

CITY OF
MINNEAPOLIS

above the falls

Ensuring Health Equity
in Decision-Making

health impact assessment



Acknowledgments

The HIA Project Team and partners would like to recognize and remember the contributions of the late Lauren Maker, Above the Falls Citizen's Advisory Subcommittee Chair, community organizer and strong advocate for the integration of health data and recommendations in all planning and economic development decisions.

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HIA Staff Contributors

Andrew Caddock, Minneapolis Parks and Recreation Board
Jared Erdmann, Minneapolis Health Department
David Johnson, Minneapolis Health Department
Haila Maze, Minneapolis Center for Planning and Economic Development
Gopal Narayan, Minneapolis Health Department
Colleen O'Dell, Minneapolis Parks and Recreation Board
Sarah Savengseuksa, Minneapolis Health Department

Above the Falls Citizens Advisory Committee

HIA Subcommittee Members

Mary Jamin Maguire
Kenya McKnight
Barb Sullivan
Susan Vikse
Georgianna Yantos

University of Minnesota Student Contributors

Joan Bennett
Jessica Finlay
Mary Matze
Katrina Meyer
Cadence Peterson

Other Partners

Friends of the Mississippi River
Human Impact Partners (Technical Assistance Provider)
Lao Assistance Center
Minneapolis Riverfront Partnership
Riverfront Technical Advisory Committee
Saints Cyril and Methodius Catholic Church
Upper Mississippi Technical Advisory Committee
Urban Design Lab

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Executive Summary

“This area could be the best place in Minneapolis if the industry were removed to a location not so critical to the health of the river, something that we as citizens of the Twin Cities should hold sacred.”

~Community resident

What is HIA?

A Health Impact Assessment (HIA) is a tool that has been used on an international level for communities and decision makers to evaluate the potential health implications of a proposed project or policy before it is built, implemented or put into effect. An HIA encourages bringing together public input and data relevant to the project or policy in order to make recommendations about how to maximize potential positive health outcomes, while minimizing unintended negative consequences. This HIA investigated the potential health impacts that could result from key land use alternatives which are outlined in an updated version of the Above the Falls (ATF) Master Plan. The following report is intended to prompt key decision makers to consider the potential consequences on residents' health and wellbeing of implementing the ATF plan.

The Above the Falls Citizens Advisory Committee, HIA Project Team and partners

In response to a City Council resolution, the Above the Falls Citizens Advisory Committee (AFCAC) was formed to play an advisory role during implementation of the ATF plan. Its 30 appointed members include representatives from 10 neighborhood associations, 10 regional districts, 5 business caucus seats and 5 environmental caucus seats. AFCAC served as the advisory committee for the HIA.

The HIA Project Team consisted of staff from the Community Planning and Economic Development (CPED) and Health Departments, Minneapolis Park and Recreation Board (MPRB), Minneapolis Riverfront Partnership (MRP), and AFCAC members who served on an HIA subcommittee. The Health Department was the lead agency. Planners from CPED and MPRB provided advice, data, maps and plan drafts throughout the process and led and assisted with community engagement efforts. Key partners for community engagement with Lao, Latino and youth residents included Lao Assistance Center, Saints Cyril and Methodius Catholic Church and Urban Design Lab.

HIA Alignment with the ATF Plan Revision Process

At the time the HIA began in January 2012, CPED and MPRB were engaged in updating the ATF plan to incorporate findings of the ATF Policy Review and Implementation Study as well as elements of the visionary design proposed in RiverFIRST. From the beginning, HIA efforts were

aligned with the City and Park Board's plan revision process, including participation during public forums and during each entity's public comment periods.

Having begun in January 2012, the HIA entered the plan revision process midstream. Timing for the HIA was optimal given the renewed focus on the ATF plan revision process and sufficient time for research into the potential health impacts before plan approval in the second quarter of 2013. The HIA afforded the opportunity to increase awareness of serious health conditions and disparities that could be mitigated or improved by the proposed land use changes and to research the health implications of changes for which the outcomes were unclear. The HIA provided a channel for residents from diverse perspectives to find common ground on the health issues that affect them most and that could provide impetus for accelerating plan implementation.

The Land Use Decisions

The HIA Project Team selected four, measurable land use decision alternatives to focus the scope of the HIA. They were:

1. To add 108 acres of parkland;
2. To extend existing Riverfront biking and walking trails by 4.2 miles;
3. To add over the long term 3,000 jobs; and
4. To add over the long term 1,000 new housing units.

Methodology

Findings of the HIA are based on a review of academic literature and previous HIA studies that link health outcomes to aspects of the built environment. Additionally findings were based on public health data about existing health conditions, a Community Input Survey and input from residents who attended HIA presentations and public forums. Since June 2012, the HIA Project Team and partners have:

- Presented to 21 local committees, community groups and neighborhood organizations
- Conducted outreach at 15 community events, including four public forums to date: one in June 2012 (~70 attendees), one in October 2012 (~50 attendees), and two in November 2012 (~180 attendees). The two forums in November were held with Latino (Northeast) and Lao (North Side) community residents. Additional, targeted outreach activities took place during the public comment periods in the first two quarters of 2013.
- Collected nearly 400 Community Input (online and paper) Surveys
- Received over 120 RIVER comment cards

The research and community engagement activities assessed the health impact of each of the four land use decision alternatives on ten neighborhoods surrounding the ATF area. Findings informed the development of recommendations about ways to maximize the health benefits and to mitigate any potential negative impacts. The following is a summary of HIA findings.

HIA Findings

The HIA found that the land use decision alternatives would have significant positive impacts on health. The following summarizes the HIA findings related to each health-related concern:

HIA Impact Analysis Summary of Findings					
Health Concern	Direction¹	Magnitude²	Strength of Evidence	Likelihood	Distribution
Obesity	+	high	high	likely	Park and trail users and users of active transit routes
Mental Health	+	high	high	likely	Park and trail users and users of active transit routes, newly employed workers
Asthma	=	low	high	likely	Equal impact
Noise	=	low	high	likely	Equal impact
River Water Quality	+	medium	medium	likely	Equal impact
Safety and Security	+ or =	low	low	uncertain	Riverfront and NE residents
Neighborhood Cohesion	+ or =	medium	medium	likely	Riverfront and NE residents
Neighborhood livability (in ATF area only)	+	low	medium	likely	ATF area residents
Employment (premature mortality)	+ or =	medium	high	possible	North Minneapolis, dependent on local hiring policies and job training

¹ Positive (+) means changes that may improve health and (=) means no change.

² High means it causes impacts to many people.

Obesity and Mental Health

The Riverfront is highly regarded by residents of North and Northeast Minneapolis as a destination for exercise and recreation, according to the Community Input Survey. Respondents to the survey and many participants in the community forums perceived the addition of new parkland as having a positive impact on their health. Parks were among the most preferred changes to the Upper Mississippi Riverfront with over 50 percent of survey respondents saying that additional parks would improve their health.

The strong connection between parkland, physical activity and mental health in the public health literature, strong evidence that residents currently use the Riverfront for physical activity, a majority of survey respondents who rated parkland as having a greater potential benefit to their health than new jobs and housing, a majority of survey respondents who currently use the Riverfront for exercise and recreation, and strong evidence that parkland plays an important role in the emotional and psychological health of City residents all suggest a strong positive health impact of increased parkland on reducing obesity and improving mental health.

Environmental Quality

“Air pollution,” “loud noises and traffic,” and “car congestion” in that order, were found to be the main environmental factors that negatively affect the health of both North and Northeast Minneapolis residents. Many of the Community Input Survey respondents and participants in the community forums expressed hopes for the heavy industries located along the Upper Mississippi Riverfront to relocate, even though this is not what the revised ATF plan is proposing. According to Community Input Survey respondents and attendees at the public forums these industries are a source of air, noise and water pollution, which negatively affects their health. Given the proposed design of parkland proposed to be located near the existing industries (e.g. restored wetland and relatively narrow strips of parkland), the vegetation in the parkland is not likely to have high enough density to make a notable difference in reducing air and noise pollution, although it may provide some psychological relief. The scientific literature suggests the potential for reduced river water pollution by adding continuous Riverfront parkland, which in turn would provide a buffer between the heavy industries, paved areas and the River.

The fact that industrial sources of air pollution are likely to remain in the ATF area suggests that the increase in parkland may have little to no impact on air pollution and thus a negligible impact on asthma rates. The density of vegetation in the proposed parkland is not likely to be sufficient to serve as an effective noise barrier which also may have little to no impact on stress-related illness due to noise. Evidence in the scientific literature suggests that the new parkland is likely to have a positive impact on reducing River water pollution by providing a buffer between the heavy industries, paved areas and the River.

Neighborhood Cohesion, Safety and Security

Extending biking and walking trails and improving major transit way connections has been shown to improve perceptions of walkability, encourage neighborhood interaction, and promote a sense of community, safety and security. Based on SHAPE 2010, perceptions of walkability and sense of community were extremely low among North Minneapolis respondents compared to the City overall. Truck traffic headed to local industries and crime pose significant barriers to pedestrian and bicyclist safety and improved perceptions of walkability in the ATF and surrounding area. Rates of crime and fear of crime are exacerbated by features of the physical environment within neighborhoods.

Over 65 percent of respondents to the Minneapolis Parks Foundation Survey reported having used the Minneapolis trails and bikeways. The addition of Riverfront trails, like the addition of parks, will serve a wide diversity of residents from both sides of the River and beyond and as has been discussed may contribute to a strong positive health impact on obesity and mental health. How much of that impact results in improvements in neighborhood cohesion, safety and security is unclear and is entirely dependent on neighborhood factors, one of which includes improvements to Riverway streets, i.e. the main transit connections to the River.

The health impact of new trails and improved Riverway streets on neighborhood cohesion, safety and security may be positive or not change at all. North Minneapolis is characterized by already low perceptions of walkability, poor quality housing, high density of poverty, and relatively higher crime density along the major Riverway streets on the North Side, not to mention the heavy truck traffic. As a result, many factors affect neighborhood cohesion and perceptions of safety and security that are not related to trails or improvements along Riverway streets. Since living conditions in Northeast are markedly different than the North Side, the addition of new trails and improvements to Riverway streets may have a stronger impact on Northeast residents' sense of community, safety and security than North Side residents. One thing however is certain. Among all possible attractions that would draw residents to the Riverfront "nonstop trails along both sides of the Riverfront" was selected more than any other possible attraction.

Employment

The link between improvements in public health and increases in income-generating land uses is very strong in the scientific literature. Residents of North and Northeast Minneapolis express skepticism that the proposed jobs would have a positive health impact on areas like North Minneapolis that experience the greatest health disparities. Whether the City can successfully attract 3000 new light industrial jobs to the ATF area and who would benefit is uncertain. Nonetheless, the revised ATF plan's focus on job-generating land use could have one of strongest impacts on public health, particularly premature mortality, mental health, and chronic disease. This impact on health could be maximized by local hiring policies, which focus on employing residents that currently experience health and employment inequities.

Housing

The strongest links between improvements in health and housing in the scientific literature are related to the availability of affordable housing. However, given an already high concentration of affordable housing and poverty particularly in North Minneapolis, affordable housing is unlikely to be a focus of the ATF plan. The overall health impact of new affordable housing may be minimal or possibly negative if affordable housing increases the concentration of poverty in the ATF and surrounding area. The main health impact of additional housing is likely to be increased neighborhood livability along the Riverfront for a relatively small number of people. What could maximize a positive health impact, suggested by the scientific literature and Community Input Survey results, are improvements in existing housing in surrounding neighborhoods and along Riverway streets where housing is deteriorated as a means of creating a well-maintained neighborhood thereby promoting safety, sense of community and wellbeing.

HIA Recommendations

The findings of this HIA suggest that the City could:

- Work with existing businesses and industries; they will likely continue to be located in the ATF area. Explore ways of effectively engaging them to assist in achieving the ATF plan objectives, for example by promoting environmentally safe or greener practices, by helping to ensure safe connections from the neighborhoods to the River, and by working to achieve greater job density in the area.
- Explore ways to implement local hiring practices among ATF area businesses and industries in addition to training programs to support residents in seeking jobs in this area. Focus on employment equity and opportunities for racial/ethnic minorities and new immigrant populations.
- Effectively monitor air quality and noise levels in the ATF area and work with the industries to identify ways to reduce levels that can be detrimental to health.
- Work with home owners and landlords to improve already-existing residential areas and housing in the neighborhoods with Riverway streets and that may have been hit hard by the recession and foreclosure crisis to mitigate crime and safety concerns and promote health through well-maintained neighborhoods.
- Explore safe alternatives for youth, senior citizens, and people with disabilities to access the Riverfront such as planning for off-street access that accommodates people with mobility disabilities, biking and walking. Public transit directly to Riverfront destinations is important as well as sufficient, accessible parking along the Riverfront.
- Support efforts to encourage young people, communities of color and people with limited-English proficiency to become more engaged in activities to design, develop, maintain and enjoy the Upper Mississippi Riverfront.

Conclusion

Research for this HIA suggests that implementation of the ATF Plan may lead to strong, positive health impact on rates of obesity, mental health, river-water quality and neighborhood livability. Increased acreage of parkland that is used for exercise and recreation may contribute to reductions in rates of obesity and improve mental health of residents. Continuous parkland along both sides of the Riverfront will provide an important buffer between heavy industry and the River and could lead to improved river-water quality. The positive health impact of additional housing is likely to be in terms of increased neighborhood livability in the ATF area. If local hiring agreements can be established and if they are actually implemented, the increased jobs for North and Northeast Minneapolis could have one of the greatest impacts on public health, particularly in terms of premature mortality, mental health and chronic disease. The HIA research suggests that implementation of the ATF plan may have negligible health impacts on asthma rates and noise pollution. Given the complexity of factors along Riverway streets that connect to the River and the biking and walking trails, the impact of additional trails in terms of neighborhood cohesion, safety and security is less clear, but could potentially impact Northeast more positively than the North Side.

Introduction

The built environment has a profound effect upon residents' lifestyles and well-being. Studies in public health, epidemiology, urban planning, transportation, and the social sciences are increasingly finding relationships between the built environment and human health and well-being (Dannenberg, Jackson, Frumkin, Schieber, Pratt, Kochtitzky, Tilson, 2003; Brownson, Baker, Housemann, Brennan, Bacak, 2001; Vries, de Verheij, Groenewegen, Spreeuwenberg, 2003). For example, research has demonstrated that access to parks is associated with increased physical activity and improved physical and mental health (Takano, Nakamura, Watanabe, 2002).

The purpose of the Health Impact Assessment (HIA) was to investigate the potential health impacts that could result from key land use alternatives that are outlined in an updated version of the Above the Falls (ATF) Master Plan. Changes to the built environment proposed in the ATF plan could have significant impacts on North Side and Northeast Minneapolis residents. This HIA report is intended to prompt key decision makers to consider the potential health consequences of implementing the ATF plan on residents' health and wellbeing.

What is a Health Impact Assessment (HIA)? HIA is a tool that has been used on an international level for communities and decision makers to evaluate the potential health implications of a proposed project or policy before it is built, implemented or put into effect. An HIA encourages bringing together public input and data relevant to the project or policy in order to make recommendations about how to maximize potential positive health outcomes, while minimizing unintended negative consequences. Phases of an HIA include screening, scoping, assessment, recommendations, reporting and monitoring. One of the key differences between HIA and a traditional community health assessment is that HIA not only seeks to understand the existing health conditions in a community, but it also attempts to understand the impact of future land use or policy changes.

The HIA was conducted from January 2012 through June 2013, and it assessed the health implications of four selected land use alternatives proposed in the ATF plan. The Minneapolis Health Department conducted the HIA in collaboration with the Community Planning and Economic Development (CPED) Department, the Minneapolis Parks and Recreation Board (MPRB), the ATF Citizens Advisory Committee (CAC), Minneapolis Riverfront Partnership

What is a Health Impact Assessment?

An HIA is a public engagement and decision-support tool used to assess the health impacts of proposed planning and policy changes. It uses an objective and scientific approach, and engages affected stakeholders in the process. A HIA develops recommendations to improve health outcomes associated with those proposals. The fundamental goal is to ensure that health impacts and inequities are considered in decision-making processes.

(MRP), students from the University of Minnesota, the Urban Design Lab and Lao Assistance Center. Funding for the HIA was provided by a collaboration between the Robert Wood Johnson Foundation, Pew Charitable Trusts and the Blue Cross Blue Shield Foundation.

The first section of the report *Background and Screening* describes what led to the proposal to conduct a HIA, the overall goals of the project, and the land use decision alternatives that would be considered. *Scoping* describes how the HIA Project Team arrived at the HIA study area, the major health concerns that would be the focus of the HIA and pathways from the land use alternatives to potential health outcomes. The third section, *HIA Methodology* describes the research and engagement activities that took place to arrive at the HIA findings. *Assessment Findings* includes: analysis of secondary data that describes existing health conditions in the ATF area; a review of the literature about the influence of the built environment on public health; findings of a Community Input Survey and findings from public forums and targeted outreach to racial and ethnic minority groups. Using the data and information from *Assessment Findings*, the *Recommendations* section outlines specific HIA recommendations that seek to maximize positive health outcomes or mitigate any negative health outcomes of the land use decision alternatives. A plan to monitor outcomes of the HIA is described in *Monitoring* followed by the *Conclusion* to the report.

Two advisory committees played an important role in the HIA. They were:

Above the Falls Citizens Advisory Committee (AFCAC): *The AFCAC was created out of a City Council resolution to play an advisory role during implementation of the Above the Falls Plan. It consists of 30 appointed members representing 10 neighborhood associations, 10 appointed seats from regional districts and representatives for business, environment and the local watershed; 5 business caucus seats and 5 environmental caucus seats.*

Riverfront Technical Advisory Committee: *The Riverfront Technical Advisory Committee is made up of policy makers and professional experts working in public organizations that have a role in development along the Mississippi River in Minneapolis and non-governmental organizations with technical expertise and commitment to the area. The role of this committee is to foster information-sharing and coordination of development-related efforts across these organizations.*

Background and Screening

“We moved to North Minneapolis because of the original Above the Falls plan and vision. We would love for our children to see it fulfilled.”

~North Minneapolis resident

The HIA focused on a geographic area that includes neighborhoods in Minneapolis with some of the greatest health disparities, and they are neighborhoods that could benefit most from full implementation of the ATF plan. Project partners decided to conduct an HIA to more deeply explore the potential health implications of the proposed changes in the ATF plan. The HIA afforded an opportunity to mobilize stakeholders from diverse perspectives and backgrounds around a common issue and re-energize support regarding development along the Upper Mississippi Riverfront in Minneapolis.

In 2000, the City of Minneapolis and Minneapolis Park and Recreation Board (MPRB) adopted a redevelopment plan entitled *Above the Falls: A Master Plan for the Upper River in Minneapolis*. The Above the Falls (ATF) plan provided a vision for what the Upper Mississippi Riverfront could be.

Organizations and stakeholders involved were: residents who live within and around the ATF area, the City of Minneapolis and Hennepin County, Minneapolis Parks and Recreation Board (MPRB), the National Park Service, the Minneapolis Riverfront Partnership (MRP), the Above the Falls Citizen Advisory Committee (CAC), the Riverfront Technical Advisory Committee (RTAC), Friends of the Mississippi (FMR), among others.

The original ATF plan outlined significant changes to the Upper Mississippi Riverfront in Minneapolis. A key policy issue addressed was the phasing out of heavy industries that currently line the banks of the Upper Mississippi Riverfront in North Minneapolis and ameliorate land use conflicts that have arisen over the years. Water, noise and air pollution, traffic congestion and truck traffic are paramount concerns for the property owners and residents of the area surrounding the industries. Highway 94, formerly described as a “buffer” from the industries, today poses a significant divide between the Riverfront and the vast majority of residents of North Side and Northeast Minneapolis who could benefit from a Riverfront with less pollution, a larger tax base, greater job density and opportunities for recreation, exercise and entertainment. In the original ATF plan, all or sections of industrial land would be converted to other uses such as parks and residential areas. Over 50 percent of the linear Upper Mississippi Riverfront in Minneapolis is owned by public agencies which raised residents’ hopes to see the changes implemented.

Since adoption of the original ATF plan in 2000, a number of public and private projects have been completed but not to the scale that was outlined in the original plan. Concerns have been raised particularly by business owners and public officials over the practicality and costs of the proposed, sweeping land use changes in the original ATF plan. These concerns prompted further research and study about the feasibility of implementation. Minneapolis City Council in 2009 specifically directed City planners to study the implications of the ATF land use guidance

intended to transition the area from heavy industry to light industry with mixed-use development. In response to the Council directive, City staff conducted an *Above the Falls Policy Review and Implementation Study* (ATF-PRIS) the findings of which were released in June 2012 and are available on CPED's website.

At the time the HIA began in January 2012, CPED and MPRB were engaged in updating and revising the ATF plan to incorporate findings of the ATF-PRIS as well as elements of MPRB's visionary design proposed in *RiverFIRST*. HIA efforts were aligned with the City and MPRB's plan revision process, including participation at public forums and during each entity's public review period. Timing for the HIA was optimal given the renewed focus on the ATF plan revision and sufficient time for research into the potential health impacts before plan approval in second quarter 2013. An HIA as a tool provided an opportunity to increase awareness of serious health conditions and disparities that could be mitigated or improved by the proposed changes and to research the health implications of proposed changes for which the outcomes were unclear. By providing a channel for residents with diverse perspectives to find common ground around the health issues that affect them most, the HIA Project Team was able to develop recommendations that were incorporated into the updated ATF Master Plan with the hope that they would help to call awareness to potential solutions and to accelerate plan implementation.

The HIA Project Team

The HIA Project Team consisted of City staff from CPED and the Health Department (two epidemiologists and two planners), a planner from MPRB, the Executive Director of Minneapolis Riverfront Partnership (MRP), students from the University of Minnesota, and subcommittee members of the CAC. The Health Department was the lead agency for implementing the HIA. The planners from CPED and MPRB provided advice, data, and drafts of plan images and revisions throughout the process and led and assisted with community engagement efforts. The CAC subcommittee served an advisory role throughout the project particularly related to outreach activities, regular updates to the full CAC about HIA progress, and active participation in community engagement efforts.

The Land Use Decision Alternatives

The ATF plan involves many land use alternatives. Among the different alternatives, the CAC selected those of highest priority by weighing them against six criteria: the strength of the connection between the land use alternative and health; the extent of potential impact (i.e. reach) among the resident populations; timing of implementation of the land use alternative such that it could be informed by the HIA; stakeholder support for the alternative; potential health effects on current health status of priority populations; and effect on the local economy. (See APPENDIX A: Screening of Land Use Decisions). Since during the plan revision process some alternatives could change or be eliminated during the plan revision process, the CAC selected those land use alternatives, which would remain as priorities in the revised ATF plan. Using the six criteria, the CAC selected four measurable land use decision alternatives to be investigated as part of the HIA:

1. To add 108 acres of parkland;

2. To extend existing Riverfront biking and walking trails by 4.2 miles;
3. To add over the long term 3000 jobs; and
4. To add over the long term 1000 new housing units.

After selecting the key land use decision alternatives the HIA subcommittee identified the scope of health concerns and the pathways between each land use alternative and potential health outcomes. The selected health concerns are described in the following section on scoping.

Scoping

Study Area

The HIA study area included ten Minneapolis neighborhoods that are directly adjacent to the Mississippi River north of the Plymouth Avenue Bridge, since few Minneapolis residents actually live within the ATF area. On the west side of the river, this includes Hawthorne, Near North, McKinley, Webber-Camden, and Lind-Bohanon. These neighborhoods belong to the Near-North and Camden communities of Minneapolis. They are also referred to as the North Side of Minneapolis. On the east Riverfront, the neighborhoods are St. Anthony West, Sheridan, Bottineau, Marshall Terrace, and Columbia Park. These neighborhoods belong to the Northeast community of Minneapolis.

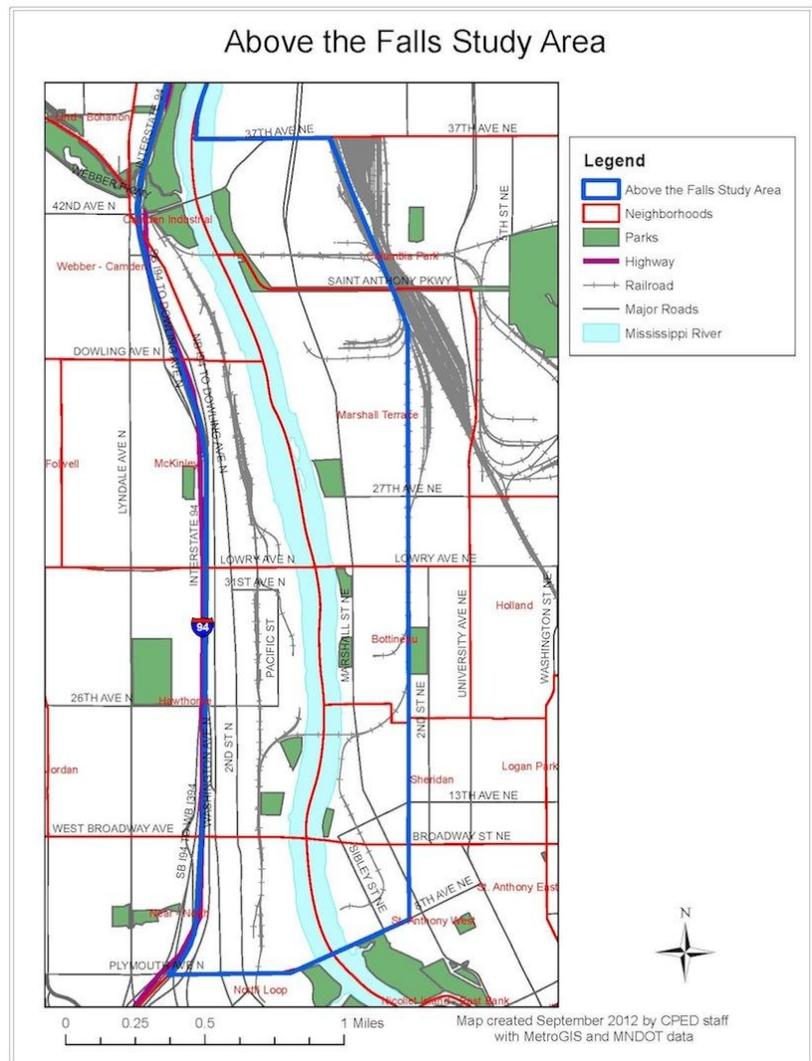
The ATF study area is a narrow strip of land along the Riverfront that includes parts of the abovementioned neighborhoods. The ATF

study area may be referred to in this report as the Upper Mississippi Riverfront. (See blue bounded area on the map above.) The ATF area is bound by Plymouth Avenue and the 8th Avenue N.E. bridge to the south, interstate 94 to the west, Marshall Street N.E. to the east, and the Camden bridge at 43rd Avenue N. and 37th Avenue N.E. along the northern boundary. The ATF study area contains approximately 2000 acres of land. Given an area this size, the land use alternatives are numerous and in most cases complex.

The HIA Goals

The HIA Project Team worked with the full CAC during their monthly meetings from January through May 2012 to complete the scoping process. The process began with developing overarching goals. The four main goals of the HIA were to:

1. Elevate health considerations during the ATF plan revision process;
2. Maximize potential health benefits and mitigate identified risks of proposed changes;



3. Receive input from diverse stakeholders including groups not reached previously; and
4. Serve as a catalyst for accelerated redevelopment efforts along the Upper Mississippi Riverfront in Minneapolis.

Additional activities during the scoping process included: conducting a stakeholder analysis to understand the spheres of influence of various ATF stakeholders; identifying the key health issues to be studied; setting priorities among the land use alternatives for further HIA study, and developing pathway diagrams.

Stakeholder Analyses

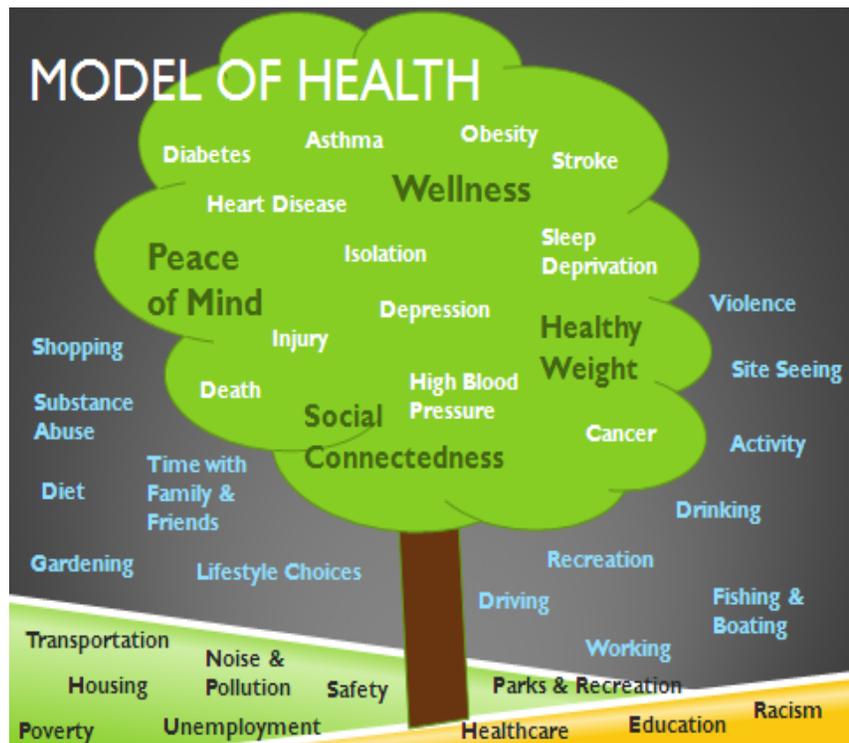
Stakeholder analyses were conducted with the CAC, the RTAC, and a group of youth who live in Hawthorne neighborhood to gain various perspectives. The stakeholder analysis involved a discussion during which participants placed key stakeholders of the ATF plan on a grid of four quadrants labeled low power-low interest, low power-high interest, high power-low interest, and high power-high interest.

The stakeholder analyses provided three main insights about the ATF plan. First, it became clear upon conducting the stakeholder analyses that the ATF plan enjoyed a high level of interest among a very diverse group of stakeholders. Secondly, key stakeholders, who could potentially mobilize to accelerate implementation of the ATF plan, felt that they had little power, in spite of their high interest. Finally, stakeholder groups that were believed to be underrepresented in providing feedback about previous planning processes were: immigrant and refugee populations, senior citizens, youth, racial and ethnic minority communities, limited-English proficient populations and people with disabilities.

Land Use Decisions + Health

The CAC's approach to health for purposes of the HIA was broad. It included elements of human health such as physical, behavioral and mental health, and environmental health.

Environmental health referred to the health of the neighborhood, the Mississippi River, the local economy, among other factors. The CAC emphasized that all of these factors collectively influence health. The Health Department staff summarized this model of health using the tree analogy in which the roots of the tree correspond to systemic and social determinants of health, the trunk corresponds to individual behaviors, and the leaves or fruits correspond to the positive



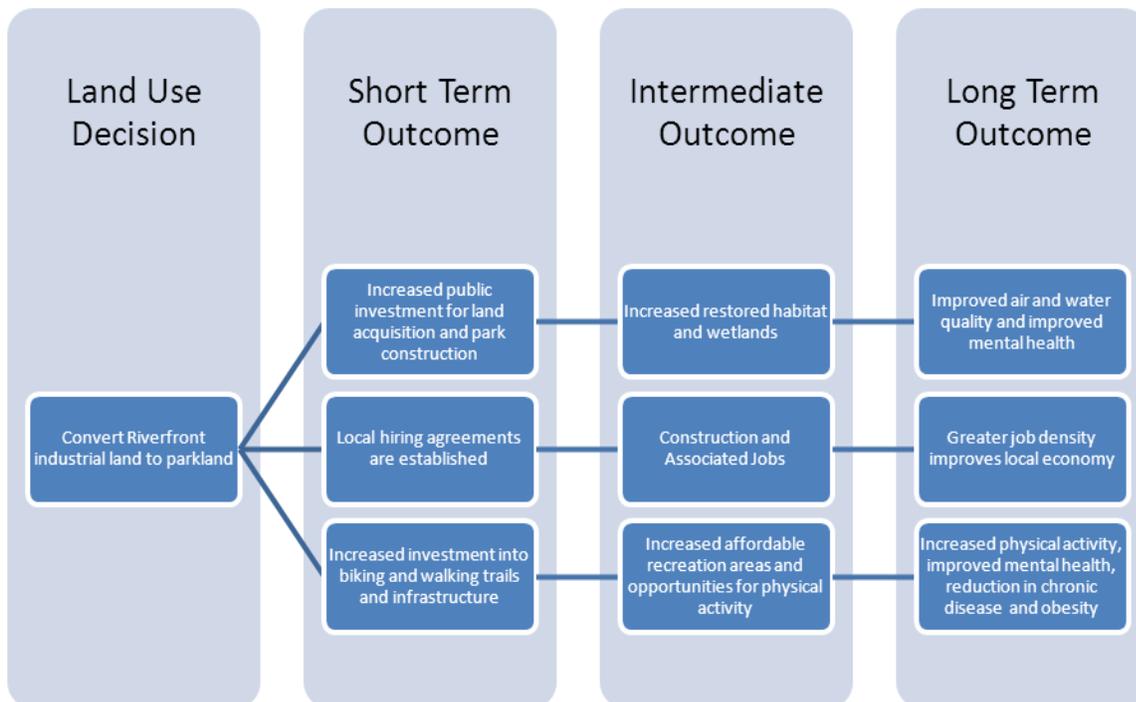
and negative health outcomes. (See right.) The CAC identified key health benefits and concerns related to the four land use alternatives. All of the health benefits and concerns that were identified for each alternative as well as any written comments are included in (See Appendix B: Health Determinants Exercise Results).

Based on a review of existing research and literature and the health concerns identified by the CAC, the health impacts that were agreed to be investigated for the HIA were related to:

- Obesity
- Mental Health
- Environmental Quality (Air, noise and water quality)
- Safety and Security
- Neighborhood Cohesion
- Neighborhood Livability
- Employment

Health Department staff developed pathway diagrams to link the selected land use alternatives to potential immediate, intermediate or long-term health outcomes. These health outcomes could be positive, negative or uncertain. For example, related to the land use alternative to convert industrial land to parkland one might expect to see some of the following immediate, intermediate and long-term, health related outcomes. The pathway diagram below is intentionally oversimplified.

Pathway Diagrams



Pathway diagrams were constructed to illustrate where the connections between a land use alternative and health could be supported by scientific data and academic literature. The pathway diagrams exposed areas where scientific literature makes a strong case about connections between a health-related outcome and a change in the built environment. (See Appendix C: Pathway Diagrams.) The diagrams also pointed the HIA Project Team to measurable health indicators and research questions. The HIA Project Team concluded the scoping process by summarizing the research questions about existing health conditions and potential health impacts, measurable health indicators and proposed research methods into a scoping table (See Appendix D: Condensed Scoping Table). The HIA Methodology is summarized in the following section followed by HIA Findings.

“Walking, running, biking. Sound of water = soothing. Connects me to life up and down the River.”

~Community Resident

HIA Methodology

Overview

HIA research activities included a review of academic literature and previous HIA studies which link health to aspects of the built environment, secondary data analysis of relevant health indicators, a Community Input Survey and resident input gleaned from community events and forums. Since June 2012, the HIA Project Team and partners have:

- Presented to 21 local committees, community groups and neighborhood organizations
- Conducted outreach at 15 community events, including four public forums to date: one in June 2012 (~70 attendees), one in October 2012 (~50 attendees), and two in November 2012 (~180 attendees). The two forums in November were held with Latino (Northeast) and Lao (North Side) community residents. Additional forums and workshops were held with Lao and youth residents in the Spring of 2013.
- Collected nearly 400 Community Input (online and paper) Surveys
- Received over 120 RIVER comment cards

The research and community engagement activities sought to gauge the health impact of each land use alternative on the residents who live in the HIA study area. The research and community engagement activities informed three overarching research questions:

- What currently draws residents to the Riverfront? What factors inhibit residents of North Side and Northeast Minneapolis from visiting the Riverfront? How are these factors related to their health?
- Which land use alternatives would draw most residents to the Riverfront locally and regionally? How would implementation of these land use alternatives impact health?
- Which land use decision alternatives could potentially improve or harm health of residents in the ATF area and in the North Side and Northeast Minneapolis neighborhoods?

Consistent findings across multiple different methods of data collection led to findings of the HIA. Findings then informed the development of recommendations for ways to maximize the health benefit to be enjoyed by residents and to mitigate any potential negative impacts. The following describes each of the HIA research methods and engagement activities.

Literature Review & Secondary Data Collection

The HIA Project Team conducted a literature review to identify the strengths of connections between the land use alternatives and possible health outcomes. The team obtained and analyzed secondary data for over 27 indicators of health that were shown to be associated with land use alternatives similar to those proposed in the ATF plan.

Measurable Health Indicators

Data Source	Indicators
Above the Falls Policy Review and Implementation Study, Minneapolis Center for Planning and Economic Development (CPED)	<ul style="list-style-type: none"> • # runoff sites • # sites with pollution-related issues • land use and proposed changes
Minneapolis Parks Foundation Survey	<ul style="list-style-type: none"> • park access • park use and mental health
Minnesota Department of Health	<ul style="list-style-type: none"> • lead poisoning
Minnesota Hospital Association	<ul style="list-style-type: none"> • assault-related injuries • firearm-related assault injuries • asthma hospitalizations
Minnesota Pollution Control Agency	<ul style="list-style-type: none"> • # pollution monitoring sites • water quality • air quality
Privately-funded noise study	<ul style="list-style-type: none"> • noise levels
Survey of the Health of All the Population and Environment (SHAPE) 2010	<ul style="list-style-type: none"> • overall sense of community • neighborhood walkability • non-motorized transport • barriers to walking • overweight and obesity • mental health • neighborhood crime • crime among youth, young adults
United States Census 2010 & American Community Survey	<ul style="list-style-type: none"> • poverty • population by age • population by race/ethnicity • unemployment
Vital Records	<ul style="list-style-type: none"> • age-adjusted premature death rate

Primary Data Collection: Community Input Survey

In order to understand more about residents' utilization of the ATF area and the possible impact that proposed changes in the ATF plan would have on the health and well-being of residents, Health Department staff developed a 15-item Community Input Survey. The Community Input Survey was conducted between September 2012 and January 2013. Paper and online versions were made available to complete. Responses to the survey were not randomized. Efforts were made to target residents of North and Northeast Minneapolis; however, given the desire to make the Upper Mississippi Riverfront a regional destination, residents from other areas in Minneapolis and the surrounding suburbs were not excluded from completing the survey. Respondents were provided a map of the ATF area and were instructed to complete the survey with the ATF area in mind. Paper surveys were completed either during or after presentations to community groups, public forums and committee meetings. The Survey Monkey link was posted to the City and Park Board Planning web sites, distributed to local listservs, and made accessible for people with disabilities. (See Appendix E: Community Input Survey.)

RIVER Cards: Your River. Your Health. Your Words.

Health Department staff collected residents' thoughts and stories about how the Mississippi is related to their health and well-being using RIVER cards. The RIVER cards were modeled after RACE cards that were developed by Michelle Norris to collect stories and comments about race and racial discrimination in six words. This was part of a social media campaign related to her book the Grace of Silence. RACE cards that were collected were posted to her website at www.michele-norris.com. The Health Department staff distributed RIVER cards at public events, presentations, and committee meetings to allow youth and young adults alike to share creative thoughts, stories and memories about the river and their health. Over 120 RIVER comment cards were submitted along with other public comments to CPED during the public comment period. (See Appendix F: RIVER Comment Card.)

“When my son was a toddler, my husband would ride with him on the bike down Saint Anthony Parkway and stop by the Camden Bridge. They named a sand beach, Oscar’s beach. To this day, 25 years later when riding along the River we say, “There’s Oscar’s beach!”” ~RIVER Comment Card

Public Forums and Presentations

The main objectives of the community forums and presentations were to raise awareness about the Upper Mississippi Riverfront in North Minneapolis, to describe how redevelopment of the Riverfront could impact the health of residents and their families, to receive feedback about the proposed land use changes and their relationships to health, and to communicate how residents can become more involved in the decision making and planning process. (See Appendix G: Public Forum Question Guide.)

The HIA Project Team conducted three public forums to reach a general audience of community residents and stakeholders: one in June, one in October and one in December 2012. The HIA Project Team also attempted to conduct community forums specifically with youth, African American, Lao and Latino residents of North and Northeast Minneapolis. Culturally-specific forums actually occurred with Lao, Latino, and youth residents, most of whom were residents of North and Northeast Minneapolis. In the case of youth and Lao residents, consultants were hired to help recruit participants who live in North and Northeast Minneapolis. Consultants coordinated the logistics of their community dialogues and produced a brief report that summarized the feedback and recommendations gleaned from the dialogues. The HIA Project Team assisted with logistics such as space, note taking, and volunteers during the forums,

dialogues and presentations. Attempts to identify a consultant to host an African American specific community forum about the ATF developments were unsuccessful.

In addition to the forums the HIA Project Team hosted dialogues with and made presentations to committees, associations, and groups which the HIA Project Team had identified as requiring targeted outreach. The HIA Project Team gained diverse perspectives and feedback by presenting at meetings such as neighborhood association meetings, the Hawthorne Huddle, University North Side Partnership Community Affairs Committee, People with Disabilities Advisory Committee, Senior Citizens Advisory Committee, Minneapolis Youth Congress and African American Leadership Forum among others. The public forums, dialogues and presentations were tracked using a tracking log. See Appendix H: Engagement Tracking Log.

“The Mississippi is a pride of the nation, a basis for folklore, a reminder of the power of water and nature in the midst of urban sprawl.”

~Community Resident

Overview of Existing Conditions in the ATF Area

Demographics

Based on 2010 Census, 33,060 people live in the ten HIA study area neighborhoods. Of the total, 29 percent are under age 18, and 8 percent are 65 or older. The percentage of children under age 18 is 1.5 times higher than that of the city overall. The population of seniors 65 and older is the same as the citywide average. These neighborhoods tend to be more racially diverse than the city overall. Thirty-nine percent of this area's residents are white, compared with 60 percent in the city overall. Thirty-five percent of this area's residents are Black/African American compared to 18 percent in the city overall. Ten percent are Asian and nine percent Hispanic/Latino. This area also has high concentrations of poverty, housing foreclosure, and residential segregation particularly on the North Side of Minneapolis.

ATF Area Demographics	Number	Percentage	Minneapolis Overall
Total population	33,060		
Age			
Under age 18	9,569	29%	19%
65 and older	2,562	8%	8%
Race/Ethnicity			
White	12,819	39%	60%
Hispanic/Latino	2,891	9%	10%
Black	11,708	35%	18%
American Indian	557	2%	2%
Asian/Pacific Islander	3,392	10%	6%
2 or more races	1,588	5%	3%

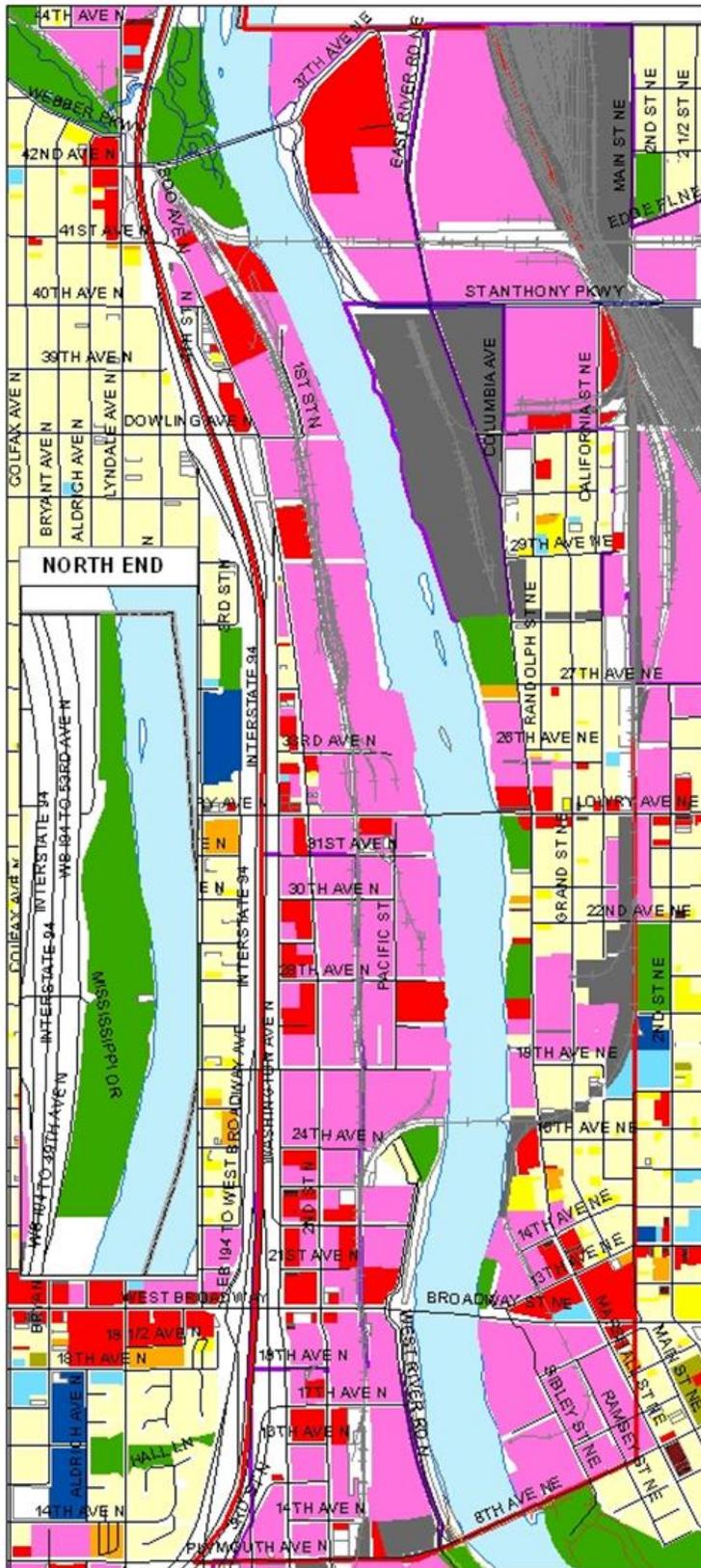
Source: 2010 US Census

Existing Land Use

The majority of the existing land use in the ATF planning area is currently industrial (Refer to map on following page). The west bank is predominantly industrial with some commercial and a few isolated residential areas. The east bank is mainly industrial at the northern and southern ends, but largely lower density residential in the middle with a mix of other uses. Residential areas are generally low density and characterized by single family and duplex homes, with some smaller scale and a few larger scale multi-family properties. The largest concentrations of heavy industry are in the central and southern areas on the west bank.

In some cases, the existing industrial use creates both physical and psychological barriers between other land uses, such as parkland and commercial spaces. The strong industrial presence reduces the density of destinations that promote public use. There is currently limited access to retail, commercial services, or food in the ATF area. Current commercial food access is limited to fast food establishments and convenience stores, with the exception of one grocery store on West Broadway in North and another on Second Street in Northeast Minneapolis. There are no farmers markets or community gardens within the ATF area.

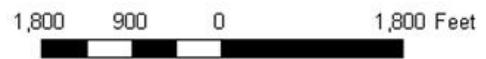
Above the Falls Existing Land Use



Legend

Existing Land Use

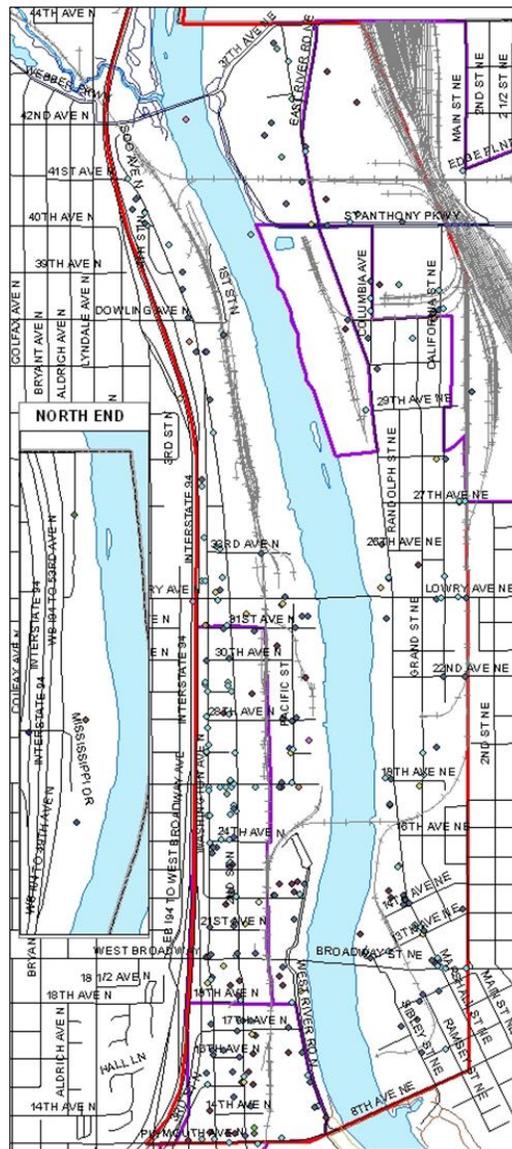
- Low-Density Housing (up to 20 DU/acre)
- Medium-Density Housing (20-50 DU/acre)
- High-Density Housing (50-120 DU/acre)
- Very High-Density Housing (> 120 DU/acre)
- Congregate Living
- Commercial
- Mixed Use
- Public/Institutional
- Cultural/Entertainment
- Transportation/Communication/Utilities
- Industrial
- Parks/Open Space
- Vacant
- Railroad
- Study Area
- Industrial District
- City Boundary
- Water



Pollution-related Sites in the ATF Area

The Minnesota Pollution Control Agency (MPCA) identifies nearly 300 sites in the ATF area with air, noise and water pollution issues. These include sites with active issues as well as those with past issues on record. Specific sites plotted on the map are described in detail in Appendix I: Pollution-related Sites. The greatest concentration of known contamination sites is on the west bank south of Lowry Avenue. Scrap metal yards, oil tanks, former foundries, railroad yards, printing plants, piles of coal and salt: all of these potential sources of pollutants are found along the Upper River. Known pollutants include: petroleum products, solvents, lead, and other heavy metals, PCBs (polychlorinated biphenyls), VOCs (volatile organic compounds), PAHs (polynuclear aromatic hydrocarbons). Contact with these contaminants

can be made at ground level from soils, or through evaporated or fine particles in the air. Lead has been shown to damage nervous systems and other chemical pollutants are suspected carcinogens. Children are particularly vulnerable to health problems associated with soil contaminants, because they are closer to the ground and their bodies are still developing. Recent research conducted through CPED showed no MPCA or Leaking Underground Storage Tank (LUST) sites at the Upper Harbor terminal, a 48-acre industrial property and hopeful site for parkland along the Riverfront.



Above the Falls MPCA Sites

Legend

MPCA sites

- ◆ Air Permit
- ◆ CERCLIS Site
- ◆ Construction Stormwater Permit
- ◆ Hazardous Waste, Small to Minimal QG
- ◆ Industrial Stormwater Permit
- ◆ Landfill, Closed
- ◆ Landfill, Open
- ◆ Leak Site
- ◆ Multiple Activities
- ◆ State Assessment Site
- ◆ Unpermitted Dump Site
- ◆ Voluntary Investigation & Cleanup (VC)

- Railroad
- ▭ Study Area
- ▭ Industrial District
- ▭ City Boundary
- ▭ Water



Health Impact Assessment Findings

The HIA Project Team investigated six, existing health determinants or conditions in the ATF area that could be impacted by the four selected land use alternatives outlined in the ATF plan. They were:

- Obesity
- Mental Health
- Environmental Quality (Air, noise and water quality)
- Safety and Security
- Neighborhood Cohesion
- Employment

The following four sections of the report are organized according to the four major land use alternatives being investigated for the HIA. Each section discusses: first, the connection in the scientific literature between the land use alternative and selected health determinants; secondly, the secondary data and results of HIA research activities relevant to the land use alternative and its respective health determinants; and thirdly, a health impact prediction based on the literature, secondary data and HIA research activities.

Park Access + Obesity + Mental Health: The Literature

Obesity

Various studies have shown associations between access to parkland and increased physical activity and sense of wellbeing (Cohen, McKenzie, Sehgal, Williamson, Golinelli, Lurie, 2007; Groenewegen, van den Berg, de Vries, Verheij, 2006; Humpel, Owen, Leslie, 2002; Powell, Martin, Chowdhury, 2003; Maas, Verheij, Spreeuwenberg, Groenewegen, 2006). Physical activity can prevent chronic diseases such as diabetes, obesity, and hypertension (CDC, 2011). Parkland that is available for free recreation and public use can increase levels of physical activity, and thereby reduce chronic disease, especially for groups who have limited alternatives for physical activity. According to a study by the Centers for Disease Control and Prevention (CDC), access to parkland resulted in 25 percent more people exercising 3 or more days a week (CDC, 2001). Another study in Los Angeles showed 81 percent of park users lived within one mile of a park and those users were more likely to use the park at least once per week (Cohen et al. 2006).

Having access to parkland provides a low-cost or free opportunity for recreation, which may positively impact disadvantaged populations and promote health equity. Research has shown that disparities in access to parkland exist between different racial and ethnic groups (Gordon-Larsen, Nelson, Page, Popkin, 2006; Moore, Diez-Roux, Evenson, McGinn, Brines 2008). In Los Angeles, White neighborhoods have been shown to include 31.8 acres of park space for every 1,000 people, compared with 1.7 acres in African-American neighborhoods and 0.6 acres in Latino neighborhoods (Trust for Public Land, 2005). A Dutch study evaluating links between use of green space and physical activity found that the association was strongest for people under age 25, senior citizens, and people with low levels of income and education. This may be due to children, senior citizens and people of lower socio-economic status spending more time

in the vicinity of their homes and thus being more affected by the design of their direct living environment (Maas et al. 2008).

“Canoeing, biking and running. Great views that lead to relaxation and stress relief.”

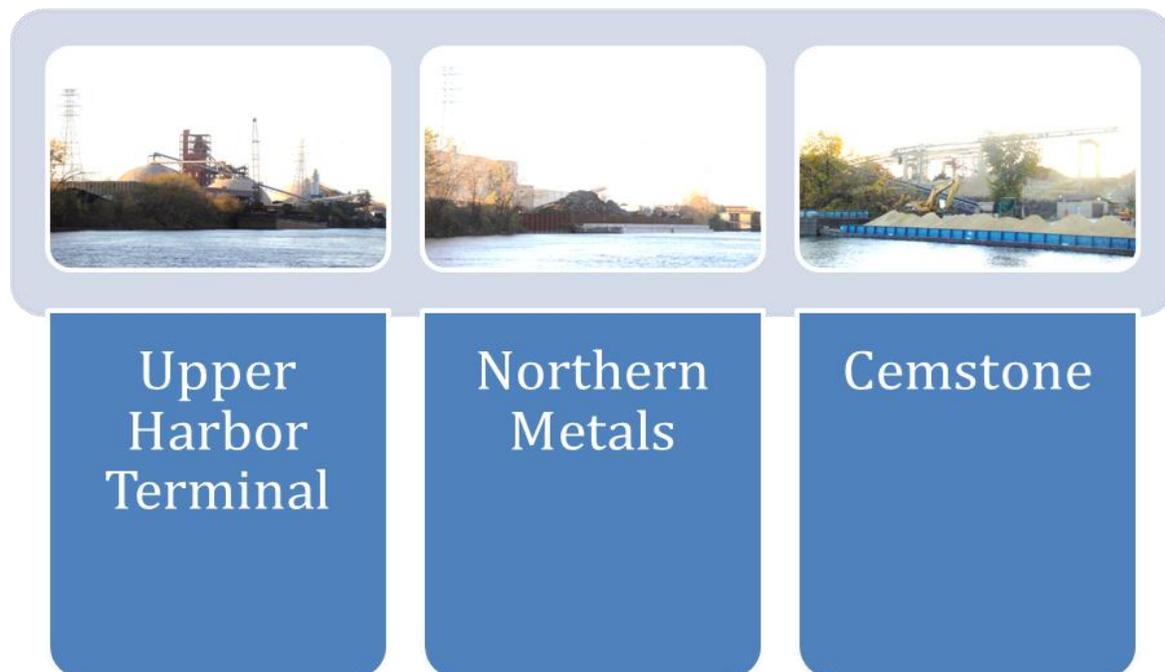
~RIVER Comment Card

Mental Health

Studies have shown that increasing parkland has a multifaceted impact on health by not only promoting physical activity but improving psychological well-being by reducing stress and depression (Maller, Townsend, Pryor, Brown, St. Leger, 2005). A study in Chicago demonstrated that people living in a housing project with some green space nearby scored higher on the ability to manage major life issues, procrastinated less, found their issues to be less difficult, and reported them to be less severe and long-standing than those who lived in barren surroundings (Kuo, 2001). People dissatisfied with their available green spaces have 2.4 times higher risk for mental health issues (Guite, Clark, Ackrill, 2006).

Research has shown that parks increase neighborly interaction and socialization (Sullivan, Kuo, DePooter, 2004). Social interactions can lead to stronger social connection among community residents. Social connection has a variety of health impacts, ranging from reducing stress, ameliorating morbidity and mortality, and supplying access to emotional and physical resources. Furthermore, social support (perceived or provided) in a community can help one to buffer stressful situations, prevent feelings of isolation, and contribute to high self-esteem. Evidence exists that after new parks open, neighbors are more likely to socialize, take pride in their community, and form a neighborhood watch and other local groups (Trust for Public Land, 2004).

Riverfront Sites Considered for Sections of Parkland and Trails



Obesity and Mental Health: Existing Conditions

“We have high rates of obesity. Recreation works for everyone.”

~RIVER Comment Card

Obesity

The Regional Park along the Mississippi Riverfront in Minneapolis is accessible to a wide population of residents. Based on a survey of 600 randomly-selected Minneapolis residents conducted by the Minneapolis Parks Foundation in 2009, 82 percent of respondents reported having used regional parks such as the one located in the ATF area. North Side HIA Community Input Survey respondents are more concerned about access to parkland than Northeast respondents, with 50 percent of North Side respondents reporting “not having

enough places to exercise nearby” as negatively impacting their health compared to 30 percent among Northeast respondents. Lao and Latino residents who attended the community forums selected parks and play areas for children as the most welcome change to the Upper Mississippi Riverfront.

The addition of parkland is likely to improve levels of physical activity in the ATF study area. According to the Minneapolis Parks Foundation Survey, 96 percent of respondents reported that “Minneapolis parks and lakes play a key role in the physical health and wellness of Minneapolis residents.” When asked as part of the HIA Community Input Survey about the purpose of their visits to the Upper Mississippi Riverfront, survey respondents selected recreation (74 percent), followed by exercise (68 percent), and then followed by restaurants (45 percent).

North Side and Northeast residents alike expressed concerns about disparities in access to parkland compared to other areas of Minneapolis. A Northeast respondent wrote, “We have no loop trails except for an isolated, hilly trail around a golf course and [that passes] by industry. Given our heavy industry, we are hungry for life-renewing large parks, not small ribbon trails.” Another survey respondent commented that, “While living near the Riverfront, the heavy industry stops me from doing anything more than biking or walking south of the railroad tracks.” A change that would improve health, according to another respondent was, “open space between any development site and the river, that is relatively natural so all residents can enjoy this treasure (the River).” Regarding access to parks and its relationship with reductions in obesity a North Side respondent noted, “We have high rates of obesity. [Recreation] works for everyone.” Residents who attended all public forums were among a majority of folks who voiced desires for more parkland.

The ATF plan has the potential to have a positive impact on an area that currently has relatively limited access to the regional park areas compared to other areas of the city and that experiences disproportionate rates of obesity. According to the SHAPE Survey residents of Camden-Near North communities report height and weight values that are considered obese significantly more than adults in other communities in the city. Thirty percent of adults in the Camden and Near North communities are considered obese compared with 16 percent of adults in other communities of the city. The communities along the Northeast Riverfront have prevalence rates of obesity similar to the city overall. Not only does the North Side of Minneapolis experience disparities in obesity compared to the rest of the city, the data and research clearly underscores the potential benefit of increasing access to parkland in order to increase affordable opportunities for physical activity and thereby reduce chronic disease.

Mental Health

In terms of existing mental health conditions, residents of the North Side experience disparities in mental health compared with other areas of the city. Although sample sizes were not large enough to determine statistical significance, according to the SHAPE Survey, Camden Near North (i.e. the North Side) had the highest rates of reported psychological distress in the last 30 days compared to other areas of the city. Nine percent of respondents from Camden-Near North reported having experienced serious psychological distress during the past 30 days compared with 5 percent of respondents in Minneapolis overall. The ATF and surrounding area was not notably higher than other areas of the city on other measures of mental health such as anxiety, depression, and feelings of hopelessness (Hennepin County Human Services and Public Health Department, 2011). The Minneapolis Parks Foundation Survey provides strong evidence of the connection between parkland and the potential to improve mental health conditions. Ninety percent of survey respondents felt that “the Minneapolis parks and lakes play an important positive role in the emotional and psychological health of city residents.”

Parkland + Environmental Quality: The Literature

Air Quality

Parks have been linked to reductions in ambient air pollution and reduced economic costs due to air pollution (Harnik, Welle, 2009; Scherer, 2003). Trees increase oxygen production and reduce levels of smog, thereby improving air quality (San Francisco Urban Forest Council, 2005). The effects of particulate matter and ozone air pollution caused by vehicle and industry emissions have been shown to lead to negative health outcomes like asthma (Gauderman, Avol, Gilliland, 2004; California Air Resources Board, 2007; WHO, 2003). Fine particulate matter has been shown to be one of the main sources of ambient air pollution. Fine particles in the air are associated with increased hospitalizations and deaths due to respiratory and heart disease and can worsen the symptoms of asthma. People with respiratory or heart disease, the elderly and children are the groups most at risk (Minnesota Pollution Control Agency, 2011).

Noise

Increased parkland does not directly lead to noise reduction, according to the scientific literature. Noise reduction is directly linked to the type of barrier placed between the source of the noise and the receiver of the noise. Noticeable noise reduction can be achieved using a barrier of, for example, 100 feet of sufficiently dense vegetation, i.e., the vegetation cannot be seen through. Since such large, dense areas of vegetation are not always possible in the areas they might be needed, vegetation can be planted for psychological relief (Federal Highway Administration, 2012).

Whether one is near a highly industrial area, a busy intersection, or an airport, sound is considered unwanted when it either interferes with normal activities such as sleeping or conversation, or when it disrupts or diminishes one’s quality of life. Air is constantly filled with sounds, yet most people would probably not say that they are surrounded by noise. For some, the persistent and escalating sources of sound can be considered an annoyance. This “annoyance” factor is what has negative consequences on health. Studies have shown direct links between noise and health. Problems related to noise include stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity (Stansfeld, Matheson, 2003; Van Kempen, Kruize, Boshuizen, Amelin, Staatsen, de Hollander, 2002).

“The River is where we hide our waste and get our drinking water supply from.”

~RIVER Comment Card

Water Pollution

Trees and the soil under them can improve water quality by mitigating the negative effects of storm water runoff by removing polluted particulate matter from water before it reaches storm sewers and absorbing nutrients created by human activity such as nitrogen, phosphorus and potassium, which otherwise pollute streams and lakes (Nowak, 1995). Trees and vegetation can more effectively and less expensively

manage the flow of storm water runoff than do concrete sewers and drainage ditches. Trees intercept rainfall, and unpaved areas absorb water, slowing the rate at which it reaches storm water facilities. This alleviates pressures on storm water management and flood control efforts as well (Grant, Heisler, Gao, 2002; Trust for Public Land, 2005).

Environmental Quality: Existing Conditions

“I consider odor pollution to be air pollution.”

~Community Resident

Air Quality

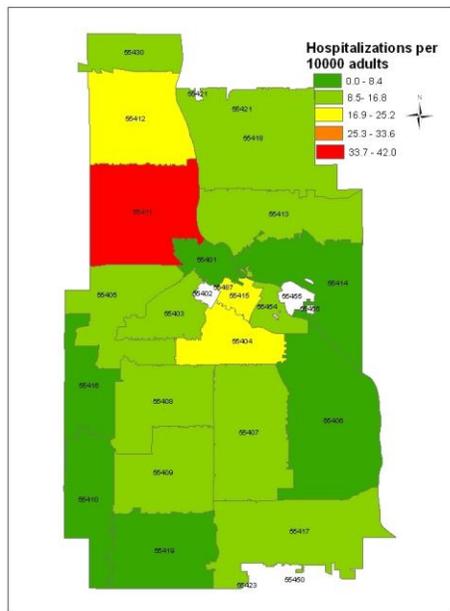
The HIA Project Team sought to better understand possible effects additional parkland could have on ambient air pollution and asthma rates among children and adults living in and around the ATF area. The ATF area is host to four sites with air pollution-related issues. A highly publicized investigation into ambient air pollution in the ATF area involved air emissions from a scrap metal shredding company. In late 2012, the company was granted a permit that would raise its levels of air pollution. The sources of pollution rising from the company’s stacks were found to be fine particulate matter and mercury. The revised permit limits according to the Minnesota Pollution Control Agency (MPCA) fell within the legal allowable limits but residents of the surrounding area question the implications of the new limits on their health.

The MPCA takes hourly measurements of pollutants at twelve air-quality monitoring sites in the Twin Cities metropolitan area, two of which are located in Minneapolis. One site is located Downtown and another site in South Minneapolis. *No monitoring sites are currently located in the ATF area.* In September 2012 with the North Minneapolis Air Monitoring Project, plans were being developed to begin to monitor air quality at a site located in North Minneapolis. Whether plans included monitoring air quality in Northeast Minneapolis was unclear.

Regarding asthma, the worst rates of asthma in Minneapolis among children were found to be in a non-industrial area in South Minneapolis and the worst rates among adults were located in and around the ATF area. An important confounding factor to consider in understanding asthma rates is that they are not only related to ambient air pollution; rather they are also affected by indoor air quality. The fact that asthma rates among adults are highest in the ATF area could be linked to elevated levels of ambient air pollution, if one assumes that adults spend more time outdoors than children. Until local data are available, determining the extent of harm of ambient air pollution on human health in the ATF area will be difficult.

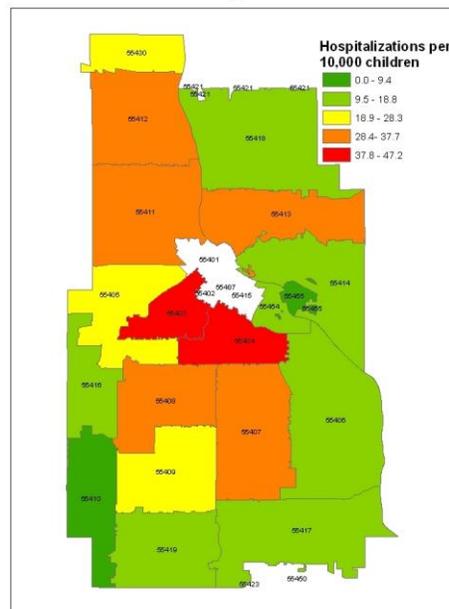
Measures of air quality exist for Minneapolis overall. The Air Quality Index (AQI) that was developed by the U.S. Environmental Protection Agency (EPA) provides a simple, uniform way to report daily air quality conditions. Air quality is rated on a scale of five categories: good, moderate, unhealthy for sensitive groups, unhealthy and very unhealthy. Air quality in the Twin Cities metro area is determined by measuring four pollutants: ozone, sulfur dioxide (SO₂), fine particulate matter (PM_{2.5}) and carbon monoxide. According to the MPCA, the level of air quality in Minneapolis is generally good-to-moderate, except during the warmest months. In 2011, Minneapolis experienced 4 days during which the level of air quality was considered “harmful for sensitive groups,” and zero days in either of the unhealthy categories. All days in 2011 that exceeded the AQI were due to fine particulate matter (Minnesota Pollution Control Agency, 2011).

Asthma Hospitalizations among adults in Minneapolis during 2008-2010



Source: Minnesota Department of Health

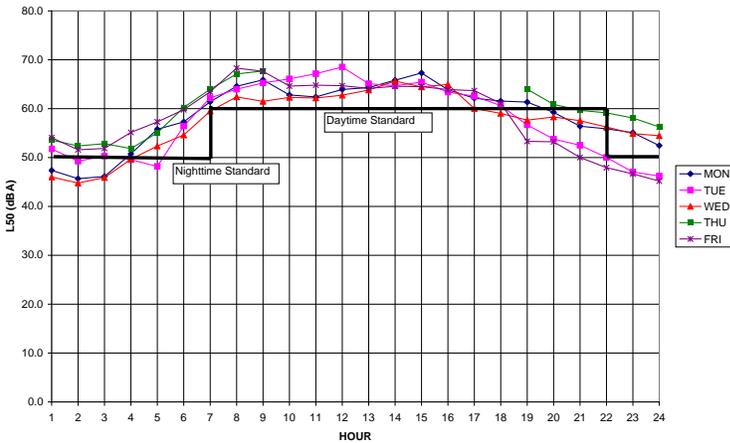
Asthma Hospitalizations among Minneapolis residents during 2008-2010



Source: Minnesota Department of Health

Decreasing air pollution was among the most preferred changes (i.e. >50 percent of respondents) that would positively affect health among North Side and Northeast residents who responded to the Community Input Survey. Survey respondents and attendees at the public forums expressed concerns about air pollution in their neighborhoods. Residents who attended the Latino and Lao forums complained of foul odors (e.g. compost, gas/petroleum smells) along the River and disturbing levels of dust outside of their homes and on their cars, which they believed came from compost and lumber manufacturing sites. One resident summarized the perspective of many residents by stating that “[a nearby industrial plant] pollutes the neighborhood with obnoxious odors outside of [the] 8-5 hours when the MPCA can’t test them. Reducing that pollution would make for a more enjoyable experience.” A RIVER card comment addressed residents’ concerns about asthma saying that “We have asthma issues! Please help make [heavy industrial plants] follow the rules and protect our health!”

24-HOUR L50 DATA - 5 DAYS



Noise

Noise levels for the most part have not been monitored consistently in the ATF area. An independent study conducted by David Braslau & Associates in the ATF area looked at the noise levels caused by a nearby industry. The Riverview Townhomes are located less than 100 feet from a large, concrete-making factory. The 2011 study showed that the factory noise levels frequently exceeded night and daytime standards for noise pollution. Similar data do not exist for other sites within the study area.

Based on existing industrial land use, however, it is likely that noise levels of other industries in the area may exceed these standards, underscoring the need for consistent monitoring and oversight.

“Loud noises” was among the top two factors that negatively affect residents’ health, based on the Community Input Survey. One survey respondent commented that, “industry has caused discomfort for our neighborhood -- NOISE, DUST.” Another respondent wished for “more peace and quiet (and less industrial noise) especially between 7:00 PM and 8:00 AM as [some] industries consistently violate noise ordinances especially in the very early [morning].” Although few studies have been conducted to provide evidence of noise violations, noise continues to be of great concern and is perceived to negatively impact the health of residents in the area.

“It’s dirty, but it’s a chill spot to kick-it. I’ve caught a lot of fish.”

~RIVER Comment Card

Water Pollution

Multiple sites with water-pollution related issues are located in the ATF area, three sites with Construction Storm Water Permits and nine sites with Industrial Storm Water Permits. Storm sewers carry surface runoff from North and Northeast Minneapolis to 33 outfalls along the Mississippi River. On one hand, pollution that contaminates Mississippi River water may pose less risk to Minneapolis residents, since the water they drink from the River has been filtered and purified. On the other hand, fish and wildlife consume river water and its contaminants.

Agricultural and sewer runoff can still pose a public health risk, particularly for swimmers. Fecal coliform bacteria are a group of bacteria found in the intestinal tract of humans and animals, and also found in soil. While harmless in themselves, coliform bacteria are commonly used as indicators of the presence of pathogenic organisms and other disease-causing bacteria, such as those that cause typhoid, dysentery, hepatitis A and cholera (Minnesota Pollution Control Agency, 2012). According to 2002 MPCA data (the most recent data available) taken at Boom Island, Camden boat launch and North Mississippi Regional Park along the Upper River in Minneapolis, the levels of fecal coliform bacteria peaked during the most common swimming months of July and August. The highest peak levels were observed at Boom Island and Camden Boat launch (closer to Downtown) with a notably lower peak level at North Mississippi

Regional Park (farthest away from Downtown). High levels of these bacteria can be an indication that the water quality is unsuitable for swimming and wading, a noteworthy consideration for development plans that may suggest the addition of a large swimming beach (Minnesota Pollution Control Agency, 2012).

Based on the Community Input Survey, over half (54 percent) of respondents would like ATF plan implementation to result in improvements to river water quality. Forty-three percent of North Side respondents compared with 25 percent of respondents from Northeast perceived poor river water quality as negatively affecting their health. Improving river water quality was the second most selected change that would positively affect the health of respondents from Northeast. (See Appendix J: Community Input Survey Summary and Charts) A resident who completed a RIVER comment card wrote, "I think the Mississippi River is very beautiful, but is being over-polluted during the passing of time." "The river is where we hide our waste and get our drinking water supply from," wrote another resident on a RIVER comment card.

Health Impact Prediction: Obesity, Mental Health and Environmental Quality

The ATF plan proposes to increase the existing acreage of parkland by 108 acres.

Obesity and Mental Health

The Riverfront is highly regarded by residents of North and Northeast Minneapolis as a destination for exercise and recreation, according to the Community Input Survey. Respondents to the survey and many participants in the community forums perceived the addition of new parkland as having a positive impact on their health. Parks were among the most preferred changes to the Upper Mississippi Riverfront with over 50 percent of survey respondents saying that additional parks would improve their health.

The strong connection between parkland, physical activity and mental health in the public health literature, strong evidence that residents currently use the Riverfront for physical activity, a majority of survey respondents who rated parkland as having a greater potential benefit to their health than new jobs and housing, a majority of survey respondents who currently use the Riverfront for exercise and recreation, and strong evidence that parkland plays an important role in the emotional and psychological health of City residents all suggest a strong positive health impact of increased parkland on reducing obesity and improving mental health.

Environmental Quality

"Air pollution," "loud noises and traffic," and "car congestion" in that order, were found to be the main environmental factors that negatively affect the health of both North and Northeast Minneapolis residents. Many of the Community Input Survey respondents and participants in the community forums expressed hopes for the heavy industries located along the Upper Mississippi Riverfront to relocate, even though this is not what the revised ATF plan is proposing. According to Community Input Survey respondents and attendees at the public forums these industries are a source of air, noise and water pollution, which negatively affects their health. Given the proposed design of parkland proposed to be located near the existing industries (e.g. restored wetland and relatively narrow strips of parkland), the vegetation in the parkland is not likely to have high enough density to make a notable difference in reducing air and noise pollution, although it may provide some psychological relief. The scientific literature suggests the potential for reduced river water pollution by adding continuous Riverfront

parkland, which in turn would provide a buffer between the heavy industries, paved areas and the River.

The fact that industrial sources of air pollution are likely to remain in the ATF area suggests that the increase in parkland may have little to no impact on air pollution and thus a negligible impact on asthma rates. The density of vegetation in the proposed parkland is not likely to be sufficient to serve as an effective noise barrier which also may have little to no impact on stress-related illness due to noise. Evidence in the scientific literature suggests that the new parkland is likely to have a positive impact on reducing River water pollution by providing a buffer between the heavy industries, paved areas and the River.

Continuous Trails and Connections to the River + Health: The Literature

Neighborhood Cohesion

Extending the network of safe biking and walking trails along the Riverfront and into the surrounding neighborhoods could improve the sense of community and social cohesion within the ATF area and surrounding neighborhoods. Walkability is an important factor to improvements in neighborhood cohesion. Residents living in neighborhoods categorized as “walkable,” according to one study, were 28 percent more likely to know their neighbors, 15 percent more likely to trust others, 14 percent more likely to be politically active, and 20 percent more likely to participate in social activities with others. Conversely, residents living in an auto-oriented neighborhood with long commutes can experience social isolation from their community and decreased social connectivity (Leyden, 2003). Increased social connection has a variety of health impacts, ranging from reducing stress, ameliorating morbidity and mortality, and supplying access to emotional and physical resources. Furthermore, social support (perceived or provided) can buffer stressful situations, prevent feelings of isolation, and contribute to high self-esteem (Cohen, Underwood, Gottlieb, 2000.)

Improved perceptions of walkability can lead to other benefits like increased access to services and amenities. By improving walkability, bicycling and walking trails can increase access to services and amenities, which in turn plays a vital role in population health and well-being (Leyden, 2003; Li, Fisher, Brownson, Bosworth, 2005). Research shows that a walkable, “complete” and “livable” neighborhood is characterized by mixed residential and commercial uses with easy access to a variety of healthy food and retail options, parks and open space, and transportation networks. Research has shown that increased numbers of walkers and bicyclists on the pedestrian trails and bikeways leads to safer walking and bicycling (Jacobsen, 2003).

“As most people do, I tend to bike to areas along the River where there are more amenities, like restaurants, larger park space and quiet, away from the noise and dust of the industry.”

~Community Resident

Moreover, fostering a livable, urban environment by providing bicycling and walking trails is that it can increase physical activity levels and decrease obesity by significantly reducing the need to drive. Active transportation (e.g. walking and bicycling) is a practical and affordable way to meet everyday mobility needs while gaining exercise and associated health benefits. Individuals in the highest areas of walkability were 2.4 times more likely than individuals in areas with the lowest walkability to meet the recommended physical activity guidelines, 30 or more minutes per day (Frank, 2005).

Safety and Security

Extending bicycling and walking trails and improving the major transitway connections not only encourages neighborhood interaction and a sense of community, but it promotes safety, and

security (Calhoun, 2002). Various studies have demonstrated that a person who lives in a neighborhood with significant obstacles to walking - such as crime, high traffic volumes and speeds, narrow sidewalks, poorly connected streets, unsafe intersections, and a lack of lighting - is likely to reduce walking on residential streets (Ahlport, Linnan, Vaughn, Evenson, Ward, 2008; CDC, 2002; Davison, Werder, Lawson, 2008; Li et al., 2005; Transportation Alternatives, 2006). A denser and stronger presence of pedestrians and cyclists is characteristic of a strong sense of community, increases feelings of safety, boosts natural public surveillance and social interactions, and provides access to children and the elderly (Agran, Winn, Anderson, Tran, Del Valle, 1996; Jacobsen, 2003; Leden, 2002).

“Overall the industrial truck traffic in Marshall Terrace and its surrounding communities in addition to bike trails discontinuing at the industrial businesses makes it unsafe and difficult to exercise, bike and enjoy the Mississippi River.”

~Community Resident

Fear of crime (actual or perceived) is strongly related to one's sense of community (Schweitzer, 1999). Studies have linked the amount an individual walks with actual or perceived safety, where safety includes freedom from crime and freedom from pedestrian injury (Loukaitou-Sideris, 2006). Fear of crime limits mobility and physical activity, inhibits social interactions, and causes stress. Rates of crime and fear of crime are also associated with features of the physical environment within neighborhoods (Humpel, Marshall, Leslie, Bauman, Owen, 2004). Integrating residential, retail, and recreational uses can reduce community violence (Fullilove, 1998).



On the west bank greenery and trails end abruptly and the industrial yards start.



Parts of the NE Upper River look like parkway along the river in other parts of the city.



Boat ramps at the Regional Park and Boom Island are key access points for boating and fishing.

Neighborhood Cohesion, Safety and Security: Existing Conditions

Neighborhood Cohesion

Based on SHAPE 2010, adults who live in the Near North and Camden Communities, reported lower levels of community connectedness compared with Minneapolis overall. They were much less likely than respondents from other parts of the city to agree that their community is a good place to raise children and they were more likely to distrust their neighbors.

Sense of Community				
<i>This is a good community to raise children in</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	35.4%	41.7%	15.9%	7.0%
Camden, Near North	11.6%	43.9%	25.9%	18.6%
<i>People in this neighborhood know each other</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	13.7%	49.8%	26.4%	10.1%
Camden, Near North	12.0%	49.6%	28.8%	9.7%
<i>People in this neighborhood can be trusted</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	20.9%	53.0%	18.7%	7.4%
Camden, Near North	10.0%	49.1%	25.4%	15.6%

Source: SHAPE 2010

A 2009 Minneapolis Parks Foundation Survey found that respondents reported using biking and walking trails less than the parks. Eighty-two percent of respondents reported having used the regional parks in Minneapolis (such as the one located in the ATF study area) compared to 66 percent having used the park trails or bikeways. Based on results of the HIA Community Input Survey the primary mode of transportation to the Riverfront was driving (76 percent of respondents). This did not differ between North and Northeast. (See Appendix J: Community Input Survey Summary and Charts.)

“Dangers to bikers on the road. [It’s] unpleasant to bike in heavy traffic to the University.”

~Community Resident

Low levels of perceived neighborhood cohesion could be related to low levels of perceived walkability. In and around the ATF zone, perceptions of walkability are extremely low. According to SHAPE 2010, only 17 percent of respondents from the Camden-Near North communities strongly agreed that residents in their neighborhood could walk to a grocery store or market compared with 40 percent among respondents in Minneapolis overall. Only 8 percent of Camden-Near North respondents strongly agreed that they were able to walk to restaurants, shops, stores or malls compared with 40 percent among respondents in Minneapolis overall.

SHAPE 2010 asked on how many days during an average week residents walked or road bicycle for the purpose of going to a specific destination. Forty-seven percent of respondents in Camden-Near North (i.e. the North Side) reported zero days compared to 27 percent among respondents in Minneapolis overall. When asked the same question about bicycling to a specific destination 87 percent in Camden-Near

North reported zero days compared to 68 percent among respondents in Minneapolis overall. A resident who responded to the Community Input Survey described current barriers to active transit for bikers. “Overall, the industrial truck traffic in Marshall Terrace and its surrounding communities, in addition to bike trails discontinuing at industrial businesses, makes it unsafe and difficult to exercise, bike and enjoy the Mississippi River.” Another respondent simply noted that, “[There are] dangers to bikers on the road. [It’s] unpleasant to bike in heavy traffic to the University.”

Neighborhood Walkability				
<i>In my neighborhood, most residents can walk to grocery stores or markets</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	39.5%	28.5%	14.9%	17.0%
Camden, Near North	17.0%	20.9%	22.1%	40.0%
<i>In my neighborhood, most residents can walk to restaurants, shops, stores, or malls</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	40.4%	30.7%	14.8%	14.1%
Camden, Near North	8.3%	23.0%	27.6%	41.0%
<i>In my neighborhood, most residents can walk to a community or recreation center, park, trails, or playground</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	71.0%	20.0%	5.4%	3.5%
Camden, Near North	51.3%	31.0%	9.8%	7.9%
<i>In my neighborhood, most residents can walk to bus stops, public transit stops, or stations</i>	<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
Minneapolis Total	85.3%	12.0%	1.7%	1.0%
Camden, Near North	76.4%	18.8%	2.9%	1.9%
Non-Motorized Transport				
<i>During an average week (when weather permits), how many days do you walk for the purpose of going to a destination?</i>	<i>0 days</i>	<i>1 or 2 days</i>	<i>3 or 4 days</i>	<i>5 to 7 days</i>
Minneapolis Total	27.2%	34.1%	18.8%	20.0%
Camden, Near North	47.1%	30.0%	11.7%	11.3%
<i>During an average week (when weather permits), how many days do you bike for the purpose of going to a destination?</i>	<i>0 days</i>	<i>1 or 2 days</i>	<i>3 or 4 days</i>	<i>5 to 7 days</i>
Minneapolis Total	68.0%	15.9%	8.0%	8.2%
Camden, Near North	81.7%	11.2%	4.5%	2.6%

Source: SHAPE 2010

Respondents to the Community Input Survey expressed the desire to improve neighborhood cohesion, walkability and enjoyment of the Riverfront. Fifty-eight percent of Community Input Survey respondents said that they would travel more to the Upper Mississippi Riverfront if there were “nonstop trails along both sides of the River.” Among the possible attractions that would draw residents to the Riverfront “nonstop” trails was selected more than any other possible attraction. According to the Community Input Survey, other things that would draw residents to the Riverfront were in large part “more restaurants and shops” and “have more things to do.”

Making the Upper Mississippi Riverfront in Minneapolis a “destination” and “a place for people” was very important to survey respondents and participants at the forums.

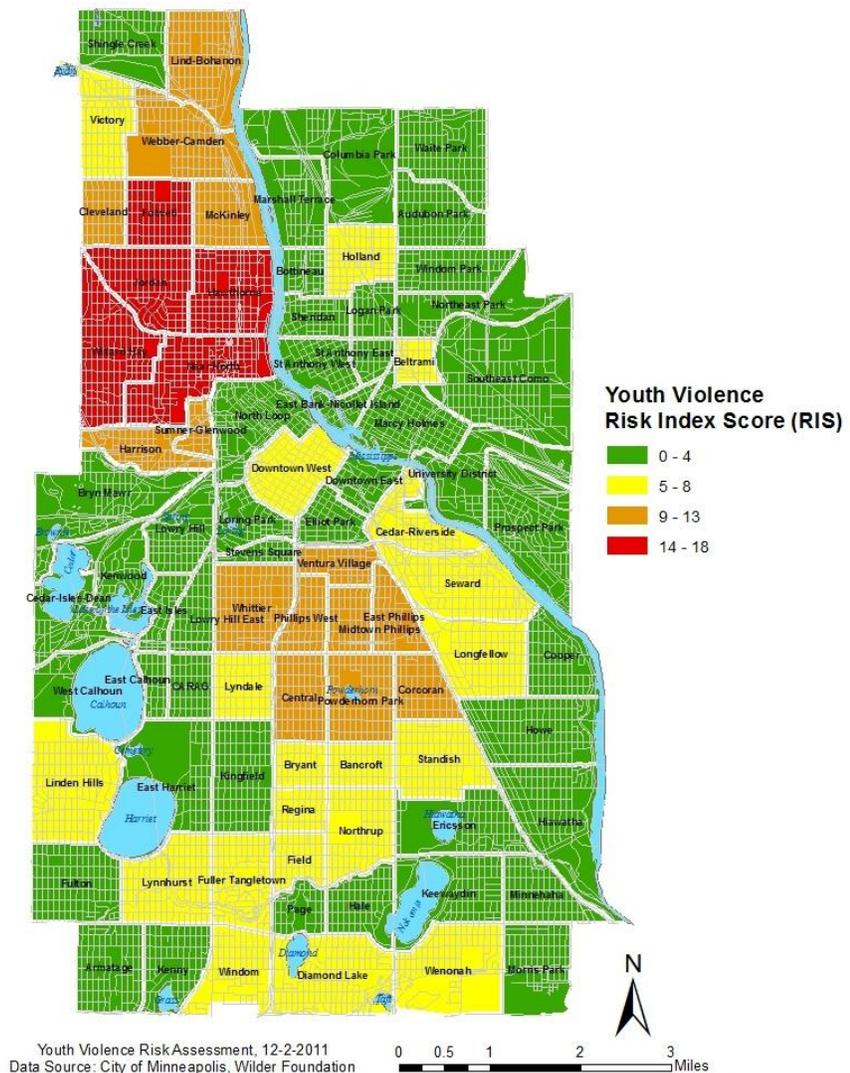
“Having more grocery stores, farmers markets, and community gardens” was the second most selected change that would positively affect health among all survey respondents. One survey respondent said “as most people do, I tend to bike to areas along the River where there are more amenities, like restaurants, larger park space and quiet, away from the noise and dust of the industry.” Another said “I love this neighborhood and think it's a shame we don't have more shops and restaurants to make it a place to go. There are already enough parks that are beautifully maintained for the outdoorsy crowd. Even the outdoorsy crowd likes to take a break at a nice coffee shop or restaurant during their day or shop around.” Some participants in the Lao public forum expressed interest in having a marketplace, a shopping center and restaurants along the Riverfront so that they could park their car and go shopping or take food from nearby places to the River to eat along the banks.

Safety and Security

The HIA Project Team sought to better understand possible effects of neighborhood crime on the use of key Riverway streets. Folwell, Hawthorne, Jordan, Near North and Willard-Hay are among the neighborhoods with the highest proportions of youth in the City. Ideally the Upper Mississippi Riverfront would be accessible to young people, the elderly, and people with disabilities. However, in terms of accessibility for youth, the North Minneapolis neighborhoods listed above experience the highest rates of youth violence in the city based on a 2010 Youth Violence Risk Assessment.

Of increasing concern are firearm-related assault injuries among juveniles and young adults in North Minneapolis. In 2011

2010 Minneapolis Youth Violence Risk Assessment



firearm-related assault injury rates citywide were 51 percent higher among juveniles and 60 percent higher among 18-24 year olds since ten years before. The zip codes 55411 and 55412 in North Minneapolis, which include Folwell, Hawthorne and Jordan, accounted for 80 percent of juvenile, firearm-related victims in 2011. This area of North Minneapolis has maintained levels of juvenile firearm-related assault injuries well above any other Minneapolis zip code for at least the last five years.

The concentration of juvenile crime along the two major Riverway streets that lead to the Upper Riverfront, West Broadway and Lowry Avenue is a significant access barrier between the North Side and the Upper Mississippi Riverfront. According to the SHAPE Survey the top two barriers to walking for North Side residents were “too busy or not enough time” followed by concerns about “crime and personal safety.” A respondent to the Community Input Survey described a common perception of neighborhood safety on the North Side, “Crime, drugs, poor public schools, and poverty.” Another resident who completed the survey wrote that “crime, underdevelopment of [the] North Minneapolis community, particularly of the African American community” negatively affected their health.

The Upper Harbor Terminal Redevelopment Study describes another important safety consideration for bikers and walkers from the surrounding neighborhoods on the North Side to the Riverfront. Truck traffic, according to the study, could continue to be a problem even after ATF plan implementation and regardless of the increases in bikeways and pedestrian trails. Heavy trucks destined for the industries in the ATF area are a main source of traffic along Riverway streets. Lower levels of truck traffic are dependent on transitions to less-industrial land uses adjacent to the Upper Harbor Terminal. In spite of the potential closure of the Upper Harbor Terminal, if other industries choose to remain in the area, heavy truck traffic may continue. The proximity of Lowry Avenue to I-94 interchanges at Dowling and West Broadway facilitates a fairly convenient truck travel pattern without infringing on the existing residential areas. As the Upper Harbor Terminal Redevelopment Study described, if the site is redeveloped to maximize recreational opportunities without a concomitant reduction in the presence of heavy industry, i.e. trucking, the potential exists for modal conflicts between trucks and bicyclists, pedestrians and cars. Modal conflicts have direct implications on biker and pedestrian injuries and safety.

Health Impact Prediction: Neighborhood Cohesion, Safety and Security

The ATF plan proposes to increase existing Riverfront biking and walking trails by 4.2 miles.

Neighborhood Cohesion, Safety and Security

Extending biking and walking trails and improving major transit way connections has been shown to improve perceptions of walkability, encourage neighborhood interaction, and promote a sense of community, safety and security. Based on SHAPE 2010, perceptions of walkability and sense of community were extremely low among North Minneapolis respondents compared to the City overall. Truck traffic headed to local industries and crime pose significant barriers to pedestrian and bicyclist safety and improved perceptions of walkability in the ATF and surrounding area. Rates of crime and fear of crime are exacerbated by features of the physical environment within neighborhoods and along Riverway streets.

Over 65 percent of respondents to the Minneapolis Parks Foundation Survey reported having used the Minneapolis park trails and bikeways. The addition of Riverfront trails, like the addition

of parks, will serve a wide diversity of residents from both sides of the River and beyond and will likely add to a strong health impact on obesity and mental health. How much of that impact results in improvements in neighborhood cohesion, safety and security is unclear and is entirely dependent on neighborhood factors, one of which includes improvements to Riverway streets, i.e. the main transit connections to the River.

The health impact of new trails and improved Riverway streets on neighborhood cohesion, safety and security may be positive or not change at all. North Minneapolis is characterized by already low perceptions of walkability, poor quality housing, high density of poverty, and relatively higher crime density along the major Riverway streets on the North Side, not to mention the heavy truck traffic. As a result, many factors affect neighborhood cohesion and perceptions of safety and security that are not related to trails or improvements along Riverway streets. Since living conditions in Northeast are markedly different than the North Side, the addition of new trails and improvements to Riverway streets may have a stronger impact on Northeast residents' sense of community, safety and security than North Side residents. One thing however is certain. Among all possible attractions that would draw residents to the Riverfront "nonstop trails along both sides of the Riverfront" was selected more than any other possible attraction.

Employment + Health: The Literature

The success of the City to attract new employers to the ATF area is uncertain, although market analyses have shown that Minneapolis may have a competitive advantage in attracting employers to the ATF area who can offer light industrial jobs. One thing is clear in the public health literature. If Minneapolis is successful at attracting these jobs and ensuring that they are the types of jobs accessible to low, middle and high-income residents alike in North and Northeast Minneapolis, these jobs will improve public health. Income has been shown to be one of the strongest and most consistent predictors of health and disease in public health research literature (Bhatia, Katz, 2001; Yen, Bhatia, 2002; Jin, Shah, Svoboda, 1995). Unemployment is associated with premature mortality, cardiovascular disease, hypertension, depression and suicide (Yen, Trupin, Yelin, 2002). Regular employment and a steady income are strongly linked to positive health outcomes, including improved mental health and reduced chronic disease (Drewnowski, 2009).

Employment: Existing Conditions

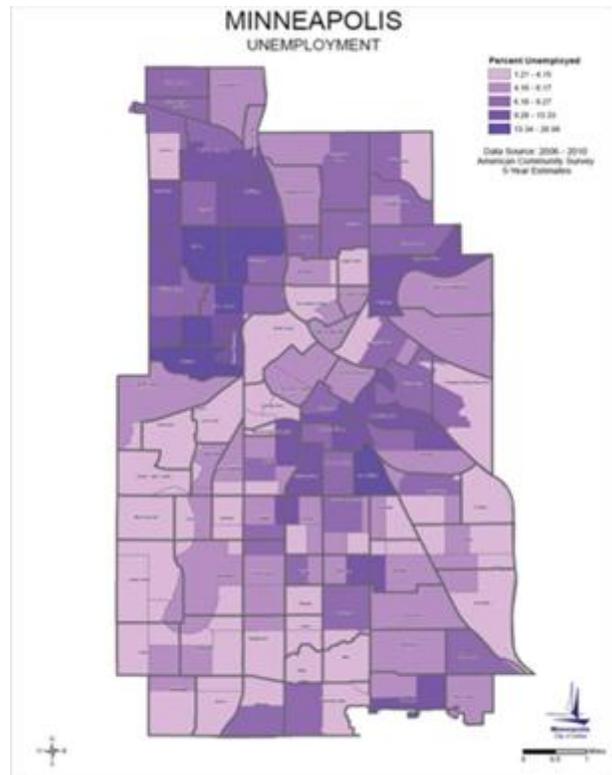
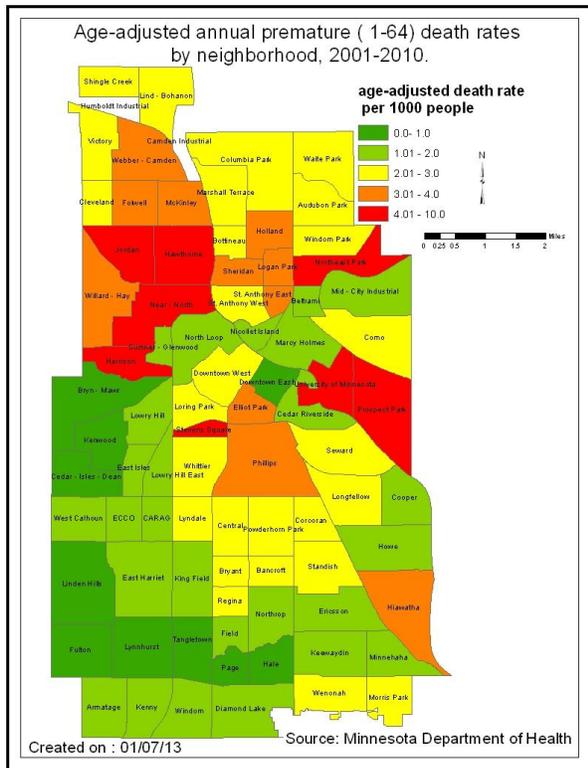
Much of the land use in the ATF area is devoted to production, distribution and repair (PDR), with the bulk of employment found in the manufacturing (1,987 jobs), wholesale durables (1,244 jobs), and construction (851 jobs) sectors. The area is home to small businesses and start-up businesses in a diverse mix of industries and a number of the recycling operations including metal, concrete and composting companies that use a large portion of their land area for outdoor storage. Job density is relatively low given the size of the land area. The industries have a disproportionately male workforce.

“The land on the North Side needs to be developed to provide a larger tax base and more job diversity for the neighborhood. We need clean energy jobs, and jobs that actually employ people from Minneapolis and more women.”

~Community Resident

Disparities in employment are a reality in Minneapolis and in particular North Minneapolis. According to a report by Dr. Algernon Austin of the Economic Policy Institute, Minneapolis-Saint Paul-Bloomington is sixth in the nation in terms of metropolitan areas with the highest rates of unemployment among Blacks/African Americans. In terms of employment equity, Minneapolis-Saint Paul-Bloomington had the worst Black-to-White unemployment ratio in the nation in 2011 (Austin, 2012). The ATF neighborhoods particularly the neighborhoods along the west bank with a large proportion of Black/African American residents experience some of the highest rates of unemployment in the city. Hawthorne and Jordan neighborhoods, which are delimited by two

main Riverway streets, West Broadway and Lowry Avenue, have the highest unemployment rates among ATF neighborhoods, between 13 and 26 percent, compared to 6.4 percent citywide. Based on 2010 Census data, premature age-adjusted death rates are 1.5 times higher in the HIA study area compared to outside the HIA study area.



According to the Community Input Survey, “lack of jobs nearby” was among the top three factors that North Side respondents perceived as negatively affecting their health. However, when asked what changes would positively affect their health, North Side residents placed having more jobs at the bottom of the list. (See Appendix J: Community Input Survey Summary and Charts.) Comments shared at the community forums helped in understanding the survey results. Residents did not see the types of jobs that were being proposed as positively affecting **their own** health, rather the health of someone else who lived somewhere else. Nonetheless, jobs were a concern to residents and a community survey respondent described what would need to be in place for North Side residents’ health to be positively impacted. “The land on the North Side needs to be developed to provide a larger tax base and more job diversity for the neighborhood. We need clean energy jobs, and jobs that actually employ people from Minneapolis and more women,” she wrote. At the Latino public forum, jobs were voted second most important after parks. At the Lao public forum, jobs in the ATF area were voted to be one of the least important; at the same time, Lao residents expressed the desire for a market place and farmers markets where Lao families could shop and sell their produce.

Key factors to consider in determining the impact of an increase in jobs on the health of Minneapolis residents are: the wage levels of the types of jobs brought about by redevelopment, their alignment with the skills and education levels of current residents, and the accessibility of the jobs to the workers who will be qualified to fill them. A Hawthorne Neighborhood Business Survey cited in the ATF-PRIS stated that future jobs for Minneapolis residents depend on industrial land, job density and local hiring. An advantage to attracting industrial jobs to

Minneapolis is the diverse range of the types of jobs potentially available. Individuals looking for living wage jobs are likely to find them in the industrial sector, in contrast to retail and service jobs that are less likely to pay living wages.

The revised ATF plan increases the acreage of land devoted to job-generating uses, such as, industrial, mixed use and business campus zones. According to the *Industrial Land Use Study and Employment Policy Plan*, Minneapolis' job growth over the next 20 years is expected in wholesale trade, construction, warehousing and transportation, which could serve the ATF area well given the existing land uses. Job losses in this area are expected in manufacturing, utilities and information. Manufacturing currently comprises nearly 2000 ATF-area jobs. In terms of ATF industries' recovery from the 2000-2004 recession, I1 and I2 industries (light and medium industries) are projected to recover by 2020 whereas I3 (heavy industries) are not.

At the December public forum some residents were vocal about their opposition to continuing to zone sections on the North Side as industrial, even if it was intended to phase out heavy industry toward light industrial uses and even if more jobs became available. Opponents to industrial zoning preferred what had been proposed in the original ATF plan including phasing out industry altogether and converting these sections to parkland and residential areas. One resident described that the City had established local hiring policies and job training agreements with companies in the ATF area before but due to what was perceived as companies not being held accountable to hiring and job-training agreements, local residents did not receive the benefit from the jobs that were available. She did not feel that new light industries would be held accountable to local hiring and job training agreements either. The jobs that already-established industries in the ATF area offer were not perceived to offer a living wage, and the resident was concerned that the types of jobs that would be available would only be geared toward these waste removal and recycling industries. In her words, "What they are saying to us is that North Minneapolis gets the [garbage] sorters."

Health Impact Prediction: Employment

The ATF plan projects over the long-term 3000 more jobs.

The link between improvements in public health and increases in income-generating land uses is very strong in the scientific literature. Residents of North and Northeast Minneapolis express skepticism that the proposed jobs would have a positive health impact on areas like North Minneapolis that experience the greatest health disparities. Whether the City can successfully attract 3000 new light industrial jobs to the ATF area and who would benefit is uncertain. Nonetheless, the revised ATF plan's focus on job-generating land use could have one of strongest impacts on public health, particularly premature mortality, mental health, and chronic disease. This impact on health could be maximized by local hiring policies, which focus on employing residents that currently experience health and employment inequities.

"I'm glad to see a more realistic vision. We will need to live with industry. Let's make the best of it."

~Community Resident

Housing + Health: The Literature

The HIA Project Team sought to understand more about the potential health impacts of additional residential areas along the Upper Mississippi Riverfront. The exact connections to health in the context of the ATF plan were unclear but various potential links were investigated in the scientific literature including: housing and sense of community; affordable housing and health; housing, food access and health; and maintenance of housing and health. The Community Input Survey also provided insight to residents' perspectives on housing and neighborhood development. See Appendix J: Community Input Survey Summary and Charts.

Sense of Community

The revised ATF plan projects less housing compared to the original ATF plan based on two assumptions: 1) heavy industries currently located in the ATF area are unlikely to relocate in the foreseeable future; and 2) most people would prefer to live in areas with a "critical mass" of other homes, not heavy industry. Heavy industrial sites on both banks are dangerous places for non-employees, with equipment moving bulk material and many trucks entering and exiting. The dispersal of small residential areas among the heavy industrial sites does not promote social cohesion and social connections; it increases the likelihood for ongoing conflicts with adjacent land uses, and ultimately leads to poorer health outcomes (Echevarria, Diez-Roux, Shea, Borrell, Jackson 2008). (An unfortunate case in point is the Riverview Townhomes example described earlier in the section on noise pollution.) Locating new housing in too close proximity to industry (much like an interstate highway) can lead to increased asthma, stress (from noise and disruption), and a sense of isolation. Living in less problematic neighborhoods is associated with positive health outcomes. (Galea, Ahern, Nandi, Tracy, Beard, Vlahov, 2007).

*"The nearby industry greatly affects my health.
The noise at all hours of the night has caused lack
of sleep in my neighborhood and the dust has
caused children to develop asthma."*

~Community Resident

The additional housing units will likely be built in areas zoned for mixed use, according to the revised ATF plan. Urban housing projects that promote the development of affordable and compact housing in mixed-use areas are linked to positive health impacts. Residents are consequently more likely to walk or bicycle to everyday destinations, e.g. work, school, grocery store. A denser and stronger presence of pedestrians and cyclists promotes a strong sense of community, increases feelings of safety, boosts natural public surveillance and social interactions, and provides greater mobility and access for children and the elderly. Residential areas with trees and lawn adjacent to high-rise dwellings cause more social interaction among youth and adults (Kaplan, Kaplan, 2005).

“Walkable” or “complete” or “livable” neighborhoods are characterized by mixed residential and commercial uses with easy access to a variety of food and retail options, parks and open space, and modes of transport can lead to more exercise and less obesity by significantly reducing the need to drive (Handy, 1996; Li et al. 2005). One study found that a 12.2% reduction in the odds of being obese was detected with an increase in housing density, mixed use, and street connectivity within 1 km of the residential area (Frank et al. 2004). Everyday retail destinations, which are accessible by walking, increase physical activity (Ewing et al. 2006). At densities above 13 people per acre, shopping trips made by public transit and walking increase and automobile use for shopping falls (Frank, Pivo, 1995). Furthermore, balance in a neighborhood between jobs and housing reduces vehicle travel and associated environmental and health costs (Cervero, Duncan, 2006).

Nutritious Food

Low-income and minority neighborhoods frequently lack supermarkets, stores with healthy food, and recreational outlets. They are generally over-resourced with health-restricting commercial services, including liquor stores, fast food outlets, and advertisements for risky behaviors (e.g., tobacco and alcohol billboards) (Wilson, Hutson, Mujahid, 2008; Gordon-Larsen, Nelson, Page, Popkin, 2006). Residents in low-income communities are less likely to own a car and 3 times less likely to have a grocery store within their neighborhood. Therefore these residents rely more heavily on mass transit to complete their shopping, and are more likely to shop at smaller, local stores with less healthy food at higher prices (Morland, Diez-Roux, Poole, 2002; Vallianatos, Shaffer, Gottlieb, 2002). Due to a lack of easily accessible fresh produce and healthy food, many low-income households purchase less expensive foods that are higher calories and low nutritional value (Basiotis, 1992). The longer the distance necessary to travel to a full service grocery store, the higher a person’s body mass index (BMI) tends to be. For a 5'5" person, who travels 1.75 miles or more to get to a grocery store, one can expect a weight difference of about 5 pounds greater compared to someone who does not have to travel that far (Drewnowski, 2004).

Well-maintained Neighborhoods

The revised ATF plan proposes that increasing the density of affordable housing in the ATF area could exacerbate the concentration of poverty. Highly concentrated poverty can lead to neighborhood deterioration. Neighborhood deterioration increases stress and depressive symptoms through decreased contact with one’s neighbors and increased concerns with safety (Kruger, Reischl, Gee, 2007). The effect of neighborhood impoverishment on self-rated health is mediated by social and physical neighborhood characteristics, such as lower social capital, higher degrees of social and physical disorder, and higher degrees of fear of crime and racism. Consistently in the literature, social capital, measured by trust and norms of reciprocity was associated negatively with impoverishment and positively with self-rated health (Franzini, Caughey, Spears, Esquer, 2005).

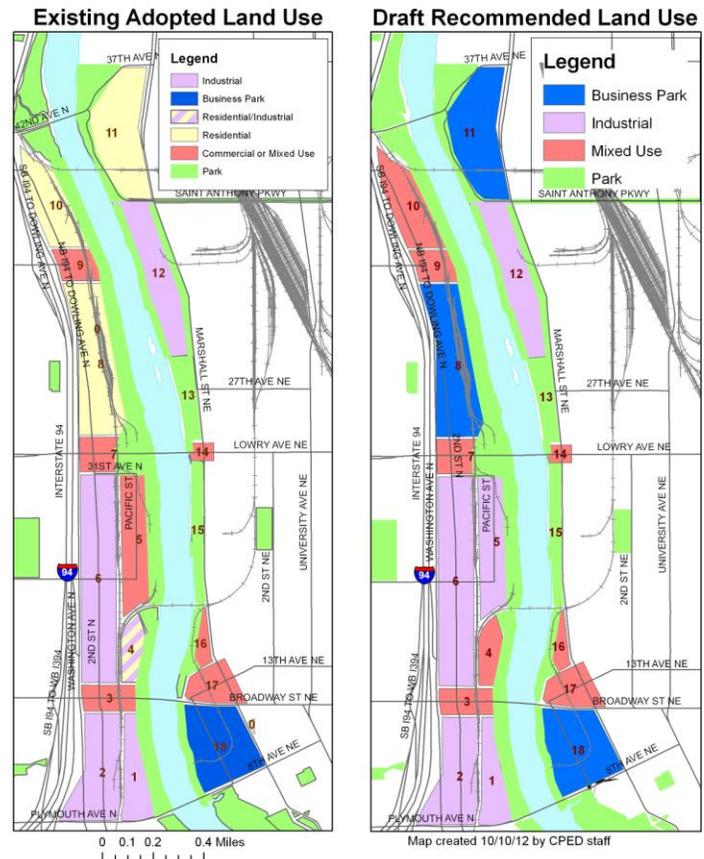
Housing: Existing Conditions

The majority of existing land use along the west bank is industrial with some commercial areas and a few isolated residential areas. The east bank is mainly industrial at the northern and southern ends, but includes lower density residential housing in the middle of the ATF area. The residential areas are generally low density and characterized by single family and duplex homes, with some smaller scale and a few larger scale multi-family properties. Housing actually located within the ATF area is limited. According to 2010 Census data, poverty is most concentrated on the North Side in the ATF area with Hawthorne and Near North experiencing poverty rates over fifty percent.

Above the Falls Subareas Land Use Guidance

North Minneapolis, according to City affordable housing reports has a high concentration of affordable housing units. Foreclosures and vacancies are highly concentrated in North Minneapolis. Relative to other areas of the city, limited access exists in North Minneapolis and along the more industrialized west bank of the ATF area to retail, commercial services, and food. Commercial food access is limited to fast food establishments and convenience stores. No farmers markets or community gardens are located in the ATF area.

Referring to the Existing Adopted Land Use Map, housing units would have been added to subareas 8, 9, 10 and 11 (mostly in yellow). The revised ATF plan projects a net increase of 1,000 new housing units. Referring to the Draft Recommended Land Use Map, the majority of new housing units would be added to subareas 9 and 10 (zoned as mixed use in red). Subareas 9 and 10 are adjacent to the Upper Harbor Terminal site, which will be zoned for Riverfront parkland and a Business Park.



According to the Community Input Survey, North and Northeast respondents alike selected housing least with respect to changes to the Upper Mississippi Riverfront that would positively affect their health. When asked which factors in their respective neighborhoods negatively affected their health, over 40 percent of North Side respondents compared with 20 percent of Northeast respondents selected poor quality housing.

Advocates for housing along the Upper Mississippi Riverfront expressed concerns about the lack of a critical mass of housing and a need to improve the tax base to support a livable Riverfront neighborhood similar to what exists along the River in other parts of the City. Possible improvements in the tax base and health resulting from construction of market-rate or premium-rate properties along the Riverfront were not explored as part of this HIA given the likelihood that these properties would be inaccessible to the vast majority of residents who experience health inequities. For example, during the Lao public forum residents indicated that although housing is important to the Lao community, housing along the Riverfront is and has been unaffordable to them and would not be perceived as having a positive impact on their health. At the Latino forum, housing along the Riverfront was not a priority; however, Latino residents were very concerned that plans along the Riverfront might lead to displacement or removal of their homes. The HIA project team explained more clearly which areas along the Riverfront would be redeveloped and that it was not anticipated that the plans would affect existing housing in Northeast.

Health Impact Predictions: Housing

The ATF plan projects over the long-term 1000 additional housing units.

The strongest links between improvements in health and housing in the scientific literature are related to the availability of affordable housing. However, given an already high concentration of affordable housing and poverty particularly in North Minneapolis, affordable housing is unlikely to be a focus of the ATF plan. The overall health impact of new affordable housing may be minimal or possibly negative if affordable housing increases the concentration of poverty in the ATF and surrounding area. The main health impact of the additional housing units is likely to be increased neighborhood livability along the Riverfront for a relatively small number of people. What could maximize a positive health impact, suggested by the scientific literature and Community Input Survey results, are improvements in existing housing in surrounding neighborhoods and along Riverway streets where housing is deteriorated as a means of creating a well-maintained neighborhood, thereby promoting safety, sense of community and wellbeing.

HIA Summary of Findings

This HIA found that the land use decision alternatives would have significant positive impacts on health. The following summarizes the HIA findings related to specific health-related concerns:

HIA Impact Analysis Summary of Findings					
Health Concern	Direction ¹	Magnitude ²	Strength of Evidence	Likelihood	Distribution
Obesity	+	high	high	likely	Park and trail users and users of active transit routes
Mental Health	+	high	high	likely	Park and trail users and users of active transit routes, newly employed workers
Asthma	=	low	high	likely	Equal impact
Noise	=	low	high	likely	Equal impact
River Water Quality	+	medium	medium	likely	Equal impact
Safety and Security	+ or =	low	low	uncertain	Riverfront and NE residents
Neighborhood Cohesion	+ or =	medium	medium	likely	Riverfront and NE residents
Neighborhood livability (in ATF area only)	+	low	medium	likely	ATF area residents
Employment (premature mortality)	+ or =	medium	high	possible	North Minneapolis, dependent on local hiring policies and job training

¹ Positive (+) means changes that may improve health and (=) means no change.

² High means it causes impacts to many people.

Recommendations

The findings of this HIA suggest that the City could:

- Work with existing businesses and industries; they will likely continue to be located in the ATF area. Explore ways of effectively engaging them to assist in achieving the ATF plan objectives, for example by promoting environmentally safe or greener practices, by helping to ensure safe connections from the neighborhoods to the River, and by working to achieve greater job density in the area.
- Explore ways to implement local hiring practices among ATF area businesses and industries in addition to training programs to support residents in seeking jobs in this area. Focus on employment equity and opportunities for racial/ethnic minorities and new immigrant populations.
- Effectively monitor air quality and noise levels in the ATF area and work with the industries to identify ways to reduce levels that can be detrimental to health.
- Work with home owners and landlords to improve already-existing residential areas and housing in the neighborhoods with Riverway streets and that may have been hit hard by the recession and foreclosure crisis to mitigate crime and safety concerns and promote health through well-maintained neighborhoods.
- Explore safe alternatives for youth, senior citizens, and people with disabilities to access the Riverfront such as planning for off-street access that accommodates people with mobility disabilities, biking and walking. Public transit directly to Riverfront destinations is important as well as sufficient, accessible parking along the Riverfront.
- Support efforts to encourage young people, people of color and people with limited-English proficiency to become more engaged in activities to design, develop, maintain and enjoy the Upper Mississippi Riverfront.

Conclusion

Research for this HIA suggests that implementation of the ATF Plan may lead to strong, positive health impact on rates of obesity, mental health, river-water quality and neighborhood livability. Increased acreage of parkland that is used for exercise and recreation may contribute to reductions in rates of obesity and improve mental health of residents. Continuous parkland along both sides of the Riverfront will provide an important buffer between heavy industry and the River and could lead to improved river-water quality. The positive health impact of additional housing is likely to be in terms of increased neighborhood livability in the ATF area. If local hiring agreements can be established and if they are actually implemented, the increased jobs for North and Northeast Minneapolis could have one of the greatest impacts on public health, particularly in terms of premature mortality, mental health and chronic disease. The HIA research suggests that implementation of the ATF plan may have negligible health impacts on asthma rates and noise pollution. Given the complexity of factors along Riverway streets that connect to the River and the biking and walking trails, the impact of additional trails in terms of neighborhood cohesion, safety and security is less clear, but could potentially impact Northeast more positively than the North Side.

HIA Monitoring

Monitoring the impact of this HIA will involve tracking indicators related to the implementation of selected land use alternatives and health determinants. The Minneapolis Health Department will track progress of ATF plan implementation to monitor the health impact over time by obtaining relevant data from the respective data sources. Indicators to track this progress are outlined in the table below. The HIA recommendations already have been incorporated into the revised ATF Master Plan; as a result, monitoring the development plan document itself will not be necessary.

Health Concern	Indicator	Who will measure it?	When will it be measured?
Obesity	Obesity prevalence	Hennepin County SHAPE	2014
	Proportion of adults meeting physical activity guidelines	Hennepin County SHAPE	2014
Mental Health	Psychological Distress	Hennepin County SHAPE	2014
Environmental Quality	Independent studies of noise levels	City or State Government	As conducted
	# Air pollution monitoring sites in North Minneapolis	Minnesota Pollution Control Agency	Upon availability
	Water quality (various measures)	Minnesota Pollution Control Agency	Upon availability
	Asthma prevalence	MN Hospital Association	2014
Neighborhood Livability	# Housing Units in ATF area	CPED & MPRB	Ongoing
Crime and Safety	# Homicides	Minneapolis Police Department	Ongoing
	# Firearm-related Assault Injuries	MN Hospital Association	Ongoing
	Residents' Perceptions of Safety	Hennepin County SHAPE	2014
Employment (Premature Mortality)	# New jobs created	CPED	Ongoing
	% Unemployed	American Community Survey	Annually
	% residents with income below poverty	American Community Survey	Annually

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Appendix A: Screening of Land Use Decisions

This document outlines the features and proposed changes in the Above the Falls and RiverFirst plans as well as proposed considerations to allow for prioritization of them for purposes of the Health Impact Assessment (HIA). At a high level the plan features include: New Parks, Wildlife and Habitat Restoration, Trails and Loops, Corridors to Increase Access to the River, Housing and Office Development/Employment.

Seven considerations have been drafted to assist during the prioritization process. They include: Connections to Health; High Reach of the Proposed Change; HIA Can Provide New Information; Immediacy of the Change; Stakeholder Support; Youth & Underserved Populations; and Economic Considerations. These are outlined in more detail below.

We are asking AFCAC members to:

- 1. Review the list and identify any major plan features or proposals that may be missing from the list.**
- 2. Provide information that can fill in gaps with respect to any of the seven considerations, especially information that could affect decision making about whether the feature is a focus of the HIA.** The statements that follow each of the seven considerations under each plan feature are not intended to be comprehensive but to serve as a guide for sparking thoughts and/or discussion.
- 3. Identify three of the six plan features or proposed changes for more in-depth exploration as part of the HIA, taking into account the seven criteria/considerations outlined.**

Primary Considerations

1. There is strong evidence of connections between the proposed change and health outcomes. [HEALTH CONNECTIONS]
2. The proposed change impacts are significant in terms of number of people affected, magnitude, breadth. [HIGH REACH]
3. HIA would bring new information to the decision making process. (Components that are not currently being researched from the Policy Review and Implementation Study or other research out there) [HIA CAN PROVIDE NEW INFORMATION]
4. Immediacy of implementation timeline [IMMEDIACY]
5. Stakeholder support [STAKEHOLDER SUPPORT]
6. Potential to improve conditions for youth and other underserved populations (eg. low income, seniors, youth, disabled, etc.) [YOUTH & UNDERSERVED POPULATIONS]
7. Economic considerations [ECONOMIC]

Other Considerations

1. Proposed change is under consideration in the current plan drafts.
2. What populations would be most affected (e.g. low income, seniors, youth, cultural groups, disabled, etc)?
3. Committee wants a variety of pathways to consider.
4. Likelihood of HIA results being incorporated into decision making.
5. Ability to secure further funds for future projects.
6. Health of the river.
7. Safety

[The list of features and changes has been excluded from the final HIA report due to length.]

Appendix B: Health Determinants Exercise Results

Health Department staff conducted an exercise with key stakeholders during which individuals identified health concerns related to each of the possible land use decision alternatives: new parks and open space; continuous trails and connections to the River; and housing and economic development. The comments that were shared on Post-it notes were grouped under the land use decision alternative by health determinant category.

New Parks and Open Space

Access to Services

Handicapped and other accessibility

More access for all

Benches

Decrease in amount of land that is designated for affordable housing

Would you use that park area for your recreation?

Drinking Fountain

Behavioral Factors

Increased physical activity

Increased biking and walking

Physical Activity

Playground

Walking Trails

Increased Biking and Walking

Increase Physical Activity

Continuous Trails for Biking/Walking

Encourage Active Living

Physical Activity/Biking Walking and Playing

Obesity

No Smoking

Environmental Quality

Renewable Energy Solutions

Hydraulic Power for Parks

Stronger pollution control levels

Better Air Quality

Air Quality

Improved Environmental Quality/Sustainability (Air and Water Quality)

Air Water Soil Noise Pollution

Clean Air leads to better lung health

Flowers Trees Landscape

Safe Interesting Off-Road

Aquatic Zoo of Native Species

Habitat for Animals

Green Areas
Plants and Trees to Create a Sense of Nature
Asthma

Family and Community Structure

Community Cohesion
Community Ownership and Connection

Mental Health

Mental Health
Peace of Mind
Mental Health and Stress Relief

Public Safety

Safety
Crime
Increase Traffic could lead to accidents
Violent Crime
Gun Free Zone

Continuous Trails and Increased Connections to the River

Access to Services

- More access for all, improve health
- Development of 26th Ave North Greenway/Bikeway Destination to River
- Possible college campus on the river
- Continuous trails benefit people who are already using trails, Connection to the river benefit people who don't currently have access

Behavioral Factors

- Increase Bike Use
- More People, longer trips
- Family-friendly recreational activities
- Create recreational activities for families around North Regional Park
- Leisure/Recreation
- Transportation

Economic Opportunities

- Site seeing
- Business Development Opportunities for Bikers, Families, Residents, and Visitors
- Destinations at river (e.g. fishing pier)

Environmental Quality

- Decreased noise and air pollution
- More environmental awareness
- Less littering
- Less air, noise and visible pollution

Family and Community Structure

- Connections into the neighborhoods
- Increased sense of community
- Social connectedness
- More bikers, hikers, and visitors
- Available for use year round
- Visual Connections of river and a sense of nature

Improved Mental Health

- Increased relaxation and reduced stress

Public Safety Concerns

- Safety concerns
- Increased accidents
- Decreased crime x 2
- Drowning
- Navigating through industry

Housing and Development

Access to Services

- To services
- Shorter work commutes
- People live near, walk to work
- Walkable corporate and residential development with public access
- Fully integrated with, enhanced by, and enhancing the river
- Public / private access

Economic Development Opportunities

- Living wage jobs close to home x 2
- Increased jobs x 4
- Increased Economic Opportunities for Local / Small Businesses x 2
 - Small Restaurants
 - Clothing Store
- Green businesses
 - More green jobs
- River-related businesses (e.g. canoe rental, bed and breakfast, rental space, weddings, restaurants) x 2
- Rental properties
- Farmers markets
- Includes public activities (street fairs, concerts and food vendors)
- Employment Security

Environmental quality

- Better Air Quality
- Does the air need to change to have healthy air?
- Air Quality/Positive or Negative Depending on Location
- Other Pollution Issues
- Air Quality
- Water Pollution

- Traffic
- Riverfront Sustainability

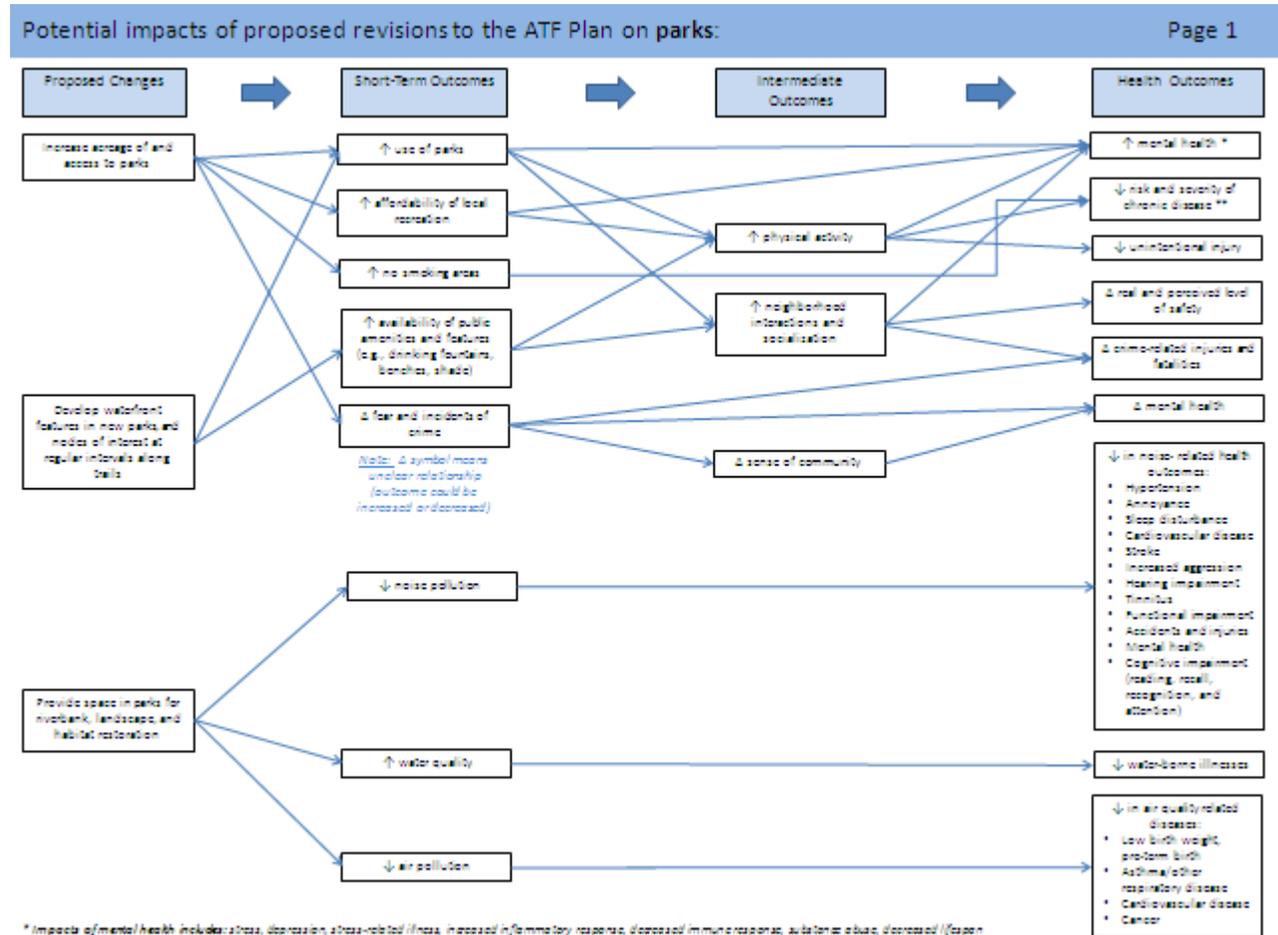
Family and Community Structure

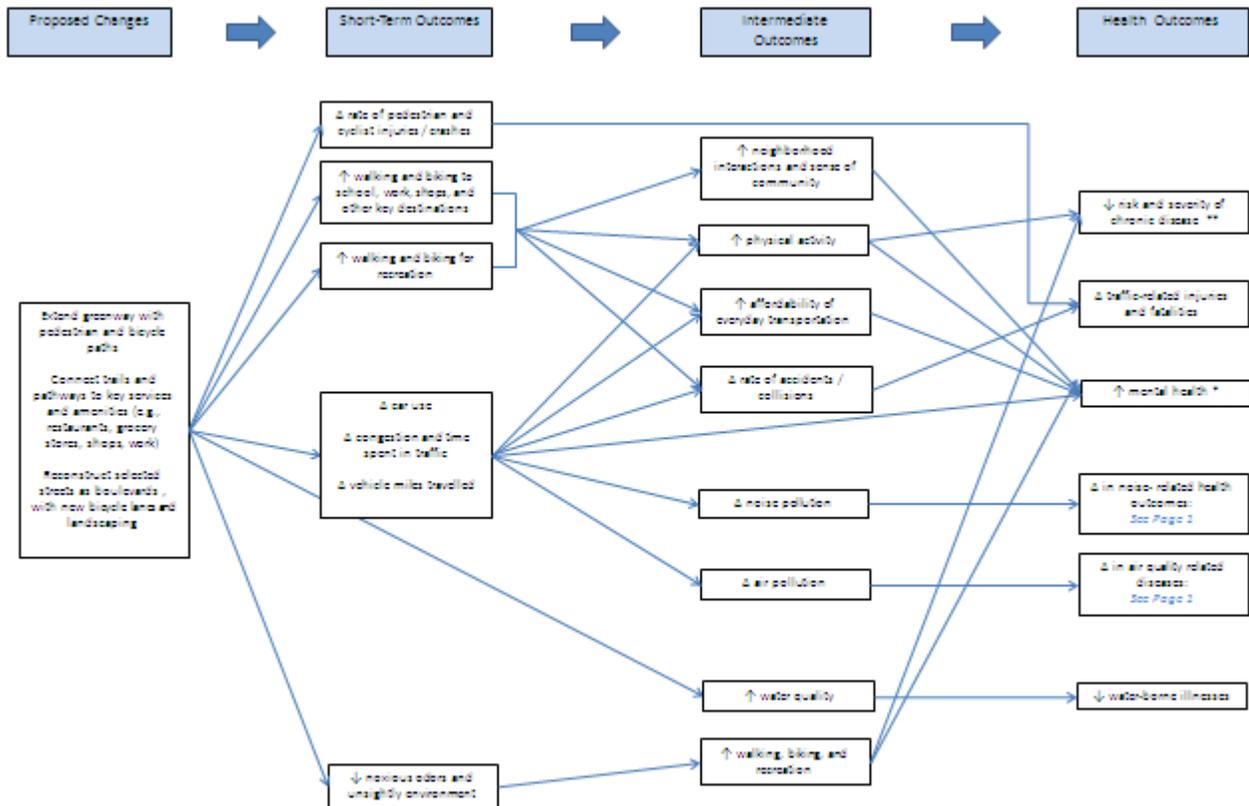
- Neighborhood livability and vitality
- Encourage Public activity at street level
- Ask would you buy a home in the area? Would you live there?

Housing

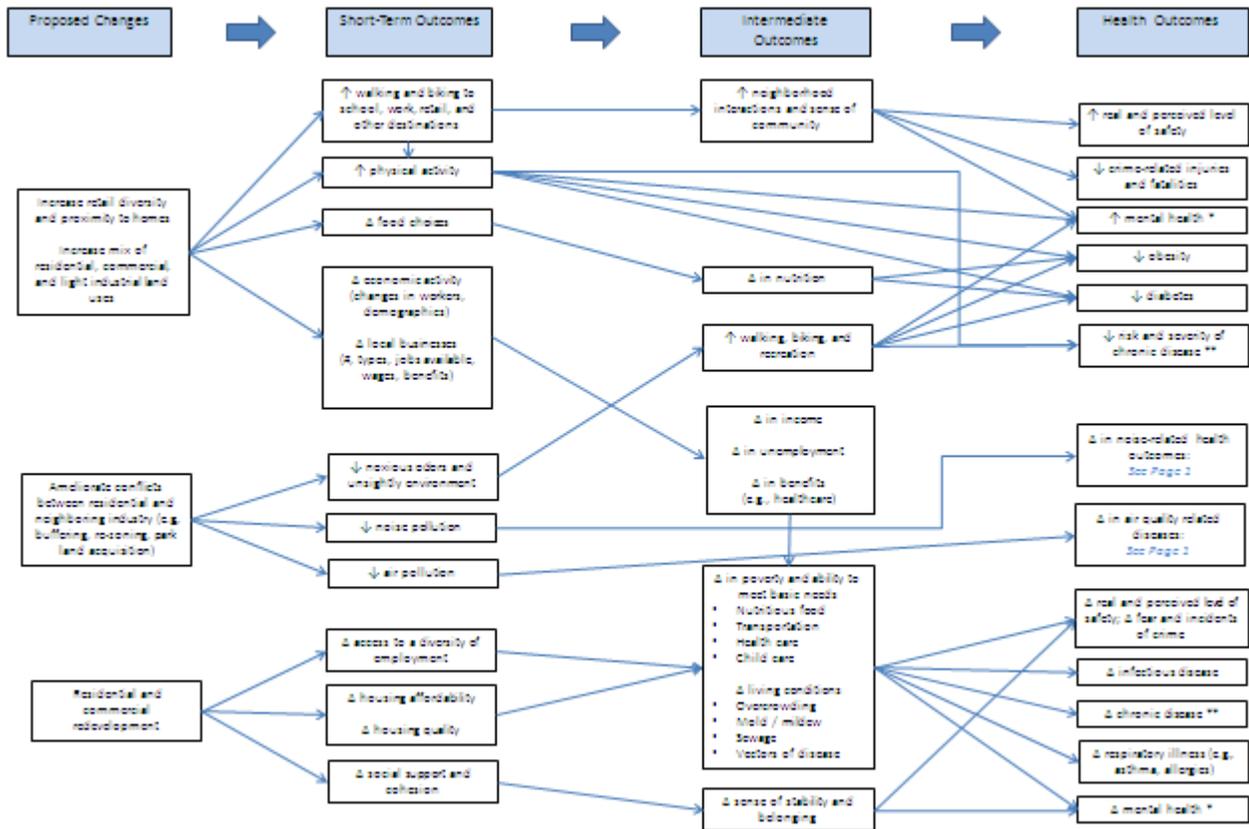
- Homes for single and middle aged people
- Low-rise housing
- Senior housing
- Does not detract from natural enjoyment of river
- Housing

Appendix C: Pathway Diagrams





* Impacts of mental health include: stress, depression, stress-related illness, increased inflammatory response, decreased immune response, substance abuse, decreased lifespan
 ** Impacts of chronic disease include: cardiovascular disease, diabetes, hypertension, respiratory disease, cancer, osteoporosis



* Impacts of mental health include: stress, depression, stress-related illness, increased inflammatory response, decreased immune response, substance abuse, decreased lifespan
 ** Impacts of chronic disease include: cardiovascular disease, diabetes, hypertension, respiratory disease, cancer, osteoporosis

Appendix D: Condensed Scoping Table

Land Use Decision Alternatives	Priority Health Indicators	Existing Conditions Research Questions	Health Impact Research Questions	Methods
Increase Parkland	<p>% of adults who are overweight or obese</p> <p>% of adults who have ever had depression</p> <p>% of adults with asthma</p> <p>% of children with elevated blood lead levels</p> <p>Air & Water Quality</p>	<p>What currently draws residents to the Riverfront? From where?</p> <p>What factors inhibit residents of North and Northeast Minneapolis from visiting the Riverfront?</p> <p>What needs to change to increase access, utilization, and enjoyment of the riverfront among residents of North Minneapolis neighborhoods?</p> <p>What is the current level of pollution from industries in the study area?</p>	<p>What impact would more parkland have on the health of residents in the ATF and surrounding area?</p>	<p>Literature Review</p> <p>Secondary data</p> <p>Public forums, including forums with racial/ethnic minority groups</p> <p>Community Input Survey</p>
Continuous Trails and Connections to the River	<p>% of adults who live within .25 miles of a biking or walking trail</p> <p>% of adults who are overweight or obese</p> <p>Perceptions of Walkability</p> <p>Use of Active Transit</p> <p>Crime and Safety</p>	<p>How frequently, from where and for what reasons are people accessing the river or Riverfront?</p> <p>What are the highest utilized connections to the river?</p> <p>What goods and services (key destinations) are currently accessible along / near trails and corridors?</p>	<p>What changes would specifically help to increase access, utilization, and enjoyment of the Riverfront among residents of the North and Northeast Minneapolis neighborhoods? How would these changes impact health?</p>	
Housing and Economic Development	<p>% of residents experiencing premature death</p> <p>% unemployment</p> <p>% of adults who agree their neighborhood is a good place to raise children</p> <p>Foreclosures</p>	<p>What is current access to services and amenities for different populations of residents?</p> <p>How many local North Minneapolis residents are currently employed in the study area?</p> <p>What are current levels of employment/unemployment for residents?</p> <p>What types of local jobs are available? Living wage jobs?</p>	<p>What changes related to housing and economic development could most impact the health of residents? Positively? Negatively?</p>	

Appendix E: Community Input Survey

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Health Impact Assessment Survey

As a part of the Above the Falls project, we are interested in how potential changes to the Upper Mississippi Riverfront in North and Northeast Minneapolis may affect peoples' wellbeing and quality of life.

This survey is voluntary, and results will be shared with staff at the City of Minneapolis and Park and Recreation Board for planning purposes. Choosing not to take the survey will not affect your relationship with either organization.

1) What best describes the purpose of your trips near and along the Upper Mississippi Riverfront (check all that apply)?

- | | | |
|--------------------------------------|--|---|
| <input type="checkbox"/> Exercise | <input type="checkbox"/> Work | <input type="checkbox"/> School |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Shopping / doing errands | <input type="checkbox"/> Personal (e.g. visiting friends) |
| <input type="checkbox"/> Restaurants | <input type="checkbox"/> Travelling to work / school | <input type="checkbox"/> Other: _____ |

2) In the past month, about how often have you been to the Upper Mississippi Riverfront (check only one)?

- 0 – 5 times 6 – 10 times 11 – 20 times 21 – 30 times More than 30 times

3) Please check the seasons in which you travel to the Upper Mississippi Riverfront (check all that apply):

- Summer Fall Winter Spring Don't Know

4) How do you travel to the Upper Mississippi Riverfront (check all that apply)?

- Drive Walk/Run Bike Bus Live there Other: _____

5) I would travel to the Upper Mississippi Riverfront more if (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> It was easier to access (e.g. by bus, bike, boat) | <input type="checkbox"/> It was easier to cross major streets |
| <input type="checkbox"/> It was better connected to other places | <input type="checkbox"/> I felt safer / more secure |
| <input type="checkbox"/> There were more restaurants and shops | <input type="checkbox"/> There was more residential housing nearby |
| <input type="checkbox"/> There was less heavy industry nearby | <input type="checkbox"/> There was more to do (e.g. kayak, bird watch) |
| <input type="checkbox"/> There was a beach to swim | <input type="checkbox"/> There were nonstop trails along both sides of the river |
| <input type="checkbox"/> I could rent a boat | <input type="checkbox"/> There was a safe trail from my neighborhood to the river |
| <input type="checkbox"/> Other: _____ | |

6) Are there improvements you would like to see to parks and trails along the upper riverfront (check all that apply)?

- | | |
|---|---|
| <input type="checkbox"/> Better street crossings | <input type="checkbox"/> More benches |
| <input type="checkbox"/> Better signs | <input type="checkbox"/> Better maintenance (e.g. less litter) |
| <input type="checkbox"/> More boardwalks & riverfront trails | <input type="checkbox"/> Better lighting |
| <input type="checkbox"/> More points of interest (e.g. ponds) | <input type="checkbox"/> More pedestrian and bicycle bridges crossing the river |
| <input type="checkbox"/> More wildlife and restored habitat | <input type="checkbox"/> Bigger barriers between industry and park space |
| <input type="checkbox"/> More bathrooms | <input type="checkbox"/> Other: _____ |

7) Please check the box if the following possible future changes to the Upper Mississippi Riverfront would positively affect your health, wellbeing, and enjoyment of the riverfront:

- a) More grocery stores, farmer’s markets, community gardens
- b) More boat landings & public access points along the river (fishing docks)
- c) More pedestrian and bike trails to access the river.....
- d) More parks and play areas for children and youth.....
- e) More recreational facilities for young adults (18-24)
- f) More access to trails and parks for people with disabilities.....
- g) More places to gather with friends and family.....
- h) More housing
- i) More jobs
- j) Better public safety
- k) Better river water quality
- l) Less heavy industry
- m) Less pollution.
- n) Less littering
- n) Anything else? _____

ABOUT YOU:

8) Race / Ethnicity (*check all that apply*): White Black Hispanic/Latino
 Asian American Indian Other: _____

9) Age: Under 17 18-24 25-39 40-49 50-59 60 and over

10) Gender: _____

11) Are there children and/or youth (under 18) currently living in your household? Yes No

12) What is the zip code of your home address? _____

13) What neighborhood do you live in? _____

14) How long have you lived in your neighborhood?

Less than 6 months 6 months to a year 1 to 3 years 4 to 10 years more than 10 years

15) Please let us know whether you feel the following in your neighborhood negatively affect your health and wellbeing:

	Yes	No	Don't Know / Not Applicable
a) Traffic and car congestion	Y	N	<input type="checkbox"/>
b) Loud noises (e.g. from local industry or traffic)	Y	N	<input type="checkbox"/>
c) Air pollution (e.g. from local industry or traffic)	Y	N	<input type="checkbox"/>
d) Poor water quality	Y	N	<input type="checkbox"/>
e) Poor quality housing	Y	N	<input type="checkbox"/>
f) Not enough places nearby to exercise	Y	N	<input type="checkbox"/>
f) Not enough jobs nearby	Y	N	<input type="checkbox"/>
f) Anything else? _____	Y	N	<input type="checkbox"/>

Do you have any additional comments?

Una encuesta para evaluar el impacto en la salud

Relacionado al plan de desarrollo Arriba de La Cascada, nos interesa saber cómo los cambios propuestos al área a orillas del río Mississippi en el norte y nordeste Minneapolis afectarán el bienestar de la gente y la calidad de vida.

Esta encuesta es voluntaria, y los resultados serán compartidos con el personal de la Ciudad de Minneapolis y la Junta de los Parques y Recreación para propósitos de planificación. La decisión de no completar esta encuesta no va a afectar a su relación con las dos organizaciones.

1) ¿Cuáles de las siguientes opciones describen mejor sus propósitos de visitar al área a orillas del río Mississippi que pasa por el norte y nordeste de Minneapolis? (Seleccione a todos que apliquen.)

- Ejercicio Sitio de Trabajo La Universidad
 Recreación Ir de compras / hacer un mandado Razones personales ej. Visitar a amigos
 Restaurantes Viajar rumbo al trabajo o a la escuela Otro: _____

2) Durante el mes pasado ¿con cuánta frecuencia ha visitado al área a orillas del río Mississippi que pasa por el norte y nordeste de Minneapolis? (Seleccione uno.)

- 0 – 5 veces 6 – 10 veces 11 – 20 veces 21 – 30 veces Más de 30 veces

3) Por favor, seleccione a las estaciones durante las cuales Ud. viaja a esta área del río Mississippi. (Seleccione a todos que apliquen.)

- Verano Otoño Invierno Primavera No sé.

4) ¿Cuáles medios de transporte usa para llegar a esta área del río Mississippi? (Seleccione a todos que apliquen.)

- Manejar Caminar/Correr Andar por bicicleta Autobús Vivo en el área
 Otro modo: _____

4) Yo viajaría a esta área a orillas del río Mississippi más si... (Seleccione a todos que apliquen.)

- Fuera más accesible con transporte (ej. autobús, bicicleta, en lancha)
 Hubiera un camino seguro desde mi vecindario hasta el río
 Fuera más fácil cruzar a las calles principales Fuera conectado mejor a otros lugares
 Me sintiera más seguro/a Tuviera más restaurantes y tiendas
 Hubiera más viviendas residenciales Hubiera menos industria pesada
 Hubiera más actividades Hubiera una playa para bañarse
 Hubiera caminos continuos a orillas del río Pudiera alquilar a una lancha
 Otro: _____

6) ¿Hay cosas que le gustaría tener en los parques y caminos a orillas del río Mississippi para mejorarlos? (Seleccione a todos que apliquen.)

- Mejores caminos peatonales Más bancos para sentarse
 Mas señales o mapas Mejor mantenimiento (ej. menos basura)
 Más caminos ribereños Mejor alumbrado público
 Más puntos de interés Más puentes peatonales que cruzan el río

- Más fauna, flora y restauración de hábitat parques
- Barreras más grandes entre el área industrial y los parques
- Más baños (servicios)
- Otro: _____

7) Por favor, seleccione a las opciones que describen cambios propuestos al área a orillas del río Mississippi que mejorarían a su salud, bienestar, y diversión de esta área. (Seleccione a todos que apliquen.)

- a) Más supermercados, más mercados de agricultores locales, huertos comunitarios
- b) Más rampas públicas para botar la lancha en el río (muelles para pescar) ...
- c) Más caminos para caminar y andar por bicicleta que dan acceso al río.....
- d) Más parques y áreas de recreo para los niños.....
- e) Más oportunidades de recreación para los jóvenes (18-24 años)
- f) Más acceso a los caminos y parques para la gente discapacitada.....
- g) Más sitios para reunirse con sus amigos y la familia
- h) Más viviendas.....
- i) Más trabajos.....
- j) Mejor seguridad pública
- k) Mejor calidad del agua en el río
- l) Menos industria pesada.....
- m) Menos contaminación.....
- n) Menos basura
- o) Otro _____

ABOUT YOU:

8) Raza / Identidad étnica (Seleccione a todos que apliquen.) Blanc@ Negr@ o Africano American@ Hispan@/Latin@ Asiatic@ Nativo American@ Other: _____

9) Edad: menor de 17 años 18-24 años 25-39 años 40-49 años 50-59 años 60 años y mayor

10) Sexo: masculino femenino

11) ¿Hay niños o jóvenes menores de 18 años que viven en su hogar? Sí No

12) ¿Qué es su código postal? _____

13) ¿En qué vecindario vive usted? _____

14) ¿Cuánto tiempo tiene de vivir en su vecindario?

- Menos de 6 meses 6 meses a un año 1 a 3 años 4 a 10 años más de 10 años

15) Por favor, déjenos saber si existen condiciones en su vecindario que le afectan negativamente a su salud y bienestar:

	Sí	No	No sé / No aplica
a) Tráfico o congestión de los carros	S	N	<input type="checkbox"/>
b) Ruido (ej. de las industrias locales o tráfico)	S	N	<input type="checkbox"/>
c) Contaminación del aire (ej. de industrias locales o tráfico)	S	N	<input type="checkbox"/>
d) Mala calidad del agua	S	N	<input type="checkbox"/>

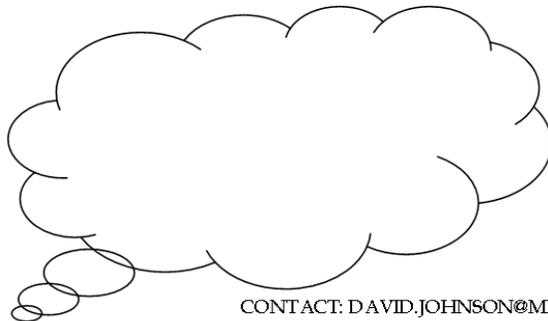
- | | | | |
|--------------------------------------|---|---|--------------------------|
| e) Mala calidad de las viviendas | S | N | <input type="checkbox"/> |
| f) Pocos sitios para hacer ejercicio | S | N | <input type="checkbox"/> |
| f) Pocos trabajos en el área | S | N | <input type="checkbox"/> |
| f) ¿Algo más? _____ | S | N | <input type="checkbox"/> |

¿Algún otro comentario? _____

Appendix F: RIVER Comment Card



Here's a little exercise for you. Think about the **Mississippi River**. Now, think about the river and its relationship to your **health** and **well-being**. Write down your thoughts, experiences, stories, or wishes in the space provided below. Include your name and address or email if you want to be contacted about future river plans or meetings.



Health Impact Team:
City of Minneapolis
Health & Family Support
250 South 4th Street
Room 510
Minneapolis, MN
55415-1384

CONTACT: DAVID.JOHNSON@MINNEAPOLISMN.GOV

Appendix G: Public Forum Question Guide

The following questions were asked during the HIA public forums to reach racial/ethnic and linguistic minority groups.

1. RIVER CARDS: Let's start by going around or do I have a few volunteers to share a thought, memory or story about an experience that you, your family or someone you know has had along the Mississippi River in Minneapolis?

Describe the area Above the Falls. Display Map.

2. What would need to change to attract you or people you know to this part of the river more often?
3. What would need to change to make it easier for you or people you know to get there from where you live or work?
4. Of the following types of development, what would you say is most important to you?

Housing

Employment

Park and Recreation Areas

Industry

Stores and Restaurants

Entertainment (e.g. music, art, performance)

Arts and Culture Sites

Trails or bikeways from your neighborhood to the River

Appendix H: Engagement Tracking Log

HIA PROMOTIONAL EVENTS & PRESENTATIONS	Date
Minneapolis Citizens Environmental Advisory Committee	1/11/2012
Community Connections Conference	2/11/2012
Climate Change Advisory Committee	3/9/2012
HIA Project Training at UROC	5/1/2012
Juneteenth Community Fair	6/16/2012
Policy Review & Implementation Study Public Forum and Presentation	6/26/2012
ATF HIA Presentation at the Skyway Senior Center	6/28/2012
CRIB Presentation and Dialogue with Youth	7/12/2012
Live on the Drive	7/12/2012
River Awareness Day @ Cedar Riverside Mixed Blood Theater	7/13/2012
Pop Concert at North Commons 7PM	7/26/2012
Riverfront Vitality Summit and Celebration	7/26/2012
4th Precinct CARE Task Force (Webber-Camden Neighborhood offices)	8/8/2012
HAMAA Providers Monthly Meeting	8/14/2012
3rd Ward CARE meeting	8/15/2012
Minneapolis Youth Congress	8/16/2012
New Millenium Open House Event 5PM-8PM	8/23/2012
Hawthorne Huddle 7:00 AM Farview pk	9/6/2012
Boom Island Park Celebration	9/8/2012
Senior Citizen Advisory Committee 1:00PM-2:30PM Room 333 City Hall (Confrimed, 1st on the agenda, 20 minutes)	9/13/2012

Columbia Park Neighborhood Association, PO Box only, Contact Mike Melman 789- 9454	9/17/2012
Public Health Advisory Committee Presentation 6:50-7:35PM City Hall Rm. 132	9/18/2012
Disability Committee 4:30-6:30PM Room 132 City Hall (will confirm early the week of the 10th of Sept)	9/19/2012
Minneapolis Riverfront Partnership River Tour	9/24/2012
Sheridan Neighborhood Organization, 909 Main Street NE, Lower Level, Contact Jenny Fortman 227-2269	9/24/2012
Hawthorne Neighborhood Council, 2944 Emerson Ave. N, Contact JoAnn Kely 522- 6267	9/27/2012
West Broadway Business Coalition Presentation at 8:30 to 9AM	9/28/2012
Neighborhoodfest (Third Ward Summit) @ Nicollet Island Pavilion 40 Power Street, Mpls, 5PM-9PM	10/10/2012
NE Coop/NE Network	10/11/2012
ATF/RiverFirst Public Forum II, MPRB, 5PM-7PM	10/16/2012
University North Side Partnership Community Affairs Committee Presentation at the University Research and Outreach Center (UROC) 3PM-4PM	10/17/2012
Webber-Camden Neighborhood Organization, c/o Folwell Neighborhood Association, 1206 37th Avenue North, Contact Roberta Englund 521-2100	11/1/2012
Hawthorne Huddle 7:30AM-9AM	11/8/2012
St. Anthony West Neighborhood Organization, 909 Main Street NE, Lower Level, Contact Gayle Bonneville 378-8886	11/8/2012
St. Anthony West Neighborhood Organization, Contact Gayle Bonneville 378-8886	11/10/2012
Saint Cyril's Church: Presentation to Northeast Latino Community residents 11:30AM	11/11/2012
Marshall Terrace Neighborhood Organization (No info) Contact Mary McGuire	11/15/2012
Concerned Citizens of Marshall Terrace; contact Mary Macguire	11/15/2012
Lao Assistance Center (10AM to 2PM), Southeast Asian Community Event	11/17/2012

Sheridan Neighborhood Organization, Contact Jenny	11/26/2012
Lind-Bohanon Neighborhood Association, PO Box only, 763-561-1616	12/6/2012
Webber-Camden Neighborhood Organization, 1206 37th Avenue North, Contact Roberta Englund 521-2100	12/6/2012
December Public Forum	12/10/2012
Hawthorne Huddle	1/10/2013

Appendix I: Pollution-related Sites

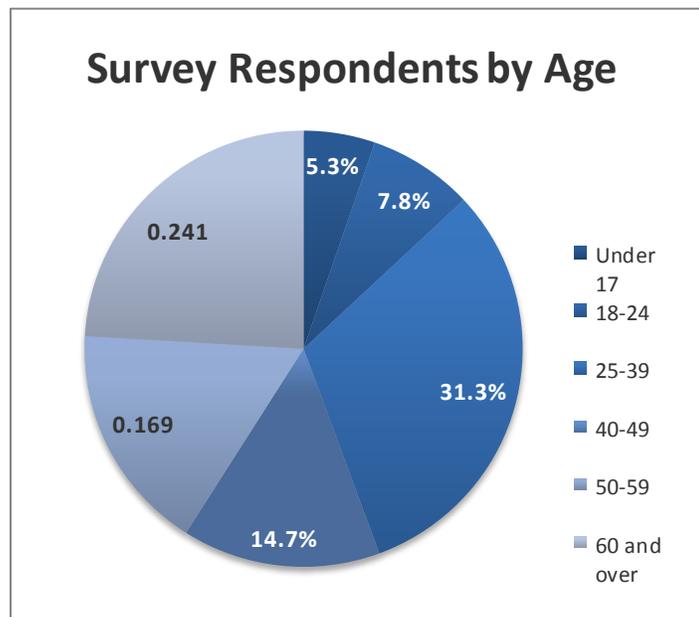
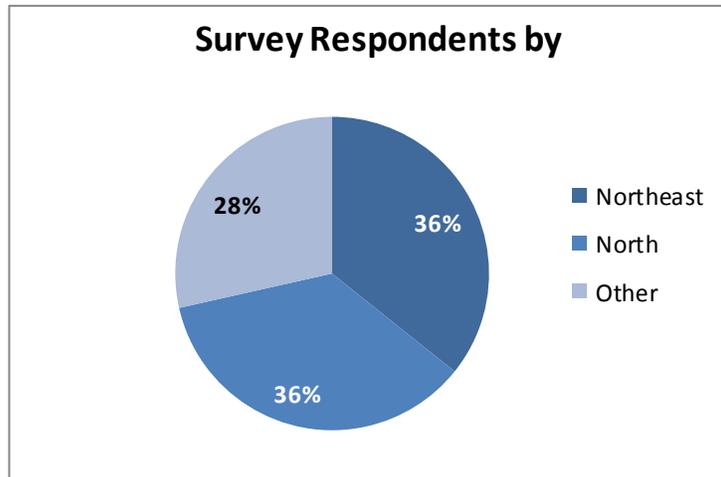
The Minnesota Pollution Control Agency (MPCA) identifies nearly 300 sites in the study area with pollution-related issues. These include sites with active issues as well as those with past issues on record. They include:

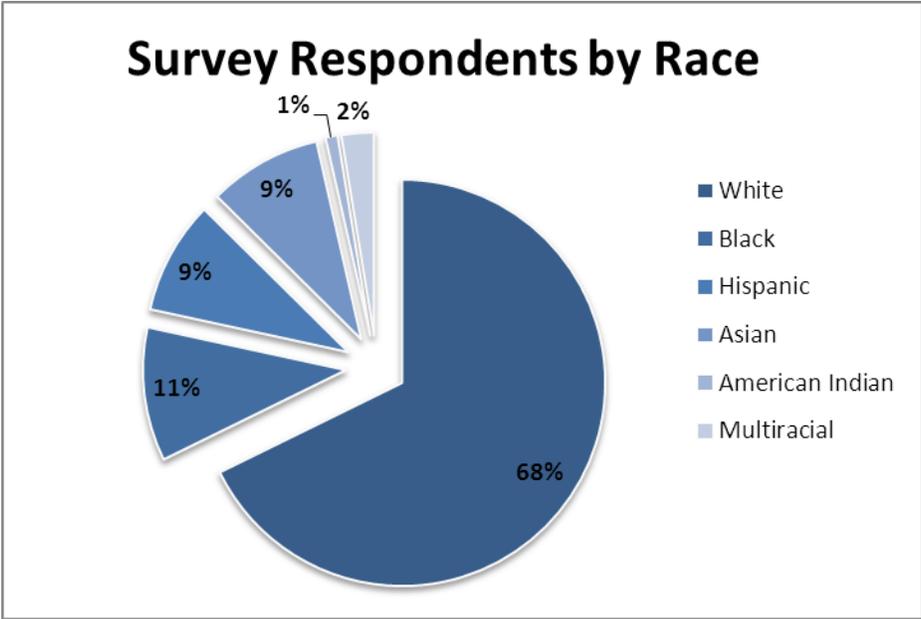
- Air Permit (4 sites): Any businesses create air pollutants as they generate power, manufacture products, or perform other industrial activities. Air quality permits help to reduce the amounts of pollutants that these facilities put into the air.
- CERCLIS (1 site): CERCLIS sites are places that are listed in the federal Comprehensive Environmental Response, Compensation and Liability Information System. This means that they are or were suspected of being contaminated.
- Construction Stormwater Permit (3 sites): When stormwater drains off of a construction site, it can carry sediment and other pollutants that can harm lakes, streams and wetlands. A construction stormwater permit is designed to limit this pollution.
- Hazardous Waste, Small to Minimal Quantity Generator (113 sites): A small to minimal quantity generator is a facility that generates less than 1,000 kilograms (2,200 pounds) of hazardous waste or 1 kilogram (2.2 pounds) of acutely hazardous waste per calendar month. Like large quantity generators, SQGs and VSQGs must have current hazardous waste licenses.
- Industrial Stormwater Permit (9 sites): At industrial sites such as factories, salvage yards and airports, stormwater may come into contact with harmful pollutants. Industrial stormwater permits are designed to limit the amount of these contaminants that reaches surface water and groundwater.
- Landfill, Closed (1 site): Closed landfills are landfills that are no longer accepting waste.
- Landfill, Open (3 sites): Open landfills are landfills that are still accepting waste. This includes facilities that accept household garbage, industrial waste, and debris from construction or demolition.
- Leak Site (16): Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.
- Multiple Uses (105 sites): Multi sites are locations where there are multiple MPCA activities occurring. This could be a facility with a wastewater permit and an air quality permit, a cleanup site with multiple Superfund operating units, a site with a registered feedlot and a tank, etc.
- State Assessment Site (1 site): State Assessment sites are places that MPCA Site Assessment staff have investigated because of suspected contamination.
- Unpermitted Dump Site (5 sites): Unpermitted dump sites are landfills that never held a valid permit from the MPCA. Generally, these dumps existed prior to the permitting program established with the creation of the MPCA in 1967.
- Voluntary Investigation & Cleanup (VIC) Site (37 sites): The Voluntary Investigation and Cleanup (VIC) Program is a non-petroleum brownfield program. VIC provides technical assistance to buyers, sellers, developers or local governments seeking to voluntarily investigate or clean up contaminated land.

Appendix J: Community Input Survey Charts

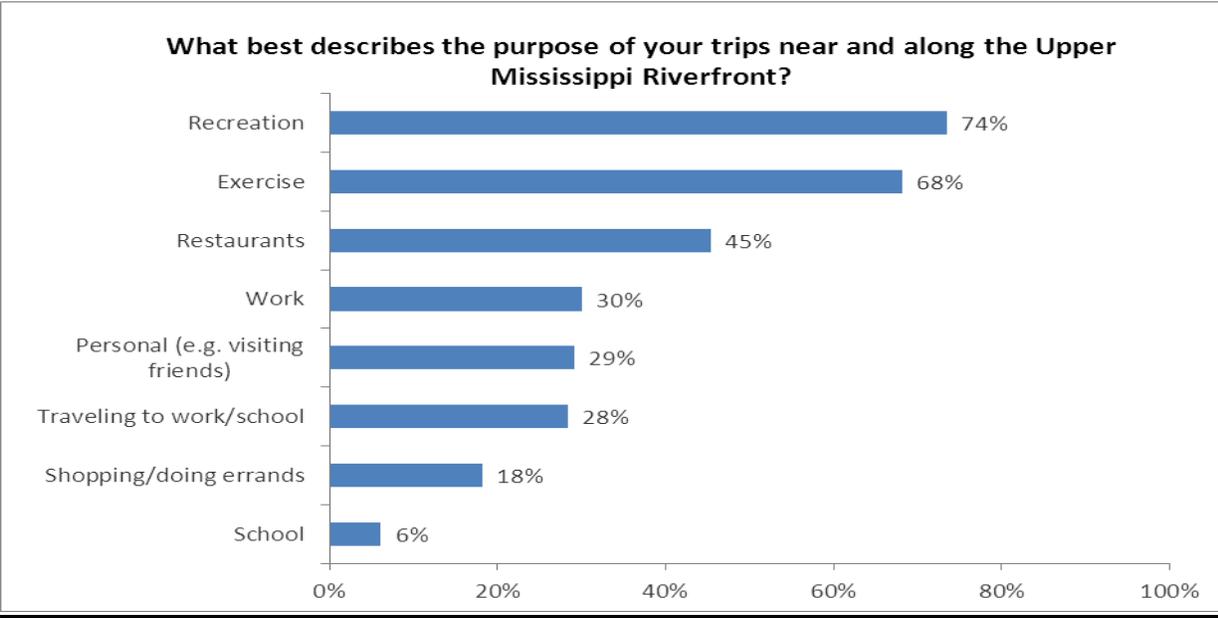
As part of the HIA, a 15-item survey was conducted to collect information about improvements North Side and Northeast Minneapolis residents would like to see, improvements that would positively affect their health and any existing health concerns related to the environment in the the ATF and surrounding area. Online and paper versions of the survey were completed. Paper versions of the survey were made available during presentations to neighborhood associations and local committees and at public forums. Demographic and geographic data were collected. Zip code level data allowed for breakdowns by sub-region: North, Northeast and Other Areas.

A total of 397 respondents completed an HIA survey between September and November 2012. The two highest age groups of respondents were 25-39 years old followed by respondents who were 60 years of age and older. Most respondents were White while 11 percent were Black, 9 percent Hispanic/Latino and 9 percent Southeast Asian. Fifty-four percent of respondents were female. (See charts below.) Seventy-two percent of respondents were residents of North and Northeast Minneapolis.

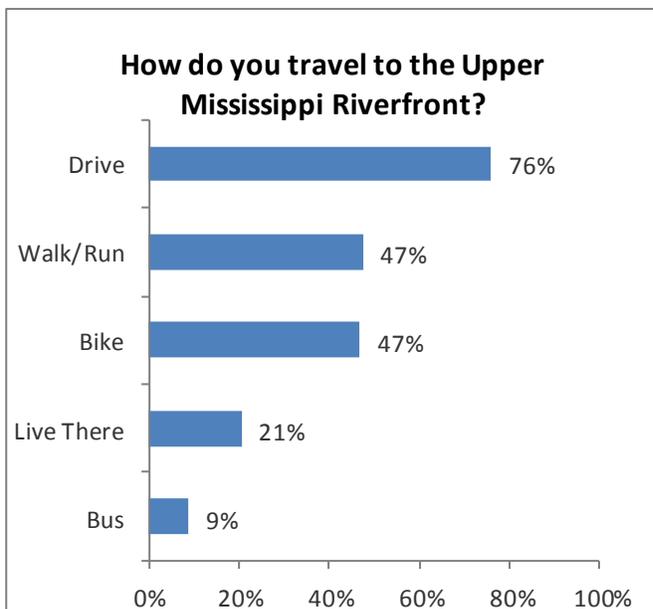
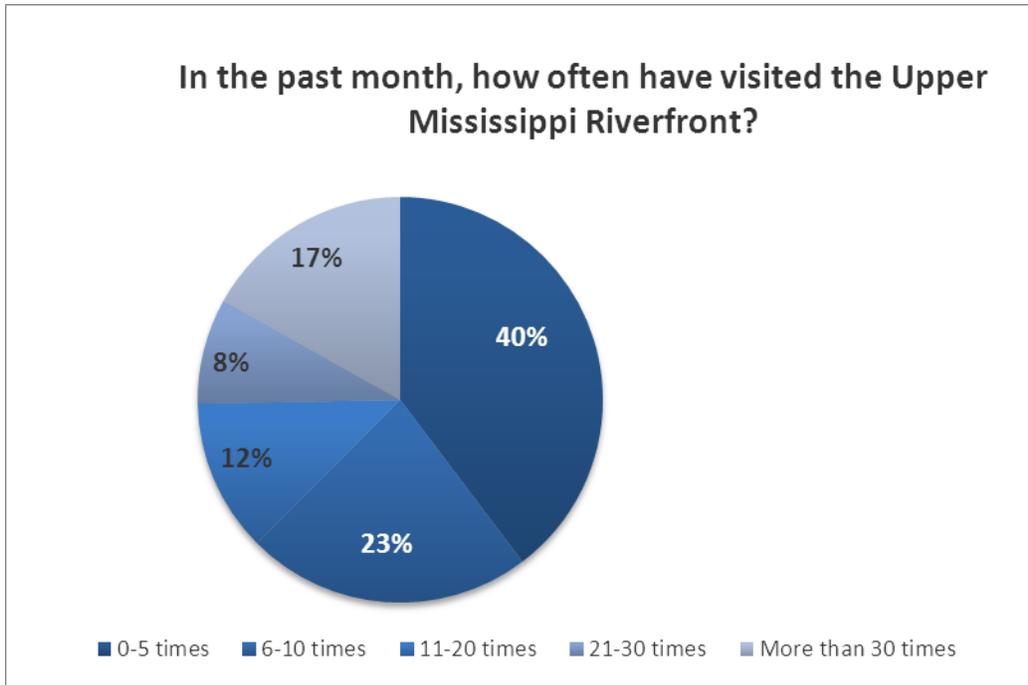




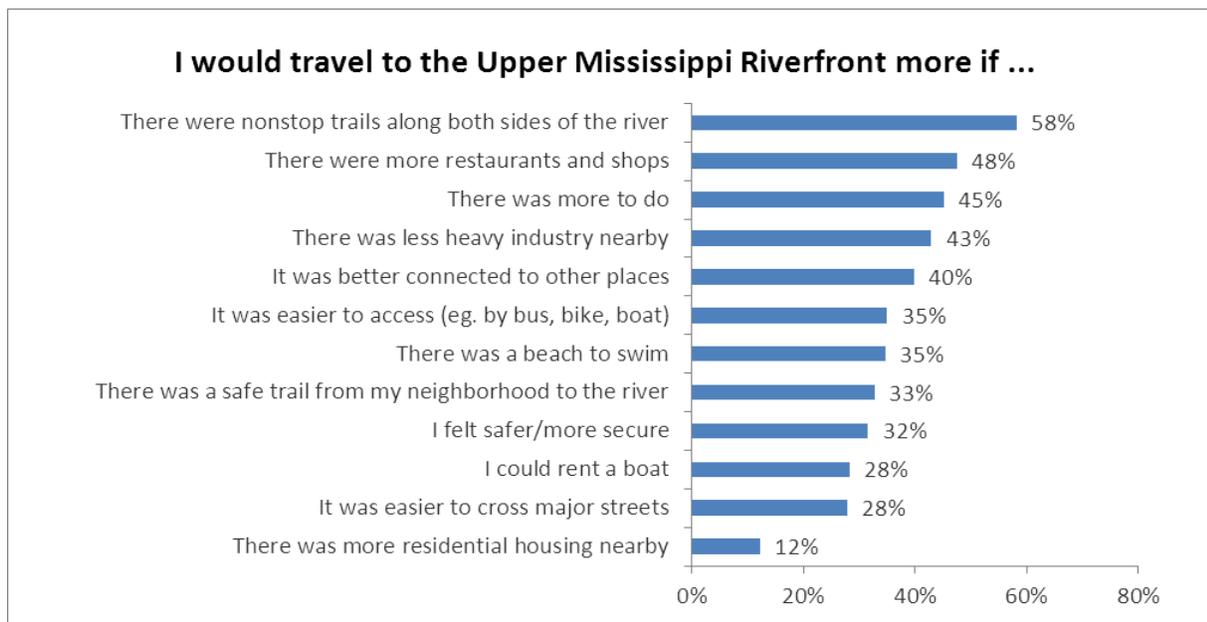
Even when broken down by geographic sub-region, Recreation, Exercise and Restaurants were the most common reasons to visit the Upper Mississippi Riverfront.



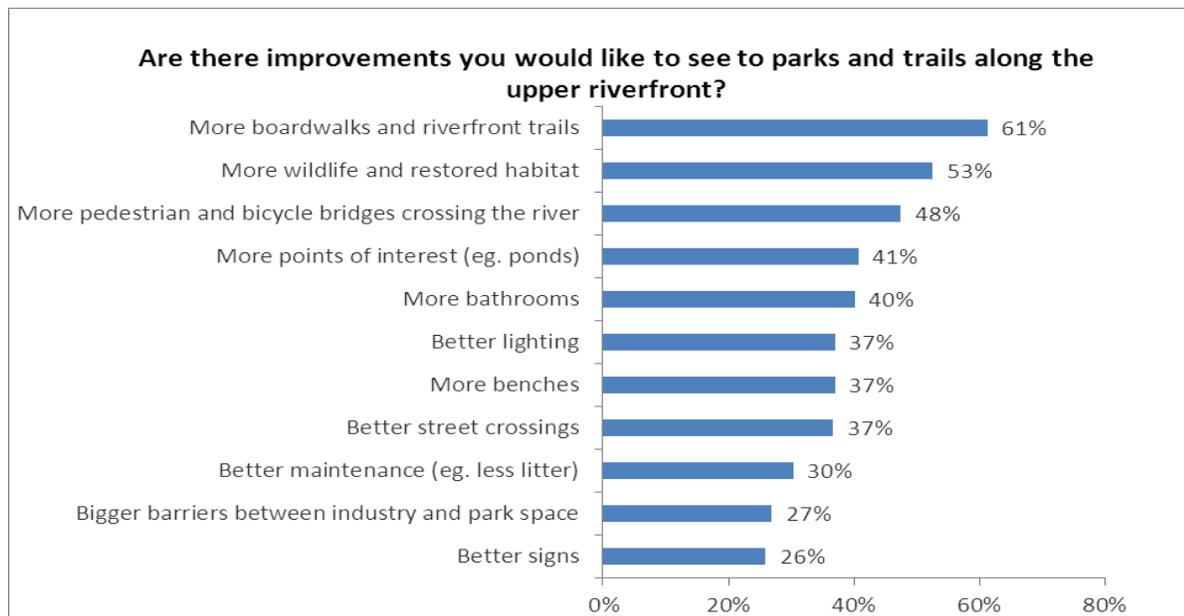
Forty percent of respondents had visited the Riverfront 0-5 times in the last month, with 23 percent having visited 6-10 times in the last month. Seventeen percent of respondents visited the Riverfront area every day. Driving was the most common method of transportation, with 76 percent of respondents indicating that it was their mode of transport to the Riverfront. Forty-seven percent of respondents indicated that they walk or run or bike to the area. This did not differ notably by geographic breakdown of respondents. Twenty percent of respondents said that they “live there.”



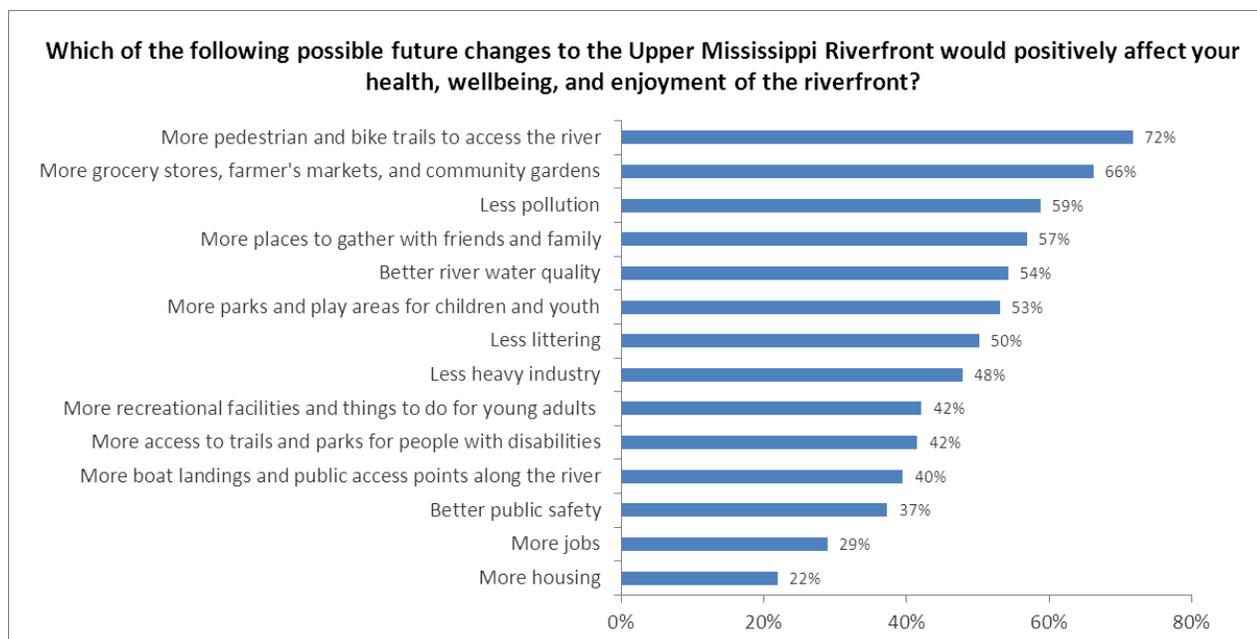
The top three preferred attractions that would draw respondents more to the Riverfront were “nonstop trails along both sides of the river,” “more shops and restaurants within the area,” and “having more things to do there.” Less heavy industry and more restaurants and shops were notably more important to respondents from Northeast, an interesting result given that the bulk of industry is located on the North Side.



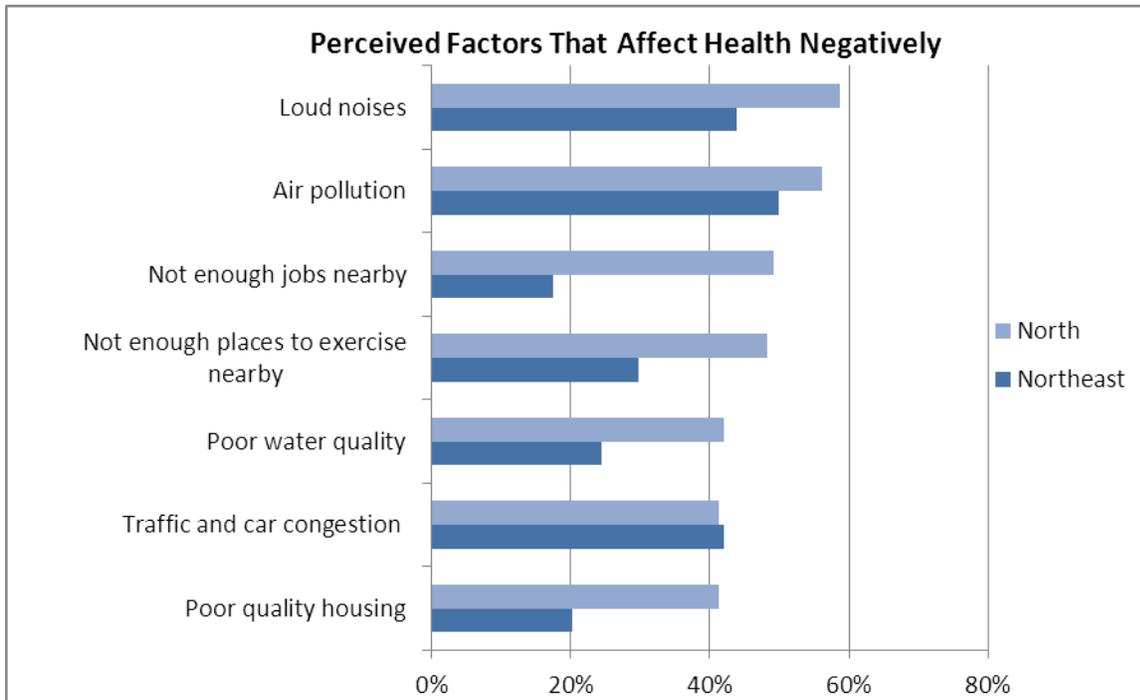
Having more boardwalks and Riverfront trails, more wildlife and restored habitat and more pedestrian and bicycle bridges crossing the river were the top preferred improvements by North and Northeast respondents alike. More Northeast respondents than North respondents selected more bathrooms (particularly for people using the trails and visiting the area) and better street crossings.



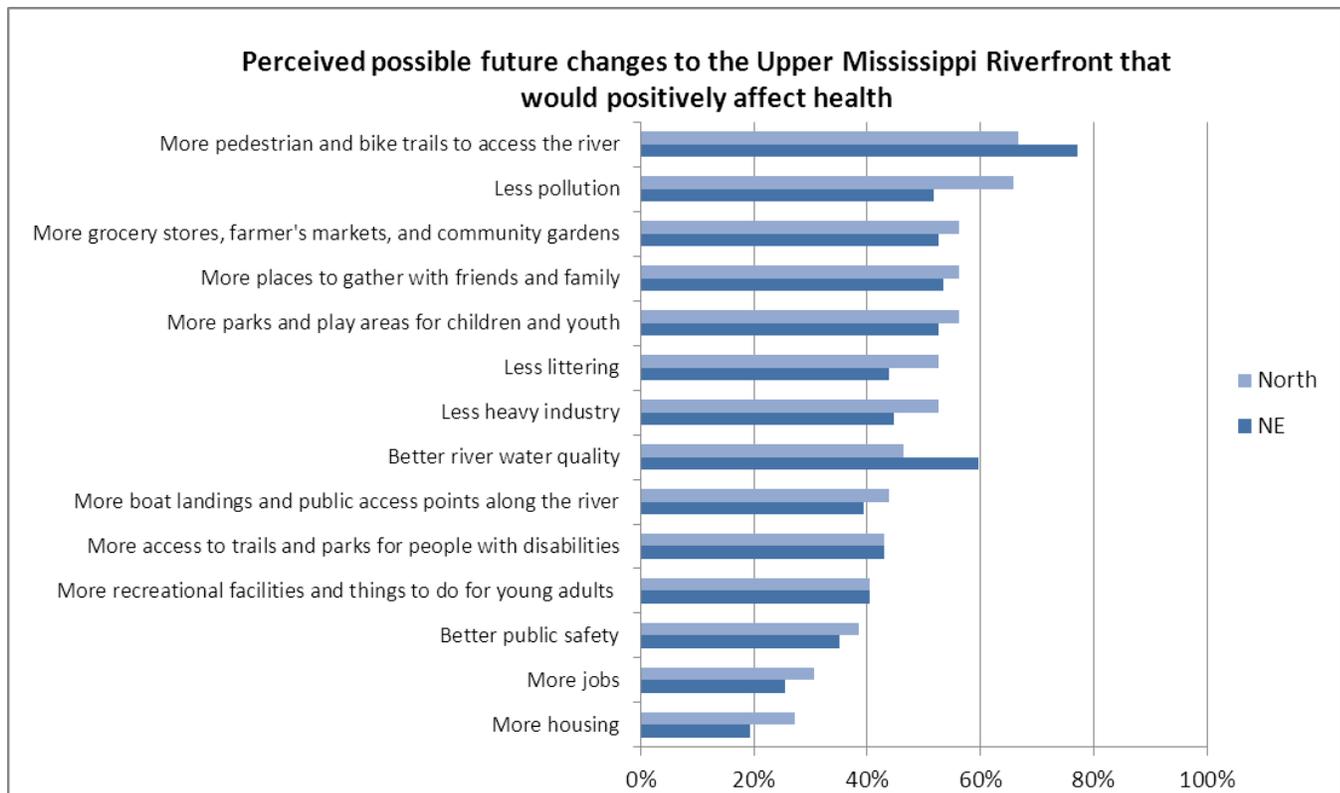
The majority of respondents indicated that having more bike trails to access the river, more grocery stores, farmers markets and community gardens and less pollution would most positively affect their health. “More housing and more jobs” were the least selected of potential changes that would positively affect their health, well-being and enjoyment of the Riverfront.



Air pollution, loud noises and traffic and car congestion, in that order, were reported as factors that negatively affect the health of both North and Northeast Minneapolis residents. Beyond loud noises and air pollution, not enough jobs and employment opportunities, not enough places nearby to exercise, and poor quality housing were notably of more concern to North residents compared with Northeast residents.



The top three future changes that would most improve the health of North respondents were: more pedestrian and bike trails to access the river; more grocery stores, farmers markets and community gardens; and less pollution. The three future changes that would most positively improve the health of Northeast respondents were: more pedestrian and bike trails to access the river; more grocery stores, farmers markets and community gardens; and better river water quality.



Analysis of the Other Areas category included responses from residents who live in other parts of Minneapolis and surrounding suburbs. The top future changes that residents from Other Areas thought would most affect their health were: more pedestrian and bike trails to access the river, less pollution and littering, and more places for friends and family to gather. Having more boardwalks and Riverfront trails, more wildlife and restored habitat and more pedestrian and bicycle bridges crossing the river were what would attract residents from Other Areas to the Riverfront. On other parts of the survey, residents from Other Areas differed very little from those that lived in North and Northeast Minneapolis.



Minneapolis Health Department. Above the Falls Health Impact Assessment Brief: Ensuring Health Equity in Decision-making. Minneapolis, Minnesota. May 2013.

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Photo acknowledgments

Photos are courtesy of Mill City Times and Pat Carney Studio.

Full report

To view the full Health Impact Assessment report and access detailed information about the Above the Falls plan, please visit www.minneapolismn.gov/cped/projects/cped_above_the_falls.

For general inquiries or if you need this material in an alternative format, please call Minneapolis Health Department at 612 673.2301 or email health@minneapolismn.gov. Deaf and hard-of-hearing persons may use a relay service to call 311 agents at 612 673.3000. TTY users may call 612 673.2157 or 612 673.2626.

Attention: If you have any questions regarding this material please contact the Minneapolis Health Department 612 673.2301.
Hmong - Ceeb toom. Yog koj xav tau kev pab txhais cov xov no rau koj dawb, hu 612 673.2800;
Spanish - Atención. Si desea recibir asistencia gratuita para traducir esta información, llame al 612 673.2700;
Somali - Ogow. Haddii aad dooneyso in lagaa kaalmeeyo tarjamadda macluumaadkani oo lacag la' aan wac 612 673.3500.