



Microscale Audit of Pedestrian Streetscapes (MAPS) and Parks, Global Versions

Training Manual & Picture Guide

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I. IPEN Adolescent MAPS and Park Data Collection Overview

Participating countries will complete MAPS and Parks Global data collection (one route + closest commercial block + closest park) for at minimum of 100 IPEN Adolescent participants. These participants should be randomly selected among those who have complete accelerometer and GPS data (if applicable), and should be evenly split between walkability and income quadrants (i.e., 25 participants from each quadrant).



II. Training and Certification

a. Training

Training will be conducted via webinar. Following the webinar training, country teams will use the tool, collecting photos and questions to bring to the training team. Following these clarifications, each country will conduct rater certifications.

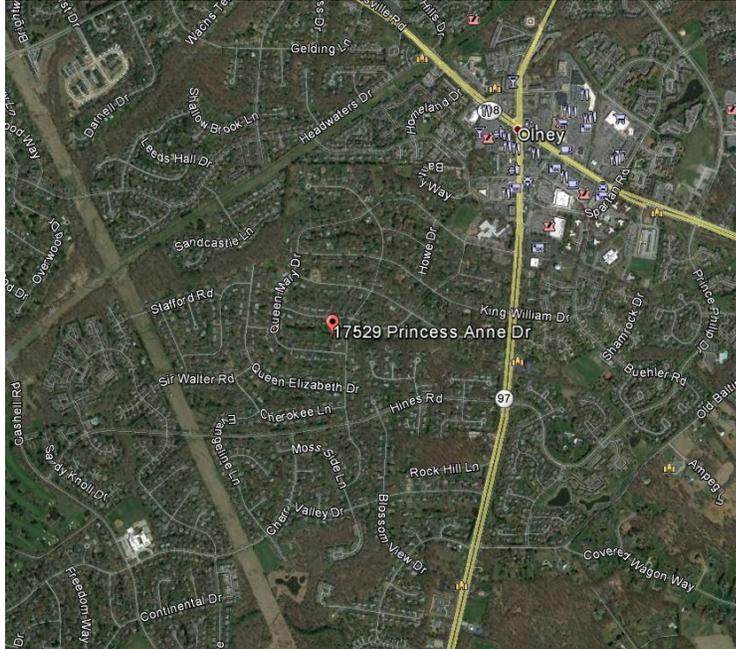
b. Certification

Countries will identify 5 routes of at least .25 miles in length which will be used for certification. These routes should be chosen to represent a variety of environments, including at least two commercial centers. Each rater will rate the same one element from each route (one route section completed across the entire route, one segment and one crossing), and at least 2 cul-de-sac/dead ends. In total, there will be 5 route surveys, 5 segment surveys, 5 crossing surveys and 2 cul-de-sac/dead ends, each rated by all raters on the team.

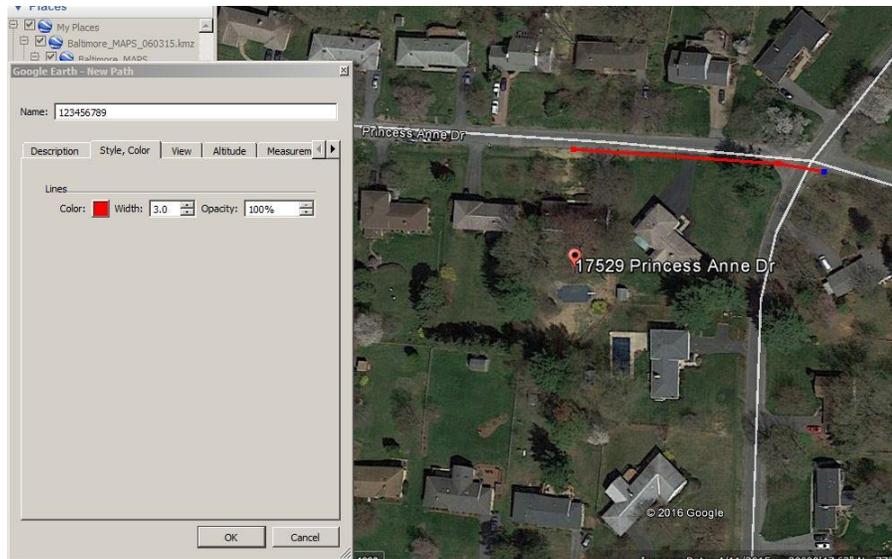
95% item agreement for each section is required in order for raters to be certified to rate independently. The data manager is responsible for documenting the process, reporting the discrepant items and the rater agreement to the IPEN Coordinating Center.

In the case that 95% agreement is not reached, a second (and third if necessary) round of certification routes should be completed.

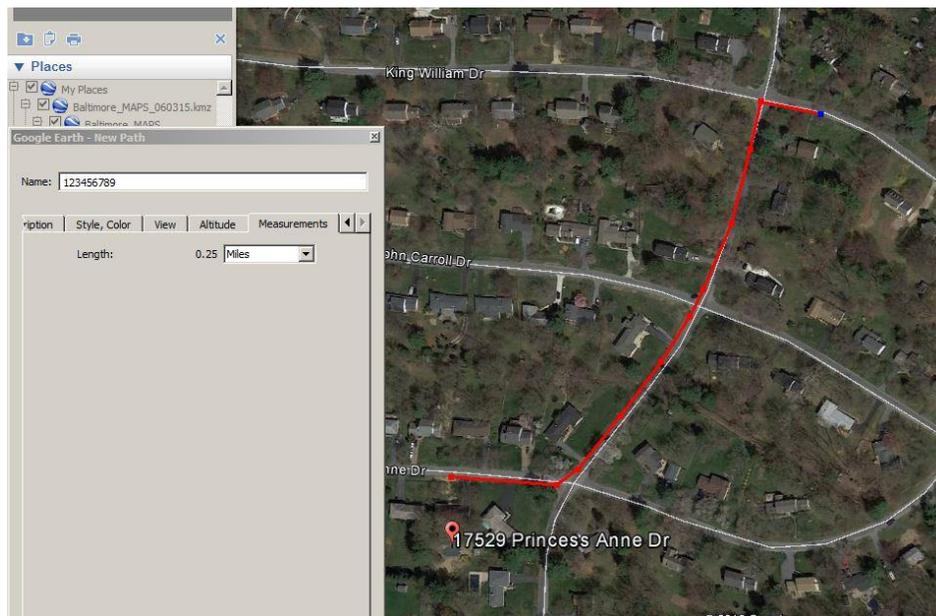
- If there are multiple routes available for a participant, zoom out to around 10,000 feet or more to determine where the nearest commercial cluster is located, keeping the participant's address centered on the screen. From this distance, a commercial center can usually be seen, as an area where multiple "place" icons will appear on Google Earth. See the below example, where the commercial cluster can be found in the Northeast corner of the screen.



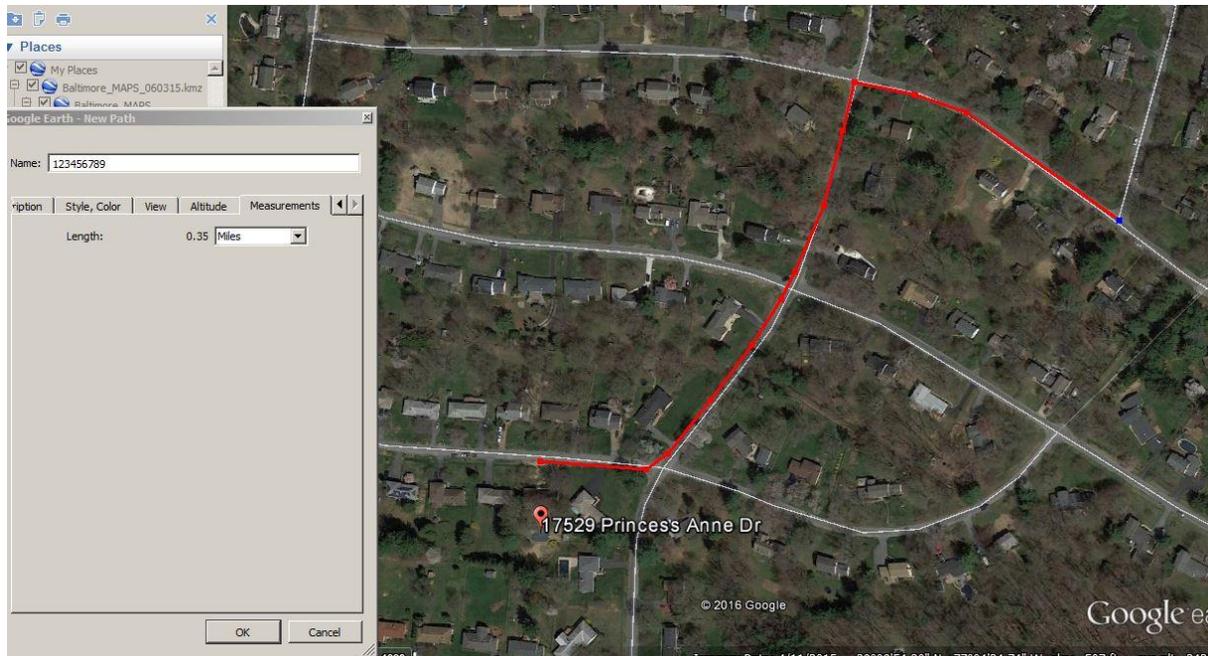
- Once the cluster has been identified, create a Path for each route. First enter the starting address. Save when you have finished drawing the path and name each route with its Route ID. the participant's MAPS route can be drawn. Zoom in to the participant's home, then select the ruler icon from the toolbar along the top and then the tab labeled "Path." Name the path with the participant's ID# (in this example, 123456789). After saving, select the "Style/Color" tab and use Red, 3.0 width. If there are numerous routes with shared segments or crossings, do another contrasting color like blue or yellow. This is for the highest visibility and to differentiate from Google road/place lines. Start the path directly outside the participant's home.



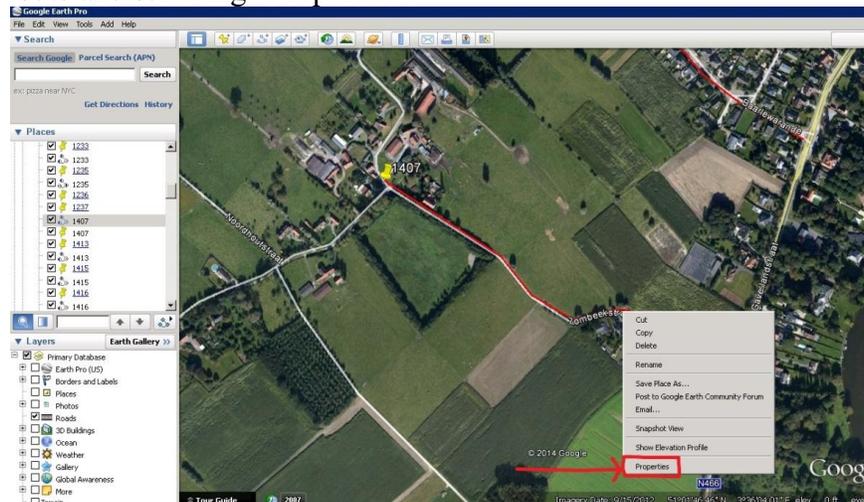
- Go to the “Measurement” tab of the Path’s window. As you draw the path, keep track of the distance after choosing “miles” in the dropdown box. When .25 miles is reached, continue to the next intersection. As seen in the below example, the .25 mile marked is reached mid-segment, so the line should be extended to the next intersection.



- The route will therefore be longer than .25 miles in most cases, but should be no longer than .45 miles. Because of this, routes may in some cases need to be ended mid-segment. As see in the below example, the path should then be ended at a spot which will be easy to communicate to the rater – in this case, the end point is reached on the opposite side of the street of an intersection.

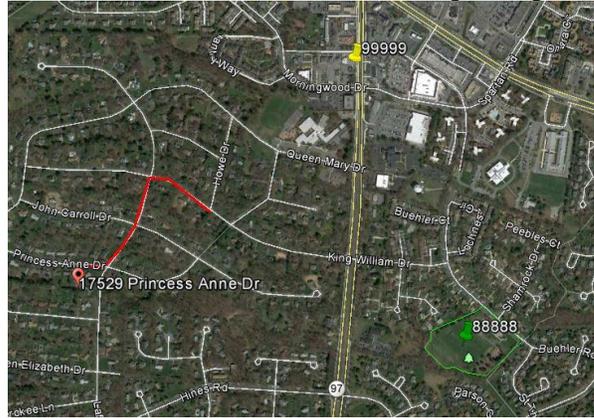


- After the route has been drawn, changes can be made by right clicking on the route and selecting “Properties”.



Zoom to the pre-identified commercial destination, and select “Add Placemark”. Place the placemark on top of the commercial block to be rated, and assign it an ID# (in this example, 99999). This should be different from the participant’s ID, as some commercial destinations may be shared by multiple participants.

Zoom out to identify the closest park to the participant's home – these will be indicated by the previously selected park icon, and typically are shown on the map with a green outline around the park's perimeter. If there are multiple parks near the participant, use the Ruler tool to determine which is closest using street network distance. When it has been identified, select "Add Participant". Place the placemark on top of the park to be rated, and assign it an ID# (in this example, 88888). This should be different from the participant's ID and the commercial ID.



Once participant MAPS routes, commercial clusters, and park placemarks have been created, countries should save the .kmz file created in Google Earth. Routes can then be communicated to raters for data collection.

IV. Data Entry and Management

a. Data Entry

Data can either be collected in-person, by raters walking the route, or online using Google Earth. For either method, data can be collected via the MAPS web application, or on paper. For countries entering data from paper tools, a Microsoft Access database will be provided for entry. Paper routes will be double-entered and checked for discrepancies. If 20 of the MAPS route entries show 99% enterer agreement, no further double entry will be needed.

MAPS Web Application

- The MAPS App is a web-based application for collecting MAPS data. It can be used in the field, using tablets (e.g., ipad, Windows or Android tablets), or in the office while collecting data via Google Earth. Countries will be given access to the app from the IPEN Coordinating Center by sending along all rater names. If translated versions are needed, countries must send a translated copy of the MAPS Global tool to the Coordinating Center at least 2 weeks before data collection will take place.
- To access the MAPS App, go to <http://alr-maps.com/>. Sign in using your provided username and password.

Please sign in

Username

Password

Sign In

- Create a new route by clicking “Add Route”. Enter the Route ID# (Participant ID for MAPS routes, unique Route ID for commercial blocks. Choose “MAPS Global” under Survey Type, and then click “Create and Start”. Data managers may also choose to pre-populate routes for raters to complete. In this case, they may enter the route’s starting and ending addresses as a double check for raters. They can add multiple routes by clicking “Create and Back” after each route.

Route Setup - setup initial route information

Route #

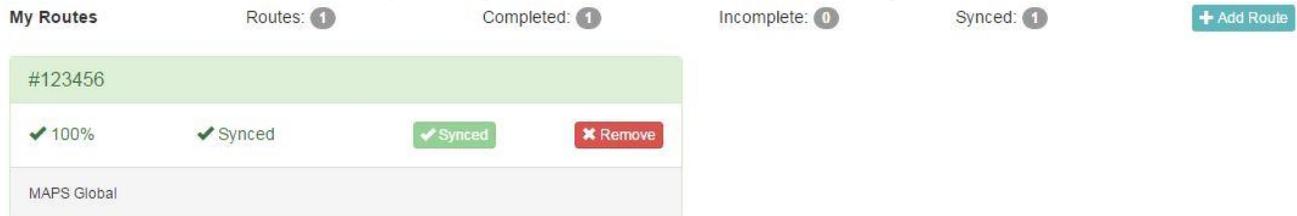
Survey Type

Starting Address
Optional

Ending Address
Optional

- Every route contains a Route section as well as one Segment section. The progress of each route will be tracked as percentage complete in real time as raters complete questions, found at the top of the screen. As needed, raters can add additional segments, crossings, and cul-de-sacs to the route by clicking the appropriate button at the bottom of the tool.

- When a route has been completed, raters can go back to the dashboard. Before leaving a route (or exiting Google Earth), raters should verify that the route is 100% complete. When connected to the internet, raters can then sync their routes, thereby saving them to the IPEN Coordinating Center server.



- Data managers in each country will be sent their country’s data at any interval agreed upon between the manager and IPEN Coordinating Center.

b. Data Management

For each assignment, each country’s data manager checks:

- that the Route ID# (participant number), participant address and identifying streets throughout the tool match the assignment.
- carefully to make sure every question has an answer including “N/A” or “No sidewalk” options. Any issues or missed questions need to be looked at by the rater at the next earliest convenience.
- that the headings on each page are filled in completely, accurately, and are legible. These include date, auditor ID, Start time, End time, Type, all street names, and directions (N, S, E, W).
- that all comments and questions marked by the rater have been addressed.

V. MAPS Field Procedures

a. Defining Participant Route

A **participant route** is at least .25 mile/400 meter route from the participant's home towards the nearest pre-determined destination, and no longer than .45 miles long. It begins on the neighborhood street nearest to a participant's home. In an apartment or condo complex, the rater will begin at the entrance to the complex on the main street. The rater is not required to enter the grounds to locate the participant apartment/ condo unless necessary to identify the main entrance for the grounds. At least one Route-level survey and one Segment will be completed per route. The number of segments and crossings per route will vary.

A participant route will almost always start with a segment at the participant's house. Exception: when there is no sidewalk on the participant's side of the street, but there is one on the other side of the street, the route will start with a crossing. It is recommended that the rater complete the culs-de-sac, segments and crossings sections of the tool on his/her way to the ending location and then on the way back to the participant's house conduct the survey for the route section of the tool.

Street Segments

Each route is made up of one or more segments. A **segment** is a section of street or road between two crossings or if the name of a street changes a new segment should begin although a crossing has not been made.

Crossings

A **crossing** occurs when the rater must go through an intersection, whether a pedestrian crossing exists or not. Crossings are located between two segments. However, a driveway along a segment cannot be considered as a crossing. Some routes may not have any crossings (e.g., long suburban road).

Cul-de-sac

A **cul-de-sac** or street dead-end must be within 400ft/120m of the participants' home and will usually be the dead-end part of the participants' street.

b. Commercial Cluster Route

A **commercial cluster route** consists of the road or street in front of a pre-determined cluster of commercial locations. The street address for one location within the cluster will be communicated to the rater. He/she will then travel to the designated location and begin the rating the nearest street or road (as long as it also serves as the main entryway into the commercial property).

- If there is no entrance, the rater will identify the street or road that contains the entrance.
- If there is more than one entrance, the rater will select the most prominent (main entrance).
- If this is not obvious, the rater will select the one that is nearest to the identified location.

For each cluster, a route survey will be completed for the identified street/road that contains the entrance. This route will consist of one segment and two crossings on either end of the segment which will be completed in a straight line.

c. Shared Segments and Crossings

Segments and crossings may be shared across multiple participant routes (e.g., neighbors one block apart may share most of the route). To prevent multiple ratings of the same segment or crossing, raters can fill in the heading information on a blank tool (i.e. streets, type, & side). The rest of the page can be left blank and used as a place holder. This should only be done for exact matches, so raters will need to verify that they are rating segments on the same side of the street and crossings which cross in the same direction. The Route section will never be shared.

d. Rules for Side of Street Selection

1. Begin data collection on the same side of the street as the participant's point of origin.
2. If you encounter a segment on the walking route with no sidewalk, cross to the opposite side of the street only if a sidewalk exists there. If before you begin the segment you can see up ahead that the sidewalk on your side of the street is non-continuous and there is a sidewalk on the other side of the street, you will complete a crossing and start a segment on the other side of the street.
3. If permanent or temporary obstructions in the pathway exist that forces you off the walkway, cross to the other side of the street.
4. Do not cross to the opposite side of the street more than twice in one route.

e. In the Field

For on-street rating:

- Binder with protocol and procedures
- Prepared route maps with participant addresses and drawn routes
- Participant Route folders (for paper tools)
- Extra copies of observation surveys and pens (for paper tools)
- Tablet computer (e.g., iPad, Android or Windows based tablet) (for app tool)
- GPS, Thomas Guide/area map, or directions
- Cell phone with camera
- Comfortable clothes and shoes, sun/rain protection, hat, umbrella & basic first aid

For online rating:

- Protocol and procedures
- Prepared route maps with participant addresses and drawn routes
- Computer with Google Earth installed – side-by-side screens recommended. One for collecting data, and the other for entering data in the web-based app during data collection.

f. Personal Safety

- Check weather conditions prior to beginning audit and prepare accordingly.
- Conduct during daylight hours.
- If raters feel threatened or unsafe in any way, they should leave the area immediately and/or call police.

g. Expectations

- Raters need to complete every route that they start, so they should pay attention to how much time is left before the end of their shift. If there isn't enough time to complete a participant route, don't start rating it.
- After completing but before leaving a route, the rater should thoroughly review the tool and be sure to fill in any blank fields before leaving the location.
- If a rater cannot find a place, gets lost, has questions on the end-point etc. they should call their data manager.
- Raters will also need to meet with the data manager after each shift to check in about the tools last completed.
- **A weekly meeting is mandatory to discuss the week's issues and questions that have come up as a group. The meeting minutes from the previous week will be read/ discussed as a refresher and then each agenda item will be discussed. Post-meeting, the issues will be sent to the IPEN Coordinating Center to be added to a comprehensive decisions document.**

VI. Survey protocol and picture guide

MAPS Global was adapted from the original MAPS abbreviated tool, with items taken or inspired from the MAPS full tool, ALPHA (Instruments for Assessing Levels of Physical Activity and Fitness, Europe), EAST-HK (Environment in Asia Scan Tool, Hong Kong), Bikeability Toolkit (Australia), SPACES (Systematic Pedestrian and Cycling Environmental Scan, Australia), REAT (Residential Environment Assessment Tool, UK), FASTVIEW (Forty Area Study Street View tool, UK), and SPEEDY (Sport, Physical activity and Eating behavior: Environmental Determinants in Young people, International). More information about MAPS can be found at http://sallis.ucsd.edu/measure_maps.html.

Kelli L. Cain, Rachel A. Millstein, James F. Sallis, Terry L. Conway, Kavita A. Gavand, Lawrence D. Frank, Brian E. Saelens, Carrie M. Geremia, James Chapman, Marc A. Adams, Karen Glanz, Abby C. King, Contribution of Streetscape Audits to Explanation of Physical Activity in Four Age Groups Based on the Microscale Audit of Pedestrian Streetscapes (MAPS), *Social Science & Medicine*, 2014, 116, 82-92.

Millstein, R.A., Cain, K.L., Sallis, J.F., Conway, T.L., Geremia, C., Frank, L.D., Chapman, J., Van Dyck, D., Dipzinski, L.R., Kerr, J., Glanz, K., Saelens, B.E. (2013) Development, scoring and reliability of the Microscale Audit of Pedestrian Streetscapes (MAPS). *BMC Public Health*,13:403.

Level 1: Route

1. Route

When auditing the route portion of the MAPS tool, count both sides of the street on the walking route.

- Exceptions: Streetscape
 - 1-2) Bus Stops: If a bus stop exists on both sides of the street, and the stops service the same exact routes, only count 1 bus stop.
 - 6) Driveways: Only count driveways that would be crossed by a pedestrian on the walking route.
- Items on the diagonal side of an intersection should not be counted in the route section.

There are 3 sections to the Route portion of the tool: Destinations & Land Use, Streetscape, and Aesthetics and Social. You do not need to complete these in order; you will likely be tallying, making notes, and marking down items as you come across them.

A. Destinations and Land Use

Be sure to rate both sides of the street for Destinations & Land Use Section

1. Method of Data Collection

How is audit information collected?

- Foot (walked route)
- Auto (drove route)
- Both (walked & drove route)
- Online (Streetview)

Raters should avoid rating routes by auto whenever possible.

2. Residential Uses

What types of residential uses? (*Check all that apply*)

- Single family houses
- Multi-unit homes (duplex, 4-plex, row house)
- Apartments or condominiums
- Apartments above street retail
- None

a. **Single-family homes:** A structure designed to house only a single family.



b. **Multi-unit homes:** Built for more than one family (duplexes, town homes, or row houses). Can also be used for known multiple families living within a single-family home.

Row Houses: One of a series of houses, often of similar or identical design, situated side by side and joined by common walls.



Multi-unit home



Row Houses

Duplex: Duplexes typically have different front doors for each unit and different main addresses.



Duplex



Duplex

- c. **Apartments:** A room or suite of rooms designed as a residence and generally located in a building occupied by more than one household. Apartments typically have one main entrance, one main address with apartment numbers.



Apartment



Condominium

- d. **Apartments above street retail:** Apartments located above the street on top of commercial retail destinations.

3. **Non-residential Uses**

Land uses and elements should only be counted if they are along the route walked. ***Do not count land uses and elements beyond the route even if they can be seen from the route.***

Some land uses may contain may contain 2 or more types (i.e., a grocery store with a Starbucks coffee shop inside). In the case that two business names are listed on the sign, select two types. If a generic sign is listed (i.e., a grocery store with “Deli” listed on the sign), choose the predominant use and do not double count.

How many of the following types of non-residential destinations are present?

Reminder:

- Only count those land uses with entrances along your route.

Food-related land uses

a. Fast food restaurant (national or local chain, primarily sells burgers, fried chicken, pizza, Mexican, Chinese, etc. Does not have wait staff.)

- 0 1 2 3 4 5+



b. Sit-down restaurant or bar, all ages (Does have wait staff)

- 0 1 2 3 4 5+



c. Grocery/supermarket

- 0 1 2 3 4 5+



d. Convenience store (may also be a gas station)

- 0 1 2 3 4 5+



e. Café or coffee or tea shop

0 1 2 3 4 5+



f. Bakery

0 1 2 3 4 5+



g. Age-restricted bar/nightclub (primarily sells alcohol)

0 1 2 3 4 5+



h. Liquor/alcohol store (primarily sells alcohol)

0 1 2 3 4 5+



Anything with "liquor" or "alcohol" in the name can be counted

i. Bank or credit union/ATM

0 1 2 3 4 5+



j. Drugstore/pharmacy

0 1 2 3 4 5+



k. Health-related professional (e.g., chiropractor, Dr. office)

0 1 2 3 4 5+



l. Entertainment (e.g., movie theatre, arcade)

0 1 2 3 4 5+



m. Other service (e.g., salon, lawyer, accountant, realtor, laundry/dry cleaner, commercial mailing service)

0 1 2 3 4 5+



Other examples

- UPS store
- Tanning salon
- Traffic School

n. Other retail (e.g., books, clothing, hardware, video rental)

0 1 2 3 4 5+



o. Place of worship (e.g., temple, church, synagogue, convent, mosque, cemetery, etc.)

0 1 2 3 4 5+



p. School (e.g., preschool, church schools, learning centers, any place with school in the name)

0 1 2 3 4 5+



q. Private indoor recreation (e.g., commercial gyms, dance clubs)

0 1 2 3 4 5+



r. Public indoor recreation

0 1 2 3 4 5+



s. Private outdoor recreation

0 1 2 3 4 5+



Private indoor & Private outdoor
Boys & Girls Club with both inside and outside features will be counted under both

t. Public outdoor pay recreation (e.g., pool)

0 1 2 3 4 5+



u. Public park

0 1 2 3 4 5+



v. Trail

0 1 2 3 4 5+



w. Pedestrian street or zone

0 1 2 3 4 5+



x. Bicycle shop

0 1 2 3 4 5+



4. Shopping Centers

Check all that apply

- Shopping Mall or Arcade
- Strip Mall
- Open-air Market
- None of the above

B. Streetscape

Be sure to rate both sides of the street for Streetscape Section

Public Transit Stops

1. Number of public transit stops *(If NO stops, skip to 3)*

- If there are 2 bus stops on either side of the street serving the same route, count it as 1 bus stop
- Combine the 2 stops in your ratings. For example, if one of them has a timetable and other has a shelter, mark both.

2. What is available at the first transit stop? *(Only count benches that users could be easily identified by bus drivers as waiting to ride the bus)*

- Bus BRT (Bus Rapid Transit) Subway
- Train Tram/Streetcar
- Bench Covered Shelter Timetable



Bench



Covered Shelter



Timetable

3. What other transport options do you see on the route? *(Check all that apply)*

- Tuktuk/auto rickshaw Car share Taxi
- Private bus Bicycle share

4. Street Characteristics

What other street characteristics are present? (Specify # of each type)

Check all that apply

- Traffic calming (signs, circles, speed tables, speed humps, curb extension) _____
- Roll-over curbs _____ (if whole segment or both sides = 1)
- None of the above

Traffic Calming: Infrastructure with the purpose of reducing vehicle speeds and improving safety for drivers and pedestrians (e.g., traffic calming signs, traffic circles, speed tables, speed humps, curb extensions). Designed measures compel drivers to slow down, or act to exclude or divert traffic altogether.

- Count each traffic calming indication separately
Example: A speed bump accompanied by a sign indicating the bump would count as 2
- Dip in the road accompanied by a sign to alert drivers should be counted
- Dip in the road without a sign should not be counted
- A guardrail *does not* count as traffic calming



Speed table



Traffic circle

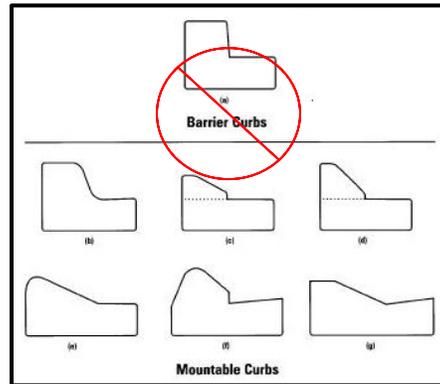


Curb extension

a. Roll over Curbs:

Allow cars to drive up onto the sidewalk. It is not a 90 degree angled curb

- When counting roll-over curbs, count one for the whole segment
- Only count one side of the segment, if roll over curbs are on both sides
- If the majority of the segment has a roll over curb, count as 1



5. Street amenities

Presence of street amenities. *Check all that apply*

- Trash bins (public)
- Benches or other places to sit
- Bicycle racks
- Secure bicycle access lockers or compounds
- Kiosks or information booths
- Hawkers/shops/carts
- None of the above

Trash bins: Must be for public (or pedestrian) use, not private residences' trash bins

Benches or other places to sit: Tables or benches outside of restaurants/cafés do not count as a street amenity (places to sit). These need to be public seating areas. Bus stop benches can be counted here, if they were not already listed in SS2 (first transit stop amenities).

Secure bike lockers



Kiosks/information booths



C. *Aesthetics and Social*

1. Pleasant Hardscape features

Do you observe pleasant hardscape features, such as fountains, sculptures, or art (public or private)?

Yes No



Private fountain



Public art



Public sculpture

2. Bodies of water

Do you observe any natural bodies of water?

Yes No

3. Pleasant Softscape features

Do you observe softscape features such as gardens or landscaping (*e.g., Public: bodies of water, designated viewpoints; Private: retaining walls, bark, ponds*)?

Yes No



Retaining wall



Community garden

4. Building maintenance

Are the buildings well maintained?

0% 1-49% 50-99% 100%

Buildings do not need to be brand new to get a 100% rating.
They just need to be well kept and maintained.

5. Landscaping maintenance

Is landscaping well maintained?

- 0% 1-49% 50-99% 100%



The above photos indicate properties which reflect poor and good landscape maintenance. If all properties were the same on these routes, they would be rated 0% and 100%, respectively.

6. Graffiti

Is graffiti/tagging (not murals) present?

- Yes No

7. Litter

Is noticeable/excessive litter present?

- Yes No

8. Fouling

Is noticeable/excessive dog or human fouling litter present?

- Yes No

9. Rate the extent of graffiti, litter and fouling

- None
- A little (present)
- Some (very noticeable)
- A lot (overwhelming)

10. Presence of walkers

Is there presence of anyone walking?

- Yes No



Bikers do not count for this question.

11. Highway

Is there a highway/main road (street which is 45mph+ or 5+ traffic lanes wide) nearby?

Yes No

Highway: Street has speed limit of 45mph/72kph or higher, or is 5 or more lanes wide. As long as the highway is within one segment from the route, it can be counted here. It doesn't necessarily have to be "obstructing" your walkway. Walking over the highway would count.

2. Segments

Segment: A section of street or road between two crossings. If the name of the street changes, that segment should end and new segment should begin, although a crossing has not been made. When auditing the walkways/sidewalks portion of the MAPS tool, only those items on the immediate side of the walking route should be counted, except when rating the segment type and building height.



Housing Complex (Condo complex, apartment complex, etc)

Start route at the main street entrance to the complex.
Do not rate within the housing complex



Gated communities

Begin route from participants house i.e. from inside through a pedestrian gate (or without hopping fences or breaking the law).

If not, start the route outside of the gate, extending the route if necessary to reach .25 miles.



Private road

If a rater comes across a private road that is part of their route, the route taken will need to be re-configured.

Auditor ID #	<ul style="list-style-type: none">• Rater ID number, unique to each rater.
Residential vs Commercial	<ul style="list-style-type: none">• Is the segment predominantly comprised of residential housing or commercial buildings/non-commercial buildings? If split evenly, choose commercial. RATE BOTH SIDES OF THE STREET.
Street Name and Side of Street	<ul style="list-style-type: none">• The street name you are walking on.• For all street names be sure to write Ave, St, Rd, etc. following the name• Side of street using your map (N S E W), not the direction you are walking
Starting Cross-Street Ending Cross-Street	<ul style="list-style-type: none">• If starting mid-segment or from a participant's home, use the address of the building. If starting the segment from an intersection, use the cross-street.• Ending cross-street.....

1. Traffic lanes

How many traffic lanes are present? *Choose most predominant, do not count parking lanes*

- 0 (pedestrian street/zone, skip to #7) 1 2 3 4 5 6 7+



0 lanes (pedestrian street)



8 lanes



4 lanes

2. Parking

Is parking allowed on the segment?

- None 1-25% 26-50% 51-75% 76-100%

3. Sidewalk

Is a continuous sidewalk present?

- Yes, paved sidewalk continuous No, paved sidewalk not continuous

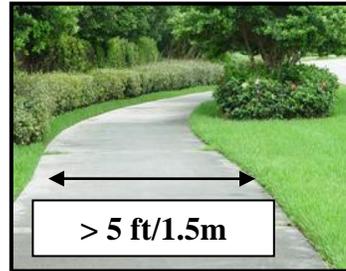
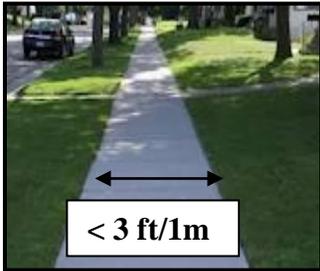
No paved sidewalk but informal walking path No sidewalk or walking path (skip to #10)

- A sidewalk need not be nicely paved walking path. As long as it is paved, it will count as a sidewalk. If unpaved path exists, choose “No paved sidewalk but informal walking path”.
- Count all sidewalks along a segment whether they are short or long
- If no sidewalk or walking path present, check “no sidewalk” for questions 4-9.

4. Sidewalk width

What is the width of the majority of the sidewalk?

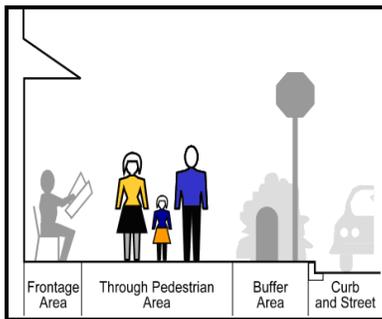
- <3ft/1m (1 person) 3-5ft/1-1.5m (2 people) >5ft/1.5m (>2 people) No sidewalk



5. Buffers

Is a buffer present?

- Yes No N/A (no sidewalk)



Buffer



No Buffer



Grass Buffer



Tree Buffer



Shrub Buffer

Buffer: Separates vehicular and pedestrian zones parallel to the edge of paved roads. They often occupy space between traffic lanes and walking paths that is not intended for either vehicle traffic or walkers. Any buffer on a segment, no matter how long, will be counted.

- Tree plantings, telephone poles or parking meters should not be considered as a buffer if there is, on average, more than 20 feet between them along the street segment.
- A bike lane does not count as a buffer.
- Brick or other flat material alone next to a sidewalk would not be counted as a buffer because it is not inhibiting cars from coming onto the sidewalk.

6. Trip Hazards

Trip Hazard: An increased likelihood of tripping due to a raising or lowering in the walkway. A hazard could be due to plants, tree roots, or general erosion. Major trip hazards would require walkers to look down in order to avoid tripping.

Are there poorly maintained sections of the sidewalk that constitute major trip hazards? (e.g., heaves, misalignment, cracks, overgrowth)

- None One A few Many No sidewalk



One



Few



A lot

Heave: Uneven or raised portion of the sidewalk that could be a trip hazard, usually caused by tree roots or soil expansion after a period of frost.



Heave

7. Hawkers

Are there hawkers or shops on the sidewalk or pedestrian street/zone?

- None One A few Many No sidewalk/ped zone



8. Obstructions

Are there signs, bus shelters, kiosks and street furniture obstructing the sidewalk or pedestrian street/zone?

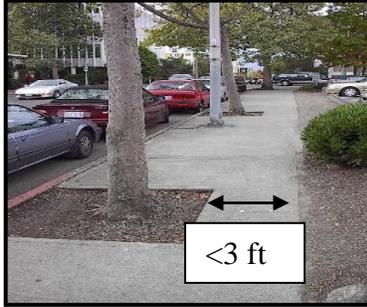
- None One A few Many No sidewalk/ped zone

9. Car obstructions

Are there cars blocking the sidewalk or pedestrian street/zone?

- None One A few Many No sidewalk/ped zone

Obstructions: For questions 8-9, count any obstructions which restrict the sidewalk or pedestrian zone to less than 3 feet (1.5 meters).



10. Informal Path

Is there an informal path (shortcut) which connects to something else?

- Yes No



Alley



Path between buildings

Informal path: Must intersect the street segment and provide a path to a destination that is different and shorter than the network (e.g., alley, dirt path to a park, etc.). An informal path can be dirt; it doesn't need to be paved.

11. Slope

What is the slope of the majority of the segment?

- Flat or gentle Moderate Steep

12. Trees

How many trees exist within 5 feet (1.5 m) of either side of the sidewalk/pathway/other place to walk (can be in buffer or setback; also count trees that are more than 5 feet (1.5 m) away if they provide shade for the sidewalk/pathway)?

- 0 or 1 2-5 6-10 11-20 21+ N/A

Mark N/A if no sidewalk/walkway

Number of trees: Trees planted in the buffer, walkway, or setback (within 5 feet of the sidewalk or pathway).

- Count trees that are more than 5 feet away if they provide shade for the sidewalk/pathway (i.e. at the edge of front yards).
- Questions 12-14 would be N/A if there is no sidewalk or walkway.

13. Tree Coverage

What percentage of the length of the sidewalk/walkway is covered by trees?

- 1-25% 25-50% No coverage
 51-75% 76-100% N/A

Mark N/A if no sidewalk/walkway

Tree Coverage: Trees need not cover the entire width of the sidewalk. Depending on the time of the year, trees may lose their leaves, so make sure to visualize the trees with their full foliage. Also visualize the sun overhead.



76-100% coverage (both photos)

14. Other Coverage

What percentage of the length of the sidewalk/walkway is covered by awnings or other overhead coverage?

- 1-25% 25-50% No coverage
 51-75% 76-100% N/A

Mark N/A if no sidewalk/walkway

Setbacks

15. What is the smallest building setback from the sidewalk/walkway?

- No building
 0 feet 1-10ft/3m 10-20ft/3-6m
 21-50ft/6-15m 51-100ft/15-30m >100ft/30m

16. What is the largest building setback from the sidewalk/walkway?

- No building
 0 feet 1-10ft/3m 10-20ft/3-6m
 21-50ft/6-15m 51-100ft/15-30m >100ft/30m



<10 ft



>100 ft – large lot with house behind

Building setback from the sidewalk/walkway: The required separation between a lot line (and/or right-of-way line) and a building or structure. This could be any building (inhabited or not), or any vertical building face excluding gates and fences can be taken into consideration when calculating smallest and largest setback.

- Staggered homes/apartment buildings **would** count, but houses/buildings set directly behind one another **would not**. Raters can imagine shining a laser pointer toward the buildings, and any building face they hit will be taken into consideration.
- Use the “no building” answer choice only for segments which have no buildings at all.
- If there is only 1 house on a block, that house will have the smallest and largest setback.

Building Height

17. What is the shortest building height? (*Count both sides of the street*)

- No building 1-3 stories 4-6 stories
 7-12 stories 13-20 stories 21+ stories

18. What is the tallest building height? (*Count both sides of the street*)

- No building 1-3 stories 4-6 stories
 7-12 stories 13-20 stories 21+ stories

19. Fences

How many properties are protected by gates, walls or tall fences (6ft/2m or over)?

- None 1-25% 25-50% 51-75% 76-100%

Properties must be enclosed by fences to be counted here.

20. Driveways

How many driveways are there? Do not count alleys.

- None 1-2 3-5 6+

21. Windows

Estimate the proportion of street segment that has ground floor or street-level windows within 40ft/12m of sidewalk/walkway (or street if no sidewalk/walkway)

- 1-25% 26-50% No windows
 51-75% 76-100%

- ONLY count windows within 40 ft/12m of the sidewalk/walkway, or street if no sidewalk/walkway exists.
- Two car lengths is a good measure of 40ft/12m.

Raters should count only house entrance-level windows in this estimation, even if the entrance is set up on a porch. Therefore, basement level windows would not count in this estimation. If there is a *temporary* obstruction blocking the windows (i.e., a motor home parked in the way), still include the blocked windows in the window percentage.

22. Mid-Segment Crossing

Is there a mid-segment crossing?

- Yes No



23. Pedestrian bridge/tunnel

If yes, is it a pedestrian bridge/overpass or tunnel?

- Yes No N/A (no mid-segment crossing)



24. Covered Place to Walk

Is there a covered or air conditioned place to walk along the street or connecting buildings (not a mall)?

- Yes
- No



25. Bike Lanes

Is there a bicycle lane or zone?

Marked bicycle lanes must be on the same side of the street that is being rated

- Yes, on the sidewalk
- Yes, separated from traffic by a marked line
- Yes, separated from traffic by a raised curb
- Yes, separated from traffic by a buffer (plantings, parked cars, fencing, etc.)
- No



On sidewalk



Marked with line



Raised Curb



Buffer

26. What is the quality of the bicycle lane or zone?

- Poor
- Fair
- Excellent
- N/A (no bike lane or zone)

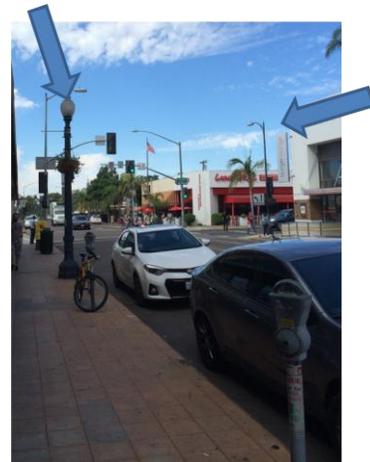
27. Are there signs or sharrows indicating bicycle use?

- Yes
- No



28. Lighting – rate on both sides of the street

- a. How many high (car) street lights are installed?
- None
 - Some (*widely spaced lights*)
 - Ample (*regularly spaced lights, providing light for the majority of the street length*)
- b. How many low (pedestrian) street lights are installed?
- None
 - Some (*widely spaced lights*)
 - Ample (*regularly spaced lights, providing light for the majority of the sidewalk length*)



3. Crossings

Crossing	<ul style="list-style-type: none">Occurs when the rater must go through an intersection, whether a pedestrian crossing exists or not
Auditor ID #	<ul style="list-style-type: none">This is the rater ID number, which is unique to each rater.
Intersection	<ul style="list-style-type: none">Record names of the 2 streets intersecting at the crossing.If this is an unanticipated mid-segment crossing, write down the address of the house/building on either side.
Crossing from	<ul style="list-style-type: none">Record side of the street you start on and then the side of the street you end on: N S E W <u>to</u> N S E W

1. Intersection Control

Check all that apply

- Yield signs
- Stop signs
- Traffic signal
 - Traffic signal not working
- Traffic circle
- N/A – Unanticipated mid-segment crossing
- None of the Above

Rater should rate all of the elements in the entire intersection for this question, not just the specific crossing.

a. **Yield signs** indicate right-of-way



b. **Stop signs** ensure that vehicles will stop for a certain period of time to allow other vehicles, pedestrians, and non-motorized vehicles to cross the intersection.



c. **Traffic signal** is a visual signal designed to control the flow of traffic at intersections.



d. **Traffic circle** requires all traffic to travel in one direction around a central island



e. Unanticipated mid-segment crossing:

- End your segment, complete a crossing survey, and begin a new segment on the other side of the street
- Fill in the cross streets with the address you started with and the address of the house/building that you're ending with

2. Does this crossing take place on a pedestrian overpass, underpass or bridge?

- Yes No Not in working condition



3. Signalization

Check all that apply

- Pedestrian walk signals
 - Pedestrian walk signals not working
- Push buttons
- Countdown signal
- Bicycle signal
- None of the Above

a. Pedestrian walk signals: Some indication for pedestrians to know when to walk.



b. Push button: Actual button for pedestrians to push to indicate they are waiting to cross.



c. Countdown Signal: Both pedestrian triggered and automatic signaling systems are programmed to indicate safe crossing for specified periods of time.



d. Bicycle signal: Signal specifically for bicycles using the crossing.



4. Ramps

a. Pre-crossing curb (*Even if there is no marked crosswalk, there is still a crossing*)

Check one

- Ramp lines up with crossing
- Ramp does not line up with crossing
- No ramp

b. Post-crossing curb

Check one

- Ramp lines up with crossing
- Ramp does not line up with crossing
- No ramp



Ramp lines up with crossing with crossing



Ramp does not line up with crossing



No ramp

5. Tactile paving

Is tactile paving provided at curbs?

- Yes
- No



6. Crossing aids

Are crossing aids (e.g., flags) present?

- Yes No

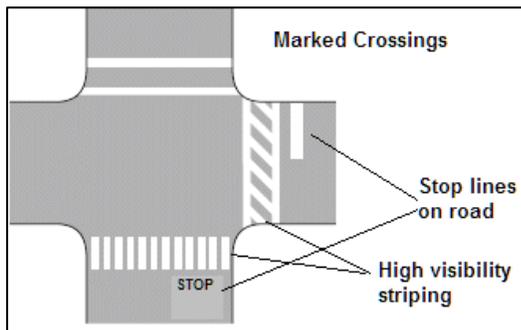


7. Crosswalk Treatments

Check all that apply

- Marked crosswalk
- High-visibility striping
- Different material than road
- Curb extension
- Raised crosswalk
- None of the Above

- a. Marked crosswalk:** A crosswalk is a designated point on a road at which some means are employed to assist pedestrians wishing to cross. They are designed to keep pedestrians together where they can be seen by motorists, and where they can cross most safely with the flow of vehicular traffic. Pedestrian crossings are often at intersections, but may also be at other points on busy roads that would otherwise be perilous to attempt to cross.



- b. High-visibility striping:** Usually indicated by ladder or diagonal striping or unique lighting, striping for the crosswalk that is more visible to drivers than simple parallel lines. (Example: 2 yellow lines would count here)



- c. **Different Material than road:** Crosswalks characterized by variations in the material along the crosswalk that distinguishes it from the street portion dedicated to vehicular traffic.



- d. **Curb extension:** Used as traffic calming, curb extensions are comprised of an angled narrowing of the roadway and a widening of the sidewalk.



8. Refuge island

Is a protected refuge island present?

- Yes No



9. Distance of crossing

Distance of crossing leg, including all traffic and turn lanes _____ lanes wide

Bicycles

10. Is a waiting area ('bike box') provided for cyclists that stop at the crossing?

Yes No



11. Does a bike lane or path cross the crossing?

Yes No



4. Cul-de-Sac or Dead End

The cul-de-sac or street dead-end to be rated must be within 400ft/120m of the participants' home and will usually (but not always) be the dead-end part of the participant's street. The cul-de-sac opening is the point at which the street widens or bulbs out. The street dead-end opening is 50ft/15m from the end of the street or to the first driveway, whichever is furthest.

Cul-de-sac/Court: A dead-end street with only one inlet/outlet. They are created to limit through-traffic in residential areas. While some cul-de-sacs provide no possible passage except in and out of their road entry, others allow cyclists, pedestrians or other non-automotive traffic to pass through connecting easements or paths.

Auditor ID #

- This is the rater ID number, which is unique to each rate

Street Name

- Rater should write down the name of the street that the cul-de-sac is on



Small cul-de-sac



Dead End

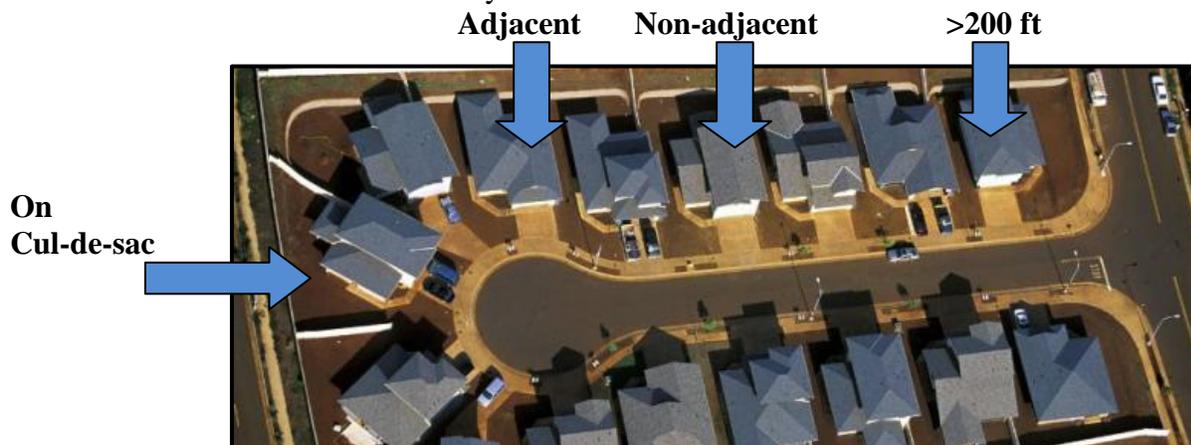


Large cul-de-sac

1. Proximity to participant

How close is the cul-de-sac or dead-end to the participants' home? (*Check one*)

- On the cul-de-sac
- Adjacent to the cul-de-sac (one or two homes/houses removed from cul-de-sac opening)
- Non-adjacent, but less than 200ft/60m away
- More than 200ft/60m away



2. Cul-de-sac Amenities

What amenities exist at the opening to or along the cul-de-sac or dead-end portion of the street?

Check all that apply

- Basketball hoops _____ number
- Skateboard features (e.g., ramps) _____ number
- Soccer goals _____ number
- Outdoor fitness equipment _____ number
- None of the Above

Amenities need to be at the opening to or in the cul-de-sac or dead-end portion of the street to be counted here. A basketball hoop that is a few houses away from the opening will not count here because these are probably less communal, whereas an amenity on the cul-de-sac would be considered much more of a shared resource (e.g., anybody living on the cul-de-sac or near it can use it).

3. Visibility of the cul-de-sac

Can most of the cul-de-sac or dead-end area be seen from the participant's home (using the most optimal viewpoint from the home, including higher story windows)?

- Yes No



Surveillance would be difficult



Surveillance would be easier

VII. MAPS Global Online Collection

Setting up workstations:

- Download Google Earth or verify that the latest version is being used (7.1.5.1557 for Google Earth, 7.1.2.2041 for Google Earth Pro, as of January 2016).
- Open Google Earth
 - Under the Layers tab, verify that the Places box is checked (which will display land use icons on the map), the “Parks/Recreation” box is checked (which will display parks) and that under the Transportation menu, the Bus box is checked (which will display bus stop icons on the map).
 - Go to “Tools” and “Options” from the toolbar at the top. Under the “navigation” tab, adjust the “Fly-to” speed to the fastest and under “navigation” on the same page, select “do not automatically tilt while zooming” and select “apply”
- Open Google Maps by selecting the icon at the far right of the toolbar along the top that looks like a map and is labeled “View in Google maps” when you hover over it. This will allow you to observe the route using Google’s Streetview function.

Completing the tool using Google Earth and Streetview:

Route - Aerial:

- Zoom to approximately 2000 feet above the ground to capture the aerial or imagery date shown on the bottom of the screen. Tip: it may be easier to get close to 2000 feet by using the “+” and “-“ buttons; the altitude you are viewing from is displayed on the far right on the bottom and is labeled “eye alt.”
- Quickly **scan the area** for non-residential land uses located **on the route** by viewing in GoogleMaps and opening in GoogleChrome (option on the top right)
 - Do this from aerial view in GoogleMaps by clicking the “ Search nearby” option in the search bar where the address is entered
 - Enter an asterisk (*) and press enter
 - All destinations will be listed below the search bar or you can hover your mouse over the dot on the map and it will say what it is
 - Ensure that the entrance is along the route (may have to enter Streetview to do so)
 - Also, some land uses may be listed on Google, but are actually residential homes. Raters will need to verify these land uses on Streetview if they appear to be located in residential areas.
- Scan aerial view for bus stops located on the route, as well as highways and railroad crossings that cross the route.

- Raters may be able to partially complete items on the Streetview portion of the route tool using the aerial view, e.g., traffic calming elements, driveways and alleys, etc.

Route – Streetview:

- Verify that the Route path is selected, then drag the icon into Streetview mode in Google Earth (note: this is not the fastest way to traverse Streetview, but allows the ability for raters to verify that they are staying on the specified route by viewing the route line drawn earlier. If this method causes delays, Google Maps can be used in a separate web browser while referencing the route on a paper map or separate window).
- Travel the route by Streetview, turning perspective and angle 180 degrees every 100 feet (30m) to capture the land uses/environment on both sides of the street. Raters should keep the mouse depressed during these revolutions in order to ensure they return to the starting position, and will need to tilt as well as rotate in order to capture street lighting.

Segments - Aerial:

- Scan the segment for walkway presence (sidewalk or other), sidewalk continuity and bike lanes.
- Determine the largest and smallest setbacks on the segment and measure in feet.

Segments - Streetview:

- Travel the segment by Streetview, making sure to stay on the correct side of the street. Raters should mostly stay facing toward the sidewalk during these Streetview observations, but may need to rotate in order to view signage and street characteristics.

Crossings – Aerial:

- Scan the aerial view for crosswalk treatment, keeping in mind that a raised crosswalk may only be visible from streetview.
- Assess the number of traffic lanes from aerial view.

Crossings – Streetview:

- Travel the crossing by Streetview, turning perspective and angle 180 degrees at the beginning and end of the crossing. Raters should keep the mouse depressed during these revolutions in order to ensure they return to the starting position.

Cul de sac – Streetview:

- Review the cul de sac by Streetview, turning perspective 360 degrees by panning to the side to capture cul de sac amenities.

VIII. Parks Global

The closest park (by street network distance) to each participant will be selected for this effort and rated using the Parks Global tool. Again, participants with complete accelerometer and GPS data should be prioritized.

Observation strategies

- Walk around the available perimeter of the park and walk through the park to capture all amenities and features.
- If applicable, drive on all roads within the park or that border the park
- If available, use park maps and visit each feature specified on map

The following items are a requirement of the IPEN Adolescent Study. Please retain all items, even if they do not apply for your parks or in your country. You may also choose to complete the EAPRS or POST surveys, as they have been used by other countries. If you add questions of special interest, let us know as soon as possible so we can inform other countries who could adopt them. Or, you could work with multiple countries to develop new items for your region.

Presence of the below in the park:	Yes	No
1. Any walking path (paved trail, unpaved trail, sidewalk around the park, paths within the park)	1	0
2. Beach	1	0
3. Any field or court (e.g., football, basketball, etc)	1	0
4. Recreation center	1	0
5. Pond	1	0
6. Creek or stream	1	0
7. Fountain	1	0
8. Grill	1	0
9. Restroom	1	0
10. Shelter or gazebo	1	0
11. Parking lot	1	0
12. Any seating (e.g., benches, bleachers, picnic tables)	1	0
13. Drinking fountain	1	0
14. Vending machine or café	1	0
15. Any landscaping (e.g., flowers, bushes, etc.)	1	0
16. Trash cans	1	0
TOTAL	/16	