



Raleigh **Bike**Share

Feasibility Study

Spring 2014



bikeraleigh.org



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EXECUTIVE SUMMARY

Rising costs in transportation and current population trends focusing on revitalizing various areas throughout many cities, have moved various jurisdictions to increase their sustainable transportation options by offering more bicycle and pedestrian oriented options. Bikeshare represents one such approach, ideal for short distance point-to-point trips. It allows users to easily connect between jobs and destinations through a network of self-serve stations. Bike share has also been recognized to positively impact how visitors, residents, and employees experience a city. It allows for increased connectivity to different parts of the city, replacing single occupancy vehicle trips and promoting an active lifestyle.



Figure 1 - Downtown Raleigh

Active transportation is becoming ever more popular in the City of Raleigh: Its bicycle culture continues to expand, while the demand for healthier and more sustainable alternatives to motor vehicle travel, have become a priority for the City. As a Bronze level Bicycle Friendly Community,¹ the City of Raleigh is poised to continue promoting its active living agenda and the expansion of its existing bicycle infrastructure. Following on its commitment to becoming more bicycle-friendly and making continued bicycle and pedestrian infrastructure investments, the City of Raleigh commissioned this study to explore the feasibility of implementing a bikeshare system throughout the City.

A set of goals were defined by the City and local stakeholders to guide and promote the implementation of such a system. These goals include:

- **Goal 1** – Increase the amount of bicycling in Raleigh while offering transportation options for residents, students, employees, and visitors.
- **Goal 2** – Increase equitable and affordable access to public transportation.
- **Goal 3** – Increase the attractiveness of Raleigh as a place to live, work, visit and do business.
- **Goal 4** – Create a system that is financially self-sustaining over the long-term, with owner and operator incentives aligned to meet this goal.

Based on these guiding principles and through a comprehensive analysis of population and employment trends; evaluation of existing plans and regulations; review of existing conditions; and a comprehensive stakeholder and public engagement process, the implementation of a bike share program has been found to be **FEASIBLE** for the City of Raleigh.

Some of the major benefits that bike share could bring to Raleigh include:

- Augmenting the City's existing transportation options while encouraging active transportation by lowering barriers to entry for minority and low income residents.
- Providing an impetus for further investment in bicycle-friendly facilities.
- Building on the City's reputation as a forward-thinking, bicycle-friendly community.
- Using bike share to promote the City to potential employers, residents, and visitors.

The above recommendation is based on the following existing conditions: a comparatively **higher residential density** throughout Downtown and nearby areas (including high concentrations of students and low income and minority residents); a **high concentration of small, medium and large employers** close to downtown; a **significant tourist market** (including a number of large conventions and special events throughout the City) which may help provide increased ridership for a bike share program; numerous **plans and policies** in place focusing on the promotion of livable, walkable and bicycle friendly places throughout the City; and increased stakeholder and public interest in having bike share serve as a **catalyst for additional bicycle-friendly infrastructure**.

While the above mentioned characteristics are conducive towards implementing a bike share program in Raleigh, the City does face some challenges. A **high dependency on single-occupancy vehicles (SOV's)** and an emerging but **not yet complete network of bicycle-friendly facilities** present

¹ Based on the League of American Bicyclist Bicycle Friendly America program rankings.

two of the most significant challenges for bike share implementation. Additionally, a **difficult topography** and **existing development patterns** (dis-incentivizing street connectivity and promoting lower population and employment densities) outside of the urban downtown core will make it difficult for a bike share program to be implemented. To mitigate the effects of these existing conditions, it is recommended that the City:

- Continue its development of a planned network of bicycle facilities and a complete way-finding program in parallel with a potential implementation of a bike share program.
- Review and consider amending local policies related to signage to allow for the placement of sponsorship and/or advertising on bike share stations to potentially help cover costs for program.
- Continue the promotion and funding for alternative forms of transportation to help decrease dependency on SOV's.

A demand analysis was performed utilizing data from the U.S. Census, Bureau of Labor Statistics, North Carolina State University, and the City of Raleigh. The analysis was undertaken to help identify areas with the highest potential demand for bike share.

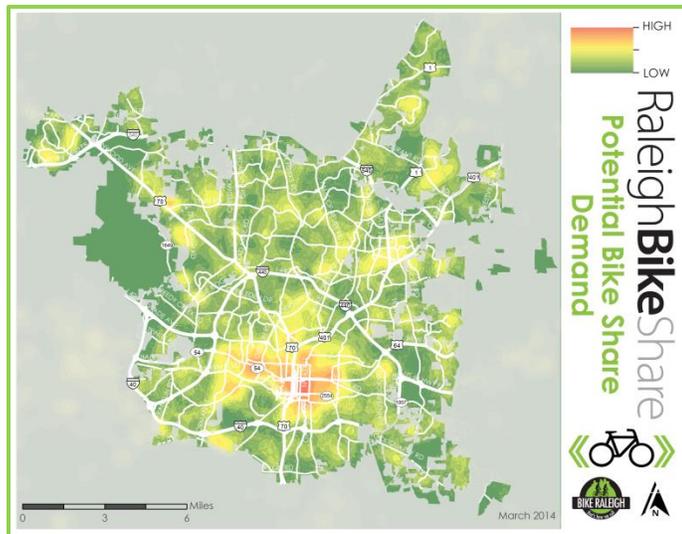


Figure 2 - Potential Bike Share Demand

The resulting “heat map” is shown in Figure 2 above.²

² See Figure 39 for a more detailed view of the areas of the City that are most conducive for bike share implementation.

The areas of the City with the highest potential for bike share use include:

- Downtown
- Universities & Colleges
- Hillsborough Street Corridor
- Mordecai Neighborhood
- Cameron Village
- Five Points
- College Park

Because of the fairly large and complex set of issues in recommending a governance structure, including regionalism and existence of multiple possible partners (including colleges and universities), a governance and implementation structure has not been recommended as part of this Feasibility Study. However, initial conversations with stakeholders and City Staff identified the major organizations that should be considered and vetted for possible program management. These agencies included the City of Raleigh, Downtown Raleigh Alliance, NC State University, and Triangle Transit. Furthermore, after various meetings with stakeholders and City staff, it was determined that a station-based (smart-dock) bike share system is preferred.

Finally, based on national averages for capital and operating costs, the City can expect the following costs for implementing a bike share program:

Table 1 - Projected Implementation Costs

Station Size	Number of Bicycles	Number of Docks	Capital Costs ³	Operating Cost Per Month ⁴
10	100	170	\$500,000	\$ 8,500 - 20,400
20	200	340	\$1,000,000	\$ 17,000 - 40,800
30	300	510	\$1,500,000	\$ 25,500 - 61,200
50	500	850	\$2,500,000	\$ 42,500 - 102,000
75	750	1275	\$3,750,000	\$ 63,750 - 153,000
100	1000	1700	\$5,000,000	\$ 85,000 - 204,000

It is important to note that these costs are estimates based on national averages from existing bike share programs. Full recommendations and estimates on size, phasing and costs (i.e., capital and operations), will be explored in Phase two of this project under the Raleigh Bike Share Implementation Plan.

³ Capital costs developed from an average of \$50,000 per station (Cost includes 17 docks and 10 bicycles)

⁴ Operating costs developed from a national range of \$50-\$120 per dock per month, and 17 docks per station. Operating costs vary based on station density, business model and level of service.

INTRODUCTION

PURPOSE OF THIS STUDY

In response to the growing bicycle culture and commitment to becoming a bicycle friendly community, the City of Raleigh undertook a comprehensive review of conditions in the City to determine the potential for a bike share program.

The process for evaluating the feasibility of a bike share system in Raleigh is a multi-stage process that begins with information gathering from the community, including public input and significant data analysis. A summary of the process is shown on Figure 3. **Error! Reference source not found..** This report describes this process in eight sections.



Figure 3: Feasibility Study Process.



Figure 4: Capital Bikeshare.

The first section introduces the concept of bike share, its short but dynamic history in the United States, and the benefits and risks of implementing a bike share program. The second section provides examples of comparable cities and their experience implementing bike share systems.

Section three includes a community analysis that explores existing conditions and identifies opportunities and challenges that may need to be addressed to facilitate the implementation of a bike share program in Raleigh. Similarly, section four examines existing policies to determine which if any, will impact bike share and what adjustments may be needed to facilitate implementation.

Section five summarizes the engagement process – both with the public as well as local and regional stakeholders. From this, a list of potential goals and objectives were developed for the program in Section six.

A demand analysis is included in section seven to identify areas of the City with the most potential for bike share use.

Section eight reviews the advantages and disadvantages of common ownership and business models and identifies factors that should be considered in evaluating the appropriate model for Raleigh.

Finally, an overall recommendation for the feasibility of a bike share program in Raleigh is presented in section nine.

BACKGROUND

WHAT IS BIKE SHARE?



Figure 5 – Divvy (Credit: People for Bikes)

Bike share is a mobility option which allows users to access bicycles located at various self-service stations. It is typically made available by paying a subscription fee that usually ranges from a few dollars for one-day access to \$80 to \$100 for annual access.

Bike share has become an effective mode of transportation for short point-to-point trips allowing subscribers to make spontaneous or planned trips. Most U.S. bike share systems allow subscribers to take unlimited trips during their membership period. There are no additional charges provided that the bicycle is returned to a station within 30 to 60 minutes. Following this “free ride period”, most operators charge incremental fees to encourage users to return the bicycle and make spaces available for other users to park their bicycles.

Most trips in existing U.S. bike share systems are between 15 to 35 minutes duration and around one-to-three miles long.⁵

Bike share is different from bicycle rental in that it encourages short trips and high turnover by using a fee structure that charges higher rates the longer a bicycle is kept out. In this way, renting a bicycle is generally more cost effective for longer time periods.

Elements of Bike Share

Most existing U.S. bike share programs are automated and do not require on-site staff. To provide easy access and increased accountability, systems utilize credit cards and radio frequency identification (RFID)

⁵ Bike Sharing in the United States: State of the Practice and Guide to Implementation. Federal Highway Administration. United States Department of Transportation. September 2012.

technology in the stations and bicycles. The system is intended to be easy to use, from signing up for membership, to getting a bicycle, to feeling comfortable and safe when riding a bicycle.

There are two bike share technologies currently being considered in U.S. systems: station based or “smart dock” systems and bicycle based or “smart bike” systems. Both utilize RFID, credit card and GPS technologies. However they differ in where the technology is housed. Almost all current systems in the U.S. are smart dock systems; however, many cities are scheduled to launch smart bike systems within the next two years.

In smart dock systems, users interact at a separate terminal or kiosk and the locking mechanism for the bicycle is located at the dock. With “smart-bikes” all of the technology is housed on the bicycle itself including the lock and payment system.

While smart-bike technologies tend to be a lower capital cost per bike, they remain relatively untested in large city-wide applications and as such operating costs and other parameters are still somewhat unknown. As of the writing of this report, smart bike systems have only been implemented in the U.S. in smaller settings such as in university or private campus settings, or at a very limited scale on a pilot basis.

Smart Dock

Shown on Figure 6, the elements of a smart dock system include:

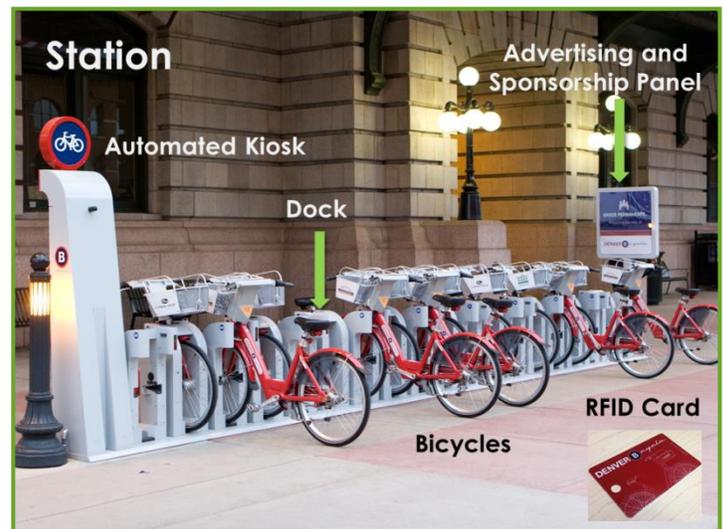
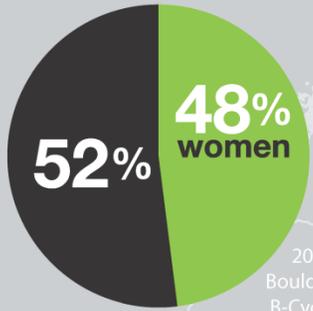


Figure 6 - Elements of “Smart Dock” Bike Share Systems

- **Station:** the collective grouping of the following elements:
 - **Kiosk:** electronic terminal where rental transactions are made.

Gender



2012 Boulder B-Cycle Annual Report

Ridership



2012 Nice Ride Report

Cost

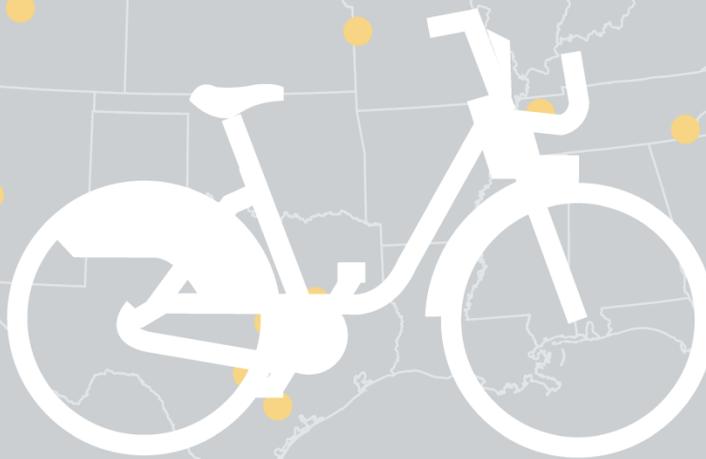
\$450K
One Transit Bus

\$1.5M
One Bike Share System

\$4.5M
One Lane-Mile of Urban Highway

What is Bike Share?

Bike Share is a station-based system of automated, self-service bicycle rentals. Bike share systems typically offer membership-based and pay-per use bicycle rental options for short one-way or round-trip journeys. Stations are located within convenient distances from popular origins and destinations including transit stops, jobs, shopping, and residences.



Existing Bike Share Systems in the United States

Average Trip Duration

Annual Members

Tourists & Casual Riders



2012 Madison B-Cycle Annual Report



Average Trip Length

1.2 mi Annual Members

3.2 mi Tourists & Casual Riders

Carbon Offset (CO₂)

San Antonio Bike Share System

380,000 lbs.

Denver Bike Share System

575,000 lbs.

2012 Capital Bikeshare Arlington Annual Report

- **Informational Panel:** a display that can be used to provide maps, information about the system, and space for advertising.
- **Dock:** mechanism that holds the bicycles. Each dock has a mechanized system that locks and releases the bicycles.
- **Platform:** structure that holds the kiosk, information panel, and docks. Most systems utilize wireless technology and solar power so that intrusion into the surface is not necessary. Most systems are modular, allowing various sizes and arrangements.
- **Bicycle:** specifically designed for short trips and constructed of customized components to limit their appeal to theft and vandalism.
- **RFID Card:** Radio Frequency Identification technology, usually in the form of a card or fob, allows users to check out a bicycle directly from the dock and speeds up transactions. This also provides an added layer of security and accountability to each transaction.

- **Lock:** varies based on the vendor. The electronic aspect of the lock is housed on the bicycle.
- **GPS Unit:** unit with the electronics, fastened to the bicycle. Location on the bicycle varies with the vendor. There is a place on this unit to pass a card or enter a PIN code. The unit also has real-time GPS and wireless technology.
- **Dock:** either be a “dumb dock” with no technology that accepts the locking mechanism, or may be any structure, such as a sign post, depending on the technology.

BENEFITS OF BIKE SHARE SYSTEMS

Bike share systems are a relatively inexpensive and quick-to-implement transportation option that can deliver a variety of mobility, economic, health, safety, and quality of life benefits. When combined with other modes of transportation, bike share can provide a fundamental shift in the way people move about and make decisions on transportation.

Smart Bike

Shown on Figure 7, the elements of a smart bike system include:

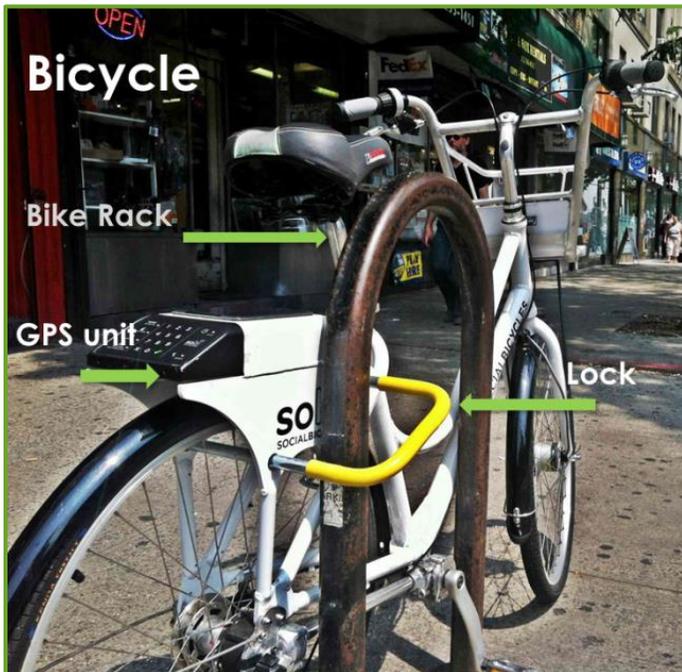


Figure 7: Elements of a Smart-Bike Bike Share System.

- **Bicycle:** specifically designed for short trips and constructed of customized components to limit their appeal to theft and vandalism.



Figure 8 - Capital Bikeshare provides great links to transit in Washington, DC.

For Raleigh, bike share could be a means to:

- Expand and enhance existing transit services.
- Reduce dependence on automobile transportation.
- Introduce new riders and reintroduce people to the benefits of bicycling.
- Raise the profile of the City while promoting it to potential employers, residents, and visitors.
- Provide an economic uplift to local businesses.
- Reduce overall household transportation expenditure.
- Improve physical and mental health and reduce health care costs.
- Reduce greenhouse gas emissions.

The following section explores these benefits in more detail and provides a list of challenges and benefits for each one of them.

Mobility and Transportation Benefits

Bike share has helped increase mobility and connectivity in various communities across the U.S. by adding transportation options. Bike share trips tend to be short – between 15 to 35 minutes duration and around one-to-three miles long.⁶ As a result, they provide an option for trips too far to walk and trips too short to wait for transit and provide a first-mile / last-mile solution to access public transit. Many bike share users combine membership in a bike share program with transit, car-share, walking, and other transportation options to reduce their dependency on automobile travel.⁷ In some places, this has resulted in a fundamental shift in trip-making and household vehicle ownership.

“Capital Bikeshare’s flexibility in allowing for one-way trips (a must during inclement weather) gives it an advantage over bike ownership.”

-Capital Bikeshare annual member.

Bike share tends to provide the following mobility, transportation, and community building benefits. Bike share:

- Augments a community’s existing transit system.
- Relieves already over-capacity transit services.
- Encourages active transportation by lowering barriers to entry.
- Provides the impetus for further investment in bicycling facilities.

Transit Benefits

A bike share system serves as a complement to existing transit services by offering a first- and last-mile option that extends the reach of existing fixed-route services, connects transit lines that do not cross, and adds capacity to already congested transit routes. Examples of how bike share has augmented transit in other cities include:

- In New York City, two-thirds of Citi Bike users have reported combining their bike share trips with transit. Furthermore, the busiest stations tend to be clustered near transit hubs.⁸

- Several cities including New York City and Vancouver, Canada have identified bike share as a means to alleviate over-capacity transit routes by providing an option for bicycling to less crowded stops or to replace certain transit trips altogether.^{9,10}
- In Washington D.C. over half (54%) of respondents to Capital Bikeshare’s member survey stated that at least one of their bike share trips in the previous month had started or ended at a Metrorail station and about a quarter (23%) of respondents used bike share to access the bus in the previous month.¹¹

Recognizing that transit agencies are important partners in bike share programs, the Federal Transit Administration (FTA) has funded several different systems including in Boston and Chattanooga. To be eligible for FTA funding stations must be within a 3 mile radius of transit and funds can be used towards bike share docks, equipment and other capital costs (the cost of the bikes and operating costs are not eligible).¹²

Active Transportation Benefits

As cities across the United States have looked for effective ways to encourage walking and biking, bike share has proven one of the most effective ways to quickly and affordably introducing new riders to bicycling, and using the momentum around bike share to drive further investment in active transportation.

“Life will never be the same. I’ve always loved getting around by bike, but since I know so little about bike repair, it only took a flat tire to keep me off bikes for months. Capital Bikeshare got me riding again, so I use my own bike more and it’s caused me to get my son interested in cycling as well.”

-Capital Bikeshare annual member.

Bike share’s ability to reduce some of the common barriers to entry, e.g. allowing new users to try bicycling without needing to own or store a bicycle, as well as the design of the bicycles (further discussed in the Safety Benefits section) and the visibility of the stations has a significant impact in attracting new riders. In Minneapolis for example, 33% of new members

⁶ Bike Sharing in the United States: State of the Practice and Guide to Implementation. Federal Highway Administration. United States Department of Transportation. September 2012.

⁷ LDA Consulting (2013). 2013 Capital Bikeshare Member Survey Report. Accessed online at <http://capitalbikeshare.com/assets/pdf/CABI-2013SurveyReport.pdf> on December 13, 2013.

⁸ New York City Department of Transportation Press Release (December 12, 2013). After First 200 Days of Citi Bike, NYC DOT Releases New Data Showing that Significant Number of New Yorkers are Biking, Complementing Transit System.

⁹ New York City (2009). Bike Share Opportunities in New York City. Accessed online at: http://www.nyc.gov/html/dcp/pdf/transportation/bike_share_complete.pdf on January 2, 2014.

¹⁰ Johnston, S. (July 2013). Presentation to Vancouver City Council: City of Vancouver Public Bike Share System. Accessed online at: <http://vancouver.ca/files/cov/public-bike-share-staff-presentation-to-council-07232013.pdf> on January 2, 2014.

¹¹ LDA Consulting (2013). 2013 Capital Bikeshare Member Survey Report. Accessed online at <http://capitalbikeshare.com/assets/pdf/CABI-2013SurveyReport.pdf> on December 13, 2013.

¹² Federal Transit Administration’s Frequently Asked Questions and Answers Concerning Bike Sharing Relative to the United States Department of Transportation. Accessed online at http://www.fta.dot.gov/documents/Informal_Q_and_As_Final_6-14-12.pdf on December 26, 2013.

surveyed in 2010 by Nice Ride Minnesota had ridden less than once per month before joining.¹³

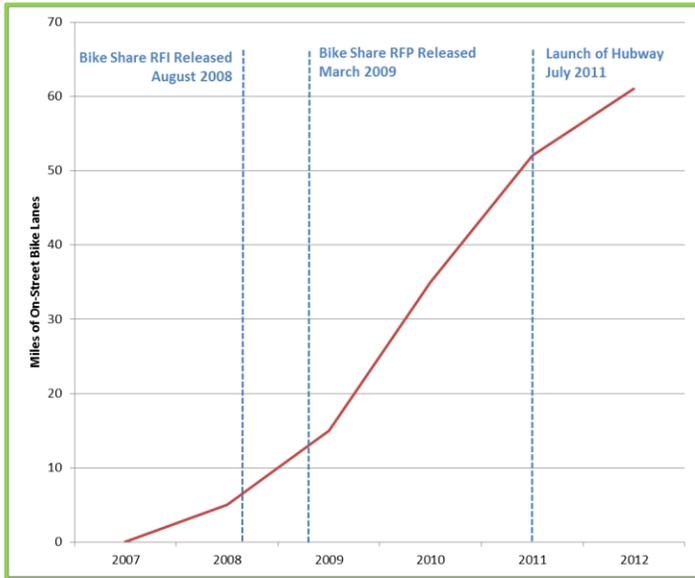


Figure 9 - Increase in On-Street Bikeways in Boston with the Launch of Bike Share

Bike share has often been coupled with an increase in bicycle infrastructure. Figure 9 shows an example of how the City of Boston increased the amount of on-street bikeways in conjunction with the implementation and launch of its bike share program, Hubway. While the exact correlation between bike share and investment in bicycle-friendly infrastructure has not been studied, it is clear that utilization of bike share increases the desire for more comfortable facilities and may prompt increased investment in the bicycling network as a result of public demand.

Community Building Benefits

Cities that have implemented bike share systems have also found that there are a number of positive community-building benefits including:

- **Shift in people’s perception of the City.** Ninety-five percent of Nice Ride Minnesota users surveyed in 2011 agreed or strongly agreed that bike share had made the Twin Cities a more enjoyable place to live.¹⁴
- **Increase in neighborhood connectivity.** Eighty-five percent of Capital Bikeshare survey participants reported that biking is an easier and faster way to get around that helps them connect to parts of

¹³ Two-thirds of members also said they had increased their amount of bicycling since joining Nice Ride. Figures taken from Nice Ride 2010 Annual Report.
¹⁴ Nice Ride Minnesota Annual Report 2011. Accessed online at: https://www.niceridemn.org/_asset/9n2z8n/

the City where they would otherwise not have gone to.¹⁵

- **Increase in social spaces.** After the installation of bike share stations in New York City, it was observed that the stations created an additional social space where people meet and gather as well as acting as a conversation starters.¹⁶
- **Increased social media interactivity.** Social network communities are a large part of the way that bike share systems communicate to users and how users interact with each other. For example, Boston’s Hubway has 6,000 followers and very active interaction among users.

Economic Benefits

There are a number of economic benefits that bike share offers at a community, business, and individual level. These include making the community attractive for employers, individual transportation savings, dollars spent by bike share users at local businesses, and bike share memberships as part of employee benefits packages. Bike share systems have been known to provide economic benefits:

- At a **community** level, bike share is recognized as a means for attracting or retaining workforce talent and in providing visitors with a unique way to experience the city.
- For **businesses**, bike share riders spend more money at local businesses, and offer potential employee benefits for employees.
- For **individuals**, bike share reduces the costs of transportation and health care.

Community Economic Benefits

A bike share system can help a community attract and retain residents. Many communities have used bike share systems as an added effort to help (re)vitalize and reactivate their downtown area(s). In addition, it provides a new and different way for tourists to see a city, helping attract more tourists and their spending power to communities.

The amount of national and international press coverage generated by a bike share system would serve to emphasize the city to visitors, businesses, and employers. For example, the launch of Charlotte B-Cycle in North Carolina received exposure in 18 newspapers including the New York Times.¹⁷

¹⁵ LDA Consulting (2012). Capital Bikeshare 2011 Member Survey Report. Accessed online at <http://capitalbikeshare.com/assets/pdf/Capital%20Bikeshare-SurveyReport-Final.pdf> on December 3, 2013.

¹⁶ Nelson, David M. and David Leyzerovsky. The Social Life of CitiBike Stations. Project for Public Spaces. <http://www.pps.org/blog/the-social-life-of-citibike/>. December 3, 2013.
¹⁷ From the Sponsor’s Perspective (2013). Accessed online at www.bikeshare.com on December 12, 2013.

A bike share system also creates a small number of local jobs operating and maintaining the system.

Business Benefits

There are many ways that local businesses and employers benefit from bike share. Some of the business benefits of bike share are described below:

- **Increased sales.** In cities with existing bike share programs, businesses located near bike share stations have seen an economic uplift. A recent study of the Nice Ride Minnesota bike share system in Minneapolis / St. Paul found that bike share users spent an additional \$150,000 at local businesses over the course of one bike share season compared to the prior year before bike share was implemented.¹⁸ Increased sales in the bicycle retail sector can also be expected. Although there is limited data available in the United States, city-wide bicycle sales in Paris, increased 39% following the launch of Velib.¹⁹ The sale of bicycle-related products and accessories could also increase as a result of bike share.
- **Corporate membership.** Most bike share programs offer corporate membership packages where annual memberships are purchased in bulk by the organization at a discounted rate. Some systems, such as Hubway in the Boston area, offer packages where employers choose how much of the membership cost they contribute and whether they cover usage fees or not.²⁰
- **Sponsorship and promotions.** Most bike share programs offer sponsorship or advertising opportunities on the stations and bicycles. This can range from one large system sponsor to many smaller station-based sponsors. In some communities, sponsors become involved in bike share promotions, such as discounted goods or services for bike share members.

Individual Benefits

The economic benefits to individuals and households come in the form of reduced household expenditures on transportation and health care, which combined make up over 22% of annual average household expenditure in the United States.²¹ Compared to the cost of operating an automobile, a bike share

"Although I am a native to the area, seeing Chattanooga by bicycle adds an entirely new perspective. It is so nice to slow down, not worry about parking and get to explore and check out bars, restaurants, and shops you might not regularly. We go downtown and do so much more now with the bike share than we ever did before."

-Recommendation of Chattanooga Bicycle Transit System on TripAdvisor

membership is relatively inexpensive with most programs costing between \$50 and \$100 per year. In comparison, the median cost of annual car ownership is approximately \$9,100.²² Eighty-seven percent of annual members in Washington D.C. said they saved money on weekly travel costs by using Capital Bikeshare. On average, this resulted in an \$800 per year saving on personal transportation costs for these users.²³

Health Benefits

The health benefits of bicycling are well known in helping to address preventable diseases such as obesity, heart disease, and diabetes.²⁴ As such, bike share can have a positive impact on both physical and mental health.

Physical Health Benefits

Bike share is a means for people to incorporate active transportation into their daily lives and lower medical and health care costs. Bicycling for 30 minutes a day, e.g. using bike share to go to and from work each day, can reduce the risk of heart disease by 82%²⁵ and reduce the risk of diabetes by up to 58%.²⁶

A study of the *Bicing* bike share system in Barcelona, Spain published in the *British Medical Journal* in 2011 compared the benefits of increased physical activity to the additional risks introduced from increased inhalation of air pollutants and increased exposure to traffic crashes. The study found that over 10 deaths were avoided each year due to increased physical activity, offsetting any smaller increases in expected deaths from air pollutant inhalation and traffic crash exposure.²⁷

22 www.consumerreports.org accessed on December 12, 2013.

23 LDA Consulting (2013). 2013 Capital Bikeshare Member Survey Report. Accessed online at <http://capitalbikeshare.com/assets/pdf/CABI-2013SurveyReport.pdf> on December 13, 2013.

24 Lindström, J. et al. The Finnish Diabetes Prevention Study: Lifestyle intervention and 3-year results on diet and physical activity. *Diabetes Care*, December 2002, vol. 26 no. 12 3230-3236. Accessed online at <http://care.diabetesjournals.org/content/26/12/3230.full> on December 13, 2013.

25 British Medical Association (1992). *Cycling Towards Health and Safety*. Oxford University Press.

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27 Rojas-Rueda, D. et al. (2011). The Health Risks and Benefits of Cycling in Urban Environments Compared with Car Use: Health Impact Assessment Study. *British Medical Journal* 2011; 343:d4521. Accessed online at: <http://www.bmj.com/content/343/bmj.d4521> on January 2, 2014. Statistics reported are based on the sensitivity analysis that assumes 10% of Bicing trips replace car trips.

18 Schoner, J.E., Harrison, A. and Wang, X. (2012). Sharing to Grow: Economic Activity Associated with Nice Ride Bike Share Stations. Humphrey School of Public Affairs, University of Minnesota.

19 Bike Europe (2007). Strong Shifts in 2007 French Market. Accessed online at <http://www.bike-eu.com/Home/General/2008/4/Strong-Shifts-in-2007-French-Market-BIK002778W/> on December 3, 2013.

20 Hubway Corporate / University Accounts, accessed online at <http://www.thehubway.com/corporate> on December 27, 2013.

21 U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, 2010.

BIKE SHARE *by* THE NUMBERS



INEXPENSIVE

\$9,100 median annual cost of car ownership

\$50-\$100 for an annual bike share membership

HEALTH

30 minutes of bicycle riding/day reduces the risk of heart disease by 82%



EXTEND TRANSIT

2/3 of Citi Bike users in New York link their bike share trips with transit

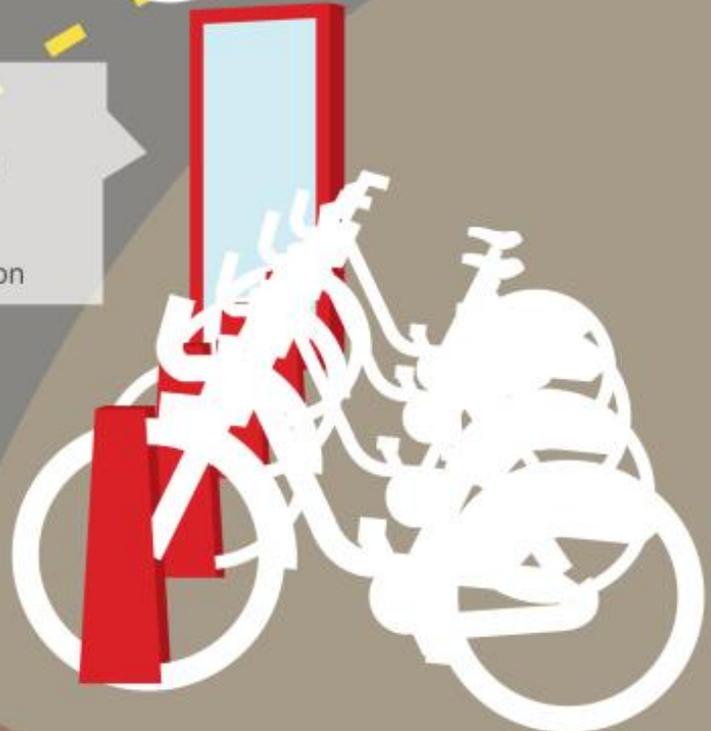


ECONOMIC IMPACT

83% of Capital Bikeshare members in Washington, DC were more likely to visit a local business if it is located near a bike share station

NEW RIDERS

1/3 of initial members of Nice Ride in Minneapolis had ridden less than once per month before joining



- The health benefits of bike share are recognized by the health care industry and the federal government alike. For example, the Centers for Disease Control and Prevention (CDC), has funded several different systems including in Boston and Nashville. The private sector is also represented with many bike share systems in the United States supported by health care providers such as Blue Cross Blue Shield (Nice Ride Minnesota) and Kaiser Permanente (Denver B-Cycle) through partnerships and sponsorships.

Mental Health Benefits

Bike share can also have a positive impact on mental health. Users in other cities have expressed that bike share has positively contributed to an improved outlook, increased recreation, and improved sociability.

Environmental Benefits

Bike share can have an impact on reducing greenhouse gas emissions by replacing trips taken previously by automobile. These impacts can be multiplied when bike share is used in combination with transit and other modes to reduce dependence on automobile use, change travel patterns and increase environmental consciousness.

Reduction in Greenhouse Gas Emissions

In communities where bike share is an active transportation option, surveys have shown that approximately 20 – 40 percent of annual member bike share trips replace what would have been an automobile trip. A survey of Capital Bikeshare members in Washington D.C. in 2011 showed that bike share trips had replaced approximately 4.4 million vehicle miles, representing a 4% decrease in the city's annual driving mileage.²⁸

In its first season of operation, Denver B-Cycle users took over 100,000 trips and rode more than 200,000 miles. A survey of members showed that over 40% of trips replaced a vehicle trip, resulting in almost a 16,000 gallon saving in gasoline consumption and avoiding over 300,000 pounds of greenhouse gas emissions.²⁹

Increase Environmental Consciousness

Bike share helps to increase environmental consciousness for both individuals and communities

²⁸ Federal Highway Administration, Highway Statistics 2011: Urbanized Areas – 2010 Miles and Daily Vehicle – Miles Traveled. Accessed online at <http://www.fhwa.dot.gov/policyinformation/statistics/2011/hm71.cfm> on December 27, 2013.

²⁹ Denver Bikesharing Annual Report

as a whole. For individuals, most bike share systems offer member logins where people can track the amount of greenhouse gas emissions avoided through their bike share trips. Employers can use these statistics to help track the organization's greenhouse gas emission reductions. The data tracked through a bike share system can also be used to foster contests among employees for distance ridden. Such contests are already frequently used with pedometers at workplaces.

Bike share is also a high-profile project that tends to garner significant press attention. In 2011 at the launch of Hubway, Boston Mayor Thomas Menino famously commented, "The car is no longer king". This quote was memorialized on a Hubway bicycle. The press attention allows politicians to publicly support a popular and convenient transportation system that has a positive environmental benefit. There have been many images of celebrities on bike share bikes, including Rafael Nadal on Toronto Bixi³⁰, Leonardo DeCaprio on Citi Bike³¹, and many images and mentions of Citi Bike on late-night television, including Bruce Willis on David Letterman and Paul McCartney on Saturday Night Live. Such high-profile media attention brings attention to the bike share system as well as increases overall environmental awareness.

Safety Benefits

The safety of bicycling in general is a significant concern to potential riders. Although still relatively new, bike share has an extremely impressive safety record.

To date, no system in the United States has recorded a fatality and the rates of injury crashes are typically lower than private bicycling, as shown on Figure 10.^{32 33}

The safety benefits of bike share include:

- Introducing more riders to a community for a "safety in numbers" effect.
- Exposure of riders to road rules and safety hints through safety messaging at bike share stations and websites.
- Introducing safer bikes in good repair that feature permanent lighting systems to the community.

³⁰ Retrieved from <http://hollywoodpq.com/2011/08/12/spotted-rafael-nadal-en-bixi-a-montreal/> on April 20, 2014.

³¹ Retrieved from <http://perezhillton.com/fitperez/2013-08-23-leonardo-dicaprio-lucas-haas-citi-bike-ride-through-new-york> on April 20, 2014.

³² Only Capital Bikeshare has a higher injury crash rate than private bicycling. It is uncertain why the injury crash rate is higher in Capital Bikeshare than in other systems and higher than the private bicycling rate.

³³ Injury rates for private bicycling obtained from: Beck, L. et al. (2007). Motor Vehicle Crash Injury Rates by Mode of Travel, United States. Published in the American Journal of Epidemiology.

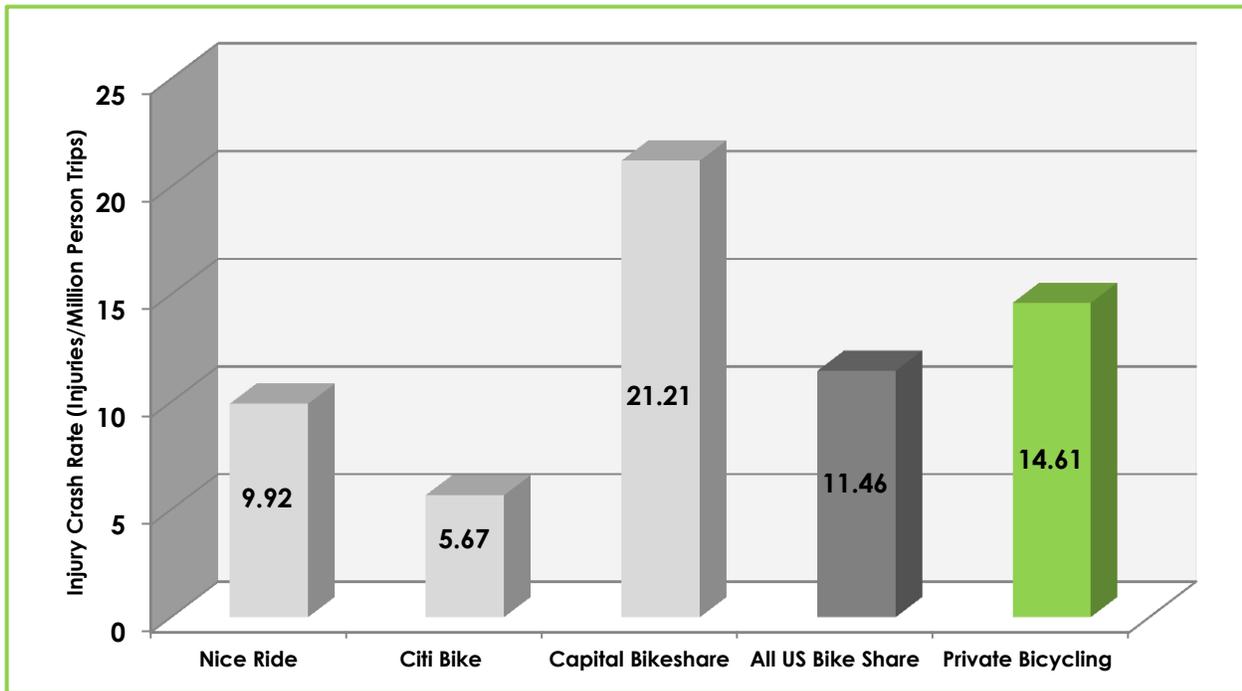


Figure 10 - Comparison of Injury Rates for Bike Share and Private Bicycling

Safety in Numbers

Millions of bike share trips were taken in almost 30 U.S. cities in 2013, significantly increasing the overall number of bicycling trips in these cities. For example, in New York, there were an additional 40,000 bike trips per day due to Citi Bike and bike share trips made up approximately 29% of the 113,000 daily bicycle trips made within the bike share service area.

Bike share has been effective in attracting new and previously infrequent bicyclists. A survey of Hubway members in Boston found that 12% bicycled less than once per year prior to joining Hubway and a further 16% bicycled less than once per month prior to joining.³⁴

Along with the high visibility of stations, the high volume of riders results in greater awareness of bicyclists by drivers. In fact, the “safety in numbers effect” is well established. A study published in *Injury Prevention* in 2003 showed that the “likelihood of a person walking or bicycling being struck by a motorist varies inversely with the amount of walking and bicycling”.³⁵ Figure 11 shows how the injury rate (referred to as “relative risk index”) reduces exponentially with the number of cyclists using the road system (in this case using journey to

work mode share as a proxy for the overall amount of bicycling).³⁶

Road Rules and Safety Hints

Bike share provides a unique opportunity to communicate with cyclists about road rules and regulations and safety hints. Some examples include:

- Don't ride on sidewalks.
- Ride with the flow of traffic.
- Watch out for car doors.
- Encouragement of helmets and communication about where to purchase a helmet.
- Watch out for right-turning vehicles.
- Ride predictably and in control.

Means of communicating safety messages are numerous, including:

- Website.
- Social media.
- At the bike share station during registration.
- On the bicycle handlebars and stem.
- On the map panels in stations.
- High-profile events or press articles.

Such communication leads to more educated and safer riders who typically take fewer risks than the traditional, private bicyclist.

34 Presentation titled *The Hubway Influence on New Riders* given by Nicole Freedman, 2013. Accessed online at: <http://baystateroads.eot.state.ma.us/movingtogether/docs/Freedman-Moving%20Together%202013.ppt.pdf>.

35 Jacobsen, P.L. (2003). *Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling*. *Injury Prevention* 2003;9:205-209.

36 Jacobsen, P.L. (2003). *Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling*. *Injury Prevention* 2003;9:205-209.

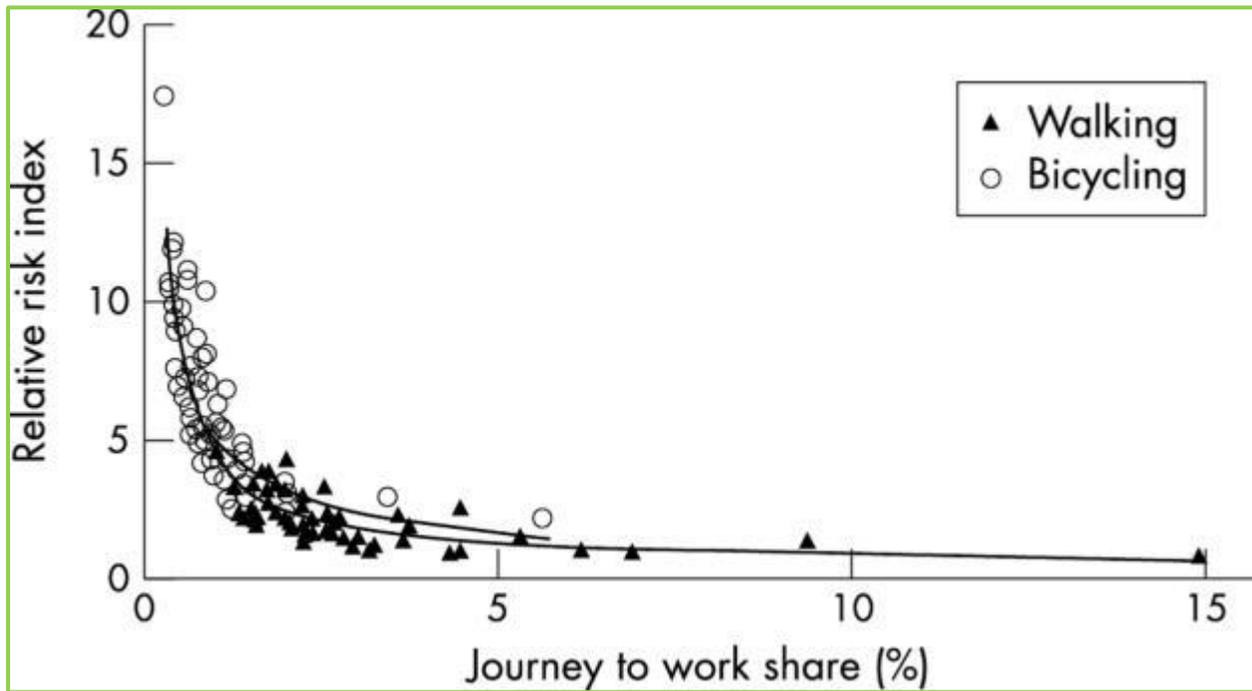


Figure 11 - Walking and Bicycling Risk in 68 California Cities in 2000

Safe Bikes³⁷

The strong safety record of bike share is also impacted by the introduction of bikes with many safety features. These are shown on Figure 12 and include:

- Built-in safety features such as front and back lights, brakes, and reflectors;
- An upright position of the rider; and
- A heavy bike (typically 40-45 lbs.) with wide handlebars where riders generally keep slow speeds and do not weave in traffic.

In addition, the operator undertakes regular maintenance of the bicycle fleet to ensure safety.

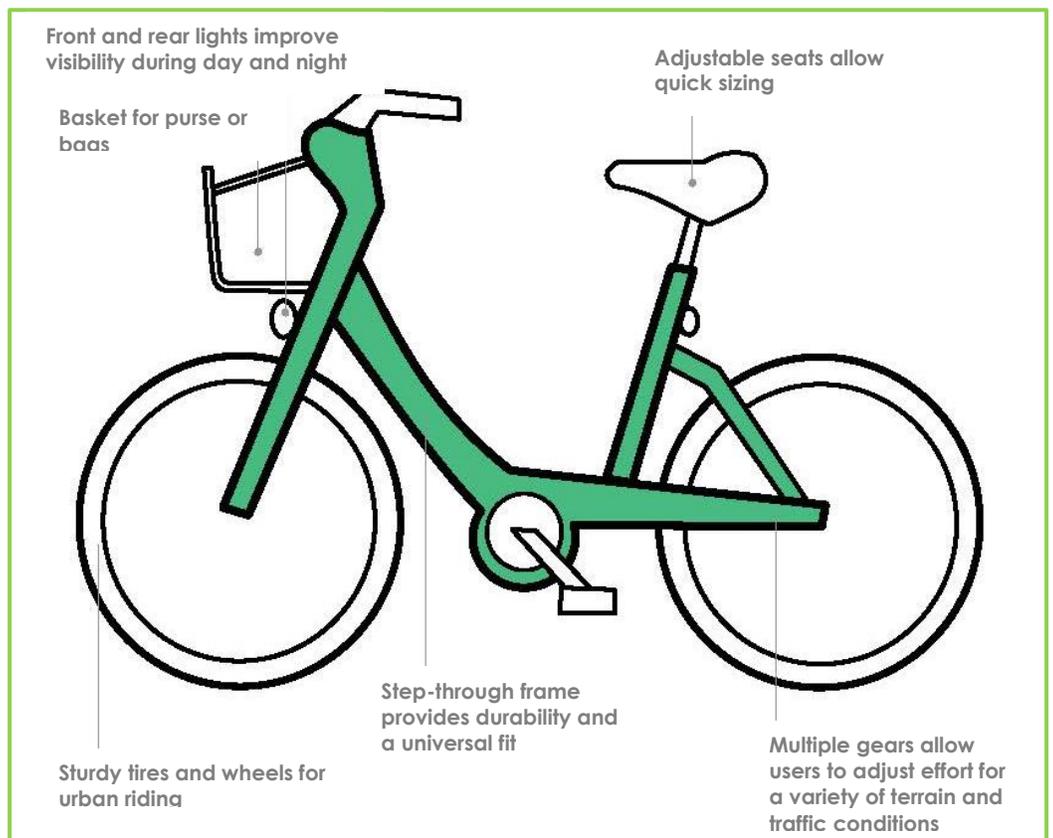


Figure 12 - Safety Features of Bike Share Bike

37 Atlanta Bicycle Coalition (2013). *Atlanta – Decatur Bike Share Feasibility Study*. Accessed online at: http://issuu.com/atlantabike/docs/atl-dec_bikeshare_book_lowres# on January 2, 2014.

PEER PROGRAMS

Five existing U.S. bike share programs were selected based on similarities in geographic and population size, transit infrastructure, regionalization, the systems' operational and ownership model, and the location of several systems in the Southeast. The selected programs included:

Capital Bikeshare (Washington, D.C. area)



Charlotte B-Cycle (Charlotte, NC)



Chattanooga Bicycle Transit System (Chattanooga, TN)



San Antonio B-Cycle (San Antonio, TX)



Spartanburg B-Cycle (Spartanburg, SC)



The profiles below summarize key characteristics and performance metrics for each of these programs.

Description

Capital Bikeshare launched in 2010 with 110 stations and 1,100 bicycles, as a collaborative effort between Arlington County and Washington, D.C. Since then, the system has expanded to the neighboring jurisdictions of Montgomery County and the City of Alexandria. The regional system now includes over 300 stations and over 2,000 bicycles, and is the third largest system in the U.S.



Source: Capital Bikeshare

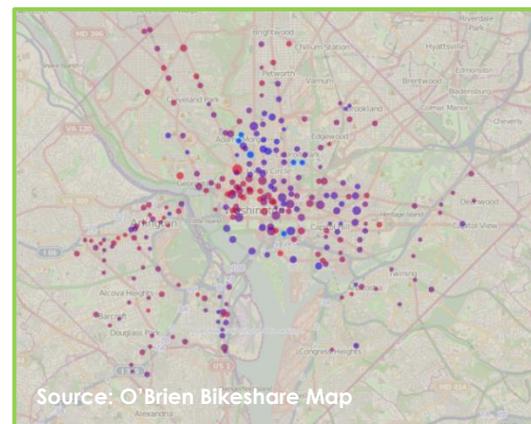
www.capitalbikeshare.com

System Characteristics

Equipment:	PBSC Urban Solutions (Bixi)
Equipment Type:	Solar/modular
Equipment Ownership:	Jurisdictional
Operator:	Alta Bicycle Share
Operations:	Year-round (365 days)

System Size³⁸

Bikes:	2,500
Stations:	244
Docks:	4,092
Service Area: ³⁹	22.8 sq. mi.
Station Density: ⁴⁰	10.7 stations / sq. mi.



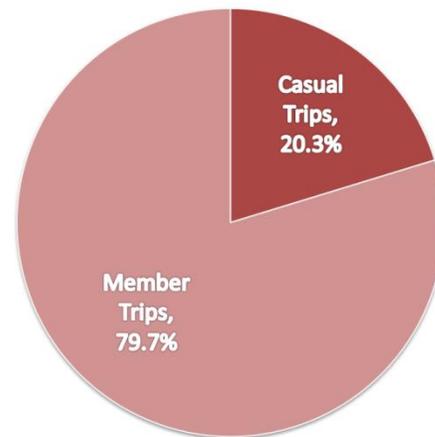
Source: O'Brien Bikeshare Map

Demographics

System Population: ⁴¹	1,999,147 (2012)
Metro Area Population: ⁴²	5,225,000 (2013)
Estimated Annual Tourists: ⁴³	18,900,000 (2012)
Average Population Density:	3,366 people / sq. mi.

Membership and Ridership⁴⁴

Casual Subscriptions:	256,451
Annual Members:	24,024
Casual Subscriber Rides:	530,709
Annual Member Rides:	2,086,393
Total Rides:	2,617,102
Rides per annual membership:	86.8
Rides per casual subscription:	2.1
Population per bike:	800
% population w. annual membership:	1.2%
Casual subscriptions per station:	1,051
Tourists per casual subscription:	74



Total 2.9
rides per bike per day

³⁸ As of December 2013

³⁹ Service area is calculated as the area encompassing every station plus a ¼ mile buffer around each station.

⁴⁰ Stations per square mile in service area.

⁴¹ 2012 US Census Estimates, State & County QuickFacts. Includes total population for City of Alexandria, VA; Arlington County, VA; Washington, DC; and Montgomery County, MD

⁴² Metropolitan Washington Council of Governments, CLRP Long Range Transportation Plan

⁴³ Destination DC

⁴⁴ Capital Bikeshare. Accessed from CapitalBikeshare.com on January 30, 2014. Data presented corresponds to 2012

Capital Funding Sources⁴⁵

Initial System (1,100 Bikes, 110 Stations)

FHWA (D.C. portion) \$6.2 million

Revenue Model

Sponsorship, membership and usage fees are reinvested into the system through a collaborative agreement of the regional members. Jurisdictions pay a flat per-dock fee to operator in current agreement.

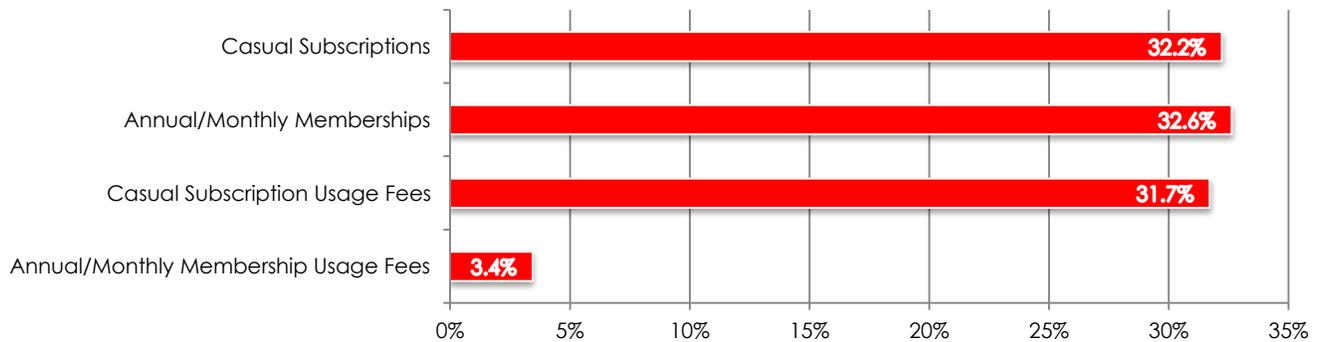
Membership Fees

Annual:	\$75
Annual Corporate:	\$50
Annual Monthly Payments: ⁴⁶	\$84
Monthly:	\$25
72 Hours:	\$15
24 Hours:	\$7

Usage Fees

First 30 minutes free
 Additional 30 minute increments:
 - Annual: \$1.50 (1 hr.); \$4.5 (1.5hrs); \$6 (per 30min)
 (max \$70.50/day)
 - Casual: \$2 (1 hr.); \$6 (1.5 hrs.); \$8 (per 30 min)
 (max \$94/day)

Breakdown of User-Generated Revenue⁴⁷



Operating Costs⁴⁸

Operating expense per dock per month:	\$113.98
Operating expense per ride:	\$2.32
Fare box revenue: ⁴⁹	98.1%

⁴⁵ Capital Bikeshare website

⁴⁶ Or \$84 in monthly installments of \$7.

⁴⁷ Capital Bikeshare Monthly Reports

⁴⁸ Capital Bikeshare Monthly Reports

⁴⁹ Fare box revenue is the percent operating costs recovered from annual memberships, casual subscriptions, and usage fees.

Description

Charlotte B-cycle is the largest bike share program in the Southeast to date with 200 bicycles at 20 stations. The program which opened in 2012 is funded in part by Blue Cross and Blue Shield of North Carolina, Carolinas HealthCare System and Verizon, which cover the majority of the program's cost.



Source: Charlotte B-Cycle

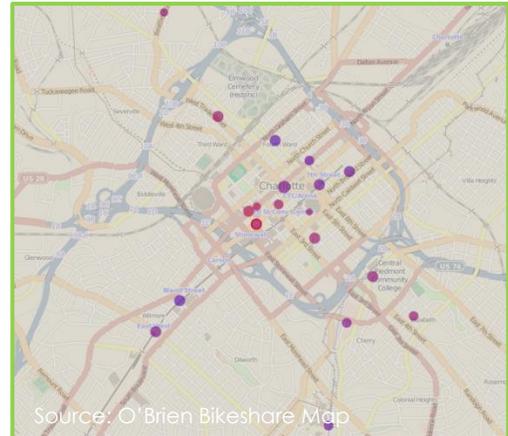
System Characteristics

Equipment:	B-Cycle LLC
Equipment Type:	Solar/Wired
modular	
Equipment Ownership:	Nonprofit
Operator:	Charlotte B-Cycle
Operations:	Year-round (365 days)

www.charlotte.bcycle.com

System Size⁵⁰

Bikes:	200
Stations:	20
Docks:	330
Service Area (Sq. Mi.): ⁵¹	11.2
Station Density: ⁵²	1.8



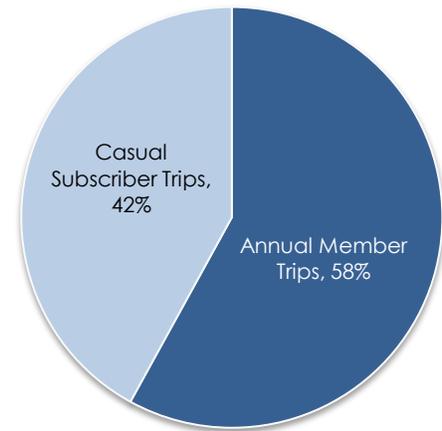
Source: O'Brien Bikeshare Map

Demographics

System Population: ⁵³	775,202 (2012)
Metro Area Population: ⁵⁴	2,296,569 (2012)
Estimated Annual Tourists: ⁵⁵	18,000,000
Population Density:	2,457 people / sq. mi

Membership and Ridership⁵⁶

Casual Subscriptions:	12,688
Annual Members:	578
Casual Subscriber Rides:	22,661
Annual Member Rides:	15,406
Total Rides:	38,067
Rides per annual membership:	26.7
Rides per casual subscription:	1.8
Population per bike:	3,876
% population w. annual membership:	0.07%
Casual subscriptions per station:	634
Tourists per casual subscription:	1,418



Total 0.52
rides per bike per day

⁵⁰ Numbers included reflect Year 1 operations (August 2012 through August 2013).

⁵¹ Service area is calculated as the area encompassing every station plus a ¼ mile buffer around each station.

⁵² Stations per square mile in service area.

⁵³ 2012 US Census Estimates, State & County QuickFacts.

⁵⁴ Plan Charlotte. Obtained from <http://plancharlotte.org/story/charlotte-msa-change-2013> on January 30, 2014.

⁵⁵ Charlotte Regional Visitors Authority

⁵⁶ Dianna Ward, Executive Director, Charlotte B-Cycle. Totals for August 2012 through August 2013.

Capital Funding Sources⁵⁷

Initial System (200 Bikes, 20 Stations)

Sponsorship	\$2.9 Million
Total Capital	\$2.9 Million

Revenue Model

Sponsorship, membership and usage fees are all reinvested into the system.

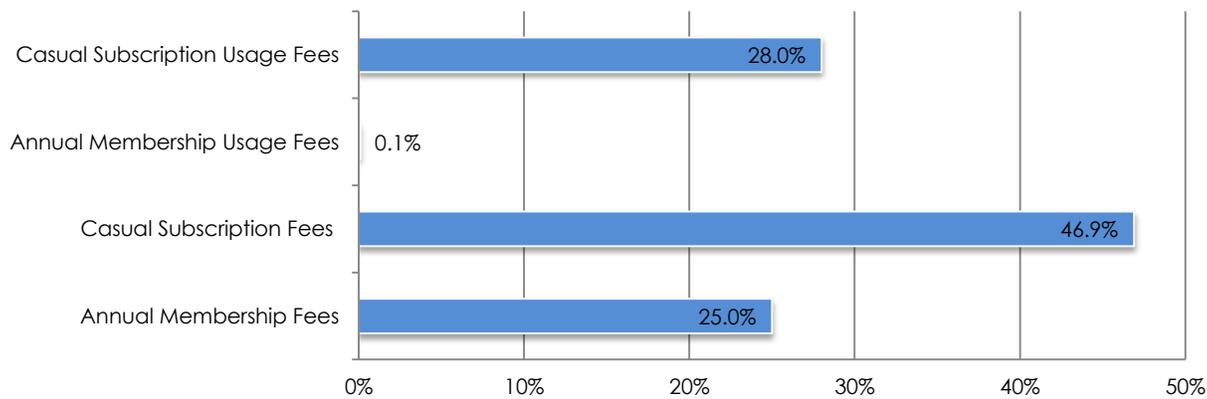
Membership Fees

Annual:	\$65
24 Hours:	\$8

Usage Fees

First 30 minutes free
Additional 30 minute increments:
- Annual: Additional 30 minutes (\$4); (max \$75/day)
- Casual: Additional 30 minutes (\$4); (max \$75/day)

Breakdown of User-Generated Revenue⁵⁸



Operating Costs⁵⁹

Operating expense per dock per month:	\$104.17
Operating expense per ride:	\$9.19
Fare box revenue: ⁶⁰	52.4%

⁵⁷ Dianna Ward, Executive Director, Charlotte B-Cycle. Totals for August 2012 through August 2013.

⁵⁸ Ibid

⁵⁹ Dianna Ward, Executive Director, Charlotte B-Cycle. Totals for August 2012 through August 2013.

⁶⁰ Fare box revenue is the percent operating costs recovered from annual memberships, casual subscriptions, and usage fees.



Description

The Chattanooga Bicycle Transit System was funded by \$2 million of federal funding, is owned by the City of Chattanooga and operated by Alta Bicycle Share (a private bike share operator). It was implemented in July 2012 with 31 stations and 300 bicycles and serves a population of over 170,000 people. This system has a partnership with the University of Tennessee Chattanooga.



Source: Bike Chattanooga

www.bikechattanooga.com

System Characteristics

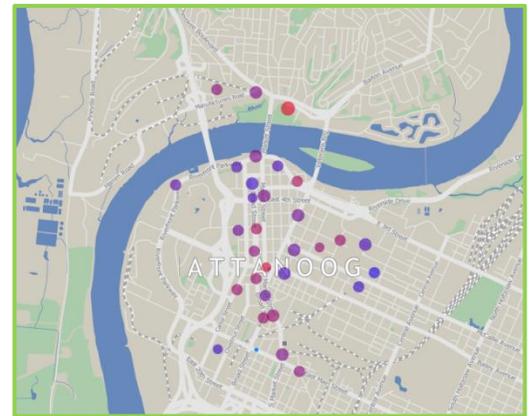
Equipment	Public Bike System Company (Bixi)
Equipment Type	Solar/Wired modular
Equipment Ownership	Jurisdiction-owned
Operator	Alta Bicycle Share, Inc.
Operations	Year-round (365 days)

System Size⁶¹

Bikes	300
Stations	33
Docks	535
Service Area (Sq. Mi.) ⁶²	5.2
Station Density ⁶³	6.3

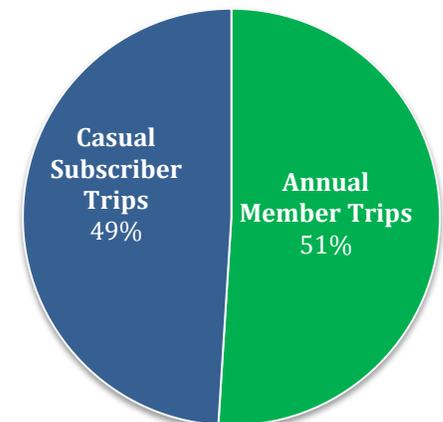
Demographics

System Population ⁶⁴	171,279 (2012)
Metro Area Population:	528,143 (2012)
Estimated Annual Tourists	N/A
Average System Population Density	1,223 people / sq. mi



Membership and Ridership⁶⁵

Casual Subscriptions	8,578
Annual Members	696
Casual Subscriber Rides	15,816
Annual Member Rides	16,184
Total Rides	32,000
Rides per annual membership	23.3
Rides per casual subscription	1.8
Population per bike	571
% population w. annual membership	0.4%
Casual subscriptions per station	277
Tourists per casual subscription	N/A



Total 0.29 rides per bike per day

⁶¹ As of March 2014

⁶² Service area is calculated as the area encompassing every station plus a ¼ mile buffer around each station.

⁶³ Stations per square mile in service area

⁶⁴ 2011 US Census Estimates, State & County QuickFacts.

⁶⁵ Report, "Bike Chattanooga – First Year of Operations", July 2013

Capital Funding Sources⁶⁶

Initial System (300 Bikes, 31 Stations)

\$1.3 Million from the Federal Congestion Mitigation and Air Quality (CMAQ) funding for capital purchases.

Revenue Model

First year subsidized by public funding. Following first year, sponsorship + usage fees to cover operating costs

Membership Fees

Annual
7 days
24 Hours

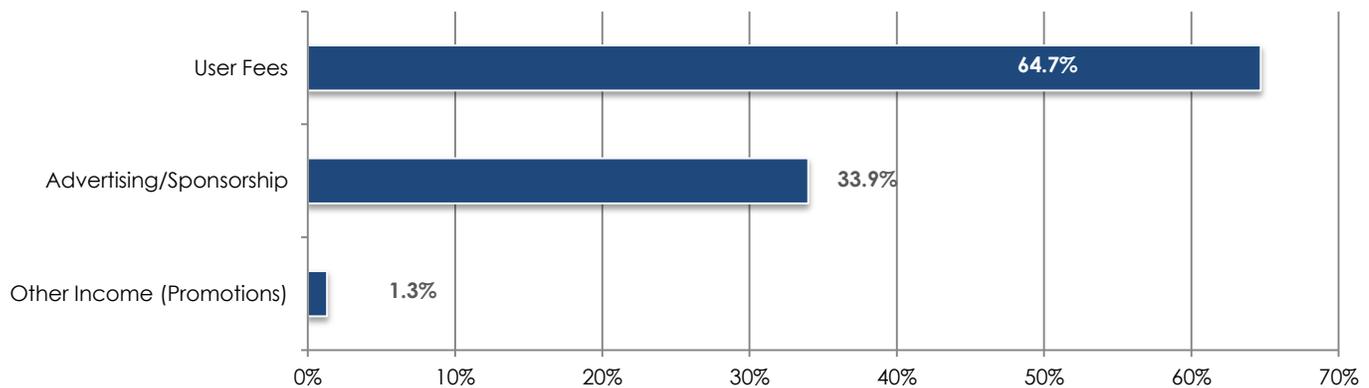
Usage Fees

\$75 First 60 minutes – no usage fee (all membership plans)
\$20
\$6

Corporate & Community

Additional 30 minute increments: \$5 (max \$100/day)
Partner: varies

Breakdown of Revenue⁶⁷



Operating Costs⁶⁸

Operating expense per dock per month	\$82.24
Operating expense per ride	\$16.50
Fare box revenue ⁶⁹	26%

⁶⁶ Philip Pugliese. Transportation Consultant. Chattanooga.

⁶⁷ Report, "Bike Chattanooga – First Year of Operations", July 2013

⁶⁸ Ibid

⁶⁹ Fare box revenue is the percent operating costs recovered from annual memberships, casual subscriptions, and usage fees.



Description

San Antonio B-Cycle launched in March 2011 as a 14 station/140 bike system in the downtown core. The system has since expanded several times to now be 53 stations and 450 bikes, increasing the density of stations downtown and extending the system north to Brackenridge Park and south along the San Antonio Mission Trail. The City of San Antonio owns the equipment and the system is managed and operated by San Antonio Bike Share, a specially formed non-profit organization.



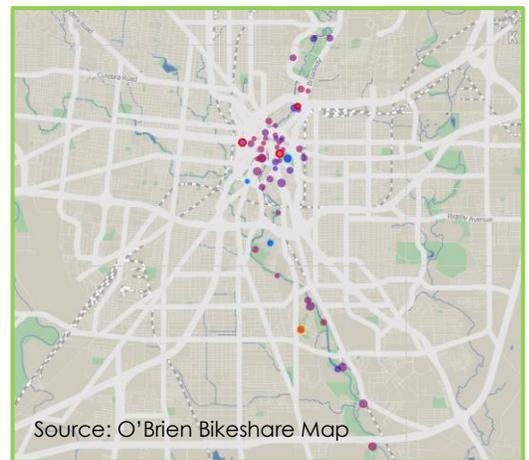
www.sanantonio.bcycle.com

System Characteristics

Equipment	B-Cycle
Equipment Type	Solar/Wired modular
Equipment Owner	City of San Antonio
Operator	San Antonio Bike Share
Operations	Year-round (365 days)

System Size⁷⁰

Bikes	450
Stations	53
Docks:	781
Service Area – Whole (Sq. Mi.) ⁷¹	5.15
Station Density ⁷²	10.3



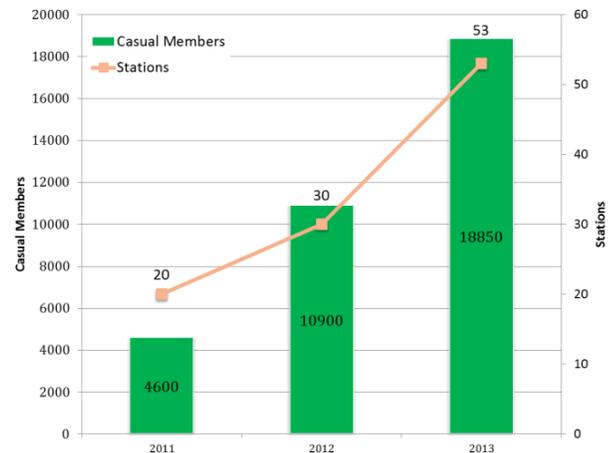
Source: O'Brien Bikeshare Map

Demographics

System Population ⁷³	1,382,951 (2012)
Metro Area Population	2,234,023 (2012)
Estimated Annual Tourists ⁷⁴	30,000,000
Average System Population Density	2,880 people / sq. mi

Membership and Ridership⁷⁵

Casual Subscriptions	15,873
Annual Members	556
Casual Subscriber Rides	N/A
Annual Member Rides	N/A
Total Rides	65,560
Rides per annual membership	N/A
Rides per casual subscription	N/A
Population per bike	3,073
% population w. annual membership	0.04%
Casual subscriptions per station	299
Tourists per casual subscription	1,890



Total 0.51 rides per bike per day

⁷⁰ As of April 2014

⁷¹ Service area is calculated as the area encompassing every station plus a ¼ mile buffer around each station

⁷² Stations per square mile in service area

⁷³ 2012 US Census Estimates, State & County QuickFacts

⁷⁴ www.visitsanantonio.com/nttw accessed on April 28, 2014.

⁷⁵ San Antonio Bike Share Annual Report, July 2012 – June 2013. At that time, the fleet consisted of 42 stations and 354 bikes.

Capital Funding Sources⁷⁶

Current System (450 Bikes, 53 Stations)

American Recovery & Reinvestment Act (ARRA)	\$841,579
U.S. Department of Energy	\$403,522
U.S. Centers for Disease Control and Prevention Communities Putting Prevention to Work Grant	\$42,645
U.S. Department of Transportation Sarbanes Grant	\$619,774
ARRA Energy Efficiency and Conservation Block Grant	\$1,050,000
Texas Department of Transportation	\$1,000,000

Revenue Model

Sponsorship + usage fees to cover operating costs

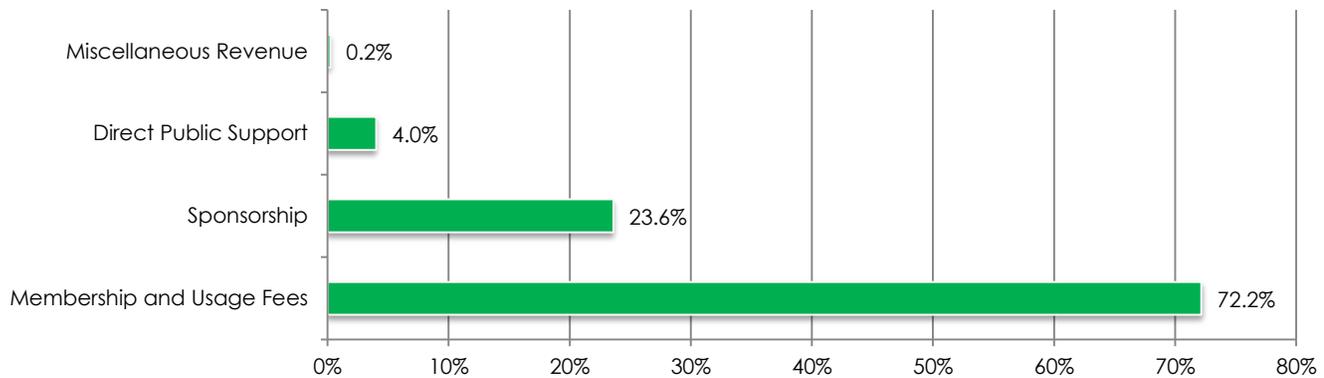
Membership Fees

Annual
7 days
24 hours

Usage Fees

\$60	First 30 minutes: no usage fee
\$24	Additional 30 minute increments: \$2
\$6	

Breakdown of Revenue⁷⁷



Operating Costs⁷⁸

Operating expense per dock per month	\$70.86
Operating expense per ride	\$6.91
Fare box recovery ⁷⁹	48%

⁷⁶ San Antonio Bike Share Annual Report, July 2012 – June 2013. At that time, the fleet consisted of 42 stations and 354 bikes.

⁷⁷ San Antonio Bike Share Annual Report, July 2012 – June 2013.

⁷⁸ Ibid.

⁷⁹ Fare box revenue is the percent operating costs recovered from annual memberships, casual subscriptions, and usage fees.

Description

Spartanburg B-Cycle launched in July 2011 and became the first bike share program in the Southeast with 2 stations and 20 bicycles. Spartanburg B-cycle is an initiative of Partners for Active Living and is a part of Bike Town Spartanburg. This was a community-wide collaboration dedicated to sustaining and improving Spartanburg's national designation as a Bicycle Friendly Community by the League of American Bicyclists. Since then, the system has expanded to four stations and 40 bicycles.



source: Spartanburg B-Cycle

www.spartanburg.bcycycle.com

System Characteristics

Equipment:	B-Cycle LLC
Equipment Type:	Solar/Wired modular
Equipment Ownership:	Nonprofit
Operator:	Partners For Active Living
Operations:	Year-round (365 days)

System Size⁸⁰

Bikes:	40
Stations:	4
Docks:	42
Service Area (Sq. Mi.): ⁸¹	0.8
Station Density: ⁸²	5.0



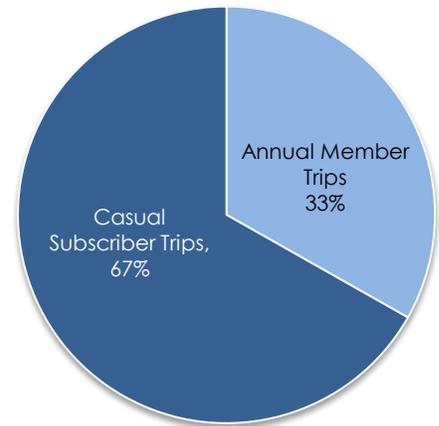
Source: Spartanburg B-Cycle

Demographics

System Population: ⁸³	290,969 (2013)
Metro Area Population: ⁸⁴	1,362,073. (2012)
Estimated Annual Tourists:	N/A
Population Density:	352 people / sq. mi

Membership and Ridership⁸⁵

Casual Subscriptions:	1,384
Annual Members:	97
Casual Subscriber Rides:	1,521
Annual Member Rides:	755
Total Rides:	2,276
Rides per annual membership:	7.8
Rides per casual subscription:	1.1
Population per bike:	7,274
% population w. annual membership:	0.03%
Casual subscriptions per station:	346
Tourists per casual subscription:	N/A



Total 0.16
rides per bike per day

⁸⁰ As of July 2013
⁸¹ Service area is calculated as the area encompassing every station plus a ¼ mile buffer around each station.
⁸² Stations per square mile in service area.
⁸³ 2012 US Census Estimates, State & County QuickFacts.
⁸⁴ US Census Estimates. Figures include Greenville-Spartanburg-Anderson CSA population
⁸⁵ Anne Piacentino, Active Lifestyles Coordinator, Partners for Active Living

Capital Funding Sources⁸⁶

Initial System (40 Bikes, 4 Stations)

Sponsorship	\$455 thousand
Grants	\$124 thousand
Total Capital	\$579 thousand

Revenue Model

Sponsorship, membership and usage fees are all reinvested into the system. No profit sharing with the jurisdiction. Jurisdiction helps by providing in-kind services in the form of electricity and staff time for reviewing proposed locations.

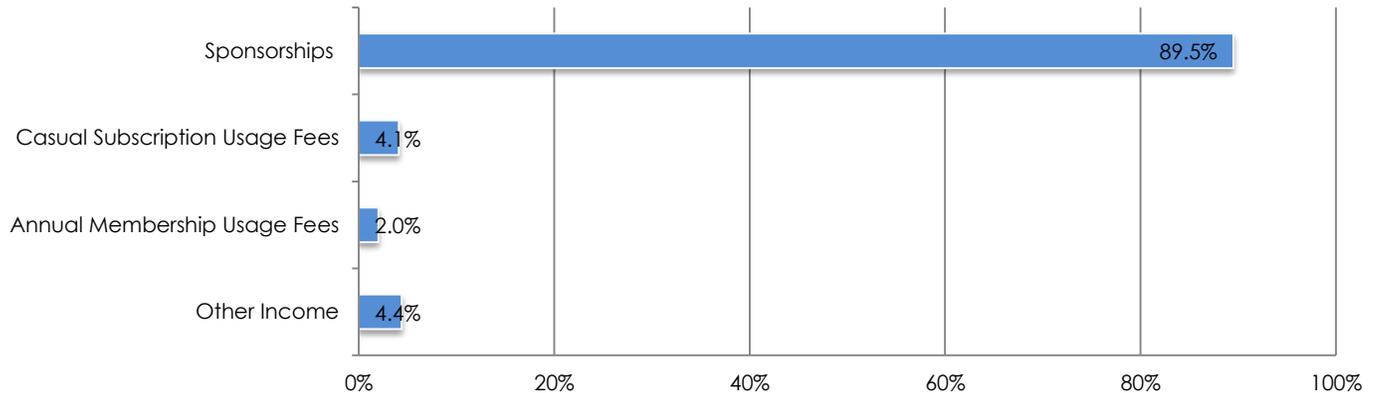
Membership Fees

Annual:	\$30
Annual Student:	\$20
Monthly:	\$15
24 Hours:	\$5

Usage Fees

First 60 minutes free
 Additional 30 minute increments:
 - Annual: \$1 (1 hr.); (max \$35/day)

Breakdown of Revenue⁸⁷



Operating Costs⁸⁸

Operating expense per dock per month:	\$51.6
Operating expense per ride:	\$42.52
Fare box revenue: ⁸⁹	32%

⁸⁶ Anne Piacentino, Active Lifestyles Coordinator, Partners for Active Living

⁸⁷ Partners for Active Living 2011 IRS Form 990.

⁸⁸ Partners for Active Living 2011 IRS Form 990.

⁸⁹ Fare box revenue is the percent operating costs recovered from annual memberships, casual subscriptions, and usage fees

Program Comparison⁹⁰

	Charlotte, NC	Chattanooga, TN	San Antonio, TX	Spartanburg, NC	Washington DC Area
System Name	Charlotte B-Cycle	Bike Chattanooga	San Antonio B-Cycle	Spartanburg, B-Cycle	Capital Bikeshare
Start Date	July 2012	July 2012	March 2011	July 2011	September 2010
Number of Bikes	200	300	450	40	2,500
Number of Stations	20	33	53	4	244
Bikes per station	10.0	9.1	8.5	10.0	10.2
Service Area (Sq. Mi.)*	11.2	5.2	5.2	0.8	22.8
Station Density**	1.8	6.3	10.2	5.0	10.7
Casual Membership	12,688	8,578	15,873	1,384	256,451
Annual Membership	578	696	556	97	24,024
Annual Member Trips	15,406	15,816	n/a	755	2,086,393
Annual Casual Trips	22,661	16,184	n/a	1,521	530,709
Total Annual Trips	38,067	32,000	65,560	2,276	2,617,102
Annual Trips per Bike	190	107	146	56.9	1,047
Average Trips per Bike per Day	0.5	0.3	0.5	0.2	2.9
Operating Costs per Dock	104.17	82.24	70.86	51.6	113.98
Equipment Owner	Non-Profit Owned	Agency Owned	Agency Owned	Non-Profit Owned	Agency Owned
Business Model	Non-Profit Managed	Agency Owned/ Private Operator	Non-Profit Managed	Non-Profit Managed	Agency Owned/ Private Operator

Table 2 – Performance of Existing Programs in Comparable Cities

* Service area refers to the area of the city in which bike share stations are located.

** Number of stations per square mile within the service area.



Figure 13 - Capital Bikeshare

⁹⁰ Most recent data available. (Reported 2012 or 2013)

COMMUNITY ANALYSIS



Figure 14 - Fayetteville Street

Understanding the context into which a bike share program would be introduced is important to determining whether such a system is feasible. This chapter provides a review of the physical environment, demographics, transportation environment, bicycle infrastructure and visitor and tourism industry in Raleigh.

GEOGRAPHY AND CLIMATE

Raleigh is the capital of North Carolina and the seat for Wake County. The City is also home to North Carolina State University and is part of the Research Triangle (that also includes Durham and Chapel Hill). The city covers a land area of approximately 140 square miles.

The metropolitan area includes Wake, Durham, Orange, Franklin, Chatham and Johnston counties and a population of approximately 1.6 million people. The area has experienced a 32-percent population increase over the past decade.

The City was originally planned in a grid pattern (evident in its downtown) and experienced a large expansion into its suburbs through the second part of the 20th century. In some places outside of downtown, the street network is disconnected making bicycling more circuitous.

The topography in Downtown Raleigh is relatively flat and ideal for bicycling. Portions of the city extending towards NC State University, Glenwood South, or the North Hills area have more challenging topography.

Raleigh has a humid subtropical climate characterized by hot summers and mild winters. The area receives an average of 3.6 inches of precipitation per month but also

occasionally experiences periods of drought and drier weather around April and occasional tropical storms and even hurricanes during late summer and fall. The temperate climate and generally pleasant weather makes it possible for people to bicycle year round.

Challenges:

- Connectivity of bicycling routes is impacted by the development patterns in some areas of the City.
- There are some areas with hillier topography that make bicycling more challenging.

Opportunities:

- Relatively flat topography and a gridded street pattern Downtown.
- Wide streets conducive to comfortable bicycling and potential future bicycle infrastructure.
- Temperate weather throughout the year.

DEMOGRAPHICS

Bike share ridership is most influenced by the density and mix of land uses. In other words, bike share systems work best where the more people live, work and play. For Raleigh most of these areas are located within or in close proximity to downtown, which is undergoing a steady revitalization with many businesses and residents relocating there. Many nearby neighborhoods also exhibit these features. These areas tend to be ideal locations for bike share programs to begin and from where to expand.

Population

The City of Raleigh is the second most populous city in the state with approximately 423,000 people living in the city - a density of around 2,800 people per square mile, which is higher than all of the other southeastern bike share cities (see Table 3).⁹¹

	Area (mi)	Population	Density (Sq. Mi.)
Raleigh	144.8	423,179	2,963
Charlotte	298	775,202	2,601
Chattanooga	137	171,279	1,251
San Antonio	461	1,382,951	3,000
Spartanburg	808	290,969	360
Washington D.C. Area	594	1,999,147	3,366

Table 3 - Size, Population and Density Comparison

The City experienced an influx of people between 2000 and 2012 representing 113,000 new residents and a 39-percent population increase. This growth is attributed to the City's business environment, it's nationally ranked universities, and well-respected health care facilities.⁹²

⁹¹ US Census Bureau. 2008-2012 American Community Survey 5-Year Estimates. S0101 Age and Sex.
⁹² City of Raleigh. Comprehensive Annual Financial Report For the Fiscal Year Ended June 30, 2013.

These are all factors with synergies to bike share (see the Benefits of Bike Share Systems chapter).

Much of this population increase was experienced in Downtown and neighborhoods to the north and east (along the Hillsborough Street corridor). Also, as the North Carolina State University (NCSU) campus has expanded south into its Centennial Campus, many part time residents have moved into this area. Figure 18 maps the population density in Raleigh, which shows high density in and around Downtown, with significant drop-off outside downtown. This density is promising for a bike share system, but may make expansion outside of Downtown difficult.

According to the 2012 American Community Survey:⁹³

- The median age is 32 and a large proportion (around 50 percent) of the population is between the ages of 20 and 50 (See Figure 15).
- The median household income is just over \$53,500 (higher than at the state average of \$46,250) (See Figure 16).

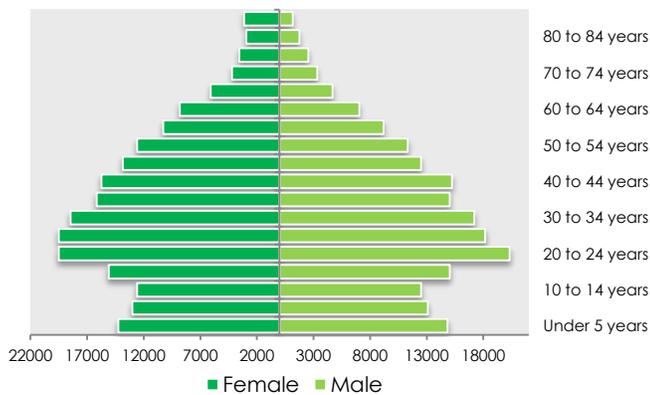


Figure 15 - Population by Age and Sex

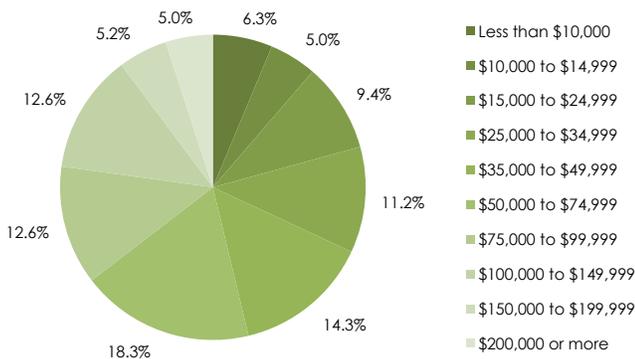


Figure 16 - Income Distribution

⁹³ US Census Bureau. 2008-2012 American Community Survey 5-Year Estimates. DP03 Selected Economic Characteristics

These are important factors as experience in other cities shows that early adopters tend to be younger, more affluent riders.

Although the median income is high, the City has over 16-percent of people living below the poverty line (defined as \$35,000 for a family of four). This presents both a challenge and an opportunity to provide an additional mobility service to low-income residents who may have difficulty connecting to jobs and other services. See Figure 16 for a full breakdown of income distribution in the City.

The demographic composition of the City, shown on Figure 17, is similar to other North Carolina cities: with 53-percent Caucasian, almost 30-percent African American, 11-percent Hispanic/Latino, 4-percent Asian and 2-percent of Native Hawaiian, American Indian or other background.⁹⁴

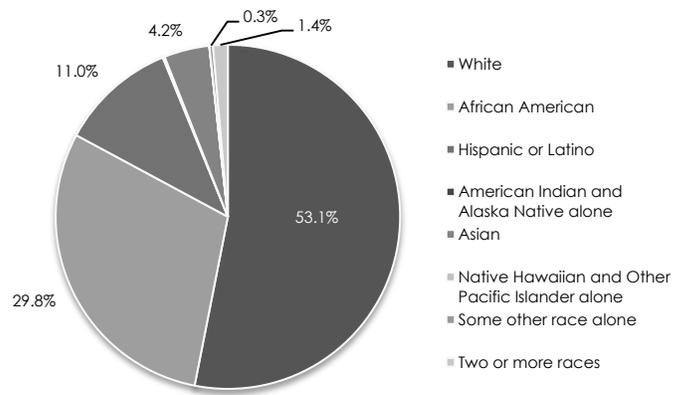


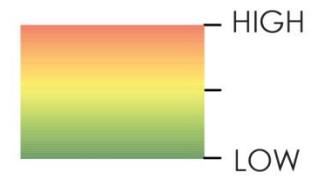
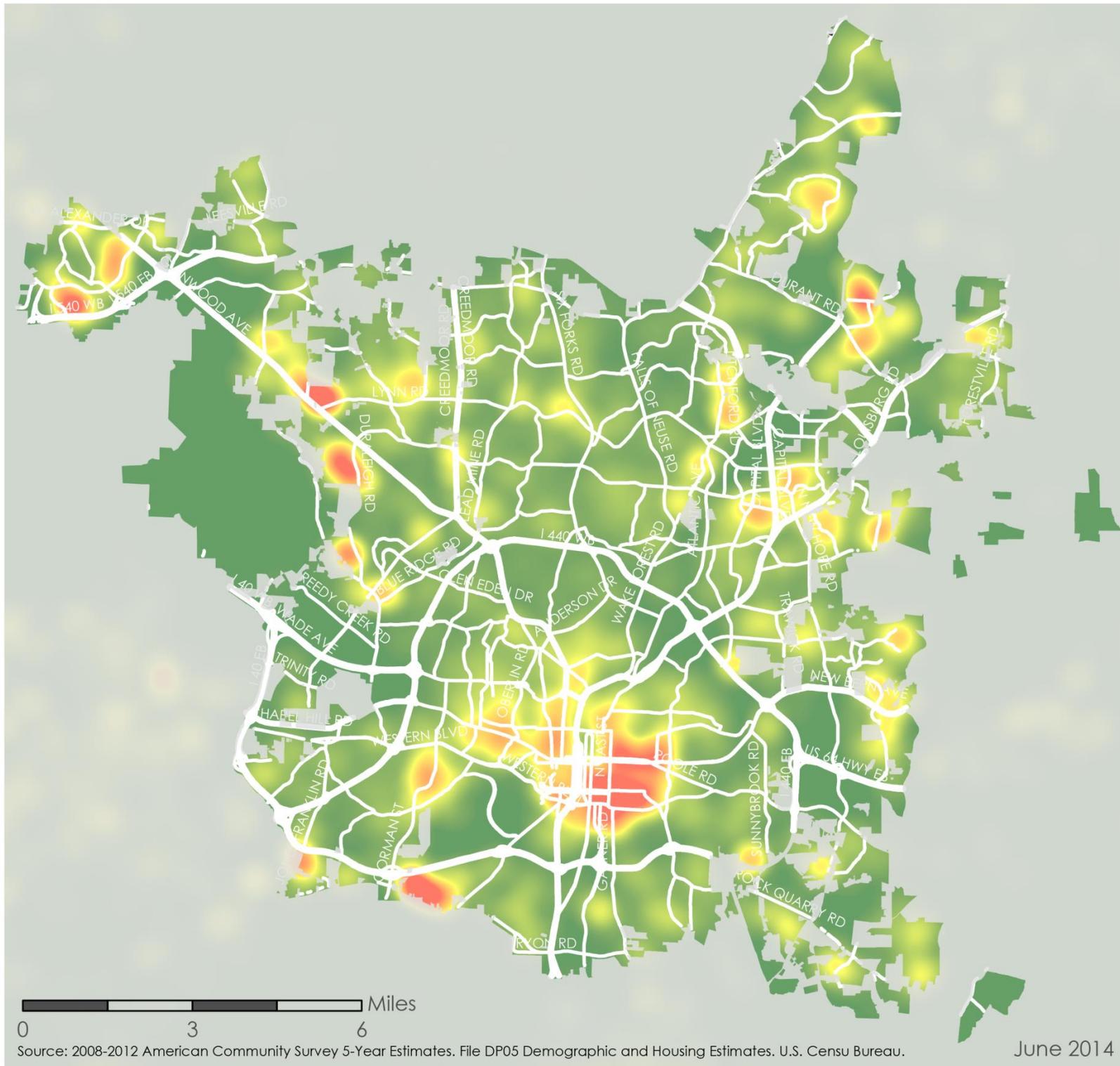
Figure 17 - Demographic Composition

A spatial analysis of two variables associated with traditionally underserved populations was undertaken as part of this study: (1) the percentage of population living in poverty, and (2) the percentage of non-white population. Figure 19 presents these areas as a “composite equity map” combining the percentage scores for each criterion by census tract. A comparison between the population density map and the equity index map indicates significant overlap in Downtown Raleigh and close-by areas. Areas in red and yellow therefore represent the most significant opportunities for City of Raleigh to serve these communities by implementing and installing bike share stations and offer a low-cost transportation option serving minority and low-income communities.

Employment and Education

Just as population density has a strong influence over bike share success, the number of jobs also influences usage. Bike share programs expand transit options for local commuters and offer a convenient way to get around during the day.

⁹⁴ US Census Bureau. 2008-2012 American Community Survey 5-Year Estimates. DP05 Demographic and Housing Characteristics.



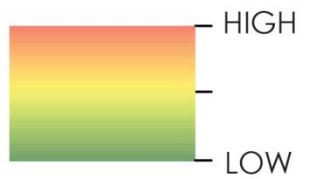
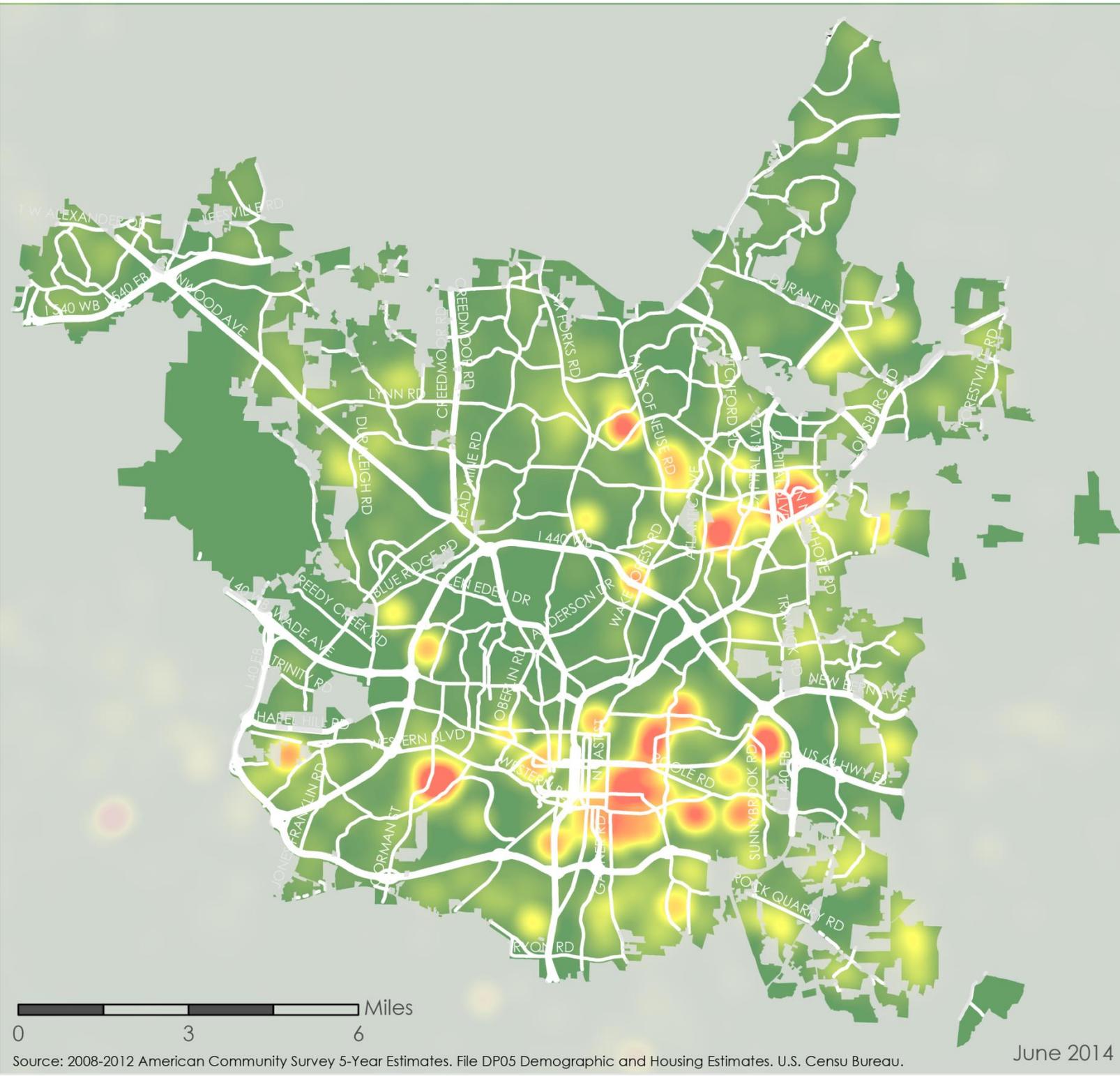
Raleigh Bike Share

Population Density



June 2014

Figure 18 – City of Raleigh Population Density.



Raleigh Bike Share

Equity Index



0 3 6 Miles

Source: 2008-2012 American Community Survey 5-Year Estimates. File DP05 Demographic and Housing Estimates. U.S. Census Bureau.

June 2014

Figure 19 - Social Equity Analysis (minority and low income populations).

Raleigh's economic environment has attracted a number of technology firms, banks, and small businesses to the region. Raleigh forms one point of the Research Triangle for industrial, governmental and scientific research, along with Chapel Hill and Durham.⁹⁵ The Research Triangle Park (RTP) area alone consists of more than 180 organizations that include biotechnology, information technology and nanotechnology industry clusters employing more than 39,000 full-time equivalent employees and an estimated 10,000 contract workers⁹⁶

Raleigh's Downtown has also benefited from technology companies such as Red Hat and Citrix relocating there and encouraging the City to continue to invest in Downtown. Bike share can be a means to continue to attract such companies to Downtown and retain employees of these companies to reside in Raleigh. These companies represent an increasing trend of technology companies with a young employee base relocating downtown supporting the growth of its infrastructure and encouraging its employees to live car-free in the Downtown area. Other examples are Zappos in Las Vegas and CGI in Rochester NY. Such companies can be potential major sponsors of a system.

In addition, the large student population in Raleigh represents a great pool of likely users of bike share. There are five major colleges / universities within the City limits: North Carolina State University (35,000 students), Meredith College (2,000 students), Saint Augustine's College (1,600 students), William Peace University (800 students), and Wake Technical Community College (69,000 students).

Employer	Estimated Employees
State of North Carolina	24,739
Wake County Public School System	17,572
North Carolina State University	7,730
Wake Med Health and Hospitals	7,607
Rex Healthcare	4,800
Wake County	4,272
City of Raleigh	3,866
Duke Energy Progress	2,500
Affiliated Computer Services	2,300
Fidelity Investments	2,200

Table 4 - Top Employers in Raleigh⁹⁷

The major employers in Raleigh are listed in Table 4 and are primarily made up of governmental, education, health, and banking sectors – all with synergies to bike share. Figure 20 maps employment

density in the City. Similar to population density, all major employment is in the Downtown core, with little employment outside of this area. Group employment packages with public sector agencies should be strongly considered for a bike share system, and can add significant ridership to the system, as well as wellness benefits for employees.

Challenges:

- Lower population and employment densities in areas outside of the downtown core and Hillsborough Street corridor may present a challenge for implementing bike share in these areas.

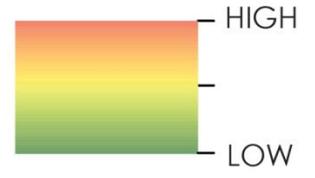
Opportunities:

- Population and employment densities are higher than in comparable peer cities with existing bike share programs. The highest concentrations are in Downtown and along the Hillsborough Street corridor.
- There is a large student population at the four major higher education institutions in the City. These are likely members of the system.
- There are a number of neighborhoods that exhibit high concentrations of low-income and minority populations which could potentially be served by a bike share program and improve their access to transportation, jobs, and other services.
- The major employers in the City are in sectors with synergies to bike share. In addition, small business and tech companies are also potential sponsors and supporters.
- Significant public sector employment in the Downtown core could provide group membership opportunities as a wellness benefit for employees.

⁹⁵ City of Raleigh, Comprehensive Annual Financial Report For the Fiscal Year Ended June 30, 2013.

⁹⁶ City of Raleigh, Comprehensive Annual Financial Report For the Fiscal Year Ended June 30, 2013.

⁹⁷ City of Raleigh, Comprehensive Annual Financial Report For the Fiscal Year Ended June 30, 2013.



Raleigh Bike Share Employment Density

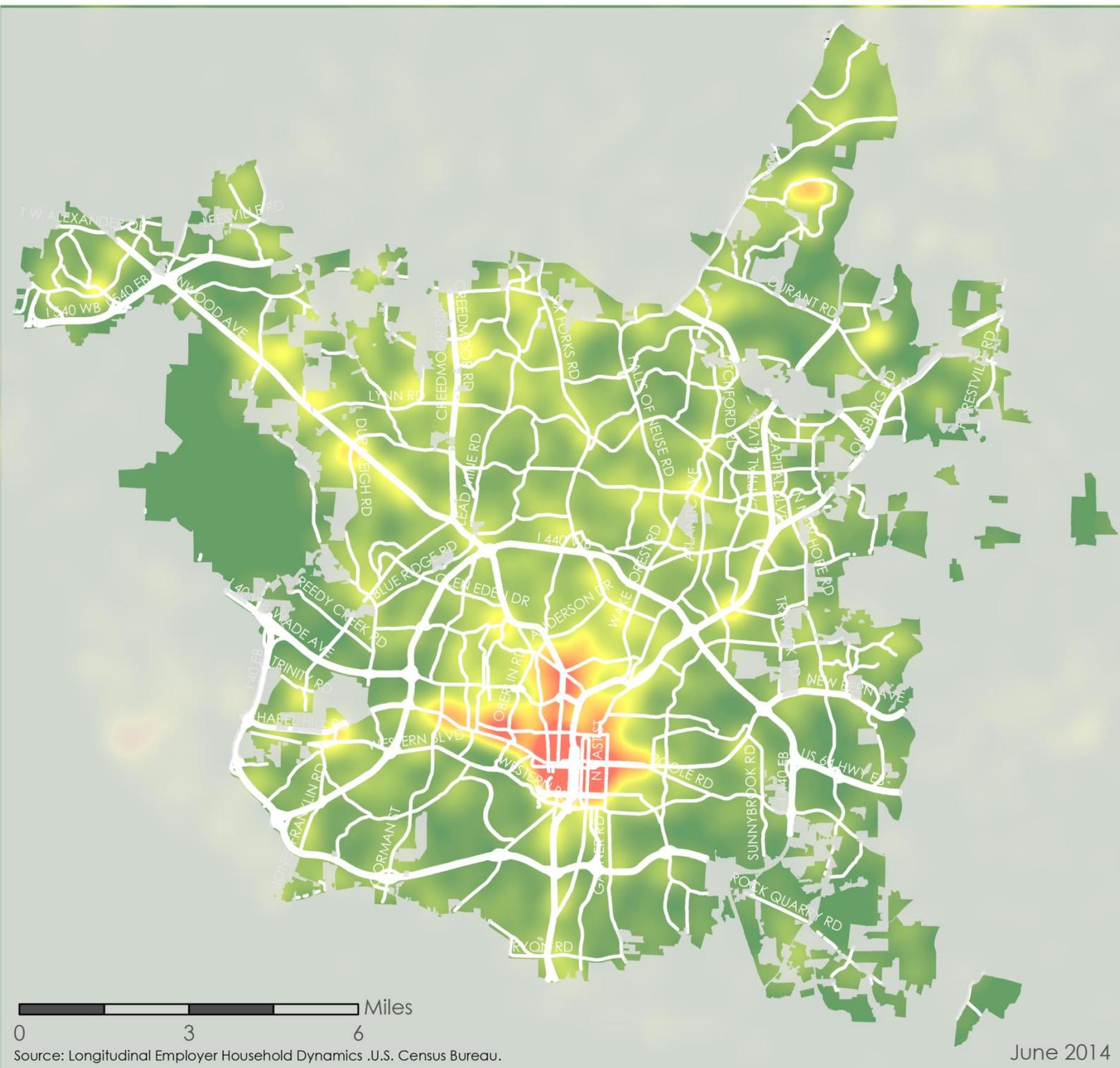


Figure 20 - Employment Density.

TRANSPORTATION MODE SHARE

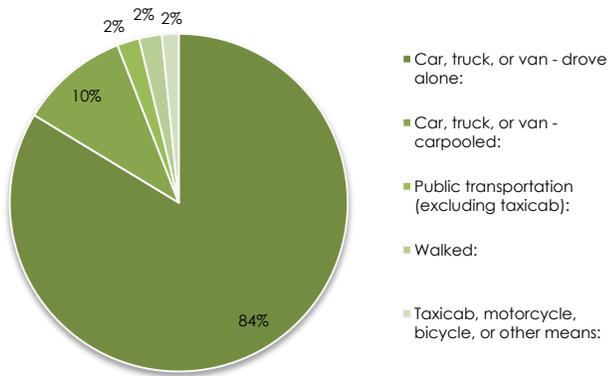


Figure 21 - Transportation Mode Share.

Raleigh is still a predominately auto-oriented city – single occupancy vehicle use represents 79-percent of all commuting trips (See Figure 21).⁹⁸ Parking costs have traditionally also encouraged vehicle travel, even for short trips. Metered parking range from \$1 to \$1.5 per hour for on-street spaces and the City has a large supply of off-street parking facilities. However, parking policies have been changing and in 2010 the City expanded its metered parking district to include the Downtown Business District, Glenwood South and Hillsborough Street neighborhoods. North Carolina State is also requiring students purchase parking passes for \$100-300 per school year if they opt to park on campus.⁹⁹



Figure 22 – A Bicyclist on Blue Ridge Road.

Local transit service in Raleigh is provided by Capital Area Transit. The agency provides over 40 routes connecting various areas of the City at relatively low prices (\$1 for a full one way fare and \$36 for a

⁹⁸ US Census Bureau. 2008-2012 American Community Survey 5-Year Estimates File B08101 Means of Transportation To Work By Age.

⁹⁹ Stakeholder Meetings. North Carolina State University. April 11, 2014.



Figure 23 – Moore Square Bus Station

monthly pass).¹⁰⁰ Most routes operate between the hours of 4:00 a.m. to 9:00 p.m. at 15 minute-to-1 hour headways.

The City is also served by Triangle Transit which provides bus transit connections between Raleigh, Durham and Chapel Hill. The agency operates 14 routes throughout the Triangle Area between the hours of 6:00 a.m. and 10:00 p.m. from Monday through Saturday. Additionally the agency provides transit links between the City of Raleigh and the Raleigh-Durham Airport.

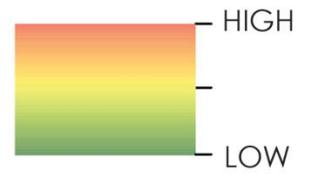
Figure 23 shows areas of the City with the most frequent CAT service (areas in yellow and red tend to be better served). This map shows a confined area of service in the Downtown area.

Raleigh is served by Amtrak which provides regional rail service to various southeastern cities. The City's rail station has been recorded as one of the busiest stops in the Southeastern United States.¹⁰¹ In recent years, the City, the Federal Railroad Administration, and the North Carolina Department of Transportation (NCDOT) Rail Division have been working together to develop a plan for a Downtown multimodal station which would include connections to CAT bus service, long-distance bus service, Amtrak, commuter rail and light rail, and as well as other facilities for taxis, bicyclists, and pedestrians.¹⁰²

¹⁰⁰Bus Fare information. Capital Area Transit. Retrieved from <http://www.raleighnc.gov/services/content/PWksTransit/Articles/BusRates.html> on April 21, 2014.

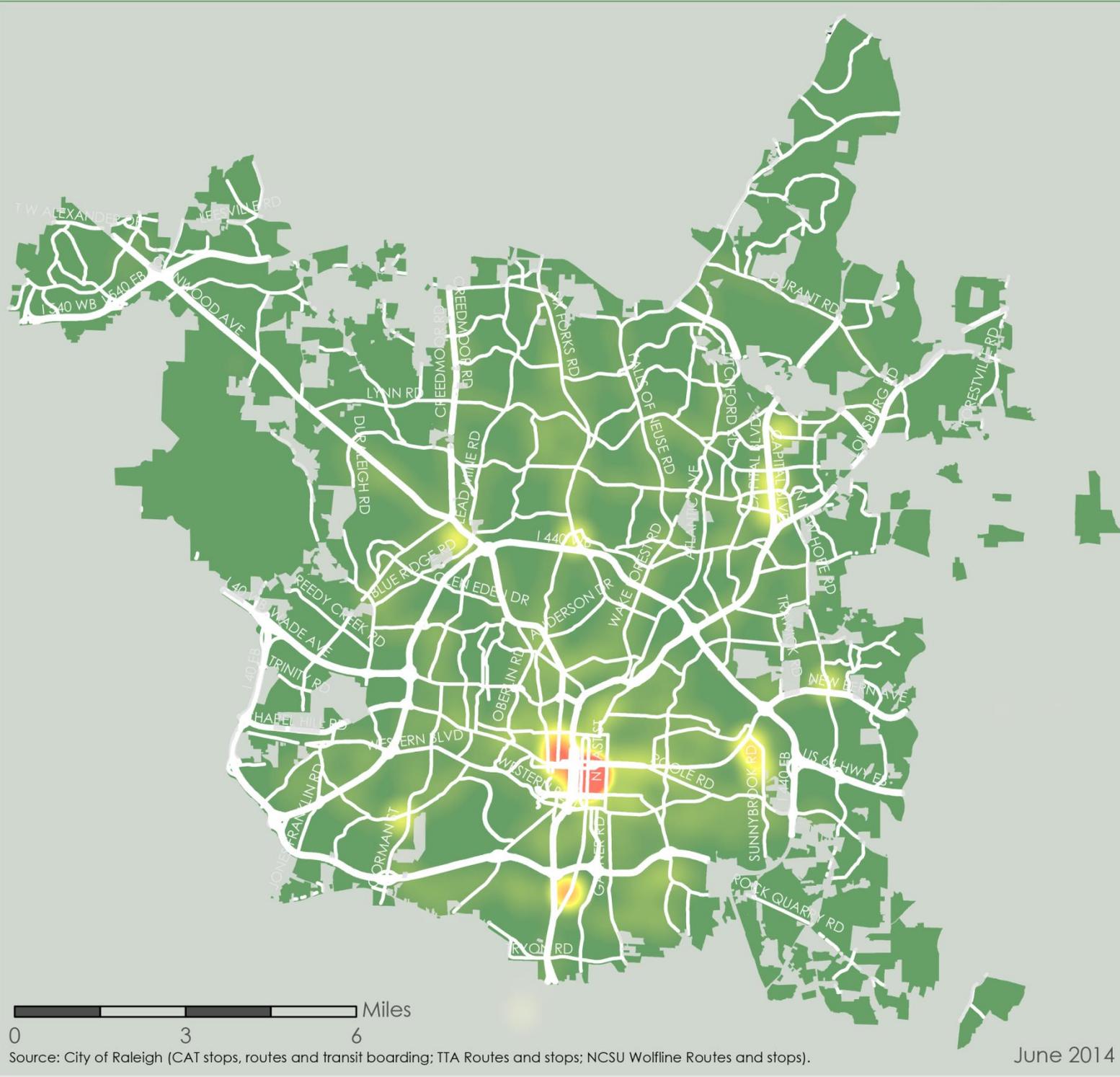
¹⁰¹ Sicheloff, Bruce (2008-12-21). "Rediscovering rail. Double-digit gains in statewide passengers intensify space crunch at Raleigh station"

¹⁰² Raleigh Union Station and Downtown Bus Facilities Master Plan Retrieved from <http://www.raleighnc.gov/services/news/content/CorNews/Articles/UnionStationPublicMeetingFeb.html> on April 22, 2014.



Raleigh Bike Share

Proximity to Transit



Source: City of Raleigh (CAT stops, routes and transit boarding; TTA Routes and stops; NCSU Wolfline Routes and stops).

June 2014

Figure 23 - Proximity to Transit

The bus and Amtrak service Downtown indicate a burgeoning environment for public transportation and an opportunity to utilize bike share to shift the mode share away from single occupancy vehicles. As discussed in the Benefits section, bike share can be used as a first mile / last mile solution to transit, increase the radius of influence of a public transit stop, and connect areas not connected or served by public transit. Therefore, if the City proceeds towards implementation of a bike share system, it should consider placing bike share stations within or in close proximity to public transit facilities to increase options to get to and from transit, provide options during times of low frequency service and encourage bicycle-to-transit connections.

While the share of walking and bicycling is still low (only around four percent of journey to work trips), there is increased interest from the community and at the grass roots level to improve active transportation options in Raleigh. Organizations like Oaks and Spokes seek to promote and grow the bicycling community through advocacy, outreach and training programs.

Challenges:

- High dependency on vehicular travel encouraged by generally abundant and low-cost parking.
- A limited, although growing, bicycling culture in the City.
- Infrequent transit service and a limited number of routes in many areas.

Opportunities:

- Bike share stations should be in close proximity to major transit stops and transportation hubs to encourage connections and greater user of transit.
- Current poor connectivity between activity centers by public transit provides an opportunity to bridge gaps with a bike share program.
- Bike share could provide residents without access to a vehicle an affordable transportation option that complements existing public transit services (such as CAT or Triangle Transit).

BICYCLE INFRASTRUCTURE

While an extensive and connected existing bicycle network is preferred, a number of cities have been able to implement bike share programs while simultaneously making a commitment to rapidly expand bicycle infrastructure in parallel.

Raleigh currently has a large off-street trail network with over 96 miles of separated greenways. The City has also been gradually expanding its on-street bicycle network and, as of 2014, has implemented over 19 miles of bicycle lanes and approximately 7 miles of shared roadways. The growth and expansion

of the bicycle network over the past four years is shown in Table 5. The on-road bicycle network is expected to expand to over 60 miles of facilities by the end of 2015 according to City staff.

Facility	2010	2011	2012	2013
Bike lanes	5.5	9.25	13.75	17.25
Sharrows	1	1.5	7.5	8.5
Greenways	64	73	76	96

Table 5 - Increase in Bicycle Network (2010-2013)¹⁰³

Despite this clear increase in facilities, most bicycle facilities are outside of the Downtown core. Figure 25 shows a map of existing and proposed bicycle infrastructure. Furthermore, existing way-finding and routing is deficient in a number of locations. This includes missing signage; signs that are difficult to read, and signage that encourage difficult turns and street crossings. City staff indicated that a more robust way-finding system will be implemented in 2014 helping people not familiar with the area to navigate on bicycle.

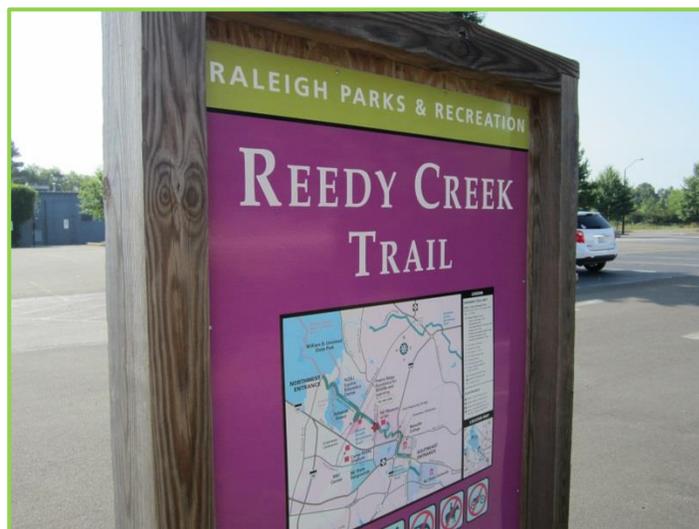
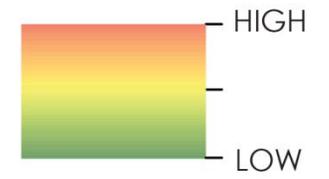
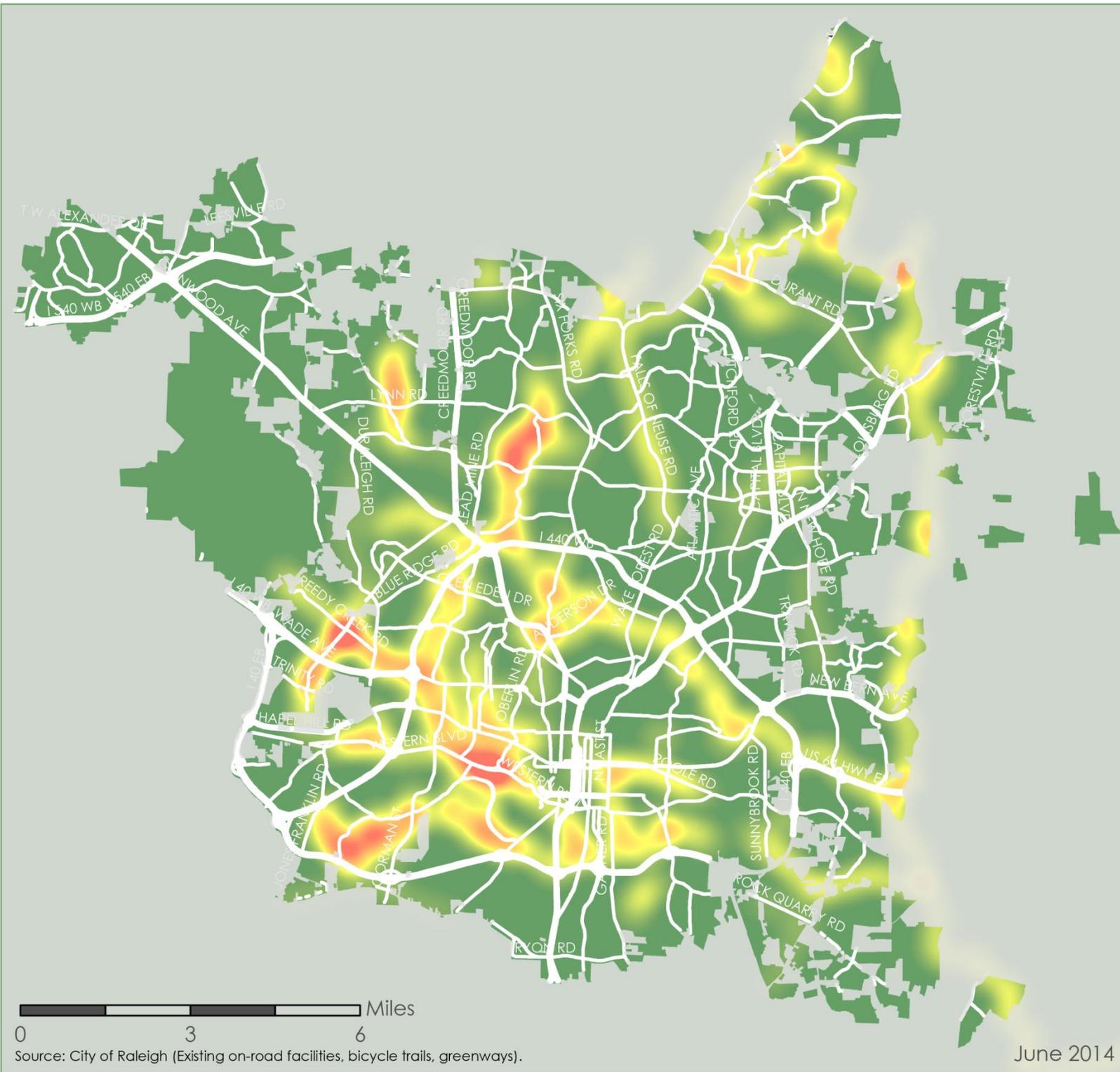


Figure 24 - Reedy Creek is just one of the many trails around the City

As many bike share riders, particularly the short-term members, may not be experienced bicyclists or familiar with bicycle facilities in Raleigh, lack of way-finding can make the bike share experience more difficult. Improvement will be a positive asset for a bike share program.

The City has also made a commitment to becoming a designated “bicycle friendly community” and to quadrupling its 2000 Census bicycle commuting rate by 2015.

¹⁰³ Data provided by the City of Raleigh. Jennifer Baldwin, Bicycle and Pedestrian Coordinator



Raleigh Bike Share Bicycle Friendly Facilities



0 3 6 Miles

Source: City of Raleigh (Existing on-road facilities, bicycle trails, greenways).

June 2014

Figure 25 - Existing and Proposed Bicycle Facilities

Furthermore, the City is improving its bicycle infrastructure by spending \$1.1 million of local and federal funds for 27 miles of bicycle lanes, and shared lane markings. These on road facilities will connect with existing greenway trails, commercial areas, and other major destinations within the city.



Figure 26 - Existing Greenway Signage.

Challenges

- A small, but growing, on-street bicycle network.
- Most existing bicycle facilities are outside of Downtown.
- Incomplete and difficult to understand way-finding and signage.

Opportunities:

- Large off-street bicycle network.
- Emerging bicycling culture with increasing number of residents participating in education, encouragement, and enforcement programs.

TOURISM

Tourists, visitors, and other casual users have provided an important revenue stream representing upwards of two-thirds (2/3) of user-generated revenues in peer cities. This may be because tourists and visitors are less cost-sensitive and are willing to pay higher fees to keep the bicycle out longer.

According to the Greater Raleigh Convention and Visitors Bureau, the City attracted over 12 million visitors in 2012.¹⁰⁴

¹⁰⁴ Visit Raleigh.com. Frequently Asked Questions. Accessed from <http://www.visitraleigh.com/about-greater-raleigh/faq/> on April 21, 2014.



Figure 27 - North Carolina Museum of Art is a major tourist attraction.



Figure 28 - North Carolina State Fair.

Many visitors attended conferences, special events, shopping and other attractions. Local attractions include the Raleigh Convention Center, North Carolina Museum of Art, NCSU Football Stadium, North Carolina State Fair, Red Hat Amphitheater and Festival Site, PNC Arena, Walnut Creek Amphitheater, the Duke Energy Center for the Performing Arts, Marbles Museum and IMAX Theater, numerous state museums, and several major retail shopping malls. There are also over 15,000 hotel rooms, 212,000 square feet of exhibition space, and over 350 total events hosted every year in Raleigh.

Deployment of bike share stations in areas of the City that experience high visitor numbers is recommended as it will help boost user revenues. Specific marketing budget may need to be allocated to maximize this market.

Challenges:

- Marketing to the tourist population tends to be more expensive as it requires additional outreach than only standard digital marketing.

Opportunities

- The City has a significant tourist and visitor market. Tapping into this demographic will help boost user-generated revenues.
- Conventions, special events and concerts may increase usage and can be tied with special membership deals or short-term passes to introduce people to the system.

POLICY REVIEW

Local plans and policies can be important measures of program compatibility with community initiatives. There are a number of plans, policies and statutory regulations that may impact the planning, implementation and operation of a bike share program in the City of Raleigh. The following plans were reviewed at the State, County and local levels which may influence the implementation of a bike share program in Raleigh:

- NCDOT Complete Streets Planning and Design Guidelines
- WalkBikeNC – North Carolina State Pedestrian and Bicycle Plan
- 2012-2018 Capital Area Metropolitan Planning Organization Transportation Improvements Program
- The 2030 Comprehensive Plan for the City of Raleigh
- 2008 City of Raleigh Bicycle Transportation Plan
- North Carolina State University Bicycle and Pedestrian Master Plan
- Triangle Transit Master Plan
- Capital Area Transit (CAT) Plans
- Various Policies and City Ordinances
- North Carolina Building Code

Overall, the plans and policies are supportive of bicycling and therefore a potential bike share program, although none mention bike share specifically. A full review of plans and policies is included in Appendix 1.

In cooperation with City staff a preliminary permitting review table and flow chart (Table 6 and Figure 31) were created to describe the varying permitting review authorities and design constraints for potential bike share location types. The intent is to better understand the agencies involved and their varying ordinances and codes. The location types were identified because they represent generalized site conditions and common departmental review authority.

As shown in the flow chart, the permitting process may be complex because of the different ordinances and agencies that may apply to different location types. The most relevant codes with regard to bike share station placement are the Encroachment Permits, Historic Districts and the NC Building Code. In addition, sign ordinances must be studied in detail to understand the sponsorship and advertising opportunities that may be available to provide revenue to a bike share system. A preliminary review indicates restrictions, but not prohibition, of typical bike share sponsorship models. It is recommended that the City further review existing regulations and permitting procedures as the implementation process progresses. A full understanding of the permitting and review process will help streamline the installation of bike share stations throughout various areas of the City

Opportunities

- State and City plans are supportive of enhancing and expanding bicycle infrastructure and programs in the City.

Challenges

- Existing limitations on sign types and placement within the right-of-way (City of Raleigh's Unified Development Ordinance, Part 10A) could impact but not eliminate sponsorship opportunities for individual bike share stations.
- The permitting process may be complicated due to restrictions on outdoor advertising, historic district designation, right-of-way ownership by multiple government agencies, and specific streetscape plans.



Figure 29 - Hubway Launch Day

Table 6 –Permitting Review Authority

Departmental Coordination/Requirements	Potential Station Location Types				
	Within ROW		Beyond ROW		
	City-Maintained Roadway	State-Maintained Roadway	City-owned Property	State-owned Property	Private-owned Property
Raleigh Historic Development Commission (RHDC)	COA	COA	COA	COA	COA
Raleigh Development Services Approval	Street Design Manual	-	Street Design Manual	Street Design Manual	Street Design Manual
	Outdoor Sign Ordinance	Outdoor Sign Ordinance	Outdoor Sign Ordinance	Outdoor Sign Ordinance	Outdoor Sign Ordinance
	Electrical Permit	Electrical Permit	Electrical Permit	Electrical Permit	Electrical Permit
	-	-	Zoning Permit	Zoning Permit	Zoning Permit
	Right of Way Permit	-	-	-	-
	-	-	-	Easement Dedication	Easement Dedication
Raleigh Public Works Department	Encroachment Agreement	-	-	-	-
NCDOT Division 5 Office	-	Encroachment Agreement	-	-	-
NC Department of Insurance (DOI)	-	Building Code Approval	-	Building Code Approval	-



Figure 30 – Bay Area Bikeshare

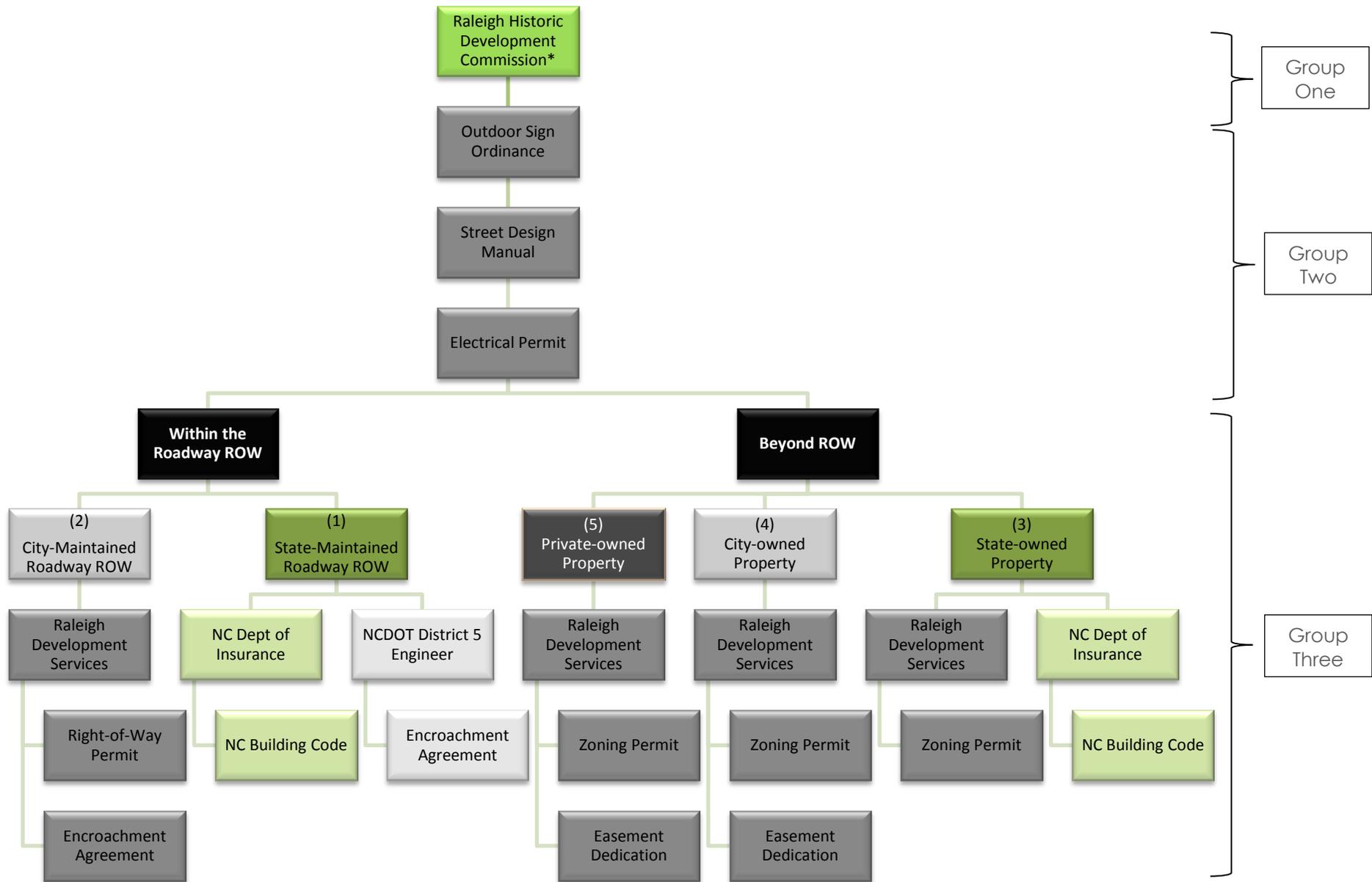


Figure 31 – Permitting Review Flow Chart

PUBLIC ENGAGEMENT

The project team undertook public and stakeholder engagement to gauge the overall sentiment toward bike share and identify opportunities and challenges to implementing a bike share program in Raleigh.

Public feedback was gathered using a number of tools including a community workshop, a project website, an online survey, a crowdsourcing map, and interviews with local stakeholders and agencies.

Community Workshop



Figure 33 - Bike Raleigh Forum

A public meeting was held on April 10, 2014 as part of the Bike Raleigh Forum which focused on bicycling issues in the City. The meeting was attended by 30 community members as well as a number of elected officials.

The open house included a short presentation, a series of stations and presentation boards, opportunities to ask questions and comment on the project, and a physical map to suggest potential station locations.

Open house attendees generally supported the concept of bike share and understood its potential benefits. Public comment included:

- Interest in using the existing trail system to support the system.
- Concern about the preparedness of the existing bicycle network.
- The possibility of a regional system including Durham and Chapel Hill and its potential to strengthen the connections for residents and workers in all three jurisdictions.



Figure 32 - Bike Raleigh Forum

- Concerns about the potential financial sustainability of a system for the City to bear costs for capital and operations of a bike share system.

Attendees had a chance to weigh in on potential goals and objectives for the system. There was support for a program that would focus on helping increase the number of people bicycling, increase personal mobility and connect residents to jobs. Social and geographic equity was also considered an important goal along with integrating the system with other existing transportation options such as Amtrak, Triangle Transit and potential light rail.

Online Survey

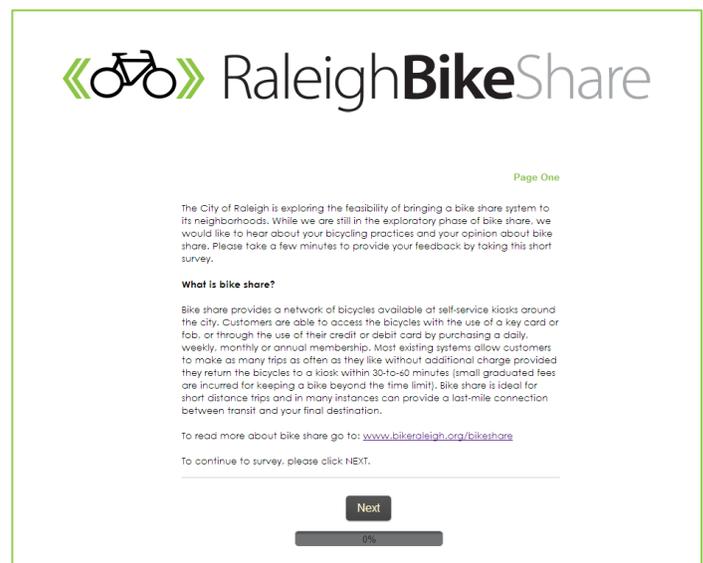


Figure 34 - Public Input Survey

An online survey was created to: understand current bicycle usage; gather opinions about bike share; and identify priorities for the program. The survey was

disseminated through the project website, social media and various print and online media. It was open from February 1 to April 30 and received 173 responses. Full survey results are included in Appendix 2 and the highlights summarized below.

Current Bicycle Usage

Most respondents reported having access to a working bicycle (80-percent) and approximately half ride at least once a week. Most tended to ride for recreation (93-percent) and there was a high percentage of respondents (78-percent) that reported driving as their primary mode of transportation.

The results suggest that while there is a growing bicycling culture in Raleigh, most residents still perceive bicycling primarily as a recreational activity and depend on other modes for general mobility.

Opinions on Bike Share and its Feasibility

A majority of survey respondents (84-percent) support the idea of a bike share program in Raleigh. Approximately 47-percent have experienced bike share in another city (the most common being in Washington, DC, New York City, NY and Minneapolis, MN). Some of the main themes emerging in support for a bike share system included:

- Promoting bicycling as a viable transportation option in Raleigh.
- Helping to reduce traffic congestion.
- Helping to make Raleigh an “attractive” city for new residents.

Comments received from respondents who had concerns about a bike share program included:

- Concern for the cost of the system.
- Needing a more extensive bicycle network prior to implementation.

In terms of use, 40-percent of respondents stated that they would use a bike share system at least once a week. The most common trip types were 65-percent of respondents stating that they would use it to run errands, 63-percent for shopping and eating out, 25-percent for riding to bus stops and around 30-percent would use it for commuting.

Most people (56 percent) believed that regional expansion of a potential bike share program would be important for the success of the program.

When asked about what prices they would pay for annual, weekly and daily memberships, respondents indicated they would pay an average of \$68, \$12

and \$6 respectively. This is comparable to existing programs in medium sized cities where the average price for memberships is \$60, \$15 and \$5 respectively.

Goals and Objectives

Respondents were given the chance to rank a set of preliminary statements to match their priorities for the system. The top five ranking objectives included:

- Promotion of a culture of safety among bike share users.
- Expansion of on-street bicycle facilities.
- Optimizing the number of origins and destinations.
- Providing stations not only in Downtown but also in neighboring areas eventually expanding to all areas of the City.

Demographic and Employment Information

Survey participants were asked to provide some optional demographic and employment information. The average age of respondents was 34; 54-percent were male; nearly 90-percent were white, employed, and with an annual household income of at least \$60,000 per year.

Survey respondents were not representative of the demographics of the City. Additional outreach to minority, low income, and older populations may be necessary when it comes to implementing the program.

Online Crowdsourcing Map

A crowdsourcing map was launched as a companion to the project website that allowed users to suggest locations for possible bike share stations and provide commentary on other people's suggestions. One hundred and fifty five unique station location suggestions were received. Table 7 provides a list of the top 10 most suggested station locations.

Table 7 - Top 10 most suggested station locations

Location	Likes
North Carolina Museum of Art	28
Moore Square	22
Amtrak Station	20
Seaboard Station	17
North Person Business District	17
Memorial Bell Tower	16
N. Carolina Museum of History	15
Cameron Village Shopping Center	15
Duke Performing Arts Center	14
Centennial Campus	14
Crabtree Mall	14
Shelley Lake	14
Warehouse District	13
Raleigh Times	13
NC State DH Hill Library	13

Raleigh Bike Share

Public Suggestions

- 1 - 2
- 3 - 5
- 6 - 8
- 9 - 12
- 13 - 21

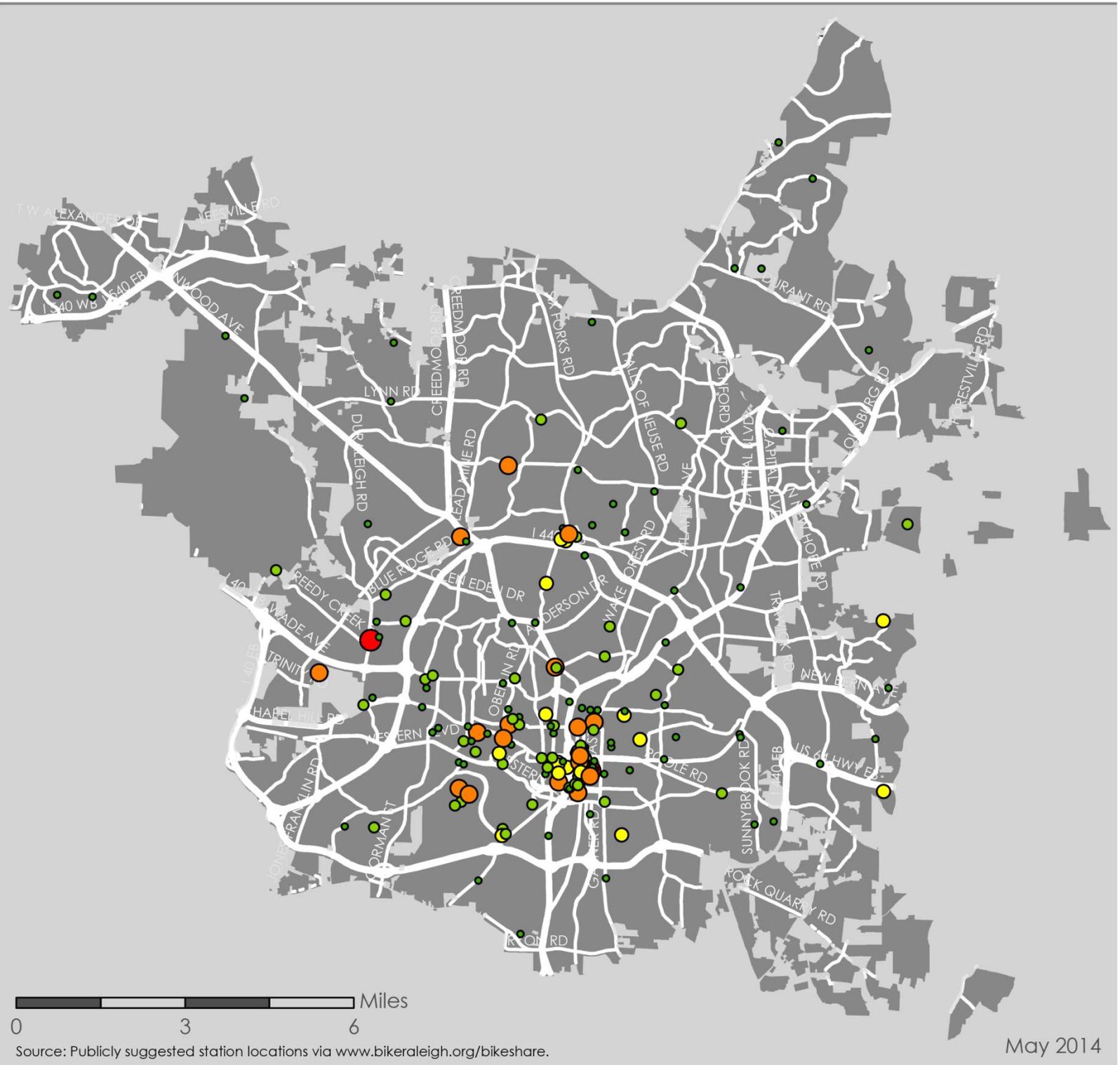


Figure 35 - Publicly Suggested Station Locations



Figure 35 shows a map of the suggested station locations weighted by the number of “likes” received for each station (a total of 157 likes were received). The largest number of station suggestions were located along existing greenways, in Downtown, next to the North Carolina Museum of Art, and on corridors such as Hillsborough Street and Glenwood Avenue. Trailheads of greenways at locations outside of Downtown also received significant support. The Table 7 lists the most requested locations by number of “likes.”

Station suggestions were exported as a Geographic Information System (GIS) shape file and mapped by the project team. This feedback was later aggregated with demographic and infrastructure data to produce a demand analysis map (see the Demand Analysis section).

STAKEHOLDER ENGAGEMENT

A series of interviews and meetings were conducted with community and regional stakeholders, local agencies and businesses to understand the needs, concerns, opportunities and challenges of implementing a bike share program in the region.

Participants were asked to provide a summary of how their organization might be involved in bringing bike share to Raleigh and the Triangle Region. The majority of meetings were held as part of a series of stakeholder conversations taking place on April 10 and 11, 2014. Interviews were separated into the following categories:

- Zoning, Permitting & Inspections
- Parks, Recreation & Cultural Resources
- Downtown Raleigh Alliance
- Capital Area Transit
- North Carolina State University
- Economic Development & Sustainability
- Regional System
 - Triangle J Council of Governments
 - Triangle Air Awareness
 - City of Durham
 - Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO)
 - University of North Carolina (Chapel Hill)
 - North Carolina State University
 - Capital Area Metropolitan Planning Organization
 - Triangle Transit Authority (Go Triangle)
 - Research Triangle Park (RTP)
 - Duke University
 - Durham Bicycle and Pedestrian Advisory Commission (BPAC)
 - Town of Chapel Hill

Attendees were generally supportive of implementing a bike share system in the region. In particular, organizations see bike share as a conduit to helping attract young professionals and businesses to the region. Participants also see bike share as an opportunity to continue to transform the Triangle region and in particular the City of Raleigh into a more walkable and bicycle-friendly city. Many stakeholders see bike share as an extension to transit providing easy and fast connections to and from existing transit options.

Bike share is also seen as a way of helping increase economic activity and sprouting development in Downtown Raleigh. As more companies continue to relocate, there is a need to provide easy connections to jobs, entertainment, local services and housing for the increasing number of workers moving back into core areas of the City.

A summary of the key themes from these workshops is below:

System Planning:

Most stakeholders see any potential bike share system starting in Downtown Raleigh and extending westward toward the North Carolina State University campus. Stakeholders felt that any system should be planned and implemented along comfortable bicycle routes linking activity centers, and possibly locating stations along the existing Rocky Branch Trail corridor. Furthermore, stakeholders saw value connecting the Downtown core to the North Carolina Museum of Art.

Stakeholders felt that providing service to lower income and minority populations is an important goal for the program. However, stakeholders recognized a balanced approach needs to be taken considering the financial constraints of the system. Bike share is seen as an important opportunity to connect different areas of the City.

Finally, stakeholders shared concerns about how a bike share program could be implemented without a complete network of separated bicycle facilities. With this regard it will be important that the City continue to develop its network of bicycle-friendly facilities while implementing a proposed bike share program.

Transportation

The majority of stakeholders perceived bike share as a way to get more people on bicycles and therefore increasing the visibility and viability of bicycling as a sustainable transportation option in Raleigh.

Although a regional system was considered important (including seamless access for the user across communities), there is no consensus as to how a regional system would work, which agencies should manage it, or which agencies should drive the process.

University partners see integration of bike share onto their campus as an important way to reduce the number of students driving. Furthermore, bike share represents an ideal point-to-point option for students to move around campus. Implementation concerns voiced by university partners included how students would access the program (e.g. fee added to their tuition), how well served would their campus be based on demand and availability of funding, connectivity between larger campuses (e.g., NCSU has two main campuses that don't currently have bicycle-friendly or pedestrian-friendly connections between them), allowable advertising on bicycles and stations, as well as linkages between City and campus.

Funding and Implementation

While most stakeholders were positive towards bike share, many had concerns about the cost effectiveness and financial needs of a potential bike share program. While some stakeholders were receptive to providing some seed funding towards capital, there was concern about how sustainable it would be to fund operation of the program. To this end, there was interest in beginning to reach out to businesses that might be interested in sponsoring the system – starting with companies that have relocated Downtown – and marketing the program as an additional amenity for employees. Stakeholders noted that there would likely be reluctance for businesses to make any financial commitment until additional information on the level of financial commitment is provided and a formal request for sponsorship is undertaken.

Technology

There were questions as to what type of technology would be used for a city-wide bike share system (i.e. smart bike vs smart dock). University stakeholders in particular expressed an interest for implementing a smart bike system due to the lower capital costs involved and convenience for students of this type of system. However, other stakeholders called for caution on utilizing untested technology and the branding impacts that are lost by not requiring a station. Following conversations with stakeholders and City staff there was a preference for implementing a bike share program utilizing station based technology (smart dock), as the technology has been fully tested and implemented throughout various U.S. cities.

Opportunities:

- Comments received from both the public and stakeholder engagement indicated that there is general support for implementing a bike share program in Raleigh.
- There is increased interest for bike share to serve as a catalyst for additional investment in bicycling infrastructure.
- Generally, regional partners are interested in the idea of implementing a regional bike share system.
- Results of the online survey indicated that local residents are willing to pay market prices for access to a bike share membership.

Challenges:

- A large proportion of the general public and stakeholders expressed concerns about implementing a bike share program without a more extensive network of bicycle facilities.
- Stakeholders believed that operational funds would be more difficult to raise than capital funds.
- Some members of the public expressed concern about the cost of implementing the program and where the funding would come from.
- Regional stakeholders were concerned about the possibility of a regional bike share program having different and potentially incompatible technologies making it difficult, or even impossible, for a seamless and user friendly interface.

GOALS AND OBJECTIVES

An important component in determining the feasibility of a bike share program is to understand the program's role in the community, decide what benefits are considered most valuable, and determine what will be considered a successful system. To this end, the project team developed a set of system goals and objectives based on meetings with key regional stakeholders and initial feedback from the public. A final set of goals and objectives was developed and summarized in Table 8

The goals and objectives reiterate the priority of getting more people on bicycles. In designing the system, mobility, transportation and equity should be the top focus, while ensuring that the system will cover areas that are attractive to visitors. Financial sustainability was not considered a high priority, but will be necessary to ensure ongoing survival and support for the system. This may at times come into conflict with some of the other objectives for the system.

Table 8 - Proposed Goals and Objectives for a Potential Raleigh Bike Share System

Goal	Objectives
<p>Bicycling: Increase the amount of bicycling in Raleigh</p>	<ul style="list-style-type: none"> • Increase the mode share for bicycle-related trips, whether for transportation or recreation • Increase the presence of bicyclists to improve overall bike safety • Divert single occupancy vehicle trips to bicycling to foster an active lifestyle and environmental sustainability • Increase use of the greenway system in and around Raleigh
<p>Mobility: Offer additional transportation options for residents of, students and employees in, and visitors to Raleigh</p>	<ul style="list-style-type: none"> • Provide mobility through bicycle and transit connections between origins and destinations in and around Downtown Raleigh, and between downtown and NC State University • Increase the accessibility of neighborhoods that are not currently served with efficient transit options, as well as connections between neighborhoods that currently do not have efficient transit connections • Serve the needs of downtown residents, employees and visitors; Special focus given to NCSU faculty, staff, students, and corporate affiliates • Increase the reach of other transportation modes to use bicycle trips as the first mile / last mile solution, to increase overall use of public transportation and to divert short single occupancy vehicle trips to bicycle • Relieve congestion on certain public transit routes that are over capacity • Create a system that has the potential of expanding regionally or integrating with other bike share systems in the region
<p>Equity: Increase equitable and affordable access to public transportation</p>	<ul style="list-style-type: none"> • Create a system with stations located to serve the largest cross-section of communities, while ensuring the economic feasibility of those stations • Ensure that bike share is cost competitive and financially accessible to users of all economic strata and is an affordable alternative to other modes of transportation. • Create a pricing structure that lowers barrier to entry accessible to people of all income classes.
<p>Economic: Increase the attractiveness of Raleigh as a place to live, work, visit and do business</p>	<ul style="list-style-type: none"> • Create a system that will attract national attention to Raleigh as a city that is on the leading edge of technology, attractive, safe and comfortable to both live and visit • Create a system that will both attract visitors and retain residents in Downtown Raleigh • Create co-promotions with employers to offer discounted bike share membership as a part of the transit benefit • Provide an alternative means of transportation for visitors to Raleigh, including conference attendees, families of students and tourists to the area • Provide a system that is customer-service focused and well-maintained to standards that will attract and maintain high-level system sponsors, and be a visual and economic asset to the local setting
<p>Financial: Create a system that is financially self-sustaining over the long-term, with owner and operator incentives aligned to meet this goal</p>	<ul style="list-style-type: none"> • After initial seed funding, operating expenses should be funded with minimal public assistance • Create and maintain a contract structure whereby the system owner and operator are both financially incentivized for a financially sustainable system • Plan for and ensure sustainable capital and operational funding for system growth and ongoing equipment replacement • Implement a well-tested technology that has predictable operating costs and is proven to be theft- and vandal-resistant • Clearly communicate program performance and effectiveness to stakeholders and the public

DEMAND ANALYSIS

Evaluating various factors that describe potential bike share demand is an important element in determining the feasibility of a bike share program. This section explains how the demand analysis was undertaken and the different data sources used. While this is a data driven examination, the final recommendations for system launch and phasing will take into account the proposed program goals, as defined by City staff, stakeholders and members of the community

A demand analysis was performed utilizing data from the U.S. Census, Bureau of Labor Statistics, North Carolina State University, and the City of Raleigh. A heat mapping exercise was undertaken to identify areas with the highest potential demand for bike share. The analysis includes a cumulative point based system that assigns points based on the concentration of people, jobs, attractions, available transit and other factors. The results of the analysis can be used in the future to identify a potential initial service area, inform phasing, and identify specific station locations.

INDICATORS

Experience from existing bike share programs in the U.S. suggests that a mix and density of population, jobs and activities maximizes the potential for bike share usage. To this end, the analysis aggregated data representing the following indicators:

- **Employment density** – Point data identifying particular places of employment (by number of employees) was obtained from the Longitudinal Employer Household Dynamics data by U.S. Census Bureau
- **Population density** – Census Block data for this indicator was obtained from U.S. Census Bureau and its American Community Survey projections.
- **Proximity to attractions** – Four attraction types were considered including government landmarks, parks, cultural centers (including churches and tourist destinations), and transportation hubs.
- **Proximity to transit** – a high percentage of bike share trips are linked to other transit trips. Location of bus stops, bus routes and ridership data was used to measure this indicator.
- **Proximity to bicycle infrastructure** – available bicycling infrastructure can encourage ridership.

The location of bike lanes, cycle tracks, sharrows and pathways were allocated points.¹⁰⁵

- **Topography** – Terrain and slope can have a significant impact on the amount of bicycling. Bicycle ridership has been shown to be reduced up to 10-to-15 percent with a 10 percent increase in the degree of slope.¹⁰⁶
- **Equity** – A spatial analysis of two variables associated with traditionally underserved populations was undertaken as part of this study: median household income and the percentage of minority populations. The highest occurrences of these criteria are shown in Figure 19 as a “composite equity map” that combines the percentage scores for each criterion by census block.
- **Public Comments** – Public comments received via the crowdsourcing website and from the public meeting were utilized to help identify those areas of the City where there is high demand from the general public.

METHODOLOGY



Figure 36 - Methodology for constructing the Demand Map

A demand analysis heat map was created to show the areas of the City with the most potential for bike share. The general methodology is outlined on Figure 36 and Appendix 2. Weights were assigned to each variable based on its perceived impact on the potential for bike share use (as determined by the project team and based on experience in other bike share cities).

As certain factors rely on area-based data (e.g., census blocks and tracts) and others are point or

¹⁰⁵Geller, Roger. Four Types of Bicyclists. Portland Office of Transportation. Retrieved from <https://www.portlandoregon.gov/transportation/article/237507> April 28, 2014.
¹⁰⁶Parkin, J., Ryley, T. J., & Jones, T. J. (2007). Barriers to Cycling: An Exploration of Quantitative Analysis. In D. Horton, P. Rosen, & P. Cox (Eds.), *Cycling and Society* (pp. 67-82). Burlington, Vermont: Ashgate Publishing Company.

linear features, each were assigned points differently, weighted, and then combined via a GIS Union into one aggregated demand score. Table 9 summarizes the factors and weights used in the analysis and a full description of how each factor was analyzed is included in Appendix 1.

The resulting “heat map” is shown on Figure 38. The map shows that the areas of the City with the highest potential for bike share use include: Downtown Raleigh, Universities and Colleges, Hillsborough Street Corridor, Modcai Neighborhood, Cameron Village, Five Points, and College Park.

Table 9 - Bike Share Demand Weight Factors

Data Item	Proximity Factor		Total Points	Factor Weight
	0.25 Miles	0.5 miles		
Employment Density			20	20%
Population Density			20	20%
Attractions	12	6	12	12%
Government Landmarks	12	6		
Parks	12	6		
Cultural Centers	12	6		
Transportation	12	6		
Universities and Colleges	14	8	14	14%
Bicycle Modeshare		4	4	4%
Transit Stops Density	10	6	10	10%
High Ridership	7	5		
Normal Ridership	3	1		
Existing Infrastructure	10	6	10	10%
On-road	4	2		
Bike Lanes	4	2		
Sharrows	2	1		
Wide Shoulder	1	1		
Off-road	6	3		
Public Comments	3		3	3%
Topography	-3	-3	-3	-3%
Equity			10	10%
Minority		5		
Poverty ¹⁰⁷		5		
TOTAL			100	100%

Challenges:

- Not all areas of the City exhibit conditions that are conducive to high bike share demand. Nevertheless, there may be other reasons for deploying bike share in these areas.
- There are gaps in the existing bicycle network which may make it difficult for bike share riders to connect between areas of high demand.

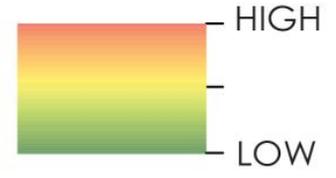
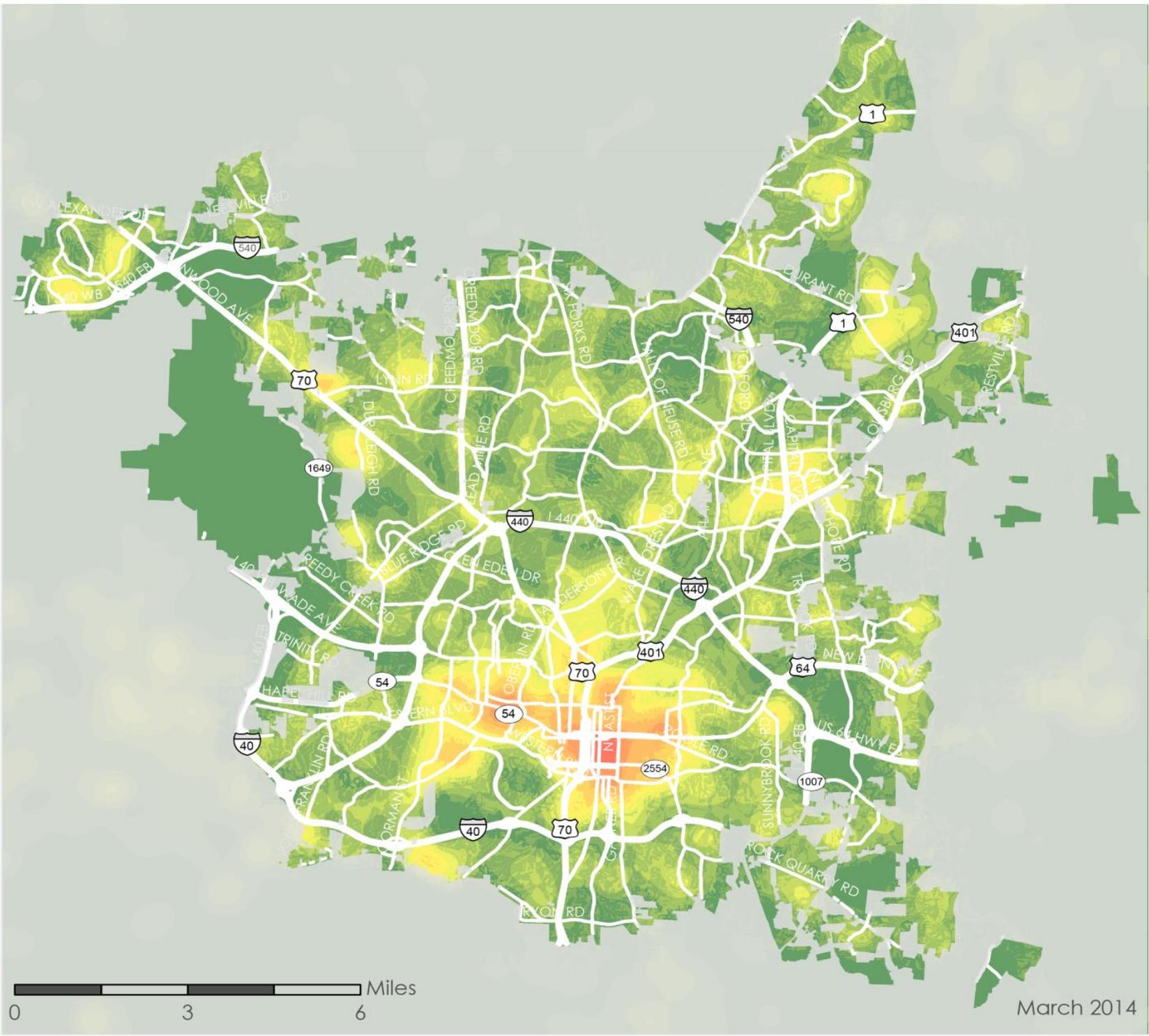
Opportunities:

- There are a number of areas including Downtown Raleigh, the University campuses, and other areas that have the potential for high bike share use.
- There is good transit coverage and bicycle infrastructure in Downtown Raleigh and adjacent areas.



Figure 37 - Deco Bike (Miami Beach)

¹⁰⁷ Under \$24,000 for a family of four. Based on North Carolina Department of Health and Human Services, Income Eligibility Chart (Effective June 1, 2013). Accessed from <http://www.nutritionnc.com/wic/wiceligb.htm> on April 15, 2014.



Raleigh Bike Share

Potential Bike Share Demand



Figure 38 – Potential Bikeshare Demand Heat map

GOVERNANCE STRUCTURE

This chapter reviews the advantages and disadvantages of the more common business models in the United States and outlines the considerations that should be made in evaluating a potential model in Raleigh. Because of the fairly large and complex set of issues in recommending a governance structure, including regionalism and multiple universities, a governance structure is not recommended as part of the Feasibility Study. Should the City move forward with an Implementation Plan, a governance structure will be recommended at that time.

In general, the following functions are required to mobilize and operate a bike share system:

- Obtain political, public, and other support.
- Fundraise for initial capital and early operating costs, e.g., one year of operating funds.
- Procure the equipment vendor and the operator. These decisions could be made together or separately.
- Contract administration.
- Ownership of the system and its assets.
- Operations.
- Evaluation and expansion decisions.

These functions could be undertaken by one or more organizations. Existing U.S. bike share programs operate under different business models depending on the jurisdiction's funding environment, institutional capacity, and local transportation needs. The relationship between system owners and system operators in U.S. bike share systems is shown on Figure 39.

The most common models are systems owned by public agencies and operated by a private contractor, non-profit owned and operated, and privately owned and operated. The advantages and disadvantages of each of these models are reviewed in the following section.

BUSINESS MODEL REVIEWS

Non-Profit Organization

The non-profit governance structure provides a number of advantages and is prevalent among small and medium sized cities including Boulder, Charlotte, and Nashville. An existing non-profit can take on responsibility for the system, or (as is the case in most cities), a new non-profit can be created with the exclusive purpose of managing the bike share program.

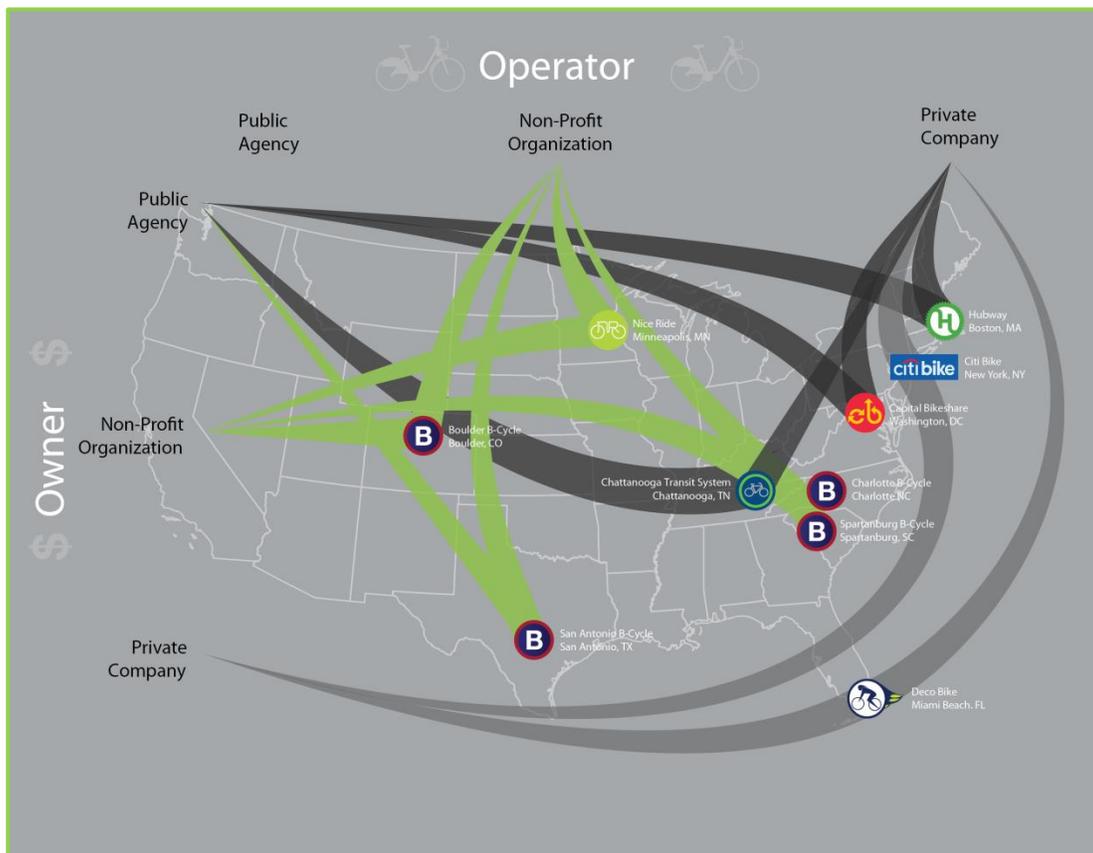


Figure 39 - Relationship between System Owners and System Operators in U.S. Bike Share Systems

Funding for equipment typically comes to the non-profit in the form of public, private and philanthropic sources. The ongoing financial responsibility for operations and additional equipment falls to the non-profit. As a result of the constant fundraising need, a large percentage of staff time is typically committed to this activity. The non-profit would have the option of operating the system itself or contracting this, and any other functions to a third party.

Advantages:

- Maximum fundraising diversity.
- Community-oriented mission of the non-profit aligns with many of the goals of bike share.
- Able to span jurisdictional boundaries.
- Transfers risk and ongoing financial responsibility from the City, but maintains some level of transparency through agency representation on the Board of Directors.
- Profits are reinvested into the system.
- Generally more cost-effective because operating standards are minimal, organizations are small, and assistance is often provided through in-kind services.

Disadvantages:

- Financial and operating performance are not the only priorities.
- Skills and experience will need to be learned over time.
- Typically there are no or limited performance standards for operations.
- Can be a long timeframe for NPO creation and capacity building.

Agency Owned and Managed

An agency owned and managed system is another popular governance structure and is the model for Capital Bikeshare in Washington D.C., Hubway in Boston, and the Chattanooga Bicycle Transit System. The agency is responsible for fundraising and owns the system infrastructure including the stations and bikes. It can decide which other functions it takes on and which it contracts to a third party (e.g., marketing and promotions, operations, etc.).

This model provides fundraising diversity and maintains the most control of the system for an agency. However, this model is dependent on agency interest and capacity to take on this role as dedicated staff would be required to manage the program. Regional expansion could be facilitated if a regional agency manages the system, but is more difficult if the system is City-managed with the

possibility of individual contracts and potentially different operators. In most cases, agency owned bike share systems employ a private contractor to operate the system. A slightly different model exists in San Antonio, where the City owns the system assets, but a specially formed non-profit manages and operates the program.

Advantages:

- Maximizes agency control and transparency.
- Offers fundraising diversity.
- Organizational mission aligns with many of the goals of bike share.
- Profits can be reinvested into the system – potentially in lower demand areas.
- Makes use of the established skills of a private operator.

Disadvantages:

- Risk and ongoing financial responsibility are taken on by the agency.
- Financial and operating performance is not the only priorities.
- City-owned systems can be difficult to expand beyond jurisdictional boundaries.

Privately Owned and Operated

A privately owned and operated system brings established skills and experience, however depends on the financial potential of the system to attract private investment. In many smaller and mid-sized communities, this potential does not exist and the only two systems operating under this model in the United States are DecoBike in Miami Beach (large tourist market) and Citi Bike in New York City (large tourist market, financial capital, global exposure). This model minimizes the City's financial risk but also removes agency control (e.g., agency involvement in decisions on how and where the system will expand). Funding options are limited to whatever the private sector interest is able to bring to the table. A private company may be interested in operating the system as a contractor to a public agency or non-profit owned system.

Advantages:

- Removes risk and financial responsibility from the City.
- Private operator motivated to ensure visible success of the program (i.e. high ridership and profitability).
- Private sector brings established skills to the program.
- Easy to expand across jurisdictional boundaries.

Disadvantages:

- Minimal agency control and less transparency than other models.
- Traditional funding options may be limited or difficult to obtain for a private company.

- The agency has less control over the use and re-investment of profits.
- Expansion is typically market driven making it difficult to achieve geographic and demographic equity goals.

Table 10 - Case Studies of Organizational Roles in Medium Sized Bike Share Systems in the United States

	Chattanooga Bike Transit System	Charlotte B-Cycle	San Antonio B-Cycle	Capital Bikeshare, Washington D.C.	Spartanburg B-Cycle
BUSINESS MODEL					
Impetus Driven By	City	Non-Profit	City of San Antonio Office of Sustainability	City	City / Non-Profit
Ownership	City	Non-Profit	City	City	Non-Profit
Contract Administrator	City	Non-Profit	Non-Profit (Program Manager)	City	Non-Profit (Program Manager)
Operator	Private	Non-Profit	Non-Profit	Private	Non-Profit
City Role	Owner, administrator, fundraising, planning	Assist with site planning	Owns assets, administers contract, fundraising, site planning partner	Owner, administrator, fundraising, marketing, planning	Advises Non-Profit. Provides in-kind services
Transit Agency Role	Federal grant agent, station planning	None	Map sponsor, project supporter	Major partner	None
College Role	Project partner	n/a	n/a	Various colleges with stations	n/a
FUNDING					
Capital	Federal grant	Sponsorship	Various federal and state grants	Federal grants	Various state and private grants
Operations	Membership and usage fees (25%) and sponsorship	Sponsorship	Membership and usage fees and sponsorship	Membership and usage fees	Membership and usage fees and sponsorship

ORGANIZATIONAL ROLES

The roles of different organizations in the peer cities operating bike share systems are summarized in Table 10.

BUSINESS MODEL EVALUATION

The role of public agencies, non-profit organizations, and the private sector in owning and managing a potential bike share program in Raleigh will be recommended should this study proceed past the feasibility stage. The evaluation will consider a number of criteria including key operating parameters (such as funding diversity, implementation considerations, and regional expansion) and local priorities identified in the program goals and objectives section. The evaluation criteria could include:

- Who will own the system and be responsible for fundraising capital?
- Who will operate the system and be responsible for fundraising operating funds?

- What potential funding sources are available under this business model?
- What is the organizational capacity and interest for this model?
- Does the model allow for regional expansion, including different jurisdictions and universities in the Triangle area?
- How does the model meet local priorities including:
 - Bicycling: increasing the prevalence and role of bicycling in Raleigh.
 - Personal Mobility: offering additional transportation options for residents, students, employees, and visitors.
 - Social and Geographic Equity: ensuring the system is accessible and affordable to all socio-economic groups.
 - Economic Benefits: increase the attractiveness of Raleigh as a place to live, work, visit, and do business.

- o Financial: create a system that is financially self-sustaining over the long term, with incentives to meet this goal.

Initial stakeholder meetings identified the major organizations that should be considered and vetted for possible program management. These agencies included the City of Raleigh, Downtown Raleigh Alliance, NC State University, Triangle Transit and the City of Durham, which, at the time of writing of this report, is considering undertaking its own bike share feasibility study.

FEASIBILITY RECOMMENDATION

Overall feasibility for a bike share system in the City of Raleigh has been determined in the context of its outlined goals (see Goals and Objectives section) as well as its current conditions. There are various existing characteristics that are conducive for successfully implementing a bike share program. These include an increasingly higher residential population density in Downtown Raleigh and nearby areas; high density employment centers in downtown and along various corridors; significant public and stakeholder support; a number of City and regional plans calling for the reduction of single-occupancy vehicles, and an ever expanding bicycle network.

The biggest challenges the City will need to address include the prevailing car culture and the existing zoning regulations, which may curtail the use of advertising and sponsorship to help fund a proposed system. It is recommended that the City consider amending the existing regulations on signage to allow for advertising and/or sponsorship in bike share stations, and potentially help raise additional funding for bike share operations. Furthermore, it is imperative that the City continue to develop and fully implement a complete and connected network of comfortable to use bicycle facilities particularly in the Downtown core.

With these opportunities and challenges in mind, and based on the Goals and Objectives set for in this study, the implementation of a bike share program in the City of Raleigh has been found to be FEASIBLE. After discussions with stakeholders and City staff, it was determined that a station-based (smart-dock) bike share system is preferred.

Finally, based on national averages for capital and operating costs, the City can expect to pay the following:

Table 11 - Potential costs

Station Size	Number of Bicycles	Number of Docks	Capital Costs ¹⁰⁸	Operating Cost ¹⁰⁹
5	50	85	\$250,000	\$ 4,250 - 10,200
10	100	170	\$500,000	\$ 8,500 - 20,400
15	150	255	\$750,000	\$ 12,750 - 30,600
20	200	340	\$1,000,000	\$ 17,000 - 40,800
25	250	425	\$1,250,000	\$ 21,250 - 51,000
30	300	510	\$1,500,000	\$ 25,500 - 61,200
35	350	595	\$1,750,000	\$ 29,750 - 71,400
50	500	850	\$2,500,000	\$ 42,500 - 102,000
75	750	1275	\$3,750,000	\$ 63,750 - 153,000
100	1000	1700	\$5,000,000	\$ 85,000 - 204,000

These costs are estimates based on national averages. Complete estimates on size, phasing and costs (i.e., capital and operations), will be further expanded in Phase two of this project under the Raleigh Bike Share Implementation Plan.

Specific Challenges, Opportunities and Recommendations identified throughout this Feasibility Study are summarized below.



Figure 40 – Boulder B-Cycle

¹⁰⁸ Capital costs developed from an average of \$50,000 per station (Cost includes 17 docks and 10 bicycles)

¹⁰⁹ Operating costs developed from a national range of \$50-\$120 per dock per month, and 17 docks per station. Operating costs vary based on station density, business model and level of service.

Table 12 - Challenges, Opportunities, and Recommendations

Item	Challenges	Opportunities	Conclusion / Recommendation
Geography, Climate and Land Use	<ul style="list-style-type: none"> • Difficult street connectivity due to existing development patterns in some parts of the City. • Difficult topography outside Downtown core. 	<ul style="list-style-type: none"> • Relatively flat topography in Downtown area. • Wide streets conducive to bicycling • Temperate weather throughout the year. 	<p>Challenges do not outweigh the opportunities.</p>
Demographics and Employment	<ul style="list-style-type: none"> • Lower population and employment densities outside the urban downtown core. 	<ul style="list-style-type: none"> • Comparatively higher population density than other southeastern cities with bike share programs. • High concentration of students. • Focus on downtown revitalization. • Increased interest in relocating downtown by major employers. • High concentration of low income and minority residents in close proximity to denser parts of the City. • High concentration of small, medium and large employers close to downtown. 	<p>Although there are large areas of the City with low population and employment densities, the constant influx of large employers and residents to downtown provide a strong opportunity for successful implementation of a bike share program in the area.</p>
Transportation Mode Share	<ul style="list-style-type: none"> • High dependency on single occupancy vehicles • Low parking rates encouraging increased use of SOV's. • Infrequent transit service and limited number of routes. 	<ul style="list-style-type: none"> • Location of bike share stations should be in close proximity to major transit/transportation hubs and high ridership stations. • Connectivity between activity centers may increase with the potential implementation of a bike share program. • City residents without access to a vehicle could be served. 	<p>Coordination of deployment of stations with existing and planned public transportation services will be important to help extend the reach of service and connectivity to and from activity centers.</p>
Bicycle Infrastructure	<ul style="list-style-type: none"> • Circuitous network of existing separated facilities connecting activity centers. • Incomplete and difficult to understand way-finding and signage program. 	<ul style="list-style-type: none"> • Limited but ever increasing bicycle friendly facilities network that includes on-road and off-road facilities. • Emerging bicycling culture with increasing number of residents participating in grassroots education, encouragement, and enforcement programs. 	<p>City should continue to develop its planned network of bicycle facilities and a complete way-finding program in parallel with a potential implementation of a bike share program.</p>
Tourism	<ul style="list-style-type: none"> • Marketing to the tourist population tends to be more expensive as it requires additional outreach than only standard digital marketing. 	<ul style="list-style-type: none"> • Significant tourist market may help provide increased financial support for a bike share program. • Large number of conventions, special events and concerts throughout many of the venues within the City may help provide increased ridership and potentially an increased and steady revenue source. 	<p>City should consider allocating some funding for specialized outreach for tourist oriented promotion of the bike share program.</p>

<p>Local and Regional Plans and Policies</p>	<ul style="list-style-type: none"> • Portions of Raleigh are representative of car-centric development. • Exchange of parking spaces for bike share stations is not desired. • Disruption of parking and loading zones is not feasible. • Sidewalk widths beyond the downtown area may not be adequate to place potential bike share stations. • Existing restrictions on sign types and placement within the right-of-way could impact sponsorship opportunities. 	<ul style="list-style-type: none"> • Existing plans and policies promote the use of bicycle usage throughout the area. • Ever increasing bicycle infrastructure plans • Coordination of potential bike stations with future transit improvement plans will extend the reach of the transit system, enhance the program's utilization by linking alternative modes of transportation, provide more choices for commuters, and offer a last-mile option. <p>Most existing plans promote alternative forms of transportation. However some zoning regulations may impose restrictions on the number and type of signs on existing right of way which could impact sponsorship opportunities.</p> <p>It is recommended that the City review and consider amending local regulations related to signage to allow for the placement of sponsorship and/or advertising on bike share stations to potentially help cover costs for program.</p>
<p>Public Input and Stakeholder Engagement</p>	<ul style="list-style-type: none"> • Concerns about bike share implementation without a complete bicycle friendly facilities network. • Concern about the potential costs for implementation • Concerns about how regional implementation could/should work to provide users seamless access. 	<ul style="list-style-type: none"> • General support for implementing a bike share program in the City of Raleigh. • Increased interest for bike share to serve as a catalyst for additional bicycle-friendly infrastructure. • Interest by regional partners on regional implementation to provide additional connections to transit for Triangle residents. • There is considerable interest in bike share as an added sustainable transportation option in the region, helping curb the need for single occupancy vehicles. <p>There is general support for implementing a bike share program in the City of Raleigh.</p> <p>It is recommended that further education, encouragement, and outreach programs are implemented to help promote bicycling as a viable transportation option therefore helping increase the pool of potential bike share users.</p> <p>Station based system is preferred</p>

APPENDICES

APPENDIX 1 – LOCAL POLICIES AND REGULATIONS

NCDOT Complete Streets Planning and Design Guidelines

The North Carolina Board of Transportation adopted a Complete Streets policy in July 2009 and directed the North Carolina Department of Transportation (NCDOT) to consider and incorporate all modes of transportation when building new projects or making improvements to existing infrastructure. Following this adoption, NCDOT called for the implementation of the Complete Streets Planning and Design Guidelines.

This document serves as a manual for planning and designing roadway facilities throughout the State and provides guidelines for how to provide efficient multimodal transportation networks in North Carolina “such that the access, mobility, and safety needs of motorists, transit users, bicyclists, and pedestrians of all ages and abilities are safely accommodated”.¹¹⁰ The document also sets policies to develop transportation networks that encourage non-vehicular travel without compromising the safety, efficiency, or function of the facility. Additionally, the Guidelines also talk about how the implementation of Complete Streets may bring the following benefits:

- Increasing accessibility and mobility for the disabled, children, the aging population, and those without motor vehicles;
- Improving safety for pedestrians, cyclists, transit users, and motorists;
- Supporting public health goals by increasing opportunities for physical activity through active transportation;
- Building more sustainable communities;
- Increasing connectivity between neighborhoods, streets, commercial areas, and transit systems; and
- Adding value to communities and neighborhoods.

These Complete Streets Guidelines call for NCDOT to partner with local governments in the development of local transportation visions, adopted policies and plans that promote and identify projects that work toward an interconnected network of context sensitive and multimodal streets. Finally, the document provides context specific examples on how different facilities may be implemented to achieve an increased multimodal and more connected transportation network.

As it relates to bike share implementation the document delineates how implementation of good bicycle and pedestrian facilities will increase connectivity and access, while allowing users to feel comfortable and safe to walk and bike within their communities.

WalkBikeNC – North Carolina Statewide Pedestrian and Bicycle Plan

This statewide bicycle and pedestrian master plan serves as a guide for decision-making and prioritization of bicycle and pedestrian infrastructure. The document also identifies potential statewide linkages for connecting communities, and serves as a resource for planning and designing future infrastructure.¹¹¹ While it does not specifically call for the implementation of bike share programs, the Plan identifies bicycle facilities acting as connectors throughout the state, which may have an effect on the number of people bicycling throughout North Carolina. The Plan requests the State to prioritize regional connectivity to and from regional trail systems. Further, the document calls for increasing connectivity and access to transit stops and stations “with an eye toward ensuring roadways and transit stations/ stops are safe, accessible, and attractive to bicyclists”.¹¹²

With regard to the Raleigh area, the Plan identifies three major state bicycle connector routes:

- *US 1 Carolina Connector* which runs north to south connecting the cities of Raleigh and Fayetteville.
- *NC 2 Mountains to Sea Route* runs east to West connecting the Cities of Greenville, Raleigh, Chapel Hill, Durham and Greensboro. This route also links to the proposed NC 5 providing direct routes for cyclists heading east towards the coast from Raleigh (Figure 411).
- *NC 5* running south from Raleigh to Wilmington providing a scenic and comfortable bicycling route that connects to several state parks

The Plan identifies the NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) as the lead agency responsible for implementing the recommendations of this Plan. In this role, the DBPT

¹¹¹ WalkBikeNC Plan. North Carolina Statewide Pedestrian and Bicycle Plan. 2013.

¹¹² WalkBikeNC Plan. North Carolina Statewide Pedestrian and Bicycle Plan. 2013. 4-17 | Bicycle Infrastructure

¹¹⁰ North Carolina Complete Streets Planning and Design Guidelines. July 2012

is charged with identifying and securing non-traditional sources of funding among other roles.

To aid the DBPT the Plan identifies federal and local sources of funding as well as eligible activities under each of them.

Considering that the specific enhancement projects have not been explicitly listed (except for the creation/update of bicycle maps), the City of Raleigh may be able work with the MPO to program some of the available funding for the implementation of a bike share system. Further

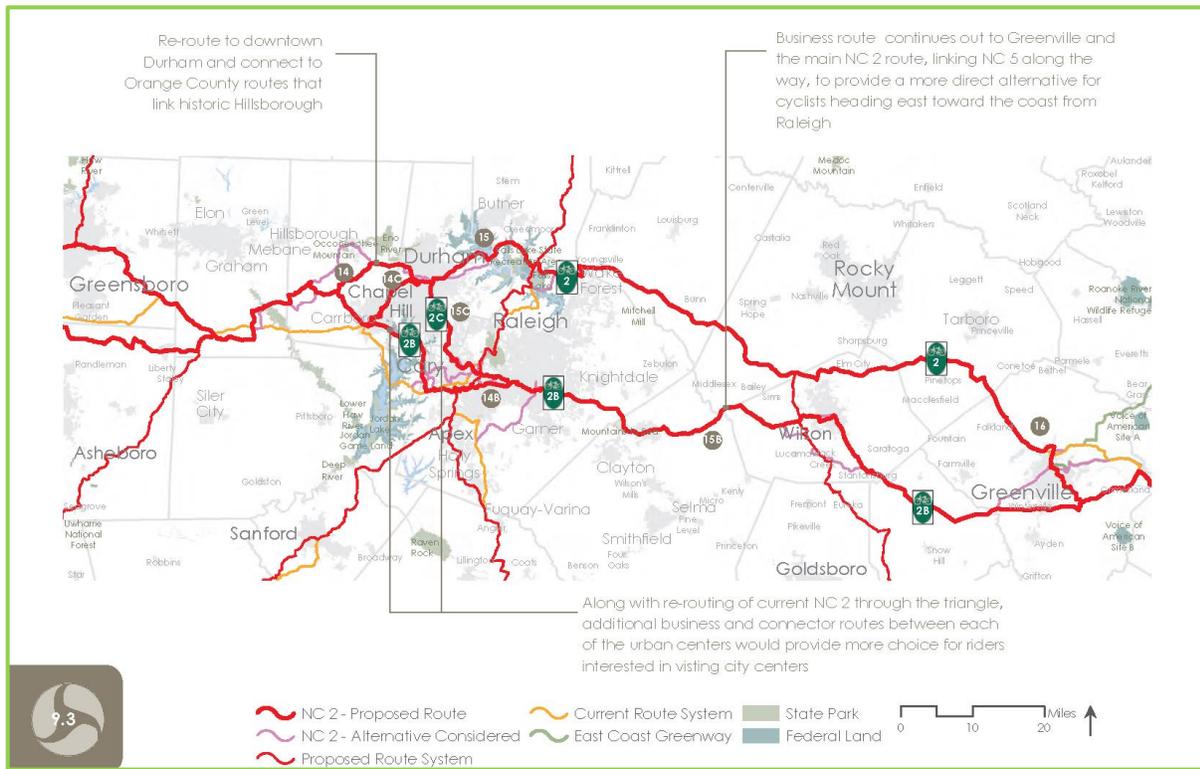


Figure 411 - NC 2 Mountains to Sea Route

These sources may be pertinent to the implementation of a bike share program in the City of Raleigh:

- Transportation Enhancements (TE)
- Transportation Alternatives Program (TAP)
- Recreational Trails Program (RTP)
- Strategic Transportation Investments (STI)

2012-2018 Capital Area Metropolitan Planning Organization Transportation Improvements Program

The document serves as a project selection template for transportation projects within the Capital Area MPO. It delineates the projected amounts of funding that will be dedicated for all transportation projects within the MPO for the fiscal years 2012 through 2018. With regards to bicycle and pedestrian projects, most of the dedicated funding has been assigned to infrastructure improvements including sidewalk and trail construction. However, the document also delineates the projected funding for local enhancement projects within Wake County.

research and conversations with MPO staff are recommended.

The 2030 Comprehensive Plan for the City of Raleigh

The Plan provides a long range vision and strategy for the City of Raleigh's growth as a modern 21st century city. The Plan provides an integrated approach to all aspects of Raleigh's physical development and related economic and social issues, as well as the development of attractive and livable neighborhoods. With regards to transportation, Section B of the Plan calls for the designation and operationalization of a Complete Streets approach to streetscape development.¹¹³ This section also calls for increased efforts to improve transit services within the City, as well as increasing and enhancing the mobility options for city residents, with a focus on reducing vehicle miles traveled and its negative effects on the environment. Furthermore, Policy T 4.9 and Action 4.5 call for the coordination with local transit

¹¹³ Section B, Action T3.1 and T3.5

providers to identify sidewalks within one-third mile of transit stops in need of enhancement for persons with disabilities, and enhancing transit access for pedestrians and bicycles around park and ride lots and bus stops.¹¹⁴

In relation to pedestrian and bicycle circulation, the Plan calls for increasing the accessibility and safety along various bicycle and pedestrian oriented corridors, downtown, and throughout activity and employment centers.¹¹⁵ Furthermore the Plan calls for maintaining and constructing convenient pedestrian and bicycle facilities that are universally accessible, adequately illuminated, and properly designed to reduce conflicts among motor vehicles, bicycles, and pedestrians.¹¹⁶

The Plan also calls for the development of downtown-specific design standards for street, sidewalk, and bicycle networks. Specifically, it calls for defining and developing street sections and design standards for the Downtown Streetscapes manual.¹¹⁷ Further, the Plan calls for a continual redevelopment of Downtown into a compact mixed-use activity center offering new transportation connections encouraged by its compact and connected street grid. With this regard, the Plan explicitly calls for prioritizing pedestrian streets (see Figure 42) by designing safe, comfortable and complete streets with pedestrians in mind.¹¹⁸ Finally, with the anticipated growth of downtown and the increased trip generation the Plan calls for the promotion of “car and bicycle sharing services within the downtown”¹¹⁹ to help decrease the use of single occupancy vehicles and curb congestion throughout the downtown areas. The City should consider locating bike share stations throughout these designated pedestrian and green streets so as to increase pedestrian usage and maximize ridership.

2009 City of Raleigh Bicycle Transportation Plan

The 2009 Bicycle Transportation Plan focused on creating an integrated, seamless transportation framework to facilitate bicycling as a viable transportation alternative throughout the City Raleigh. More specifically the Plan utilized a thorough analysis of the current conditions for bicycling in Raleigh to recommend prioritized improvements infrastructure improvements as well

114 Action T 4.5 Transit Infrastructure

115 Policy T 5.1 Enhancing Bike/Pedestrian Circulation. Enhance pedestrian and bicycle circulation, access, and safety along

116 Policy T 5.3 Bicycle and Pedestrian Mobility

117 Chapter M Action DT 2.5 Downtown Street Design Standards

118 Policy DT 2.8. Priority Pedestrian Streets

119 Policy DT 2.13.Car and Bicycle Sharing

as for programming, operations, and maintenance of the existing infrastructure. Furthermore, the Plan provided comprehensive guidelines for the development of bicycle facilities throughout the city. Finally, it provided a recommendation of possible sources of funding to help implement said recommendations. In relation to bike share implementation, the Plan establishes four main measurable goals:

- Quadruple the 2000 Census bicycle commute rate by 2015.
- Complete this plan’s top five priority bicycle projects by 2011 and complete the top twenty by 2015.
- Become designated as a ‘Bicycle-Friendly Community’ by 2010 by the League of American Bicyclists.
- Launch/participate in three new programs in three years.

While not explicitly calling for the implementation of a bike share program, three out of four goals may be impacted by the implementation of such program. Additionally, as the Plan looks at initiating programs aimed at developing regional and countywide connections, a bike share program may be an additional conduit for increasing the bicycle infrastructure in the city.

With regards to parking and its relation to bicycle infrastructure projects, the Plan recommends not removing any on-street spaces unless there is full support and documentation in favor of a particular project. This may curtail how and where bike share stations are installed throughout the City. Further public support should be pursued before the implementation of a bike share program begins.

Finally, the Plan provides a list of possible sources of funding for bicycle infrastructure related projects including the North Carolina Transportation Improvement Program and the Powell Bill program. Both sources may be able to be used for funding the implementation of a bike share program in the City.

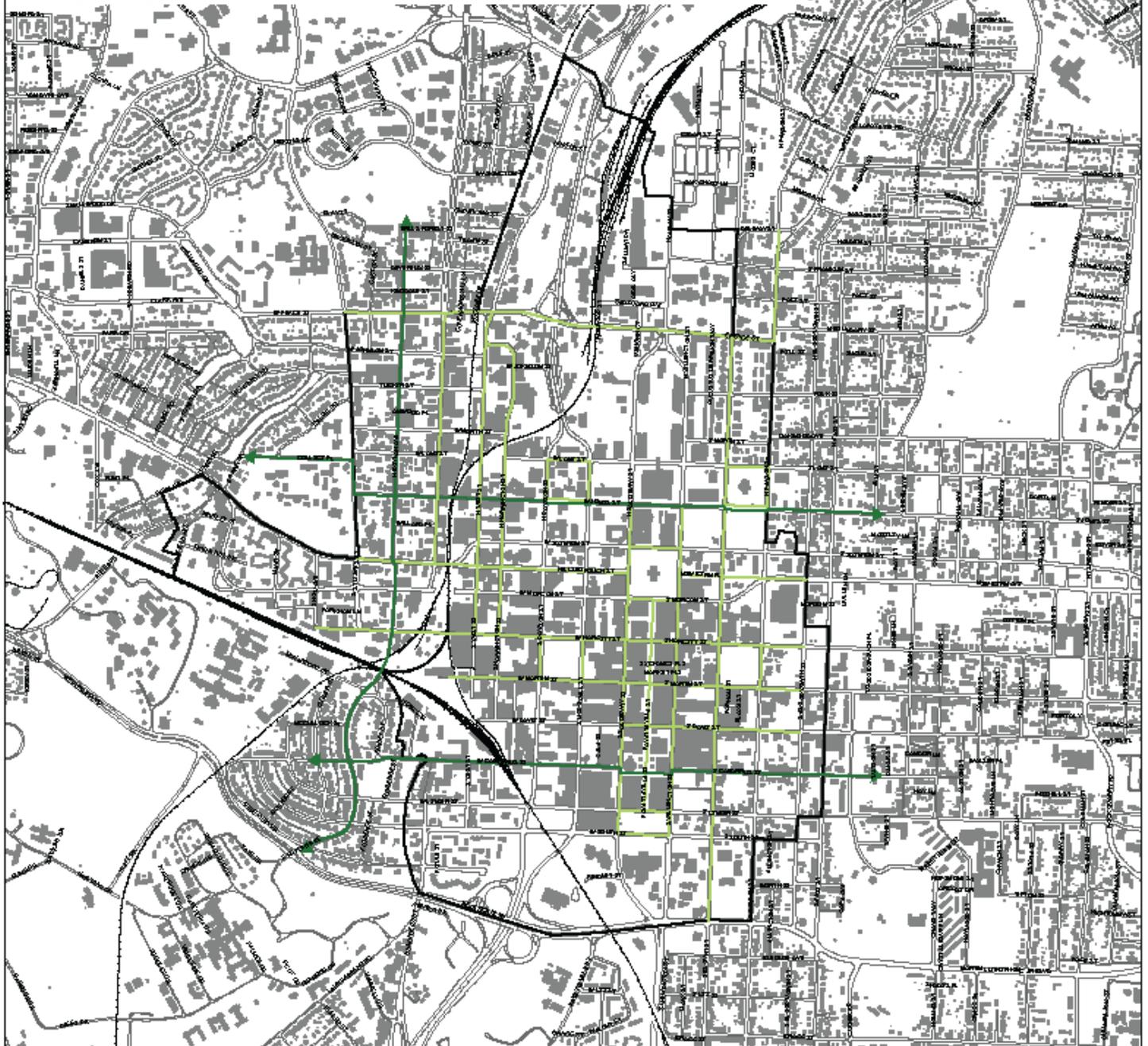
North Carolina State University Bicycle and Pedestrian Master Plan

The North Carolina State Campus Bicycle and Pedestrian Plan was created to improve general bicycle and pedestrian conditions throughout the campus by focusing on facility improvements and programmatic enhancements¹²⁰.

120 North Carolina State University, Campus Bicycle and Pedestrian Plan, <http://www2.acs.ncsu.edu/trans/planning/NCSU%20Campus%20Bicycle%20and%20Pedestrian%20Plan%20FINAL%20REPORT.pdf> April 17, 2014.



Priority Pedestrian & Green Streets



MAP DT-4

Public Realm Improvements

- Green Streets
- Priority Pedestrian Streets
- Downtown Element Boundary

- Buildings
- Railroads
- Streets

Feet
 0 375 750 1,500

Map created 10/7/2009 by the City of Raleigh
Department of City Planning & GIS Division

The Plan's vision and goals were crafted by the project steering committee, which included faculty, staff, students and representatives of multiple campus departments. Public outreach events and a campus survey instrument were utilized to gather input and feedback from the broader campus population.

The Plan's framework identified primary corridors, such as Hillsborough Street, Cates Avenue and Dan Allen Drive that serve as a 'spine' for inter-campus mobility. The intersection of these corridors represent potential bike share station locations with the highest expected utilization and connectivity with other transportation modes. Other potential locations would include residence halls, the Brickyard, and the Founders Drive transit area.

Bike share stations were not specified amenities within this plan, however these could be co-located with complementary projects, such as i) transit stop and intersection improvements, ii) commuter bicycle storage locker locations, and iii) bicycle repair/maintenance stations.

City of Raleigh Parks and Recreation System Plan

The Parks and Recreation System Plan is a 20-year comprehensive planning document that supplements the City's 2030 Comprehensive Plan. The system plan was created over a 16-month process with adoption from City Council expected in May of 2014. The process involved public visioning sessions, existing system analysis, needs and priorities assessment, as well as long-range visioning and implementation.¹²¹

While the Plan includes improvements to park infrastructure, such as facilities, fields, buildings, or recreational programs, it also emphasizes linkages between parks, ensuring that all City residents can access park facilities. Improving connections with pedestrian, bicycle, and transit stops are specific objectives within the Implementation Plan section (chapter 5).

A bike share program is not explicitly stated within the Plan, however bike share will complement the goals and objectives of improving connectivity and accessibility for city residents¹²².

¹²¹ City of Raleigh, Parks Recreation and Cultural Resources System Plan, retrieved from <http://www.raleighnc.gov/parks/content/PRecDesignDevelop/Articles/2012PRSystemPlan.html> April 24, 2014.

¹²² Chapter 5 page 173 of City of Raleigh Parks Recreation and Cultural Resources System Plan describes in more detail the various goals objectives to improving access.

Triangle Transit Master Plan

Triangle Transit operates a regional bus service for the Raleigh-Durham-Chapel Hill area of North Carolina, commonly referred to as 'the Triangle.' Their mission is to connect people and places with reliable, safe, and easy-to-use travel choices that reduce congestion and energy use, save money, and promote sustainability, and healthier lifestyles.

Until consensus is reached relating to the funding for long-range commuter rail, light-rail, and/or enhanced bus service, the Wake County Transit Plan is the most-relevant planning document that guides the transit improvements within Wake County and the City of Raleigh.¹²³ The Wake County Transit Plan is presented in two options, the Core Transit Plan and the Enhanced Transit Plan.

The Core Transit Plan focuses on existing funding resources from local, state and federal agencies. Improvements under this option include new and expanded bus service, shelters, and park-and-ride lots, as well as new commuter rail service and 12 new stations. The Plan also calls for nearly doubling the number of bus service hours at a total cost of \$329 million in the initial five years of the plan. Further, the Plan calls for the implementation of a new commuter rail system, which would be implemented after FY 2018. With this regard, the plan calls for a 37-mile rail corridor between Wake and Durham counties and 12 new stations at an estimated capital expense of \$650 million.

The Enhanced Transit Plan assumes that new sources of state and federal funding will become available. With these additional resources the potential improvements under the Enhanced Transit Plan will include 14-miles of new light rail service between the City of Cary and north Raleigh as well as 16 new stations at an estimated cost of \$1.1 billion.

A bike share program will complement users of transit by co-locating their facilities either on-site or directly adjacent to future stations. The exact location of commuter rail and light rail stations have not been finalized, and will likely be owned by various agencies including the City of Raleigh, NCDOT, Triangle Transit, and North Carolina Railroad. Individual agreements with each of these transit agencies will be required to coordinate the final locations of potential bike share stations.

¹²³ Wake County Transit Plan, retrieved from <http://www.wakegov.com/planning/transport/pages/transitplan.aspx> April 18, 2014.

Capital Area Transit (CAT) Plans

Varying short-term and long-term transit plans for the Capital Area Transit system have been completed to date¹²⁴. Two appropriate plans relating to bike share include:

- CAT Three-Year Bus Services Plan
- 2040 CAT Bus Development Plan

The CAT Three-Year Bus Services Plan focuses on improving current service and provides detailed recommendations for new, expanded and/or improved bus services to be implemented between 2012 and 2015.

The 2040 CAT Bus Development Plan focuses on dedicating long-range capital investments for bus operating services, expanded commuter bus, as well as local and in-fill bus services through 2040. The CAT 2040 Bus Development Plan will also complement the regional rail service plan currently being evaluated by Triangle Transit, described above.

Advertising with CAT

The CAT bus advertising guide provides a complete list of guidelines, requirements and fees for allowable exterior advertisement signs or interior placards within CAT buses.

Related to bike share and the potential for allowable advertising, policy 2-6 excludes any promotion of commercial transportation that is in direct competition with CAT. A bike share program may be interpreted by some as direct competition, and further discussions between CAT and the City on the potential status of bike share is recommended.

Policies and City Ordinances

The City of Raleigh's Unified Development Ordinance¹²⁵ contains development-related codes, regulations and guidelines in one document and a revised website. The UDO (Figure 43) provides both homeowners and professional developers/builders with information about submittal requirements, development review and the permitting process.

Depending upon site-specific conditions there are multiple UDO codes that could apply. In particular, conditions such as roadway maintenance, existing

intersection sight triangles and adjacent signage, presence of on-street parking, property ownership, or many others. Additional permitting requirements and review authority would be necessary for development within one of the City's designated Historic Districts. As a result potential bike share stations will (preferably) be grouped into common location types for permit review. Potential location types may include, at minimum: i) State-owned right-of-way; ii) City-owned right-of-way; iii) State-owned property; iv) City-owned property; and v) private property.



Figure 43 - City of Raleigh – Unified Development Ordinance

From a more broad perspective, the relevant sections that might apply to bike share station locations, their design and any restrictions may include the following:

Part 10A Article 7.1 Section 8 Bicycle Parking Facilities – General provisions are provided including:

- Facilities may be placed on private property or within the public right-of-way
- Short-term and long-term facilities must comply with the Raleigh Street Design Manual

Part 10A Article 7.3 Section 13 Special Sign Types – Includes restrictions for 12 different sign types. The **Product and information sign type** is most relevant for potential bike share stations, which restrictions include:

- General use permit required
- Maximum of six (6) square feet in area
- No commercial message other than instruction or direction to the public
- Must be attached to the dispensary structure or the product

¹²⁴ Capital Area Transit System Plans, retrieved from <http://www.raleighnc.gov/services/content/PWksTransit/Articles/ShortRangeTransitPlan.html> April 27, 2014

¹²⁵ Raleigh's Unified Development Ordinance, retrieved from <http://www.raleighnc.gov/home/content/PlanDev/Articles/DevServ/NewRaleighCode.html> April 27, 2014

Part 10A Article 7.3 Section 14 – Off-Premise Signs [Outdoor Advertising Signs] - Requirements for sign area, height, setback, construction standards and spacing are outlined in this section, which may vary depending upon the number of traffic lanes. This section explores the requirements for off-premise signs (separate from on-premise signs), to prevent overconcentration, improper placement, excessive height, bulk, number, and area of outdoor advertising signs, as they must be regulated to protect the character of the area wherein they are located, and to conserve property values.

- No signs should be located within the triangle area formed 50' from an intersection for roadways with fewer than four (4) lanes
- No signs should be placed within ten (10) feet of any conductor or public utility guy wire, and must meet the National Electric Code requirements
- No duplicate signs should be located less than 1,000' apart
- All signs shall comply with the 2012 NC Building Code - Appendix H Signs

Part 10A Article 7.3 Section 15 Prohibited Signs – Allows for the removal of any sign that the Director of Transportation determines to obstruct the view of bicyclists or motorists, or interferes with the effectiveness of traffic signs, devices, or signals.

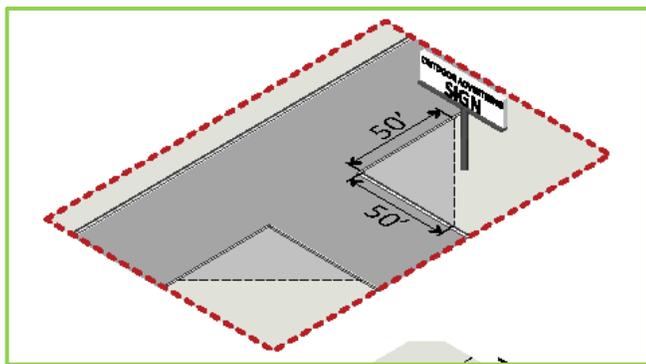


Figure 44- Sight Triangle extending 50 feet from intersection

Part 10A Article 7.3 Section 16 F Sight Triangles – Prohibits signage within the sight triangle of a public or private street or driveway (Figure 44).

Encroachment Agreements

An encroachment agreement with the City of Raleigh will be required for any potential bike share station located within the street or sidewalk of a City-maintained roadway.

Bike share stations will fall into the category of major encroachments, defined as permanent structures for private use within public right-of-way. Submittal requirements are outlined on the Raleigh Development Services website, which include the following:

- major encroachment agreement application and resolution (five sets)
- detailed engineering plans (five sets)
- electronic copy (cd)
- \$100 processing fee

The detailed engineering plans must include (if present) and existing trees, fencing, walls, right-of-way, or utilities.

Historic Districts

Potential bike share station locations within one of the six designated Historic Districts¹²⁶ will require a Certificate of Appropriateness (COA) from the Raleigh Historic Development Commission (RHDC) indicating that the project will meet the specified design guidelines in Section 2.1 Public Rights-of-Way and Alleys presented by the RHDC.¹²⁷

Bike Share station locations would fall into the 'Minor Work' category, which requires review by the RHDC staff rather than by the full COA Committee, and a review fee of \$28 per site plan.



Figure 44 - City of Raleigh: Street Design Manual

Street Design Manual

The City of Raleigh Street Design Manual provides guidance for facilities located within the street or its designated right-of-way. Relevant sections for bike

¹²⁶ Raleigh Historic Districts are presented on the RHDC website:

<http://rhdc.org/raleigh-historic-resources/raleigh-historic-districts>

¹²⁷ Raleigh Historic District Commission's design guidelines from:

<http://rhdc.org/certificates-appropriateness/design-guidelines> April 29, 2014

share station locations and design include the following:¹²⁸

Section 6.12.2 Intersection sight distance – Placement of a bike share station within an on-street parking space must provide an obstruction-free sight triangle (Figure 45), based on the various posted speed limit and number of lanes displayed in Table 6.12B of the Street Design Manual.

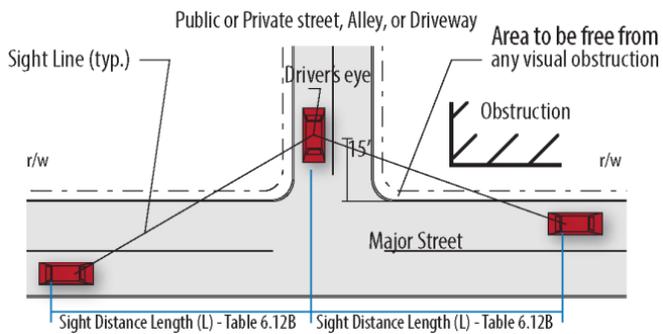


Figure 45 - Intersection Sight Distance

Section 6.17.2 Adopted streetscape plans – There are no less than 12 adopted streetscape plans within the City of Raleigh that would potentially add further restrictions to the placement of bike share stations. These plans include Cameron Village Downtown, Glenlake Office Park, Glenwood South, Hillsborough-Morgan, Oakwood Mordecai Business District, Peace, Promenade at Crabtree, Southeast Raleigh, Stanhope Center, and University Village.

Section 6.24 Bicycle infrastructure – Standards for bicycle parking design, placement, and spacing are outlined in section 6.24.1, as well as standard facilities such as bicycle lanes and shared lane markings in section 6.24.2.

North Carolina Building Code

The 2012 NC Building Code¹²⁹ establishes the minimum construction standards to ensure public health, safety, and general welfare. North Carolina includes separate codes for building, residential, administrative, mechanical, fuel-gas, plumbing energy, and fire safety.

The code would apply to potential bike share stations that are located within NCDOT-maintained right-of-way or on state-owned property (e.g. NC State University).

Appendix H of the Building Code refers directly to sign standards. Notable requirements include:

- Each sign shall be plainly marked with the name of the person, firm or corporation erecting and maintain the sign.
- Construction documents shall be required to show dimensions, materials, and required details of construction.
- Signs shall be securely fastened by metal anchors, bolts or expansion screws.
- Ground signs shall be no more than 35 feet above the ground, and shall not be made of combustible materials.
- Wall signs shall be anchored to exterior walls using metal anchors, bolts or expansion screws.

¹²⁸ Raleigh Street Design Manual, retrieved from: <http://www.raleighnc.gov/content/extra/Books/PlanDev/StreetDesignManual/April24,2014>

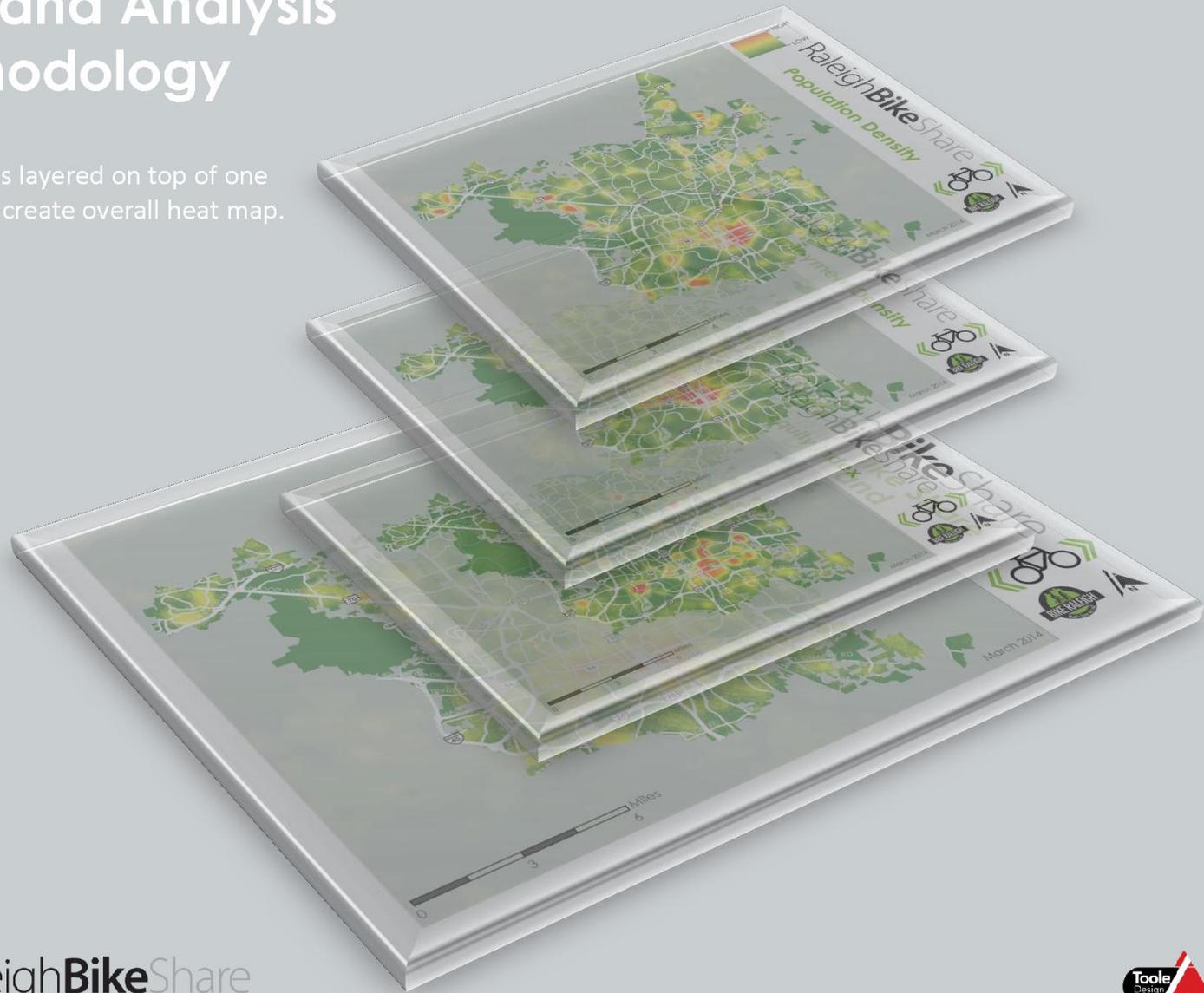
¹²⁹ North Carolina's Building Code, retrieved from: http://ecodes.biz/ecodes_support/free_resources/2012NorthCarolina/Building/12NC_Building.html April 29, 2014

APPENDIX 2 – METHODOLOGY OF STUDY

The following images explain the methodology used in for the demand analysis.

Demand Analysis Methodology

All variables layered on top of one another to create overall heat map.



VARIABLE MAPS

Population Density (20 points)

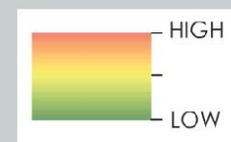
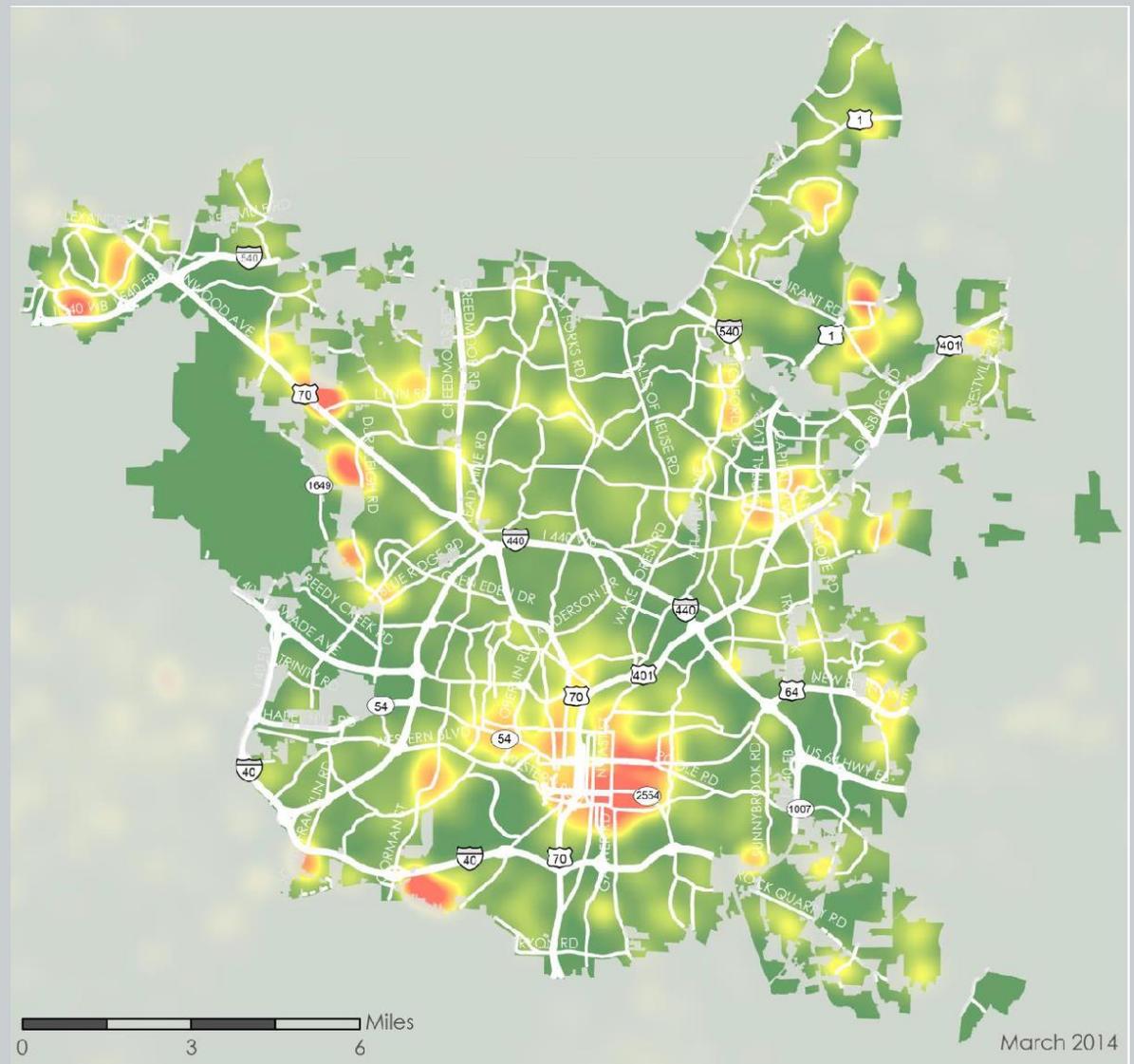
Census Blocks broken into 10 percentile groups based on their population densities.

Census Blocks assigned scores based on which percentile they fall:

- Top 10%: 22 / 22
- 2nd 10%: 19.8 / 22
- ...
- 2nd last 10%: 4.4 / 22
- Bottom 10%: 2.2 / 22

Entire Census Block receives same score. Polygon is then transformed into uniform RASTER file.

Shape format: RASTER



Employment Density (20 points)

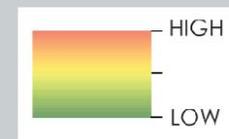
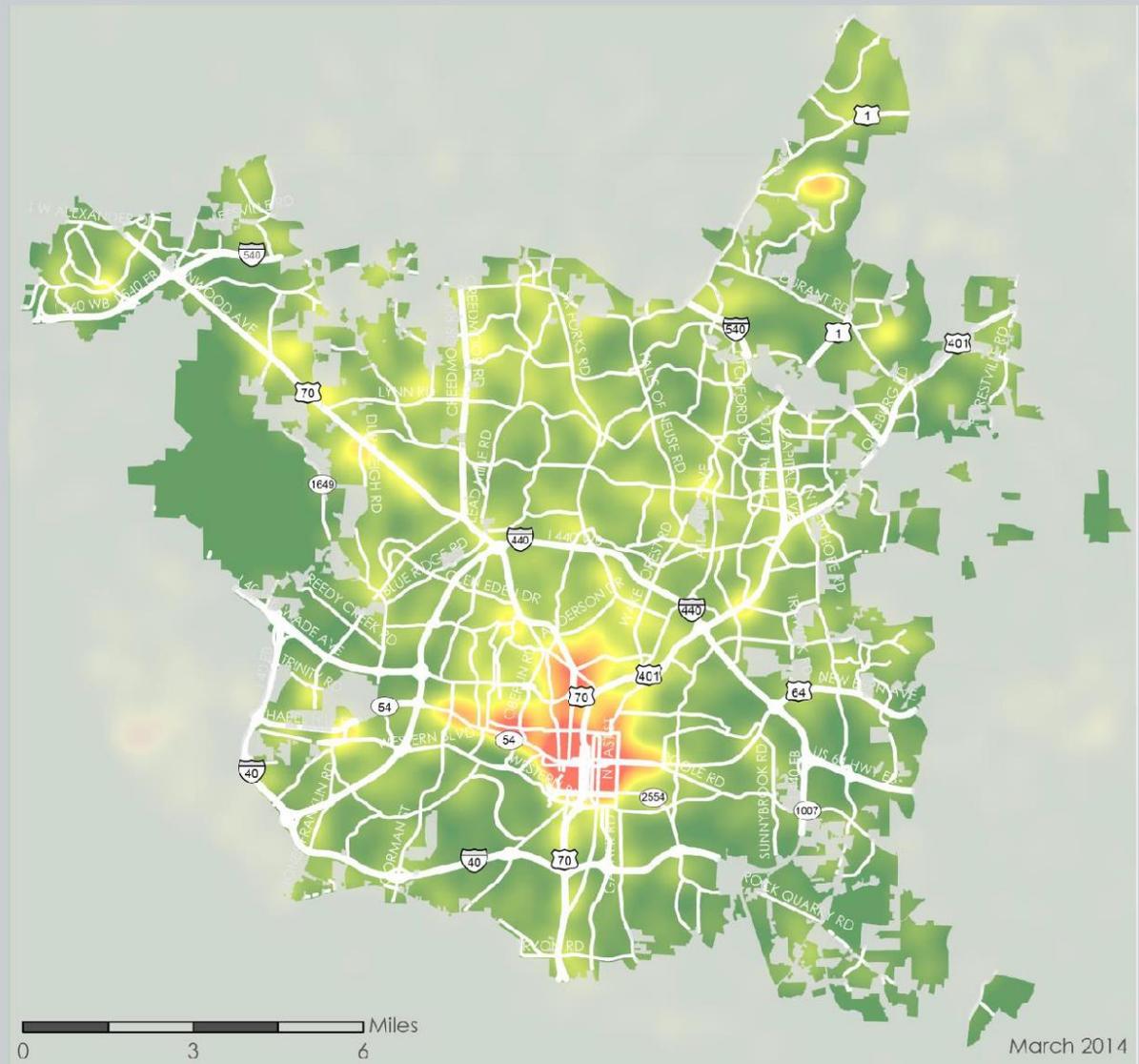
Census Block broken into 10 percentile categories based on their employment densities.

Census Block assigned scores based on which percentile they fall:

- Top 10%: 22 / 22
- 2nd 10%: 19.8 / 22
- ...
- 2nd last 10%: 4.4 / 22
- Bottom 10%: 2.2 / 22

Entire Census Block receives same score. Polygon is then transformed into uniform RASTER file.

Shape format: RASTER



Attractions (12 points)

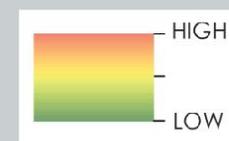
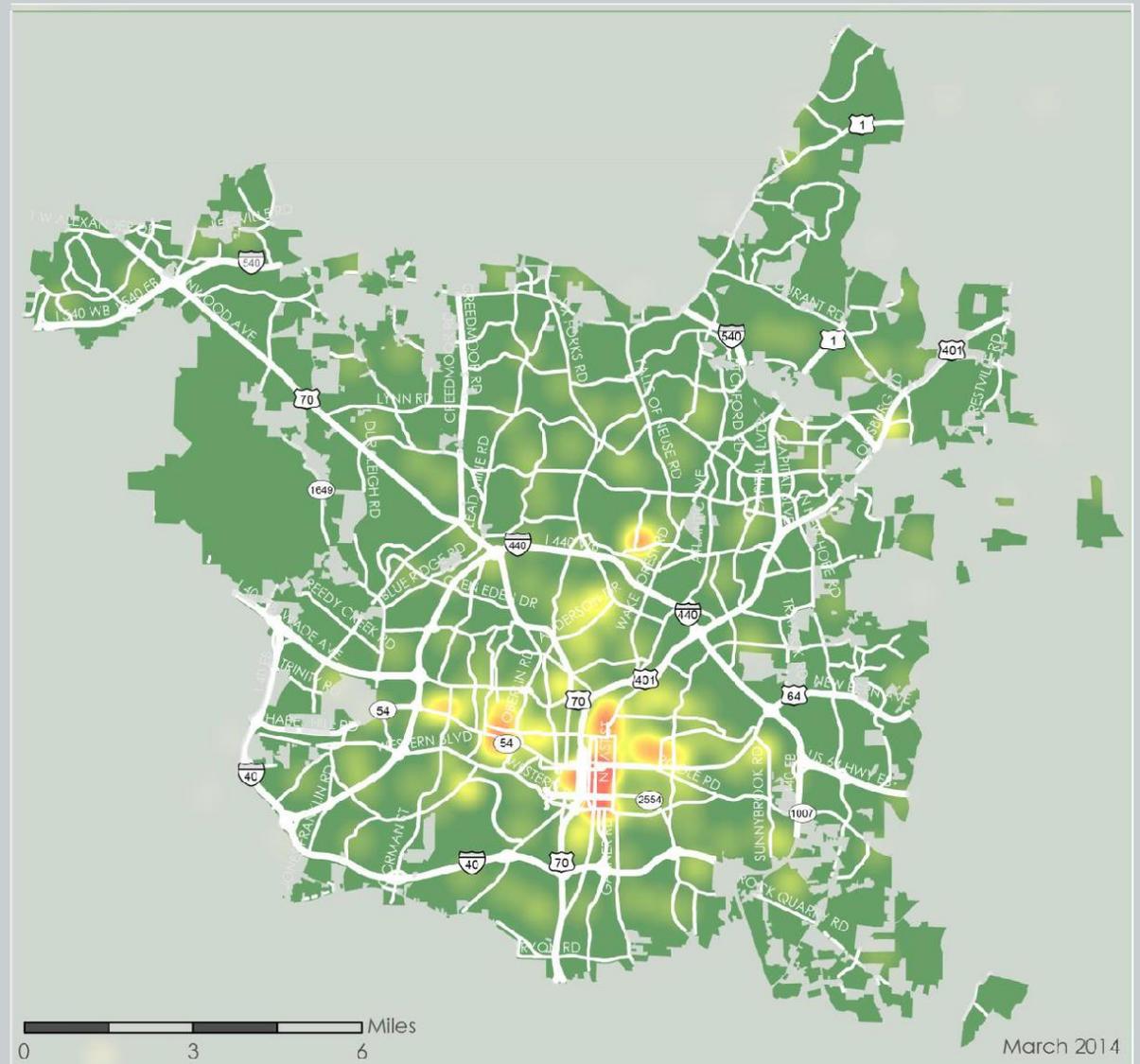
These include government landmarks, parks, colleges and universities, cultural centers and transportation hubs mapped as points based on locations provided by City of Raleigh.

Based on proximity to general attraction:

- $\frac{1}{4}$ of a mile
- $\frac{1}{2}$ of a mile

Points assigned based on an area $\frac{1}{2}$ mile around point location. Point is then transformed into uniform RASTER file.

Shape format: Raster



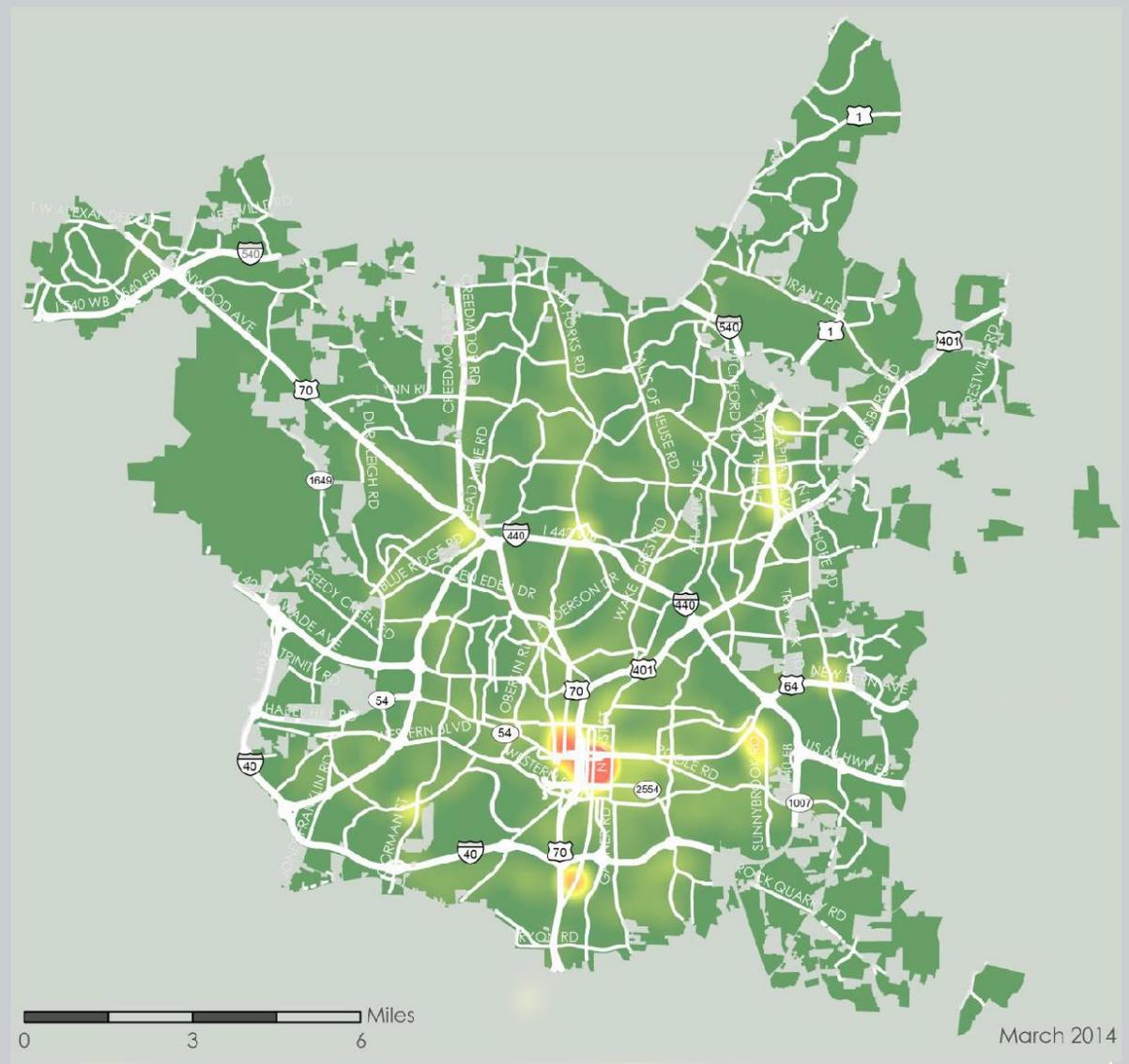
Transit Facilities (10 points)

Transit Facilities include transit hubs based on their ridership.

Points assigned based on the presence of an Transit Facility (bus stops) and include a ¼ mile buffer around the point location.

Points are then transformed into uniform RASTER file.

Shape format: RASTER



Bicycle Modeshare (4 points)

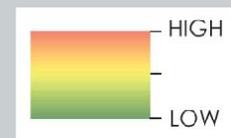
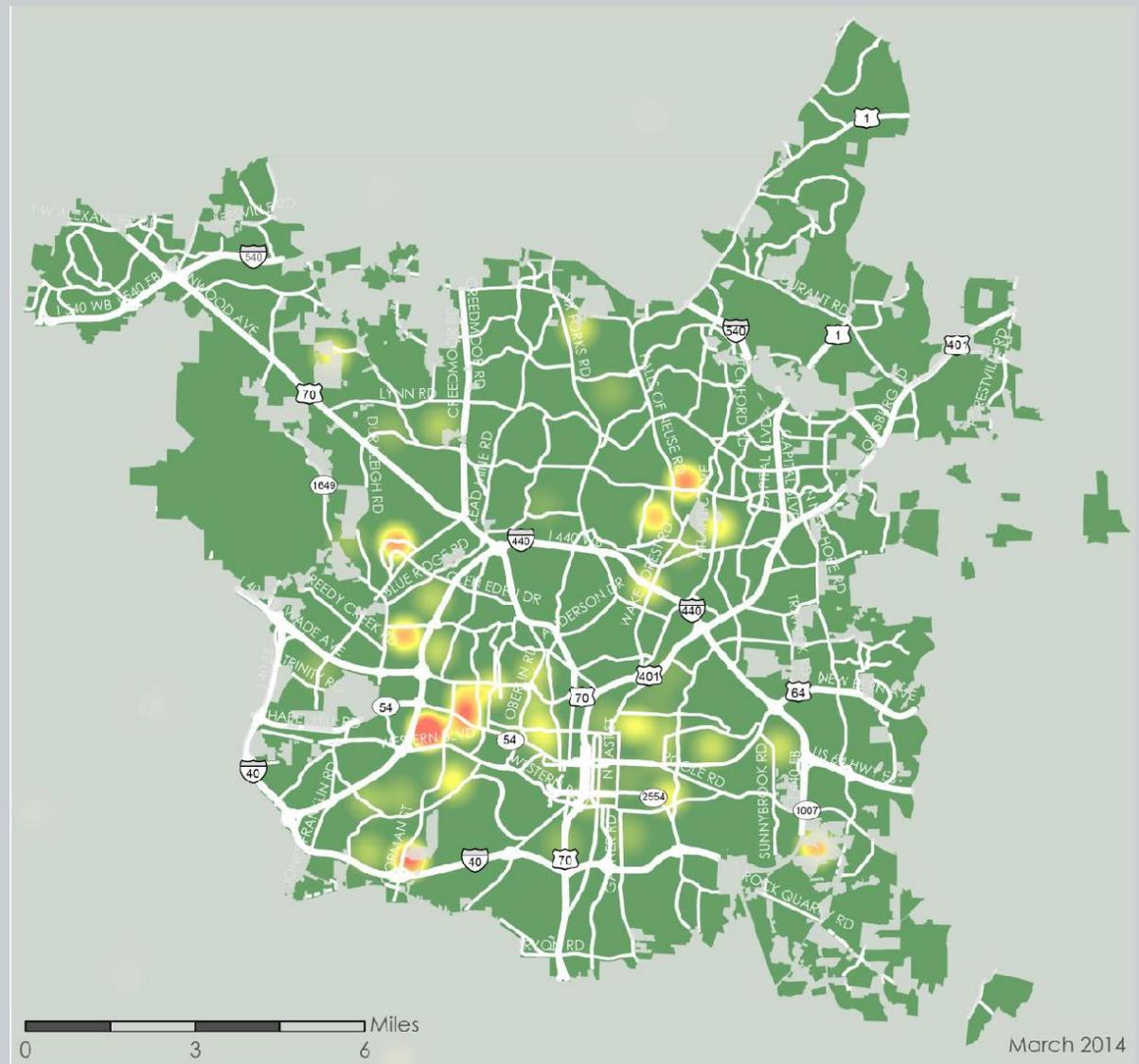
Census Blocks broken into 10 percentile groups based on their population densities.

Census Blocks assigned scores based on which percentile they fall:

- Top 10%: 22 / 22
- 2nd 10%: 19.8 / 22
- ...
- 2nd last 10%: 4.4 / 22
- Bottom 10%: 2.2 / 22

Entire Census Block receives same score. Polygon is then transformed into uniform RASTER file.

Shape format: RASTER

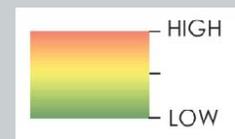
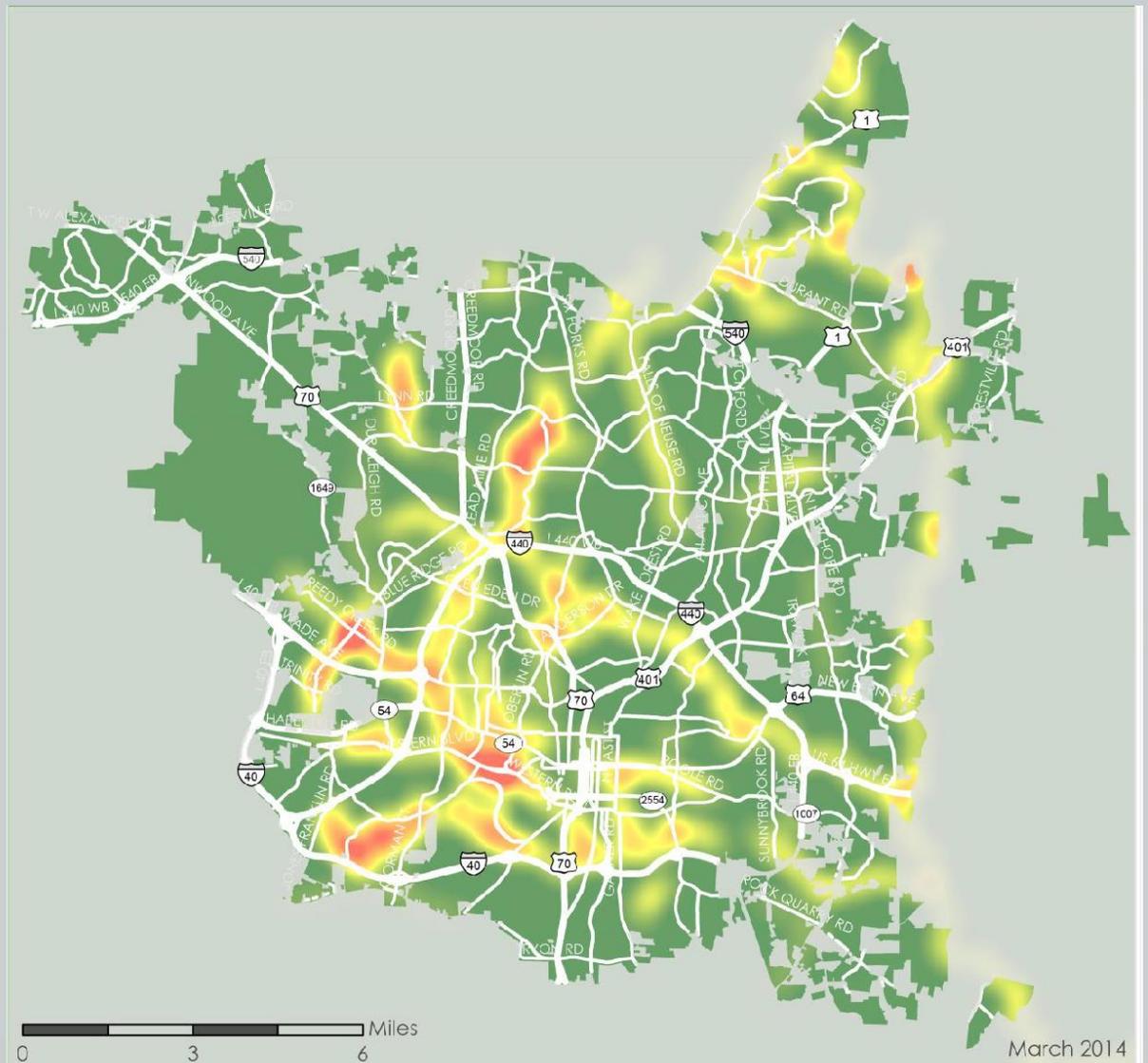


Bicycle Infrastructure (10 points)

Based on proximity to existing bicycle facilities:

- Separated trails
- Bike Lanes
- Sharrows
- Wide Shoulders

Shape format: RASTER

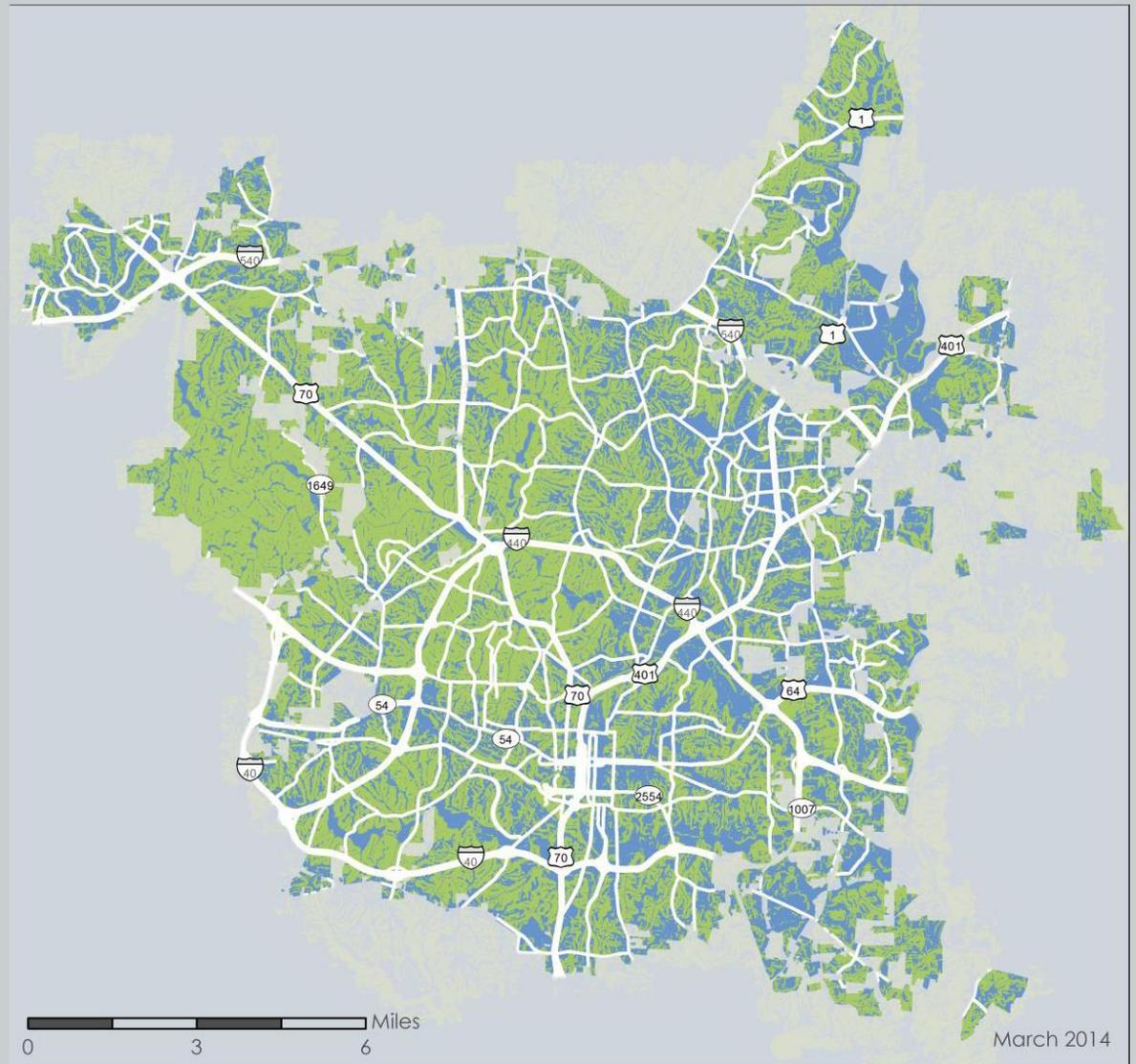


Topography (+/-3 points)

Based on terrain slope encountered

- If terrain more than 5% then a negative 3 points were awarded
- If terrain at slope lower than 5% no negative points were awarded.

Shape format: RASTER

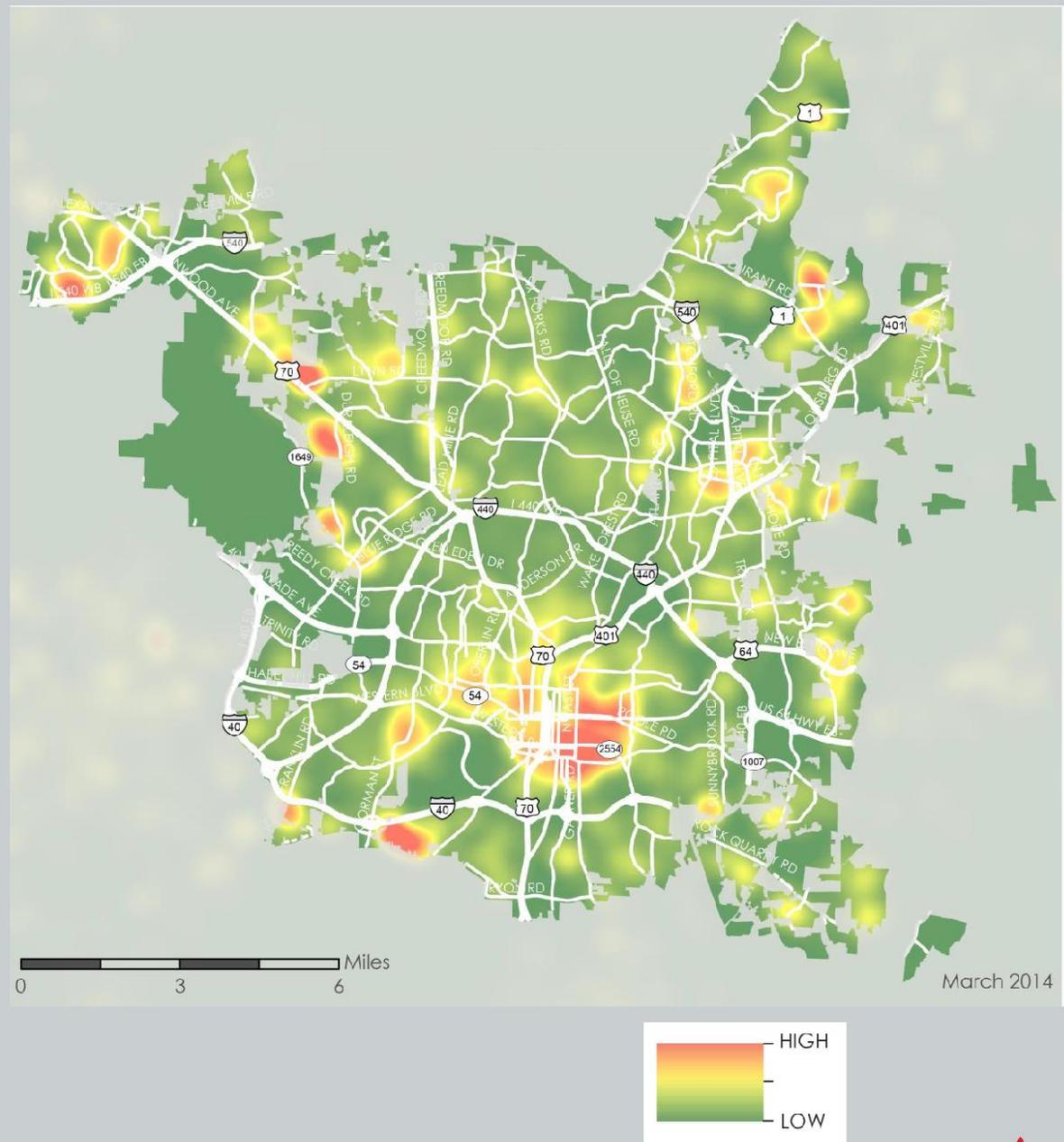


Equity (10 points)

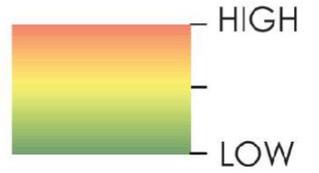
Based on Census data provided by City of Raleigh:

- % minority population higher than 50%.
- Poverty level (less than \$30,000 for a family of 4)

Shape format: RASTER

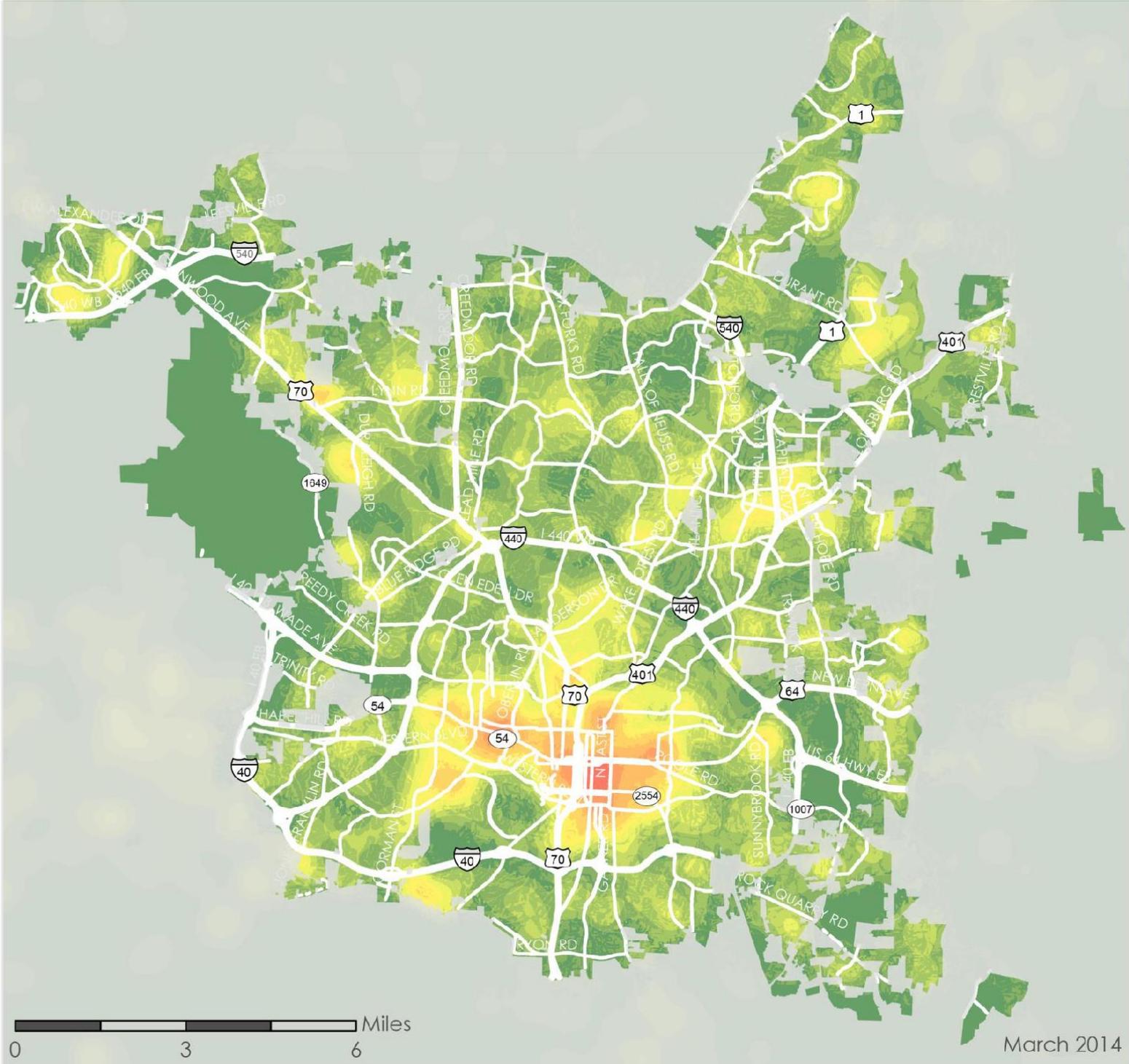


RESULTING HEAT MAPS



Raleigh Bike Share

Potential Bike Share Demand



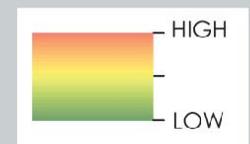
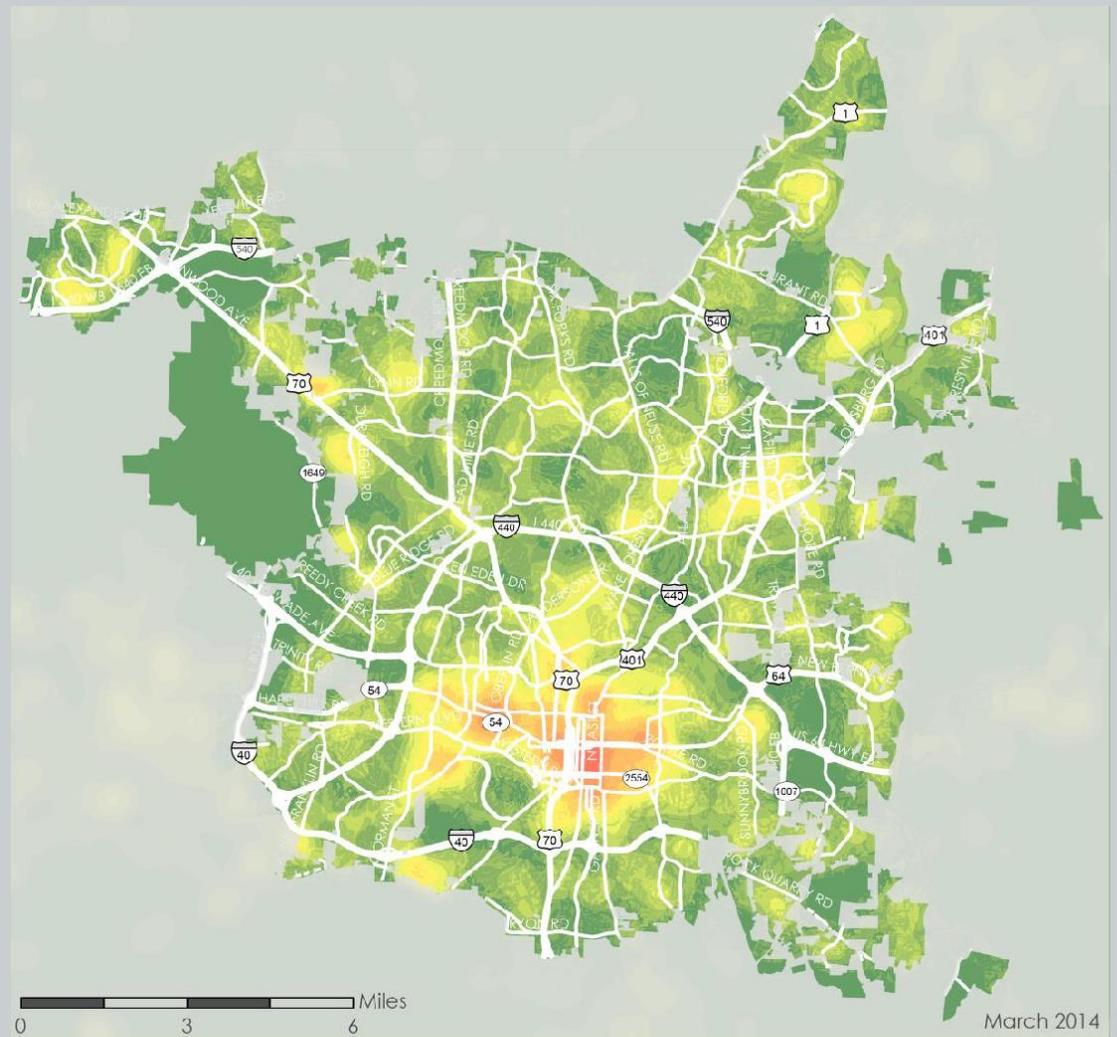
Regional Heat Map

The heat map layers the different variables and their scores on top of one another.

This is a compilation of different shapes – polygons, circles, and lines. Network analyst was used to get rid of the “blockiness” of the resulting heat map.

The “hottest” areas are:

- Downtown
- Universities & Colleges
- Hillsborough Street Corridor
- Mordecai Neighborhood
- Cameron Village
- Five Points
- College Park

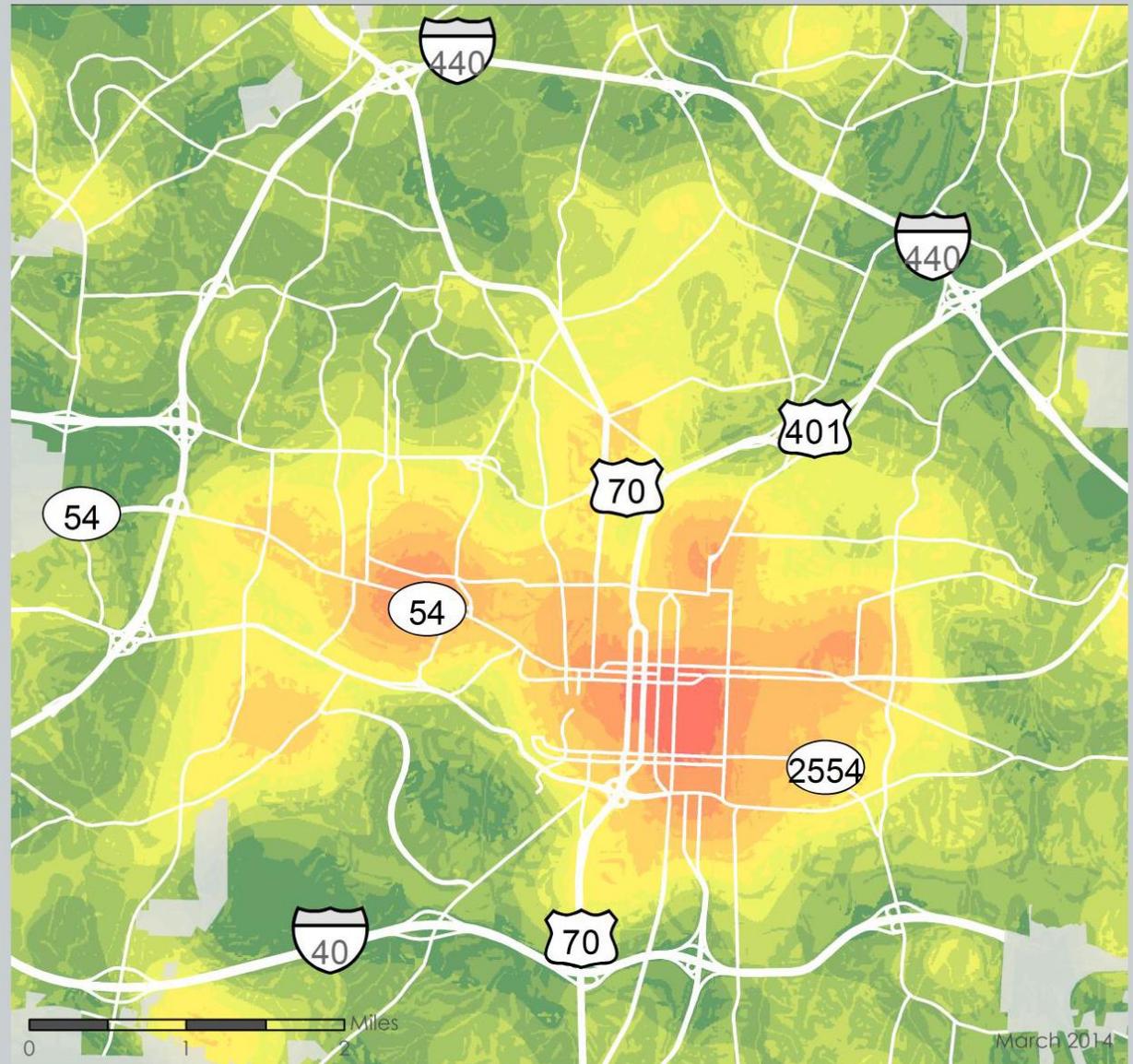


Zoom In on Downtown and close by areas

Hottest areas are:

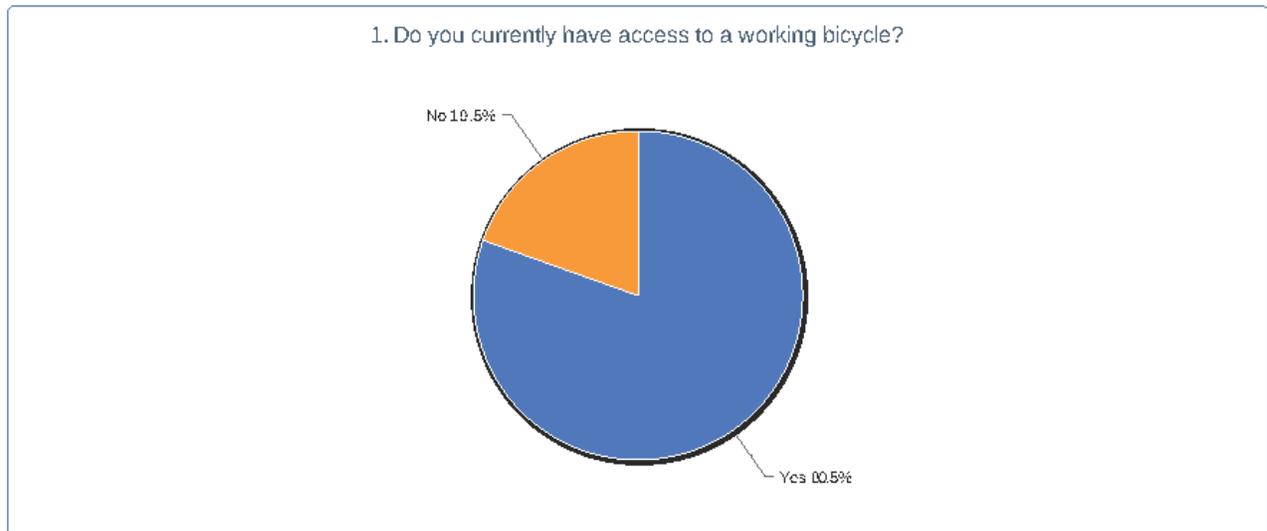
- Downtown
- Universities & Colleges
- Hillsborough Street Corridor
- Mordecai Neighborhood
- Cameron Village
- Five Points
- College Park

"Hotspots" reflect the presence of colleges, high employment and population densities, high transit ridership areas and confluence of bicycle facilities. This makes sense as these areas have the highest mix and density of uses.



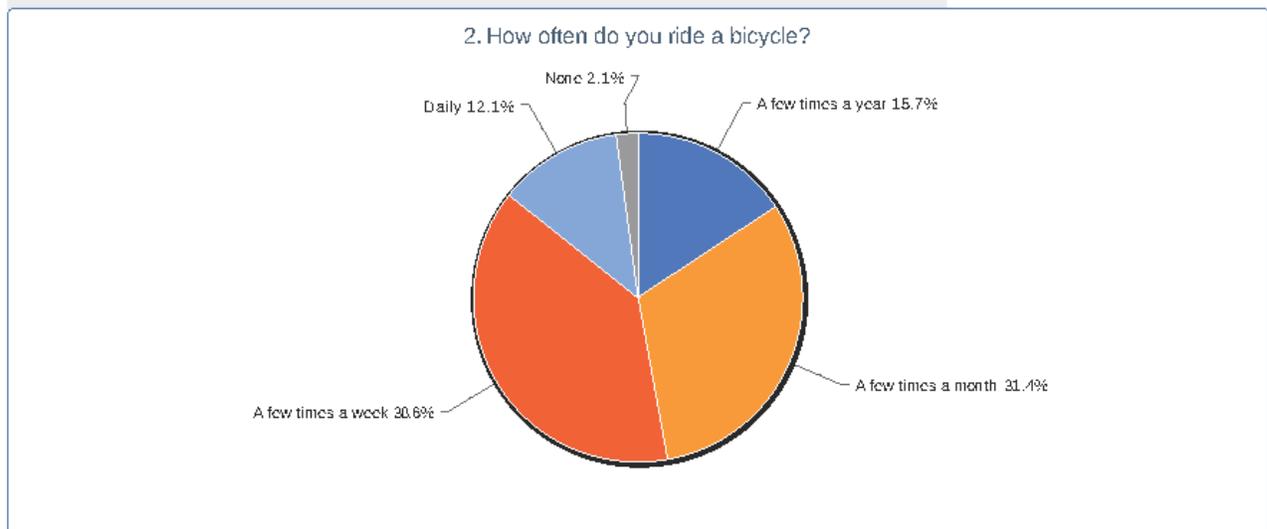
APPENDIX 3 – ONLINE SURVEY QUESTIONNAIRE AND SUMMARY OF RESULTS

The following is a summary of input received through the online survey that was linked to the City of Raleigh Bike Share Feasibility Study website www.bikeraleigh.org/bikeshare. The survey was open for general comment on January 31st 2014.



1. Do you currently have access to a working bicycle?

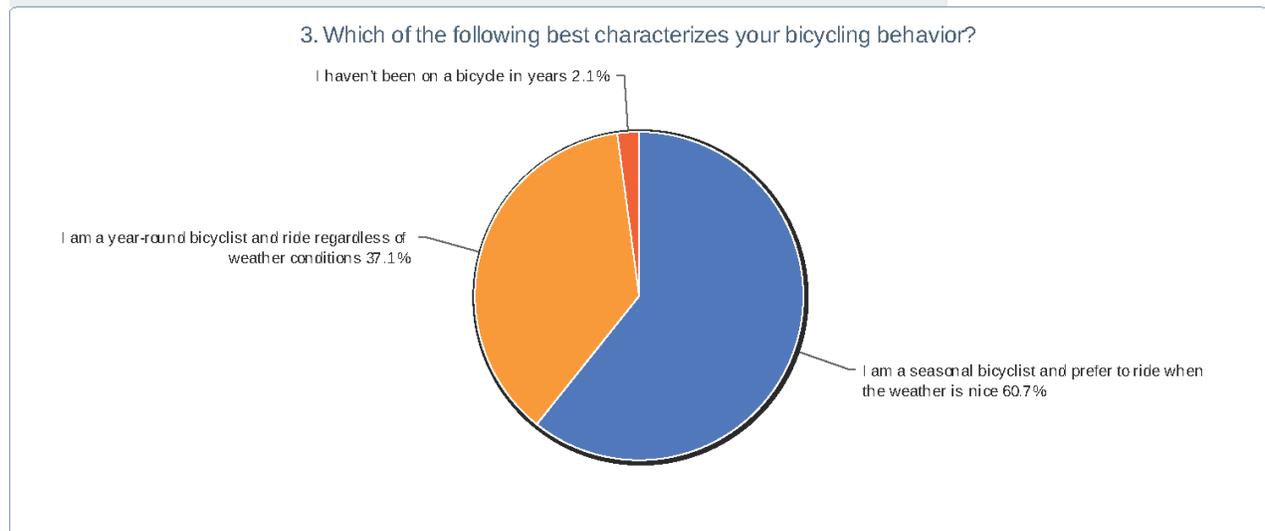
Value	Count	Percent %	Statistics	
Yes	140	80.5%	Total Responses	174
No	34	19.5%		



2. How often do you ride a bicycle?

Value	Count	Percent %
A few times a year	22	15.7%
A few times a month	44	31.4%
A few times a week	54	38.6%
Daily	17	12.1%
None	3	2.1%

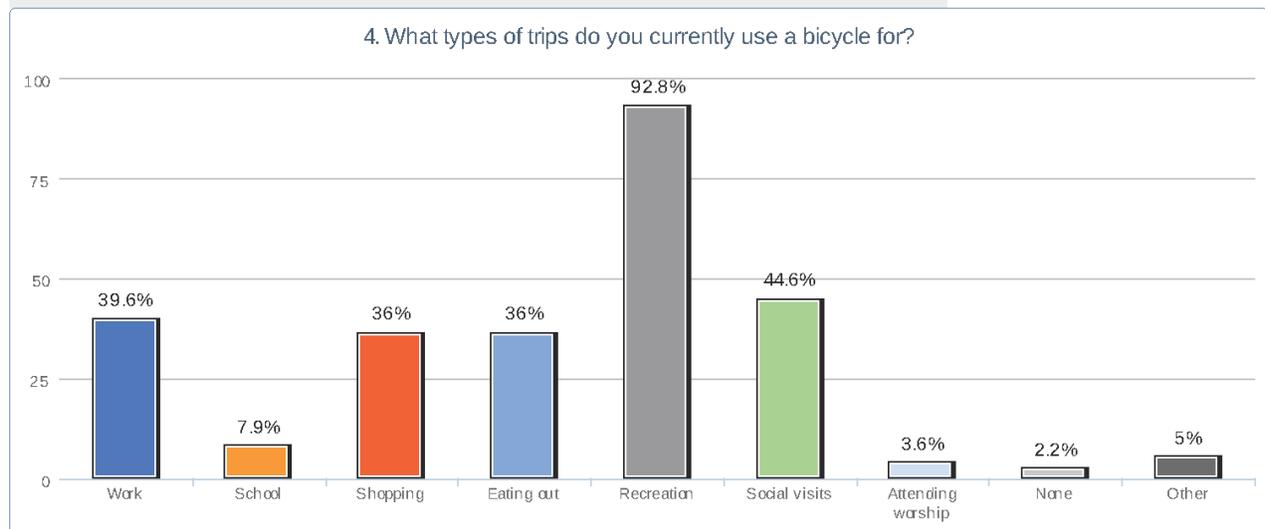
Statistics	
Total Responses	140



3. Which of the following best characterizes your bicycling behavior?

Value	Count	Percent %
I am a seasonal bicyclist and prefer to ride when the weather is nice	85	60.7%
I am a year-round bicyclist and ride regardless of weather conditions	52	37.1%
I haven't been on a bicycle in years	3	2.1%

Statistics	
Total Responses	140

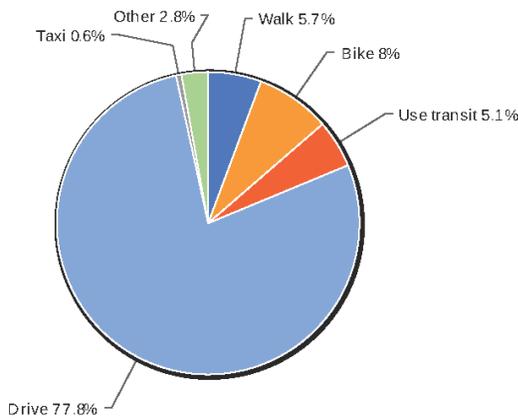


4. What types of trips do you currently use a bicycle for?

Value	Count	Percent %
Work	55	39.6%
School	11	7.9%
Shopping	50	36.0%
Eating out	50	36.0%
Recreation	129	92.8%
Social visits	62	44.6%
Attending worship	5	3.6%
None	3	2.2%
Other	7	5.0%

Statistics	
Total Responses	139

5. What is your primary mode of transportation for destinations in the City of Raleigh?



5. What is your primary mode of transportation for destinations in the City of Raleigh?

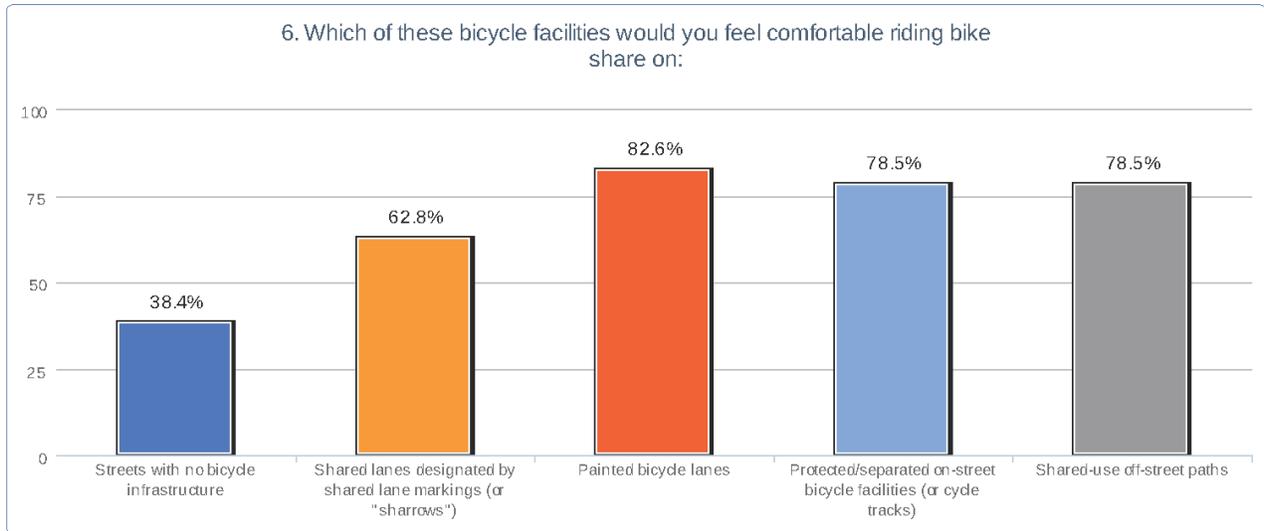
Value	Count	Percent %
Walk	10	5.7%
Bike	14	8.0%
Use transit	9	5.1%
Drive	137	77.8%
Taxi	1	0.6%
Other	5	2.8%

Statistics	
Total Responses	176

Will the existing bicycle infrastructure in the City of Raleigh affect how much you ride bike share?

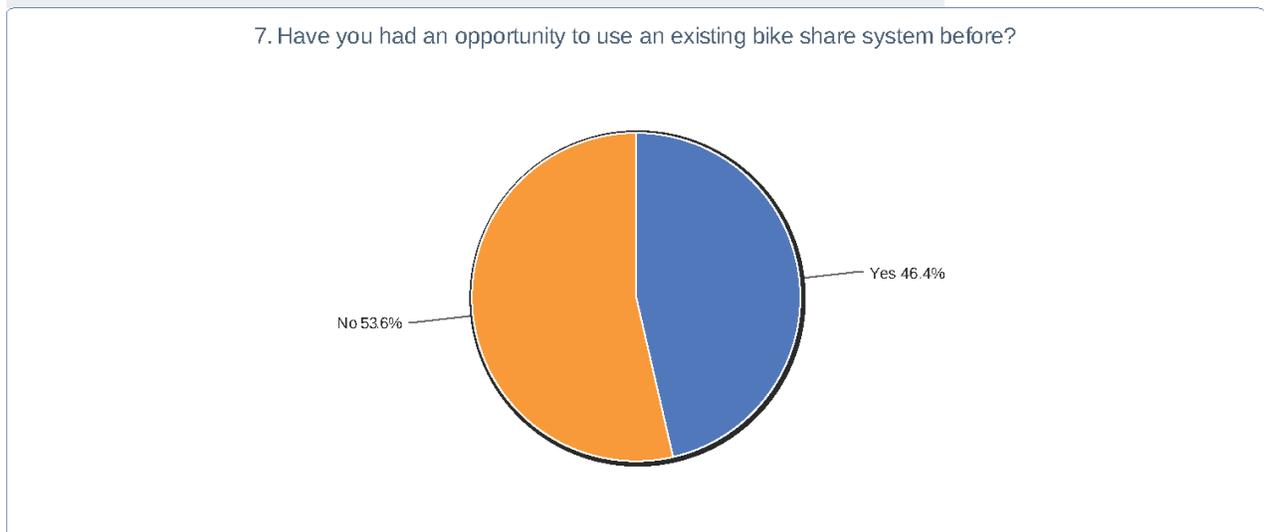
Value	Count	Percent %
Yes	0	0.0%
No	0	0.0%
Sometimes	0	0.0%

Statistics	
Total Responses	0



6. Which of these bicycle facilities would you feel comfortable riding bike share on:

Value	Count	Percent %	Statistics	
Streets with no bicycle infrastructure	66	38.4%	Total Responses	172
Shared lanes designated by shared lane markings (or "sharrows")	108	62.8%		
Painted bicycle lanes	142	82.6%		
Protected/separated on-street bicycle facilities (or cycle tracks)	135	78.5%		
Shared-use off-street paths	135	78.5%		



7. Have you had an opportunity to use an existing bike share system before?

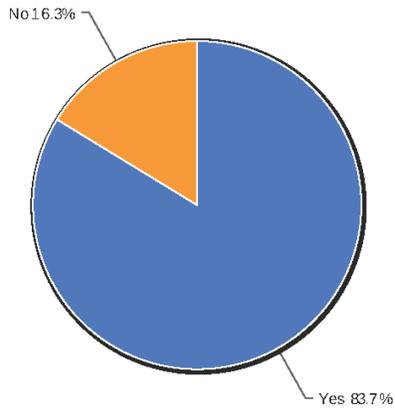
Value	Count	Percent %	Statistics	
Yes	77	46.4%	Total Responses	166
No	89	53.6%		

8. Where?

Count	Response
1	AUSTIN
1	Austin and Washington DC
1	Berlin, Germany
1	Boston
1	Boston, New York, Washington DC
1	Boulder, CO; Montreal; Copenhagen
1	Boulder, Paris, Tel Aviv, NYC,
1	California and DC
2	Charlotte
1	Charlotte and Washington DC
2	Charlotte, NC
1	Chicago
1	Chicago, Minneapolis, Denver, London
5	DC
1	DC and Spain
1	DC and Vienna
1	DC, Paris
1	Denver
1	Denver and Nashville, TN
1	London
1	Madison, Chicago
1	Mainz Germany
1	Miami, Denver
2	Minneapolis
1	Minneapolis, Washington DC
3	NYC
1	New York
1	New York City
1	New York City, Washington DC
1	New York, London
1	Nice, France
4	Paris
1	Paris, France
1	Paris, Rome, Boston
1	San Antonio
1	San Antonio, TX and Brisbane, Australia
3	San Francisco
1	Sevilla, Spain
1	Simsbury, CT
1	South Miami Beach, FL
1	Tel Aviv
1	Tulsa, Oklahoma
1	Vienna, Austria; Paris, France; Washington, D.C.
8	Washington DC
1	Washington DC and Hamburg

1	Washington DC and Paris
1	Washington DC, Chicago IL
3	Washington, DC
1	Washington, DC and Charlotte, NC
1	chicago
1	mexico city
1	paris, amsterdam, DC
1	portland, denver, NYC
1	washington D.C.
1	washington DC, Philadelphia, New York City

9. Do you think bike share is a good idea for the City of Raleigh?



9. Do you think bike share is a good idea for the City of Raleigh?

Value	Count	Percent %
Yes	139	83.7%
No	27	16.3%

Statistics	
Total Responses	166

10. Please tell us why you think bike share is a good idea for Raleigh.

Count	Response
1	www.trianglebikeshare.com
1	Alternative to jumping in your car for short in-town trips...
1	Bikes are so great, but it is hard to ride around with the lacking infrastructure and safety.
1	Can make transit much more feasible/practical without a lot of financial investment.
1	Convenience and increased mobility
1	Could reduce traffic and parking shortages, especially downtown
1	Cut down on traffic congestion and pollution, promote exercise, stimulate downtown
1	Downtown car clutter and parking trouble greatly reduced.
1	Easy solution to so many issues faced by both individuals and the city as a whole!
1	Encourages exercise, visits to Raleigh, saves pollution
1	Fun way to get around
1	Get more people to sample riding.
1	I could add a level of convenience, increase exercise, and add to Raleigh being "cool".
1	I have seen these in London and they seem to be so very convenient.
1	I think it's great that it encourages alternate modes of transit.
1	I would be nice to use one to run errands downtown while at work instead of driving.
1	I would love to hop on a bike in downtown!
1	Improve health and friendliness of city
1	It could really help to cut down on congestion and make the city healthier due to less pollution.
1	It provides a great way to get around and see downtown.
1	It's a fairly compact city that could benefit from more bike transpo
1	Less cars, less traffic! More bikes! Environment!
1	Many people would use it.
1	More exercise for fat Americans.
1	Provides people an opportunity to utilize an alternative mode of transportation
1	Raleigh is a very bikable city and this will help those without bikes get around.
1	Seen bike share work beautifully in Austin. Love the convenience.
1	The size of the city and relatively good bike infrastructure makes it convenient.
1	To alleviate short car trips to popular city destinations
1	Tourism, downtown trips
1	We are large enough to be able to sustain a program like this.
1	We have a growing bicycle community and a natural growth boundary for urban growth ITB.
1	We have a very limited public transportation system.
1	get more people on bikes, spur more bicycle infrastructure and awareness
1	it's a good idea everywhere. every city that has a program sees incredibly high utilization.
1	lots of walkers and bikers
1	reduces vehicular traffic/congestion.
1	It creates access to more environmentally-friendly and less-expensive transportation alternatives. It creates a culture of sustainable city/commuter travel methods and promotes active lifestyles. Plus, it allows people to experience the Raleigh area from a different perspective. Biking around Raleigh has been one of my favorite ways to re-experience it, and it makes me feel more connected than when I'm just driving through. I love this idea! It could evolve into so many things- bike tours of the city, bike races/fun events, etc.
1	Downtown Raleigh is growing and I live in downtown and all my friends do and many of them hang out downtown and work downtown. Bike share would be good for exploring different areas of the city for those that normally primarily drive or walk.
1	Giving people the chance to enjoy cycling for recreation or short trips gets them interested in exploring it for other uses.

	Plus it helps with all those short trips during the day even if you still had to drive into downtown to begin with.
1	We might not quite be ready/there yet, but if implemented and marketed well, bike share could provide: - residents on the outskirts another option for getting to the core; - visitors with an option for getting around between core and Glenwood; - more awareness of biking as an option for transit
1	It's time to provide some alternative ways for people to get around. But I'm not sure enough people will use it because of the "fear factor" and the way roads are designed; and I also think many people who want to ride have their own bikes, though I have no data to back that. We need to think carefully about where and how to start this. Will it be primarily for recreation - people using them on greenways just for fun - or transport - people using them to go to and from destinations like shopping centers and downtown? If it's for destinations, how to people get them from home and return them? As I write this, I realize that I'm not confident Raleigh is set up for this, yet I think it's worth a careful try. I'd hate to see it "set up for failure."
1	To support large number of students and people who do not own cars and want to ride for short trips.
1	Allow easy access for the areas downtown and inside the beltline. There are so many destinations that could be served: Arboretum, Museum of Art, Fairgrounds, NCSU, Rex, Daniels MS, Broughton HS, etc.
1	Brings awareness to the sport and recreation of cycling in general. May give someone the opportunity to try a bicycle before spending a lot of money to buy their own.
1	Raleigh attractions are more spread out than walking is feasible and I think its a wonderful tourist tool- promoting exploration and mixing of neighborhoods.
1	It will only be a good idea once biking becomes safer - to me that means getting the bikes off the regular roads and giving them their own space (or shared with pedestrians). Until this happens, I don't believe the bike share program will work - except perhaps between NCSU and downtown
1	I think a bike share would be a wonderful idea to help bring more people moving through the city, and expanding their reach from just walking the downtown. As areas of town like the Person Street Business district or Boylan Heights grows, we give the people the ability to reach these places and expand the "walkability" of the area. I think it would also help convince more business to fill in some of the "holes" in downtown if they knew they could count on people moving through the city on bikes more.
1	If implemented correctly, a bike share network in Raleigh could raise the ease of bike commuting in the city. It can also raise awareness for bike culture and perhaps divert some trips away from the car to a healthier, pollution-free form. I still think a lot of work needs to be done on cycling infrastructure. Greenways are nice but better facilities on our streets are desperately needed. These will play a role in the bike share network's success.
1	Some people don't get into biking because of the initial investment and being concerned that they won't use it. I believe more people will take an interest if there are "no risk" bikes available. I am actually planning on buying a bike.
1	Downtown is spread out enough to make it more difficult to walk, but bikes would be a great way to move between Seaboard, Glenwood South, Fayetteville Street etc. for visitors and residents.
1	I'm in favor of anything that gets more people riding bikes. It will benefit the whole bicycle community to have more people riding bikes - not just those who have their own bicycles.
1	Having a bike share program in Raleigh helps to promote sustainability but also helps to build a culture around this idea.
1	Downtown Raleigh is congested and the use of bicycle transportation could alleviate some of the traffic and also get people active.
1	There seems to be sufficient density downtown to NCSU and Cameron Village. Maybe 5Points. Definitely not beyond.
1	There are many Point-to-Point connections downtown that can be made via bicycle. Fayetteville St. is a perfect corridor to begin the bike share.
1	This will aid Raleigh in development of tourism. Also, citizens can have the opportunity to try bicycles and see that commuting or otherwise getting around by bike is possible.
1	The number of bikes on the road is inversely proportional to the number of cars on the road. This means less pollution, congestion, required parking, etc.
1	1) Because we are growing especially in the urban areas 2) Cars will suffocate our city if we don't plan for smart growth 3) We will be left behind in attracting a talented, highly educated and civic-minded workforce 4) Bikes are good exercise and facilitate positive social interactions creating a better quality of life 5) A bike share may connect with people who don't own a bicycle so they gain an understand that it is viable, sustainable and efficient form of transportation
1	Bicycling is a great way to explore an urban area. It is also quiet, pollution free, and consumes a very small piece of road
1	I think it will prompt more bike friendly infrastructure which will help change Raleigh from a commuter City

1	Raleigh is compact enough that biking makes sense, plus the existing public transit options are horrendous
1	For several reasons: People need access to transportation where they don't have it, people need the exercise and we need to reduce car traffic in Raleigh to improve environment (air quality and general livability).
1	It will make it easier for folks to go farther and may extend what people think of as the city (It will have the effect of bringing Glenwood South and Hillsboro street "closer" to the city.
1	It will allow community members who don't have bikes to get exercise and will maybe help those people decide if biking is a viable option for them.
1	It's a great idea if an educational "blitz" precedes implimentation as Raleigh motorists are often distracted. I'm also a motorcyclists who used to work at The NC Museum of History and parked below the museum. Provided physically protected bike lanes are provided in heavily traffic zones I would feel safer. Ive tried riding to City Hall from Triangle Town Ctr picking my way through parking lots,sidewalks the 11 miles took 1 hr!! If this City is smart it will integrate LRT N,S,W,East down Capital Blvd in the widening project. The Amtrack "Surfrider" from LA down the S.California coast has space on its rail cars cyclists can board and disembark at main stations then ride to their destinations.
1	Great for short trips in the downtown and university area for those that live, work and visit there.
1	Although the Metro area of Raleigh is spread out and hilly, that is NO exception of why we should not have one. Raleigh is growing in bicycle culture, and to encourage this growth, we need to create a bicycle share program for both our commuters, inhabitants, and tourists.
1	I live in downtown Raleigh in a condo, with no space to store a bike. I would love to be able to pick up a bike on bike share to be able to get to the other side of downtown without having to drive. Walking takes 20-30 minutes.
1	Alternative, accessible transportation system to improve fitness, health, and the environment. The city needs to be more bike friendly.
1	Lots of great destinations (restaurants, museums, and concert venues) are within a couple of miles of each other in downtown. People could move between them quicker without moving their car or looking up the bus schedule.
1	To help increase the number of cyclists (safety in numbers), to improve people's health, and to decrease congestion and air pollution from motor vehicles
1	I think it's a good idea for downtown/central Raleigh. I do not see it working much beyond the I-440 "limit."
1	Well, sort of... I think it is great for sight seeing, tourism, and recreation. But as a mode of transportation for the daily commuter, I don't think so.
1	encourages "tourism" between the districts of downtown. too many people come downtown and just go to fayetteville st. missing the other districts because of parking availability, too far to walk, or they are unaware of the other things to do. this will allow them to park ONCE and ride around without limits
1	Gives biking opportunity to those who do not own a bike and would like to do just a little biking without investing in one
1	Many reasons. Visitors to Raleigh could use them. Downtown workers / NCSU workers could use a bike for a lunchtime ride. Residents could take a bus to a bike share kiosk and ride the rest of the way.
1	It is not a good idea... It's a GREAT idea :) It will encourage people to interact outside of cars, make them friendlier and the air will be easier to breathe. It's a fact, people on bikes are happier, healthier and friendlier than people when they are in cars.
1	I love biking, want my friends to join, and many don't as they don't have a bike. I also sometimes have to strand my bike and would prefer a bike share.
1	Reduces traffic. Increases exercise opportunities. Better for enviornment than driving. Fosters sense of community.
1	I have a bike when I want it - usually. But it would be nice to have the ability to use another when I am downtown without mine.
1	Raleigh is a growing city and needs to keep pace with other metro areas to attract young, well-educated workers and businesses. Furthermore, to help drive down traffic in the downtown area for those visiting multiple locations, it would be great if they could take transit or drive to one location, park, and then explore multiple locations slightly further apart but that would be an easy bike distance apart. I think it would also encourage citizens to reconsider their use of cars for many trips. This would also be a great program to raise awareness of biking and bikers, hopefully with the goal of making the Raleigh area friendlier to all bikers, not just bike-share bikers.
1	This would be GREAT!!! There are many times that there is something across town that I need to get to, but its just far enough where i dont want to walk. Having bike share would make life sooo much easier and would reduce traffic.
1	Less traffic congestion, better for the environment, and the health of the people participating. Fun way to get around town.
1	It would reduce car congestion downtown and allow better accessibility to shops/restaurants etc downtown. Currently, Fayetteville Street is almost impassable due to traffic on weekends.

1	It's good for the environment and your health...and your city! It helps you get from point A to point B in a quick and efficient way....I don't want to own/store a bike all the time--but need one sometimes!
1	I think we should all be trying to reduce the amount of driving we do--both for our own health and for the improvement in noise level and air quality this would afford the city.
1	Because it provides another way of accessing the city without increasing traffic congestion, pollution, or parking demand.
1	Most things in downtown Raleigh are about a half mile to a mile apart. Being able to utilize a bike share would really improve getting around without using my car.
1	It opens up cycling to a large cohort who have no interest in the maintenance or storage of bikes.
1	- Could potentially decrease car traffic, especially downtown (and alleviates crowded parking lots/spaces) - Convenience - Lower cost than investing in a bicycle - Would allow residents in lower-income areas to have another reliable mode of transportation to jobs, errands, etc. - Connect to existing public transit options (bus stations) to make travel easier for those without access to a car
1	It encourages the kind of culture that takes notice of local businesses, safety of pedestrians and bikers, health concerns, and the environmental impact we make as a city, and makes our city better in each of these areas.
1	Seen it work in Washington, DC. I think it is environmentally sound but also something that will further enhance the positive image of Raleigh.
1	Easier to explore downtown. A lot of times, you have to park one place, and don't want to walk to far because of the distance to your vehicle
1	Legitimize cycling, facilitates multi modal transportation, via the ability to ride to bus station
1	Great option for short trips. Bike shares along greenways would be great for those who can't /don't want to transport bicycle to greenway.
1	I saw this Bike Share depot on a Spring Break trip to Charlotte in April 2013. Yes, It is definitely needed here in Raleigh.
1	Bike share would be a great opportunity for all types of users in Raleigh, whether it is visitors/tourists looking for a more intimate way to travel down town, students who have limited means of travel around the city, or residents and professionals wanting to get from one point to another without having to drive a car or pay for parking.
1	So many great areas that are close enough to walk but they take time. I'd like to be able to move between Moore Square/Capital area and Glenwood South and Cameron Village without getting into my car.
1	It would encourage people who don't own bicycles already to think about bicycles as a transit option. It's also an amenity that is becoming available in many cities: people are starting to expect to see it and establishing it will make Raleigh a more attractive option for visiting or relocating.
1	More cyclists in the city will make it safer for everyone, and there are too many cars and parking spots taking up space.
1	Having a bike share program would allow existing cyclists more flexibility in using bicycles for transit (bike to a bus, ride, then bike again). It would also lower the barrier for entry to others in the city to begin biking. Shareable bikes would also be useful for city visitors.
1	With all the wonderful events in Raleigh these days parking is an issue. This would help with that. Also when you want to go from Glenwood to Fayetteville street area, then would be a healthier option than the r-line.
1	Because Raleigh is somewhat more spread out than other cities, bikes are a great way to get around, reduce the need/hassle of parking and are more fun. Raleigh seems to be cultivating a good bicycle culture and making investments in bicycle infrastructure - a bike share program would allow more people to benefit from the improvements in bicycle infrastructure and will hopefully increase support for more bicycle friendly road projects.
1	Get more people moving! And get some cars off the roads. Also, I'd like to bike further from my home, but don't have a way to transport my bike in my car/ on my car.
1	I was hoping Raleigh would get one. It would save some time on transferring buses. I could ride to Moore Square and then take a bus to my destination, or I could take a bus home.
1	Lots of destinations are within biking distance, and I would hope it would stimulate investment in more bicycle infrastructure (lanes and greenways).
1	Lots of rolling spaces, beautiful paths and fairly close shopping spaces interspersed with housing.
1	I helped start the Simsbury Free Bike Program in Simsbury, CT. It's a great way to enjoy the city, it gets people active, and helps local businesses. Raleigh would be a great spot for a bike sharing program.
1	More bikes = more bike safety and more people willing to try biking as an alternative mode of transportation.
1	Make cycling more normal through ease of use - lowering the barriers to use of bicycles for everyday activities - not just special occasions.

1	Raleigh is quickly becoming a bike city. But still the majority of motorists downtown and around Raleigh do not acknowledge cyclists. Having this bike share will continue to bring awareness of bikes and increase bike and pedestrian safety.
1	Would be a good way to get more people out on bikes without a significant investment. Also a nice way to see the city as a visitor.
1	We have friends who don't live downtown that often visit us and want to rent bikes for the night. It's a lot easier to get around downtown when events are going on and parking is limited.
1	It is extremely convenient for those who do not have access to bicycles, and for those who must travel between two locations where walking and public transit are impractical.
1	Bike share gives people working downtown an opportunity to travel short distances w/o having to get into a car.
1	It will increase awareness of cycling needs and municipal spending, improve health and expand the idea of transportation options to residents - this can aid in removing an us vs. them mentality that is present in the community. Also, people attending conferences can really have an option to see parts of the city besides just what is within walking distance of the Marriott and Sheraton.
1	several "hot spots" are spread out throughout the city. Easiest way to hit them all is bike share. Otherwise, you have to walk a LOT or get in your car a few different times and find another parking place, etc. to see all the good stuff.
1	Particularly downtown where the distances are short, parking is expensive and hard to find and there are no huge hills.
1	Bikeshare allows people to see and experience things that aren't in the immediate area. It's great to be able to take a quick 10-15 minute ride, replacing a 30 minute walk.
1	Decreases emissions, promotes physical activity, bike shares are awesome, makes it easier to get around inside the downtown area (avoid traffic, easier parking, etc).
1	Emerging downtown area that is a short ride from parks and other shopping/entertainment areas (Cameron Village, NC State, North Hills, Five Points, etc.).
1	It's the definition of a progressive city. We have to have one. And Charlotte has one and I hate to lose to Charlotte on anything progressive.
1	More people would use this service instead of driving. Would help with emissions, getting more folks active, bringing community together, etc.
1	cheap, environmentally friendly alternative to travel short distances where parking is limited or is not convenient
1	Raleigh/Wake CO is already know as a bicycle friendly city. Green way system is awesome. The city has hubs of work/entertainment/schools that lend itself to bike share transportation and the mentality/vitality to use it
1	It's nice to have alternative forms of transportation that don't involve driving. It's also very convenient to have access to a bike on the other side of town without having to purchase a car bike rack to transport one.
1	A great alternative way to get around town. I usually drive because I don't want to haul bikes for the family out of the cellar, make sure tires are inflated, and locking and unlocking them at my destination. If I can walk up and pay a dollar or two to make a round trip without any of the hassles, I'd be very likely to use it.
1	It would help people explore various parts of Raleigh, and provide a great method of exercize on nice days!

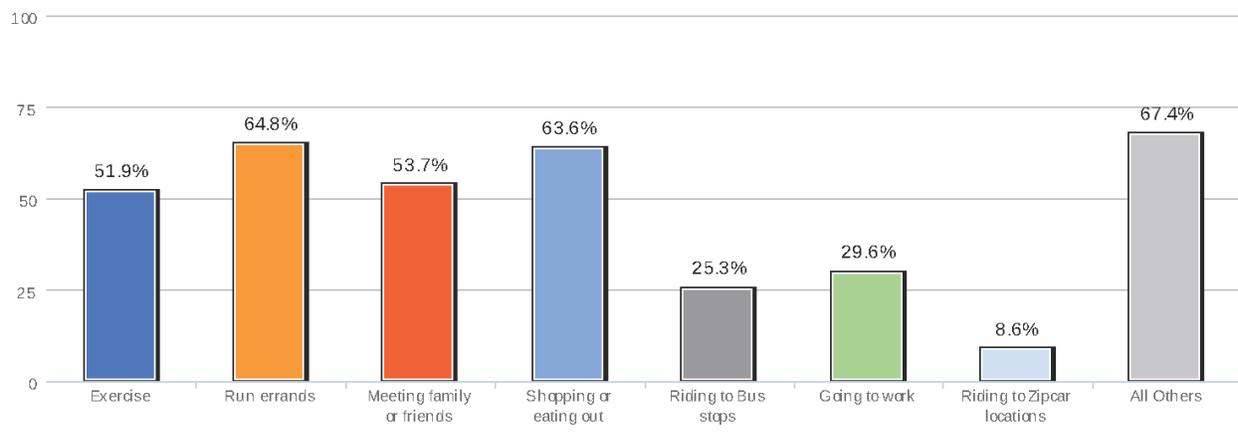
11. Please tell us why you don't think bike share is a good idea for Raleigh.

Count	Response
1	Cost to operate and maintain and perpetual publicly funded subsidy
1	It needs to be limited to tourists who want to go from 1 special attraction to another
1	Many of our streets are not designed & wide enough for bicycles & vehicles.
1	Not enough safe bicycling infrastructure or demand
1	just a costly boon doggle
1	to dangerous and slows traffic . bikes are for recreation not transportation
1	waste of taxpayer funds. If it were a viable idea a private company would be renting bikes.
1	Not at this time. There needs to be significant changes in the city infrastructure to support better cycle safety BEFORE a bike share is even feasible. For instance, getting from my home near the intersection of Six Forks and Millbrook to downtown, Western Boulevard, the Fairgrounds, or even to Crabtree Mall is too dangerous as-is.
1	I think there needs to be a higher concentration of residents in the downtown area before a bike share program can be successful here.
1	Large investment and people do not seem ready. If we had better infrastructure for separated lanes, I think more people would consider using the system. However, without those lanes, I think people will continue to drive. I also do not think that the majority of people in downtown Raleigh at any given time live within in biking distance. Until more people move downtown, like I did 2 years ago, I think the system will sit unused. Most downtown residents who would bike already own bikes, so membership would not make sense. I think improving bike lanes will get more downtown residents riding, which will garner more interest in biking from others.
1	the streets are not yet bicycle friendly enough for a bike share system to be widely used. We need bike route connections from suburbs to downtown too.
1	I doubt that there are enough potential users in Raleigh to justify the expense and difficulties of maintaining public bikes. Despite all the efforts to make it better, bicycle commuting in Raleigh remains difficult. I think money could be better spent improving the bike infrastructure for current and future cyclists.
1	In my search I have not seen a profitable bike share program. To do something like this seems like a short term "cute" fix to a much larger problem Raleigh faces and its lack of infrastructure. If my tax money is spent on unpractical subsidized travel I would rather it at least be something that will have a larger impact such as a trolley or train.
1	Bikes get stolen all the time from places around Raleigh and downtown. I think it would be a waste of money to invest in such a system to have the equipment vandalized or stolen.
1	Raleigh already has problem with theft. Share does not denote ownership, responsibility (maintenance) to persons living in my community.
1	I moved to Raleigh two years ago. I am super surprised at how much public transportation is readily available. I'm also very pleased with h ow many people bike. But I work downtown and live in a not so great area off Western, and I see a lot of homeless people and people who use buses a lot. I just think that inRaleigh, people either already have a bike, or they can't afford to buy one. But maybe that's just because I don't see my neighbors doing it.
1	People who are not used to downtown streets will cause chaos in traffic. Most will ignore helmet laws and become safety hazards to both themselves and motorists. There are not enough bike lanes and not enough room to make it feasible to have a large amount of cyclist traffic that a bikeshare would cause. Furthermore, if a bikeshare does happen, it should be from a private investor. The city doesn't need to become a player in the bike rental market.
1	People that want to ride a bike will purchase one. They are cheap at Walmart. Low income people won't take care of them and don't usually have a credit card to use one. We don't need to supply them at greenway trails for recreational use.
1	The City of Raleigh needs to improve the bicycle network in downtown before there is enough demand/desire to warrant a bikeshare program.
1	All you do is waste money on these studies and it will never happen, and if it does millions are sure to be wasted. Fix our fucking roads and bridges first.
1	Simple mathematics. Bikes against cars/in the same drive path is dangerous. Bikers should carry insurance just as vehicles do. They should be tagged and taxed, and take a bike test just a driver does.
1	Most bike share use comes from commuters, particularly mass transit related "last mile" connections. Raleigh has very little mass transit at all, and even less mass transit commuting by people who will need and want to travel an extra 1-3 miles by rented bicycle. High percentage of operating cost will need to come from public subsidy; likely public backlash over cost. It would be better to invest seriously in education and enforcement to encourage bicycling, particularly by

privately owned bicycles which are more cost effective for the regular user.

- 1 I don't think that the bike lane system that is currently installed in Raleigh right now is strong enough to warrant a bike share program. It is hard for people who already own bikes to get where they need to safely and bike share programs often target less experienced cyclists. Before bike share becomes a priority, making Raleigh safer and more accessible to bikers for commuting, recreation and otherwise should be first.
- 1 I think cars and bike do not mix well. Some drivers do not see cyclists and some drivers are hostile to cyclists. Some cyclists are overly aggressive in traffic and ignore traffic laws (cutting in and out, riding between cars, etc).
- 2 It seems to me that Bike Share is an idea that may, rarely, be suitable for cities where attractions or civic amenities are spread across an area that is suitable for casual cyclists and are not otherwise served by an alternative sustainable mode of transport. The concept is based on a shaky premise from the outset. It relies on a customer base that will arrive at one equipment rental facility with a spontaneous or pre-planned desire to go to another equipment facility via bicycle. Although the number of rides at cities of similar size to Raleigh suggests there is just such a market, I just can't wrap my head around the concept. Indeed, to be blunt, in light of the recent financial failure of the leading supplier of the rental equipment and facilities, I'm unconvinced that this is a particularly good idea for any community.

12. If bike share were available, throughout Raleigh what types of trips do you think you would use the bikes for?

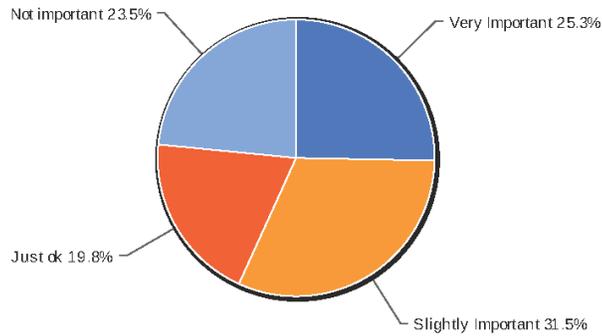


12. If bike share were available, throughout Raleigh what types of trips do you think you would use the bikes for?

Value	Count	Percent %
Exercise	84	51.9%
Run errands	105	64.8%
Meeting family or friends	87	53.7%
Shopping or eating out	103	63.6%
Riding to Bus stops	41	25.3%
Going to work	48	29.6%
Riding to Zipcar locations	14	8.6%
Going to school	19	11.7%
Going to meetings	49	30.3%
Don't know	15	9.3%
Other	26	16.1%

Statistics	
Total Responses	162

13. How important would it be for any potential system to have a regional presence throughout the Triangle (i.e. Raleigh, Cary, Wake Forest, Durham, Chapel Hill)?

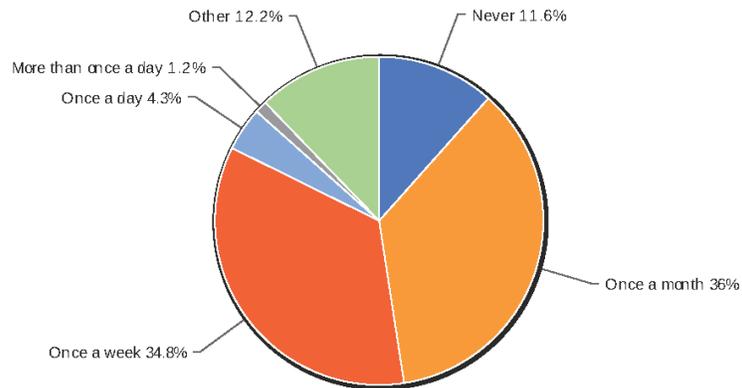


13. How important would it be for any potential system to have a regional presence throughout the Triangle (i.e. Raleigh, Cary, Wake Forest, Durham, Chapel Hill)?

Value	Count	Percent %
Very Important	41	25.3%
Slightly Important	51	31.5%
Just ok	32	19.8%
Not important	38	23.5%

Statistics	
Total Responses	162
Sum	419.0
Avg.	2.6
StdDev	1.1
Max	4.0

14. About how often do you think you would use bike share?



14. About how often do you think you would use bike share?

Value	Count	Percent %
Never	19	11.6%
Once a month	59	36.0%
Once a week	57	34.8%
Once a day	7	4.3%
More than once a day	2	1.2%
Other	20	12.2%

Statistics	
Total Responses	164

15. How much are you willing to spend on an annual bike share membership?

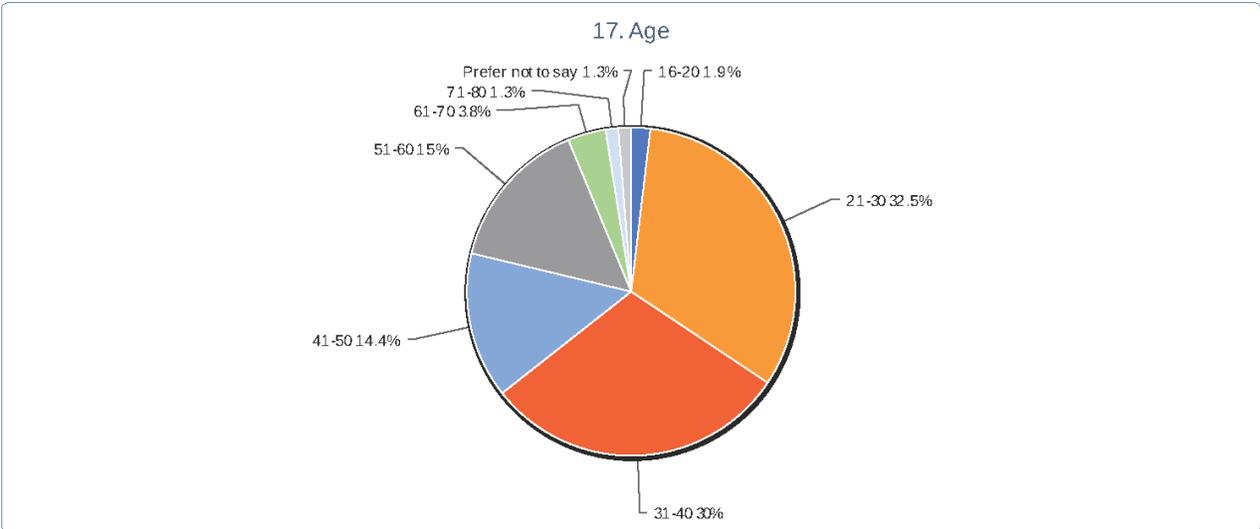
How much are you willing to spend on an annual bike share membership?	
Annual membership fee:	<p>Avg. 68.21</p> <ul style="list-style-type: none"> Count: 146 Min: 0 / Max: 200 StdDev: 41.74
Weekly membership fee:	<p>Avg. 12.35</p> <ul style="list-style-type: none"> Count: 121 Min: 0 / Max: 50 StdDev: 8.63
Daily or casual membership fee:	<p>Avg. 6.08</p> <ul style="list-style-type: none"> Count: 143 Min: 0 / Max: 100 StdDev: 8.91

16. Please let us know which of the following objectives are the most important for the City of Raleigh to focus on for implementing its bike share program. (Drag and drop each of the possible objectives in order of importance to you).

Item	Total Score ¹	Overall Rank
Promote a culture of safety among bike share system users.	966	1
Educate the public about safe biking practices and rules of the road.	936	2
Expand the on-road bicycle facility network to accommodate more bicycle trips around priority station locations.	832	3
Optimize the number of origins and destinations that can be served by a bike share system serving as many neighborhoods and destinations as possible.	830	4
Provide station locations not only in Downtown but also in neighboring residential areas; eventually expand the geographic coverage across the City.	819	5
Plan for and ensure sustainable capital funding for system growth and ongoing equipment replacement.	774	6
Develop a system that engages and serves users in minority and low-income communities and improves their access to key destinations, such as jobs, educational centers and recreation centers.	709	7
Integrate bike share as an extension of the Capital Area Transit.	693	8
Focus the system only in Downtown Raleigh.	371	9
Cover all capital and operating expenses without public assistance.	357	10

Total Respondents: 156

¹ Score is a weighted calculation. Items ranked first are valued higher than the following ranks, the score is the sum of all weighted rank counts.

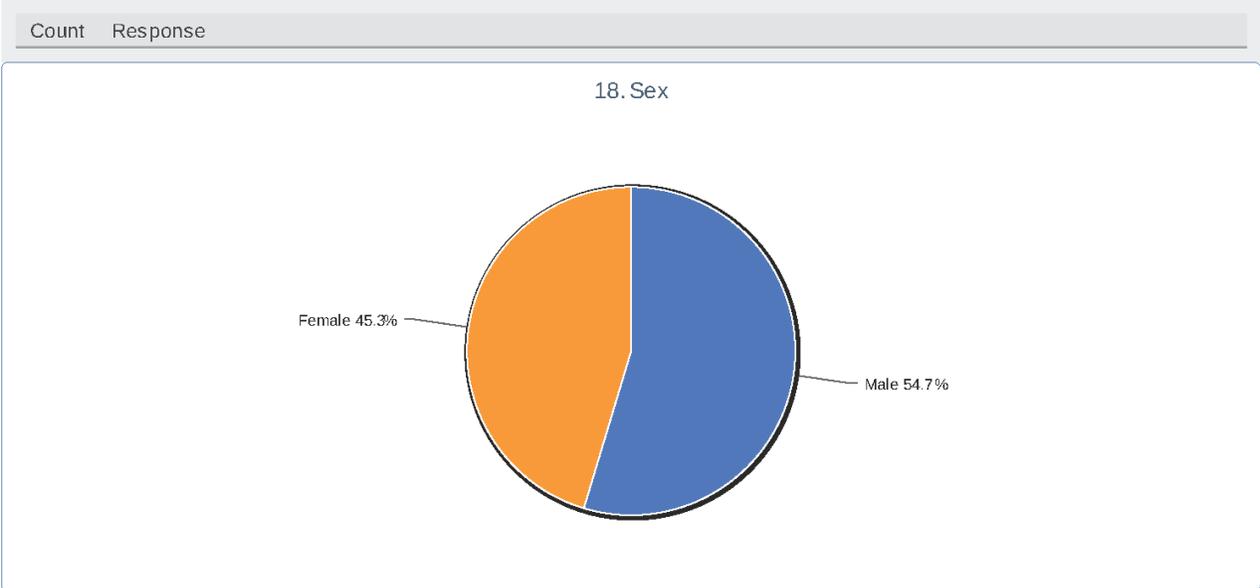


17. Age

Value	Count	Percent %
16-20	3	1.9%
21-30	52	32.5%
31-40	48	30.0%
41-50	23	14.4%
51-60	24	15.0%
61-70	6	3.8%
71-80	2	1.3%
80 or older	0	0.0%
Prefer not to say	2	1.3%

Statistics	
Total Responses	160
Sum	5,303.0
Avg.	33.6
StdDev	12.7
Max	71.0

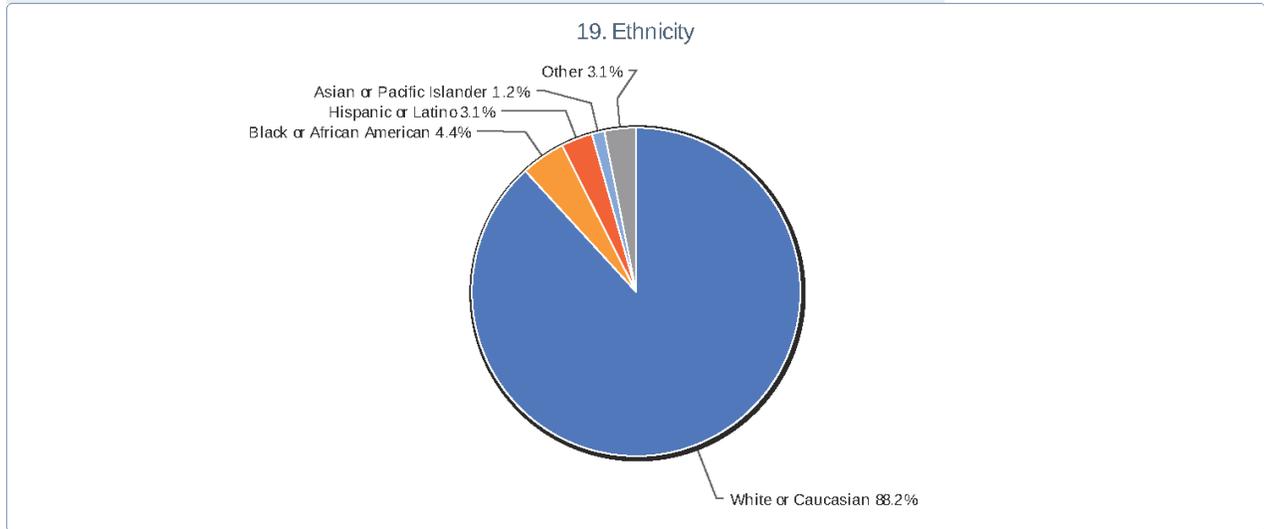
Year of birth



18. Sex

Value	Count	Percent %
Male	88	54.7%
Female	73	45.3%

Statistics	
Total Responses	161

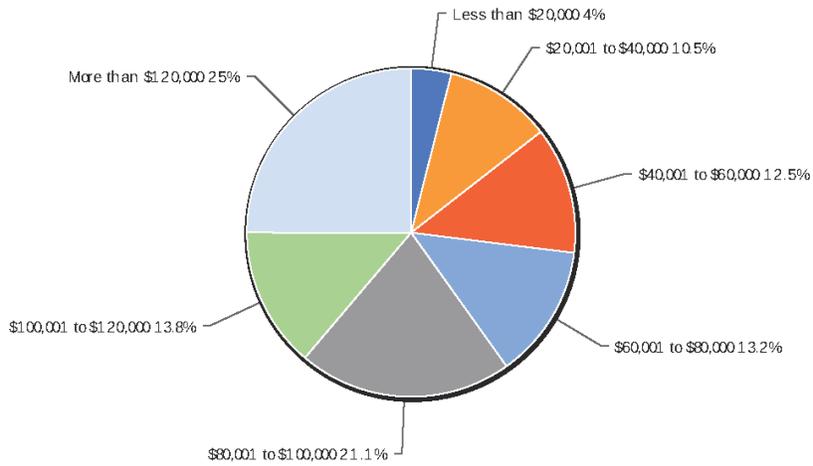


19. Ethnicity

Value	Count	Percent %
White or Caucasian	142	88.2%
Black or African American	7	4.4%
Hispanic or Latino	5	3.1%
Asian or Pacific Islander	2	1.2%
Native American Indian	0	0.0%
Other	5	3.1%

Statistics	
Total Responses	161

21. What is your annual household income?



21. What is your annual household income?

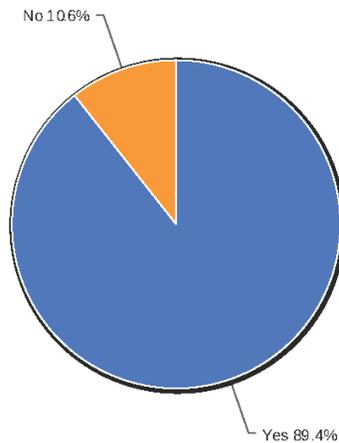
Value	Count	Percent %
Less than \$20,000	6	4.0%
\$20,001 to \$40,000	16	10.5%
\$40,001 to \$60,000	19	12.5%
\$60,001 to \$80,000	20	13.2%
\$80,001 to \$100,000	32	21.1%
\$100,001 to \$120,000	21	13.8%
More than \$120,000	38	25.0%

Statistics	
Total Responses	152

22. 5-digit zip code for your home address

Count	Response
1	27510
3	27511
2	27513
1	27519
1	27520
3	27545
1	27587
1	27591
1	27592
11	27601
9	27603
15	27604
10	27605
12	27606
7	27607
10	27608
19	27609
4	27610
12	27612
9	27613
5	27614
7	27615
6	27616
1	27617
1	27701
1	27704
2	27705
1	27893
1	28303
1	28310

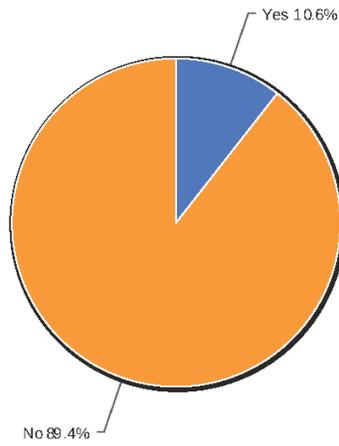
23. Are you currently employed?



24. What is the zip code of your place of employment?

Count	Response
1	27303
3	27511
2	27513
1	27517
2	27518
1	27519
1	27520
2	27529
1	27536
1	27539
1	27540
1	27545
6	27560
1	27577
3	27587
1	27595
1	27599
20	27601
7	27603
9	27604
4	27605
9	27606
5	27607
2	27608
5	27609
4	27610
5	27612
2	27613
3	27614
4	27615
3	27616
6	27695
1	27699
2	27701
7	27703
4	27709
1	27710
1	27713
1	27893
1	28001
1	66203
1	97219

25. Are you currently enrolled in school?



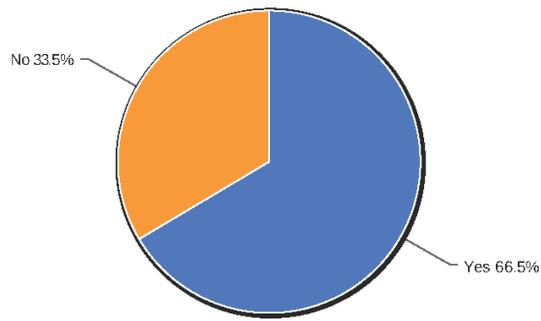
25. Are you currently enrolled in school?

Value	Count	Percent %	Statistics	
Yes	17	10.6%	Total Responses	161
No	144	89.4%		

26. What is the zip code of the school you attend?

Count	Response
1	27519
1	27605
2	27606
3	27607
1	27610
1	27615
4	27695
1	27858
1	97219

27. Would you like to stay informed about the City of Raleigh Bike Share Feasibility Study?



27. Would you like to stay informed about the City of Raleigh Bike Share Feasibility Study?

Value	Count	Percent %
Yes	107	66.5%
No	54	33.5%

Statistics	
Total Responses	161

29. Please provide any additional comments here:

Count	Response
1	BIKE SHARE ROCKS!
1	Bring this to CARY!!!!
1	Do it!
1	Do this! This is one of the cool things that make a cool city!
1	Excellent idea, well done survey. Thanks!
1	Good program to pursue with Raleigh growing so fast.
1	Google Citi Bike New York
1	Great idea. I hope to see it implemented some day!!
1	Hi! I like elephants.
1	I hope to see this implemented in Raleigh soon!
1	I think is a great idea
1	I think it's a great idea!
1	I think this is a great concept.
1	It works great in other cities like Boston!
1	Lets make this happen! Please solicit community volunteers so we can contribute!
1	My priority is in expansion of the greenway system. I would be willing to pay for it's use.
1	Pleas consider bicycles that are able to handle moderate hills sometimes found in Raleigh.
1	Thanks for doing this!!
1	Thanks for improving the QoL for Raleigh residents.
1	Thanks pushing forward with this, I think it's a great idea. It fits with the Raleigh's image.
1	Think OPTIMIZATION and strategic allocation!
1	This is a great idea that has the potential to help so many people and businesses!
1	This would be a great addition to the city!
1	shameful waste
1	we do not need this extras hazard on the streets. several good citizens have already been killed
1	Really think the "last-mile" potential of a Bike Share system is very suspect. Would necessitate a scattering of facilities at outlying areas, which does not seem at all feasible in early stages of implementation.
1	Right now 4/3/2014 almost nobody understands sharrows. As a frequent rider, I had to research the meaning of the symbols on the internet because friends kept asking me what they meant. Suggesting that bicycles take over a travel lane... at least in some areas.. is wishing for death. Someone who actually rides in traffic should have input into sharrow routes and some attempt at educating drivers to what the "bicycle under a roof" actually means is needed.
1	Be safe! Great idea but keep in mind that people with disabilities could use this on modified bikes. I plan to relocate to Raleigh in the near future so I am keeping an eye on its development. Bikes have a useful purpose, but should not share the roadways (same lanes of traffic) with vehicles and should be covered by insurance in case of accidents. In addition, crime has to be on the top of the list controlled for safety reasons. I could not answer a big question on the survey.
1	Locate bike share facilities at key entry points to the Greenway (such as Buffalo Road Park). Concurrently ensure that plans for bike lanes/infrastructure are moving at accelerated pace.
1	Please think this thru before you spend 86k on it...we have so many problems that we are facing this money could go to better use.
1	As it currently exists, biking is not safe in/around Raleigh. I try to bike only in daylight hours and at times when traffic is light. I follow the traffic laws and wear highly visible clothing. I attempt to focus the majority of my mileage on "back roads" so as to avoid as much traffic as possible. Despite all of this, nearly every trip is encountered with aggressive motorists who beep at, curse at and harass me. This is not my unique experience, but that of all cyclists. The greenways are not cycle friendly due to very low speed limits-even a mountain bike at an average pace is considered too fast according to the signs posted on the Greenways.
1	We really, really need to get bikes off the roads. Bikers should not have to share with cars, trucks, buses. Until this happens and people feel safe biking, this and other biking programs will not work. I could easily bike the 15 miles to work if there were a safe way to do it, but I am unwilling to risk my life every time I bike. I tend to ride in neighborhoods

	with few cars or on the many bike paths around the city ONLY at this point in time.
1	I've gathered a great deal of research about this, all of which I'd love to be of use to someone. Email me if interested! jbielick@gmail.com 9197060128
1	If you do this, take it from our piss poor government worker pay checks. If this would in anyway raise taxes you should all be sent to jail.
1	I prefer to stay informed via facebook, twitter, google plus, or linked in rather than my e-mail account.
1	Raleigh needs to make parallel investments in on-road facilities. That was a big disadvantage when I tried bikeshare in Charlotte, very few others were out and about on bikes. I felt surrounded by cars and hardly came across a bike lane.
1	Good luck! Looking forward to watching the program progress. I think it will be a hard project to get off the ground, but I think it will be 100% worth it in the end.
1	I would be very interested in learning about how I can help with this study and program. I actually just completed an executive MBA project around the potential of a bike share in Raleigh. I would be happy to share our findings, but more importantly, do whatever I can to help the city become more bike-friendly.
1	I live and work near downtown Raleigh. I would love a bike share to get out and enjoy downtown Raleigh, and be able to exercise through the greenways. My last concern is giving people with lower income or the unemployed another means to travel.
1	Excuse the pun, but don't try and recreate the wheel..visit Austin and/or D.C. and see how it is done. Very excited about possibilities.
1	PLEASE make this city Bike first and drive second. Let's make Raleigh different and allow ourselves to take a stand!
1	It is more important to expand the current system of bike lanes and sharrows with the potential addition of green bike boxes before instituting a bike share system because without the infrastructure, the program will not work and the money invested will be lost. it would be better to increase connectivity among bike lanes and greenways that already exist in the raleigh area so that people can get where they need to.
1	There were only options for an "annual membership" in the bike share system. DC's system allows you to swipe a card to get the bike and charges you for time used, which I think is the best system. People can pick up a bike one side of downtown and get to the other sporadically without having a membership.
1	While I think it is important in the long-term for a regional system, current bike share technology and regional collaboration aren't realistic at this time. I don't think Raleigh should wait for the rest of the region to catch up, or even the industry to determine the best way to serve an region-based system. Durham has a \$4M budget shortfall and RTP is sprawling (and researching their own program). UNC has a small program of their own. Don't make Raleigh residents options depend on the other areas in the region. Also, my answer about a weekly membership was greater than an annual membership. This is based on my experience in California as well as Chattanooga. At a conference, I paid \$40+ for a weekly membership because the cost was covered by my employer. As an individual resident, regardless of income level, I would probably look for an annual membership. It is better to get the money from me over time/usage than an upfront fee.
1	Would be great for Raleigh! Make it affordable and people will go out more and spend more money to help the local economy.
1	I viewed the videos on your Bikeshare website and Charlotte NC's appears to encourage sidewalk use ,too dangerous for elderly , the blind,young children,pedestrians in general -it gives the wrong message but also says city streets are not safe yet to trust riding on!
1	I cycle for sport and recreation, often riding from Clayton into downtown Raleigh either via the newly opened greenway system or backroads. I think BikeShare is an opportunity to introduce more people back to bicycles and let them know that they can be safe on the roadways.
1	This is an excellent opportunity for Raleigh, and I hope that several sites will be located within NC State University, to accomodate the large student population, which frequents downtown Raleigh and surrounding areas.
1	I think focusing on the core of downtown and the immediate surrounding neighborhood is the best initial strategy. While offering service in the outlying areas of Raleigh would be nice, I don't think the density supports it. I think smaller networks near Brier Creek, North Hills, and Triangle Town Center could see some usage, the speed and density of traffic outside of the downtown streets may be too much to attract casual riders.
1	The reason I wouldn't be willing to pay a particularly high annual fee for the program is because I already have a bike and would probably just use my own bike rather than pay a high annual fee. If the fee is less than \$50, I would consider paying it just for convenience in case I was out and didn't have my bike with me. While I think it is important to somewhat focus the program in the downtown area - to include locations as far north as the Mordecai Historic Park/North Person area, South at least to the Performing Arts center, include areas west as far as Hillsborough street because I think these will be the most successful and more used areas but I don't think it needs to be so focused

	downtown that it eliminates those areas mentioned above that are maybe just outside of downtown because our downtown area is so small, you really wouldn't need a bike to just go from one side of downtown to the other, but you may want a bike to go from say, Hillsborough to Fayetteville Street or from the Warehouse District to the North Person area etc.
1	My husband doesn't have a car and he bikes everywhere. I would like to promote any bike riding in order to elevate the awareness of bikes on the road. He's a doctor and would be willing to help champion this project. lizziefischer@gmail.com
1	I think it is more important to educate drivers on the rules of the road. Automobiles are more often at fault in bike/car accidents, and autos kill people. Additionally, I choose what streets I bike on based on the speed of traffic, the amount of traffic, the likelihood of parked cars to door me, etc. None of those questions were captured in your survey.
1	If stations would be available around major parks (ex. Lake Johnson, Shelly Lake) and greenways (Art Museum Trails/Reedy Creek, Umstead) I think you would get people who are exercising after work. I personally would be more likely to use them in those places.
1	Ranked serving low income low on my list, because as long as the price remains affordable that should be a natural by product of an effective bike share program, though it seems some cities have missed that opportunity.
1	My concern is safety. Who would be responsible for providing helmets for the riders. Who would be responsible for any insurance issues when somebody gets hurt. The city does not need to be liable for these kinds of issues.
1	BikeShare shouldn't have a membership fee. The fee should be incurred on an hourly basis, rather than having a set time with late fees. The late fees are silly. Just let people rent a bike and whenever they return it, their credit/debit card will be charged. I'm not sure how feasible it is to have bikes available for low-income users if a credit or debit card is required for use.
1	I think this is a fantastic idea for Raleigh! It would be great to plan a series of bike paths with or without the shared bikes--I would like Raleigh to encourage more SAFE biking and walking.
1	I would really love to see a BikeShare in Raleigh, mostly for selfish reasons. But I also think it could help increase the number of cyclists on the road and the public understanding of and awareness of the rules fo the road.
1	Bike Share sounds amazing but would really like to see more efforts put into bicycle infrastructure first. I worry that Bike Share will be implemented too timidly in Raleigh and it will therefore fail. While I support Bike Share in Raleigh, I think accompanying action items on the 2009 Bike Plan need to be put in place. More action on expanding our bicycle facilities on the road (not the greeways) need to take place.
1	Curious idea, don't see how it could be made to work without significant change in peoples ideas of ownership, use, maintenance and responsibility. At least what I see in my community. Good luck!
1	I use my own bike to commute to work ~1-2 days a week. Would support bike share at annual level, and would use primarily to park away from central grid and ride to meetings, restaurants, etc.
1	Please, if this becomes a reality, do NOT ignore us out in Midtown, North Raleigh, etc. I understand that downtown is where all the cool, hip action is these days but - shockingly - people do live in other parts of town and want to be a part of our urban revitalization. So please, do not shut us out.
1	I think a critical step missing from the priority options is adding bike lanes on downtown streets. I don't feel safe riding down Person St., S. Blount St., Peace St., Dawson just to name a few, and I avoid these routes most of the time. For someone who doesn't regularly ride a bike and doesn't know alternative routes, I think it would be intimidating to bike downtown given our lack of bike-friendly streets.
1	I think it's a great idea, but definitely have concerns over terrain and traffic - and feasible destinations.
1	We've got other things in Raleigh to worry about besides keeping cyclists happy. We need better roads & more public safety staff. Thank you
1	Bike lanes and bike racks which make commuting and shopping by bike safe and practical are needed first, not just downtown but including commuting routes from within 20 miles out.
1	This is an interesting idea. Not sure Raleigh is ready for it, but think it worth a carefully orchestrated effort. Happy to help if I can. Thanks, george hess
1	Limiting bikeshare to downtown would be a mistake. The potential to serve a large number of destinations is huge. Although it should not necessarily link with bike share systems in CH/Durham, it would be great to partner with those cities so that their memberships would work in Raleigh and vica versa. Also, this should be as easy as possible for tourists to navigate.
1	I do not think a bikeshare is a good idea with the way downtown is currently set up. There are not many bike lanes, the sidewalks are crowded enough, and a large influx of bikes into traffic would cause potential safety hazards. However, if tax dollars are not spent directly for the bikeshare, a private sector company takes full responsibility/liability/operating expenses away from the city, and downtown was made more "bike friendly", my opinion would be different. I'd have less