



Pedestrian and Bicycle Information Center

White Paper Series

Using Health Impact Assessments to Evaluate Bicycle and Pedestrian Plans

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Introduction

Where we live, work, and play influences health, as well as how we travel to those places. Transportation agencies are responsible for ensuring safe access to travel options, including walking and bicycling, for people of all ages and abilities. For a number of reasons, including chronic disease rates and changing demographics, there is growing interest across the country to better explore the links between health and transportation. New approaches are emerging that can assist transportation agencies during the transportation planning process to make more informed decisions. One such approach involves the use of Health Impact Assessments (HIA), which can improve decision-making and protect and enhance health and health equity [1].



HIAs help assess how plans will affect the health of the entire community, including children and other vulnerable groups. Image credit: pedbikeimages.org / Dan Burden

What is a Health Impact Assessment?

HIA is a systematic, flexible approach that uses data, research, and stakeholder input to assess the health effects of policies or projects [2], [3]. HIAs allow planners and other professionals to consider whether to adopt plans, as well as how and where to prioritize projects [4], [5]. The assessment can help improve planning and policy development by making recommendations to reduce risk and promote healthy decisions [6]. **The challenge ahead is to incorporate health into the decision-making process, and to increase the capacity of planners and engineers to work with health professionals to conduct HIAs.**

Key strengths of an HIA:

- Promotes evidence-based decisions
- Raises awareness among policy-makers and the public of how a proposal will affect all community members, especially the most vulnerable
- Encourages collaboration among planners, public health professionals, decision makers, and communities
- Saves health care dollars by considering short and long-term health impacts and sustainable development
- Has flexibility to meet local needs

History of HIAs

In the 1970s, public health practitioners began to use Environmental Impact Assessments (EIA) to examine environmental issues [4], [5], [7]. EIAs were eventually adapted into Health Impact Assessments, and use of HIAs grew around the world. In 1999, the World Health Organization (WHO) officially urged policy makers to conduct HIAs in the Gothenburg Consensus Paper [8] (see <http://www.apfo.org.uk/resource/item.aspx?RID=44163>).

Unfortunately, the United States still lags behind many countries in the use of HIAs [1]. Since the early 2000s, a movement has been swiftly growing to describe and advocate for HIAs. As of 2007, 27 HIAs had been completed in the US, and now, over 200 have been completed or are in progress according to the Health Impact Project website [9], [10]. HIAs have been used in a variety of settings in many states, such as governments, health departments, planning authorities, national and international agencies, and private industry [11]. Although the legal framework to support HIA varies by jurisdiction and is still lacking, a number of states and some local jurisdictions have proposed legislation requiring or supporting health impact assessment [12]. For example, Massachusetts requires the use of HIAs for transportation projects through the Healthy Transportation Compact, a state law passed in 2009 [13], and Alaska funds HIAs for resource development through a self-supporting permitting process [14].

For further reading, see The National Research Council's HIA report, "Improving Health in the United States: the Role of Health Impact Assessment" from September 2011, http://www.nap.edu/catalog.php?record_id=13229.

Applying HIAs to Pedestrian and Bicycle Plans

Connecting Pedestrian and Bicycle Transportation to Health

Planners can use HIAs to link the effects of transportation policies and road design to shifts in physical activity, air pollution, traffic injuries, safety, access to goods and services, and social connectedness [5]. HIAs of transportation plans have included assessments of bicycle and pedestrian master plans, new transit stations, roadway expansions, and new rail lines. For example, an HIA that recommends the addition of pedestrian and bicycle facilities to a transportation plan would contribute to a built environment that promotes the public's health [1].

HIAs of pedestrian and bicycle plans offer great opportunity for meeting both the community's transportation and public health objectives [15]. Evidence suggests that HIAs may be better at quantifying relationships between active travel policies, and factors like physical activity and air pollution. They can also measure risk of injuries associated with mode shifts in cycling and walking, improvements in energy efficiency, and the impact of specific contaminants on health. The relationships that are the most difficult to quantify are those between active travel policies and social interaction, diet, and crime [16].

Assessment is often complex because plans may bundle many measures, like bike lanes and traffic calming measures. While it can be challenging to demonstrate indirect effects, planners and decision makers can benefit from considering the benefits and consequences of policy above and beyond direct impacts [16].

HIAs have successfully changed how plans have been implemented. The Atlanta Beltline HIA, a comprehensive assessment of a \$2.8 billion transit, trails, and parks project, played a role in how the project's funding advisory committee selected proposals [17]. Yet an HIA need not be comprehensive to have an impact. After conducting a rapid HIA, the City of Decatur, Georgia, accepted the HIA's recommendation to make infrastructure improvements and hired a community health planner [1]. Successful use of the HIA was even one of the factors leading to Decatur being awarded "Walk Friendly Community" recognition [18].

Pedestrian and Bicycle Plan HIAs

Across the United States, to date, 22 HIAs have evaluated plans and other proposals that specifically prioritize support for biking and walking, as shown in **Table 1**. At least 9 more are in progress as of publication. See **Appendix 1** for a description of each of these HIAs.

www.pedbikeinfo.org



Atlanta Mayor Kasim Reed rides the Atlanta BeltLine Eastside Trail. Image credit: Christopher T. Martin.

Table 1. HIAs of Pedestrian and Bicycle Plans and Other Proposals

Type	Number Conducted	Examples
Transportation plans and projects such as new trails, transit stations, roadway expansions, rail lines, and other bicycle and pedestrian improvements such as “road diets”	13	<ul style="list-style-type: none"> ▪ 6th Avenue East Duluth HIA, Duluth, Minnesota ▪ Atlanta Beltline HIA, Atlanta, Georgia ▪ East Bay Greenway HIA, Alameda County, California ▪ South 24th Street Road Diet, Omaha, Nebraska
Comprehensive or specific area plans that consider the future development of bicycle and pedestrian facilities	7	<ul style="list-style-type: none"> ▪ City of Decatur Community Transformation Plan HIA, Decatur, Georgia ▪ Clark County Bicycle and Pedestrian Master Plan HIA, Clark County, Washington
Transportation policies	1	<ul style="list-style-type: none"> ▪ Vehicle Miles Traveled (VMT) Reduction Policies HIA, Portland, Oregon
Programs	1	<ul style="list-style-type: none"> ▪ Safe Routes to School program HIA, Sacramento, California

HIAs of **land use plans** consider how housing developments and revitalization plans affect the bicycle and pedestrian environment [5]. While a discussion of HIAs of land use plans is outside of the scope of this paper, see <http://www.healthimpactproject.org> to explore HIAs on all topics.

Conducting an HIA

Stakeholders involved in HIAs

HIAs hold great promise for making health an important part of the conversation. Having different stakeholders “at the table” increases understanding not just of transportation planning and land use, but also of health disparities. Involving stakeholders in determining the scope of the HIA and making recommendations ensures that the analysis is accurate to the local context, which is of particular concern for pedestrian and bicycle-related HIAs [6], [7], [19]. For example, providing early input to stakeholders was one of the most successful parts of the Clark County HIA (see case study on Page 10). Most importantly, health equity can be promoted by meaningfully engaging vulnerable populations such as children, older adults, people living in poverty, or residents of a particular neighborhood [6].



Image credit: pedbikeimages.org / Dan Burden

Potential HIA Sponsors and Partners

- Local or state health departments
- Community members
- Community-based organizations
- Advocacy groups and coalitions
- Local businesses
- Private industry
- Healthcare providers
- Academia
- Local, state, and federal government
- Elected officials and other policy makers

Health departments or community organizations, rather than decision makers, commonly perform HIAs [17]. An advisory committee is one important way that stakeholders can be involved in an HIA program. However, partners can participate at each stage by offering input, identifying relevant research questions, providing sources of data and information, and proposing alternatives.

For further reading, see the Guide for Stakeholder Participation from the 2010 HIA in the Americas Workshop:

<http://www.hiasociety.org/documents/guide-for-stakeholder-participation.pdf>

Process and Timeline for HIAs

The flexible HIA methodology allows different assessments to be used according to the time and resources available. The more comprehensive the HIA, the greater the range of impacts there are that can be assessed. No matter the level of depth, HIAs should be completed in time to influence policy and health outcomes [7]. Ideally, an HIA is conducted prospectively to inform an anticipated decision, i.e. while the proposal is being drafted, before decisions are made and before implementation occurs [4], [6], [7]. The following are several examples of the spectrum of HIAs.

Desktop HIA

The least comprehensive HIA, a desktop HIA is a quick assessment to aid decision makers. It is carried out quickly with minimal resources and use of existing data and research, such as literature reviews and secondary data analysis on one health determinant or outcome.

- In **Aberdeen, North Carolina**, a desktop HIA of a Pedestrian Transportation Plan was the result of collaboration between FirstHealth and the University of North Carolina.
- In **Sacramento, California**, a desktop HIA assessed the Sacramento Safe Routes to School Program.

Rapid HIA

This minimal-resource HIA uses a participatory workshop format, either fully open or with invited participants.

- In **Portland, Oregon**, a rapid HIA of Vehicle Miles Traveled (VMT) Reduction Policies used a literature review, quantitative data, and community participation to assess outcomes related to air pollution, VMT, and physical activity levels.
- In **Columbia Heights, Minnesota**, the City conducted a rapid HIA of a Bicycle and Pedestrian Mobility Plan. City staff and representatives from the school district and the Minnesota Department of Transportation participated in a workshop.
- In **Decatur, Georgia**, the Georgia Tech Center for Quality Growth and Regional Development used a rapid HIA for the City of Decatur Community Transportation Plan. Impacts were assessed with a literature review and a workshop.

Intermediate HIA

This process incorporates a basic systematic analysis of a few prioritized health determinants and outcomes, while being less comprehensive than a full HIA.

In **Alameda County, California**, the East Bay Greenway HIA took 1.5 months to complete. It primarily focused on four health impacts: increased physical activity, greening of the landscape, reduced motor vehicle use, and increased social cohesion.



East Bay Greenway, Alameda County, California.
Image credit: Urban Ecology.

Full or Comprehensive HIA

This is the most involved form of an HIA, requiring large amounts of data and analysis. Comprehensive HIAs consider all potential positive and negative effects on health determinants and outcomes, follow a structured and transparent process, fully involve expert and lay stakeholders, and collect and analyze new data using quantitative and qualitative methods.

In **Pittsburg, Pennsylvania**, a full HIA of a planned transit stop took 6 months to complete with 3 full time employees (FTEs) from managers and senior researchers and 1.5 FTEs from research assistants.

For more information on Health Impact Project funding, see Robert Wood Johnson Foundation's November 2012 Progress Report, "The Health Impact Project: Advancing Smarter Policies for Healthier Communities," http://www.rwjf.org/content/dam/farm/reports/program_results_reports/2012/rwjf403166.

Timing and Resources

A desktop or rapid HIA takes a few weeks and costs limited staff time to produce a comment letter or shorter report. A more comprehensive HIA requires greater resources and dedicated funding. As a general guideline, a desk-based HIA takes 2-6 weeks, a rapid HIA takes 6-12 weeks, an intermediate HIA takes 12 weeks to 6 months, and a comprehensive HIA takes 6 to 12 months [7]. Costs of performing an HIA can vary. The Health Impact Project has funded HIAs up to \$150,000 [14], while other HIAs have been completed by existing health department staff or with mini-grants of less than \$10,000.

Six Steps of a Health Impact Assessment

In a typical HIA process, the HIA team determines the scope of the assessment, identifies the most pressing health issues, and assesses baseline conditions and the potential impact of the proposal. Then, they make recommendations about how risks can be mitigated and how benefits can be increased, and report those recommendations to decision makers, the community, and other key stakeholders. Afterwards, they monitor the impact that the HIA had on the final decision, and evaluate the outcome of the proposal itself.

The following sections describe the best practices for conducting an HIA.

1. Screening: Is an HIA warranted?

Determine whether an HIA is feasible and will likely to add value to the decision making process. An HIA may not be the best approach if resources are not available, there is a lack of support from decision makers, or if health is already “at the table.” During the screening phase, also consider the scale of the proposal, the significance of the impact, external interest, and timing [7]. Seek broad participation during this phase. Set up an HIA project team and an HIA steering committee. By allowing decision makers and those in control of the proposal to serve on the steering committee, the HIA will be tailored to the needs of the decision makers [7]. For examples of screening checklists, see <http://www.hiaguide.org/methods-resources/methods/checklists>.

2. Scoping: What are the important health effects?

Stakeholder input in the scoping process is important. Select significant issues for analysis, such as physical activity, safety, social connection, or access to goods and services like fresh foods [4]. Look beyond specific diagnoses such as obesity, diabetes, or asthma, and look at issues like stress and mental health. Determine who will be affected by the project, and how. To ensure equity, identify the impact of the proposal on vulnerable populations [5].

3. Assessment: What are the likely health effects?

Assessment provides a rapid or in-depth assessment of baseline conditions and of health impacts using available qualitative or quantitative evidence [7]. At this stage, the project team, steering committee, assessment staff with skills and knowledge, and participants in workshops and other events are typically involved. The following data sources and methods were used in the HIAs listed in Appendix 1.

Qualitative Data Sources:

Expert opinion: Gather recommendations and input from health and planning experts, content experts, environmental health experts, project coordinators, walkability and transportation planning experts, and public policy consultants.

www.pedbikeinfo.org

Detailed handbooks and resources for conducting HIAs

Human Impact Partners' **Handbook to Conducting HIA**

<http://www.humanimpact.org/component/jdownloads/finish/11/81>

Human Impact Partners' **A Guide for Health Impact Assessment**

www.humanimpact.org/component/jdownloads/finish/11/139/0

UCLA's **HIA Training Manual**

<http://www.hiaguide.org/training/training-guides/ucla-hia-training-manual>

The Centre for Health Equity Training, Research and Evaluation's **Health Impact Assessment: A Practical Guide** (Sydney, Australia)

http://www.harrisroxashealth.com/wp-content/uploads/2011/08/Health_Impact_Assessment_A_Practical_Guide.pdf

Key informant interviews: Interview area residents, neighborhood organizations, pedestrian and bicycle advocacy groups, experts, key stakeholders, local business people and associations, city officials, and relevant agencies.

Advisory committees: Convene public health, planning, transportation, and parks experts, and area resident representatives.

Other qualitative data sources and methods:

- Literature review [21], [22]
- Document review (e.g. area plan, historical documents, existing programs)
- Logic model development [23]
- Focus groups
- Public outreach and workshops (e.g. community involvement exercises; workshops for federal, state, local partners)
- PhotoVoice [24]

Quantitative Data Sources

Quantitative methods most often are used to make predictions about quantifiable health effects. Quantitative data can also be used to provide baseline numbers to explain the current situation.

Secondary data sources: Examine data from planning documents, Census data [25], injury data, local health indicators, hospitalization data, traffic-related injury data, or National Household Transportation Survey data [26].

Other Quantitative Data Sources and Methods:

- Community level health indicators, e.g. the Sustainable Communities Index (SCI) [27], formerly known as the Healthy Development Measurement Tool (HDMT)
- The CDC’s Behavioral Risk Factor Surveillance System (BRFSS) [28], a national study designed to compare states and counties. While it does not provide quantitative predictions, it can provide baseline numbers.
- Community Commons [29] and CHNA.org [30] data sets
- Systematic Pedestrian and Cycling Environmental Scan (SPACES) instrument [31]
- Neighborhood Environment Walkability Survey (NEWS) [32]
- Pedestrian Environment Quality (PEQI) [33] and Bicycle Environment Quality (BEQI) [34] evaluations
- WHO/Europe Health Economic Assessment Tool (HEAT) [35]
- Community surveys (e.g. door to door)
- Traffic counts
- Key stakeholder surveys
- Observational data from field visits and site observations
- Outdoor air quality and noise exposure assessment
- Environment Impact Assessment data review
- GIS (e.g. mapping of existing retail services or children’s activity spaces)
- Predictive modeling or forecasting (e.g. of vehicle-pedestrian collisions, outdoor air quality and noise, or quantitative health effects)

4. Recommendations: Based on the evidence, what should be changed?

The final product of an HIA is a set of clear, practical, evidence-based recommendations. The HIA Steering committee and the project team should take responsibility for drafting and presenting recommendations from the HIA [6]. Recommendations should be actionable and specific enough to be able to determine whether or not the recommendation was implemented (i.e. a recommendation to make community more walkable or fairer to vulnerable populations is too nonspecific). Provide guidance to decision makers on how to remove or mitigate the negative impacts on health or enhance positive ones [4], [7]. Consider the likelihood that recommendations will be acted on, and prioritize recommendations by importance and changeability. Negotiating with decision makers can be an aspect of deciding recommendations, as what is ideal and what is practical are not always the same. For more information, see Human Impact Partners’ HIA Report Guide, <http://www.humanimpact.org/doc-lib/finish/13/100>.

5. Reporting: How can you disseminate the findings and solicit input?

Provide the results to decision makers in plain language. Make methods, findings, sponsors, funding sources, and roles of participants transparent and publicly accessible [4]. Information should be policy-relevant and fit the administrative structures of policy makers [11]. A

communications plan helps increase publicity and makes sure both decision makers and the public are aware of the recommendations [4]. There should be a short executive summary to be read by decision makers and a full report for those who want more details. Press releases can be helpful for communicating with the public.

Examples:

The Treasure Island Community Transportation Plan Final Report clearly summarizes recommendations and outreach efforts, with judicious use of maps and images. For each recommendation, the report describes problems addressed, health impacts, implementation, and background evidence. See the report at <http://www.sfphes.org/component/jdownloads/finish/8-transportation/101-treasure-island-community-transportation-plan-final-report/0?Itemid=101> (PDF).

The Healthy Tumalo County Community Plan from Tumalo, Oregon, is also a good example of a well-written HIA report. The HIA looked at the transportation component of a comprehensive plan. See the plan at <http://www.healthimpactproject.org/resources/document/Tumalo-Community-Plan.pdf> (PDF).

6. Monitoring and Evaluation: What were the outcomes of the HIA and the Plan?

The project team should evaluate the process and impact of the HIA, and follow up on the outcome of the plan [4]. Propose a monitoring plan for tracking the implementation of the plan, policy, project, or program [6], and for evaluating the impact of the HIA itself. Document what impact of the HIA's recommendations had on decisions and identify what characteristics led to success [7].

Example:

This evaluation of the Atlanta BeltLine HIA is one of the first to tie specific findings to recommendations and to identifiable impacts from those recommendations. See the full paper: Ross et al, *AJPM*, 2012 [17].

For more information on HIAs, view the Pedestrian and Bicycle Information Center (PBIC) webinar
“Using Health Impact Assessments to connect bicycle and pedestrian safety and health”
http://www.walkinginfo.org/training/pbic/lc_webinar_07-24-2012.cfm

HIA Case Studies

The 6th Avenue East/Duluth Hillside Neighborhood HIA, Duluth, Minnesota

The Hillside neighborhood contains one of the worst intersections in Duluth. Sixth Avenue East is a main arterial road, where non-motorized transportation is a challenge, and crashes are an ongoing concern.

This HIA was conducted on a transportation plan for the area. The Plan had three focuses: a schematic redesign of the 6th Avenue East corridor, a Complete Streets resolution, and mobility in the Hillside neighborhood. Three main topics of the HIA were accessibility and safety, physical activity, and livability, in terms of mental health, noise, and a green environment. A three-person team conducted the HIA: Jim Skoog from Public Health, Ellen Pillsbury from Transportation Planning, and a principal engineer who had written the redesign study.

The HIA found that residents avoided crossing 6th Avenue because they felt it was too dangerous to go across the street. This was especially a concern for older adults and parents of young children. Several residents voiced concerns about too few bus stops in the schematic redesign. They felt that this would eliminate busing as an option for them. Given a high degree of poverty in the area, and dependence on busing, the HIA discovered that this was a problematic health issue in the redesign.

The HIA discovered that there were 139 crashes in five years, and that this was one of the highest crash areas in the city (see map). Of the 139 crashes, 25 involved personal injury to either a vehicle occupant or pedestrian. To address this, the HIA recommended that the City have a better reporting system to closely monitor crashes.

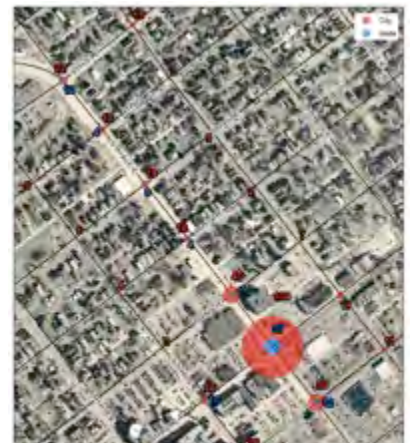
In the reporting phase, Skoog's team met with City staff and elected officials, wrote a press release, and presented the HIA report to the City Council. When results were presented to City staff, one of the most salient challenges met was that the HIA recommended a bike lane going uphill and a shared lane going downhill. According to Skoog, the mayor and other staff were not convinced that it was a good recommendation. The team responded by presenting information on why this was good and how they came to that conclusion. Ultimately, Skoog feels, "in the end, someone else will make that decision."

The HIA is now an addendum to the Schematic Redesign Study. If implemented, the Plan and the Schematic Redesign will improve the health of residents. Reconstruction in the area is still a few years off. Currently, the Public Health Department and neighborhood groups are monitoring fulfillment of recommendations.

Contact: Jim Skoog (skoogj@stlouiscountymn.gov) or Ellen Pillsbury (epillsbury@ardc.org)



6th Avenue East and 4th Street. Image Credit: Kimberly Sannes, Public Solutions Inc.



Crashes on 6th Avenue. Graphic by Andrew King-Scribbins, Northpoint Geographic Solutions

Full Report: <http://www.stlouiscountymn.gov/Portals/0/Library/government/Reports-n-Publications/PHHS/HIA-Sixth-Avenue-East-Final-Report.pdf>

Executive summary: <http://www.stlouiscountymn.gov/Portals/0/Library/government/Reports-n-Publications/PHHS/HIA-Sixth-Avenue-East-Executive-Summary.pdf>

Clark County Bicycle and Pedestrian Master Plan, Clark County, Washington

Clark County is a suburban area located across the river from Portland, Oregon. This HIA addressed the health implications of the Clark County Bicycle and Pedestrian Master Plan and was led by Brendon Haggerty of Clark County Public Health. The Plan outlined programs for education and encouragement, Safe Routes to School, and scenic bikeways, projects like sidewalks, and policies on how improvements will be implemented.

Clark County conducted both a rapid *and* a comprehensive HIA because they wanted early input into the process, especially key input before the plan was finalized. Being able to sit in on planning committee meetings as a resource and reference gave the team credibility and helped them shape the Plan early on. What Haggerty describes as “collaborative relationships with planners, Public Works, officials, and citizens” led to subsequent HIA efforts and adding a health element to the Comprehensive Plan.

In each HIA, a baseline assessment and impact assessment of proposals were conducted. The goal of the impact assessment was to find where programs and projects were highly needed based on the overlap of health outcomes, socioeconomic status, and built environment. At baseline, the County compiled data on demographics, health outcomes, crashes, access to resources, and measures of the built environment that contribute to bikeability and walkability.

Findings and recommendations were shared with decision makers for the Plan, which consisted of a planning committee of stakeholders and citizens, and three elected officials from the Board of County Commissioners. The HIA found that when and if all the projects are completed, about 95,000 residents would be served within half a mile of new facilities. Fifty percent of proposed sidewalk miles and 45 percent of bikeway miles are in low-income neighborhoods (see map of proposed service areas). According to Haggerty, this is important because “some of the HIA recommendations came early enough in the process to impact that in the plan.” As a result, the planning committee prioritized health equity and socioeconomic status in selecting potential projects.

One of the successes of this HIA was that the team evaluated the impact of the HIA on changing health determinants or outcomes. The evaluation was conducted within about three months of the County’s adoption of a final plan. The team evaluated the HIA’s impact through key informant interviews with decision makers, such as planning committee members, planners, and elected officials. They found that the HIA exposed equity issues that had not been brought up elsewhere, and that informants found the information useful and influential.

Says Haggerty, “Without the HIA, health may not have even been on decision makers’ radar. It helped them know the impact of the Plan.”

Contact: Brendon Haggerty (brendon.haggerty@clark.wa.gov)



Image credit:
Clark County Community Planning



Proposed service areas in Clark County, WA’s Comprehensive Plan. Image credit:
Clark County Community Planning

Full report: <http://www.healthimpactproject.org/resources/document/clark-county-bicycle-and-pedestrian-master-plan.pdf>

Evaluation report: <http://www.clark.wa.gov/public-health/reports/documents/EvaluationOfHIBikePedFINAL.pdf>

Key Websites

Human Impact Partners

<http://www.humanimpact.org>

An organization that conducts health-based analyses through HIAs. This comprehensive web site provides description of current projects and resources to get familiar with HIAs.

Health Impact Project

<http://www.healthimpactproject.org>

A collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts, this national initiative demonstrates the value of HIAs and provides funding. The web site provides data on the location of HIAs being conducted in the US as well as detailed information on the HIA process.

UCLA Health Impact Assessment Clearinghouse

<http://www.hiaguide.org>

UCLA provides information on Completed HIAs, methods and resources, causal pathways, training, and legislation.

Design for Health

<http://designforhealth.net/hia/>

This site is a collaborative project between the University of Minnesota, Cornell University, and the University of Colorado. It targets planners by focusing on health issues related to urban planning and provides HIA checklists and tools for implementing HIA rapid assessments.

Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov/healthyplaces/hiareources.htm>

The CDC web site contains information on conducting HIAs in the U.S. including HIA factsheets, tools for conducting an HIA, and methods and evidence for HIA application in public health practice.

Active Living Research

<http://www.activelivingresearch.org/resourcesearch/hia>

Active Living Research's guide to HIAs has a six-part training course and a case study.

World Health Organization

<http://www.who.int/hia/about/en/>

The World Health Organization website provides key resources for practitioners interested in conducting a Health Impact Assessment.

International Association for Impact Assessment

<http://www.iaia.org/>

A global network of researchers and practitioners of impact assessments.

The UK Public Health Observatory HIA Gateway

http://www.apho.org.uk/default.aspx?QN=P_HIA

An international site with resources and information on HIA. Contains information about courses, guides, reports of completed HIAs, and conferences.

Key Books

Committee on Health Impact Assessment; National Research Council, *Improving Health in the United States: The Role of Health Impact Assessment*. Washington, D.C.: The National Academies Press, 2011. Available free online at http://www.nap.edu/catalog.php?record_id=13229.

M. Birley, *Health Impact Assessment: Principles and Practice*. Abingdon, Oxon, UK: Earthscan/Taylor & Francis, 2011. Available online at <http://www.routledge.com/books/details/9781849712774/>.

J. Kemm, Ed., *Health Impact Assessment: Past Achievement, Current Understanding, and Future Progress*, 1st ed. Oxford University Press, 2013 (expected publication March 2013).

Appendix 1: HIAs on Bicycle and Pedestrian Initiatives

The following is a list of HIAs that have been completed on plans, projects, policies, and programs that specifically propose changes to bicycle and pedestrian environments.

Transportation Plans and Projects

East Bay Greenway, Alameda County, California

<http://www.humanimpact.org/component/jdownloads/finish/8/10>

An HIA that addressed a proposed plan for 12 miles of pedestrian and biking trails under the elevated Bay Area Rapid Transit (BART) tracks in the East Bay Greenway area. GIS mapping of pedestrian injuries and violent crimes was used to report existing conditions. Impact predictions were qualitative. Conducted by Human Impact Partners (September 2007).

Glendale Riverwalk Development, Glendale, Colorado

http://glendalehia.files.wordpress.com/2012/03/hia-working-report_3-13-12.pdf

An HIA that assessed possible impacts on, and recommendations for, active transit in Glendale as it related to the Riverwalk development. The report focused on walkability, bikeability and public transit usage, as well as automobile traffic, public safety and economic development (2012).

Alabama Avenue Bike Lanes, Washington, District of Columbia

<http://www.waba.org/blog/2011/03/health-impact-assessment-process-begins-for-alabama-avenue-bike-lane-in-ward-8/>

A rapid HIA that determined the potential effects of creating a new bicycle line on various health and health-related outcomes, including chronic diseases, jobs and employment, safety, quality of life, and access to goods and services. Completed in partnership with the Washington Area Bicyclist Association by students at the Johns Hopkins Bloomberg School of Public Health as part of an HIA course taught by Dr. Keshia Pollock (2011).

Atlanta BeltLine, Atlanta, Georgia

<http://www.healthimpactproject.org/resources/document/Atlanta-Beltline.pdf>

A comprehensive HIA that addressed the health implications of the proposed Atlanta Beltline, a major public transit, trails, parks and urban-redevelopment project. The HIA was conducted in parallel with multiple city-initiated planning processes. Conducted by the Georgia Tech Center for Quality Growth and Regional Development (2007).

Buford Highway and NE Plaza Redevelopment, Atlanta, Georgia

<http://www.healthimpactproject.org/resources/document/buford-highway-and-ne-plaza-redevelopment.pdf>

An HIA that examined the expected health benefits of proposed highway design changes (e.g., reducing lanes, adding sidewalks, medians, bike lanes and on-street parking) to the Buford Highway Corridor. Special emphasis was placed on the potential impacts on physical activity and pedestrian injuries. Conducted by the UCLA Health Impact Assessment Project and the Centers for Disease Control and Prevention (November 2004).

Xcel Energy Corridor, Bloomington, Minnesota

<http://www.healthimpactproject.org/resources/document/Xcel-Energy-Corridor.pdf>

This rapid HIA addressed the health implications of the planned Xcel Energy Corridor Trail in Bloomington, Minnesota, as part of the Alternative Transportation Plan context and framework. Conducted by the City of Bloomington, Minnesota (2008).

6th Avenue East Duluth, Duluth, Minnesota

<http://www.healthimpactproject.org/hia/us/hia-report/HIA-Sixth-Avenue-East-Final-Report-1.pdf>

An HIA that evaluated Duluth, Minnesota's Complete Streets Resolution, Mobility in the Hillside Neighborhood and The Sixth Avenue East Schematic Redesign Study. Conducted by the St. Louis County Public Health & Human Services and the Minnesota Department of Health (June 2011).

City of Independence Bike Lanes, Independence, Missouri

<http://www.healthimpactproject.org/hia/us/hia-report/Independence-Bike-Lane-HIA-Final-Report.pdf>

A desktop HIA that looked at the health impacts of the addition of bike lanes as per the City's Complete Streets policy. The assessment focused on access, including opportunities for physical activity, healthy food, and safety. Conducted by the Independence Health Department (May 2012).

South 24th Street Road Diet, Omaha, Nebraska

<http://www.douglascountyhealth.com/healthy-community/health-impact-assessments/completed-hias>

An HIA that evaluated residents' concerns and impact of a center turn lane on traffic crashes. Conducted by the Douglas County Health Department and Moving Omaha (2012).

Columbia River Crossing, Portland, Oregon

http://www.hiaguide.org/sites/default/files/CRC_HIA_workgrp_report_6_16_08_final.pdf

An HIA that examined the potential health impacts of the proposed bridge alternatives and outlined the recommendations for mitigating negative health impacts associated using existing data and a literature review. Specific areas of health-related impacts addressed in the HIA included transportation, physical activity and obesity, traffic safety, air quality, noise and environmental justice issues. Conducted by the Portland Health Impact Assessment Workgroup (June 2008).

Daniel Morgan Avenue Road Diet, Spartanburg, South Carolina

<http://imph.org/wordpress/wp-content/uploads/2012/04/HIA-of-Proposed-“Road-Diet”-and-Re-Striping-Project-on-Daniel-Morgan-Avenue.pdf>

An HIA that examined the potential health impacts of the proposed re-striping and “road diet” of a downtown Spartanburg arterial road. Conducted by the South Carolina Institute of Medicine and Public Health (April 2012).

University District Pedestrian/Bicycle Bridge, Spokane, Washington

<http://www.healthimpactproject.org/resources/body/Spokane-University-District-Ped-Bike-Bridge.pdf>

This HIA was developed to help inform decision makers about potential health impacts that development of a pedestrian bridge in the University District would have on the current and projected population who live, work, and recreate nearby. Conducted by the City of Spokane and the Spokane Regional Health District (October 2011).

Ice Age Trail Expansion, Marquette County, Wisconsin

http://co.marquette.wi.us/Departments/Health/pdf/Health_Impact_Assessment_of_the_Ice_Age_Trail.pdf

An HIA that assessed the impact of expansion of the Ice Age Trail on physical activity, trail infrastructure, economic impacts, and social connectedness, drawing on existing data and literature. Conducted by the Marquette County Health Department and the Wisconsin Department of Health Services (April 2011).

Comprehensive or Specific Area Plans

Pittsburg Railroad Avenue Specific Plan, San Francisco, California

<http://www.hiaguide.org/sites/default/files/PittsburgRRAve.pdf>

This HIA examined the Pittsburg Railroad Avenue Specific Plan, which included a new subway station, housing and commercial development, and pedestrian and bike improvements. Methods included air quality modeling, noise modeling, transportation predictive tools for vehicle trips and BART ridership, retail GIS mapping, PEQI maps and analysis, and literature review. Conducted by Human Impact Partners (June 2008).

Treasure Island Community Transportation Plan, San Francisco, California

<http://www.sfphes.org/component/jdownloads/viewdownload/8-transportation/101-treasure-island-community-transportation-plan-final-report?Itemid=101>

This HIA evaluated whether the Transportation Plan met the health needs of its neighborhood residents, using the HDMT assessment tool (now the SCI). Conducted by the San Francisco Department of Public Health and the San Francisco Bicycle Coalition (May 2009).

City of Decatur Community Transportation Plan, Decatur, Georgia

<http://www.healthimpactproject.org/resources/document/city-of-decatur-community-transportation-plan.pdf>

A rapid HIA that addressed the health implications of the City's Community Transportation Plan. The assessment focused on potential health impacts related to safety, social connections, and physical activity as they are affected by transportation and land use. Conducted by the Georgia Tech Center for Quality Growth and Regional Development (2007).

City of Columbia Heights Bicycle and Pedestrian Mobility Plan, Columbia Heights, Minnesota

<http://designforhealth.net/cases/columbia-heights/>

A rapid HIA workshop that evaluated the health impacts of proposed improvements to bicycle and pedestrian facilities. City staff and representatives from the school district and the Minnesota Department of Transportation participated. Conducted by the City of Columbia Heights, MN (May 2008).

Aberdeen Pedestrian Transportation Plan, Aberdeen, North Carolina

http://www.healthimpactproject.org/resources/body/FINAL_HIA_Aberdeen_12-8-2011.pdf

A desktop HIA that evaluated the potential impacts of the Plan on child health and health disparities in Aberdeen. Conducted by FirstHealth and the University of North Carolina-Chapel Hill (December 2011).

Nashville Northwest Corridor Transit, Nashville, Tennessee

<http://www.apha.org/NR/rdonlyres/420E581D-0BD3-4353-A973-2133826C74D4/0/APHAW1Jan2011Meehan.pdf>

This HIA analyzed the overall regional transportation plan and future funding priorities of the Nashville Area Metropolitan Planning Organization (MPO) for bicycle and pedestrian accommodations in surrounding counties and cities. Conducted by the Nashville Area MPO.

Clark County Bicycle and Pedestrian Master Plan, Clark County, Washington

<http://www.healthimpactproject.org/resources/document/clark-county-bicycle-and-pedestrian-master-plan.pdf>

A comprehensive HIA that addressed the health implications of the Clark County Bicycle and Pedestrian Master Plan. It looked at neighborhoods where bicycle and pedestrian improvements would result in most opportunities for physical activity. It built on an earlier rapid HIA that made recommendations for maximizing health benefits. Conducted by the Clark County Public Health Department (December 2010).

Policies

Vehicle Miles Traveled (VMT) Reduction Policies, Portland, Oregon

<http://www.upstreampublichealth.org/sites/default/files/Binder1.pdf>

This HIA assessed health impacts of potential VMT reduction policies in Oregon metropolitan areas in order to set specific targets for car use. Conducted by Upstream Public Health (May 2009).

Programs

Sacramento Safe Routes to School Program, Sacramento, California

<http://www.ph.ucla.edu/hs/health-impact/docs/WalktoschoolSummary.pdf>

This desktop HIA looked at the health impacts of the Sacramento Safe Routes to School Program, with a focus on physical activity, pedestrian safety, crime, and exposure to air pollution. Conducted by the CDC and the UCLA School of Public Health (November 2004).

HIAs in Progress

San Francisco Department of Public Health, San Francisco, California

- Pedestrian Strategic Action Plan
<http://www.sfpbes.org/elements/21-elements/transportation/137-pedestrian-safety>
- Pedestrian Safety for Jewish Home of San Francisco
<http://www.sfpbes.org/component/jdownloads/viewdownload/8-transportation/228-jewish-home-of-san-francisco-existing-conditions-and-recommendations?Itemid=101>
- Geary Traffic Corridor

Massachusetts Department of Public Health project, Healthy Transportation Compact, Massachusetts

http://www.healthimpactproject.org/resources/body/Legal_Review_of_HIA_report.pdf

Street Design Ordinance, Davidson, North Carolina

<http://www.healthimpactnc.com/>

Blue Ridge Road Corridor, Raleigh, North Carolina

<http://www.healthimpactproject.org/hia/us/blue-ridge-road-corridor>

Transportation for Livable Communities Initiative, Cuyahoga County, Ohio

http://ccbh.info/cuyahogachc/?page_id=175

Metro's Climate Smart Communities, Clackamas, Multnomah and Washington Counties, Oregon

<https://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Pages/index.aspx>

North Central Oregon Public Health District, North Wasco County, Oregon

<http://www.healthimpactproject.org/hia/us/north-central-oregon-public-health-district>

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The Pedestrian and Bicycle Information Center, part of the University of North Carolina Highway Safety Research Center, connects communities with the information, training, and resources they need to create safe places for walking and bicycling.

For more information, see <http://www.pedbikeinfo.org>



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