

GLOBAL WALKABILITY INDEX

SURVEY IMPLEMENTATION GUIDEBOOK

INDEX, SURVEY MATERIALS, AND GUIDEBOOK DEVELOPED BY HOLLY VIRGINIA KRAMBECK

SURVEY MATERIALS and IMPLEMENTATION GUIDE

The Global Walkability Index (GWI) comprises two kinds of surveys — a public agency survey, to be administered to department(s) responsible for urban and transportation planning, and a set of field surveys. These surveys may be conducted in any order.

Use provided survey forms to collect data. For your convenience, all of these forms may be filled electronically (using provided dynamic PDF files), should you choose to enter the data using a tablet PC or PDA. Regardless of data recording method (paper or electronic), results must be submitted electronically.

Upon completion of the data collection work, survey teams should submit the following:

1) Consultant Contact Information

One contact information form for each survey team member.

2) Public Agency Survey

Single public agency data collection form.

3) Field Surveys

At least 8 separate forms, one for each survey area.

City map that indicates survey areas and individual surveyed road stretches.

Photographs of each surveyed stretch (for quality assurance purposes).

Questions about the physical infrastructure survey may be directed to: _____ at the following e-mail address: _____.

GLOBAL WALKABILITY INDEX
PUBLIC AGENCY SURVEY

Agency Selection

The survey team may use its best judgment to determine which public agencies would be most able to answer the five survey questions. Most likely, the urban and transportation planning agencies would be the most helpful.

Calculation of Results

Results are assigned points as according to the following table:

Question	Point Assignments
1	1-5 Scale; Non-Existent = 1
2	One point for each box checked
3	Divide percentage by 10
4	Yes = 5, No = 1
5	3 for each 'usually' to 1 for each 'rarely', divided by 2.

Quality Assurance

Using the space provided, survey teams should provide contact information for all persons interviewed. Additional sheets may be used, if necessary.

FIELD SURVEYS

Materials

Survey teams will need to take the following materials with them to the data collection sites.

- Map outlining the survey area and proposed survey stretches;
- Camera (preferably digital);
- Extra data collection forms;
- Piece of 1-meter length string (to estimate walking path widths);
- Clipboard and pencils; and
- Implementation guidebook.

Survey Area Selection

Survey areas are 500m by 500m, and are selected using a random spatial sampling method, which is described in the following pages. One sheet per survey area should be used. Within each survey area, all main public roads (excluding roads such as alleys, relatively minor residential streets, etc.) should be surveyed. Each lengths (or stretch) of surveyed road receives an individual ID number, as indicated on the data collection form. If the character of a single road changes dramatically along its length, it may be divided up into sub-stretches. If there are more than 10 stretches in a survey area, additional field data collection sheets may be used.

Time of Day Considerations

For consistency, all surveys should be conducted during local peak travel times, to be predetermined by the survey team leader.

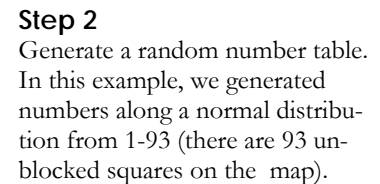
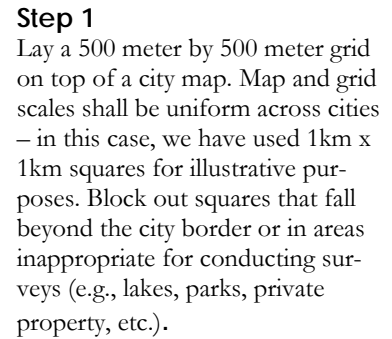
Filling in Data Collection Forms & Performing Calculations

Each square on the data collection form should be filled in with a Level-of-Service (LOS) measurement (scale of 1 to 5), according to the principles laid out in this implementation guide. The dynamic PDF file provided will automatically calculate the results and present a final average for each survey area.

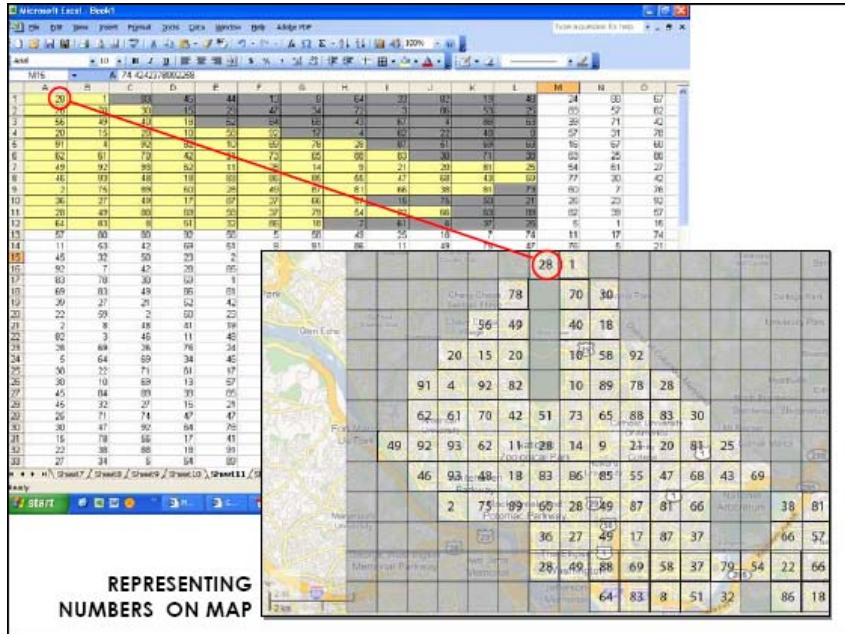
A Notes box is provided on each form for survey teams to note any usual findings or potential sources of bias.

Quality Assurance

For quality assurance purposes, teams are asked to photograph a cross section each surveyed stretch of road.

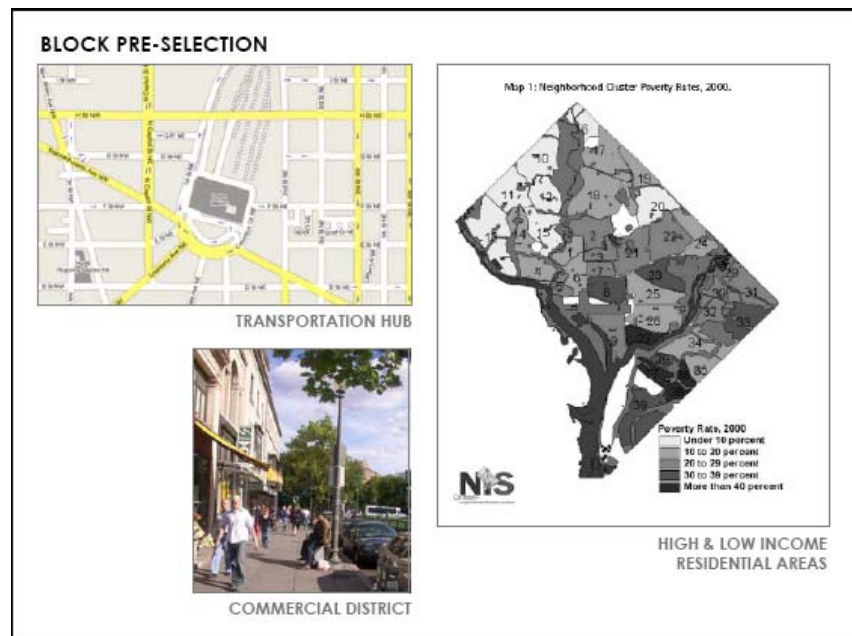


GLOBAL WALKABILITY INDEX FIELD SURVEYS — SURVEY AREA SELECTION



Step 3

Transpose randomly generated numbers from table to the map, as shown in the diagram.

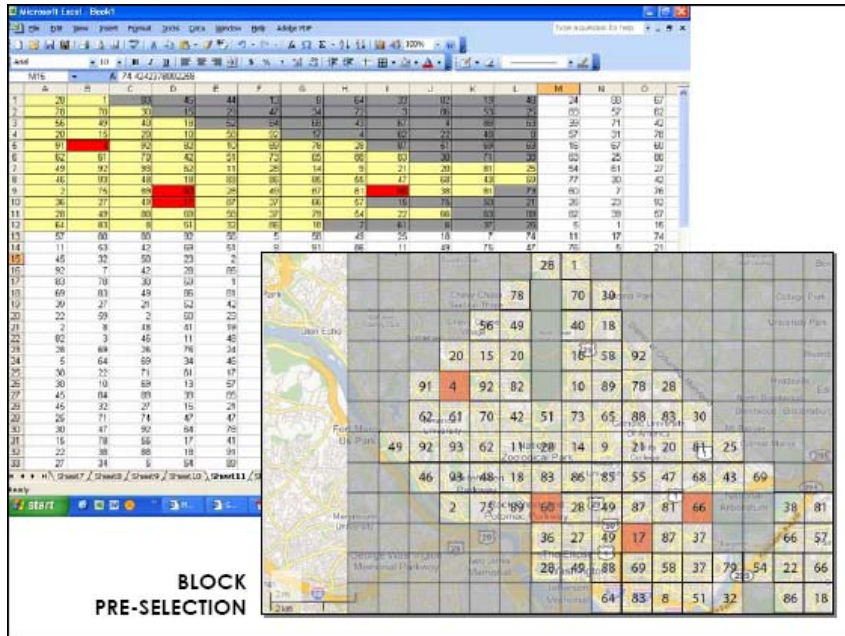


Step 4

Although the sampling method will have a random component, we want to be certain that specific types of neighborhoods are covered by the survey. Pre-select four survey squares that fall within: 1) A high-income neighborhood with mostly housing; 2) A low income neighborhood with mostly housing, a transport hub (e.g., rail station), and a commercial district.

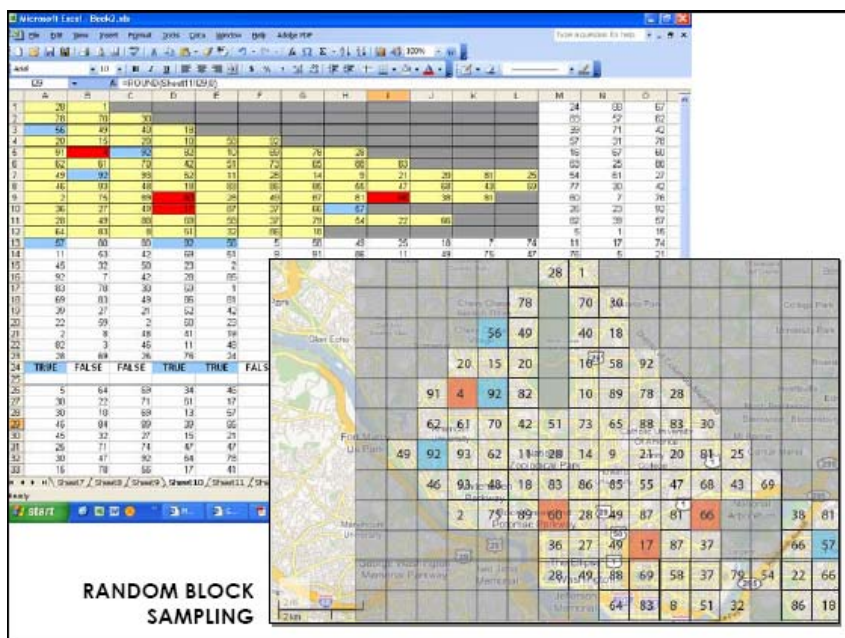
GLOBAL WALKABILITY INDEX

FIELD SURVEYS — SURVEY AREA SELECTION



Step 5

Mark these pre-selected areas on the city map.



Step 6

To ensure that the Index is fair, the remaining squares shall be randomly selected. We used the same random number table we had generated previously. Starting from the left, if a number on the table appeared in our map, than that corresponding square would be selected (see diagram). The number of additional squares should equal the total number of available squares divided by 10 (the answer is rounded down), minus the four pre-selected squares. (Note: technically, in the case, then, there should be five additional squares)

FIELD SURVEYS — SURVEY AREA SELECTION

PRE-SELECTED BLOCKS



Step 7

Based on selections, make individual maps that can be used in the field to conduct surveys. For the purposes of constructing Index rankings and identifying general strengths and weaknesses, every major public road within each square should be surveyed — alleys, private drives, very minor residential roads, etc. are excluded.

❶ Walking Path Modal Conflict

To what extent do pedestrians mix with other modes, such as bicycles, motorcycles, or cars?

Points	Description
1	Significant conflict that makes walking impossible.
2	Significant conflict that makes walking possible, but dangerous and inconvenient.
3	Some conflict – walking is possible, but not convenient
4	Minimal conflict, mostly between pedestrians and non-motorized vehicles
5	No conflict between pedestrians and other modes

❷ Security from Crime

To what degree are the walking paths, pedestrian bridges, and pedestrian subways *perceived* to be secure from crime (pick-pocketing, mugging, unprovoked attack, etc.)? To answer this question, it may be helpful to ask a few pedestrians, vendors, policemen, etc. in the area what their perceptions are, particularly at night.

Points	Description
1	Environment feels very dangerous – pedestrians are highly susceptible to crime
2	Environment feels dangerous – pedestrians are at some risk of crime
3	Difficult to ascertain perceived degree of security for pedestrians
4	Environment feels secure – pedestrians at minimal crime risk
5	Environment feels very secure – pedestrians at virtually no risk of crime

❸ Crossing Safety

There are three key factors to consider when evaluating how safe it is to cross the street:

- Exposure to other modes
 - ◊ Are **all** other modes at a complete stop when pedestrians are crossing?
- Exposure time
 - ◊ This refers to the amount of time spent waiting and crossing the street — it is during this time that a pedestrian will most likely get hurt. The longer this time is, the less safe the environment is for pedestrians.
- At signalized intersections, the degree to which sufficient time is allocated for pedestrians (including persons with children and the elderly) to cross.

The following tables are intended to provide some guidance in assigning a LOS measurement to this variable.

Exposure to Other Modes

Points	Description
1	Very dangerous – there is significant risk of accident with other modes
2	Dangerous – pedestrian faces some risk of being hurt by other modes
3	Difficult to ascertain dangers posed to pedestrian
4	Safe – pedestrian is mostly safe from accident with other modes
5	Very safe – other modes present no danger to pedestrian

Exposure Time

Points	Description
1	Maximum – Extremely long waiting period, crossing time greater than 40 seconds
2	Relatively long – Long waiting period, crossing time between 20 and 30 seconds
3	Difficult to ascertain dangers posed to pedestrian
4	Relatively short – Reasonable waiting period, crossing time between 10 and 20 seconds
5	Minimal – Virtually no time spent waiting, crossing time less than 10 seconds

Sufficient Time to Cross at Signalized Intersections

Points	Description
1	Not enough time – No pedestrian has sufficient time to cross
2	Not quite enough time – Barely enough time for most people, insufficient for elderly
3	Sufficient time for most pedestrians to cross, not quite enough time for elderly.
4	Just enough time – Just enough time for elderly or persons with children to cross
5	Ample time – More than enough for elderly or persons with children to cross

④ Motorist Behavior

Motorists (drivers of cars, buses, motorcycles, auto-rickshaws, etc.) pose the greatest danger to pedestrians. Thus, the degree to which cities can manage motorist behavior will largely impact the safety of the pedestrian environment. The following table may be used as a guide for this variable.

Points	Description
1	Motorized travel is totally chaotic; vehicles <i>never</i> yield to pedestrians.
2	Most motorists cannot be expected to obey traffic laws and rarely yield to pedestrians.
3	Motorists sometimes obey traffic laws and may yield to pedestrians.
4	Motorists usually obey traffic laws and sometimes yield to pedestrians
5	Motorists obey traffic laws and almost always yield to pedestrians.

5 Amenities

Pedestrian amenities, such as benches, street lights, public toilets, and trees greatly enhance the attractiveness and convenience of the pedestrian environment, and in turn, the city itself. When assigning an LOS measure to this variable, consider the following factors:

Coverage

If the local climate calls for such measures (e.g., sub-tropical), are there awnings, arcades, trees, or other forms of coverage that protect pedestrians from the elements? Following are some examples (letters in circles represent photo credits, which are placed at the end of this guide):



Temporary Awning



Permanent Awning



Arcade



Trees

Trees and Street Lights

Are there trees and street lights at regular intervals? Street lights ensure safety at night (if lights are present, survey team may wish to question pedestrians as to whether the lights actually work), and trees provide a natural barrier from traffic, improve air quality, provide some degree of shelter from the elements, and improve the attractiveness of the pedestrian environment.

Benches, Public Toilets, Pedestrian Signage, and Other Amenities

The degree to which the municipal government provides pedestrian amenities reflects the degree to which it respects the pedestrian environment's role in the smooth functioning of the city. Thus, roads that are well-endowed with amenities should receive higher scores for this variable than those without.

6 Disability Infrastructure and Sidewalk Width

Disability infrastructure typically services all pedestrians, not just those who are disabled. For example, curb ramps are convenient not just for wheel chair access, but also for persons with baby carriages, shopping carts, or luggage. Similarly, for wheelchair access, effective walking path width (net of obstructions or portions of disrepair) should be, at a minimum, 1 meter wide. This minimum width services all pedestrians, alleviating bottlenecks; easing access for those with small children, parcels, or walking canes; and improving the overall convenience of the walking path. The following tables and diagrams provide some guidance on how to evaluate disability infrastructure and sidewalk width.

FIELD SURVEYS — DATA COLLECTION GUIDELINES

Disability Infrastructure

The following diagrams provide some guidance on how to judge disability infrastructure provision. Acoustic pedestrian signals might also be considered.



①

No infrastructure for disabled persons is present.



②

Limited infrastructure for disabled persons is available, but is not in usable condition.



③

Infrastructure for disabled persons is present but in poor condition and not well placed.



④

Infrastructure for disabled persons is present, in good condition, but poorly placed.



⑤

Infrastructure for disabled persons is present, in good condition, and well placed.

Effective Width

Use a 1-meter piece of string to determine whether effective width (net of obstructions) is sufficient.

7 Maintenance and Cleanliness

Maintenance of pedestrian infrastructure is just as important as having any infrastructure at all, since, for example, poorly maintained sidewalks can be completely unusable. A clean pedestrian environment is not only more pleasant and convenient for pedestrians (no need to circumnavigate piles of rubbish, for example), but it also shows the city's respect for the pedestrian.

Maintenance and Pavement Quality

①

Separate paving for walking path is not present.



②

Paving is mostly dirt, covered with mud, very poorly maintained.



③

Some paving is present and provides a somewhat smooth walking surface in some areas. Not particularly well-maintained.



④

Walking path is paved and walkable, but not very well maintained. Tiles missing, very uneven surface, etc.



⑤

Provides a smooth walking surface and is very well maintained.

Cleanliness

①

Rubbish completely obstructs walking path, making walking impossible. Rubbish significantly degrades surrounding environment.



②

Rubbish partially obstructs walking path, making walking difficult and significantly degrades surrounding environment.



③

Some rubbish degrades quality of walking environment and is a minor obstacle to walking.



④

Some rubbish degrades quality of walking environment but is not an obstacle.



⑤

Walking path is clean.

8 Obstructions

Permanent obstructions (e.g., telephone poles or trees placed in the center of the walking path), are typically the result of insufficient or ineffective urban design guidelines. Unwelcome temporary obstructions (e.g., parked cars) are often the result of insufficient or ineffective public space policy. Welcome temporary obstructions (e.g., vendors, sidewalk cafes) should be allocated space such that they both enhance the pedestrian environment without restricting the effective width of walking paths. All obstructions, to some degree, impact effective width and thus should be regulated. The following images provide some guidance on how to evaluate obstructions.

Permanent Obstructions

①

Pedestrian traffic is completely blocked by permanent obstructions.



②

Pedestrians are significantly inconvenienced. Effective width < 1m.



③

Pedestrian traffic is mildly inconvenienced; effective width is < or = 1 meter.



④

Obstacle presents minor inconvenience. Effective width is >



⑤

There are no permanent obstructions.

Temporary Obstructions



①

Pedestrian traffic is completely blocked by temporary obstruction.



②

Pedestrian traffic is significantly inconvenienced by obstruction but can still walk on walking path. Effective width is $< 1\text{m}$, preventing wheel-



③

Pedestrian traffic is mildly inconvenienced; effective width is $< \text{or} = 1 \text{ meter}$.



④

Obstacle presents minor inconvenience and *may* be welcomed by some residents.



⑤

Obstruction is welcomed by most and enhance pedestrian activity

⑨ Availability of Crossings

When there are no opportunities provided for crossing streets, pedestrians tend to jaywalk, increasing their risk of injury or harm. Ideally, crossing opportunities, when in the form of pedestrian bridges or subways (less desirable for elderly and the disabled), signalized crossing, or other form, there should be crossings at least every 300 meters to be considered acceptable. A LOS rating of 5 means that there are ample opportunities to cross the street, and a rating of 1 means that there are no opportunities for very long distances.

⑩ Pedestrian Count

Count the total number of people walking in the street (alongside other traffic modes) and on walking path using a traffic counting method. Stand in one place (mark this place on a map), and count the number of pedestrians on one side of the street over a period of 5 minutes. Record number.

⑩ Length of Surveyed Stretch

Measure the surveyed length of street in kilometers, using your map.

GLOBAL WALKABILITY INDEX

NOTES

Photographs and Images

- a) Knecht, Barbara. Barbara Knecht, Inc.
- b) Krambeck, Holly (Author).
- c) Dickerson, Leanne. The Panos Institute. <<http://www.panos.org.uk/>>
- d) Nina Paley. NinaPaley.com. <<http://www.ninapaley.com/>>
- e) Freeport New York News.
<http://www.freeportnynews.com/Vil%20News%202002/020716_Mayor%20ignores%20mess.htm>
- f) Australia Highway Capacity Manual (Compliments of Michael King, Nelson\Nygaard Consulting Associates).
- g) Dept of Housing Renewal & Environmental Health Services, Leeds, UK.
<<http://www.healheadingley.org.uk/contacts/envthealth.htm>>.
- h) Northwest South Philly – Neighborhood Organizations and Resources for Southwest Center City. <http://www.southphillyblocks.org/christianstreet/michelle_cutner/>
- i) Purser, Robert. http://www.citymayors.com/development/india_urban1.html. **May not be reprinted without permission – e-mail: editor@combatlaw.org**
- j) Göhler, Lars. India Picture Community. <<http://www.india-picture.com/index.html>>
- k) A Journey to Katie. <<http://www.katieadoption.us/Day%202-4%20pictures.htm>>
- l) Wunderlite Pressed Metal Panels. <<http://www.wunderlite.com.au/sydneytech.html>>
- m) MetroPole Paris. <<http://www.metropoleparis.com/1996/60603015/street.html>> **May not be reprinted without permission – e-mail: erickso@worldnet.fr**
- n) Pedestrian and Bicycle Information Center Image Library.
<<http://www.pedbikeimages.org/index.cfm>>
- o) Suwanathada, Pat. Consultant, World Bank.
- p) Fabian, Herbert. Asian Development Bank.
- q) Wegmann, Jake. Massachusetts Institute of Technology

CONSULTANT CONTACT INFORMATION

Submit by Email

First Name

Family Name

Organization

Street Address

City

State / Province

Country

Postal Code

Phone Number

E-mail Address

Survey Team Names: _____

- 1) Please rate degree of municipal funding and resources devoted pedestrian planning.

☐ Enough to sustain a high-quality progr am in long-term

☐ Sufficient for short term, but not the long term

☐ Neutral

☐ Insufficient to acheive meaningful goals

☐ Non-existant

- 2) Please check the pedestrian-related urban design guidelines that are already well-established. Feel free to add any relevant guidelines that are not included in the list.

☐ Sidewalk pavement type

☐ Placement of benches and similar amenities on walk paths

☐ Sidewalk widths

☐ Design for disabled persons

☐ Other _____

☐ Other _____

☐ Other _____

- 3) Attach available data on pedestrian fatalities and injuries to survey materials. Enter estimated proportion of traffic fatalities involving pedestrians in 2004.

_____ %

- 4) Have there been public outreach efforts (by this or other agency) to educate pedestrians or drivers on road and pedestrian safety?

☐ Yes

☐ No

- 5) Is there a law or regulation for any of the following items? If so, is the law or reguulation enfoced? Feel free to add any relevant laws or regulations that are not included in this list.

Is there a law or regulation for:	Enforced?		
	Usually	Sometimes	Rarely
<input type="checkbox"/> Jaywalking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Vendors on sidewalks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Parking on sidewalks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Driving / riding on sidewalks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Drunk driving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Survey Area Name Survey Area # Peak Hour ☐ Yes ☐ No

Survey Team Names:

Surveyed Road Stretch	1	2	3	4	5	6	7	8	9	10	(Σ(x*length*10*count))/#/10
1) Walking Path Modal Conflict	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
2) Security from Crime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
3) Crossing Safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
4) Motorist Behavior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
5) Amenities (Cover, benches, public toilets, street lights)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
6) Disability Infrastructure and Sidewalk Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
7) Maintenance and Cleanliness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
8) Obstructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
9) Availability of Crossings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
10) Pedestrian Count	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
11) Length of Surveyed Stretch (km)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Unweighted Average											<input type="text"/>

NOTES

Public Agency Contact #1

Agency Name

Agency Address

Contact Name

Contact Position

Contact Phone

Contact E-mail

Notes

Public Agency Contact #2

Agency Name

Agency Address

Contact Name

Contact Position

Contact Phone

Contact E-mail

Notes

Public Agency Contact #3

Agency Name

Agency Address

Contact Name

Contact Position

Contact Phone

Contact E-mail

Notes

SURVEY MATERIALS SUBMISSION CHECK LIST

City:

- ☐ Contact Information Form for Each Survey Team Member
- ☐ Public Agency Survey and Contact Information Form
- ☐ 8+ Field Survey Forms
- ☐ Map Indicating Surveyed Areas
- ☐ Photographs of Surveyed Area Cross Sections and Walking Paths