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Program Evaluation Aspects of Atlanta Streets Alive

Rebecca A. Ament
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INTRODUCTION:
Physical Activity (PA) is one of the few ways to significantly reduce the risk of early death, by reducing the risk of diabetes, obesity, and cardiovascular disease. One emerging community program that promotes PA is commonly called Ciclovía in Latin America and Open Streets in North America. This program closes a stretch of road to motor traffic for several hours on a particular day and opens the road to active transportation, such as cycling or walking. Atlanta Streets Alive (ASA) is an Open Streets program developed in Atlanta, Georgia by the Atlanta Bicycle Coalition (ABC) in 2010. Although there have been several studies to evaluate Ciclovías programs, including ASA, a thorough evaluation of the effectiveness and public health impact is often not performed.

AIM:
The purpose of this paper is to review the data collection and evaluation methods used by Open Streets and Ciclovías, to compare to data gathering methodologies used in Atlanta Streets Alive events, to analyze the quality and relevance of ASA data gathered, and to make recommendations to evaluate the effectiveness of the ASA program better.

METHODS:
The Atlanta Bicycle Coalition provided the data, including survey responses from five events and participant counts from 23 events between 2010 and 2017. The survey responses were analyzed, and demographic variables were isolated to describe participants. ASA program objectives were obtained from ABC and examined for program evaluability.

RESULTS:
Based on participant surveys, over 35% of respondents reported an income between 51k and 99k, over 70% were white, and over 40% had at least a Bachelor's degree. ABC's participant count estimates were found to be potentially overestimated, and program objectives are not measurable.

DISCUSSION:
As a community program that promotes physical activity, it is essential to learn more about Atlanta Streets Alive’s public health impact. It is recommended that quantifiable goals be identified, survey sample size is increased, and automated participant count methods are adapted to improve ASA’s evaluability.
Program Evaluation Aspects of Atlanta Streets Alive

By

Rebecca Alaina Ament

A Capstone Submitted to the Graduate Faculty of Georgia State University in Partial Fulfillment of the requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA

30303
Program Evaluation Aspects of Atlanta Streets Alive

By

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Defense Date: December 7, 2017
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Rebecca Alaina Ament
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I. INTRODUCTION

Background

Atlanta Streets Alive is an initiative by the Atlanta Bicycle Coalition that allows community members an opportunity to experience Atlanta in a unique way. The program closes several miles of streets for a few hours to motorized traffic and opens them to cyclists, pedestrians, runners, joggers, skaters, etc. (Atlanta Bicycle Coalition, 2017). By removing automobiles from the roads, Atlanta Streets Alive (ASA) encourages people to use the streets in more social and active ways, which potentially creates many public health benefits including physical health, environmental health, and social capital (Torres et al., 2016).

Health Implications of Physical Activity

A major benefit of the ASA program is the promotion of Physical Activity (PA), which is an increasingly important topic of public health (CDC, 2016). Physical inactivity and sedentary time have been found to be detrimental to health and wellness. Physical activity is one of the few ways to significantly reduce the risk of early death (CDC, 2016). According to the Centers for Disease Control and Prevention (CDC), regular PA can help reduce the risk of cardiovascular disease, type 2 diabetes, and metabolic syndrome (CDC, 2017). Benefits also include maintaining a healthy weight, strong bones and muscles, and mental health benefits. However, regular PA remains a challenge in the United States. According to Healthy People 2020, 30.3% of adults in the US, and 27.1% of adults in Georgia did not engage in leisure-time physical activity in 2013 (US DHHS, 2017). In 2016, 28.8% of people in Atlanta, Georgia were obese,
and 9.5% had diabetes (ACSM, 2016). Furthermore, the death rate due to cardiovascular disease in 2016 was 173.4/100,000 in Atlanta. Only 1.6% of adults in Atlanta biked or walked to work in 2016 (ACSM, 2016).

**Physical Activity Promotion**

In response to these issues, physical activity has become a priority in public health promotion. One of Healthy People 2020's Leading Health Indicators is increasing the proportion of adults who meet the objectives for aerobic physical activity and muscle-strengthening activity (US DHHS, 2017). Aerobic exercise involves moving muscles rhythmically for a sustained period, as in swimming, jogging, cycling, walking, etc. (Physical Activity Guidelines for Americans, 2017). The standard for aerobic physical activity is engaging in 150 minutes of moderate exercise per week or 75 minutes of vigorous exercise per week (CDC Division of Nutrition, Physical Activity, and Obesity, 2017). Additionally, adults are recommended to perform muscle-strengthening activities two days per week. The proportion of adults in Georgia who met the aerobic and muscle-strengthening objective was 21.5% and 20.8% of adults nationwide, in 2013 (US DHHS, 2017). In Atlanta, 25.1% met CDC aerobic activity guidelines, and 20.4% met both aerobic and strength activity guidelines, in 2016 (ACSM, 2016). Objectives within the Physical Activity topic also include decreasing leisure-time inactivity, increasing proportion of trips by walking and biking, and promoting built environment and transportation policies that increase accessibility and availability of PA opportunities (US DHHS, 2017).
Adults, children, and adolescents must have access to safe places and ways to engage in regular Physical Activity to meet these standards. Such sites may include sidewalks, trails, paths, bicycle lanes, parks, playgrounds, gyms and studios, community gardens, sports facilities and fields, swimming pools, etc. Programs and policies have been implemented to increase the availability of these places as well as activities such as community competitions (e.g., road races), physical education in schools, and fitness promotion in workplaces. An alternative way of increasing safe places to exercise is to use the existing expansive roadways of the US, by temporarily closing roads and streets to motorized traffic.

**Ciclovía Programs**

One emerging community program that uses existing roads for physical activity is commonly called Ciclovía in Latin America and Open Streets in North America. This program closes a stretch of road(s) to motor traffic for several hours on a particular day, and opens them to active transportation or recreation, such as cycling, walking, running, rollerblading, skateboarding, and wheelchair wheeling (Sarmiento et al. 2010). Ciclovía Recreativa originated in Bogota, Columbia in the 1960s. The CDC helped found the Ciclovías Network of the Americas in 2005, and later in 2011, the Open Streets Project was launched, as an effort to increase physical activity in the United States (Engelberg et al. 2014). Open Streets programs have become popular in the United States in the past several years, with 122 different US cities having hosted an Open Streets program by January 2016 (Hipp et al. 2016).
Atlanta Streets Alive

Atlanta Streets Alive (ASA) is an Open Streets program developed in Atlanta, Georgia by the Atlanta Bicycle Coalition (ABC) in 2010. It began with two ASA events in 2010 with less than 6,000 participants and 1.5 miles of roads closed to cars at each event (Torres et al., 2016). By November 2017, it has grown to three events per year in three different neighborhoods, with up to 4 miles of roads closed per event. Partnership, support, and fundraising have flourished as well. In 2015, the Alliance for Biking and Walking held the Open Streets National Summit in Atlanta, in tandem with Atlanta Streets Alive (Atlanta Bicycle Coalition, 2017). ASA collaborates with partners such as Atlanta Streetcar and Atlanta Beltline to promote environmental and physical health as well as social capital. Preliminary studies have found that ASA, like other Open Streets and Ciclovía programs, potentially encourages healthful behavior (Torres et al., 2016).

Purpose

Although there have been several studies to evaluate Open Streets and Ciclovía programs, there are limitations that make a robust evaluation of these programs challenging. Existing research indicates that Ciclovía programs have substantial potential to impact communities positively, but without more extensive assessment, it is difficult to confirm (Sarmiento et al., 2010). The Atlanta Bicycle Coalition aims to make changes to their ASA program to better assess ASA’s public health impacts. The purpose of this paper is to review the data collection and evaluation methods recommended by the Ciclovía Recreativa Manual, to compare to data gathering methodologies used in ASA and other Ciclovía events, to analyze the quality of ASA data and program
objectives, and to make recommendations to better evaluate the effectiveness of the ASA program (Ciclovía, 2009). This information is intended to serve as a foundation that can lead to evaluation guidelines for future ASA events.

II. REVIEW OF THE LITERATURE

Ciclovía Program Evaluation Guidelines

The Ciclovía Recreativa Implementation and Advocacy Manual was produced in 2009 to guide organizers of existing and planned Ciclovía programs (Ciclovía, 2009). In addition to program planning, development, execution, and advocacy instruction, the manual gives recommendations for program evaluation and data collection. The authors provide methods for stakeholder analysis, program determinates case study, network analysis, estimation of physical activity levels, participant count, and cost-benefit analysis. CDC’s Framework for Program Evaluation in Public Health, published initially in 1999, was adapted to provide six steps to evaluate a Ciclovía program in this manual (Ciclovía, 2009). The first step is to identify and engage stakeholders, including organizations involved in program operations, people who will benefit from or be impacted by the Ciclovía, and the primary users of the evaluation. Secondly, the program is described, including its stage of development, the need for - and expected effects of - the Ciclovía in a particular community, and the program's logic model (Ciclovía, 2009). The third step is to focus the evaluation design by identifying the purpose of the evaluation, and the fourth is to gather credible evidence that will answer the evaluation questions. A table (Table 1) of
indicators suggested for use with Ciclovía programs to help collect evidence is provided below (Ciclovía, 2009). Step five involves justifying conclusions with data analysis and interpretation, and the final step is to report findings to share lessons learned and ensure use (Ciclovía, 2009).
Table 1. Evaluation Indicators for Ciclovía Recreativa Programs (Ciclovía, 2009)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exact length</td>
<td>The precise length of the routes.</td>
</tr>
<tr>
<td>Schedule</td>
<td>Days and time of the of the week when the program will operate.</td>
</tr>
<tr>
<td>Participants per event</td>
<td>Number of participants per event.</td>
</tr>
<tr>
<td>Demographic characteristics of the participants and community where the program is being implemented</td>
<td>Gender, race, age, socioeconomic status, transportation data (public transportation, automobiles, permanent bike paths, etc.) and access to bike paths in parks in the communities where the program is being implemented. *It is important to describe the population that will benefit from the program and record this information for later use.</td>
</tr>
</tbody>
</table>
| Human resources                                                           | Number of personnel  
 Number of volunteers  
 Strategic allies (police, public health sector, etc.)                                                                                                                                                |
| Budget and resources                                                      | It is ideal to have an exact estimate of the budget used for the Ciclovía Recreativa in order to obtain precise indicators for the budget and cost of each event.  
 *It’s important to include complementary activities or programs that are funded through the same budget.                                                                                   |
| Complementary activities                                                  | Record of all activities that are carried out, number of activities, frequency, participants and description.                                                                                               |
| Communication strategies                                                  | Records of the strategies, quantity of promotional material or their diffusion among the media and their frequency.                                                                                           |
| Donated services                                                          | Always document community services with permanent records: security, public restrooms, first aid, etc.                                                                                                     |
| Vendors                                                                   | Number of vendors per event (if it is an organized component). By surveying the vendors you can obtain valuable information on how they benefit economically from the Ciclovía. |
| Physical activity levels                                                  | You can evaluate the level of physical activity using IPAQ.                                                                                                                                                 |
| Quality of life indicators                                                | Quality of life can be evaluated using the QOL tool from the WHO.                                                                                                                                            |
| Social capital                                                            | You can use scales that evaluate social capital before and after the program.                                                                                                                                 |
| Security                                                                  | You can evaluate perceived security and the number of reported accidents.                                                                                                                                   |
| Air quality                                                               | You can measure indicators of the quality of the air before and after the program.                                                                                                                                 |
| Noise pollution                                                           | You can measure noise pollution before and after the program.                                                                                                                                              |
Furthermore, several detailed steps are outlined in the manual to produce an estimate of the number of participants for a Ciclovía event through a participant count. First, the counters must be positioned at observation points along the route at least 2.5km apart, with two counters at each location (Ciclovía, 2009). The counts will take place for 15 minutes, during which the counters will tally the number of people who pass them in each direction and categorize by the type of activity in which each participant is engaged (cycling, running, walking, and other wheeled-activities) (Ciclovía, 2009). Next, a formula (Figure 1) is used to estimate the number of people per corridor between observation points during the 15 minutes of counting (Ciclovía, 2009). The step is repeated for every observation point's count. The sum of all observation points represents the total number of people estimated to be on the event route during one hour. Finally, the product of the previous step is multiplied by the number of hours of the event, and this is the estimate of the maximum number of people during the entire event (Ciclovía, 2009). This method assumes a typical velocity for each activity group: cycling at 10km/hr., walking at 2.5km/hr., and skating/rollerblading at 5km/hr. It also assumes that the density of participants is the same along each corridor of the route and that there is no significant change due to people entering, exiting or turning around and being counted twice (Ciclovía, 2009). Methods detailed in this manual are commonly used to evaluate Ciclovía and Open Streets programs (Sarmiento et al., 2010; Torres et al., 2013 & 2016; Meisel et al., 2014; Engelberg et al., 2014).
Figure 1. Formula to estimate the number of people/corridor during one 15-minute period
(Ciclovía, 2009)

\[ N = \frac{X}{t} \sum_{i} \left( \frac{n_i}{v_i} \right) \]

Where
- \( X \) = the length in km of the corridor,
- \( n_i \) = the number of total people counted by each corridor by activity
- \( v_i \) = the velocity of each activity group in km/h

**Ciclovía in the Americas**

A systematic review was conducted in 2010 by Sarmiento, et al. to analyze the Ciclovía program as a public health and policy intervention in the Americas and to determine recommendations for research and evaluation. In their literature review, the authors included internet searches, in addition to peer-reviewed literature searches, to include grey literature, such as newspaper articles, government reports, and social networking posts within groups related to Ciclovías (Sarmiento et al. 2010). Surveys were administered to members of networks that promoted Ciclovías, and consultations were conducted with institutions and government agencies. A formula was used to calculate the average yearly minutes per week available for physical activity (PA) during a Ciclovía program. It is important to note that this formula measures opportunity for PA, not actual PA engagement. Their estimates found that Ciclovías allow an average of 360 minutes per week for PA, each year (Sarmiento et al., 2010), which is hypothetically significant. However, this estimate is likely much higher in places like Bogota, where about 72 events per year are hosted, than it would be in US cities, such as Atlanta, which hosts about three events per
year. There were fewer United States events to evaluate at the time of this article (2010), which may have positively skewed their results. Nonetheless, this review found that Ciclovías, especially when hosted frequently, have the potential for positive public health impacts in the Americas and elsewhere (Sarmiento et al., 2010). The authors admit that data are limited when evaluating Ciclovía programs and that better surveillance is essential to compile enough evidence to truly assess program effectiveness (Sarmiento et al., 2010).

Ciclovías were analyzed further from an economic perspective in 2012, in which four different programs were evaluated by cost-benefit (Montes et al., 2012). The four programs studied were located, respectively, in Bogota and Medellin in Columbia, Guadalajara in Mexico, and San Francisco in the United States. The authors used secondary data gathered from participant surveys administered between 2005 and 2010 to estimate the number of participants; type of PA (cyclists, pedestrians, and other); and self-reported hours spent engaging in PA during each event (Montes et al., 2012). The operational cost of the programs was estimated based on information obtained from directors and managers of each program, and this was compared to the Direct Health Benefit of regular moderate physical activity, derived from an established formula that calculates medical cost savings of a typical physically active adult (Montes et al., 2012). With this information, the authors were able to approximate the dollar amount saved on medical costs by investing in the Ciclovía program. They were able to conclude that these four Ciclovía programs were cost-beneficial for promoting PA (Montes et al., 2012). Additional calculations were explicitly focused on the benefits of bicycling, by incorporating the Health Economic Assessment Tool to estimate mortality prevention by bicycling. Methods of assessment in this study may provide great insight into the economic benefits of Ciclovías; however, the data used
in their assessments were, again, limited and inconsistent and thus, provided assumptions as opposed to accurate and reliable results. Authors suggest using standardized participant-counting methods during a sample of events representative of all events, increasing accuracy (Montes et al., 2012).

In 2013, a cross-sectional study compared the physical activity, safety perception, social capital, and equity of Ciclovía (streets closed to motorized transport temporarily) to that of Cicloruta (permanent bike paths) in Bogota, Columbia (Torres et al., 2013). This appears to be the first effort to extensively describe and compare these two programs using statistical analysis (Torres et al., 2013). In-person intercept surveys were conducted with 1000 Cicloruta cyclists to assess PA as cycling for transportation and with 1000 Ciclovía participants to determine leisure-time PA (LTPA) and Social Capital (SC), as well as socioeconomic factors of participants of both programs (Torres et al., 2013). Findings suggest that both Ciclovía and Cicloruta have the potential to promote PA equitably in Bogota, for example, these programs connect diverse neighborhoods which could help bridge some socioeconomic gaps inequality (Torres et al., 2013). However, safety concerns were prevalently cited by Cicloruta participants, which were recommended to be addressed at the local level (Torres et al., 2013). The data collection methods used in this study reduced potential selection bias by interviewing every third person to cross the survey intercept point. The survey questions were based on the International Physical Activity Questionnaire, and the 2008 Physical Activity Guidelines for Americans were used for analysis. A unique variable measured was whether or not participants had a car, which could help determine the primary form of transportation. The primary limitation cited was the lack of control groups of nonparticipants (Torres et al., 2013).
A study was published the following year, looking at the collaboration of partners – as opposed to the participants – of the Ciclovía program in Bogota, Columbia (Meisel et al., 2014). Twenty-two organizations were interviewed using a questionnaire adapted from a survey developed by the Guide for Useful Interventions for Physical Activity in Brazil and Latin America (GUIA) to assess the level of multisector collaboration, communication, and reciprocity (Meisel et al., 2014). The authors claim that understanding the organizational structure of Ciclovía programs is essential to defining operational limitations and illuminating recommendations for structural improvement (Meisel et al., 2014). Their findings suggest that close integration and collaboration of organizations across numerous different sectors (health, recreation, security, government, transportation, etc.) may help boost Ciclovía of Bogota, as it has with similar local PA programs established by government policies (Meisel et al., 2014).

**Open Streets in the United States**

As the popularity of Ciclovías spread to the US, efforts were made to study the impact of these programs, often referred to as Open Streets programs.

**St. Louis, Missouri**

Participation in four Open Streets programs hosted in St. Louis during 2010 was evaluated in 2013 (Hipp et al., 2013). This preliminary evaluation used somewhat informal data-gathering methods, such as observational records and surveys conducted in a way that may have allowed selection bias (Hipp et al., 2013). Nonetheless, the study produced potentially profound findings, especially regarding local health disparities. Based on responses to the in-person surveys, the
majority of participants were not socio-economically representative of the St. Louis population, and half of the participants did not reside in the city (Hipp et al., 2013). Therefore, the Open Streets program in St. Louis was missing its target population: city residents facing the greatest health disparities (Hipp et al., 2013). The authors do not give possible reasons for the lack of participation among lower-income groups and racial minorities; however, they recommend addressing this gap with focused marketing efforts (Hipp et al., 2013).

San Diego, California

San Diego’s first Open Streets program, called CicloSDias, was evaluated in a study published in 2014, in which the authors attempted to go beyond most existing studies that focus primarily on participation counts (Engelberg et al., 2014). In addition to the standard methods of day-of observation and surveys, the authors conducted city-wide phone interviews before and after the event to assess marketing reach (Engelberg et al., 2014). This allowed the authors to analyze the differences in demographics and awareness of the event of residents living near or far from the event and event participants. The data gathered and factors investigated in this study are more vast and insightful than previous studies. For example, the survey included a question asking whether the participant would have been inactive during the time of the event if they had not participated; therefore, the authors were able to explore demographic and geographic differences in responses (Engelberg et al., 2014). The results indicate that although there were no significant demographic differences in event awareness, event participants were mostly white, non-Hispanic and not representative of the city, but representative of the city's cyclists (Engelberg et al., 2014). Therefore, the authors suggest that bike-ownership may partially account for the disparity.
Recommendations to engage minority communities include targeted outreach and allowing these communities to give input in the event planning and execution (Engelberg et al., 2014). As what appears to be a commonality with Open Streets projects, uncontrolled and inconsistent evaluation was mentioned as a limitation (Engelberg et al., 2014).

New York, New York

New York City’s Department of Transportation developed a Ciclovía program called Summer Streets in 2008. A study published in 2015 evaluated Summer Streets by assessing the number of participants, participant demographics and level of PA, and the impact of street closures on motorized traffic (Wolf et al., 2015). The number of participants was estimated with screen line counts at three locations along the route of one event in August 2008, and these calculations were adjusted using the type of activity and length of trip data from separate surveys. Street intercept surveys were administered during the same event by trained interviewers at three locations where participants had to stop occasionally to allow cross-traffic (Wolf et al., 2015). In an attempt to reduce selection bias, the interviewers selected only the person physically nearest them at the time of the stop (Wolf et al., 2015). A variable included in this study was participant speed, which was estimated by using CDC’s equivalent speed to mean miles traveled by each type of activity (walking, cycling, etc.), and this was used to calculate estimated minutes of moderate exercise (Wolf et al., 2015). Finally, traffic impacts were evaluated with a baseline count of vehicles traveling across the route one week before the event and with congestion analysis on the day of the event. Again, results noted that Summer Streets attracted affluent, white participants, instead of the intended target population: community members with higher
levels of illness and risk (Wolf et al., 2015). However, the authors contribute the disparity in this event to the location of the route, which was located in a predominantly white and high-income area of Manhattan.

Nonetheless, estimated participation was high, participant opinions of the event were very positive, there was no significant vehicular congestion, and participants averaged obtaining half of the recommended weekly minutes of moderate PA during the one event (Wolf et al., 2015). Limitations identified by the authors include an unconfirmed number of participants due to the counting method and inability to generalize results because the surveyed sample was not reflective of the general NYC population (Wolf et al., 2015).

Atlanta, Georgia

The first five of Atlanta's Open Streets events, called Atlanta Streets Alive (ASA), was assessed in 2016 by members of Georgia State University School of Public Health and the Atlanta Bicycle Coalition (Torres et al., 2016). This study was a preliminary evaluation of the ASA program, using participant intercept surveys from three events and observational counts from five events between 2010 and 2012. At each event, volunteers positioned at two locations along the route conducted a participant count the first 15 minutes of every hour, by tallying the number of participants who passed them (Torres et al., 2016). The volunteers also took note of observed gender, age category, and type of activity. Additionally, surveys were conducted by volunteers approaching participants at natural sections of the route where they were expected to slow down or stop. Their findings suggest that participation increased overall, participants enjoyed the events, and 19% of survey respondents met the 150 minutes of moderate PA during the event.
they attended (Torres et al., 2016). The racial characteristics of survey respondents were similar to those of the City of Atlanta, with about 60% white, 20% black, 5% Latino, and 9% other (Torres et al., 2016). The authors made numerous recommendations for further research, including making ASA a more regular event for the community to increase the number and diversity of participants and the opportunity for surveillance, such as monitoring behavior change resulting from ASA participation (Torres et al., 2016).

III. DESCRIPTION OF PROGRAM OBJECTIVES AND DATA COLLECTION METHODS

Atlanta Streets Alive was created by the Atlanta Bicycle Coalition primarily to promote safety perception and confidence among people interested in (or already engaged in) riding bikes (Atlanta Bicycle Coalition, 2017). While streets are closed to motorized vehicles, people can enjoy cycling without the stress of potential danger caused by sharing the road with cars. ABC hopes that by decreasing the stress and anxiety of cycling during these events, ASA will increase the number of people who feel confident to ride bikes on a daily basis. The target population for ASA is the City of Atlanta. This reflects ABC’s vision that “biking is integrated into Atlanta’s daily life, culture, and infrastructure” (See Figure 2) (Atlanta Bicycle Coalition, 2017).

Atlanta Streets Alive Objectives and Strategies

The Atlanta Streets Alive program fits within Atlanta Bicycle Coalition’s Core Strategy 2: “To create fun, empowering, and supportive opportunities to experience biking and explore Atlanta by bike” (see Figure 3). The first objective of this core strategy is to create an "experiential
vision of safe streets every day through Atlanta Streets Alive” (Atlanta Bicycle Coalition, 2017). This involves ensuring ASA routes connect diverse neighborhoods, developing partnerships to outsource or co-host at least one ASA route, and encouraging ASA participants to learn more about ABC and become more involved in other aspects of ABC.

Figure 2. Atlanta Bicycle Coalition Strategic Plan 2017 - 2020

<table>
<thead>
<tr>
<th><strong>Vision</strong></th>
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</thead>
<tbody>
<tr>
<td>Biking is integrated into Atlanta's daily life, culture, and infrastructure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Mission</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transform Atlanta into a more livable, accessible city by making biking equitable, safe, and appealing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Overall Goal</strong></th>
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</thead>
<tbody>
<tr>
<td>Increase the percentage of people biking by 15% annually in every census block throughout the city of Atlanta.</td>
</tr>
</tbody>
</table>

*Measures: bike counts, American Community Survey, polling*

<table>
<thead>
<tr>
<th><strong>Core Strategies</strong></th>
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<tbody>
<tr>
<td>1) Advocate for network of safe &amp; connected bike lanes, trails, and neighborhood greenways</td>
</tr>
<tr>
<td>2) Create fun &amp; educational opportunities to experience biking</td>
</tr>
<tr>
<td>3) Empower individuals &amp; communities to organize for safe streets for all</td>
</tr>
</tbody>
</table>
Objectives that focus more directly on ASA are provided on the Atlanta Streets Alive website, which is maintained by ABC (Atlanta Bicycle Coalition, 2017). These objectives include building demand for a variety of transportation options, promoting physical activity, increasing civic pride, and developing public, "living" streets that appeal to pedestrians and cyclists (see Figure 3).

Figure 3. ABC’s Objectives for Atlanta Streets Alive

<table>
<thead>
<tr>
<th>Transportation options</th>
<th>Build demand for streets that serve all people on foot, bike, transit, and in cars.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Promote a healthy lifestyle and physical activity through outdoor human-powered amusement.</td>
</tr>
<tr>
<td>Civic pride</td>
<td>Celebrate the unique character and community spirit of Atlanta neighborhoods.</td>
</tr>
<tr>
<td>Living streets</td>
<td>Reclaim public streets for the people, streets that appeal to people walking and biking, businesses, and neighbors.</td>
</tr>
</tbody>
</table>
Atlanta Streets Alive Data Collection Methods

Surveys

During each event, volunteers had administered questionnaires at specific points along the route where travelers naturally slowed or stopped, such as intersections where there was cross traffic. As of June 2016, volunteers were instructed to stop every fifth participant who passed by, to reduce selection bias. The surveyors had recorded participants' responses and stored them on an ABC Google Drive.

Participant Counts

The number of participants was estimated using volunteer tallies and a formula provided by the Ciclovía Recreativa Implementation and Advocacy Manual (2009). ABC used the method recommended by Ciclovía, which involves the number of people observed to be engaged in each activity category, the distance between count sites, the fraction of time the counting took place, and average speed per activity (Ciclovía, 2009). ABC's methodology reflected the guidelines, including using two volunteers per site (one to tally and one to note activity), two locations per route at 2.5km apart, and counting at one-hour increments for 15 minutes at a time (Ciclovía, 2009). The recommended formula calculates the maximum number of people who could have participated for the total period of the event (Ciclovía, 2009). However, ABC took an extra step in an attempt to account for stationary participants, who could have spent time at activity hubs and who may have been missed in the original estimation. Their first calculation was multiplied by four (the number of event hours), and then that result was added to the first calculation and
divided by two to produce an average of the two calculations. However, the literature only supports the accuracy of ABC’s first calculation (Ciclovía, 2009).

IV. METHODS AND PROCEDURES

Data Collection

Data including survey responses were provided by ABC staff for the current assessment for five events between September 2013 and September 2016, in the form of raw data in Google spreadsheets. ABC staff also shared participant count data, in the form of a table, from 23 ASA events between May 2010 and September 2017. Data in the table included route description and length, estimated attendance, weather, and the number of neighborhoods included in the route. ASA program objectives and strategies, as well as participant count estimation and survey administering methods, were provided to us by ABC.

Data Analysis

Analysis of Participant Surveys

The five events for which survey responses were available to this paper were held in September 2013, October 2013, April 2014, April 2015, and September 2016. The raw data were reviewed, independent variables (race, gender, home zip code, income, and education) were isolated, and responses from the five separate events were compared. The overall demographic information
based on survey responses was described and analyzed. All reported zip codes were listed, unique zip codes were counted, and these were compared to zip codes within Atlanta city limits.

**Analysis of Participant Counts**

The raw data provided by ABC were analyzed, and trends were described. The estimated participant counts from the 23 events available were compared to the five events that survey data were available. The total number of survey responses for those five were compared to the total number of participants to determine sample size.

The October 2012 event's count was recorded as a range; so for this evaluation, the mean of the range was used as the estimated total number of participants. There were discrepancies in route mileage between the raw data provided and the program evaluation conducted in 2016 (Torres et al., 2016) for four events in 2010 and 2011. Route mileage was recorded by ABC / Torres et al., respectively, as follows: May 2010: 2 / 1.5; Oct 2010: no data / 1.5; June 11, 2011: 1.5 / 2; June 25, 2011: 1.5 / 2 (Torres et al., 2016). There were also discrepancies in estimated number of participants for three events, with ABC counts / Torres et al. counts, respectively, reported as follows: June 11, 2011: 5,792 / 1,550; June 25, 2011: 5,077 / 3,000; and May 2012: 15,000 / 12,520 (Torres et al., 2016). The participant counts from Torres et al. were used in this assessment (Torres et al., 2016).

The data collection methods of ABC's participant counts were further analyzed to account for the irregularities. ABC shared an Excel spreadsheet displaying every step of the participant count estimation. These steps were carefully scrutinized and compared to the Ciclovía guidelines.
Upon close review of the spreadsheet provided by ABC demonstrating how they estimated total participation, it was clear that ABC included one extra step beyond those recommended by the Ciclovía Recreativa manual. Following the steps ABC took to calculate the September 2017 participant count, the initial result provided that during the four hours of the event the maximum number of participants who could have been present was 53,725. This is the number that should have been reported, based on the formula guidelines provided by the Ciclovía Recreativa manual (Ciclovía, 2009). However, ABC took one more step: multiplying that initial result by four hours (which was already accounted for), to account for participants who were not constantly moving, which produced 214,902.71. The number that ABC reported on their table of participation numbers was an average of the two numbers, or 134,314.

Although it is unclear whether or not this modification to estimation procedure was made with other events on ABC’s table, we developed a formula to use the ABC reported numbers (assuming they used this modified method every time) to find the original estimated total: $(A + 4A) / 2 = B$, where $A$ is the original estimated total, and $B$ is the reported total. Where $B$ is provided, $A$ may be calculated with $A = (2B) / 5$. The estimated participation numbers reported in this assessment’s results were calculated using this formula.

**Program Evaluability Analysis**

The ASA program objectives were evaluated for specificity and measurability in regards to intended outcomes, to guide the development of a program evaluation plan. The guidelines published in the Ciclovía Recreativa manual were used as a framework for the program evaluability assessment (Ciclovía, 2009). The assessment compared ABC’s stated objectives and
strategies, data collection and storage procedures, and participant estimation formula usage for ASA to those recommended by the Ciclovía Recreativa manual.

V. RESULTS

Participant Counts

A total of 468,058 people were estimated to have participated in the twenty-three events between 2010 and 2017, based on the Ciclovía Recreativa Manual recommended calculation (Ciclovía, 2009). The average attendance per event was 20,350. The participant counts in Tables 2 and 3 were estimated by taking ABC’s reported numbers and using the aforementioned formula to find their original estimates, without the modified calculations.

The number of survey responses collected at each event represented a small proportion (an average of 0.8%) of participants. Eighty-four surveys were collected at the September 2013 event, which is 0.4% of the estimated 24,000 participants. Out of the 32,000 estimated participants in October 2013, 49 (0.2%) answered the survey questions. The largest sample size was represented at the April 2014 event, in which 57 (0.9%) surveys were collected, out of 6,400 attendees. Although there was inclement weather reported during the April 2015 event, an estimated 3,600 people participated, and 23 (0.6%) of those responded to surveys. Finally, 91 (0.3%) surveys were collected out of the 36,166 participants in September 2016. The number of surveys totaled 304 for these five events. More surveys were collected during the previous evaluation: 150 (2.7%) of 5,500 in May 2010; 238 (15.4%) of 1,550 in June 2011; and 239 (1.9%) of 12,520 in May 2012 (Torres et al., 2016).
Table 2. ASA Estimated Number of Participants & Survey Respondents

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Route</th>
<th>Route Zip</th>
<th>Count</th>
<th>Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>2010</td>
<td>May</td>
<td>Edgewood</td>
<td>30312</td>
<td>5,500</td>
<td>150</td>
</tr>
<tr>
<td>2011</td>
<td>11-Jun</td>
<td>Edgewood</td>
<td>30312</td>
<td>1,550</td>
<td>238</td>
</tr>
<tr>
<td>2012</td>
<td>May</td>
<td>Highland</td>
<td>30306</td>
<td>12,520</td>
<td>239</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Sep</td>
<td>Peachtree</td>
<td>30308</td>
<td>24,000</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30303</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Oct</td>
<td>Highland</td>
<td>30306</td>
<td>32,000</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>Apr</td>
<td>Southside</td>
<td>30310</td>
<td>6,400</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>Apr</td>
<td>Southside</td>
<td>30310</td>
<td>3,600</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>Sep</td>
<td>Highland</td>
<td>30306</td>
<td>36,166</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>121,736</td>
<td>931</td>
</tr>
</tbody>
</table>

Table 3. Estimated Number of Participants per Event and per Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Route</th>
<th>Count n</th>
<th>Annual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n</td>
</tr>
<tr>
<td>2010</td>
<td>May</td>
<td>Edgewood</td>
<td>5,500</td>
<td>10,500</td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>Edgewood</td>
<td>5,000</td>
<td>5,250</td>
</tr>
<tr>
<td>2011</td>
<td>11-Jun</td>
<td>Edgewood</td>
<td>1,550</td>
<td>4,550</td>
</tr>
<tr>
<td></td>
<td>25-Jun</td>
<td>Edgewood</td>
<td>3,000</td>
<td>2,275</td>
</tr>
<tr>
<td>2012</td>
<td>May</td>
<td>Highland</td>
<td>12,520</td>
<td>18,785</td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>Highland</td>
<td>6,265</td>
<td>9,393</td>
</tr>
<tr>
<td>2013</td>
<td>May</td>
<td>Peachtree</td>
<td>4,800</td>
<td>60,800</td>
</tr>
<tr>
<td></td>
<td>Sep</td>
<td>Peachtree</td>
<td>24,000</td>
<td>20,267</td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>Highland</td>
<td>32,000</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>Apr</td>
<td>Southside</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>Peachtree</td>
<td>3,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sep</td>
<td>Highland</td>
<td>42,400</td>
<td>52,400</td>
</tr>
<tr>
<td>2015</td>
<td>Apr</td>
<td>Southside</td>
<td>3,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sep</td>
<td>Highland</td>
<td>41,094</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>Peachtree</td>
<td>24,482</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nov</td>
<td>Clarkston</td>
<td>200</td>
<td>69,376</td>
</tr>
<tr>
<td>2016</td>
<td>Apr</td>
<td>Southside</td>
<td>32,576</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jun</td>
<td>Peachtree</td>
<td>39,230</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sep</td>
<td>Highland</td>
<td>36,166</td>
<td>150,447</td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>Peachtree</td>
<td>42,475</td>
<td>37,612</td>
</tr>
</tbody>
</table>


Description of ASA Participants

Survey responses from five different events were analyzed to describe general ASA participant characteristics. The vast majority of survey respondents at all five events reported being white (73.7%), followed by 11.5% African-American, 3.6% Latino, and 3.3% Asian/Pacific Islander. Nearly 8% of the 304 respondents did not report their race. Reported gender was 54% Female and 46% Male, and about 9% of respondents did not report gender.

Table 4. Race Reported in Surveys

<table>
<thead>
<tr>
<th></th>
<th>Sep-13</th>
<th>Oct-13</th>
<th>Apr-14</th>
<th>Apr-15</th>
<th>Sep-16</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>African-American</td>
<td>4 (4.8)</td>
<td>3 (6.1)</td>
<td>16 (28.1)</td>
<td>3 (13)</td>
<td>9 (9.9)</td>
<td>35 (11.5)</td>
</tr>
<tr>
<td>White</td>
<td>62 (73.8)</td>
<td>43 (87.8)</td>
<td>37 (64.9)</td>
<td>17 (73.9)</td>
<td>65 (71.4)</td>
<td>224 (73.7)</td>
</tr>
<tr>
<td>Latino</td>
<td>4 (4.8)</td>
<td>2 (4.1)</td>
<td>1 (1.8)</td>
<td>1 (4.3)</td>
<td>3 (3.3)</td>
<td>11 (3.6)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>3 (3.6)</td>
<td>1 (2)</td>
<td>3 (5.3)</td>
<td>1 (4.3)</td>
<td>2 (2.2)</td>
<td>10 (3.3)</td>
</tr>
<tr>
<td>Missing</td>
<td>11 (13.1)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (4.3)</td>
<td>12 (13.2)</td>
<td>24 (7.9)</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>49</td>
<td>57</td>
<td>23</td>
<td>91</td>
<td>304</td>
</tr>
</tbody>
</table>
Over thirty-five percent of all respondents reported household income between $51k and $99k; 16.4% reported between $100k and $150k; 16.1% reported over $150k, and 15.1% between $25k and $50k. A minority (7.6%) of respondents reported an income less than $24,000, and 8.9% did not answer this question.

Table 5. Income Reported in Surveys

<table>
<thead>
<tr>
<th>Income</th>
<th>Sep-13</th>
<th>Oct-13</th>
<th>Apr-14</th>
<th>Apr-15</th>
<th>Sep-16</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $24,000</td>
<td>6 (7.1)</td>
<td>7 (14.3)</td>
<td>5 (8.8)</td>
<td>1 (4.3)</td>
<td>4 (4.4)</td>
<td>23 (7.6)</td>
</tr>
<tr>
<td>$25,000-$50,000</td>
<td>10 (11.9)</td>
<td>11 (22.4)</td>
<td>14 (24.6)</td>
<td>4 (17.4)</td>
<td>7 (7.7)</td>
<td>46 (15.1)</td>
</tr>
<tr>
<td>$51,000-$74,000</td>
<td>15 (17.9)</td>
<td>6 (12.2)</td>
<td>12 (21.1)</td>
<td>8 (34.8)</td>
<td>16 (17.6)</td>
<td>57 (18.8)</td>
</tr>
<tr>
<td>$75,000-$99,000</td>
<td>17 (20.2)</td>
<td>8 (16.3)</td>
<td>7 (12.3)</td>
<td>4 (17.4)</td>
<td>16 (17.6)</td>
<td>52 (17.1)</td>
</tr>
<tr>
<td>$100,000-$124,000</td>
<td>6 (7.1)</td>
<td>6 (12.2)</td>
<td>7 (12.3)</td>
<td>0 (0)</td>
<td>6 (6.6)</td>
<td>25 (8.2)</td>
</tr>
<tr>
<td>$125,000-$150,000</td>
<td>7 (8.3)</td>
<td>6 (12.2)</td>
<td>5 (8.8)</td>
<td>1 (4.3)</td>
<td>6 (6.6)</td>
<td>25 (8.2)</td>
</tr>
<tr>
<td>Over $150,000</td>
<td>12 (14.3)</td>
<td>4 (8.2)</td>
<td>5 (8.8)</td>
<td>5 (21.7)</td>
<td>23 (25.3)</td>
<td>49 (16.1)</td>
</tr>
<tr>
<td>Missing Data</td>
<td>11 (13.1)</td>
<td>1 (2)</td>
<td>2 (3.5)</td>
<td>0 (0)</td>
<td>13 (14.3)</td>
<td>27 (8.9)</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>49</td>
<td>57</td>
<td>23</td>
<td>91</td>
<td>304</td>
</tr>
</tbody>
</table>

Out of all respondents, 43.8% reported having a graduate degree and 41.8% a bachelor’s degree. Only 9.2% reported some college or two-year degree, and 2% reported high school as their highest level of education. About 3.3% of data were missing.
Table 6. Education Level Reported in Surveys

<table>
<thead>
<tr>
<th>Highest Level of Education</th>
<th>Sep-13</th>
<th>Oct-13</th>
<th>Apr-14</th>
<th>Apr-15</th>
<th>Sep-16</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate degree</td>
<td>34 (40.5)</td>
<td>18 (36.7)</td>
<td>25 (43.9)</td>
<td>12 (52.2)</td>
<td>44 (48.4)</td>
<td>133 (43.8)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>31 (36.9)</td>
<td>23 (46.9)</td>
<td>25 (43.9)</td>
<td>10 (43.5)</td>
<td>38 (41.8)</td>
<td>127 (41.8)</td>
</tr>
<tr>
<td>Some college / Associate’s</td>
<td>8 (9.5)</td>
<td>6 (12.2)</td>
<td>6 (10.5)</td>
<td>1 (4.3)</td>
<td>7 (7.7)</td>
<td>28 (9.2)</td>
</tr>
<tr>
<td>High School / GED</td>
<td>2 (2.4)</td>
<td>2 (4.1)</td>
<td>1 (1.8)</td>
<td>0 (0)</td>
<td>1 (1.1)</td>
<td>6 (2)</td>
</tr>
<tr>
<td>Missing Data</td>
<td>9 (10.7)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (1.1)</td>
<td>10 (3.3)</td>
</tr>
<tr>
<td><strong>Total Survey Responses</strong></td>
<td>84</td>
<td>49</td>
<td>57</td>
<td>23</td>
<td>91</td>
<td>304</td>
</tr>
</tbody>
</table>
Analysis for Evaluability

According to the steps of program evaluation provided by the Ciclovía Recreativa manual, there are several aspects missing from Atlanta Streets Alive structure and development that keep the program from being comprehensively evaluated. Specifically, the program is lacking the identification of people who will (or intended to) be impacted by ASA, the demonstrated need for ASA in Atlanta, the expected effects and intended outcomes of ASA, and a logic model (Ciclovía, 2009). Collecting, analyzing, and interpreting data appropriately is also very important in justifying evaluation conclusions. However, data collection methods used for ASA are inconsistently recorded and include some modifications.

VI. DISCUSSION AND CONCLUSIONS

Discussion

As stated in previous research, Atlanta Streets Alive is a community program with growing popularity and public health potential (Torres et al., 2016). While the program organizers state impressive participation totals over the relatively brief history of the event, its impact is currently difficult to measure, especially long-term. However, this assessment has provided a basic description of ASA participants, discussion of analysis, evaluation limitations, and recommendations for further program evaluation.
Participant Characteristics

Based on the results of participant surveys, approximately 74% of ASA participants were white overall. As 77% of survey respondents reported living in a zip code within the city limits of Atlanta, the characteristics of survey respondents were compared to City of Atlanta demographics. In comparison, in the City of Atlanta, about 40% of residents are white, 52% are black, 4% are Latino, and 4% are Asian, according to the 2012 – 2016 American Community Survey five-year estimate (U.S. Census Bureau, 2016). Similarly, the level of education reported in the participant surveys was significantly higher (43.8% with a graduate degree and 41.8% with a Bachelor’s degree) than that of Atlanta, where about 41% of adults over the age of 25 years reported high school or a GED or an Associate's Degree as their highest level of education (U.S. Census Bureau, 2016). Income was also generally indicated to be on the high end, with 35.9% of respondents with an income between $51,000 and $99,000. Comparatively, the average household income in Atlanta was about $47,000 in 2016 (U.S. Census Bureau, 2016).

It seems that ASA may not be impacting diverse groups in Atlanta, which is a common problem for Open Streets programs in the United States. This could be explained by marketing techniques, route location, cultural norms, and access to transportation methods (Engelberg et al., 2014; Hipp et al., 2013; Torres et al., 2016). However, it is important to note that the sample size is quite small and potentially not representative of ASA participants.
Program Evaluability

The limited surveys collected from past events do provide some insight into demographics of participants, estimated number of participants, suggestions from participants, type of PA performed during events, and anticipated behavioral changes. This information could reveal what types of people ASA is benefiting, which modes of PA are available and accessible among different demographics, and how far participants travel to attend ASA.

The methods ABC has used to collect survey data and participant estimation for ASA events are similar to those recommended by the Ciclovía Recreativa manual; however, ABC’s participant count estimates involve a step that is not supported by literature and may have produced overestimates of participation (Ciclovía, 2009). Furthermore, the consistency of data collection and estimation methods is unclear due to discrepancies in data recording and storing.

The ASA program objectives defined by ABC are primarily related to increasing the accessibility of safe places to ride bicycles, which is appropriate to ABC’s vision of integrating bicycle-riding into the daily life of Atlanta community members (Atlanta Bicycle Coalition, 2017). However, the objectives are not measurable or specific for program evaluation. For example, the goal to "promote a healthy lifestyle and physical activity through outdoor human-powered amusement" cannot quantifiably be measured and assessed (Atlanta Bicycle Coalition, 2017).
Limitations

The amount and accuracy of information provided by ABC for this assessment were limited. A modification of recommended procedures was found in the calculation for one of the ASA event's estimated participant total. The calculations for the other events were not recorded and stored, and it is unclear whether this method was repeated for the other estimations. In this assessment ABC’s reported participant estimates were not used, instead new calculations were used to adjust for the modification. As the new calculations were based on the assumption that the same estimate methods were used for every event, our participant numbers may not be reliable.

The participant counting method used by ABC relies solely on observant tallying. Most literature recommends using a combination of different counting methods, to obtain a more accurate estimation. Similarly, the survey collection methods were only recorded and provided for the most recent ASA event, and assumptions were made based this information. As the surveys represented a small sample of participants, it is difficult to draw substantial conclusions about the events.

Recommendations

Upon review of the ASA objectives, data collection methods, and data quality, improvements are recommended for further evaluation purposes. First, measurable objectives must be developed that describe specific intended outcomes, based on Atlanta’s need for the program and its intended impact on the community (Ciclovía, 2009). These objectives may be used to determine
the type of data necessary to collect. For example, if one goal is to increase the percentage of Atlanta residents who achieve the recommended 150 minutes of moderate PA per week, due to findings of a needs assessment as suggested by the Ciclovía manual, it would be essential to find out what type of PA participants of ASA engage in during the event, before the event, and after the event; the intensity and duration; and long-term behavioral and attitude change (Ciclovía, 2009).

The data collection and participant estimation methods ABC has used for ASA events may be improved with consistency, adherence to established guidelines, and proper recording and data storage. Additionally, increasing the number of surveys collected at each event would increase the sample size and the generalizability of results to all participants. Methods of collection used by other Ciclovia and Open Streets programs may also be implemented with future ASA events. For example, the Likert scale and the International Physical Activity Questionnaire may be incorporated into the participant survey to limit responses to data that may be quantified and analyzed (Torres et al., 2013). It would also be beneficial to study the long-term impact if community members could be surveyed before, during, and after each event, similar to the city-wide questionnaires conducted in San Diego (Engelberg et al., 2014). Another idea that has been suggested previously is to have a control group of nonparticipants for a prospective cohort study (Torres et al., 2013).

In order to increase diversity at ASA events, further analysis is needed to determine the cause of under-representation at these events as well as bicycle access and use in the Atlanta community (Engelberg et al., 2014). Targeted marketing, route location expansion, human resources
documentation, and underserved community involvement in the planning of events are possible solutions (Engelberg et al., 2014; Hipp et al., 2013; Torres et al., 2016).

Conclusion

The evaluability of Atlanta Streets Alive as a community health program is limited due to lack of measurable objectives, consistent data collection and calculation procedures, and appropriate survey sample size. However, the program’s potential capability to increase PA opportunities for Atlanta community members, to improve social capital, and to enlighten the public to active transportation options in the city is significant. It is crucial to implement recommended improvements to the ASA program to evaluate its effectiveness further. Once specific intended outcomes are clarified, the validity of data is increased, and data are appropriately stored and monitored, a thorough program evaluation may be conducted.
VII. REFERENCES


VIII. APPENDICES

A. Personal Communication with Heather Luyk (December 1, 2017)

Atlanta Bicycle Coalition Strategic Plan 2017 – 2020

Detailed Strategies, Goals, Objectives, and Outcomes
Core Strategy 1:
To create a connected bikeway network of high quality, well-maintained bike lanes, trails, neighborhood greenways, and bike share stations, so that all Atlantans live within 1/2 mile of the bike network that connects the entire city, and to make all streets safe for people.

A. Advocate for high quality, protected bikeways and neighborhood greenways, to connect all neighborhoods and job centers, fill gaps in the existing bikeway network, and expand the trail network to make biking safe and convenient
   a. Track currently funded projects and share updates and opportunities for public involvement
   b. Establish line item in city budget to build bike projects
   c. Design, implement and evaluate three winnable campaigns for bikeways on specific streets.
      i. Select campaigns by surveying members, communities, and professional advisors, and by prioritizing safe bikeways in communities with the a) greatest need - defined by transportation gaps, percentage of households without a car or bicycle, commute times, crash statistics, health disparities, and whether there are existing connected bikeways) and b) greatest desire - defined by neighborhood association and NPU priorities, percentage of trips by bike, and other community input
      ii. Identify 2-3 street campaigns and 1 trail/street intersection annually, and activate for safety interventions
      iii. Mobilize membership to take direct action in support of advocacy campaigns
      iv. Conduct community outreach for projects other than identified campaigns as needed
   d. Ensure there is a voice for better biking on transportation plan committees
   e. Ensure bike facilities are designed and implemented that meet National Association of City Transportation Officials (NACTO) standards
      i. Provide annual training for engineers designing projects
      ii. Review designs to ensure they meet standards
iii. Build and strengthen partnerships with implementers/builders
f. Establish published guidelines and schedule for maintenance and sweeping of bike lanes.
g. Increase access to and space on trails for people on bikes by advocating BeltLine install natural surface running paths, separate space for walking from biking in crowded areas, standard for bikeable access points, and document the “design user” concept
h. Advocate for temporary demonstration projects, also known as Tactical Urbanism, to become part of the city's planning practice.

B. Ensure people can afford to live within a half mile of the bicycle network
   a. Increase available affordable housing units on or near the bikeway network
      i. Advocate policies to increase affordable housing
      ii. Advocate more affordable housing on the BeltLine

C. Continuously improve bike safety and public's ability to accurately assess safety
   1. Create visible measurements with a dashboard tracking
      a. Mileage of bike network
      b. Crashes
      c. Bike counts
      d. Bike citations
      e. Demographics of people biking
   2. Create diverse coalition to work towards zero traffic deaths
      a. Advocate for city to adopt equitable approach to reducing traffic deaths to zero
      b. Include in city platform
      c. Conduct data analysis to assess Atlanta enforcement patterns and share results
      d. Advocate that Atlanta police participate in free, POST-certified training on Georgia bike laws and best practices

D. Advocate for a successful bike share that increases equitable outcomes
   1. Advocate for bike share inclusion and equity
      a. Continue community outreach through Atlanta Bike Champions program so bike share users reflect diversity and geographic distribution of city population
      b. Advocate for bike share stations equitably distributed throughout the city including in lower-income areas (30 stations south of I-20) so that the percentage of residents who live within a ten-minute walk of a bike share station increases by 10% annually.
      c. Hire Inclusion Manager at Relay to ensure bike share is inclusive and equitable
      d. Establish cash payment system
      e. Artist program to promote stations
f. Advocate more affordable bike share pricing
2. Advocate for bike share stations to be equitably distributed throughout the city including in lower-income areas
3. Establish cash payment system for bike share to make it accessible to unbanked populations
E. Improve integration of cycling with other transportation options
1. Improve integration with transit
   a. Review transit projects in City of Atlanta for opportunities to add to the bikeway network
   b. Review streetcar and light rail projects for safety impact on bikeways
   c. Advocate
      i. well-maintained FixIt stands at all MARTA train stations
      ii. well-maintained bike racks that meet national guidelines, inside fare gates at all MARTA train stations
      iii. bike share stations at all MARTA train stations
      iv. MARTA bus bike racks that fit 2 bikes replaced with 3-bike racks
      v. stairways with adjacent tire ramps for bikes at all MARTA train stations
2. Integrate biking with ride-share, car-share, and vanpool services, and airport by advocating
   a. bike parking at Atlanta airport during airport renovations
   b. ride-share services (like Uber and Lyft) provide an option for vehicles with bike racks
   c. car-share services (like Zipcar) provide bike parking racks within 25 feet of car-share parking spaces
   d. bike racks on government vanpools or at park and ride pickup locations

Core Strategy 2: To create fun, empowering, and supportive opportunities to experience biking and explore Atlanta by bike, by opening streets to people through Atlanta Streets Alive, and by providing bicycle classes and educational rides
   A. Create experiential vision of safe streets every day through Atlanta Streets Alive
      a. Create Atlanta Streets Alive routes that connect neighborhoods and touch all quadrants of city
         i. 3-4 routes annually that connect neighborhoods and touch all quadrants of the city
         ii. Continue to build ASA neighborhood outreach program to foster community investment
      b. Launch partnerships to outsource or co-host one Atlanta Streets Alive route by 2018
         i. Refine toolkit with guidelines for branding and logistics for ASA
         ii. Create plan and find partner(s) to transition Peachtree route to program
      c. Use communication platforms to connect ASA with ABC
         i. Educate participants and ABC members how Atlanta Streets Alive advances ABC mission, survey to measure
ii. Promote safe and responsible biking to and during Atlanta Streets Alive

iii. Engage ASA attendees with ABC through collateral, calls to action, membership, tactical urbanism/demonstration project

B. Provide bike safety classes and gear for areas and populations most in need (based on crash data, car ownership) with the goal of reducing bike crashes

1. Provide bike safety classes
   a. Provide regular, free classes and educational rides
   b. Provide a class with Families Bike Atlanta during/before each ASA
   c. Establish ticket diversion program with education alternative

2. Establish ticket diversion program to reduce financial impact of traffic fines on low-income Atlantans while improving safety

3. Pilot bicycle education program at Atlanta Public Schools through 1-2 individual schools and one cluster

4. Distribute bike lights that meet state law requirements

5. Create and distribute visual bike safety information

C. Provide bike valet program to serve large events throughout city

1. Set course and priorities for bike valet strategy

2. Increase geographic range and diversity of events

3. Advocate for permanent bike valet locations

4. Advocate bike valet added a requirement for Class A and B events

Core Strategy 3: Empower communities and individuals to organize for safe streets

A. Empower community members to work for safe streets

1. Create resources for empowerment
   a. Draft neighborhood advocacy toolkit with resources for street improvements and campaigns, and collective action
   b. Community outreach and engagement around toolkit. Conduct initial assessment of needs and demand for capacity-building advocacy training
   c. Provide capacity building workshops and training for individuals and groups on biking, advocacy, transportation, and related issues.
   d. Assist those who complete the training
      i. To organize their communities around campaigns for safe streets, biking, and active transportation and/or
      ii. To conduct outreach and be ambassadors for ABC and for biking

B. Ally with other groups on intersecting issues

1. Affordable housing and anti-displacement

2. Equitable, non-biased law enforcement
   a. Conduct data analysis to assess Atlanta enforcement patterns and share results
   b. Advocate that APD participate in free police training to teach best practices and Georgia bike law
   c. Support community efforts to reduce violent crime so people have safe spaces to bike and walk for fun, fitness, and transportation

Supportive Goal #1: Grow the movement, build the coalition
A. Increase individual membership to 3,000 while increasing member diversity and engagement
   a. Promote membership in all programs
   b. System/technology to promote and handle increased memberships
   c. Hire & train digital communities coordinator (database contractor) to manage membership fulfillment and digital communities
   d. Monthly communication with all members, targeted to interests and ABC history
   e. Membership drives twice a year with incentives, high-value discounts
   f. Pilot "pay what you can" membership level
   g. Develop approach to engaging new members
   h. Support initiatives and events by other groups that align with our mission and objectives (increased membership, strengthened coalitions)
   i. Ensure membership and membership appeals are diverse and inclusive
   j. Annual member party and awards event (Blinkie Awards)
   k. Outreach through existing programs in neighborhoods with low rates of membership but high rates of active transportation

B. Increase business support
   a. Businesses and business leaders support better biking
      i. Direct outreach to businesses on Atlanta Streets Alive routes with follow-up that encourages business membership, builds our email list and communicates ABC goals for area
      ii. Develop plan to increase business support for bike lanes, including potential Business & Bikes
      iii. Advocate for policy changes, including incentives to add showers, that make workplaces more bike supportive
      iv. Ensure bike parking is widely available and equitably distributed, starting with ASA neighborhoods.
   b. Promote companies that add bike-friendly accommodations or incentives
   c. Invite businesses to sign up to host a bike share ride for employees
   d. Develop Fall Fundraiser hosts as mission supporters through one-on-one engagement
   e. Outreach to potential sponsors, especially in tech and healthcare sectors

C. Increase Public Support
   a. Public understands value of bike lanes and that they are being used
      i. Advocate for the city to conduct before/after bike counts and safety assessment on planned bikeways to demonstrate their use.
      ii. Marketing campaign focusing on health and economics of biking
      iii. Purchase and install permanent bike counts to supplement city counters and create system
      iv. Develop partner/funding to create and distribute citywide bike route/suitability maps
   b. Expand audience for biking through neighborhood outreach

D. Increase political support
a. Make safe streets and bikeways high profile issues in the 2017 elections
   i. develop platform supported by evidence and ask candidates to adopt
      1. Atlanta DOT including increased bicycle planning capacity
      2. Complete Streets Policy
      3. Establish $5 million line item in city budget for bike projects
      4. Increase miles of Protected Bike Lanes from 2.5 to 20
      5. Fully fund CBO by 2020
      6. Create open streets permit
      7. Maintain/increase city funding for Atlanta Streets Alive
   ii. Multimodal mayoral forum
   iii. Rolling Town Hall: community bike ride organized in partnership with other bike organizations
   iv. “Candidates Row” during Atlanta Streets Alive
   v. participate in Our Future Atlanta initiative

E. Build coalition for better biking
   a. Build our coalition with diverse array of organizations and businesses
      i. Create organization/nonprofit membership type
      ii. Invite all bike organizations in city and other kinds of nonprofits to join; Create engagement plan for organizations
      iii. Create way for groups to join specific campaigns
      iv. Use Fall Fundraiser to continue to develop relationships and donors

Supportive Goal #2
Grow adaptive and sustainable organizational structure
A. Create robust, clear, and flexible organization structure
   1. Establish a team-based organizational structure around strategic planning strategies and objectives
   2. Build roles around organization’s needs that support professional growth and create autonomy
   3. Fill roles based on strength
   4. Work to hire and maintain a diverse staff by building procedures and templates that follow values.
   5. Establish incentives that attract and retain high-quality talent
   6. Create robust team support (HR) department (wages, benefits, operational practices, management team, etc)
   7. All staff attend at least one conference or training annually appropriate to role and strengths
   8. All staff participate in ongoing education through webinars, readings, and local events
   9. Annual anonymous staff survey to measure employee satisfaction and agency
   10. Create internship plan and outline expectations

B. Create robust communications and marketing structure
   1. Create communications and marketing strategy with board/committee input that aligns with other goals and connect programs, campaigns, and initiatives
2. Complete communications and marketing calendar
3. Secure communications intern
4. Outline needed ABC website changes and create the desired mapping for a 2018 web overhaul
5. Ensure that the website is current and reflects time-sensitive efforts
6. Contract at least 1 professional videographer
7. Hire an in-house (PT) graphic designer
8. Produce an annual report
9. Write a technology grant to fund website buildout in 2018
10. Overhaul the website, integrate with CRM, copyright, and re-design
11. Research and provide recommendations for integrating apps, and/or responsive widgets
12. Build relationships with media outlets for ABC/ASA sponsorships

C. Create robust volunteer program
   1. Engage members and communities in volunteer opportunities
   2. Switch to more flexible volunteer platform

D. Establish & maintain financial structure and policies to support goals and grow organization
   1. Maintain diversified revenue stream
   2. Build sustainable funds for operational structure
   3. Create fund development plan
   4. Engage staff in fund development
   5. Engage board in fund development
   6. Increase large individual donors
   7. Increase value of each funding source (grants, sponsorships, events, etc.)
   8. Create project/program budgets

E. Board recruitment, retention, and development
   1. Governing Board
      a. Continue to develop a board with the expertise, connections, and insights to sustain and guide the organization
      b. Work to develop a diverse board and board leadership, including economic diversity
      c. Create board “Blue Ribbon” recruitment committee that engages external stakeholders and influencers
      d. Board members contribute in multiple ways
      e. Develop ways for board to contribute to staff capacity
      f. Annual survey of board members
      g. Continue to increase board engagement by supporting, acknowledging, and thanking the board for their contributions
   2. Advisory Board
      a. Define Honorary Board role
      b. Develop parameters, communications schedule, and calendar of events to better engage members
B. Logic Model Template