http://t.co/29fNknyRWI8	38.824029	-77.104485
5.75174E+17	2779811699	@BabyboyGlizzy Right Beside Me Trying Too Shoot ðŸˆ«ðŸˆ«ðŸˆ« Somebody @SincereGlizzy Voice #BARBARASON	38.845302	-77.000157
5.75092E+17	74357387	Diamond just real live took crazy to a whole new level... Shit rich must've fcked her brains outtttttðŸ˜‹ðŸ˜‹ðŸ˜‹, Lls #LHHNY	38.893802	-76.928024
5.75120E+17	472538042	What http://t.co/fMzn0vM40Y	38.928281	-77.008123
5.75006E+17	14306728	Hatred of vacuums love for books and kitties...this child is related to me. :p (And I bought her the pink sweater!) http://t.co/KntWesjji1	38.898422	-77.012454
5.75351E+17	74087670	@DCHomos #blessthismess	38.892083	-77.000223
5.75347E+17	1465392751	#DePaseoPorLaCasaBlanca @ Washington D.Chttps://t.co/pxlAmowwp0	38.895111	-77.036667
5.75204E+17	61699674	Guess due to Wi-Fi I can tweet	38.990991	-77.033472
5.75811E+17	206393039	It is an odd thought that a guerrilla war that killed 3 600 people lasted well into my lifetime in the British Isles	38.916946	-77.037122
5.75724E+17	2571008443	BG Representatives participates in The Future of Undersea Special Operations Forum @CSIS #3Stars	38.906886	-77.037776
5.75465E+17	80686136	@xkoolxmonkyx so.sorry u experienced that fuck shit.	38.907501	-76.984864
5.75822E+17	150404352	@gray I'm guessing Lucy didn't makeit.	38.964951	-77.030197
5.75632E+17	90903507	OMG BREAKFAST OF CHAMPIONS !!! ðŸˆ ME & Lil Man are in heaven ! Thank You my Ninja Sleek ðŸˆðŸˆ 2. NEXTâ€¦ https://t.co/EejSTGSc8o	38.880489	-77.016403
5.75652E+17	803400263	But God made me a brownskin goddess honey bun ðŸˆ¶ðŸŽ¶	38.869287	-77.090034
5.75691E+17	631014645	@OHSgov @FBI @TheJusticeDept FBI KnowsAllCriminalsInvolvedinTheCrimesCommittedAgainstMyFamilyDoesFBIHelpBlackCitizens? http://t.co/LjxxiW0pnD	38.950969	-76.911985
5.75309E+17	174377301	@KristenLovesBow No I didn't	38.845235	-76.970596
5.75775E+17	1678257769	Looking forward to hangin out with @daveschmidgall and @NCC for #AcquireTheFire. Tonight @ 7pm @NBBC_DC!	38.913976	-77.023027
5.75418E+17	158056426	Bet whoever willing to race	38.860711	-76.915982
5.75759E+17	2928103349	@TimHowardGK I just read your book! How do you save all of those shots anyways? Did you know your beard has a Twitter account?	38.949867	-77.084411
5.75396E+17	590596039	Happy #transformationtuesday! In honor of my BFFAE coming to visit me tomorrow(!!!!) please enjoyâ€¦ https://t.co/NE3WnWK4GK	38.988387	-76.944449
5.7592E+17	44412012	As you get one more sleep before the #2015BMA the transformation is under way. Thank you Shawn andâ€¦ https://t.co/muL3mzxLAQ	38.897662	-77.017445
5.7576E+17	413719495	@connordoinwork his mind is running like so Why yes I'm a sports commentator by day superhero by night. Why do you ask?	38.807045	-77.070381
5.75776E+17	391611847	Zae So Fuckin Greedy Takin Kids Food Off They Plates Smh	38.864235	-76.981371
5.75454E+17	2892479139	@Saints dumbest decisionEVER	38.971397	-77.103916
5.75835E+17	279283385	â€¦@ Tay2x: Granny really do love Hakeem Bruh ðŸˆâ€¦ðŸˆ,ðŸˆ OhShit	38.838302	-76.999157
5.75803E+17	2957403610	Great organizations & programs @THEARC_DC. Youth Nights 2 start soon with positive activities for our young people.	38.843538	-76.975427
5.75502E+17	331454429	Its almost my birthday let's eat up ðŸˆ	38.850983	-76.914779
5.75813E+17	56455353	I'm at The Board Room in Washington D Chttps://t.co/VKfPOiFb8P	38.913559	-77.045639
5.75534E+17	81420734	Got that OG	38.991434	-76.985434
5.75655E+17	224818894	dead ass if Howard was in ATL I wouldnt have come here.	38.920026	-77.017248
5.75826E+17	17282363	My day with Silicon Valley #startups: http://t.co/Xxm7qoenEl http://t.co/sn3nZH9iBA http://t.co/5S3IoD3EUJ http://t.co/ozuUEVEMmb	38.900193	-76.995294

5.76102E+17	2239993400	$30 will ship out today! [ ] http://t.co/PGgVAB5L7q @ http://t.co/4mn9PxM5sg https://t.co/2jg23PVRfO	38.893915	-77.014015
5.76104E+17	259052795	We weren't close but he was always coolpeoples	38.986691	-77.025613
5.76104E+17	1731959418	Chevy Chase is poppintoday	38.950056	-77.080475
5.76104E+17	25535595	Such a tribute to #DOLhonors Senator EdwardKennedy. http://t.co/EmxiRaEo1P	38.910065	-77.03168
5.76104E+17	236644373	Bouncing to that OG remix! #MontellJordan #Dabrat #GetitOnTonight :)	38.898021	-77.00557
5.76104E+17	35363834	@raveyraverae Ikr!	38.9324	-76.933231
5.76104E+17	472538042	Treating myself to chipotle after twerk i might just go on a FT date with my boyfriend Laraya	38.898394	-77.028057
5.76104E+17	2176401953	Ok today is a nice day BUT WHY TF ARE PPL WEARING FLIP FLOPðŸ"¤ðŸ"¤ makes me want to flipflopthey asses	38.951739	-77.001993
5.76104E+17	59785902	It's all curves and friends till you get a significant other. New people be coming out the woodworks making confessions nshit.	38.957538	-77.021008
5.76104E+17	1118192420	I'm at @WashingtonDC in Washington DC https://t.co/WwW1w3bAMg	38.895275	-77.036433
5.76105E+17	81913437	KevinPlank's Port Covington deals have speculators flocking to Westport: Residents of Baltimore's Westportâ€¦ http://t.co/aYke0fz3Ij	38.901815	-77.037336
5.76105E+17	81913437	Under Armour extends athletics contract with Boston College: Under Armour Inc. will outfitthe sports teams atâ€¦ http://t.co/Z9Hv83ECZR	38.901815	-77.037336
5.76105E+17	81913437	D.C.â€™s now just shy of AAA at Moody's: Moody's Investor Service has upgraded the District of Columbia's Generalâ€¦ http://t.co/VuzM5aR8II	38.901815	-77.037336
5.76105E+17	81913437	With demand growing, D.C. looks at expanding rules for medical marijuana cultivation centers: D.C. officials areâ€¦ http://t.co/O7h3mwTS0Y	38.901815	-77.037336
5.76106E+17	242125114	@Billlykeer you act like ours isn't stacked with pro bowlers again stfu	38.931341	-77.019552
5.76106E+17	595077031	A homeless guy just called me Sarah and Kendall hot ðŸˆðŸ",	38.890597	-77.027223
5.76106E+17	2179179690	My Outlander source DMed me that Jaime and Claire are beating AQ; as they should be. Widen the gap.	38.926455	-77.039578
5.76106E+17	59785902	@KadeemLaron Smfh deadass. The ends be wide as hell talking about pearl gang TF?	38.957541	-77.021135
5.76107E+17	353271188	Bouta Juss Order DeseV3's	38.972137	-77.027004
5.76107E+17	329350891	@Oatjugginshawdy wya bruh	38.825	-77.002071
5.76107E+17	22408078468	Ctfup Ceaira unfollowedmeðŸ",ðŸ'ŒðŸ'€ smh	38.923396	-76.999254
5.77426E+17	340568618	Where u at bitch @serene566	38.794187	-76.92965
5.77426E+17	341617430	Powerful episode of @ThisAmerLife - seeing if the grass is greener on the other side of #education	38.921773	-76.995513
5.77426E+17	403530832	@MCatson @burakkseker Amerika'da da sabah 5'te gelen Ã§Ã¶p arabasina uyanip bu ne ammua koym ya diyolar. Hayalini kurdugum yerde degilim.	38.891936	-77.000102
5.77426E+17	2871891724	"Hope School Go By Extra Fastâ€¦	38.899036	-76.950854
5.77426E+17	2472884941	#NBLNathaliaVoto #NBLNathaliaVoto #NBLNathaliaVoto #NBLNathaliaVoto #NBLNathaliaVoto #NBLNathaliaVoto #NBLNathaliaVoto 12	38.800591	-77.067176
5.77432E+17	274127760	Goodmorninggg ðŸˆ	38.813642	-76.965281
5.77432E+17	296404744	@OILLONFRANCIS just did some watershots	38.909749	-77.06109
5.77431E+17	206828502	Goodmorning Twitter	38.908374	-76.984833
5.77431E+17	636137242	when meezy being a bad girl real early in the morningðŸ"«ðŸ"	38.961858	-76.97984
5.77431E+17	2423494671	I'm praying I didn't fuck up ðŸ"	38.988422	-77.042455
5.77431E+17	331454429	Who wants that perfect love story anyway!	38.851082	-76.914905
5.78039E+17	528575195	@KevDC @capitalweather#climateStrange	38.908069	-77.047824
5.78039E+17	302296252	Do I got a goddess in Miami?	38.916739	-77.015526
5.78039E+17	55737136	@gtownwayne performing #knowme from his new album #25organic in @crvckoriginals ðŸ"‹ #BLACKTAPESERIES â€¦ https://t.co/rf6FzngIce	38.94865	-77.026654
5.78039E+17	1436590134	#rt block is wild ðŸ",ðŸ",	38.857247	-76.922279
5.78039E+17	2650123869	@glassmanor_mar I gotchu ðŸ""	38.82167	-76.953045
5.7804E+17	1195458259	Awwww I'm a lawyer and I'm soooo nice. @cFidd @Tinder @Match	38.899559	-77.021838
5.7804E+17	159576769	They don't like me ðŸ"' I don't care ðŸ"™...ðŸ"" so was NEXT? ðŸ"½ðŸ"...	38.858076	-76.990942
5.7804E+17	2436162155	Lil buck buck got jokes doe he doing it one time for the ugly light skin people @lilchris_shawdy	38.855568	-76.990714
5.78041E+17	2569624658	It's Only Up From Here For Me	38.826332	-77.086066
5.78041E+17	39100192	@boteball The big parties are stronger than they've been in a generation which may mean less pandering to the fringes.	38.906586	-77.046678
5.78041E+17	159576769	@Jhaymykel you could wait unless you do get them ones that been sitting out all night ðŸŒ‡ tomorrow morning ðŸ",ðŸ",	38.858093	-76.990903
5.78042E+17	816571716	I'm at Sign of the Whale in Washington DC https://t.co/MKqDpFsLWH	38.905703	-77.04277
5.78042E+17	2436162155	@lilchris_shawdy ice jj fish lookin ass boy	38.855488	-76.990664
5.78042E+17	112875594	I'm the type that could never be around my Manz Girl....Iont trust u hoes	38.881371	-76.93598
5.78042E+17	1576422204	Today was an ard / Funn day ðŸ™ŠðŸ"ŽðŸ'ŒðŸ",	38.899272	-76.93308
5.78045E+17	158428977	GET THE FUCK OUTTA HERE!!! With @enigvec (when you're waitingfor @only1quest LMAO) ðŸ"" #karaokeâ€¦ https://t.co/JpuOHWcsE0	38.864727	-76.989537
5.78045E+17	414957713	Clean up on isle 9... @ @ Not Witter's Bench https://t.co/C2kx4hksf	38.827014	-77.061036
5.78046E+17	159576769	@ayeeeTHATS_Dee ðŸ"¤ awee its ok ay ðŸ"" & stop lackn walkn to the store earlier	38.85818	-76.990982
5.78046E+17	88548996	@ belovedbri ðŸ",ðŸ",ðŸ",	38.874782	-77.086397
5.78046E+17	2287293723	I feel ugly as shit when I break out. I feel like everyone be looking at my pimples & shit ðŸ"-ðŸ"©	38.961477	-76.9689
5.78046E+17	2302311180	KTP Graduate #Education #Jobs: MCAT INSTRUCTOR - Arlington VA (#Arlington VA) http://t.co/oEUD55xxwt #Jobs #TweetMyJobs	38.87997	-77.10677
5.78361E+17	35676441	Feel like cookie wanna pull a gun out her purse and shoot this dude lol #empire. That woulda been cray right	38.925144	-77.023271
5.78361E+17	385579301	THIS A DREAM WHOLE TEAMâ€¼ðŸ",	38.849966	-76.972968
5.78361E+17	215954089	Of course Jamal!	38.86215	-76.990011
5.78361E+17	213038559	@_Michsi_NOPE	38.949749	-77.030932
5.78362E+17	1403911086	He know cookie was tryin to kill him with the pillow	38.926934	-77.001402
5.78362E+17	2949434030	He Gave Her The Fucking Murder Weapon ðŸ'ŒðŸ'ŒðŸ'ŒðŸ'ŒShe Sick As Shit	38.896894	-76.946847
5.78362E+17	257721453	Beef Ribs! (@ Rocklands Barbeque & Grilling Company in Arlington VA) https://t.co/9J1S8ZNGhN	38.886251	-77.103408
5.78362E+17	81420734	That pillow	38.991572	-76.985033
5.78363E+17	2985163823	Losing My Voice Cause Of This Damn Show ðŸ",	38.972728	-76.960984
5.78363E+17	798119124	Bet April 3	38.824073	-76.998726
5.78363E+17	1049123606	@ShaanEverett Why	38.919882	-77.017155
5.78364E+17	44681253	I'm at @ResidenceInn Arlington Pentagon City in Arlington VA https://t.co/UZGpDmHJH9	38.864786	-77.056168
5.78364E+17	2468418299	Yesss HakeemðŸ™Œ his Body Look GoodðŸ'ŒðŸ'ŒðŸ™Œ	38.878551	-76.989595
5.78364E+17	2491363373	http://t.co/p8uOVr3hMo	38.942346	-77.021774
5.78364E+17	710384225	lil boujie bitch ðŸ", playing mommy & girlfriend ðŸ"©ðŸ"	38.837159	-76.988783

5.78364E+17	2174557010	Anika lil ass wildlike I can't even look at that bitch mðŸ˜·ðŸ˜·	38.868327	-76.922561
5.78365E+17	1122427519	city city city @ Washington D.C https://t.co/eblHtM5uzn	38.895111	-77.036667
5.78365E+17	2949434030	He Did Jamal Dirty ðŸ˜	38.896888	-76.946824
5.78365E+17	261844759	Jamal hood asf ðŸ",	38.871535	-76.969557
5.78365E+17	120274323	Met up with an old friendtoday. @ National Gallery of Art - East Building https://t.co/1DPchU8T8P	38.891571	-77.019181
5.78566E+17	928104547	OH SNAP! CHOCOLATE CITY #Happyhour @FoothillsBeer SexualChocolate$3 @newbelgiumbeer CocoMÃ²le$4 & @Hardywood SidamoCoffeeStout$5 nom Nom NOM!	38.907916	-77.042261
5.78566E+17	367889659	..@MARCMORIAL: 1st http://t.co/LEJUWwvz5g published 39 yrs ago to reflect impact of recession in @NatUrbanLeague communities #SaveOurCities	38.895809	-77.011256
5.78566E+17	240939819	@RawStory Anyone else miss the days when the racism â€"never mind the blatant partriarchy â€"at least tried to be subtle? Yeah me either.	38.882454	-77.013978
5.78567E+17	1025240022	I can't wait until empire come back on ðŸ"'	38.889136	-76.936485
5.78567E+17	260099570	These Videos At Work Be Makin Me Tired is SHIT ðŸ™€	38.92081	-77.022372
5.78567E+17	1858751138	Yothat bat was funny asf ðŸ˜‚ðŸ˜‚ðŸ˜‚,	38.821131	-76.97707
5.78567E+17	2359680135	Work callingðŸ˜‚ðŸ˜‚,	38.833026	-77.008424
5.78567E+17	260099570	Draining boots ðŸ˜	38.92081	-77.022372
5.78571E+17	1100056122	Visit with @ChrisCoons thank youfor being a community health defender for DE #healthcenterfundingcliff http://t.co/OxZSJC0BVn	38.892699	-77.004996
5.78571E+17	2179179690	@bchamer23 it's so good and it has its own little badge. http://t.co/UNCgN3W2eK	38.926486	-77.099364
5.78571E+17	383451325	@_YoyoMOJO @KinggOfKEYS ðŸ™" ðŸ™"‰ðŸ™"$	38.876906	-76.992462
5.78575E+17	2951301100	Lt my life like where tf did he come from & who is he	38.794961	-76.929245
5.78575E+17	282220834	@BrittSaphXO ðŸ˜‚ðŸ˜‚ðŸ˜‚, night!! That shit looked so familiar ðŸ˜·	38.917793	-77.01468
5.78575E+17	338659129	I had a amazing time last-night with my date. ðŸ"	38.813598	-76.956217
5.78575E+17	72416351	@JapersRink @alex_prewitt Good teammate too. I recall him essentially apologizing to Schmidt in press conference for bumping him out of WC	38.900879	-77.014479
5.78575E+17	53399676	BahahahahhahHhaa omg this is so bad#The100	38.951443	-76.995379
5.78575E+17	98138251	#ArlingtonCemetery @ Arlington National Cemetery https://t.co/1Rv2Ig58wg	38.882074	-77.066761
5.78575E+17	2930996543	You are not going to cure polio with PR. Take that off your list - #PRSAdc	38.895126	-77.022079
5.78575E+17	195326874	Special meeting of the permanent council. Venezuela situation. @Ecuador_OEA @OEA_oficial @MarcoAlbuja	38.892839	-77.040509
5.78577E+17	200310020	MacDonaldon federal-provincial relations re: PEI oyster fishing. They made love to each other jurisdictionally speaking... #ASEH2015	38.906078	-77.048763
5.78577E+17	2372208656	@suny team at @SenGillibrandOffice for #nafsaAD @NAFSA @binghamtonu @FarmingdaleSC #Cubapolicy #ISquared http://t.co/V3kuELFtpS	38.893073	-77.006319
5.78577E+17	2591880962	@SpriggsChandlor so lucky. Can't wait till summer ðŸ"•	38.895592	-77.049254
5.78578E+17	1603419038	cc @gregorykorte RT @vicenews: Actually the White House FOIA scandal isn't really a scandal: http://t.co/UuzLZOcJo8 http://t.co/m O9oZyRhR3	38.897372	-77.036846
5.78578E+17	71653776	..@repberraylujan reminds us theres lots of work left to connect #rural America & we should get to it. YES!ðŸ™ŒðŸ'•#HouseOversight #RuralChampions	38.9066	-77.042739
5.78578E+17	1673544055	Lewis: Election admin's choice- admit need for new equipment & lose my job or keep quiet to keep my job despite equipment failures. #EACvote	38.99333	-77.032457
5.78581E+17	2951301100	Lrt that shit look bombðŸ˜‹	38.794648	-76.930488
5.78581E+17	71653776	..@RuralBBPolicy shout out to .@MClyburnFCC .@repberraylujan - #RuralChampions workin to ensure Internet awesomeness reaches ALL Americans	38.906806	-77.042866
5.78581E+17	10021212	Mini-Cog (3 Question Recall +/- Clock) effective for screening. If 3? right Clock not needed. #geriatrics #USAFP2015	38.84866	-77.05208
5.78581E+17	16287218	Letting this kid tire herself out (@ The John F. Kennedy Center for the Performing Arts) https://t.co/Y7rQpcNGCz http://t.co/fBdj4bLQc	38.895926	-77.055702
5.78583E+17	1369833944	"Ole Miss' appeared on Wednesday 18 at the 4th place in the Top 20 of Washington's Trends: http://t.co/jiHDAVuzn9 #trndnl	38.8991	-77.029
5.78583E+17	117237477	I gotta hit the dentist ðŸ˜©everything cold that touches my teeth hurts ...!	38.841997	-76.993357
5.78593E+17	71653776	.@JRosenworcel the cruelest part of #digitaldivide is the #HomeworkGap We are leaving #rural #Native #poor youth behind. #subcommtech ðŸ™"	38.90677	-77.042959
5.78584E+17	215354089	â€œ@DeyLoveSlick: @TheOnlyyUnique but you still love meâ€•I hate you I hate you I hateyouâ•°(ï¿	38.862019	-76.990446
5.78584E+17	338659129	you are such a beautiful college girl ðŸ˜‚ðŸ˜‚» brains & beauty @YouLoveAshh ðŸ˜»ðŸ˜». your gorgeous ðŸ"•	38.813496	-76.955876
5.78584E+17	1411023120	IMF/CFD Financing for development conference: the program is online #FfD @IHEID @upanizza @IMFNews @davidroodman http://t.co/GDKyVWcXC2	38.898501	-77.044659
5.78589E+17	307579370	empire was so damn good lastnight ðŸ™ŒE they need to rerun that again tonight ðŸ˜	38.83432	-76.992092
5.78589E+17	120834836	REGISTERED NURSE - Inova Health System: (#ALEXANDRIA VA) http://t.co/ybntUksGYK #Nursing #Job #Jobs#TweetMyJobs	38.824029	-77.104485
5.78591E+17	185913069	@DominionWB See ya at 5!	38.913803	-77.038626
5.78592E+17	301664439	I'm at One Skyline Tower in Falls Church VA https://t.co/7uS2kEMGeO http://t.co/L5DTuvBseh	38.844544	-77.116805
5.80069E+17	40995736	WASHINGTONâ€" (@ The Beacon Hotel in Washington DC) https://t.co/T6LEynOY4k	38.90676	-77.03795
5.8007E+17	1297108764	@LauraKaySherms oh gawd this makes me seem like an awful personðŸ™"	38.815031	-77.03941
5.8007E+17	155744025	I'll have these damn train tracks off by my birthday ðŸ˜‚ðŸ˜‚.	38.920946	-77.018601
5.8007E+17	162265720	@jstreetdotorg people LOVE #Obamacare #happyanniversary #jstreet2015	38.9066	-77.021751
5.80369E+17	242528107	too much to evenbegin	38.921389	-77.017995
5.80369E+17	2904326325	@NyjahArmani: Happy birthday JOJOâ€¦ðŸŽ‰ðŸŽ‰ðŸŽ‰ðŸŽ‰#ganggangðŸ˜ŽðŸ'ª @KittyGangJoJo GoodLook Lil Sis ï¿»	38.796329	-76.994148
5.80369E+17	15384023	Actress @HollandTaylor: art is a way of seeing ourself and experiencing ourselves like we can in no other way- art makes us WHOLE. #AAD15	38.88689	-77.006921
5.80369E+17	59604041	Breakfast at mdfoodcoop is always a good decision. And #coffee is just $1 if you bring your own mugâ€¦ https://t.co/agdr5oQM6M	38.908426	-76.944787
5.80369E+17	19123904	Before Green Eggs: See The #Advertising Unmistakable Work Of Dr. Seuss! http://t.co/hSWcERn1T6 #ads #marketing #branding #design	38.9369	-77.021
5.80369E+17	551976448	Don't worry #artisphere... @jessiecarp saved us from your dreadful stairwell b. #buildingfall #modev	38.895154	-77.070092
5.80545E+17	1582315969	I'ma Get This Shit Right & Come Back. Even Stronger ðŸ'ª This Some Short Shit ðŸ"	38.852804	-76.980695
5.80545E+17	331190696	Smhh I'm dryðŸ"„ðŸ'€ Bitch how I'm suppose to be all hype & happy when I'm not ðŸ"' that's your problem ðŸ" you don't hmpkoeÊ I mean u do when u want toðŸ'ŽðŸ'Ž	38.97202	-77.030395
5.80545E+17	284705704	I be taking endless pictures & never put em up ðŸ˜‚ðŸ˜‚,	38.960941	-77.031913
5.80545E+17	1582315969	all that sneak dissing uh get your team murkedðŸ'«ðŸ˜‚ðŸ"	38.852804	-76.980695
5.80545E+17	1206677370	#HAHNFinale. Way to go Jeffery it's about damn time.	38.959346	-76.924689
5.80548E+17	67703541	Brunch @waterandwall Sunday. Beer Braised Pork Belly Stone ground grits Poached Egg Sorghum Glazeâ€¦ https://t.co/r7keTdYkcv	38.882727	-77.105865
5.80548E+17	813924415	@ThatsSoRaven00 ðŸ'ŽðŸ'ŽHYFR I am down any day of the week girl holla at me & I hope your day was amazingðŸ™"	38.9032	-77.001878
5.80548E+17	27736951	I will literally kill you.	38.91776	-77.021585
5.80549E+17	2427141783	I'm that person that spell you with a u but then puts a question mark after it.	38.915702	-77.014668
5.80549E+17	221027209	@uchangenow David if you're in town would love for you to join us! http://t.co/7NMU0Oarso	38.845201	-76.97717
5.80549E+17	19405658	@LoganLevkoff @FYI AND moniet&vaughn were attracted to each other but that was a disaster.	38.903286	-76.995847
5.80549E+17	104061675	We are so #lucky to have you as our residents!! #whywebozzuto @ The Residences at The Market Common https://t.co/HYi3K1pnfR	38.887542	-77.091095
5.80882E+17	2963059947	loyal sh* is jhi boringðŸ˜‹ðŸ˜‚	38.876322	-76.920229
5.80882E+17	305700532	How lucky we are! Argentina soccer/football players behind us. ðŸ"„ @ Verizon Center https://t.co/mhYooN6HJA	38.898113	-77.021114

5.80882E+17	3087725546	@DrockgangNAY_ Congrats LPâ˜ºðŸ˜‚	38.855277	-76.99
5.80882E+17	253410333	@That_Guy_Mizz: @ViteezyfromVA @J_2Raw I bumped it today .. It's light lol :(	38.848051	-76.946564
5.80882E+17	2373360795	@yungaves im too hip	38.990281	-77.106378
5.81294E+17	2865770484	Baby Im a hood starðŸŒŸ	38.892765	-76.911538
5.81294E+17	81420734	Nutter Butters are life	38.991614	-76.985178
5.81294E+17	1303151944	I regret getting my belly pierced (never again)	38.90174	-76.937336
5.81296E+17	37288434	Rip wvu	38.923659	-77.028032
5.81296E+17	475194300	I spent a little time with Dr. Don Chitty. 10x Purple Heart recipient visited the Vietnam Wall today. #capconn15 http://t.co/6iALUDz4IO	38.802223	-77.079322
5.81296E+17	386359355	The fire alarm never fails. You gotta be shittin me	38.837652	-77.01598
5.81299E+17	229577497	@ShelsGretta you wannatake it lol?	38.862335	-77.062696
5.81299E+17	377529066	@PhilMintz I don't blame the refs. Our style we foul a lot so it's expected. We needed to make shots we don't usually make to have a chance	38.928595	-77.034247
5.81299E+17	1890536647	Refuse to let my heart keep takin L'sðŸ˜	38.925234	-77.004656
5.81303E+17	16273359	Elvito told me I was one of the only girls he knows who looks good without makeup and I love him even more	38.888552	-77.093503
5.81303E+17	3048461905	head hurt ðŸˆ«	38.941518	-77.002414
5.81304E+17	1852296150	DChttp://t.co/tI1p3bkjBi	38.899388	-77.005952
5.81304E+17	18517523	I should've paid attention in Spanish class. They were going in though @ The Bier Baron Tavern https://t.co/ayoyW2hPGc	38.91028	-77.048768
5.81304E+17	317122648	@TheOnly_Yayaaa: â€œ@_Vulgarity: @TheOnly_Yayaaa i miss him tooðŸ˜©â€œðŸˆ,ðŸˆ,ðŸˆ, shut upðŸˆ,ðŸˆ,ðŸˆ,ðŸˆ,ðŸˆ,ðŸˆ,just tryna make you laugh	38.848773	-76.94932
5.81306E+17	246821237	Aww my baby ðŸˆ¥	38.96635	-76.967686
5.81306E+17	73649156	Tbfh â€œ@Desire_Nae: When bae comes over and brings food https://t.co/Ui6r1hAh3pâ€•	38.984948	-76.912598
5.81306E+17	3048461905	tired	38.941482	-77.002438
5.81309E+17	326965201	â€œ@yogurtjennn: Why is my dad talking shit tfâ€•stfu	38.941194	-76.925364
5.81309E+17	2760344895	@TheOnlyKaypop :I don't even be press for the weekends no moreðŸˆ©kill	38.86027	-76.997664
5.81309E+17	430167058	all these niggas the same ðŸˆ•	38.836393	-76.953949
5.81313E+17	180145104	my bath was so much loveðŸˆ•	38.877524	-77.014633
5.81313E+17	242528187	stank face w/ ithttp://t.co/hG9JZHZQTI	38.921619	-77.017913
5.81313E+17	182978572	I love him more then words can express too ðŸˆ©ðŸˆ©ðŸˆ© @SweetttAsSugarr: Aiden loves his Godparents	38.897399	-76.978731
5.81318E+17	378378832	@TweetThis_DICK try updating Twitter	38.946341	-76.94734
5.81318E+17	61699674	@TiME no she's annoying and hasn't done a thing to deserve such recognition	38.991097	-77.038309
5.81318E+17	133848037	We did. I just can't remember her name RT @eb4prez: I know yâ€™all had a candy lady	38.89403	-76.926386
5.81318E+17	236119621	Disappear wen im bored.	38.894098	-76.980998
5.81325E+17	95440345	Going to NYC (@ Union Station in Washington DC) https://t.co/5CTRPC313r	38.897563	-77.006167
5.81325E+17	235186357	@_KiaMonique_ something confused upset n more. I miss youðŸˆ©ðŸˆ©ðŸˆ©	38.833888	-76.982324
5.81325E+17	16113342	@ItsARELYbitches @Kyokostorm ðŸˆ©,ðŸˆ©,ðŸˆ©,omgthisss	38.965299	-76.978789
5.81328E+17	67685933	Dated number 2 ðŸˆ‰http://t.co/BiUu1nmqgF	38.980755	-76.935831
5.81328E+17	816571716	How did I get here??? Lol that's how good the drinks are :p (at @CobaltDc in Washington DC) https://t.co/5odLOJBE5V	38.912666	-77.03838
5.81328E+17	2287293723	I'll have you like she never had youðŸˆ...	38.961512	-76.968596
5.81329E+17	180145104	â€œ@ ImaBIGDeal_: Taurus are crazy ðŸˆ©ðŸˆ©â€•no we are not ðŸˆ©	38.877475	-77.014623
5.81332E+17	14560696	When pot holes are so deep they hurt your soul #DCproblems	38.884847	-77.084785
5.81332E+17	41469816	â€œ@SQUIDZ: Bruh ain't even hum an http://t.co/2DhVbbimQJUâ€•my mans is straight outta Assasins Creed lmao	38.860382	-77.082573
5.81332E+17	232673125	I feel fat	38.92202	-77.018181
5.81334E+17	180145104	here come lil naeðŸˆ©ðŸˆ©,	38.877505	-77.014565
5.81334E+17	16917475	@wmata @MetrorailiInfo @MartinDiCaro this says it all: metro employees report metro is NOT safe http://t.co/TZdZ6JeXec	38.838115	-77.078721
5.81334E+17	150404352	@sweden Didn't notice those. Impressive weight.	38.975271	-77.019379
5.86553E+17	170011798	Im 240 ðŸˆ‰i need to get back to when i was 220	38.984896	-76.987366
5.83035E+17	35622007	This thunderstorm is making me so happy! It's finally spring [illegible]	38.906444	-77.004909
5.82932E+17	75562304	DC brunch life #9to5 #dc #bestcoffee #finally â˜•ðŸˆ•ðŸˆ‰ @ Ted's Bulletin https://t.co/THpInOQFJ6	38.882429	-76.995141
5.83052E+17	18278364	@justaddScott just be glad you aren't an internet journalist.	38.876645	-77.006222
5.82953E+17	284485993	â€œ@FreshLDRB: What do Yall think I need to do to take my career to another level?â€•You have Talent mehn just do what you do best ! God dey..	38.902362	-76.997534
5.83007E+17	411194625	Solidarity @ The Potter's House https://t.co/ZQQVZHv9PI	38.92511	-77.038586
5.83013E+17	561039197	@dsrtprincess @amygeurden @19ACE85 @Caro_L_Etc @liz79793244 @susiel13ðŸˆ•	38.825296	-77.081018
5.83018E+17	3087725546	I might let your boy chauffer meâ˜ºðŸˆ... but he gotta eat the booty like groceriesðŸˆ©ðŸˆ©	38.871567	-76.990283
5.83037E+17	2223575211	@new_dynasty Kill My Power Haven't Went Out When it Storms Though But Just In Case Though ðŸˆ©	38.854086	-76.96803
5.83083E+17	16429408	We missed the photo of the day yesterday. So here is photo one of two. #DaddysGirl #SleepyHeads â€¦ https://t.co/APpVF203mz	38.860293	-77.055502
5.82981E+17	1172892470	I got a job moe !!!!!!!!!!!	38.803318	-76.94891
5.83122E+17	348039701	It's already April 1st. Time speeds up every year.	38.945439	-76.980831
5.83044E+17	24093612	#htcOneEvent @ Warner Theatre https://t.co/hXoISRxTXw	38.896408	-77.029527
5.82938E+17	1554354618	LOOK AT THAT GLOCK ON ME ðŸˆ©ðŸˆ©	38.853398	-76.984086
5.85532E+17	1167526610	Just saw nick walking around ballston i am so happy today rocks	38.879429	-77.103963
5.85532E+17	2428861079	My son be like mama I love YaðŸˆ,ðŸˆ©ðŸˆ©™	38.93633	-77.110895
5.85538E+17	373626937	Damn this is so tight salute to @KOsevendeuce. One of the realist in the gameðŸˆ© http://t.co/R2Mor7l8vk	38.99272	-76.934542
5.85538E+17	17354416	â€œ@thegarance: HBO's @veephbo should win some kind of a swag award for this. https://t.co/UedDI83QIâ€•agreed! @OfficialJLD @VeepHBO @BizBash	38.917002	-77.096221
5.85538E+17	92449229	I want to write. However I really don't want to blog. Help.	38.985356	-77.094809
5.85538E+17	263796684	Littleitaly#newyork#newyorkcity#newyorknewyork#EENY claudiavacac @amayamatos @ Little Italy New York https://t.co/d3kPQhnAdT	38.901485	-77.060098
5.85543E+17	1493040350	: my trap down the street	38.849868	-76.982489
5.85543E+17	182739066	New Event: Magical Ecuador: Boleros @ Gunston Arts Center (Arlington VA)http://t.co/VANFZZhrC3	38.847742	-77.068625
5.85543E+17	182739066	New Event: Magical Ecuador: La Escoba (The Broom) @ Gunston Arts Center (Arlington VA)http://t.co/kKmVNGmciQ	38.847742	-77.068625
5.85544E+17	1431057568	@SolomonMiles Sure I'd be happy to learn more about it. Do tell...	38.902529	-77.03975
5.85544E+17	14397600	Oh DC you are looking gorgeous today! Your spring colors are lovely. #cherryblossom #washingtondcâ€¦ https://t.co/kv1ejSPp93	38.890126	-77.086872

5.85544E+17	22239813	@YR_AlyssaDC that's my biggest #petpeeve. What social sorority were you in? P.S. Happy Birthday!	38.890126	-77.086072
5.85544E+17	359498918	it's ok to be completely jealous of my niece's wardrobe. #samathaleigh #samiinthecity #babyfashionâ€¦ https://t.co/U7UVqDVgaT	38.916303	-77.036879
5.85545E+17	582198153	Straight off the rack from the World Bank bookstore's sidewalk sale... For $3 I am intrigued http://t.co/1T1zQSj2CS	38.859016	-77.041791
5.85989E+17	446727286	@JDunnah did someone say....dark knight http://t.co/WNgSObK9Qb	38.843704	-77.111205
5.85989E+17	203594660	â€œ@vintagedoll : @tokyoDiamond bitch stop lyingðŸ™…ðŸ™… bitch you saw it ðŸ‘	38.897835	-76.976439
5.85989E+17	224818894	you catch a nigga in a lie & they dead lie about lying. ðŸ™…ðŸ™…ðŸ™…	38.920987	-77.017691
5.85991E+17	61699674	ChantÃ©D know she will get her ass whooped that's why she gets security backs down like a damn puppy #RBDivasLA	38.991155	-77.038183
5.85991E+17	174377381	No this Tobin dude didnâ€™t just call my Nelson a â€œpetâ€• Watch your mouth! #CSICyber	38.845433	-76.978716
5.85991E+17	15149839	I want to get home! Please driver it can't be this hard....	38.854959	-77.0443
5.85991E+17	2511325591	I wish I would have went to go play ball. But homework was like FUCK NO BABY!.	38.892032	-76.952254
5.85992E+17	168318186	MCW with 30 tonight	38.968903	-76.953306
5.85992E+17	1890536647	I make ppl laugh	38.92527	-77.004558
5.85993E+17	2531065892	It's over	38.864783	-76.997597
5.85994E+17	331331370	I'm supposed to be studying @ Verizon Center https://t.co/W9DgB0OV6D	38.898113	-77.021114
5.85995E+17	105187267	Church of Scientology paid for PIs to follow leader's father according to police reports: http://t.co/6VnGZbBXEV	38.910534	-77.026587
5.85995E+17	335600139	Lost a real nigga & I can't get em back #aymarc	38.847586	-76.975071
5.85996E+17	129545699	Nunca mais quero ir em museu puta porra chata	38.910842	-77.045761
5.85996E+17	125929372	Howard out here making moves on the low and think nobody is hip...	38.920612	-77.024433
5.85999E+17	561039197	@Caro_L_Etote like Season 1 all over again!! #Nashville so good!!!	38.825358	-77.081119
5.85999E+17	22239813	When the #nats and #caps games get out at the same time... #thestruggle	38.881775	-77.099661
5.86313E+17	985839954	Tay and I are now on out way to out second White House tour in the private west wing. Isn't it great to have a best friends with connections	38.901072	-77.039902
5.86313E+17	2491363379	I bailed on my other plans tonight.... time to see @GravezMusic and fam kill it	38.942741	-77.02182
5.86315E+17	180145104	on my way hm from my coin	38.925255	-77.105722
5.86315E+17	472538042	@OnThisJourney71 nigga yes that was another level her nigga was funny looking too and spoke bad English ðŸ™	38.898462	-77.028208
5.86317E+17	98440931	Mind your business ðŸ™ https://t.co/HfRzEwys6x	38.853058	-76.983158
5.86317E+17	1474492608	The songs on the radio are okay but my taste in music is your face	38.892078	-77.049741
5.86318E+17	2580359229	She drivin me crazy wit these braids	38.831764	-77.004332

Detailed excel file of random sample of Tweets from Washington DC

Appendix III

```
. spearman distancescore positive_e negative_e overall_score
(obs=185)

             | distan~e positi~e negati~e overal~e
-------------+------------------------------------
distancesc~e |   1.0000
  positive_e |   0.0019   1.0000
  negative_e |  -0.0396   0.0478   1.0000
overall_sc~e |  -0.0271   0.8305   0.5629   1.0000

. spearman distancescore positive_e

 Number of obs =     185
Spearman's rho =       0.0019

Test of Ho: distancescore and positive_e are independent
    Prob > |t| =       0.9797

. spearman distancescore negative_e

 Number of obs =     185
Spearman's rho =      -0.0396

Test of Ho: distancescore and negative_e are independent
    Prob > |t| =       0.5923

. spearman distancescore overall_score

 Number of obs =     185
Spearman's rho =      -0.0271

Test of Ho: distancescore and overall_score are independent
    Prob > |t| =       0.7141

. spearman negative_e positive_e

 Number of obs =     185
Spearman's rho =       0.0478

Test of Ho: negative_e and positive_e are independent
    Prob > |t| =       0.5181

. spearman overall_score positive_e

 Number of obs =     185
Spearman's rho =       0.8305

Test of Ho: overall_score and positive_e are independent
    Prob > |t| =       0.0000

. spearman overall_score negative_e

 Number of obs =     185
Spearman's rho =       0.5629

Test of Ho: overall_score and negative_e are independent
    Prob > |t| =       0.0000
```

Detailed results of correlations between sentiment scores and hilliness

```
. spearman distancescore positive_e negative_e overall_score
(obs=67)

             | distan~e positi~e negati~e overal~e
-------------+------------------------------------
distancesc~e |   1.0000
  positive_e |  -0.0649   1.0000
  negative_e |  -0.1716   0.0021   1.0000
overall_sc~e |  -0.1489   0.8041   0.5689   1.0000

. spearman distancescore positive_e

 Number of obs =      67
Spearman's rho =      -0.0649

Test of Ho: distancescore and positive_e are independent
    Prob > |t| =       0.6020

. spearman distancescore negative_e

 Number of obs =      67
Spearman's rho =      -0.1716

Test of Ho: distancescore and negative_e are independent
    Prob > |t| =       0.1651

. spearman distancescore overall_score

 Number of obs =      67
Spearman's rho =      -0.1489

Test of Ho: distancescore and overall_score are independent
    Prob > |t| =       0.2291

. spearman negative_e positive_e

 Number of obs =      67
Spearman's rho =       0.0021

Test of Ho: negative_e and positive_e are independent
    Prob > |t| =       0.9868

. spearman overall_score positive_e

 Number of obs =      67
Spearman's rho =       0.8041

Test of Ho: overall_score and positive_e are independent
    Prob > |t| =       0.0000

. spearman overall_score negative_e

 Number of obs =      67
Spearman's rho =       0.5689

Test of Ho: overall_score and negative_e are independent
    Prob > |t| =       0.0000
```

Detailed results of correlations between sentiment scores and distance to bike trails

```
. spearman distancescore positive_e negative_e overall_score
(obs=266)

             | distan~e positi~e negati~e overal~e
-------------+------------------------------------
distancesc~e |   1.0000
  positive_e |  -0.1363   1.0000
  negative_e |   0.0772   0.0279   1.0000
overall_sc~e |  -0.0778   0.8141   0.5728   1.0000

. spearman distancescore positive_e

 Number of obs =     266
Spearman's rho =      -0.1363

Test of Ho: distancescore and positive_e are independent
    Prob > |t| =       0.0262

. spearman distancescore negative_e

 Number of obs =     266
Spearman's rho =       0.0772

Test of Ho: distancescore and negative_e are independent
    Prob > |t| =       0.2096

. spearman distancescore overall_score

 Number of obs =     266
Spearman's rho =      -0.0778

Test of Ho: distancescore and overall_score are independent
    Prob > |t| =       0.2060

. spearman negative_e positive_e

 Number of obs =     266
Spearman's rho =       0.0279

Test of Ho: negative_e and positive_e are independent
    Prob > |t| =       0.6511

. spearman overall_score positive_e

 Number of obs =     266
Spearman's rho =       0.8141

Test of Ho: overall_score and positive_e are independent
    Prob > |t| =       0.0000

. spearman overall_score negative_e

 Number of obs =     266
Spearman's rho =       0.5728

Test of Ho: overall_score and negative_e are independent
    Prob > |t| =       0.0000
```

Detailed results of correlations between sentiment scores and distance to Capital Bikeshare locations

```
. spearman distancescore positive_e negative_e overall_score
(obs=185)

             | distan~e positi~e negati~e overal~e
-------------+------------------------------------
distancesc~e |   1.0000
  positive_e |   0.0019   1.0000
  negative_e |  -0.0396   0.0478   1.0000
overall_sc~e |  -0.0271   0.8305   0.5629   1.0000

. spearman distancescore positive_e

 Number of obs =     185
Spearman's rho =       0.0019

Test of Ho: distancescore and positive_e are independent
    Prob > |t| =       0.9797

. spearman distancescore negative_e

 Number of obs =     185
Spearman's rho =      -0.0396

Test of Ho: distancescore and negative_e are independent
    Prob > |t| =       0.5923

. spearman distancescore overall_score

 Number of obs =     185
Spearman's rho =      -0.0271

Test of Ho: distancescore and overall_score are independent
    Prob > |t| =       0.7141

. spearman negative_e positive_e

 Number of obs =     185
Spearman's rho =       0.0478

Test of Ho: negative_e and positive_e are independent
    Prob > |t| =       0.5181

. spearman overall_score positive_e

 Number of obs =     185
Spearman's rho =       0.8305

Test of Ho: overall_score and positive_e are independent
    Prob > |t| =       0.0000

. spearman overall_score negative_e

 Number of obs =     185
Spearman's rho =       0.5629

Test of Ho: overall_score and negative_e are independent
    Prob > |t| =       0.0000
```

Detailed results of correlations between sentiment scores and distance to signed bike routes

```
. spearman value positive_e negative_e overall_score
(obs=353)

             |    value positi~e negati~e overal~e
-------------+------------------------------------
       value |   1.0000
  positive_e |  -0.0053   1.0000
  negative_e |  -0.0118  -0.0288   1.0000
overall_sc~e |  -0.0100   0.8086   0.5334   1.0000

. spearman value positive_e

 Number of obs =     353
Spearman's rho =      -0.0053

Test of Ho: value and positive_e are independent
    Prob > |t| =       0.9211

. spearman value negative_e

 Number of obs =     353
Spearman's rho =      -0.0118

Test of Ho: value and negative_e are independent
    Prob > |t| =       0.8246

. spearman value overall_score

 Number of obs =     353
Spearman's rho =      -0.0100

Test of Ho: value and overall_score are independent
    Prob > |t| =       0.8515

. spearman negative_e positive_e

 Number of obs =     353
Spearman's rho =      -0.0288

Test of Ho: negative_e and positive_e are independent
    Prob > |t| =       0.5895

. spearman overall_score positive_e

 Number of obs =     353
Spearman's rho =       0.8086

Test of Ho: overall_score and positive_e are independent
    Prob > |t| =       0.0000
```

Detailed results of correlations between sentiment scores and intersection density

```
. spearman value positive_e negative_e overall_score
(obs=352)

             |    value positi~e negati~e overal~e
-------------+------------------------------------
       value |   1.0000
  positive_e |  -0.0081   1.0000
  negative_e |   0.0285  -0.0302   1.0000
overall_sc~e |   0.0009   0.8075   0.5338   1.0000

. spearman value positive_e

 Number of obs =     352
Spearman's rho =      -0.0081

Test of Ho: value and positive_e are independent
    Prob > |t| =       0.8798

. spearman value negative_e

 Number of obs =     352
Spearman's rho =       0.0285

Test of Ho: value and negative_e are independent
    Prob > |t| =       0.5940

. spearman value overall_score

 Number of obs =     352
Spearman's rho =       0.0009

Test of Ho: value and overall_score are independent
    Prob > |t| =       0.9868

. spearman negative_e positive_e

 Number of obs =     352
Spearman's rho =      -0.0302

Test of Ho: negative_e and positive_e are independent
    Prob > |t| =       0.5726

. spearman positive_e overall_score

 Number of obs =     352
Spearman's rho =       0.8075

Test of Ho: positive_e and overall_score are independent
    Prob > |t| =       0.0000

. spearman overall_score negative_e

 Number of obs =     352
Spearman's rho =       0.5338

Test of Ho: overall_score and negative_e are independent
    Prob > |t| =       0.0000
```

Detailed results of correlations between sentiment scores and destination density

Appendix IV

```
. regress positive_e distancescore

      Source |       SS           df       MS      Number of obs   =       266
-------------+----------------------------------   F(1, 264)       =      7.60
       Model |  4.30412802         1  4.30412802   Prob > F        =    0.0063
    Residual |  149.560534       264  .566517173   R-squared       =    0.0280
-------------+----------------------------------   Adj R-squared   =    0.0243
       Total |  153.864662       265  .580621365   Root MSE        =    .75267

------------------------------------------------------------------------------
   positive_e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
distancescore |  -.1428979    .051843    -2.76   0.006    -.2449762   -.0408196
        _cons |   1.824998   .1102966    16.55   0.000     1.607825    2.042171
------------------------------------------------------------------------------
```

Detailed linear regression between sentiment scores and Capital Bikeshare locations

```
. regress negative_e value

      Source |       SS           df       MS      Number of obs   =       363
-------------+----------------------------------   F(1, 361)       =      4.34
       Model |  1.62199702         1  1.62199702   Prob > F        =    0.0379
    Residual |  134.829794       361  .373489733   R-squared       =    0.0119
-------------+----------------------------------   Adj R-squared   =    0.0091
       Total |  136.451791       362  .376938648   Root MSE        =    .61114

------------------------------------------------------------------------------
  negative_e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       value |   .0823936   .0395374     2.08   0.038     .0046411    .1601462
       _cons |  -1.421884   .0772288   -18.41   0.000    -1.573759   -1.270009
------------------------------------------------------------------------------
```

Detailed linear regression between sentiment scores and hilliness