Boone, Iowa — I-WALK Report 2013

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Iowans Walking Assessment Logistics Kit
A Community Walkability Program

Boone
Iowa
Spring 2013
Acknowledgements

I-WALK TEAM

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Introduction

In the past three decades, the number of obese and overweight individuals in Iowa and across the nation has skyrocketed. With obesity comes the greater risk of health complications and life expectancy reduction. As a result, there is a new and growing threat to the overall quality of life. In Iowa alone, 64.8% of adults are identified as either overweight or obese.*

Given the prevalence of obese and overweight individuals, it is important to promote healthy behaviors for all Iowans. Engaging in physical activity is a key component of advocating for healthy behaviors. A vision for healthy Iowa communities must regard and value safe and accessibly walking routes in all locales.

The Iowans Walking Assessment Logistics Kit (I-WALK) program aims to provide community coalitions with relevant local information to assist them in continuously updating, implementing, and evaluating the walkability of their community. The I-WALK program is a project administered by the Iowa Department of Public Health (IDPH) and Iowa State University Extension and Outreach (ISUEO) and implemented by communities across Iowa.

I-WALK utilizes web mapping technologies and global positioning system (GPS) units to accurately map routes that community residents use to walk or bicycle in their locale and identify safety barriers and solutions. Creating environments that encourage community residents to walk or bicycle safely will improve health outcomes by providing additional opportunities to reach the recommended weekly 150 minutes of physical activity, as well as normalize walking as a healthy lifestyle habit.

U.S. Biking and Walking Levels**
- 12% of all trips are by bicycle (1.0%) or foot (10.5%).
- From 2000 to 2009, the number of commuters who biked to work increased by 57%.
- In 2009, 40% of trips in the U.S. were shorter than 2 miles, yet Americans use their cars for 87% of trips1 to 2 miles.
- Residents of the largest U.S. cities are 1.7 times more likely to walk or bicycle to work than the national average.

Bicycle and Pedestrian Safety
- 14% of all U.S. traffic fatalities are bicyclists (1.8%) or pedestrians (11.7%).
- In the 51 largest U.S. cities, 12.7% of trips are by foot and 1.1% are by bicycle, yet 26.9% of traffic fatalities are pedestrians and 3.1% are bicyclists.
- Seniors are the most vulnerable bicyclists and pedestrians. Adults over 65 make up 10% of walking trips, yet comprise 19% of pedestrian fatalities and 6% of bicycling trips, yet account for 10% of bicyclist fatalities.

Public Health Benefits
- Bicycling and walking levels fell 66% between 1960 and 2009, while obesity levels increased by 156%.
- Between 1966 and 2009, the number of children who bicycled or walked to school fell 75%, while the percentage of obese children rose 276%.
- In general, states with the highest levels of bicycling and walking have the lowest levels of obesity, hypertension (high blood pressure), and diabetes and have the greatest percentage of adults who meet the recommended 30 minutes per day of physical activity.

Economic Benefits
- Bicycling and walking projects create 11-14 jobs per $1 million spent, compared to just 7 jobs created per $1 million spent on highway projects.
- Cost benefit analyses show that up to $11.80 in benefits can be gained for every $1 invested in bicycling and walking.

*IDPH 2011 Behavioral Risk Factor Surveillance System
I-WALK was piloted in 2010 and 2011 in twelve Iowa communities. The communities include Atlantic, De Soto, Fort Madison, Hull, Independence, Kalona, Riceville, Spencer, Tabor, Vinton, West Des Moines and West Union; the communities range in population from 875 to 56,609 residents. IDPH selected the pilot communities by choosing two from each of the six public health regions in the state.

In 2012, IDPH received additional funding from the Centers for Disease Control and Prevention (CDC) to implement I-WALK in four communities: Cedar Falls, Dallas Center, Washington and Wellman.

In 2012-2013, I-WALK was implemented in 13 schools in 12 additional communities: Postville, Waterloo, La Porte City, Storm Lake, Oelwein, Guthrie Center, Ida Grove, Iowa City, North Liberty, Sibley, Mt. Ayr, & New Virginia.

Building upon the success of I-WALK in schools, I-WALK for Communities was piloted in Cedar Falls during the summer of 2012. This program focused on community walkability and bikeability for older adults.

The 2012-13 schools included almost 2,700 3rd, 4th and 5th grade students. Community size ranged from 581 in Tingley/Redding/Kellerton (Mt.Ayr School District) to Waterloo (68,406).

The project team includes:
- Suzy Wilson, IDPH Project Coordinator
- Catherine Lillehoj, Ph.D., IDPH Chief Epidemiologist and Program Evaluator
- Christopher J. Seeger, Iowa State University Extension and Outreach Landscape Architect and Associate Professor of Landscape Architecture.
- Alan Jensen, GIS Specialist, Iowa State University Extension and Outreach
- Bailey A Hanson, GIS Intern, Iowa State University Extension and Outreach

Boone County Hospital led local efforts in each community. The I-WALK project consisted of three components: 1) Survey, 2) GPS Walkability Workshops and 3) Community Coalitions.
Boone is a city in Boone County, Iowa. The 2010 census documented the population as 12,661. It is named for Colonel Nathan Boone, 1781-1856, who explored the area.

According to the 2010 census, there were 5,313 households, and 3,363 families residing in the town. The population density was 1,434 people per square mile. There were 5,585 housing units at an average density of 625.5 per square mile. The racial makeup of the town was 98.3% White, 0.3% African American, 0.2% Native American, 0.2% Asian, 0.4% from other races, and 0.6% from two or more races. Hispanic or Latino of any race were 0.9% of the population.

Among all households, 30.2% had children under the age of 18 living in them, 51% were married couples living together, 9.8% had a female householder with no husband present, and 36.7% were non-families. 31.5% of all households were made up of individuals and 13.8% had someone living alone who was 65 years of age or older. The average household size was 2.3 and the average family size was 2.9.

In Boone, the population was spread out with 24.3% under the age of 18, 9.5% from 18 to 24, 27.2% from 25 to 44, 21.4% from 45 to 64, and 17.6% who were 65 years of age or older. The median age was 38 years.

The median income for a household was $43,256, and the per capita income was $22,119. Males had a median income of $32,106 versus $22,119 for females. About 5.4% of families and 8.4% of the population were below the poverty line, including 10.9% of those under age 18, and 5.8% of those age 65 or over.

“Boone could definitely use walking/biking trails. Walking paths in several parts of town would be great.”

**Methodology**

**Resident Survey**

The purpose of the resident survey was to better understand how each individual gets to and from frequented locations and concerns about walking or biking to and from those locations.

The survey was divided into the following sections:
- Multiple-choice survey questions
- Distance mapping between frequent locations
- Route mapping
- Barrier/opportunity mapping

**GPS Walkability Workshops**

Trained citizens conducted an inventory of their community using iPhones equipped with the Environmental Systems Research Institute ArcGIS application (ESRI ArcGIS application) that was customized for use by ISUEO. The I-WALK team trained the volunteers in the communities to use the iPhone app. The volunteers then took to the streets to collect data.

Workshop participants mapped information from three categories: intersections, midblock sidewalks, and additional features that impede pedestrians and cyclists.

At intersections, volunteers indicated whether or not there were painted crosswalks and curb cuts and what type of control system, if any, was in place (e.g., stop signs, stoplight, flashing light).

Volunteers evaluated sidewalks at midblock, indicating whether or not there were sidewalks, and if so, whether or not they were in good condition and wide enough for two people to walk side by side.

Additional features included barriers such as vegetation growth across the sidewalk, places where water frequently pools on the sidewalk, sidewalks that suddenly end and barking dogs.

“Main concern is sidewalks that need repair and people need to pick up after dogs. Lots of waste on sidewalks. Need more bike and walking trails.”


Sample sidewalk in need of repair.
Community Coalitions
Inviting and involving key partners to be a part of the community coalition is essential to having a successful I-WALK program. The community was charged with identifying key organizations and individuals ready to be involved in the discussions surrounding a safe and healthy environment for residents to walk or bicycle to and from various locations. A community coalition should be a well-rounded group that represents a wide range of interests and expertise related to walking and biking. Local public health representatives accessed online resources, developed specifically for I-WALK, to engage and lead the coalition members.

LPH led an effort to create a coalition in the community to help address issues identified by the assessment. The communities used resources from the I-WALK website to guide their invitations to local stakeholders that could be involved. Coalitions were asked to invite all of these people to be involved in the effort. After the coalitions were created, the communities started assembling funding for future projects.

The following report includes the data compiled while evaluating the Boone community.

<table>
<thead>
<tr>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Public Health</td>
</tr>
<tr>
<td>School Representative</td>
</tr>
<tr>
<td>Community Representative/Citizen (local business; neighborhood &amp; community association representatives; pedestrian, bicycle, &amp; safety advocates)</td>
</tr>
<tr>
<td>Parks and Recreation Department</td>
</tr>
<tr>
<td>Local Law Enforcement/Public Safety/School Resource Officer</td>
</tr>
<tr>
<td>Municipal Representative/City Mayor</td>
</tr>
<tr>
<td>City Planner/City Engineer</td>
</tr>
<tr>
<td>ISU Extension and Outreach</td>
</tr>
<tr>
<td>DNR (Department of Natural Resources) Representative</td>
</tr>
<tr>
<td>Service or Volunteer Organization Representative</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Totals</td>
</tr>
</tbody>
</table>

“If more people walked and biked, others would also. An exchange student from Romania said “in this country you don’t want to walk because everyone is driving”.

Methodology

A questionnaire consisting of 24 questions was used as the survey instrument. Questions addressed topics related to identifying the most frequented locations and distance to those locations, transport to and from frequented locations, barriers and assets of most frequented locations, walkability and bikeability of frequented locations, and neighborhood barriers and assets. Survey questions also requested demographic information such as age group, gender, and employment status.

Residents were invited to participate in the survey through a campaign that included fliers and individualized letters. A random sample of 500 Boone residents were identified. Each resident was sent an invitation letter to participate in the survey. The letter included instructions on how to participate in the survey. Completed surveys were mailed to IDPH in the provided stamped envelope. Surveys were then transcribed into a digital format to be analyzed.
Community Survey

The purpose of the survey was to better understand how each respondent travels to and from community locales and what concerns, if any, they have about walking or biking to and from those identified locations.

There were four parts to this survey:
- Multiple choice survey questions
- Distance mapping between home and frequented locations
- Route mapping
- Barrier/opportunity mapping

Of the 500 residents surveyed, 89 completed and returned the survey. The following graphs represent data collected from the survey completed by community residents. All survey responses were collected by the I-WALK program.

How important do you consider walking/biking as a form of transportation?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very important</td>
<td>25.6%</td>
</tr>
<tr>
<td>4</td>
<td>17.4%</td>
</tr>
<tr>
<td>3</td>
<td>29.1%</td>
</tr>
<tr>
<td>2</td>
<td>11.6%</td>
</tr>
<tr>
<td>Not at all important</td>
<td>16.3%</td>
</tr>
</tbody>
</table>

How important do you consider walking/biking as a form of physical activity/exercise?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very important</td>
<td>66.3%</td>
</tr>
<tr>
<td>4</td>
<td>22.1%</td>
</tr>
<tr>
<td>3</td>
<td>9.3%</td>
</tr>
<tr>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>Not at all important</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Check the statement that best describes your walking and biking habits.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I walk/bike for exercise/leisure purposes</td>
<td>76.4%</td>
</tr>
<tr>
<td>I walk/bike as a mode of transportation</td>
<td>28.1%</td>
</tr>
<tr>
<td>I don't walk or bike</td>
<td>20.2%</td>
</tr>
</tbody>
</table>
Community Survey

What type of community locations do you currently walk/bike to?

- Library: 11.9%
- Retail Location or Mall: 22.0%
- Grocery Store: 42.4%
- Congregate Meal Site: 1.7%
- Community Center: 11.9%
- Convenience Store: 20.3%
- Church: 18.6%
- Post Office: 37.3%
- Park: 15.3%
- Bank: 5.1%
- Recreation Center: 15.3%
- Work: 47.5%
- Other: 42.4%

Why do you walk or bike to these locations?

- Exercise: 96.9%
- Health (Dr.'s orders): 12.5%
- Social activity: 9.4%
- Personal enjoyment: 56.3%
- No public transportation: 3.1%
- Save gas/Money: 25.0%
- I don't have a driver's license: 3.1%
- I don't own a vehicle: 3.1%
- Environmentally friendly: 15.6%
- Other: 4.7%
Community Survey

On days you walk/bike, how much time do you spend doing so?

<table>
<thead>
<tr>
<th>Time Duration</th>
<th>Percent (n=72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 minutes</td>
<td>2.8</td>
</tr>
<tr>
<td>5 - 10 minutes</td>
<td>2.8</td>
</tr>
<tr>
<td>11 - 20 minutes</td>
<td>18.1</td>
</tr>
<tr>
<td>More than 20 minutes</td>
<td>70.8</td>
</tr>
<tr>
<td>Do not know/not sure</td>
<td>5.6</td>
</tr>
</tbody>
</table>

On days you walk/bike, how far do you go?

<table>
<thead>
<tr>
<th>Distance</th>
<th>Percent (n=70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1/2 mile</td>
<td>5.7</td>
</tr>
<tr>
<td>1/2 mile to 1 mile</td>
<td>20.0</td>
</tr>
<tr>
<td>1 to 2 miles</td>
<td>38.6</td>
</tr>
<tr>
<td>3 to 5 miles</td>
<td>31.4</td>
</tr>
<tr>
<td>More than 2 miles</td>
<td>4.3</td>
</tr>
<tr>
<td>Do not know</td>
<td></td>
</tr>
</tbody>
</table>

In a typical week during each season, how many DAYS PER WEEK do you walk or bike?

<table>
<thead>
<tr>
<th>Season</th>
<th>Bike</th>
<th>Walk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>2.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Winter</td>
<td>1.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Spring</td>
<td>2.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Summer</td>
<td>3.2</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Rate the condition on your most used walking/biking route:

<table>
<thead>
<tr>
<th>Condition of Sidewalks</th>
<th>Percent (n=69)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>43.5</td>
</tr>
<tr>
<td>Fair</td>
<td>40.6</td>
</tr>
<tr>
<td>Poor</td>
<td>8.7</td>
</tr>
<tr>
<td>Non existent</td>
<td>7.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Street crossings/accessibility</th>
<th>Percent (n=68)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>57.4</td>
</tr>
<tr>
<td>Fair</td>
<td>36.8</td>
</tr>
<tr>
<td>Poor</td>
<td>4.4</td>
</tr>
<tr>
<td>Non existent</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Community Survey

**Traffic and driver behavior**

- **Good**: 52.9%
- **Fair**: 35.3%
- **Poor**: 10.3%
- **Non existent**: 1.5%

**Public trail access**

- **Good**: 19.6%
- **Fair**: 19.6%
- **Poor**: 10.7%
- **Non existent**: 50.0%

**Public trail condition/ease of use**

- **Good**: 17.6%
- **Fair**: 27.5%
- **Poor**: 3.9%
- **Non existent**: 51.0%

**Safety**

- **Good**: 49.3%
- **Fair**: 46.3%
- **Poor**: 3.0%
- **Non existent**: 1.5%

**Visually appealing to walk/bike**

- **Good**: 38.8%
- **Fair**: 47.8%
- **Poor**: 10.4%
- **Non existent**: 3.0%
Community Survey

Which of the following keep you from walking or biking more often?

- Time: 51.4%
- Inconvenient (easier to drive to location): 24.3%
- Distance: 20.0%
- Speed of traffic along route: 8.6%
- Amount of traffic along route: 11.4%
- Train/railroad tracks: 7.1%
- Sidewalks or pathways (none or inadequate): 18.6%
- Safety of intersections and crossings: 7.1%
- Violence or crime: 1.4%
- Weather or climate: 65.7%
- Safe place of bike storage/parking: 8.6%
- Other: 17.1%

In your opinion, how much does your community encourage walking and/or biking?

- Strongly encourage: 4.2%
- Encourage: 36.6%
- Neither: 54.9%
- Discourage: 4.2%

With whom do you walk most of the time?

- Alone: 68.6%
- Friends: 18.6%
- Neighbors: 30.0%
- Club or class: 10.0%
- Spouse/partner: 22.9%
- Children: 8.6%
- Pets: 1.4%
- Other family/relatives: 8.6%
- Prefer not to answer: 1.4%
Indicate which of the following best applies to you and your neighborhood.

- There are sidewalks on most of the streets in my neighborhood. (n=87)
- The sidewalks in my neighborhood are well maintained. (n=86)
- There are bicycle or walking trails in or near my neighborhood. (n=82)
- There are many attractive natural sites in my neighborhood. (n=86)
- There is a safe amount of traffic in my neighborhood. (n=87)
- Most drivers drive at safe speeds in my neighborhood. (n=87)
- My neighborhood streets are well lit at night. (n=87)
- I am not worried about crime in my neighborhood during the day. (n=87)
- I am not worried about crime in my neighborhood during the night. (n=87)
- The air quality in my neighborhood is good. (n=86)
- The dogs in my neighborhood are properly confined or restrained. (n=87)
- I see a lot of people walking and biking in my neighborhood. (n=87)
**What is your gender?**

- Female: 55.7%
- Male: 44.3%

**What is your age range?**

- 86 years and older: 2.2%
- 81-85 years: 2.2%
- 76-80 years: 25.8%
- 71-75 years: 15.7%
- 66-70 years: 19.1%
- 61-65 years: 28.1%
- 55-60 years: 5.6%
- 50-55 years: 1.1%
- under 50 years: 1.1%

**How many individuals reside in your home?**

Average: 1.98

**What is the highest grade or year of school you completed?**

- Eighth grade or less: 1.1%
- Some high school: 9.0%
- High school or GED certificate: 15.7%
- Some technical school: 28.1%
- Some college: 27.0%
- College graduate: 14.6%
- Post grad or professional degree: 3.4%
- Prefer not to answer: 3.4%

**Are you currently?**

- Employed full time: 33.7%
- Employed part time: 10.1%
- Self-employed: 4.5%
- Out of work less than 1 year: 3.4%
- Out of work more than 1 year: 3.4%
- Homemaker: 3.4%
- Student: 1.1%
- Retired: 42.7%
- Disabled/unable to work: 1.1%
**I would like to participate in a walking assessment of our community.**

- Yes: 14.1%
- No: 85.9%

**“Biking trails are nonexistence here. Don’t like to bike on local roads, too dangerous. Walking is ok, but not always available.”**

Community Survey

Survey respondents were asked to provide their home address and the locations they walk or bike to. This information was entered into a Geographic Information System (GIS) to visualize where the respondents lived along with the locations they walked or biked to. To keep individual residences private, locations with a darker red overlay indicate locations with a higher density of respondents. Points representing the locations respondents go are shown on the map and also represented in the graph at the beginning of the survey report and in the map on the following page.
The density map below illustrates (dark blue) the locations identified most often by respondents as locations to which they walk or bike.
Respondents identified challenges to walking and biking and located these on a map.
Community Survey

Respondents identified challenges to walking and biking and located these on a map.
Respondents identified challenges to walking and biking and located these on a map.
Community Survey

Respondents identified challenges to walking and biking and located these on a map.
Using aerial photography and the data collected by the volunteers using the iPhone SRTS infrastructure tool, the map below identifies the streets that have sidewalks on one, both sides of streets or no sidewalks at all.

Sidewalk Availability

Iowa State University Extension & Outreach
Extension Community Economic Development
Contact: Chris Seeger cjseeger@iastate.edu
Basemap: Iowa DOT
May 2013
The map below uses Iowa Department of Transportation data from 2009 through early May 2013 to identify the intersections where accidents occurred. Special consideration should be given to these intersections when identifying routes for walking programs.
The map below uses Iowa Department of Transportation data from 2009 through early May 2013 to identify the locations where accidents with non-motorists occurred. Special consideration should be given to these locations when identifying routes for walking programs.
Survey Comments

“Animal control needs to keep unchained pets controlled.”

“I agree it would be good for one to work and perhaps bike ride. Agreed to check with my doctor about riding a bike as I have bad knees.”

“Biking trails are nonexistence here. Don’t like to bike on local roads, too dangerous. Walking is ok, but not always available.”

“Very good exercise. I walk on treadmill at home because of health problems.”

“Someday I will be able to walk.”

“Low branches over slow walks. Litter on street yards. Dog poop not cleaned.”

“I don’t walk or bike but know I should. I feel anyone who chooses to should have easy access to do so.”

“I wish we had a bike trail leading to Ames on the High Trestle Trail. We haul our bikes to Madrid and ride that trail often.”

“Most people walking are dog walkers.”

“Need more bike and walk trails.”

“Most walking done on treadmill during winter, outside in warm. City has not completed sidewalks around middle school. They said would be done.”

“Would be great to have a safe walking/biking train in the community.”

“A lot of people walk in the street even when there are good sidewalks. It is hard on the drivers and a danger.”

“Due to medical problems with feet, back and hip, I have not walked outside past year. Hope things will be better & can walk later in summer or fall.”

“Linn St. needs patrol cars; E/W side of Linn some not have sidewalks; speeding traffic constantly & lots of truck activity. Some street lights out; published burglaries; burning leaves.”

“Walking is pleasant; biking has to be done in street; can be unsafe for younger children; cars park over sidewalks & bushes need trimming in places making it difficult for strollers to get by. Longer biking trail would be great.”

“Walking/hiking primarily on Sunday AM at nearby state parks. Hikes are 7-12 miles depending on park/trail. Do some walking in town on nice days to run errands or get some exercise.”

“Need to tighten controls on dogs that s--t in my yard. Need very strong fines or jail.”

“If more people walked and biked, others would also. An exchange student from Romania said “in this country you don’t want to walk because everyone is driving”.”
Survey Comments

“Work part time at golf course in summer. Walk in winter for exercise only. Have no set route to walk.”

“I am no longer able to walk any distance because of a medical problem.”

“Main concern is sidewalks that need repair and people need to pick up after dogs. Lots of waste on sidewalks. Need more bike and walking trails.”

“I often park at the 7th St. parking lot and walk downtown. I walk down to the farmer’s market and up to the bank. Walking is encouraged at work. The one thing bikers need to remember is safety. Far too many rides without lights or reflective clothing. Walkers and joggers are hard to see.”

“I walk 3 miles every day. Almost always the cemetery or bike trail or McHose Park. Mostly I drive to destinations to walk. Traffic and intersections are too busy. Too many starts and stops if trying to walk to parks, etc. In the winter I walk at the Y.”

“Boone could definitely use walking/biking trails. Walking paths in several parts of town would be great.”

“Limited walking due to back problems and also problems with L knee. COPD and oxygen also an influence on walking.”

“I walk 14 rounds in a church = 1 mile. Also I watch a DVD and follow it in exercise.”

“I use a treadmill and an aerodyne bike at home.”

“I wish my community would require all homes to have sidewalks.”

“Sidewalks blocked with snow and cars.”

“Only dangerous area is under the bridge by Hy-Vee and that is only when slick or heavy traffic times e.g. before and after school. During fair many drivers are courteous. Zero sidewalk on Industrial Park Rd & Argo.”

“There are many streets with no sidewalks. Biking on the street here is not too smart.”

“Too much pop dog (dog poop!).”
GPS Walkability Workshops trained citizens to conduct a community inventory using iPhones equipped with a copy of the ESRI ArcGIS app that was customized by ISUEO for the purpose of mapping community infrastructure and saving this information to a geographic information system (GIS) at ISU.

During a one-day workshop, the I-WALK team trained volunteers to use the iPhone app. The volunteers then took to the streets to collect the data. Volunteers were asked to evaluate intersections and mid-block areas and to document any additional resources that may impact the walkability of the area around the community. The following figures show questions the volunteers were asked at each location and additional features that could be mapped as well as the iPhone interface. Answer options identified in bold text were default responses for each question. Additional data is also available online at www.i-walk.org

### GPS Training Session

**Midblocks: Are their sidewalks in the Midblock?**

<table>
<thead>
<tr>
<th>Are there sidewalks midblock?</th>
<th>Complete on both sides of street</th>
<th>Complete on one side of street &amp; no sidewalk on the other</th>
<th>Complete on one side of the street &amp; incomplete on other</th>
<th>Incomplete on one side &amp; no sidewalk on other</th>
<th>Incomplete on both sides of street</th>
<th>No sidewalks on either side</th>
</tr>
</thead>
</table>

**What is the condition of the sidewalk?**

- **Good** - free of major cracks and uneven areas, can easily walk or bicycle
- **Fair** - has some major cracks and uneven areas, but still able to ride a bicycle
- **Poor** - is uneven or has major cracks or missing concrete throughout

**Is the sidewalk wide enough for two adults to walk side by side?**

- **Yes**
- **No**
- **Unsure**

**Is the sidewalk set back from fast-moving traffic?**

- **Yes**
- **No**
- **Unsure**

**Is the route pleasant to walk? (no litter, visually interesting)**

- **Yes**
- **No**
- **Unsure**

**Is street lighting provided?**

- **Yes**
- **No**
- **Unsure**

**How many dedicated bike lanes along the road**

- **0, 1, 2**

**Comment:**

**Additional Features**

- Bike Rack
- Bus Stop
- Cars Blocking Sidewalk
- Cracked Sidewalk
- Crossing Guard
- Crosswalk not at intersection
- Scary Dogs
- Sidewalk ends
- Sidewalk with Stairs
- Vegetation Blocking Route
- Often has standing water
- Other
- Large Truck Traffic
### Intersection-Elementary student feel safe?

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think an elementary student would feel safe crossing this street?</td>
<td>Yes, No, Maybe</td>
</tr>
<tr>
<td>Do you think an adult would feel safe crossing this street?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>How many streets intersect? For Example:</td>
<td>1, 2, 3, 4, 5, 6 (Type in number)</td>
</tr>
<tr>
<td>How is traffic controlled at the intersection?</td>
<td>Yield, One Way stop, Two Way stop, Three Way Stop, Four Way Stop, Roundabout, Traffic Light, Flashing alert, No traffic control</td>
</tr>
<tr>
<td>Is there a traffic light pedestrian crossing signal? (Walk/Don’t Walk)</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Do the sidewalks have curb cuts/ramps?</td>
<td>Yes, No, Yes, but curb cut/ramp needs improvement</td>
</tr>
<tr>
<td>How many streets have painted crosswalks?</td>
<td>1, 2, 3, 4, 5, 6 (Type in number)</td>
</tr>
<tr>
<td>Is the road too wide to cross safely?</td>
<td>Yes, No, Unsure</td>
</tr>
<tr>
<td>Is there enough time to cross the street?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Are there items that make it difficult for you to see traffic or for traffic to see you?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
</tr>
</tbody>
</table>

**GPS Training Session**

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Selecting the community from the list of maps displayed a map of the community on the screen.

The map of the community could be zoomed and panned as necessary. Points already collected by other volunteers (red dot) were dynamically shared across devices.

Opening the toolbox icon, users could collect new features to add to the map.

Features could be mapped at an intersection, midblock or as a random event.
Once a type of feature was selected, questions regarding the feature were presented. Questions were answered by selecting the correct result from a pick list. After answering the questions, the user could locate the feature on the map. This could be done by clicking on the correct location on the map, or using the GPS to place the feature at the current location.

In addition to collecting feature location and attributes, users had the option of taking a photo and saving it as part of the documentation. Points saved with the iPhone were automatically transmitted back to ISU’s GIS server where they could be shared with other devices and later used in analysis.
GPS Data Collection Evaluation

A detailed evaluation of the GPS Assessment Training was conducted at workshop conclusion to guide future developments of the activity. The training evaluation was used to measure participants' reactions to and learning, understanding and application of the mapping activity. A questionnaire was administered to the volunteers after they had completed the mapping activity. Respondents were community residents. Results from the evaluation are presented below.

**GPS Assessment Training Evaluation Results**

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you left the training, how prepared did you feel to conduct a GPS walkability assessment</td>
<td>1.5</td>
</tr>
<tr>
<td>Were the materials presented in a way that made sense and flowed smoothly</td>
<td>1.4</td>
</tr>
<tr>
<td>Was the training organized and arranged in a manner that made sense and “user friendly”</td>
<td>1.3</td>
</tr>
<tr>
<td>How helpful is it to practice GPS assessment before actually doing it</td>
<td>1.5</td>
</tr>
<tr>
<td>Were you given ample opportunity to ask questions during the training</td>
<td>1.1</td>
</tr>
<tr>
<td>Did the answers to your questions make sense</td>
<td>1.0</td>
</tr>
<tr>
<td>Overall rating of workshop</td>
<td>4.5</td>
</tr>
<tr>
<td>Rating of trainer</td>
<td>4.6</td>
</tr>
<tr>
<td>Rating of organization of workshop</td>
<td>4.4</td>
</tr>
<tr>
<td>Rating of usefulness of workshop</td>
<td>4.5</td>
</tr>
<tr>
<td>Rating of understanding of GPS Assessment Procedures</td>
<td>4.4</td>
</tr>
<tr>
<td>Rating of understanding of effectiveness of GPS Assessment</td>
<td>4.4</td>
</tr>
</tbody>
</table>

- The first question asked community volunteers how prepared they were to conduct a walkability assessment following the training (1 “Very well prepared” – 5 “Not at all prepared”). For the most part, community volunteers were very well prepared to conduct the walkability assessment.
- Respondents reported the training materials were presented in a way that made sense and flowed smoothly (1 “Very well” – 5 “Not at all”).
- The training was organized and arranged in a manner that made sense (1 “Very well organized” – 5 “Not at all organized”).
- It was very helpful to practice a GPS assessment before actually doing it (1 “Very helpful” – 5 “Not at all helpful”).
- Community volunteers were given ample opportunity to ask questions during the training (1 “Very much opportunity” – 5 “Not at all provided opportunity”).
- For the most part, answers to questions posed during the training made sense to the volunteers (1 “Yes,” 2 “Somewhat,” 3 “No”).

Overall, the training workshop and the trainer were rated as excellent (1 “Very poor” – 5 “Excellent”), and the workshop was very organized (1 “Very disorganized” – 5 “Very organized”). In addition, the workshop was very useful (1 “Not useful at all” – 5 “Very useful”). The GPS assessment procedures were very well understood (1 “Not understood at all” – 5 “Very well understood”), as well as the understanding of the effectiveness of the GPS assessment.
Damaged Sidewalks

Areas with damaged sidewalks identified by the volunteers using the iPhone device.
Using the iPhone devices, volunteers identified sidewalks that were not set back from the street as well as sidewalks not wide enough for two adults to walk side-by-side.
Volunteers evaluated at the midblock if they could see that street lighting was provided at the nearest intersection or along the street. Volunteers also identified if the particular street was pleasant to walk.
Using the iPhone devices, volunteers identified areas that had visible painted crosswalks.
Using the iPhone devices, volunteers identified areas that they thought as an adult that a child would not feel safe crossing. In addition, specific intersections were also identified as being equally unsafe for an adult to cross.
Using the iPhone devices, volunteers identified intersections where the data collector did not consider there to be sufficient time to cross the street safely as well as intersections where items might make it difficult for a motorist to see the pedestrian or for the pedestrian to see motorists.
Using the iPhone devices, volunteers identified intersections where the sidewalks did not have curb cuts connecting to the street and where the street might be too wide for a pedestrian to safely cross.
Using the iPhone devices, volunteers identified various infrastructure challenges (e.g., car blocking a sidewalk) and assets (e.g., presence of a bike rack).
The goal of I-WALK is to give a community the opportunity to make walking and bicycling to and from various locations safer and more accessible for residents of all abilities and to increase the number of residents who choose to walk and bicycle. On a broader level, I-WALK can enhance health and well-being, ease traffic congestion, improve air quality and improve community members’ overall quality of life. Communities are encouraged to tailor a combination of engineering, education, encouragement, evaluation, and enforcement strategies to address the specific needs of their community.

**Engineering**

“Engineering” is a broad concept used to describe the design, implementation, operation and maintenance of traffic control devices or physical measures, including both low and high-cost capital measures. Engineering approaches can improve children’s safety to enable more bicycling and walking. Engineering should also improve the accessibility of walking and bicycling routes for children with disabilities.

**Enforcement**

Enforcement, especially for SRTS programs, is a network of community members working together to promote safe walking, bicycling and driving. This can be accomplished through safety awareness, education and, where necessary, the use of ticketing for dangerous behaviors. Enforcement includes students, parents, adult school crossing guards, school personnel and neighborhood watch programs working in conjunction with law enforcement to enforce rules for safe walking, bicycling and driving.

**Encouragement**

Encouragement strategies are about having fun, they generate excitement and interest in walking and bicycling. Special events, mileage clubs, contests and ongoing activities all provide ways for parents and children to discover, or rediscover, that walking and bicycling are doable and a lot of fun.

Increase the number of children who walk and bicycle to school safely. In particular, encouragement and education strategies are closely intertwined, working together to promote walking and bicycling by rewarding participation and educating children and adults about safety and the benefits of bicycling and walking.

**Education**

While education dovetails with engineering and enforcement, it is most closely linked to encouragement strategies. For example, children may learn pedestrian and bicyclist safety skills and then get the chance to join a mileage club that rewards children for walking or bicycling to school. Encouragement activities also offer “teachable moments” to reinforce pedestrian and bicyclist safety education messages.

**Evaluation**

Evaluation is used to determine if the aims of the strategies are being met and to assure that resources are directed toward efforts that show the greatest likelihood of success. Also, evaluation can identify needed adjustments to the program while it is underway. This information describes how to conduct a SRTS program evaluation that is tailored to that program’s objectives and strategies.
The first steps of I-WALK is to do an assessment. Once the infrastructure data is collected, the next step is to observe how community residents get to and from various locales. Communities are encouraged to spend time observing how and where individuals cross the street. Using the data provided in the infrastructure assessment and online survey as a guide, evaluators can determine where observations should start.

The primary focus area should be around frequently visited community locations. Past this point, it becomes increasingly unlikely that an individual would walk/bike. After the observation step has been completed, the community should use the collected data and observations to prioritize where to begin improvements.

The following recommendations are “general” recommendations to all communities. The word “general” does not imply that they are of lesser importance than any of the specific recommendations for each one of the school districts and their respective community. These are common recommendations of importance to create safer pedestrian and bicycle environments, while at the same time encouraging walking and bicycling to and from community locations.

**General Recommendations for Community:**

- Focus first on projects that are of low-cost and easy to implement.
- Implement a Complete Streets design for the community.
- Update the city’s comprehensive plan every two years.
  - With each comprehensive plan update, specifically address access to physical activity infrastructure by all segments of the population in the streets/sidewalk and parks/recreation sections.
  - In the comprehensive plan, set specific goals and evaluation criteria for access to and availability of the physical activity infrastructure including (but not limited to):
    - Sidewalks
    - Bike paths
    - Walking and hiking trails
    - Recreation facilities
    - Skating rinks and other winter outdoor activity facilities
    - Any other initiatives to encourage and facilitate physical activity and enjoyment of the outdoors
- Develop and initiate city-sponsored programs to retrofit sidewalks in developed areas where sidewalks are absent and/or had not been required.
General Recommendations to Communities

- Implement annual inspection and repair of all physical activity infrastructure.
- Keep walkways and bikeways separate from the street (buffer with grass, trees or even a bike lane).
- Provide a sidewalk on both sides of the street to prevent jumping from one side to the other.
- Ensure sidewalks are the appropriate width for the site conditions (sidewalks adjacent to street should be wider).
- Provide ramps and curb cuts at all intersections for all sidewalks.
- Mark ALL crosswalks in the community:
  - Use “zebra stripe pattern” as opposed to simple striped lines across the road.
  - Provide “shark teeth” paint markings to show where cars should stop for crosswalks, particularly on multi-lane roads.
  - While crosswalk flashers may seem to be an area to focus on, be aware that studies show they only make a three mile reduction in speed when these devices are installed. Putting up signs to remind drivers that it is the law to give pedestrians the right of way and fines exist for disobeying the law can also be effective.
- Review the Manual on Uniform Traffic Control Devices (MUTCD) to ensure signage is current. The MUTCD can be found online at http://www.mutcd.fhwa.dot.gov/htm/2009r1r2/html_index.htm
- Post traffic control signs on each I-WALK route with the fine listed for violating the law. Ticket violators in the first few days of posting to ensure signage is taken seriously.
  - Publish walking maps for each neighborhood that includes:
    - Community amenities and services such as schools, libraries, parks, city offices, etc.
    - Unique vegetation and bird species
    - Distances
    - Walking times to destinations
    - Safest routes, crossings, etc.

General Recommendations:
- Move bike racks away from centralized pickup points to avoid congestion.
- Provide bike racks that allow the frame of the bike to be attached to the bike rack, not just the wheels.
- In instances where people turn at the same time the crosswalk light is green, consider using a “leading pedestrian interval” instead of a concurrent signal.
- Use methods to slow traffic:
  - Speed bump
  - “Street diet” (go from four lanes to two)
  - Extend curb into road (also creates a shorter distance for the pedestrian to cross).
Additional Resources

The I-WALK website offers many useful resources to those looking for more information:

- Webinars
- Infrastructure
- Iowa Safe Routes to School Workshops
- Iowa Department of Natural Resources
- Iowa Department of Transportation
- ...and many more

Walking with a Purpose
This resource will help your school conduct a walkability assessment of its neighborhood. The checklist will help assess what makes the walking environment inviting and safe, as well as identify barriers that exist. After the assessment, school staff can help students become advocates for a more walkable community.

Healthy Community Design Checklist
The Healthy Community Design Initiative’s (HCDI) Healthy Community Design Checklist is a plain-language checklist for community members with little or no knowledge of the public health and built environment connection. It includes healthy community design elements that should be considered while participating in a land-use planning process.

In the new report, the Alliance for Biking & Walking ranks all 50 states and the 51 largest U.S. cities on bicycling and walking levels, safety, funding and other factors. The report is funded by CDC’s Healthy Community Design Initiative.

Federal Highway Administration: Livability Fact Sheets
The fact sheets provide information and examples on how considering livability during the transportation decision-making process can benefit communities. The fact sheet topics include health, housing costs, freight, land use, safety, management and operations, rural communities and the environment.

Complimentary Copies Of The 2012 Minnesota Bike Guide Are Available Now
To encourage more to become, or stay active this year’s guide has expanded its pages offering information to more than 200 bike related events, many bike-friendly maps of places we all like to ride and helpful tips. Printed courtesy of our many wonderful sponsors, guides come in bundles of 25 and are available by contacting us.

To access these resources and others, visit www.i-walk.org and click on “Resources”.

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A PDF version of this report and other supplementary materials is available at wwwI-WALK.org