

Contextualizing the Community Walkability Audit Tool

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Abstract

There has been increasing interest in community-based walkability audits (CWA) which are, for the purposes of this paper, audits administered by community members without the need for formal training. Although there are many examples of CWAs, the literature pertaining to this subset of audit tools is limited. The purpose of this research is to address these gaps. While not intending to be comprehensive, this research is meant to begin painting a picture of what is currently done, and how, with respect to CWAs. The paper includes a review of literature and thirteen case studies of CWA tools that are compared using a framework based on the literature review. The framework addresses a variety of issues including the focus, type, format and geographic scale of the audit, as well as which environmental features are addressed and the context in which the audit tool is presented to the public. An analysis is conducted as per each item in the case study framework.

Biographies

Author

Stephanie Tencer is a long time pedestrian advocate. She co-chairs the Toronto Coalition for Active Transportation Steering Committee and sits on the City of Toronto Pedestrian Committee. She has a Masters in City Planning from UC Berkeley and is a recipient of the Eisner Prize for Creative Arts, Urban Design.

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Introduction

Walkability audits can be conducted for various reasons and employ a range of data collection methods. The majority of walkability audits are designed to be carried out by professionals. Despite this, there has been increasing interest in community-based walkability audits (CWA) which are, for the purposes of this paper, audits administered by community members without the need for formal training.

Although there are many examples of CWAs, the literature pertaining to this subset of audit tools is limited. This is unfortunate as designing a tool appropriate for community members will imply unique parameters, e.g. what methods of data collection do not require training? How long should a CWA be? How accurate is the data collected by community members? The purpose of this research is to address these gaps. While not intending to be comprehensive, this research is meant to begin painting a picture of what is currently done, and how, with respect to CWAs.

Methodology

A literature review has been conducted to provide an overview of what constitutes a walkability audit and how such tools can be used. Based on the literature review, a framework for comparing case studies pertaining specifically to CWA tools was developed.

In a case study review, thirteen CWA tools are presented using this framework. The framework addresses a variety of issues including the focus, type, format and geographic scale of the audit, as well as which environmental features are addressed and the context in which the audit tool is presented to the public. An analysis is conducted as per each item in the case study framework.

Literature Review

Three questions were held at the forefront while combing the literature:

- a) How do you define a walkability audit?
- b) What kind of information can be collected in an audit (e.g. infrastructure issues, safety concerns, aesthetics, etc.)?
- c) What are the different formats used for the audit (e.g. analytical questions, checklists, diagrams, mapping exercises, etc.)?

What is a Walkability Audit?

- “a tool used to inventory and assess physical environmental conditions associated with walking and cycling” (Moudon, A. V., Lee, C. 2003: 29).
- “a systematic assessment of factors in the physical and social environment that hinder or facilitate physical activity” (Hoehner, C. M, et al. 2006: 271).
- “a systematic observational assessment of factors in the physical and social environment (e.g. Recreational facilities and sidewalks) that hinder or facilitate physical activity” (Hoehner, C.M, et al. 2007: 534).

- “a type of index developed to verify the presence or the absence of several factors. Some walkability audits focus on aspects linked to pedestrian security, others look at land use (Pelletier, A, et al. 2007).

In general, the purpose of an audit is to either inventory or assess the environment, while some do both. Similarly, the focus of an audit can be on the physical environment, while others look at both the physical and social environment. Despite these distinctions, there is general agreement that an environmental audit is a tool for providing a snapshot of the walking environment and can respond to both the presence and absence of a range of relevant factors.

Components of a Walkability Audit

The most current and comprehensive review of environmental audit tools is a study done by Anne Vernez Moudon and Chanam Lee entitled, *Walking and Bicycling: An Evaluation of Environmental Audit Instruments* (Moudon, A. V., Lee, C. 2003), in which 31 audit instruments are inventoried and evaluated.

The literature often distinguishes between walking for transportation and walking for recreation. Several studies indicate that environmental factors will affect these types of walking differently (Humpel, N. et al. 2004), and so in developing an appropriate audit tool it is necessary to be cognizant of *why* you are developing the tool.

Moudon and Lee identify three major components to an environmental audit:

- The origin and destination of the walk;
- The characteristics of the route taken for the walk; and
- The characteristics of the area in which the walk takes place.

The 31 instruments were then sub-divided according to the purpose for which they were developed. Moudon & Lee identified four such purposes:

- To inventory elements of the walking environment;
- To assess the quality of a walking route;
- To assess the quality of an area surrounding a walking route; and
- To estimate the latent demand for walking.

Types of Walkability Audit Tools

An Inventory

Two of the 31 instruments conduct an environmental scan or inventory of roadway characteristics and environmental elements immediately along the roadway. Data is collected at the neighbourhood scale, which was defined as within 400 metres of the subject's residence, and recorded at the scale of individual street segments.

A Route Quality Assessment

Fifteen of the 31 instruments seek to measure and rank roadway design from the perspective of walkability, primarily based on perceptions of safety and comfort. Data is collected for pre-determined street segments and also for intersections.

An Area Quality Assessment

Eleven of the 31 instruments assess the degree to which an area supports functional walking and ensures pedestrian safety and comfort. Data collection methods range from simple (e.g. a survey completed by residents) to complex (e.g. sophisticated database manipulation).

An Estimation of Latent Demand

Three of the 31 instruments focus on the potential volume of pedestrians within an area. Two kinds of proxies help estimate demand (with limitations) -- vehicular traffic counts and modal share ratios, and environmental factors defined as attractors and generators of walking (e.g., using standards which defines the number of trips associated with particular land use types).

Of the 31 audit instruments that were reviewed, only two were specifically intended to be administered by lay people. Both of these instruments were classified as area quality assessment tools. Although most of the 31 audit tools were administered by professionals, they are still useful in providing guidance on how to develop a CWA tool tailored to a specific community.

Which Environmental Factors Are Measured In A Walkability Audit?

In reviewing the 31 audit instruments, Moudon & Lee compiled a long list environmental factors that can be measured in a walkability audit:

1. Roadway Characteristics
2. Environment along Roadway
3. Network
4. Area
5. Nonmotorized Traffic
6. Vehicular Traffic
7. Safety
8. Perceptions of Environments
9. Policies affecting Environments

To collect information on these nine environmental factors, various data sources were drawn upon – the Department of Transportation, in-the-field research methods, Geographic Information Systems, Census data and survey methods. In developing a tool that residents themselves can use, in-the-field observation and survey methods are likely to be the most relevant data sources. It seems, therefore, that the area quality assessment type will be most appropriate for a community walkability audit tool.

The Moudon and Lee framework is not the only means for conceptualizing an environmental audit. For example, Pikora, T. J. et al, 2002 developed an audit instrument based on the following four categories of environmental factors:

- Functional – relates to the physical attributes of the street;
- Safety – includes variables relating to both personal safety and traffic safety;
- Aesthetics – includes variables relating to streetscape and views; and
- Destination – relates to the availability of community and commercial facilities in neighbourhoods.

The purpose for which the community walkability audit tool is being created will ultimately determine which environmental factors are measured. The complexity of and/or required skills needed for data collection will also affect whether certain features are appropriate to be included in a CWA.

The value of conducting this literature review has been in identifying four types of walkability audits and a series of general categories of environmental features that can be measured in a walkability audit.

Case Study Review - Methodology

The purpose of the case study review is to address a gap in the available literature pertaining to CWAs. Internet research was the primary method for identifying appropriate case studies. The only criterion for inclusion in the compendium was that the walkability audit tool be administrable by community members without the need for formal training. Thirteen community walkability audit tools were reviewed. *Table I* lists the 13 case studies included in the compendium. *Table II* defines the framework

that is used to compare the case studies to one another. *Appendix I: Compendium of Case Studies* presents each of the case studies using this framework.

Table 1 – List of Case Studies

Name of Audit Tool	Relevant Organization(s)
Placecheck	Urban Design Alliance
Walking Route Audit Tool for Seniors	San Diego State University University of California – San Diego
Community Street Review	Living Streets Aotearoa Steve Abley Chartered Transportation Engineering
B.E.A.T. Neighbourhood Assessment	British Columbia Recreation & Parks Association Union of British Columbia Municipalities BC Healthy Living Alliance ActNow BC
Walkability Checklist	Walk San Diego
Walkability Checklist	Partnership for a Walkable America Pedestrian & Bicycle Information Center US Department of Transportation US Environmental Protection Agency National Center for Safe Routes to School
Safety Audit Checklist for Parks	City of Toronto
WalkOn	Choices 4 Health in Halton Region Brant Healthy Living in Brant County, Health Action in Haldimand and Norfolk Counties Together 4 Health in the Region of Waterloo Healthy Living Niagara in the Niagara Region Community Heart Health Network in Wellington-Dufferin-Guelph
Neighborhood Environment Walkability Scale (NEWS)	San Diego State University
Healthier Worksite Initiative's Worksite Walkability Tool	Centers for Disease Control & Prevention U.S. Department of Health & Human Services
PEDSAFE	PedBikeTrans – The Pedestrian & Bicycle Transport Institute of Australasia
Sidewalks & Streets Survey	AARP – American Association of Retired Persons

Table 2 – Case Study Framework

<i>Name & Website</i>	Title of the tool, website/where it can be accessed.
<i>Relevant Organization(s)</i>	Lists the organization(s) responsible for creating the tool.
<i>Audit Focus</i>	Whether the tool is meant to evaluate the pedestrian environment with respect to transportation needs and/or recreation needs.
<i>Audit Type</i>	Classifies the audit tool as one of four types – an inventory, a route quality assessment, an area quality assessment, or an estimation of latent demand.
<i>Environmental Features</i>	Identifies which of the following nine broad categories of environmental features are addressed in the audit – roadway characteristics, the environment along the roadway, relationship to a network of pedestrian amenities, the area surrounding the route being walked, non-motorized traffic, vehicular traffic, safety, environmental perceptions and environmental policies.
<i>Geographic Scale</i>	Addresses the geographic scale of the audit – has the route or area to be evaluated been defined or is it undefined. If defined, an indication of how will also be included.
<i>Question Format</i>	Identifies what format is used for the questions in the audit – checklist (check all that apply), open-ended questions, Likert scale, rating scale and/or multiple choice questions. Also indicates whether a walkability score is tabulated by the audit participants.
<i>Next Steps</i>	Highlights what participants are expected/encouraged to do once the audit is complete, and what resources are provided with the audit tool to facilitate the proposed next steps.
<i>Discussion/Other Information</i>	Identifies any other unique aspects relevant to the audit tool, including a general sense for the effectiveness of the tool.

Limitations

The analysis is limited by the fact that internet research was the sole method for collecting information. To determine with rigour how the tools are used, why they are used and how they were developed requires research beyond the scope of this project.

Analysis

To follow is an overview of the findings as per each of the items in the case study framework.

Audit Focus

Nine of the 13 tools focused on evaluating walkability with respect to transportation. A few include questions pertaining to recreational walking, and one focuses on recreational only.

Audit Type

Seven tools assess the quality of an area and six assess the quality of a route.

Geographic Scale

Most of the tools did not specify a geographic scale. Of the two that did, one, the *Walking Route Audit Tool for Seniors* required participants to use a pedometer and defined a route as anywhere between 1000-2000 steps. The other, the *B.E.A.T. Neighbourhood Assessment* defined the geographic scale by area – one square kilometre or seven by seven city blocks. Many of the tools indicated that they could be used for multiple scales – e.g. a street segment and/or a larger area. The *Neighborhood Environment Walkability Scale* defines a maximum - a 10-15 minute walk from the participants home in any direction.

Walkability Score

Seven include a walkability score (tabulated by audit participants). Most common was a simple tally that indicated whether the area was, for example, poor, fair, good or excellent with respect to walkability. Others were more complex. For example, the *B.E.A.T. Neighbourhood Assessment* provides an overall score that is categorized as either 'needs work', 'room for improvement' or 'getting active' but also provides sub-scores for different categories such as density and land use, pedestrian infrastructure, safety, transit, etc. This more specifically highlights for participants where there is room for improvement and/or cause to celebrate success.

Question Format

Various question formats are used. In all cases, more than one question format is used. Eleven tools have open-ended questions that supplement the primary question format used. In *Placecheck*, open-ended questions are the primary question format.

Environmental Features

All nine categories of environmental features identified in the literature review are represented to some degree or another in the 13 case studies. Environmental policies were addressed in the fewest number of case studies and participants' perceptions of the environment and safety in the most. In fact, questions addressing environmental perceptions as well as pertaining to safety were present in 12 of the 13 case studies. Roadway characteristics and the environment along the roadway were the second most common categories of environmental features – in 11 of the 13 case studies.

Next Steps

All but one of the case studies include supplementary information to guide participants as to what to do after completing the audit. Eight of the 13 case studies provided additional information that facilitates the development of an action plan, and it was generally presented in the form of a template and/or worksheet. Six of the 13 case studies include a list of possible actions that participants could undertake after completing the audit and six include a list of resources, online and/or in print that participants could consult for further information.

Discussion/Other Information

- Four case studies (*Placecheck*, *Community Street Review*, *B.E.A.T. Neighbourhood Assessment* and *PEDSAFE*) explicitly state that they're geared towards a variety of stakeholders, e.g. community members, local organizations and professionals.
- All case studies, with one exception, do not indicate how much time participants should budget to complete the audit. *PEDSAFE* is the exception and suggests allotting 50-60 minutes to complete the audit.
- Three (*Walking Route Audit Tool for Seniors*, *Community Street Review* and *Neighborhood Environment Walkability Scale*) have a clear emphasis on research and data collection. The other audit tools are geared more towards civic engagement and raising awareness about walkability. It was not explicit if and/or how the data collected would be used in nine of the 13 tools.
- The degree to which the nine audits focused primarily on civic engagement raise the level of public discourse surrounding issues of walkability varies quite significantly. The *Walkability Toolkit* and the *B.E.A.T. Neighbourhood Assessment* seem most successful in this regard.
- The use of photographs is more prevalent in the audit tools which are designed for civic engagement and education than in the tools designed for research and data collection. Four of the 10 civic engagement focused audit tools employ the use of graphics. Photographs, as well high quality graphic design of the tool, seems to go a long way in conveying to participants both what to look for while conducting the audit (the education piece) and also how to properly conduct the audit while making the process inviting and uncomplicated (the civic engagement piece).
- One case study, *PEDSAFE*, asked that participants bring with 8" x 10" maps on which to record their observations.
- One case study, the *Neighborhood Environmental Walkability Scale*, provides multiple versions of the audit tool – one specifically for parents, the other for adolescents.
- All of the audit tools in this case study review were accessed online. Nine are part of an online portal with various pages of information relevant to the walkability audit. One tool, the *Sidewalks & Streets Survey* is accessed through a social networking website which also provides a forum to discuss related topics and share experiences. Another tool, the *Community Street Review* links to another website where participants enter their data online and can view a summary report of their findings. This website also provides access to technical experts who can conduct more in-depth analyses and presumably, compare results from various audits in the same location and/or between different locations.

Conclusions

This paper shows there are many approaches to developing and designing a community walkability audit tool. Although the purpose of this review has not been to evaluate the effectiveness of the various approaches, the review does highlight an important relationship between the design and development of the tool and the ultimate goal(s) informing its creation. The findings highlight some valuable lessons and also points to some issues requiring further consideration:

- To be accessible and engaging, it is important that the tool be designed with the primary user in mind – community members. It should be clear and easy to understand. Photographs are particularly useful in this regard, as is a clean and simple page layout.
- Know who will be using your tool. Community members may be the primary users but not all community members are the same. What language(s) should the tool be available in? Can the same tool be used by different sub groups – e.g. seniors, children, those who live in a suburban environment, those in an urban environment, etc.?
- The audit tool should be one component of a larger toolkit/resource section. Supporting information should cover a range of topics including how to prepare for an audit, how to

conduct an audit and what to do once the audit is complete. Care should be taken to present this information in a digestible format.

- Templates and worksheets are particularly effective. Links and/or contacts for additional information are also useful.
- Online access to the tool can be an effective way to disseminate information. However, to maximize civic engagement, this should be complemented with other forms of outreach and promotion.
- Civic engagement and improving public discourse surrounding issues of walkability, although complementary goals, are not one and the same.
- To ensure that the information collected during a CWA supports a broader data collection strategy, it is important to define data needs prior to developing the CWA tool. Without some context for how the data will be used, developing a tool that collects meaningful information will be unnecessarily challenging.

The above work has been informative in the City of Toronto's work with the Toronto Coalition for Active Transportation and The Clean Air Partnership to develop a community walkability audit tool. The general concept is to develop a tool, to be housed on the City's website, that community members can use to evaluate the walkability of their neighbourhood. The tool will consist of a series of questions that guide community members in this evaluation, and also provide guidance on how to address issues that become apparent as a result of the audit.

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