2015

Topeka Bike Share Health Impact Assessment

Assessing the Potential Health Effects of Bike Share in Topeka, Kansas

Report Preparation

Kate Hoppe, MPH, MA

Acknowledgements

This HIA would not have been possible without the guidance and participation of several key individuals and organizations:

Nikki Nollen, PhD, University of Kansas Medical Center
Babalola Faseru, MD, MPH, University of Kansas Medical Center
Ericka Welsh, PhD, Kansas Department of Health and Environment
Sarah Hartsig, MS, Kansas Health Institute
Karl Fundenberger, Topeka Metropolitan Transit Authority
Members of the Board of Directors, Topeka Metropolitan Transit Authority

Additionally, many community agencies and stakeholders welcomed the HIA project with interest and willing collaboration, providing input that shaped this final report.

Funding

No funding was used for the completion of this HIA and the practitioner/author has no personal financial relationships associated with this project to disclose.

Cover photo by

Megan Rogers

Executive Summary

Background

The Topeka Bike Share Program, launched in April 2015, makes available 100 bicycles across 10 bike stations in the City of Topeka, Kansas, for residents, workers and visitors to rent for active transport and leisure. Conversations with the Topeka Metropolitan Transit Authority (Topeka Metro or TMTA) underscored a need for assessing the potential impact of the bike share. Health Impact Assessment is a tool and framework for assessing the potential impact of a proposed program, project or policy on specific population health outcomes and was identified as an assessment framework that could benefit decision-makers and the community.

Methods

A rapid to intermediate Health Impact Assessment was carried out between December 2014 to July 2015 by an MPH student at the University of Kansas School of Preventive Medicine and Public Health in partnership with Topeka Metro. The six-step HIA process (screening, scoping, assessment, recommendations, reporting, and monitoring and evaluation) was undertaken to identify how bike share, cycling or active transport could impact levels of physical activity, safety and injury, access to resources and quality of life in Topeka, Kansas. Systematic literature reviews were completed for each priority health area and data were collected for mapping the bike share in relation to demographics and determinants of health using ArcMap Desktop Version 10.2.

Results

Topeka, Kansas, is a small city with a population of just over 127,000 residents, which are slightly more racially diverse, earn less income, and are more likely to be in poverty or to have been unemployed in the last 12 months compared to the rest of the state. Cycling represents a small percentage of commuter transit trips, with just 1.2% of Topeka residents cycling to work. The Topeka Bike Share Program installed bike share racks that reach 14.7% of the residential population and 2.1% of the employee population living and working within easy walking distance (defined as one-quarter mile or less) of a bike share rack. Those living within reach of the Topeka Bike Share are more racially diverse than the city as a whole, while those working at jobs within reach of the bike share are less racially diverse than Topeka. Older populations are also underrepresented in the system.

Implementing multiple strategies together comprehensively has the largest impact on cycling prevalence, active transport and safety and injury. Perceptions, attitudes and social norms related to cycling, the environment, and safety impact whether or not people cycle for transport or leisure. Bike share is often used for spontaneous trips, while both bike share and cycling in the United States have been a mode of choice particular to Caucasian males who are already more active. However, use of bike share and cycling in general could contribute to recommended levels of physical activity. Bike share users are less likely to wear helmets compared with other cyclists and there is a correlation between a lack of helmet use and intoxication while cycling.

In Topeka, Washburn University students have the greatest access to healthful destinations, with access defined as the number of healthful destinations along bike routes and the number of healthful destinations within a 15-minute bike ride at 10 mph. (Healthful destinations include grocery stores, farmers markets, schools, parks, and major employers). Physical activity, access to resources, safety and injury, and perceptions, attitudes and social norms can work in concert as part of a complex interplay of factors that either improve or diminish quality of life.

To improve health outcomes of bike share and inform decisions around the implementation and expansion of the program, the Topeka Metro has been advised to include the expansion of a network of bike lanes, cycle tracks and off-road bicycle facilities in their plans for additional bicycle infrastructure; coordinate with Heartland Healthy Neighborhoods Association on the development and implementation of a complete streets ordinance for Topeka; and engage populations that do not traditionally cycle or use bike share, such as women, older generations, racial and ethnic minorities, and those who are low-income or have lower levels of educational attainment. Several limitations included gaps in the evidence for assessing how a bike share specifically might impact health, inclusion of grey literature with weak or unstated methods, and the limited time for conducting HIA at a comprehensive level.

Conclusions

Implementing bike share in combination with infrastructure, policies, programs and community outreach and engagement can and has been shown to produce beneficial health outcomes, though bike share alone is unlikely to produce large increases in population-level physical activity, access to resources, or quality of life.

Table 1. Summary of Health Impacts.*

Health Factor or Outcome	Literature Review	Data Analysis	Stakeholder Perspectives	Based on Literature and Data					Literature
				Overall Projection	Expected health impact	Magnitude of impact	Likelihood of impact	Distribution	Quality of Evidence
How does the implementation of bike share impact:									
Levels of Active Transport	***Increase***	***Increase***	--	***Increase***	***Mixed***	***Low***	***Possible***	***Caucasians, men, 30-54 y.o.'s***	**
Levels of Physical Activity	***Increase***	***Increase***	--	***Increase***	***Beneficial***	***Low***	***Likely***	***Caucasians, men, 30-54 y.o.'s***	**
How does the implementation of bike share impact safety in terms of:									
Helmet Use	***Decrease***	--	--	***Decrease***	***Adverse***	***Low – Pop. High – Ind.***	***Likely***	***Intoxicated riders, men***	***
Injury	***Increase (cycling only)***	--	--	***Increase***	***Adverse***	***Low – Pop. High – Ind.***	***Possible***	***Intoxicated riders, men***	***
How does the implementation of bike share impact:									
Access to Health-Promoting Destinations	***N/A***	--	***Increase***	***Increase***	***Beneficial***	***Medium***	***Likely***	***Washburn University students, International students***	*

* Due to a lack of data, no summary of health impacts is available for access to education, access to jobs, and quality of life.

Table of Contents

Introduction 1

Project Background 1-2

Decisions the HIA is Informing 2

City of Topeka, Kansas 3-4
- Demographics
- Health Status
- Existing Initiatives

Description of Agencies and Stakeholders 5

HIA Methodology 5-8

Topeka Bike Share Reach 8, 10-14

Characteristics of U.S. Bike Share Systems 9, 15

Physical Activity 16
- Overview of Findings
- Key Takeaways

Safety and Injury 16-18
- Overview of Findings
- Key Takeaways

Access to Resources 19-25
- Overview of Findings
- Key Takeaways

Quality of Life 25-26
- Overview of Findings
- Key Takeaways

Additional Findings 26

Recommendations 26-27

Monitoring and Evaluation Plan 28-35

Conclusions 35-36

References 37-41

Appendices 42-54
- Appendix A: Datasets
- Appendix B: HIA Screening Form
- Appendix C: HIA Scoping Form
- Appendix D: Board of Directors Impact Survey
- Appendix E: Community Survey

Introduction

Why Health Impact Assessment?

Health Impact Assessment is a tool and framework for assessing the impact of a proposed project, policy, or program on specific population health outcomes prior to or during implementation.[1] The HIA incorporates primary and/or secondary data and community stakeholder input into an analysis of priority health areas. It then provides recommendations to decision-makers for mitigating any negative and supporting any positive health impacts of the proposed project, policy or program under consideration. Completing an HIA for the Topeka Bike Share Program, launched in April of 2015 in Topeka, Kansas, will enable the program agency, Topeka Metropolitan Transit Authority (Topeka Metro or TMTA), to implement and later expand the Bike Share Program in a way that benefits the health of the community. Additionally, undertaking the HIA at the local level will allow the Kansas Department of Health and Environment (KDHE) to determine the applicability of HIA to future work in the state. While a Topeka Bikeways Master Plan mentions health in relation to cyclist safety and the provision of infrastructure, how the bike share program could impact levels of physical activity, access to resources and services, livability and quality of life, or more extensive safety and injury has not been evaluated.

Goals:

- To inform decisions around the implementation and expansion of the Topeka Bike Share Program
- To encourage the consideration of health in decision-making processes by agencies not traditionally focused on health
- To provide recommendations to improve how bike share and relevant activities impact the health of Topeka residents, workers and visitors

Project Background

The Beginnings of the Topeka Bike Share

Bike share programs provide bicycles to the public for short-use trips through a paid membership or pay-as-you-go fee structure. Topeka Metro began planning for the Topeka Bike Share Program (bike share) in December 2012 after an initial survey and community feedback from Heartland Visioning spurred a renewed focus on promoting walking and cycling. Ongoing conversations at inter-city Chamber of Commerce meetings also highlighted the need for more cycling infrastructure in Topeka and creative options for access, leading to some Topeka Metro Board Members, in partnership with the local Bikeways Advisory Committee, spearheading to the rest of the Board the idea of bike share in conjunction with infrastructure changes. In particular, the CEO/GM of Topeka Metro introduced the bike share concept at the Board Meeting in December 2012, at which time the proposal passed and planning for the program began.[2]

2015 Pilot Bike Share System

Interested partners were secured and the program was launched in April 2015 with an initial 10 bike share stations and 100 smart bikes. The initial station locations include Quincy Street Bus Station, Visit Topeka, Gage Park, Washburn University, Downtown Topeka Public Library, and Lake Shawnee.

Decisions the HIA is Informing

Implementation of Bike Share to Promote Health

This HIA was undertaken to inform not only how a bike share could impact health, but what strategies could improve health outcomes through bike share.

Expansion of Bike Share

Planning for the expansion of the 2015 pilot bike share system is already underway and the HIA can inform the process of expansion, from community engagement to site selection.

Placement of Bike Share Stations and Distribution of Bicycles

Placement of additional bike stations and bicycles can be informed by understanding of how bike share impacts health, what we know from best practices about placement, and local-level data regarding health-promoting community features, resources and services.

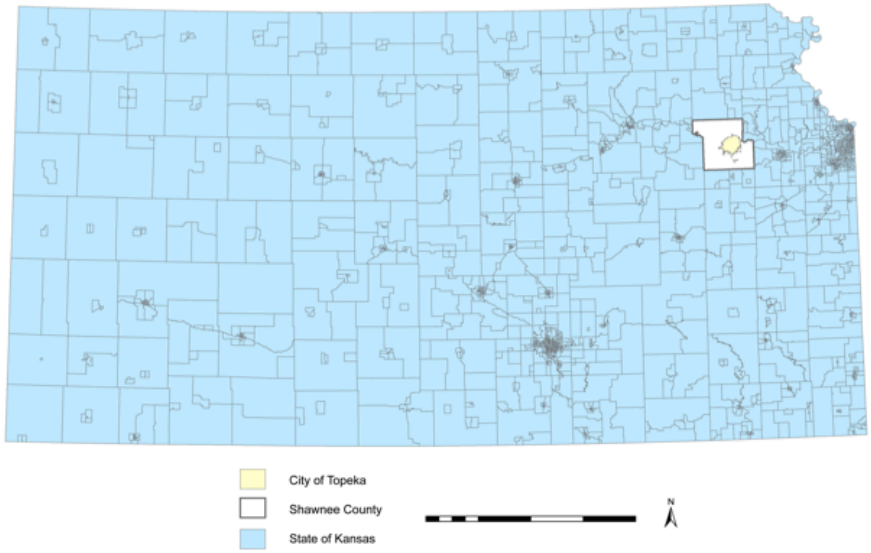
City of Topeka

Demographics

Topeka is a small city of approximately 127,000 people located in Shawnee County. The city houses the State Capitol and government offices. Public administration and health care/social assistance are the two major industries, accounting for 66% of jobs in the city.

Overall, Topeka is more racially and ethnically diverse than the rest of Kansas, with 10.3% of residents identifying as Black orAfrican American alone compared to 5.6% in the state and 13.6% identifying as Latino or Hispanic alone compared to 10.7% in the state.

Figure 1. Location of the City of Topeka within Shawnee County and the State of Kansas.



The median household income is just over $40,000, which is more than $10,000 less than the state median of just over $51,000. Additionally, poverty and unemployment are high, with 20% indicating being in poverty in the last 12 months (13% for Kansas) and 9% being unemployed (7% for Kansas).[3]

Health Status

Data from Kansas Health Matters were utilized in the development of the 2012 Shawnee County Community Health Needs Assessment, which was conducted by a county-wide task force and advisory committee with membership across multiple organizations. Findings indicate that Shawnee County residents, compared to the rest of the state, are more obese (30.2% versus 28.8%), consume less fruits and vegetables (17.5% versus 18.6%), have lower levels of physical activity (46.2% versus 48.4%), report poorer mental health (9.6% versus 8.6%), have a higher prevalence of diabetes (9.3% versus 8.5%), have a higher prevalence of hypertension (30.5% versus 28.7%), have a higher infant mortality rate (8.34 infant deaths per 1,000 live births versus 7.13), are more likely to be uninsured (16.6% versus 17.3%), and are more likely to not have a vehicle (6.8% versus 5.7%).[4]

Existing Initiatives

Shawnee County Community Health Needs Assessment

The 2012 Shawnee County Community Health Needs Assessment was undertaken to identify the most pressing health issues

facing the County and to begin the process of local public health department accreditation. The assessment has further bolstered the opportunity for an HIA by establishing support from the County for implementing efforts to increase levels of physical activity and decrease the percent of adults who are overweight and obese.[4]

Topeka Bikeways Master Plan, Bikeways Advisory Committee, and Pedestrian Master Plan

The Topeka Bikeways Master Plan provides some indication of how many Topeka residents cycle and in what parts of the city they reside. A Bikeway Survey (no methodology described) collected responses from Topeka citizens with some interest in urban bicycling. Of respondents, 56% lived in the North Central and Southwest parts of Topeka, 62% traveled to destinations in Downtown and North Central parts of the city, and approximately 50% were infrequent cyclists.[5] A bikeways advisory committee was formed to facilitate two-way conversations between the City and community. A pedestrian master plan is currently in the works through the Metropolitan Topeka Planning Organization and the City of Topeka. An initial community workshop was held in March of 2015 for anyone interested in walkability, with another meeting planned for later in the year.

Heartland Healthy Neighborhoods

Heartland is a Topeka-based coalition that started in 2008 to promote health in Topeka and Shawnee County. It has since grown to include a wide array of individuals and organizations, including KDHE and the Shawnee County Health Department. Meetings take place across several work groups, including a built environment work group working on complete streets. Due to the work of Heartland, the Topeka City Council adopted a complete streets resolution in 2009.[6]

WorkWell Shawnee County

WorkWell Shawnee County is a county level worksite wellness coalition made up of representatives from local worksites, including businesses, organizations, and schools. Ongoing members have included Blue Cross Blue Shield Kansas, the Topeka Shawnee County Public Library, American Heart Association, KDHE, the Shawnee County Health Department, and USD 437. The coalition was created after local trainings provided by the WorkWell Kansas (WWKS) statewide initiative highlighted a need for a worksite wellness coalition in Topeka. The coalition later expanded to the county level. WWKS has delivered trainings on comprehensive worksite wellness to worksites and wellness champions in Kansas since 2010. The Bike for Discounts (B4D) program is an initiative of WorkWell Shawnee County. Bike for Discounts recruits local downtown Topeka businesses to provide deals to customers who ride their bikes and wear their helmets to the stores.

Photo by Megan Rogers

Description of Agencies and Stakeholders Involved in the HIA

Topeka Metropolitan Transit Authority

Topeka Metro manages mass transit needs in the Topeka, Kansas region through 12 fixed bus routes serviced by 30 buses and 13 LIFT paratransit vehicles. Vehicles operate Monday through Saturday during the day. Current routes are operated as a flag down system, with stops made at any location along the route where individuals flag down a bus. Movement is being made toward dedicated stops and 85 bus shelters are currently available along bus routes for transit users. Topeka Metro is headed by a Board of Directors comprised of seven members, each of which has experience in the Topeka community through work in both private and public industries. A Director of Bike Operations was hired in 2014 by the Topeka Metro Board of Directors to implement and operate the Bike Share Program.

Kansas Department of Health and Environment, Bureau of Health Promotion

The Bureau of Health Promotion (BHP) within KDHE is a state leader in the prevention and control of chronic disease in Kansas. The BHP focuses on evidence-based approaches at the policy, systems and environmental levels to promote population health outcomes, working through long-standing collaborative relationships with state and local partners to accomplish state objectives. The KDHE Bureau of Health Promotion served as the host site for the HIA project.

Kansas Health Institute

Based in Topeka, the Kansas Health Institute (KHI) is a non-profit health policy and research organization supported by funding from the Kansas Health Foundation. KHI has conducted five Health Impact Assessments in Kansas. An analyst from KHI served on the capstone committee to provide HIA subject matter expertise.

HIA Methodology

Screening

A screening form developed by KHI was used to determine the applicability of a Health Impact Assessment for informing the bike share program implementation. This form was completed in December of 2014 based on conversations with the Topeka Metro Director of Bike Share Operations. It was concluded based on affirmative answers to the questions in the screening form and Topeka Metro's interest in an assessment that a Health Impact Assessment would be relevant, useful, and timely to the implementation and potential future expansion of the Topeka Bike Share Program.

Scoping

A pathway diagram (Figure 2) detailing the potential immediate, secondary, and tertiary impacts of implementing the bike share was

initially developed to determine what health areas to prioritize for the HIA. A scoping form was developed based on this pathway diagram and the form was used to solicit feedback from the Topeka Metro Board of Directors on issues of greatest importance to the community. The first question asked respondents to rank the potential proximal impacts of implementing the Bike Share, while the second question asked respondents to identify which possible secondary and tertiary impacts would be of greatest concern to Topeka. Out of seven members on the Topeka Metro Board of Directors, four returned the scoping form by email to the Director of Bike Share Operations. Based on the input from the Board, three priority areas for assessment in the HIA were identified, including: physical activity, access to resources and a combination of quality of life, city image and livability. An additional impact, safety and injury, appeared in the research literature as having importance to the uptake of cycling and, indirectly, to other impacts identified as important by the Topeka Metro Board (e.g. physical activity). Thus, safety and injury was added as a fourth priority area for assessment.

Assessment

Based on the information synthesized during the scoping phase, research questions were developed. Secondary data and literature reviews were the primary sources of evidence for answering research questions. HIA research questions were answered using both peer reviewed and grey literature, which included bike share reports from other cities, systematic reviews and non-peer reviewed literature that was relevant to the research questions. Selected peer-reviewed literature was scored across 11 criteria using a methodology from the Kansas Health Institute. Each article's total score assigned it to either "poor," "good," or "excellent" status for the purpose of determining the strength of the evidence for impacting health in Topeka. Data were sought from the City of Topeka and the Metropolitan Topeka Planning Organization in the form of Geographic Information Systems (GIS) datasets and from the U.S. Census Bureau FactFinder. Existing KDHE datasets were already available in ArcMap Desktop Version 10.2 through the server. A full list of data is available in the appendices.

Recommendations

Recommendations were based on the peer-reviewed and grey literature (e.g. reports and white papers) and represent tangible strategies that could improve health impacts across physical activity, safety and injury, access to resources and quality of life.

Reporting

The HIA findings and recommendations were presented to the Topeka Metro Board of Directors on April 20, 2015, at a public board meeting. Members of the Topeka Metro Board of Directors were then given an opportunity to provide feedback on whether the recommendations were: 1) realistic to implement, 2) important to the community, and 3) addressing the needs of vulnerable populations. A community stakeholder meeting on July 8, 2015, provided an opportunity for community stakeholders to provide input on HIA recommendations, which informed this final HIA report. This HIA been shared at the 2015 Built Environment and Outdoor Summit, the 2015 Kansas Public Health Association Conference, and the 2015 American Public Health Association Conference. This final

Figure 2. Pathway Diagram of Possible Immediate, Secondary, and Tertiary Impacts of the Topeka Bike Share

report has been disseminated to decision-makers at Topeka Metro, community stakeholders, and other regional communities.

Monitoring and Evaluation

A monitoring and evaluation plan has been developed in partnership with Topeka Metro. The plan includes a Board of Directors survey to evaluate if the HIA recommendations were incorporated into decision-making around the bike share and, if so, to what degree. The plan also contains data points, timelines, and sources of data that can be collected in order to inform how the bike share is impacting health in the community. Lastly, a community engagement survey will enable Topeka Metro or other stakeholder to identify how the community engages with and perceives the bike share, as well as other needs and issues that could impact adoption of healthy behaviors, such as being physically active, wearing helmets or having access to jobs and education.

Topeka Bike Share Reach

Residential

Residents located within one-quarter mile of a bike station tend to be younger, Caucasian, are more likely to have been in poverty in the last 12 months, and are more likely to be unemployed than the rest of Topeka. Equitable physical access to the bike stations exists for gender and level of education. Median household income of those in the reach area is just over $35,000, which is almost $5,000 less than the Topeka median and $15,000 less than the state median suggesting a less affluent population. The lack of affluence of the population within reach of the bike system could present opportunities to target those who bear a larger burden of chronic disease risk and are also more likely to be without a car.[7, 8]

Further exploration of racial demographic characteristics revealed distinct pockets of primarily Hispanic/Latino residents that are not covered by the bike share system, primarily including the Hillcrest and Oakland areas in the eastern region of Topeka just north and south of Interstate 70 and in the region east of Washburn University (Figure 3).

Populations 45 years of age and older are underrepresented by the current bike share system, with the majority of residents located within one-quarter mile of a bike station being between 18 and 44 years of age. Younger populations between 18-24 years of age appear to be clustered in the downtown region, while those living west of downtown are predominantly 45-64 years of age and generally not within walking distance to the bike share (Figure 4).

Worksite

Where people live is not the only indicator of reach for the bike share system, as access to the bike share among employed individuals working in Topeka can increase its reach. Of the available jobs in Topeka, the Bike Share Program has the potential to reach 2.1% or 27,725 jobs (Figure 5). Jobs by race indicate that the majority are held by Caucasians with far less diversity than residents living within the same region, suggesting that Caucasians live outside of the region and travel in for work (Figures 3 and 6).

Age ranges also vary between those who live or work within walking distance of the bike share system and a similar pattern found in racial characteristics is apparent by age group. Only 3.3% of those 29 years of age and younger work within walking distance of a bike share station, compared to the 21.8% of individuals between 15 and 24 years of age who live in the same region (Figures 4 and 7). This may be partially due to attendance at school and an inability to work among a portion of this age group.

Due to the limitations associated with workplace data, it is advisable to apply local-level knowledge of where jobs are and where more diverse populations work to the planning of bike share expansion.

Photo by Riley Mahner

Characteristics of U.S. Bike Share Systems

An Internet Google search was conducted to locate websites for existing bike share programs in the United States in order to find quantitative and qualitative data related to bike share characteristics. Twelve bike shares had data available online and eight had reports. Of the eight (8) systems with reports, five (5) provided information on member demographics, eight (8) on trips, increases in cycling, travel mode and changes in travel mode, two (2) on helmet use and crash rates, three (3) on events and initiatives to promote bike share, and three (3) on initiatives to encourage use among underserved populations. Some of these findings are detailed in Table 2, with the rest of the findings located throughout this report.

Compared with other, long-standing bike share systems around the world, bike share in the United States is still relatively small but growing. For instance, Paris, France has 1,800 bike stations and 20,000 bikes and Hangzhou, China has 2,050 bike stations and 50,000 bikes.[9] The majority of the U.S. bike share systems with available data are 1.5 to 2 years old and located in cities of moderate to high density. The number of bike racks and bikes varies drastically by city, from between 75 bicycles (Palo Alto)[10] to 5,066 bicycles (NYC).[11] First year total trips range from a low of 5,300 (Kansas City)[12, 13] to a high of 49 million (San Francisco).[10] All cities listed in Table 1 saw increases in bike share total trips from year 1 to the latest year for which trip data was available, with increases ranging from 40% (Washington D.C.)[14] to 201% (Kansas City).[12, 13] The average trip duration was 25.6 minutes and the average trip distance was 1.9 miles.

Figure 3. Topeka Bike Share Reach by Residential Race.

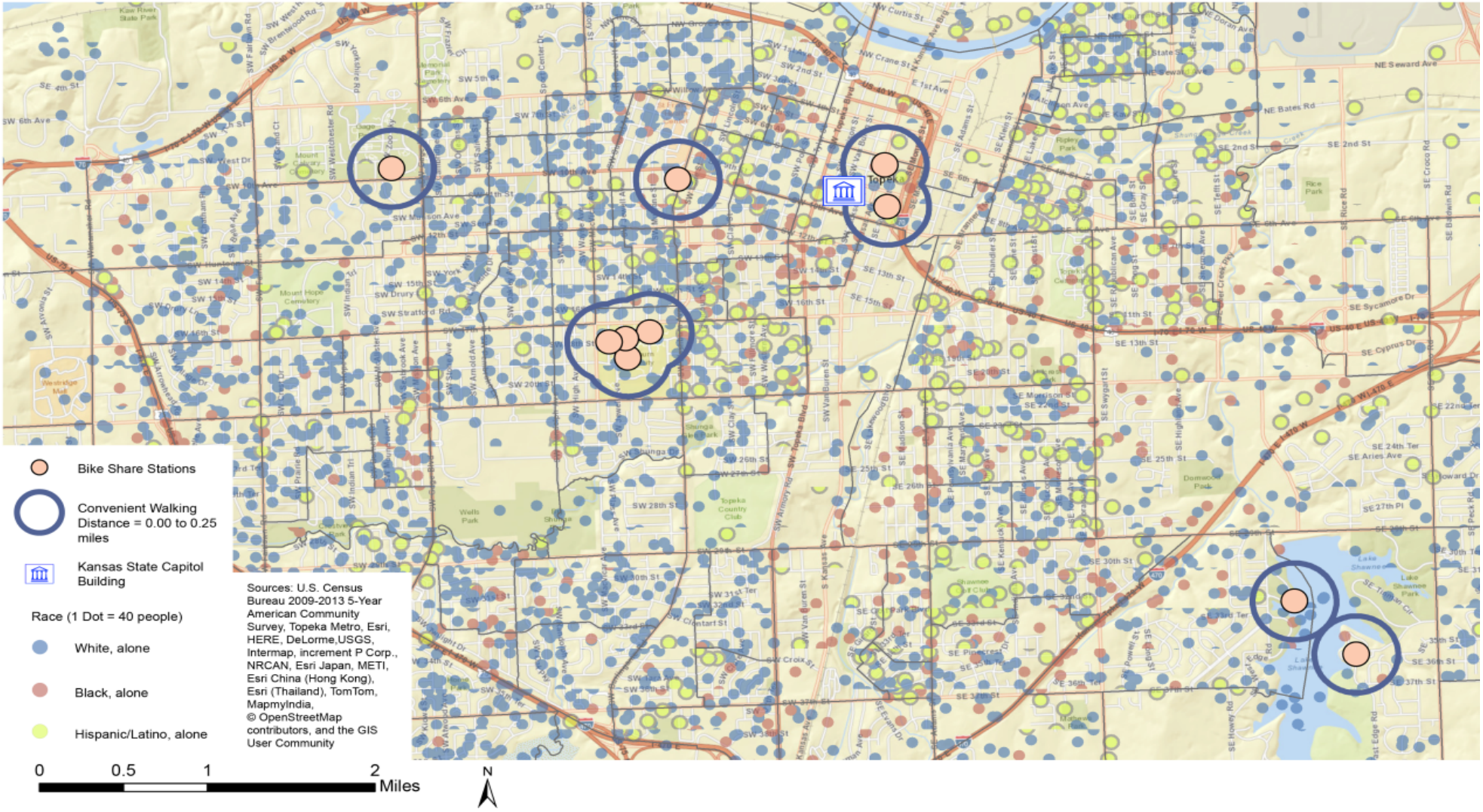


Figure 4. Topeka Bike Share Reach by Residential Median Age.

Figure 5. Topeka Bike Share in Relation to Total Number of Jobs by Census Block in Topeka, Kansas.

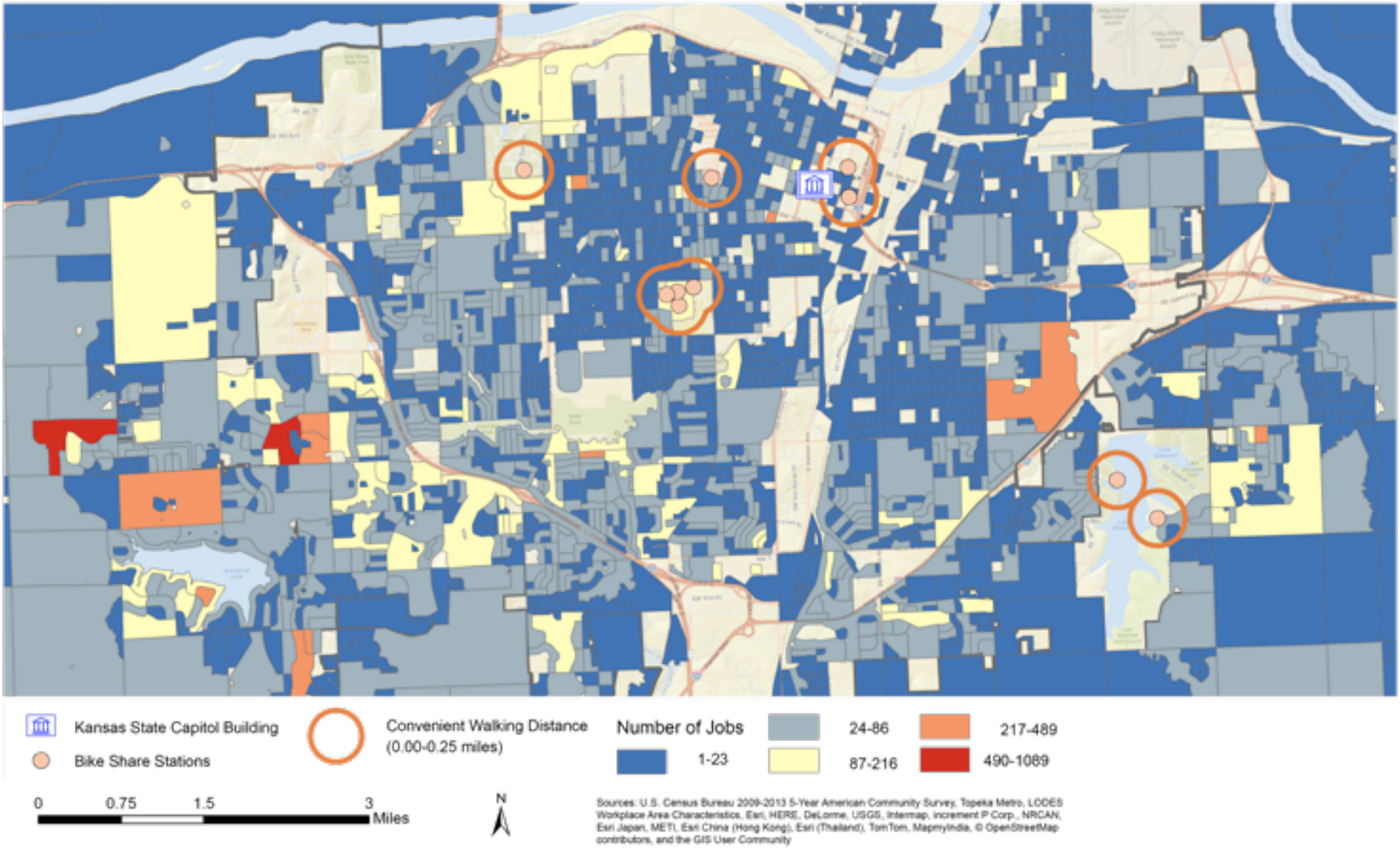


Figure 6. Topeka Bike Share in Relation to Total Number of Jobs by Race in Topeka, Kansas.

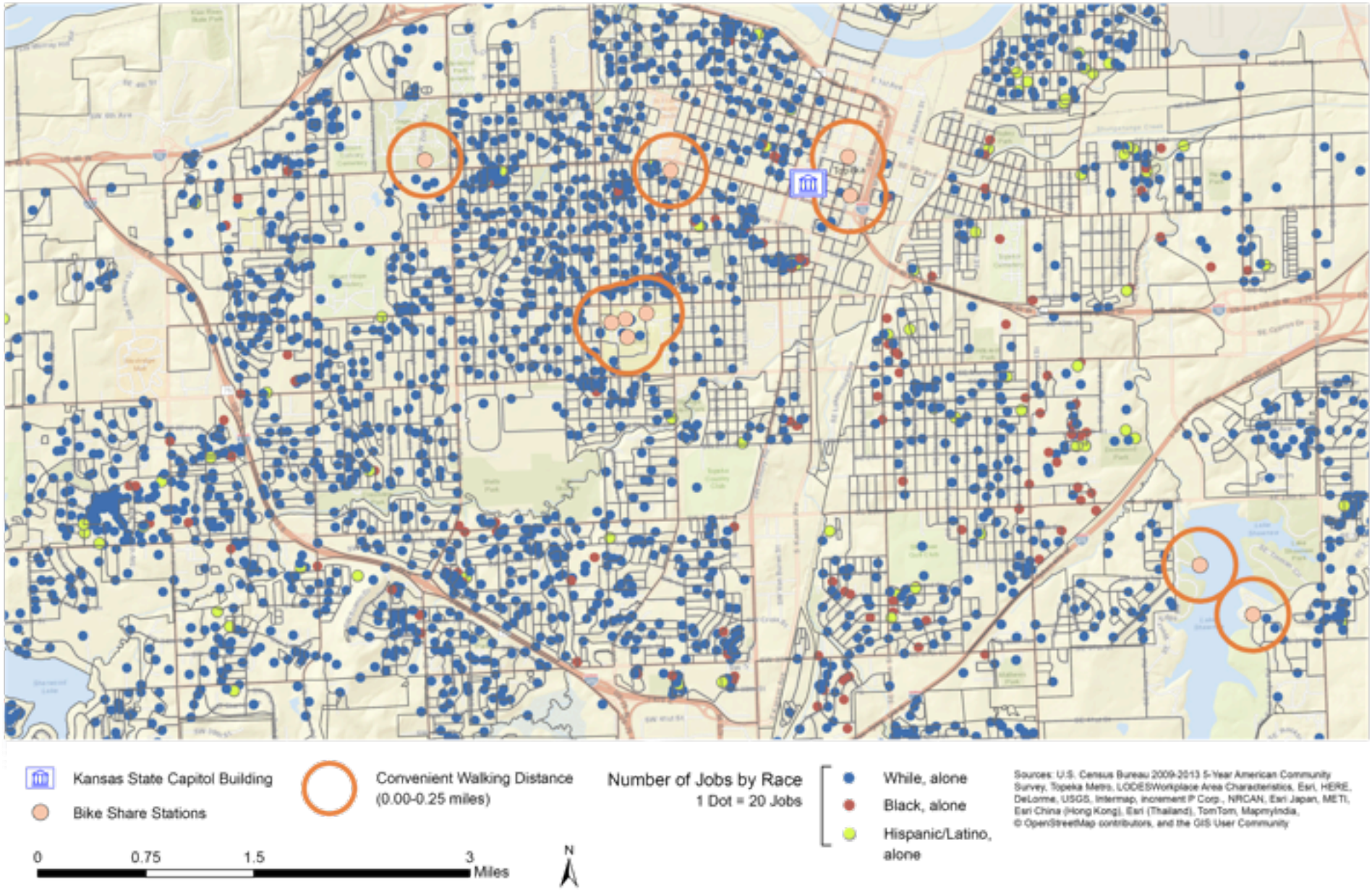


Figure 7. Topeka Bike Share in Relation to Total Number of Jobs by Median Age in Topeka, Kansas.

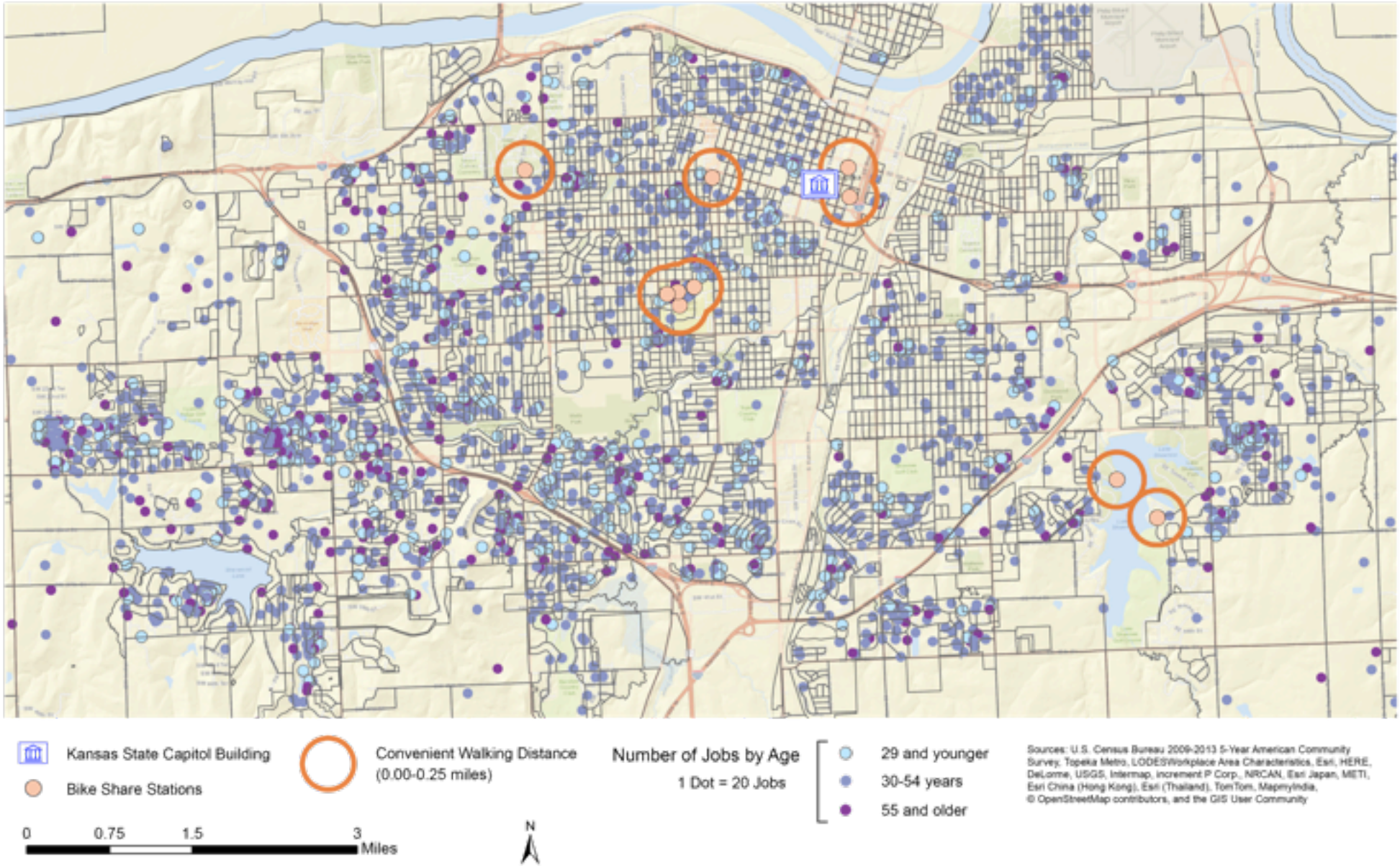


Table 2. Characteristics of Twelve U.S. Bike Share Programs with Available Quantitative Data by City Population Size.[i]

POPULATION SIZE								
City	**Years in Operation**	**Density**	**n # of Bike Racks[ii]**	**n # of Bikes**	**Year 1 n Total Trips**	**% Change in Total Trips[iii]**	**Overall Average Trip Duration**	**Avg. Distance**
OVER 1.5 MILLION								
New York City, NY	1.5	26,403/sq mi	325	5,066	8.475 mil.	54.79%	14.10 min.	1.8 miles
Chicago, IL	1.5	11,864/sq mi	300	3,000	1.665 mil.	93.00%	17.6 min.	1.6 miles
UNDER 1.5 MILLION								
San Jose, CA	1.5	5,406/sq mi	15	249	3.498 mil.	104.86%	22.53 min.	--
San Francisco, CA	1.5	17,867/sq mi	34	665	49.915 mil.	107.48%	17.6 min.	--
Washington D.C. Metro Area	6	9,856/sq mi	300	2,500	1.729 mil.[iiii]	40.49%[iiii]	15-30 min.	1.1-1.5 miles
Boston Metro Area, MA	3.5	13,340/sq mi	140	1,300	100,000	100%	--	--
UNDER 500,000								
Kansas City, MO	3	1,489/sq mi	20	--	5,300	201.89%	--	2.0 miles
Minneapolis, MN	5	515.4/sq mi	170	1,550	100,000	215%	16.37 min.	2.7 miles
UNDER 150,000								
Topeka, KS		2,280/sq mi	10	100				
Boulder, CO	3.5	4,021/sq mi	22	150	18,480	64.04%	2-30 min.	--
Redwood City, CA	1.5	2,218/sq mi	8	115	295,001	87.13%	29.43 min.	--
Mountain View, CA	1.5	1,992/sq mi	7	117	1.212 million	129.22%	37.71 min.	--
Palo Alto, CA	1.5	2,497/sq mi	5	75	668,255	99.50%	62.60 min.	--

i. Sources: Census Bureau Quick Facts July 1, 2013 Population Estimates; http://chi.streetsblog.org/2014/02/20/divvy-releases-trove-of-bike-share-trip-data/; http://chi.streetsblog.org/tag/divvy-data/; http://www.bayareabikeshare.com/assets/pdf/Bjorn.pdf

ii. Number of bike racks as of most recent available count

iii. Percent change in total number of trips from the first to the last year for which data is available for the bike share program

iiii. Data extrapolated from 2011 and 2013 Annual Reports indicating number of members and trips in the last month by change in bicycling; assumed that average number of trips in last month the same for all 12 months

Physical Activity

Overview of Findings

Multiple factors impact levels of population cycling and the attainment of recommended levels of physical activity through cycling, active transport and bike share. Bike share is often used for spontaneous trips and cycling in the United States has been a mode particular to Caucasian males who are already more active.[15, 16, 17] Nevertheless, even bicycle owners use bike share and small increases in physical activity among those who are already active have been shown to contribute to daily recommended levels of physical activity and to have positive health outcomes.[18, 19, 20, 21] Bike share programs in the United States and around the world have largely shown increasing membership and usage since implementation, suggesting that bike share might increase cycling among local populations. However, bike share systems are often accompanied by improvements in cycling infrastructure, making it difficult to ascertain what causes increases in the frequency of cycling.[18] As of the 2013 Census, 0.2% of Topeka residents bicycled to work, 1.0% walked, and 0.5% took public transit compared to 41.8% who drove.[22] These data do not capture leisure-time cycling.

Key Takeaways

- Cycling can contribute to daily recommended levels of population physical activity
- Those who switch to cycling often do so from already active modes of transportation, though some car to bike mode switching has been noted in the literature

Safety and Injury

Overview of Findings

The results from the literature review and the data described from Boston and Chicago's crash analyses indicate a need to improve helmet use among cyclists, but especially bike share users, and indicate an opportunity to improve crash rates through better cycling facilities, infrastructure, community initiatives, and policies.[23, 24, 25]

Helmet Use: There is a need to improve helmet use among cyclists, but especially among bike share users. While education is important, used alone it has not been shown sufficient in changing cyclist behavior related to helmet use. Other risk taking behaviors have been associated with a lack of helmet use, especially cycling while intoxicated.[26, 27, 28] Helmet data reported by Boston indicated that more female cyclists wore helmets compared to male cyclists (86% versus 71%) and that cyclists using a personal bicycle were more likely to be wearing helmets compared to bike share cyclists (78% versus 42%).[29]

Gender and Age: Women, children and the elderly are more likely to cycle in bike-friendly countries in Europe, while large gender and age gaps exist in cycling in the United States.[30, 31] Women especially are more likely than men to face real or perceived barriers to cycling, including the belief that cycling is not safe.[30, 32-34] Innovative approaches that provide helmets and use behavioral frameworks to increase self-efficacy and improve social norms could have the potential to improve real or perceived cyclist safety.[29, 35-38] Boston and Chicago safety reports indicate that most

crashes involved males and that the male to female crash risk was 3 to 1.[29, 39]

However, males made 70% of all bike share trips in Boston during the data collection period. Since the male gender is overrepresented among bike share users and cyclists, this could account for the higher percentage of males involved in crashes.[38, 40] Results also varied by age in relation to helmet use and the risk of crashes, with some studies indicating youth to be at a greater risk for crashes and injury[26, 41] and others suggesting that middle-aged adults are more likely to be involved in crashes and to sustain injuries, especially those older than 60 years.[42, 43]

Infrastructure: An opportunity also exists to improve crash rates through better cycling facilities, infrastructure, community initiatives and policies.[25, 44, 45] The "safety in numbers" effect has been noted in countries with a large number of cyclists whereby the number of crashes and injuries involving cyclists decreases as the number of cyclists increases.[18, 30, 46] This shift could be due in part to additional bicycle infrastructure and the implementation of more car restrictive policies, which are much more prevalent in countries with higher levels of cycling than in the United States. It is thought that the higher number of bicyclists on the road makes cyclists more visible to motorists, but that changes in the provision of bike lanes, cycle tracks (bicycle lanes that have some separation from traffic), and policies help to create conditions that are safer for cyclists.[46-48] Boston's crash report indicated a 20% increase in cyclist crashes between 2010 and 2013, but during this same period they also reported a 42% increase in bike share ridership, which offsets the crash rate.[29] Limited data is available from other bike shares to further elucidate whether the "safety in numbers" theory applies to bike share in the United States.

Speed Limits: Lower speed limits of 20 miles/hr have been shown to reduce serious injury and death among both pedestrians and cyclists, but doing so along major road arteries could push traffic onto side streets, posing other safety risks.[31, 46, 49-52]

Key Takeaways

- Bike share users are less likely to wear helmets compared with other cyclists
- There is a correlation between a lack of helmet use and intoxication while cycling
- Women are less likely to feel safe cycling
- As speed limits decrease there are corresponding reductions in serious injury and death among cyclists and increases in perceived safety

Table 3. Helmet and Crash Characteristics of Two U.S. Bike Share Programs with Available Reports by City Population Size.i.

POPULATION SIZE										
City	**Helmet Use**	**Helmet Use by Gender**	**Crashes**	**Crashes by Gender**	**Fatal Crashes**	**Injury Crashes**	**Cause of Crashes**	**Crash Characteristics**	**Location of Crashes**	**Day/Time of Crahses**
OVER 1.5 MILLION										
Chicago, IL	--	--	--	Male to female risk was 3 to 1; ratios similar across gender for 20-24 age group	28% decrease from 2005 (7) to 2010 (5)	27% increase between 2005 (1,236) and 2010 (1,566)	40% driver failure to yield	64% of injury and 70% of fatal crashes involved male driver; 60% of all drivers were 25-44 y.o; 25% hit and run; 14.8% of cyclists in fatal crashes over legal driver blood alcohol limit	55% at intersections	4-7 pm overall, 8 pm-Midnight fatal; peak crash time 5 pm with smaller peak at 8 am; 90% of all crashes occurred in daylight and in good weather
UNDER 1.5 MILLION										
Boston Metro Area, MA	76% counted with helmets	86% women and 71% men with helmets; 78% on personal bike and 42% of bike share bike users had helmets	20% increase from 2010-2013 (572 total), but 42% increase in ridership in same time period	76.5 of crashes involve male cyclists, but 70% of all bike share trips were by males	17 between 2010-2012	2,878 between 2010-2012 (average 5.5% increase); 16-28% ridership increase during same time period	24% cyclist ran red light/stop sign or drove into oncoming traffic; 22% driver dooring cyclist; 18% driver did not see cyclist	50% of injured cyclists between the ages of 18-30 with 22 years being the peak age for accidents; between 63-91% of crashes involved motor vehicles	--	Largest crash peak at 5 pm with additional peaks at 7 am and 12 pm; crashes less frequent on weekends

i City of Chicago 2012 Bicycle Crash Analysis, 2012; Boston Cyclist Safety Report, 2013

Access to Resources

Overview of Findings

Physical access to goods, services and activities that are health promoting have been correlated with engagement in healthy behaviors.[20] Bike share may provide access to resources or services such as employment, education, food stores, or other opportunities for being physically active (e.g. parks). Multiple facilitators and barriers may impact usage of bike share and cycling for reaching destinations and these factors differ by gender and age, including infrastructure and perceptions of access, support and the physical environment.[53-55]

Access to Jobs: Specifically, showers at the worksite is a known best practice for promoting physical activity among employees and may also serve as one facilitator to cycling to work along with the provision of bicycle parking and other infrastructure.[34] Several barriers to commuting by bicycle included a lack of showers at the workplace, traffic safety, time, a lack of bicycle parking, a lack of confidence, poor weather, difficulty carrying items and a lack of infrastructure.[34, 56] Data were not found to support the theory that access to bike share or bicycles in general would increase job access among the unemployed.

Access to Education: Differences exist among students in what aspects of bike share, cycling or the built environment influence use of cycling to reach destinations, but given the four bike stations at Washburn University in Topeka, the international population of students, and the high proportion of healthful resources along bike routes, it is possible that Washburn students would have access to grocery stores, parks, and major employers through cycling. Email conversations with a Topeka Metro board member has indicated enthusiasm on the part of Washburn students, cultural ties to cycling for transport among international students, and potential usage for travel to grocery stores, the mall, the phone company, and the social security office. Whether or not bike share and cycling would increase access to the university for the purpose of receiving an education is not clear from the available literature.

Access to Health-Promoting Destinations: The maps on the following pages depict "healthful" and "less healthful" destinations and their location in relation to the bike stations, bike routes, trails, and bus routes. Grocery stores, farmers markets, city parks, community centers, high schools and colleges, libraries, and major employers were coded as "healthful" destinations. Convenience stores were listed as "health neutral" destinations since they may occasionally carry healthier foods. Alcohol and tobacco retailers were both considered "less healthful" destinations.

This local level data could be used to strategically plan or place future bike routes, trails and bike stations, as well as be used by the City in decisions related to business permits (e.g. ensuring that healthy resources are easily accessible and that less healthy resources or not as accessible by those traveling by bicycle, walking or bus, which can include a higher percentage of low-income populations that are more likely to have reduced access to healthy foods or parks. However, it should be noted that a large percentage of low-income households still use a car for most trips).

A limitation of these data are that not all resources in Topeka were included. For example, the data do not capture restaurants or cafes, which are popular destinations for cyclists and which we know to be less healthy than cooking at home. Only a handful of major employers were included and may not fully represent current major employers in the region.

Of seven U.S. bike share programs with information on user trip characteristics, the most popular reasons given for using the bike share included commuting to and from work, biking to a restaurant or other meal destination, running errands, and biking to entertainment. The percentage of bike share users who engaged in each type of trip differed by city (Table 3).

Photo by Riley Mahner

Of the 10 bike stations provided at the outset of the pilot program in April 2015, the four at Washburn University provided the greatest access to healthful destinations (34.7% of all resources within a 15-minute bike ride are healthful and 79.4% of resources located along bike routes are healthful).

Since Lake Shawnee is unique in that it has more trails and fewer bike and bus routes, resources along trails were used as a proxy for access. Within a 15-minute bike ride of the two Lake Shawnee bike stations, 11.1% of all resources are healthful and 60.0% of resources along trails are healthful. The bike station area with the proportion of least healthful resources within a 15-minute bike rid is Gage Park (26.4%), which also has the least healthful proportion of resources along bike routes (60.0%).

It is interesting to note that for each area shown in the previous map, there are a higher number of healthful resources along bike routes and a higher number of less healthful resources along bus routes within a 15-minute bike ride of bike share stations (Table 4).

Key Takeaways

- The provision of showers at the worksite can encourage active commuting
- Washburn University students have access to healthful resources and services along bike routes and international students would be likely to use bike share for transport

Table 4. Trip Characteristics of Users of Seven U.S. Bike Share Programs with Available Reports by City Population Size.

POPULATION SIZE			
City	**Trip Purpose**	**Most Popular Days**	**Most Popular Times**
OVER 1.5 MILLION			
New York City, NY		Weekends (casual riders) and weekdays (annual members)(2014)	
Chicago, IL	150% increase in commuting by bicycle from 2000-2010 (2012)		
UNDER 1.5 MILLION			
Washington D.C. Metro Area	22% social and entertainment, 19% to work, 19% from work, 13% errands and personal appointments, 6% meetings (2013) 56% had made trips to restaurants or other meal destinations, 55% had made trips to work, 59% had made trips from work, 31% had made trips to a meeting (2012) 20% used bike share for access to bus stops and more than 50% used bike share for access to rail (2012) 58% to and from work, 66% for a meal, 55% for shopping(2013)		
UNDER 500,000			
San Francisco Bay Area	Weekends – leisure and entertainment (2013-2014)	Weekdays – highest volume, shortest duration, Weekends – lower volume, longer duration (2014)	Weekdays – 8-9 am, Noon hour, 5 pm, Weekends – 11 am-5 pm (2013-2014)
Kansas City, MO		52% Fri.-Sun. (2012), 48% Fri.-Sun. (2013)	7-9 am and 5-6 pm (2012), 26% 11 am-2 pm and 20% 4-7 pm (2013)
Minneapolis, MN	90% for transportation, 51% for commuting to work, school or meeting, 23% for entertainment and social (2012)		
UNDER 150,000			
Boulder, CO	66% to run errands and 33% to attend meetings (2011) More than 50% to run errands and 25% to commute (2013)		

Figure 8. Topeka Bike Share Access to Bike Routes, Trails, Bus Routes and Destinations.

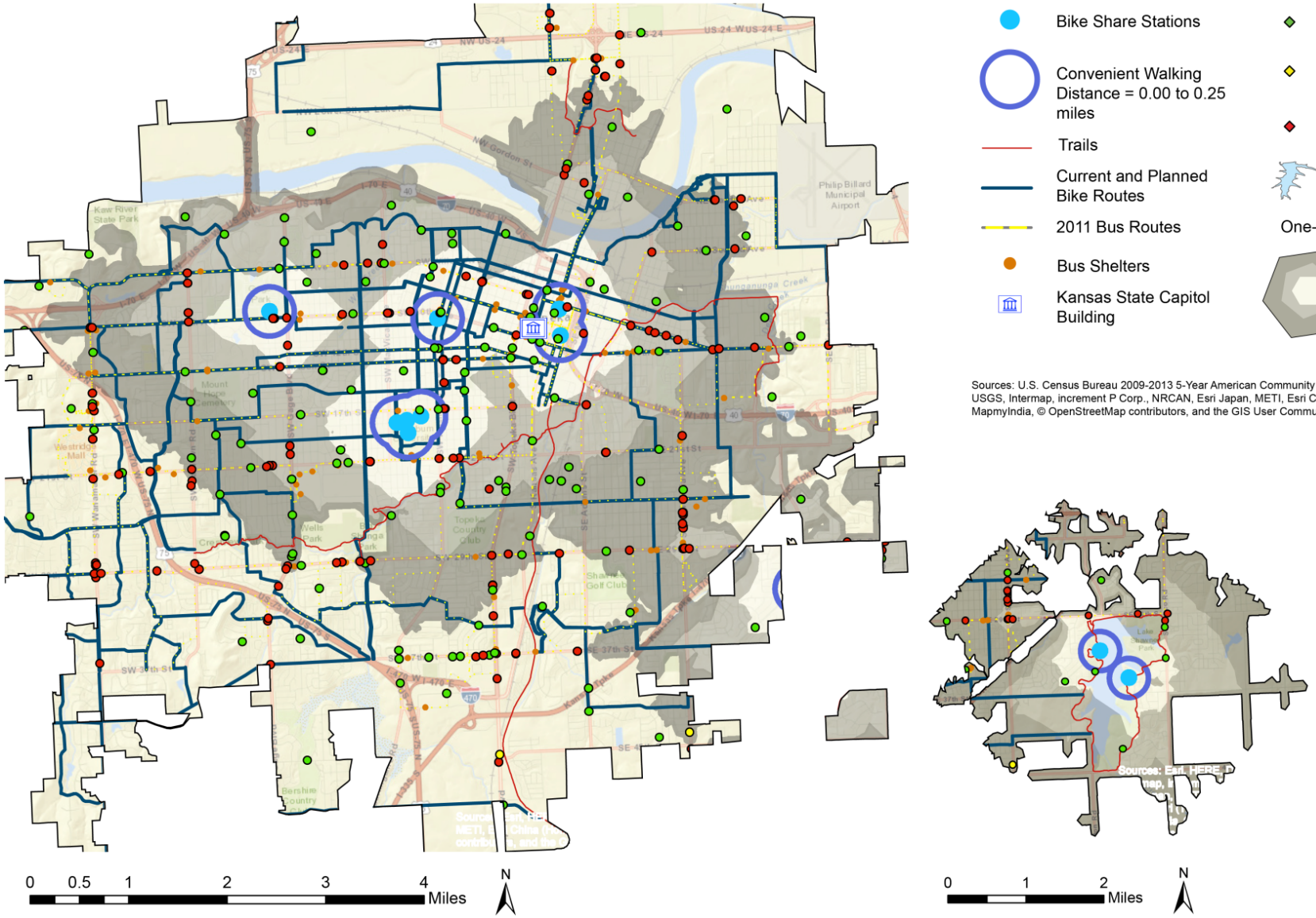


Figure 9. Mapping Healthful and Less Healthful Destinations for Planning Future Bike Share Station Locations.

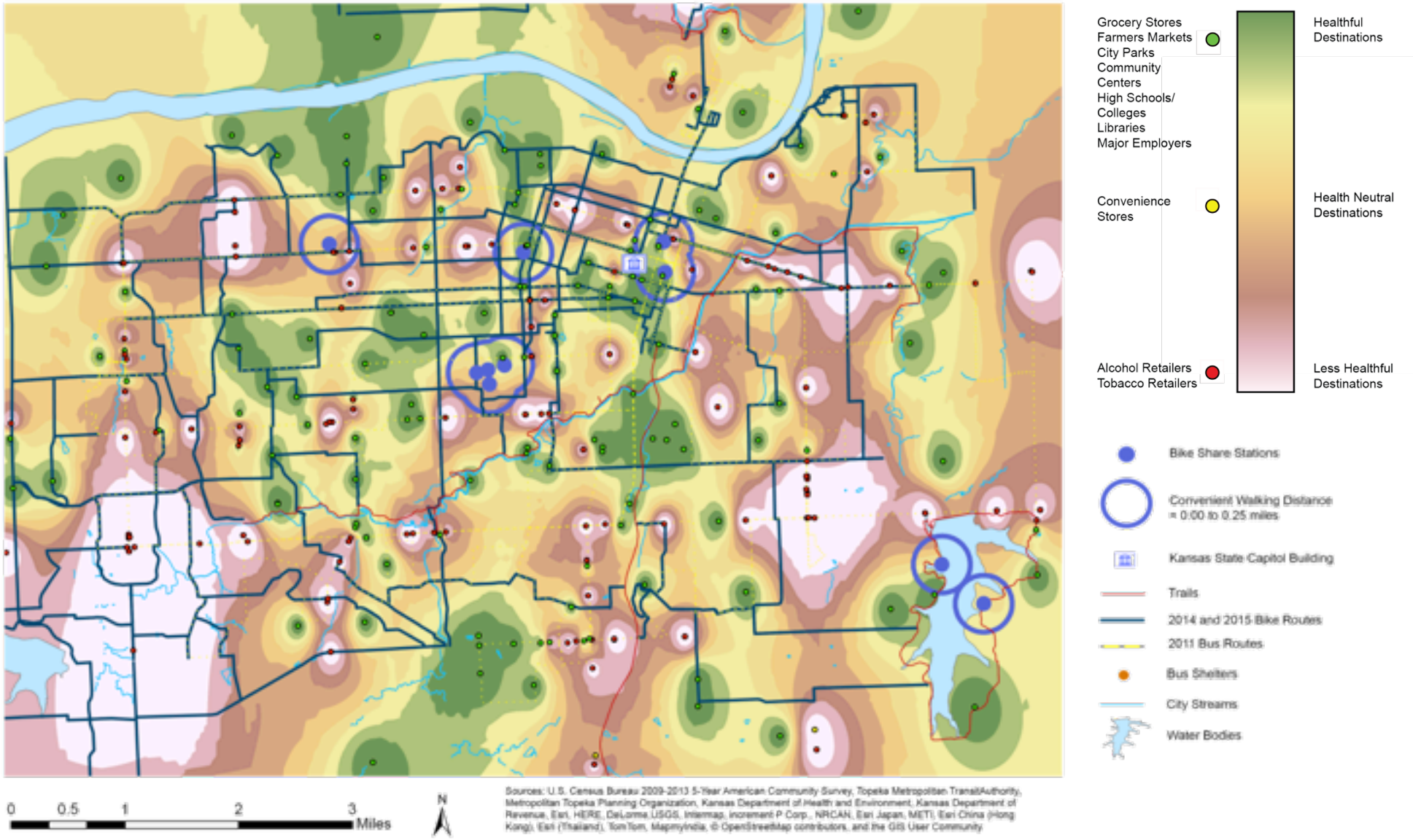
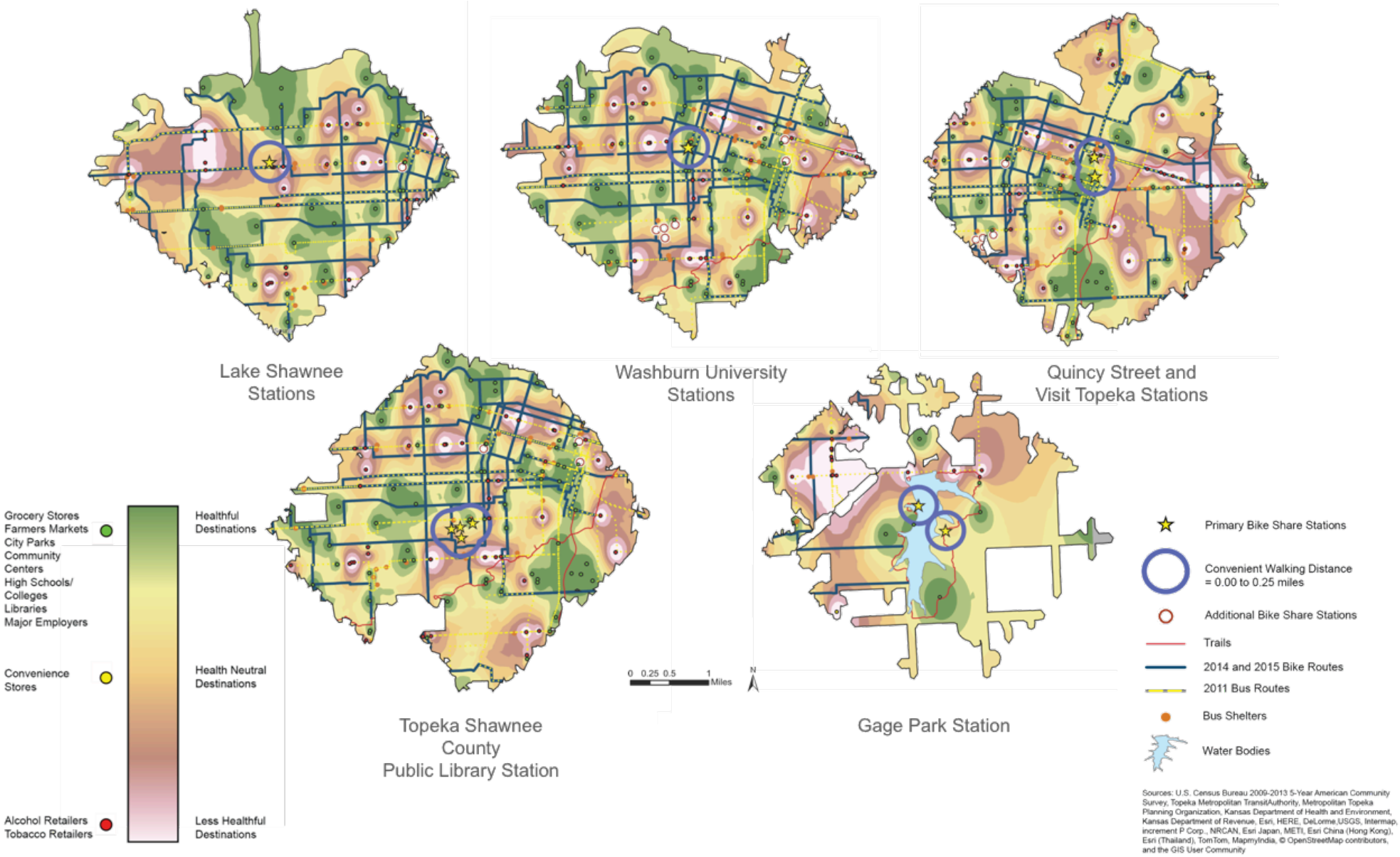


Figure 10. Access to Healthful and Less Healthful Destinations Within a 15-Minute* Bike Ride by Bike Station.



* A 15-minute bike ride was determined using spatial street network analyst set to 10 mph.

Table 5. Distribution of Healthful and Less Healthful Destinations within a 15-Minute Bike Ride of Each Bike Station.

Bike Station	Quincy Street and Visit Topeka			Topeka Shawnee County Public Library			Washburn University			Gage Park			Lake Shawnee		
	Healthful Resources	Neutral Resources	Less Healthful	Healthful Resources	Neutral Resources	Less Healthful	Healthful Resources	Neutral Resources	Less Healthful	Healthful Resources	Neutral Resources	Less Healthful	Healthful Resources	Neutral Resources	Less Healthful
Total:	**68**	**4**	**59**	**58**	**4**	**45**	**78**	**4**	**62**	**48**	**2**	**41**	**9**	**1**	**17**
# along Bike Route	**35**	**0**	**21**	**35**	**0**	**18**	**50**	**0**	**13**	**24**	**0**	**16**	**0**	**0**	**2**
# along Bus Route	**30**	**4**	**47**	**31**	**4**	**40**	**35**	**4**	**56**	**20**	**2**	**30**	**1**	**0**	**15**
# along Trail	**1**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**1**	**--**	**--**	**--**	**3**	**0**	**2**

Bus route were included in the assessment to account for mode-switch, which happens when a pedestrian switches from one mode of transportation to another (e.g. from bicycling to taking the bus). In some instances, a bike share user may ride to a bus stop, load the bicycle onto the bus's bike rack, and then continue to use the bike share bicycle once disembarking from the bus.

Quality of Life

Overview of Findings

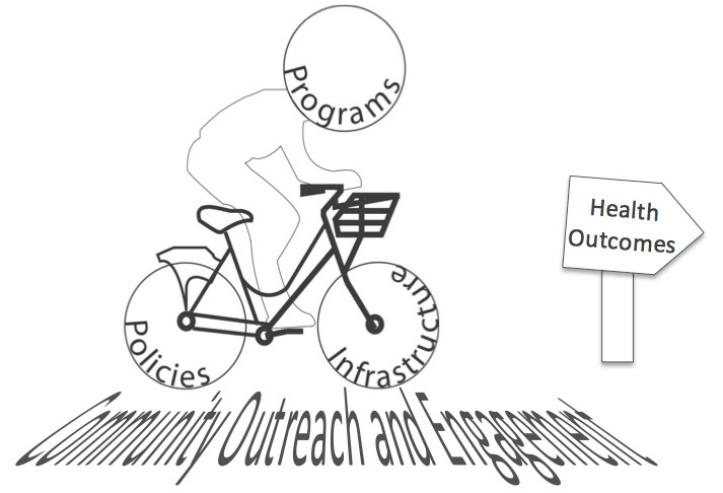
Quality of life was used as a proxy for city image and livability. Quality of life can be measured multiple ways and is determined "in a complex way by a person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to the salient features of their environment."[1] Beneficial outcomes were noted for measures of quality of life, but it is difficult to compare the impact of bike share, cycling and active transport on quality of life due to variability in the methodologies employed, the measures assessed and the populations targeted. De Geus et al. (2008) provided evidence from a review of the literature for inclusion of moderate-intensity physical activity as a "means for reducing stress and anxiety on a daily basis and improving self-perception, mood, life satisfaction, social interaction, and quality of life (Raglin, 1990; Fox, 1999; Peluso & Andrade, 2005; Penedo & Dahn, 2005)."[57] As a result and taking into consideration the World Health Organization's definition for measuring quality of life, it could be helpful to apply results from the other sections of this Health Impact Assessment and a survey of community members to a qualitative determination of how the Topeka Bike Share Program might impact quality of life, city image and livability in Topeka, KS.

Key Takeaways

- Physical activity, access to resources, safety and injury, and perceptions, attitudes and social norms can work in concert as part of a complex interplay of factors that either improve or diminish quality of life.

Additional Findings

- Bike share users and cyclists tend to be Caucasian males with higher levels of education and moderate to high incomes.
- Perceptions, attitudes and social norms related to cycling, the environment and safety impact whether or not people cycle for transport or leisure and differences in perception exist by gender and age.
- Multiple strategies working together comprehensively have the largest impact on cycling prevalence, active transport and safety and injury.



Recommendations

Community stakeholders were convened in July 2015 to solicit feedback on the HIA recommendations. Stakeholders included representatives from the Topeka Metropolitan Transit Authority, Kansas Department of Transportation, Metropolitan Topeka Planning Organization, Shawnee County Health Department, Topeka Chamber of Commerce, Community Resources Council, Heartland Healthy Neighborhoods, and the Sunflower Foundation. Stakeholders were asked whether it would be feasible to implement the recommendation, whether it is important to the community, whether it addresses vulnerable populations, and, lastly, to rank the priority of each recommendation on a scale from 1 (low priority) to 5 (high priority). It was noted by stakeholders that community members would likely rank the priority of the recommendations differently, highlighting a need for community meetings to inform implementation of any recommendations.

Final recommendations are provided below. A recommendation with three asterisks (***) indicates that stakeholders identified the recommendation as a high priority (i.e. the recommendation had an average rank between 4 and 5).

Infrastructure

- Expand the network of off-road and on-road bicycle paths, cycle tracks and lanes.***
- Expand bicycle parking facilities at key destinations such as grocery stores, farmers market, city parks, community centers, schools and major employers.***

• Expand the network of bike share bicycles to increase availability of bicycling as a transport option.

Policies

• Continue coordinating with Heartland Healthy Neighborhoods on moving the 2009 Topeka complete streets resolution to a city ordinance.***
• Establish and enforce bike share usage guidelines, rules and enforcement procedures that prohibit using bike share while under the influence of alcohol or other substances.
• Advocate for speed limits of 20 miles/hr on peripheral roads that are along existing or proposed direct bicycle routes.

Programs

• Innovative strategy: Partner with local institutions and organizations to provide subsidized memberships to low-income Topeka residents (e.g. "prescribe-a-bike").***
• Innovative strategy: Consider alternate methods for providing helmets to bike share users or other cyclists (e.g. bike helmet kiosks for helmet rentals and purchases) and collaborate with Safe Kids Kansas or others working to increase helmet use.
• Implement local bike events (e.g. bike to work days and ciclovias) to increase awareness of bike share among cyclists and non-cyclists. Combine events with skills training and targeted event marketing to women, older populations and racial and ethnic minorities.
• Develop and offer skills training courses that focus specifically on developing confidence, empowerment and positive attitudes around bicycling and bike share, especially for women, children, and older populations.
• Educate bike share users and Topeka cyclists on the dangers of riding a bicycle without a helmet or while under the influence of alcohol or other substances through print and online media, skills trainings, events, and other available means, working with the Kansas Traffic Resource Safety Office (KTSRO) for printed materials.

Equity

• Include a representative number of women, older individuals and racial and ethnic minorities in community meetings and bike share surveys to determine needs and preferences in relation to active transport, bike share and destinations of interest.***

Expansion of Bike Share

• Take into consideration the needs and preferences of those who may not already use bike share and whose trip usage might not be collected in order to more equitably expand bike share in Topeka.

Photo by Megan Rogers.

Monitoring and Evaluation Plan

Purpose and Objectives

In order to determine what impact the HIA had in the community, the monitoring and evaluation plan provides guidance to stakeholders, who will have responsibility for undertaking the plan, through the development of surveys, measurable parameters, timelines, and methods of analysis.

Objective 1: Inform decisions in the implementation and expansion of bike share

Objective 2: Promote beneficial health outcomes for priority areas assessed in HIA

Objective 3: Implement and expand in an equitable manner

Components and Methods

Objective 1: Inform decisions in the implementation and expansion of bike share

Topeka Metro Board of Director Survey

Decision-makers are the gatekeepers for implementation of recommendations provided in a Health Impact Assessment. To determine to what degree the HIA impacted decision-maker perspectives of the health issues related to the bike share and to what degree recommendations were considered and implemented, survey questions have been developed and provided in Appendix D. Questions were created by the HIA practitioner with input from the Kansas Health Institute and Topeka Metro.

Questions have been uploaded to Google Forms for dispersal by email to Topeka Metro members of the Board of Directors. Responses submitted through Google Forms are automatically uploaded to a Google Spreadsheet. The Google Spreadsheet will be analyzed and shared with the Director of Bike Operations by the HIA practitioner.

Community Engagement Survey

A Topeka Metro Bikes Community Survey was developed collaboratively between Topeka Metro, a Miami University graduate student living in Topeka, and the HIA practitioner. Implementation of the survey will follow Topeka Metro's established "Title VI Public Participation Plan" for engaging diverse and underserved populations. The community survey is provided in Appendix E.

Results from the survey can be shared with decision-makers on the Topeka Metro Board of Directors, at the City of Topeka, and at the Metropolitan Topeka Planning Organization to inform them of community member perceptions, attitudes, and barriers related to bike share. Future community surveys could also include questions that ask respondents to what degree the bike share program has impacted their quality of life and perceptions of the City of Topeka.

Objective 2: Promote beneficial health outcomes for priority areas assessed in HIA

Data Collection and Evaluation for the Implementation of HIA Recommendations

Table 5 details parameters, timelines, and methods for each recommendation within the HIA, organized by component (e.g. infrastructure, policy, program, equity, and expansion).

To facilitate further research on bike share and to assist in identifying the populations impacted, it is recommended that data collection include age, gender, and race/ethnicity of bike share users overall, as well as stratification of the data for appropriate measures within Table 5 by these demographic characteristics.

Table 5. Evaluation Measures, Timelines, and Sources across Infrastructure, Policies, and Programs.

Infrastructure

Recommendation	Expand the network of off-road and on-road bicycle paths, cycle tracks and lanes.***	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of off-road bicycle paths, on-road bicycle paths, on-road bicycle lanes, on-road cycle tracks	Annually (2015-2025)	• As documented by Topeka Metro, the City of Topeka, and the Metropolitan Topeka Planning Organization through the implementation of the Bikeways Master Plan
Recommendation	Expand bicycle parking facilities at key destinations such as grocery stores, farmers market, city parks, community centers, schools and major employers.***	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of bike share compatible bicycle racks ⇒ Number of bike share compatible bicycle racks by location (e.g. grocery store, university campus, etc.)	Annually (2015-2020)	• Bike parking census carried out by Topeka Metro
Recommendation	Expand the network of bike share bicycles to increase availability of bicycling as a transport option.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of bike share bicycles	Annually (2015-2020)	• As documented by Topeka Metro

Recommendation	Continue coordinating with Heartland Healthy Neighborhoods on moving the 2009 Topeka complete streets resolution to a city ordinance.***	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Inclusion of complete streets city ordinance in Heartland Healthy Neighborhoods action plan ⇒ Organizations working on passing of ordinance ⇒ Number of completed action steps toward implementation of ordinance	Monthly (until passed)	• Note taking by Built Environment workgroup of Heartland Healthy Neighborhoods • Documentation of activities in committee action plan • Introduction of ordinance by City of Topeka council member(s)

Recommendation	Establish and enforce bike share usage guidelines, rules and enforcement procedures that prohibit using bike share while under the influence of alcohol or other substances.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Inclusion or no inclusion in usage guidelines	One year from bike share implementation	• Inclusion in usage guidelines as determined by Topeka Metro

Recommendation	Advocate for speed limits of 20 miles/hr on peripheral roads that are along existing or proposed direct bicycle routes.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of available direct bicycle routes along roads with speed limits of 20 miles/hr or less ⇒ Number of bike share users utilizing direct routes along roads with speed limits of 20 miles/hr or less	Annually (2015-2025)	• As documented by the City of Topeka • Bike share GIS data from Topeka Metro

Recommendation	Innovative strategy: Partner with local institutions and organizations to provide subsidized memberships to low-income Topeka residents (e.g. "prescribe-a-bike").***	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
• Identification of one or more willing partners (yes/no) • Number of subsidized memberships provided	Annually (2016-2020)	• Topeka Metro can identify organizations willing to advocate for subsidized memberships with local healthcare providers • Topeka Metro and/or organizational stakeholders can identify and approach potential funders of subsidized memberships (e.g. healthcare providers or other organizations) • Topeka Metro and/or same stakeholders can identify and approach healthcare organizations to propose implementation of subsidized memberships • Subsidized memberships can be promoted through Topeka Metro media channels and organizational stakeholder media channels • Topeka Metro can coordinate with healthcare providers to determine number of subsidized memberships provided • Trip usage data from Topeka Metro could determine effectiveness of the strategy for encouraging active transport among the low-income population in Topeka

Recommendation	Innovative strategy: Consider alternate methods for providing helmets to bike share users or other cyclists (e.g. bike helmet kiosks for helmet rentals and purchases) and collaborate with Safe Kids Kansas or others working to increase helmet use.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Identification and implementation of one or more strategies for providing helmets to bike share users or other cyclists	Annually (2016-2020)	• Local organizational stakeholders (e.g. Bikeways Advisory Committee, Topeka Community Cycle Project, etc.) can identify local partners willing

			to develop and implement creative methods for providing helmets to bike share users (e.g. SafeKids KS, Washburn University School of Business, etc.) • Collaborate with willing partners to provide or sell helmets to bike share users in Topeka • Track types and effectiveness of strategies through the number of helmets provided or sold • Document helmet use through annual bike count
Recommendation	Implement local bike events (e.g. bike to work days and ciclovias) to increase awareness of bike share among cyclists and non-cyclists. Combine events with skills training and targeted event marketing to women, older populations and racial and ethnic minorities.		
Measurable Parameters		**Timeline**	**Data Sources/Methods**
⇒ Number of local bike events ⇒ Number of events including skills training for attendees ⇒ Number of attendees participating in skills training by gender, age, and race/ethnicity		Annually (2016-2020)	• Topeka Metro can coordinate with local organizations in implementing or identifying local bike events and at which events skills trainings are offered • Coordinate with skills training staff to identify methods of collection for gender, age, and race/ethnicity
Recommendation	Develop and offer skills training courses that focus specifically on developing confidence, empowerment and positive attitudes around bicycling and bike share, especially for women, children, and older populations.		
Measurable Parameters		**Timeline**	**Data Sources/Methods**
⇒ Number of attendees participating in skills training who indicate increased confidence, empowerment, and/or positive attitudes around cycling six weeks after completion of the course		Annually (2016-2020)	• Develop and email/mail a survey asking attendees who participated in a skills training course to identify changes in perceptions and attitudes

Data Collection and Evaluation for Safety and Injury

Infrastructure, policies, and programs can all impact the safety of cyclists and bike share users. Developing a separate crash report can highlight successes as well as gaps in how available infrastructure, policies, or programs guarantee safety. This would enable Topeka Metro, the City of Topeka, and the Metropolitan Topeka Planning Organization to adapt their plans accordingly. The following table provides measures, timelines, and methods of analysis across recommendations that could impact safety and injury.

Due to the level of data collection and analysis that may be required by the development of a more comprehensive crash report, Topeka Metro or other area agency may be interested in soliciting assistance from graduate student interns and research faculty at local universities like the University of Kansas Medical Center, the University of Kansas, or Kansas State University. Example crash reports are publicly available online for Boston and Chicago bike share systems.[29, 39]

Table 6. Safety and Injury Evaluation Measures, Timelines, and Sources across Infrastructure, Policies, and Programs.

Infrastructure

Recommendation	Expand the network of off-road and on-road bicycle paths, cycle tracks and lanes.***	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths by type of route ⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths by gender ⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths by time of day ⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths by race/ethnicity	Annually or once every 2-3 years (2016-2020)	• City of Topeka police reports • City of Topeka cyclist crash data • Kansas Department of Transportation (KDOT) crash data • KDOT Accident Statistics, Select a year, Accident Types: Pedestrian/Pedacyclist (Pedacyclist injuries and fatalities by age) • National Highway Traffic Safety Administration, Fatality Analysis Reporting System and/or Traffic Safety Facts – Shawnee County, Kansas (Bicyclist fatalities)

Policies

Recommendation	Establish and enforce bike share usage guidelines, rules and enforcement procedures that prohibit using bike share while under the influence of alcohol or other substances.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths by cause (e.g. cyclist intoxicated, dooring, etc.)	Annually or once every 2-3 years (2016-2020)	• City of Topeka police reports • City of Topeka cyclist crash data

Recommendation	Advocate for speed limits of 20 miles/hr on peripheral roads that are along existing or proposed direct bicycle routes.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths along routes with speed limits of 20 MPH or less ⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths along routes with speed limits of greater than 20 MPH	Annually or once every 2-3 years (2016-2020)	• City of Topeka police reports • City of Topeka cyclist crash data

Programs

Recommendation	Innovative strategy: Consider alternate methods for providing helmets to bike share users or other cyclists (e.g. bike helmet kiosks for helmet rentals and purchases) and collaborate with Safe Kids Kansas or others working to increase helmet use.	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of cyclist crashes, number and severity of cyclist injuries, and number of cyclist deaths by cyclist helmet use, stratified by gender, race/ethnicity, and age	Annually or once every 2-3 years (2016-2020)	• City of Topeka police reports • City of Topeka cyclist crash data

Objective 3: Implement and expand bike share in an equitable manner

Table 7. Evaluation Measures, Timelines, and Sources across Equity and Expansion.

Equity

Recommendation	Include a representative number of women, older individuals and racial and ethnic minorities in community meetings and bike share surveys to determine needs and preferences in relation to active transport, bike share and destinations of interest.***	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of community meetings ⇒ Number of attendees at meetings by gender, age, race/ethnicity, and neighborhood of residence (or zip code) ⇒ Data from community survey (Appendix E)	Annually and post-meeting (2016-2020)	• Follow the Topeka Metro "Title VI Public Engagement Plan" • Engage Heartland Healthy Neighborhoods in targeting diverse and underserved populations • Community survey

Expansion

Recommendation	Take into consideration the needs and preferences of those who may not already use bike share and whose trip usage might not be collected in order to more equitably expand bike share in Topeka	
Measurable Parameters	**Timeline**	**Data Sources/Methods**
⇒ Number of community meetings ⇒ Number of community meetings by location ⇒ Number of invitees and attendees at meetings by gender, age, race/ethnicity, and neighborhood of residence (or zip code) ⇒ Data from community survey (Appendix E)	Annually (2016-2020)	⇒ Follow the Topeka Metro "Title VI Public Engagement Plan" ⇒ Assign a staff person at each meeting to count attendees by gender ⇒ Ask attendees to sign in and provide the zip code of their residence and any other pertinent demographic information ⇒ Community survey

Conclusions

Implementing bike share in combination with infrastructure, policies, programs and community outreach and engagement can and has produced beneficial health outcomes, though bike share alone is unlikely to produce large increases in population-level physical activity, access to resources, or quality of life. Additional work and research are needed to engage women, racial and ethnic minorities, low-income and low-education groups, and older generations in bike share, cycling and active transport. Inclusion of these groups presents an opportunity to greatly increase physical activity, access to resources, and overall quality of life in the Topeka community.

Limitations

This project had several limitations. First, much of the peer-reviewed literature describes research conducted outside of the United States and North America. As such, the results of the research may not be directly applicable to U.S. cities and populations. European countries from which the literature comes tend to be more car-restrictive and have a higher prevalence of cycling. Nevertheless, studies from Europe, where bike share first began in the 1960's, as well as elsewhere, can provide valuable lessons learned and guide implementation of successful bike share systems in the United States, including Topeka, Kansas.

Second, a dearth of literature exists on how bike share might impact the priority health areas assessed in this Health Impact Assessment, requiring that the HIA include a consideration of all cycling and active transport. Third, grey literature is often used in HIA to provide additional descriptive analyses for determining recommendations. The grey literature often lacked stated or strong methodologies, sample sizes and other information that could inform its validity, but the context it provided was invaluable.

Strengths

This project also had several strengths. The willingness of an agency and its decision-makers to participate in the HIA process and to consider the recommendations that come out of the HIA are paramount to its success. Topeka Metro showed an interest in the HIA from the beginning and decision-makers participated in a scoping process to identify the areas for assessment. In addition, local and state-level organizational stakeholders participated in a review of the recommendations, providing feedback that shaped the final recommendations and highlighted those of greatest importance. Local level data was also available through the City of Topeka and the Metropolitan Topeka Planning Organization, which enabled the mapping of determinants of health in relation to the bike share and provided further context to the findings and recommendations.

Discussion

Health Impact Assessment is a tool and framework that engages decision-makers in a consideration of health and equity through the provision of recommendations. The implementation of HIA can spur cross-sectoral partnerships between health and non-health sectors, and over time work to impact health outcomes in a community. However, it is necessary to increase capacity for HIA at state and local levels, and to prompt further research in bike share, cycling, and active transport, as this evidence provides a foundation for providing recommendations to decision-makers.

References

1 World Health Organization. (2015). Social Determinants of Health. Retrieved March 29, 2015 from: http://www.who.int/social_determinants/thecommission/en/

2 Fundenberger, K. (2015). Conversations in December and January, 2015.

3 U.S. Census Bureau. (2014). DP05 ACS Demographic and Housing Estimates, S1501 Educational Attainment, DP03 Selected Economic Characteristics and S1701 Poverty Status in the Past 12 Months [Datasets]. 2009-2013 5-Year American Community Survey. Retrieved on March 28, 2015 from: http://factfinder.census.gov/

4 2012 Healthy Shawnee County Community Health Needs Assessment. (2013). Shawnee County Health Department. Retrieved March 23, 2015 from < https://www.stfrancistopeka.org/~/media/stfrancis/stfrancisfiles/communityassessment2013.pdf>

5 The Topeka Bikeways Master Plan. (2011). RDG Planning & Design and Cook, Flatt & Strobel. Retreived January 15, 2015 from < http://www.topeka.org/pdfs/TopekaBikewaysMasterPlan.pdf>

6 Heartland Healthy Neighborhoods. (2015). Retrieved March 5, 2015 from < http://www.heartlandhealthyneighborhoods.org/about_us/>

7 Metcalfe, O., & Higgins, C. (2009). Healthy public policy–is health impact assessment the cornerstone?. Public health, 123(4), 296-301.

8 Alberts, B., Palumbo, J. and Pierce, E. (2012). Vehicle 4 Change: Health Implications of the Capital Bike Share Program. The George Washington University. Retrieved on April 15, 2015 from <

9 Sood, S. (2011). Bike Sharing Around the World. BBC. Retrieved March 23, 2015 from < http://www.bbc.com/travel/story/20110909-travelwise-bike-sharing-around-the-world>

10 Bay Area Bike Share. Open Data [Datasets]. Retrieved on March 28, 2015 from: http://www.bayareabikeshare.com/datachallenge

11 NYC CitiBike. System data [Datasets]. Retrieved on March 28, 2015 from: http://www.citibikenyc.com/system-data

12 Kansas City B-Cycle 2012 Report. (2012). Kansas City B-Cycle. Retrieved on April 15, 2015 from < https://kansascity.bcycle.com/LinkClick.aspx?fileticket=-JC3E4C_WJs%3D&tabid=821>

13 Kansas City B-Cycle 2013 Report. (2013). Kansas City B-Cycle. Received on April 15, 2015 from < https://kansascity.bcycle.com/LinkClick.aspx?fileticket=4dcb7io4Yyw%3D&tabid=821>

14 Capital Bikeshare 2011 Member Survey Report. (2012). Capital Bikeshare. Retrieved on April 15, 2015 from <2013 Capital Bikeshare Member Survey Report. (2013). Capital Bikeshare. Retrieved on April 15, 2015 from < http://www.capitalbikeshare.

com/assets/pdf/CABI-2013SurveyReport.pdf>

15 Davis, M. G., Fox, K. R., Hillsdon, M., Coulson, J. C., Sharp, D. J., Stathi, A., & Thompson, J. L. (2011). Getting out and about in older adults: the nature of daily trips and their association with objectively assessed physical activity. Int J Behav Nutr Phys Act, 8(1), 116-125.

16 Titze, S., Merom, D., Rissel, C., & Bauman, A. (2014). Epidemiology of cycling for exercise, recreation or sport in Australia and its contribution to health-enhancing physical activity. Journal of Science and Medicine in Sport, 17(5), 485-490.

17 Veisten, K., Flügel, S., Ramjerdi, F., & Minken, H. (2011). Cycling and walking for transport: Estimating net health effects from comparison of different transport mode users' self-reported physical activity. Health economics review, 1(1), 1-9.

18 Pucher, J., Buehler, R., Bassett, D. R., & Dannenberg, A. L. (2010). Walking and cycling to health: a comparative analysis of city, state, and international data. American journal of public health, 100(10), 1986.

19 Gordon-Larsen, P., Boone-Heinonen, J., Sidney, S., Sternfeld, B., Jacobs, D. R., & Lewis, C. E. (2009). Active commuting and cardiovascular disease risk: the CARDIA study. Archives of internal medicine, 169(13), 1216-1223.

20 Fuller, D., Gauvin, L., & Kestens, Y. (2013). Individual-and area-level disparities in access to the road network, subway system and a public bicycle share program on the Island of Montreal, Canada. Annals of behavioral medicine,45(1), 95-100.

21 Andersen, L. B., Schnohr, P., Schroll, M., & Hein, H. O. (2000). All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work. Archives of internal medicine, 160(11), 1621-1628.

22 U.S. Census Bureau. (2013). State and County Quick Facts. Retrieved on March 28, 2015 from: http://quickfacts.census.gov/qfd/states/20/2071000.html

23 Basch, C. H., Zagnit, E. A., Rajan, S., Ethan, D., & Basch, C. E. (2014). Helmet use among cyclists in New York City. Journal of community health, 39(5), 956-958

24 Basch, C. H., Ethan, D., Zybert, P., Afzaal, S., Spillane, M., & Basch, C. E. (2014). Public bike sharing in New York City: helmet use behavior patterns at 25 Citi Bike™ stations. Journal of community health, 1-4.

25 Noyes, P., Fung, L., Lee, K. K., Grimshaw, V. E., Karpati, A., & DiGrande, L. (2014). Cycling in the city: an in-depth examination of bicycle lane use in a low-income urban neighborhood. Journal of physical activity and health, 11(1), 1-9.

26 Martínez-Ruiz, V., Lardelli-Claret, P., Jiménez-Mejías, E., Amezcua-Prieto, C., Jimenez-Moleon, J. J., & del Castillo, J. D. D. L. (2013). Risk factors for causing road crashes involving cyclists: An application of a quasi-induced exposure method. Accident

Analysis & Prevention, 51, 228-237.

27 Orsi, C., Ferraro, O. E., Montomoli, C., Otte, D., & Morandi, A. (2014). Alcohol consumption, helmet use and head trauma in cycling collisions in Germany. Accident Analysis & Prevention, 65, 97-104.

28 Bambach, M. R., Mitchell, R. J., Grzebieta, R. H., & Olivier, J. (2013). The effectiveness of helmets in bicycle collisions with motor vehicles: A case–control study. Accident Analysis & Prevention, 53, 78-88.

29 Boston Cyclist Safety Report. (2013). City of Boston. Retrieved April 15, 2015 from < http://www.cityofboston.gov/news/uploads/16776_49_15_27.pdf>

30 Pucher, J., & Buehler, R. (2008). Making cycling irresistible: lessons from the Netherlands, Denmark and Germany. Transport Reviews, 28(4), 495-528.

31 Pucher, J., Dill, J., & Handy, S. (2010). Infrastructure, programs, and policies to increase bicycling: an international review. Preventive medicine, 50, S106-S125.

32 Garrard, J., Handy, S., & Dill, J. (2012). Women and cycling. City cycling, 211-234.

33 Garrard, J., Rose, G., & Lo, S. K. (2008). Promoting transportation cycling for women: the role of bicycle infrastructure. Preventive medicine, 46(1), 55-59.

34 Heesch, K. C., Giles-Corti, B., & Turrell, G. (2014). Cycling for transport and recreation: associations with socio-economic position, environmental perceptions, and psychological disposition. Preventive medicine, 63, 29-35.

35 Constant, A., Messiah, A., Felonneau, M. L., & Lagarde, E. (2012). Investigating helmet promotion for cyclists: results from a randomised study with observation of behaviour, using a semi-automatic video system. PloS one, 7(2), e31651.

36 Ross, T. P., Ross, L. T., Rahman, A., & Cataldo, S. (2010). The bicycle helmet attitudes scale: using the health belief model to predict helmet use among undergraduates. Journal of American College Health, 59(1), 29-36.

37 O'Callaghan, F. V., & Nausbaum, S. (2006). Predicting bicycle helmet wearing intentions and behavior among adolescents. Journal of Safety Research, 37(5), 425-431.

38 State of the Hub. (2014). Boston Bikes. Retrieved April 15, 2015 from < http://www.cityofboston.gov/images_documents/2013%20ReportFinal_tcm3-44028.pdf>

39 City of Chicago 2012 Bicycle Crash Analysis. (2012). City of Chicago. Retrieved on Nov. 20, 2015 from https://www.cityofchicago.org/content/dam/city/depts/cdot/bike/general/BikeCrashReport2012.pdf

40 Bouaoun, L., Haddak, M. M., & Amoros, E. (2015). Road crash

fatality rates in France: a comparison of road user types, taking account of travel practices. Accident Analysis & Prevention, 75, 217-225.

41 Bambach, M. R., Mitchell, R. J., Grzebieta, R. H., & Olivier, J. (2013). The effectiveness of helmets in bicycle collisions with motor vehicles: A case–control study. Accident Analysis & Prevention, 53, 78-88.

42 Yeung, J. H. H., Leung, C. S. M., Poon, W. S., Cheung, N. K., Graham, C. A., & Rainer, T. H. (2009). Bicycle related injuries presenting to a trauma centre in Hong Kong. Injury, 40(5), 555-559.

43 Kaplan, S., Vavatsoulas, K., & Prato, C. G. (2014). Aggravating and mitigating factors associated with cyclist injury severity in Denmark. Journal of safety research, 50, 75-82.

44 Basch, C. H., Zagnit, E. A., Rajan, S., Ethan, D., & Basch, C. E. (2014). Helmet use among cyclists in New York City. Journal of community health, 39(5), 956-958.

45 Basch, C. H., Ethan, D., Zybert, P., Afzaal, S., Spillane, M., & Basch, C. E. (2014). Public bike sharing in New York City: helmet use behavior patterns at 25 Citi Bike™ stations. Journal of community health, 1-4.

46 Jacobsen, P. L. (2003). Safety in numbers: more walkers and bicyclists, safer walking and bicycling. Injury prevention, 9(3), 205-209.

47 Teschke, K., Brubacher, J. R., Friedman, S. M., Cripton, P. A., Harris, M. A., Reynolds, C. C., et al. (2012). Personal and trip characteristics associated with safety equipment use by injured adult bicyclists: a cross-sectional study. BMC public health, 12(1), 765.

48 Lusk, A. C., Furth, P. G., Morency, P., Miranda-Moreno, L. F., Willett, W. C., & Dennerlein, J. T. (2011). Risk of injury for bicycling on cycle tracks versus in the street. Injury Prevention, 17(2), 131-135.

49 Doyle, N., Waller, S., Wohlgemuth, C., & Crombie, H. (2006). Transport interventions promoting safe cycling and walking: Evidence briefing. London: National Institute for Health and Clinical Excellence.

50 Morrison, D. S., Petticrew, M., & Thomson, H. (2003). What are the most effective ways of improving population health through transport interventions? Evidence from systematic reviews. Journal of epidemiology and community health, 57(5), 327-333.

51 Grundy, C., Steinbach, R., Edwards, P., Green, J., Armstrong, B., & Wilkinson, P. (2009). Effect of 20 mph traffic speed zones on road injuries in London, 1986-2006: controlled interrupted time series analysis. Bmj, 339.

52 Dill, J., Handy, S. L., & Pucher, J. (2013). How to Increase Bicycling for Daily Travel.

53 Nelson, N. M., & Woods, C. B. (2010). Neighborhood perceptions and active commuting to school among adolescent boys and girls. Journal of physical activity & health, 7(2), 257.

54 Simons, D., Clarys, P., De Bourdeaudhuij, I., de Geus, B., Vandelanotte, C., & Deforche, B. (2013). Factors influencing mode of transport in older adolescents: a qualitative study. BMC public health, 13(1), 323.

55 Molina-García, J., Castillo, I., & Sallis, J. F. (2010). Psychosocial and environmental correlates of active commuting for university students.Preventive medicine, 51(2), 136-138.

56 Webster, K. M., & Cunningham, C. J. (2013). Preparing for bike-sharing insight from focus groups and surveys, Chattanooga, Tennessee, 2010. Health promotion practice, 14(1), 62-68.

57 De Geus, B., Van Hoof, E., Aerts, I., & Meeusen, R. (2008). Cycling to work: influence on indexes of health in untrained men and women in Flanders. Coronary heart disease and quality of life. Scandinavian journal of medicine & science in sports, 18(4), 498-510.

Appendices

Appendix A: Datasets

Dataset Name	Source	Dataset Detail	Description
KS Census Block Group	Census Bureau FactFinder	2009-2013 ACS 5-Year Estimates	Census block group data for: ⇒ Population ⇒ Gender ⇒ Race/Ethnicity ⇒ Age ⇒ Median earnings ⇒ Educational attainment ⇒ Poverty ⇒ Time leaving for work ⇒ Mode of transportation to work ⇒ Travel time to work
Bike Share Racks	Topeka Metro		Polygons and points of 12 bike share racks across 5 locations
Topeka Trails	Topeka Metro (City of Topeka)		Pedestrian trails in Topeka
Topeka Bike Routes	Topeka Metro (City of Topeka)		Bike Routes (current and 2015 planned routes) in Topeka
Parks	City of Topeka		Polygons of parks in Topeka
Public	City of Topeka		Public buildings in Topeka (e.g. state office buildings, etc.)
Sidewalks	City of Topeka		Sidewalks in Topeka

Sidewalk Ramps	City of Topeka	Shows what sidewalks have wheelchair (and bicycle) accessible ramps for ease of crossing
Schools	City of Topeka	Schools in Topeka
Community Centers	City of Topeka	Community centers in Topeka
KS Workplace Area Characteristics	Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES)	Contains census block data for: ⇒ Total # of jobs ⇒ # of jobs for workers by age ⇒ # of jobs for workers by earnings ⇒ # of jobs for workers by industry ⇒ # of jobs for workers by race ⇒ # of jobs for workers by gender ⇒ # of jobs for workers by education
Alcohol Retailers	Kansas Department of Health and Environment	Addresses for alcohol retailers in Kansas
Tobacco Retailers	Kansas Department of Revenue	Addresses for tobacco retailers in Shawnee County, Kansas, were downloaded

Appendix B: HIA Screening Form

Questions	Answer Yes/No	Comments
1. Is there a decision regarding a policy, plan or project, currently under consideration whose outcomes are likely to impact health?		
2. Does the decision-making process allow for input from an HIA?		
3. Would the HIA bring new information to the decision-making process? Are health considerations absent from the discussion?		
4. Can the HIA be completed within the timeline for the decision, and with the resources available? • Aligning funds with decision timelines • Available staff • Available data • Need for development of stakeholder support • "Type" of HIA needed for the decision		
5. What is the likelihood that the HIA findings and recommendations will receive consideration by decision-makers?		
6. Is there the potential for vulnerable populations (different sub-groups within the community) to be more adversely affected than others?		
Additional Screening Questions	**Answer Yes/No**	**Comments**
7. What are the primary health determinants or outcomes likely to be impacted by the decision?		
8. Are there other stakeholders who are willing and able to participate in the HIA?		
9. Does this HIA have the potential to increase partnerships, visibility, and support for future HIAs and other Health in All Policies efforts in your region?		
10. Has a group or organization requested an HIA on a particular decision?		

Appendix C: HIA Scoping Form

Topeka Bike Share Program
Health Impact Assessment Scoping Form

Please complete this form and return to Karl Fundenberger by Fri. Dec. 5. Your responses will help to guide the completion of a Health Impact Assessment, which will help to inform decisions on the Topeka Bike Share Program.

Launching the Topeka Bike Share Program could impact the community in multiple ways.

Listed below are three potential immediate impacts that could occur if the Bike Share Program were to be launched tomorrow. **Please rank these impacts in order of what you think is most important (1) to least important (3 or 4).**

_ Topeka community members switch from using cars to using active transportation (bicycles)

_ Topeka community members have access to services and resources

_ Topeka's city image and livability changes as a result of the program

_ Other: _____

As board members, each of you works with the community in some way and has some level of knowledge of community concerns.

Using this knowledge, please place an "X" next to the top 5 most important issues facing the Topeka community. (Issues listed below can be either positive or negative).

_ Traffic volume

_ Chronic disease (e.g. obesity, diabetes, etc.)

_ Levels of physical activity

_ Access to local businesses

_ Access to healthcare

_ Access to jobs

_ Access to recreational facilities

_ Access to education

_ Access to healthy foods

_ Socioeconomic status (I.e. income)

_ Other: _____

_ Air quality/pollution

_ Risky behaviors (e.g. lack of helmet use, heart disease, driving while drunk, drug use, etc.)

_ Rates of pedestrian/cyclist injury/death

_ Walking/biking infrastructure (e.g. bike lanes)

_ Mental health

_ Quality of life

_ Investment/reinvestment

_ City economic vitality

_ Population growth

_ Amount of discretionary time

Topeka Metro Board of Directors HIA Impact Survey

* Required

1. **Did you read the Bike Share HIA report?** *
   Mark only one oval.

   ◯ Yes *Skip to question 3.*
   ◯ No *Skip to question 2.*

2. **Please describe reasons for not reading the Bike Share HIA report:**

Skip to question 7.

3. **On a scale of 1 to 10, to what degree did the HIA impact the way you think about bike share in Topeka?** *
   Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not at all	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	A lot

4. **On a scale of 1 to 10, to what degree did the HIA inform the decision-making process for the bike share in Topeka?** *
   Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not at all	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	A lot

5. **On a scale of 1 to 10, to what degree did the HIA influence the way you think about the health impacts of bike share?** *
   Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not at all	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	A lot

6. **On a scale of 1 to 10, to what degree have you implemented recommendations from the HIA?** *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not at all	⬭	⬭	⬭	⬭	⬭	⬭	⬭	⬭	⬭	⬭	A lot

Skip to question 7.

Thank you!

Thank you for providing feedback. If you have any further thoughts, please provide them in the question below and be sure to hit the "Submit" button to complete the survey.

7. **What did you take away from the HIA process for the bike share? Other thoughts?**

Appendix E: Monitoring and Evaluation Community Survey

Topeka Metro Bikes Community Survey

Topeka Metro Bikes is six months old – and we need your help! We're asking for input on how people use the bikes, and where you'd like to see bikeshare stations in the future.

Demographic Questions

Please answer the following demographic questions. Although providing this information helps us better serve you, answering is completely voluntary.

1. What is your age?
   - ☐ 12 years old or younger
   - ☐ 13-17 years old
   - ☐ 18-24 years old
   - ☐ 25-34 years old
   - ☐ 35-44 years old
   - ☐ 45-54 years old
   - ☐ 55-64 years old
   - ☐ 65-74 years old
   - ☐ 75 years or older

2. What is your gender?
   - ☐ Male
   - ☐ Female

3. Please specify your ethnicity.
   - ☐ White
   - ☐ Hispanic or Latino
   - ☐ Black or African American
   - ☐ Native American or American Indian
   - ☐ Asian / Pacific Islander
   - ☐ Two or more
   - ☐ Other

4. What is your highest level of education?
   - ☐ Pre-K to 8th grade
   - ☐ Some high school
   - ☐ High school diploma or equivalent
   - ☐ Some college
   - ☐ Trade/technical/vocational training
   - ☐ Associate Degree
   - ☐ Bachelor's Degree
   - ☐ Master's Degree
   - ☐ Doctorate Degree

5. What is your annual household income?
   - ☐ Less than $25,000
   - ☐ $25,000 to $34,999
   - ☐ $35,000 to $49,999
   - ☐ $50,000 to $74,999
   - ☐ $75,000 to $99,999
   - ☐ $100,000 to $149,000
   - ☐ $150,000 or more

Topeka Bike Share Program

Please answer the following questions.

6. Have you heard of the Topeka Bike Share Program?

   - ☐ Yes
   - ☐ No

7. How did you hear about the Topeka Bike Share Program (if applicable)?

   _____

8. Have you used the Topeka Bike Share Program?
   - ☐ Yes, I am an annual member
   - ☐ Yes, I am a student member on the annual plan
   - ☐ Yes, I am a student member on the monthly plan
   - ☐ Yes, I have used the short-term rental
   - ☐ No, I have never used the program

Please tell us how often you use bike share trips for each of the following:

Please rate each item on a scale: Never (0) – Some of the time (5) – All the time (10)

	Never					Some of the time				All of the time
Leisure or exercise	0	1	2	3	4	5	6	7	8	9	10
Going to and from work	0	1	2	3	4	5	6	7	8	9	10
Going to and from meetings	0	1	2	3	4	5	6	7	8	9	10
Going to and from school	0	1	2	3	4	5	6	7	8	9	10
Running errands	0	1	2	3	4	5	6	7	8	9	10
Going to entertainment	0	1	2	3	4	5	6	7	8	9	10
Going to restaurants or cafes	0	1	2	3	4	5	6	7	8	9	10
Going to the grocery or farmer's market	0	1	2	3	4	5	6	7	8	9	10
Going to the doctor's office or health appointments	0	1	2	3	4	5	6	7	8	9	10

How often do you use other modes of transportation to get to the places you need to go?

Please rate each item on a scale: Never (0) – Some of the time (5) – All the time (10)

	Never					Some of the time				All of the time
Bus	0	1	2	3	4	5	6	7	8	9	10
Walk	0	1	2	3	4	5	6	7	8	9	10
Personal bicycle	0	1	2	3	4	5	6	7	8	9	10
Personal car	0	1	2	3	4	5	6	7	8	9	10
Carpool or ride from family & friends	0	1	2	3	4	5	6	7	8	9	10

Barriers & Concerns

Please answer the following questions.

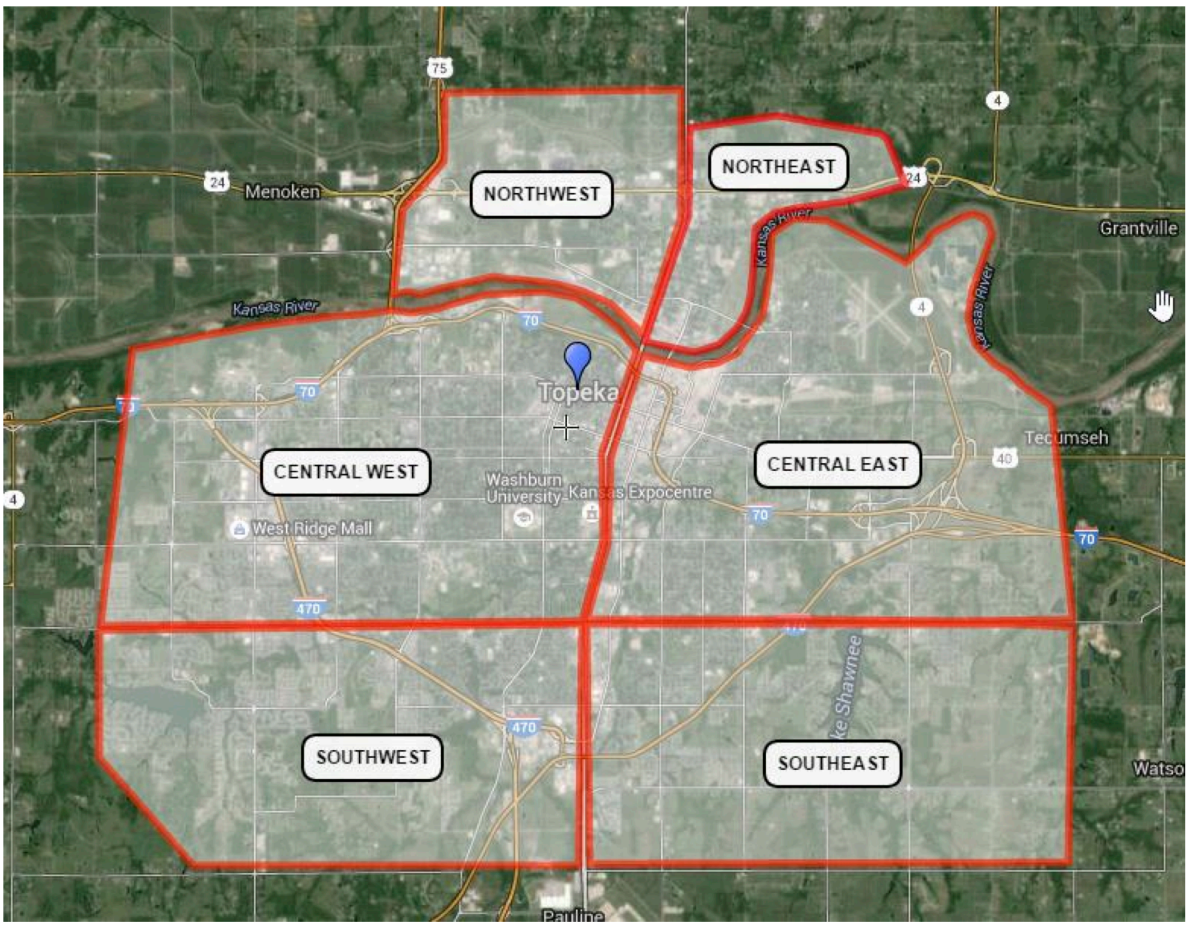
9. What are your two biggest barriers to using the bike share program?
   - ☐ Too expensive
   - ☐ Too far from where I live or work
   - ☐ Don't know how to sign up or use bike share
   - ☐ No bike lanes or bike paths
   - ☐ Not socially acceptable
   - ☐ Health problems
   - ☐ Don't know how to ride a bike
   - ☐ Traffic safety concerns
   - ☐ Neighborhood safety concerns
   - ☐ Limited time
   - ☐ No Barriers

10. What are your two biggest barriers to getting to the places you need to go?
   - ☐ Too expensive to get there
   - ☐ Too far from where I live or work
   - ☐ No direct routes
   - ☐ No sidewalks
   - ☐ No bus routes near where I live
   - ☐ No bike lanes or bike paths
   - ☐ No bike or bike share access
   - ☐ No car, or dependent upon rides from others
   - ☐ Health problems
   - ☐ Safety concerns
   - ☐ No barriers; I can get to the places I need to go

11. What are your top two main concerns in the neighborhood where you live?
   - ☐ Crime
   - ☐ Safety
   - ☐ Lack of sidewalks, bus routes, or other transportation options
   - ☐ Lack of access to food stores
   - ☐ Lack of access to schools and education
   - ☐ Lack of access to jobs
   - ☐ Lack of access to doctor's offices or hospitals
   - ☐ Quality of life
   - ☐ Poverty
   - ☐ Pollution
   - ☐ Other: _____

New Station Location Suggestions

Topeka Metro Bikes is adding new bike share locations and we would love to get your input. Give us your opinion for the regions your familiar with. Here's a map to help you visualize each geographical location of Topeka:



Continue to the next page to give us your recommendations on new bike share locations

12. Where in NORTHEAST Topeka would you like to see a new bike station?

13. Where in NORTHWEST Topeka would you like to see a new bike station?

14. Where in CENTRAL EAST Topeka would you like to see a new bike station?

15. Where in CENTRAL WEST Topeka would you like to see a new bike station?

16. Where in SOUTHEAST Topeka would you like to see a new bike station?

17. Where in SOUTHWEST Topeka would you like to see a new bike station?

18. Route Suggestions**:** Any recommended bike routes through town you'd like to share?

Anything extra that you'd like to tell us? Share your thoughts!