Marquette County

Ice Age National Scenic Trail Expansion

Health Impact Assessment

April 2011

Acknowledgements

Ice Age Trail Expansion Health Impact Assessment Steering Committee

Nathan Luedke, Health Officer, Marquette County
Lauren Calnin, Health Educator, Marquette County
Marjory Givens, PhD
Jennifer Boyce, MPH
Emelia McAuliff, MPH
Erin Mader, MPH
Miles Kirby, MS
Shelly Shaw, MPH
Paula Tran Inzeo, MPH

Health Impact Assessment Advisory Committee

Karen Wollenburg, Chapter Coordinator 2004-2010, Marquette County Chapter, Ice Age Trail Alliance
Wisconsin Ice Age Trail Alliance
Tom Gilbert and Pam Schuler, National Scenic Trails Program, National Park Service
Howard Zellmer, Chair, Marquette County Parks and Rural Planning Committee and member of the Marquette County Board of Supervisors
Gary Doudna, Owner, Buffalo Lake Campground
Bill Skowronski, Chief Executive Officer, Renewable World Foundation
Sarah Hackett, Instructor, HighMarq Environmental Charter School

Technical Assistance

Wisconsin Bureau of Environmental and Occupational Health, WI HIA Capacity Building Committee:

Marjory Givens, PhD
Jennifer Boyce, MPH
Emelia McAuliff, MPH
Erin Mader, MPH
Miles Kirby, MS
Shelly Shaw, MPH
Paula Tran Inzeo, MPH
Chuck Warzecha

Human Impact Partners:

Jennifer Lucky, MPH
Kim Gilhuly, MPH

Report Prepared by:

Paula Tran Inzeo, MPH

Report Reviewed by:

Nathan Luedke
Jennifer Boyce, MPH
Emelia McAuliff, MPH
Erin Mader, MPH
Shelly Shaw, MPH
Jennifer Lucky, MPH
Kim Gilhuly, MPH

Suggested citation

Wisconsin Bureau of Environmental and Occupational Health, Wisconsin Division of Public Health. Marquette County Ice Age Trail Expansion Health Impact Assessment. Madison, Wisconsin. May 2011.

Executive Summary

Health Impact Assessment is used to incorporate health perspectives in decision-making through a systematic assessment of potential positive and negative impacts a project, policy or program has on health. This report describes how HIA was used to measure potential health impacts of expanding the Ice Age Trail in Marquette County. The Ice Age Trail is a walking path that traverses the state of Wisconsin, highlighting the geological features resulting from the Wisconsin Glaciation. The expansion of the Ice Age Trail in Marquette County was predetermined, however, variations in both the planning and implementation process were considered to better understand how potential positive health impacts of a walking trail could be enhanced and how any potential negative health impacts could be mitigated. This report analyzed the impact of trail expansion on a prioritized list of health determinants, including physical activity, trail infrastructure, economic impacts, and social connectedness. An analysis of these impacts is summarized in Table 1. The assessment draws upon existing quantitative and qualitative data and literature. Due to limited resources and a short time frame, limitations exist within the data, conclusions, and projections. For this reason, recommendations focus on ways to enhance health outcomes for the trail expansion itself, as well as ways to enhance evaluation of health benefits related to trail expansion and use.

Health impact assessment includes developing predictions on how a policy, project or plan will impact health; HIA also goes one step further by making recommendations on how to enhance potential positive health impacts. Recommendations related to enhancing potential positive health impacts of the Ice Age Trail in Marquette County include (further details begin on page 28):

- Development of a health-focused outreach and programming plan
- Inclusion of health, business, and community groups in the trail development process
- Development and implementation of a survey to better understand and prioritize features and amenities of importance to trail users, and the development of methods for assessing trail use

HIA has not been previously used by counties considering expansion of the Ice Age Trail and the HIA process proved to be an effective method for engaging stakeholders and understanding the literature surrounding community driven concerns. The HIA served as a platform for building partnerships in the trail development process and trail implementation planning. Recommendations from the HIA are currently in the process of occurring or are being considered by decision-makers.

Table 1. Health Impact Analysis Summary

Health Outcome/ Determinant	Direction and Extent of Impact	Likelihood of Impact	Distribution of Impact	Quality of Evidence
Physical Activity	▲▲	Possible	Trail users will benefit the most	**
Trail Infrastructure	▲▲▲▲	Likely	All potential trail users will benefit	***
Economic Impact	▲▲▲	Possible	Property owners near the trail and local businesses serving tourists will benefit the most	**
Social Connectedness	▲▲▲	Likely	Trail volunteers and groups providing program based on the trail will benefit the most	***

Table of Contents

Introduction

Research has consistently supported the role of the built environment in the decisions individuals make and their ability to make decisions that positively impact health. For example, access to places where community members can engage in physical activity positively impacts the overall levels of physical activity (CDC, 2008). Generally, the built environment includes man-made structures and community features such as streets, parks, schools, trails, and other physical activity outlets (Troped, 2011). Access to and engaging in physical activity is critical to maintaining one's health. Specific health issues related to lack of physical activity include type II diabetes, cardiovascular disease, overweight, and obesity. One specific opportunity for physical activity is the development of walking trails. Researchers and practitioners suggest the creation of walking trails is a useful environmental and policy intervention which promotes physical activity (Brownson, 2000). The Center for Disease Control and Prevention describes improved community health, improved transportation opportunities, environmental conservation, economic advancement, and historic and cultural preservation as benefits of community trail development. From increased physical activity to improved community appreciation of the environment, all of the benefits listed have lasting impacts on overall health outcomes of communities.

In Wisconsin, the National Park Service (NPS) is developing the Ice Age National Scenic Trail (IAT), one of eleven national scenic trails in the National Trails System. The IAT is a one 1,200-mile footpath traversing Wisconsin. The IAT is recognized for its route among scenic landscape features created by a historic glacial retreat. Currently the trail is being planned county-by-county and then developed through a process that revolves largely around key local and statewide stakeholders and available resources. Despite the broad implications on health mentioned previously, health-focused perspectives have been minimal or absent from past IAT development conversations.

One tool for incorporating health into trail planning conversations is through the use of Health Impact Assessment (HIA). HIA is defined as:

> "A combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects (International Association for Impact Assessment, 2006)."

HIA involves five steps:

1) Screening
2) Scoping
3) Assessment
4) Reporting
5) Monitoring

Screening involves determining the added value and potential impact of conducting an HIA. Since it is impossible to conduct an HIA on every policy or project, this step is required to prioritize which policies and plans would most benefit from HIA. *Scoping* involves determining the focus of the HIA, including prioritizing which health impacts are most important to the community, identifying measurable indicators of these health impacts and articulating research questions. This step is critical in framing the next step, *assessment*, which involves gathering information (research and data) on existing conditions and the potential health impacts related to the proposed plan. It is in the assessment step where the research questions developed in scoping are answered, conclusions are drawn and recommendations are developed to enhance positive health outcomes and minimize negative health outcomes. The assessment step includes making predictions about how a policy or project may impact health. The recommendations are then reported to decision-makers, stakeholders, and community members in the *reporting* step. Finally, the *monitoring* step evaluates ways in which the HIA recommendations actually affect the proposed plan's implementation and ultimately the way the policy or project impacts health determinants and outcomes.

HIA has been used across diverse disciplines and settings and as the tool continues to develop, more is being documented regarding best practices. In 2010, the North American HIA Practice Standards Working Group released the following "Minimum Elements of HIA" stating that HIA:

- Is initiated to inform a decision-making process and conducted in advance of a policy, plan, program, or project decision;
- Utilizes a systematic analytic process with the following characteristics:
    - Includes a scoping phase that comprehensively considers potential impacts on health outcomes as well as on social, environmental, and economic health determinants and selects potentially significant issues for impact analysis;
    - Solicits and utilizes input from stakeholders;
    - Establishes baseline conditions for health, describing health outcomes, health determinants, affected populations, and vulnerable sub-populations;
    - Uses the best available evidence to judge the magnitude, likelihood, distribution, and permanence of potential impacts on human health or health determinants;
    - Rests conclusions and recommendations on a transparent and context-specific synthesis of evidence, acknowledging sources of data, methodological assumptions, strengths and limitations of evidence and uncertainties;
- Identifies appropriate recommendations, mitigations and/or design alternatives to protect and promote health;
- Proposes a monitoring plan for tracking the decision's implementation on health
- impacts/determinants of concern;
- Includes transparent, publicly-accessible documentation of the process, methods, findings, sponsors, funding sources, participants and their respective roles.

This report details how HIA was used to incorporate a health perspective into the Marquette County IAT planning and development process.

Background: Community Context

Marquette County is located in the southern portion of the central plains region of Wisconsin (see Figure 1). In 2009, the population of the county was estimated at 14,727 (US Census Bureau, 2009). In 2010, the average age of residents was 43.2 years. According to the US Census, the county is predominantly white, non-Hispanic (93%), with African American, American Indian, Asian and Hispanic/Latino groups comprising a relatively small portion of the population. In a recent health needs assessment, conducted by a consultant in cooperation with the Marquette County Health Department, chronic illness, suicide and other mental health issues, motor vehicle related hospitalizations and deaths, poor physical health (nutrition and physical activity), alcohol use, and risky sexual activities were identified as concern areas. In addition to these concern areas, the median income in Marquette County is $45,571 (Marquette Co. Health Dept., 2009), which is lower than the state and national averages of $52,103 and $52,029, respectively (Marquette Co. Health Dept., 2009). Although the county faces challenges, Marquette County has a number of success stories and assets. The county has documented recent success in decreasing rates of childhood lead poisoning, decreasing radon risk, as well as low rates of violent crime. The physical environment is a notable asset in the county, as well as the number of local coalitions organized around topics of the natural environment. In particular, the IAT Alliance is a non-profit volunteer and member-based organization whose mission is to create, support and protect the Ice Age National Scenic Trail (www.iceagetrail.org).

Figure 1. Marquette County

The Marquette County Chapter of the IAT Alliance has been a driving force in making Marquette County a priority in the NPS Ice Age Trail planning process. The Alliance's passion has been complemented by a committed and forward thinking County Health Officer. The Health Officer knew the trail planning process was going to begin and wanted to leverage the work of NPS and the enthusiasm of the local chapter of the Alliance by linking the potential benefits of the trail to health determinants and health outcomes.

Health Impact Assessment Process in Marquette County

In May 2010, the Marquette County Health Officer engaged HIA resources from the Wisconsin Bureau of Environmental and Occupational Health (BEOH). BEOH staff began providing technical assistance to the Marquette County Health Department with the goal of developing a HIA on the proposed expansion of the IAT in the county.

Step 1. Screening: Determine whether or not an HIA is warranted

The Marquette County IAT Expansion was submitted for screening to Human Impact Partners (HIP) and BEOH at an HIA training in March 2010. The NPS had proposed trail expansion in Marquette County, though the trail route was undetermined and plans for trail implementation (*e.g.,* supporting outreach and health promotion activities) had not been established. The

Marquette County Health Officer demonstrated significant interest in conducting an HIA to estimate the potential impacts of trail expansion on the county's health determinants and outcomes.

To screen this project, HIP, BEOH, and the local health department (LHD) consulted existing literature to create a health profile of the community. The team reviewed available county-based health data and the 2009 Marquette County Needs Assessment. The local needs assessment, which was created using results from surveys of local residents, also pointed to the local challenge of mental health concerns, a high prevalence of low-income groups, an aging population with few resources, obesity, poor nutrition, physical inactivity, excessive alcohol use, and diminished access to health care services. In the 2010 Wisconsin County Health Rankings, Marquette County ranked 70th (out of 72) for health outcomes and for health behaviors, which included physical activity, healthy eating, violence, and tobacco, alcohol, and other drug use. However, the physical environment was identified as a local asset of Marquette County.

During the screening process, background information regarding HIA was presented to residents and NPS staff at a Marquette County Parks and Rural Planning Committee meeting (July 2010). An HIA factsheet was developed to use as a tool to both inform stakeholders of the HIA process as well as to provide a summary of the ways in which HIA may be useful for informing the trail expansion process (see Appendix 1). Lastly, meetings were held with key stakeholders, such as residents and the local chapter of the IAT Alliance to better understand the community's values, needs, and concerns.

Through the screening process, it was determined that the project is linked to health, although health was not included as an explicit part of the trail development process. Therefore, three intervention points were identified:

1. Trail corridor planning process
    a. Refers to the planning process that determines the general route for the trail through Marquette County
2. Route and trail development
    a. Refers to the actual trail path
3. Trail implementation
    a. Refers to marketing the building and use of the trail

Step 2. Scoping: Determine which health impacts to evaluate and the methods for analysis
In the scoping phase, the following activities were conducted to determine which health impacts to evaluate and methods for analysis:

1. A Steering Committee was convened, comprised of LHD and BEOH staff. The Steering Committee met regularly to conduct the activities of the HIA, including developing the HIA work plan, meeting with stakeholders, and conducting the literature review.
2. An Advisory Committee was established by engaging local residents and stakeholders including an educator, the director of an environmental foundation, a local business owner, a member of the local IAT Alliance Chapter, and the County Chairperson. The HIA

Advisory Committee was convened to share expertise regarding the communities' needs surrounding trail planning processes, development, and implementation and to understand their specific concerns of the trail.

   a. The HIA Advisory Committee was convened to provide background on HIA and to gather input regarding the community's main concerns of the trail expansion. The concern areas drove the scope of the literature review and showed the need for a community survey in the future.
   b. A list of potential survey topics were generated by BEOH (Appendix 2: Potential Survey Topics Generated from Rapid Literature Review and Community Input).

3. In September 2010, a meeting was held with the Steering Committee and the NPS staff. The NPS planning process was discussed at great length to better understand how an HIA might be of value.

After the above steps were completed, the Steering Committee met in October 2010 for two hours to go through scoping exercises, including creating a pathway diagram and identifying specific research questions for further analysis. Figure 1. *Ice Age Trail Health Impact Assessment Pathway Diagram* shows the broader scope of increased use of a trail. Figure 2. *Final Ice Age Trail Expansion Pathway Diagram* was used to guide the assessment step and provides more detail regarding the ways in which trail expansion may impact health.

Figure 2. Ice Age Trail Health Impact Assessment Pathway Diagram

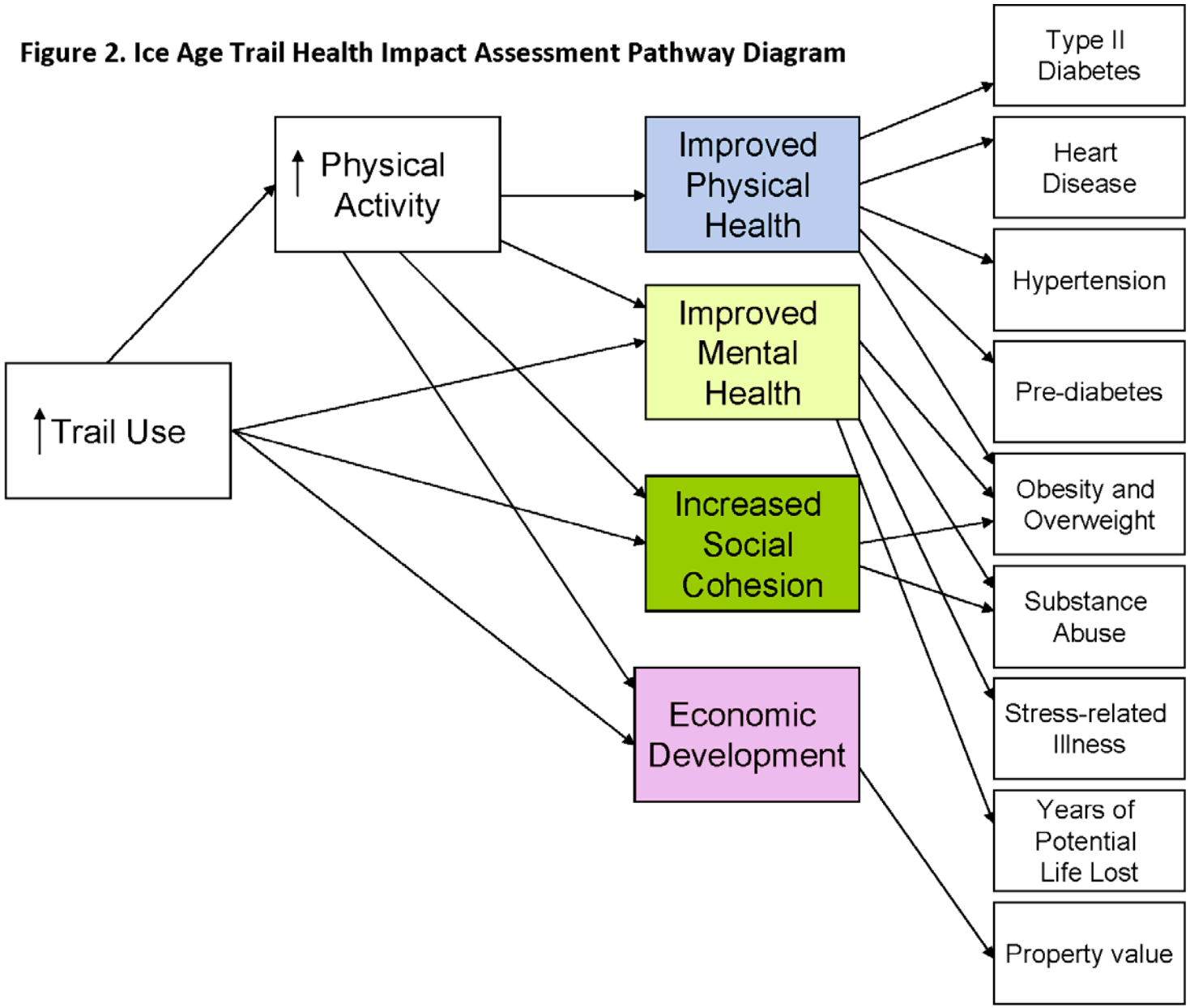

Figure 3. Final Ice Age Trail Expansion Pathway Diagram

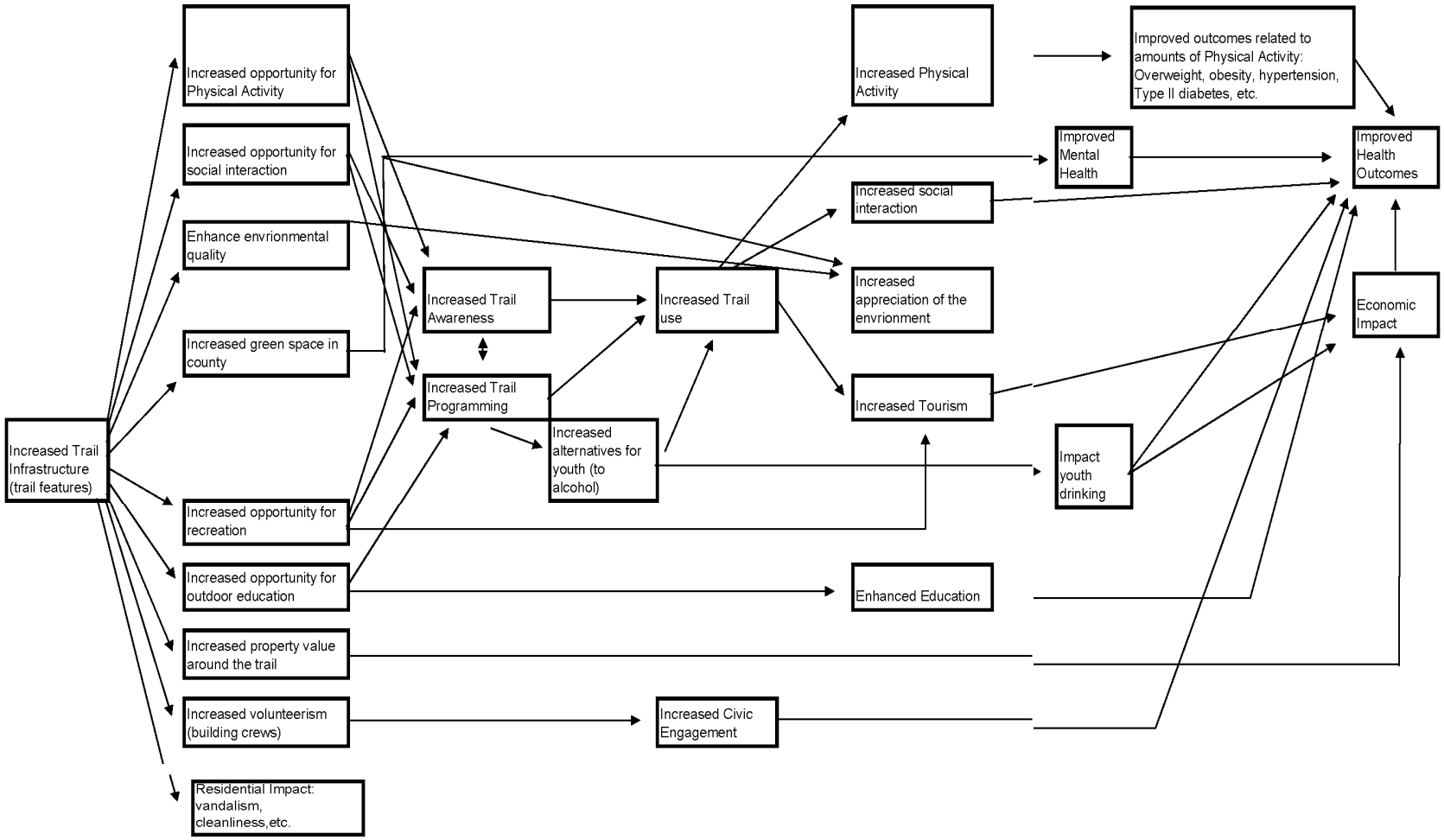

Table 2. HIA Scoping Worksheet

Project:	Ice Age Trail Expansion					
Health Determinant:	New walking trail					
Geographic Scope:	Marquette County					
Goals:	1) To measure, predict, and monitor how implementation and promotion of a trail can impact physical activity and its impact on physical health, social connectedness, mental health, and economic development, 2) To explore potential impacts of trail implementation and promotion on physical activity and its impact on physical health, social connectedness, mental health, and economic development, and 3) To provide recommendations and mitigations to impact trail use to the NPS and the local chapter of the IAT Alliance.					
Existing Conditions Research Questions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
Proximate Effects						
What existing trail infrastructure exists in the county?	How much more trail infrastructure will this new trail provide for the county?	mileage of trails, proximity to trails, number of trail heads, trail features, Americans with Disabilities Act (ADA) compliant	DNR, County Parks and Recreation, other local studies	GIS mapping of trails, lit review	High	
What are the existing levels of physical activity?	How can implementation and/or promotion of a new walking trail influence physical activity?	physical activity (lack of physical activity)	BRFSS, other local studies	gather quantitative data from previous surveys, lit review	High	

What are the existing economic impacts of walking trails?	How can implementation and/or promotion of a new walking trail influence economic development in the county?	property value	local studies, tax assessments	gather quantitative data from previous surveys, lit review	Mediu m	

Health Outcomes						
What are current rates for the county compared to the state: overweight/obesity ? heart disease? type II diabetes? hypertension? pre-diabetes?	Will the implementation and/or promotion of a new walking trail and its effects on physical activity impact the list of overweight/obesity, heart disease, type II diabetes, hypertension, pre-diabetes?	Heart disease prevalence, hospitalizations and ED visits	Local data;, Survey of the Health of Wisconsin (SHOW), BRFSS, large employers	gather quantitative data from previous surveys, lit review	High	
What are the existing levels of social connectedness?	How can implementation and/or promotion of a new walking trail and its effects on physical activity influence social connectedness?	Volunteerism, service organizations, voting rates	Local data, SHOW, BRFSS, Commission on Aging	gather quantitative data from previous surveys, lit review	High	
What are the existing levels of mental health?	How can implementation and/or promotion of a new walking trail and	Substance abuse, stress-related illness, years of potential life lost	BRFSS, County Health Rankings, DOT, other local	gather quantitative data from previous surveys, lit	High	

	its effects on physical activity influence mental health?		studies	review		

As shown in the Table 2, at the conclusion of the formal scoping meeting, the HIA Steering Committee prioritized access to trails (trail infrastructure), physical activity, economic development, physical health, social connectedness and mental health as the health determinants to focus on in the assessment phase. These areas were chosen because of the county's focus on physical activity due to poor related health rankings, the interest of business stakeholders in the economic impacts, and the overall availability of data.

Step 3. Assessing Risks and Benefits: Assess impacts using existing data and qualitative and quantitative research methods to determine the magnitude and direction of potential health impacts

The assessment phase involved conducting a review of scientific and grey literature on the indicators identified in the scoping phase (See *Appendix 5: Literature Review Summary*). The literature review was driven by a search of the following phrases: "walking trail impacts", "health impacts of walking trails", "economic impacts of trails", "walking trails and physical activity", "walking trail evaluations", and "social impacts of trails". The literature was then reviewed and categorized. Specific themes from the literature review included: overall trail trends, trail development, benefits of trail development, implementation, measurement of trail use, and education. According to our review of the literature, the relationship between the built environment and physical activity varies across communities. The majority of the existing literature focuses on trail use in urban communities; there is a lack of systematic assessment regarding how the trails influence physical activity behaviors in rural communities. It should also be noted that there is some conflicting literature (*i.e.,* variance in definitions and measurement and variance in results), making additional research necessary to draw conclusions from the current body of evidence.

In addition to a literature review, data was also gathered from existing data sources to answer the research questions identified in the scoping phase. Once the early phases of assessment were underway, the assessment priority areas narrowed even further due to the constraints on time and available data. Time and resource constraints inhibited the HIA Steering Committee from collecting primary data. Therefore existing data sources dictated the final research questions, which focused on physical activity, trail infrastructure (physical activity outlet), economic impact, and social connectedness. Data sources used include BRFSS, IAT Alliance records and resources, Wisconsin Department of Natural Resources (DNR), NPS, UW Population Health Institute County Health Rankings, Marquette County Health Assessment 2009, U.S. Census, 2008 Marquette County Profile, and the literature review results. The data gathered is a mixture of quantitative and qualitative information.

Limitations exist within the data, conclusions, and projections and HIA of this nature would benefit from further, more rigorous evaluations. For this reason, recommendations focus on ways to enhance health outcomes for the trail expansion itself, as well as ways to enhance evaluation of health benefits related to trail expansion and use.

Table 1. Health Impact Analysis: Summary of findings from the assessment

Health Outcome/ Determinant	Direction and Extent of Impact	Likelihood of Impact	Distribution of Impact	Quality of Evidence
Physical Activity	▲▲	Possible	Trail users will benefit the most	**
Trail Infrastructure	▲▲▲▲	Likely	All potential trail users will benefit	***
Economic Impact	▲▲▲	Possible	Property owners near the trail and local businesses serving tourists will benefit the most	**
Social Connectedness	▲▲▲	Likely	Trail volunteers and groups providing program based on the trail will benefit the most	***

Direction and Extent of Impact (combine direction, magnitude and severity into one measure

- Direction of Impact is represented by an upward triangle and a downward triangle
  - Positive Impact = ▲
  - Negative Impact = ▼
- Extent of Impact is represented by the number of triangles
  - Severe impact on many = ▲▲▲▲ or ▼▼▼▼
  - Severe impact for few or small impact on many = ▲▲▲ or ▼▼▼
  - Moderate impact on medium number = ▲▲ or ▼▼
  - Small impact on few = ▲ or ▼
- Uncertain = ?
- No effect = "No effect" or "None"

Likelihood of Impact:

- Likely = it is likely that impacts will occur as a result of the proposal
- Possible = it is possible that impacts will occur as a result of the proposal
- Unlikely = it is unlikely that impacts will occur as a result of the proposal
- Uncertain = it is unclear if impacts will occur as a result of the proposal

Distribution of Impact:

- Name subpopulation impacted more *(e.g.,* "low-income residents impacted more"; "Blacks impacted more") or "equal impacts"

Strength/Quality of Evidence:

- *** (*e.g.,* many strong studies)
- ** (*e.g.,* one or two good studies)
- * (*e.g.,* no clear studies, but generally consistent with principles of public health)

Analysis, conclusions and recommendations are described below.

1. Physical Activity
    a. Literature Summary
        i. The literature review regarding physical activity focused on the relationships between trails and walking, because the IAT is a footpath. There is a modest body of evidence which exists on social and environmental determinants of physical activity and walking (Ball, 2001). Some studies have demonstrated an increase in physical activity and walking behaviors since beginning to use a trail. Promoting walking may be advantageous because it is common among the aging population (Brownson, 2000). A study of older women (mean age: 74.2 years) found those who reported living within walking distance to a walking or biking trail had significantly more average weekly steps (King, 2003). Walking can also accommodate various income levels and cultural groups as an opportunity for physical activity (Brownson, 2000; Owen, 2004). Additionally, one study showed that women with a high school education or less may be more likely to increase the amount of walking once beginning to use a trail (Schasberger, 2009). Trails may also be particularly important in rural areas as walking or bicycling for transportation or exercise is less likely. The inclusion of trails at parks had the strongest association with physical activity (Librett, 2006).
    b. Existing conditions
        i. County physical activity levels
            1. According to the BRFSS (2007-2009), about 69% of the people surveyed engaged in leisure time physical activity other than work in the past 30 days compared to 78% in the state of Wisconsin. About 51% of the people surveyed in Marquette County did not meet the recommendations for moderate physical activity.
        ii. Existing physical activity on trails
            1. Currently, there is no systematic method to evaluate current use on the trail for physical activity. The NPS and IAT Alliance do have descriptive methods to estimate trail use including documenting the work of volunteers and attendance numbers for specific events. Since the events do not always include physical activity, there are significant limitations to using the current data as a proxy for physical activity. However, this calculation is the best available data documented.
            2. Current programming
                a. Current Programs: Crane Hike at Fox River Refuge, Plant Communities Hike at John Muir, Frogs and Toads in Spring Habits, Dragonfly Identification and Habitat Hike, John Muir's Birthday Hike, Prairie Plan Restoration Hike, Bird Observation Hike, National Trails Day Hike, Invasive Plant

Pull, Trail Maintenance and Puncheon Building Workdays, and Corduroy Road Hike to Wee White Kirk.

b. Data Source:
    i. Marquette County IAT Alliance Chapter Coordinator

c. Impact of new trail
    i. Measurement
        1. Indicator*:* Number of people who use the trail for planned programming: 150 people in 2010
            a. Data Source*:* National Park Service
            b. Assessment Method
                i. Use /miles current x miles new = estimated additional use
                ii. 150 people / 1.6 miles x 30 miles = 2,813 people
    ii. Based on the literature review of the impact of trails and programming on physical activity and estimates of current use provided by the NPS and the Marquette County IAT Alliance, we estimate the use to increase from 150 people to 2,813 people for planned programs with the addition of 30 miles. This number only includes estimation for planned programming; trail use outside of planned programming is not captured in the calculation.

d. Conclusions
    i. Based on the literature it is reasonable to suggest that a new trail would increase use of the trail. However, the current methods of calculating use are underestimated since they only capture the work of organized volunteers and organized programming, which misses the opportunity to monitor informal use by residents. The methods are also not sufficient to estimate physical activity on the trail since not all programming focuses on physical activity.

e. Recommendations
    i. Based on the current evaluation methods, we propose the development of a sustainable data collection and surveillance plan to monitor total trail use, use of trail during specific programming, and trail use for physical activity.
    ii. We also recommend the development of a health focused outreach plan (to supplement existing outreach plans) and health focused programming. The literature supports that strong health focused marketing and programming will increase the use of trails for physical activity.

2. Trail Infrastructure
    a. Literature Summary
        i. *The Guide to Community and Preventive Services: What Works to Promote Health* recommends community designs that provide new and ample opportunities for people to engage in physical activity. The

literature, including cross sectional and longitudinal studies, suggests that physical environment features, such as access to trails, are related to increased levels of walking (Librett, 2006). People who report having access to trails are more likely to report engaging in physical activity (Brownson, 2000). In addition, *The Community Guide* promotes modifications to existing physical activity opportunities to increase usability. Regarding trails as a specific physical activity opportunity, it is important to note that new exercisers travel shorter distance to trails and rate convenience as the primary reason for using them (Gordon, 2004). New users also rate safety, terrain, and convenience as important components (Gordon, 2004). Common infrastructure barriers for trail users include safety, lighting, safe access points, lack of amenities, lack of connectivity to destinations, width of trail, connectivity of streets, mixed land use (Gordon, 2004; Abildso, 2007). While infrastructure enablers, or features which encourage use, include access, proximity, near/in a park (Gordon, 2004; Abildso, 2007), barriers to use beyond infrastructure include time, lack of information, money, health, interest in the trail, opportunities to use the trail, skills, ability, crowding, perceived neighborhood safety, motivation, possible injury, fear of dogs, weather, traffic, cleanliness, and novelty (Osuji, 2006; Eyler, 2003).

b. Existing conditions
    i. Existing Trails: 11 miles
        1. Data Source: Villages and DNR
            a. Table 3. Existing Trails in Marquette County

Location	Miles
Village of Neshkoro	1.75
Westfield School/Village	1.25
Page Creek Marsh	1.1
Department of Natural Resources	5.0
Observatory Hill	0.3
Muir Park (Ice Age Trail)	1.6
Total	*11.0*

    ii. Trail Infrastructure Components
        1. Data Source: Marquette County Ice Age Trail John Muir Park Guide
            a. According to the John Muir Park Ice Age Trail Guide, eight observation points, or features are highlighted within the existing IAT in Marquette County. The features and observation points include a kiosk, restored and remnant prairie, willows, animal, oak grubs, bench at savanna restoration, Muir View Bridge, Middle Bridge, Muir Lake, and State Natural Area/Outlet Bridge.

c. Impact of new trail
    i. Measurement
        1. Indicator*:* Trail mileage
            a. Data Source*:* National Park Service
            b. Assessment Method
                i. Additional Mileage: According to the DNR approximately 30 miles will be added to existing trail mileage with the completion of the Ice Age Trail.
        2. Infrastructure Components
            a. Data Source: National Park Service
                i. The components have not yet been determined.
            b. Assessment Method
                i. Once trail components are identified, the following tools may provide a framework for evaluating the impact of proposed trail features. The tools will need to be tailored for specific community needs. *Appendix 3* outlines information gathered through community input that can assist in adapting tools for Marquette County.
                    1. Bedmino-Rung Assessment Tool-Direct Observation
                    2. Environmental Assessment of Public Recreation Spaces
                    3. Physical Activity Resource Assessment
                    4. Public Open Space Audit Tools
                    5. Safe, Health, and Attractive Public Environments

d. Conclusions
    i. The completion of the IAT will add 30 miles of trail to the county and therefore increase the "supply" of physical activity outlets to 41 miles of trail, almost tripling the existing trail infrastructure. The literature supports that the increased "supply" increases access. Access is critical to increasing physical activity, however, to increase use, it will be important to understand what would encourage and therefore motivate residents to use the trail. This includes documenting and understanding community-specific barriers and enablers such as trail features.
    ii. The NPS planning process does not specifically address impacts to human health. To maximize health benefits of the trail and minimize negative health impacts, a health perspective should be included in trail planning.
    iii. The literature review acknowledges the importance of the "supply" of physical activity outlets and the critical role of barriers and enablers to use. Specific barriers which are consistently mentioned are lack of knowledge of the trail and/or motivation to use the trail. To decrease

these barriers the literature overwhelmingly supports health focused outreach and programming to increase use of the trail for physical activity.

e. Recommendations
    i. Based on the analysis and the NPS process, we recommend a community survey to take place after the trail study area is established. The survey should focus on key features and enablers that would increase community members' use of the trail and what barriers exist that may inhibit use. In addition to providing insight into trail users' preferences, the survey could also serve as an education and outreach tool for the trail. The NPS has expressed interest in using results from a survey to inform trail feature planning. Data gathered from this survey could also be used to develop an impact projection utilizing the indicator: trail infrastructure. A number of tools exist to measure the impact of trails and green space, which can be used to evaluate the potential health benefits of the proposed trail once trail components such as lighting, benches, etc. are defined.
    ii. We recommend active inclusion of health perspectives in the IAT planning process, including providing health information during community engagement initiatives and a health representative in the NPS "core team" of stakeholders.
    iii. We also recommend, again, the development of a health focused outreach plan (to supplement existing outreach plans) and health focused programming. The literature supports that strong health focused marketing and programming will increase the use of trails for physical activity.

3. Economic Impact
    a. Literature Summary
        i. A large body of evidence supports the economic value of outdoor recreation facilities, open spaces, and walkable community design. In a systematic review of this literature, the Robert Wood Johnson Foundation summarized key research results. They found that open spaces and recreational areas can increase nearby residential property values and thus increase local property tax revenue. The potential for increased property value is dependent on proximity to the trail and characteristics of the neighborhood. Third, economic benefits are more likely for urban areas vs. rural communities. In addition to increase property tax revenue, municipalities may also see other fiscal benefits. Finally, real estate developers may see some benefits due to higher home sale prices and an improved market (Active Living Research, 2010). Specific to walking trails, modest economic gains for trail communities have been documented (Moore, 1994). An economic impact study conducted on trails in Minnesota showed that visitors who walk and hike make up the bulk of trail users and also contribute a notable amount to

state revenue (Venegas, 2009). The same report supports the notion that access to developed trails and other amenities, for rural areas in particular, is a strategic plan to sustain community vitality and a state's economy. A US Department of the Interior National Park Service report, The Impacts of Rail-Trails 1992*,* found that the use of trails generated significant levels of economic activity. The economic activity mainly consisted of total trip-related expenses and dollars spent by users on durable goods related to trail activities (Moore, 1992). The calculated amount of "new money" brought into the local trail county by trail visitors from outside the county ranged from $294,000-$630,000 annually. Restaurant and auto-related expenditures were the largest categories of trip-related expenses and visitors that spent at least one night in the local area were the biggest spenders. The report also surveyed local community members on their perceptions and experiences with the trail. They found that the majority of owners felt like the presence of the trail would make their properties sell more easily and at increased values*.* Additionally, the vast majority of real estate professionals interviewed felt the trails had no negative effect on property sales and no effect on property values adjacent to or near the trails. However, those who felt the trails increased property values outnumbered those reporting decreased value. To supplement specific case studies, non scientific reports also support increased property value, increased tourism, increased tax revenue, and increased residential and business development when a trail is built (Rails to Trails Conservancy National Headquarters, 2007). Economic literature specific to public health show that the cost per trail user was much lower than the economic benefit of physical activity and every $1 US investment in trails for physical activity led to $2.94 US in direct medical benefit (Wang, 2004; Wang, 2005).

b. Existing conditions
    i. Community Context
        1. Median income in Marquette County: $45,571 (Marquette Co Health Dept., 2009)
        2. Unemployment: 6% (County Health Rankings, 2010)
        3. Children in Poverty: 17% (County Health Rankings, 2010)
        4. 2007 Poverty Estimate (all ages): 10% (Marquette Co Health Dept., 2009)
    ii. Property Value
        1. The current equalized value of all residential properties in Marquette County is $895,854,600 for 2010. There are 9,989 residential parcels in Marquette County. Based on these numbers the average residential property is approximately $89,684 (equalized value divided by residential parcels). The mean value of

a single family detached home was $184,000 in 2009 (http://www.city-data.com/county/Marquette_County-WI.html).

iii. Tourism

1. **Table 4. Licensed Establishments related to tourism (2008 County Profile)**

Type	Number
Bed and Breakfast	4
Camps	29
Hotels, Motels	20
Tourist Rooming	10
Pools	14
Restaurants	65

2. 2010 Visitor Study for Green Lake, Marquette, and Waushara Counties (O'Donnell et al., 2010)
    a. Gender of All Visitors: 51% Male, 49% Female
    b. Age of All Visitors: 18% under 30, 56% 30-60, 26% over 60
    c. Non-Local Visitors
        i. The top four reasons non local visitors come to the area are events, food and restaurants, visit family and friends, and camping.
        ii. The top four other activities done while in the area include food and dining, lake activities, shopping, and fishing/hunting.
        iii. Visitors are attracted most by the beauty of the area and the small town and welcoming atmosphere.
        iv. The top two accommodations that visitors use are campgrounds and rental cottages.
        v. Non-campers stay the following number of days:
            1. 2%, 8+ days
            2. 14%, 4-7 days
            3. 26%, 2-3 days
            4. 54%, 1 day
        vi. Campers stay the following number of days:
            1. 52%, 4-7 days
            2. 39%, 2-3 days
            3. 2%, 1 day
3. Economic Impact of Expenditures by Travels in 2009: County by County Report. This report details dollars spent by tourists in Wisconsin. The following numbers are specific to Marquette County (Wisconsin Dept. of Tourism, 2010).

a. Total Expenditures in 2009: $66,713,140; which makes Marquette County 43rd of 72 counties in WI for tourist expenditures
b. Direct Impact: Full-time equivalent jobs
    i. 2009: 915
    ii. 2008: 946
c. Direct Impact: Resident income
    i. 2009: $18,560,295
    ii. 2008: $19,463,066
d. Direct Impact: State revenue
    i. 2009: $4,612,901
    ii. 2008: $4,846,789
e. Direct Impact: Local revenue
    i. 2009: $1,272,553
    ii. 2008: $1,345,276

c. Impact of new trail
    i. Measurement
        1. Indicators*:* Property value, number of tourists, dollars spent by tourists
            a. Data source: Literature Review
            b. Assessment Method*:* Based on available literature and the economic existing conditions of Marquette County, it is reasonable to project that the trail expansion will have a positive impact on the local economy through increased property value, increased tourism, either by attracting an increased number of annual visitors and/or an increased number of tourist visits to the county, and increased dollars spent by tourists. To quantify actual values, an in-depth economic analysis could be done including surveys of tourists asking about dollars spent by trail users, comparisons of property value before and after trail expansion, and surveillance of trail related expenditures.
d. Conclusions
    i. The IAT expansion will potentially increase property value, tourism, and dollars spent by tourists.
e. Recommendations
    i. Due to the significant economic potential of the trail, key stakeholders such as business owners, land owners, and tourists, would provide an invaluable perspective in strategies to increase trail use. We recommend the inclusion of these stakeholders in the trail planning process and implementation planning.
    ii. To quantify actual economic impact, data specific to property value changes, numbers of tourists visiting the county specifically because for the trail, and dollars spent by those tourists should be collected.

4. Social Connectedness
    a. Literature
        i. In recent years, a great deal of research has been conducted on the relationship between the social environment and health. There is evidence that social cohesion and socially connected communities tend to experience better health outcomes when compared to less well integrated communities (McNeill, 2006). Likewise, correlations between social isolation and poor health outcomes are well supported by the literature (County Health Rankings, 2010). In particular, evidence has documented the relationship between social factors and physical activity (McNeill, 2006). Strong social relationships increase trust and cohesion communities and enhance a sense of neighborhood safety, a critical enabler of engaging in physical activity (Ross and Jang, 2000). It has also been shown that having physically active neighbors increases the likelihood of personal trail use for walking (Librett, 2006). Additionally, there is literature to support a positive relationship between parks and green spaces and number of neighborly interactions and overall level social connectedness (Sullivan et al., 2004).
    b. Existing conditions
        i. Inadequate social support: 22% (County Health Rankings, 2010)
        ii. Active Ice Age Trail Alliance members in 2009: 30 (Ice Age Trail Alliance, 2009)
        iii. Number of Ice Age Trail Volunteers in Wisconsin in 2009: 2,281. (Ice Age Trail Alliance, 2009)
        iv. Total Ice Age Trail Volunteer hours in Wisconsin in 2009: 58,225.3 (Ice Age Trail Alliance, 2009)
        v. Total Ice Age Trail Volunteers hours for Marquette County in 2010: 200 hours
        vi. A number of specific efforts are currently taking place in Marquette County that provides a descriptive assessment of the levels of social connectedness in the county. They are as follows based on an inventory conducted by the County Health Officer:
            1. *Renewable World Foundation by North American Hydro* -- A foundation focused on providing youth education regarding environmental issues, conservation methods, and renewable energy, while creating opportunities for youth to interact with their environment and the tools necessary to develop community based efforts.
            2. *The HighMarq Charter School* -- A Montello School District charter school with an individual project-based curriculum focused on the outdoor environment and community service.
            3. *The Marquette County Parks & Rural Planning Committee* -- The committee actively seeks opportunities to expand trail and park infrastructure and improve access, awareness and use of outdoor

amenities in Marquette County. The committee is exploring the possibility of securing grant funds to improve outdoor areas and biking infrastructure. This committee is also in the process of organizing an environmental summit to highlight existing efforts and improve networking among outdoors enthusiasts and groups working to enhance outdoor opportunities and increasing outdoor-based tourism.

4. Healthy Eating Active Lifestyles (HEAL) Team -- This group organizes the annual "No Family Left Inside" event which introduces new outdoor activities and aspects of environmental conservation, as well as local opportunities for outdoor recreation. The HEAL Team will also be working with local partners such as libraries to develop activities that combine learning and outdoor physical activity. Efforts to increase knowledge of outdoor resources in Marquette County will be coordinated with ongoing HEAL Team projects. Finally, the HEAL Team will explore the possibility of developing a run/walk with an outdoor theme (natural setting).
5. The Montello Historical Preservation Society and the Marquette County Board of Supervisors has declared 2010 the "Year of John Muir" to highlight the rich history of Marquette County, particularly the area around the childhood home of John Muir, and expressing the outdoor heritage as a key element for maintaining positive attributes and providing a base for improvement. Another project of this group is the Hidden History Murals Project, which is supported by a grant from the Wisconsin Arts Board, to create murals throughout the county that highlight local heritage and natural history. The proposed sites for some of these murals include IAT trailheads, with the goal of bringing art and the outdoors together.
6. Healthy Communities Healthy Youth (HCHY) Coalition – This coalition's purpose is to reduce alcohol and substance abuse and to increase tobacco control. Some of the coalition's efforts include environmental strategies initiated by part-time community based staff (Neighborhood Liaisons) who have experience in trail planning processes and development, community gardens, and creating community ice skating rinks. The next grant period for the HCHY Coalition will support a staff member to organize and encourage youth participation in the expansion of outdoor activities, specifically environmental activities. HCHY was recently awarded an AmeriCorps Volunteer who will be developing an after-school program focused on outdoor recreation. This program will eventually be transitioned into a permanent 4-H program.

c. Impact of new trail
    i. Measurement
        1. Indicator: Volunteer opportunities
            a. Data Source: IAT Alliance Chapter Coordinator
            b. Assessment Method:
                i. Current hours / current miles x new miles = estimated additional volunteer opportunity
                ii. 200 hours / 1.6 miles x 30 miles = 3,750 estimated additional volunteer hours
        2. Indicator*:* Opportunities to foster social connectedness
            a. Data Source*:* Local Health Officer Inventory
            b. Assessment Method: The IAT expansion will provide the county residents with another opportunity to build programming. With respect to social connectedness, this is two pronged; groups involved with planning for the trail will continue to build population levels of connectedness and individuals participating in the programming will experience increased social connectedness on an individual level.
d. Conclusions
    i. The expansion of the Marquette County IAT will potentially increase the number of volunteer hours from 200 hours to 3,750 hours. This prediction does not take into account the volunteer hours required to build the new trail, so it is an underestimate of the total expected increase in volunteerism.
    ii. The numerous initiatives occurring in Marquette County provide a foundation for future health related outreach and programming on the trail. Given the strong existing network of social programs, Marquette County is well positioned to improve opportunities for trail use and interpersonal interaction among county residents. Increased social cohesion, based on trail expansion, will depend on trail use and the type of outreach and programming produced for the trail.
    iii. Currently measures to assess social connectedness in the county are descriptive. Measures have been developed to provide a systematic calculation of the social environment. If the county continues to prioritize social connectedness as an indicator of their health, they may want to consider utilizing such measures.
e. Recommendations
    i. We recommend that existing groups contributing to levels of social connectedness in the county be a part of the trail planning process.
    ii. We recommend that the existing groups contributing to levels of social connectedness in the county be a part of the trail implementation planning (outreach and programming) process.

iii. We recommend that the county begin utilizing systematic measures to better understand the social environment in the county.

Health Focused Programming Literature

As stated in the previous analyses, a review of the literature revealed that people will become more physically active in response to the creation of, or improved access to, places for physical activity, such as a trail, combined with the distribution of relevant information and the implementation of related programs (Librett, 2006). However, only simply building a trail is not enough to increase use of the trail (Burbidge, 2008). The following summary synthesizes the literature found specific to the implementation of trails.

Trail Implementation Literature Summary

1. Multi-level, tailored health promotion efforts are needed to establish and increase use of the trail. Changing the environment alone, by building a walking trail, will not change behavior.
    a. Building of a multi-use trail did not demonstrate an increase in physical activity, and the trail passed by two schools, shopping areas, apartment buildings, neighborhood subdivisions and had many access points (Evenson, 2005). There was no targeted campaign to increase awareness of the trail.
    b. Residents living near the trail did not use the trail after it was built; new residents did not move to the neighborhood because of the trail; and users of the trail came from elsewhere (Burbridge, 2008).
    c. Trails can be beneficial but should be one component of a larger plan to improve health and physical activity (Burbridge, 2008).
    d. A walking trail can be a low-cost, effective environmental and policy change for improving health (CDC, 2008).
    e. Increased awareness of trails may increase use (CDC, 2008).
    f. Preliminary support was established for a theoretically based communication intervention to promote walking and increase activity (Napolitano, 2006) (# of walkers tripled following a worksite wellness intervention)
    g. The creation of a trail should be a part of a community development plan that includes lights, access points, and overall policy changes (Osuji et al., 2006)
    h. After a short term media campaign, awareness of a trail was slightly increased (Merom, 2004)
2. Key factors in improving trail experience and trail use
    a. Trail maintenance, markings/signage, information about trail (Osuji et al., 2006)
    b. Consideration of special health care and accessibility needs (Bialeschki & Henderson, 1988)
    c. Streetlights, other people exercising, sidewalks (Owen, 2004)
    d. Need to address safety and injury prevention concerns among new users (Burbidge, 2008)
3. Outdoor experiential education is recommended for environmental education (Conrad, 1982; Dillion, 2006)
    a. Lasting impression on students

b. Some improved academic performance
c. Improved attitude toward the environment
d. May be particularly useful for youth with hyperactivity
e. Barriers: fear/concern about safety, teachers' lack of confidence in teaching outdoors, school curriculum requirements, time, resources and support
f. Knowledge gained from experiential learning provides a foundation for literacy and science learning

4. Marketing considerations
    a. For full benefits of a trail to occur, targeted promotion efforts are needed – an ecological approach (Wiggs, 2008)
    b. Walking is common among the aging population (Brownson, 2000)
    c. Populations who walk for exercise are different from those who walk for transportation (Owen, 2004)
    d. Parks and recreation departments and community groups can have an increasing role in educating about physical activity and ways to become more active – in defining active communities (Henderson, 2001)
    e. Other initiatives should be aligned and consulted (CDC, 2008)
    f. Partnerships are critical (CDC, 2008)
    g. Promoting an increase in the number of trail visits to those who have access to trails may be one way to help move people from being irregularly active to being regularly active (Librett, 2006)
    h. Messages promoting social and entertainment benefits of physical activity were more successful than those promoting health benefits (Schasberger, 2009)

Step 4. Reporting: Synthesis of results, can take many forms: from written reports to public testimony

This report, which describes the process and activities conducted, will serve as the primary documentation of the IAT HIA. The goal of the HIA and the report is to maximize the potential positive health impacts and minimize any potential negative health impacts of trail expansion by providing recommendations/mitigation strategies targeting key decision-makers. The recommendations made for each research area in the previous step often built on each other. Therefore they are combined, when appropriate, and are stated below:

1. **<u>Develop a health-focused outreach and programming plan (to supplement existing outreach plans) for IAT planning and implementation</u>. This plan should also engage the business sector and other economic partners, as well as community groups and organizers in the county.**
    a. Audience: National Park Service and the Ice Age Trail Alliance
    b. Rationale: The literature review conducted during the assessment step provides overwhelming support for strategic planning and outreach to maximize trail use and therefore any possible positive health, economic, and social benefits from a trail. The findings from the literature were reiterated during an Advisory Committee meeting, when members showed a great deal of interest in planning events related to trail use and less interest in trail development.

2. **<u>Active inclusion of health perspectives, economic partners, and stakeholders from existing county initiatives in the IAT planning process</u>. Regarding health specifically, this would include providing health information during community engagement and a health representative in the "core team" of stakeholders.**
    a. Audience: National Park Service, Local Health Department, economic partners, and county social organizers
    b. Rationale: This HIA found that the NPS planning process mentioned health, but health perspectives were not consistently represented at important meetings nor were health considerations an integral component of the trail planning process. After meeting with NPS, the recommendation of including a health representative in their process was well-received by NPS staff. This recommendation is also consistent with the overall goals of HIA to include health in all planning processes. NPS engages the community in their planning process through community forums, the recommendation to engage business sector and community groups suggests a more targeted audience for their outreach efforts.
3. **<u>Develop and conduct a community survey after the trail sample (study) area is established.</u> The survey should focus on key features and enablers that would increase community members' use of the trail and what barriers exist that may inhibit use.**
    a. Audience: Local Health Department, National Park Service, and potential trail users
    b. Rationale: The literature shows that there are a number of barriers and enablers that impact trail use. A survey to better understand the specific needs and desires of potential trail users may better inform the trail planning process. Additionally, as the key decision-maker, NPS has expressed interest in a survey of this nature and their willingness to incorporate survey findings into their planning process.
4. **<u>Develop a sustainable data collection and surveillance plan.</u> This plan would work to gather information on knowledge, attitudes, behavior, and barriers/enablers of trail use to understand factors to increase use and guide planning, as well as evaluate actual use, actual use for physical activity and changes in the previously stated indicators throughout this report. If the county continues to prioritize social connectedness as a health indicator, a systematic measure should be utilized to better understand the social environment in the county.**
    a. Audience: Local Health Department
    b. Rationale: The results of the literature review show that there is no systematic evaluation of trail use. This recommendation will provide help to fill a gap in existing literature, as well as meet the goals of the local health department in finding a way to quantify the health benefits of trails, while meeting the community expectation of monitoring trail success. This surveillance plan will also help evaluate actual health benefits and negative impacts following the trail expansion.

Each of the aforementioned recommendations are intended to impact one or more of the following previously identified intervention points by intentionally including a health related component in the existing NPS process:

1. Trail planning processes (e.g. identify how to best engage the community in the process and set the stage for community participation)
2. Routes and trail planning processes (e.g. where will the trail go, how and when will it be developed)
3. Trail Implementation (e.g. potential health promotion activities to accompany trail planning processes and maximize use)

This report will be disseminated, at a minimum, to the NPS, the HIA Advisory Committee, the IAT Alliance, the WI HIA network, and to the community via the IAT Alliance website, the IAT Alliance newsletter, *Mammoth Tales,* and in a local newspaper. A two-page HIA summary has also been developed to accompany the report and will be disseminated to community members. See *Appendix 4: HIA Summary Brief.*

Step 5. Monitoring: Includes evaluation, describes how the process and findings of the HIA affects the decision and ultimate health policy outcomes

Evaluation of an HIA involves assessing the process of the HIA and the extent to which the HIA findings impacted the decisions made. The HIA itself, being a pilot project for the state health department in partnership with Marquette County, brought together diverse partners and provided an opportunity to explore a novel health assessment methodology. As previously mentioned, HIA is an emerging tool in the United States and many practitioners are learning through the course of conducting HIAs. This HIA was successful in engaging partners and drawing attention to health in a decision-making process that would not have otherwise considered health so explicitly. The HIA utilized a literature review as the main tool for assessment, a decision made based on available resources. Though the assessment was sufficient and we are confident in our recommendations, development of quantitative measures to inform conclusions would have strengthened and increased the specificity of our projections.

With regard to monitoring the effects of the HIA on the decision, the NPS has been receptive to having the Marquette County Health Officer on the "core team" of stakeholders and has been enthusiastic about the suggestion of presenting health related information in public engagement forums. The NPS views the inclusion of a health representative in other IAT county planning processes as potentially beneficial. The Marquette County Health Officer has also committed to following through with the recommendations outlined in this HIA report. HIA staff have also met with the IAT Alliance to present a preliminary draft of the HIA report as well as to discuss recommendations. HIA staff met with an IAT Alliance Field Representative whose territory includes Marquette County, the Alliance Publications Coordinator, and the Alliance Education and Outreach Manager. Alliance members were excited about the HIA and responded positively to the recommendations. They have also expressed interest in using and disseminating the final HIA report in their future work. In addition to meeting with Alliance members, the HIA team also met with the Marquette County IAT Alliance Chapter Coordinator.

The local chapter expressed similar enthusiasm to both the specific recommendations and the HIA framework overall. They too are interested in the using and disseminating the final HIA Report. The level of "buy-in" from stakeholders responsible for implementing recommendations is an early indication of the successful implementation of HIA recommendations and also supports the efficacy of this HIA in increasing positive health outcomes related to the IAT expansion.

Conclusion

This HIA was the first done in any of the IAT counties. It was effective at engaging stakeholders and parsing and synthesizing the literature surrounding community driven concerns. The HIA served as a platform to build partnerships in trail planning processes and trail implementation planning. Recommendations from the HIA are currently in the process of occurring or are being considered by target decision-makers or audiences. Once trail expansion is complete, the true impact of the HIA will be more tangible; however, this HIA has already raised awareness among community members regarding the importance of the broad determinants of health.

References

Abildso, C.G., Zizzi, S., Abildso, L.C., Steele, J.C., and Gordon, P.M., *Built Environment and Psychosocial Factors Associated with Trail Proximity and Use.* American Journal of Health and Behavior, 2007. **31**(4): p. 374-383.

Addy, C.L., Wilson, D.K., Kirtland, K.A., Ainsworth, B.E., Sharpe, P., and Kimsey, D., *Associations of Perceived Social and Physical Environmental Supports with Physical Activity and Walking Behavior.* American Journal of Public Health, 2004. **94**(3): p. 440-443.

Ball, K., Bauman, A., Leslie, E., and Owen, N., *Perceived Environmental Aesthetics and Convenience and Company Are Associated with Walking for Exercise among Australian Adults.* Preventive Medicine, 2001. **33**(5): p. 434-440.

Bialeschki, M.D., and Henderson, K.A., *Constraints to Trail Use*. Journal of Park and Recreation Administration*,* 1988. **6**(3): p 20-28.

Brownson, R.C., Baker, E.A., Boyd, R.L., et al., *A Community-based Approach to Promoting Walking in Rural Areas.* American Journal of Preventive Medicine, 2004. **27**(1): p. 28-34.

Brownson, R.C., Houseman, R.A., Brown, D.R., Jackson-Thompson, J, King, A.C., Malone, B.R., and Sallis, J.F, *Promoting Physical Activity in Rural Communities: Walking Trail Access, Use, and Effects.* American Journal of Preventive Medicine, 2000. **18**(3): p. 235-241.

Burbidge, S.K. and Goulias, K.G., *Evaluating the Impact of Neighborhood Trail Development on Active Trail Behavior and Overall Physical Activity of Suburban Residents.* Journal of the Transportation Research Board, 2009. **2135**: p. 78-86.

Connections Between Health and Place: Review of the Evidence base for Health Impacts of Planning Projects. 2010, Human Impact Partners: Oakland, CA. http://www.humanimpact.org/evidencebase Search "Parks". [Accessed March 2011]

Conrad, D. and Hedin, D., *The Impact of Experiential Education on Adolescent Development.* Child and Youth Services, 1982. **4**(3 &4): p. 57-76.

Snapshot 2010: Marquette, Wisconsin. 2010. University of Wisconsin Population Health Institute: Madison, WI. http://www.countyhealthrankings.org/wisconsin/marquette [Accessed October 2010]

Cunningham, G.O. and Michael, Y.L., *Concepts Guiding the Study of the Impact of the Built Environment on Physical Activity for Older Adults: A Review of the Literature.* American Journal of Health Promotion, 2004. **18**(6): p. 435-443.

Dillion, J., Rickinson, M., Teamey, K., Morris, M., Choi, M.Y., and Sanders, D., *The Value of Outdoor Learning: Evidence from Research in the UK and Elsewhere.* School Science Review, 2006. **87**(320): p. 107-111.

Dunton, G.F., Spruijt-Metz, D., Wolch, J., Chou, C.P., Byrne, J., Weaver, S., and Reynolds, K.D., *Reasons for Urban Trail Use Predict Levels of Trail-Related Physical Activity.* Journal of Physical Activity and Health, 2009. **6**(4): p. 267-283.

Economic Benefits of Open Space, Recreation Facilities and Walkable Community Design. 2010, Active Living Research: San Diego, CA.

Economic Impact of Expenditures by Travelers on Wisconsin Calendar Year 2009: County by County Report. 2010, Wisconsin Department of Tourism: Wisconsin.

Evenson, K.R., Herring, A.H., and Huston, S.L., *Evaluating Change in Physical Activity with the Building of a Multi-Use Trail.* American Journal of Preventive Medicine, 2005. **28**(2): p. 177-185.

Eyler, A.A., Brownson, R.C., Bacak, S.I., and Housemann, R.A., *The Epidemiology of Walking for Physical Activity in the United States.* Medicine and Science in Sports and Exercise, 2003. **35**(9): p. 1529-1536.

From Trail Towns to TrOD: Trails and Economic Development. 2007, Rails-To-Trails Conservancy: Washington, D.C. http://www.railstotrails.org/resources/documents/whatwedo/TrailLink%2007%20program_Economic%20Develop.pdf [Accessed March 2011]

Frost, S.R., Goins, T., Hunter, R.H., Hooker, S.P., Bryant, L.B., Kruger, J., and Pluto, D., *Effects of the Built Environment on Physical Activity of Adults Living in Rural Settings.* American Journal of Health Promotion, 2010. **24**(4): p. 267-283.

Gordon, P.M., Zizzi, S.J., and Pauline, J., *Use of A Community Trail Among New and Habitual Exercisers: A Preliminary Assessment.* Preventing Chronic Disease [serial online], 2004. http://www.cdc.gov/PCD/issues/2004/oct/04_0058.htm [accessed March 2011]

Henderson, K.A., Neff, L.J., Sharpe, P.A., Greaney, M.L., Royce, S.W., and Ainsworth, B.E., *"It Takes a Village" to Promote Physical Activity: The Potential for Public Park and Recreation Departments.* Journal of Park and Recreation Administration, 2001. **19**(1): p. 23-41.

Hoehner, C.M., Brownson, R.C., Allen, D., et al., *Parks Promoting Physical Activity: Synthesis of Finding From Interventions in Seven National Parks.* Journal of Physical Activity and Health, 2010. **7**(1): p. S67-S81.

Ice Age Trail Alliance 2009 Annual Report. 2009, Ice Age Trail Alliance: Cross Plains, WI.

Kaczynski, A.T., Wilhelm Stanis, S.A., and Besenyi, G.M., *Development and Testing of a Community Stakeholder Park Audit Tool.* Presentation, Active Living Research Conference, 2011: San Diego, CA.

Kaczynski, A.T., Potwarka, L.R., and Saelens, B.E., *Association of Park Size, Distance, and Features with Physical Activity in Neighborhood Parks.* American Journal of Public Health, 2008. **98**(8): p. 1451-1456.

King, W.C., Brach, J.S., Belle, S., Killingsworth, R., Fenton, M., and Kriska, A.M., *The Relationship Between Convenience of Destinations and Walking Levels in Older Women.* American Journal of Health Promotion, 2003. **18**: 74-82.

Librett, J.J., Yore, M.M, and Schmid, T.L., *Characteristics of Physical Activity Levels Among Trail Users in a U.S. National Sample.* American Journal of Preventive Medicine, 2006. **31**(5): p. 399-405.

Marquette County, WI City Data http://www.city-data.com/county/Marquette_County-WI.html [Accessed March 2011]

Marquette County Health Needs Assessment. 2009, Marquette County Health Department: WI.

McNeill, L.H., Kreuter, M.W., and Subramanian, S.V., *Social Environment and Physical Activty: A Review of Concepts and Evidence.* Social Science and Medicine, 2006. **63**: p. 1011-1022.

Meron, D., Bauman, A., Vita, P., and Close, G., *An Environmental Intervention to Promote Walking and Cycling-The Impact of a Newly Constructed Rail Trail in Western Sydney.* Preventive Medicine, 2003. **36**(2): p. 235-242.

Moore, R.L., Gitelson, R.J., and Graefe, A.R., *The Economic Impact of Rail-Trails.* Journal of Park and Recreation Administration, 1994. **12**(2): p. 63-72.

Moore, R.L., Graefe, A.L., Gitelson, R.J., and Porter, E., *The Impacts of Rail-Trails: A Study of Users and Nearby Property Owners from Three Trails.* U.S. Department of the Interior National Park Service, 1992.

Napolitano, M.A., Lerch, H., Papandonatos, G., and Marcus, B.H., *Worksite and Communications-based Promotion of a Local Walking Path.* Journal of Community Health, 2006. **31**(4): p. 326-342.

North American HIA Standards Working Group (Bhatia, R., Branscomb, J., Farhang, L., Lee, M., Orenstein, M., and Richardson, M.), *Minimum Elements and Practice Standards for Health Impact Assessment, Version 2.* North American HIA Practice Standards Working Group. Oakland, CA: 2010.

O'Donnell, B., Manske, M., Burchard, W., et al. *2010 Visitor Study for Green Lake, Marquette, and Waushara Counties.* Tri-County Tourism Alliance, 2010.

Osuji, T., Lovegreen, S.L., Elliot, M., and Brownson, R.C., *Barriers to Physical Activity Among Women in the Rural Midwest.* Women and Health, 2006. **44**(1): p. 41-55.

Owen, N., Humpel, N., Leslie, E., Bauman, A., and Sallis, J.F., *Understanding Environmental Influences on Walking*. American Journal of Preventive Medicine, 2004. **27**(1): p. 67-76.

Places for Physical Activity: Facilitating Development of a community Trail and Promoting its Use to Increase Physical Activity Among Youth and Adults. 2008, U.S. Department of health and Human Services, Centers for Disease Control and Prevention: Atlanta, GA.

Profile for Marquette County. 2008, Wisconsin Department of Health Services: Wisconsin. http://www.dhs.wisconsin.gov/localdata/pdf/08pubhlth/marquette08.pdf [Accessed March 2011]

Reed, J.A., Ainsworth, B.E., Wilson, D.K., Mixon, G., and Cook, A., *Awareness and Use of Community Walking Trails.* Preventive Medicine, 2004. **39**(5): p. 903-908.

Ross, C.E., and Jang, S.J., *Neighborhood Disorder, Fear, and Mistrust: The Buffering Role of Social Ties with Neighbors.* American Journal of Community Psychology, 2000. **28**: p. 401-420.

Saelens, B.E., Sallis, J.F., and Frank, L.D., *Environmental Correlates of Walking and Cycling: Findings from the Transportation, Urban Design, and Planning Literatures.* Annals of Behavioral Medicine, 2003. **25**(2): p. 80-91.

Schasberger, M.G., Hussa, C.S., Polgar, M.F., McMonagle, J.A., Burke, S.J., and Gegaris, A.J., *Promoting and Developing a Trail Network Across Suburban, Rural, and Urban Communities.* American Journal of Preventive Medicine, 2009. **37**(6): p. S336-S344.

Shores, K.A. and West, S.T., *Rural and Urban Park Visits and Park-based Physical Activity.* Preventive Medicine, 2010. **50**(1): p. S13-S17.

Sullivan, W.C., Kuo, F.E., and DePooter, S.F., *The Fruit of Urban Nature: Vital Neighborhood Spaces.* Environment and Behavior, 2004. **36**(5): p. 678-700.

Troped, P.J. *The Power of Trails for Promoting Physical Activity in Communities.* Active Living Research, 2011. http://www.activelivingresearch.org/files/ALR_Brief_PowerofTrails.pdf [Accessed March 2011]

Troped, P.J., Whitcomb, H.A., Hutto, B., Reed, J.A., and Hooker, S.P., *Reliability of a Brief Intercept Survey for Trail Use Behaviors.* Journal of Physical Activity and Health, 2009. **6**(6): p. 775-780.

U.S. Census Bureau, 2009. http://quickfacts.census.gov/qfd/states/55/55077.html [Accessed March 2011]

Venegas, E.C., *Economic Impact of Recreational Trail Use: In Different Regions of Minnesota.* 2009*,* Minnesota Department of Employment and Economic Development: MN. http://www.tourism.umn.edu/prod/groups/cfans/@pub/@cfans/@tourism/documents/asset/cfans_asset_167538.pdf [Accessed March 2011]

Wang, G., Macera, C.A., Scudder-Soucie, B., Schmid, T., Pratt, M., Bucher, D., and Heath, G., *Cost Analysis of the Built Environment: The Case of Bike and Pedestrian Trails in Lincoln, Neb.* American Journal of Public Health, 2004. **94**(4): p. 549-553.

Wang, G., Macera, C.A., Scudder-Soucie, B., Schmid, T., Pratt, M., Bucher, D., and Heath, G., *A Cost-Benefit Analysis of Physical Activity Using Bike/Pedestrian Trails.* Health Promotion and Practice, 2005. **6**(2): p. 174-179.

Wang, G., Macera, C.A., Scudder-Soucie, B., Schmid, T., Pratt, M., Bucher, D., and Heath, G., *Cost Effectiveness of a Bicycle/Pedestrian Trail Development in Health Promotion.* Preventive Medicine, 2004. **38**(2): p. 237-242.

Wiggs, I., Brownson, R.C., and Baker, E.A., *If You Build It, They Will Come: Lessons From Developing Walking Trails in Rural Missouri.* Health Promotion and Practice, 2008. **9**(4): p. 387-394.

Appendices

Appendix 1. HIA Factsheet

Appendix 2. Scoping Phase: Potential Survey Topics Generated from Rapid Literature Review and Community Input

Appendix 3: Ice Age Trail Health Impact Assessment Literature Review Summary

Appendix 4: HIA Summary Brief

Appendix 1. HIA Factsheet


Wisconsin Health Impact Assessment

Health Impact Assessment (HIA)

Health Impact Assessment is a tool that communities and decision makers can use to evaluate the potential health effects of a project or policy before it is built or implemented. The HIA process encourages bringing together public input and data relevant to the project or policy in order to make recommendations that maximize positive health impacts while minimizing unintended negative consequences.

Who can use HIA?

HIA is best utilized across disciplines—*housing, planning, public health, transportation*—with decision makers at all levels—*organizational, local, state, federal, and global.*

Benefits of HIA

- HIA brings public health issues to the forefront in areas where health may not typically be considered, such as land use and transportation projects.
- HIA can be straight-forward and cost-effective.
- HIA can be very quick or more involved, depending on available resources and the scope of the proposal.
- Community input is an integral part of the HIA process.
- HIA forges new partnerships between health and other disciplines.

Health means physical, economic, and social wellbeing. To create healthy communities, we need to consider changes in our homes, communities, and policies. HIAs can help us identify ways to make these changes.

For help in starting your own HIA, visit Wisconsin's HIA Online Toolkit at: http://dhs.wisconsin.gov/hia

Health: Physical, Economic, Emotional, and Social wellbeing

Wisconsin Health Impact Assessment • http://dhs.wisconsin.gov/hia

Wisconsin Health Impact Assessment
Including Health in All Policies

STEPS OF HIA

The steps of HIA help identify how proposed projects, plans, and policies may affect all areas of our lives including the impact on health outcomes for individuals and communities.

1) ***SCREENING***: Determine the need, feasibility, and value of an HIA.
2) ***SCOPING***: Determine which health impacts to consider, the methods for analysis, and a workplan for completing the assessment.
3) ***ASSESSING RISKS AND BENEFITS***: Create a profile of current conditions, evaluate potential health impacts, and find strategies to manage potential negative impacts.
4) ***REPORTING***: Develop an HIA report, communicate findings and recommendations.
5) ***MONITORING***: Track and evaluate the impact on the decision making process and on health outcomes.

How do HIAs get started?

HIAs are often started by local communities interested in understanding how a policy or decision might influence health. They can vary in scope from a rapid or quick assessment in a couple months to a full HIA which can take several months or even years to complete. Communities can access many free tools online to help them carry out an HIA, including useful data. For more information, visit Wisconsin's HIA Online Toolkit at: http://dhs.wisconsin.gov/hia

Potential HIA Partners

- Community members
- Community Based Organizations
- Local businesses, private industry
- Coalitions
- Healthcare providers
- Academia
- Local/State/Federal Government
- Elected officials



Wisconsin Health Impact Assessment • http://dhs.wisconsin.gov/hia

Appendix 2. Scoping Phase: Potential Survey Topics Generated from Rapid Literature Review and Community Input

Marquette County Ice Age Trail HIA

CORRIDOR PLANNING PERCEPTIONS

Positive

- Impacts on community involvement, cohesion, capacity
    - Volunteer opportunities
- Economic impacts
    - Tourism
    - Increase in property value
    - Impact of trail on sale of homes
- Impacts on quality of life
- Trail location: connectivity with schools or other points of commercial/residential/recreational interest

Negative

- Traffic
- Noise
- Visual Change
- Land scape alteration
- Changes to property
- Development phase -building concerns
- Land acquisition
- Management and Sustainability: How will the project be funded? Maintenence/upkeep funding? Whose responsibility?
- Liability
- Trail user vs. homeowner conflict: i.e. vandalism, trespassing, noise, cleanliness, etc.

TRAIL USE

Trail Use

- Frequency of use
- Top trail activities: winter trail use, hiking/backpacking, walking/jogging/running
- In what season would you like to use the trail?
- Duration
- Distance traveled on trail
- Access points, time of day used
- Use of exercise companions
- Distance traveled to get to trail
- Mental health question: i.e. Do you exercise or walk to relieve stress?
- Overall what is the primary reason you use the trails? Recreation/social/pleasure, transportation/utilization, exercise/ health

- How to connect with environmental education
- Intergenerational connectedness
- Social marketing/outreach/raising community awareness to increase use of the trail (e.g. public health programming, school programs)
- Considering older age groups and populations with limited mobility

Perceived Barriers

- Route: What setting best describes the trail route that would encourage you to use the trail? In a city/town, just outside a city/town, remote areas, rural/agricultural areas
- Distance
- Weather/Seasonality concerns
- Facilities
    - Restrooms
- Accessibility
    - Parking
    - Congestion
    - Accessible to varying levels of mobility
    - Perceptions about traffic and busy roads
- Maintenance (e.g. mowing/weed removal, re-paving, snow removal)
- Cost
- What issues may prevent you from using the trail [more frequently]?
- What are the top issues relating to the trail?
    - Safety/security, lack of trails, quality of trail facilities, lack of information about the trails, overcrowding, inadequate support of facilities, accessibility of trails, other

Perceived Enablers

- Safety
    - Injury prevention concerns
- Terrain Issues (Flat, paved, gravel, 'chat', etc)
- Scenery/environment
    - Amenities: playgrounds, benches, water fountains
- Convenience
    - Residential proximity
    - Connectivity
- Atmosphere
- What would motivate you to use trails?
    - Other strategies: tailored newsletters, interpersonal activities, social support, health provider counseling, community-wide events (e.g. fun walks/hikes)
- What are the best ways to let the public know about the trail and its use?
    - Newspapers/books/brochures, signs/maps, clubs/businesses, internet, word of mouth
- If Marquette County is to develop new trails, what should be emphasized?

    - Trails that connect public destinations, trails for specific types of outdoor recreation, trails in natural landscapes, trails that serve multiple types of users
- Personal barriers: lack of time, motivation, disinterest in exercise, having no one to exercise with

Other considerations

- Identify new adopters/new exercisers vs. habitually active exercisers (consider Stages of Change model)
- Time of day, season to administer survey
- Trail and non-trail recreation interests/preferences/experiences
- Use of Likert scale for rating enablers, etc.
- Ask participants to name a *primary* enabler and barrier?
- Assessing physical activity (PA): "Did you exercise regularly more than three times per week for 20 minutes before using this trail?" - 3x per week used due to associated health benefits of regular vigorous PA (see Gordon 2004)
- Differences in barriers based on gender, age
- Land planning: drainage, environmental preservation, fire hazards, hunting season

Resources

- Active Living Research
    - http://www.activelivingresearch.org/resourcesearch/toolsandmeasures [various web links with evaluation tools]
- Gordon PM et al. Use of a community trail among new and habitual exercisers: a preliminary assessment. *Preventing chronic disease* 2004. 1(4):A1-A11. [sample survey of trail users - Recreation Trail Evaluation Survey - RTES; based on BRFSS; 33 closed and open-ended questions]
- East Lake Sammamish Trail King County Seattle
    - http://www.kingcounty.gov/operations/capitalImprovements/parkscip/projects/eastlakesammamishtrail/documents.aspx
        - Environmental Impact Statement
        - Press Releases, public heating information
- Walkinginfo.org
        - http://www.walkinginfo.org/develop/policies.cfm
- Trail Development Course
        - Portland State University
        - http://www.ibpi.usp.pdx.edu/traildesign.php
- National Trails Training Partnership
        - http://www.americantrails.org/resources/health/index.html
- Behavioral Risk Factor Surveillance System (BRFSS) - Gordon et al used similar question format in the study noted above
- NJ Trails Plan: provides survey questions and lists different benefits

Appendix 3: Ice Age Trail Health Impact Assessment Literature Review Summary

Ice Age National Scenic Trail Health Impact Assessment
Literature Review Summary
Themes from Scientific and Grey Literature

General Themes

- Associations among elements of the built environment and physical activity differ between rural and urban areas
- Little is known about rural park use as rural community parks have not been assessed systematically
- There is some conflicting literature (i.e. variance in definitions and measurement and variance in results)
- The built environment influences physical activity behaviors
    - The number of physical activity opportunities (the supply) influences use

Implications for Practice

Based on the literature, trails are a wise public health and economic investment. However, building a trail will not improve trail use (which is necessary for improved public health and economic return) if trail is not accompanied by further built environment planning (accessibility, safety, proximity, etc.) and a well-developed promotional campaign to raise awareness of both the benefits of walking and of the trail itself.

Specific Themes

Topic	Theme	Key Notes
Trail Trends	Trends in use	▪ Increased age → Decreased use ▪ Increased income → Increased use ▪ More education → Increased use ▪ Women use trails more than men ▪ Caucasian/White individuals more likely to walk and use trails ▪ Poor health and low energy correlated with no walking ▪ The more awareness raised about the trail, the more frequent the use ▪ Obese individuals were less likely to use the trail (Librett 2006) ▪ People who already exercise are more likely to use a trail ▪ Of trail users, those who were new users on trails were more dependent on trails as an outlet for physical activity than habitual exercisers ▪ New exercisers travel shorter distances to trails and rate convenience as the primary reason for using them ▪ New users exercise for the same amount of time but travel less distance during that time ▪ New users rate safety, terrain, and convenience as more

		important than habitual users ▪ Modest body of evidence exists on social and environmental determinants of physical activity/walking (Ball 2001)
Trail Development	Trail development considerations	▪ Community engagement and partnership development are key in trail development and implementation processes ▪ Early engagement is important ▪ Focus groups or town hall meetings, interviews, focus groups to gather qualitative data ▪ Possibility of land donations from churches, schools, and local government ▪ Challenges to trail development: change over of key leaders, community volunteers are already involved in many other community activities, trail development is not a priority or concern ▪ Common barriers for trail users: safety, lighting, safe access points ▪ Enablers: access, proximity, near/in a park
	Rural-specific considerations	▪ Parks, trails, and leisure activities may be particularly important in rural areas as walking or bicycling for transportation, active community, or exercise are less likely ▪ Rural park visits are more frequent than urban park visits but are less physically active ▪ More adults versus children frequent rural parks ▪ Most rural park visits took place on Friday, Saturday, and Sunday and in the afternoon hours ▪ Among both rural and urban parks, trail-based parks captured almost two-thirds of the observed visits ▪ Density of amenities in park sites have little relationship to visitation rates and trail-based parks average far more visits per amenity ▪ Findings from urban park and physical activity studies should not be considered representative of rural characteristics ▪ Rate of walking among rural residents is 13% lower than among suburban residents
	Barriers to trail use: these include intrapersonal, interpersonal, and structural constraints	▪ Time, lack of information, money, health, distance from home, interest in using trail, opportunities to use trail, skills, ability, access, crowding ▪ Both external and internal constraints ▪ Perceived neighborhood safety ▪ Women in the rural Midwest: too tired, lack of time, bad weather, no energy, no motivation, don't like to exercise, traffic in community, exercising at job, no one to exercise with, fear of injury ▪ Rural adults in general: weather, traffic, safety/security,

		fear of dogs, possible injury ▪ Lack of amenities (benches, lighting) ▪ Lack of distance (trail not long enough) ▪ Lack of connectivity to destinations ▪ Metropolitan and county sprawl negatively associated with minutes walked
	Enablers to trail use	▪ Trust in neighbors ▪ Aesthetically pleasing environment ▪ Having physically active neighbors ▪ Young age ▪ Safety ▪ Terrain issues ▪ Cleanliness ▪ Novelty ▪ Having a pet to walk with ▪ Width of trail ▪ Proximity to residence ▪ Lack of crowds ▪ Convenience to other facilities and access to services ▪ Neighborhoods with older homes, more aesthetically pleasing environments associated with more walking ▪ Residential density ▪ Connectivity of streets ▪ Mixed land use
Benefits of Trail Development	Trails can be cost effective (Librett 2006)	▪ Cost per trail user was much lower than the economic benefit of physical activity (Wang 2004) ▪ To increase cost-effectiveness, it is recommended to increase number of users (Wang 2004) ▪ Construction cost of limestone chip trail was much lower than concrete surface trails, but the maintenance was not necessary lower (Wang 2004) ▪ Cost of building a trail can vary greatly and fit a variety of budgets (Wang 2004) ▪ Frequent trail users are more willing to pay taxes to expand parks and trails, however, 44% of non-trail users said they would pay taxes for their local government to expand exercise facilities and 36% said they would pay taxes for their community to build parks and trails (Librett 2006)
	Walking can accommodate many as a physical activity opportunity	▪ Various income levels ▪ Various ages ▪ Various cultural groups
	Potential effect of trails on health and behavior	▪ Some studies have demonstrated an increase in physical activity and walking behaviors since beginning to use a trail ▪ Women with a high school education or less may be more likely to increase the amount of walking once

		beginning to use a trail ▪ People of lower SES are more than twice as likely to increase their walking since using a trail ▪ People who report having access to trails are more likely to report engaging in physical activity ▪ Inclusion of trails at parks had the strongest association with physical activity ▪ Increased green space may increase neighborhood social cohesion ▪ Increased green space may improve mental health
	Potential economic impacts	▪ Trails resulted in modest economic gains for trail communities ▪ Every 1 U.S. dollar investment in trails for physical activity led to 2.94 U.S. dollars in direct medical benefit ▪ Building trails is beneficial from a public health perspective ▪ Grey literature: increase property value, increased tourism, increase tax revenue, increase residential and business development
	Other benefits	▪ Permanent community fixture ▪ Improved residents' perceptions of the community
Implementation	Multi-level, tailored health promotion efforts are needed to establish and increase use of the trail. Changing the environment alone, such as through putting in a walking trail, will not change behavior.	▪ Building of a multi-use trail did <u>not</u> demonstrate an increase in physical activity and the trail passed by two schools, shopping areas, apartment buildings, neighborhood subdivisions and had many access points (Evenson 2005). There was no targeted campaign to increase awareness of this trail. ▪ Trail residents did not use the trail after it was built, new residents did not move to the neighborhood because of the trail, and users of the trail come from elsewhere (Burbridge 2008). ▪ Trails can be beneficial but should be one component of a larger plan to improve health and physical activity (Burbridge 2008). ▪ A walking trail can be a low-cost, effective environmental and policy change for improving health ▪ Increased awareness of trails may increase use ▪ Preliminary support was established for a theoretically based communication intervention to promote walking and increase activity (Napolitano 2006) (# of walkers was tripled through a worksite wellness intervention) ▪ The creation of a trail should be a part of a community development plan that includes lights, access points, and overall policy changes ▪ After a short term media campaign, awareness of the trail was slightly increased (Merom 2004)
	Key factors in improving trail	▪ Awareness of existing trails in many intervention communities and levels of use were low

	experience and use	▪ Trail maintenance, markings/signage, information about trail ▪ Consider special health care and accessibility needs ▪ Streetlights, other people exercising, sidewalks ▪ Need to address safety and injury prevention concerns among new users
	Marketing considerations	▪ For full benefits of a trail to occur, targeted promotion efforts are needed – an ecological approach ▪ Mixed research results on whether promoting social and entertainment benefits versus health and exercise benefits of a trail are more effective ▪ Top eight uses of trails in Wisconsin does not include walking ▪ Walking is common among the aging population ▪ Walking clubs were created based on community feedback in one intervention, and used incentives such as water bottles and t-shirts ▪ Populations who walk for exercise are different from those who walk for transportation (Owen 2004) ▪ Park and recreation departments and community groups can have an increasing role in educating about physical activity and ways to become more active – in defining active communities (Henderson 2001) ▪ Other initiatives should be aligned and consulted ▪ Partnerships are critical ▪ Promoting an increase in the number of trail visits to those who have access to trails may be one way to help move people from being irregularly to being regularly active (Librett 2006)
Measurement	Possible methods to measure trail use and perceptions about trails and physical activity	▪ Trail intercept survey ▪ BRFSS physical activity module commonly used in these studies ▪ Electronic counting devices using infrared beam technology (though this was reported as challenging technology to use, as with personal cards – below) ▪ Personal cards that track trail use when swiped ▪ Surveys of frequency of duration and use ▪ Logbooks ▪ Longitudinal telephone surveys ▪ Mapping tools ▪ Self report ▪ Consider measuring community empowerment and other less traditional measures such as process measures and social and physical environmental factors
Educational literature	Outdoor experiential education is recommended for environmental	▪ Lasting impression on students ▪ Some improved academic performance ▪ Improved attitude toward the environment ▪ May be particularly useful for youth with hyperactivity

	education	▪ Barriers: fear/concern about safety, teachers' lack of confidence in teaching outdoors, school curriculum requirements, time, resources and support ▪ Outdoors is a prime source of perceptions→key to cognition ▪ Knowledge gained from experiential learning is foundational to literacy and science learning

Appendix 4: HIA Summary Brief

Health Impact Assessment: Marquette County Ice Age National Scenic Trail Expansion

May 2011

A Collaboration of the WI Division of Public Health and the Marquette County Health Department

Recommendations

1. Develop a health-focused outreach and programming plan for the Ice Age National Scenic Trail.
2. Include health, business, and community groups in the trail development process.
3. Develop and conduct a survey to better understand and prioritize features and amenities of importance to potential trail users.
4. Implement a sustainable plan to monitor trail use.

Project Summary

Health Impact Assessment (HIA) is a tool to include health perspectives in decision-making processes. An HIA was conducted to assess the potential health impacts of the expansion of the Ice Age National Scenic Trail (IAT) on broad determinants of health, such as the built environment, economy, and social connectedness. The expansion of the IAT in Marquette County was planned, however, variations in both the planning and implementation process were considered to better understand how the potential positive health impacts of a walking trail could be enhanced and how potential negative health impacts could be eased. This HIA was the first done in any of the IAT counties. HIA proved to be an effective way to engage partners and to better understand research relevant to community concerns. The HIA served as a way to build partnerships in trail development processes and trail implementation planning. Recommendations from the HIA are currently in the process of occurring or are being considered by target decision-makers and audiences. Once the trail expansion has been completed, the true impact of the HIA can be studied. However, the HIA has already been successful in raising awareness in the county of the many factors that interact to influence health.

HIA: Marquette County Ice Age National Scenic Trail Expansion

Summary of Findings

Health Impact Analysis

Health Outcome/ Determinant	Direction and Extent of Impact	Likelihood of Impact	Distribution of Impact	Quality of Evidence
Physical Activity	▲▲	Possible	Trail users will benefit the most	**
Trail Infrastructure	▲▲▲▲	Likely	All potential trail users will benefit	***
Economic Impact	▲▲▲	Possible	Property owners near the trail and local businesses serving tourists will benefit the most	**
Social Connectedness	▲▲▲	Likely	Trail volunteers and groups providing program based on the trail will benefit the most	***

Severe impact on many = ▲▲▲▲ or ▼▼▼▼
Severe impact for few or small impact on many = ▲▲▲ or ▼▼▼
Moderate impact on medium number = ▲▲ or ▼▼

*** (e.g., many strong studies)
** (e.g., one or two good studies)
* (e.g., no clear studies, but generally consistent with principles of public health)

Conclusions

- Trail expansion will provide 30 additional miles of trail, or about 3.73 times more miles of trail.
- The increased access to a recreational outlet will likely increase physical activity in the county.
- Existing activities and local efforts, as well as strategic trail marketing, will improve the likelihood of positive impacts of trail occurring.
- The expanded trail has the possibility to increase property value around the trail, increase tourism in the county and increase the dollars spent by tourists.
- The trail provides a number of opportunities to enhance social connectedness in the county through programming and volunteer work.
- The above factors, access to recreational outlets, increased economic activity, and enhanced social connectedness are commonly linked to improved health outcomes.
- Project Successes include: outreach to the community (residents, environmentalists, business owners, and educators), collaboration with the National Park Service (key decision-maker), and all key stakeholders (National Park Service, Ice Age Trail Alliance, and the Local Health Department) were key players in shaping final HIA recommendations.