

HEALTH IMPACT ASSESSMENT OF THE PROPOSED ENGLEWOOD LINE TRAIL



SEPTEMBER 2016



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Definitions

Air Pollution

"Air pollution is contamination of the indoor or outdoor environment by any chemical, physical, or biological agent that modifies the natural characteristics of the atmosphere" (World Health Organization, 2016).

Brownfield

A brownfield is land that may have hazardous substances, pollutants, or contaminants present (US EPA, 2015).

Community Safety

Community safety is an individual or population-level perception about the social, environmental, and intimidatory factors that affect quality of life in a neighborhood (Coleraine Borough Council, 2006). Community safety reflects both crime in a neighborhood and injuries caused unintentionally through accidents (County Health Rankings and Roadmaps, 2016).

Economic Development

Economic development is the process and policies that are used to improve the economic and social conditions that affect quality of life in a community (The World Bank, 2016).

Green Space

Green space is land that is partly or completely covered with grass, trees, or other vegetation and set aside for recreational, agricultural, or aesthetic reasons in an otherwise urban environment (US EPA, 2016).

Health Disparities

Health disparities are health differences within populations that are closely linked with social, economic, and/or environmental disadvantages (Office of Disease Prevention and Health Promotion, 2014).

Health Equity

Health equity is a societal condition in which all people are able to attain the highest level of health (Office of Disease Prevention and Health Promotion, 2014).

Health Inequities

Health inequities are avoidable differences in health between groups of people within countries and between countries (World Health Organization, 2008).

Urban Trails

Urban trails are multi-use public paths that create an active transportation corridor through a built environment (American Trails, 2008; Rails-to-Trails Conservancy, 2016).

Workforce Development

Workforce development is a form of economic development that delivers targeted education, training, and employment support services that improves an individual's opportunities for employment (Research Triangle Institute (RTI), n.d.).

Executive Summary

The Englewood Line Trail

The development of a trail in the Englewood community area of Chicago was first proposed as part of a community visioning project in 2009 called the New Englewood Remaking America (ERA) Trail Community Vision Plan. The proposed trail then became a key component of the Green Healthy Neighborhoods (GHN) Plan that was approved by the Chicago Plan Commission in 2014. The GHN Plan is a 10-20-year vision to maximize the use of resources and vacant land in Englewood, West Englewood, Washington Park, and Woodlawn as well as parts of the New City, Fuller Park, and Greater Grand Crossing community areas. Included in the GHN Plan are "efforts to support urban agriculture, active and passive recreation, new industrial activity, housing preservation, and a variety of cultural resources within the GHN planning area."

Community residents hope that the trail will become a focal point for a variety of public and private improvements along its length (Hitchcock Design Group, 2009). Residents believe that development of the trail will provide a much needed recreational amenity and convert an unsightly railroad right-of-way to productive use (Hitchcock Design Group, 2009). These improvements could provide highly visible and highly tangible evidence of the redevelopment, investment, and transformation opportunities underway in the community (Hitchcock Design Group, 2009).

The proposed trail will be elevated, converting a former rail line to a trail that will run parallel to 59th Street and eventually cover approximately 1.7 miles from Hoyne Avenue on the west to Wallace Street on the east. The City of Chicago's Department of Planning and Development (DPD) and Teska Associates began work to design the trail in 2015, and they plan to begin construction on one of the access points in partnership with Greencorps Chicago in 2017.

The Englewood Line Trail will be built in phases over approximately 10 years as financing becomes available. This Health Impact Assessment (HIA) assesses the potential health impacts that would result from short-term decisions that will lay the foundation for how the trail development progresses as well as longer-term decisions related to the full development and maintenance of the trail. In addition to the DPD, other important decision-makers during the project will include local aldermen, the Chicago Plan Commission, City Council, Chicago Park District, Cook County Forest Preserve, Chicago Public Schools, and private funders and financiers.

The proposed trail could have significant impacts in Englewood and West Englewood. Development of the trail represents an opportunity to bring significant investment and improved quality of life for individuals in these communities. The trail project also presents an important opportunity for community members to have input and leadership in decision-making regarding development in Englewood.

Health Impact Assessment

HIA is a community engaged process to assess positive and negative health impacts that could result from a proposed plan, policy, or project. Once the potential health impacts are assessed, recommendations are made to maximize health benefits and mitigate health threats. HIA typically involves six steps:

- **Screening** – determine whether or not there is value in conducting an HIA and whether it would be useful in the decision-making process;
- **Scoping** – engage partners to determine which health impacts to evaluate, priority populations to keep in mind, and methods for analysis;
- **Assessment** – gather existing conditions data and predict future health impacts using qualitative and quantitative methods;

- **Recommendations** – engage partners to prioritize recommendations to mitigate negative impacts and maximize positive impacts;
- **Reporting** – communicate findings to decision-makers, community members, and other audiences;
- **Monitoring and Evaluation** – evaluate the effects of the HIA on the decision, implementation of the project, as well as effects on health determinants and health status.

The HIA of the Englewood Line Trail project is being conducted as a partnership between the Chicago Department of Public Health (CDPH) and the Illinois Public Health Institute (IPHI). The HIA team worked closely with the DPD and their consultant Teska Associates. This is the first HIA conducted by CDPH, and is demonstrative of CDPH’s commitment to Health in All Policies under Healthy Chicago 2.0, a four-year plan to improve health equity.

In order to foster community engagement during the planning and development phases of the Englewood Line Trail project, the HIA team partnered with community members, community based organizations, nonprofit organizations, local schools, Chicago Park District, and other city agencies to form an Advisory Committee to guide the process.

Urban trails, green space, and health equity

Parks and trails can contribute to many health benefits in communities including:

- Creating destinations and venues for physical activity
- Reducing stress and improving mental wellness
- Fostering community interactions and social support networks
- Mitigating urban heat islands
- Preserving and/or promoting new environmental, habitat, and cultural sites.

Unfortunately, a growing body of research indicates that urban communities of color generally have limited access to high-quality parks and recreational space. These same areas often also share a disproportionate burden of negative health outcomes. Improvements to the built environment are a powerful tool for improving health outcomes and advancing health equity.

Screening

Screening is the first step of HIA and is used to determine whether there is value in conducting an HIA and whether it would be useful in the decision-making process. The Englewood Line Trail had several key components that made it appropriate for HIA:

- The potential to impact health equity
- Broad potential health impacts
- The opportunity for partnership building through the engagement of community stakeholders
- Project timing that aligned well with funding and could be completed in a timely way to inform the planning, design, and development of the trail
- Enthusiastic support of the key city agency leading the project (DPD)

Existing conditions in communities surrounding the proposed Englewood Line Trail

The communities surrounding the proposed trail site are undergoing long-term divestment and depopulation. In addition, the communities nearest the trail have been classified as areas of high economic hardship, indicating adverse economic conditions relative to the rest of Chicago. As a result, the communities are experiencing high rates of negative social, economic, and health conditions. For example, the prevalence of asthma, diabetes, high-blood pressure, and self-reported fair/poor health status are all higher in the 1.0-mile buffer around the trail site compared to the city overall. Communities nearest the trail site also have higher rates of emergency department (ED) admissions due to asthma and diabetes-related complications.

(Data Sources: American Communities Survey, 2009-2013; Healthy Chicago Survey, 2014-2015; Hospitalization Discharge Data, Illinois Department of Public Health, 2011)

Scoping

The HIA team and Advisory Committee identified the following goals for the HIA during the scoping process:

- The Department of Planning and Development and their partners utilize the recommendations in this HIA to inform development of the proposed trail site to mitigate the potential negative health impacts while enhancing the potential positive health impacts of trail construction and usage.
- Stakeholders and decision-makers incorporate discussions of health impacts, health equity, community engagement, and local assets in all aspects of trail development and construction.
- Partnerships between community members, community organizations, and government agencies are built and strengthened.

The scoping process yielded eight broad health impact topics. The HIA team determined that one of those topics, urban agriculture, fell outside the feasible scope of this project. The following seven key health impact topics are explored through this HIA:

- Access to green space and parks
- Changes in community safety
 - Community cohesion and ownership
 - Safety from crime
 - Traffic safety
- Economic and workforce development
- Environmental conditions
 - Air quality
 - Contaminated sites and brownfields

Due to resource restrictions, economic development was not assessed in-depth, but was included in the literature review and community discussions.

The HIA team developed research questions that assess the impact of trail construction and usage on these elements. Element-specific research questions are included here in the executive summary and in subsequent chapters along with predicted impacts and recommendations. Because the proposed trail site is in a community with high socioeconomic hardship, the predicted impacts and recommendations were reviewed by community stakeholders to ensure that the concerns of community residents were adequately assessed and issues of health equity were highlighted. The development of the Englewood Line Trail is a long-term project spanning several years. As a result, recommendations were categorized into design, construction, and development phases.

Each assessment section includes:

- Pathway diagrams with summaries of predicted impacts.
- Research questions that guided the HIA.
- Empirical analysis including literature reviews, quantitative data, and a qualitative survey.
- Sociodemographic and community health data about existing conditions.
- Predictions of how trail construction and use will impact health.
- Recommendations for how trail design, construction, and use could be used to positively impact health.

The findings of this HIA are based on a review of the literature for the core components, community health data, environmental testing of the proposed trail sites and surrounding areas, road usage

data, and perceptions of safety survey data from community residents. Recommendations were developed by the HIA team based on the HIA findings, and reviewed by the Advisory Committee, DPD, and relevant city agencies.

Through the scoping and assessment process, the HIA team identified the following research questions to address through the HIA.

Community safety:

- A. What does the existing data show about safety in the area surrounding the proposed trail site?
- B. How might perceptions of safety influence how, when, or if individuals utilize community resources?
- C. What are the community's perceptions of safety for the area surrounding the proposed trail site?
- D. What are the reasons for the community's safety concerns?
- E. What are potential solutions to the safety concerns raised by residents?
- F. What recommendations can be made to support community cohesion?

Access to and use of green space and parks:

- A. How will increased access to green space impact health outcomes?
- B. Are there characteristics or features of green spaces that maximize health?
- C. What green space features can be recommended for the Englewood Line Trail to maximize potential positive health impacts?

Environmental conditions – Traffic-related air pollution:

- A. What are the potential health effects of increased exposure to traffic-related air pollution that the construction of and presence of the trail could produce?
- B. Are there any factors that may mitigate any potential negative health effects of exposure to air pollution?

Environmental conditions – Presence of brownfields:

- A. What are the potential health effects of the brownfields and vacant lots that are adjacent to the proposed trail site?
- B. What are the broad socioeconomic impacts that brownfield remediation could have on the local community?

Economic and workforce development:

- A. What are the potential health impacts of economic and workforce development in the communities near the trail site?

Predicted Impacts and Recommendations

Community Safety

It is anticipated that the impacts of trail use could be both positive and negative and could occur in the following ways:

- If residents feel safe at the trail site and the surrounding areas, they may be more likely to use the trail for outdoor physical activity, which could have indirect impacts on their health that are positive. Feelings of safety may also improve overall mental health among residents of nearby communities.
- If resident's safety concerns are unaddressed, it may prevent use of the trail in certain locations or at certain times leading to decreases in the health benefits associated with outdoor physical activity. In addition, continued negative perceptions of safety among residents may have a detrimental effect on the mental health of both children and adults living or working nearby.

The predicted health impacts could be positive for many residents. Conversely, unaddressed negative perceptions of safety about the trail site and the surrounding areas could have a negative impact on many residents.

Recommendations.

Engagement of community organizations and community residents

- 1) **Community safety considerations.** DPD should take community safety considerations into account at all phases of trail development. (*Design, Construction, and Long-term development phases*) Community safety should be considered in all aspects of trail design, development, management, and maintenance.
- 2) **Partnering with communities around safety and security.** Partner with communities to design and implement all security measures. (*Design, Construction, and Long-term development phases*) Community organizations should be included as consulting partners when designing and developing all security measures, including:
 - **Community policing** and police presence near the trail
 - **Initiatives that build positive relationships between police and community residents** such as the Englewood Police Youth Baseball League and Chicago Alternative Policing Strategy (CAPS) cookouts
 - **Events and activities that encourage positive use and perception of the trail and adjacent public spaces** such as:
 - Tours led in conjunction with trusted community leaders
 - So Fresh Saturdays
 - Local school involvement in trail development (public art, use of trail, etc.)
 - Farm stand and events at Growing Home and community gardens
 - Engagement of faith communities, block clubs, and neighborhood watch
 - Peace and anti-violence activities

On the trail:

- 3) **Placemaking and community ownership.** Ensure that community organizations and residents are key partners in designing the facilities and the look and feel of the trail. (*Design, Construction, and Long-term development phases*) Community organizations participating in this HIA emphasized the importance of arts and cultural features in addition to parks and recreation features.
- 4) **Trail maintenance.** Development plans should include comprehensive strategies for long-term trail maintenance including upkeep of facilities and waste management. (*Design and*

Long-term development phases) Community partners should be involved in the development of the maintenance plan. Community-based strategies include Greater Englewood Unity Day Clean and Green or litter pickup as a part of regular physical activities, such as scheduled walks organized by community organizations.

- 5) **Visibility for trail users. Use multiple approaches to establish visibility for trail users. (Design, Construction, and Long-term development phases)** Suggestions for the design of the trail include the use of lighting, having a low-density of vegetation in areas that are intended for active use, creating clear lines of sight throughout, and controlling access to vacant buildings.
- 6) **Eyes on the trail. Increase foot traffic near and on the trail to create formal and informal surveillance for safety and to reduce feelings of isolation. (Long-term development phase after public access to the trail begins)** Engage homeowners and residents in identifying approaches to increase foot traffic on and near the trail. This could be accomplished by supporting scheduled activities along the trail that increase use of the trail and adjacent public spaces and development of destinations such as retail stores, parks, or urban farms beside the trail; and the presence of security and/or maintenance personnel. (Also see recommendations on safety corridors below.)
- 7) **Access to emergency services. Make emergency services easily accessible for trail users. (Long-term development phase after public access to the trail begins)** Emergency call points or other methods for accessing emergency services should be easily visible, clearly marked, and available at regular intervals along the trail.
- 8) **Pedestrian safety and maximizing active use of the trail. Facilitate feelings of pedestrian safety on the trail and incorporate options for different types of physical activity. (Construction and Long-term development phases)** Depending on the design of the trail, this could be accomplished by clearly marking bike and pedestrian lanes.

Getting to and from the trail:

- 9) **Improved traffic safety. Target traffic safety improvements in areas that are current or recent hotspots of traffic concerns. (Long-term development phase)** Participants in the community survey conducted for this HIA suggested the following solutions for pedestrian safety:
 - longer times for pedestrian crossing
 - lower traffic speeds
 - traffic calming mechanisms, including more stop signs, and
 - removal of on-street parking.
- 10) **Safety Corridors. Create safety corridors that include both physical design elements and community-based solutions for supporting a safe environment near the main access points to the trail. (Construction and Long-term development phase)** Without the presence of safety corridors, access and use of the trail could be hindered. Safety corridors would include design features as well as community-based partnerships, as suggested by community survey participants and supported by previous research:
 - **Design features:** Ample lighting, retail or recreational destinations, absence of vacant buildings, pedestrian-oriented infrastructure, and traffic calming measures as detailed above; and
 - **Community-based partnerships** for safety and security such as the Chicago Public School's Safe Passage program.

Access to green space

It is anticipated that the impacts of trail use will be positive and will occur in the following ways:

- If trail usage provides increased access to nature for community residents, then it may improve mental health status.
- If the trail design incorporates diverse elements and amenities such as benches, picnic tables, restrooms, disabled access, and playgrounds it may increase residents' usage of the trail leading to overall increases in physical activity and its associated health benefits.

The predicted health impacts of improved mental health and increased physical activity would likely have a strong positive impact on many residents. In addition, the use of inclusive trail design that incorporates a diversity of park elements would likely have a positive impact.

Recommendations.

- 11) **Addressing gaps in park facilities and programs. Address the gaps in current park facilities and programs particularly for young children under 10, youth, and older adults. (Long-term development phase)** Potential opportunities include:
 - Recreation facilities with extended hours in the early morning (6am-9am) and with availability during winter months; and
 - Park programming such as aerobics classes, senior citizen clubs, walking clubs, weight training, and Zumba classes that are available throughout the day including early morning (6am-9am).
- 12) **Diverse park amenities to maximize trail usage. Maximize physical activities among a variety of age groups. (Long-term development phase)** It is recommended that diverse design elements such as seating, drinking fountains, bathrooms, bike racks, and picnic tables be incorporated into trail development plans to maximize physical activities along the trail.
- 13) **Accessibility. Use inclusive park features in the planning, design, and development of the trail to ensure accessibility for all residents, including those living with disabilities. (Design, Construction, and Long-term development phases of the trail)**

Traffic-related air pollution

Based on the strength of previous research and the heavy automobile and truck traffic expected on nearby roadways, it is anticipated that the health impacts of traffic-related air pollution could be negative. However, evidence suggests that the many benefits of physical activity substantially outweigh the potential negative impacts of exposure to air pollution. Utilizing vegetation and tree cover along with mixed-use and connected/walkable urban design strategies may further decrease local air pollution near the trail site.

- If residents utilize the trail, particularly for vigorous physical exercise or on highly polluted days, it may increase their risks for complications with respiratory illness, impaired cardiovascular function, cancer, and premature mortality because of the trail's proximity to sources of air pollution, however, those risks are offset by the benefits of physical activity.

The populations that are more likely to experience the negative health impacts of exposure to air pollution while using the trail to exercise include adults and children with pre-existing respiratory illnesses, children and adolescents, older adults, pregnant women and their unborn fetuses, individuals with diabetes, and individuals with heart or lung disease.

Recommendations.

- 1) **Air Quality Index**. Utilize existing resources to alert residents about days when air quality is unhealthy for sensitive groups. (*Long-term development phase before public access to the trail begins*) Partners for Clean Air Illinois creates press releases about metropolitan Chicago air pollution action days when air quality is unhealthy for sensitive groups <http://illinois.enviroflash.info/signup.cfm>. A method for ensuring that this information is communicated effectively to community residents is highly recommended. For example, air pollution action alerts could be communicated through the Englewood Portal and other existing communication methods.
- 2) **Particulate Matter**. Evaluate potential risks related to exposure to air pollution. (*Prior to Construction and Long-term development phases*) It is recommended that a risk assessment be conducted by an environmental consultant to evaluate any potential risks related to air pollution that may be involved in pedestrian use of the trail.
- 3) **Buffer zones for air quality**. Create buffer zones that limit foot traffic near intermodal yards to decrease exposure to air pollution. (*Design, Construction, and Long-term development phases*) Buffer zones could take the form of a bird sanctuary or other green space that fits into the overall design aesthetic for the trail corridor. If trail access points are located near intermodal facilities, analysis of truck volumes and related diesel emissions and their impact on trail users should be considered.

Brownfield remediation

The presence of brownfields in the areas adjacent to the proposed trail site is anticipated to be both positive and negative depending on the following factors:

- If brownfields and abandoned buildings adjacent to the trail site are not remediated, they may increase the risk of toxic contamination, premature mortality, chronic disease, and physical injury in those who utilize the trail and those who live or work in the surrounding communities.
- If brownfields, vacant lots, and abandoned buildings are not redeveloped or controlled near the trail, then they may increase socioeconomic disparities in the surrounding communities.
- Remediation of brownfields and vacant properties may improve the socioeconomic conditions of the nearby communities, improve the odds of successful redevelopment, and help reduce negative associations with the surrounding neighborhoods. Remediation would reduce the risks of potential toxic exposures in residents utilizing the trail and surrounding areas.

The continued presence of brownfields and abandoned buildings in the study area could have a negative impact on many residents, while the remediation or reuse of brownfields could have positive effects on many residents.

Recommendations.

- 1) **Environmental testing**. The Chicago Department of Fleet and Facility Management (2FM) should conduct environmental testing on the soil in all publicly owned and/or managed properties near the trail where increased public use is expected. (*Prior to Construction and Long-term development phases*) All public spaces adjacent to the trail should undergo thorough environmental testing, particularly those that will be accessed by children.
- 2) **Remediation or mitigation of potential health threats**. It is recommended that the Department of Fleet and Facility Management remediate or mitigate residents' exposure to identified environmental contaminants within publicly owned or managed lands on or near the trail site.

(Construction and Long-term development phases before pedestrian access to the trail begins) A wide range of remediation and mitigation approaches that are cost effective and meet the needs of the community could be used.

- 3) **Raising resources for remediation or mitigation of brownfield sites.** The Department of Fleet and Facility Management, other city agencies, and community-based organizations could partner to identify and apply for funding to remediate or mitigate brownfields along the Englewood Line Trail corridor so that the adjacent space can be developed for a range of uses. **(Long-term development phase)**

Economic and workforce development

The health impacts of economic development are expected to be positive and will occur in the following way:

- If economic development of the trail site and adjacent properties occurs, then the health outcomes of residents in the surrounding communities may improve through improved access to healthy foods, decreased poverty, and decreased unemployment. Economic development will be most effective in improving community health if it leverages the local workforce, local businesses, and community-based organizations.

Improved economic development of the trail site and adjacent properties could have positive impacts on many residents. In addition, Improved access to quality, affordable fresh fruits and vegetables through economic development and urban agriculture could have a positive impact on many residents.

Recommendations.

- 1) **Economic development opportunities.** Leverage opportunities with development of the trail and adjacent spaces to support workforce development and business development for residents living in the community areas surrounding the trail. **(Design, Construction and Long-term development phases)** To maximize the benefits of workforce development, training, and entrepreneurship opportunities should be identified during all phases of the project.
- 2) **Improved access to healthy foods.** Create partnerships to increase the number of agriculture and garden sites along the Englewood Line Trail corridor. **(Long-term development phase)** Development of community gardens and urban agriculture sites near the trail could improve access to quality, affordable fresh fruits and vegetables while increasing property values in nearby communities.

Overarching recommendations

- 1) **Community involvement in decision-making.** Continue active engagement of community organizations and residents in decisions about planning, design, development, programming, and maintenance of the trail. **(Design, Construction, and Long-term development phases)** In order to maximize health benefits and promote health equity, community organizations and residents should continue to be engaged in all aspects of decision making during planning, development and maintenance of the trail.
- 2) **Transparency and Community Agreements.** Strive to ensure transparency about all decisions related to the trail and development of adjacent properties along the corridor. **(Prior to and during Construction, and Long-term development phases)** Existing formal community agreements should continue to be honored, including the Neighborhood Investment Fund Agreement (October 2013) between Norfolk Southern Railway Company and the City of

Chicago. The Neighborhood Investment Fund Agreement outlines how the City of Chicago acquired the former Englewood Connecting Line property in exchange for land that would allow Norfolk Southern Railway Co. to expand an intermodal yard. The agreement also requires that Norfolk Southern Railway Co. engage in certain environmental and economic development initiatives. The official record of the agreement can be found at <https://chicago.legistar.com/LegislationDetail.aspx?ID=1903777&GUID=4A63B955-B854-4EB0-A629-4766242B2B9C&FullText=1>.

- 3) **Evaluation.** The HIA team should develop an assessment, monitoring, and evaluation program in collaboration with community partners. (*Long-term development phase*) Continued assessment, monitoring, and evaluation will allow the city and community stakeholders to track the health impacts of the trail and make improvements when needed.

Introduction

The development of a trail in the Englewood community area of Chicago was first proposed as part of a community visioning project in 2009 called the New Englewood Remaking America (ERA) Trail Community Vision Plan. The proposed trail then became a key component of the Green Healthy Neighborhoods (GHN) Plan that was approved by the Chicago Plan Commission in 2014. The GHN Plan is a 10-20-year vision to maximize the use of resources and vacant land in Englewood, West Englewood, Washington Park, and Woodlawn as well as parts of the New City, Fuller Park, and Greater Grand Crossing community areas. Included in the GHN Plan are “efforts to support urban agriculture, active and passive recreation, new industrial activity, housing preservation, and a variety of cultural resources within the GHN planning area.”

Community residents hope that the trail will become a focal point for a variety of public and private improvements along its length (Hitchcock Design Group, 2009). Residents believe that development of the trail will provide a much needed recreational amenity and convert an unsightly railroad right-of-way to productive use (Hitchcock Design Group, 2009). These improvements could provide highly visible and highly tangible evidence of the redevelopment, investment, and transformation opportunities underway in the community (Hitchcock Design Group, 2009).

The proposed Englewood Line Trail will be developed atop a disused elevated railroad line that runs parallel to 59th Street. The Chicago Plan Commission, which reviews proposed sales and acquisitions of public lands, approved the transfer of the former Englewood Connecting Line from Norfolk Southern Railway Company to the City of Chicago in 2014. The land transfer was part of a larger agreement that allows Norfolk Southern Railway Company to expand an intermodal yard. The trail will eventually cover about 1.7 miles, from Hoyne Avenue on the west to Wallace Street on the east. The trail site runs through two community areas, Englewood and West Englewood, as well as three aldermanic wards: Alderman Toni Foulkes (16), Alderman Raymond Lopez (15), and Alderman Willie Cochran (20).

The City of Chicago's Department of Planning and Development (DPD) and Teska Associates began work to design the trail in 2015, and they plan to begin construction on one of the access points in partnership with Greencorps Chicago in 2017.

The Englewood Line Trail will be built in phases over approximately 10 years as financing is available. This Health Impact Assessment (HIA) assesses the potential health impacts that would result from short-term decisions that will lay the foundation for how the trail development progresses as well as longer-term decisions related to the full development and maintenance of the trail. This HIA is considering decisions related to the elevated trail on the disused rail line as well as adjacent grade-level properties. In addition to DPD, as the project moves forward, other important decision-makers will include: local aldermen, the Chicago Plan Commission, City Council, Chicago Park District, Cook County Forest Preserve, Chicago Public Schools, and private funders and financiers. The area near the proposed trail site was originally developed as a mix of industrial properties, residential properties, and commercial uses (Table 1). Most of the commercial and industrial holdings have left the area and at the same time there has been a significant decline in residential properties and population. As a result, there is a total of 54 acres of vacant land or buildings along the corridor.¹ The percentage of vacant housing in the communities nearest the trail site is substantially higher than the rest of

¹ 2016. Englewood Line Nature Trail: Issues and Opportunities Report and Concept Plan. Prepared for the City of Chicago by Teska Associates, Inc., Brook Architecture, Grow Greater Englewood and Prism Engineering
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Chicago.¹ More recently, agricultural uses have been expanded including the development of the Wood Street Farm and the Honore Street Farm.¹

Table 1. Land use along the Englewood Line Trail corridor.

Land use type	Acreage
Vacant	54
Rail Line	20
Residential	19
Commercial	9
Industrial/Manufacturing	9
Parks	5
Institutional/Civic	3
Farms	2
Mixed Use	1
Total	122

Significance of the Englewood Line Trail Project

The proposed trail and uses for the adjacent land has the potential to be very significant in Englewood and West Englewood. The two community areas have lost about two-thirds of their population since a peak in 1960. Forty-two percent of Englewood's households live below the federal poverty level and over one out of five individuals are unemployed (American Communities Survey, 2010-2014). Investment in this trail represents an opportunity to bring significant investment and improved quality of life for the people in the community. In addition, the park on the embankment is only part of the project; it also includes development of many parcels of land adjacent to the trail, as well as mitigation of environmentally hazardous land along the greenway. This is an important opportunity for community members to have voice and leadership in decision-making regarding development in Englewood.

What Is Health Impact Assessment?

HIA is a community-engaged process to assess positive and negative health impacts that could result from a proposed plan, policy, or project and to make recommendations to maximize health benefits and mitigate health harms. HIA typically involves six steps:

1. Screening – determine whether or not there is value in conducting an HIA and whether it would be useful in the decision-making process;
2. Scoping – engage partners to determine which health impacts to evaluate, priority populations to keep in mind, and methods for analysis;
3. Assessment – gather existing conditions data and predict future health impacts using qualitative and quantitative methods;
4. Recommendations – engage partners to prioritize recommendations to mitigate negative impacts and maximize positive impacts;
5. Reporting – communicate findings to decision-makers, community members, and other audiences;
6. Monitoring – evaluate the effects of the HIA on the decision and implementation of the project, as well as effects on health determinants and health status.

The Englewood Line Trail HIA Team

This Health Impact Assessment is being conducted as a partnership between the Chicago Department of Public Health (CDPH) and the Illinois Public Health Institute (IPHI). Throughout the HIA process, CDPH and IPHI worked closely with the Chicago Department of Planning and Development (DPD) and its consultant, Teska Associates. CDPH and IPHI convened an HIA Advisory Committee that was involved in all stages of the HIA.

Advisory Committee for the HIA

The Centers for Disease Control and Prevention (CDC) identifies community engagement as a critical component of initiatives seeking to improve health equity (Centers for Disease Control and Prevention, 2015). Involving community members in all aspects of development projects can foster connectedness and trust, build the capacity of individuals to positively impact their community, enhance the effectiveness of proposed strategies, and increase the sustainability of efforts (Centers for Disease Control and Prevention, 2015).

In order to foster community engagement during the planning and development phases of the Englewood Line Trail project community members, community based organizations, nonprofit organizations, local schools, the Chicago Park District, and city agencies joined together in partnership to form the Advisory Committee.

Figure 1. Advisory Committee Members
<p>Active Transportation Alliance</p> <p>Active Transportation Alliance is a coalition of people who are working to make biking, walking, and transit safe and easy options for getting around Chicagoland.</p>
<p>Adler University, Institute on Social Exclusion</p>
<p>Arab American Action Network</p> <p>A nonprofit, grassroots, community-based organization working to improve the social, economic, and political conditions of Arab immigrants in the Chicago area.</p>
<p>Chicago Department of Family and Support Services</p>
<p>Chicago Department of Planning and Development</p>
<p>Chicago Department of Transportation</p>
<p>Chicago Park District</p>
<p>Chicago Police Department</p>
<p>Chicago Public Schools</p>
<p>CLOCC (Consortium to Lower Obesity in Chicago Children)</p> <p>CLOCC is a nationally recognized leader for community-based obesity prevention. We support, coordinate, and unite partners to promote healthy and active lifestyles for children and families.</p>
<p>EverThrive</p> <p>EverThrive Illinois, formerly the Illinois Maternal and Child Health Coalition, works to improve the health of women, children, and families over the lifespan through community engagement, partnerships, policy analysis, education, and advocacy.</p>
<p>Grow Greater Englewood</p> <p>Grow Greater Englewood aims to cultivate a healthy and resilient food system and economy in Englewood and West Englewood.</p>
<p>Growing Home</p>

Growing Home is an urban farm adjacent to the proposed Englewood Line Trail that provides healthy food choices and farm-based job training for people with employment barriers.

Lindblom Math & Science Academy

Lindblom Math & Science Academy High School is a public 4-year selective enrollment high school located in West Englewood.

LISC Chicago (Local Initiatives Support Corporation)

LISC Chicago connects neighborhoods, including Englewood, to the resources they need to become stronger and healthier

Openlands

Openlands protects the natural and open spaces of northeastern Illinois and the surrounding region to ensure cleaner air and water, protect natural habitats and wildlife and help balance and enrich lives. Openlands believes that protected open space is critical for the quality of life of our region.

R.A.G.E. (Resident Association of Greater Englewood)

The mission of the Resident Association of Greater Englewood is to provide a voice to the residents of Englewood and to devise concrete strategies that will ensure the betterment of the Englewood community.

Slow Roll Chicago

Slow Roll Chicago is a chapter of a global movement to connect a diverse group of people to use bicycles as a vehicle for social justice and social change. Slow Roll aims to improve the condition of communities by organizing community bicycle rides and other cycling-related programs throughout Chicago.

Teamwork Englewood

Teamwork Englewood is community based organization with a goal to unite the many organizations serving Englewood residents and work toward the common goal of building a stronger community. Teamwork focuses on safety, services to special needs populations, and promotion of healthy lifestyles for all residents.

Urban Trails, Green Space, and Health Equity

Parks and trails can contribute to many health benefits in communities (Figure 2). Access to green space, safe communities, economic opportunities, access to healthy foods, and a safe environment all play a pivotal role in community health (Figure 3). Unfortunately, a growing body of research indicates that urban communities of color generally have limited access to high-quality parks and recreational space (Pack, et al., 2012). These same areas often also share a disproportionate burden of negative health outcomes.

Figure 2. The community health benefits of parks and trails.

Parks and trails can contribute many health benefits in communities including:

- Creating destinations and venues for physical activity
- Reducing stress and improving mental wellness
- Fostering community interaction and social support networks
- Mitigating urban heat islands
- Preserving and/or promoting new habitat, environmental, and cultural sites

Adapted from Parks, Trails, and Health Workbook. Centers for Disease Control and Prevention and National Park Service. 2015. DSC/900/130135A

While health disparities can be addressed in multiple ways and at multiple levels, community improvements that include changes to the physical, social, or economic environment are effective strategies (Centers for Disease Control and Prevention - Division of Community Health, 2013). To maximize health impact and advance health equity while making improvement to the built environment the following factors should be considered: resource limitation, community awareness and involvement, safety, social and other supports, inclusive decision-making and design, and displacement (Centers for Disease Control and Prevention - Division of Community Health, 2013). The HIA and Stakeholder Advisory Team worked together to identify six broad categories of potential health impacts related to trail development in Englewood (Figure 3).

Figure 3. Categories of potential health impacts related to trail development in Englewood, Chicago.

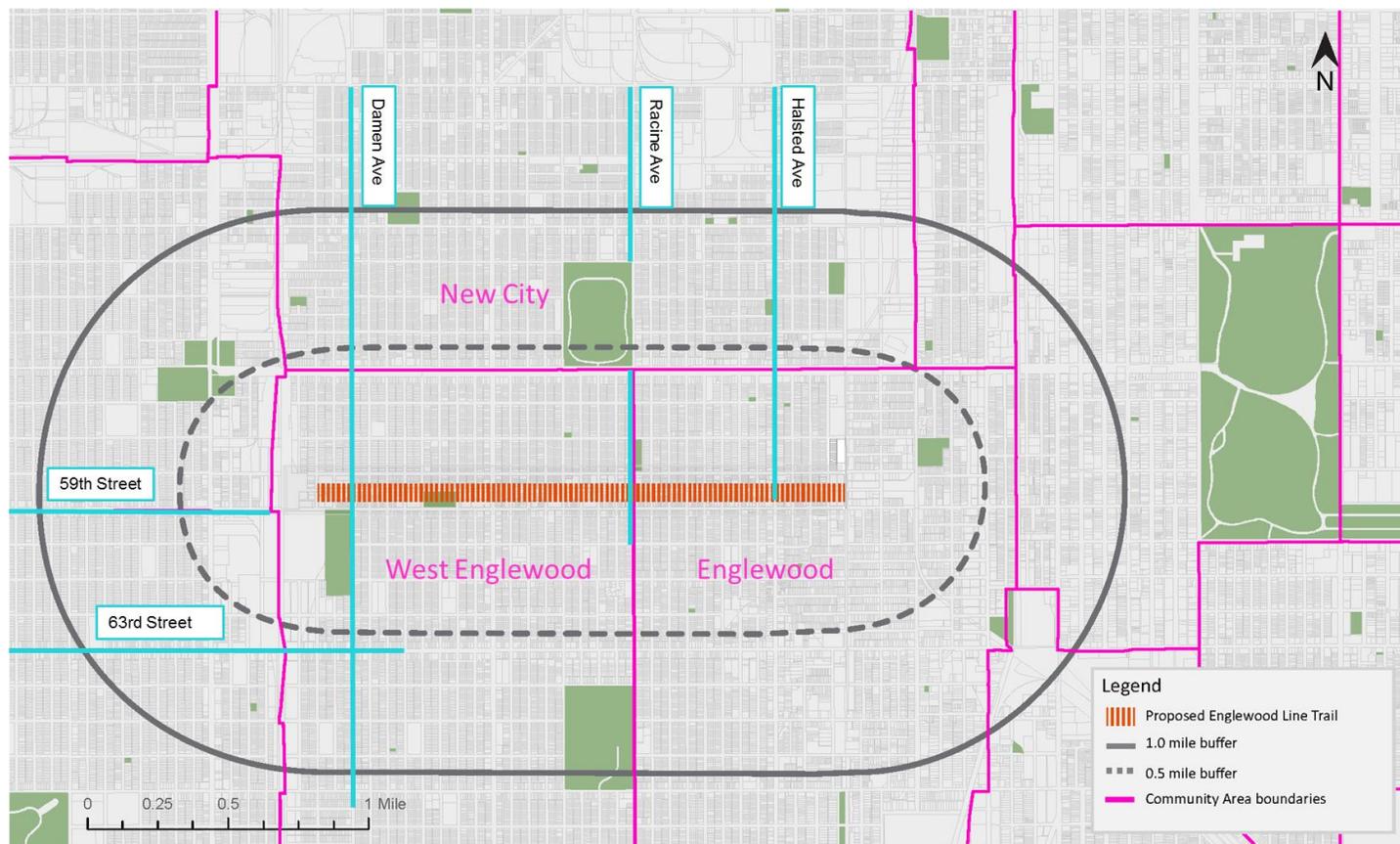


* *As the design plans for the Englewood Line Trail developed, it became apparent that plans for urban agriculture were not feasible. Therefore, the HIA does not focus on urban agriculture. Due to resource restrictions, economic development was not assessed in-depth, but was included in the literature review and community discussions.*

Overview of Existing Conditions

For the purposes of this HIA, we chose to look at conditions within 0.5 mile and 1.0 mile of the proposed Englewood Line Trail. Quarter-mile, half-mile, and one-mile buffers are commonly used in pedestrian, transit, and park planning. A half mile is the average distance that someone can walk in 10 minutes.

Figure 4. Map of communities surrounding the proposed Englewood Line Trail.



Community demographic characteristics

Within the 1.0-mile radius of the proposed Englewood Line Trail shown in Figure 4, there are approximately 76,894 residents as of 2013. The 1.0-mile buffer zone includes the Englewood, West Englewood, Chicago Lawn, Gage Park, New City, and Fuller Park community areas.

There is a high proportion of children and youth in the study area with nearly a third of the population being under 18 in the communities surrounding the trail compared to 23% in the city overall.² The southwest side of Chicago is experiencing a substantial shift in race and ethnic demographics, with significant growth in the Hispanic/Latino population over the past 10-20 years.³ This is particularly reflected in some of the communities within the 1.0-mile buffer area. Overall, within 1.0 mile of the trail, 21% of the population identifies as Hispanic/Latino. In the Englewood and West Englewood community areas that make up the 0.5-mile geography, the population is 96% African

² American Communities Survey, 2009-2013

³ U.S. Census Bureau, 2000-2010

American/black and only 2% Hispanic/Latino. Additional sociodemographic characteristics of the study area are shown in Figure 5.

Figure 5. Sociodemographic Characteristics of the Study Area (2009-2013).

	0.5 mile buffer	1.0 mile buffer	Chicago
Total Population	24,432	76,894	2,706,101
Median Age (years)	31	30	32
Percent under 5 years	7.6%	8.2%	6.8%
Percent under 18 years	30.0%	32.0%	23.0%
Percent 65 years and older	11.2%	9.3%	10.4%
Percent Female	53.9%	52.8%	51.2%
Percent Hispanic	2.3%	21.1%	28.9%
Percent NH White	0.4%	1.8%	31.7%
Percent NH Black	96.1%	75.8%	32.4%
Percent NH Asian/PI	0.1%	0.3%	5.5%
Percent Limited English Proficiency	1.4%	11.0%	15.9%
Percent without a HS diploma	25.0%	32.2%	19.5%
Percent Unemployment	35.9%	33.6%	13.6%
Percent Owner-Occupied Housing	40.2%	39.1%	45.3%
Percent Renter-Occupied Housing	59.8%	60.9%	54.7%
Economic Hardship	High	High	NA

Sources: Healthy Chicago 2.0, 2016; U.S. Census Bureau American Community Survey, 2009-2013, 2010-2014.

Economic Hardship: The area within the 0.5-mile and 1.0-mile buffers surrounding the trail is classified as *high hardship*, indicating adverse economic conditions, relative to the rest of Chicago. Economic Hardship is a composite measure of economic disparity between neighborhoods that combines six sociodemographic indicators:

1. Crowded Housing: percent of occupied housing units within the neighborhood or census tract with more than one person per room;
2. Poverty: percent of households within the neighborhood or census tract living below the federal poverty level;
3. Unemployment Rate: percent of persons within the neighborhood or census tract in the labor force over the age of 16 years that are unemployed;
4. Educational Attainment: percent of persons within the neighborhood or census tract over the age of 25 years without a high school diploma;
5. Dependency: percent of the population within the neighborhood or census tract under 18 or over 64 years of age;
6. Income: average per capita income of the neighborhood or census tract.

Source: Chicago Department of Public Health, 2006-2010.

Health Characteristics of the Study Area

Communities within the 1.0-mile buffer zone surrounding the trail have higher rates of negative health outcomes compared to the rest of the city. Asthma and diabetes prevalence are higher in the study area compared to the city overall (Figure 6). Residents in the study area also have a high rate of hospitalization (per 10,000) due to asthma and diabetes-related complications (Figure 6). The percentage of individuals with high-blood pressure and fair/poor health status is high in the study area compared to the rest of Chicago (Figure 6).

Figure 6. Health status of study area.

	0.5-mile buffer	1.0-mile buffer ¹	Chicago
Total Population	24,432	76,894	2,706,101
Adult Health Outcomes (%)²			
Current asthma prevalence	NA	13.2	8.6
Diabetes prevalence	NA	10.8	9.2
High blood pressure	NA	36.4	26.9
Fair/poor health status	NA	20.8	18.3
Hospitalizations (per 10,000)³			
Due to asthma (age <5 years)	NA	52.2	35.7
Due to asthma (age 65+)	NA	70.8	46.7
Due to diabetes-related complications	NA	30.5	21.1

¹ For adult health outcomes, 1.0-mile buffer includes the community areas of Englewood, West Englewood, and New City. For ED Visits and Hospitalizations, 1.0-mile buffer includes Zip Codes 60609, 60636, 60621. Data not available for 0.5-mile buffer area

² Source: Healthy Chicago Survey, 2014-2015. Adult refers to age 18+

³ Source: Hospitalization Discharge Data, Illinois Department of Public Health, 2011

Screening

Screening is the first step of HIA, to determine whether or not there is value in conducting an HIA and whether it would be useful in the decision-making process. Screening is structured around a few principal questions:

- Does the proposal have the potential to have significant health impacts that are not likely to be considered without the HIA?
- Is the proposal likely to impact health inequities?
- Is it feasible to conduct a relevant and timely assessment of health impacts?
- Is the decision-making process receptive to findings and recommendations from an HIA?
- Does the HIA have the potential to lead to institutional and/or systemic changes that promote better health?

The screening process was conducted by IPHI, CDPH, and DPD in consultation with key community based organizations including Growing Home, R.A.G.E., and Teamwork Englewood. The Englewood Line Trail had several key factors that made it appropriate for HIA:

1. Potential to positively impact health equity:

As indicated by the name of the 2014 "Green Healthy Neighborhoods Plan," health was part of the Englewood Line Trail discussion from its inception. However, the plan did not address some key health issues such as community safety, health aspects of economic development, community cohesion, and mental health. The communities surrounding the trail experience high economic hardship and have disproportionately high rates of crime, injury, and poor physical and mental health outcomes. The Englewood Line Trail has the potential to address some of the disparities.

2. Broad potential health impacts:

The Englewood Line Trail has the potential to provide the community with increased green space, recreational opportunities and opportunities to grow healthy food, while also addressing issues of community safety, social cohesion, and environmental exposures. The trail has the potential to impact a broad range of health outcomes, several of which focus on the social determinants of health.

3. Partnership building:

This project has the potential to engage community stakeholders to identify priority health issues and develop recommendations. The project also could facilitate partnerships between city stakeholders in order to build knowledge about the health impacts of built environment projects and HIA.

4. Project timing:

Timing of the project aligned well with funding received from the Health Impact Project to conduct an HIA. The HIA could be completed in a timely way to inform the planning, design, and development of the trail.

5. Enthusiastic support of the key city agency leading the project (DPD):

DPD indicated that it lacked expertise to do in-depth analysis of health impacts during planning and design and was interested in leveraging the expertise of CDPH and IPHI. Additionally, DPD and its consultant are interested in the findings of the HIA and the engagement of stakeholders in the planning process through the HIA.

Scoping

During the scoping phase of the HIA, the HIA team engaged with stakeholders on the HIA Advisory Committee and held a community meeting to hear from additional community residents in order to identify key issues that should be considered in the HIA, affected populations, and methods to guide the assessment.

The HIA team and Advisory Committee identified the following goals for the HIA during the scoping process:

- The Department of Planning and Development and their partners utilize the recommendations in this HIA to inform development of the proposed trail site to mitigate the potential negative health impacts while enhancing the potential positive health impacts of trail construction and usage.
- Stakeholders and decision-makers incorporate discussions of health impacts, health equity, community engagement, and local assets in all aspects of trail development and construction.
- Partnerships between community members, community organizations and government agencies are built and strengthened.

At the first scoping meeting, the HIA team and Advisory Committee sketched out pathway diagrams to hypothesize the connections between key issues identified by community members and potential health outcomes. Final pathway diagrams with summaries of predicted impacts are included in subsequent chapters of this report.

The scoping process yielded eight broad health impact topics. The HIA team determined that one of those topics (urban agriculture) fell outside the feasible scope of this project.

The following seven key health impact topics are explored through this HIA:

- Access to and use of green space and parks
- Community safety:
 - Safety from crime
 - Traffic safety
 - Community cohesion
- Economic and workforce development
- Environmental conditions:
 - Air quality
 - Contaminated sites / brownfields

Research questions that assess the impact of trail construction and usage on these elements were developed. Element-specific research questions are included in subsequent chapters along with predicted impacts and recommendations. Because the proposed trail site is in a community with high socioeconomic hardship, the predicted impacts and recommendations were reviewed by community stakeholders to ensure that the concerns of community residents were adequately assessed and issues of health equity were highlighted. The development of the Englewood Line Trail is

a long-term project spanning several years. As a result, recommendations were categorized into design, construction, and long-term development phases.

The findings of this HIA are based on a review of the literature for the core components, community health data, environmental testing of the proposed trail sites and surrounding areas, road usage data, and perceptions of safety survey data from community residents. Ultimately the scope focused on assessing the impact of trail construction and usage on access to green space, traffic-related air pollution, brownfield remediation, and community perceptions of safety. As the design plans for the Englewood Line Trail developed, it became apparent that plans for urban agriculture were not feasible. Therefore, the HIA does not focus on urban agriculture. Due to resource restrictions, economic development was not assessed in-depth, but was included in the literature review and community discussions.

Research Questions and Assessment Methods

Through the scoping and assessment process, the HIA team identified the following research questions to address through the HIA.

Community safety:

- A. What does the existing data show about safety in the area surrounding the proposed trail site?
- B. How might perceptions of safety influence how, when, or if individuals utilize community resources?
- C. What are the community's perceptions of safety for the area surrounding the proposed trail site?
- D. What are the reasons for the community's safety concerns?
- E. What are potential solutions to the safety concerns raised by residents?
- F. What recommendations can be made to support community cohesion?

Access to and use of green space and parks:

- A. How will increased access to green space impact health outcomes?
- B. Are there characteristics or features of green spaces that maximize health?
- C. What green space features can be recommended for the Englewood Line Trail to maximize potential positive health impacts?

Environmental conditions – Traffic-related air pollution:

- A. What are the potential health effects of increased exposure to traffic-related air pollution that could result from trail usage?
- B. Are there any factors that may mitigate any potential negative health effects of exposure to air pollution?

Environmental conditions – Presence of brownfields:

- A. What are the potential health effects of the brownfields and vacant lots that are adjacent to the proposed trail site?
- B. What are the broad socioeconomic impacts that brownfield remediation could have on the local community?

Economic and workforce development:

- A. What are the potential health impacts of economic and workforce development in the communities near the trail site?

Methods

The HIA team applied a mixed-methods assessment approach to answer the HIA research questions.

Literature Review. Scientific evidence on the relationship between trails, parks, green space, and health was gathered from multiple online databases. In total, 168 studies were reviewed.

Community health and sociodemographic data. Adult health outcomes were obtained from the Healthy Chicago Survey (HCS), an annual telephone survey administered by the Chicago Department of Public Health. The survey is representative of non-institutionalized adults aged 18 years or older living within the City of Chicago. Results from the 2014 and 2015 data collection waves were pooled to increase sample size, and re-weighted accordingly. During the survey, participants are asked for their residential address (or neighborhood, if they are unwilling to give a specific address). To calculate adult health outcomes for this HIA, the 1.0-mile buffer study area was defined as the community areas (neighborhoods) of Englewood, West Englewood and New City.

The Chicago Department of Public Health receives hospitalization discharge data for inpatient and emergency department visits from the Illinois Department of Public Health. The principal diagnosis of each visit is coded according to the 9th Edition International Classification of Diseases (ICD-9). To calculate ED visit rates and hospitalization rates for this HIA, the 1.0-mile buffer study was defined as the Zip Codes of 60609, 60621, and 60636.

Environmental testing. Phase I and Phase II Environmental Site Assessments (ESAs) were conducted on the trail site. A Phase I ESA involves a review of records, a site inspection, and interviews with owners, occupants, neighbors, and local government officials to determine if there is potential contamination by hazardous materials at a site (Wisconsin Department of Natural Resources, 2014). If a Phase I ESA does identify potential contamination at a site, a Phase II ESA is conducted (Wisconsin Department of Natural Resources, 2014). A Phase II ESA includes sampling and laboratory analysis (Wisconsin Department of Natural Resources, 2014). The City of Chicago Department of Fleet and Facility Management conducted a risk assessment based on the results of the Phase II ESA sampling and analyses. It was found that there are spots along the trail that have hazardous lead levels. In addition, the entire trail site is mildly contaminated with low levels of polynuclear aromatic compounds (PACs) and metals at approximately the same levels found in the rest of the city. The Agency for Toxic Substances and Disease Registry classifies PACs as reasonably anticipated to be a human carcinogen and lists the skin, liver, and immune system as affected organ systems (Agency for Toxic Substances and Disease Registry, 2011).

Road usage. Volume, speed, and vehicle classification counts are provided by the Illinois Department of Transportation for the road segment of 59th Street, between Western and Ashland. Data was for a 24-hour period starting at 12:00AM on October 8, 2014. Metrics provided include average annual daily traffic, vehicle classification counts, and 85th percentile speed.

Qualitative Data. The HIA team conducted semi-structured qualitative interviews with six community leaders who are members of the HIA Advisory Committee, and we also conducted community resident surveys focused on perceptions of safety. Surveys were collected from 52 individuals

(participants in community meetings) who live or work in the neighborhoods surrounding the proposed trail site. The survey was three pages in length and generally took less than 10 minutes to complete. The first section of the survey was comprised of six background questions to establish each participant's relationship to the community, as well as demographic information such as age, gender, race, and ethnicity. The second section provided instructions on the sketch mapping activity that enabled them to mark the specific places, times, and reasons for feeling unsafe in the community, as well as asking them to provide their ideas for improving safety in these locations. Most respondents had been living and working in the communities surrounding the trail site for 10 years or more, identified as African American/black, and were aged 45 or older.

Parks Matrix. Eleven parks near or within the 1.0-mile buffer zone of the proposed trail site were surveyed to determine the availability of recreation facilities, programming, and park amenities. Counts of each type of facility, program, and amenity for Lindblom Park, Hermitage Park, Gage Park, Sherman Park, Park 437, Moran Park, Emerald Park, Sherwood Park, Edmonds Park, Carpenter Park, and Ogden Park were entered into a matrix to determine assets, gaps, and opportunities. The Chicago Park District's website was searched to determine the timing and availability of programs. Seven park managers were surveyed via telephone about the amenities available at each of the eleven parks. Existing Chicago Park District data was used to determine the types of facilities available at each location. The parks matrix was based on examples included in the *Parks, Trails, and Health Workbook*.⁴

Assessment Findings, Predictions, and Recommendations

Overview

The following assessment findings focus on how construction and use of the trail may affect health through impacts on:

- Community safety (safety from crime, traffic safety, community cohesion)
- Access to and use of green space and parks
- Exposure to traffic-related air pollution
- Exposure to brownfields and environmental contaminants
- Economic and workforce development

Because community safety is a mediating factor for many of the potential health impacts of trail construction and usage, impacts related to this issue are assessed first. The community safety section is followed by assessment of impacts related to access to green space, exposure to traffic-related air pollution, exposure to brownfields and environmental contaminants, and economic development.

⁴ National Parks Service and Centers for Disease Control and Prevention. 2015. *Parks, Trails, and Health Workbook: A Tool for Planners, Parks & Recreation Professionals, and Health Practitioners*. https://www.nps.gov/public_health/hp/hphp/resources.htm

Each assessment section includes:

- Pathway diagrams with summaries of predicted impacts.
- Research questions that guided the HIA.
- Sociodemographic and community health data about existing conditions.
- Empirical analysis including literature reviews, quantitative data, and a qualitative survey.
- Predictions of how trail construction and use will impact health.
- Recommendations for how trail design, construction, and use could be used to positively impact health.

The HIA team developed recommendations based on the HIA findings. The recommendations were reviewed by the Advisory Committee, DPD, and other relevant city agencies.

Community safety - findings and recommendations

The research and analysis in this section were led by Jacqueline Curtis, PhD

Key Research Questions - Community Safety

- What does existing data show about safety in the area surrounding the proposed trail site?
- How might perceptions of safety influence how, when, or if individuals utilize community resources?
- What are the community's perceptions of safety for the area surrounding the proposed trail site?
- What are the reasons for the community's safety concerns?
- What are potential solutions to the safety concerns raised by residents?
- What recommendations can be made to support community cohesion?

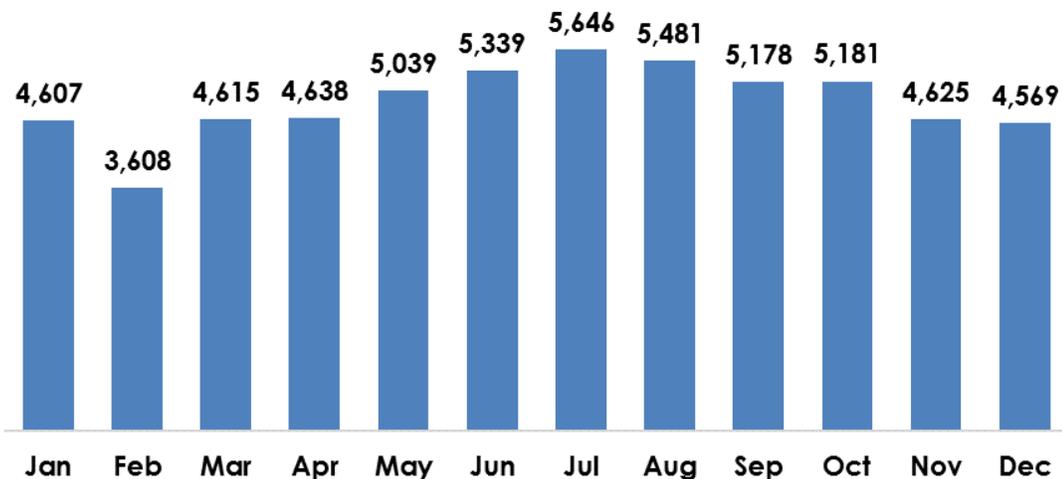
Findings – Existing conditions for community safety

Research Question Safety-A: What does existing data show about safety in the area surrounding the proposed trail site?

Crime. Violent crime disproportionately affects communities of color with high hardship in Chicago (Dircksen, Prachand, et al., 2016). Englewood and West Englewood are two of the community areas most affected by violence in Chicago (Dircksen, et al., 2016). For example, in 2014, firearm-related mortality in Englewood and West Englewood was between 30.6-46.9 deaths per 100,000 population compared to 10.8 deaths per 100,000 in the city overall (Dircksen, et al., 2016). Property crimes are also higher in Englewood and West Englewood than in the city overall (Chicago Police Department, 2015). Overall, between 2012 and 2015 property and violent crimes decreased in the 1.0-mile study area (Figures 7-8). For the years 2012-2015, property crimes in the study area varied seasonally with a spike in crime typically occurring between May and September (Figures 7a-7b). The seasonal variation in crime was even more pronounced for violent crime (Figure 8a).

Figure 7a. Property crimes (burglary, theft, motor vehicle theft, arson) by month, 2012-2015.

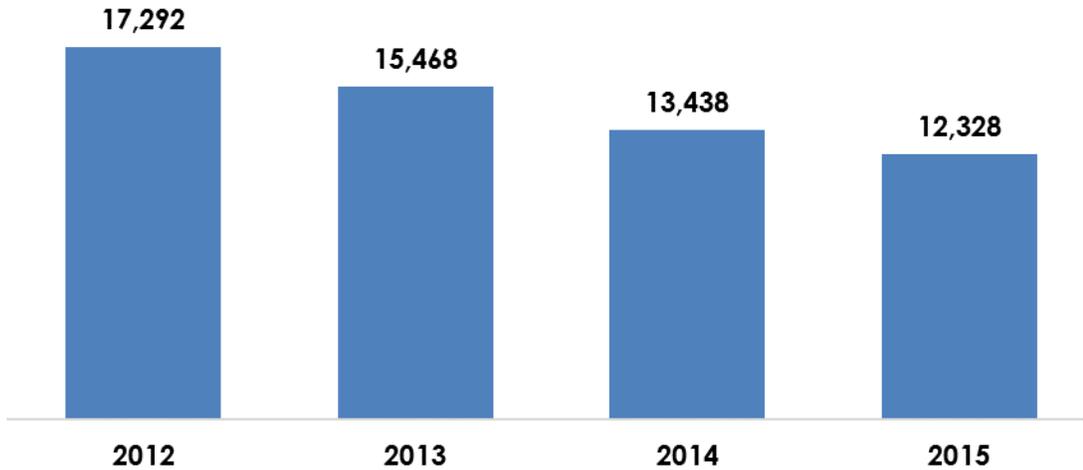
The total number of property crimes is typically higher in the summer months



Data Source: Chicago Police Department, 2012-2015

Figure 7b. Total number of property crimes (burglary, theft, motor vehicle theft, arson) by year, 2012-2015.

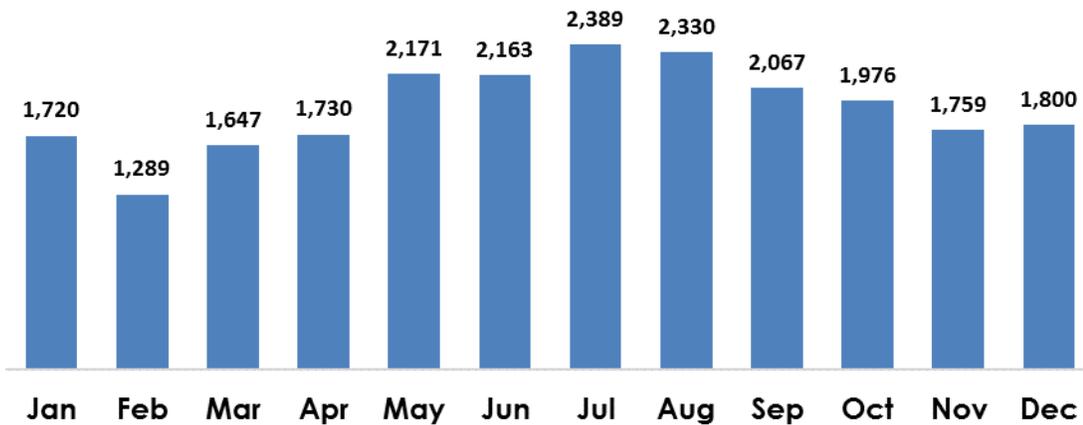
Between 2012 and 2015, the total number of property crimes decreased in the study area



Data Source: Chicago Police Department, 2012-2015

Figure 8a. Violent crimes (homicide, criminal sexual assault, robbery, aggravated assault, aggravated battery) by month, 2012-2015.

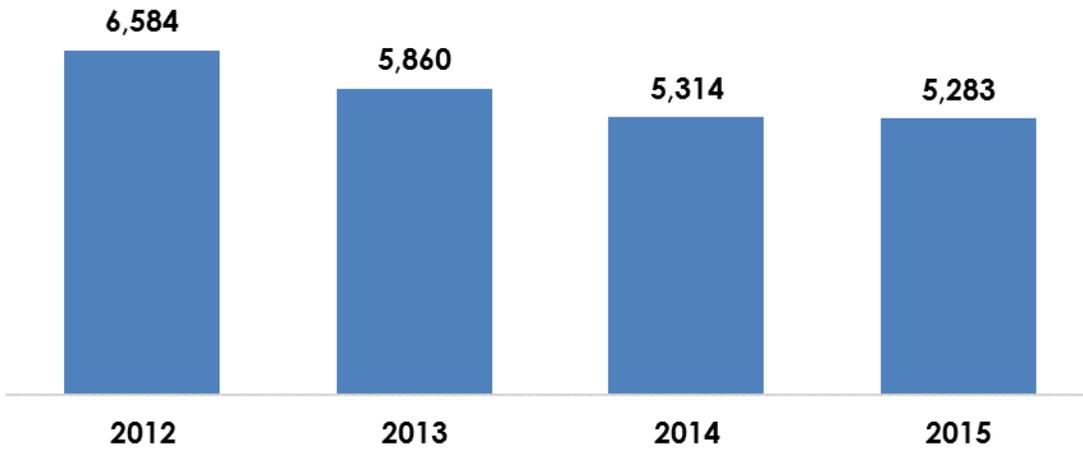
The total number of violent crimes is typically higher in summer months



Data Source: Chicago Police Department, 2012-2015

Figure 8b. Total number of violent crimes (homicide, criminal sexual assault, robbery, aggravated assault, aggravated battery) by year, 2012-2015.

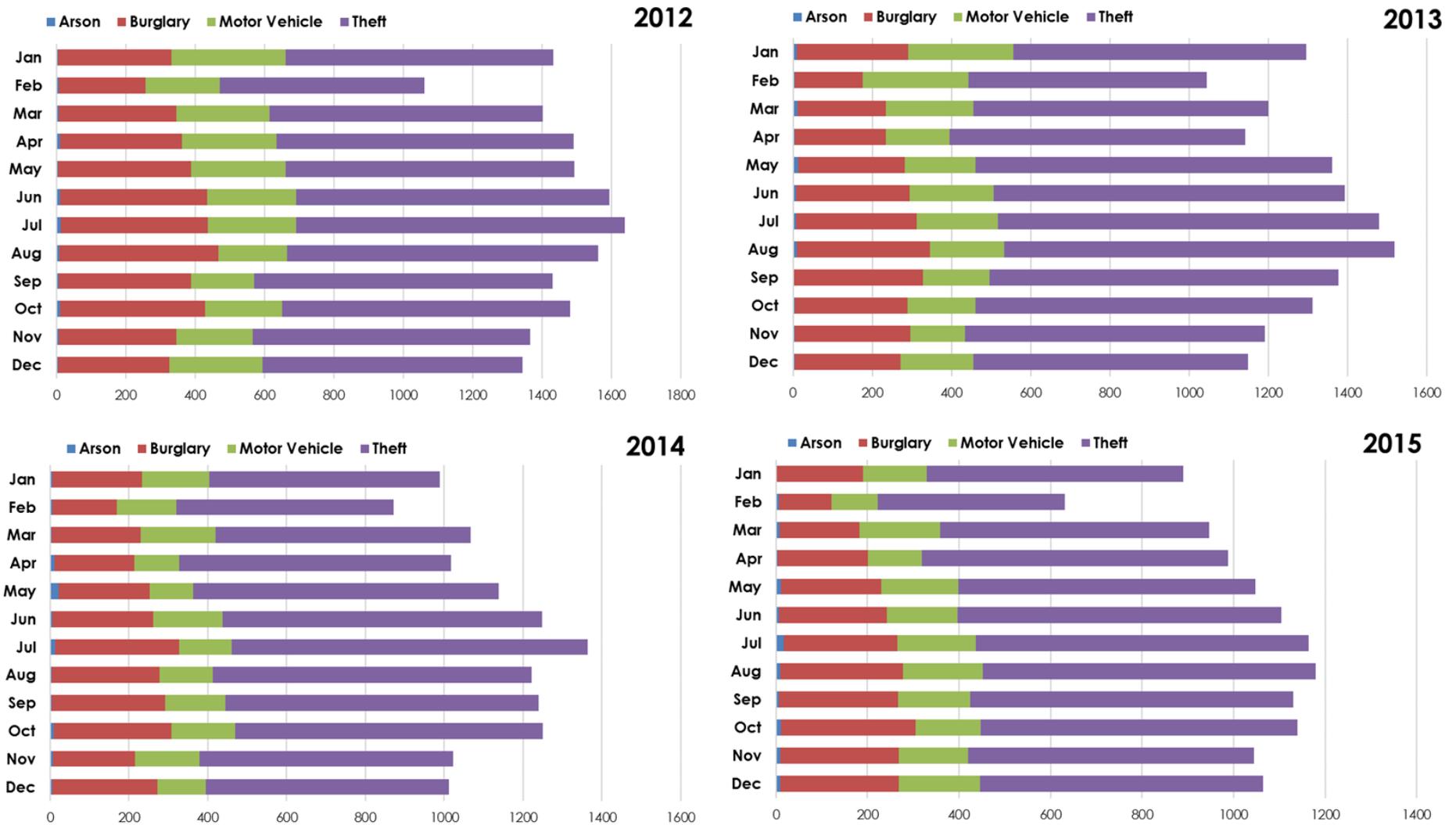
Between 2012 and 2015, the total number of violent crimes decreased in the study area



Data Source: Chicago Police Department, 2012-2015

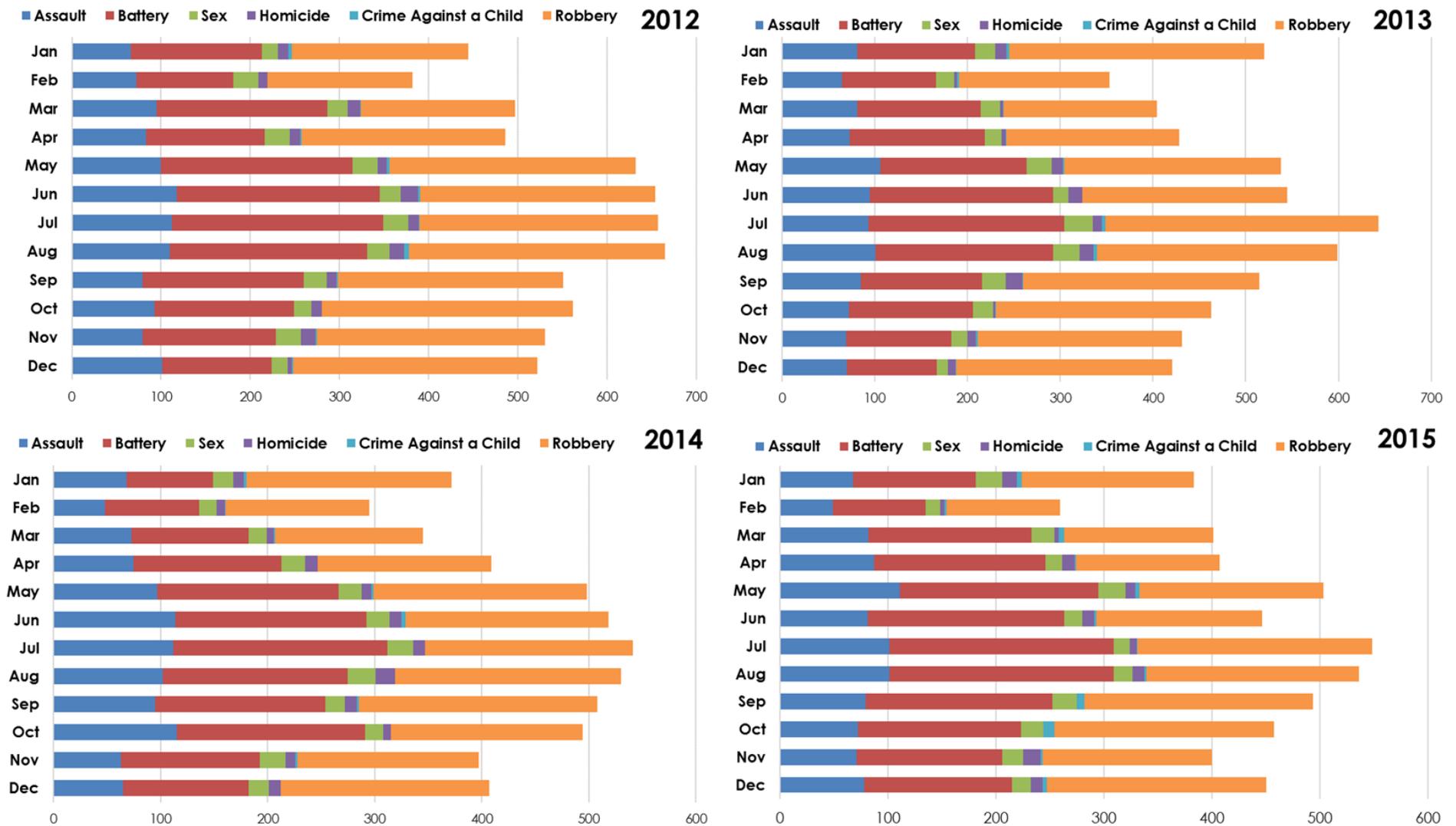
Figures 9-10 show the number of property crimes and violent crimes by type in 2012, 2013, 2014, and 2015. Crime incident data was obtained from the City of Chicago data portal for the years 2012 to 2015. The data reflects reported incidents of crime that occurred in the City of Chicago. Data is extracted from the Chicago Police Department's CLEAR (Citizen Law Enforcement Analysis and Reporting) System. These crimes may be based upon preliminary information supplied to the Police Department by the reporting parties that have not been verified. The preliminary crime classifications may be changed at a later date based upon additional investigation. To protect the privacy of crime victims, locations are approximate, and maps should be interpreted as such.

Figure 9. Property crimes by type in the 1.0-mile study area, 2012-2015.



Data Source: Chicago Police Department, 2012-2015

Figure 10. Violent crimes by type in the 1.0-mile study area, 2012-2015.



Data Source: Chicago Police Department, 2012-2015

There were multiple property crime and violent crime hotspots near the proposed trail area from 2012 to 2015 as shown in Figures 11 and 12. Overall, property and violent crime hotspots shrank in size from 2012 to 2015. It appears that not only have these hot spots been declining over the study period, but they also have been geographically shifting to areas further away from the proposed trail area, particularly to the south.

Figure 11. Property crime hot spots by year (2012-2015)⁵.

Red = 2012, Purple = 2013, Light Green = 2014, Dark Green = 2015

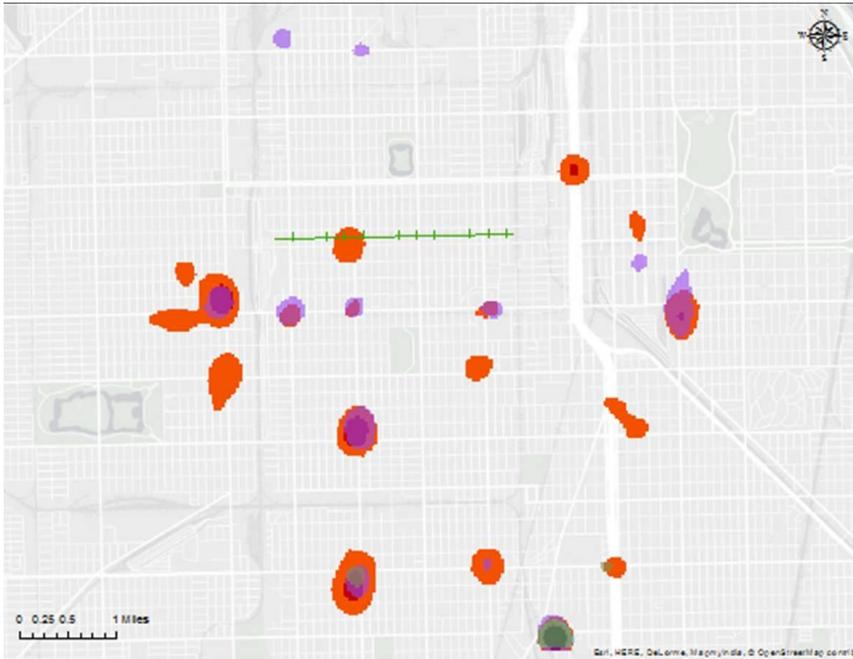


Figure 12. Violent crime hot spots by year (2012-2015)⁶.

Blue = 2012, Purple=2013, Brown=2014, Green=2015



⁵ KDE with 1312ft (400m) bandwidth; mapped in 4 classes of equal interval; upper two classes displayed.

⁶ KDE with 1312ft (400m) bandwidth; mapped in 4 classes of equal interval; upper two classes displayed.

Findings – Perceptions of safety

Research Question Safety-B: How might perceptions of safety influence how, when, or if individuals utilize community resources?

The proposed trail site is within communities that historically have high crime rates. How individuals perceive their surrounding environment strongly affects their behavior. This is particularly true for feelings of safety. There are numerous health benefits associated with access to green spaces and areas that promote physical activity. However, if community perceptions of safety for the trail site are negative, then residents are likely to use the proposed trail less or not at all.

Positive impacts may include

- Utilization of the proposed trail by residents and the associated health benefits

Negative impacts may include

- Avoidance of the trail in certain locations or at certain times

Literature review

Perceptions of safety and urban trails. Numerous studies indicate that perceptions of safety are important determinants of participation in outdoor physical activities, whether it be walking or cycling, or using a park or a trail (Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Gordon, Zizzi, & Pauline, 2004; Huston, Evenson, Bors, & Gizlice, 2003; Kaczynski, Koohsari, Stanis, Bergstrom, & Sugiyama, 2013; Wilson, et al., 2010). Fear of crime in public open spaces is known to be a barrier to positive health behaviors related to physical activity (Airey, 2003; Banerjee, Uhm, & Bahl, 2014; Chandola, 2001; Foster & Giles-Corti, 2008; Harburg, et al., 1973; Ross & Mirowsky, 2001; Stafford, Chandola, & Marmot, 2007). Conversely, there is evidence to suggest that feeling safe might encourage outdoor physical activity (Gallagher, et al., 2010). Negative perceptions of safety have been associated with an increased risk of poor mental health in children and adults (Curry, Latkin, & Davey-Rothwell, 2008; Gary, Stark, & LaVeist, 2007; Overstreet & Braun, 2000). Safety concerns about the proposed trail site might negatively influence resident's use of the trail or overall perceptions of safety and as a result indirectly impact health outcomes. Alternatively, feeling safe might encourage residents to use the trail for physical activity and improve mental health thereby positively impacting health overall.

Significant findings from previous research:

- For urban trails, studies have found that feelings of safety are important factors, particularly for encouraging older adults to walk (Griffin, Wilson, Buck, & others, 2008; Wilson, et al., 2010). Concerns about safety, specifically stray dogs and drug dealers, have been identified as barriers to walking in a low-income African American study population (Griffin, et al., 2008; Wilson, et al., 2010).
- Characteristics of the built environment are also important to creating feelings of safety. Vegetation density and the presence of street lights have been identified as key factors influencing trail use (Reynolds, et al., 2007).
- Visibility of an area has been shown in numerous studies to influence the fear of crime in outdoor spaces (Chiang, Nasar, & Ko, 2014; Fisher & Nasar, 1995; B. S. Fisher & Nasar, 1992; Nasar & Fisher, 1993).
- Recent studies suggest that feelings of safety about the areas surrounding a trail are typically linked to the trail site itself (Wolch, et al., 2010; Zoellner, Hill, Zynda, Sample, & Yadrack, 2012). This finding is particularly important in planning urban trails as it points to the fact that they do

not exist in isolation from their surroundings and that their use is influenced by what is occurring around them.

- A study of African American youth in an inner-city housing project found that exposure to community violence was related to perceptions of decreased neighborhood safety and increased family conflict (Overstreet & Braun, 2000). These effects were found to be mediating factors on children's post-traumatic stress symptoms (Overstreet & Braun, 2000). Another study of whites and African American/blacks in an urban neighborhood found that the perception of severe problems in a community was associated with higher levels of stress, anxiety, and depression compared to those who perceived no or few problems (Gary, et al., 2007).

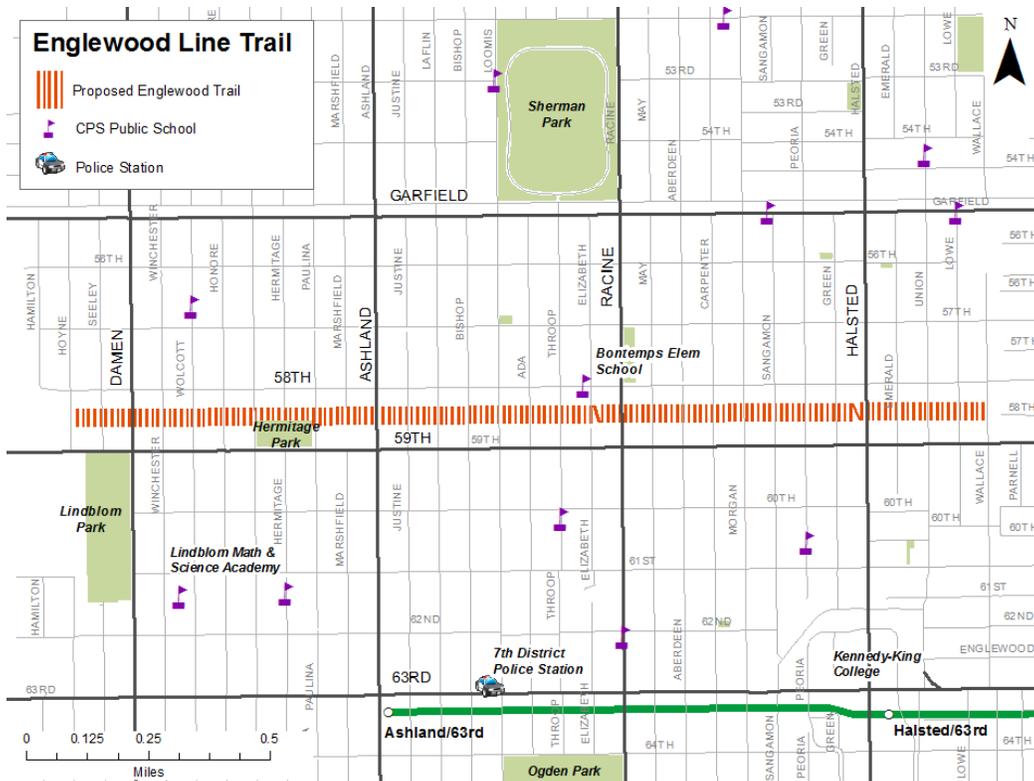
Perceptions of safety survey

Because of the existing research on the importance of perceptions of safety on the use of urban trails, community members were surveyed to identify places, times, and reasons for feeling unsafe. In addition, the survey asked participants to suggest solutions to improve safety in each of the locations that they identified. The resulting maps reveal community safety concerns and proposed improvements to guide trail development.

Participants were recruited via community meetings held near the proposed trail, including a community meeting convened by DPD and Teska, three CAPS (Chicago Alternative Policing Strategy) meetings, one school council meeting, and one quarterly village town hall meeting. After a short presentation by a member of the HIA team, meeting attendees were invited to participate. Participants were asked to participate only if they lived, worked, volunteered or had some other relationship to the community near the proposed trail, shown on a map. Individuals were required to be over the age of 18 to participate.

The survey was three pages in length and took an average of 10 minutes to complete. A copy of the survey instrument can be found in [Appendix XX](#). On the first page, a brief questionnaire collected basic demographic information from the participant, including their relationship to the community, the number of years they had been involved in the community, their age, race, ethnicity, and gender. The survey included instructions on how to complete a sketch-mapping activity that enabled respondents to mark the specific places, times, and reasons for feeling unsafe in the community on a map. Finally, the survey asked respondents about their ideas for improving safety in these locations. Participants were instructed to complete as much of the survey as they could, but no questions were required. All surveys were completed anonymously. The base map that was included in the survey is shown in Figure 13.

Figure 13. Base map included in the community safety survey.



Instructions were in three parts: *Mark*, *Label*, and *List*. First, participants were asked to *mark* places that they avoid because they feel unsafe. Red markers were used to indicate criminal activity, blue for traffic safety, and green for other reasons. Black markers were used to mark additional places that they felt are unsafe, but that they cannot avoid. For each of these markings, the participants were instructed to *label* them with a number and then, on the back of the map, *list* these numbers. For each location, they then wrote a) why they avoid this area, b) when they avoid this area (e.g., times of day / days of the week), and c) what they believe would make this place safe.

The paper surveys were scanned and securely sent to the GIS Health and Hazards (GHH) lab at Kent State University. The completed maps were converted into high resolution images that were analyzed in ArcGIS 10.3 by the GHH lab. The maps of survey respondents' perception of safety patterns were then compared to maps of actual reported crime incidents and traffic crashes for a similar time period. A detailed report on the community perceptions of safety study including the GIS methodology utilized to analyze the results is included in **Appendix XX**.

It is important to note that any lack of agreement with official incident data does not diminish the reality of survey respondent data. Differences in agreement may point to local knowledge of conditions in the environment that may have not filtered up into the incident data. Therefore, these data should be viewed as complementary rather than one being given more importance than the other.⁷

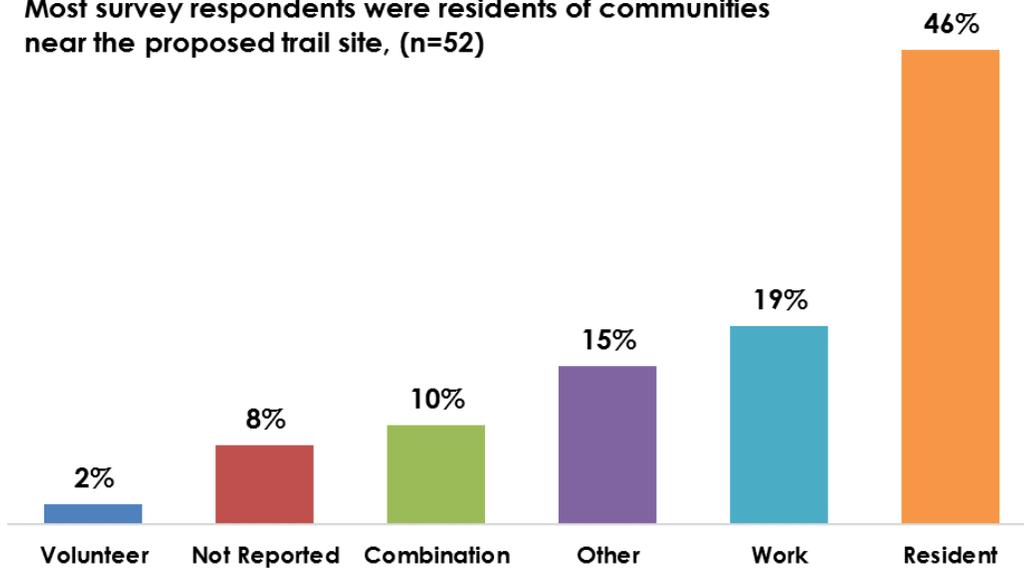
Participant characteristics. A total of 52 surveys were completed. The majority of survey respondents had a connection to the community as residents (46%) or as local employees (19%) (Figure 14). Fifteen percent of respondents indicated their relationship to the community as "other," several of

⁷ "The fact that either call for service data or police incident data do not capture "the whole picture" is not a revelation; indeed, it is known that multiple sources of data are needed (Eck, et al. 2005)." (Curtis, et al. 2016).

whom stated that their relationship was as a parent of a child at a local school or as a community organizer. Four respondents (8%) did not respond to this question.

Figure 14. Survey participants' self-reported relationships to the community.

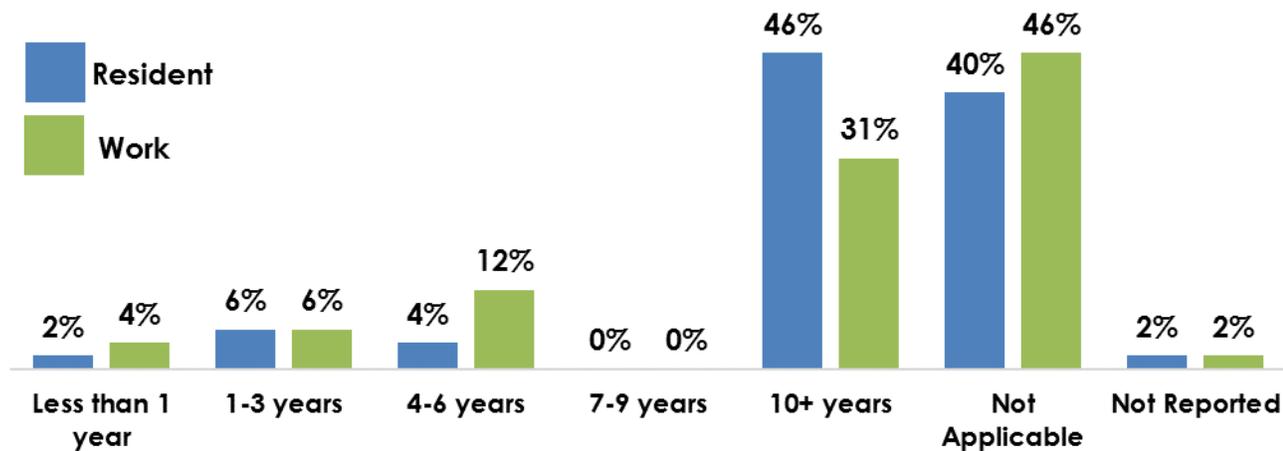
Most survey respondents were residents of communities near the proposed trail site, (n=52)



Participants were asked how long they had lived in the community or how long they had worked in the community, as a measure of their familiarity with the community. The time range options provided in the survey were less than 1 year, 1-3 years, 4-6 years, 7-9 years, 10 or more years, or not applicable.

Figure 15. Length of time that participants reported living or working in the community.

A large proportion of survey respondents have lived or worked in the study area for 10 years or more, (n=52)



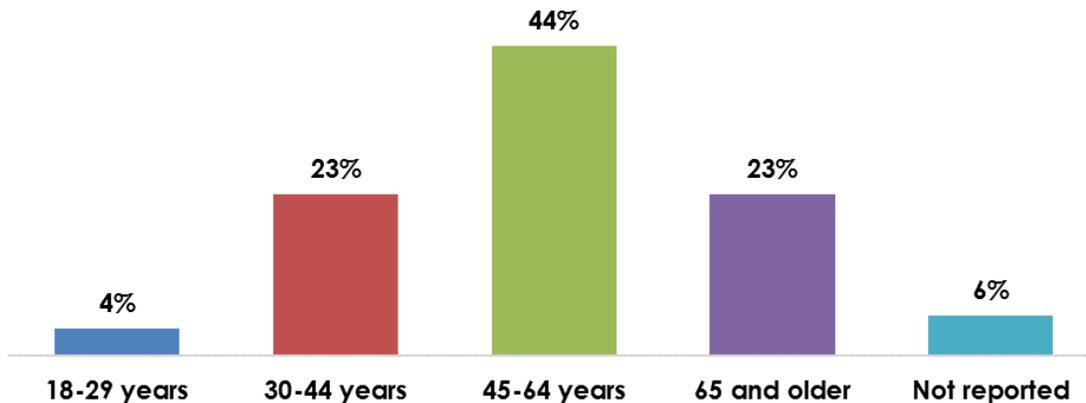
Approximately a third of participants (n = 15, 31%) had worked in the community for 10 or more years (Figure 15). Nearly half (n = 24, 46%) of participants had lived in the community for 10 or more years. This indicated that the pool of survey respondents represents those with deep roots in Englewood. Respondents with newer connections to the community (three years or less) included five (9.6%)

workers and four (7.7%) residents. The high proportion of workers and residents with deep roots in Englewood is beneficial for informed input on community conditions.

Most survey respondents were between the ages of 45-64 (44%), while 23% of respondents were age 30-44, and an additional 23% were aged 65 and older (Figure 16). Individuals aged 18-29 years were the least represented in the study population. In the overall study area, approximately 60% of the population is aged 18-64 and 9% is age 65 or older (U.S. Census Bureau, 2010-2014).

Figure 16. Ages of participants.

Most survey respondents were 45-64 years old, (n=52)



Approximately half of survey respondents identified as female (50%) and half (46%) identified as male. No respondents identified as transgendered.

There was little variation in both the racial and ethnic characteristics of the participants. The majority of participants identified as African American/black (79%), followed by white (8%), 2% as Asian/Pacific Islander, 0% as Native American, and 6% each as other or not reported. Four participants (8%) reported their ethnicity as Hispanic/Latino (n=3) or Middle Eastern (n=1).

Research Question Safety-C: What are the community's perceptions of safety for the area surrounding the proposed trail site?

Perceptions of safety. Of the 52 participants in this study, 36 (69%) reported avoiding at least one place in the study area due to feeling unsafe. In total, 130 locations were identified as unsafe, either due to traffic concerns or criminal activity.⁸ On average, participants identified 2 to 3 locations as unsafe. Areas of avoidance due to criminal activity are concentrated in large swaths to both the north and south of the proposed trail site (Figure 17a). While it appears that few areas of concern intersect the trail itself, it should be noted that at the time of the survey, the trail was privately owned, fenced, and inaccessible to the public. Therefore, these maps should not be misinterpreted as meaning that participants perceived the trail as being safe. In addition, several hotspots occur in areas of potential access points (Figure 17b).

⁸ For all participants: Range = 0-25; Mean = 2.5; Median = 2; Mode = 0.
Englewood Line Trail – Health Impact Assessment

Figure 17a. Hot spots of crime concerns identified by participants.

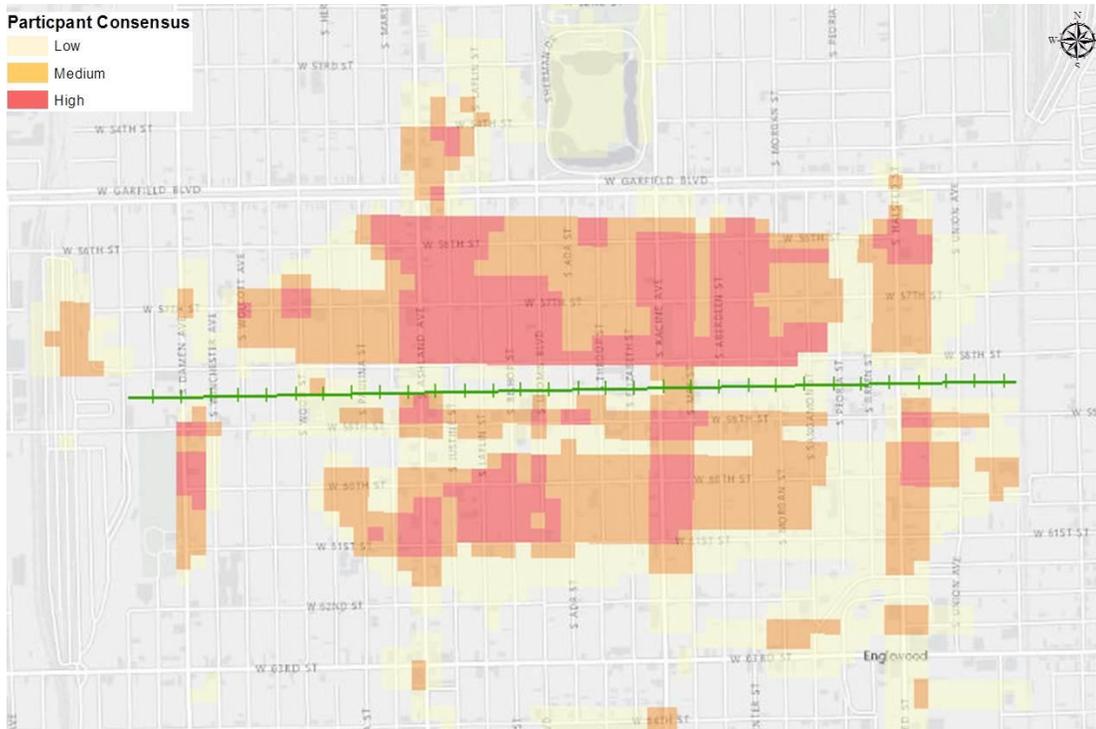


Figure 17b. Potential access points for the proposed trail.

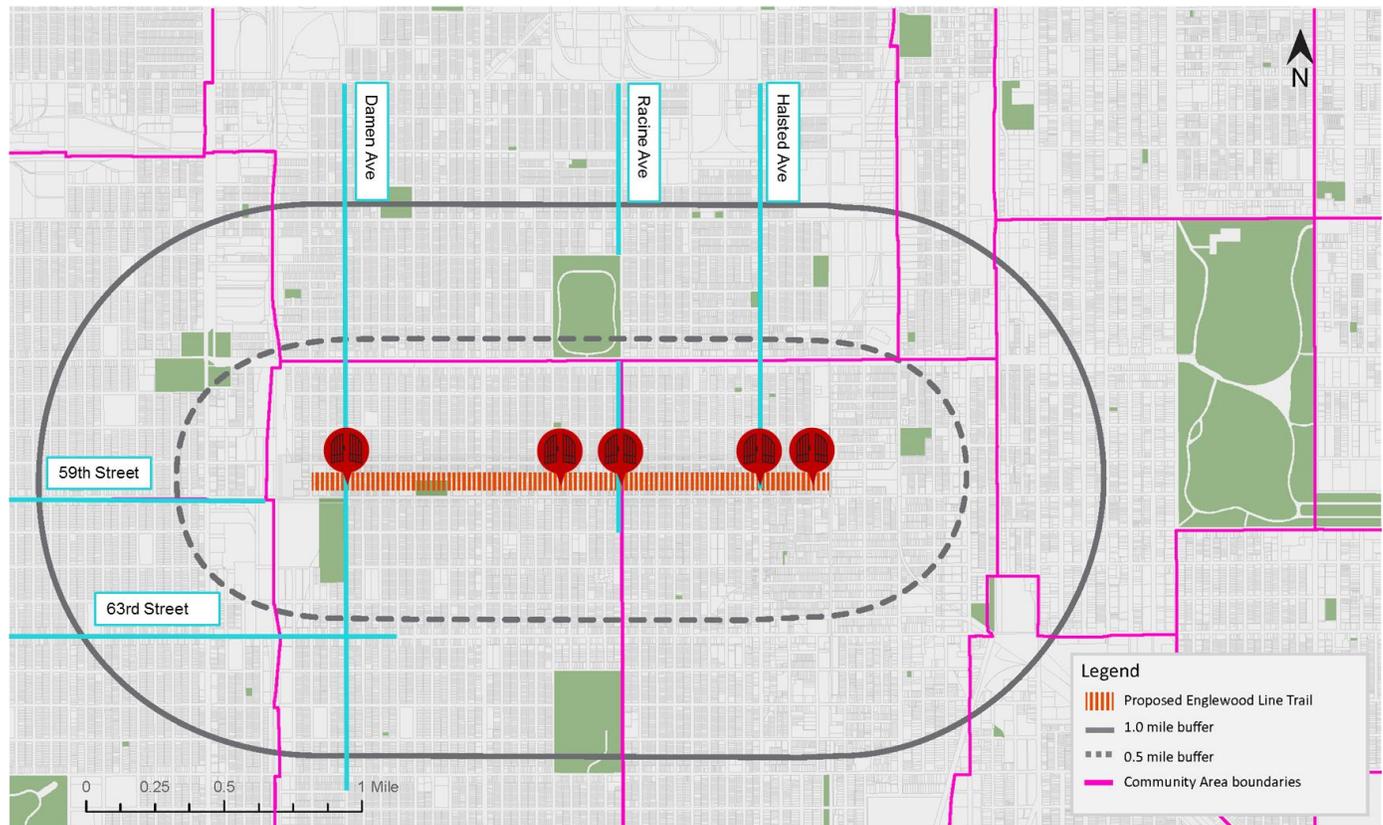


Table 2. Times of avoidance provided by survey participants.

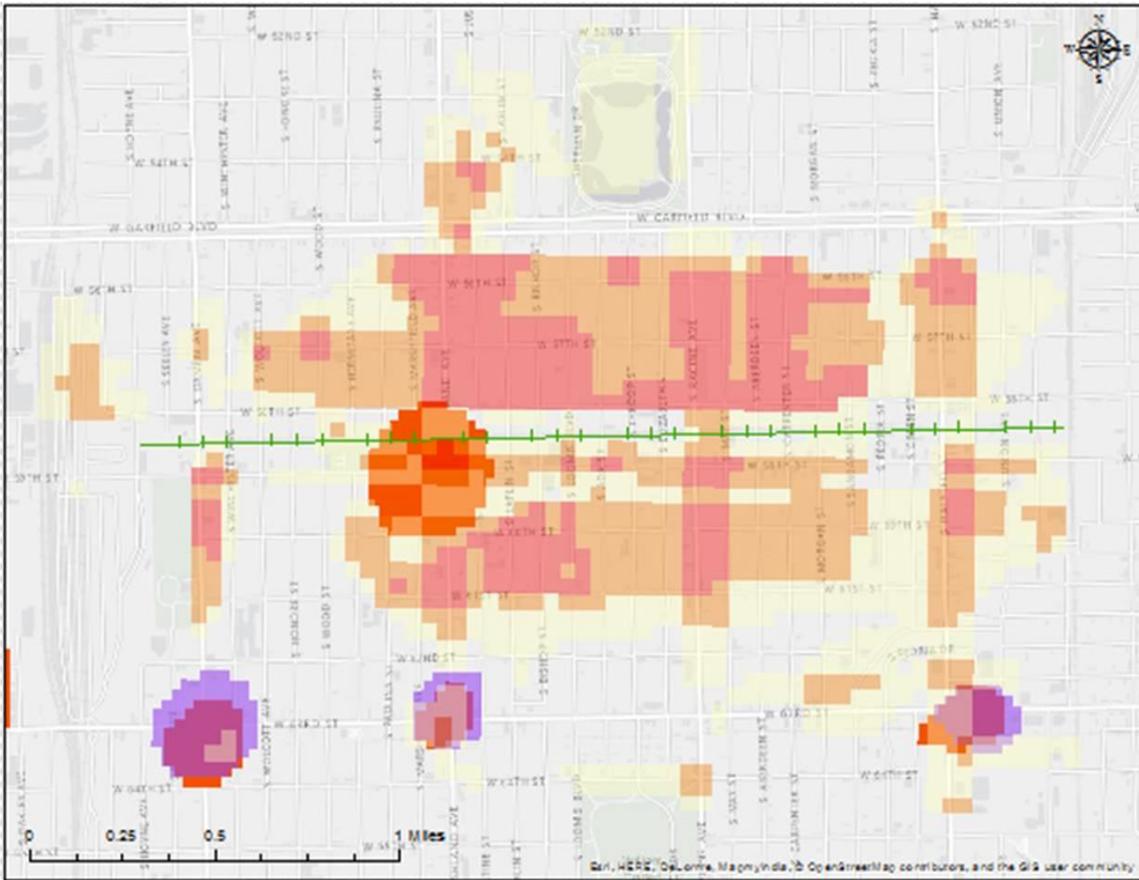
Times of Avoidance	Number of Places	Reasons	Solutions
Always	10	Drugs, gangs, vacant buildings, loitering, violent attacks	Visible police presence
Night	7	Lack of lighting, robberies, fear of crime, vacant buildings and lots, violent attacks	Lighting, presence of people
Summer	4	Drugs, gangs, guns	Visible police presence

The locations that are avoided in summer are four road segments that cross the study area from north to south, intersecting the trail; these were identified by one participant. Three participants identified ten areas that they always avoid, which are scattered across the study area with greater concentration at the eastern end of the trail. Finally, four participants identified seven locations that they avoid at night. These locations are also scattered across the study area, but with a slight concentration at the western end of the trail.

Sixteen participants (31%) reported that there were no areas in which they felt unsafe and avoided. Of this percentage, none reported an ethnicity, and all but three self-identified as African American/black. The response was slightly more prevalent among women with nine females (56%) and six males (35%) not identifying any areas of avoidance. One of these participants did not report gender. However, the majority of these participants had extensive connection to the community with nine (56.25%) having lived or worked in the area for 10 or more years. Three had connections between 1 and 6 years, 1 for less than 1 year, and 3 participants did not report a length of time in which they had a connection to the community. Finally, three were between the ages of 30-44 years, seven between 45-64 years, and five were 65+. One participant did not report an age.

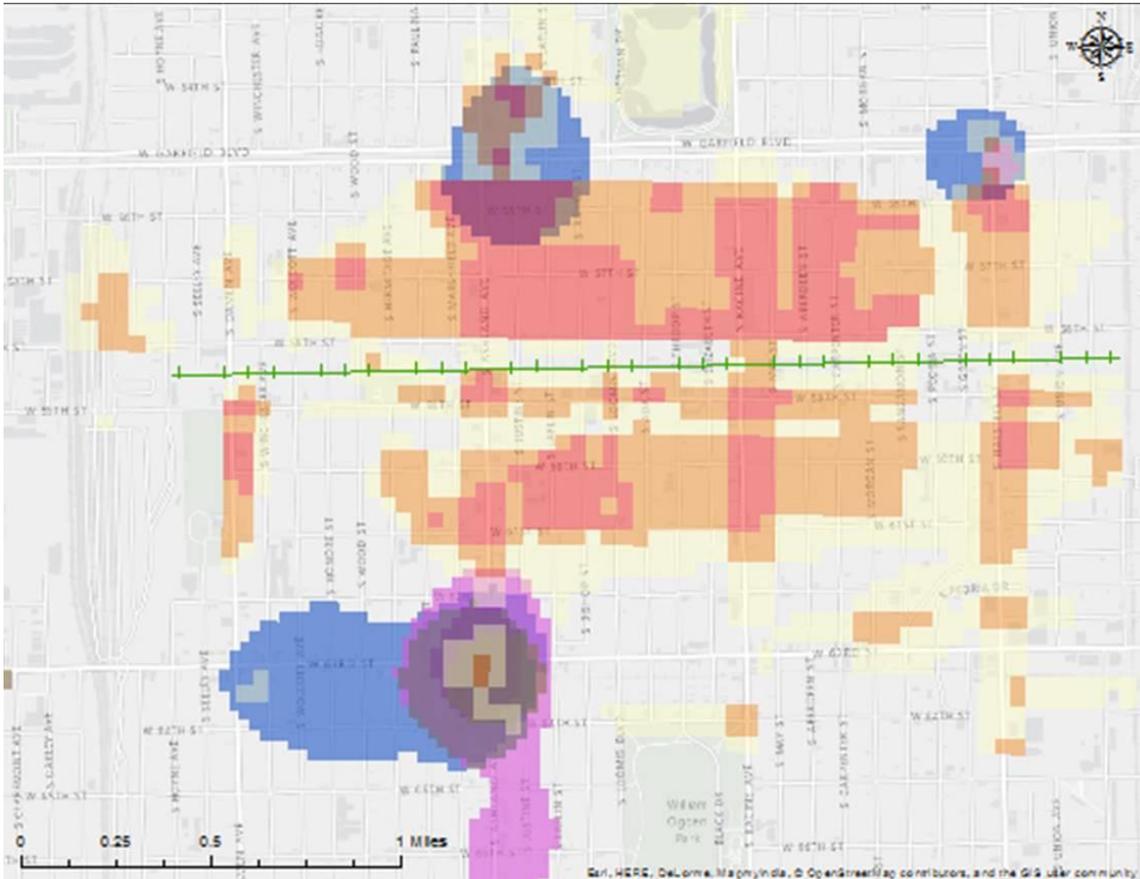
Chicago crime data. As previously stated, the hot spots of property and violent crime data in the study area have generally been decreasing over time. For example, some of the 2012 hot spots disappear from the map in subsequent years. Figure 19 shows property crime hot spots and their relationship with the map of participant crime concerns.

Figure 19. Property crime hot spots by year, 2012-2015, overlaid with participant crime concern.



The four hot spots of participant safety concerns are spatially correlated with crime incident hot spots from 2012 and 2013. Figure 20 reveals that there are three areas where violent crime hot spots are spatially correlated with hot spots of participant crime concerns. However, as was the case with property crime, this alignment is with older hot spots.

Figure 20. Violent crime hot spots by year, 2012-2015, overlaid with participant crime concern.



Note that the lack of alignment with current hot spots of property and violent crime incidents in the area does not minimize the importance of participant perceptions. Participants did not necessarily misperceive crime incidents, because they could know of incivilities that go unreported in official data, or have these perceptions for other reasons. These reasons are nonetheless powerful predictors of their behavior in regard to engaging in outdoor physical activity on or around the trail site.

Crash data. Survey respondents identified five major areas of pedestrian safety concerns (Figure 21). Crash data for 2010-2014 show that 107 traffic incidents occurred within 0.25 mile around the proposed trail, three involved injury to a cyclist and 21 involved a pedestrian. Figure 22 shows the number of ED admissions (per 10,000) for bike and pedestrian injuries. The number of ED due to bike injury is lower in the 1.0-mile buffer zone compared to the city overall (Figure 22). However, the number of ED visits due to pedestrian injury are higher in the study area than in the rest of Chicago (Figure 22). Figures 23 and 24 show the geographic distribution of these specific types of crashes within a walkable distance around the trail. Due to the relatively small numbers of these types of crashes, mapping was performed on data from all years together.

Figure 21. Hot spots of pedestrian safety concerns identified by participants.



Figure 22. Emergency Department (ED) visits due to bike and pedestrian injury, 2011.

	0.5-mile buffer	1.0-mile buffer ¹	Chicago
Total Population	24,432	76,894	2,706,101
ED Visits (per 10,000)²			
Due to bike injury	NA	6.1	11.2
Due to pedestrian injury	NA	11.7	8.6

¹ For adult health outcomes, 1.0-mile buffer includes the community areas of Englewood, West Englewood, and New City. For ED Visits and Hospitalizations, 1.0-mile buffer includes Zip Codes 60609, 60636, 60621. Data not available for 0.5-mile buffer area

² Source: Hospitalization Discharge Data, Illinois Department of Public Health, 2011

Figure 23. Crashes involving pedestrians or cyclists.

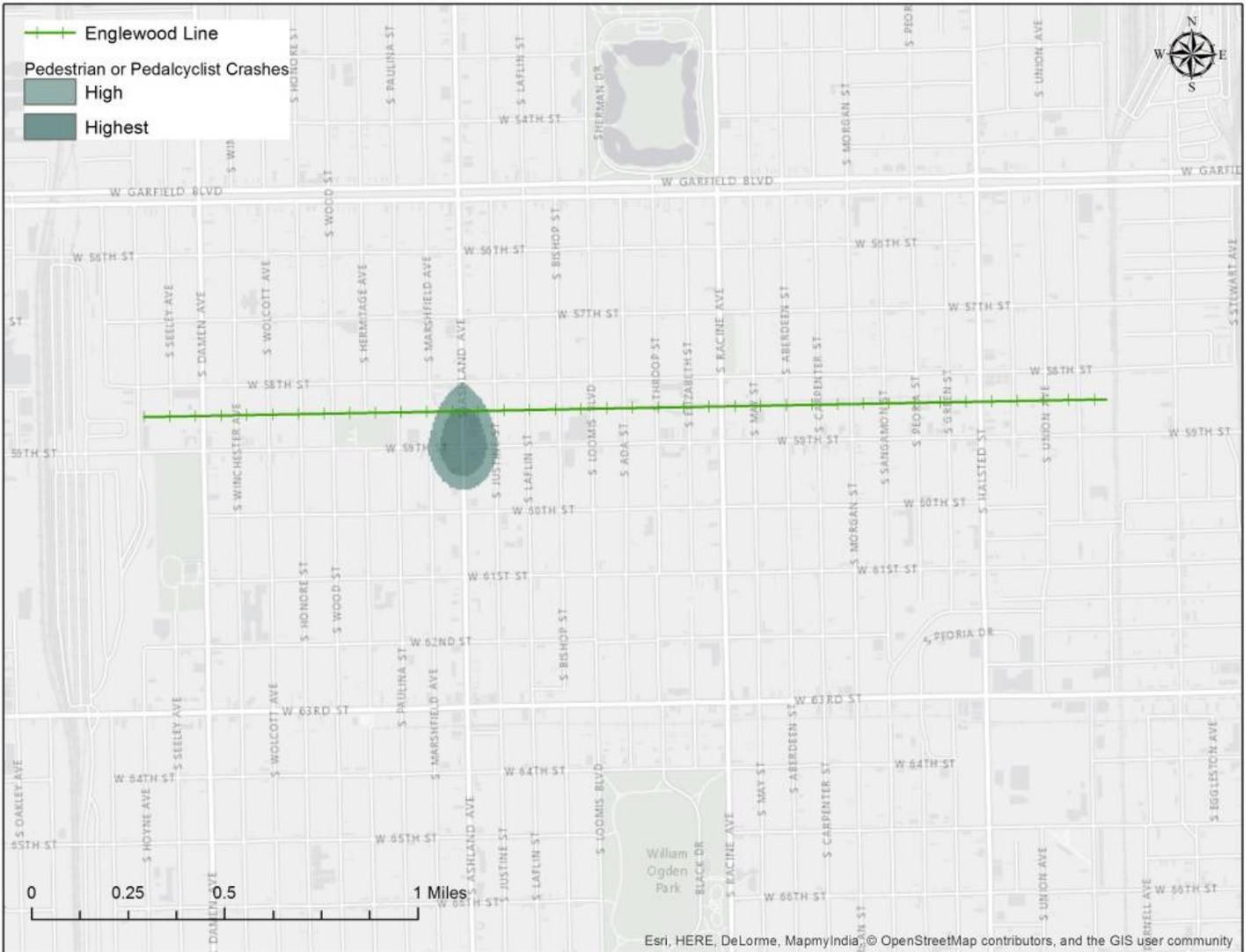


Figure 24. Crashes involving pedestrians or cyclists, with hot spots of pedestrian safety concerns identified by participants.



Figure 24 indicates that there is some spatial correlation with crash incident data and participant perceptions of traffic safety concerns. Again, it takes such an extreme outcome (death or injury) to create a point in the official data, that there are likely many “near-misses” experienced or otherwise known about by local residents, that their local knowledge should be viewed as complementary to the official crash data in spatially identifying potential barriers to using the proposed trail.

Research Question Safety-E: What are potential solutions to the safety concerns raised by residents?

Improving Safety. Of the 52 participants, 11 (21%) offered solutions to improving safety in the locations they marked. Half of the solutions that participants contributed focused on improving police visibility and lighting, but nearly half of the solutions offered also included issues of infrastructure (e.g. addition of stop signs, accessibility features for community members with physical disabilities), policy (e.g. removing street parking, increasing time for pedestrian crossings), and the general quality of surrounding buildings and visibility of people (Figure 25).

Figure 25. Solutions to safety concerns identified by participants.

The most commonly suggested solutions to safety concerns in areas near the trail site include an increased police presence and improved lighting, (n=14)

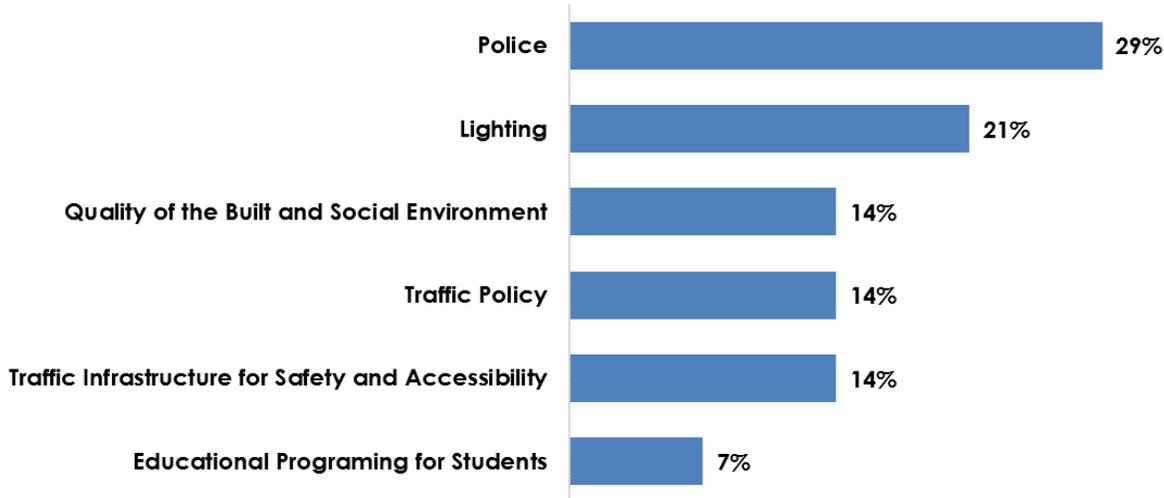
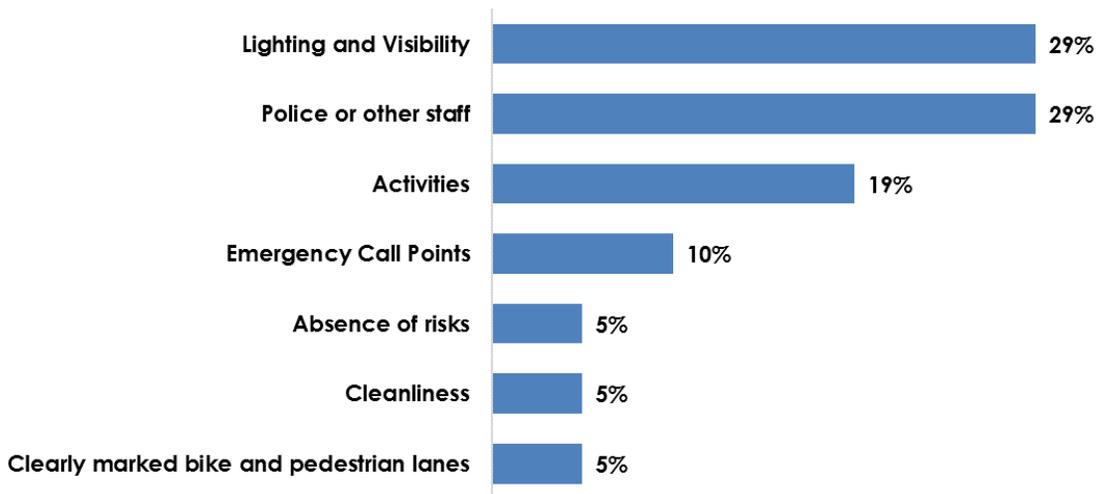


Figure 26. Safe trail characteristics identified by participants.

The most frequently mentioned opportunities for ensuring safety on the trail included the presence of police and lighting and visibility, (n=21)



Seven participants (14%) provided feedback on features that would improve safety on the trail. In this response, the presence of activities, especially for children, was indicated as a sign of safety in public open spaces, as well as the visibility of police or other trail staff (specifically that these would be friendly officers biking or walking the trail), good lighting, clear lines of sight, clearly marked pedestrian and bike lanes, and emergency call buttons. In addition to the presence of these positive characteristics, the absence of risks was also identified (e.g., absence of criminal activity and stray dogs) (Figure 26). These results align with previous research in which vegetation density, visibility, the presence of street lights, the absence of stray dogs, and the absence of criminal activity were found to have an impact on community perceptions of safety (Chiang, Nasar, & Ko, 2014; B. Fisher & Nasar, 1995; B. S. Fisher & Nasar, 1992; Nasar & Fisher, 1993; Reynolds, et al., 2007).

Limitations. As with any study, its limitations should be considered as qualifiers to the results and recommendations. A detailed description of the study limitations is included in [Appendix X](#).

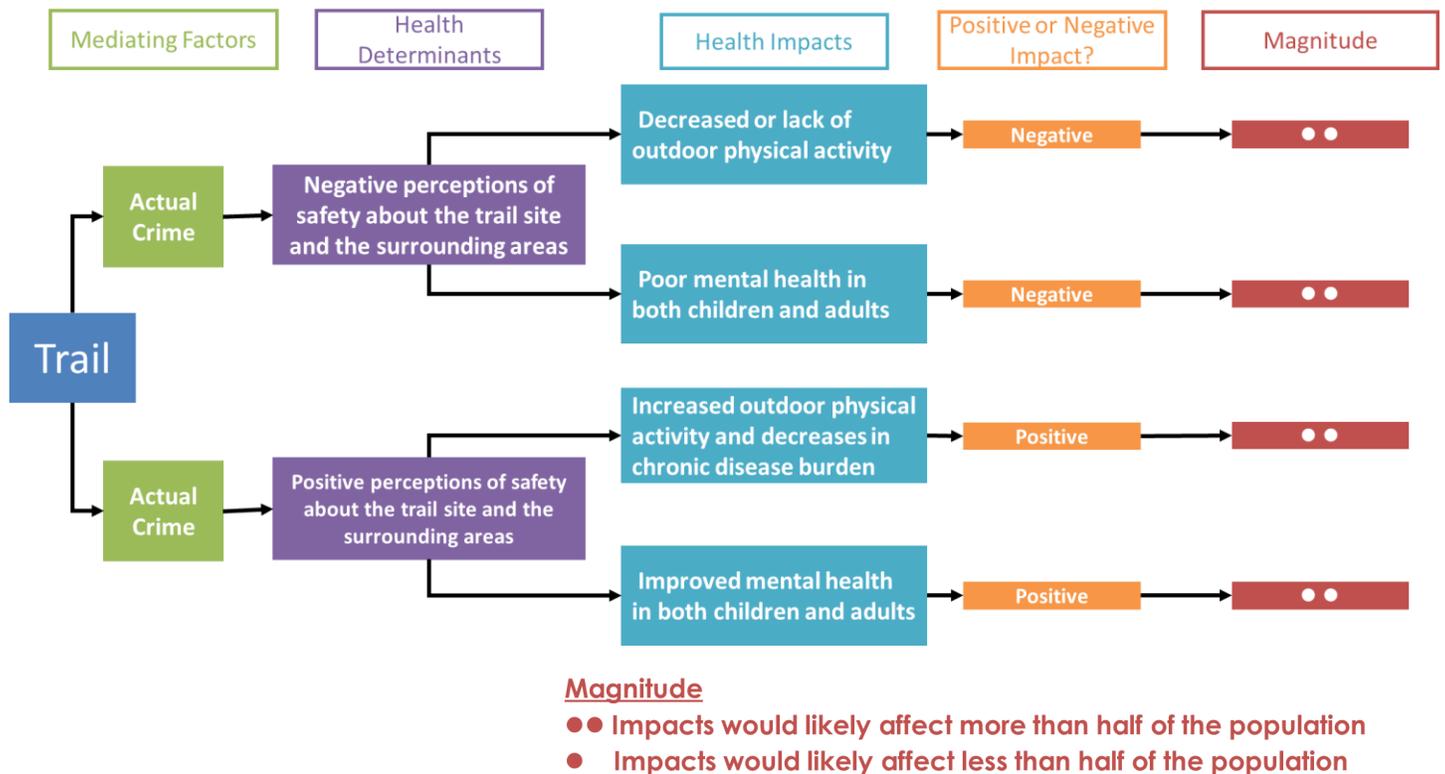
Predicted impacts of community perceptions of safety

Based on previous research about the impacts of safety perceptions on health behaviors and the community survey mapping study, it is anticipated that the impacts of trail use could be both positive and negative and could occur in the following ways:

- If residents feel safe at the trail site and the surrounding areas, they may be more likely to use the trail for outdoor physical activity which could have indirect impacts on their health that are positive. Feelings of safety may also improve overall mental health among residents of nearby communities.
- If resident's safety concerns are unaddressed, it may hinder utilization of the trail in certain locations or at certain times leading to decreases in the health benefits associated with outdoor physical activity. In addition, continued negative perceptions of safety among residents may have a detrimental effect on the mental health of both children and adults living or working nearby.

The predicted health impacts could be positive for many residents. Conversely, unaddressed negative perceptions of safety about the trail site and the surrounding areas could have a negative impact on many residents. A pathway diagram and summary of predicted impacts of community perceptions of safety on trail usage is presented in Figure 27.

Figure 27. Pathway diagram and summary of predicted impacts of community perceptions of safety on trail usage.



Recommendations – Community Safety

Three types of recommendations for community safety have been identified to alleviate safety concerns and facilitate trail use by the surrounding community:

- Addressing community safety on the trail
- Addressing community safety getting to and from the trail
- Addressing community safety through engagement of community organizations and community residents

Though focus on understanding trail use has commonly focused on characteristics of the trail itself, recent research and the feedback of community members in the study area indicate that conditions in the surrounding environment are equally important in order to access and utilize this proposed resource.

Recommendations.

Engagement of community organizations and community residents

- 1) **Community safety considerations.** **DPD should take community safety considerations into account at all phases of trail development. (Design, Construction, and Long-term development phases)** Community safety should be considered in all aspects of trail design, development, management, and maintenance.
- 2) **Partnering with communities around safety and security.** **Partner with communities to design and implement all security measures. (Design, Construction, and Long-term development phases)** Community organizations should be included as consulting partners when designing and developing all security measures, including:
 - **Community policing** and police presence near the trail
 - **Initiatives that build positive relationships between police and community residents** such as the Englewood Police Youth Baseball League and Chicago Alternative Policing Strategy (CAPS) cookouts
 - **Events and activities that encourage positive use and perception of the trail and adjacent public spaces** such as:
 - Tours led in conjunction with trusted community leaders
 - So Fresh Saturdays
 - Local school involvement in trail development (public art, use of trail, etc.)
 - Farm stand and events at Growing Home and community gardens
 - Engagement of faith communities, block clubs, and neighborhood watch
 - Peace and anti-violence activities

On the trail:

- 3) **Placemaking and community ownership.** **Ensure that community organizations and residents are key partners in designing the facilities and the look and feel of the trail. (Design, Construction, and Long-term development phases)** Community organizations participating in this HIA emphasized the importance of arts and cultural features in addition to parks and recreation features.
- 4) **Trail maintenance.** **Development plans should include comprehensive strategies for long-term trail maintenance including upkeep of facilities and waste management. (Design and Long-term development phases)** Community partners should be involved in the development of the maintenance plan. Community-based strategies include Greater

Englewood Unity Day Clean and Green or litter pickup as a part of regular physical activities, such as scheduled walks organized by community organizations.

- 5) **Visibility for trail users. Use multiple approaches to establish visibility for trail users. (Design, Construction, and Long-term development phases)** Suggestions for the design of the trail include the use of lighting, having low-density of vegetation in areas that are intended for active use, creating clear lines of sight throughout, and controlling access to vacant buildings.
- 6) **Eyes on the trail. Increase foot traffic near and on the trail to create formal and informal surveillance for safety and to reduce feelings of isolation. (Long-term development phase after public access to the trail begins)** Engage homeowners and residents in identifying approaches to increase foot traffic on and near the trail. This could be accomplished by supporting scheduled activities along the trail that increase use of the trail and adjacent public spaces and development of destinations such as retail stores, parks, or urban farms beside the trail; and the presence of security and/or maintenance personnel. (Also see recommendations on safety corridors below.)
- 7) **Access to emergency services. Make emergency services easily accessible for trail users. (Long-term development phase after public access to the trail begins)** Emergency call points or other methods for accessing emergency services should be easily visible, clearly marked, and available at regular intervals along the trail.
- 8) **Pedestrian safety and maximizing active use of the trail. Facilitate feelings of pedestrian safety on the trail and incorporate options for different types of physical activity. (Construction and Long-term development phases)** Depending on the design of the trail, this could be accomplished by clearly marking bike and pedestrian lanes.

Getting to and from the trail:

- 9) **Improved traffic safety. Target traffic safety improvements in areas that are current or recent hotspots of traffic concerns. (Long-term development phase)** Participants in the community survey conducted for this HIA suggested the following solutions for pedestrian safety:
 - longer times for pedestrian crossing
 - lower traffic speeds
 - traffic calming mechanisms, including more stop signs, and
 - removal of on-street parking.
- 10) **Safety Corridors. Create safety corridors that include both physical design elements and community-based solutions for supporting a safe environment near the main access points to the trail. (Construction and Long-term development phase)** Without the presence of safety corridors, access and use of the trail could be hindered. Safety corridors would include design features as well as community-based partnerships, as suggested by community survey participants and supported by previous research:
 - **Design features:** Ample lighting, retail or recreational destinations, absence of vacant buildings, pedestrian-oriented infrastructure and traffic calming measures as detailed above; and
 - **Community-based partnerships** for safety and security such as the Chicago Public School's Safe Passage program.

Access to and use of green space and parks – findings and recommendations

Key Research Questions

- A. How will increased access to green space impact health outcomes?
- B. Are there characteristics or features of green spaces that maximize health?
- C. What green space features can be recommended for the Englewood Line Trail to maximize potential positive health impacts?

Findings – Access to and Use of Green Space and Parks

Research Question Green Space-A: How will increased access to green space impact health outcomes?

The trail will provide increased opportunities for residents to access nature areas and green space. Increased access and exposure to green space has the potential to impact health positively. If the trail is constructed, all of the potential health impacts related to increased access to green space are likely to occur.

Positive impacts may include

- Improved mental health status
- Increased physical activity in residents may reduce the risk for/improve the outcomes of a number of health issues including adult and childhood obesity, diabetes, and premature mortality
- Increased access to diverse park facilities for populations that currently have inequitable access

Existing conditions

The percentage of youth and adults that do not engage in the CDC recommended amount of physical activity is high in Chicago (21.5% in youth and 29.2% in adults) compared to the U.S. overall (15.2% in youth and 21.5% in adults) (Centers for Disease Control and Prevention, 2013a, 2013b). In terms of mental health, the percentage of adults that report never, rarely, or sometimes receiving the social-emotional support they need is higher in Chicago (43.8%) compared to the U.S. (22.5%). In 2013, the average number of days that adults in Chicago reported their mental health as not good was 3.1 (Centers for Disease Control and Prevention, 2013a).

In the communities within a mile of the trail, multiple negative health indicators are significantly higher than the city overall, indicating that children and adults are suffering from acute effects of chronic disease in the area. For example, the hospitalization rates for diabetes in the study area are nearly 1.5 times the rates in the city overall. These health inequities are reflective of Chicago trends overall where communities of color and low income communities are disproportionately burdened with chronic disease. Life expectancy in Englewood is 70.7 years, seven years less than Chicago as a whole (77.8) and over ten years less than the community with longest life expectancy (Near North, 85.2). Englewood ranks fifth among Chicago's 77 neighborhoods in years of potential life lost. Figure 28 shows the health status of the study area.

Figure 28. Health status of study area.

Health outcomes of study area		0.5-mile buffer	1.0-mile buffer ¹	Chicago
Total Population		24,432	76,894	2,706,101
Adult Health Outcomes (%)²				
	Current asthma prevalence	NA	13.2	8.6
	Diabetes prevalence	NA	10.8	9.2
	High blood pressure	NA	36.4	26.9
	No reported physical activity in the past month	NA	24.0	21.9
	Fair/poor health status	NA	20.8	18.3
Hospitalizations (per 10,000)³				
	Due to asthma (age <5 years)	NA	52.2	35.7
	Due to asthma (age 65+)	NA	70.8	46.7
	Due to diabetes-related complications	NA	30.5	21.1

¹For adult health outcomes, 1.0-mile buffer includes the community areas of Englewood, West Englewood, and New City. For ED Visits and Hospitalizations, 1.0-mile buffer includes Zip Codes 60609, 60636, 60621. Data not available for 0.5-mile buffer area

²Source: Healthy Chicago Survey, 2014-2015. Adult refers to age 18+

³Source: Hospitalization Discharge Data, Illinois Department of Public Health, 2011

The Englewood and West Englewood area has a number of existing parks (Figure 29). Figure 30 describes the various forms of land-use for the community areas within the study area.

Figure 29. Green space and parks in the Englewood and West Englewood community areas.

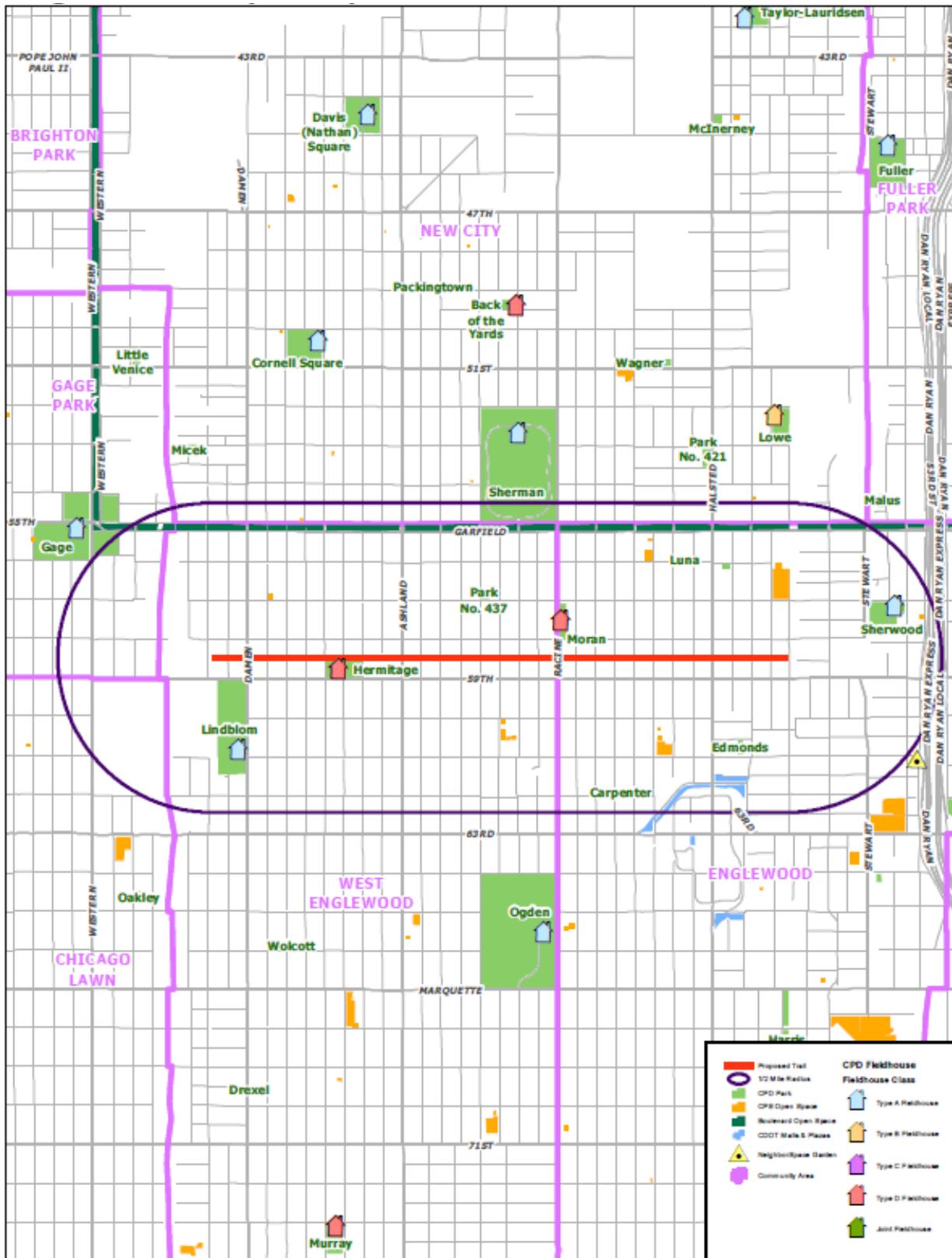


Figure 30. Land-use descriptions from the study area.⁹

Descriptions of the neighborhoods and current land-uses, moving from West to East along the proposed trail (Teska/Department of Planning and Development):

Damen Avenue – Bus routes and bike lanes, the nearby Lindblom Park and high school and economic development opportunities along Damen Avenue provide a commercial focus to this area.

Wood Street agriculture district / Hermitage Park – Key locations here include Hermitage Park and the adjacent Growing Home farms at Wood Street and Honore Street. With recent expansion by Growing Home, this is a likely area for fuller development of the Englewood Urban Agriculture District.

Ashland Avenue – With an average daily traffic count of 18,600, Ashland Avenue is the corridor's busiest cross street, and close to a small shopping center and other businesses.

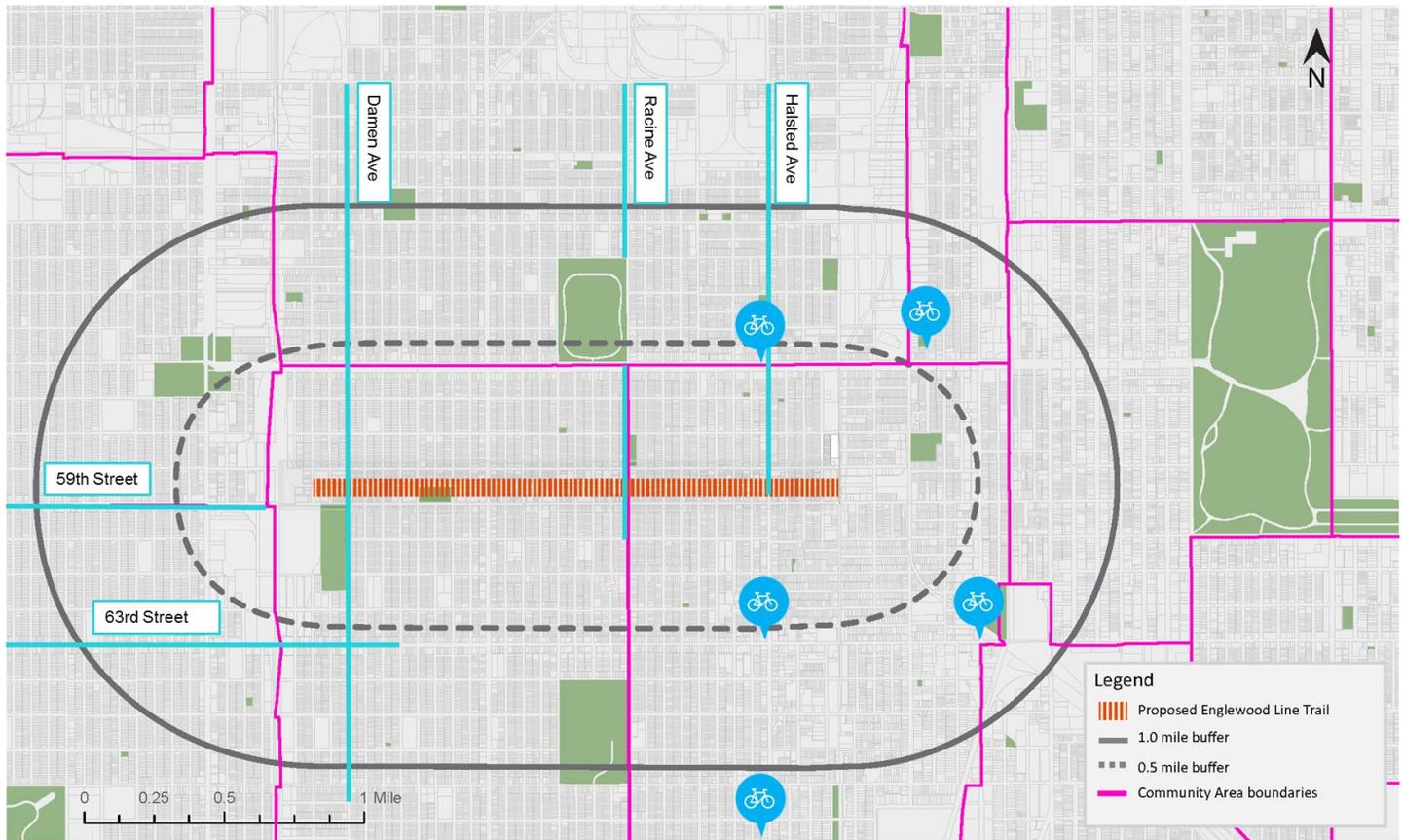
Racine Avenue / Bontemps school site – Neighborhood leaders are assessing reuse options for the closed Bontemps building, which is immediately adjacent to the trail and includes a playground that remains open and well used. Moran Park is one block north, and a large concrete structure one block west could provide interesting opportunities.

Halsted Street – Commercial activity nearby and strong transit links make Halsted a likely location for the eastern trailhead with connections along Halsted to Kennedy King College and the newly developing Englewood Square.

⁹ Provided by Teska/Department of Planning and Development
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Existing bicycle infrastructure in the area is limited, but the city has started to invest in some new infrastructure including five new Divvy shared bike stations that were installed in 2015 (Figure 31).

Figure 31. Bike routes and DIVVY stations in or near the study area, 2015.



Literature review

Mental Health. Research supports a strong relationship between exposure to nature and the reduction of stress, depression, anxiety, and improved concentration and cognitive function (Bowler, Buyung-Ali, Knight, & Pullin, 2010; Bratman, Hamilton, & Daily, 2012; Konijnendijk, Annerstedt, Busse Nielsen, & Maruthaveeran, 2013; Lee & Maheswaran, 2011).

The strongest relationships found in research so far have been between access to green space and decreased stress, anxiety, and depression. Significant findings in previous research studies included the following:

- There is a significant dose-response relationship between viewing increased tree cover on a neighborhood street and stress reduction for men (Jiang, et al, 2014).
- Individuals living in an urban area with more green space were more likely to report lower mental distress (White, Alcock, Wheeler, & Depledge, 2013)
- Density of green space had a significant impact on perceived general good health and the relationship was more pronounced for lower socio-economic groups (Maas, Verheij, Groenewegen, Vries, & Spreeuwenberg, 2006)
- Less green space is associated with feelings of loneliness and a perceived shortage of social support (Maas, Verheij, Spreeuwenberg, & Groenewegen, 2008).
- Chicago public housing residents living in greener areas reported less aggression, violence, and mental fatigue (Kuo & Sullivan, 2001).

Physical Activity. The CDC recommends that adults engage in at least 150 minutes of moderate-intensity aerobic activity every week and muscle-strengthening activities on two or more days a week that work all major muscle groups (Centers for Disease Control and Prevention, 2015). The CDC recommends that children and adolescents engage in 60 minutes or more of physical activity each day (2015). Adults and children who are physically active are healthier and less likely to develop many chronic diseases than those who are not active regardless of their gender or ethnicity (Office of Disease Prevention and Health Promotion, 2016). Construction of the trail and the resulting increased access to green space may increase physical activity among nearby residents and indirectly decrease their burden of chronic disease and mortality.

Significant findings in previous research studies found the following:

- A large cross-sectional longitudinal study in England found that in urban environments there is a positive association between density of green spaces and increased physical activity (Mytton, Townsend, Rutter, & Foster, 2012).
- A study of the youth population in California indicated that adolescents who visited a park in the past month and those who live in a park service area were more likely to meet the 60 minutes of physical activity five or more days a week requirement (Babey, Wolstein, Krumholz, Robertson, & Diamant, 2013).
- Exercise levels of adults who live near a park are higher than the levels for those who live farther away (Cohen, et al., 2007).
- Park density in urban areas is positively associated with increased physical activity, an increased likelihood of engaging in the recommended amount of physical activity for adults, and healthy weight (West, Shores, & Mudd, 2012).
- A higher density of green space is associated with children and youth maintaining healthy weights (Bell, Wilson, & Liu, 2011).
- Income deprivation-related health inequalities in all-cause mortality, and mortality from circulatory diseases were significantly lower among populations who live in the greenest areas (Mitchell & Popham, 2008).

Research Question Green Space-B: Are there characteristics or features of green spaces that maximize health?

Literature review

Because characteristics, features, and amenities available in parks, trails, and green spaces influence their usage, they could indirectly influence health outcomes. Inclusivity, perceived safety, and upkeep of the trail are characteristics that may influence resident's decision to utilize the trail.

Significant findings in previous research include the following:

- Green spaces should promote inclusivity and respond to the needs of various ages, ethno-cultural interests, and levels of mobility in order to maximize health benefits (Gidlow & Ellis, 2011; Tinsley, Tinsley, & Croskeys, 2002).
- A variety of park facilities and amenities might increase adult and youth usage of parks (Gidlow & Ellis, 2011).
- A lack of green space maintenance, dissatisfaction with community facilities, and feeling unsafe may negatively impact the usage of green spaces in urban environments (Guite, Clark, & Ackrill, 2006).

Existing park programs, amenities, and facilities

The proposed trail would serve as a new type of recreational amenity for nearby communities. In addition, residents hope that the trail will spur additional development of outdoor spaces and businesses along its length (Hitchcock Design Group, 2009). The creation of a trail corridor between points of interest in the community could improve walkability and encourage active transportation among residents. Previous research has indicated that attributes of green spaces such as minor traffic, esthetically pleasing design, sidewalks, trees, and retail shops are positively correlated with increased physical activity (Giles-Corti, et al., 2005).

The availability of programs, amenities, and facilities may also impact use of the proposed trail. There are ten existing parks in or near the 1.0-mile buffer zone of the proposed trail site. A survey of park managers and investigation into the programs provided by each park location was conducted. The goal was to identify amenities and facilities that should be considered in the design of the proposed trail and identify any gaps or opportunities for creating a more inclusive green space.

Matrices were utilized to catalog existing park features (Tables 3-7). The matrices are based on the examples provided in the CDC and National Parks Service's *Parks, Trails, and Health Workbook*.¹⁰

Park Facilities. An approximate total of 142 recreation facilities are available in the existing parks nearest the proposed trail site. The most common recreation facilities that are available in the parks are baseball fields, outdoor basketball courts, football/soccer fields, playgrounds, and tennis courts. All of the recreation facilities (142) are available during the summer and a slightly smaller number are available in the spring and fall (132). Only 28 of the facilities are available during the winter. Most of the facilities are available late morning through evening (9am-9pm) and on weekends. Several facilities (120) are also available in the early morning (6am-9am).

Some of the least available recreational facilities are community gardens, water playgrounds, and walking/running tracks. The available recreation facilities are heavily focused on serving individuals 10-54 years of age. There are fewer facilities available for children under 10 and older adults aged 55 or over.

¹⁰ Centers for Disease Control and Prevention & the National Park Service. (2016). *Parks, Trails, and Health Workbook: A Tool for Planners, Parks & Recreational Professionals, and Health Practitioners*.
https://www.cdc.gov/healthyplaces/healthtopics/parks_trails_workbook.htm

Table 3. Park recreation facilities matrix.

	Baseball Field	Basketball (outdoor)	Football/ Soccer Field	Playground	Tennis Court	Community Garden	Water Playground	Walking/ Running Track	Total (Count)
Lindblom Park	4	4		1	2	1		1	13
Hermitage Park	1	2	1	1					5
Gage Park	5	2	2	1	6	1		1	18
Sherman Park	5	4	3	3	2			1	18
Park 437									0
Moran Park		3		1		1			5
Emerald Park		3							3
Sherwood Park	2	3	1	1					7
Edmonds Park				1					1
Carpenter Park				1					1
Ogden Park	9	12	4	3	4		1	1	34
Total (Count)	26	33	11	13	14	3	1	4	

Table 4. Park recreation facilities matrix.

TIME OF DAY	Total Count of Facilities Available at All Parks
Early Morning (6am-9am)	52
Late Morning (9am-12pm)	73
Early Afternoon (12pm-3pm)	73
Late Afternoon (3pm-5pm)	73
Evening (5pm-9pm)	72
Weekend	72
SEASON	Total Count of Facilities Available at All Parks
Winter	20
Spring	63
Summer	73
Fall	63

AGE GROUP	Total Count of Facilities Available at All Parks
Under 10	48
10 to 14	64
15 to 19	53
20 to 34	53
35 to 54	53
55 to 70	38
Over 70	27

Park Programs. More than 200 park programs are available near the trail site. The most common park programs available are open basketball, coached basketball, seasonal sports, swimming lessons, and teen clubs. Some of the least common park programs are senior citizen club, walking club, weight training, Zumba, fun with food, adult swim, aerobics, and aquatic exercise. Park programs are focused on children under 10 and adolescents aged 10-19. There are fewer programs available for adults aged 20 or older. Most programs occur in the late afternoon (3pm-5pm) or evening (5pm-9pm) on weekdays. The fewest number of programs are available in the early morning (6am-9am).

Table 5. Park programming matrix.

	Basketball (Open)	Basketball (Coached)	Seasonal Sports	Swimming Lessons	Teen Club	Aerobics	Adult Swim	Aquatic Exercise	Fun w/ Food	Senior Citizen Club	Walking Club	Weight Training	Zumba	Total Count
Lindblom Park	3	2	1		4					2				12
Hermitage Park			2		2					1	1			6
Gage Park	5	4	6	2	1	2			1			1		22
Sherman Park	3	5	12		3									23
Park 437														0
Moran Park			2		2									4
Emerald Park														0
Sherwood Park	5	6	7	22	2		1	1					1	45
Edmonds Park														0
Carpenter Park														0
Ogden Park	4	1			2	2				1				10
Total (Count)	20	18	30	24	16	4	1	1	1	4	1	1	1	

Table 6. Park programming matrix.

TIME OF DAY	Total Count of Programs Available at All Parks
Early Morning (6am-9am)	2
Late Morning (9am-12pm)	12
Early Afternoon (12pm-3pm)	14
Late Afternoon (3pm-5pm)	40
Evening (5pm-9pm)	46
Weekend	14
AGE GROUP	Total Count of Programs Available at All Parks
Under 10	47
10 to 14	57
15 to 19	52
20 to 34	32
35 to 54	30
55 to 70	27
Over 70	26

Park Amenities. Approximately nine different types of park amenities are available in parks near the proposed trail site including outdoor and indoor drinking fountains, outdoor and indoor bathrooms, bike racks, picnic tables, seating, shaded seating, and open lawns. Some of the most commonly available amenities are seating and shaded seating. Drinking fountains, bathrooms, open lawns, picnic tables, and bike racks are less common in parks near the trail site. Almost all of the amenities in nearby parks are available throughout the week (6am-9pm weekdays and on weekends) and year-round.

Table 7. Park Amenities Matrix.

	Seating	Shade	Outdoor Drinking Fountains	Indoor Drinking Fountains	Bike Racks	Picnic Tables	Open Lawn	Outdoor Bathrooms*	Indoor Bathrooms*	Total (Count)
Lindblom Park	6	2	unknown	2	0	2	1	unknown	2	15
Hermitage Park	6	4	1	1	1	0	1	1		15
Gage Park	6	2	2		1	0	1		1	13
Sherman Park	60	60	2	unknown	1	0	1	unknown	2	126
Moran Park	6	6	1	1	0	0	1	0	1	16
Emerald Park	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	0
Sherwood Park	5	2	2	3	0	0	2	unknown	2	16
Carpenter Park			1			0	1	unknown	0	2
Ogden Park	15	15	3	1	1	4	1	0	1	41
Total (Count)	104	91	12	8	4	6	9	1	9	

*Note: a set of 1 female bathroom and 1 male bathroom is recorded as 1.

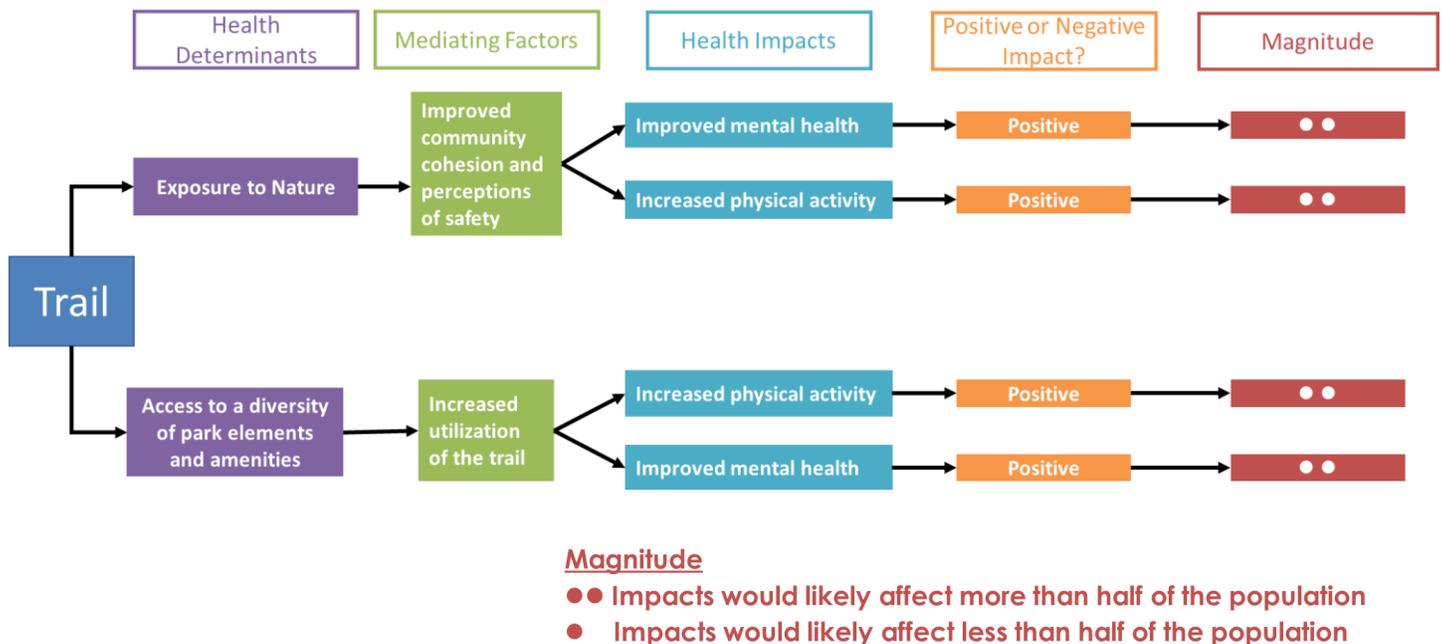
Predicted impacts of access to green space on health

It is anticipated that the impacts of trail use will be positive and will occur in the following ways:

- If trail usage provides increased access to nature for community residents, then it may improve mental health status.
- If the trail design incorporates diverse elements and amenities such as benches, picnic tables, restrooms, disabled access, and playgrounds it may increase residents' usage of the trail leading to overall increases in physical activity and its associated health benefits.

The predicted health impacts of improved mental health and increased physical activity would likely have a positive impact on many residents. In addition, the use of inclusive trail design that incorporates a diversity of park elements would likely have a positive impact. A pathway diagram with predicted impacts is shown in Figure 32.

Figure 32. Pathway diagram and summary of predicted impacts for access to green space.



Populations that are more likely to experience the health impacts of access to green space and benefit from inclusive trail design include low income families, older adults, children and youth, ethnic and racial minorities, and individuals with disabilities.

Recommendations – Access

- 1) **Addressing gaps in park facilities and programs. Address the gaps in current park facilities and programs particularly for young children under 10, youth, and older adults. (Long-term development phase)** Potential opportunities include:
 - Recreation facilities with extended hours in the early morning (6am-9am) and with availability during winter months; and
 - Park programming such as aerobics classes, senior citizen clubs, walking clubs, weight training, and Zumba classes that are available throughout the day including early morning (6am-9am).
- 2) **Diverse park amenities to maximize trail usage. Maximize physical activities among a variety of age groups. (Long-term development phase)** It is recommended that diverse design

elements such as seating, drinking fountains, bathrooms, bike racks, and picnic tables be incorporated into trail development plans to maximize physical activities along the trail.

- 3) **Accessibility. Use inclusive park features in the planning, design, and development of the trail to ensure accessibility for all residents, including those living with disabilities. (Design, Construction, and Long-term development phases of the trail)** Park features will depend on final trail design and resource constraints, but potential opportunities for promoting inclusivity include:
- Ramps and gates at trail access points that meet accessibility guidelines for individuals with disabilities such as those outlined for outdoor developed areas on federal lands¹¹;
 - Restrooms and drinking fountains specifically designed for individuals with disabilities;
 - Firm and stable trail surfaces;
 - Minimal use of obstacles in trail construction such as openings in the trail surfaces, protruding objects, or tread obstacles; and
 - Spaces for maneuvering, resting, or changing direction of travel on the trail.

¹¹ <https://www.access-board.gov/guidelines-and-standards/recreation-facilities/outdoor-developed-areas/final-guidelines-for-outdoor-developed-areas>

Environmental conditions – Traffic-related air pollution

Key Research Questions

- A. What are the potential health effects of exposure to traffic-related air pollution?
- B. Are there any factors that may mitigate any potential negative health effects of exposure to air pollution?

Findings – Traffic-related air pollution

Research Question, Traffic-related Air Pollution-A: What are the potential health effects of exposure to traffic-related air pollution?

Utilization of the trail may increase residents' exposure to traffic-related air pollution because of the trail's close proximity to roads that are heavily trafficked by cars and commercial trucks. Increased exposure to air pollution may impact health negatively. If the trail is constructed and utilized by residents, the negative health impacts are possible, however, the risks may be substantially offset by the benefits of physical activity.

Negative impacts may include

- Worsening of respiratory or cardiovascular illnesses, increased mortality, and increased cancer risks mitigated by the benefits of physical activity

Existing conditions

As previously stated, in the communities within a mile of the trail, hospitalization rates for asthma among children under five and older adults are nearly 1.5 times the rate for the city overall (City of Chicago, Chicago Department of Public Health, 2014). In 2012, cancer-related mortality was high in Englewood (255 deaths per 100,000 population) and West Englewood (226 deaths per 100,000 population) compared to Chicago overall (187 deaths per 100,000 population) (Illinois Department of Public Health, 2012). In addition, coronary heart disease mortality is high in Englewood (331 deaths per 100,000 population) and West Englewood (261 deaths per 100,000 population) compared to Chicago (217 deaths per 100,000 population) (Illinois Department of Public Health, 2012).

For the stretch of 59th Street between Western and Ashland, the main roadway nearest the trail site, it was found that traffic volumes were low, but with a higher than expected proportion of truck traffic and high average speeds. The average annual daily traffic (AADT) in 2014 for this stretch was 10,600, relatively low compared to other arterials in Chicago. The vehicle classification counts show that nearly 16% of the volume is truck traffic (vehicles 23' or longer). The city would normally expect 1-2% of arterial volume to be truck traffic, but the higher proportion along 59th is understandable given the light industrial uses along the corridor and the intermodal yard at its western end. The 85th percentile speed, a benchmark used to determine typical travel speeds is 35 miles per hour, 5 miles per hour higher than the posted speed limit (Source: Personal communication, Chicago Department of Transportation). A high proportion of diesel truck engines and higher than posted speeds have been linked to higher vehicle emissions on and near roadways (European Environment Agency, 2011; Susannah Grice, et al., 2007).

Literature review

Traffic-related air pollution. Research indicates that there are several highly negative health impacts associated with increased exposure to air pollution (Greenbaum, 2009). Mounting evidence from epidemiological research has shown that motor vehicle exhaust and its related traffic-generated dust contributes to four major health threats: increased mortality, respiratory illnesses (asthma), impaired cardiovascular functions, and increased cancer risk (Frumkin, Frank, & Jackson, 2004).

Significant findings from previous research:

- Roadways generally influence air quality within a few hundred meters (500-600 feet) downward from heavily trafficked roadways or among corridors with significant trucking traffic or rail activities (US EPA, 2014).
- A population's distance from a roadway and traffic density along busy roadways are the most critical factors related to pollutant exposure and health outcomes (US EPA, 2014).
- Living near a heavily trafficked street has been linked with acute and chronic respiratory symptoms, including cough and mucous production in children and adults (Oosterlee, Drijver, Lebret, & Brunekreef, 1996).
- Short-term exposure to high air pollution is associated with increased mortality and increased hospital admissions for respiratory and cardiovascular disease (Brunekreef & Holgate, 2002; Shah, et al., 2015).
- The International Agency for Research on Cancer (IARC), a part of the World Health Organization, has classified outdoor air pollution as a cancer-causing agent (carcinogen) (American Cancer Society, 2013). In addition to overall air pollution, diesel engine exhaust, solvents, metals, dust, and particulate matter are specifically classified as carcinogens (American Cancer Society, 2013).
- Exercise increases the uptake of air into the lungs, therefore, vigorous exercise on highly polluted days could make individuals more susceptible to the effects of air pollution (Carlisle & Sharp, 2001).

Research Question, Traffic-related Air Pollution-B: Are there any factors that may mitigate any potential negative health effects of exposure to air pollution?

If the trail is constructed and utilized by residents, negative health impacts are possible. However, those negative impacts may be mediated by the benefits of physical exercise, individual behaviors, and the utilization of mixed-use and walkable urban design.

Significant findings from previous research:

- There are several individual-level practices that might reduce the health risks associated with exercising on days when air pollution is high including monitoring of daily air quality, careful timing of workouts to avoid rush hours with heavy traffic, and exercising indoors on days with poor air quality (Laskowski, 2014; Laumbach, Meng, & Kipen, 2015).
- A study that examined the risk-benefit balance of exposure to air pollution and physical activity in urban environments around the world found that the benefits of physical activity and active travel outweighed the harm caused by air pollution in all but the most extreme air pollution concentrations (Tainio, et al., 2016).
- A large longitudinal study in Denmark of adults aged 50-64 found that exposure to high levels of air pollution did not significantly decrease the benefits of physical activity for older adults (Andersen, et al., 2015).
- A large review of the literature was utilized to estimate the effects of physical activity and air pollution on mortality (Hartog, Boogaard, Nijland, & Hoek, 2011). It was found that the beneficial effects of physical activity, including increased lifespan, were substantially higher than the risk of increased mortality due to exposure to air pollution (Hartog, et al., 2011).

- Mixed land use and a focus on walkable/connected urban design could increase physical activity and active transport while decreasing local air pollution (Frank & Engelke, 2005).
- Management of urban tree canopies, increased vegetation, and green roofs on nearby buildings might decrease local air pollution (Currie & Bass, 2008; Nowak, Crane, & Stevens, 2006).

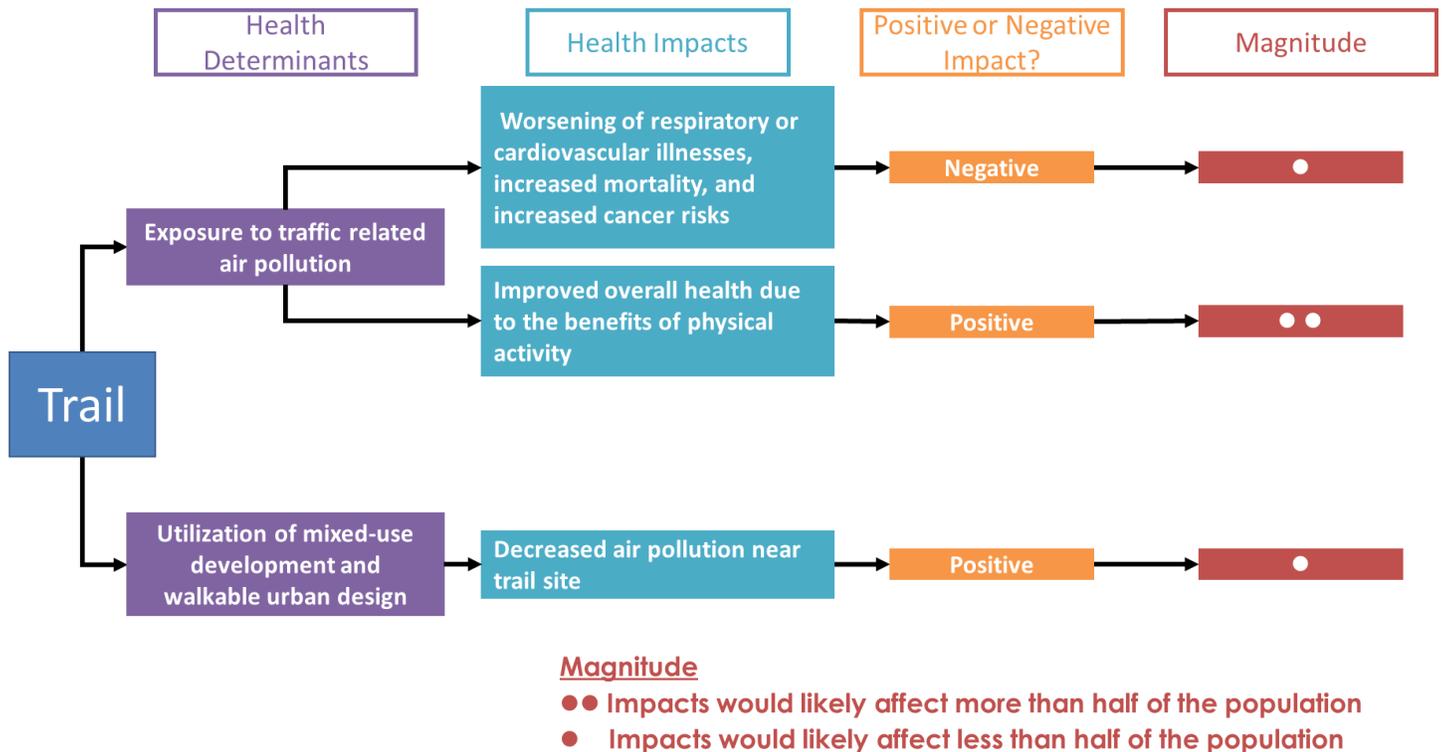
Predicted impacts of traffic-related air pollution

Based on the strength of previous research and the heavy automobile and truck traffic expected on nearby roadways, it is anticipated that the health impacts of traffic-related air pollution could be negative. However, evidence suggests that the many benefits of physical activity substantially outweigh the potential negative impacts of exposure to air pollution. Utilizing vegetation and tree cover along with mixed-use and connected/walkable urban design strategies may further decrease local air pollution near the trail site.

- If residents utilize the trail, particularly for vigorous physical exercise or on highly polluted days, it may increase their risks for complications with respiratory illness, impaired cardiovascular function, cancer, and premature mortality because of the trail's proximity to sources of air pollution, however, those risks are offset by the benefits of physical activity.

The populations that are more likely to experience the negative health impacts of exposure to air pollution while using the trail to exercise include adults and children with pre-existing respiratory illnesses, children and adolescents, older adults, pregnant women and their unborn fetuses, individuals with diabetes, and individuals with heart or lung disease. Figure 33 is a pathway diagram with predicted impacts for exposure to traffic-related air pollution.

Figure 33. Pathway diagram and summary of predicted impacts for exposure to traffic-related air pollution.



Recommendations – Air Quality

The HIA recommendations are divided into three phases: design, construction, and long-term development.

- 1) **Air Quality Index. Utilize existing resources to alert residents about days when air quality is unhealthy for sensitive groups. (Long-term development phase before public access to the trail begins)** Partners for Clean Air Illinois creates press releases about metropolitan Chicago air pollution action days when air quality is unhealthy for sensitive groups <http://illinois.enviroflash.info/signup.cfm>. A method for ensuring that this information is communicated effectively to community residents is highly recommended. For example, air pollution action alerts could be communicated through the Englewood Portal and other existing communication methods.
- 2) **Particulate Matter. Evaluate potential risks related to exposure to air pollution. (Prior to Construction and Long-term development phases)** It is recommended that a risk assessment be conducted by an environmental consultant to evaluate any potential risks related to air pollution that may be involved in pedestrian use of the trail.
- 3) **Buffer zones for air quality. Create buffer zones that limit foot traffic near intermodal yards to decrease exposure to air pollution. (Design, Construction, and Long-term development phases)** Buffer zones could take the form of a bird sanctuary or other green space that fits into the overall design aesthetic for the trail corridor. If trail access points are located near intermodal facilities, analysis of truck volumes and related diesel emissions and their impact on trail users should be considered.

Environmental conditions – Presence of contaminated sites / brownfields

Key Research Questions

- A. What are the potential health effects of the brownfields and vacant lots that are adjacent to the proposed trail site?
- B. What are the broad socioeconomic impacts that brownfield remediation could have on the local community?

Findings – Brownfields

Research Question, Brownfields-A: What are the potential health effects of the brownfields and vacant lots that are adjacent to the proposed trail site?

There are more than 18 acres of vacant properties adjacent to the trail site and most have been identified as brownfields. The presence of brownfields or abandoned buildings near the trail site that have not been remediated may have negative impacts on the health of residents utilizing the trail and living nearby. With remediation or reuse of brownfields, positive impacts on the health of residents are possible through a decrease in potentially toxic exposures and a mitigation of the broader socioeconomic impacts of brownfields in a community.

Positive impacts may include

- Brownfield redevelopment can spur improved economic activity, increased odds of successful urban redevelopment, potential decreases in crime, and potential improvements in property values
- Decreased exposure to potentially toxic contaminants in air, soil, and water
- By altering the negative conditions that broadly influence health outcomes, particularly environmental conditions associated with brownfields, communities can impact the behavior and lifestyle of those who work or reside near brownfields or blighted sites (US EPA, 2016).

Negative impacts may include

- Respiratory illnesses, cancers, and a variety of other health issues depending on the type and amount of contaminants at a site
- Increased mortality in infants, children, and adults
- Residents and workers near abandoned buildings and unmaintained brownfields are at increased physical and fire risk hazards
- Associations between vacant properties and increased crime, arson rates, decreased property values, and poor quality of life for residents in the nearby communities

Existing conditions

The communities surrounding the trail have similar proportions of owners and renters to the city overall, with slightly lower proportions of owner-occupied housing compared to the city overall.¹² However, it is also important to keep in mind that these communities have very high rates of vacant properties. There are more than 18 acres of vacant property adjacent to the trail site (Hitchcock Design Group, 2009).

¹² American Communities Survey, 2009-2013.
Englewood Line Trail – Health Impact Assessment

Literature review

Brownfield contamination. Brownfields are properties that have been left vacant or abandoned and are known to have potential environmental contamination (US EPA, 2015). Environmental contamination complicates the expansion, reuse, or redevelopment of brownfield properties (US EPA, 2015). Communities of color have been disproportionately affected by the high unemployment, poverty, historic divestment, and health disparities that come along with brownfields (Karaoglu, 2004; US EPA, 2016). As previously stated, within the 1.0-mile buffer area of the proposed trail site, 21% of the population identifies as Hispanic/Latino. Within the 0.5-mile geography, 96% of the population identifies as African American/black. The community areas near the trail site have been experiencing large-scale depopulation, ongoing divestment, and high economic hardship over the last several decades. As a result, there is a high percentage of brownfields and abandoned buildings near and directly adjacent to the proposed trail location. Construction workers on the project and community residents utilizing the trail may be exposed to harmful contaminants from nearby brownfield sites and abandoned buildings if the sites are not remediated.

Significant findings from previous research:

- The health risks associated with brownfields vary on a site-by-site basis. However, case studies in 1999 performed by the US EPA across the U.S. found that the most common environmental contaminants found at brownfield sites include lead, construction debris (lead paint or asbestos-containing materials), polychlorinated biphenyls (PCBs), treated woods, heavy metals, fuels, and industrial chemicals (US EPA, 1999).
- Some of health effects associated with the most common brownfield contaminants include neurological disturbances, anemia, fatigue, depression, vomiting, hypertension, gastrointestinal conditions, renal failure, miscarriage, developmental problems, preterm births, various cancers, and increased mortality in children and adults (Baibergenova, Kudyakov, Zdeb, & Carpenter, 2003; Batuman, Landy, Maesaka, & Wedeen, 1983; Brender, Maantay, & Chakraborty, 2011; Ding, 2011; Fu & Boffetta, 1995; Gardella, 2001; Lin, Lin-Tan, Hsu, & Yu, 2003; Prasad & Nazareth, 2000).
- Abandoned buildings that are not maintained or secured increase the risk of physical injury and increase fire hazards for nearby residents and workers (Greenberg, 2002).
- Vacant properties in otherwise developed areas may be associated with increased crime and arson rates, decreased property values, and negative impacts on quality of life for residents in the surrounding community (National Vacant Properties Campaign, 2005; Spelman, 1993).

Research Question, Brownfields-B: What are the broad socioeconomic impacts that brownfield remediation could have on the local community?

Brownfield remediation. Remediating and redevelopment of a brownfield site entails cleaning a location to acceptable health standards (US EPA, 2016). When successful, these sites can generate positive health impacts by reducing the health risks associated with the contamination (Paull, 2008; Solitare & Greenberg, 2002; US EPA, 2015). Brownfield redevelopment not only reduces the health risks to nearby residents and workers, but it can have many positive socioeconomic effects on the community including increased jobs, revitalization of urban development opportunities, increases in property values, and decreases in crime (National Vacant Properties Campaign, 2005; Spelman, 1993; US EPA, 2015).

Significant findings from previous research:

- Brownfield cleanup has demonstrated measurable economic and public health benefits in many communities (De Sousa, Wu, & Westphal, 2009; Litt, Tran, & Burke, 2002; Paull, 2008; Solitare & Greenberg, 2002; US EPA, 2015, 2016).
- A 2011 study in Philadelphia found reductions in certain crimes following the redevelopment of vacant and abandoned properties (Branas, et al., 2011).
- The successful redevelopment of brownfield sites can serve as a catalyst for the resurgence of surrounding areas and thus help reduce a community's health impacts associated with urban sprawl (Greenberg, 2002).
- Removing contaminated sites from the community provides new residential opportunities, schools, and retail businesses that would provide attractive options for residents (Greenberg, 2002; Heberle & Wernstedt, 2006).
- Making the connection between environmental justice, public health disparities, and brownfield redevelopment in urban neighborhoods is a key component to urban revitalization efforts (Litt, et al., 2002).

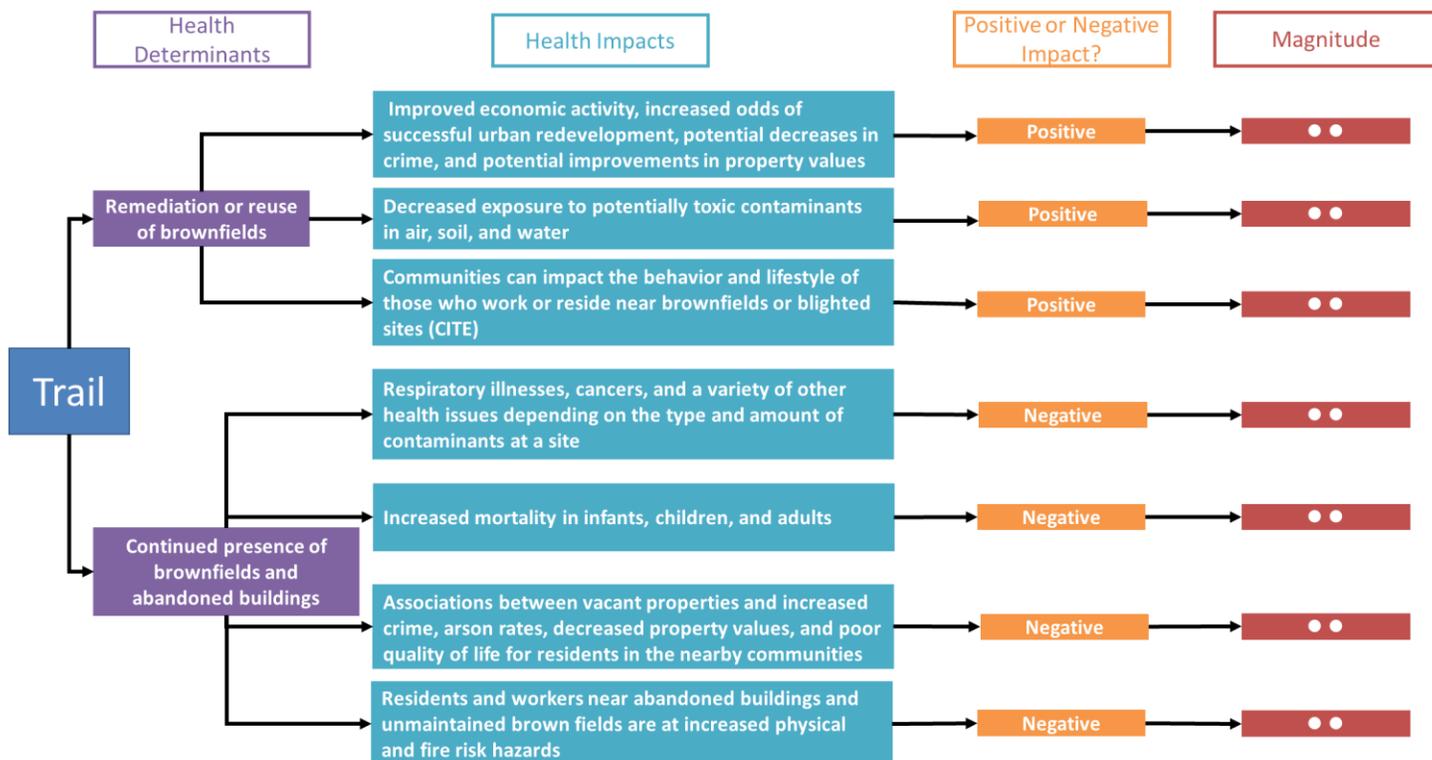
Predicted impacts of the presence of brownfields in a community

Based on the evidence available, the presence of brownfields in the areas adjacent to the proposed trail site is anticipated to be both positive and negative depending on the following factors:

- If brownfields and abandoned buildings on publicly owned or managed land adjacent to the trail site are not remediated, it may increase the risk of toxic contamination, premature mortality, chronic disease, and physical injury in those who utilize the trail and those who live or work in the surrounding communities.
- If brownfields, vacant lots, and abandoned buildings are not redeveloped or controlled near the trail, then it may perpetuate socioeconomic disparities in the surrounding communities.
- Remediation of brownfields and vacant properties may improve the socioeconomic conditions of the nearby communities, improve the odds of successful redevelopment, and help reduce negative associations with the surrounding neighborhoods. Remediation would reduce the risks of potential toxic exposures in residents utilizing the trail and surrounding areas.

The continued presence of brownfields and abandoned buildings in the study area could have a negative impact on many residents. The remediation or reuse of brownfields could have positive effects on many residents. Figure 34 is a pathway diagram with predicted impacts of brownfields in the communities surrounding the trail site. The populations that are more likely to experience the negative health and socioeconomic impacts of brownfields and vacant lots include low income communities, communities of color, older adults, children, expectant mothers, construction workers, and nearby residences.

Figure 34. Pathway diagram and summary of predicted impacts for brownfields in the communities surrounding the trail site.



Magnitude

- Impacts would likely affect more than half of the population
- Impacts would likely affect less than half of the population

Recommendations - Presence of contaminated sites / brownfields

The HIA recommendations are divided into three phases: design, construction, and long-term development.

- 1) **Environmental testing.** The Chicago Department of Fleet and Facility Management (2FM) should conduct environmental testing on the soil in all publicly owned and/or managed properties near the trail where increased public use is expected. **(Prior to Construction and Long-term development phases)**. All public spaces adjacent to the trail should undergo thorough environmental testing, particularly those that will be accessed by children.
- 2) **Remediation or mitigation of potential health threats.** It is recommended that the Department of Fleet and Facility Management remediate or mitigate residents' exposure to identified environmental contaminants within publicly owned or managed lands on or near the trail site. **(Construction and Long-term development phases before pedestrian access to the trail begins)** A wide range of remediation and mitigation approaches that are cost effective and meet the needs of the community could be used.
- 3) **Raising resources for remediation or mitigation of brownfield sites.** The Department of Fleet and Facility Management, other city agencies, and community-based organizations could partner to identify and apply for funding to remediate or mitigate brownfields along the Englewood Line Trail corridor so that the adjacent space can be developed for a range of uses. **(Long-term development phase)**

Economic and workforce development

Key Research Question

- A. What are the potential health impacts of economic and workforce development in the communities near the trail site?

Findings – Economic Development

Research Question, Economic Development-A: What are the potential health impacts of economic and workforce development in the communities near the trail site?

Economic and workforce development. The proposed trail site bisects communities on the South Side of Chicago that have experienced severe socioeconomic and health disparities including long-term and continued divestment, extreme poverty in children and adults, high crime, poor educational opportunities, high unemployment, and food insecurity. The positive health impacts that could result from construction and development of the trail site and adjacent properties are possible, particularly if the local workforce, local businesses, and community-based organizations are leveraged during the process.

Positive impacts may include

- Economic development opportunities in low-income communities
- Workforce development and job creation for lower-skilled and hard-to-employ individuals
- Increased access to quality, affordable fresh fruits and vegetables

Existing conditions

There are high levels of economic hardship in the communities surrounding the trail, and unemployment is particularly high at over 33% compared to 13.6% overall in Chicago. Educational attainment is a strong predictor of long-term socioeconomic status (Centers for Disease Control and Prevention, 2012). The percent of the population without a high school education is higher within 0.5 mile (25.0%) and 1.0 mile (32.2%) of the trail site compared to 19.5% in the city overall.

Development of the trail represents an opportunity to bring significant investment and improved quality of life for individuals in these communities. Community residents hope that the trail will become a focal point for a variety of public and private improvements and business developments along its length (Hitchcock Design Group, 2009). In addition, residents believe that development of the trail will provide a much needed recreational amenity and convert an unsightly railroad right-of-way to productive use (Hitchcock Design Group, 2009). These improvements could provide highly visible and highly tangible evidence of the redevelopment, investment, and transformation opportunities underway in the community (Hitchcock Design Group, 2009).

Literature review

In recent decades, the link between socioeconomic status (SES) and health outcomes has been well-documented, and is even considered the “most fundamental cause of health disparities” (Adler & Newman, 2002). In fact, empirical evidence of the SES gradient on population health was specifically featured by the National Center for Health Statistics annual report on our nation's health status (National Center for Health Statistics, 2012). This data shows that low-income communities,

especially communities of color, have higher rates of morbidity and poor health outcomes (National Center for Health Statistics, 2012). In addition, early research on the relationship between health and economic development both inside and outside the U.S. demonstrates the need for continued social investment (Strauss & Thomas, 1998).

Significant findings from previous research:

- Concentrated poverty is associated with reduced economic development and high levels of exposure to health risks such as poor nutrition, psychological stressors, and decreased social capital (Saegert & Evans, 2003; Strauss & Thomas, 1998).
- Socioeconomic status is directly tied to education, income, and occupation, which relate to risk factors such as cardiovascular disease (Adler & Newman, 2002)
- Career pathways and long-term workforce development programs targeted to low-income communities can alleviate unemployment and create opportunities for healthier lifestyles (Gash & Mack, 2010). Additional research shows that early childhood development, job creation, and economic investment in low-income communities promote healthier, longer lives (Adler & Newman, 2002; McGinnis, Williams-Russo, & Knickman, 2002).
- Through the support of the Joyce Foundation, federal stimulus dollars, and other fiscal resources, the Shifting Gears Initiative helped implement career pathway and bridge programs for low-income adults (Bragg, Dresser, & Smith, 2012). This initiative led to new policy and incentives linking education and training efforts to better equip low-income adults with the skills needed for employment, which has a positive impact on overall health and well-being (Bragg, et al., 2012). More than a dozen local and state model career ladder/pathway programs developed by community colleges, government, and the private sector have been successful in providing jobs to “hard-to-employ” individuals (Gash & Mack, 2010).
- Numerous studies suggest the lack of availability of quality, affordable fresh fruits and vegetables in low-income communities leads to decreased rates of consumption and therefore diet-related disease and illness (Horowitz, Colson, Hebert, & Lancaster, 2004; Laraia, Siega-Riz, Kaufman, & Jones, 2004).
- Urban agriculture can help to develop increased self-reliance in communities (Johnson, 2004; Mok, et al., 2013). Local self-reliance for food comes with a number of economic and social benefits including community empowerment (Johnson, 2004). There is strong evidence that community gardens and urban agriculture improve the economic standing of nearby communities through improved property values and that the effect is most prominent in disadvantaged communities (Been & Voicu, 2006).
- Multiple studies suggest that there are direct and indirect benefits to developing green space in a community including increased property value and the associated tax revenue, job creation, new-business start-ups, and new private investment opportunities (Saraev, 2012).

Predicted impacts of economic development

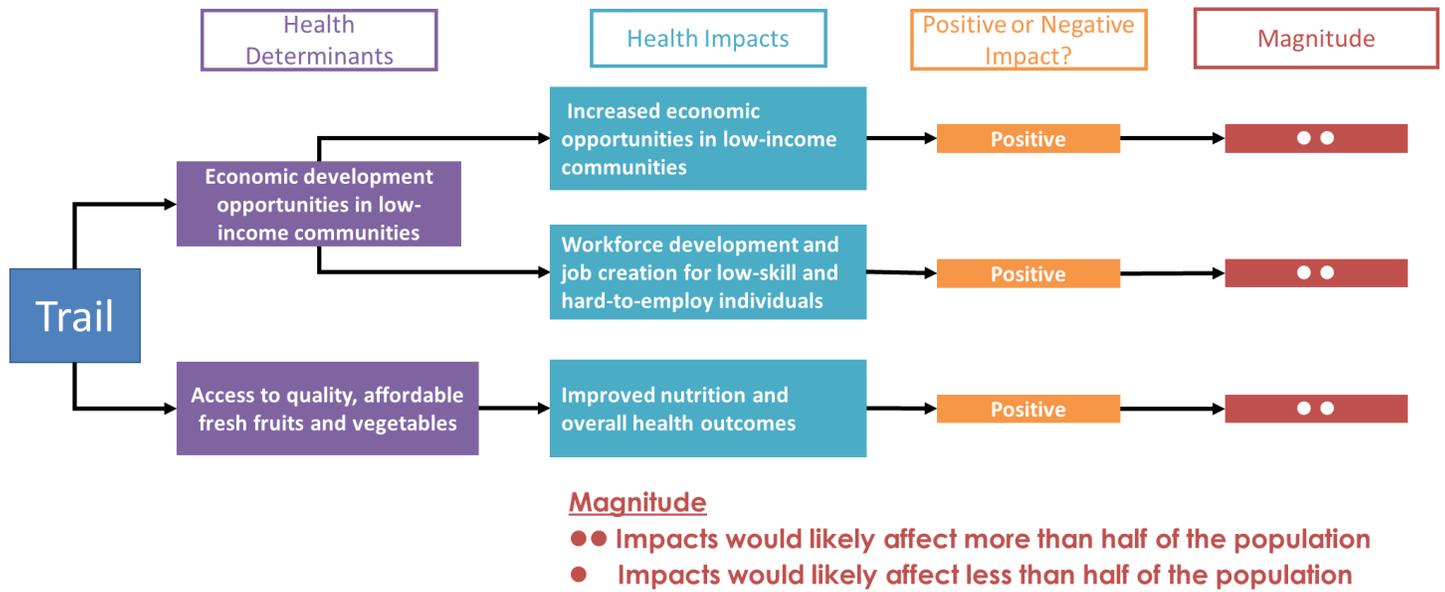
Based on the strength of existing research about the health impacts of economic development in socioeconomically disadvantaged communities, the health impacts of economic development are expected to be positive and will occur in the following way:

- If economic development of the trail site and adjacent properties occurs, then the health outcomes of residents in the surrounding communities may improve through improved access to healthy foods, decreased poverty, and decreased unemployment. Economic development will be most effective in improving community health if it leverages the local workforce, local businesses, and community-based organizations.

Improved economic development of the trail site and adjacent properties could have positive impacts on many residents. Improved access to quality, affordable fresh fruits and vegetables

through economic development and urban agriculture could have a positive impact on many residents. Figure 35 is a pathway diagram with predicted impacts of economic development in the communities surrounding the trail site.

Figure 35. Pathway diagram and summary of predicted impacts for economic development in the communities surrounding the trail.



Recommendations – Workforce and Economic Development

The HIA recommendations are divided into three phases; design, construction, and long-term development.

- 1) **Economic development opportunities. Leverage opportunities with development of the trail and adjacent spaces to support workforce development and business development for residents living in the community areas surrounding the trail. (Construction and Long-term development phases)** To maximize the benefits of workforce development, training, and entrepreneurship, opportunities should be identified during all phases of the project - planning, design, development/construction, and maintenance.
- 2) **Improved access to healthy foods. Create partnerships to increase the number of agriculture and garden sites along the Englewood Line Trail corridor. (Long-term development phase)** Development of community gardens and urban agriculture sites near the trail could improve access to quality, affordable fresh fruits and vegetables while improving property values in nearby communities.

Summary of Recommendations

The development of the Englewood Line Trail is a long-term multi-agency project spanning several years. A variety of city agencies, government entities, and organizations will be taking the lead for different aspects of the trail design, construction, and maintenance. It is recommended that the entities responsible for the different aspects of trail development and long-term maintenance review and consider the relevant recommendations provided in this report before embarking on new projects at the trail site.

Community Safety

Engagement of community organizations and community residents:

- 1) **Community safety considerations. DPD should take community safety considerations into account at all phases of trail development. (Design, Construction, and Long-term development phases)** Community safety should be considered in all aspects of trail design, development, management, and maintenance.
- 2) **Partnering with communities around safety and security. Partner with communities to design and implement all security measures. (Design, Construction, and Long-term development phases)** Community organizations should be included as consulting partners when designing and developing all security measures, including:
 - **Community policing** and police presence near the trail
 - **Initiatives that build positive relationships between police and community residents** such as the Englewood Police Youth Baseball League and Chicago Alternative Policing Strategy (CAPS) cookouts
 - **Events and activities that encourage positive use and perception of the trail and adjacent public spaces** such as:
 - Tours led in conjunction with trusted community leaders
 - So Fresh Saturdays
 - Local school involvement in trail development (public art, use of trail, etc.)
 - Farm stand and events at Growing Home and community gardens
 - Engagement of faith communities, block clubs, and neighborhood watch
 - Peace and anti-violence activities

On the trail:

- 3) **Placemaking and community ownership. Ensure that community organizations and residents are key partners in designing the facilities and the look and feel of the trail. (Design, Construction, and Long-term development phases)** Community organizations participating in this HIA emphasized the importance of arts and cultural features in addition to parks and recreation features.
- 4) **Trail maintenance. Development plans should include comprehensive strategies for long-term trail maintenance including upkeep of facilities and waste management. (Design and Long-term development phases)** Community partners should be involved in the development of the maintenance plan. Community-based strategies include Greater Englewood Unity Day Clean and Green or litter pickup as a part of regular physical activities, such as scheduled walks organized by community organizations.
- 5) **Visibility for trail users. Use multiple approaches to establish visibility for trail users. (Design, Construction, and Long-term development phases)** Suggestions for the design of the trail

include the use of lighting, having low-density of vegetation in areas that are intended for active use, creating clear lines of sight throughout, and controlling access to vacant buildings.

- 6) **Eyes on the trail. Increase foot traffic near and on the trail to create formal and informal surveillance for safety and to reduce feelings of isolation. (Long-term development phase after public access to the trail begins)** Engage homeowners and residents in identifying approaches to increase foot traffic on and near the trail. This could be accomplished by supporting scheduled activities along the trail that increase use of the trail and adjacent public spaces and development of destinations such as retail stores, parks, or urban farms beside the trail; and the presence of security and/or maintenance personnel. (Also see recommendations on safety corridors below.)
- 7) **Access to emergency services. Make emergency services easily accessible for trail users. (Long-term development phase after public access to the trail begins)** Emergency call points or other methods for accessing emergency services should be easily visible, clearly marked, and available at regular intervals along the trail.
- 8) **Pedestrian safety and maximizing active use of the trail. Facilitate feelings of pedestrian safety on the trail and incorporate options for different types of physical activity. (Construction and Long-term development phases)** Depending on the design of the trail, this could be accomplished by clearly marking bike and pedestrian lanes.

Getting to and from the trail:

- 9) **Improved traffic safety. Target traffic safety improvements in areas that are current or recent hotspots of traffic concerns. (Long-term development phase)** Participants in the community survey conducted for this HIA suggested the following solutions for pedestrian safety:
 - longer times for pedestrian crossing
 - lower traffic speeds
 - traffic calming mechanisms, including more stop signs, and
 - removal of on-street parking.
- 10) **Safety Corridors. Create safety corridors that include both physical design elements and community-based solutions for supporting a safe environment near the main access points to the trail. (Construction and Long-term development phase)** Without the presence of safety corridors, access and use of the trail could be hindered. Safety corridors would include design features as well as community-based partnerships, as suggested by community survey participants and supported by previous research:
 - **Design features:** Ample lighting, retail or recreational destinations, absence of vacant buildings, pedestrian-oriented infrastructure, and traffic calming measures as detailed above; and
 - **Community-based partnerships** for safety and security such as the Chicago Public School's Safe Passage program.

Access to and Use of Green Space

Recommendations.

- 11) **Addressing gaps in park facilities and programs. Address the gaps in current park facilities and programs particularly for young children under 10, youth, and older adults. (Long-term development phase)** Potential opportunities include:
 - Recreation facilities with extended hours in the early morning (6am-9am) and with availability during winter months; and
 - Park programming such as aerobics classes, senior citizen clubs, walking clubs, weight training, and Zumba classes that are available throughout the day including early morning (6am-9am).
- 12) **Diverse park amenities to maximize trail usage. Maximize physical activities among a variety of age groups. (Long-term development phase)** It is recommended that diverse design elements such as seating, drinking fountains, bathrooms, bike racks, and picnic tables be incorporated into trail development plans to maximize physical activities along the trail.
- 13) **Accessibility. Use inclusive park features in the planning, design, and development of the trail to ensure accessibility for all residents, including those living with disabilities. (Design, Construction, and Long-term development phases of the trail)**

Environmental Conditions—Air Pollution

- 14) **Air Quality Index. Utilize existing resources to alert residents about days when air quality is unhealthy for sensitive groups. (Long-term development phase before public access to the trail begins)** Partners for Clean Air Illinois creates press releases about metropolitan Chicago air pollution action days when air quality is unhealthy for sensitive groups <http://illinois.enviroflash.info/signup.cfm>. A method for ensuring that this information is communicated effectively to community residents is highly recommended. For example, air pollution action alerts could be communicated through the Englewood Portal and other existing communication methods.
- 15) **Particulate Matter. Evaluate potential risks related to exposure to air pollution. (Prior to Construction and Long-term development phases)** It is recommended that a risk assessment be conducted by an environmental consultant to evaluate any potential risks related to air pollution that may be involved in pedestrian use of the trail.
- 16) **Buffer zones for air quality. Create buffer zones that limit foot traffic near intermodal yards to decrease exposure to air pollution. (Design, Construction, and Long-term development phases)** Buffer zones could take the form of a bird sanctuary or other green space that fits into the overall design aesthetic for the trail corridor. If a trail access points are located near intermodal facilities, analysis of truck volumes and related diesel emissions and their impact on trail users should be considered.

Environmental Conditions—

Presence of Contaminated Sites/Brownfields

- 17) **Environmental testing.** The Chicago Department of Fleet and Facility Management should conduct environmental testing on the soil in all publicly owned and/or managed properties near the trail where increased public use is expected. **(Prior to Construction and Long-term development phases)** All public spaces adjacent to the trail should undergo thorough environmental testing, particularly those that will be accessed by children.

- 18) **Remediation or mitigation of potential health threats.** It is recommended that the Chicago Department of Fleet and Facility Management (2FM) remediate or mitigate residents' exposure to identified environmental contaminants within publicly owned or managed lands on or near the trail site. ***(Construction and Long-term development phases before pedestrian access to the trail begins)*** A wide range of remediation and mitigation approaches that are cost effective and meet the needs of the community could be used.
- 19) **Raising resources for remediation or mitigation of brownfield sites.** The Department of Fleet and Facility Management, other city agencies, and community-based organizations could partner to identify and apply for funding to remediate or mitigate brownfields along the Englewood Line Trail corridor so that the adjacent space can be developed for a range of uses. ***(Long-term development phase)***

Economic and Workforce Development

- 20) **Economic development opportunities.** **Leverage opportunities with development of the trail and adjacent spaces to support workforce development and business development for residents living in the community areas surrounding the trail. *(Construction and Long-term development phases)*** To maximize the benefits of workforce development, training, and entrepreneurship, opportunities should be identified during all phases of the project - planning, design, development/construction, and maintenance.
- 21) **Improved access to healthy foods.** **Create partnerships to increase the number of agriculture and garden sites along the Englewood Line Trail corridor. *(Long-term development phase)*** Development of community gardens and urban agriculture sites near the trail could improve access to quality, affordable fresh fruits and vegetables while increasing property values in nearby communities.

Overarching Recommendations

- 22) **Community involvement in decision-making.** **Continue active engagement of community organizations and residents in decisions about planning, design, development, programming, and maintenance of the trail. *(Design, Construction, and Long-term development phases)*** In order to maximize health benefits and promote health equity, community organizations and residents should continue to be engaged in all aspects of decision making during planning, development and maintenance of the trail.
- 23) **Transparency and Community Agreements.** **Strive to ensure transparency about all decisions related to the trail and development of adjacent properties along the corridor. *(Prior to and during Construction and Long-term development phases)*** Existing formal community agreements should be honored, including the Neighborhood Investment Fund Agreement (October 2013):
 - Retrofitting the twelve (12) forklifts and side loaders currently operating at the 47th Street Intermodal Railroad Facility by replacing existing diesel engines with Tier 4 engines (approximately \$1,000,000)
 - Funding additional public (or private subject to City Council approval) environmental projects and improvements in the vicinity of the project (approximately \$1,000,000)

- Funding public (or private subject to City Council approval) economic development initiatives, including job readiness and job training programs (approximately \$1,000,000)
- The Developer shall require its contractor to replace or upgrade 36 of its 38 hostlers to Tier 4 standards by the end of 2018 at the Developer's or its contractor's sole expense.

- 24) **Evaluation. The HIA team should develop an assessment, monitoring, and evaluation program in collaboration with community partners. (Long-term development phase)**
Continued assessment, monitoring, and evaluation will allow the city and community stakeholders to track the health impacts of the trail and make improvements when needed.

Evaluation and Monitoring

There are three types of evaluation in HIA:

1. Process evaluation that gauges the HIA's quality according to established standards and the original plan for the HIA;
2. Impact evaluation that assesses the HIA's impact on decision-making and its success according to the objectives during scoping; and
3. Outcome evaluation that assesses changes in health status and health determinants as the decision is implemented (The Pew Charitable Trusts, 2014).

Monitoring tracks indicators that can be used to inform process, impact, and outcome evaluations (The Pew Charitable Trusts, 2014). Due to resource restriction and the long-term nature of the trail project, the HIA team was unable to conduct a separate outcome evaluation. However, strategies for assessing changes in health status and health determinants as the project progresses are discussed.

Process Evaluation

The HIA team utilized a process evaluation to answer the following overarching question:

- 1. Did the project include all of the minimum elements of HIA listed in Version 3 of the Minimum Elements and Practice Standards for Health Impact Assessment?**¹³
 - a. Was the HIA conducted to assess the potential health consequences of a proposed program, policy, project, or plan under consideration by decision-makers, and was it conducted in advance of the decision in question?
 - b. Did the HIA involve and engage stakeholders affected by the proposal, particularly vulnerable populations?
 - c. Did the HIA systematically consider the full range of potential impacts of the proposal on health determinants, health status, and health equity?
 - d. Did the HIA provide a profile of existing conditions for the populations affected by the proposal, including their health outcomes, health determinants, and vulnerable sub-groups within the population, relevant to the health issues examined in the HIA?
 - e. Did the HIA characterize the proposal's impacts on health, health determinants, and health equity, while documenting data sources and analytic methods, quality of evidence used, methodological assumptions, and limitations?
 - f. Did the HIA provide recommendations, as needed, on feasible and effective actions to promote the positive health impacts and mitigate the negative health impacts of the decision, identifying, where appropriate, alternatives or modifications to the proposal?
 - g. Did the HIA produce a publicly accessible report that includes, at minimum, documentation of the HIA's purpose, findings, and recommendations, and either documentation of the processes and methods involved, or reference to an external source of documentation for these processes and methods? Was the report shared with decision-makers and other stakeholders?
 - h. Did the HIA propose indicators, actions, and responsible parties, where indicated, for a plan to monitor the implementation of recommendations, as well as health effects and outcomes of the proposal?

Tables 8 and 9 are descriptions of the HIA's alignment with the Minimum Elements of HIA outlined in Version 3 of the Minimum Elements and Practice Standards for Health Impact Assessment.¹³³

¹³ Bhatia R., Farhang L., Heller J., Lee M., Orenstein M., Richardson M., and Wernham A. Minimum Elements and Practice Standards for Health Impact Assessment, Version 3. September, 2014.

Table 8. Process Evaluation of Englewood Line Trail HIA – Inclusion of the Minimum Elements of HIA outlined in Version 3 of the Minimum Elements and Practice Standards for Health Impact Assessment.

Minimum Elements of HIA	Englewood Line Trail HIA
Was the HIA conducted to assess the potential health consequences of a proposed program, policy, project, or plan under consideration by decision-makers, and was it conducted in advance of the decision in question?	The Englewood Line Trail has the potential for broad health impacts in nearby communities. As a result, the HIA was undertaken to develop recommendations for decision-makers based on the potential health impacts of trail construction and use. The HIA was conducted from Summer 2015 to Summer 2016, prior to the anticipated start of trail construction in 2017.
Did the HIA involve and engage stakeholders affected by the proposal, particularly vulnerable populations?	The HIA team partnered with community members, community-based organizations, nonprofit organizations, local schools, Chicago Park District, and other city agencies to form an Advisory Committee to guide the HIA process. A full list of Advisory Committee members is included in Figure 1.
Did the HIA systematically consider the full range of potential impacts of the proposal on health determinants, health status, and health equity?	During the scoping process, the community Advisory Committee was engaged to determine which health impacts to evaluate, priority populations to keep in mind, and methods for analysis. The scoping process yielded eight broad health impact topics. Ultimately, “access to fruits and vegetables” was eliminated as a potential impact after the plan for the proposed trail changed and no longer included an urban agriculture component. The following seven key health impact topics are explored through the HIA: access to green space and parks; community cohesion and ownership; changes in community safety (safety from crime and traffic safety); economic and workforce development; and environmental conditions (air quality and contaminated sites and brownfields). Due to resource restrictions, economic development was not assessed in-depth, but was included in the literature review and community discussions.
Did the HIA provide a profile of existing conditions for the populations affected by the proposal, including their health outcomes, health determinants, and vulnerable sub-groups within the population, relevant to the health issues examined in the HIA?	The assessment sections for each of the HIA topic areas included sociodemographic and community health data about the existing conditions in the communities within a 1.0-mile radius of the proposed trail site. Through the HIA process, multiple priority populations were identified including communities of color, low-income households, children and adolescents, older adults, and individuals with cardiovascular or respiratory health issues.

Table 9. Process Evaluation of Englewood Line Trail HIA – Inclusion of the Minimum Elements of HIA outlined in Version 3 of the Minimum Elements and Practice Standards for Health Impact Assessment (Continued).

Minimum Elements of HIA	Englewood Line Trail HIA
Did the HIA characterize the proposal's impacts on health, health determinants, and health equity, while documenting data sources and analytic methods, quality of evidence used, methodological assumptions, and limitations?	Each assessment section in the HIA includes pathway diagrams with summaries of predicted impacts; research questions that guided the HIA; empirical analyses including literature reviews, quantitative data, and a qualitative survey; sociodemographic and community health data about existing conditions; predictions of how trail construction and use will impact health; and recommendations for how trail design, construction, and use could be used to positively impact health.
Did the HIA provide recommendations, as needed, on feasible and effective actions to promote the positive health impacts and mitigate the negative health impacts of the decision, identifying, where appropriate, alternatives or modifications to the proposal?	The HIA team provided recommendations based on empirical analyses in each of the health impact topic areas identified during the scoping process. To ensure feasibility for stakeholders, the recommendations were reviewed by the Advisory Committee.
Did the HIA produce a publicly accessible report that includes, at minimum, documentation of the HIA's purpose, findings, and recommendations, and either documentation of the processes and methods involved, or reference to an external source of documentation for these processes and methods? Was the report shared with decision-makers and other stakeholders?	The HIA team produced a public document that includes the HIA's purpose, findings, recommendations, and methods for the process. The report will be shared with the Department of Planning and Development and other decision-makers for the Englewood Line Trail. Two community-based organizations, Teamwork Englewood and the Resident Association of Greater Englewood, have been engaged to disseminate the HIA findings to residents.
Did the HIA propose indicators, actions, and responsible parties, where indicated, for a plan to monitor the implementation of recommendations, as well as health effects and outcomes of the proposal?	A monitoring plan was developed to track the implementation of recommendations. Although monitoring the health effects of the trail is outside the scope of the HIA and the trail project team, suggestions for tracking long-term outcomes are included in the monitoring plan.

Impact Evaluation

The HIA team conducted an impact evaluation to answer the following questions:

- 1. Did the HIA achieve the objectives and work plan outlined during the scoping phase?**
- 2. Did the HIA impact decision-making at DPD, CDPH, and other city agencies?**

The HIA team and Advisory Committee identified the following objectives during the scoping phase of the HIA:

- The Department of Planning and Development and their partners utilize the recommendations in this HIA to inform development of the proposed trail site to mitigate the potential negative health impacts while enhancing the potential positive health impacts of trail construction and usage.
- Stakeholders and decision-makers incorporate discussions of health impacts, health equity, community engagement, and local assets in all aspects of trail development and construction.
- Partnerships between community members, community organizations and government agencies are built and strengthened.

To date, the HIA has achieved the objectives outlined during the scoping phase and the HIA findings impacted decision-making at DPD, CDPH, and other city agencies. DPD has been an engaged partner throughout the HIA and thus we believe that they will utilize the recommendations to inform the planning, construction, and long-term development of the proposed Englewood Line Trail. In addition, CDPH's public health plan, Healthy Chicago 2.0, released in March 2016 formalized a Health in All Policies (HiAP) approach for the City of Chicago. The Englewood Line Trail HIA has provided an example of how HiAP and cross-department collaboration can be successfully executed to improve health outcomes.

DPD and other stakeholders have engaged community members and community-based organizations throughout the planning process to discuss the potential health impacts, health equity issues, and local assets related to the proposed trail. Decision-makers have directly involved community members during the trail design process. In addition, they have attended several community meetings to address any feedback, questions, or concerns raised by residents and have more planned as the project progresses. DPD has engaged Chicago Greencorps to provide workforce development and employment opportunities for residents. DPD has also built or strengthened connections with other city agencies including CDPH.

Adherence to Work Plan

The HIA team adhered to the majority of the work plan developed during the scoping phase of the HIA (Tables 10-12). Originally eight broad health impact topics were identified during scoping; however, access to fruits and vegetables ultimately fell outside the scope of the HIA. In addition, due to resource restrictions, economic development was not assessed in-depth, but was included in the literature review and community decisions.

Table 10. Adherence of the Englewood Line Trail HIA to the Work Plan Outlined During the Scoping Phase.

Work plan	Description of activities	Additional Notes
Stakeholder engagement	The HIA team, key stakeholders, community-based organizations, and community residents partnered to form an Advisory Committee. The Advisory Committee was engaged in all stages of the HIA including screening, scoping, data collection, and development of the recommendations.	
Screening Summary	<p>The screening process revealed that the Englewood Line Trail project had several key components that made it appropriate for HIA:</p> <ul style="list-style-type: none"> • the potential to impact health equity; • broad potential health impacts; • the opportunity for partnership building through the engagement of community stakeholders; • project timing that aligned well with funding and could be completed in a timely way to inform the planning, design, and development of the trail; and • enthusiastic support of the key city agency leading the project (DPD). 	
Scoping Summary	<p>The HIA team and Advisory Committee identified three goals for the HIA during the scoping process. The scoping process also yielded eight broad health impact topics.</p> <ul style="list-style-type: none"> • Access to green space and parks • Community cohesion and ownership • Changes in community safety <ul style="list-style-type: none"> ○ Safety from crime ○ Traffic safety • Economic and workforce development • Environmental conditions <ul style="list-style-type: none"> ○ Air quality ○ Contaminated sites and brownfields • Access to fruits and vegetables 	<p>The HIA team determined that one topic, access to fruits and vegetables, fell outside the scope of this HIA because it was removed from the proposed trail plan. Due to resource restrictions, economic development was not assessed in-depth, but was included in the literature review and community discussions.</p>

Table 11. Adherence of the Englewood Line Trail HIA to the Work Plan Outlined During the Scoping Phase (Continued).

Work plan	Description of activities	Additional Notes
Methods Summary	<p>Through the scoping and assessment process, the HIA team identified research questions in each of the broad health impact topics. The HIA team applied a mixed-methods assessment approach to answer the HIA research questions. The HIA analyzed secondary community health and sociodemographic data to establish baseline/existing conditions in the communities surrounding the trail site. Scientific evidence on the relationship between trails, parks, green space, and health was gathered from 168 separate research studies. Phase I and Phase II ESAs were conducted on the trail site to determine if there is potential contamination by hazardous materials at the trail site. Road usage data for a major roadway adjacent to the trail site was provided by the Illinois Department of Transportation. Qualitative data collection included six semi-structured interviews with community leaders who are members of the HIA Advisory Committee and community resident surveys focused on perceptions of safety.</p>	
Perceptions of safety survey	<p>The HIA team conducted semi-structured qualitative interviews with six community leaders who are members of the HIA Advisory Committee, and we also conducted community resident surveys focused on perceptions of safety. Surveys were collected from 52 individuals who live or work in the neighborhoods surrounding the proposed trail site. The survey was three pages in length and generally took less than 10 minutes to complete. The first section of the survey was comprised of six background questions to establish each participant's relationship to the community, as well as demographic information such as age, gender, race, and ethnicity. The second section provided instructions on the sketch mapping activity that enabled them to mark the specific places, times, and reasons for feeling unsafe in the community, as well as asking them to provide their ideas for improving safety in these locations. Most respondents had been living and working in the communities surrounding the trail site for 10 years or more, identified as African American/black, and were aged 45 or older.</p>	

Table 12. Adherence of the Englewood Line Trail HIA to the Work Plan Outlined During the Scoping Phase (Continued).

Work plan	Description of activities	Additional Notes
Recommendations summary	Based on the assessment findings, the HIA team developed predicted impacts and recommendations for each of the broad health impact areas. Because the proposed trail site is in a community with high socioeconomic hardship, community residents reviewed the predicted impacts and recommendations to ensure that the concerns of residents were adequately assessed and issues of health equity were highlighted.	
Process evaluation	The HIA team conducted a process evaluation to gauge the HIA's quality based on the minimum elements of HIA listed in Version 3 of the Minimum Elements and Practice Standards for Health Impact Assessment (Tables 8-9).	See Tables 8-9
Impact evaluation	The HIA team conducted an impact evaluation to determine if the HIA achieved the objectives and work plan outlined during the scoping process and to determine if HIA impacted decision-making at DPD, CDPH, and other city agencies.	
Outcome evaluation	Due to resource restriction and the long-term nature of the trail project, the HIA team was unable to conduct a separate outcome evaluation. However, strategies for assessing changes in health status and health determinants as the project progresses are discussed in the monitoring plan.	
Monitoring plan	Indicators for tracking the long-term changes in health status and health determinants are discussed in the monitoring plan.	See Tables 13-14
HIA report	The HIA team developed a report detailing each phase of the HIA including screening, scoping, key assessment findings, predicted impacts, recommendations, evaluations, and monitoring. The report will be publicly available. In addition, two community-based organizations have been engaged to disseminate the HIA findings to community residents.	
Dissemination strategy	The HIA team developed a dissemination plan for the HIA findings with different strategies for each priority audience.	See Tables 15-18

Monitoring Plan

The Englewood Line Trail is a long-term multi-agency project spanning several years. Therefore, long-term monitoring of health determinants and health outcomes is outside the scope of this HIA.

However, proposed indicators for monitoring the long-term effects of the HIA on decision-making and the effects of trail construction on health are described (Tables 13-14).

Table 13. Proposed Indicators for the Long-term Monitoring of Equity and Health Impacts.

Indicator	Agency Responsible for Monitoring	Timing (Year)
Englewood Line Trail is utilized by community residents of all ages, genders, race/ethnicities, and abilities.	DPD	<i>Short term</i>
Decreased percentage of adults reporting fair/poor health status in the 1.0-mile buffer zone around the trail.	CDPH	<i>Short term</i>
Increased percentage of adults and youth that engage in the recommended amounts of physical activity within the 1.0-mile buffer zone of the trail.	CDPH	<i>Short term</i>
Trail users report feeling safe on the trail and in the areas near the trail.	Community partners and CDPH	<i>Short term</i>
Decreased diabetes and high blood pressure prevalence in the 1.0-mile buffer zone around the trail site.	CDPH	<i>Long term</i>
Decreased asthma hospitalization rate for children <5 years and older adults aged 65+ living within 1.0 mile of the trail.	CDPH	<i>Long term</i>
Decreased hospitalization rate for diabetes-related complications for adults living within 1.0 mile of the trail.	CDPH	<i>Long-Term</i>
Unemployment rate among adults 16 or older in the 1.0-mile buffer zone around the trail.	CDPH	<i>Medium term</i>

Table 14. Proposed Indicators for Monitoring the Adoption of HIA Recommendations.

Indicator	Agency Responsible for Monitoring	Timing (Year)
Increased number of cross-department/agency projects as part of a Health in All Policies approach.	CDPH	<i>Short term to Long term</i>
Continued engagement of community stakeholders in all phases of the trail project.	CDPH, DPD	<i>Short term</i>
Implementation of strategies to improve community perceptions of safety on and near the trail site.	DPD, CDPH	<i>Short term to Long term</i>
Continued mitigation of environmental hazards on publicly owned or managed lands near the trail site that were identified during Phase I and II ESAs.	Department of Fleets and Facility Management (2FM)	<i>Long term</i>
Increased resources for the remediation of publicly owned or managed brownfields near the trail site.	2FM, DPD	<i>Long term</i>
Long-term maintenance strategies are implemented at the trail site following construction.	2FM, DPD	<i>Long term</i>
Use of inclusive design elements, including disabled access, during design and long-term construction of the trail.	DPD	<i>Short term to Long term</i>
Improved economic opportunities in the communities surrounding the trail.	DPD and/or their workforce development partners (For Example, Greencorps Chicago)	<i>Medium term</i>
Continued monitoring of compliance with all community development agreements.	DPD	<i>Short term to Long term</i>
Development of an assessment, monitoring, and evaluation program in collaboration with community partners.	HIA team, Advisory Committee	<i>Short term</i>

Dissemination Plan

The HIA team developed several strategies for disseminating the HIA findings to multiple priority audiences (Tables 15-18).

Table 15. Dissemination Plan for the Englewood Line Trail HIA Findings.

Target Groups	Objective	Components of Analysis to prioritize in communications? What storyline would resonate?	Communication tool (summary, talking points, full report, other)	Planned Dissemination Action, Communications Methods	Timeframe	Responsible Parties
DPD & consultants	Inform long-term development of the trail	Safety, community cohesion, environment, economic development, health metrics	1 pager, executive summary, talking points, full report, in-person meeting to disseminate results to DPD and TESKA	Ongoing, disseminate notes with key findings so far from 4/5 meeting, in-person meeting prior to presenting findings to Advisory Committee	June - September 2016	HIA team in partnership with DPD
Community based organizations in Englewood/ West Englewood	To ensure they have access to all of the information and findings, provide findings and recommendations in a form that is useful for them to disseminate	Ask community groups what format would work best for sharing recommendations and results	Ask community groups what format would work best for sharing recommendations and results	Work through existing community partners	September - December 2016	HIA team

Table 16. Dissemination Plan for the Englewood Line Trail HIA Findings (Continued).

Target Groups	Objective	Components of Analysis to prioritize in communications? What storyline would resonate?	Communication tool (summary, talking points, full report, other)	Planned Dissemination Action, Communications Methods	Timeframe	Responsible Parties
Community residents near the trail	To support CBOs in sharing HIA results with community residents, community residents near the trail are informed through several communication channels about the HIA results	Ask community groups what format would work best for sharing recommendations and results	Ask community groups what format would work best for sharing recommendations and results	\$6,000 split between community groups to support dissemination, leverage existing meetings (not DPD meetings) to present results	July - December 2016	Community-based organizations with support from HIA team.
Elected officials (Local Alderman, Local State Rep.)				CDPH and DPD will discuss		HIA team, DPD
CDPH, Recommendations from NACHHO Tool, Informing implementation of the HIAP resolution, possibly Healthy Chicago Partnership	To inform related projects or future projects, support health in all policies		In addition to findings and recommendations from this HIA, this might include more generalizable information about applying HIA and HIAP to decision-making for parks, trails, and other green spaces	Tentatively present to the interagency council	September - October 2016	CDPH

Table 17. Dissemination Plan for the Englewood Line Trail HIA Findings (Continued).

Target Groups	Objective	Components of Analysis to prioritize in communications? What storyline would resonate?	Communication tool (summary, talking points, full report, other)	Planned Dissemination Action, Communications Methods	Timeframe	Responsible Parties
Other government agencies Parks DFSS Police CDOT Cook County Forest Preserve, Interagency Council				Interagency council and forest preserve	September - October 2016	CDPH
Advocates working citywide on similar issues				Connect with community partners to inform them about releasing the findings, IPHI: Email listserv for IAPO, HACN, Healthy communities list - CDPH: Website, listserv update, social media, website	September - October 2016	IPHI, CDPH
Community-based orgs in other areas of the city considering trails - Pilsen			In-person meetings to disseminate results, Leverage existing community meetings		Ongoing	HIA team, DPD

Table 18. Dissemination Plan for the Englewood Line Trail HIA Findings (Continued).

Target Groups	Objective	Components of Analysis to prioritize in communications? What storyline would resonate?	Communication tool (summary, talking points, full report, other)	Planned Dissemination Action, Communications Methods	Timeframe	Responsible Parties
Broader public health and planning audiences (APHA, CMAP, Healthy Chicago Partnership, possibly NACHHO Conference presentation)	To inform other public health professionals about a community-engaged approach to HIA in communities experiencing significant health inequities. To inform public health professionals about novel GIS methods to assess community perceptions of safety.		Participation in conference panels, speaker presentations at conferences, academic journal publications	Community perceptions of safety survey study submitted to the Journal of Health Geographics for review (August 2016). An article submission to AJPH is planned for fall 2016. HIA findings were presented at the National Association of County and City Health Officials (NACCHO) Annual Meeting in July 2016 and will be presented at the American Public Health Association (APHA) Annual Conference in October 2016.	July - December 2016	HIA team
Press Release, Social media				CDPH: Website, listserv update, social media - IPHI: Social media, IAPO social media	September - October 2016	HIA team

Conclusion

In 2014, the Chicago Plan Commission approved the Green Healthy Neighborhoods Plan, which provides a 10-20-year vision to maximize the use of resources and vacant land in the Englewood, West Englewood, Washington Park, New City, Fuller Park, and Greater Grand Crossing community areas. Development of a multi-use nature trail atop a disused elevated railroad line is a key component of the plan. The goals for this HIA are that:

- the Department of Planning and Development (DPD) and their partners utilize the recommendations in this HIA to inform development of the proposed trail site to mitigate the potential negative health impacts while enhancing the potential positive health impacts of trail construction and usage;
- stakeholders and decision-makers incorporate discussions of health impacts, health equity, community engagement, and local assets in all aspects of trail development and construction; and
- partnerships between community members, community organizations, and government agencies are built and strengthened.

The communities surrounding the trail site are experiencing numerous health inequities and disparities arising in large part from long-term divestment, high economic hardship, extreme poverty, population loss, segregation, and community violence. The poor health outcomes in these communities, such as high hospitalization rates and lower life expectancies, are unlikely to change without widespread systems-level interventions. It is hoped that the construction and use of the proposed trail will provide new opportunities for the residents of the surrounding communities including improved neighborhood walkability, increased property values, improved economic and workforce development, and improved quality of life.

The results of the HIA align with previous research that has shown importance of green space in promoting physical activity and mental health, as well as the health and economic benefits of land re-use, environmental remediation, and positive community perceptions of safety. Though there were a number of limitations to this HIA – including lack of in-depth analysis of economic development, lack of community area data for certain sociodemographic and health indicators, limited sample size and non-random sampling of participants for the community perceptions of safety survey, and an evolving project plan for the trail – the HIA team believes that it is making a necessary contribution to the City's ongoing efforts to reduce health inequities among residents.

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