



NORTH BIRMINGHAM COMMUNITY FRAMEWORK PLAN HEALTH IMPACT ASSESSMENT

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Reader's Guide

Dr. Nisha Botchwey and her class of graduate students studying City and Regional Planning, Public Health, and Environmental Engineering at Georgia Tech conducted the North Birmingham Community Framework Plan Health Impact Assessment (HIA). The HIA was initiated in response to a request from the Regional Planning Commission of Greater Birmingham (RPCGB). The report describes the general HIA process, and each step of the HIA as applied to the North Birmingham Community Framework Plan, complete with actionable recommendations organized under six topic areas of social and environmental determinants of health. This is followed by the process evaluation, and the impact evaluation plan that specifies lessons learned through conducting the HIA, and instructions on conducting a future impact evaluation. The report ends with guidance on monitoring the North Birmingham Community Framework Plan's potential impacts on health, and includes data metrics and potential sources.

The goals of the North Birmingham Community Framework Plan HIA are to:

- 1) Enhance the current community planning process conducted by RPCGB to include health, and
- 2) Educate and empower stakeholders, including residents, community organizations and involved governmental bodies on factors affecting community health and the health impact assessment.

The report is organized into the following groupings:

Executive Summary. Includes a summary of background information on North Birmingham and the HIA process as applied to the North Birmingham Community Framework Plan. It then presents the HIA's major findings and recommendations.

Section 1: Introduction. Provides in-depth look at the North Birmingham neighborhoods, an overall description of current policies and programs that govern the neighborhoods, requirements for HIA practice, and the rationale for applying HIA in North Birmingham.

Sections 2-3: Context and Process. Explains the overall methodology of the HIA. Catalogs sources of data and methods utilized. Reviews the screening and scoping process used to specify the subject matter of the HIA, and how that subject matter connects to Birmingham's community vision. Defines HIA deliverables.

Section 4: Assessment. Documents evidence from peer-reviewed literature, on the six scoping topics, analysis of available data and results.

Section 5: Recommendations. Recommends mitigations and/or expansions of policies and built environment factors that harm or improve resident health in seven topic areas. Connects scientific and empirical research to the formation of findings and recommendations.

Section 6: Evaluation. Includes a “lessons learned” process evaluation of the HIA. It also outlines recommendations for completion of an impact evaluation.

Section 7: Monitoring. Outlines actions stakeholders should follow to collect data that can be used in monitoring individual metrics across the different topics, and completing an outcome evaluation.

Appendix. Contains supportive technical data.

Executive Summary

The North Birmingham Community Framework Plan is the focus of this Health Impact Assessment. It was undertaken in January 2014 and completed twelve months later. The Plan intends to provide guidance on policy decisions that will promote planning to improve quality of life in North Birmingham. The Regional Planning Commission of Greater Birmingham (RPCGB) is conducting the Framework Planning process under contract to the City of Birmingham.

With funding from the RPCGB, Georgia Tech's School of City and Regional Planning's Impact Assessment Faculty and Students began a Rapid Health Impact Assessment in Spring 2014 on the North Birmingham Community Framework Plan. The HIA was conducted as a Rapid HIA given the decision-making schedule and need for a faster turn around with recommendations. Also the amount of publically available data was limited, and primary data collection for many of the potential scoping topics was not feasible. Finally, while not typical in a rapid HIA, this HIA incorporated a significant amount of stakeholder engagement.

The HIA team tasked with completing this work included students from City and Regional Planning, Public Health, and Environmental Engineering, and faculty with expertise in planning, public health and HIA. The recommendations presented in the report are based on publically available data, review and expert guidance from the HIA's steering committee. The recommendations are tailored to be SMART (specific, measureable, assignable, realistic and time-related), to ultimately support healthy development through implementation of the North Birmingham Community Framework Plan.

The Rapid HIA is focused on the North Birmingham Community, an area composed of six neighborhoods, three of which overlap with an area designated by the U.S. Environmental Protection Agency (EPA) as the 35th Avenue Superfund Site. At the time of analysis and writing, EPA Region IV was working with the North Birmingham Community Coalition (NBCC), conducting their own assessment and developing recommendations for this smaller subset of the Community. Interaction with the EPA team was limited due to the nature and timing of their work.

The North Birmingham Community Framework Plan

In October 2013, the City of Birmingham adopted the first Comprehensive Plan since 1963, exactly 50 years later. "The Plan: Using our Past to Build our Future Birmingham"¹ requires individual Community Framework Plans to establish goals, policies and strategies for each area. According to the Birmingham Comprehensive Plan website, framework plans provide a vision for a community's quality of life with clear policy guidance on "land use, new development, transportation, housing, parks, trails and open

¹ <http://www.birminghamcomprehensiveplan.com/?p=993>

space, utilities and economic development”² that aligns with the Birmingham Comprehensive Plan.

The goal of the North Birmingham Community Framework Plan is “to create a guide to improve the quality of life for everyone that calls the North Birmingham Community home.”³ The purpose of the plan is “to develop a set of specific policies, recommendations, proposals, and action items that support the views of the community and adheres to the goals and guidelines of the Birmingham Comprehensive Plan.”⁴ More information on the North Birmingham Community Framework Planning Process is available through this link: <http://www.imaginebham.com/north-birmingham.html>

Health Considerations in the Planning Process

Health is defined as complete physical, mental and social well-being, including, but extending beyond, the mere absence of disease (WHO 1948). It is affected by the conditions in which people are born, grow, live, work, and age: the social determinants of health (CDC 2015). Social, political, and economic forces contribute to these conditions, and result in inequitable health outcomes across populations. The U.S. Department of Health and Human Services’ Healthy People 2020 Report highlights the importance of addressing both social and physical determinants of health as a means of promoting good health for all. It identifies five determinant areas: economic stability, neighborhood and built environment, health and health care, social and community context, and education (ODPHP 2015). Planners have the potential to work in collaboration with other sectors toward equal opportunities for all Americans to make healthy choices by designing environments that can improve the quality of life.

The American Planning Association (APA) has acknowledged the importance of incorporating health as a key objective in community planning, promoting such practices as formal Health Impact Assessments, as well as more informal considerations of health in all decisions. They recognize that land use, community design, and transportation planning decisions impact residents and are tied directly to health outcomes such as the prevalence of overweight and obesity and the incidence of chronic disease, such as diabetes and cardiovascular disease. Environmental conditions, such as the poor air quality and water contamination found in North Birmingham, also negatively affect public health. These factors disproportionately affect vulnerable populations, including low-income residents, children, and the elderly. APA is working toward an interdisciplinary approach to creating and maintaining healthy communities through partnerships with the National Association of County and City Health Officials (NACCHO) and the American Public Health Association (APHA). A 2006 APA Planning Advisory Service (PAS) report, “Integrating Planning and Public Health,” outlines strategic points of intervention at which planners and public health professionals can coordinate efforts to improve community health (APA 2015).

² Birmingham comprehensive plan

³ <http://www.imaginebham.com/north-birmingham.html>

⁴ *ibid*

A breadth of research supports the link between planning issues and health outcomes. Transportation-related pollutants, including ozone, sulfur dioxide, and particulate matter, contribute to unhealthy air quality and negative health outcomes, such as aggravated asthma, and may lead to the initial onset of certain respiratory conditions (CDC 2007). Creating pedestrian and bicycle infrastructure can promote routine physical activity, helping residents to meet the CDC's recommended 30 minutes of moderate physical activity five days a week, and reducing obesity and related chronic diseases (RWJF 2013). Providing neighborhood access to healthy foods increases the likelihood of healthy diets amongst residents (Sallis 2009). Planning issues such as the provision of clean water, safe environments, and secure employment have also been linked to obtaining positive health outcomes for residents. These findings address negative neighborhood conditions consistent with those found in the North Birmingham community, and the five topics that constitute the focus of the North Birmingham Community Plan HIA: 1) access to secure and quality employment, 2) access to healthy food, 3) access to health care, 4) connectivity, and 5) freight. The proven impact of these conditions on public health underscores the importance of implementing the recommendations made in the HIA to improve community health.

Health Impact Assessment

The World Health Organization (1999) defines a Health Impact Assessment (HIA) as “a combination of procedures, methods and tools by which a policy, program or project may be judged in terms of its potential effects on the health of a population and the distribution of those effects within the population.” HIAs are conducted for initiatives where health is not the main focus, in order to inform decision makers on the positive and negative effects their decisions may have on the health of their constituents. This knowledge, if acted upon, could reduce potential negative health outcomes, maximize positive health effects, and minimize health inequities. HIAs take a holistic view of health that is concerned not only with one's physical health but the environmental, social, and economic roots of health outcomes (Bhatia and Wernham 2008). HIAs have increased in frequency in the United States as health issues are coming to the forefront of public and policy concern.

HIAs are a seven-step process that produce evidence-based recommendations on how the proposed policy, program, or project can be adapted to maximize health. These steps include screening, scoping, assessment, recommendations, reporting, and evaluation and monitoring. The screening and scoping steps determine the feasibility and value of the assessment and decide which specific health impacts to evaluate. The assessment step, usually the longest and most intensive, consists of data collection, literature review, and other qualitative and quantitative analysis. Recommendations are drawn from the findings of the assessment then are presented to stakeholders, decision-makers and the public. Finally, monitoring and evaluation are either planned or completed, depending on the length and resources available throughout the HIA process. Stakeholder engagement is a part of each HIA step.

Practitioners hope that HIAs will eventually change the culture of decision making, so health is considered when programs, projects, or policies are being created. This can be accomplished by documenting the impact and health outcomes of HIAs and broader dissemination of results. Such a change can lead to improvements in population health nationally, reductions in harmful environmental exposures and inequities, and incorporation of sustainability in future investments. Health Impact Assessment is a useful tool to connect planning and built environment dimensions to public health and the overall needs of the community.

Potential Health Impacts of the North Birmingham Community Framework Plan

The North Birmingham Community Framework Plan Rapid Health Impact Assessment identified various overarching concerns and five areas of potential health impacts related to the Plan including employment, healthy food, health care, connectivity, and freight. The key findings are summarized below.

This HIA will be used to consider the potential positive and negative health impacts of the North Birmingham Community Framework Plan on the current and future residents of the six neighborhoods located in the North Birmingham Community. Health is a primary consideration in developing the Community Framework Plan given the plethora and magnitude of environmental hazards currently present in the area and under investigation by EPA Region IV. Establishing a baseline of the residents' health helps to monitor the impacts of HIA recommendations and other neighborhood changes on the population. While some data is limited or lacking, this HIA also provides the opportunity to highlight additional health issues related to the North Birmingham Community Framework Plan that may not be immediately obvious. Additionally, this HIA has the potential to positively affect more than just North Birmingham's Community Plan. It serves as model for those conducting HIAs in other areas of Birmingham and the state of Alabama. It is the authors' and steering committee's hope that this HIA initiates a practice in Birmingham and throughout Alabama of considering health when developing any policy, project, or program. Similarly, we hope that the decision-makers working in conjunction with the HIA will continue to think about health in all of their projects, programs, policies and plans moving forward. Health Impact Assessments provide the opportunity to make health central in decision-making.

Priority North Birmingham Community Framework Plan HIA Recommendations

The goal of the North Birmingham Community Framework Plan Rapid HIA was to make recommendations that can promote the health of residents while mitigating negative health outcomes. See Section 5 for a comprehensive list of recommendations. The following recommendations are of the highest priority.

- Recommendation 5.1.1 Incorporate economic development and labor force strategies for the North Birmingham Community into the Regional Comprehensive Economic Development Strategy.
- Recommendation 5.1.6 Offer daycare options for North Birmingham Community residents.

- Recommendation 5.2.2 Expand the current fresh produce food truck program to reach all areas of North Birmingham.
- Recommendation 5.3.3 Establish a local health care facility to serve the medical needs of the community.
- Recommendation 5.4.1 Review the current transit routes throughout the North Birmingham communities and redirect the routes to create an integrated transit system that provides greater connectivity to important locations inside and outside of the neighborhoods.
- Recommendation 5.4.5 Integrate traffic calming in key intersections and along roadways with high incidences of car, pedestrian and/or bicycle infrastructure in the North Birmingham Community.
- Recommendation 5.5.1 Complete the Finley Boulevard Extension Plan and the Shuttlesworth Bridge Pedestrian Flyover.
- Recommendation 5.6.1 Complete a Tree Master Plan or Greenspace Plan for the Birmingham Region.
- Recommendation 5.6.2 Include green infrastructure as part of the urban water catchment plan

Overall, the North Birmingham Community Framework Plan has the potential to positively impact the health of six neighborhoods, with positive spillover effects on the City of Birmingham and the Region. If recommendations are adopted, some of these impacts will be neutral due to their mitigation of potential negative outcomes while others will have noteworthy impacts on positive health outcomes. The North Birmingham Community Framework Plan Rapid HIA relied heavily on a dynamic and multidisciplinary team of steering committee members from planning, public health, local government, private industry, and the community. The discussion and collaboration established through this board can promote continued address of health promotion in and around the Birmingham Region.

Section 1: Introduction

1.1 Why Conduct and HIA on the North Birmingham Community Framework Plan?

The U.S. Environmental Protection Agency (EPA) has begun work cleaning up a hazardous waste site in Birmingham, the 35th Avenue Superfund Site, which has been contaminated by surrounding industries. Three of the six neighborhoods in the North Birmingham Community overlap with this site: Collegeville, Fairmont, and Harriman Park. Residents from these neighborhoods have expressed concerns regarding assumed higher overall cases of cancers and other diseases resulting from local industries. The Jefferson County Health Department, the EPA, and the Agency for Toxic Substances and Disease Registry are assessing these concerns. As the Regional Planning Commission of Greater Birmingham (RPCGB) began conducting its Framework Plan for the region, the community called for a deeper assessment of health as part of the process. A Health Impact Assessment (HIA) is a tool for assessing the health impacts of potential policies and projects, and helps decision-makers consider alternatives that will promote resident health. A Rapid HIA was conducted in response to the North Birmingham community's need for health considerations in the planning process, and to allow local decision-makers to factor in health impacts as they make choices that will shape future development.

1.2 HIAs and Their Relevance to Planning Documents

Health Impact Assessments (HIAs) have been conducted on a variety of projects, programs, and policies to assess the health-related implications of the propositions. According to the Health Impact Project Database, 234 HIAs have been completed in the U.S. to date (Pew 2014). These HIAs represent 14 sectors: agriculture, food and drugs; built environment; climate change; community development; criminal justice; economic policy; education; gambling; housing; labor and employment; natural resources and energy; physical activity; transportation; and water. Planning documents are considered appropriate policy-related documents as subjects for HIAs, and the American Planning Association (APA) supports this application of HIAs. APA has, in fact, provided guidance to their membership on how to incorporate health-promoting language and guidelines in their comprehensive plans. This guidance is immediately found in *Comprehensive Planning for Public Health and Healthy Planning* (Hodgson 2012, Ricklin 2012). Several other APA Planning Advisory Service (PAS) reports have also been published to equip planning professionals to promote health-oriented planning, including "Integrating Planning and Public Health," "A Planners Guide to Community and Regional Food Planning: Transforming Food Environments, Facilitating Healthy Eating," "Fair and Healthy Land Use: Environmental Justice and Planning," and "Planning Active Communities" (Morris 2006; Raja 2008; Arnold 2007; Morris 2006).

1.3 North Birmingham Community Framework Plan Rapid HIA Recommendations Overview

The goal of the North Birmingham Community Framework Plan Rapid HIA was to make recommendations that can promote the health of residents while mitigating negative health outcomes. See Section 5 for a comprehensive list of recommendations. The following recommendations are of the highest priority.

- Recommendation 5.1.1 Incorporate economic development and labor force strategies for the North Birmingham Community into the Regional Comprehensive Economic Development Strategy.
- Recommendation 5.1.6 Offer daycare options for North Birmingham Community residents.
- Recommendation 5.2.2 Expand the current fresh produce food truck program to reach all areas of North Birmingham.
- Recommendation 5.3.3 Establish a local health care facility to serve the medical needs of the community.
- Recommendation 5.4.1 Review the current transit routes throughout the North Birmingham communities and redirect the routes to create an integrated transit system that provides greater connectivity to important locations inside and outside of the neighborhoods.
- Recommendation 5.4.5 Integrate traffic calming in key intersections and along roadways with high incidences of car, pedestrian and/or bicycle infrastructure in the North Birmingham Community.
- Recommendation 5.5.1 Complete the Finley Boulevard Extension Plan and the Shuttlesworth Bridge Pedestrian Flyover.
- Recommendation 5.6.1 Complete a Tree Master Plan or Greenspace Plan for the Birmingham Region.
- Recommendation 5.6.2 Include green infrastructure as part of the urban water catchment plan

Section 2: The North Birmingham Community Framework Plan and Health

This section describes the North Birmingham Community Framework Plan, the community, history, and major stakeholders. It also provides a broad definition of health, describes the Rapid HIA methodology, and the motivation for an HIA of the Plan.

2.1 The North Birmingham Community Framework Plan

In October 2013, the City of Birmingham adopted the first Comprehensive Plan since 1963, 50 years prior. “The Plan: Using our Past to Build our Future Birmingham” requires individual Community Framework Plans to establish the goals, policies and strategies for each area. According to the Birmingham Comprehensive Plan website, framework plans provide a vision for a community’s quality of life with clear policy guidance on “land use, new development, transportation, housing, parks, trails and open space, utilities and economic development” that aligns with the Birmingham Comprehensive Plan (Birmingham Comprehensive Plan 2013).

The goal of the North Birmingham Community Framework Plan (2014) is “to create a guide to improve the quality of life for everyone that calls the North Birmingham Community home.” The purpose of the plan is “to develop a set of specific policies, recommendations, proposals, and action items that support the views of the community and adheres to the goals and guidelines of the Birmingham Comprehensive Plan” (North Birmingham 2014). More information on the North Birmingham Community Framework Planning Process is available through this link: <http://www.imaginebham.com/north-birmingham.html>

The Regional Planning Commission of Greater Birmingham (RPCGB) is focusing on community renewal as they develop the North Birmingham Community Framework Plan. They first identify stakeholders and collaborate with the EPA to discuss needs and the project direction. Second, the RPCGB will complete the Community Assessment, which includes collecting community data through mapping, photographic analyses, and the Rapid Health Impact Assessment. Once all the data is collected, the RPCGB will complete framework plan development. The framework plan includes input from community members and local stakeholders in revising the six neighborhoods’ future land use plan, and provides specific recommendations for future development that integrate recommendations presented in the Rapid HIA. Upon adoption of the framework plan, a graphically compelling plan draft will be developed and reviewed by community partners and stakeholders. Once community support of the plan has been established, the final steps of presenting, adopting, and implementing the plan in the North Birmingham neighborhoods will take place.

2.1.1 The North Birmingham Community

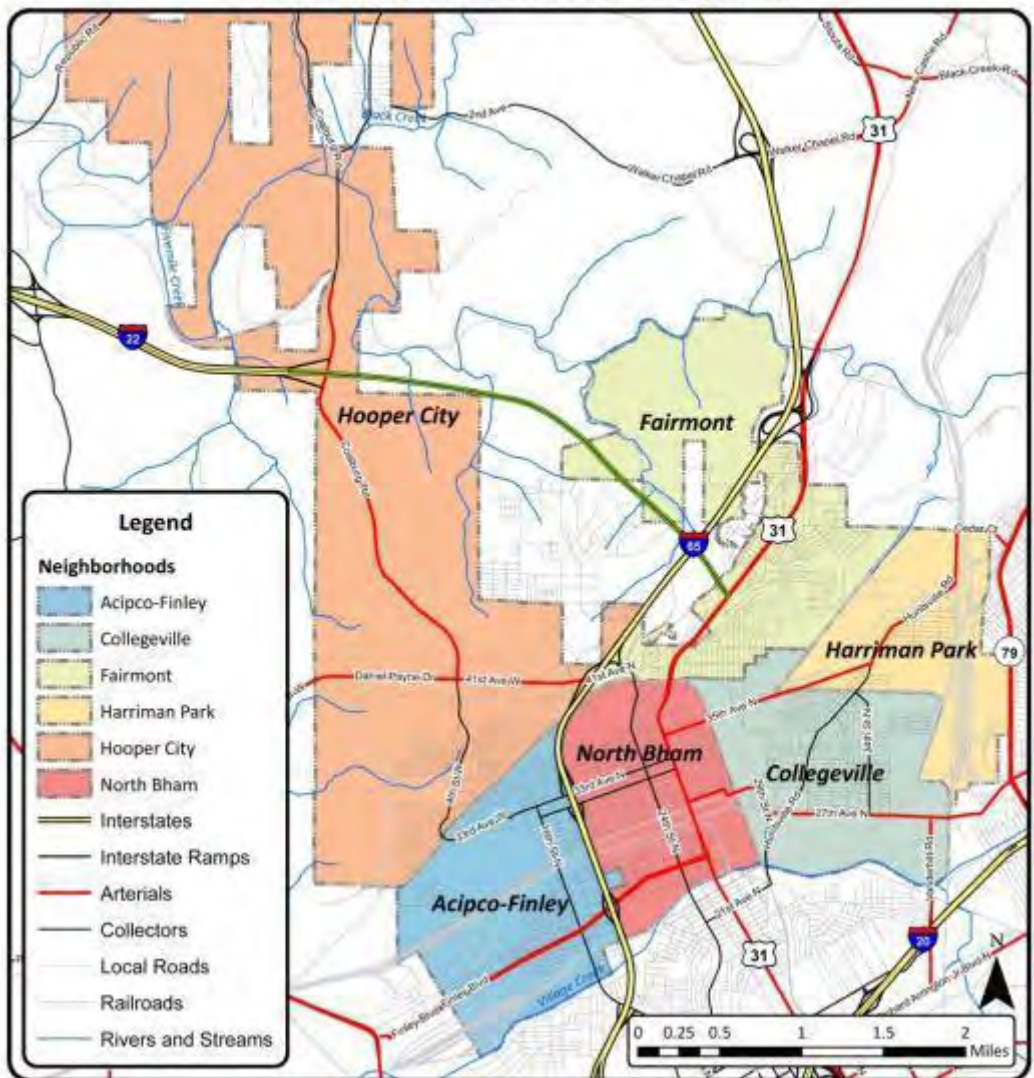
North Birmingham is a community in the City of Birmingham, located north of the Central Business District. It is comprised of six neighborhoods: Acipco - Finley, Collegeville, Fairmont, Harriman Park, Hooper City, and North Birmingham. These neighborhoods are bisected by Interstates 20/59 and 65 and surrounded by train tracks.

During the writing of this Rapid HIA, the Environment Protection Agency (EPA) is working in three of the six neighborhoods: Collegeville, Fairmont and Harriman Park, the 35th Avenue Superfund Site. The EPA is working to analyze the effect of pollution from surrounding industries and to create a plan to improve potential negative environmental exposures on residents, employees, and visitors. Simultaneously, the RPCGB, under contract to the City of Birmingham, is also creating the Framework Plan for the North Birmingham Community.

The six neighborhoods in the North Birmingham Community are the focus of the HIA study area (see Map 1). The six neighborhoods are located north of the Birmingham Central Business District. It is characterized as a mixture of residential areas, with a mix of transportation infrastructure including significant amounts of heavy rail and industrial businesses (Howard 2014 Interview). Interstate 65 transects the area, dividing it into east and west portions. Interstate 20/59 is also within close vicinity of the southern end of the study area. Train lines dedicated to transport of goods from the industrial businesses run through the four southern, more populated neighborhoods of Harriman Park, Collegeville, North Birmingham, and Acipco-Finley. The six neighborhoods are also home to 14,880 residents (see Table 2.1). The combination of residential communities, industrial facilities, and heavy transportation infrastructure are key environmental factors affecting recommendations to improve health in North Birmingham.

Map 2.1 North Birmingham Neighborhoods Area Map

North Birmingham Neighborhoods Area Map



Source: Regional Planning Commission of Greater Birmingham

Table 2.1 Baseline Data for North Birmingham Area

	Hooper City	Fairmont	Acipco-Finley	North Birmingham	Harriman Park	Collegeville
Population (2012)	859	1,578	1,036	2,275	339	2,474
Median Age (2012)	44.4	35.3	39.5	42.7	29.9	29.4
Population Density (ppl/sq. mi)	123	717	660	1835	290	1649
Average Household Size (2012)	2.44	2.70	2.33	2.27	2.35	2.69
Median Household Income (2012)	\$22,707	\$20,264	\$23,121	\$17,060	\$17,764	\$15,161
Households with children (2010)	28.0%	33.5%	27.4%	23.3%	39.1%	40.3%
Education						
High School Graduate/GED	44.8%	34.7%	43.0%	48.8%	25.2%	39.1%
Bachelor's Degree	10.0%	3.0%	4.4%	4.8%	14.6%	2.5%
Housing Unit Vacancy (2010)	17.6%	17.1%	16.7%	19.9%	17.4%	18.4%
Area (sq. mi)	6.97	2.20	1.57	1.24	1.17	1.50

Source: Regional Planning Commission of Greater Birmingham

2.2 What is Health?

The Preamble to the Constitution of the World Health Organization (1948) defines Health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” This definition is highly regarded and referenced across the globe and in the communities we all live, work, learn, play, and worship.

The Centers for Disease Control and Prevention also discusses health and includes a variety of other perspectives on determinants of health that go beyond clinical care. They are the “factors that contribute to a person’s current state of health” that include biological or genetic (sex and age), but also individual behaviors (alcohol use, injection drug use (needles), unprotected sex, and smoking), social environment (discrimination, income, and gender), physical environment (where one lives and exposures based on place), and health services (access to health care through facilities and insurance). The latter four contribute to the Social Determinants of Health, as they are layers of “the complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities” and “are shaped by the distribution of money, power, and resources throughout local communities, nations, and the world” (WHO 2008).

The health inequities that they cause are “systematic, avoidable, and unjust” (Braveman 2003; Whitehead 1991). Health disparities are evident when considering the distribution of impact across different demographic groups, especially those closely linked to social or economic disadvantages. Populations with the greatest disadvantages, and thus facing more obstacles to good health, also realize the greatest negative health outcomes. Healthy People 2020 notes that these obstacles “stem from characteristics historically linked to discrimination or exclusion such as race or ethnicity, religion, socioeconomic status, gender, mental health, sexual orientation, or geographic location. Other characteristics include cognitive, sensory, or physical disability.”

2.3 What is a Health Impact Assessment?

The World Health Organization (1999) defines a Health Impact Assessment (HIA) as “a combination of procedures, methods and tools by which a policy, program or project may be judged in terms of its potential effects on the health of a population and the distribution of those effects within the population.” HIAs are conducted for initiatives where health is not the main focus, in order to inform decision makers on the positive and negative effects their decisions may have on the health of their constituents. This knowledge, if acted upon, could reduce potential negative health outcomes, maximize positive health effects, and minimize health inequities. HIAs take a holistic view of health that is concerned not only with one’s physical health but the environmental, social, and economic roots of health (Bhatia and Wernham 2008). HIAs have increased in frequency in the United States as health issues are coming to the forefront of public and policy concern.

HIAs are typically a seven-step process that produces evidence-based recommendations on how the proposed policy, program, or project can be adapted to maximize health. These steps include screening, scoping, assessment, recommendations, reporting, monitoring and evaluation. The screening and scoping steps determine the feasibility and value of the assessment and decide which specific health impacts to evaluate. The assessment step, usually the longest and most intensive, consists of data collection, literature review, and other qualitative and quantitative analysis. Recommendations are drawn from the findings of the assessment then are presented to stakeholders, decision-makers and the public. Finally, monitoring and evaluation are outlined or completed, depending on the length of the HIA process. Stakeholder engagement is a part of each HIA step (see Figure 2.1).

Figure 2.1 Health Impact Assessment



Source: Health Impact Project, 2014

There are generally, three types of HIAs, desktop/rapid, intermediate and comprehensive.

- *Desktop or Rapid* | requires minimal resources, takes two days to six weeks, generally uses readily available data, and does not involve stakeholders.
- *Intermediate* | requires moderate amounts of resources, four weeks to several months, requires collection of some primary data, but heavily relies on existing data, and includes some stakeholders.
- *Comprehensive* | require significant resources, takes several months to years, requires collection of primary data, and includes significant stakeholder involvement.

This HIA on the North Birmingham Community Framework Plan is a Rapid HIA due to the data available, timing necessary to influence the plan prior to adoption, and availability of experts. However, it is more in line with an intermediate HIA due to the additional resources necessary to overcome the distance from the plan's geographic boundaries and the funder's request to maximize stakeholder participation.

Practitioners hope that HIAs will eventually change the culture of decision making, so health is considered once programs, projects, or policies are created. This can be accomplished by more HIAs influencing outcomes, completing evaluations, and disseminating results. Such a change can lead to improvements in population health nationally, reductions in harmful environmental exposures and inequities, and incorporation of sustainability in future investments. Health Impact Assessment is a useful tool to connect planning and built environment dimensions to public health and the overall needs of the community.

2.4 How might the North Birmingham Community Framework Plan Impact Health?

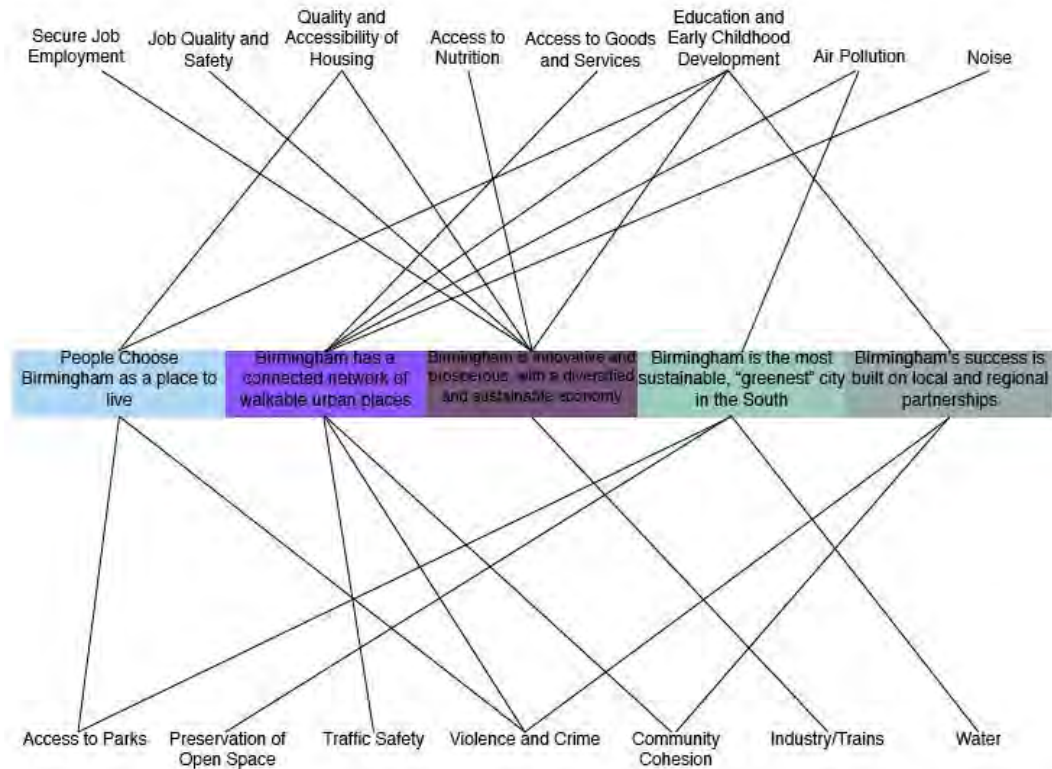
The City of Birmingham's 2032 Comprehensive Plan's major goals include creating a sustainable environment with a connected network of walkable urban places, as well as a sustainable, diversified and prosperous economy. Its mission statement reads "In 2032, the City of Birmingham leads the South as a community of choice and opportunity: diverse, prosperous, sustainable, and beautiful." Five topics from the City of Birmingham Comprehensive Plan align with the health connections under consideration. They include:

- (1) People choose Birmingham as a place to live
- (2) Birmingham has a connected network of walkable urban places
- (3) Birmingham is innovative and prosperous, with a diversified and sustainable economy
- (4) Birmingham is the most sustainable, "greenest" city in the South
- (5) Birmingham's success is built on local and regional partnerships

The comprehensive plan components are highlighted below with connections to dimensions of health or social determinants of health (see Figure 2.2). These topics are general areas of investigation for HIA assessments.

The North Birmingham Community Framework Plan was not available for review at the time of writing. Both the Rapid HIA and the North Birmingham Community Framework Plan initiated in January 2014. Therefore, the City of Birmingham's Comprehensive Plan, available data on the community, and steering committee input provided the bulk of material to which the HIA responds.

Figure 2.2 City of Birmingham’s Comprehensive Assessment and Connections to Health



2.5 Why Conduct the North Birmingham Community Framework Plan Rapid Health Impact Assessment?

Three of the six neighborhoods in the North Birmingham Community overlap with the 35th Avenue Superfund Site. Residents of these neighborhoods, Collegeville, Fairmont and Harriman Park, express concerns regarding assumed higher overall cases of cancers and other diseases resulting from local industries. The Jefferson County Health Department, EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) are assessing these concerns.

The involvement of the EPA on the 35th Avenue Superfund Site and RPCGB’s conduct of the Framework Plan led the community to ask for a deeper assessment of health. The Framework Plan is required to consider improvement of quality of life, not health. The addition of the Rapid HIA responds to the needs of the community and allows health to be a part of the plan formation and to shape future development.

Section 3: North Birmingham Community Framework Plan Rapid Health Impact Assessment Methodology

The North Birmingham Community Framework Plan Rapid Health Impact Assessment (HIA) follows the guidelines established by the Society of Practitioners of Health Impact Assessment (SOPHIA) *Minimum Elements and Practice Standards for Health Impact Assessment*, published in November 2010, and the September 2014 update (Bhatia, et.al. 2014). The steps of an HIA include screening, scoping, assessment, recommendations, reporting, monitoring, and evaluation. This section of the report provides an overview of each of these steps, highlights the essential elements from the 2014 *Elements and Practice Standards*, and discusses their relevance to the North Birmingham Community Framework Plan Rapid HIA.

3.1 Screening

The screening stage is when one decides if an HIA is required or useful. The decision to move ahead or reject conduct of an HIA can be made by the HIA practitioner, as a follow-through on requirement of a political decision or regulatory requirement. Screening includes three essential elements of which are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan.

3.1.1 Essential Elements

1. Screening should clearly **identify all the decision alternatives** under consideration by decision-makers at the time the HIA is considered.
2. Screening should **determine whether an HIA would add value** to the decision-making process. Select criteria are used in making this determination.
3. Sponsors of the HIA should **notify**, to the extent feasible, decision-makers, stakeholders, affected individuals and organizations, and responsible public agencies **on their decision to conduct an HIA**.

3.1.2 Screening Results

The decision under consideration in this instance is the North Birmingham Community Framework Plan, specifically, the potential health impacts of the Plan. There were no other alternatives considered, as the Framework Plan is a regulatory requirement.

To determine whether an HIA would add value to the North Birmingham Community Framework Plan, Professor Botchwey from Georgia Tech and Mr. Darrell Howard from the RPCGB discussed the criteria outlined in Table 3.1. The project has both a decision-maker who is concerned about the decision's health effects, and will work closely with the HIA team to assist them with requests. Given the community's concerns about the proximal industrial sites, brownfields, and other environmental exposures, and the limited connection between the Framework Plan and health, the HIA has the potential to

add new information to the Plan that would be useful and integrated into the final document. The project is based in a community in Birmingham, Alabama, a 2-3 hour drive from the HIA team's base in Atlanta. While this is not a local project, there is significant support from the sponsor to overcome this potential distance obstacle. Finally, the project can be completed by the end of the academic semester with final comments from local stakeholders and decision-makers received and responded to in the months that follow (see Table 3.1).

Table 3.1 Screening Criteria for Determination of Conducting an HIA on the North Birmingham Framework Plan

	Yes	No	N/A
The project has a stakeholder who is concerned about the decision's health effects.	x		
The project has a decision-maker and/or stakeholder who is willing to interact with the students, including at least attending the first class to describe the project and the last class to hear the students present their findings.	x		
The project team will have adequate access to existing data, methods, resources, and technical capacity to conduct analyses.	x		
The HIA has the potential to add new information that would be useful to decision-makers.	x		
The project is timely, so recommendations from the course HIA have the potential to be considered in the decision-making process.	x		
The project is outside of the health sector but has potential health impacts.	x		
If the project is local, the project site is accessible for the students to visit the area and understand the decisions being considered.			x
If the project is national in scope, the students are able to engage with individuals who represent the major stakeholders on the decision being considered.			x
The project can be completed during the academic term, with the exception of monitoring and evaluation.	x		

3.2 Scoping

The scoping step is where the HIA approach is planned. This is where issues are scoped and the parameters for geographic boundaries, methods and a steering committee are established. Scoping includes six essential elements of which are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan.

3.2.1 Essential Elements

1. The scoping process should establish the **individual or team responsible** for conducting the HIA including funders, technical advisors, stakeholders, and other partners.

2. Establish and document the **goals and anticipated outcomes** of the HIA during scoping.
3. A **plan for conducting the HIA** should be established that includes identification of various dimensions.
4. An HIA **stakeholder engagement plan** should be developed that establishes which stakeholders, expected level of engagement, and methods to promote stakeholder participation.
5. During scoping, define the **range of health issues** to be examined in the HIA.
6. Include in the scope an approach to **evaluate any potential inequities in impacts**.

3.2.2 Scoping Results

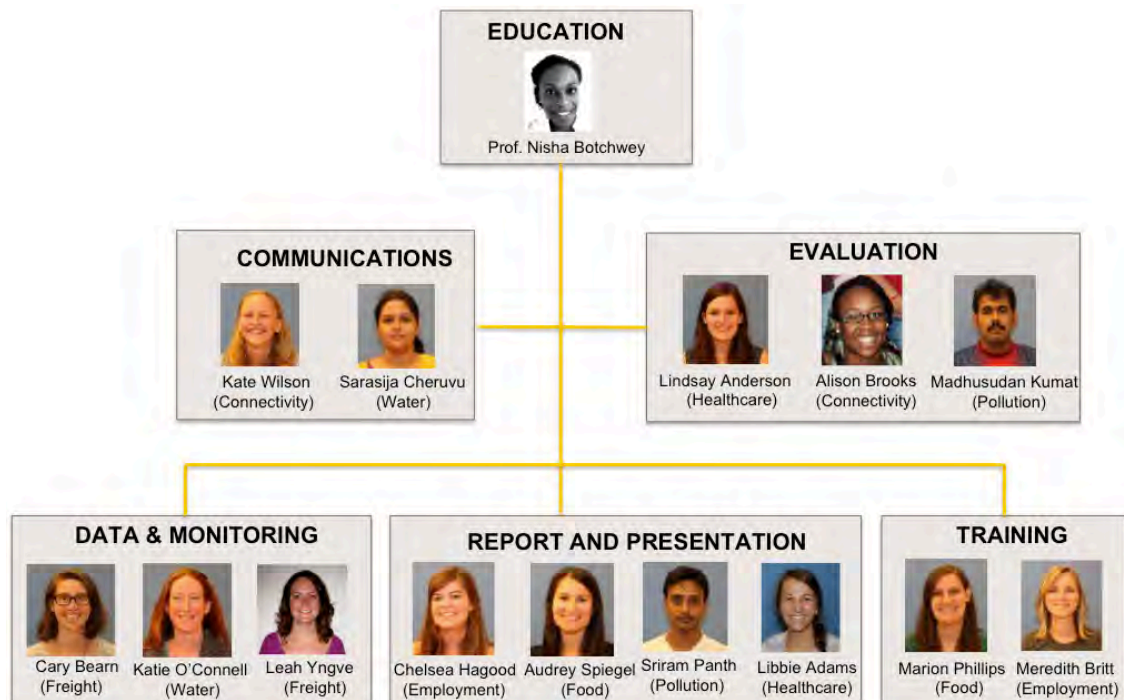
The results of the scoping step are laid out in sections below in order of the essential elements highlighted above.

3.2.2.1 HIA Project Team

The North Birmingham Community Framework Plan Rapid HIA was conducted by a multidisciplinary 17-person team consisting of Professor Botchwey, 10 City and Regional Planning, three Environmental Engineering students, and two Public Health graduate and undergraduate students. Students were experts in specific scoping topics and members of administrative teams. Each topic group benefitted from having multiple disciplinary perspectives to draw upon due to the team's varied academic backgrounds (see Figure 3.1).

Other members of the HIA Team include the funder, the RPCGB, who sat on and co-convened the HIA Steering Committee. The steering committee of community leaders supported receipt, interpretation, and reporting of data and analysis throughout the HIA process. The first members of the steering committee were initially identified by the RPCGB staff and the Georgia Tech HIA Team. Additional steering committee members were added based on recommendations from the group initially brought together at the first meeting (see Table 3.2 for the full list of steering committee members). Meetings were held by conference call to ensure maximum participation with the lowest level of technology available to all stakeholders. Skype, go-to meeting and other web-based communication for meetings were initially considered to maximize interaction. Limitations in access to these higher levels of technology by all members of the steering committee required the use of conference calling because it allowed everyone to participate with minimum burden.

Figure 3.1 North Birmingham Community Framework Plan Rapid Health Impact Assessment Team



3.2.2.2 Goals and Anticipated Outcomes of the HIA

The goals of the North Birmingham Community Framework Plan HIA are to:

- 1) Enhance the current community planning process conducted by RPCGB to include health, and
- 2) Educate and empower stakeholders, including residents, community organizations and involved governmental bodies on factors affecting community health and the health impact assessment.

Overall, the North Birmingham Community Framework Plan has the potential to positively impact the health of the six neighborhoods, with positive spillover effects on the City of Birmingham and the Region. If recommendations are adopted, some of these impacts will be neutral due to their mitigation of potential negative outcomes while others will have noteworthy impacts on positive health outcomes. The North Birmingham Community Framework Plan Rapid HIA will rely heavily on a dynamic and multidisciplinary steering committee from planning, public health, local government, private industry, and the community. The discussion and collaboration established through this steering committee can promote continued address of health promotion in and around the Birmingham Region.

Table 3.2 North Birmingham Community Framework Plan Health Impact Assessment Steering Committee

Name	Organization
Renato Ghizoni	Regional Planning Commission of Greater Birmingham
Darrell Howard	Regional Planning Commission of Greater Birmingham
Tim Gambrel	City of Birmingham
H. Douglas Hale	City of Birmingham
Sarah Malpass	Skeo Solutions
Vernice Miller-Travis	Skeo Solutions
Stephanie Brown	Environmental Protection Agency, Region IV
Dr. Monica Baskin	University of Alabama, Birmingham
Barbara Newman	Jefferson County Department of Health
Sheryl Good	Environmental Protection Agency, Region IV
Maria Norena	University of Alabama, Birmingham
Benita Byrd-Giles	City of Birmingham Resident
Joanice Thompson	University of Alabama, Birmingham
Greg Townsend	Jefferson County Department of Health
Sandra Bonner	Alabama Department of Transportation
Vivian Starks	Collegeville Neighborhood Association
Chester Wallace	Collegeville Neighborhood Association
Anna Brown	North Birmingham Neighborhood Association
Jones Monday	Harriman Park Neighborhood Association

3.2.2.3 Plan for Conducting the HIA

The decisions that will be studied through this HIA focus on the potential health impacts of the North Birmingham Community Framework Plan. The Plan was being written at the time of the data collection and HIA analysis, therefore specific topics were not selected at this stage based on the Plan. Topics were selected through stakeholder engagement as described below in Section 3.2.2.4.

These topics align well with the North Birmingham context and the populations that are vulnerable to the options and exposures presented to them through their environment. Populations that may experience potential significant health and health equity impacts include children, the elderly, low-wealth, and car-less households. These populations who reside in the North Birmingham Communities will be studied to the extent data is available. Where data is not available, data on areas encompassing North Birmingham may be referred to by the HIA Team.

Research questions, methods, evaluation, and characterization of impacts and distributions are highlighted below, following the presentation of the scoping topics agreed upon through the community engagement process.

Public review of the process and product occurred periodically throughout the production of the report. Steering committee members reviewed interim reports on scoping, assessment and recommendations throughout Spring 2014. The reports were made available to the steering committee, then discussed by conference call. The public then reviewed the draft HIA report in May 2014. That public presentation kicked-off a three-month period of review and additional public comment. The report was revised in Fall 2014 and submitted to RPCGB at the end of the year. The RPCGB in partnership with the HIA team and the steering committee will coordinate dissemination of findings through public meetings, conference presentations, and peer-reviewed publication.

3.2.2.4 Stakeholder Engagement Plan

Stakeholders will participate throughout the HIA process beginning with the scoping step and continuing through reporting. Targeted stakeholders for the North Birmingham HIA include the following groups:

- Residents of the North Birmingham Community
- North Birmingham Neighborhood Associations
- North Birmingham Community Coalition
- North Birmingham Youth
- North Birmingham Senior Citizens
- North Birmingham Religious Organizations
- Regional Planning Commission of Greater Birmingham
- City of Birmingham
- University of Alabama, Birmingham

Engagement of Stakeholders will occur through the following steps:

Scoping

- HIA Orientation
- Focus Groups (Youth, Professionals, Neighborhood Residents)
- Neighborhood Tour and Talk Back
- Survey of Scoping Topics

Assessment

- Steering Committee Feedback on Assessment
- Report to Community Meeting

Recommendations

- Steering Committee Feedback on Draft Recommendations
- Presentation of Draft HIA
- Three-month Comment Period for Draft HIA
- HIA Training

Stakeholders are also able to participate in the HIA process through reporting results. The RPCGB will lead the reporting component of the HIA with support from GT. Some

reporting activities will include community meetings, presentations before elected and appointed bodies, and dissemination of the final report on specified websites.

3.2.2.5 Health Issues Defined

The HIA team went through a three-step process to determine the final scoping topics for consideration by this HIA.

The first step included a review of 14 topics that address both individual health outcomes and contextual health determinants. The HIA Team completed brief literature reviews on each of these areas and drafted causal pathways showing reasonable links from the North Birmingham Community Framework Plan and health (direct, indirect and cumulative). This research allowed an early understanding of the connections between these topics and health, their potential magnitude, severity and certainty of the relationships, the type of data used to assess these connections, data sources of relevant measures for the North Birmingham Community, and equity concerns. This work is available in Section 4 *Assessment*.

The second step included a review by a health and policy professionals' focus group, youth focus group and Neighborhood Members' Focus Group. These groups all weighed in on their top priorities as it related to the topics listed in Table 3.3. Appendices 1 and 2 provided both a detailed report from the focus groups and the Focus Group Guide. Each scoping topic was given a priority score of 3 (highest) to 1 (lowest). The HIA Team members who completed the early research on the topics then provided their priority score based on that work and their field experience in the community. These four scores were then summed to provide an overall ranking of the topics. This sum resulted in six topics of the fourteen scoring an 8, 9 or 10.

The third step in scoping included both the steering committee's and the North Birmingham Community Coalition's votes and comments on the topics. A survey was distributed to these two groups, and results were reviewed on a conference call with the steering committee (see Appendix 3). Overall, the steering committee recommended that the HIA Team move forward with assessment of the six topics receiving the highest scores and inclusion of a selection of the remaining eight with lower rankings as resources permit. The HIA Team prioritized these last eight topics to help guide consideration as time and data permitted. (See Table 3.3)

Overall, this process permitted the HIA Team to consider stakeholder experience from a variety of segments from the community. It also considered the type of information needed from by decision-makers as they proceed with developing the North Birmingham Community Framework Plan.

Table 3.3 North Birmingham Community Framework Plan Rapid HIA Scoping Topics Prioritization

Priority Scores per Topic → 3 (highest) --- 1 (lowest)	Health and Policy Professionals Focus Group	Youth Focus Group	Neighborhood Presidents' Focus Group	HIA Team Priority Scores	Overall Score	Extra votes
Initial Topics (below)						
Access to Health care	3	1	3	3	10	
Pollution/Contamination/ Waste Piles (Air/Water/Soil)	1	3	3	3	10	
Community Cohesion (Ownership, Gardens)	3	2	3	2	10	
Quality/Secure Employment (Job training)	3	1	3	2	9	
Transportation (Walkability/Connectivity)	2	2	3	2	9	
Vacant Land/Properties/Clean Up/Buy Out Program	3	2	1	2	8	
Water (Drainage, Sources/Contamination)	1	1	3	2	7	8
Access to Food	1	3	2	1	7	7
Freight (Noise, Air)	1	3	2	1	7	7
Violence/Crimes	1	3	1	1	6	4
Parks/Recs (Recreation)	2	3	1	1	7	1
Quality/Accessibility of Housing	1	1	2	1	5	1
Open Space/Greenspace (Passive Green Infrastructure)	1	3	1	1	6	
Education	1	1	2	1	5	

The final list of topics addressed by the HIA was based on availability of public data specific to the geography of focus, ongoing efforts by other organizations to address the same topic and the team’s access to expertise to assist with interpreting the data. The HIA thus addresses the following:

1. Access to Secure and Quality Employment
2. Access to Healthy Food
3. Access to Health Care
4. Connectivity
5. Freight

There are two topics that the HIA team did some additional research on and decided to exclude them from this report due to data availability, ongoing efforts of another agency or lack of expertise to guide interpretation. Those topics include:

1. Water
2. Pollution related to Industrial Contamination and Waste Piles

With regards to water, unfortunately, the publically available data on water specific to the North Birmingham Community is not specific enough to these neighborhoods. Additionally, the City of Birmingham, at the time of writing this report, was writing a watershed plan for Village Creek, the primary water body of interest to this area. It is important to clarify that Birmingham does not have a combined sewer system where sewer and run-off come together when there is an overflow in from heavy precipitation events. The City of Birmingham's watershed plan will consider the health impacts on the local community, and recommend interventions based on a complete model of the watershed. Such a model has not been done in 20 years. Two interventions that may be considered under this plan are green and grey infrastructure improvements. Green infrastructure is the development of wetland areas that slow down water flow on the surface, holds larger quantities of water in catchment areas, and filters impurities and contaminants out of the water before it makes its way into the larger storm water system. This intervention, when applied appropriately to the sites, can remedy much of the concern regarding flooding and the 'out of bank' issues these communities face because the peak stage elevation is higher than properties and land in the watershed. Grey infrastructure improvements will also assist with water collection and drainage where green infrastructure may not be appropriate. Grey infrastructure improvements may focus on replacing existing sewage pipes.

The data for pollution shows that there are many industrial emissions that are affecting the local environment. The major air pollutants emitted in the area are NO_x, VOCs and Ozone. The emissions also are partially from the automobiles in the region. The trains passing through the area and the heavy vehicles also contribute greatly to the local NO_x emissions. The water quality is affected by the runoff from the industries, which contain lead and other chemicals that, depending on the dose response, can have adverse impacts on human health. Another major issue in this area concerns soil contamination. There are waste deposits located outside the industries, and in plain view of the public, degrading the water and soil quality. The lead and coal ash deposits are also a major concern for residents.

The HIA team did not include this topic in the assessment because of the limited expertise to effectively assess items in this topic area and the engagement of EPA Region IV in the 35th Avenue Superfund Site, which covering three of the six neighborhoods in the Community. Some of the important high-level, city data on this topic for Birmingham is highlighted here, and further assessed by EPA. Air quality data from AIRNOW shows the air quality in Birmingham to be good with an air quality index of 40 to 45 generally. The ozone levels are generally low. The PM levels however, are bordering on unhealthy, especially in the urban areas. The ozone levels throughout have remained below the specified level of 75 ug/m³. The ozone levels have been diminishing over the years. The PM levels have been generally constant at 12 to 15 ug/m³.

3.2.2.6 Approach to Address Potential Inequities in Impact

Population characteristics, including age, gender, income, place (disadvantaged locations), and race or ethnicity were included in each of the assessment topics to ensure address of inequitable impacts.

3.3 Assessment

The assessment step is where the HIA approach is planned. This is where collection, analysis and the interpretation of results is completed in order to prioritize health impacts. Assessment includes six essential elements of which are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan. The essential elements are outlined below, but the assessment results are summarized in Section 4, *Assessment*.

3.3.1 Essential Elements

1. Assessment should include, at a minimum, a summary of **existing (baseline) conditions and a assessment of health impacts**.
2. Existing conditions should present a **profile of relevant health status and health determinants among the affected communities**. The existing conditions should also document **known population health vulnerabilities** including evidence of poor health status among affected communities.
3. Assessment of health impacts should be based on a **synthesis of the best available evidence**.
4. To support determinations of impact significance, the HIA should **characterize health impacts using parameters** such as (but not limited to) direction, severity, magnitude, likelihood, and distribution within the population.
5. Assessment of health impacts should explicitly **acknowledge methodological assumptions** as well as the **strengths and limitations of all data and methods used**.
6. The **lack of formal, scientific, quantitative, or published evidence should not preclude reasoned evaluation of health impacts**.

3.4 Recommendations

The recommendations step is where concise, evidence-based and action-oriented recommendations to mitigate determined negative impacts and to promote positive impacts are presented. Guidance on SMART (specific, measureable, assignable, realistic, and time-related) implementation of the recommendations is also provided. Recommendations includes ten essential elements which are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan. The essential elements are outlined below, but the recommendations are summarized in Section 5, *Recommendations*.

3.4.1 Essential Elements

1. The HIA should include **specific recommendations** to manage the health and equity impacts identified, including recommendations supporting a specific decision alternative; modifications to the proposed policy, program, plan, or project; or mitigation/enhancement measures.
2. Recommendations should consider not only the **mitigation of adverse effects**, but also the **potential to enhance health benefits**.
3. Recommendations may not be indicated in all cases where there is **no identified adverse impact**.
4. Consider the following **criteria** when developing recommendations and mitigation measures: responsiveness to predicted impacts, specificity, technical feasibility, enforceability, and authority of decision-makers.
5. **Input from the affected population(s)** should be solicited and considered during development of recommendations to ensure that the recommendations are responsive to community needs and address community concerns in an acceptable manner.
6. The criteria used for any **prioritization of recommendations** should be explicitly documented.
7. Recommendations are effective only if they are adopted and implemented; therefore, **input should be solicited from decision-makers** on the developed recommendations and considered to ensure that the recommendations can be translated into actionable measures.
8. Where needed, expert guidance should be utilized to ensure **recommendations reflect current effective practices**.
9. Where possible, recommended mitigations should be further developed and integrated into a **Health Management Plan** that clearly outlines how each mitigation measure will be implemented. Management plans commonly include information on: deadlines, responsibilities, management structure, potential partnerships, engagement activities, and monitoring related to the implementation of the HIA mitigations.
10. An HIA may include **recommendations that go beyond the purview of the proposal decision-maker** and that target different audiences such as project investors or financiers, implementing agencies, regulating agencies, health care agencies, or researchers.

3.5 Reporting

The reporting step is focused on development of the HIA Report and communicating the HIA findings and recommendations. Reporting includes six essential elements of which are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan. The essential elements are outlined below, and the reporting plan is also discussed.

3.5.1 Essential Elements

1. The parties conducting the HIA should provide a **publicly accessible final report** that includes, at minimum, the HIA's purpose, findings, and recommendations. The report should also document the process involved in arriving at findings and recommendations (e.g., assessment methodology and recommendation setting approach) or alternatively provide separate documentation of these processes.
2. To support effective, inclusive communication of the principal HIA findings and recommendations, a **succinct summary should be created** that communicates findings in a way that allows all stakeholders to understand, evaluate, and respond to the findings.
3. The full HIA report should **document** the screening and scoping processes and identify the sponsor of the HIA and the funding source, the team conducting the HIA, and all other participants in the HIA and their roles and contributions. Any potential conflicts of interest should be acknowledged.
4. The full HIA report should provide **sufficient detail** for each specific health issue analyzed to allow the audience to source data and replicate the analysis and recommendation process.
5. The HIA reporting process should offer stakeholders and decision-makers a **meaningful opportunity to critically review evidence, methods, findings, conclusions, and recommendations**. The HIA practitioners should address substantive criticisms.
6. The HIA report should be **made available and readily accessible** in a format that is accessible to all stakeholders, taking into consideration factors such as education, language, and digital access.

3.5.2 Reporting Plan

The North Birmingham Community Framework Plan Rapid HIA Report will be delivered to the sponsor, the RPCGB. RPCGB will share the report in accordance with that permissible under their guidelines. The HIA Team will catalogue the report with the various HIA databases and on the *Built Environment and Public Health Clearinghouse* (www.bephc.gatech.edu) where other university course sourced HIAs are catalogued.

The report includes various resources to improve readability and use of the results. The report begins with a reader's guide followed by an executive summary, then detailed sections on each component of the HIA. Each step is briefly explained then results related to the Plan are presented. These results include sufficient information on data sources, analysis, stakeholder involvement, and the overall process to permit an outside team to understand and replicate the work.

A draft of the HIA was provided to the North Birmingham Community and its stakeholders for a three-month review period. Phone conversations and written comments were provided to the HIA, and the report was modified to address highlighted concerns.

Finally, in addition to the report being made available on the HIA databases and *Clearinghouse*, it will also be the subject of neighborhood, community, city, region and domestic-level presentations. These may occur at community meetings, at national conferences and in peer-reviewed publications. It is the HIA Team's hope that steering committee members will use the accompanying Power Point presentation and report to discuss issues with their residential, work, or other networks.

3.6 Evaluation

The evaluation step is where the process, impact, and outcomes of the HIA are assessed. Evaluation is an important step in the HIA process, increasingly conducted as part of the HIA process, and important in establishing both the value of HIAs and best practices. There are three types of evaluation: process, impact, and outcome. The latter, outcome evaluation is also referred to as monitoring, and is discussed in the next subsection below. Evaluation includes two essential elements of which are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan. The essential elements are outlined below, but the evaluation report is presented in Section 6, *Evaluation*.

3.6.1 Essential Elements

1. The HIA may be evaluated in terms of process. **Process evaluation** attempts to determine the effectiveness of how the HIA was designed and undertaken, including preparation, research, reporting, participation, and follow-up. Process evaluation may be conducted either after the completion of the HIA, or during the course of the HIA to facilitate adaptations that will improve HIA process.
2. The HIA may also be evaluated in terms of its impact. **Impact evaluation** seeks to understand the impact of the HIA itself on the decision and the decision-making process. Impact evaluation assesses the extent to which the HIA influenced various stakeholders and the extent to which the HIA recommendations were accepted and implemented.

3.7 Monitoring

The monitoring step provides information on the impact of the HIA's project, program, or policy on health outcomes and topics of focus as determined in the scoping step. Monitoring is also sometimes considered the third type of evaluation, outcome evaluation. This is the responsibility of the sponsor or other decision-makers, however, guided by a plan included in the HIA report. Monitoring includes two essential elements that are adapted from the 2014 *Elements and Practice Standards* and described in relation to the North Birmingham Framework Plan. The essential elements are outlined below, but the monitoring plan is summarized in Section 7, *Monitoring*.

3.7.1 Essential Elements

1. The monitoring plan should include **goals** for short- and long-term monitoring; **indicators** for monitoring; **triggers or thresholds** that may lead to review and adaptation in decision implementation; the identification of **resources required** to conduct, complete, and report the monitoring; and a **mechanism to report monitoring outcomes** to decision-makers and stakeholders.
2. When monitoring is conducted, methods and **results from monitoring should be made available to the public**, including the affected community, in a timely fashion.

Section 4: Assessment

The Assessment section provides detailed summaries of the analysis completed on the six topics selected in the scoping section. These topics include (1) access to secure and quality employment, (2) access to healthy food, (3) access to healthcare, (4) connectivity, and (5) freight. Each sub-section includes a summary of the topic, a brief literature review, causal pathway diagram, and summary of potential health impacts.

Causal Pathway Diagrams describe the links between exposure and health. The typically components of these include inputs, policies or decisions, proximal impacts, intermediate outcomes, and health outcomes. The diagrams can be very broad, representing, for example, unemployment's impact on health outcomes. They can also be more specific, looking, for example, at unemployment within a specific population and health outcomes. The causal pathway diagrams presented in this section are more general, describing the topic area and linkages from exposure to outcome.

Potential health impacts for each topic documents the strength of research, severity of impact, populations impacted, magnitude of impact, and uncertainties related to limited evidence.

Table 4.1 provides an overview of Jefferson County Mortality data. The North Birmingham Community sits inside Jefferson County. This data is provided by County Health Rankings. Other, smaller geography reporting of health data on the North Birmingham Community or the individual North Birmingham Neighborhoods was not as easily accessible to the HIA Team in the time and format necessary for review.

4.1 Access to Secure and Quality Employment

4.1.1 Summary

Secure and quality employment provides income, benefits, and stability, which promote good health and longer lifespans. Unemployment is connected to higher levels of stress, chronic disease, poverty, and a variety of unhealthy habits, including excessive smoking, drinking, and weight gain. A well-paying job “makes it easier for workers to live in healthier neighborhoods, provide quality education for their children, secure child services, and buy more nutritious food” (Robert Wood Johnson Foundation 2013). Some of the North Birmingham neighborhoods have unemployment rates that are two to three times the national average. This high rate of unemployment may be affecting the health of North Birmingham residents. (see Table 4.2)

Table 4.1 Mortality: Jefferson County, Alabama

Selected Causes	Total	Total Rate	Male	Male Rate	Female	Female Rate	White	White Rate	Black	Black Rate
Heart Disease	1528	231	752	240.9	776	223.1	971	270.7	557	184.8
Cancer	1312	198.8	689	220.7	623	179.1	797	222.2	515	170.9
Stroke	417	63.2	171	54.8	246	70.7	260	72.5	157	52.1
Accidents	312	47.3	197	63.1	115	33.1	204	56.9	108	35.8
CLRD	308	46.7	149	47.7	159	45.7	252	70.3	56	18.6
Diabetes	181	27.4	97	31.1	84	24.1	80	22.3	101	33.5
Inf. & Pneumonia	129	19.5	66	21.1	63	18.1	87	24.3	42	13.9
Alzheimer's Disease	152	23	39	12.5	113	32.5	118	32.9	34	11.3
Suicide	89	13.5	74	23.7	15	4.3	73	20.4	16	5.3
Homicide	95	14.4	87	27.9	8	2.3	7	2	88	29.2
HIV Disease	28	4.2	20	6.4	8	2.3	7	2	21	7

Source: County Health Rankings

4.1.2 Literature Review

Secure and quality employment provides income, benefits, and stability, which promote good health (Robert Wood Johnson Foundation 2013). Meanwhile, studies find that unemployment is connected to higher levels of stress, chronic disease, poverty, and a variety of unhealthy habits. Most available research linking employment status and health focuses on the negative outcomes of lack of employment. During the recent recession, national media particularly focused on the health effects on both short-term unemployed and long-term unemployed people. While not as much information is available on the positive effects of employment, it is useful to consider what negative health outcomes can be mitigated through quality, stable employment.

Table 4.2 Unemployment Rates in the North Birmingham Community

Geographic Boundaries	Unemployment Rate (%)	Civilian Labor Force
Acipco-Finley Neighborhood ¹	22.20%	631
Collegeville Neighborhood ¹	28.70%	1,010
Fairmont Neighborhood ¹	2.0% 33.3% ⁴	300
Harriman Park Neighborhood ¹	8.1% 17.8% ⁴	167
Hooper City Neighborhood ¹	10.1% 25.8% ⁴	173
North Birmingham Neighborhood ¹	28.60%	1,108
North Birmingham Community ¹	23.20%	3,389
<i>Birmingham-Hoover MSA</i> ²	9.60%	555,409
<i>Alabama</i> ^{2, 3}	10.3% ² 6.1% ³	2,263,895

Source:

¹Calculations based off U.S. Census Bureau, 2006-2010 American Community Survey Employment by Block Group

²U.S. Census Bureau, 2008-2012 American Community Survey

³Bureau of Labor Statistics, January 2014 Alabama Unemployment Rate, Seasonally Adjusted.

⁴Estimate followed by estimate plus the margin of error, within a 90% confidence interval.

In exploring the link between unemployment and health, studies find that unemployment results in higher mortality rates. Research shows that mortality rates are 141% higher for men and 35% higher for women who have been unemployed (Martikainen 1996). Other researchers connect these higher mortality rates to health conditions, including cancer, cardiovascular disease, and suicide (Voss 2004; Strully 2009). These studies find that workers who lost their jobs through no fault of their own are twice as likely to develop high blood pressure, diabetes, or heart disease (Strully 2009). The risk is still the same for those who find employment again quickly. Another study finds that the higher risk for these health outcomes continued from the initial period of unemployment over the 24-year period of the study despite the lag time in finding a new job (Voss 2004). The fear of losing a job is just as strong of a predictor as actual job loss on an older person's health (Gallo 2007). Together, these studies find that unemployment intensely increases mortality and chronic condition risk, whether the period of unemployment is short, long, or feared as possible. Job stability, therefore, can mitigate this risk.

Research shows that the stress-related changes from unemployment that lead to different health behaviors may also increase the risk of chronic disease. These health behaviors play a factor in this increased risk include less physical activity, increased cigarette consumption, increased risk of smoking relapse, and increased drinking and weight gain. Another method for mitigating health risk, therefore, could be in providing programs for the unemployed that discourage these negative health behaviors.

Job security also has a psychological effect. Studies show that permanent employees experience more satisfaction than contract or temporary employees (Virtanen, et.al 2003). Another study finds that a transition from employment to joblessness is predictive of poorer psychological well-being, and that transitions to employment for joblessness were not found to have equally strong positive effects (Flint 2013). Another related study explores the effects of the positive transition to permanent employment and finds that there is a lower probability of psychological symptoms for those who find employment; however, little is known about the effects of gaining employment in contrast to the effects of job loss (Reine, et.al. 2008).

There is also a significant disparity in joblessness and health outcomes. Research on the possibility of greater exacerbation of health risks for black and Hispanic populations finds that job loss results in similar health risk increases for white, black, and Hispanic populations. It is important to note though that the risk of job loss is higher for black and Hispanic populations. This means that overall health disparities related to job loss may still exist (Strully 2009).

The Robert Wood Johnson Foundation recently wrote a brief on the effects of employment on health and offers recommendations for improving health through job access and healthy workplace behaviors. This brief offers a quick and useful summary of this relationship. It states that a well-paying job “makes it easier for workers to neighborhoods, provide quality education for their children, secure child services, and buy more nutritious food” (2013). It also states that good jobs provide benefits and provide higher earnings, which lead to longer lifespans. The brief references the National Prevention Strategy (2011), which offers more than 200 specific prevention and wellness actions that federal agencies can undertake to promote health.

In addition to the direct link between health and job security, quality employment has mutually beneficial connections to other areas of this HIA, including food access, transportation access, brownfield clean-up, child health and education, social capital and networks, and injury prevention. These areas have not been explored in this literature review, but should be considered when adopting HIA recommendations.

4.1.3 Causal Pathway Diagram

Employment policies that bear relevance to the North Birmingham Community Framework Plan can be divided into four categories that affect one’s ability to attain secure, high quality employment: workforce development, employer recruitment, access to childcare, and transportation access to jobs. The results of changes in these policy areas can influence one’s ability to get quality work, the income and health benefits received from employers, health-related behaviors, and ultimately, medical outcomes that influence the length and quality of life. These four policy areas follow particular pathways in terms of environmental conditions and behaviors that lead to changes in health outcomes. These pathways are summarized below.

Workforce Development Programs

Effective workforce development programs provide training in relevant occupations for which there is demand and connect individuals directly to work opportunities. The causal pathway diagram shows these outcomes in the proximal impacts of increases in jobs and skills. Better jobs have immediate effects on health insurance coverage for individuals, as quality jobs are more likely to offer health care and a steadier offering of work hours. Map 4.1 shows that no workforce development centers are located in the Birmingham Community. Four such centers are located south of the community, two of which are along bus routes (see Map 4.1).

Employer Recruitment

Recruiting employers to North Birmingham also offers local opportunities for quality employment for North Birmingham residents. The presence of additional employers can increase the number of jobs for North Birmingham residents. In addition, the presence of additional employers can raise property values, which would have an effect on the quality of public schools. Higher performing public schools would lead to an increase in educational attainment, which would increase worker skills and the likelihood of attaining high quality employment. More high quality jobs and greater skills for North Birmingham residents would feed into the same pathways as workforce development programs of health insurance coverage and work hours.

Access to Childcare

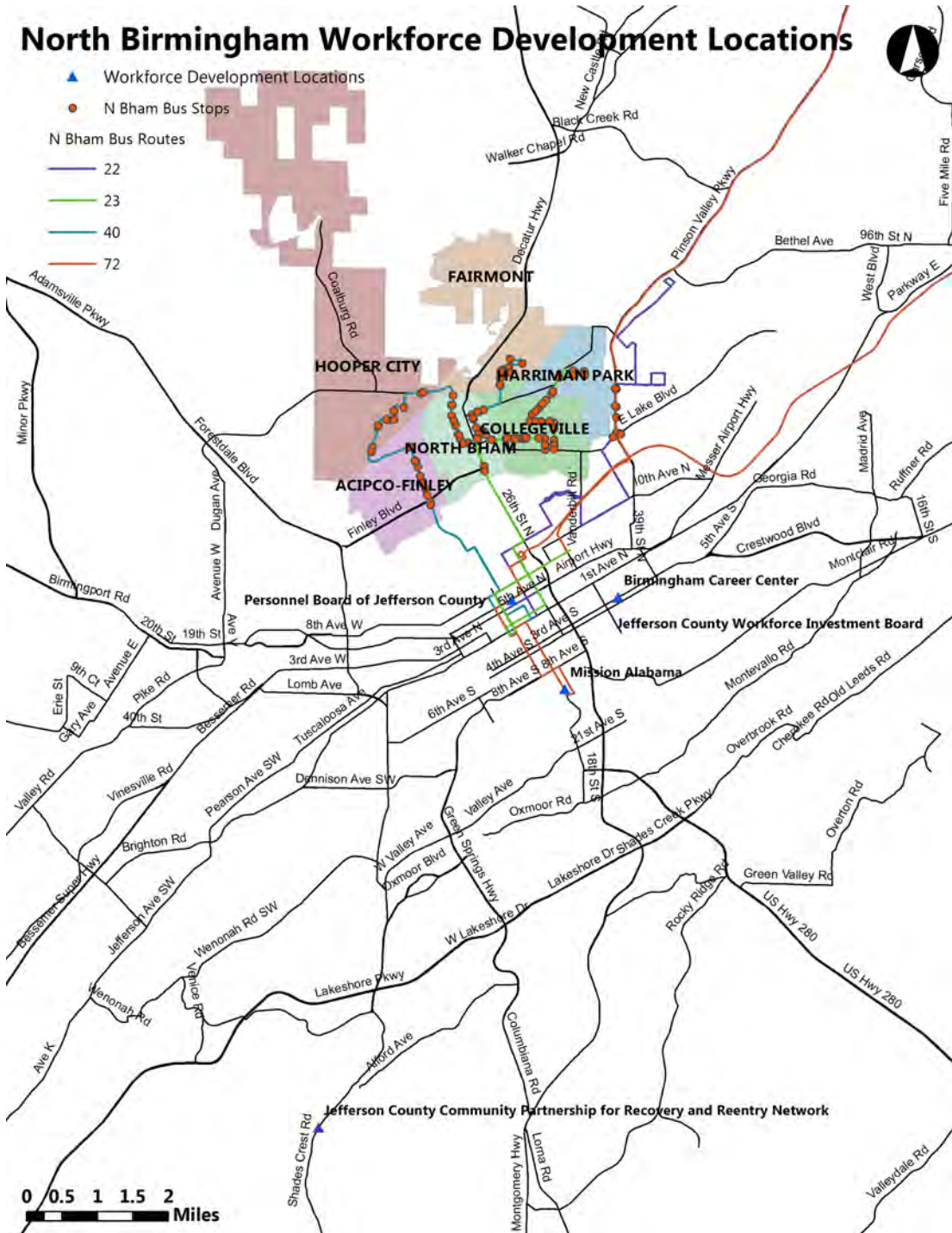
Another policy area that affects secure employment is access to childcare. Ensuring access to childcare offers parents, particularly mothers, who often serve the role of care provider, more time to work in quality jobs. Secure childcare decreases unscheduled absences at work, which increases the number of hours a parent can work as well as the long-term security of employment. Map 4.2 shows seven childcare centers located in the North Birmingham Community, and Map 4.3 shows that they are well covered by public transportation. However, there is a plethora of other childcare centers located outside of the community, which are not located on a public transit line.

Public Transportation to Jobs

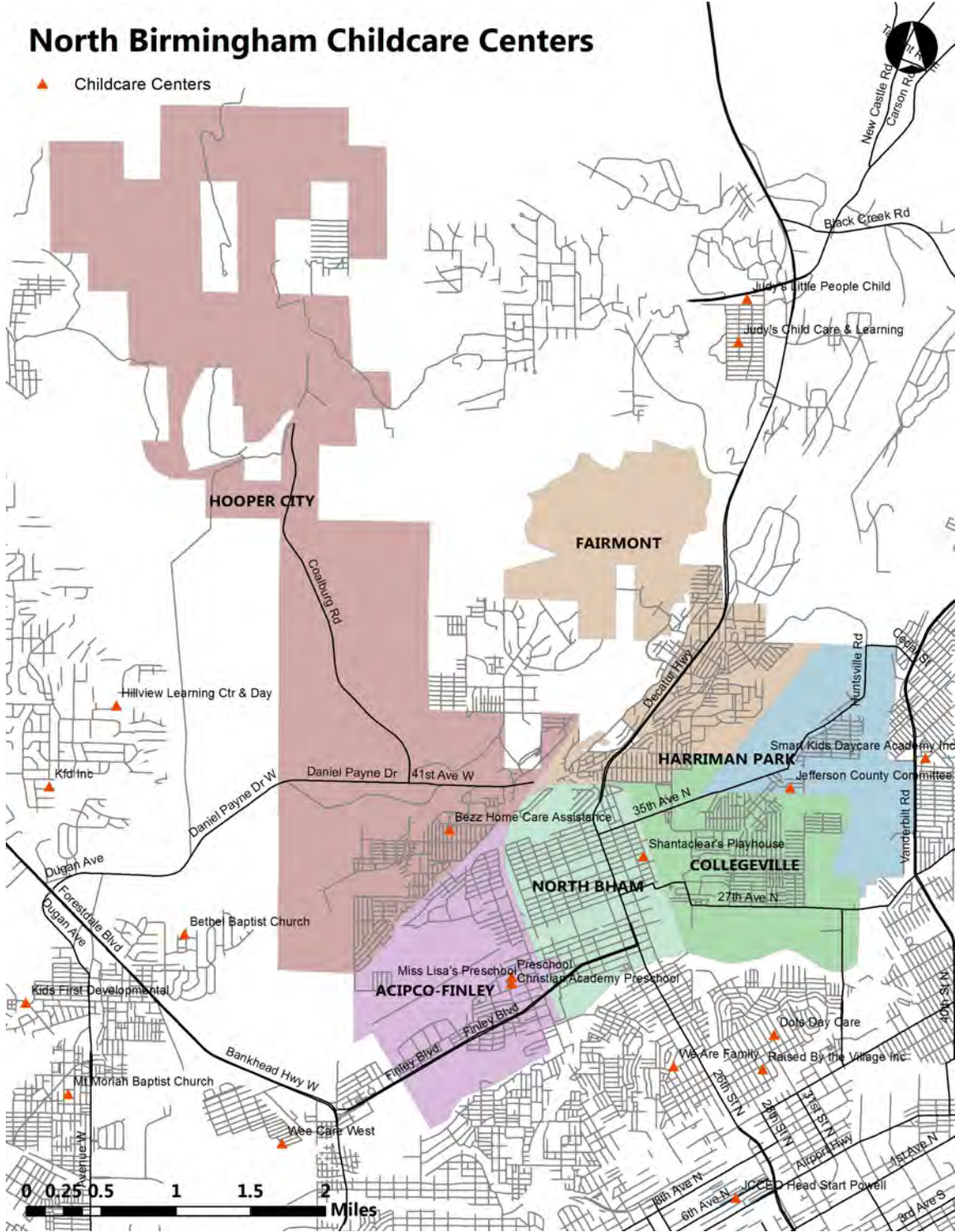
Transportation access to jobs also affects one's ability to secure high quality employment. If reliable transportation is not available, employees face the likelihood of incurring unscheduled absences at work. These unscheduled absences can lead to a decrease in work hours or even termination of employment. If no transportation route is available, particularly on public transit, to an employer, then some employment opportunities may not be an option at all. Transportation, therefore, can have a direct effect on the types of jobs that can be accessed and an employee's ability to reliably attend work. Map 4.4 shows that up to 18.8% of North Birmingham Community members rely on public

transportation to get to work, yet the available routes in these communities have limited reach to the population. Map 4.5 shows that only one employer with over 1000+ employees is located in the Community. Map 4.6 shows many other employers, but their workforce numbers are much smaller and there is little overlap between the employers and public transportation options.

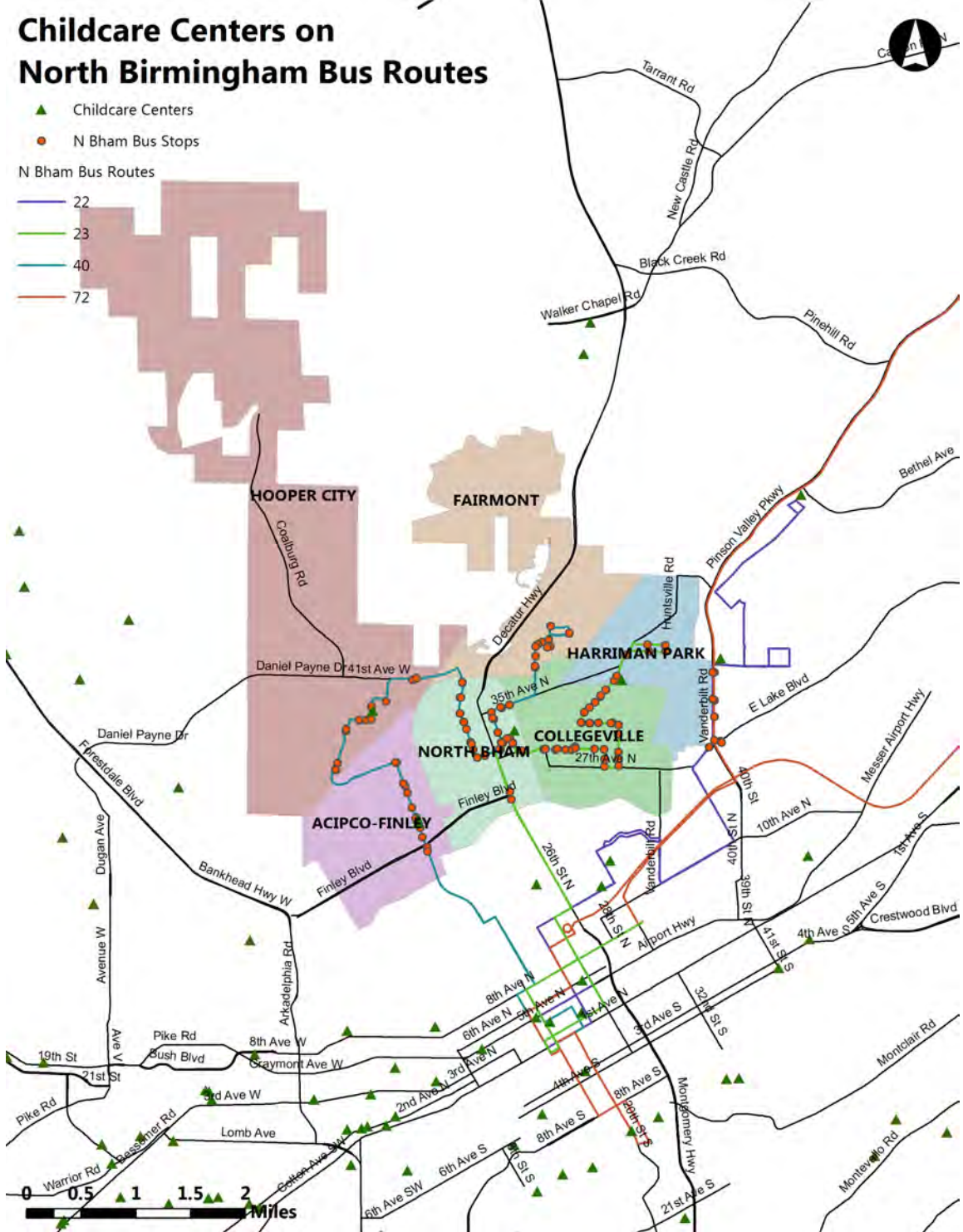
Map 4.1 Workforce Development Locations and the North Birmingham Community



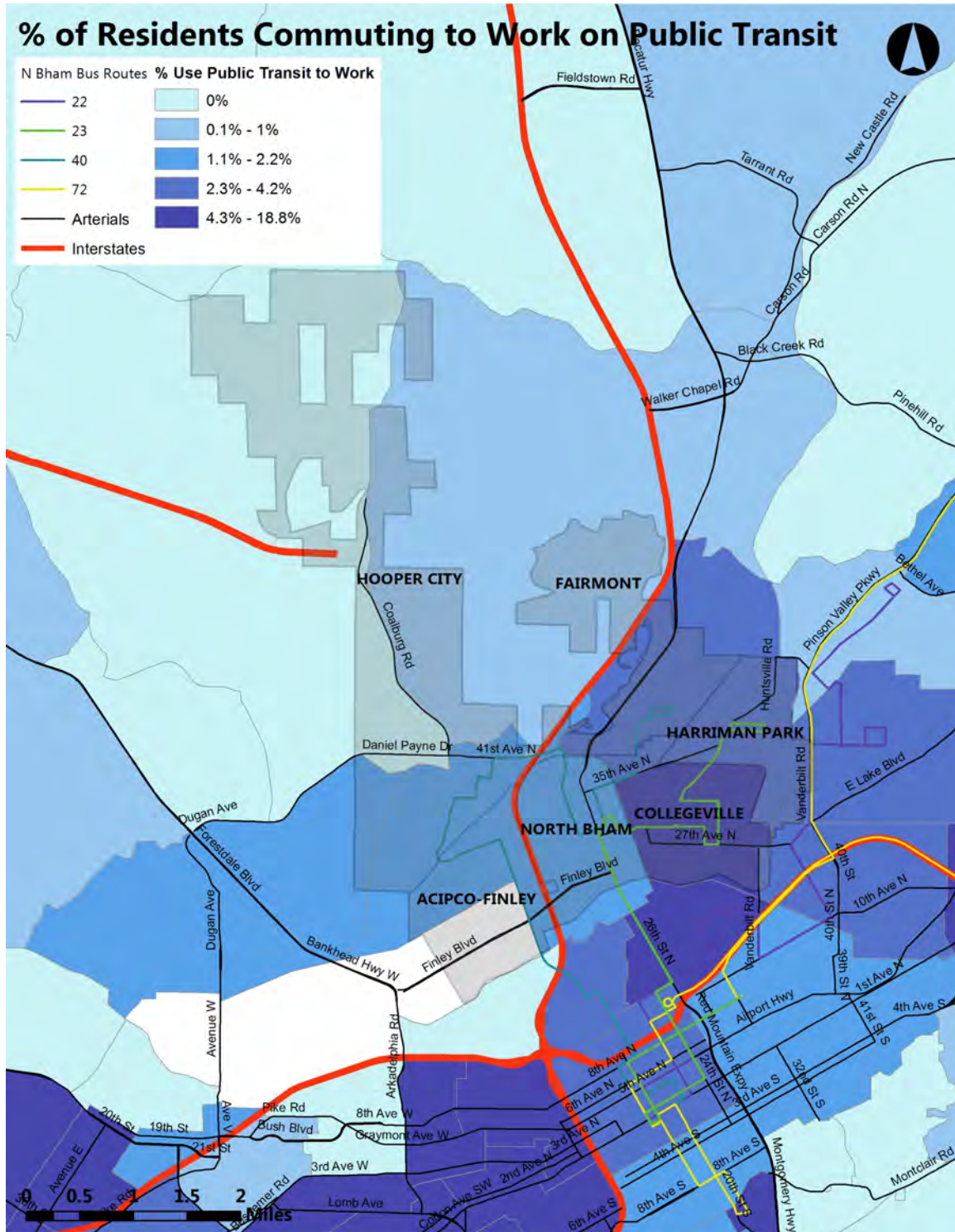
Map 4.2 North Birmingham Childcare Centers



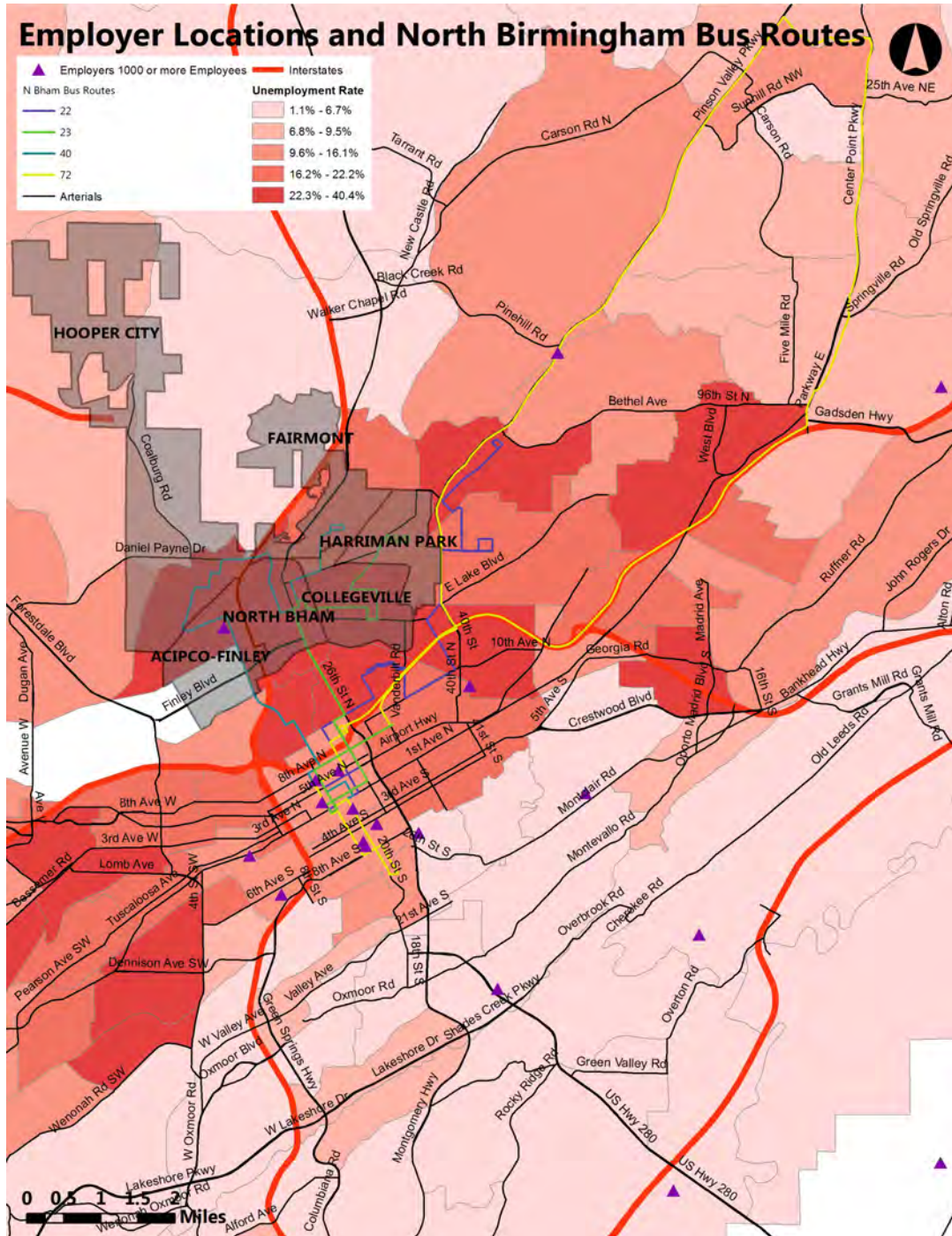
Map 4.3 Childcare Centers and Proximity to North Birmingham Community Bus Routes



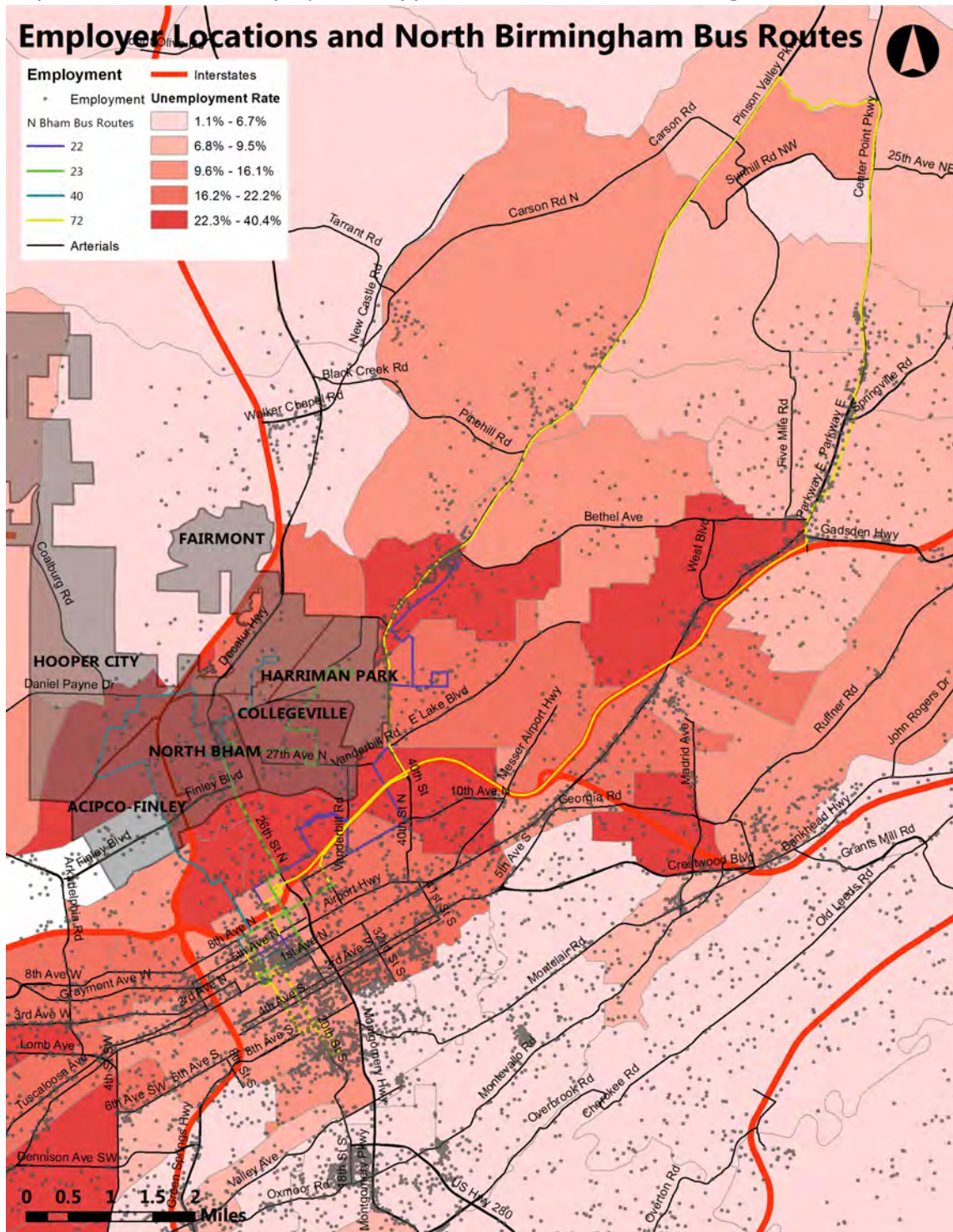
Map 4.4 Percentage of Residents Commuting to Work on Public Transit



Map 4.5 Locations of Employers with 1000+ Employees and North Birmingham Bus Routes



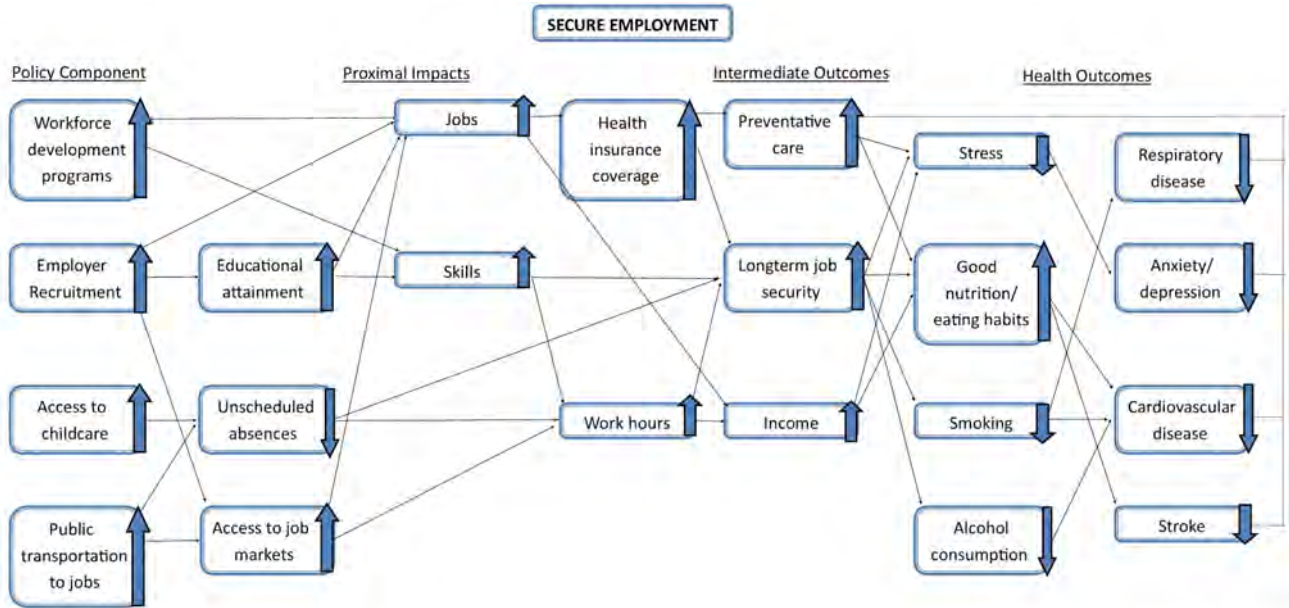
Map 4.6 Locations of Employment Opportunities and North Birmingham Bus Routes



At this point in the causal diagram, the proximal impacts of beneficial employment policies have primarily fed into the areas of increased health insurance coverage and increased work hours. These two areas have direct effects on the intermediate outcomes of the policies: greater access

to preventative care, stronger long-term job security, and increased income. Increased access to

Figure 4.1 Secure Employment Causal Pathway Diagram



preventative care can lead to decreases in stress, improved nutrition and eating habits, decreases in smoking, and excessive drinking. These improvements in health-related behaviors can occur through increased access to health care because doctors have face time with patients to counsel them on healthy habits. Likewise, increased preventative care can have direct effects on the health outcomes of respiratory health, anxiety and depression, cardiovascular disease, and stroke because doctors may be able to catch the warning signs of these diseases early and begin treatment as soon as possible.

Long-term job security also affects the four health behavior areas of stress, nutrition, smoking, and alcohol consumption. Job security has a direct effect on stress levels, as even the fear of losing one’s job can affect stress levels. Job security also has positive effects on smoking, alcohol consumption, and nutrition, as unemployed individuals are much more likely to participate in destructive habits that ultimately lead to negative health outcomes in respiratory disease, anxiety and depression, cardiovascular disease, and stroke.

Increased income also decreases stress and increases good nutrition. Decreased stress and healthy nutrition decrease anxiety and depression rates, incidents of cardiovascular disease, and strokes. (see Figure 4.1)

4.1.4 Summary of Potential Health Impacts

The literature is extensive on the links from secure and quality employment to smoking habits and **respiratory health**. Stress-related changes like job loss, low wages, and the feeling of employment insecurity have been connected to higher levels of anxiety, less physical activity, increased cigarette consumption among smokers and increased risk of smoking relapse for former smokers. Twenty-two percent of Jefferson County adults are regular smokers compared to 23 percent in the State of Alabama and 15 percent in the United States, and 28 percent of youth in Jefferson County use tobacco regularly (County Health Rankings). Smoking is the number one cause of preventable deaths in America, and thus the severity of this health impact is very high. Any and all preventative measures to reduce and discourage smoking habits among residents should be applied. Increased workforce development programs that help residents develop marketable skills leads to increased income, job security, and overall stability, which will reduce cigarette consumption.

Related to respiratory health concerns, the literature supports the psychological connection between job security and mental health concerns related to **anxiety and depression**. The correlation is strong between unemployment and poor psychological wellbeing. The magnitude of these health impacts is severe, given that Jefferson County residents report having poor mental health days 3.8 out of 30 days in a month, or almost once a week.

The literature also supports the concern for **cardiovascular health** and risk of **stroke** correlated with increased job insecurity or prolonged unemployment. The literature confirms that poor access to healthy and nutritional foods, which is linked to unsecure or lack of employment increases the risk of both heart disease and stroke. Implementing policies that increase employer recruitment and the number and strength of workforce development programs in North Birmingham will improve long-term job security, which in turn allows residents to afford better food and develop more nutritional eating habits. While there is more literature on increased risk of heart disease, both cardiovascular health and stroke are severe.

The magnitude or size of the anticipated effect from employment and economic development policy changes proposed in the North Birmingham Community Framework Plan is high. These changes have potential to have a significant impact on the mental and physical health of the residents due to the demographic make-up of the community and strength of the literature. (see Table 4.3)

4.2 Access to Healthy Food

4.2.1 Summary

A good nutritional status can only be realized and sustained when communities are food-secure. The World Health Organization (WHO) defines food-secure areas as those

Table 4.3 Summary of Potential Health Impacts Related to Employment

Health Outcome	Strength of research	Severity	Populations impacted	Magnitude (Source: County Health Rankings)	Uncertainties related to limited evidence
Respiratory health	High	High	People without secure employment	High, 21% of Jefferson County residents are smokers	
Anxiety/depression	High	High	People without secure employment	Moderate; Jefferson County residents report having poor mental health days 3.8/30 days of the month	
Cardiovascular disease	High	High	People without secure employment	High; 32% of JC adult residents are obese; 29% are physically inactive; 15% drink excessively	
Stroke	Moderate	High	People without secure employment	High; 32% of JC adult residents are obese; 29% are physically inactive; 15% drink excessively	
<p><i>Notes/explanations:</i></p> <ul style="list-style-type: none"> -Likelihood refers to the strength of evidentiary research showing a causal relationship between the policy change and health outcome -Severity refers to the nature and permanence of the effect on function and life expectancy -Magnitude refers to the size of the anticipated change in the health impact 					

having adequate availability of food supplies, secure access to sufficient food for all individuals, and the ability to provide a proper and balanced diet. Individuals living in food deserts⁵ and food imbalanced areas are more likely to suffer from chronic health conditions such as obesity, type 2 diabetes, heart disease, and hypertension.

⁵ **Food desert:** CDC defines food deserts as “areas that lack access to affordable fruits, vegetables, whole grains, low fat milk, and other foods that make up the full range of a healthy diet.”

4.2.2 Literature Review

An important characteristic of healthy and equitable communities is *food security*, which is defined by the U.S. Department of Agriculture (USDA) as, “access by all people at all times to enough food for an active, healthy life” (Food Access, 2014). Although food security is comprised of several components including food access, food distribution, stability of the food supply, and the use of food, planning initiatives have historically targeted the former (Food Access, 2014). Food access is achieved through a combination of availability and affordability of high quality, healthy food across different settings. Low affordability or availability of healthy food options can result in *food insecurity*, a situation in which a community’s ability to acquire healthy food is limited or uncertain. Food insecure neighborhoods have a disproportionate amount of *food deserts*, or areas where mainstream grocers are distant, and *food imbalance* or *food swamps*⁶, or areas where both grocers are distant and unhealthy food is readily available, which are environmental conditions that contribute to a lower quality and length of life (Gallagher, 2010). In urban areas, food deserts are often found in lower income or minority neighborhoods. Rural areas show a different association; they lack transportation infrastructure that would allow residents to access healthier food options far from their homes. Food insecurity is a documented issue in the North Birmingham Community. A 2010 study found that approximately 88,000 or one-third of residents in Birmingham, AL were living in a food imbalance area, with 23,000 of those identified as children (Alpolitics, 2010).

The negative health outcomes of poor nutrition resulting from a lack of healthy food are numerous. Individuals living in food insecure areas suffer from higher rates of chronic health diseases such as obesity, type-2 diabetes, cardiovascular disease, and hypertension (Clark, 2012). Both food imbalance and food desert areas are statistically correlated with higher rates of premature death overall, diet-related death, death related to cancer, and infant mortality, although the effect lessens for food imbalance when household income is also considered (Gallagher, 2010). Even after controlling for income, one Birmingham study found that in food desert areas “years of life lost” increased significantly with an increase in distance from mainstream grocers. These findings further validate the importance of healthy food access.

In addition to improving nutrition, there are several non-dietary benefits associated with improving healthy food access. Opening new grocery stores promotes walkability and can increase foot traffic while also contributing to economic revitalization in underserved neighborhoods (Access, 2012). Local farmers markets foster a sense of community, build social capital through interaction, and provide economic benefits to local farmers and businesses near the market. Furthermore, urban and rural gardening creates an opportunity for being active which may help meet recommended levels of physical activity.

⁶ **Food swamp:** neighborhoods where the stores selling healthy food such as fresh fruits and vegetables are vastly outnumbered by convenience stores and fast-food restaurants selling unhealthy choices

Fortunately, there are many planning and policy mechanisms that can be used to promote access to healthy food and food equity. Local governments can implement zoning ordinances to regulate the location and density of convenience stores, protect existing community gardens and farmers markets, and create signage codes to reduce advertisement of unhealthy food (Access, 2012). They can also use their permitting and licensure privileges to regulate the number of fast food establishments in a specific area. Cities can also impact food security through comprehensive land use planning with policies that encourage community supported agriculture initiatives, promote locally grown food, and incentivize new community gardens. Lastly, financing and tax incentives can be used to increase healthy food access by granting loans to corner stores to purchase refrigeration for fresh produce, financing start-up costs and reducing real estate tax for new grocery stores in underserved areas, and providing property tax exemptions on community gardens.

4.2.3 Causal Pathway Diagram

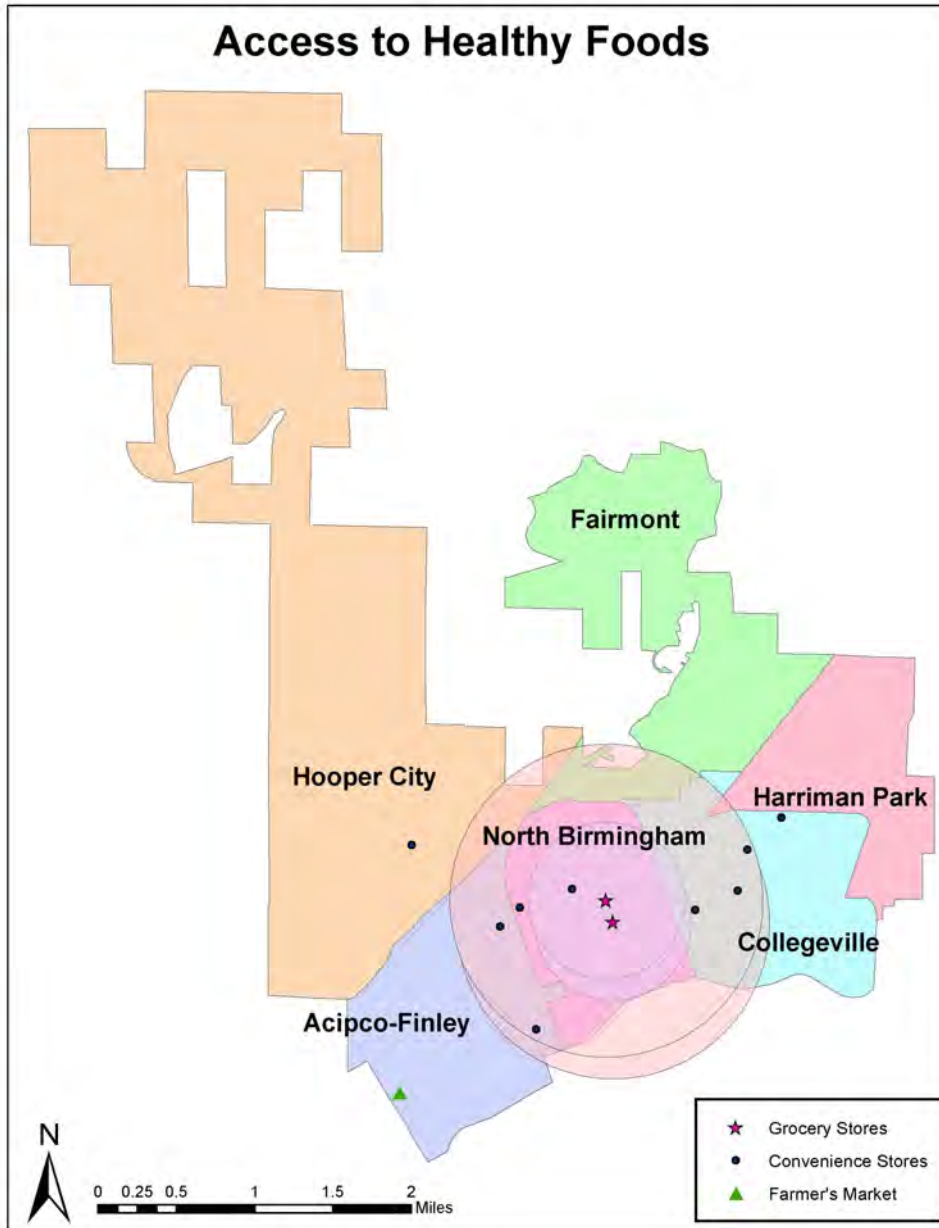
This causal pathway diagram introduces six possible policy changes for North Birmingham to improve access to healthy food in the community. These programs address physical, financial, and educational solutions for addressing access to healthy food.

The first policy component aims to make corner stores healthier. Corner stores are scattered throughout the area and, therefore, easily accessible to neighborhood residents. If these stores sold fresh produce, the residents of North Birmingham will see a quick and substantial change in access to healthy foods in the area. As a result, transit time to healthy food will also be reduced. Healthier corner store initiatives as funded by the RWJF and other groups are good examples of this policy.

The few grocery stores in North Birmingham are said to sell low quality food. For instance, stores might sell fruits and vegetables, but they might be rotting or overly ripe. Therefore, the second policy component seeks to constantly have high quality fresh produce in grocery stores. This will increase the availability of healthy food through decreased transit time.

Transportation to healthy food is the third policy component. Residents who do not own cars are unable to efficiently travel to grocery stores. Map 4.7 locates the different food options in the area North Birmingham Community. The food sources include corner stores, two grocery stores, and one farmer's market. The buffers represent a mile and half mile radius. A half-mile is the distance people are expected to walk to a given place. Very little of the area is in even a mile distance of a grocery store. Therefore, this policy component suggests improving bus system routes to provide efficient travel from dense neighborhoods to grocery stores. On the private sector side, grocery stores could hire buses to run from neighborhoods to the stores at certain times throughout the day.

Map 4.7 Access to Healthy Foods in North Birmingham



Supplemental Nutrition Assistance Program (SNAP) is the fourth policy component, which financially assists lower-income individuals in purchasing healthy foods. Residents in the Community who have SNAP are already benefitting from the economic assistance this provides. SNAP combined with some of the other initiatives discussed in the causal pathway diagram can increase access residents have to healthy foods.

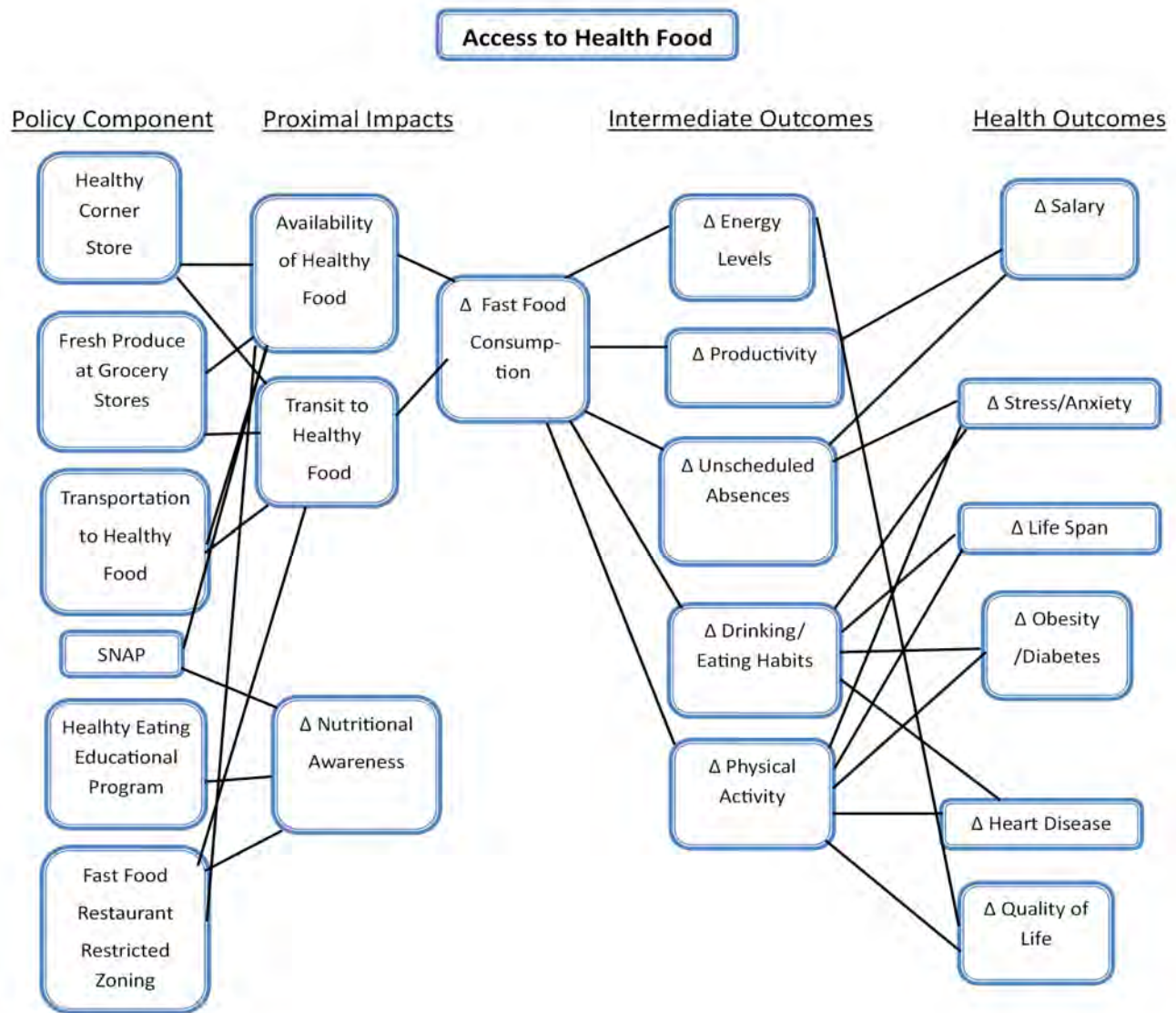
While physical and financial policy components are essential, educational programs are supplemental policies that will encourage residents to make better decisions. When people are more aware of their health and the effect food has on their health, they are

more likely to make healthier choices if they are supported by easier access to these healthier sources. This component will ultimately increase nutritional awareness for individuals.

The last policy component of the causal pathway diagram is fast food restaurant restricted zoning. If accepted, this zoning will prohibit the existence of fast food in certain areas. Fewer fast food restaurants will allow for more room for healthy grocery and other healthy food vendors.

These comprehensive policy components will ultimately decrease the amount of fast food consumption in North Birmingham. By consuming more healthy food and less fast food, residents will start to experience the intermediate outcomes of these policy changes- such as increased energy and productivity, decrease in unscheduled absences, change in eating habits, and the energy to partake in physical activity. The ultimate outcomes of these policy changes can have lasting impacts. These outcomes are increased salary, decreased stressed and anxiety, increased life span, decrease in obesity/diabetes, decrease in heart disease, and ultimately, improvement in quality of life. (see Figure 4.2)

Figure 4.2 Access to Healthy Food Causal Pathway Diagram



4.2.4 Summary of Potential Health Impacts

Access to healthy foods allows people to be healthier and miss fewer days from work, and thus leads to an increased and stable income/salary. This in turn leads to other health outcomes like decreased stress and anxiety and improved the quality of life.

The availability of healthy food options decreases the stress and anxiety that comes with missing work because of health issues and its financial repercussions as well as the

stress with health issues and the treatment required. For parents, there is the added pressure of wanting to provide for their children and provide them with higher quality of food despite higher food prices.

There is also a correlation between healthy eating and an increased life span. Research on food deserts and food imbalance areas shows correlations with higher rates of premature death overall, diet-related death, death related to cancer, and infant mortality (Gallager 2010). Additionally, in food desert areas, “years of life lost” increased significantly with an increase in distance from mainstream grocers.

There is also a documented association between food deserts and obesity, diabetes, and heart disease. Studies show that individuals living in food insecure areas suffer from higher rates of chronic health diseases such as obesity, type 2 diabetes, cardiovascular disease, and hypertension (Clark 2012). Another study in Chicago found that the death rate from diabetes in food deserts is twice that of areas with easily accessible grocery stores. The Department of Agriculture’s Economic Research Service (2009) references studies connecting access to grocery stores with a reduced rate of obesity and access to convenience stores with an increased risk of obesity.

Finally, all of these health outcomes contribute to a lower quality of life for food desert residents. Studies show that food imbalance contributes to lower quality and length of life (Gallager 2010). Additionally, opening new grocery stores promotes walkability and can increase foot traffic while also contributing to economic revitalization in underserved neighborhoods. (see Table 4.4)

Table 4.4 Summary of Potential Health Impacts Related to Food Access

Health Outcome	Likelihood	Severity	Populations impacted	Magnitude	Uncertainties related to limited evidence
Increased Salary	Moderate	Low	Adults	Small	
Decreased Stress and Anxiety	Moderate	Moderate	General Population	Small	
Increased Life Span	Moderate	Moderate	General Population	Moderate	
Decrease in Obesity/Diabetes	High	High	General Population	High	
Decrease in Heart Disease	High	High	General Population	High	
Improvement in Quality of Life	High	High	General Population	High	

4.3 Access to Health Care

4.3.1 Overview

According to the US Department of Health and Human Services, access to health care is “the timely use of personal health services to achieve the best health outcomes” (2011). Access to health care impacts the mental, physical, and social health of individuals. Easy accessibility to health care facilities can prevent diseases and disability while increasing life expectancy and quality of life. The main barriers to health care include, lack of availability, high cost, and lack of insurance coverage (Healthy People 2020). There are currently only two health care facilities in the North Birmingham communities: a dentist office and dialysis center. Therefore, the availability of health care facilities in the area is low, leading to low access for residents.

4.3.2 Literature Review

Access to health care is an important determinant of the overall health of an individual. Therefore, “access to comprehensive, quality health care services is important for the achievement of health equity and for increasing the quality of life for everyone” (U.S. Department of Health and Human Services, 2013). Quality access to health care affects physical, mental, and social health. These effects can be in the form of early detection and prevention of disease and disability, preventable death, and an increased life expectancy.

However, in order to access health care, one must enter into the health care system, be able to access a health care facility where needed services are provided, and have a health care provider that can be trusted (U.S. Department of Health and Human Services, 2013). The barriers, which hinder the aforementioned steps, include: lack of availability, high cost, and lack of insurance coverage. Lack of insurance is the main deterrent to health care access. These barriers can lead to hospitalizations that would normally be preventable, unmet health needs, inability to receive preventive services, and delays in obtaining needed care.

To determine a community’s access to health care, a set of measurable data has been established. It is measured by the presence of resources that make health care possible, such as insurance, a primary care provider, assessing how easily one can access health care, and the outcomes of receiving quality health care.

It is important to analyze data on a community’s access to health care in order to reduce the barriers to receiving quality health care. Quality health care can have detrimental effects on an individual’s and a community’s health outcomes and quality of life.

4.3.3 Causal Pathway Diagrams

The two causal pathway diagrams below show policy changes focused on transportation infrastructure and building community capacity for the North Birmingham Community that is expected to improve access to health care.

Transportation infrastructure can be improved through moving bus stops or bus routes to provide more direct access to health care facilities. Map 4.8 reflects all of the health care facilities in the City of Birmingham and specifically in the North Birmingham Community, and the bus routes that serve the community. The map shows that there is a significant lack of health care facilities in the North Birmingham Community. In the community, a single dentist office is accessible to residents by bus, and one specialty (dialysis) clinic is accessible by car. Nearby, just south of the community, residents can access one hospital by bus. This route however requires the rider to walk several tenths of a mile to get to a hospital from the bus stop. Efficient and direct transportation to health care facilities would have a positive impact on health. For example, a transportation shuttle would give residents direct access to a hospital or health care facility without having to wait on the buses in Birmingham. Also, a mobile health clinic that can deliver screening and chronic care could fill some of the gaps that exist in local health services. A mobile clinic that frequently visits the North Birmingham communities would give residents direct access to health care. (see Figure 4.3)

Map 4.8 Bus Transit Serving Healthcare Facilities Serving the City of Birmingham and the North Birmingham Community

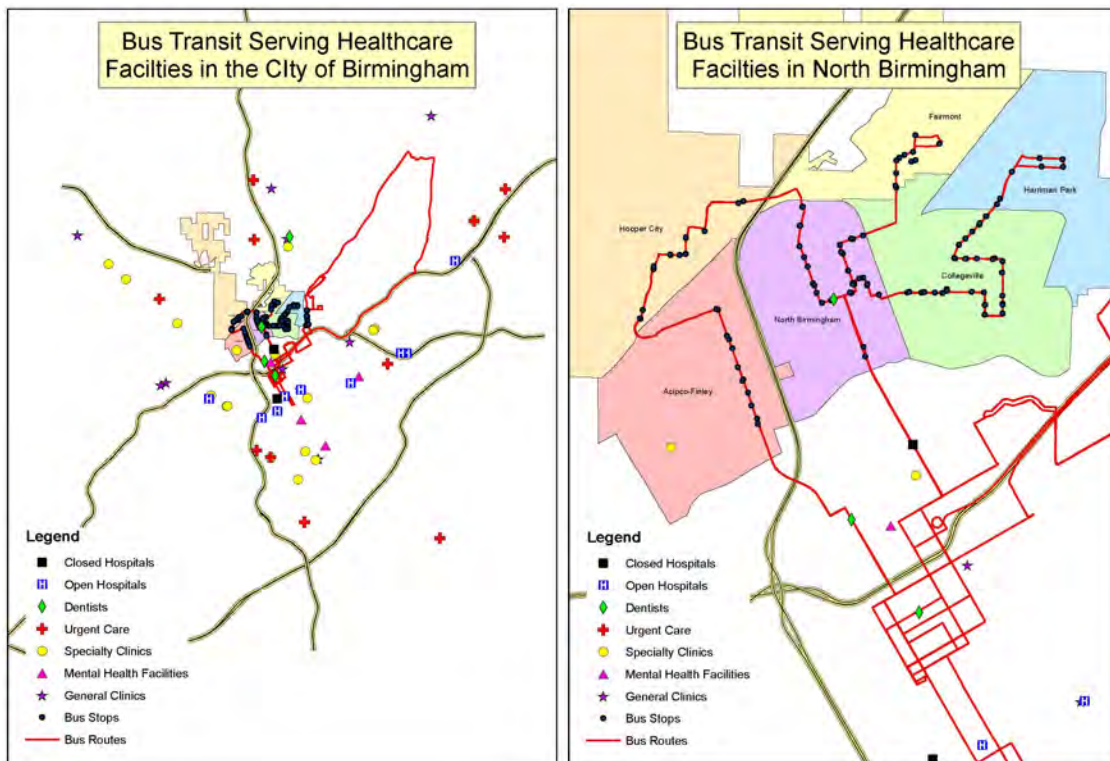
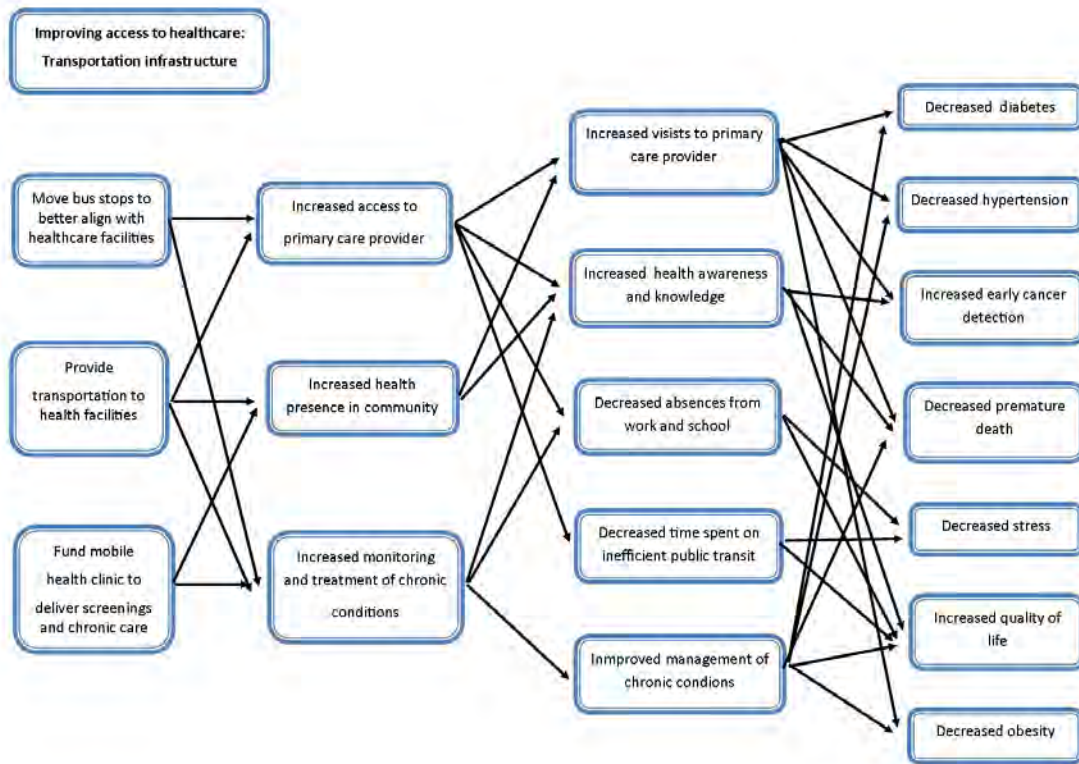


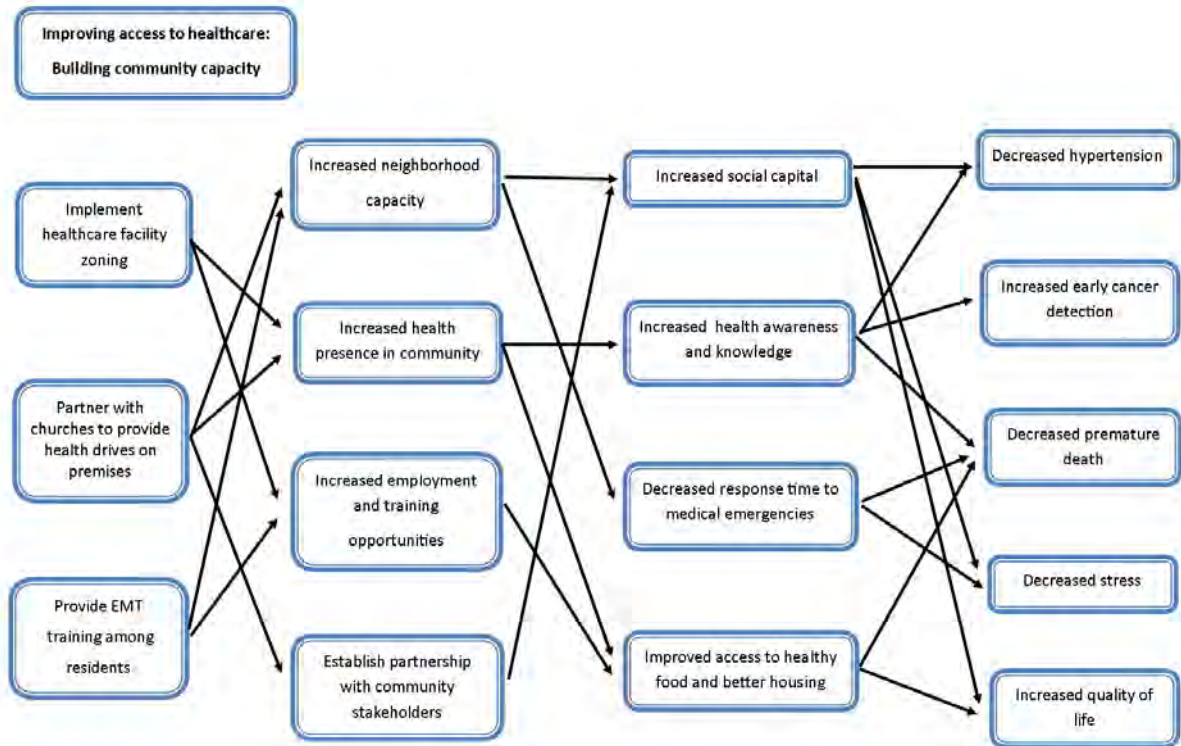
Figure 4.3 Access to Health Care, Transportation Infrastructure Causal Pathway Diagram



Building community capacity as an approach to addressing health care access is a second policy option for North Birmingham to consider in their work to improve population health through the Framework Plan. Currently, there are only two facilities in the North Birmingham communities that address health: a dentist office and a dialysis center. These facilities do not care for general health needs as a hospital or medical clinic would. Implementing health care facility zoning could allow for a vacant building near the North Birmingham commercial center to be transformed into a medical clinic. Also, partnering with churches to provide health care could fill the gap for health care services if these community resources provided services that did not require hospital facilities or infrastructure. They could also coordinate with mobile clinics and health fairs to use their buildings, thereby both allowing for a proximal location, but also associating health and wellness with a trusted local institution. This partnership will give greater health care access to members of the community, particularly in the short term. The third policy change is to provide EMT training to interested residents. EMT training will increase resident's employment options as well as their access to individuals who have a higher level of knowledge on and experience addressing health concerns.

These policy changes would change not only the communities' access to health care but also their overall health and quality of life. (see Figure 4.3)

Figure 4.3 Access to Health Care, Building Community Capacity Causal Pathway Diagram



4.3.4 Summary of Potential Health Impacts

The seven potential health outcomes that are related to access to quality health care are: decreased hypertension, increased early cancer detection, decreased premature death, decreased stress, increased quality of life, decreased diabetes, and decreased obesity. The research indicates that decreased premature death and increased quality of life are highly related to the policy changes that will increase health care accessibility. Decreased hypertension, increased early cancer detection, decreased diabetes, and decreased obesity have moderate causal relationships with the policy changes. While decreased stress is an outcome of improving access to health care, the two have a low causal relationship. The severity of the effect on function and life expectancy of the health outcomes are high. All of these outcomes will affect the general population with the exception of decreased premature deaths, which will affect mainly youth and adults.

Finally, the access to health care will bring a large change in decreased stress and increased quality of life, a moderate change in decreased hypertension, decreased diabetes, and decreased obesity, and a small change in increased early cancer detection and decreased premature death.

Table 4.5 Summary of Potential Health Impacts Related to Health Care Access

Health Outcome	Likelihood	Severity	Populations Impacted	Magnitude
decreased hypertension	Moderate Probability	High	General Population	Moderate
increased early cancer detection	Moderate Probability	High	General Population	Small
decreased premature death	High Probability	High	Youth and Adults	Small
decreased stress	Low Probability	Moderate	General Population	Large
increased quality of life	High Probability	High	General Population	Large
decreased diabetes	Moderate Probability	High	General Population	Moderate
decreased obesity	Moderate Probability	High	General Population	Moderate

4.4 Connectivity

4.4.1 Overview

Community connectivity can refer to many things. For the purposes of this HIA, the connectivity we will examine focuses on physical and social connections. This is done with the physical connection to key destinations that facilitate social, economic, and physical wellbeing. These key destinations include, but are not limited to, grocery stores, schools, parks, community centers, churches, employment centers, and health care centers. The links between these destinations include reference roads, sidewalks, and the ease in which these are traversable via multi-modal travel (on foot, on bicycle, on transit, and by automobile). Safety is a large component of connectivity, both safety from crime and safety to travel with ease from one destination to another. The development of this physical infrastructure supports social cohesion, a health parameter consistently shown to have positive effects on health. Community engagement programs can also often promote social connectivity. The literature outlines key dimensions of connectivity that are of relevance to this HIA.

4.4.2 Literature Review

The literature on connectivity at the neighborhood level focuses on key destinations and the links between them, along with the social cohesion that they encourage. Safety and

activities that reduce chronic illness, such as walking, biking, and forming social connections, are usually large components. The development of social cohesion via physical and social networks is consistently seen to have positive effects on health (Ellaway et al., 2001; Putnam, 2000). The built environment plays a major role in building the connectivity found in individual neighborhoods. Traffic safety and destination options are two large factors also considered in community connectivity.

Street Design

Street design is a major focus of much of the literature on connectivity. The literature focuses on street design as both a safety measure and a tool to encourage physical activity (Pucher & Dijkstra 2003). The Federal Highway Administration has released a guide for residents to create safe and walkable communities, focusing on both public health and increased safety (2008). Some of these recommendations to promote healthier street design from this report are incorporated in the recommendations section below.

Safety

Neighborhood connectivity impacts safety, in terms of traffic accidents, crime, and perception. Research shows that half of all traffic-related fatalities “are on poorly designed arterials” (Ernst and Shoup 2009). Similarly, research on auto accidents reports a strong relationship between crash severity and speed (Gardner 2004). The literature suggests a range of measures to improve safety on roadways including better walking and cycling facilities, traffic calming measures, urban design oriented to people, traffic education, traffic regulation and enforcement, and restrictions on motor vehicle use. Incidence of fatalities reduction can decrease by anywhere from 20-70% when introducing these six measures (Ernst & Shoup 2009).

Safety as it relates to crime also has an impact on health. Studies show that rises in aggravated assault are associated with an increased number of vacant properties (Branas 2013). Similarly, research on housing, and issues of disorder and deterioration, show that the most positive benefit from demolition of traditional public housing is the increased level of safety that residents feel in their new home (Popkin 2009).

Physical Connectivity and Health Behaviors

Additionally, the literature discusses the impact of street design on health behaviors including promotion of physical activity. There is a strong link between physical activity and obesity (Carlson 2012). The CDC estimates that “if 10 percent of adults began a regular walking program, \$5.6 billion in national cost associated with heart disease costs could be saved” (Ernst and Shoup 2009). Additionally, streets that are more pedestrian and bicycle friendly will encourage greater alternative mode use, rather than relying strictly on the car as the major means of transportation (Pucher & Dijkstra 2003). Other relevant literature discusses the importance of destination when promoting connectivity. Casagrande’s systematic review show that results have been somewhat inconsistent when studying health outcomes in relation to destination-travel and suggest there is a

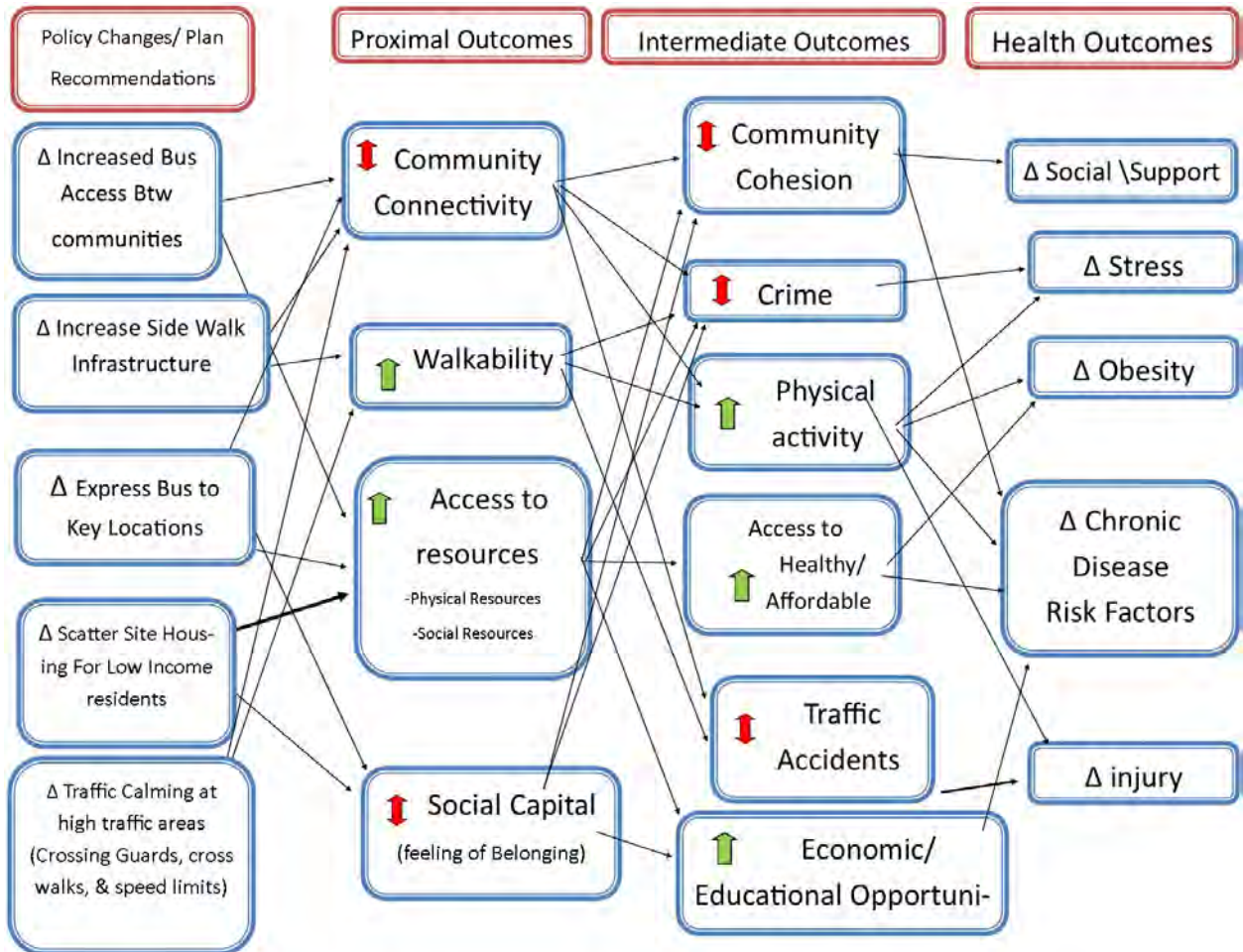
complicated feedback loop between the built environment and choosing physical activity, specifically with studies on African Americans (2009). Studies have suggested the perception about destination is equally important to actual destination (Carlson 2012). However, some specific built environment destinations, such as accessible grocery stores, have proven to increase resident intake of healthy foods (Casagrande 2009). Travel across the North Birmingham neighborhoods is important to its residents, as is travel to specific destinations throughout the City.

4.5.3 Causal Pathway Diagram

The connectivity causal pathway shows the relationship between the proposed policy to the ultimate health outcomes. The policy interventions include change in bus access between communities, sidewalk infrastructure, express bus to key locations, scattered site housing⁷ for low income residents, and traffic calming. The proximal outcomes of community connectivity, walkability, access to resources, and social capital are associated with many of the policy interventions. Of the intermediate outcomes listed, crime will likely be impacted the most followed by community cohesion, then physical activity, traffic accidents, economic or educational opportunities, and access to healthy and affordable food. Community cohesion will be influenced to different degrees across the community given its distribution of amenities and community institutions. For example, the North Birmingham neighborhood has the most amenities, and thus connectivity improvements may pull more activity to this neighborhood realizing greater impacts in chronic risk disease factors, social support, stress, obesity and injury. Harriman Park has the least community amenities and thus may see a more limited impact.

⁷ **Scattered site housing:** Scattered-site housing policies exist to: “promote greater rental housing choice and opportunities for low income households; avoid undue concentrations of assisted rental housing in minority and low-income neighborhoods; and further community revitalization efforts by encouraging the rehabilitation of older housing.” (source: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&ved=0CFUQFjAF&url=https%3A%2F%2Fwww.austintexas.gov%2Fsites%2Fdefault%2Ffiles%2Ffiles%2FHousing%2FAction_Plan%2FCommunity_Conversations%2FCity_of_Raleigh_Scattered_Site_Policy.pdf&ei=84E_UqWCK3nsASmjIKQAw&usg=AFQjCNHbVvyOcrTlppB8mgY570KINSgBg&sig2=75M9kvQwdqKKjyq0zaxAw&bvm=bv.64125504,d.cWc&ad=rja)

Figure 4.4 Connectivity Causal Pathway Diagram



4.5.4 Summary of Potential Health Impacts

Connectivity improvements in the North Birmingham Community are linked to the health outcomes/behaviors of injury, obesity, social support, chronic disease, stress, and anxiety. The evidence in the literature supports the prevention of injury as the most directly linked to connectivity, followed by obesity prevention, chronic disease prevention, and social support. The strength of evidence for stress and anxiety reduction is not as strong. The literature is clear, however, that increased community connectivity facilitates physical activity, which is directly linked to several health outcomes.

Table 4.6 Summary of Potential Health Impacts Related to Connectivity

Health Outcome	Strength of Evidence	Severity	Populations impacted	Magnitude	Uncertainties related to limited evidence
Injury	***	Moderate	Elderly, children, disabled	Moderate	Risk of pedestrian injury greatly increases for elderly and disabled population
Obesity	**	High	General Population	Moderate	Changes in built environment and connectivity can lower obesity rates
Social Support	***	Moderate	General Population	Moderate	
Injury	***	Moderate	Elderly, children, disabled	Moderate	Risk of pedestrian injury greatly increases for elderly and disabled population
Obesity	**	High	General Population	Moderate	Changes in built environment and connectivity can lower obesity rates
Social Support	***	Moderate	General Population	Moderate	

4.6 Freight

4.6.1 Overview

The category of freight includes both rail freight and truck freight. Truck freight burdens the road network system and contributes to congestion nationally. Rail freight runs on a separate, privately operated, rail network. Railway networks run throughout the country and interact with road networks in three primary ways: at grade, below grade, and above grade. At grade intersections require direct interactions between surface road users, both pedestrians and drivers, and freight trains. Given the size and weight of both kinds of freight, freight-human interactions are very dangerous and serve as a safety threat. These safety concerns are immediate threats to public health. Less immediate health impacts result from exposure to freight related noise and air pollution. Again, there are subtle differences between rail and truck freight, but both are associated with noise and air pollution.

4.6.2 Literature Review

The impact of freight on health falls into three primary categories: roadway safety, noise, and pollution.

Roadway Safety

In 2009, large truck fatalities per 100 Million Vehicle Miles Traveled (MVMT) was 0.02 higher than for cars, at 1.04 and 1.02, respectively (ATA 2013). However, when addressing the fault distribution of fatal crashes, car drivers are more frequently at fault in fatal car-truck crashes (ATA 2013). Independent of fault, large truck crashes result in fatalities 1 percent of the time while car crashes are fatal only 0.5 percent of the time (ATA 2013). Rail based freight also poses significant threats to safety. Only four percent of the rail-related fatalities in 2013 were non-trespasser related. The remaining 96 percent of rail-related fatalities involved trespassing individuals (FRA 2014). As such, there is agreement throughout the industry that transportation of freight is a major public safety concern.

Noise

For those living and working close to highways, truck routes, rail networks, and rail yards, elevated noise levels can negatively affect health. Exposure to high noise levels can cause sleep disruption, which is a risk factor for heart disease, hypertension, fatigue, and depression (WHO 1999). Chronic exposure to loud noise has been shown to reduce levels of concentration, problem solving abilities, and memorization capacity (WHO 1999). Children repeatedly exposed to loud noises have been shown to have an elevated resting blood pressure and high levels of stress hormones (WHO 1999).

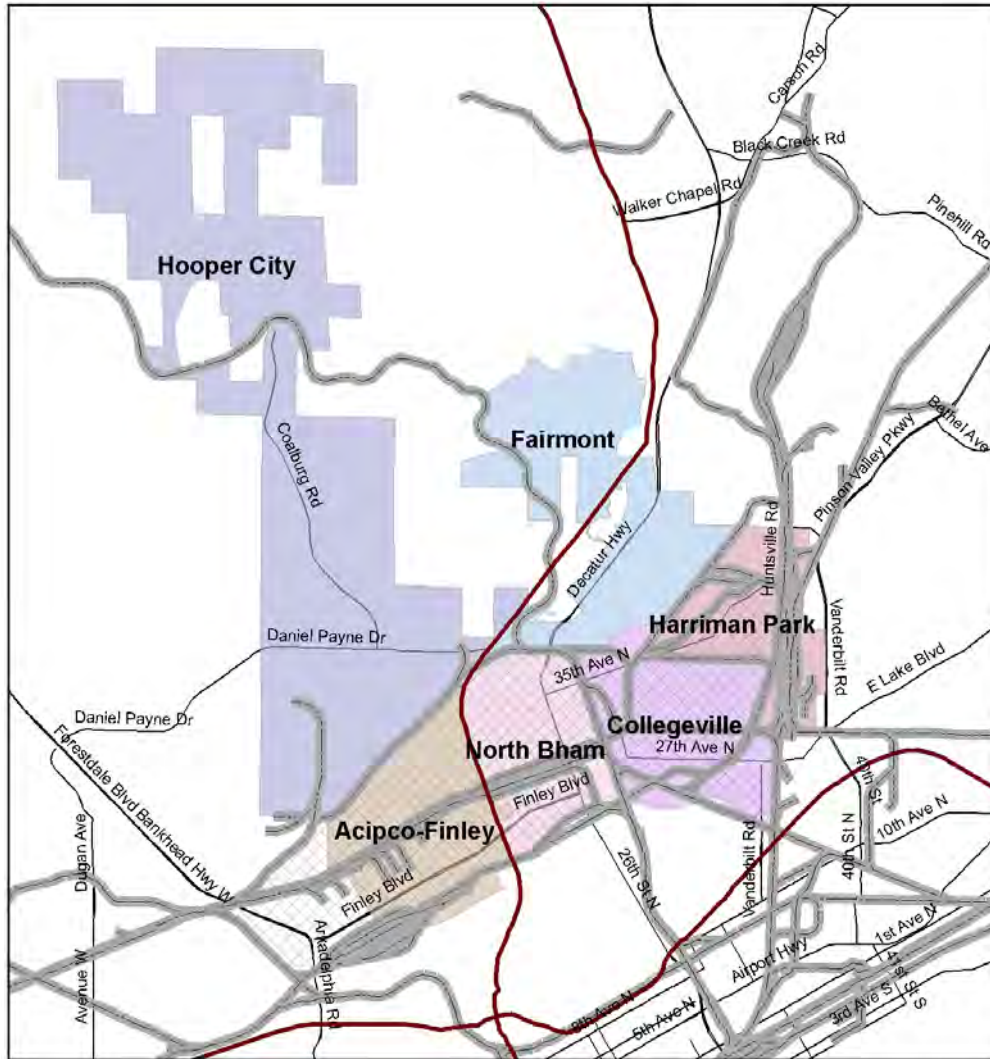
Pollution - Truck based traffic contributes to congestion levels and emission rates. Emission rates from traffic congestion are associated with negative health outcomes from in-vehicle and out-of-vehicle exposure. Vehicle emissions such as particulate matter, elemental carbon, and nitrogen dioxide are associated with reduced lung function, cardiovascular disease, asthma, and chronic diseases (Occidental and USC 2011). Rail yards, sites where freight is transferred between trains and trucks, have been associated with an increase in cancer risk (The Impact Project 2012). While all populations may be affected by exposure to trucks and trains, the young, elderly, and physically impaired are particularly vulnerable.

4.6.3 Causal Pathway Diagram

The primary goals of modifications to truck and train movement are to reduce physical interaction between them and community members by reducing their presence in the neighborhood or modifying schedules and routes. Map 4.9 shows the current freight-community interaction in North Birmingham with the majority of the heavily populated areas trained-in. This is a major issue in the neighborhoods, though they have unfortunately grown accustomed to working around it as best as they can. These changes will reduce injuries, vehicle and train-related air pollution, and disruptive noise.

Additionally, the community will experience benefits such as improved walkability, bikeability, and opportunity for physical activity. Health benefits associated with these outcomes are reductions in asthma, cardiovascular disease, chronic disease, and improved sleep and sleep related stress. (see Figure 4.5)

Map 4.9 Freight Impact on the North Birmingham Community



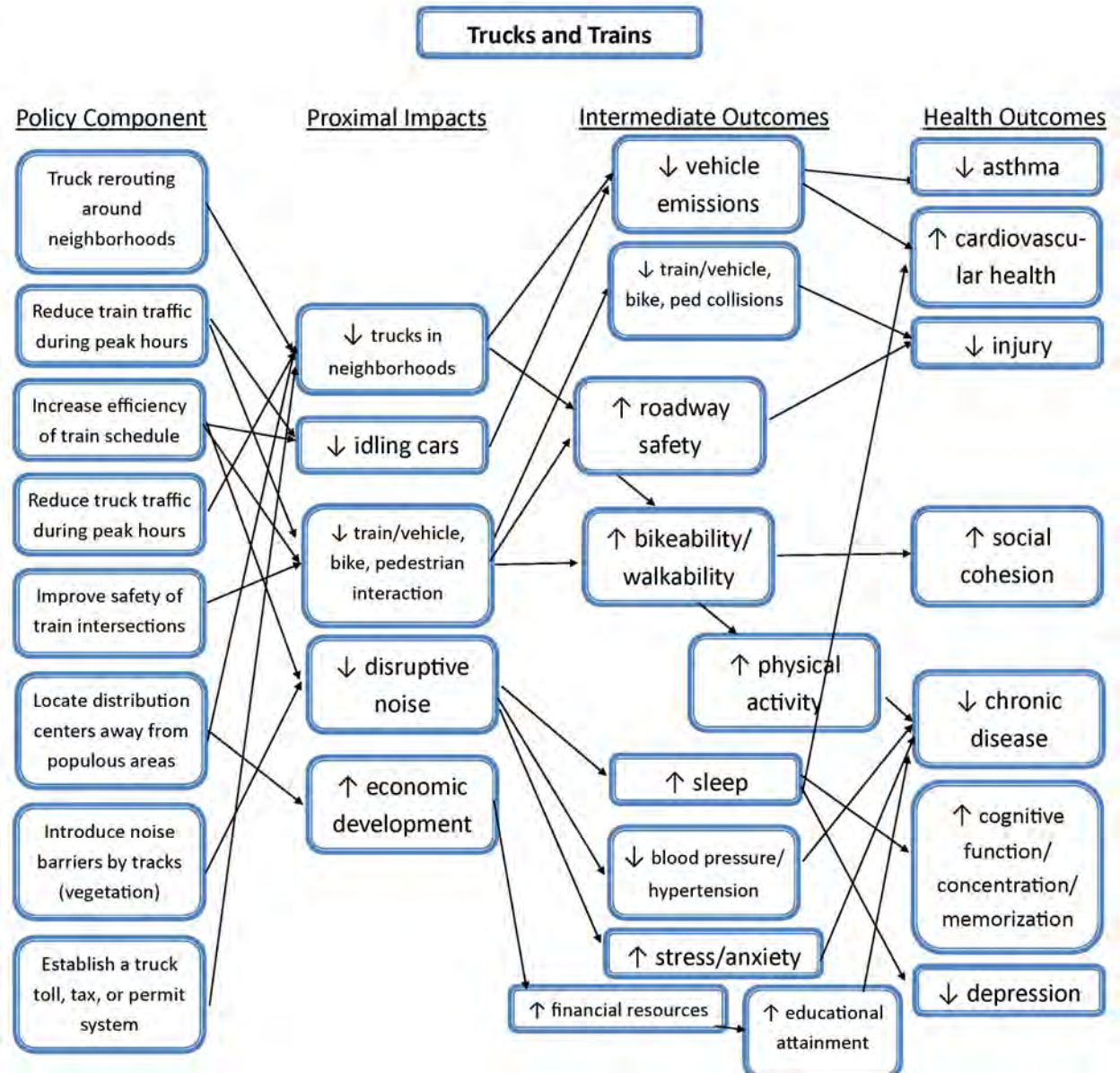
Legend

Neighborhood

- Acipco-Finley
- Collegeville
- Fairmont
- Harriman Park
- Hooper City
- North Bham

- Trainedin
- Primary Freight Network
- Railroads
- Arterials

Figure 4.5 Freight Causal Pathway Diagram



4.6.4 Summary of Potential Health Impacts

The main health consequences of regular exposure to freight are due to air pollution, roadway safety, and noise pollution. Exposure to air pollution has been shown to exacerbate asthma and decrease cardiovascular health. The contribution of freights to vehicle and pedestrian collisions has not been quantified, therefore a negative impact of freight on injury is expected, though the magnitude is not known. Additionally, freight routes are expected to impact walkability. Few studies have examined the effects of walkability on communities; however social cohesion has been found to be associated with walkability. Freight-related noise pollution can disrupt sleep that has been linked to

depression and cognitive function. Finally, most of these impacts affect risk factors for chronic disease as well, such as physical activity, social support, and cardiovascular health. (see Table 4.7)

Table 4.7 Summary of Potential Health Impacts Related to Freight

Health Outcome	Strength of Literature	Severity	Populations Impacted	Magnitude	Uncertainties Related to Limited Evidence
Asthma	High	Moderate	Children	Moderate	
Cardiovascular Health	Moderate	Moderate	General Population	Moderate	*Vehicle related air pollution has been found to directly impact cardiovascular health, though long term effects are less certain *This is a downstream effect of sleep disruption and increased stress but is hard to directly attribute to specific noise levels and stressors
Injury	Low	High	Workforce, Community Members	Uncertain	*Risk of injury due to traffic and trains has not been thoroughly studied, but has been described by community members
Social Cohesion	Low	Moderate	General Population	Moderate	*Limited studies identifying improved measures of social cohesion as a direct result of walkability
Chronic disease	Low	Moderate	General Population	Small to Moderate	*Many factors contribute to chronic disease and therefore it is hard to determine the specific impact of reduced emission and improved physical activity
Cognitive Function/ Concentration/ Memorization/ Depression	Low	Low	General Population	Small	*Depression has been associated with noise-related sleep deprivation though a causal relationship is difficult to establish

Section 5: Recommendations

This section includes recommendations for the North Birmingham Community Framework Plan. The recommendations are organized by topic and include a stated recommendation, primary partners to implement the recommendation, and the proposed term with listed action steps. The topics follow the order presented above in Assessment.

5.1 Secure Employment

5.1.1 Incorporate economic development and labor force strategies for the North Birmingham Community into the Regional Comprehensive Economic Development Strategy.

Primary Partners: Regional Planning Commission of Greater Birmingham
Birmingham's current Regional Economic Development Strategy does not address the North Birmingham Community. Having an economic development strategy focused on this area will guide economic development opportunities and new employers to this area. Focus for the strategy should be on areas planned to accommodate future employment and industry growth: Collegeville, Acipco-Finley, Hooper City, and North Birmingham. The strategy should emphasize commercial/retail and health care facilities.

Term: Short | Identify appropriate sectors and strategies to direct employment opportunities to the North Birmingham Community in the 2014 update of the Regional Economic Development Strategy.

Term: Long | Dedicate funding and resources to implementing new economic development strategy in the North Birmingham Community.

5.1.2 Encourage the redevelopment of brownfield sites in North Birmingham by educating property owners on addressing brownfield redevelopment and creating agreements that release property owners from future liability if they complete clean-up.

Primary Partners: Regional Planning Commission of Greater Birmingham and City of Birmingham Office of Economic Development

Redeveloping abandoned and contaminated brownfield sites can reduce health risks to the resident and worker populations, improve quality of life, and provide space for new employers to locate or expand. North Birmingham is a center for industry and has a number of sites that could be remediated and redeveloped to provide employment opportunities. Clean-up programs need to emphasize that property owners are guaranteed release from future liability once remediation is completed. All brownfields in the area should be identified and prioritized for clean-up based on proximity to economic centers and residential development.

Term: Short | Develop a system for prioritization of contaminated sites based on severity of contamination and proximity to redevelopment areas.

Term: Short | Create and promote a program that releases property owners from all future liability if they complete clean up.

Term: Short | Educate property owners on brownfield cleanup liabilities and opportunities.

Term: Long | Implement remediation and redevelopment programs

5.1.3 Expand the existing Enterprise Zone to include the North Birmingham Community.

Primary Partners: Regional Planning Commission of Greater Birmingham and City of Birmingham Office of Economic Development

Enterprise zones offer tax credits and exemptions for new or expanding businesses in designated areas. The North Birmingham Community is an appropriate location for the enterprise zone program because it is economically distressed.

Term: Short | Expand enterprise zone boundaries to incorporate Collegeville, Acipco-Finley, Hooper City, and North Birmingham neighborhoods.

Term: Long | Market benefits of enterprise zone to existing and potential businesses to incentivize relocation to North Birmingham.

5.1.4 Collaborate with workforce development agencies to target recruitment of North Birmingham residents for careers in the civil service.

Primary Partners: Personnel Board of Jefferson County and Jefferson County Workforce Investment Board, Workforce Development Council: Region 4, Mission Alabama, Alabama Department of Development Workforce Programs, local churches and schools

North Birmingham residents have prioritized employment opportunities at the top of their list of concerns. The Birmingham region should leverage its existing resources to collaborate on a targeted strategy to both train and place North Birmingham residents into quality employment opportunities. These job opportunities could be in high employment sectors (like health care) or in organizations participating in the workforce strategy (Jefferson County, City of Birmingham, etc).

Term: Short | Establish partnerships between existing workforce development programs and interested schools and churches to expand resources in North Birmingham.

Term: Long | Locate workforce development centers in North Birmingham.

5.1.5 Establish after-school enrichment and summer programs for school-age children.

Primary Partners: Birmingham Parks and Recreation Department, YMCA, A.G. Gaston Boys & Girls Club, Schools and Churches

Community members emphasize the need for increased childcare, especially for older children after school and during breaks. These programs should be located in active recreation centers with bus service from neighborhood schools. This will not only allow parents to work later in the afternoons and not have to take time off during spring and summer breaks, but also offer educational and technical skill training opportunities to the community's youth.

Term: Short | Identify location, resources, and curriculum for afterschool and summer enrichment programs in the North Birmingham Community.

Term: Long | Implement after-school and summer enrichment programs in the Community.

5.1.6 Offer daycare options for North Birmingham Community residents.

Primary Partners: Housing Authority of Birmingham and Alabama Department of Human Resources, local churches

Affordable childcare options are critical for increasing employment opportunities for community members. A program hosted at the public housing development in Collegeville was recently closed, leaving an increased need in that neighborhood. If reopening the closed program in the same location is not feasible, childcare vouchers serviced by the state department of human resources can serve as a good alternative to offering affordable daycare options to low-income parents with young children.

Term: Short | Determine potential users and feasibility of reopening housing authority daycare center.

Term: Long | Reopen daycare facility in or near the Collegeville public housing development, or work with the department of human resources family services to offer childcare vouchers to families in the community.

5.2 Access to Healthy Food

5.2.1 Implement a Healthy Corner Store Initiative.

Primary Partners: UAB SSCRC, City of Birmingham, North Birmingham Planning Commission, Local Corner Stores, UAB JCPM, NBCC, Rev Birmingham

Because corner stores are scattered throughout the area, they are more easily accessible to neighborhood residents than full service grocery stores. A corner store initiative in North Birmingham can quickly and substantially change residents' access to healthy foods in the area. Philadelphia's Fresh Food Financing Initiative is an excellent model, and Market Makeovers provides online resources for corner store improvement. This initiative is an excellent way to support local businesses while providing residents with convenient healthy food options.

Term: Short | Complete an assessment of the neighborhood's corner stores to determine the best location based on proximity to the community, sales and community reputation, and willing owners.

Term: Long | Partner with REV Birmingham to implement their Urban Food Project, which includes a program to facilitate the corner stores' ability to sell fresh produce.

5.2.2 Expand the current fresh produce food truck program to reach all areas of North Birmingham.

Primary Partners: Faith Based Organizations, Local Organizations, Wholesome Wave, Community Food Bank of Central Alabama- Mobile Pantry Program

Local organizations like the East Lake Market, operated by the East Lake United Methodist Church, are running a Mobile Market that sells fresh fruits and vegetables. In conjunction with the Urban Food Project's Birmingham Market Alliance, the Jefferson County Health Action Partnership, and the Community Food Bank of Central Alabama,

this program should be expanded to include more stops throughout the community, thereby meeting the needs of more North Birmingham residents. An additional potential partner is Wholesome Wave to implement their Double Value Coupon Program, which matches the value of the SNAP payment at farmers' markets.

Term: Short | Map an expanded service area for the Mobile Market.

Term: Long | Coordinate a partnership with the organizations listed above to implement the expanded geographic service and inclusion of SNAP as a valid form of payment.

5.2.3 Create a shuttle service programs that will run from key neighborhood destinations to supercenters, full service grocery stores, and Farmers Markets.

Primary Partners: Local Institutions, Faith Based Organizations, Supercenters, Local Grocery Stores, Alabama Farmers Markets, NBCC This program would encourage stores to coordinate with local institutions, like churches, to arrange shuttles that run from key neighborhood pick up locations to grocery stores and farmer's markets. The shuttles would ideally run multiple times during the day and after normal work hours as well as on the weekends. This recommendation is not only beneficial for residents, but also economically beneficial to the grocery stores. In cities that have implemented these programs, grocery stores have gained up to \$1.5 million additional revenue. In Los Angeles, One Numero Uno store uses nine vans and transports about 2200 customers weekly. As a result, it is among the most profitable markets in Los Angeles.

Term: Short | Establish a committee to work with named organizations to establish a van grocery program.

Term: Short | Pilot the program with a willing store and other partner.

5.2.4 Implement a healthy food educational program.

Primary Partners: REV Birmingham, Birmingham Public Schools, Health Action Partnership, Community Food Bank of Central Alabama- Weekender's Backpack Program, Jones Valley Urban Teaching Farm, Alabama Cooperative Extension

While physical and financial policy components are essential, educational programs will also encourage residents to make better decisions about their health. By partnering with organizations in the area like Health Action Partnership, Healthy Kids Healthy Communities and Jefferson County Place Matters, (JCPM), North Birmingham can create a program targeted to both children and adults that highlights the importance of healthy foods and a balanced diet. These programs can include gardens in schools where students can work and incorporate healthy food education into the regular curriculum; guest speakers can present information in an interactive way. When people are more aware of their health and the effect food has on their health, they are more likely to make healthier choices if they proper access to these healthier sources. Similar to Glen Iris, this program could also allow children to take leftover produce home after school in North Birmingham.

Term: Short | Establish a committee to work with named organizations to establish a pilot program in a local school or youth center.

5.2.5 Support urban agriculture in the North Birmingham Community.

Primary Partners: Alabama Cooperative Extension, Workforce Development, UAB, NBCC, Faith Based Organizations, REV Birmingham

Utilize vacant lots to create urban gardens of fresh fruits and vegetables for the community's consumption. Because of a general perception of soil contamination, begin by utilizing raised beds or similar strategies. Not only will the gardens provide healthy food for the neighborhood but will also give neighborhood residents the opportunity to be trained in gardening techniques, and offer opportunities for healthy social interaction.

Term: Short | Inventory vacant lots and other available sites for use as an urban garden.

Term: Short | Work with residents and a committee of stakeholders to select a location.

Term: Intermediate | Develop a strategic plan for source materials, planting, distribution and partnerships.

Term: Long | Implement the plan.

5.2.6 Implement fast food restricted zoning.

Primary Partners: RPCGB

Fast food restricted zoning will prohibit the existence of fast food in the specified areas and thus restrict exposure to high fat and high sugar foods. This will also promote local business and entrepreneurship to offer other food options to fill local demand.

Term: Short | Review fast food restricted zoning and its implementation in communities like North Birmingham.

Term: Short | Integrate fast food restricted zoning in the local zoning ordinance.

5.3 Access to Health Care

5.3.1 Partner with churches for low infrastructure and easily accessible health care offerings.

Primary Partners: RPCGB, Faith Based Organizations, Jefferson County Health Department, Alabama Health Department, City of Birmingham, UAB Jefferson County Place Matters, Housing Authority of Birmingham District, Neighborhood Coalitions, Ministerial Association's, North Birmingham Council of Churches

Health care is a primary need of the North Birmingham community given the closing of Cooper Green Hospital and Carraway Hospital. Churches are strongly organized groups with great influence and resources and therefore a valuable partner in bringing quality health care to the community. Churches also represent the most abundant social infrastructure available in the North Birmingham Community. The network of public services provided by the churches in the area is presently unknown. The creation of database of church services will allow for the information to be available for the planning process and to the broader community. The availability of this database also help the RPCGB to mobilize informal infrastructure.

Term: Short | Organize a group to lead an audit of health services provided to the community.

Term: Intermediate | Complete the church audit.

Term: Long | Develop a strategic plan based on the church audit and health needs in the community. Consider training both community and congregation members to supplement skilled health workers resident in North Birmingham. This may include EMT training.

5.3.2 Provide residents with a shuttle transportation to major health care facilities.

Primary Partners: Hospitals, Jefferson County Health Department, Faith Based Organizations

The closing of both Cooper Green Hospital and Carraway Hospital requires North Birmingham residents to travel a farther distance to meet many of their ongoing and unplanned health care needs. The lack of health care facilities in the community and the inefficient public transit options for getting to facilities across town further compound the need for reliable and timely transport to major health care destinations within the City of Birmingham (see recommendation 5.4.1). If implemented, the shuttle service could operate on a fixed schedule to predetermined locations, or it could be reserved by residents on a first-come, first-served basis and would take them to health care locations, or home or work and could be tailored to their individual medical needs. This service could work in conjunction with local churches to provide screenings, immunizations, and other routine health services to ease the burden on shuttle trips. Possible avenues for funding include repurposing charity care monies at the hospitals that currently serve these residents, or as an intervention implemented through the Community Health Needs Assessments requirements that are mandated for nonprofit hospitals through the Affordable Care Act.

Term: Short | Organize a group to lead discussions to explore this recommendation, the locations, costs and community that could be served.

Term: Intermediate | Prioritize areas most in need for this type of bus service.

Term: Long | Pilot plan health transport plan and evaluate before expanding to other areas.

5.3.3 Establish a local health care facility to serve the medical needs of the community.

Primary Partners: Jefferson County Health Department, Private Medical Group

Establishing a public health clinic in the North Birmingham neighborhood would greatly increase health care accessibility for all residents. Creating a dedicated general and/or primary care facility would fill a notable gap in the community's current health amenities, which currently consists of one dental office and a dialysis clinic.

Term: Short | Conduct a community survey to identify the most desirable health services not already present in the area.

Term: Short | Review Carraway and Cooper Green Hospitals' experience in this community to establish a sound economic plan on which to operate a new facility.

Term: Intermediate | Identify an existing structure to repurpose for this facility in North Birmingham or Collegeville. Include satellite offices and services from one of the existing medical institutions in the City or Region.

5.4 Connectivity

5.4.1 Review the current transit routes throughout the North Birmingham communities and redirect the routes to create an integrated transit system that provides greater connectivity to important locations inside and outside of the neighborhoods.

Primary Partners: City of Birmingham, RPCGB, Birmingham-Jefferson County Transit Authority (BJCTA)

As current transit routes are reviewed, ensure that improved transit routes are convenient, safe, and reliable. Routes should provide greater connectivity between the neighborhoods of the North Birmingham community as well as major destinations outside of the community (see recommendation 5.3.2). Research has shown links between increased physical activity and transit ridership; therefore the North Birmingham Community Framework Plan should address increased transit access to support physical activity and increase social networks. Increased transit access has also been linked to economic activity and social wellbeing.

Term: Short | Review transit options across neighborhoods and to key destinations out the Community.

Term: Intermediate | Initiate new routes

5.4.2 Ensure affordable and healthy housing exists throughout the community by introducing scattered-site housing in higher density areas of the community.

Primary Partners: City of Birmingham, Housing Authority of the Birmingham District, RPCGB, other affordable housing providers

Safety and freedom from pollutants, along with access to goods and services are important components of healthy housing. Scattered site housing can be used to target areas of growth in the North Birmingham Community. The relocation of families currently living in outdated, subsidized apartment buildings to targeted scattered housing sites can help create more economically mixed communities. Furthermore, the relocation of current residents to less polluted areas within their own community allows social ties to remain intact. The subsidized apartments sit next to train tracks with significant traffic volume; relocating the residents can help mitigate their exposure to pollutants.

Term: Short | Work with housing stakeholders across the community to discuss redevelopment plans that address comments above. Develop appropriate next steps to move forward with relevant dimensions of this recommendation.

5.4.3 Create a vacant property registry and a rental property registry in the North Birmingham Community to create safe neighborhoods.

Primary Partners: City of Birmingham, Housing Authority of the Birmingham District, Regional Planning Commission of Greater Birmingham (RPCGB), Project RISE, other affordable housing Providers

One of the first steps to neighborhood revitalization is to properly categorize all vacant/rental properties within the community. The creation of a vacant property registry and a rental property registry can help city inspectors quickly contact owners if homes fall into disrepair, facilitating a reduction in blight and vandalism in communities. Vacant

properties have been linked to increased incidents of aggravated assault, which leads to less healthy communities (Branas 2013). Higher crime rates can then lead to a general feeling of a lack of safety that negatively affects mental health. Mental health can also be negatively affected when the surrounding built environment is poorly taken care of and falling into disrepair. A vacant property registry and a rental property registry can also be useful when determining prime locations for scattered site housing and for promotion of urban agriculture (see recommendations 5.4.2 and 5.2.5).

Term: Intermediate | Create and promote the use of a vacant housing registry.

5.4.4 Improve sidewalk infrastructure throughout the North Birmingham Community.

Primary Partners: City of Birmingham, RPCGB

An intact and connected sidewalk infrastructure can promote walking throughout a community. It is also a critical component of community building and health promotion when these improvements are paired with residential and commercial development, and public transit.

Term: Short | Identify where sidewalk infrastructure is of immediate need to the community.

Term: Intermediate | Schedule and build out this infrastructure.

5.4.5 Integrate traffic calming in key intersections and along roadways with high incidences of car, pedestrian and/or bicycle infrastructure in the North Birmingham Community.

Primary Partners: City of Birmingham, RPCGB

Traffic calming strategies like complete streets and safe routes to schools strategies can both promote physical activity and social connectedness. Lower obesity, obesity related diseases and depression can result from walking throughout a community. It is also a critical component of community building and health promotion when these improvements are paired with residential and commercial development and public transit.

Term: Short | Identify where traffic calming is of immediate need to the community.

Term: Intermediate | Schedule and build out this infrastructure.

5.5 Freight

5.5.1 Complete the Finley Boulevard Extension Plan and the Shuttlesworth Bridge Pedestrian Flyover.

Primary Partners: Alabama Department of Transportation, RPCGB, Rail Industry, NBCC, Emergency Planning Committee

The Finley Boulevard Extension will divert direct freight away from the North Birmingham Community. The Shuttlesworth Bridge Pedestrian Flyover will move pedestrians and vehicles over the railroad tracks and minimize resident-rail interaction. This will also minimize the time pedestrians and residents have to wait in trainedin communities due to

trains parked on at-grade residential street crossings. It will allow access over train tracks at all times.

Term: Intermediate | RPCGB should continue their efforts with appropriate stakeholders to execute these transportation infrastructure plans.

5.5.2. Minimize the time trains are stopped at residential street crossings

Primary Partners: Alabama Department of Transportation, RPCGB, Rail Industry, NBCC, Emergency Planning Committee

Stopped traffic due to train crossings can not only cause stress and frustration, but also delay emergency vehicles and hinder public transportation. Parked trains at residential street crossings are also related to pedestrian injuries that result from them attempting to cross the tracks through train cars.

Term: Intermediate | Partner with private industries to identify scheduling strategies to reduce the amount of time freight is stopped at at-grade residential intersections. Model this initiative after the success seen by an industry-city partnership to reduce idle trains during peak hours in Spartanburg, SC.

5.6 Additional Recommendations

5.6.1 Complete a Tree Master Plan or Greenspace Plan for the Birmingham Region.

Primary Partners: RPCGB, City of Birmingham, Stormwater Management, Department of Parks and Recreation

Lack of sufficient tree cover is observed in the North Birmingham Community and highlighted as a major concern by residents. Create a tree master plan to improve aesthetics, air and water quality, mitigate heat islands, and reduce flooding. The master plan should emphasize a connected network of tree paths and cores to establish a green network across the Region. A tree master plan can increase the walkability of the regions and lower particulate matter. The increase in walkability of the region would also lead to lower levels of diabetes and cholesterol. Also heat related illnesses would be reduced as sufficient shade would help in creating rest areas.

Term: Short | Create a tree master plan with prioritized areas based on values agreed upon by stakeholders.

Term: Intermediate | Implement the tree master plan

5.6.2 Include green infrastructure as part of the urban water catchment plan

Primary Partners: City of Birmingham Stormwater, EPA, RPCGB, Parks and Rec, JCDH

Green infrastructure, including retention ponds and bioswales, reduces stormwater runoff thus slowing stream overflow during heavy storm events. This protects against flooding and decreases pollution in the neighboring waterways.

Term: Short | Create a green infrastructure plan

Term: Intermediate | Implement the green infrastructure plan

5.6.3 Promote public education on watersheds

Primary Partners: City of Birmingham Stormwater, EPA, UAB, City of Birmingham Schools and Universities, JCDH, RPCGB

Maintaining a healthy watershed is the responsibility of both the City and its citizens. The primary watershed, Village Creek, contains elevated toxin levels, which can pose health risks to the surrounding neighborhood. Education can teach community members to protect waterways by reducing organic materials like grass cuttings and fertilizers. Elevated toxins is another concern that should also be addressed, and encourage the public to report any illegal dumping.

Term: Short | Identify key areas of concern.

Term: Short | Work with media, community institutions, local universities and schools to educate the community.

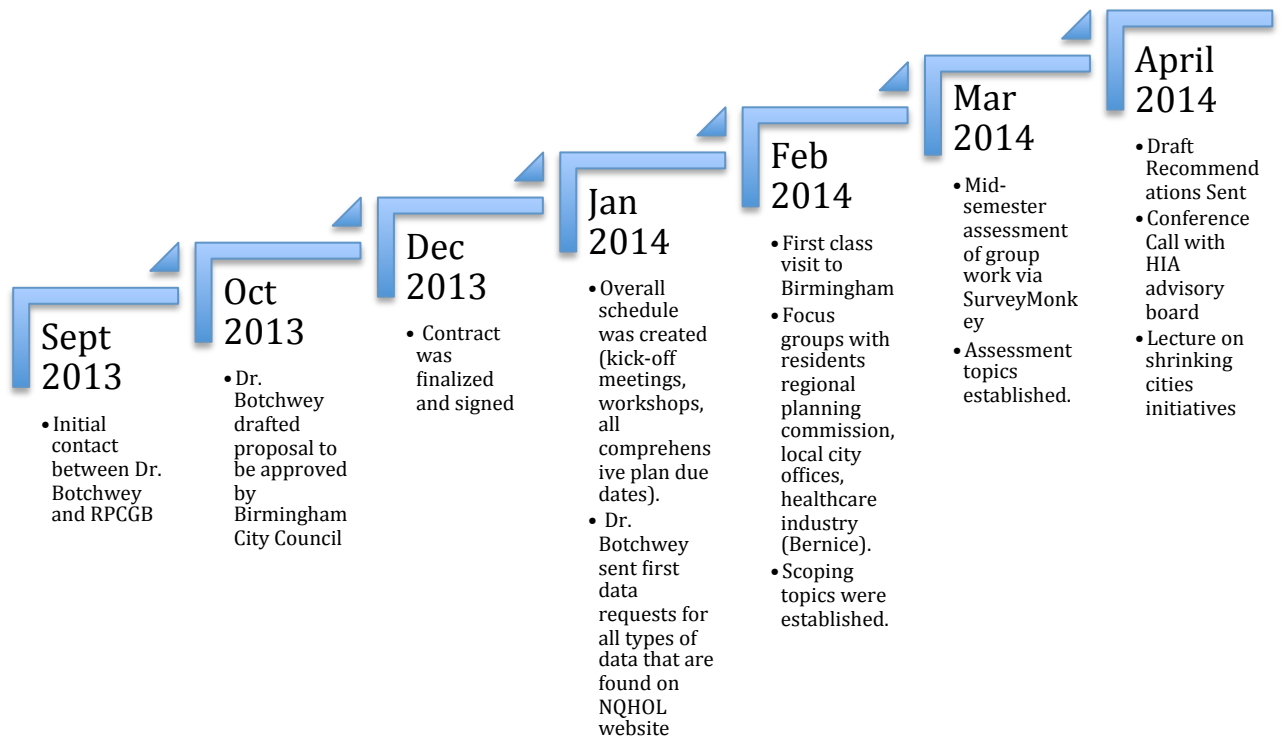
Section 6: Evaluation

HIA evaluation can take many different forms due to timing, staff, and/or funding constraints that often arise toward the end of a project. For this particular HIA, a dedicated team of three graduate students was assigned to document each step in the process and to develop a framework for evaluating the impact of HIA recommendations on the North Birmingham Community Plan. The team also shares some considerations for measuring the future health outcomes of any successfully adopted and implemented HIA recommendations.

6.1 Process Evaluation

As outlined in Figure 6.1, the work stream kicked off in December 2013 when Georgia Tech entered into a contract with RPCGB that provided resources to facilitate an HIA on the North Birmingham Community Framework Plan. The student teams formed in January 2014 and began evaluating possible scoping topics in preparation for their fieldwork in Birmingham in the beginning of February. In the week prior, the HIA team conducted their first conference call with the RPCGB to make introductions and review the visit agenda. The Birmingham field visit was productive and enabled the team to collect information about North Birmingham's health needs, educate the client and steering committee on the HIA process, vet the initial list of possible scoping topics, identify data needs and potential data sources, tour the neighborhood, and conduct focus groups with members of the community. Over the next few weeks the team finalized the scoping topics after soliciting another round of feedback from the steering committee, and then moved into the assessment phase in early March. This phase required that the HIA team interface with RPCGB on a daily basis to obtain as much data as possible to inform their analysis. By mid-March analysis was complete and each topic team began writing a set of recommendations based on their findings. The HIA team presented their assessment results and initial recommendations to the steering committee and the RPCGB at the end of March, and then made revisions based on the comments received. The HIA team then presented the revised recommendations to the steering committee and the RPCGB again in mid-April, and finalized them leading up to the HIA client presentation in late April. Upon presenting the HIA recommendations to a larger Birmingham audience at Georgia Tech at the end of April, the RPCGB and community stakeholders were given three months to provide additional feedback and commentary which will be incorporated into the final report. One student will continue to work with Professor Botchwey through August in order to wrap up the report revisions and conduct an HIA training for Birmingham stakeholders.

Figure 6.1 Process Evaluation Timeline



Two pieces of the HIA process that deserve further explanation are the range of expertise represented by the HIA team and the organizational structure of the class. This HIA was conducted by a multidisciplinary 17-person team consisting of Professor Nisha Botchwey, 10 City and Regional Planning graduate students, three Environmental Engineering students, and two Public Health students. During each phase of the process the team worked in groups of 2-7 students, with three students per team being the optimal number for efficiency. Dividing the larger group into several smaller groups made for easier delegation, distributed the workload more equally, and allowed students to become experts in certain topic areas. Each group also benefitted from having multiple perspectives to draw upon due to the varied academic backgrounds.

Process evaluation data was collected weekly from individual team members using a Google spreadsheet to record the time required to complete each task, the number of resources used, the value of the task to the overall objective, challenges encountered, and any best practices learned. Qualitative data was also collected in the form of a weekly report out during which each team leader shared accomplishments, roadblocks, and successes of their work as a team. Ultimately this reporting by the team leader was the most effective method of HIA process documentation, as this high-level reflection revealed 'highs' and 'lows' of each HIA stage and helped identify areas for improvement in later phases. Midway through the HIA process, students completed a peer-review survey to provide feedback on individual performance within their groups and to identify areas for improvement moving forward.

Given the structure of the HIA team, organization within and between small groups was critical to the success of the HIA. An organizational chart was created to help both the HIA team and the client understand the multiple roles of each team member, which included their task group designation (communications, report and presentation, data and monitoring, training, and evaluation) and their scoping topic group designation (access to food, access to healthcare, connectivity, employment, freight, and pollution). A timeline and deliverable matrix was also developed to organize weekly activities so that each group could allocate their time appropriately and understand how each task contributed to the larger HIA objectives. Data and document sharing within and between groups primarily occurred on Google Drive and a free, web-based project management tool called *Trello*. After some initial version control issues, it was decided that Google Drive would primarily be used for work-in-progress deliverables while *Trello* would house finalized deliverables.

Both internal communication between the smaller HIA student groups and external communication with the steering committee and RPCGB posed the biggest challenge throughout the HIA process. In order to simplify communication between task groups, one person in each group was designated to serve as the team leader through which all information was funneled. The primary mode of communication between the team members was email, although a midweek check-in on Google Hangout video conferencing was found to be a useful supplement for some task groups. It was also valuable for each task group to meet periodically with Professor Botchwey to ensure that their work was progressing and to raise any questions or concerns. Two students composed the communications task group and served as the main points of contact for the client and steering committee, which helped manage the inflow of emails and data. For information that was very technical in nature, it was helpful for Professor Botchwey to pair student scoping teams with outside content experts who could help navigate unfamiliar jargon and provide context around their data.

Due to the community, clients, and stakeholders being located in another state, communication primarily took place over email and phone. Following the field visit to Birmingham, the HIA team engaged the steering committee at regular intervals via conference calls to seek feedback on their work as noted above. Although the RPCGB agreed that using a video format would have been preferable, the HIA team experienced ongoing technical difficulties with the video conferencing software available. A best practice for future HIAs would be to survey all participants regarding their preferred mode of communication to ensure that the lowest level of technological capability is met. Other recommendations for improving external communication include setting the conference call and/or meeting schedule at the outset of the project so participants can plan accordingly, and maintaining communication via email between calls and/or meetings to help participants stay engaged throughout the process.

Lastly, it is important to note that a thread of addressing inequality in the North Birmingham community ran throughout all phases of the HIA. To this point, the steering

committee members were a diverse representation of race, gender, and socioeconomic status that helped bring awareness to the needs of different populations within the community. This knowledge was instituted in the scoping phase as the team weighed potential topics according to their impact on the health of specific subgroups. Age inequality was addressed by conducting focus groups with school age children in order to gain a different perspective and give the younger generation a voice in the community improvement process. Furthermore, the narration of elderly community members who participated in the neighborhood bus tour helped convey the past vibrancy and historical significance of the area.

6.2 Impact Evaluation Plan

It is important to track adoption and impact of the HIA as recommendations are accepted by different agencies and incorporated into plans,. Once it has been decided that a recommendation is going to be adopted, careful consideration should be taken to ensure that steps are in place to monitor progress. Included here is a table suggesting possible ways to monitor each recommendation. We have left it up to the party implementing the recommendation to decide the frequency that a specific monitoring process should be considered. We also suggest that the teams involved in the recommendation implementation should consider alternative ways of tracking their own progress, as the implementation may differ in specifics from the recommendations presented here. Finally, we suggest that as progress is tracked, it should be reported to members of the HIA steering committee to share progress and best practices.

In addition to the documentation of this information the impact of the HIA recommendations can be captured with a survey of key recommendation components 6 and 12 months after the plan is implemented.

Table 6.1 Monitoring Guidance for HIA Topics

	Monitoring Points of Action
Priority Category: Connectivity	
1. Review the current transit routes throughout the North Birmingham communities and redirect the routes to create an integrated transit system that provides greater connectivity to important locations inside and outside of the neighborhoods	1. Document the number of transit stops in the neighborhood by frequency and # of direct routes to super markets. Report transit options and changes in transit service to HIA steering committee and community residents.
2. Ensure affordable and healthy housing exists throughout the community by introducing scattered-site housing in higher density areas of the community	2. Document the number of scattered and clustered affordable housing units.
3. Create a vacant property registry and a rental property registry in the North Birmingham Community to create safe neighborhoods	3. Document that the registry is updated on schedule according to the plan adopted as part of the recommendation.
4. Conduct an audit of local churches and the services to assess the current services that are provided to the community	4. Incorporate the findings from the audit into a report that will be provided to the HIA steering committee and community residents.
5. Use church audit to align informal resources in the community	5a. Disseminate information from church audit to local organization through newsletters 5b. Document the number of people that use/access the church audit.
6. Improve safety of streets and intersections	6. Record traffic crashes and related injuries; track and report improvements to local residents
Priority Category: Water	
1. Target stormwater management in high priority areas	1. Report any new management plans to HIA steering committee and community members. Document decision making processes and create report indicating priority areas.
2. Update grey infrastructure to address flooding conditions	2. Compile georeferenced database of grey infrastructure updates

Table 6.1 continued

3. Protect and enhance existing wetlands and urban forests	3. Create database of wetland acreage and document developments that improve or remove wetland acreage
4. Include green infrastructure as part of the urban water catchment plan in prioritized areas	4. Compile georeferenced database of green infrastructure updates
5. Monitor industrial pollutants in potential “hot spot” areas	5. Report local EPA pollutants and compare to HIA assessment baseline
6. Promote public education on watersheds	6. Document education programs and participation level by age
Priority Category: Pollution	
1. Regular removal of all heaps of waste	1. Work with industries to document and track removal schedule and type of waste material type
2. Shift residential activity away from pollution sources	2. Use vacancy/residential/rental data to track how many people live within 100, 200, 300 meters of heavy industry
3. Amend Zoning laws	3. Publish zoning amendments for community
4. Educational programs at schools and other social gatherings	4. Track frequency and attendance at programs/gatherings.
5. Create a tree master plan	5. Work with community groups to develop the tree plan and, then, to advertise/present/update community. Report tasks, points of action, and priorities developed as part of the tree master plan to HIA steering committee and community residents. .
Priority Category: Health Care	
1. Partner with churches for low infrastructure and easily accessible health care offerings	1. Document any health care offerings provided through faith based organizations. Include specific health care services, locations, and hours. Report offerings to HIA steering committee and community members.
2. Provide residents with a shuttle transportation to major health care destinations	2. Document shuttle service destinations, frequency, and ridership.
3. Establish a local health care facility	3. Document facility location and hours as well

Table 6.1 continued

to serve the medical needs of the community	as the number of patients, visit purpose, payment/insurance type, and neighborhood of residence.
Priority Category: Employment	
1. Incorporate a specific economic development and labor force strategy for the North Birmingham area into the regional Comprehensive Economic Development Strategy	1. Keep the HIA steering committee informed as an economic development and labor force strategy are developed. Create a process for informing community members of relevant opportunities
2. Encourage the redevelopment of brownfield sites	2. Create a registry of parcels and land designated as brownfields. Updated the registry as brownfields are remediated or redeveloped
3. Expand existing enterprise zone to include North Birmingham communities	3. Document and report enterprise zone developments to the HIA steering committee and to the North Birmingham community
4. Collaborate with workforce development agencies to target recruitment of North Birmingham residents for careers in civil service	4. Document workforce development programs by agency. Include participation rates and maintain contact with participants to document employment rates after program completion.
5. Establish after-school enrichment and summer programs for school-age children	5. Document programs and participants in rates by age group
6. Offer new daycare option for residents to replace program that was closed	6. Create a comprehensive list of daycare programs in the area and record the number of children attending each
Priority Category: Food Access	
1. Implement a healthy corner store initiative	1. Monitor the corner stores and identify stores providing healthy options. Report findings to HIA steering committee and community residents.
2. Expand current fresh produce food truck program to reach all areas of North Birmingham	2. Document food truck days of the week, times of day, location, and healthy food offerings. Report findings to HIA steering committee and community residents.
3. Create a shuttle service program that will run from key neighborhood destinations to Walmart, other full	3. Document shuttle service destinations, frequency, and ridership.

Table 6.1 continued

service grocery stores, and farmers markets	
4. Implement a healthy food educational component	4. Document programs and participants in rates by age group.
5. Support a program for urban agriculture within the North Birmingham neighborhoods	5. Document and report any urban agriculture programs and the tonnage/value of food sold/produced
Priority Category: Freight	
1. Minimize the time trains are stopped at residential street crossings	1. Document any communication between city officials and industry discussing scheduling adjustments; contacts and agreements should be documented and summary information should be available publically
2. Eliminate at-grade rail crossings	2. Report transportation plans in areas where there are at-grade rail crossings to the HIA steering committee and community members. Work with community members, ALDOT, and the City to promote plans that eliminate at-grade rail crossings.

6.2 Impact Evaluation

An important part of evaluating the HIA is the measurement and the documentation how many of the HIA’s recommendations were adopted. The impact of the HIA can be proximal (direct) or distal (indirect). The most direct impacts for this HIA will be what recommendations (complete or partial) are incorporated into the North Birmingham Neighborhood Plan but can extend out to other areas. In fact the impact of this HIA can be measured in the impact of hard systems (policies and procedures) outside of the HIA as well as on soft systems (knowledge and skills).

6.3 Outcome Evaluation

The outcome evaluation of this HIA will occur after the North Birmingham comprehensive plan has been adopted. It will focus on assessment of health outcomes derived from any of the HIA recommendations that were adopted and successfully implemented. The outcome evaluation can be initiated at varying times depending on the health outcome of interest, and can occur at multiple intervals to determine short-term and long-term health outcomes. Some information relevant for an outcome evaluation is laid out in the monitoring plan. Note, monitoring essential provides the vehicle for execution of the outcome evaluation.

Section 7: Monitoring

7.1 Monitoring Health

To monitor health outcomes, we recommend two different processes:

(1) The first is to identify available health data throughout the region and create a centralized location that can house and track health data. This process will require collaboration across agencies, and we recommend that Jefferson County Place Matters spearhead these efforts with support from RPCGB and the Jefferson County Department of Health. The Alabama Department of Public Health, Center for Health Statistics publishes Alabama Health data by county each year. This data includes infant mortality, population, incidence of notifiable diseases, overall mortality, mortality by disease and race/gender, accidental death by cause, and deaths by type of cancer. To retrieve data on a neighborhood, census tract, or census block group scale it will be important to work with the Alabama Department of Public Health, Center for Health Statistics. The Census, as part of the American Community Survey (ACS) reports the number of individuals with and without health insurance by census tract. North Birmingham is composed of six census tracts: 120.01 (Hooper City); 120.02 (Fairmont); 8.00 (Acipco Finley and North Birmingham); 55.00 (Harriman Park); 7.00 and 11.00 (Part of Collegeville).

(2) The second recommendation to monitor health outcomes is to work with local hospitals to develop a database of hospital visit information. This would ideally include a geographic identifier (zip code, census tract, census block group, or street name), visit purpose, diagnosis, previous health conditions, and payment type. Much of this information is collected regionally and compiled into a database generally referred to as ICD codes, or the International Statistical Classification of Diseases and Related Health Problems. It would provide an excellent means of tracking health status throughout the region, across time. However, even though hospitals are collecting some of this data, establishing this database will take significant efforts across agencies and hospitals throughout the region.

Here, we have presented an extensive list of health outcome measures. However, to develop a relevant and usable database of health measures, it will be important to collect health measures that are relevant to specific policy changes or other adopted initiatives. Once a database is compiled, comparisons should be made over time on an annual, or multi-year basis.

Tracking the health indicators listed in Table 7.1 will help determine:

- What changes in health can be seen in the community?
- How have activities and policies changed health in the community?
- What evidence is there for changes in individual, family, and community health as a result of HIA recommended actions?

Table 7.1 Indicators to be Monitored

Indicator	Category	Explanation
Population Health		
Infant Mortality	All	Many factors contribute to infant mortality and is commonly used as an indicator of population health
Overall Mortality	All	Many factors contribute to infant mortality and is commonly used as an indicator of population health
Percent Insured (Health)	Access to Healthcare, Connectivity	Having insurance increases access to healthcare
Chronic Disease		
Asthma death: adults 35-64 years	Pollution	Poor air quality triggers asthma
Asthma deaths: older adults	Pollution	Poor air quality triggers asthma
Asthma deaths: persons <35 years	Pollution	Poor air quality triggers asthma
Asthma ED visits: children <5 years	Pollution, Access to Healthcare	Poor air quality triggers asthma, poor management can lead to ED visits
Asthma ED visits: older adults	Pollution, Access to Healthcare	Poor air quality triggers asthma, poor management can lead to ED visits
Asthma ED visits: persons 5-64 years	Pollution, Access to Healthcare	Poor air quality triggers asthma, poor management can lead to ED visits
Cancer survivals	Access to Healthcare	Access to healthcare increases the chance of survival
Cancer deaths, total	Pollution, Access to Healthcare	Pollution contributes to cancer, lack of healthcare more often makes it fatal
Chronic lower respiratory disease (CLRD) deaths	Pollution	Poor air quality contributes
COPD deaths: adults 45+ years	Pollution	Poor air quality contributes
COPD ED visits: adults 45+ years	Pollution	Poor air quality contributes
Coronary heart disease deaths	Freight/Traffic Safety, Access to Healthcare	Poor diet and lack of physical activity contribute
Diabetes deaths	Access to Healthcare	Poor management of diabetes more often results in death
Diabetes, new cases	Freight/Traffic Safety, Food Access	Poor diet and lack of physical activity contribute
Heart failure hospitalizations	Pollution, Freight/Traffic Safety, Food Access	Air pollution, diet, and exercise are factors
High blood cholesterol	Freight/Traffic Safety, Food Access	Diet and physical activity contribute
Hypertension	Freight/Traffic Safety, Food Access, Access to Healthcare	Diet and physical activity contribute
Residential fire deaths	Connectivity	Delays of emergency response
Infectious Disease		
Waterborne disease outbreaks	Water	Poor water quality/drainage contribute
Injury and Violence		
Firearm-related deaths	Connectivity	Abandoned and vacant properties are related
Motor vehicle deaths	Freight/Traffic Safety	Intersection and rail infrastructure contribute
Motor vehicle injuries, nonfatal	Freight/Traffic Safety	Intersection and rail infrastructure contribute
Nonfatal firearm-related injuries	Connectivity	Abandoned and vacant properties are related
Pedestrian deaths	Freight/Traffic Safety	Intersection and rail infrastructure contribute
Pedestrian injuries	Freight/Traffic Safety	Intersection and rail infrastructure contribute
Physical assault injuries, nonfatal	Connectivity	Abandoned and vacant properties are related
Train-related deaths	Freight/Traffic Safety	Intersection and rail infrastructure contribute
Train-related injuries	Freight/Traffic Safety	Intersection and rail infrastructure contribute

Appendix

Appendix 1. Results from Stakeholder Engagement during Scoping Step

In the scoping process we analyzed the health implications of sixteen different topics. They include the following:

- secure job employment
- job quality and safety
- quality and accessibility of housing
- access to nutrition
- access to goods and services
- education
- early childhood development
- air pollution
- noise pollution
- access to parks
- preservation of open space
- traffic safety
- violence and crime
- community cohesion
- industry/trains
- water pollution and flooding issues

After visiting Birmingham and speaking with stakeholders and residents, we were able to prioritize these topics based on the importance to the community. We created a matrix topic and gave each scoping topic a score of 1, 2 or 3 (3 being the highest) based on the opinions of the health care stakeholders, neighborhood association members, and neighborhood school children. We then added up the total score of each scoping topic and chose to focus on the topics with highest rating. These results were:

- Access to Health care
- Access to Healthy Food
- Secure and Quality Employment
- Connectivity
- Freight
- Water
- Pollution

To proceed with the HIA, we formulated research questions, data sources, causal pathway diagrams, and literature reviews based on these topics.

As a part of the scoping process we visited the site in Birmingham and conducted two focus groups, one of health professionals and one of 5th-8th graders. Conducting the focus groups and speaking with residents helped narrow down the sixteen topics to five.

Community Engagement in North Birmingham

The community engagement effort for this HIA involved working with the North Birmingham Community Coalition, organizing focus groups, and administering a survey to neighborhood residents. During our visit to North Birmingham on February 7th, we held two focus groups to get a better understanding of the health needs and concerns for the community. One focus group was held at a local elementary school in the Collegeville neighborhood with 12 school-age children ages 9 to 14. The second focus group was held at the RPCGB office with 6 health care experts who are knowledgeable about health care limitations in Birmingham. The focus groups helped to identify and prioritize scoping topics according to community member needs. A third group including 5 neighborhood officers participated in a community tour with students, discussing issues and opportunities across the North Birmingham Community. Following our visit, a survey was sent out to members of the North Birmingham Community Coalition and neighborhood association presidents to further clarify the scoping topics.

Youth Focus Group

The focus groups were two hours each and involved a mapping activity and discussion, followed by an issue prioritization exercise. For the first hour of the focus group, we sat with the students at tables in 2 groups: boys and girls from 5th to 7th grade at one table and girls from 7th and 8th grade at the other table. Major takeaways from these discussions include:

- They recognize that their neighborhood is unhealthy because of the trash on the ground everywhere, the violence and general feeling of being unsafe outside, the abandoned and deteriorating houses, and lack of safe parks or places to play with their friends and family.
- The main park and recreation center in Collegeville is usually deserted for lack of facilities. There is no playground and one basketball goal with a missing net. The neighborhood pool at this facility is exposed to the coal ash dust from a nearby facility in the summer, and the water turns black. The children said the recreation center used to have more programming for kids, like art classes and summer activities, but does not anymore. They want this center to be updated and have afterschool activities and computer2for homework.
- Many of the students walk to school, but go out of their way to avoid streets where they feel especially unsafe. This was captured on Map A1.1.
- Four of the six 7th and 8th grade girls at the table said they had asthma. These girls and their families attributed their asthma to the air pollution in the neighborhood.
- The students explained how the trains run all day and all night making it difficult to sleep. When the trains come through during the night, the small children are woken and cry and keep the rest of the family up.
- The only grocery store in the area is a Piggly Wiggly. The students said the refrigerators in the store do not work and do not have “good food,” so their families drive to Walmart in the suburbs once a week for grocery shopping. “good food” meaning healthy, non-snack food.
- There are also no restaurants other than McDonalds, and the students eat a lot of junk food from the corner stores.

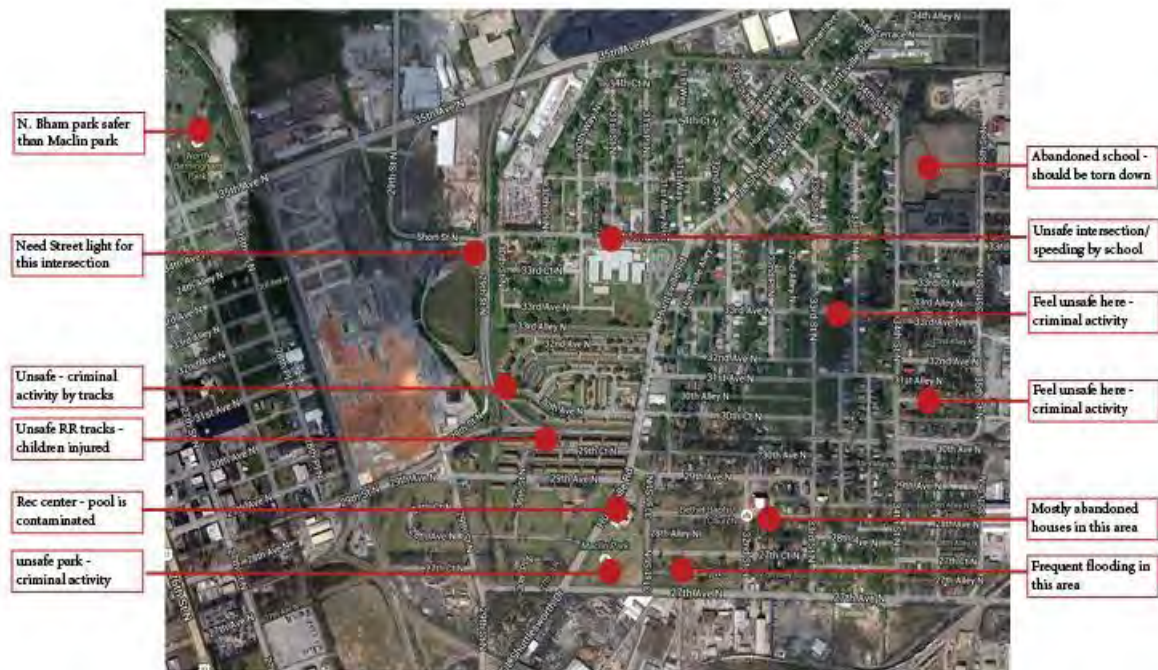
After talking through questions about their neighborhood, students were asked to prioritize the issues that were most important to them.

- Neighborhood Health Concern Prioritization:
- Pollution** (7 votes)
 - Violence** (7 votes)
 - Lack of grocery store** (6 votes)
 - Garbage** (6 votes)
 - Lack of safe parks and contaminated pool** (5 votes)
 - Trains** (5 votes)
 - Asthma and allergies (4 votes)
 - Uneven sidewalks (4 votes)
 - Noise (3 votes)
 - Lack of restaurants and retail stores (2 votes)
 - Bad smells (1 vote)

Map A1.1 Results of Youth Focus Group Mapping Exercise

Collegeville Student Neighborhood Mapping Activity

Focus Group - 5th-8th grade - Hudson School in Collegeville



Health Care Expert Focus Group

The health care expert focus group provided a broader perspective to the health concerns in the community. These professionals do not live in the community, but are familiar with the health care access issues in the neighborhoods, as well as the regulatory framework and health care environment in Birmingham and the State of Alabama. The first hour of the focus group consisted of a discussion of the below questions and was then followed by an issue prioritization exercise.

What are the healthy communities in Birmingham like?

- Things were accessible for community members - corner stores, doctors - even if you don't have a car.
- Kids could walk to school 20 years ago, and felt safe doing so. That's not the case today.
- Employment opportunities are limited in the North Birmingham Community. Employees use to be able to walk or ride the bus to work. This is near impossible today.
- Keep mental health in mind and the influence of crime and safety on the community.
- Transportation is a major area of concern. Specifically, the current bus routes do not create cohesion across neighborhoods.
- Segregation hurt diversity in the neighborhoods. The divisions use to be based on race. Now these divisions are based on income.
- The community needs to be involved, to participate as invested stakeholders.
- Alabama is restrictive with policy making it hard to revitalize neighborhoods.
- Hospitals are a valued and needed resource. The Community needs them to work together to help address their health and employment related concerns.

What causes the community to experience stress or anxiety?

- Residuals of racism and segregation - hard for others to come in
- Distrust/mistrust - promises have fallen through
- No access to health care since Cooper Green Hospital closed
- Transportation - need reliable public transportation (bus)
- Mental health - people have post-traumatic stress disorder from violence in area
- Distrust
- Isolation
- Uncertainty of future
- Feeling unsafe

What would you like to see in a neighborhood park?

- "Need clean space before green space"
- "Need to clean up abandoned buildings and empty lots"
- "Neighborhood has become dumping ground"
- "Connections to asthma and respiratory disease and industry"
- "Presence of parks but they're not well maintained, especially in low-income neighborhoods"

Other concerns

- Churches viewed as environmental hazard because they may not reach out and support the local community as much as residents hope they would. Church resources appear to go into the members and not in the communities in which they are located. Ministers are needed to address this issue.
- Need to think demographically (Most vocal are oldest population, and they refuse to pass the baton)
- Neighborhood is desperate for leadership (Want something to rally around)

Why creating neighborhood plan now?

- EPA
- Gentrification
- “It’s the right thing to do”

Results of Exercises:

We listed seven priorities based on the conversation and had each participant vote by placing three dots by their top priorities:

1. Access to Health care - 3 dots
2. Access to Healthy Foods - 0 dots
3. Safety - 0 dots
4. Community Cohesion - 2 dots
5. Transportation - 2 dots
6. Access/Connectivity - 1 dots
7. Empowerment/Opportunity - 4 dots

From here, they identified the geographic areas most in need for each category. Each participant received 2 dots and was asked to label them with the number that corresponded with the priorities above and place them in the area of most need:

- North Birmingham: 1, 7
- Collegeville: 1, 6, 7
- Harriman Park: 7
- Fairmont: 1, 6

After taking all this feedback into consideration, five topics were selected as the focus of the HIA:

1. Access to quality and secure employment
2. Access to healthy food
3. Access to health care
4. Connectivity
5. Freight

While crime and safety are not included in the list, they are an important underlying factor of all nine topics or come as a result of the nine topics. For example, often times when community cohesion is improved a community will see a decline in crime.

Appendix 2. Scoping Focus Group Guide

Part One: What does a healthy North Birmingham look like to you?

Separate three focus groups into three rooms - 2 student facilitators per room, max 1 hour
Ask individuals broad questions about what makes their community healthy or not?

Questions:

- What do you think a healthy community looks like?
 - Compare this to your neighborhood: how are they different?
- What types of amenities should a healthy neighborhood have?
- How do you typically travel to work, school, or shopping?
 - How long does it take you?
 - Do you feel unsafe on any roads or intersections? Where?
- Do you have easy access to recreational facilities or outdoor activity centers?
 - What do you like to do at parks/rec centers?
 - Is there enough greenspace in your neighborhood?
 - How do you get to parks, rec facilities, or outdoor activity centers?
 - How far would you be willing to go to get to one?
 - Is it easy for all populations (children, elderly, etc) to access greenspace?
 - Do you feel safe there?
- What would you like to see in a neighborhood park?
 - i.e. trails, jungle gym, playing fields, etc.
- Do you or your family walk in the neighborhood for recreation or transportation?
 - Why or why not? What is that experience like?
- Where do you buy your food?
 - How do you get there/how long does it take?
 - Where would you like to buy your food?
 - Do you think there would be community support for a community garden in your neighborhood?
- Where to you go for other retail goods and services?
 - How do you get there/how long does it take?
- Do people in the community experience stress or anxiety?
 - What types of things cause this?
- Do people in the community have any health concerns that could be related to environmental factors?
 - Are there high rates of asthma or other respiratory issues in your neighborhood?

Part two: Community Priorities

Facilitators write keywords from answers on white board or notes taped to wall and give each person five sticky dots to place on their highest priority neighborhood health concerns. They can put all five on one or spread it evenly.

Map exercise to incorporate the highest ranked priorities into their neighborhoods with markers.

Materials needed:

Sticky dots

Flip pad/white board with markers

Black markers

large map of 6 neighborhood community that can be drawn on by community members (preferably 3 separate maps)

Appendix 3. North Birmingham Community Plan Health Impact Assessment Scoping Topic Survey

1. Which North Birmingham neighborhood do you live in?
 - a. _____ Acipco-Finley
 - b. _____ Collegeville
 - c. _____ Fairmont
 - d. _____ Harriman Park
 - e. _____ Hooper City
 - f. _____ North Birmingham
 - g. _____ Other. Please note which neighborhood you represent: _____

2. Please place an '**x**' next to **three** of the following community concerns that are most important to you in the North Birmingham community.
 - a. _____ Access to Healthy Food
 - b. _____ Access to Healthcare
 - c. _____ Community Cohesion (e.g. ownership, gardens)
 - d. _____ Freight (e.g. noise, air)
 - e. _____ Pollution/Contamination/ Waste Piles (e.g. air, water, soil)
 - f. _____ Quality/Secure Employment (e.g. job training)
 - g. _____ Transportation (e.g. walkability, connectivity)
 - h. _____ Vacant Land/Properties (e.g. clean up, buyout program)
 - i. _____ Water (e.g. drainage, sources, contamination)

3. Please provide any additional comments about health and planning in the North Birmingham community:

Appendix 4. Additional Resources for the Conduct of HIAs

Ross C, Orenstein M, Botchwey N. Health Impact Assessment in the United States (textbook) (2014). New York: Springer Publishers. Available through Amazon.com.

National Research Council. Improving Health in the United States: the Role of Health Impact Assessment (2011). Washington, DC: The National Academies Press. Available at: http://www.nap.edu/catalog.php?record_id=13229

Guidance and Best Practices for Stakeholder Participation in Health Impact Assessments - Version 1.0 (2012). Prepared by the Stakeholder Participation Working Group of the 2010 HIA of the Americas Workshop. Available at: <http://www.hiasociety.org/documents/guide-for-stakeholder-participation.pdf>

Equity Metrics for Health Impact Assessment Practice, Version 1 (2014). Prepared by Benkhalti Jandu M, Bourcier E, Choi T, Gould S, Given M, Heller J, Yuen T. Available at: http://www.hiasociety.org/documents/EquityMetrics_FINAL.pdf

Society for Practitioners of HIA (SOPHIA) website. <http://hiasociety.org/>

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