

# Pedestrian Environment Data Scan

## AUDIT PROTOCOL

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### **GENERAL DIRECTIONS:**

Surveyors will go out each day with their team. Maps of segments and a list of segments will be given each morning to direct surveyors regarding which segments they should survey. Surveyors will return to Caroline Hall each day to upload completed entries.

In case of inclement weather, the Undergraduate and Graduate Fellows will assess the situation and decide whether surveying should be postponed.

### **SUPPLIES:**

- Map of area with segments detailed
- Master list of segments
- PDA

### **PROCEDURES AT EACH SEGMENT:**

1. Identify the segment on your map and check it against the master list. Start a new entry and input the segment number, your name, the time, day and weather.
2. Make sure you locate the beginning and endpoint of the segment. Look at the map to find the information.
3. Walk the segment once **WITHOUT** writing anything on the survey form. You should look around in all directions, without forgetting to look up and down as well.
4. Walk the segment again, this time while filling out the survey (as explained below). Go back and forth as often as necessary in order to fill in each question. Make sure you are in agreement with your teammate about your choices.

NOTE: The audit only consists of “check” (boxes) and “fill in number” (line) questions. For the numeric answer, use integers only. If you need to round the number, always round up.

5. When you have filled each question, go over the entire survey again to make sure you have completely answered the form and that you are satisfied with your answers (in the paper audit, this means you will have at least one check mark per cluster of boxes). You can then move on to the next segment, following the same procedure.
6. Make sure to record any modifications such as segments that are merged or do not exist. Also, make note of any questions or problems that arose while surveying the segment.

### **QUESTION BREAKDOWN:**

The following section of the protocol describes each question and response category to aid the administrators in dealing with variations in the environment. The administrators are encouraged to read through this section and use it as a reference while surveying the segments.

For each question, the name and number are in **bold**, the answer options are in *italics* and the comments, definitions or directions in regular text.

## SECTION 0: SEGMENT NUMBER & TYPE

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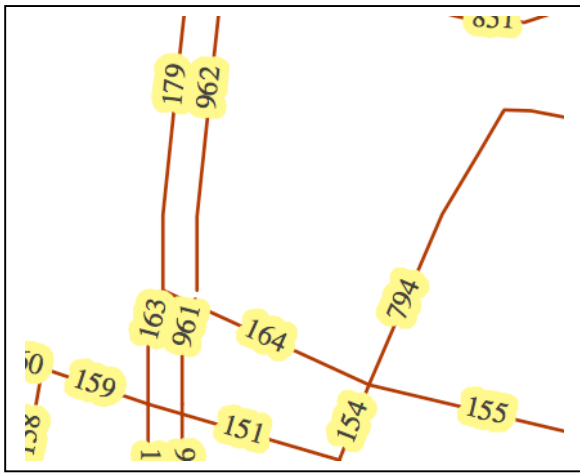
### 0. Segment Type

*Low volume road – audit both sides*

*High volume road – audit this side only*

*Bike or ped path – skip section C*

Options 1 and 2 will be defined prior to the administration of the survey. If the segment on the map has two lines instead of one, it will be considered a “high volume road”.



In the illustration at left, segment 164 is a low volume road and segments 163 and 961 are a high volume road.

“Bike or ped path” is to be checked off if there is no automobile access roadway in the segment.

High volume roads will only be audited on one side for all questions except questions 3.

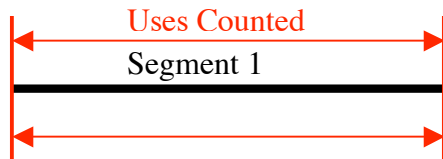
Segment Intersections (count ALL intersections) and 15.:Number of Lanes (count ALL lanes).

## SECTION A: ENVIRONMENT

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### 1. Uses In Segment

Count EVERY USE within the segment. That is: every use within the boundary formed by making a right-angle line from the beginning and end of the segment. Uses only count if there is access to it in the segment, like a driveway, walkway, or entrance. Access to a back door or a loading dock would count as access. Abandoned buildings do not qualify as vacant. Instead, count them under their intended use.



#### Answer Options

*Housing – Single Family Detached*

*Housing – Multi-Family:* attached housing, apartments, duplexes.

*Housing – Mobile Homes*

*Office/Institutional:* office parks, corporate campuses, public buildings, schools, churches, hospitals etc. This also includes professional offices in residential buildings (dentist, lawyer, doctor, accountant, etc.)

*Restaurant/Café/Commercial:* restaurants, stores, malls, gas stations etc.

*Industrial:* factories, mills, industrial complexes, etc.

*Vacant/Undeveloped:* cleaned or cleared off lots, naturally occurring vegetation, natural features such as lakes and rivers.

*Recreation:* parks, golf courses, basketball courts etc. Official paths coming off a segment can count as recreation.

### 2. Slope

#### Answer Options

*Flat:* there is no discernable hill walking the segment.

*Slight Hill:* there is a slight hill in the segment, but not enough to make walking uphill difficult.

*Steep Hill:* the hill in the segment makes walking or biking it difficult.

### 3. Segment Intersections (check all that apply)

#### Answer Options

*Segment has 3-way intersection*

*Segment has 4-way intersection*

*Segment has other intersection*

*Segment deadends*

*Segment deadends but path continues*

*Segment has no intersections*

## SECTION B: PEDESTRIAN FACILITY ---

If there is no pedestrian facility in the segment, skip to section C

Note: A pedestrian facility does not count if it is a private walk in front of a single family house. It would count if it is a facility in front of a commercial center intended to be used as a sidewalk. An incomplete sidewalk in front of a residential home counts if it looks as though it was built by the city.

### 4. Type(s) of Pedestrian Facility (check all that apply)

#### Answer Options

*Footpath (worn dirt path)*

*Paved Trail:* a paved trail is any paved walkway that is not associated with a roadway.

*Sidewalk:* a walkway will only be considered a sidewalk if it is associated with a roadway.

*Pedestrian Street (closed to cars)*

NOTE: The rest of the questions in this section refer to the BEST pedestrian facility selected above.

### 5. Path Material

Select all that apply. Even if one material is just a patch in the sidewalk, please mark it.

#### Answer Options

*Asphalt*

*Concrete*

*Paving Bricks or Flat Stone*

*Gravel*

*Dirt or Sand*

### 6. Sidewalk Condition/Maintenance

#### Answer Options

*Poor (many bumps/cracks/holes):* A sidewalk will be considered “poor” if a stroller cannot be pushed along the sidewalk without many jarring motions and/or if it clearly needs to be replaced (patches would not be sufficient)

*Fair (some bumps/cracks/holes):* A sidewalk will be considered “fair” if a stroller can easily be pushed along the sidewalk with few jarring motions to the passenger and/or it only needs patches or other minor repair.

*Good (very few bumps/cracks/holes):* A sidewalk will be considered “good” if a stroller can easily be pushed along the sidewalk without jarring motions to the passenger and/or it needs no repair at this time.

*Under Repair:* A sidewalk will only be considered “under repair” if there is evidence of work being done to improve the sidewalk. Orange cones are not enough. If construction work is being done adjacent to the sidewalk, blocking it off as a result, it is considered “under repair.”

## **7. Path Obstructions (check all that apply)**

NOTE: An object is only a path obstruction if it severely reduces or completely blocks off the pedestrian facility. Threshold: Could you get by in wheelchair or while pushing a stroller? For this question, you are looking at potential obstructions on ALL pedestrian facilities on the street. In other words, if there are two sidewalks and only one has obstructions, please write down those obstructions.

### **Answer Options**

*Poles or Signs*

*Parked Cars:* cars in driveways that block the sidewalk should be counted.

*Greenery*

*Garbage Cans*

*Other*

*None*

If the pedestrian facility in the segment is not a sidewalk, skip now to section C

## **8. Buffers between road and path (check all that apply)**

### **Answer Options**

*Fence*

*Trees:* trees are only a buffer if they are part of a landscape/grass buffer or if they occur regularly enough on the street to discourage pedestrians from walking along the roadway. Trees within a grass buffer count as a buffer.

*Hedges*

*Landscape*

*Grass*

*None*

## **9. Distance from curb**

### **Answer Options**

*At Edge*

*< 5 feet*

*> 5 feet*

If possible, use a tape measure to measure the distance and round up to the next integer. If no tape measure is available, measure by using your feet and rounding to the next highest integer. If it seems too dangerous to walk to the roadway, measure by using context clues. If the sidewalk distance from the curb varies, use the average or typical distance.

## **10. Sidewalk width**

### **Answer Options**

*< 4 feet*

*Between 4 and 8 feet*

*> 8 feet*

If possible, use a tape measure to measure the distance, not including the curb, and round up to the next integer. If no tape measure is available, measure by using your feet and rounding to the next highest integer. If sidewalk width varies, use the average or typical width.

## 11. Curb Cuts

### Answer Options

None

1 to 4

> 4

## 12. Sidewalk Completeness/Continuity

This refers to the completeness of the sidewalk WITHIN the segment.

### Answer Options

*Sidewalk is complete:* a sidewalk is complete if it does not have any breaks within the segment.

*Sidewalk is incomplete:* a sidewalk is incomplete if it ends or has gaps within the segment.

## 13. Sidewalk connectivity to other sidewalks/crosswalks

This refers to the number of connections the segment sidewalk has to crosswalks and other sidewalks. Stop signs at the end of the segment can be treated as a crosswalk. This will be scored as follows:

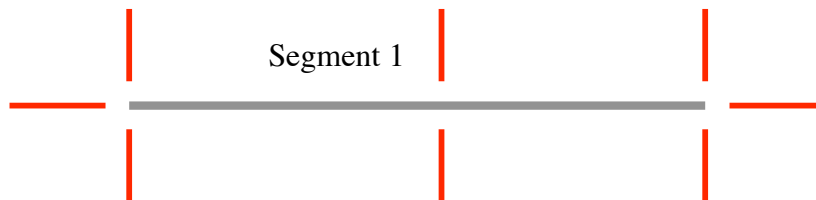
At the beginning of the segment, looking backward 180 degrees, +90 degrees and -90 degrees: how many sidewalks or crosswalks are there?

At the end of the segment, looking forward, +90 degrees and -90 degrees: how many sidewalks or crosswalks are there?

In the middle of the segment: are how many sidewalks or crosswalks are there?

These three scores should be added to make up the connectivity score.

A very well connected segment will have a score of six plus any crosswalks that may exist along the segment.



Connections to other sidewalks/crosswalks in diagram above shown in red. The above diagram has 8 connections.

On a low volume residential segment there does not need to be a crosswalk in order to count as a connection.

Connections made by crossing the street to another side where a sidewalk exists does not count.

## SECTION C: ROAD ATTRIBUTES ---

NOTE: skip this section if path only

### **14. Condition of Road**

#### **Answer Options**

*Poor (many bumps/cracks/holes):* the potholes, cracks, etc. present would cause a vehicle driving the segment to rock, dip or otherwise disrupt driving.

*Fair (some bumps/cracks/holes):* there are potholes, cracks etc., but not enough to cause problems for a vehicle driving the segment.

*Good (very few bumps/cracks/holes):* there are no large potholes or other problems that would cause problems for a vehicle driving the segment.

*Under Repair:* A roadway will only be considered “under repair” if there is evidence of work being done to improve it. Orange cones are not enough.

### **15. Number of Lanes**

*Minimum number of lanes to cross*

*Maximum number of lanes to cross*

Count ALL lanes (even if it is a high volume road), including turn only lanes and/or “suicide lanes” one would need to cross the road at its widest point along the segment.

### **16. Posted Speed Limit**

#### **Answer Options**

*None Posted*

*(mph): \_\_\_\_\_*

Check the “none posted” box unless there is a sign WITHIN the segment that displays the speed limit. Even if there is a sign outside the segment, within plain view, it does not count.

### **17. On Street Parking**

If pavement is unmarked, check “parallel” only if there are cars parked within the segment or if parking signs are present.

#### **Answer Options**

*Parallel or Diagonal*

*None*



## 18. Off-Street Parking Lot Spaces

### Answer Options

0-5	6-25	26+

Count all off-street parking spaces in segment. Cars in single family home driveways do not count. Only cars in actual parking lots count (apartment complexes, commercial parking, office parking etc.) There must be access to the lot from the segment.

## 19. Must you walk through a parking lot to get to most buildings?

### Answer Options

*Yes*

*No*

For this question, the origin point of walking to the buildings will be from the sidewalk. If there is no sidewalk, origin point will be the curb of the roadway.

## 20. Presence of High-Medium Volume Driveways

### Answer Options

*< 2*

*2 to 4*

*> 4*

High-medium volume driveways are driveways that often have cars pulling in and out, like commercial driveways or driveways of apartment buildings. Single-family residential driveways are low volume and should not be counted here.

## 21. Traffic Control Devices (check all that apply)

Count only the traffic control devices within the segment, not those that are visible but outside the segment (they will be captured when the next segment is surveyed.)

### Answer Options

*Traffic Light*

*Stop Sign*

*Traffic Circle:* counts on all the segments that go into the circle. Triangular traffic control devices can also be counted under this category.

*Speed Bumps*

*Chicanes or Chokers:* chicanes are a series of narrowings or curb extensions that alternate from one side of the street to the other forming S-shaped curves. Chokers are curb extensions at midblock or intersection corners that narrow a street by extending the sidewalk or widening the planting strip.

## **22. Crosswalks**

### **Answer Options**

*None*

*1 to 2*

*3 to 4*

*> 4*

Make sure to note all marked crosswalks in segment. “Marked” refers to lines on the pavement (but *not* automobile stop lines) or signs, lights or signals.

## **23. Crossing Aids in Segment (check all that apply)**

### **Answer Options**

*Cars Must Stop*

*Pavement Markings*

*Yield to Ped Paddles*

*Pedestrian Signal*

*Crossing Aids*

*Median/Traffic Island*

*Curb Extension*

*Overpass/Underpass*

*Warnings to Cars*

*Pedestrian Crossing Street Sign*: street sign without flashing light. Children at play signs can also be included here. Yield signs for cars do not count.

*Flashing Warning*

*Share the Road Warning*

## **24. Bicycle Facilities (check all that apply)**

### **Answer Options**

*No designated bikeway*

*Bicycle route signs*

*Striped bicycle lane designation*

*Visible bicycle parking facilities*: these facilities must be useable by the public, not for private use only

*Bicycle crossing warning.*

## SECTION D: WALKING/CYCLING ENVIRONMENT

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### 25. Roadway/Path Lighting

#### Answer Options

*No Lighting:* there is no artificial lighting in the area.

*Road-oriented lighting:* there are public light fixtures that aim light at the road or are very high and illuminate broad expanses.

*Pedestrian-scale lighting:* there are public light fixtures that aim light at the walking path.

*Other lighting:* lighting from stores, apartments etc. that lights the road and/or pedestrian path.

### 26. Amenities (check all that apply)

Must be for public use. Also, visible and accessible from the pedestrian path.

#### Answer Options

*Garbage Cans:* only public use garbage cans count. Residential garbage cans do not count.

*Benches*

*Water Fountain*

*Street Vendors/Vending Machines:* this includes soda machines, candy machines, public pay phones, mailboxes and newspaper dispensers.

### 27. Are there Wayfinding Aids Present?

#### Answer Options

*Yes* A wayfinding aid is a sign identifying the name of the cross streets. Any sign visible from the segment at the pedestrian level counts as a wayfinding aid, even if it is actually located on another segment.

*No*

### 28. Number of Trees Shading Path

#### Answer Options

*None or Very Few:* the path is not shaded by any trees (or only one tree) along the segment. (less than 25% is covered)

*Some:* the path is covered between 25 and 75% of the way.

*Many/Dense:* more than 75% of the path is shaded by trees.

### 29. Degree of Enclosure

#### Answer Options

For this question, take into account both the buildings and natural features (trees, bushes etc.)

*Little or no enclosure:* the view from the sidewalk is open in both directions for more than 15 feet for most of the segment. It is a wide-open, unconstrained space.

*Some enclosure:* the view is partially enclosed, but there is still some wide-open spaces.

*Highly enclosed:* the buildings lining the street are within 10 feet of the sidewalk and there is a cross-sectional design ratio of approximately one (height) to two (width), or less.



### **30. Powerlines along segment?**

Power lines that cross or run parallel to the segment all count in this question.

#### **Answer Options**

*No*

*Low Voltage/Distribution Line*

*High Voltage/Transmission Line*

### **31. Overall Cleanliness and Building Maintenance**

Leaves, branches, and brush, all count towards cleanliness based on the amount and if it is clearly visible and in the pedestrian path.

#### **Answer Options**

*Poor:* there is noticeable garbage, graffiti and/or broken glass along the segment.

*Fair:* there are a few wrappers, or other litter but no graffiti or other garbage evident.

*Good:* there is no obvious garbage, graffiti, litter or broken glass in the segment.

### **32. Articulation of Building Designs**

#### **Answer Options**

*Little or no articulation:* the façades of buildings along the segment are unadorned and do not have many window openings.

*Some articulation:* the façades of buildings along the segment are similar in style and/or are not very ornate.

*Highly articulated:* the façades of buildings along the segment are complex and varied.

### **33. Building Setbacks**

#### **Answer Options**

*At edge of sidewalk*

*Within 20 feet of sidewalk*

*More than 20 feet from sidewalk*

### **34. Building Height**

#### **Answer Options**

*Short:* 1-2 stories, except with big box buildings or other buildings with tall floors.

*Medium:* 3-5 stories (with same exceptions.)

*Tall:* buildings taller than 5 stories (with same exceptions.)

NOTE: Average height is to be measured here, not the maximum or minimum height.

### **35. Bus Stops**

#### **Answer Options**

*Bus stop with shelter*

*Bus stop with bench*

*Bus stop with signage only*

## SECTION SA: SUBJECTIVE ASSESSMENT

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Enter 1, 2, 3 or 4 for:

- 1 = Strongly Agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly Disagree

*Segment...*

*... is attractive for walking*

*... is attractive for cycling*

*... feels safe for walking*

*... feels safe for cycling*

Response to the “attractive” question should answer the question: “would you want to walk/bike this segment?” This includes finding the area aesthetically pleasing and existence of destinations.

Response to the “safe” question for walking should take into consideration not only walking along the sidewalk but crossing the street. The administrator should think of walking the segment with a 10 year old child. Would a child be safe walking the segment?

Response to the “safe” question for cycling should take into consideration existence of a bicycle lane and speed of local traffic. A segment can only score a 1 in this question if the traffic goes below 25 miles an hour or there is a formal bicycle lane present.

For more information on the Pedestrian Environment Data Scan, please contact:

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