CDC-HAN Environmental Audit Tool General Instructions

Background
The CDC-HAN Environmental Audit Tool was designed to support a detailed quantitative and qualitative inquiry into community-scale and street-scale factors associated with mobility in older adults. The tool includes an extensive set of environmental factors to enable a fine-grained audit of permanent, transient environmental factors that may influence older adult safety and mobility. The tool is the product of (1) extensive multi-site quantitative reliability testing and (2) qualitative walking interviews with older adults along familiar routes.

This tool was developed for research purposes. When accompanied by a photo audit, it may also provide the detail necessary to specify desirable changes to the walking environment. An interpretation protocol is available to increase utility for community use.

Some of the contextual factors that may be overlaid upon data collected with this tool include: person-environment fit, crime/personal safety, transportation environment, organizational initiatives for environmental improvements (e.g., within transportation departments, planning agencies, parks departments, or neighborhood councils), ethnic or cultural variation, and pet ownership.

Special considerations for older adult populations consist of: capacity for activity; visual acuity; sensitivity to loud noises, bright lights and extreme temperatures; cognitive ability and memory; slower walking pace; susceptibility to steep inclines or cross-slopes; urgent or more frequent need to use the bathroom; and gait or balance difficulties that increase falls risk.

Instructions for Use
These instructions help observers audit the environments of neighborhoods and communities. Prior to collecting data in the field, auditors should be thoroughly trained to use the tool and should be equipped with maps of the study area.

First—Choose a Sampling Approach
Users may choose to audit a neighborhood, entire community or selected routes, generally those identified by community members. For a neighborhood/community approach, begin by identifying a point of origin.

Define a radius from that point (typically no larger than 1.0 miles) Choose a sampling approach:

a) Audit the entire area;

b) Audit a randomly selected but designated number of segments for each area; or

c) Audit selected routes based on specified typologies (i.e., residential areas, commercial areas, mixed-use areas).

Second—Create Street Maps
For each study area, create maps that display all of the streets and intersections. This map may be produced either using a computer map database, Google Maps or by simply photocopying and enlarging a print map of the street network. It is essential to assign logical identification numbers to each segment and intersection to be audited and to add these to the maps the auditors will use (see below). Mapping all segments and intersections in advance assists auditors in following correct segment protocol. Note that map data may not correspond to reality—be prepared to discover in the field that street segments on the map may not exist, and conversely, record any new segments that were not represented on the map.

Identify Street Segments
Each street or road in the study area is made up of one or more segments. A segment is a section of street or road between two intersections. If this is a rural area without intersections, treat each one-quarter mile segment of that street as a separate segment for auditing purposes.

![Figure 1. Segment Identification](image)

Each segment and each intersection must have a unique identification number to facilitate organizing and analyzing data. Assign ID numbers to each of the street segments and each intersection to be included in the audit. ID numbers may be arbitrarily assigned.

Even if a sidewalk is continuous on one side of the street (as between intersection X and Z above) the T-intersection (as with X, Y, and Z above) means that these should be audited as two separate segments. A reference point should be noted on the continuous side so that no duplication of information occurs. Develop a strategy to address each situation and have segment ID numbers prepared to use as back-up for these situations.
For GIS (Geographical Information System) purposes, each street segment is the “feature” for which audit “attributes” will be collected and recorded.

**Definition: Block Face**
Each segment has two block faces corresponding to the two sides of the street. This enables the audit to collect detailed information to determine, for example, that there are sidewalks on only one side of the street. In a grid system of streets it should be straightforward to determine the compass direction corresponding to the side of the street. When the street angles result in a curving or ambiguous, prioritize the northern versus southern compass orientation of the street.

**Definition: Intersection**
Intersections are represented in Figure 1 by ‘X’, ‘Y’ and ‘Z’ (Y and Z are “T intersections”). Multiple street segments share the same intersection. In order to avoid duplication of data, intersections are assigned unique identifiers and are rated using the specially-designed HAN Intersection Audit Tool.

**Definition: Origin**
A trip “origin” refers to any place that may be a starting point for utilitarian, recreational, or combined purposes. Trips may originate from home, from an office, or from other settings, so the origin may or may not be residential.

**Definition: Trip Destination**
A destination refers to any place that may be visited for utilitarian (e.g., a store, a workplace, a place of worship) or for recreational purposes (e.g., a park, a beach, a movie theatre, a neighbor’s house). This definition includes residential and non-residential destinations.

**Destinations:** Note that one building often contains more than one type of destination. Simply check any destination type observed. When a destination has a corner entrance or entrances on two streets, only count it for one of the segments.

**Ratings**
In responding to these items keep in mind older adults who may have some degree of visual, sensory or other functional limitation. Training is intended to sensitize auditors to these issues and provide an in-depth understanding of relevant environmental issues.

### Audit Preparation Checklist

- Maps with segments and intersections clearly identified
- List of segments & intersections to audit
- Copies of Audit Tool
- Clip board, paper and pencil
- Traffic safety vest
- Tape measure
- Compass
- Comfortable clothes & shoes
- Water bottle and snacks
- Mobile phone
- City/other maps w/ street directory
- Sun protection & hat
- Basic first aid kit
- Card or sheet w/ contact info for interested community members
- Folding chair if accompanied by older community residents
- Note that it is best to avoid carrying personal belongings

### Data Collection Safety Guidelines

- Conduct audits during daylight hours.
- Consider auditing in pairs or having a community member accompany auditors to enhance safety.
- If auditors feel threatened in any way, they should leave the area immediately and/or call police.
- If someone asks where you are from and you feel comfortable responding, please respond “[sponsoring organization].”
- If someone asks what you are doing, please respond “we are collecting information about the community environment.”
- If someone further asks why you are doing this, please respond, e.g., “to learn about the conditions for walking in the neighborhood.”
- If someone continues to ask for more information, please respond “for more information, you can call our project manager at {phone number}.”
- If there is no safe place to walk, conduct audit from inside a vehicle or choose a safe vantage point.
- If there is no path or sidewalk, walk on the verge or edge of the road (if minimal to no traffic).