



City of Atlanta Bike Share Health Impact Assessment



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City of Atlanta Bike Share Health Impact Assessment

Executive Summary

Information provided in this HIA, conducted by ICF International (ICF) in partnership with the Atlanta Bicycle Coalition (ABC), will enable the City of Atlanta to incorporate health considerations into its proposed bike share program. Atlanta, Georgia, has the opportunity to establish its bike share program as a national model—one that includes health equity as a significant component of its mission to encourage cycling as a transportation option in addition to increasing quality of life and economic opportunities for its residents, workers, and visitors. These recommendations are intended for use by the City of Atlanta as it directs a contractor to implement the bike share program and may be included in the final contract signed by the City and its contractor.

HIAs are tools to evaluate the potential health effects of a plan, project, or policy before it is built or implemented; thus, decision makers can include recommendations that can increase positive and minimize negative health outcomes. The recommendations included in this HIA are focused on health-related performance measures, public involvement in decision making, bike share station site selection, and health equity. The following table lists the recommendations. At the end of this HIA, a more detailed table provides links to existing data sets that could be used for a number of these recommendations.

HIA Recommendations

TOPIC AREA	RECOMMENDATION
EXAMINING HEALTH IN PERFORMANCE MEASURES	
SAFETY AND INJURY	Collect data on traffic-related injuries and deaths to assess areas of intervention for infrastructure improvements or other changes that may increase safety for bicyclists.
PHYSICAL ACTIVITY	Record bicycle distance per trip to capture physical activity. Provide a sign at each station with the bicycle distance per trip to nearby locations within a particular radius. This would serve as a way-finding device and as a way for bicyclists to note how much physical activity they may get.
AIR QUALITY	Review annual levels of ozone (O ₃), sulfur dioxide (SO ₂), nitrogen dioxide (NO ₂), particulate matter (PM 2.5/10), and carbon monoxide (CO) for air quality to assess whether any changes could be attributed in part to increasing cycle trips and reducing car trips.
TRANSPORTATION	Use the metric of non-motor travel (NMT) to offset vehicle miles traveled (VMT) using the transportation mode that requires physical activity.
DEMOGRAPHICS	Collect and review data on demographics to assess how representative bike share users are of Atlanta residents.
CONSIDER HEALTH DISPARITIES	Determine how to measure performance over time by considering indicators that are correlated to health disparities (e.g., income, number of residents without access to cars, ethnicity, age).
PUBLIC INVOLVEMENT IN DECISION MAKING	
RESIDENT OUTREACH	Involve health-disparate populations in the process by holding meetings in low-income areas and soliciting feedback from residents who cannot attend in person through texts, e-mails, or letters. Consider residents' suggestions of bicycle features that may encourage them to use bike share, such as baskets

	on bicycles to use for shopping trips, which are also recommended in the RFP, or children's seats to help parents get their children to school or day care.
PUBLIC EDUCATION CAMPAIGN	Conduct a public education campaign before and after the bike share launch. Include sessions in a variety of neighborhoods. Conduct a media campaign that focuses on increasing community connectivity via access to transit, jobs, and services (e.g., grocery stores) or other diverse uses highlighted through community feedback.
ADVISORY COMMITTEE	Include a public health practitioner or expert on any advisory committee formed to oversee the bike share program.
IDENTIFY KEY PARTNERS	Identify key partners required to facilitate public involvement and maximize positive health impact.
BIKE SHARE SITE SELECTION	
LOCATE NEAR COMMUNITY RESOURCES	Locate stations within walking radius of 0.5 miles of community resources to expand access to grocery stores, schools, public transit, parks and recreational facilities, and places of employment. Determine where to locate sites by considering indicators that are correlated to health disparities (e.g., income; number of residents without access to cars; ethnicity; age; distance to closest community resources such as grocery stores, library, employment centers, or transit stops; number of rental housing units).
LEVERAGE BICYCLE FACILITIES	Leverage current and planned bicycle facilities to encourage bike share use and maximize the positive health impact of cycling.
ELICIT COMMUNITY INPUT	Elicit community members' input and feedback on popular destinations (current and in the near future), most-used bicycle facilities such as bike racks or bike lanes, and educational methods that work best in their community.

Project Background

Why a Health Impact Assessment?

The HIA process is a relatively new tool for evaluating the potential health effects of a plan, project, or policy before it is built or implemented. Also, HIAs are effective tools for engaging community members in development issues that have a direct impact on their environments. They provide recommendations to increase positive health outcomes and minimize negative health outcomes.¹ HIAs are conducted using a multidisciplinary approach that combines qualitative and quantitative evidence in a decision-making framework. Through their use, researchers and decision makers can assess—and make recommendations to improve—the health consequences of projects and policies.² By applying an HIA to the planned Atlanta, Georgia, bike share program, those commissioning the work have the opportunity to influence its design to support and facilitate improved health and quality-of-life outcomes.

Evidence or information gathered for an HIA may include available or published data, environmental measures, and original qualitative or statistical analysis.³ Some of the more common types of evidence and methods used in the HIA for this project include the following:

- Existing population demographic and health statistics (e.g., census, surveys, vital statistics, surveillance programs, and agency reports) to profile health status and health determinants
- Maps of demographics, health statistics, or environmental measures to identify spatial relationships between places, populations, and environmental conditions and hot spots or spatial differences in the intensity of hazards

Atlanta Bicycle Coalition Bike Share Feasibility Study

The planned bike share program will support Atlanta's competitive edge as an international city while contributing to public health by providing active transportation options for short trips. In January 2013, the Atlanta Bicycle Coalition (ABC) released a feasibility study of the potential for a bike share program in the City of Atlanta.⁴ The report described prospects for logistically implementing bike-sharing programs at a diverse range of potential sites throughout the Phase 1 market service areas of Atlanta core, Buckhead, and downtown Decatur. The feasibility study examined cycling conditions in Atlanta and Decatur, including trends, facilities, access and mobility, transportation costs, and impact on health equity. The study also presented a suitability and demand analysis; explored options for paying for the program; and reviewed the policy and regulatory environment relevant to a bike share program (e.g., site design, operations and maintenance, and fit with current city and regional policies and plans).

On the basis of those inputs, the study concluded that, when paired with robust investments in bicycle infrastructure, bike sharing will help Atlanta achieve goals in sustainability, economic development and tourism, active transportation mode sharing, and talent retention. It will increase demand for bicycling facilities such as bike lanes or cycle tracks, especially those providing greater separation from traffic, and will spur large increases in bicycling for transportation. The City of Atlanta acted on the recommendations from the study to develop a bike share program; a Request for Proposal (RFP) for a contractor to implement the program was released in May 2013.

ICF International and ABC Partnership to Conduct HIA

ICF International (ICF), a research, management, and technology consulting firm, partnered with ABC to conduct this HIA to inform the implementation of the bike share program.

Building on the ABC study's conclusion that bike sharing is feasible for the City of Atlanta and the knowledge that the city will launch a bike share program soon, the ICF team wanted to provide data to encourage a program design that will facilitate health and reduce, not widen, health disparities for city residents. These recommendations are intended for use by the City of Atlanta as it directs a contractor to implement the bike share program and may be included in the final contract signed by the city and its contractor. In conducting the HIA, the ICF team sought to apply key principles for the selection and use of evidence provided by the International Association of Impact Assessment (IAIA)⁵ and noted in the text box to the right. Steps in an HIA process are noted in Table 1.

Principles for the Ethical Use of Evidence in HIA¹

- Use evidence from diverse sources, including available statistics, empirical research, professional expertise and local knowledge, and the products of original investigations
- Give greater weight to evidence from well-designed and peer-reviewed systematic reviews
- Consider evidence, both supporting and refuting, a priori hypotheses
- Justify the selection or exclusion of particular methodologies and data sources
- Make explicit the assumptions used in making judgments, particularly quantitative estimates of hazards or impacts
- Identify data gaps, uncertainties, and limitations of inferences
- Allow stakeholders to critique the validity of findings

Table 1: Steps in the Health Impact Assessment Process

STEP	PURPOSE
SCREENING	Determine the need and value of an HIA
SCOPING	Determine the important health effects, affected populations, available evidence, and roles of stakeholders
ASSESSMENT	Analyze baseline conditions and likely health effects
RECOMMENDATIONS	Develop feasible, evidence-based recommendations and a plan for implementing them
REPORTING	Disseminate findings to decision makers, affected communities, and other stakeholders
MONITORING AND EVALUATION	Monitor the results of the HIA and evaluate them in respect to process, impact, and outcomes

Methodology

This HIA was developed by adhering to the six steps of the HIA process.⁶

1. *Screening: Determine the need and value of an HIA.* The ICF team worked with ABC to review the bike share feasibility study and discuss the study's recommendations for the proposed bike share program. These include considering issues of equity, involving the public in decision making, conducting an education campaign, selecting Phase 1 bike station sites in the core of Atlanta and Buckhead, and establishing performance and tracking assessments. The team also reviewed information from other bike share programs within the United States to learn how they may have incorporated health concerns into bike share and whether there might be opportunity to bring health-related considerations into the bike share program implementation process in Atlanta. It was concluded that bike share was likely to influence health outcomes of its users. It was also concluded that an HIA could positively influence program implementation so that Atlanta's bike share would be developed in a way that would have a greater positive health impact on users as well as reaching a greater number of residents experiencing health disparities.
2. *Scoping: Determine the important health effects, affected populations, available evidence, and roles of stakeholders.* The team conducted a literature search of peer-reviewed and grey literature that could inform recommendations. Materials sought were articles related to bike share programs, outdoor air exposure and pollution, health outcomes associated with bicycling, adopted active transportation plans, and HIAs related to active transportation or recreation. The team also determined which recommendations from the feasibility study were most related to health, including equity, public involvement, community engagement, site selection, and performance measures. These recommendations helped shape the analysis of the literature and formation of HIA recommendations.
3. *Assessment: Analyze baseline conditions and likely health effects.* The ICF team conducted an assessment of the geographic area proposed for the Phase 1 service area. The team procured maps that overlay the proposed Phase 1 service area with Atlanta Neighborhood Planning Units (NPU) from Robert and Company, co-author of the feasibility study. The team then reviewed a map of which Census tracts were within the NPUs proposed to be included in Phase 1. An evaluation of demographic conditions within the Phase 1 service area was conducted. It was evident that the Phase 1 service area represented a diverse

population based on ethnicity and socioeconomic status and was reasonably representative of the City of Atlanta as a whole. The ICF team also assessed peer-reviewed literature on cycling-related health outcomes to determine which health-related performance indicators would be most valuable to capture in order to develop information on how bike share might affect health outcomes for users. The team then researched existing data sources the City could use to measure performance.

4. *Recommendations: Develop feasible, evidence-based recommendations and a plan for implementing them.* The team identified potential recommendations from the feasibility study and literature review. The team identified existing data sources that could be used to monitor performance of the bike share program in terms of health disparities, site selection, and public involvement. The team also identified primary data that could be collected at low cost and without significant burden, either via an initial registration process or in an annual survey. Team members compiled all of this information into a matrix for each health-related area. The team then met to discuss and analyze the matrix and determine which recommendations to include in the report. Final recommendations were selected based on findings from peer-reviewed literature about which measures might be the best health indicators as well as where data could be used or collected without significant cost or burden. This report outlines ways in which the recommendations may be implemented by the City and the contractor.
5. *Reporting: Disseminate findings to decision makers, affected communities, and other stakeholders.* This report is intended for use by City of Atlanta transportation planners and other stakeholders and is anticipated to be available online for review by the public. The ICF team and ABC also intend to disseminate this report through local networks and will offer to present it at public meetings and other venues that will reach residents and decision makers.
6. *Monitoring and Evaluation: Monitor the results of the HIA and evaluate them in respect to process, impact, and outcomes.* The team encourages the City to implement recommendations in this report that will assure monitoring and evaluation of the bike share program across key health indicators.

Overview of Content Areas Considered

To assess the likely impact on health that would result from the bike share program, the ICF team examined topics associated with the planned implementation of the initiative. Measures of health relevant to the program were a key area for the assessment. This report provides information on indicators of health equity related to a bike share program, as well as data on safety and injury rates, levels of physical activity, transportation as correlated to health, and air quality. This report also describes data on public involvement, including noted best practices for public involvement in the bike share program planning and design. Site selection was another important area explored. The team considered planned positioning of the bike share sites and how positioning might be managed to reduce health disparities. The team also noted best-practice strategies for bike share site selection.

The next sections of this report present the methodology applied in conducting this HIA and the findings and recommendations from the assessment.

Health Disparities

Health disparities are an issue of major public health concern. *Healthy People 2020*, a Federal initiative to improve the health of all Americans, defines a health disparity as “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.”⁷ Health disparities are influenced by the relationships that exist between health and genetics as well as health and health services, socioeconomic status, the physical environment, discrimination, racism, literacy levels, and legislative policies. These factors are known as determinants of health and affect a wide range of health outcomes.⁸

Approaching health while considering social determinants, using a place-based approach, will identify disparities and inform the design of initiatives or interventions that reduce rather than exacerbate them. According to *Healthy People 2020*, the availability of and access to affordable and reliable public transportation, community-based resources in support of community living and opportunities for recreational and leisure-time activities, and healthful food options, are among the determinants of health for Americans. Atlanta’s bike share program can contribute to the larger objectives of *Healthy People 2020* by providing greater availability of and access to transportation, physical activity and other outlets related to better health outcomes. The program may also help to establish Atlanta as a national leader in effectively reaching health-disparate populations through bicycle sharing.

Because of the range of health outcomes that health disparities may affect, the ICF team developed all research and recommendations with a consideration for how they might affect vulnerable populations and have a positive impact on health outcomes.

Examining Health in Performance Measures

Literature and Data Review Findings

Historically, bike share programs have not focused on health measures or health equity. Incorporating health performance measures such as safety and injury, physical activity, transportation data, and air quality into a comprehensive plan for assessing the bike share program can demonstrate the program’s impact on public health. Further, tracking these measures for health-disparate populations will enable the Atlanta bike share program to encourage health equity. This section describes results of a review of literature on bike share programs related to health performance and provides recommendations for tracking such measures over time.

Safety and Injury

Safety concerns can present a large barrier to bicycling. Several studies, however, have found that the health benefits of bicycling are considerably higher than the potential risks such as traffic-related injury and death.^{9,10} For instance, a study on a bike share program in Barcelona, Spain, estimated that 12.46 deaths were avoided in bike share users, even after considering risk of death from road traffic incidents and air pollution.¹¹ Traffic-related injury and death measures

(e.g., motor vehicle crashes, bicycle–motor vehicle crashes, pedestrian–motor vehicle crashes) can be collected as part of ongoing bike share program monitoring.

Physical Activity

Bike share programs could positively contribute to population levels of bicycling and, therefore, increase population levels of physical activity.¹² As a result of increased bicycling, modeling studies have indicated that the health benefits of physical activity would outweigh the risks of bicycle-related accidents and exposure to air pollution.^{13,14} Researchers have calculated time spent in physical activity by using distance and an accepted proxy for bicycle speed. For example, studies can assume that leisure or commuting bicycling is moderate activity at an approximate speed of 9 miles/hour (15 km/hour). Time spent performing physical activity can then be calculated by multiplying bicycling distance and the estimated speed. Recording distance per trip enables such calculations of time spent in physical activity per trip.

Transportation Data and Correlation to Health

Transportation data (e.g., means of transportation to work, mileage of active transportation infrastructure, and traffic volume) have implications for health. *Healthy People 2020* lists the availability of and access to affordable, reliable public transportation as an influence on health. The bike share program, if planned and placed accordingly, could link populations for whom access has been a problem to public transportation; thus, access would be improved contributing to a *Healthy People 2020* objective. An increasing amount of evidence demonstrates the health benefits of active travel.^{15,16} Walking or bicycling to work is associated with higher levels of physical activity, lower rates of obesity, and lower rates of diabetes.^{17,18} The presence of active transportation infrastructure (e.g., bicycle lanes, bicycle trails, and connectivity between safe cycling routes) is associated with higher levels of bicycle usage and increased physical activity.¹⁹ In addition, traffic volume has been seen as a barrier to active travel, such as bicycling. Vehicle miles traveled (VMT) has a strong relationship to the accessibility of a destination and is an indicator of street network design.²⁰ One study showed that increases in active travel reduced VMT per capita by 6.5%, increased physical activity and reduced per capita emissions of nitrous oxides and volatile organic compounds.²¹ Another study found a 6.0% increased risk for obesity for each additional hour an individual spent in a car per day.²² Monitoring transportation data can provide information on health impact.

Air Quality

The Environmental Protection Agency (EPA) and the Clean Air Act have identified pollutants that are harmful to people and the environment, especially for sensitive populations such as people with asthma, children, and elderly persons. Some of these pollutants include ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM 2.5/10), and carbon monoxide (CO).²³ One study estimated that if short automobile trips were eliminated, PM 2.5 levels would decline by 0.1 µg/m³ and summer O₃ levels would decrease regionally;²⁴ as a result, air quality would improve and physical activity levels would increase. Another study examining the benefits of a bike share program in Barcelona estimated that annual carbon dioxide (CO₂) emissions (from diesel and petrol consuming vehicles) were reduced by approximately 9.1 million kg.⁷ Monitoring levels of O₃, SO₂, NO₂, PM 2.5/10, and CO can help to detect such potential changes in air quality.

Demographics

Demographic data on populations surrounding bike share stations and using a bike share program is important for understanding who are served. These data may include race and ethnic group, population living in poverty, population aged younger than 18, population aged 65 or older, median income, and percentage of unemployed residents. The Atlanta bike share program can be used as a tool to promote health equity rather than widen health disparities. Demographic data on bike share participants can provide information about what groups use the resource. For example, one bike share program was able to collect this type of demographic data using registration information, including ZIP code.²⁵

Recommendations for Examining Health in Performance Measures

- Collect data on traffic-related injuries and deaths to assess areas for infrastructure improvements or other changes that make bicycling safer.
 - A source for these data is the National Highway Traffic Safety Administration (NHTSA) State Traffic Safety Information, which provides crash-fatality maps for county-level traffic fatality data as well as geographic information systems (GIS) fatality location resources. Web site: <http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM>.
 - Contact the State or local department of health and human services for mortality statistics specific to the study area.
 - Contact the county office or law enforcement agency for accident-report data.
- Record distance per trip to calculate physical activity levels.
- Collect transportation data to measure any potential changes related to increases in active transportation and traffic volume. The following are resources for transportation data:
 - The U.S. Census Bureau provides data on means of transportation to work. Web site: http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml.
 - Contact the local or regional planning agency for data on mileage of active transportation infrastructure.
 - Georgia's State Traffic and Report Statistics (STARS) provide data on traffic volume (VMT/day). Web site: <http://www.dot.ga.gov/statistics/stars/GASTARSHelp/Files/ClickHereToViewHelp.html>.
- Review annual levels of O₃, SO₂, NO₂, PM 2.5/10, and CO for air quality to assess whether any change in levels could be attributed in part to increasing bicycle trips and reducing car trips. The following are possible sources of air quality data:
 - EPA State and County Level Air Quality Data for CO, NO₂, SO₂, PM 2.5/10, and O₃. Web site: <http://www.epa.gov/airdata/>.
 - Centers for Disease Control and Prevention's (CDC's) Environmental Public Health Tracking Network provides State- and county-level air quality data for annual average ambient concentrations of PM 2.5, days exceeding the EPA regulatory standard for PM 2.5, and days exceeding the EPA regulatory standard for O₃. Web site: <http://ephtracking.cdc.gov/showAirLanding.action>.

- Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch provides data on CO, NO₂, SO₂, PM 2.5/10, and O₃. Web site: <http://www.georgiaair.org/>.
- Review data on demographics to assess how representative bike share users are of Atlanta residents. Use this data to identify gaps in use and adequately target marketing and awareness campaigns. Demographic data are available through the following sources:
 - Census data available at <http://quickfacts.census.gov/qfd/states/13/13121.html>.
 - Property value available at <http://www.qpublic.net/ga/fulton/search.html>.
 - Property tax amount (can search for individual residences, but must know street address) <https://www.fultoncountytaxes.org/property-taxes/search-for-tax-bill.aspx>.

Public Involvement Enabling Health Equity

Literature and Data Review Findings

Public involvement is crucial to any successful community-based initiative. If executed effectively, it allows an initiative to be tailored to the needs of the community. Public involvement also improves community ownership of an initiative because, ideally, the community participates in the planning, implementation, and evaluation stages. Involving community members also enhances sustainability of an initiative in two ways: financially and topically. If a community finds that a particular initiative demonstrates positive outcomes, its leaders likely will advocate for appropriate funding and, possibly, institutionalization of the initiative by incorporating it into a community budget. Community members who are invested in an initiative can bring about awareness for specific topics; leaders can become champions and thus an ongoing conversation about the issue can be sustained.

Public involvement in the proposed Atlanta bike share program can address health equity by providing opportunities for a broader range of community members to learn about and be engaged in the initiative. Engaging the public may give community members who are experiencing health disparities a voice in the bike share planning, implementation, and evaluation processes; bike share planners can gain important information from these populations about limitations and barriers residents might experience or ways the program should be set up and maintained—information that could increase use of the bike share program. Community involvement can empower its members—not only to be decision makers for policies associated with the bike share program, but also to take ownership of their individual health and the overall health of the community. The proposed Atlanta bike share program can engage the public in a dialogue about ways to improve community health, in part by providing opportunities for physical activity that may help to tackle obesity and chronic disease.

Because public involvement is important for the success of a bike share program, ICF team members conducted a literature search of peer-reviewed and grey literature to uncover strategies that have been used in establishing other programs related to bicycle sharing and the built environment. The following subsections list strategies implemented that have been reported to be promising or less effective as well as some newer strategies incorporating technology for community engagement.

Promising Strategies

Advisory Committees. One of the most common strategies for public involvement across the literature is the use of advisory committees.^{26,27,28} Generally, an advisory committee brings together key partners to assist in decision making for bike share programs. These partners include community planning organizations; health departments; bicycle coalitions; local health and community-based organizations (CBOs); and community members, particularly those from communities experiencing health disparities.

Meetings of Community or Neighborhood Planning Units (NPU). Educating community members about upcoming initiatives typically takes place at community or NPU meetings. Several examples of ways community meetings can be used were reported. The East Bay Greenway HIA in California conducted public meetings to outline potential health benefits of a bike share program, learn residents' concerns, and brainstorm ways to mitigate those concerns.²⁹ The number of meetings needed to gain community support is not well established; however, in Minnesota, bike share planners held at least two meetings per community.³⁰ The Atlanta BeltLine HIA discussed engaging the public through NPUs, which are advisory councils comprising residents.³¹ BeltLine planners used these forums to announce initiatives and educate the public about HIAs and health impact. By being intentional about including neighborhoods experiencing health disparities when determining where to conduct or participate in community meetings, planners can determine how to meet communities' needs.

Focus Groups with Key Stakeholders. In Minnesota, planners conducted focus groups with key stakeholders to determine how the bike share program could be used in various communities, particularly those with health and economic disparities.³² Key stakeholders included local business owners and employees, CBOs, nonprofit organizations, customers of social service and health care institutions, residents of low-income housing, and bicycle advocates.

Innovative Strategy

Textizen. Textizen is a mobile phone application that can be used to survey community members and other stakeholders. As this is a relatively new strategy, there is no evidence that it is an effective approach to public involvement. However, ABC has been using this application with some success. To determine whether this approach would be beneficial to reach disparate populations, data on cell phone ownership within the targeted areas would be useful because high rates of access and availability could mean broader reach and therefore the opportunity for greater community engagement.

Less-Effective Strategies

The Minnesota Department of Health's report on a bike share program discussed some of the challenges, including strategies that were not effective in engaging their communities in the actual bike share programs³³:

- *Discounted bike share memberships.* Very few community members took advantage of the discounted memberships. The report cited the possibility that community members considered even the discounted membership price as too expensive. If the City of Atlanta considers using discounted membership rates, the recommendation is that residents be engaged through focus groups or surveys to determine which pricing structure low-income residents might prefer and whether such a pricing structure is feasible.

- *Bike share program ambassadors.* Planners chose community member representatives to be the designated champions of the bike share program in their neighborhoods. Each ambassador was given 200 coupons for free bike share subscriptions; however, only two were redeemed during the course of the program.

Literature reviews of HIAs and reports listed other strategies for public involvement; however, there was little discussion of whether the strategies were effective. These other strategies included the following:

- Newspaper articles
- Announcements on Web sites
- Online surveys of community members

Recommendations

- Involve health-disparate populations in the process by holding meetings in low-income areas and soliciting feedback from residents who cannot attend in person through texts, e-mail, or letters. Examples of feedback needed for effective planning include projected use of the program and perceived impediments or challenges potential users can identify (e.g., station locations, available destinations, payment options, trip distances).
- Conduct a public education campaign before and after the bike share program launch. Include various awareness classes in a variety of neighborhoods to present the program and cover topics such as safety, benefits of the program and linkages to health and wellbeing. Conduct a media campaign on increasing community connectivity via access to transit, jobs, and services (e.g., grocery stores) or other bike share uses identified by community involvement. Consider that public education may need to be developed in languages other than English to ensure participation of important segments of the community who may use bike share. These people may be residents, commuters, and tourists.
- Identify key partners required to facilitate public involvement and maximize positive health impact.
- Include a public health practitioner or expert on any advisory committee formed to oversee the bike share program.

Bike Share Site Selection

A diverse range of possible sites exists throughout the Phase 1 market service areas of Atlanta core, Buckhead, and downtown Decatur identified by ABC in its Atlanta-Decatur Bike Share Feasibility Study. Should the kiosk approach be chosen, key factors related to bike share program use will need to be considered to maximize the probability of high adoption and thus the positive health impact of bicycling. These key factors include the density of the population, especially for vulnerable populations; the density, location, and characteristics of bike share stations; and the ability of the City of Atlanta to leverage the community's input on popular sites, perception of existing safe bicycling infrastructures, and best communication paths for educational outreach.

Literature and Data Review Findings

Density and Community Resources. Upon review of performance of other bike share programs, bicycle use is lower when sites have been located in areas of lower density, both in terms of population density and the number of accessible destinations.³⁴ Sites located within range of the highest density of community resources likely will be used the most.

One article pointed out that, “Even in areas with low [station] densities ... stations are clustered along corridors, ensuring that virtually every station is within 200 meters (656 feet) of the next. This allows people to walk easily between stations if they encounter some problem.”³⁵ For people to choose bicycle sharing over other modes of transportation, kiosks must be positioned densely enough for a person to walk between kiosks. This will ensure higher rates of use and further support the health of people who use the bike share system.

Given these findings, bike share sites should be located within walking radius of 0.5 miles of the most densely aggregated community resources to expand access to grocery stores, schools, public transit, parks and recreational facilities, and places of employment. High-priority locations should include low-income areas, which often will have a high prevalence of chronic diseases; current nodes of bicycle activity within the Phase 1 area; and areas containing a high density of office workers and destinations associated with office activities, such as couriers, printers, lunch locations, and coffee shops. For safety and to encourage use, bike share sites should include educational information so users can access community resources made possible by the bike share program. Helpful information would include graphics to show potential uses (e.g., basket with groceries), a list of healthy places within a certain radius of bicycle stations, and a map of the safest and fastest routes to surrounding community resources.

Leverage Existing and Planned Bicycle Facilities. Bicycle use is lower in areas without dedicated bicycle facilities and highest in areas where facilities exist.³⁶ The Atlanta-Decatur Bike Share Feasibility Study outlined various bicycle facility types, including bicycle lanes, multiuse paths, shared lanes, and intersection facilities. Ample supporting evidence exists that providing infrastructure has a positive impact on behavior and increases usage and consequently the health effects of bicycling. Not only are people more likely to use bicycles as a mode of transportation; where facilities exist, bicyclists adjust their routes to use them.³⁷

One study found that “for typical U.S. cities with populations over 250,000, each additional mile of bike lanes per square mile is associated with a roughly one percent increase in the share of workers commuting by bicycle. Increasing the share of workers commuting by bicycle by one percentage point would double the average number of bicycle commuters in many cities.”³⁸ For the Atlanta bike share program, it will be essential to consider current bicycle facilities and future development of them in conjunction with choosing bike share sites to encourage use of the program and maximize the positive health impact of bicycling.

Community Input. Community involvement will be an important element in successful implementation and adoption of the bike share program. As part of planned community outreach efforts, site preferences should be elicited from each community to determine what sites would be most suitable in neighborhoods. In Minneapolis, the community identified a need for more locations than funding could support. Engaging the community to help determine sites for bike share kiosks will garner public support, encourage ownership, and provide residents’ insight about their communities in everyday life.

In addition to initial site selection, public involvement can be helpful in determining popular destinations, achieving buy-in for education efforts, and determining where safe parking options are currently used. It is important to note that studies show bicycling facilities alone are not sufficient. One study indicated that “bike lanes and paths need to connect popular origins and destinations, greater efforts should be taken to educate commuters about bicycling as an option, and commuters need adequate and safe parking at work.”³⁹ As they conduct community engagement meetings, planners can include messaging about the projected number of kiosks or bike share locations in their specific neighborhoods, reinforce the importance of selecting locations that will provide meaningful use for neighborhood residents, and elicit residents’ feedback on what educational methods and channels of communication work best in their communities.

Recommendations

- *Density and Community Resources.* Locate stations within a walking radius of 0.5 miles of community resources to expand access to grocery stores, schools, public transit, parks and recreational facilities, and places of employment without the use of a car. High-priority locations should include the following:
 - Low-income areas, which often will have a high prevalence of chronic diseases
 - Current nodes of bicycle activity within the Phase 1 area
 - Areas containing a high density of office workers and destinations associated with office activities, such as couriers, printers, lunch locations, and coffee shops
 - Signage that fosters safety and encourages use by including graphics to show potential uses, a list of healthy places within a certain radius of bicycle stations, and a map of the safest and fastest routes to surrounding community resources
- *Leverage Existing and Planned Bicycle Facilities.* Very likely, providing bicycles and signage will not be enough to get a significant majority of people to adopt bicycling as a mode of transportation. Facilities for bicycling, including bicycle lanes, multiuse paths, shared lanes, and intersection facilities are essential for adoption of any bicycle use.
- *Elicit Community Input and Feedback.* Hold meetings to elicit residents’ input and feedback on key issues to gain useful information and build community ownership of the program. At the meetings, include messaging about the projected number of bicycle locations so that information can then be gathered on the following:
 - Destinations likely to be most popular now
 - Destinations likely to be most popular in the future
 - Places where residents would feel safe bicycling and locking up a bicycle using current facilities
 - Educational methods and communication channels that work best in the community

HIA Recommendations

TOPIC AREA	RECOMMENDATION
EXAMINING HEALTH IN PERFORMANCE MEASURES	
SAFETY AND INJURY	<ul style="list-style-type: none"> Collect data on traffic-related injuries and deaths to assess areas of intervention for infrastructure improvements or other changes that may increase safety for bicyclists. <ul style="list-style-type: none"> Data sources—National Highway Traffic Safety Administration (NHTSA) State Traffic Safety Information: Provides crash-fatality maps for county-level traffic fatality data as well as GIS fatality location resources. Web site: http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM.
PHYSICAL ACTIVITY	<ul style="list-style-type: none"> Record and provide users with bicycle distance per trip to capture physical activity levels. Provide a sign at each station with the bicycle distance per trip to nearby locations within a particular radius. This would serve as a way-finding device and as a way for bicyclists to note how much physical activity they will get.
AIR QUALITY	<ul style="list-style-type: none"> Review annual levels of ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM 2.5/10), and carbon monoxide (CO) for air quality to assess whether any changes could be attributed in part to increasing cycle trips and reducing car trips. The following are possible sources of air quality data: <ul style="list-style-type: none"> EPA State- and County-Level Air Quality Data for CO, NO₂, SO₂, PM 2.5/10, and O₃. Web site: http://www.epa.gov/airdata/. CDC's Environmental Public Health Tracking Network: Provides State- and county-level air quality data for annual average ambient concentrations of PM 2.5, days exceeding the EPA regulatory standard for PM 2.5, and days exceeding the EPA regulatory standard for O₃. Web site: http://ephtracking.cdc.gov/showAirLanding.action. Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch for CO, NO₂, SO₂, PM 2.5/10, and O₃. Web site: http://www.georgiaair.org/.
TRANSPORTATION	<ul style="list-style-type: none"> Use the metric of non-motor travel (NMT) to offset vehicle miles traveled (VMT) using the transportation mode that requires physical activity.
DEMOGRAPHICS	<ul style="list-style-type: none"> Review data on demographics to assess how well bike share users are representative of Atlanta residents. The following would also be good sources of this data: <ul style="list-style-type: none"> Property value available at http://www.qpublic.net/ga/fulton/search.html. Property tax amount (can search for individual residences, but must know street address) available at https://www.fultoncountytaxes.org/property-taxes/search-for-tax-bill.aspx. Census data available at http://quickfacts.census.gov/qfd/states/13/13121.html.
CONSIDER HEALTH DISPARITIES	Determine how to measure performance over time by considering indicators that are correlated to health disparities (e.g., income; number of residents without access to cars; ethnicity; age).
PUBLIC INVOLVEMENT IN DECISION MAKING	
RESIDENT OUTREACH	<ul style="list-style-type: none"> Involve health-disparate populations in the process by holding meetings in low-income areas and soliciting feedback from residents who cannot attend in person through texts, e-mail, or letters. Consider resident suggestions of

	bicycle features that may encourage them to use bike share, such as baskets on bicycles to use for shopping trips, which are also recommended in the RFP, or children's seats to help parents get their children to school or day care.
PUBLIC EDUCATION CAMPAIGN	Conduct a public education campaign before and after the bike share launch. Include sessions in a variety of neighborhoods. Conduct a media campaign that focuses on increasing community connectivity via access to transit, jobs, and services (e.g., grocery stores) or other diverse uses highlighted through community feedback.
ADVISORY COMMITTEE	Include a public health practitioner or expert on any advisory committee formed to oversee the bike share program.
IDENTIFY KEY PARTNERS	Identify key partners required to facilitate public involvement and maximize positive health impact.
BIKE SHARE SITE SELECTION	
LOCATE NEAR COMMUNITY RESOURCES	<ul style="list-style-type: none"> • Locate stations within walking radius of 0.5 miles of community resources to expand access to grocery stores, schools, public transit, parks and recreational facilities, and places of employment. High-priority locations would include the following: <ul style="list-style-type: none"> ○ Low-income areas, which often will correlate to hot spots of chronic diseases ○ Current nodes of bicycle activity within Phase 1 area ○ Areas containing a high density of office workers and destinations associated with office activities, such as couriers, printers, lunch locations, and coffee shops • For safety and to encourage use, include <ul style="list-style-type: none"> ○ Graphics to show potential uses (e.g., basket with groceries) ○ A list of healthy places within a certain radius of bicycle stations ○ A map of the safest and fastest routes to surrounding community resources
LEVERAGE BICYCLE FACILITIES	Leverage current and planned bicycle facilities to encourage use and maximize positive health impact of bicycling.
COMMUNITY INPUT	<ul style="list-style-type: none"> • Elicit community input and feedback on these key variables: <ul style="list-style-type: none"> ○ Destinations most likely to be popular now ○ Destinations most likely to be most popular in the future ○ Places where residents would feel safe bicycling and locking up a bicycle using current facilities ○ Educational methods and communication channels that work best in their community
CONSIDER HEALTH DISPARITIES	Determine where to locate sites by considering indicators that are correlated to health disparities (e.g., income; number of residents without access to cars; ethnicity; age; distance to closest community resources such as grocery store, library, employment centers, or transit stops; number of rental housing units).

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