

Michigan Department of Community Health Building Healthy Communities

Cardiovascular Health, Nutrition and Physical Activity Section
Division of Chronic Disease and Injury Control



Final Report: Trails and Parks

Date Issued: February 16th, 2010

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Executive Summary

Michigan's Department of Community Health (MCDH) in collaboration with Building Healthy Communities (BHC) has funded 25 health departments to develop interventions to create and enhance access for physical activity, healthy eating and tobacco free environments. This report provides a detailed analysis on the trail and park projects. Eighteen local health departments from 2007 through 2009 received a total of \$1,041,972 (local, state and federal funding) to plan and implement community-based interventions designed to increase physical activity, consumption of fruits and vegetables and tobacco-free environments among low-income and minority populations. Eleven health departments during the two funding cycles chose to develop or enhance trails in their respective communities to promote physical activity. BHC interventions to promote trail use ranged from: building new trails; extending the distance of current trails; enhancements with trailheads, benches and lighting; trail promotion with signage and building connecting trails between cities. Seven health departments enhanced existing community parks by establishing walking trails within parks or installing new park equipment such as playgrounds. Based on the present findings, Michigan's trails are not used by population subgroups at risk for a variety of chronic diseases linked to physical inactivity (e.g., children, teens and older adults). White, adult, male walkers were most frequently observed on Michigan's trails. Males used the trails for both walking and vigorous activity while females use them primarily for walking. Michigan's trails were perceived to be well maintained and relatively safe. Michigan residents tend to visit trails with someone, and on average spend 1 to 2 hours per visit. Five interventions had significant increases in trail use and included some form of trail promotion. Considering that lack of awareness of trails is a frequently cited barrier to trail use, future BHC funded projects should consider this finding when developing specific program interventions.

Contrary to Michigan's trail profile, significant amounts of minorities were observed using parks for physical activity in Michigan. Minorities are often less active than white youth and white adults. Therefore, the enhancement of parks should be considered an appropriate intervention approach among Michigan residents. Children and teens were the primary users of Michigan's parks. Playgrounds were a popular area for child and teen physical activity in Michigan. Male and female youth participated in significant amounts of vigorous physical activity in Michigan's parks. Interventions including the enhancement of trails within parks led to increases in park use. Park users spent between 1 to 2 hours per visit in Michigan's parks and visited their respective park 4 or more times per week. Michigan's parks were perceived to be well maintained and safe and secure. Similar to the trail findings, five parks had significant increases in park use following the intervention. It is important to note, that many of the parks with observable increases in use implemented park enhancements that included the building, extension of and/or the enhancement of current trails within parks. In addition, playgrounds were also heavily used areas in Michigan's parks.

The progress in policy and environmental changes that BHC has implemented highlights Michigan as a national leader in this area. The trail and park expansions and enhancements supported by local health departments, local health coalitions and Michigan's Department of Community Health provide training, support and capacity to increase the physical activity levels of Michigan residents.

Background on Building Healthy Communities

Seven out of the ten leading causes of death in Michigan are attributable to chronic ailments such as cardiovascular disease, stroke, cancer, diabetes, and tobacco dependence. Michigan is currently ranked 13th worst in the nation in mortality from cardiovascular disease and has the ninth highest rate of obesity in the US. Chronic diseases are not only expensive to the health of the state they also cost Michigan billions of dollars annually in medical expenses and lost wages due to illness and premature death.

Three risk factors are estimated to play a role in nearly 70% of all chronic diseases: poor nutrition, inadequate physical activity, and tobacco use. The *Building Healthy Communities* (BHC) initiative addresses these three risk factors in Michigan using a population-based approach grounded in the theoretical framework of the Social Ecological Model (http://www.cdc.gov/nccdphp/dnpa/obesity/state_programs/se_model.htm) to prevent chronic disease and improve the health of residents. Local health departments are funded to plan, implement, and evaluate evidence-based interventions with a coalition of local partners that focus on changing the policies and environments in their communities to shape the ability of residents to engage in healthy lifestyle behaviors. Changing community environments and policies related to these behaviors will help to change social norms and reduce the acceptability of these behaviors. Through improving access to healthy foods, opportunities for physical activity, and developing policies to reduce tobacco use and secondhand smoke exposure, the BHC initiative aims to increase the number of residents engaging in healthy behaviors and ultimately reduce chronic disease morbidity and mortality in Michigan.

Michigan's Department of Community Health (MDCH) in collaboration with BHC has funded 25 health departments to develop interventions to create and enhance access for physical activity, healthy eating and tobacco free environments. This report focuses on projects and interventions designed to enhance access for physical activity in Michigan's parks and trails. Grantees have completed or enhanced nearly 71 miles of trail and improved numerous parks since the inception of this initiative. Eighteen local health departments from 2007 through 2009 received \$1,041,972 to plan and implement community-based interventions designed to increase physical activity among low-income and minority populations. The State Health Department provided training and technical assistance to local health department staff on community assessment, planning, and implementing evidence-based interventions. Health departments throughout Michigan were encouraged to engage a diverse group of partners from their community to assist with the project and provide matching funding to promote community sharing of project costs and sustainability. Health departments and the coalitions completed an environmental assessment of physical activity prior to developing interventions to determine target areas and opportunities for intervention. Based on these findings and input from residents, coalitions applied for funding to implement environmental interventions designed to increase physical activity.

Eleven health departments during the two funding cycles chose to develop or enhance trails in their respective communities to promote physical activity. BHC interventions to promote trail

use ranged from: building new trails; extending the distance of current trails; enhancements with trailheads, benches and lighting; trail promotion with signage and building connecting trails between cities. Seven health departments enhanced existing community parks by establishing walking trails within parks or installing new equipment such as playgrounds. Health departments were encouraged to promote these changes within their community to increase awareness of the new developments through media, promotion to clients participating in relevant health department programs, and by providing fun, educational opportunities within recreational settings to increase use.

The Importance of Trails and Health

Physical activity is a complex behavior, influenced by many factors. Utilizing environmental approaches to promote and encourage physical activity can complement frequently used behavior modification strategies¹⁻³. Over the past decade, a greater emphasis has been placed on ecological models which assume multiple levels of influence on physical activity and recognize the impact of public policy, social systems, and physical environments⁴⁻⁸. Accessibility to no-cost recreational facilities, aesthetic appeal and the designs of buildings, urban and suburban developments, and transportation systems and trails have been identified as elements related to physical activity promotion⁹⁻¹¹.

The Center for Disease Control and Prevention's Task Force on Community Preventive Services recommends environmental interventions that include access to trails to promote physical activity¹². Recreational trails have been specifically identified as environmental supports for physical activity¹³⁻¹⁸. Reed and colleagues¹⁷ recently examined the activity behaviors in 25 parks and found that trails were the most frequently used activity setting. Sixty-percent and 81% of male and female adults, respectively, observed in all 25 parks were using trails. Greater use of environmental approaches, such as the development of and increase access to trails, has been frequently advocated by researchers and policy makers alike to promote regular physical activity^{13-15, 17}. Librett and colleagues¹⁹ examined the physical activity levels among trail users in the US and found that people who reported using trails at least once a week were twice as likely than people who reported rarely or never using trails to meet current physical activity recommendations.

The Importance of Parks and Health

Recent policy initiatives, such as the *National Recreation and Park Association's: Step Up to Health-It Starts in the Parks* and Trust for Public Land's: *The Health Benefits of Parks* were developed to encourage and promote regular physical activity in public recreational facilities to help reduce the incidence of obesity. Community recreational facilities like parks have also been identified as environmental supports for physical activity²⁰. Most parks have a variety of activity settings (e.g., tennis courts, trails, playgrounds, playing fields, etc.) designated to provide a multitude of opportunities to participate in physical activity²⁰. A conceptual model by Bedimo-Rung and colleagues²¹ highlighting the importance of parks to physical activity and public health, advocates the importance of objectively assessing physical activity in 'open spaces' due to the limited data available quantifying physical activity²¹ in these areas.

Measurement of Trail/Park Usage

The BHC parks and trails evaluation process was designed to obtain objective quantifiable information about usage, including demographic characteristics of trail and park users and assessment of users' physical activity levels. Although the development of trails and parks remains an emerging strategy to intervene on the risky behavior of inactivity, studying the multitude of trail and park user behaviors continues to be difficult due to the lack of objective measures of activity in specific ecological contexts²². To successfully measure the contextual elements perhaps impacting user patterns, objective methodologies in concert with survey methods should be utilized. This information will be collected through two modes: (1) systematic observation using momentary time sampling techniques and (2) intercept surveys. The purpose of the overall evaluation is to (a) determine whether key target populations in Michigan are utilizing trails and/or parks to increase their physical activity levels; and (b) obtain data on which to base future environmental interventions on trails and/or parks funded through BHC initiatives.

Direct Observation

The System for Observing Play and Recreation in Communities (SOPARC)²² was the instrument used to assess trail and park user demographics and physical activity behaviors. Validity of SOPARC physical activity codes has been established through heart rate monitoring²³⁻²⁴.

Provided measures of persistent behaviors (i.e., physical activity) are taken at frequent intervals, momentary time sampling (i.e., specific time episodes throughout the day-e.g., 7:30am, 12:30pm, 3:30pm, 6:00pm) techniques have been shown to be valid and reliable²²⁻²⁴. MDCH recognizes the importance of providing additional structure to the BHC evaluation process. Thus, using standardized tools and protocols, MDCH and BHC are able to aggregate data across the many BHC projects to evaluate the impact of the entire initiative. SOPARC was selected as the standard process to measure trails and parks because i) it is a valid and reliable tool²²⁻²⁴; and ii) it will assist in obtaining useful information on Michigan's trail and/or park users.

Intercept Surveys

A brief (5 to 10 minutes) valid and reliable survey²⁵ comprised of 16/17 interviewer administered questions was used to assess perceptions of Michigan's trails and/or parks. The survey was designed to provide practitioners and researchers the ability to collect information at various types of community multi-use trails (e.g., rail-trails, loops within parks, etc.) and parks from a wide variety of users. The survey included questions related to patterns of trail use for both recreational and transportation purposes. Specific items concerning the length of time using a trail and/or spent at a park, origin (e.g., home or work) when accessing a trail and/or a park, distance and time from home and work to a trail and/or a park, mode of transportation to a trail and/or a park, and the usual reason for using a trail and/or a park (e.g., recreational physical activity or to travel) were included. Five separate questions for recreational and transportation activity about frequency of trail and/or park use over the past 7 days and the past 4 weeks, duration and type of physical activity performed on a trail and/or at a park, and distance traveled on a trail were also asked. Four additional questions focused on whether the respondent visited a trail and/or a park alone or with someone else (e.g., friend, family and/or pet), perceptions of trail

and/or park maintenance and safety, and perceived impacts of trail and/or park use on respondent physical activity. The survey also included demographic items such as: age, gender, race, ethnicity, and highest educational level attained.

Direct Observation

Results (Trails Only)

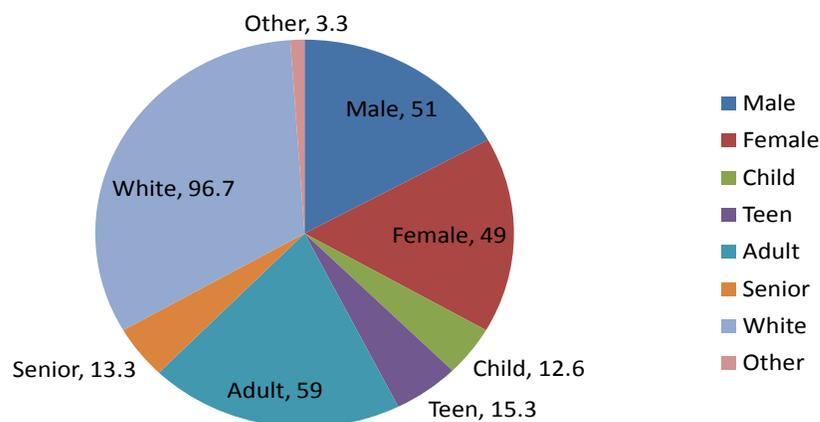
Overview of Demographic Trail Findings

To date, (N=7,125) trail users were observed on 17 of Michigan's trails between 2007 and 2009. Fifty-one percent of trail users were male and 49% were female. The vast majority of trail users were adults. Few minorities were observed using Michigan's trails. Approximately 97% of trail users observed were white. Frequency and percent of trail users by demographics are listed in table one and figure one.

Table 1: Demographics of Michigan's Trail Users

		<i>Frequency (N)</i>	<i>Percent</i>
Gender	Male	3638	51.0%
	Female	3487	49.0%
Age	Child	896	12.6%
	Teen	1089	15.3%
	Adult	4192	59.0%
	Senior	950	13.3%
Ethnicity	White	6876	96.7%
	Other	238	3.3%

Figure 1: Demographic Variables Expressed in Percents



Trail Use by Gender

Fifty-one percent (N=3638) of Michigan trail users were male and 49% (N=3487) were female. These findings were consistent with current census estimates²⁶ for Michigan. However, observing fewer females using Michigan's trails is inconsistent with some previous published trail studies. Brownson and colleagues¹⁰ found that women were more likely than men to report using walking trails. In addition, Moore and colleagues²⁷ reported that adult women comprised at least 50% of users of three trails in Florida, California and Iowa.

Identifying the physical activity patterns (e.g., walking, vigorous intensity) of individuals in 'open' environments such as recreational trails provides specific objective data to develop user profiles that can perhaps lead to effective physical activity interventions. Trail users in Michigan tend to be white, male, adult walkers. Although most Americans are not regularly active, walking is the most common form of activity²⁸⁻²⁹. Several previous epidemiological studies show that approximately 34% of the American population reports that they are regular walkers and 46% are occasional walkers²⁹. Although white, male adults were most frequently observed using Michigan's trails, a number of other groups (e.g., children, teens and seniors) were also observed, and if used regularly, could contribute to sufficient physical activity to enhance health of all Michigan residents. For instance, 31% (N=2201) of all females observed on the trails were adults. Frequency and percentages of trail users for age and gender are listed in table two.

Table 2: Frequency and Percent of Total Trail Users for Age by Gender

		<i>Gender</i>	
		<i>Female</i>	<i>Male</i>
Age	Child	392 5.5%	497 7.0%
	Teen	434 6.1%	655 9.2%
	Adult	2201 31.0%	1971 27.8%
	Senior	448 6.3%	502 7.1%

Michigan females tended to use the trails for walking (62%) primarily, while significant percentages of males were observed walking (45.7%) or participating in vigorous activity (42.5%) on the trails. One plausible reason for the minor gender disparity observed on Michigan trails could be the type and number of organized activities offered on the trails. More structured activities on the trails (i.e., walking/running/biking groups) could have been offered and were more appealing to men and this, perhaps, contributed to more males using the trails. This was outside the realm of the BHC initiative nonetheless, it warrants consideration and further investigation.

Trail Use by Age

The vast majority of Michigan trail users were adults. This finding is consistent with previous trail studies^{7, 16, 20, 30}. Relatively few children and teens were observed using Michigan's trails. Unfortunately, only 28% of all Michigan trail users were children and teens. A significant percentage of American youth do not participate in enough physical activity to receive health benefits³¹⁻³³. Furthermore, physical inactivity has contributed to an unprecedented epidemic of childhood obesity that is currently plaguing the US³²⁻³³. Of children age 5 to 10 who are overweight, 61% have one or more cardiovascular disease risk factors, and 27% have two or more³⁴. The percentage of young people 6 to 19 years old who were overweight or obese has more than doubled in past 20 years³⁵. Current data suggests that more than 33% of adolescents, which equates to about 25 million youth are overweight or obese^{33, 36}.

Having accessible, convenient and environmentally stimulating places to engage in physical activity and other recreational activities can possibly impact youth physical activity patterns and perhaps reverse current obesity trends³⁷⁻³⁸. Examples include improving access to facilities through collaboration with local health, recreation, and parks departments, along with the development of interventions to promote regular activity³⁷⁻³⁹. Identifying the varying places

youth choose to engage in physical activity is necessary to better understand factors impacting their decisions to use a particular facility^{37-38, 40-42}.

In addition to observing few children and teens on Michigan's trails, few older adults were observed as well. Approximately 13% of all trail users were seniors. Research clearly documents that participation in regular physical activity can prevent and reduce risks linked to aging^{9,12}. Efforts to promote trail use among this cohort are needed and future BHC initiatives should consider focusing on this target population.

Table 3: Total Trail Users for Gender by Activity Intensity and Age

<i>Gender</i>			<i>AGE</i>				<i>Total</i>
			<i>Child</i>	<i>Teen</i>	<i>Adult</i>	<i>Senior</i>	
Female	Activity Level	Sedentary	87	44	109	41	281
			2.5%	1.3%	3.1%	1.2%	8.1%
	Walking		205	219	1415	327	2166
			5.9%	6.3%	40.8%	9.4%	62.4%
	Vigorous	100	171	674	80	1025	
	2.9%	4.9%	19.4%	2.3%	29.5%		
Total			392	434	2198	448	3472
			11.3%	12.5%	63.3%	12.9%	100%
Male	Activity Level	Sedentary	110	102	167	47	426
			3.0%	2.8%	4.6%	1.3%	11.8%
	Walking		226	186	938	303	1653
			6.2%	5.1%	25.9%	8.4%	45.7%
	Vigorous	161	367	859	151	1538	
	4.5%	10.1%	23.7%	4.2%	42.5%		
Total			497	655	1964	501	3617
			13.7%	18.1%	54.3%	13.9%	100%

Interventions to Promote Trail Use

BHC funded interventions to promote trail use ranged from: building new trails; extending the distance of current trails; enhancements with trailheads, benches, signage and lighting; trail promotion with signage and building connecting trails between cities. Significant increases in trail use were identified following five interventions. For example, the Gladstone Trail in Delta County more than doubled trail use following their intervention of providing signage and benches to promote trail use (206 vs. 477). However, it should be noted that two trails had a significant decrease in trail use post intervention. The remaining 10 trails evaluated had no significant increases and/or decreases in trail use following their specific interventions. Trails

with significant increases and/or decreases in usage following their intervention are listed in table four.

Table 4: Significant Increases and/or Decreases in Trail Use Post Intervention

<i>Name of Trail</i>	<i>County</i>	<i>Before Intervention Trail Count</i>	<i>Type of Intervention</i>	<i>Post Intervention Trail Count</i>
¹ Gladstone INCREASE	Delta	Sedentary: 9 Walking: 142 Vigorous: 55 <u>Total:206</u>	Extend length of trail; Placement of benches and signage on trail.	Sedentary: 98 Walking: 226 Vigorous: 153 <u>Total:477</u>
¹ Manistee Riverwalk INCREASE	District #10: City of Manistee	Sedentary: 50 Walking: 117 Vigorous: 26 <u>Total:193</u>	Enhanced two routes of the Riverwalk by adding signage for trail.	Sedentary: 80 Walking: 246 Vigorous: 47 <u>Total:373</u>
¹ Iron Ore Heritage Trail (Negaunee Trail Head) INCREASE	Marquette	Sedentary: 7 Walking: 111 Vigorous: 96 <u>Total:214</u>	Extend trail an additional five miles to connect cities of Negaunee and Ishpeming; Enhance trail with signage.	Sedentary: 16 Walking: 138 Vigorous: 227 <u>Total:381</u>
¹ Iron Ore Heritage Trail (Ishpeming Trail Head) INCREASE	Marquette	Sedentary: 4 Walking: 61 Vigorous: 103 <u>Total:168</u>	Extend trail an additional five miles to connect cities of Negaunee and Ishpeming; Enhance trail with signage.	Sedentary: 10 Walking: 116 Vigorous: 202 <u>Total:328</u>
¹ Big Rapids Riverwalk (Mecosta) INCREASE	District #10: Mecosta	Sedentary: 15 Walking: 102 Vigorous: 47 <u>Total:164</u>	Enhance Riverwalk Trail in City of Big Rapids by adding signage to trail.	Sedentary: 26 Walking: 213 Vigorous: 84 <u>Total:323</u>
¹ Kalkashka DECREASE	District #10	Sedentary: 10 Walking: 90 Vigorous: 7 <u>Total:107</u>	NEED INFORMATION	Sedentary: 0 Walking: 30 Vigorous: 11 <u>Total:41</u>
¹ Northside Pathway Trail	Menominee	Sedentary: 1 Walking: 78	Extend trail.	Sedentary: 1 Walking: 37

DECREASE		Vigorous: 80 <u>Total:159</u>		Vigorous: 50 <u>Total:88</u>
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[†]Denotes statistical significance.

Lack of Awareness of Trails

Lack of awareness is a frequently cited barrier for not using a trail⁸. BHC funded numerous effective trail interventions to promote trail use by adding signage and promotion. Brownson et al.² examined trail use in 12 rural counties in Missouri and discovered that of the individuals who had access to walking trails, close to 40% reported having used the trails to engage in activity. To stimulate the development of walking behavior on recreational trails, policy changes at the local level in Michigan need to continue to be implemented recognizing the impact of physical environmental supports for physical activity behavior. Fortunately, Michigan's BHC initiative understands the importance of environmental policy and its impact on physical activity. Research documents that individuals who reside in an area that have access to a trail, and those individuals are aware of its existence will, perhaps, be more likely to engage in trail use in comparison to those individuals who do not^{8, 43}. BHC should be commended for funding projects promoting trail awareness to increase use. The findings from this report clearly document significant increases in usage on five trails funded by BHC when signage and promotion was part of the intervention. Perhaps BHC policy makers, along with all health departments considering future projects to promote trail use should require promotion and awareness campaigns as part of the intervention.

Trail Use by Ethnicity and the Role of Awareness and Accessibility

Results from the present evaluation of Michigan trails are not consistent with previous findings, considering that the vast majority of trail users were white. Less than 4% of all Michigan trail users were minorities. Eyler and colleagues²⁹ revealed that among racial/ethnic groups, whites were more likely to be classified as regular walkers (36.1%) compared with African American (31.5%) and other races/ethnicities (29.9%). Interestingly, the relative prevalence of walking on trails is higher among African Americans and other ethnic groups when compared to regular and occasional white walkers²⁹. Wilson and colleagues⁴⁴ examined environmental variables (i.e., perceptions of access for physical activity) impacting the physical activity patterns of individuals residing in low and high SES areas and found that the low (vs. high) SES group reported lower perceptions of access to public recreation facilities⁴⁴. It may be that persons residing in low SES areas near Michigan's trails perceived a lack of, or more difficult access to trails. Awareness and perception of access among residents living near trails in Michigan, especially of non-white and low SES residents, should be explored to determine if countermeasures need to be implemented to increase use of trails by these groups.

Whites participated in considerably more vigorous physical activity on the trails than minorities. This finding is consistent with current literature^{28-29, 45-46}; however, the reason for this discrepancy is unknown. Furthermore, as mentioned previously less than 4% of trail users were minorities limiting meaningful comparisons. Additional information obtained from the subsample of participants who were interviewed indicated the vast majority of adults used the

trails for leisure, recreation or exercise with only a few (<1%) using any of the Michigan trails for transportation-related activity. Therefore, any difference in purpose of use does not seem to be the reason for the dissimilarity in physical activity patterns of white and minority users. Lack of awareness of recreational facilities, like trails are frequently cited barriers among minorities⁴⁶. A study examining the geographic and social distribution of physical activity facilities revealed that lower SES and high minority block groups of adolescents had reduced access to facilities and were associated with a decrease in activity and increased overweight⁴⁷. The small percentage of minority trail users observed and/or interviewed on Michigan trails warrants future investigation of the racial disparity of users identified.

Temperature and Trail Use

The majority of male and female trail users were observed using the trails when the temperatures were above 60 degrees, Fahrenheit. Approximately, 80% of users (N=5336) were observed when the ambient temperature was between 61 and 90 degrees. The frequency and percent of trail users for males and females by temperature are listed in table five.

Table 5: Frequency and Percent of Trail Users for Changes in Temperature

		Temperature in Degrees Fahrenheit					Total	
		<40	40-50	51-60	61-70	71-80		81-90
Gender	Female	43	173	417	913	1443	284	3273
		.6%	2.6%	6.2%	13.6%	21.5%	4.2%	48.7%
	Male	101	238	407	899	1499	298	3442
		1.5%	3.5%	6.1%	13.4%	22.3%	4.4%	51.3%
Total		144	411	824	1812	2942	582	6715
		2.1%	6.1%	12.3%	27.0%	43.8%	8.7%	100%

Direct observation of recreational trails can objectively measure both user and environmental contextual variables (i.e., temperature). This method provides contextually rich information that can be useful in designing interventions to promote leisure-time activity. This type of methodology can provide opportunities to account for environmental variability as potentially confounding factors impacting trail use²⁰. Reed and colleagues²⁰ examined trail use with direct observation and found that ambient air temperature was related to trail use. As temperature increased the number of walkers decreased. These findings suggest that ongoing observation of trail use is essential because this type of information can perhaps facilitate a better understanding of the important environmental and contextual elements impacting trail use⁴⁹.

Intercept Survey

Results (Trail)

The trail survey was a brief interviewer-administered instrument designed to collect information on various community multi-use trails. Eight-hundred and seventy six (N=876) respondents

completed the survey during evaluation periods from 2007-2009. All respondents had to be over the age of 18 to be surveyed. In table six, the **MOST** frequently cited response for 15 questions are listed for the two funding cycles (the question asking respondents to provide nearest two cross streets to their residence was omitted and not included in the analysis). Many of the intercept survey results were consistent with direct observation findings*.

Approximately 63% of survey respondents between 2007 and 2009 were ‘walking’ when asked to complete the survey. The majority of respondents were visiting the trail ‘with others’ (57%; N=493). Trail users reported spending ‘between 1 and 2 hours’ on the trail per visit. In addition, 74% (N=639) of all respondents believed the maintenance of the trails was ‘excellent’.

Approximately 56% of all respondents reported that the safety and security along the trails was ‘excellent’. Although, ‘excellent’ was the most cited response, 34% of respondents indicated that the safety and security of the trails was either ‘good’, ‘fair’ or ‘poor’. It would be beneficial to interview female non-users from nearby neighborhoods to obtain their perceptions of safety-related issues pertaining to the trails as previous research indicates that safety is a concern and potential barrier to physical activity for many females^{9,11}.

Current research examining influences of individual and neighborhood level characteristics on the perceptions of the neighborhood as an appropriate area to engage in physical activity in urban Missouri revealed that African Americans perceived their neighborhoods as less safe and less esthetically pleasing for physical activity in comparison to whites, regardless of neighborhood racial composition². Results from the Centers for Disease Control and Prevention Neighborhood Safety and Prevalence of physical activity report⁴⁸ found that 12,750 males and females over the age of 18 showed that perceptions of unsafe neighborhoods were associated with the inactivity patterns of respondents. Approximately 75% of Michigan survey respondents were 35 years of age or older. Furthermore, 93% of respondents were white, consistent with Michigan’s trail direct observation findings*.

Survey respondents tended to be female which is consistent with previous research examining the demographics of trail users. However, this finding was not consistent with the direct observation data. Respondents used the trail primarily for exercise or recreation (89%; N=762); while few respondents used Michigan’s trails for transportation purposes. Frequency and percent of most frequently cited response are listed in table six.

Table 6: Frequency and Percent of Most Frequently Cited Survey Response

Number	Survey Question	Funding Cycle Year	Most Frequently Cited Response	Frequency (of 100% for 2007-2009)
1	Identify the physical activity respondent is doing.	2007-2008	*Walking	219(25%)
		2008-2009	*Walking	335(38%)
1a	Identify who the person is on the trail	2007-2008	With others	196(23%)
		2008-2009	With others	297(34%)

	with.			
2	Identify gender.	2007-2008 2008-2009	Female Female	204(23%) 289(33%)
3	'When was the first time you used this trail?	2007-2008 2008-2009	More than a year ago More than a year ago	97(11%) 135(16%)
4	Where are you usually coming from when you use this trail?	2007-2008 2008-2009	Home Home	291(34%) 452(52%)
4a	'How much time does it usually take to get to this trail from your home?	2007-2008 2008-2009	Less than 15 minutes Less than 15 minutes	238(29%) 355(44%)
4b	How much time does it usually take to get to this trail from your work?	2007-2008 2008-2009	Less than 15 minutes Less than 15 minutes	100(26%) 111(29%)
5	'How do you usually get to this trail?	2007-2008 2008-2009	Walking Walking	133(16%) 176(21%)
6	What is your usual reason for using this trail?	2007-2008 2008-2009	Exercise or do recreational physical activity Exercise or do recreational physical activity	325(38%) 437(51%)
6a	During the past 7 days (including today), how many days have you used this trail for exercise or recreational purposes?	2007-2008 2008-2009	One One	105(13%) 167(20%)
6b	'What exactly do you usually do when you are on this trail for exercise or recreational purposes?	2007-2008 2008-2009	*Walk *Walk	223(26%) 294(34%)
6c	'How much time do you usually spend on the trail per visit	2007-2008 2008-2009	Between 1-2 hours Between 1-2 hours	89(11%) 156(18%)

	when you use it for exercise or recreational purposes?			
6d	During the past 7 days (including today), how many days have you used this trail for transportation purposes (to get somewhere)?	2007-2008 2008-2009	One One	28(10%) 25(9%)
6e	What activity do you usually do when you are on this trail for transportation purposes?	2007-2008 2008-2009	*Walk *Walk	51(20%) 62(24%)
6f	How much time do you usually spend on the trail per visit when you use it for transportation purposes?	2007-2008 2008-2009	Less than 15 minutes Less than 15 minutes	29(14%) 25(12%)
7	Who are you usually with when you use this trail?	2007-2008 2008-2009	Family Family	94(11%) 112(13%)
8	In your opinion, the maintenance of the trail is EXCELLENT, GOOD, FAIR or POOR?	2007-2008 2008-2009	EXCELLENT EXCELLENT	275(32%) 364(42%)
9	In your opinion, the safety and security along the trail is EXCELLENT, GOOD, FAIR or POOR?	2007-2008 2008-2009	EXCELLENT EXCELLENT	212(25%) 271(31%)
10	How did you find out about this trail?	2007-2008 2008-2009	Word of mouth Word of mouth	139(16%) 173(20%)
11	What do you like most about this trail?	2007-2008	All of the above: free place to exercise;	7(1%)

		2008-2009	location/convenience; design; beauty, good surface; safety, other All of the above: free place to exercise; location/convenience; design; beauty, good surface; safety, other	71(8%)
12	What is your age?	2007-2008 2008-2009	35+ 35+	260(31%) 363(44%)
13	Are you Hispanic or Latino?	2007-2008 2008-2009	No No	286(35%) 483(60%)
14	[†] What is your race?	2007-2008 2008-2009	*White *White	303(37%) 463(56%)
15	What is the highest grade in school you have completed?	2007-2008 2008-2009	College graduate College graduate	100(12%) 149(18%)

*Denotes similar finding compared to direct observation results.

[†]Denotes significant difference in respondents' most frequently selected answer between evaluations.

Direct Observation Results (Parks Only)

Overview of Demographic Park Findings

Although leisure research over the past two decades has provided a voluminous amount of information on the benefits of parks (i.e., social, psychological, economical, etc.) few resources have focused specifically on the role of parks and physiological health outcomes^{17, 21, 50}.

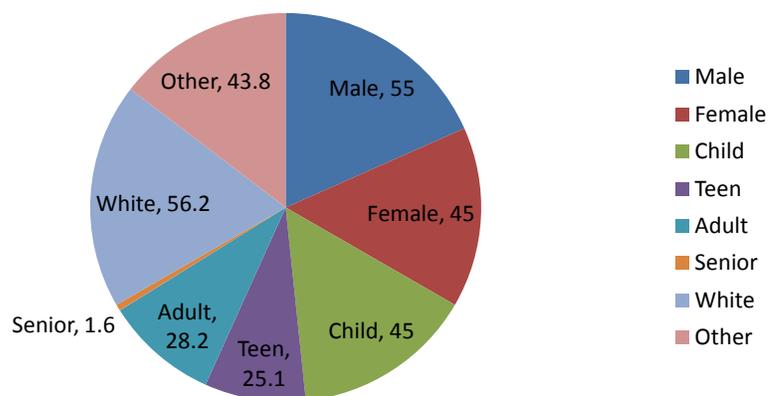
Particularly, leisure research has not focused enough attention on the link between parks and physical activity intensity (e.g., sedentary, moderate, vigorous)^{17, 21, 50}. To date, (N=4137) users were observed in 14 of Michigan's parks. More males were observed in the parks (N=2369; 55%) than females. The largest number of park users were children (N=1397; 45%), followed by adults and teens. More whites were observed at the parks than minorities (56.2% vs. 43.8%). Frequency and percent of trail users by demographics are listed in table seven and illustrated in figure two.

Table 7: Demographics of Michigan Park Users

		<i>Frequency (N)</i>	<i>Percent</i>
Gender	Male	2369	55%
	Female	1944	45%
Age	Child	1937	45%
	Teen	1082	25.1%
	Adult	1216	28.2%

	Senior	71	1.6%
Ethnicity	White	2333	56.2%
	Other	1816	43.8%

Figure 2: Demographic Variables Expressed in Percents



Park Use by Gender

Fifty-five percent (N=2369) of Michigan park users were male and 45% (N=1944) were female. These findings are not consistent with current census estimates²⁶ for Michigan. Census estimates reveal that approximately 51% of Michigan residents are male and 49% are female. Cohen and colleagues⁵⁰ recently examined how parks contributed to physical activity in urban areas using SOPARC and reported a similar finding. Males, in their study used the parks more frequently than females.

Table 8: Frequency and Percent of Total Park Users for Age by Gender

		<i>Gender</i>	
		<i>Female</i>	<i>Male</i>
Age	Child	898 20.9%	1036 24.1%
	Teen	338 7.9%	744 17.3%

Adult	674 15.7%	542 12.6%
Senior	29 .7%	42 1.0%

Current physical activity data suggests that adult women are less active than adult males⁵¹; however, perhaps the activity settings at the parks observed in Michigan were not as appealing to women. Another plausible reason for the gender disparity observed could be related to the type and number of organized activities offered at the individual parks. More structured activities could have been offered for men and this finding contributed to more males being observed. This was outside the scope of the BHC initiative considering BHC did not account for any organized activities, nonetheless it warrants mention.

Park Use by Age

Approximately 67% (N=1179) of females observed using parks were children and teens. Similarly, male children and teens comprised the majority of park users (76%; N=1717). Few female and male seniors were observed using Michigan's parks. Community parks are often perceived as convenient settings to engage in physical activity⁵²⁻⁵⁴. A recent study by Grow and colleagues³⁷ found that public parks were one of the most commonly used recreation facility by children and adolescents. Epstein and colleagues⁵⁵ determined that greater access to parks was associated with greater physical activity among youth. Cohen and colleagues⁵⁰ specifically examined associations between particular activity settings in both urban and rural parks and physical activity intensity using direct observation methods discovered that approximately 33% of people observed were children. Considering current public health recommendations related to the importance of moderate and vigorous physical activity, and their link to obesity prevention, it is additionally important to identify the most used activity settings within parks along with the intensity of physical activity observed among youth^{37,50}. Parks have a variety of activity settings (e.g., tennis courts, trails, playgrounds, playing fields, etc.) that provide a multitude of opportunities to participate in physical activity, yet we know little about specific features related to physical activity in parks^{53,55}. Eyster and colleagues²⁹ examined the epidemiology of walking in the US and found that regardless of walking status, people in younger age categories used parks more than people in older age groups. This finding is consistent with Michigan's user profile for park use.

Older adults comprised less than 2% of all park users. This finding is consistent with research that found younger individuals use parks more than older individuals²⁹. By the year 2030 the number of individuals age 65 and over will reach 70 million in the US and individual's 85 years of age and older will be the fastest growing cohort⁵⁷. It is readily accepted that physical activity older populations is an effective modality to reduce and/or prevent a host of chronic diseases and functional declines linked to aging⁵⁷. Considering very few park users were older adults is concerning considering the current census estimates for Michigan reveal that 13% of residents are age 65 and older²⁶. Furthermore, research clearly documents that participation in regular

physical activity can improve the cognitive ability and executive functioning of the elderly. The executive function hypothesis originated in the field of gerontology⁵⁸⁻⁶⁰ is based on the idea that the largest improvements in cognition-the ability to plan, initiate and carry-out activity sequences that comprise goal directed behavior-are due to exercise and physical activity⁶¹. A 2009 paper by Prochaska and colleagues⁶² revealed that walking behavior was associated with the preservation of cognitive functioning in older populations. Considering walking is the most desired form of activity among the elderly^{29,45} and the health benefits associated with regular physical activity among older adults, Michigan's BHC initiative needs to expand its efforts to promote park use among this cohort. Cohen and colleagues⁶³ argue that environments that are physically challenging and provide opportunities for competition could be more attractive to youth than to seniors. Older individuals, they argue may avoid situations where they could fall or be injured and thus prefer more predictable environments that provide less vigorous activity. Furthermore, physical features may be less important than social factors in attracting seniors to recreational settings⁶³. Perhaps few seniors were observed at Michigan's parks because they lacked opportunities for social interaction. Frequency and percent of park users for activity intensity and age are listed in table nine.

Table 9: Total Park Users for Gender by Activity Intensity and Age

Gender			AGE				Total
			Child	Teen	Adult	Senior	
Female	Activity Level	Sedentary	117 6.3%	102 5.5%	287 15.5%	10 .5%	516 27.8%
		Walking	291 15.7%	131 7.1%	260 14.0%	18 1.0%	700 37.8%
		Vigorous	440 23.7%	98 5.3%	98 5.3%	1 .1%	637 34.4%
		Total	848 45.8%	331 17.9%	645 34.8%	29 1.6%	1853 100%
Male	Activity Level	Sedentary	117 5.1%	95 4.2%	185 8.1%	15 .7%	412 18.0%
		Walking	363 15.9%	210 9.2%	239 10.5%	23 1.0%	835 36.6%
		Vigorous	516 22.6%	416 18.2%	101 4.4%	4 .2%	1037 45.4%
		Total	996 43.6%	721 31.6%	525 23.0%	42 1.8%	2284 100%

Interventions to Promote Park Use

BHC funded interventions to promote increases in park use were identified following five interventions. For example, Parkridge Park in Washtenaw County more than tripled park use following their intervention (152 vs. 558). However, it should be noted that two parks had significant decreases in use post intervention. The remaining parks had no significant increases and/or decreases in park use post intervention. Parks with a significant increase and/or decrease in usage following their intervention are listed in table ten.

Table 10: Significant Increases and/or Decreases in Park Use Post Intervention

<i>Name of Park</i>	<i>County</i>	<i>Before Intervention Park Count</i>	<i>Type of Intervention</i>	<i>Post Intervention Park Count</i>
¹ Gladstone INCREASE	Delta	Sedentary: 29 Walking: 9 Vigorous: 120 <u>Total:158</u>	Extend length of trail in the park; Placement of benches and signage on trail in the park.	Sedentary: 88 Walking: 28 Vigorous: 255 <u>Total:371</u>
¹ Parkridge INCREASE	Washtenaw	Sedentary: 64 Walking: 87 Vigorous: 1 <u>Total:152</u>	Improve and enhance park by replacing 7 pieces of playground equipment, installing 3 bike racks, putting down wood chips, paving a .25 mile walking path and adding signage to the path.	Sedentary: 137 Walking: 345 Vigorous: 76 <u>Total:558</u>
¹ Benjamin Davis INCREASE	Ingham	Sedentary: 4 Walking: 13 Vigorous: 5 <u>Total:22</u>	Implement neighborhood specific non-motorized transportation plans and safety improvement plans.	Sedentary: 2 Walking: 62 Vigorous: 21 <u>Total:85</u>
¹ Hunter INCREASE	Ingham	Sedentary: 17 Walking: 47	Improve safety and increase	Sedentary: 5 Walking: 87

		Vigorous: 15 <u>Total:79</u>	usability of park through installation of benches along a half mile walking path, removal of brush and installation of lighting.	Vigorous: 16 <u>Total:108</u>
[†] Richland INCREASE	Kalamazoo	Sedentary: 50 Walking: 22 Vigorous: 50 <u>Total:122</u>	Installed walking path around perimeter of the park.	Sedentary: 2 Walking: 72 Vigorous: 73 <u>Total:147</u>
[†] Wilson DECREASE	Kalamazoo	Sedentary: 33 Walking: 15 Vigorous: 121 <u>Total:169</u>	Park equipment addition and park promotion.	Sedentary: 16 Walking: 75 Vigorous: 0 <u>Total:91</u>
[†] Recreation Park DECREASE	Washtenaw	Sedentary: 88 Walking: 254 Vigorous: 132 <u>Total:474</u>	Improve conditions and enhance park by repairing basketball court and installing walking path.	Sedentary: 20 Walking: 104 Vigorous: 52 <u>Total:176</u>

[†]Denotes statistical significance.

Park Use and the Role of Awareness and Accessibility

As mentioned previously, lack of awareness of recreational facilities is a barrier to participation in regular physical activity^{8, 17, 50}. Perceived and actual access to recreation facilities⁶⁴ has been identified as correlates of physical activity. Accessibility to and awareness of physical activity facilities like parks²¹ have been identified as factors related to adult physical activity patterns. Studies examining access to activity facilities have found that the availability of physical activity facilities is also related to proximity^{11,13,15-16, 40-41, 50}. Perhaps proximity of Michigan's parks impacted park use. Exercise facilities can initially encourage physical activity by serving as visual stimuli cueing activity behavior. Facilities close to an individual's residence will be seen often and will bring activity to an individual's attention⁹. Individuals in and around the facility who appear to be exercisers will strengthen the impact of the stimulus by making exercise appear to be a social norm, thus, allowing proximity of facilities to encourage activity^{7,9,41}. Previous research in this area has also reported perceived inconvenience and travel problems as reasons

for ceasing activity programs⁶⁵⁻⁶⁶. Travel time and traffic related stress have been reduced when subjects walk to nearby facilities⁶⁵⁻⁶⁶.

Target Areas in Parks

The most frequently used target areas within Michigan's parks were trails and playgrounds. Approximately 41% (N=1529) of all park users were observed using these two targets. The overwhelming majority of users of playgrounds were children and teens. Parks have a variety of target areas (e.g., tennis courts, playgrounds, playing fields, trails, etc.) that provide a multitude of opportunities to participate in physical activity, yet we know little about specific features related to quantify physical activity in parks. To better serve the needs of park users it is essential that the most and least widely used settings within each park be objectively identified and catalogued. This type of contextual information will enable park and recreation officials alike, to identify the type of physical activity taking place in specific areas within a park's structure, and delineate which targets are the most and least heavily used. Frequency and percentage of the most used target areas for gender are listed in table eleven.

Table 11: Frequency and Percent of Most Used Target Areas for Gender

<i>Target</i>	<i>Gender</i>	<i>Frequency</i>	<i>Percent</i>
Trails/Paths Within Park	Male	413	20.6%
	Female	348	
	Total	761	
Playgrounds	Male	326	20.7%
	Female	440	
	Total	768	
Baseball	Male	112	11.4%
	Female	314	
	Total	426	
Playing Fields	Male	171	9.3%
	Female	175	
	Total	346	
Basketball Court	Male	48	8.4%
	Female	264	
	Total	312	
<i>Total</i>		<i>2623</i>	<i>70.2%</i>

As previously mentioned Reed and colleagues¹⁷ examined the activity behaviors in 25 parks and found that trails were the most frequently used activity setting. Sixty-percent and 81% of male and female adults, respectively, observed in all 25 parks were observed using trails. Yet, trails were only in five of the 25 parks assessed. Considering that the Task Force on Community Preventive Services recommends environmental interventions that include access to trails for physical activity¹² combined with direct observation data identifying trails within parks as

popular destinations for activity, Michigan' officials should consider including trails as integral target areas to support regular activity when designing future parks.

Ethnicity and Park Use

It is understood that ethnic minority and low income populations have the highest rates of cardiovascular disease, Type 2 diabetes (NIDDM) and obesity, while having the lowest rates of leisure-time physical activity^{16,67}. Most minority populations do not engage in enough physical activity to meet the current Centers for Disease Control (CDC)/American College of Sports Medicine (ACSM) recommendations¹². Few papers examining the links between physical activity and public parks have focused attention on park user preferences by ethnicity^{17,68}. Approximately 44% of Michigan park users were minorities. This finding was significantly different than Michigan's trail user profile and was not consistent with current census estimates for Michigan²⁶. Current census estimates reveal that only 19% of Michigan residents are minorities.

Minority, non-white youth are participating in less physical activity in comparison to white youth¹². Considering a significant percentage of Michigan park users were children and teens combined with findings that playgrounds were one of the most popular target areas in the parks for activity, perhaps developing parks in minority communities can reduce the disparity in physical activity patterns among Michigan youth. Studies of ethnically diverse and underserved populations are needed to address potential disparities in physical activity facilities⁵². In a study by Eyler and colleagues²⁹ it was determined that parks were popular places to walk for younger and minority groups. This finding is consistent with the observational data collected on Michigan's parks. Frequency and percent of park users for activity intensity by ethnicity and age are listed in table 12.

Table 12: Frequency and Percent of Park Users for Activity Intensity by Ethnicity and Age

Age	Activity Level	White (%)	Other (%)
Child	Sedentary	102(5.6%)	119(6.6%)
	Walking	228(12.6%)	422(23.3%)
	Vigorous	661(36.5%)	276(15.3%)
Teen	Sedentary	58(5.7%)	120(11.8%)
	Walking	91(8.9%)	241(23.6%)
	Vigorous	306(30.0%)	204(20.0%)
Adult	Sedentary	307(27.0%)	144(12.7%)
	Walking	281(24.7%)	211(18.5%)
	Vigorous	149(13.1%)	46(4.0%)
Senior	Sedentary	14(19.7%)	11(15.5%)
	Walking	32(45.1%)	9(12.7%)
	Vigorous	5(7.0%)	0(0.0%)

Temperature and Park Use

Similar to Michigan's trail findings, approximately 83% of male and female park users were observed between 61 and 90 degrees Fahrenheit (N=2936). Contextual elements like weather and temperature have been found to impact physical activity²⁰. Little information is available regarding weather conditions and seasonality and its impact on physical activity. The limited studies available suggest physical activity levels do vary with seasonality and the impact of poor and extreme weather has been identified as a barrier to activity among various populations⁶⁹. Furthermore, studies failing to recognize the impact of these contextual variables may be poor representations of activity behavior⁶⁹. Michigan's residents clearly prefer to use the parks during milder temperatures. Frequency and percent of park users for changes in temperature are listed in table 13.

Table 13: Frequency and Percent of Park Users for Changes in Temperature

		Temperature in Degrees Fahrenheit						Total	
		<40	40-50	51-60	61-70	71-80	81-90		91-100
Gender	Female	17	13	161	351	603	437	26	1608
		.5%	.4%	4.5%	9.9%	17.0%	12.3%	.7%	45.3%
	Male	10	19	351	293	800	452	19	1944
		.3%	.5%	9.9%	8.2%	22.5%	12.7%	.5%	54.7%
Total		27	32	512	644	1403	889	45	3552
		.8%	.9%	14.4%	18.1%	39.5%	25.0%	1.3%	100%

Intercept Survey

Results (Park)

The park survey was a brief interviewer-administered instrument designed to collect information on various community parks. Respondents completed the survey during evaluation periods from 2007-2009. All respondents had to be over the age 18 to be surveyed. In table 14, the **MOST** frequently cited response for 17 questions are listed (the question asking respondents to provide nearest two cross streets was omitted and not included in the analysis). Many of the intercept survey results were consistent with the direct observation findings*.

One-hundred and eighty-seven (N=187) park respondents were surveyed during the two funding cycles of the BHC initiative. Michigan survey respondents tended to be female however, this finding was not consistent with the direct observation findings. Similar to the survey findings for trail users, walkers were surveyed most. In addition, 60% (N=110) of park users visited the park 'with others'. This finding was consistent with trail users surveyed. Similar to the target area findings, the most common activity among park visitors was trail use*. Park respondents tended

to be frequent park visitors; since the majority of park users (26%) visited their respective park 4 or more times per week.

Initially, the majority of survey respondents (36%) reported that the ‘safety and security’ in their park was ‘excellent’. However, this perception changed during subsequent evaluations among users as respondents reported the ‘safety and security’ of their park to be ‘good’ (27%) instead of ‘excellent’. Wilson and colleagues⁴⁴ examined perceptions of access and safety for physical activity in neighborhoods that were identified as low or high in SES. The high SES group was more likely to have higher household incomes and education levels than those in the low SES group. The high SES group also reported greater levels of physical activity based on the Centers for Disease Control/American College of Sports Medicine (CDC/ACSM) recommendations in comparison to the low SES group. Broomhall⁷⁰ concluded from a literature review that numerous observable factors, like perceived safety could influence use of open space such as parks. Perhaps most female park users visited their park with others because they perceived their park not to be safe and secure. However, considering the majority of respondents were females, and it is well documented in the literature that social support for activity is high among females for physical activity this could have helped to explain why park users were using the park with others for social support^{9,11} and not related to perceptions of safety. Marcus and colleagues⁷¹ argue “social support and social attitudes play an important part in women’s participation in physical activity”.

Unlike trail survey respondents between 2007 and 2009, the most frequently cited responses among park users, often varied between evaluations. Approximately, 21% of park users surveyed in 2007/2008 transported themselves to their respective park by ‘motorized vehicle’; yet by 2008/2009 the most frequently cited response was ‘walking’ (36%). A significant difference was observed whereby walking became the most common form of transportation to a park. Frequency and percent of most frequently cited survey response are listed in table 14.

Table 14: Frequency and Percent of Most Frequently Cited Survey Response

Number	Survey Question	Funding Cycle Year	Most Frequently Cited Response	Frequency (of 100% for 2007-2009)
1	Identify the physical activity respondent is doing.	2007/2008 2008/2009	*Walking *Walking	32(17%) 48(26%)
1a	Identify who the person is at the park with.	2007/2008 2008/2009	With others With others	51(28%) 59 (32%)
2	Identify gender.	2007/2008 2008/2009	Female Female	49(26%) 52(28%)
3	When was the first	2007/2008	4+ years ago	45(24%)

	time you used this park?	2008/2009	4+ years ago	54(29%)
4	How often do you usually visit the park?	2007/2008 2008/2009	4+ times per week 4+ times per week	13(7%) 36(19%)
5	How do you usually get to this park?	2007/2008 2008/2009	Car/Vehicle Walking	40(21%) 68(36%)
6	How far away do you live from this park?	2007/2008 2008/2009	Less than 0.5 mile Less than 0.5 mile	25(13%) 51(27%)
7	When you come to this park, what is the most common activity that you do?	2007/2008 2008/2009	*Use Trails *Use Trails	30(16%) 28(15%)
7a	What other activities do you do in the park?	2007/2008 2008/2009	*Use Trails *Use Trails	19(12%) 6(4%)
7b	Are most of the sporting activities you participate in the park organized (as in, played in an organized league or with school or community teams)?	2007/2008 2008/2009	No No	77(46%) 17(10%)
7c	How much time do you usually spend at the park per visit?	2007/2008 2008/2009	Between 1-2 hours Between 1-2 hours	26(14%) 44(24%)
8	Who are you usually with when you visit this park?	2007/2008 2008/2009	Family Family	11(6%) 32(17%)
9	Would you say this park is the most common place for you to participate in physical activity or exercise?	2007/2008 2008/2009	No Yes	50(27%) 62(34%)
9a	Where is the most	2007/2008	Home/Fit. Center	14(13%)

	common place you participate in the physical activity or exercise?	2008/2009	°Other	17(16%)
10	‡In your opinion, the maintenance of the park is EXCELLENT, GOOD, FAIR or POOR?	2007/2008 2008/2009	°Excellent °Good	43(24%) 54(29%)
11	‡In your opinion, the safety and security in the park is EXCELLENT, GOOD, FAIR or POOR?	2007/2008 2008/2009	°Excellent °Good	20(36%) 50(27%)
12	What do you like MOST about this park?	2007/2008 2008/2009	Location/Convenience Location/Convenience	6 (3.0%) 10(5%)
13	If you could make any improvements to the park, what would they be?	2007/2008 2008/2009	Update Facilities Update Facilities	9(5.0%) 8(5.0%)
14	What is your age?	2007/2008 2008/2009	°18 to 34 °35+	37(21%) 58(33%)
15	‡Are you Hispanic or Latino?	2007/2008 2008/2009	No No	78(42%) 99(53%)
16	What is your race?	2007/2008 2008/2009	White* White*	63(34%) 49 (26%)
17	‡What is the highest grade in school you have completed?	2007/2008 2008/2009	°Some College °High School Graduate	28(16%) 29(16%)

*Denotes similar finding compared to direct observation results.

°Denotes a different frequently cited response between evaluations.

‡Denotes significant difference in respondents' most frequently selected answer between evaluations.

Conclusions and Implications for Increasing Trail Use among Michigan Residents

To successfully develop effective interventions to promote trail use, the characteristics of who uses and does not use a trail and for what purpose the trail is primarily being used should be identified. Direct observation methods afforded the opportunity to objectively evaluate the demography of Michigan trail users over a period of time with consistency. Based on the present

evaluation, the trails in Michigan are not frequently used by population subgroups at risk for developing a variety of chronic diseases linked to physical inactivity (e.g., children, teens and older adults). The precise reasons for differences in types and intensities of activity, as well as discrepancies of use by age, gender, and ethnicity remain unclear. However, five interventions illustrating significant increases in trail use included a form of trail promotion. Considering that lack of awareness of trails is a frequently cited barrier to trail use future BHC funded projects should consider this finding when developing their specific program intervention. Based on the direct observation and survey responses, the following summary statements are appropriate:

- More males use Michigan's trails for physical activity
- Adults were the primary users of trails
- Most trail users were white
- Fewer children, teens and seniors use Michigan's trails
- Walking was the most common behavior observed on the trail
- Females used the trails primarily for walking
- Interventions including signage and promotion had significant increases in trail use
- Males used trails for walking and vigorous activity
- Trails were used by white, educated adults for recreation
- Michigan's trails were perceived to be well maintained and relatively safe
- Users tended to visit the trail with someone and spend 1 to 2 hours on the trail each visit

Based on the summary of findings presented above, additional strategies to promote trail use among children, teens and seniors need to be examined. In addition greater efforts to promote trail use among underserved populations such as minorities should be considered. This is an extremely important element, since the majority of trail users surveyed were white, college graduates. Increases in education lead to increases in better health. Unfortunately, a significant disparity exists between white and minority populations in regards to education and chronic disease in the US. Less educated minority adults exhibit more chronic disease risk factors linked to sedentary living than white educated adults. This is likely true in Michigan as well. Perhaps BHC initiatives should focus future funding on trail projects designated to connecting neighborhoods and communities of varying demography to promote daily pedestrian trail use. Finally, further efforts to promote trails for transportation activity should be developed. The majority of trail users, based on survey findings used the trails for exercise and recreation only.

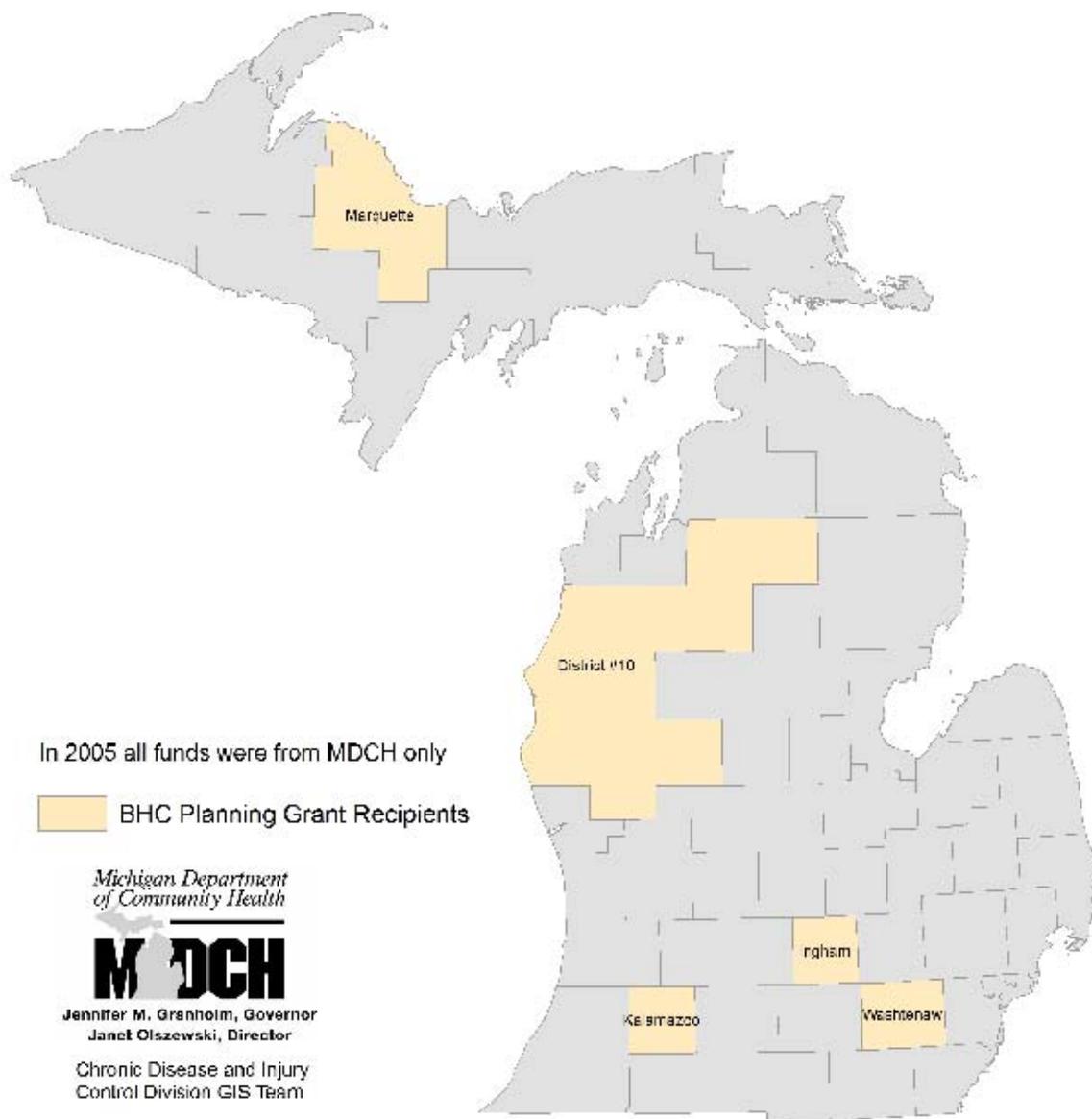
Conclusions and Implications for Increasing Park Use among Michigan Residents

Parks are built environmental supports with links to physical activity promotion. Similar to the trail findings, five parks had significant increases in park use post intervention. It is important to note, that many of the parks with observable increases in use implemented park enhancements included the building, extension of and/or the enhancement of current trails within a park. In addition to this type of park enhancement, it was clear based on the most frequently used target areas, that playgrounds were heavily used areas in Michigan's parks. Contrary to Michigan's trail profile, Michigan had significant amounts of minorities use parks for physical activity.

Considering that minorities are less active than white youth and adults-enhancing parks should be considered an appropriate intervention approach among Michigan residents. Based on the direct observation and survey responses, the following summary statements are appropriate:

- More males used Michigan's parks for physical activity
- Children and teens were the primary users of Michigan's parks
- Few seniors used parks for physical activity in Michigan
- Playgrounds were a popular target area for child and teen physical activity
- Male and female youth participated in significant amounts of vigorous physical activity in Michigan's parks
- Adults primarily engaged in walking behavior in Michigan's parks
- Interventions including the enhancement of trails within a park led to increases in park use
- Michigan's parks are used by significant numbers of white and minorities for physical activity
- Park users spend between 1 to 2 hours per visit in Michigan's parks
- Michigan's park users visit their respective park 4 or more times per week
- Michigan's parks are perceived to be well maintained and safe and secure

Building Healthy Communities 2005 Grantees



In 2005 all funds were from MDCH only

 BHC Planning Grant Recipients

*Michigan Department
of Community Health*

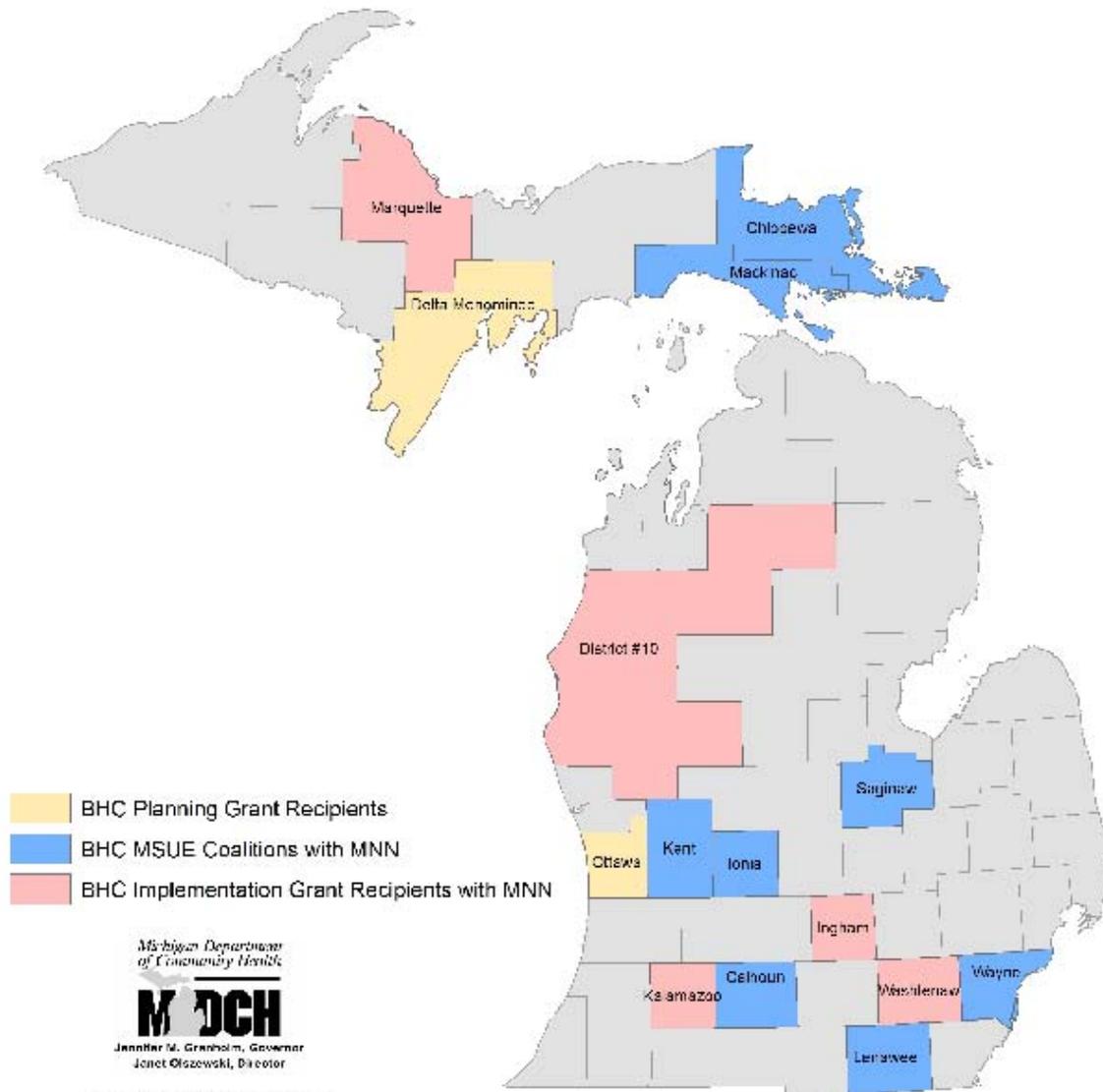


Jennifer M. Granholm, Governor
Janet Olszewski, Director

Chronic Disease and Injury
Control Division GIS Team

Henry Miller, August 12, 2009

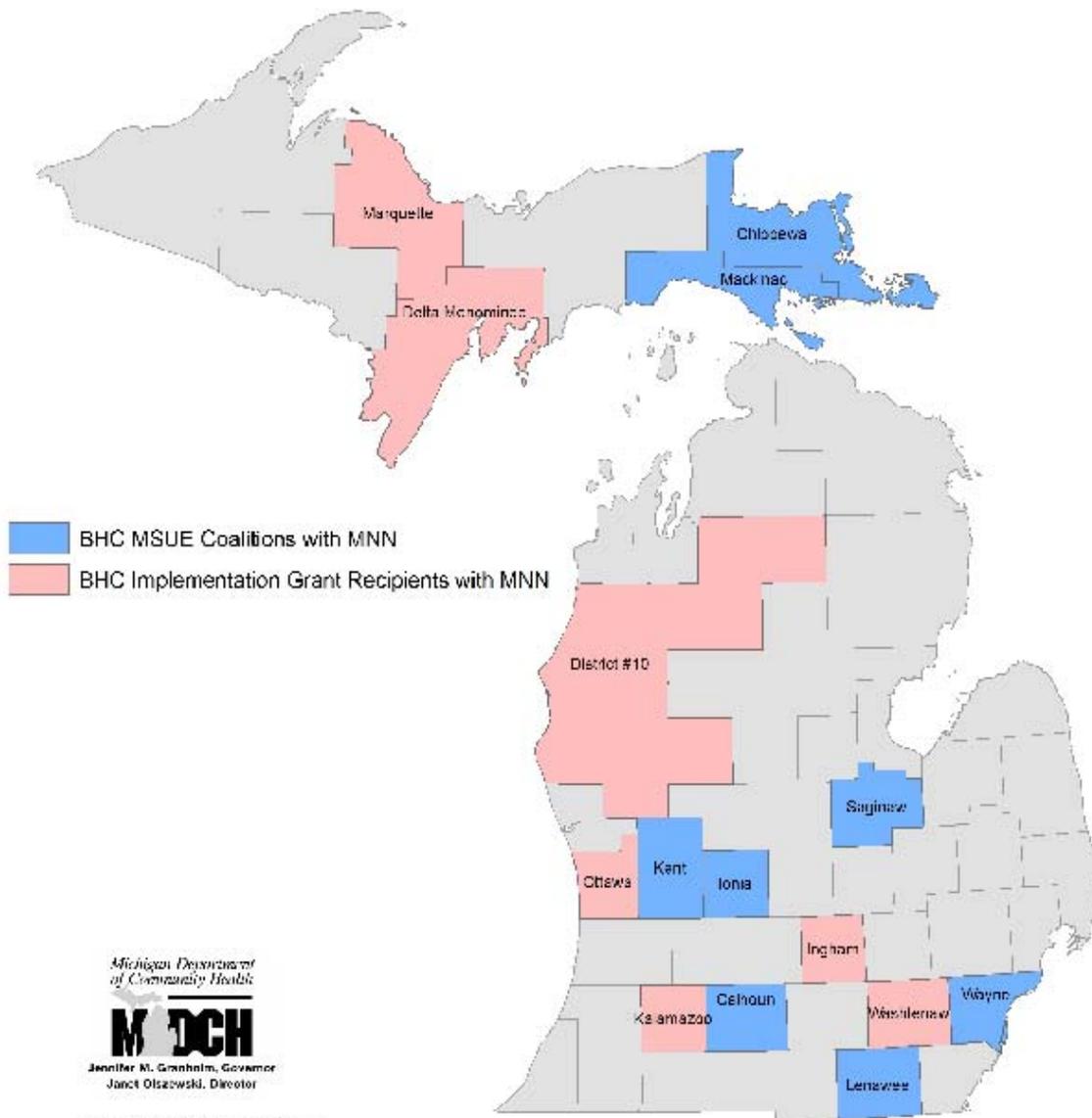
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Control Division GIS Team

Henry Miller, August 12, 2009

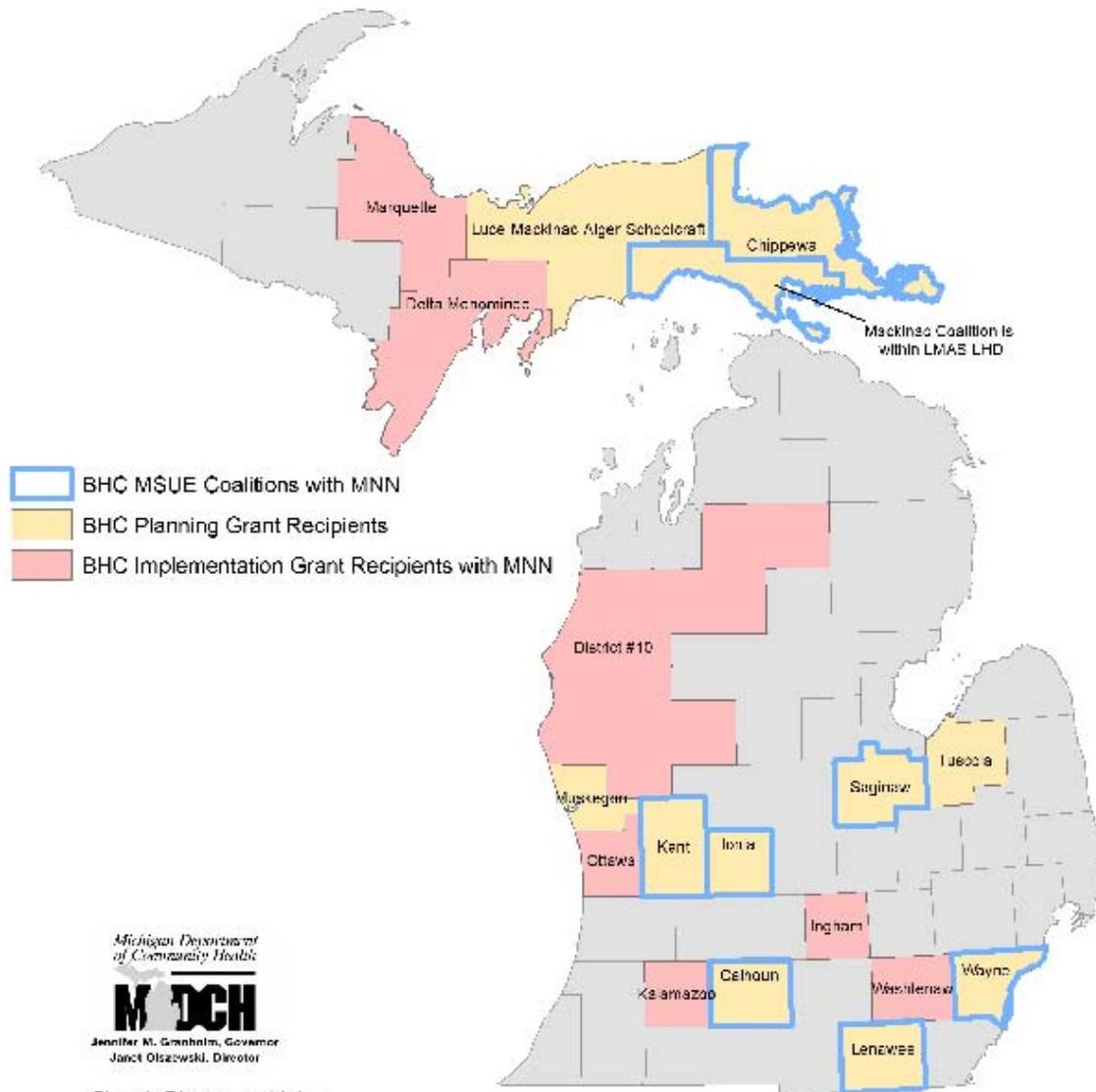
Building Healthy Communities 2007 Grantees



Chronic Disease and Injury
Control Division GIS Team

Henry Miller, August 12, 2009

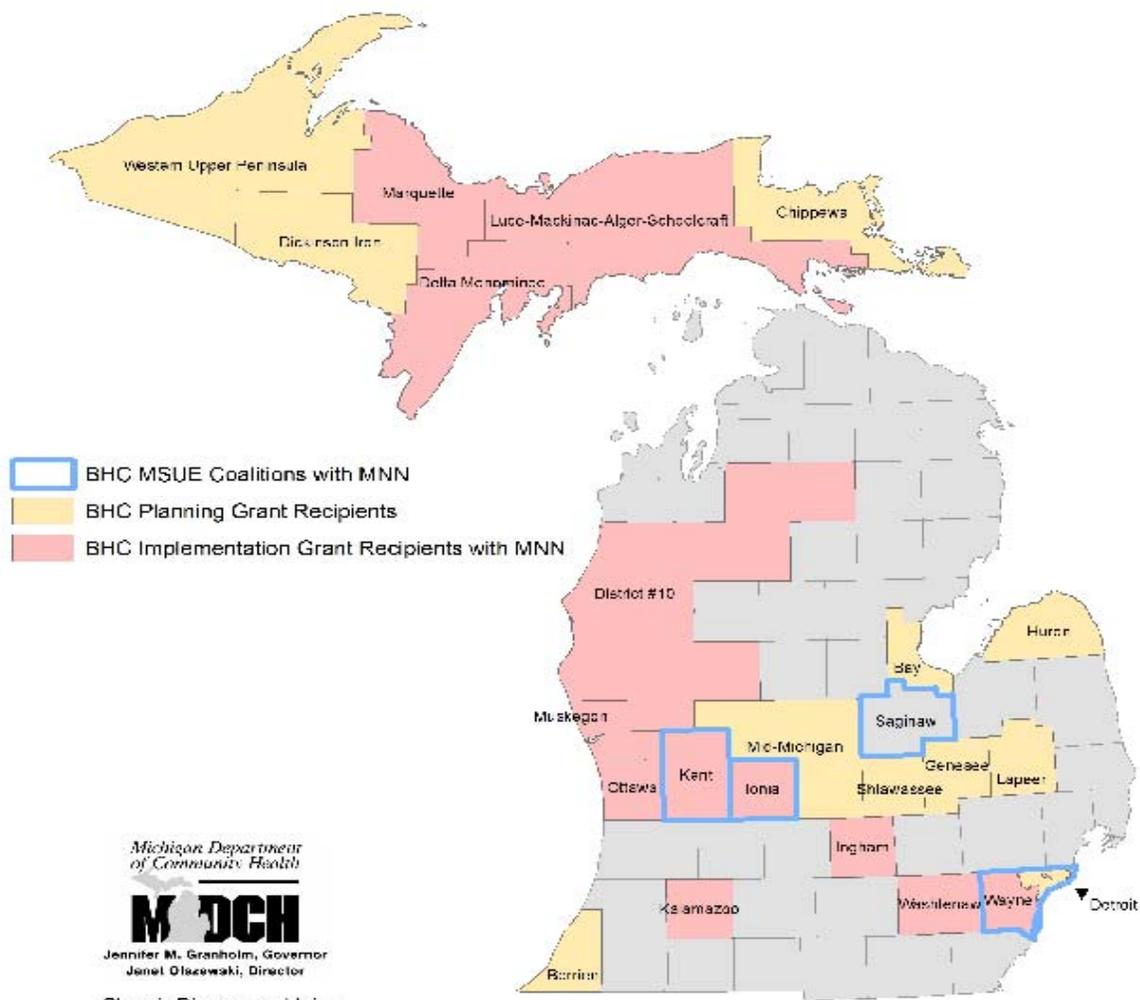
Building Healthy Communities 2008 Grantees



Chronic Disease and Injury Control Division GIS Team

Henry Miller, August 14, 2009

Building Healthy Communities 2009 Grantees



Henry Miller, August 31, 2009

Building Healthy Communities Initiative Funding Matrix Project Year 2007-2008		
Local Health Department	Community	Intervention Details
Delta & Menominee Counties	* City of Gladstone in Delta County	* Extend Lakeshore Trail in the City of Gladstone a total of 1140 feet to connect to the City's 4-mile long trail system. * Enhance Lakeshore Connector Trail through placement of benches and signage.
District 10	* Missaukee County * City of Manistee * City of Big Rapids * City of Manistee	* Extend the 1.25-mile N.E.W. Missaukee Foot Trail an additional 0.25-mile. * Enhance Riverwalk Trail in the City of Manistee by adding signage. * Enhance Riverwalk Trail in the City of Big Rapids by adding signage.
Ingham County	* Southwest Lansing * Eastside Lansing/ Allen Neighborhood * City of Lansing * Westside Lansing	* Construct connector trail from Benjamin Davis Park in Southwest Lansing to existing Lansing Area River Trail System. * Improve safety and increase usability of Hunter Park through installation of benches along a 1/2-mile walking path; removal of brush; and installation of lighting. * Implement neighborhood specific non-motorized transportation plans and safety improvement plans at Hunter Park on the Eastside of Lansing; Saginaw Coordinator on the Westside of Lansing; and Benjamin Davis Park on the Southside of Lansing.
Kalamazoo County	* Lakewood and Edison Neighborhoods in Kalamazoo Township	* Implement one 0.22-mile walking path around Fair Grounds in the I-94 Lakewood Business District.
Marquette County	* City of Negaunee * City of Ishpeming * Lake Superior Community * Marquette County	* Develop 2.5 miles - connecting the cities of Negaunee and the Ishpeming of paved trail for phase one of 48-mile Heritage Trail System project. * Develop non-motorized plan for Heritage Trail System. * Promote trail system and county parks in Marquette County through a countywide worksite wellness initiative.
Ottawa County	* Allendale Charter Township * Ottawa County * Coopersville	* Complete 1.5-mile connector trail for a non-motorized pathway in Allendale Charter Township. * Marketing campaign to promote Coopersville and Allendale Trails.
Washtenaw County	* Downtown Ypsilanti * City of Saline	* Improve and enhance Parkridge Park in the City of Ypsilanti by replacing 7 pieces of playground equipment, installing 3 bike racks, putting down wood chips, paving a 0.25-mile walking path, and adding signage to the path. * Enhance one-mile non-motorized Max Adler Trail in Saline by repairing water damaged portions; replacing trail signs; planting foliage; and installing benches.

Building Healthy Communities Initiative Funding Matrix Project Year 2008-2009		
Local Health Department	Community	Intervention Details
Delta & Menominee Counties	* Northside Neighborhood in the City of Escanaba * City of Menominee	* Develop a 3-year action plan for the City of Menominee.
District 10	* City of Manistee * City of Big Rapids * City of White Cloud * Mason County	* Enhance two routes of the Riverwalk Trail in the City of Manistee - Magoon Creek Trail and Onekama Trail Route - by adding signage and bike lanes. * Expand Magoon Creek Trail 5.2 miles and Onekama Trail Route 11.2 miles. * Enhance two routes of the Big Rapids Trail in the City of Big Rapids - Industrial Park Route and Perry Street Route - by adding signage and bike lanes. * Expand Industrial Park Route 1.5 miles and Perry Street Route 1.5 miles. * Establish a new community coalition in Mason County.
Ingham County	* South Lansing	*Sustain and develop Moving Our Community Towards Health coalition.
Kalamazoo County	* Richland Township * Kalamazoo Township	* Install one walking path around perimeter of Prairie View Park in Richland Township. * Create one connector trail in Kalamazoo Township to the 45-mile Kal-Haven Trail.
LMAS District	*Newberry in Luce County	* Create one connector trail from downtown Newberry to the existing Heritage Trail.
Marquette County	*South Marquette County *City of Negaunee *City of Ishpeming	* Extend Iron Ore Heritage Trail an additional 5 miles to connect the cities of Negaunee and Ishpeming. * Enhance Iron Ore Heritage trail with signage. * Implement one new farmers market in the downtown are of the City of Negaunee.
Muskegon County	*Nelson Neighborhood in the City of Muskegon *City of Muskegon	* Enhance St. Joseph and Clara Shepard Parks through physical improvements * Create a plan for community connectivity.
Ottawa County	* Holland Heights * Ottawa County * Coopersville * City of Holland * City of Grand Haven	* Improve conditions and enhance Recreation Park in Ypsilanti by repairing a basketball court and installing a walking path.
Washtenaw County	* Downtown Ypsilanti * West Willow Neighborhood in Ypsilanti Township * City of Ypsilanti * City of Saline	* Enhance Eli Cuigan Park in the City of Ecorse by adding a 288-yard walking path.

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