

# **Physical Disorder and Pedestrian Safety**

## **Virtual Field Manual**

Pilot Audit / Spring 2019



# Preface

This document is intended as a comprehensive guide to the Physical Disorder and Pedestrian Safety virtual audit instrument to assist in training new raters, serve as a reference to maintain consistency between raters, and to act as a data dictionary.

Illustrations for the manual are taken from Google Street View locations that demonstrate response categories for the items. This is intended to help orient new raters to the level of attention necessary to complete virtual audits using Google Street View imagery.

This version of the field manual is intended for use in pilot audits conducted in the spring of 2019. Special thanks to Kathleen Escoto, Steeve Ndjila Ndohnwou, Steve Mooney, and Alex Quistberg for their role in selecting items and designing this manual.

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# General Instructions



## The CANVAS Platform

All street ratings for this project will be completed using the Computer Assisted Neighborhood Visual Assessment System (CANVAS), an online application that facilitates virtual audits using Google Street View.<sup>1</sup> Follow these instructions to begin rating streets in CANVAS.

1. In your browser, navigate to <http://www.canvasplatform.org>
2. Type your username and password into the login window and click "login."
3. In the bulleted list, click "Rate Streets."
4. Find the row with your study name, and in the "Actions" column, select "Start Rating."
5. A new browser window will appear with Google Street View imagery and navigation buttons. In another window, a group of questions will appear with respect to that imagery. If either of these windows is not visible, you may need to enable pop-up windows in your browser settings.
6. Using the Street View navigation controls, proceed down the segment from the green marker to the red marker to fill out the questions.
7. You will need to fully complete each group of questions to move on to the next group. When all groups of questions have been completed, the next segment will appear.

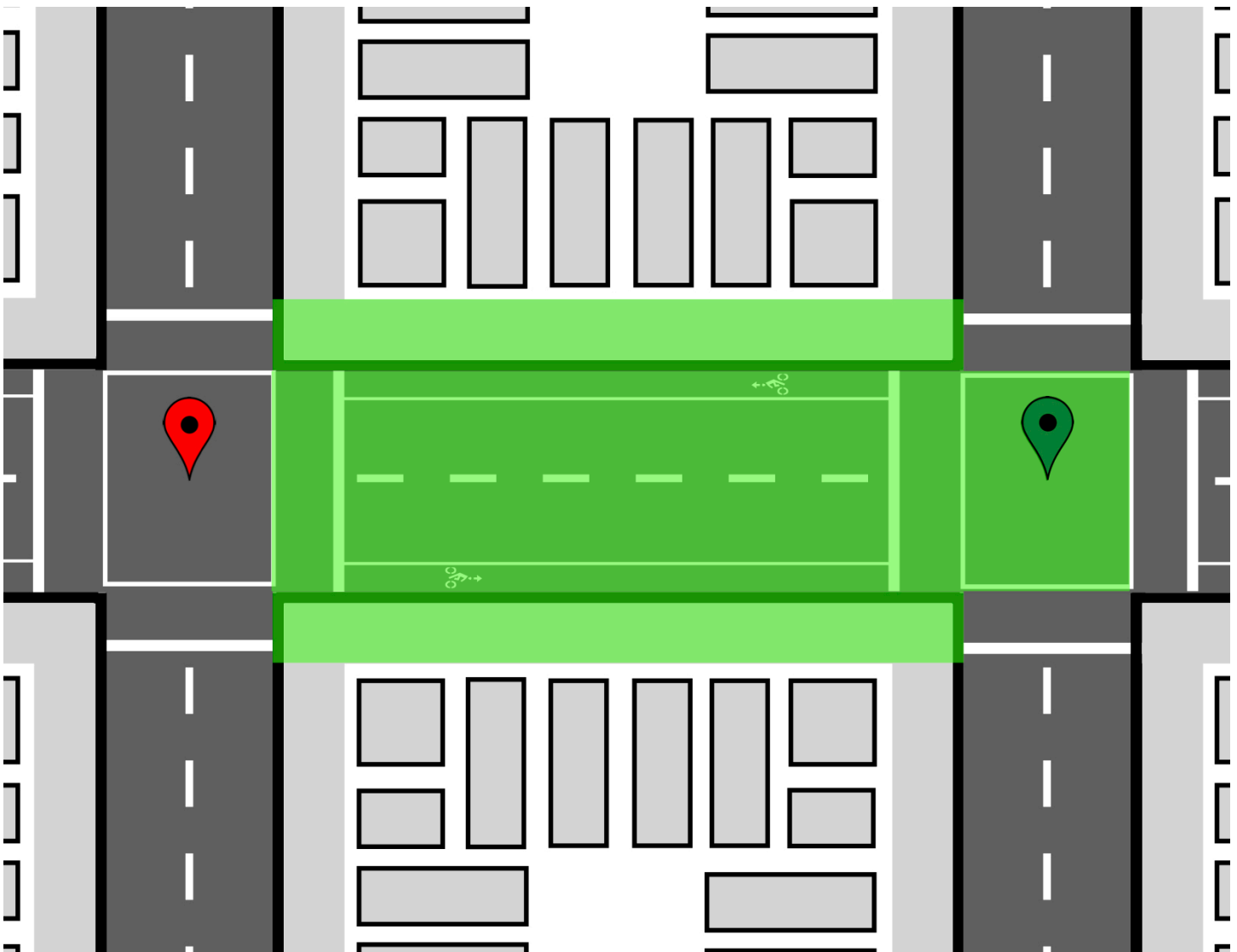
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<sup>1</sup> Bader, M. D., Mooney, S. J., Lee, Y. J., Sheehan, D., Neckerman, K. M., Rundle, A. G., & Teitler, J. O. (2015). Development and deployment of the Computer Assisted Neighborhood Visual Assessment System (CANVAS) to measure health-related neighborhood conditions. *Health & place*, 31, 163-172.

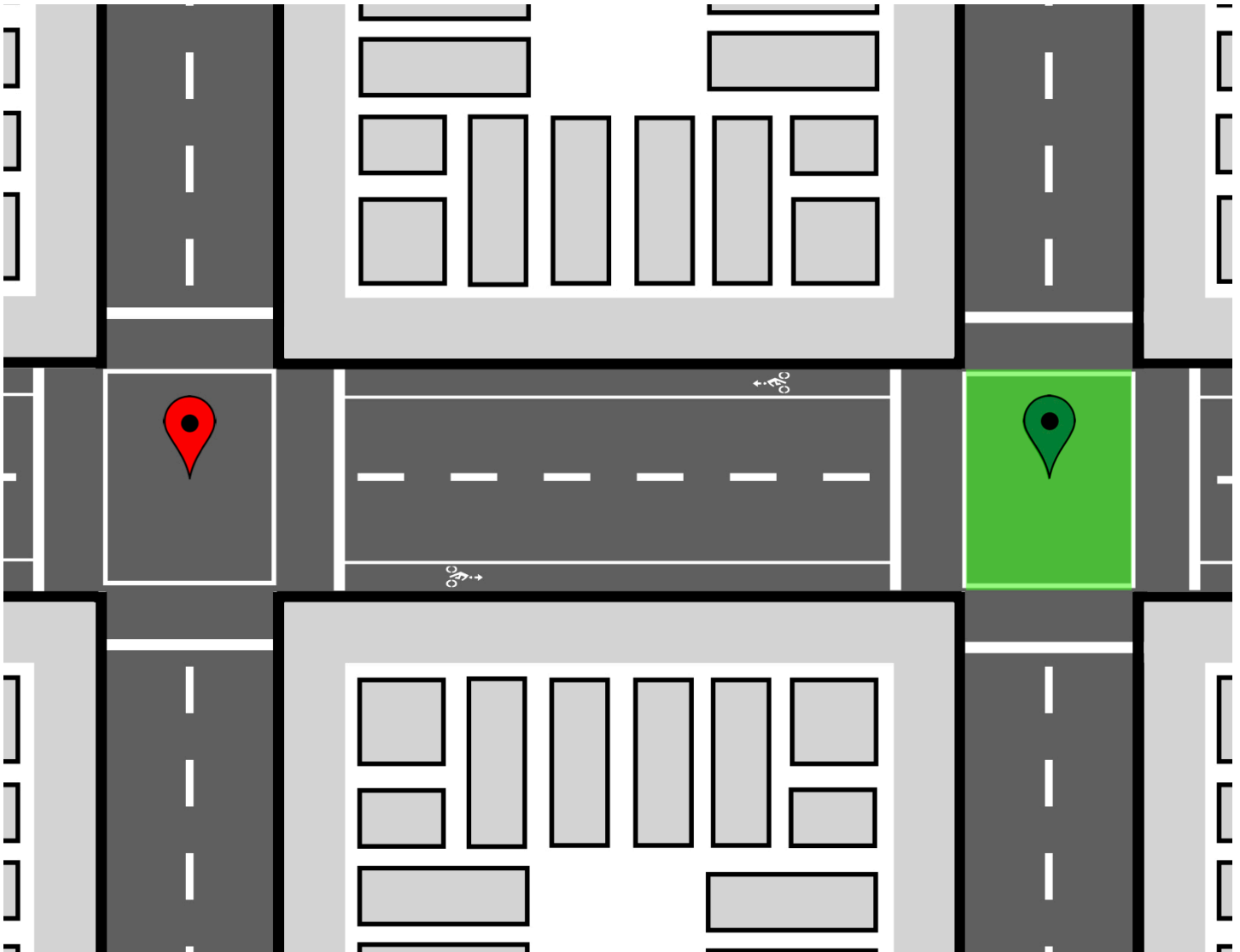
## Rating Streets

Items in this virtual audit instrument refer to characteristics of the street segment and the buildings and features that surround it. Note that not all buildings and not all areas of street that are visible from the imagery will be assessed. Refer to following diagrams to understand what should be assessed in each segment and what should be ignored.

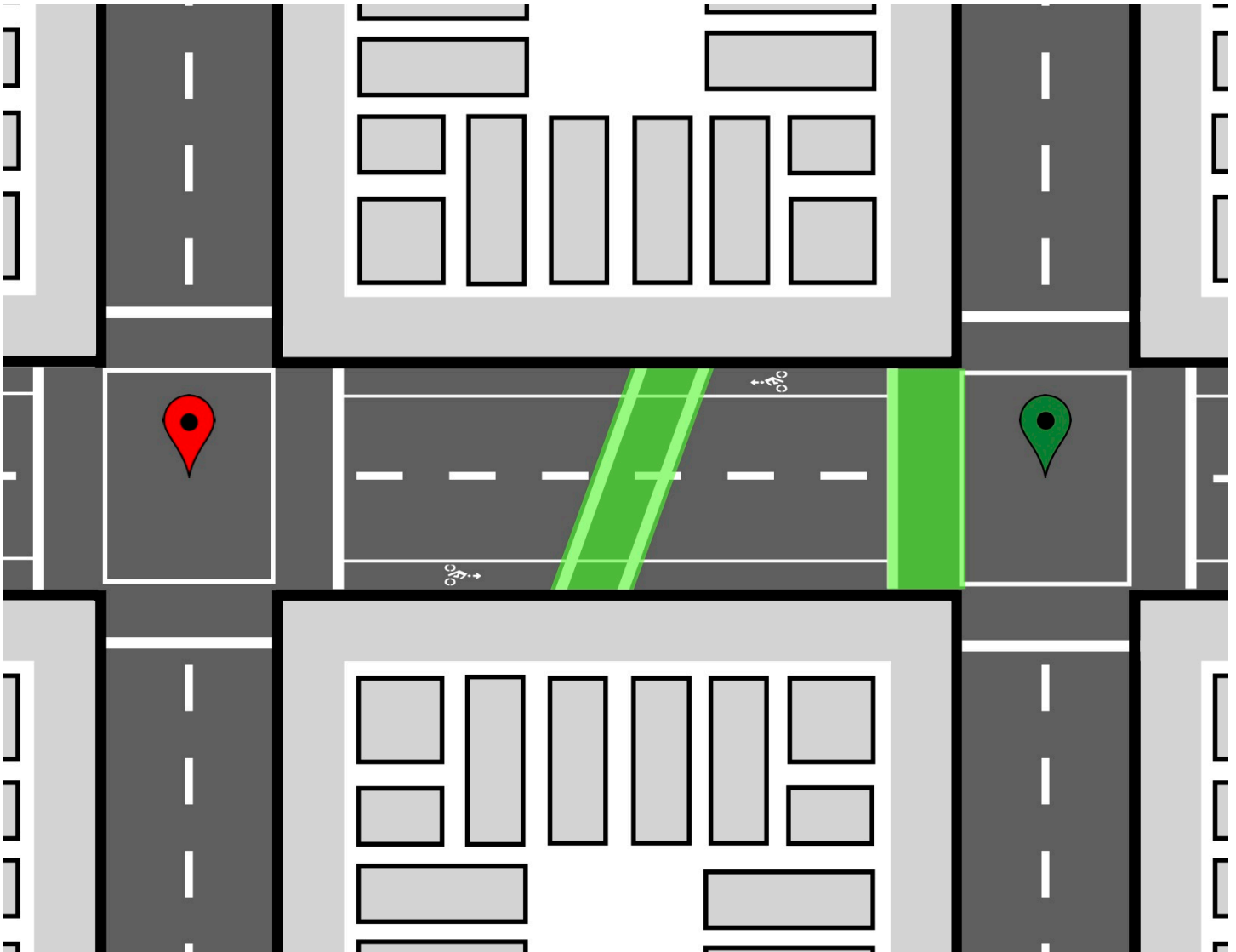
1. Only the lengths of street or sidewalk that run between the red and green marker should be assessed.



2. Only the intersection closest to the green marker should be assessed.

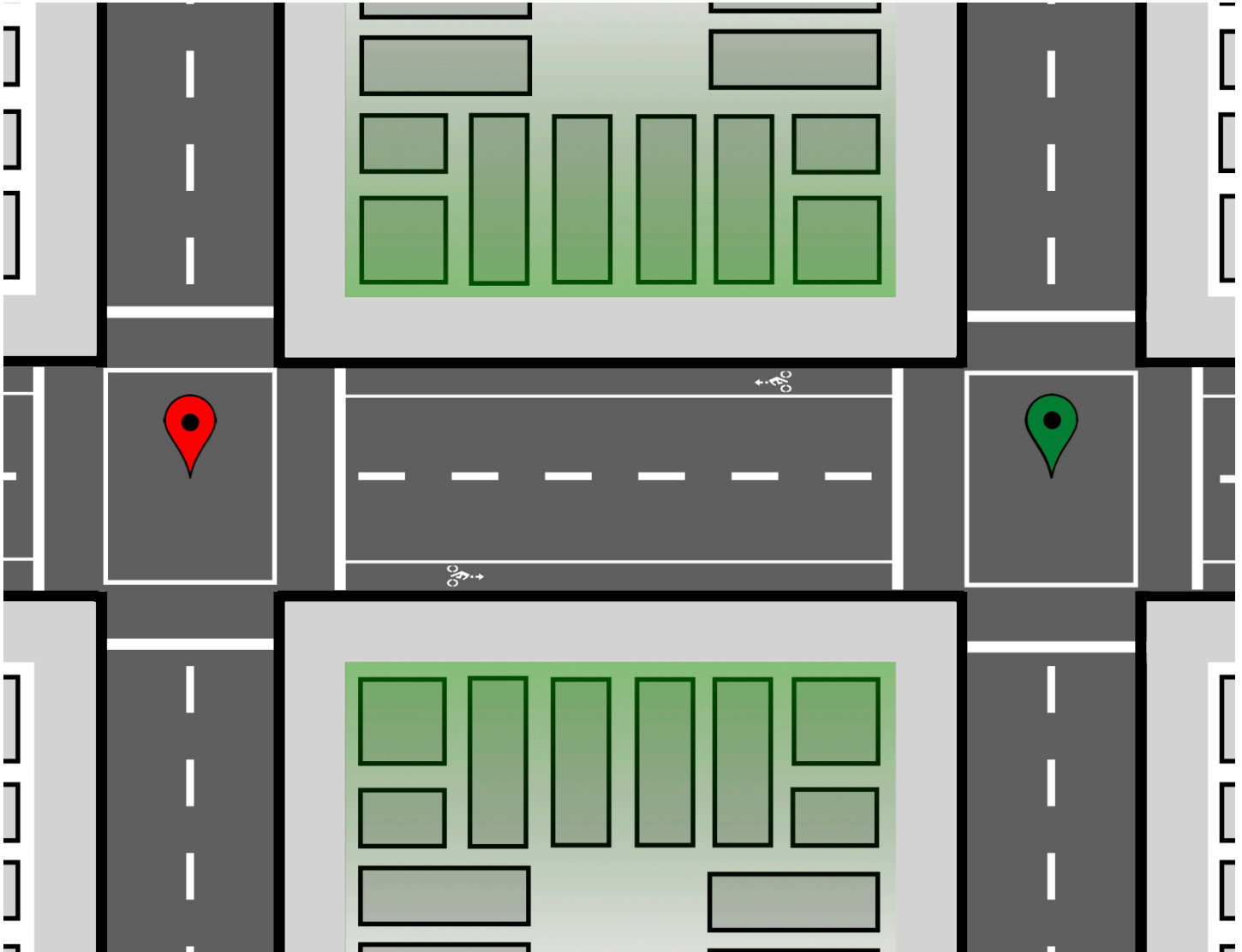


3. Only crosswalks that cross the segment at the green marker or at the midblock should be assessed.





4. Assess any buildings or other land-use features (such as parks or vacant lots) that are linearly between the green- and red-marker intersections and are visible from the street segment. There is no prescribed maximum distance from the segment.



To complete a rating, begin at the green marker, face toward the red marker, and proceed forward until you reach the red marker. Do not navigate past the red or green markers. You are free to change the viewing angle. You may travel back and forth through the segment as many times as is necessary to accurately evaluate all items. If you have any difficulty with the navigation or with deciding how to respond to an item, take note of the coordinates, take a screenshot of the problem if applicable, and send this information to the study coordinator.

Many items ask for an estimated proportion of features that meet certain criteria, such as what proportion of buildings in the segment have visible decorative features, or what proportion of trees in the segment are large enough to provide shade. The following diagrams provide a visual guide of how these categorized proportions “look” on the street:

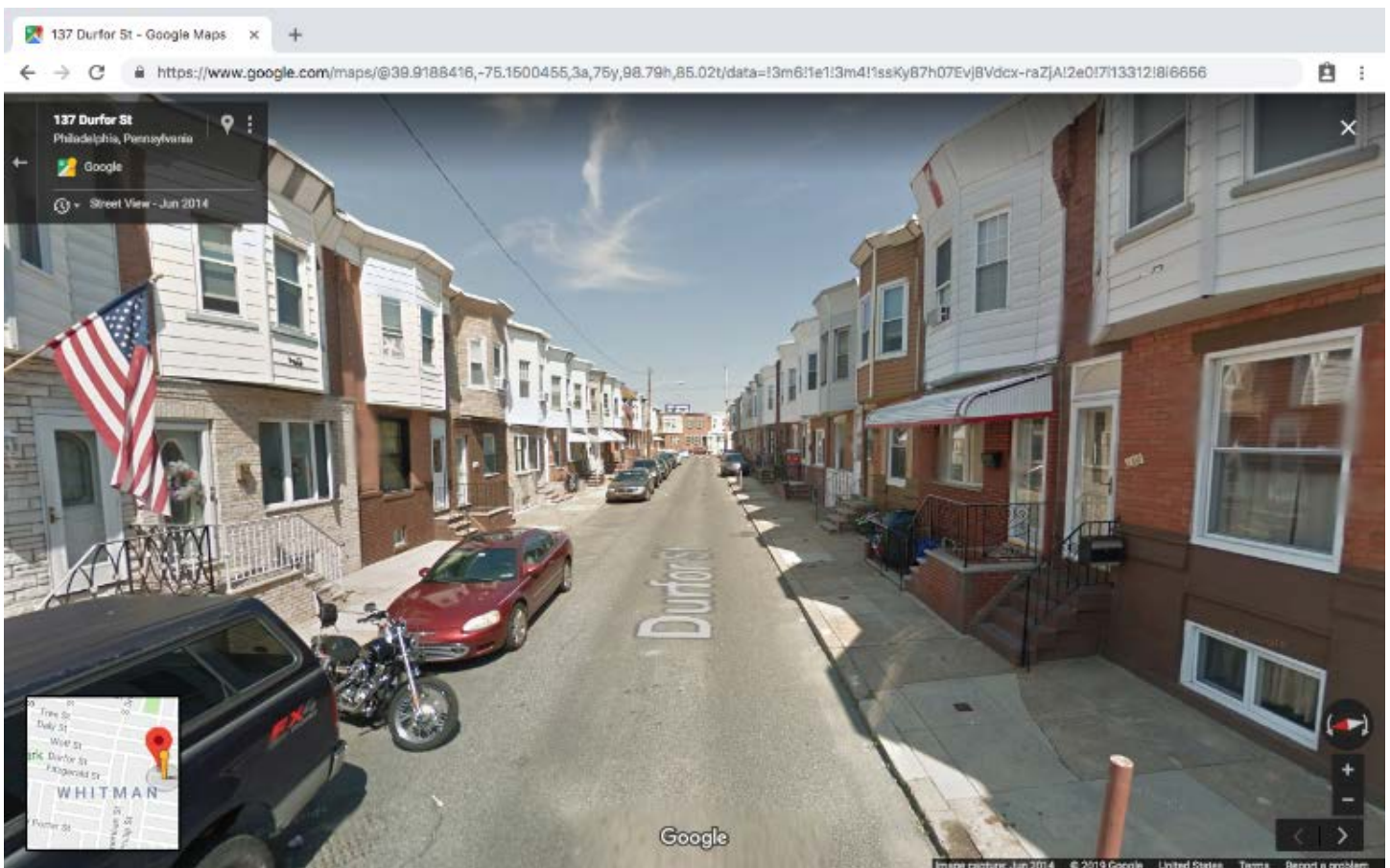


# **Item Instructions and Definitions**



## Building Conditions

The first set of items assesses the presence and quality of buildings on the segment. High rates of vacancy and poor building maintenance may be indicators of physical disorder.<sup>2</sup> Items assessing the type of buildings help to contextualize the street segment in the urban landscape, whether it is primarily residential or commercial or a mix of the two. Finally, items assessing visibility and setback help us understand building design and whether it facilitates or inhibits neighborhood setback that may promote social connectivity and informal policing that may reduce the risk of disorder.<sup>3</sup>



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<sup>2</sup> Ross, C. E., & Mirowsky, J. (1999). Disorder and decay: The concept and measurement of perceived neighborhood disorder. *Urban Affairs Review*, 34(3), 412-432.

<sup>3</sup> Foster, S., Giles-Corti, B., & Knuiman, M. (2011). Creating safe walkable streetscapes: Does house design and upkeep discourage incivilities in suburban neighbourhoods?. *Journal of environmental psychology*, 31(1), 79-88.





## Item 1 | bldg\_pres

## Question

Are there any buildings in the segment?

## Response choices

0. No

1. Yes

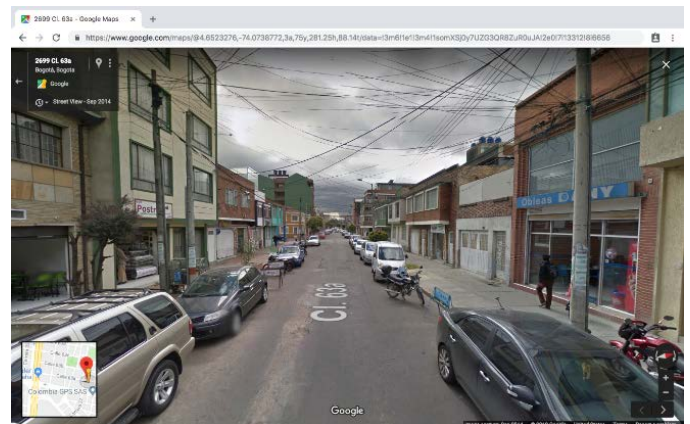
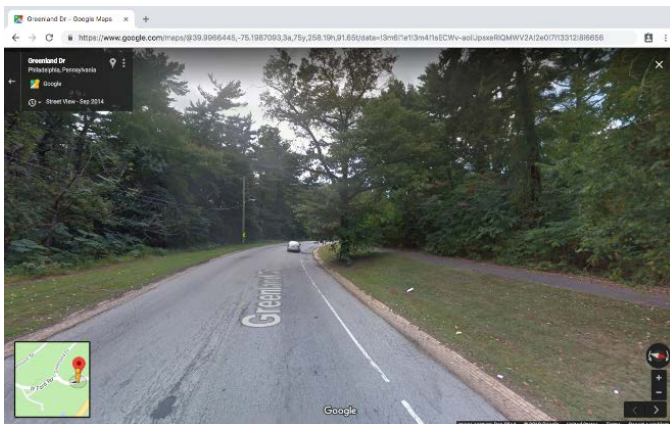
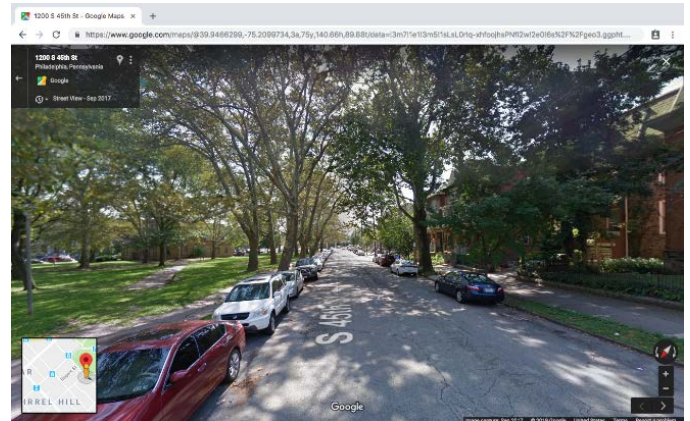
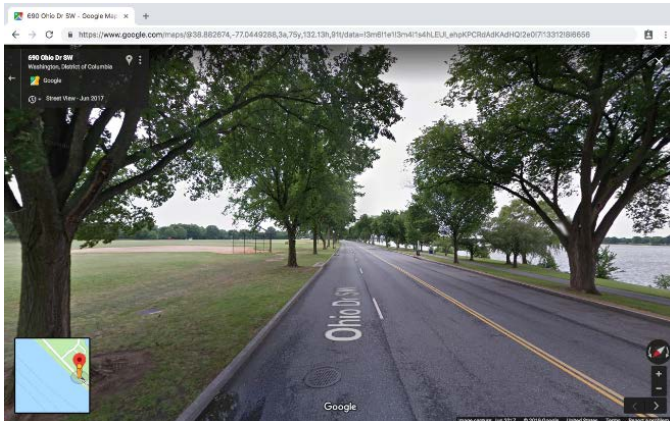
## Skip if

[not skippable]

**Instructions:** Indicate whether there is at least one building on either side of the segment.

No

Yes



## Item 2 | bldg\_res

## Question

Does the segment include residential buildings?

## Response choices

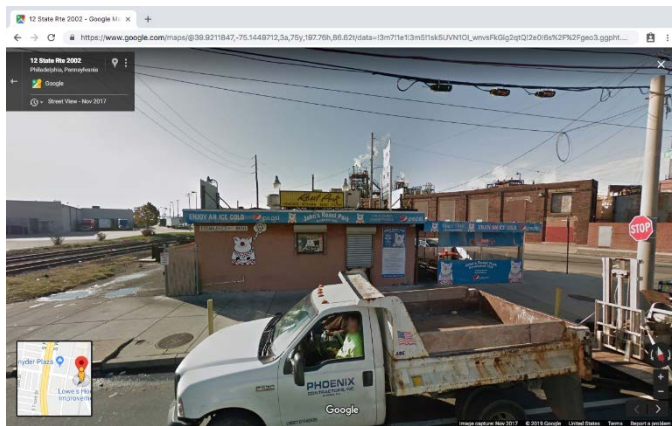
0. No
1. Yes

## Skip if

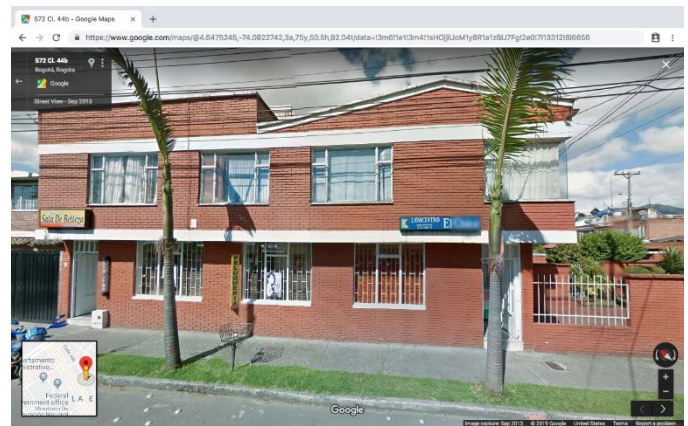
bldg\_pres = 0

**Instructions:** Indicate whether there is at least one residential building on either side of the segment. Residential buildings may include mixed-use buildings with both commercial and residential space; a single building may count as both residential and commercial.

No



Yes





## Item 3 | bldg\_com

## Question

Does the segment include commercial buildings?

## Response choices

0. No  
1. Yes

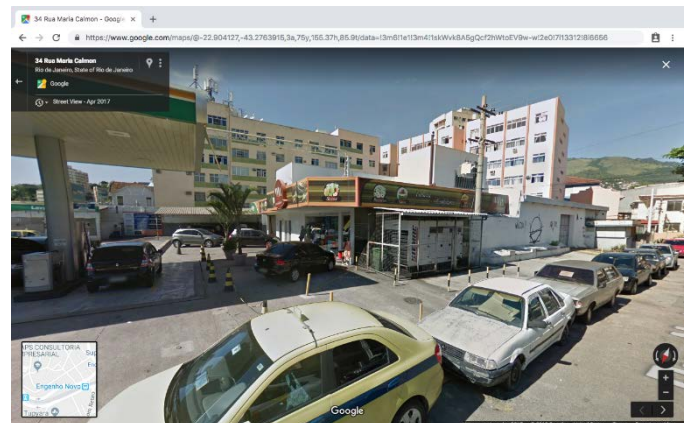
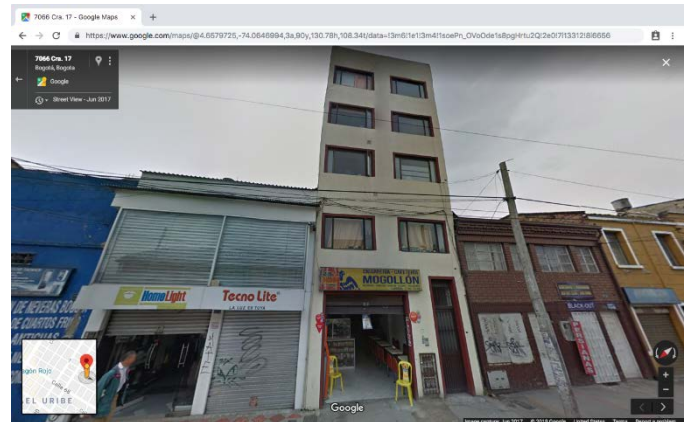
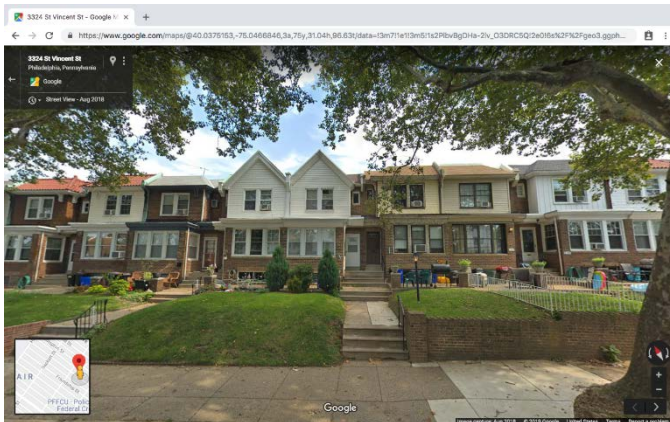
## Skip if

bldg\_pres = 0

**Instructions:** Indicate whether there is at least one commercial building on either side of the segment. Commercial buildings may include mixed-use buildings with both commercial and residential space; a single building may count as both residential and commercial. If it appears that an informal business is being run out of an otherwise residential space, this counts as a commercial building.

No

Yes



## Item 4 | bldg\_cond

## Question

How many buildings in the segment are in poor condition?

## Response choices

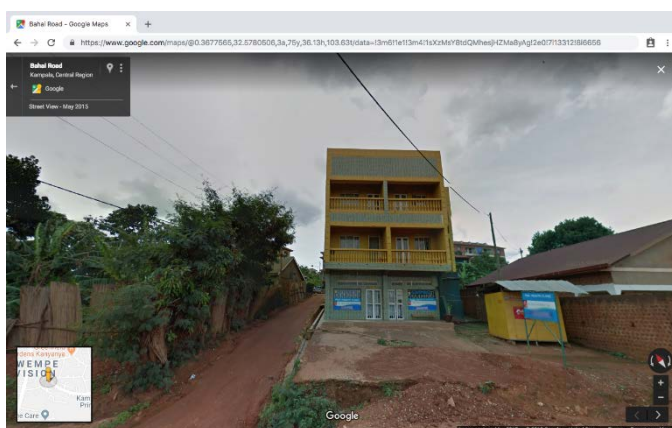
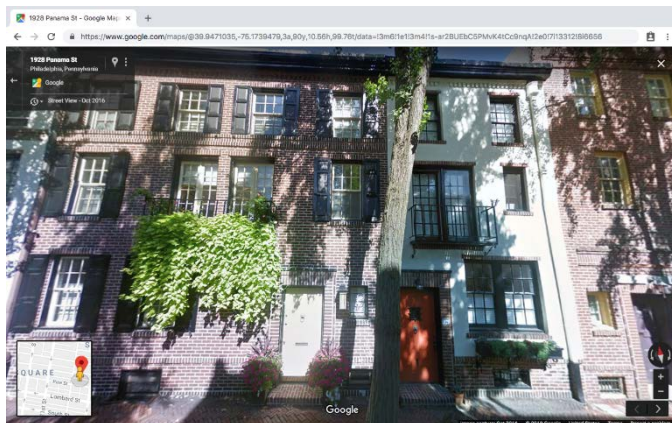
0. None (0%)
1. One or some (1-33%)
2. About half (34-66%)
3. Most (67-99%)
4. All (100%)

## Skip if

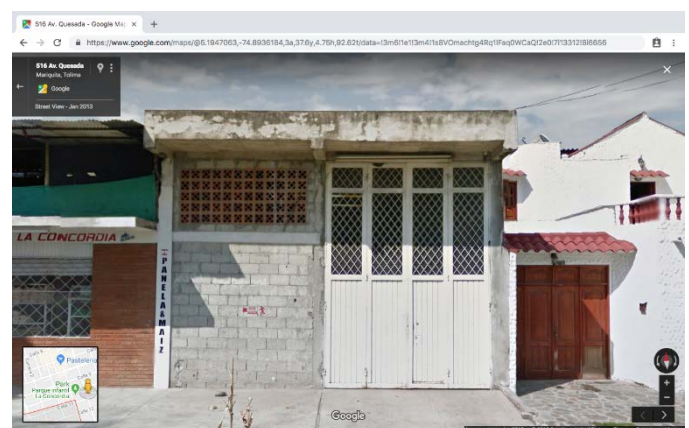
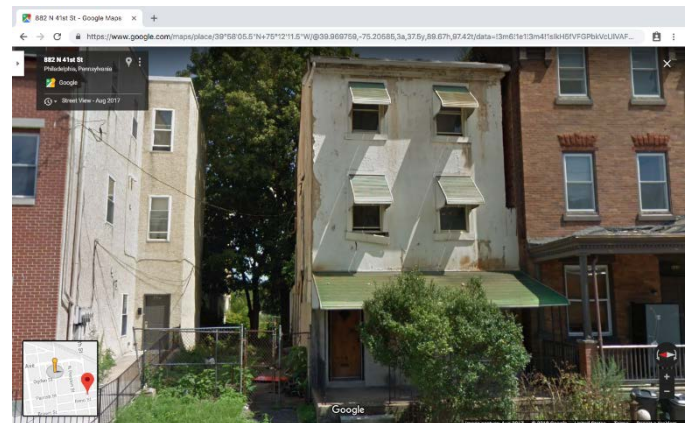
bldg\_pres = 0

**Instructions:** Indicate the proportion of buildings on the segment that appear to be in poor condition. Note the quality of maintenance and any visible signs of disrepair, such as faded or cracking paint, cracked or crumbling walls, poor roof repair, sagging or broken exterior steps or porches, or torn window screens. Note the presence of insufficient repairs such as using plastic sheeting or tarps to patch holes in roofs and walls. Do not use this item to indicate vacant buildings (Item 5 "bldg\_vac"), burned-out buildings (Item 7 "bldg\_burn"), graffiti (Item 9 "bldg\_graf"), or broken windows (Item 8 "bldg\_bwin").

## Not in poor condition



## In poor condition





## Item 5 | bldg\_vac

## Question

How many buildings in the segment appear to be vacant or unused?

## Response choices

0. None (0%)
1. One or some (1-33%)
2. About half (34-66%)
3. Most (67-99%)
4. All (100%)

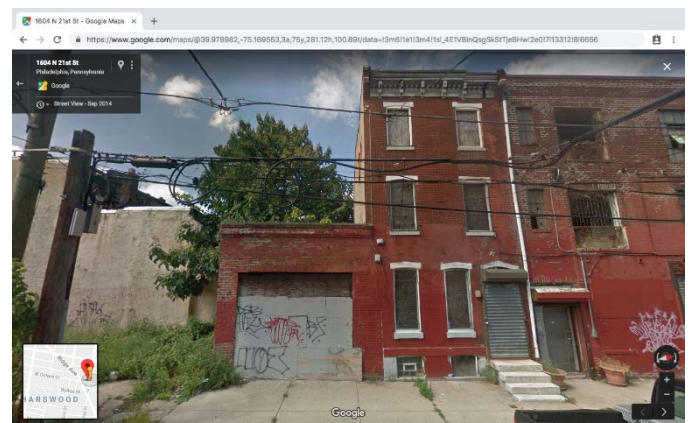
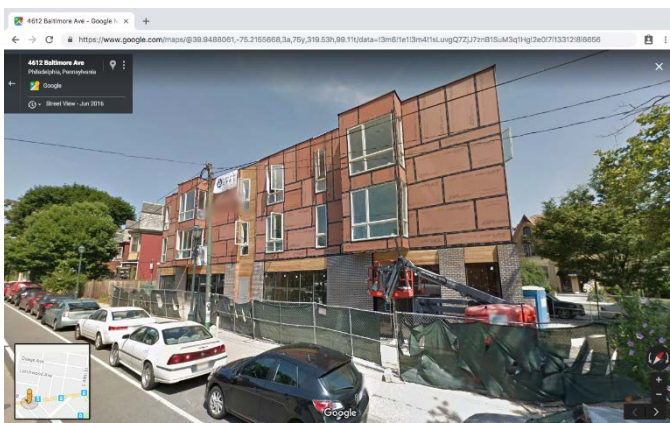
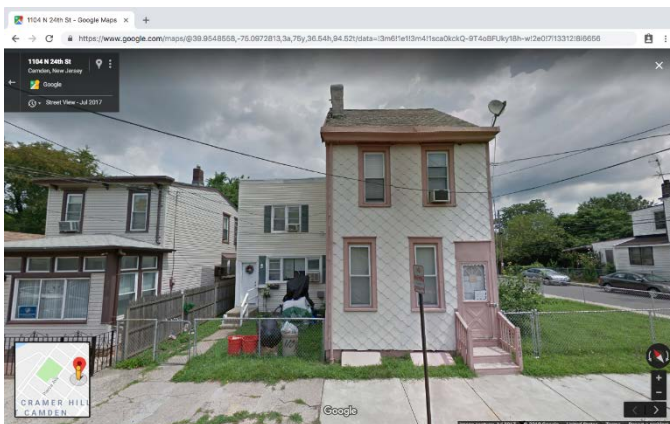
## Skip if

bldg\_pres = 0

**Instructions:** Indicate the proportion of buildings in the segment that appear to be vacant or unused. Buildings that appear to be under active construction are not considered vacant. However, unfinished or partially-demolished buildings that appear to have been abandoned are considered vacant. Undeveloped lots or parcels without buildings should be indicated exclusively by Item 6 "bldg\_vacлот" and not by this item.

## Not vacant

## Vacant



Item 6 | bldg\_vaclot

Question

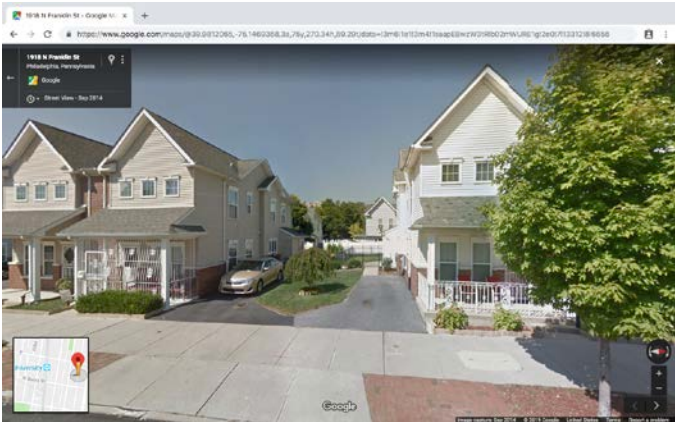

How many lots in the segment appear to be vacant or undeveloped?

Response choices

- 0. None (0%)
- 1. One or some (1-33%)
- 2. About half (34-66%)
- 3. Most (67-99%)
- 4. All (100%)

Skip if  
bldg\_pres = 0

**Instructions:** Indicate the proportion of lots or parcels in the segment that lack buildings or active construction and do not appear to be under use. Parks and parking lots are not considered vacant; the land must be unmaintained or under-maintained.


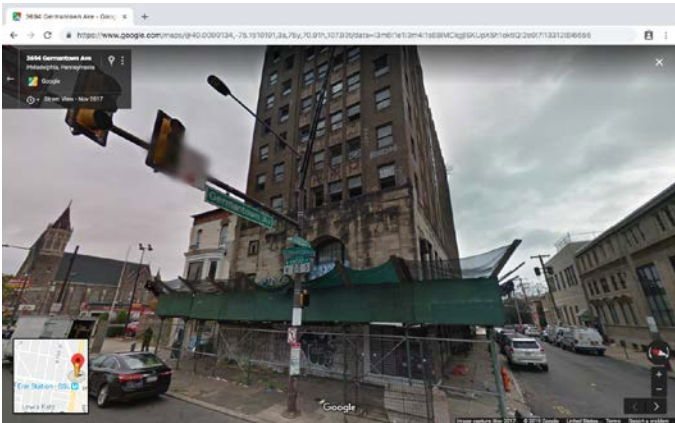

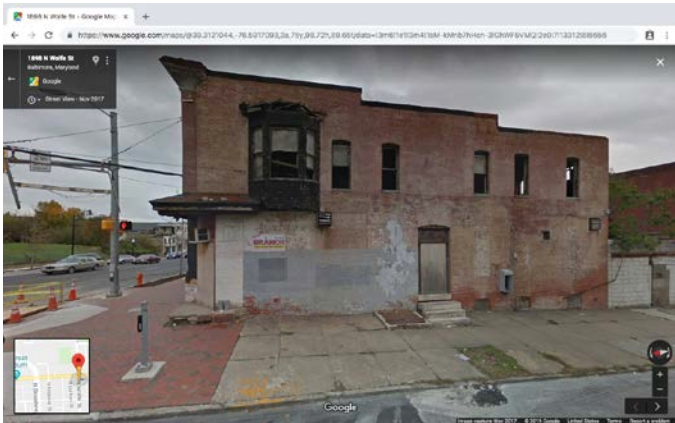
Not vacant	Vacant
	



Item 7 | bldg\_burn

Question	Response choices	Skip if
How many buildings in the segment appear to be burned out?	<div>0. None (0%)</div> <div>1. One or some (1-33%)</div> <div>2. About half (34-66%)</div> <div>3. Most (67-99%)</div> <div>4. All (100%)</div>	bldg_pres = 0

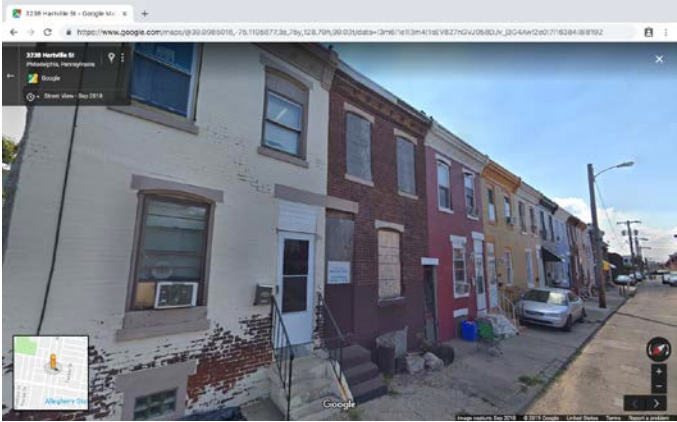
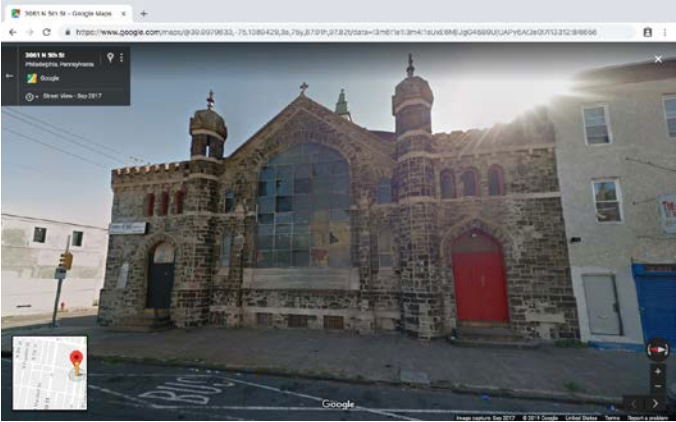
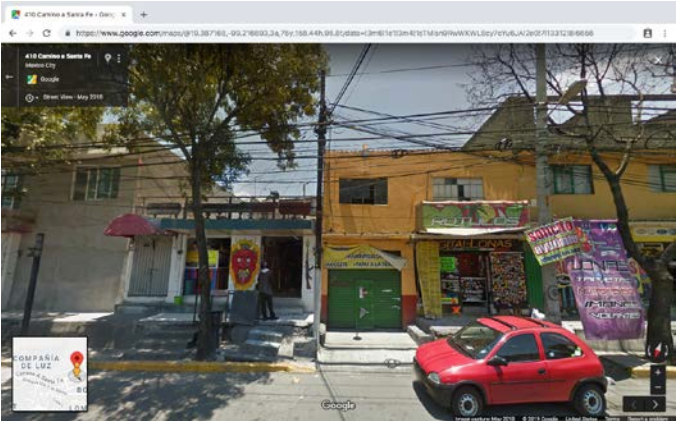
**Instructions:** Indicate the proportion of buildings in the segment that appear to be burned out. Evidence of catastrophic fire damage must be apparent.

Not burned out	Burned out
 	 

Item 8 | bldg\_bwin

Question	Response choices	Skip if
How many buildings in the segment have visible broken windows? (of buildings with glass windows)	<div>0. None (0%)</div> <div>1. One or some (1-33%)</div> <div>2. About half (34-66%)</div> <div>3. Most (67-99%)</div> <div>4. All (100%)</div>	bldg_pres = 0

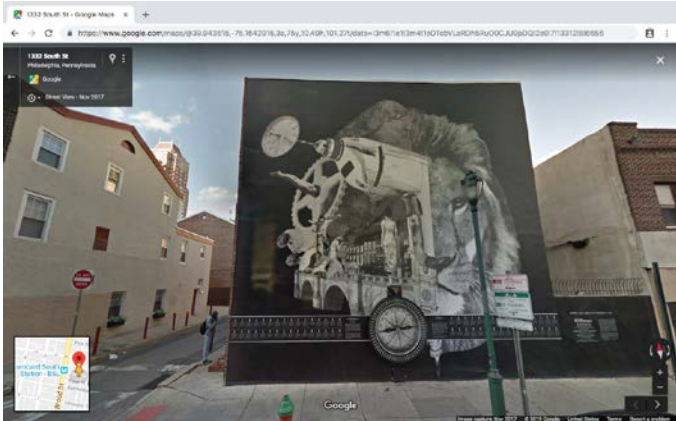
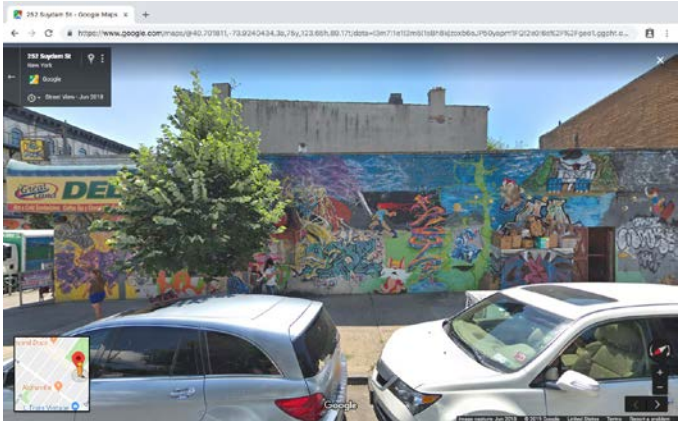
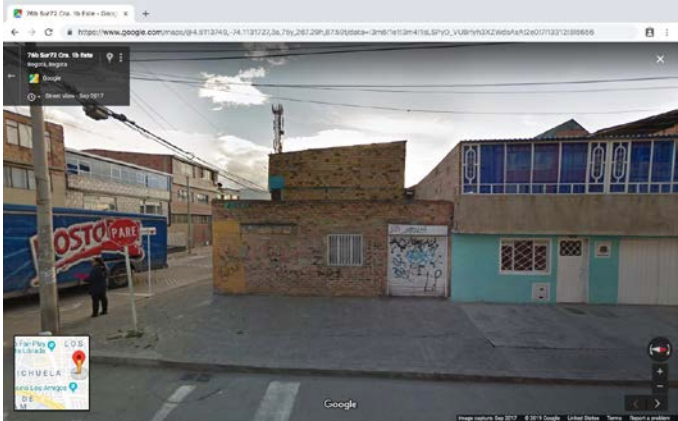
**Instructions:** Among buildings in the segment that have glass windows, indicate the proportion where the glass is broken. Boarded-up windows, windows with metal bars, or empty openings in building walls should not be indicated by this item.

No broken windows	Broken windows present
	<div> </div>

Item 9 | bldg\_graf

Question	Response choices	Skip if
How many buildings in the segment have visible graffiti?	<div>0. None (0%)</div> <div>1. One or some (1-33%)</div> <div>2. About half (34-66%)</div> <div>3. Most (67-99%)</div> <div>4. All (100%)</div>	bldg_pres = 0

**Instructions:** Indicate the proportion of buildings in the segment with visible graffiti. This includes small “tags” as well as political messaging and larger pieces of art. Any unsanctioned or illicit writing or drawing is graffiti, but if you cannot tell if the art is sanctioned or not, err to the side that it is either a “mural” (Item 10 “bldg\_mur”) or an example of “beautification or embellishment” (Item 11 “bldg\_dec”). Particular evidence that the graffiti is unsanctioned may be provided if the graffiti is over the top of a freshly-painted section of wall, suggesting that the building owner has already covered up graffiti there before.

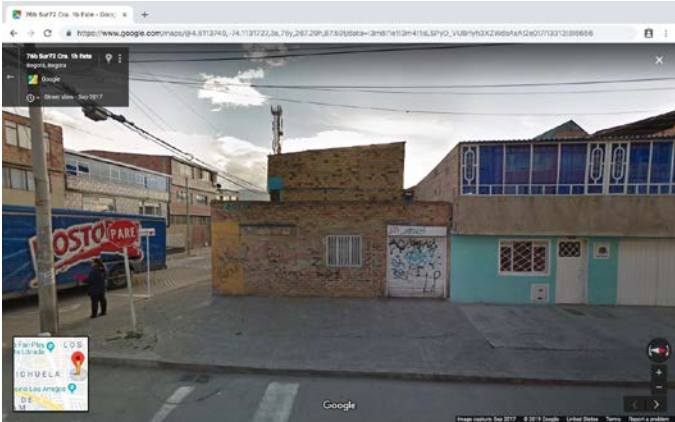
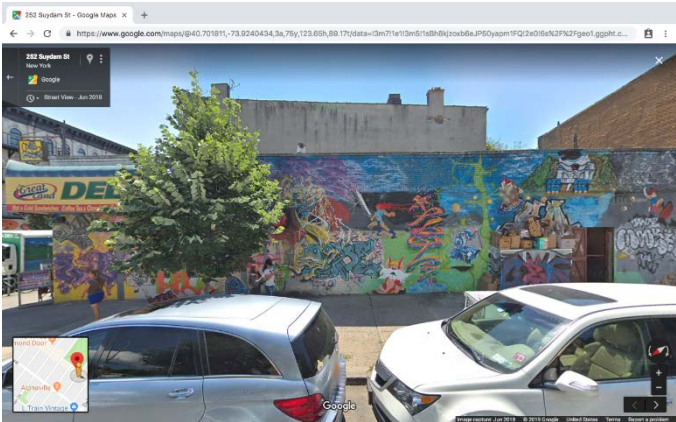
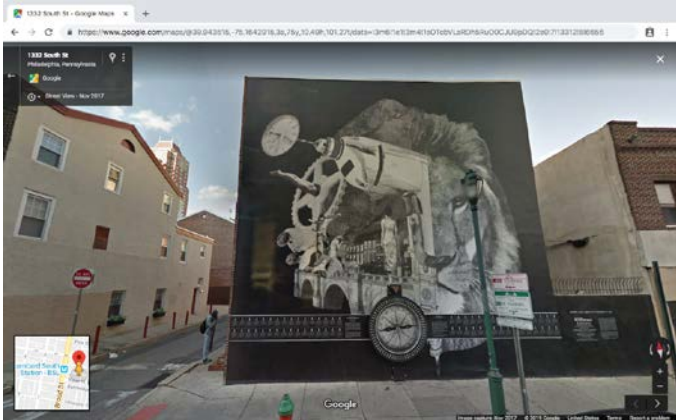
No graffiti	Graffiti present
	 



Item 10 | bldg\_mur

Question	Response choices	Skip if
How many buildings in the segment have visible murals?	<div>0. None (0%)</div> <div>1. One or some (1-33%)</div> <div>2. About half (34-66%)</div> <div>3. Most (67-99%)</div> <div>4. All (100%)</div>	bldg_pres = 0

**Instructions:** Indicate the proportion of buildings in the segment with visible murals. This includes any kind of apparently-sanctioned art painted on a building or wall regardless of its size, but does not include business information that is painted on an exterior wall. Note that patterned paint or tiling may be an example of “beautification or embellishment” (item 11) if it does not seem to be a mural.

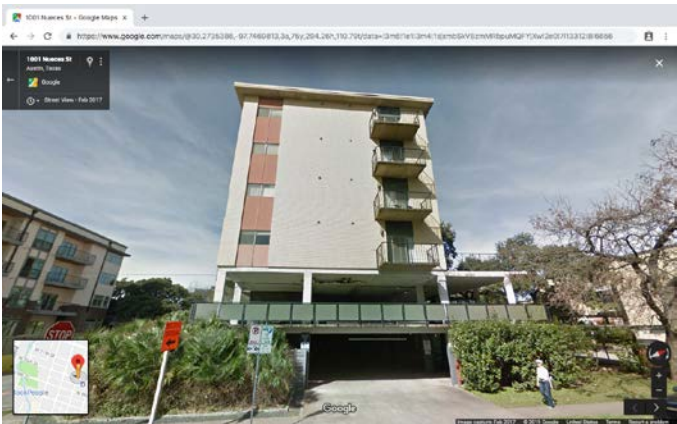
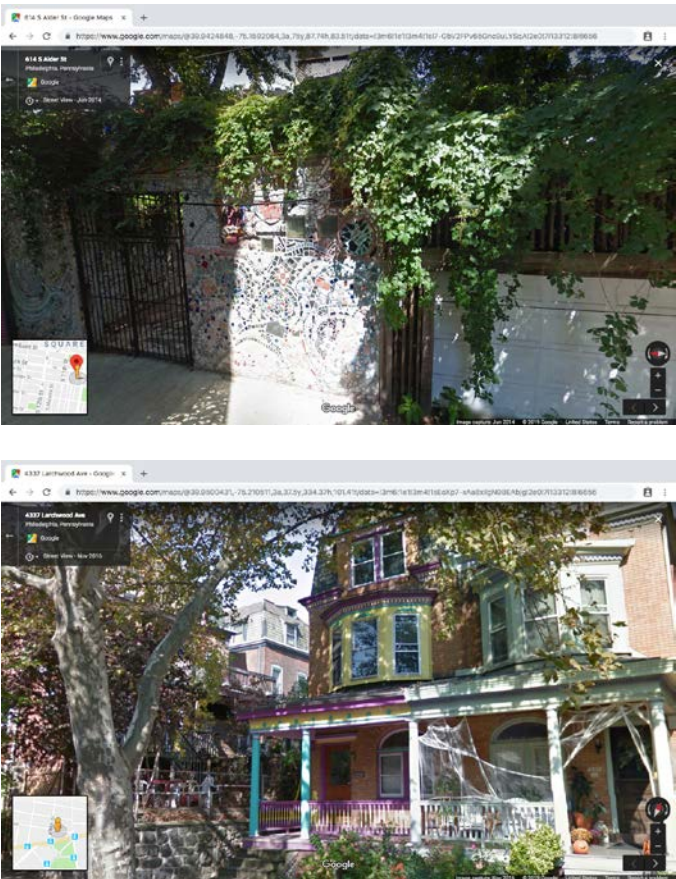
No mural	Murals present
 A Google Street View image showing a street scene. On the left, a blue building has a red sign that says "OSTOPIA". In the center, a brick building has a small mural of a person's face. To the right, a light blue building has a mural of a person's face. The street is paved and there are some trees in the background.	  Two Google Street View images showing buildings with murals. The top image shows a building with a large, colorful mural of a person's face. The bottom image shows a building with a large mural of a person's face, with a compass rose in the foreground.



Item 11 | bldg\_dec

<b>Question</b>	<b>Response choices</b>	<b>Skip if</b>
How many buildings in the segment have visible signs of beautification or embellishment?	0. None (0%) 1. One or some (1-33%) 2. About half (34-66%) 3. Most (67-99%) 4. All (100%)	bldg_pres = 0

**Instructions:** Indicate the proportion of buildings in the segment that include at least one of the following decorative features: brightly-colored paint or brick; patterned paint; carved masonry or wood; a false facade; decorative ironwork; decorative breezeblocks; patterned or mosaic tile. Distinguish between “nice” buildings and “decorated” buildings: good-condition and well-constructed buildings made with high-quality materials are not necessarily decorated, and decorated buildings are not necessarily in good condition. Buildings be aesthetically pleasing (in the rater’s subjective judgement) without containing any of the specific features listed above; such buildings should not be indicated by this item.

No decorative features	Decorative features present
	

Item 12 | bldg\_vis

Question

From how many buildings in the segment is the street visible?

Response choices

- 0. None (0%)
- 1. One or some (1-33%)
- 2. About half (34-66%)
- 3. Most (67-99%)
- 4. All (100%)

Skip if  
bldg\_pres = 0

**Instructions:** Indicate the proportion of buildings in the segment that provide good visibility of the street, such as from a window or a balcony. Buildings without windows and / or those that are surrounded by high walls or greenery may not provide good visibility. Note that visibility of the street from the building is distinct from but closely related to setback (Item 13 "bldg\_stbk").

Does not provide good visibility	Provides good visibility
<div></div>	<div></div>



## Item 13 | bldg\_stbk

## Question

How many buildings in the segment have significant setback from the street or sidewalk?

## Response choices

0. None
1. One or some (1-33%)
2. About half (34-66%)
3. Most (67-99%)
4. All (100%)

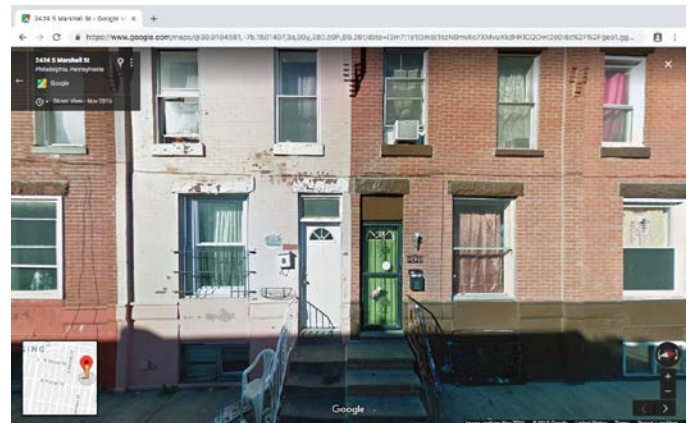
## Skip if

bldg\_pres = 0

**Instructions:** Indicate the proportion of buildings in the segment that have a large buffer area between the street or sidewalk and the building face. Buildings behind a wall, fence, or landscaping may have a larger setback. Note that setback is distinct from but closely related to visibility of the street from the building (Item 12 "bldg\_vis").

## Significant setback

## Little or no setback



## Item 14 | bldg\_elec

## Question

What is the condition of visible electrical wires?

## Response choices

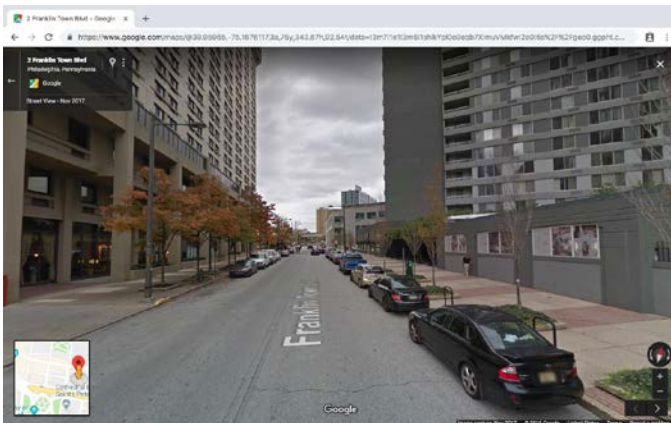
0. No visible wires
1. Organized
2. Tangled
3. Low-hanging\
4. Multiple issues

## Skip if

[not skippable]

**Instructions:** Indicate the condition of any visible electrical wires. As a guideline for low-hanging wires, consider whether any wires extend below the lowest point of first-floor roofs. Do not worry about distinguishing electrical wires from telephone or cable lines; any of these should be indicated by this item.

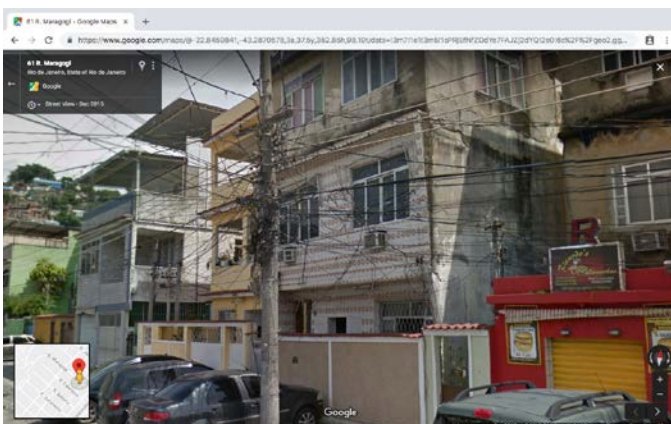
## No visible wires



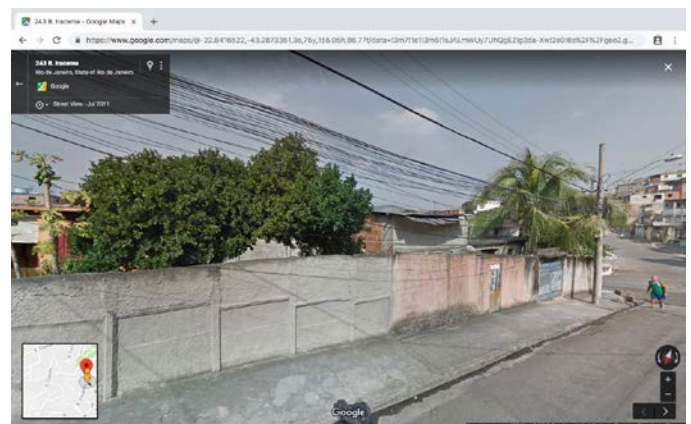
## Organized



## Tangled



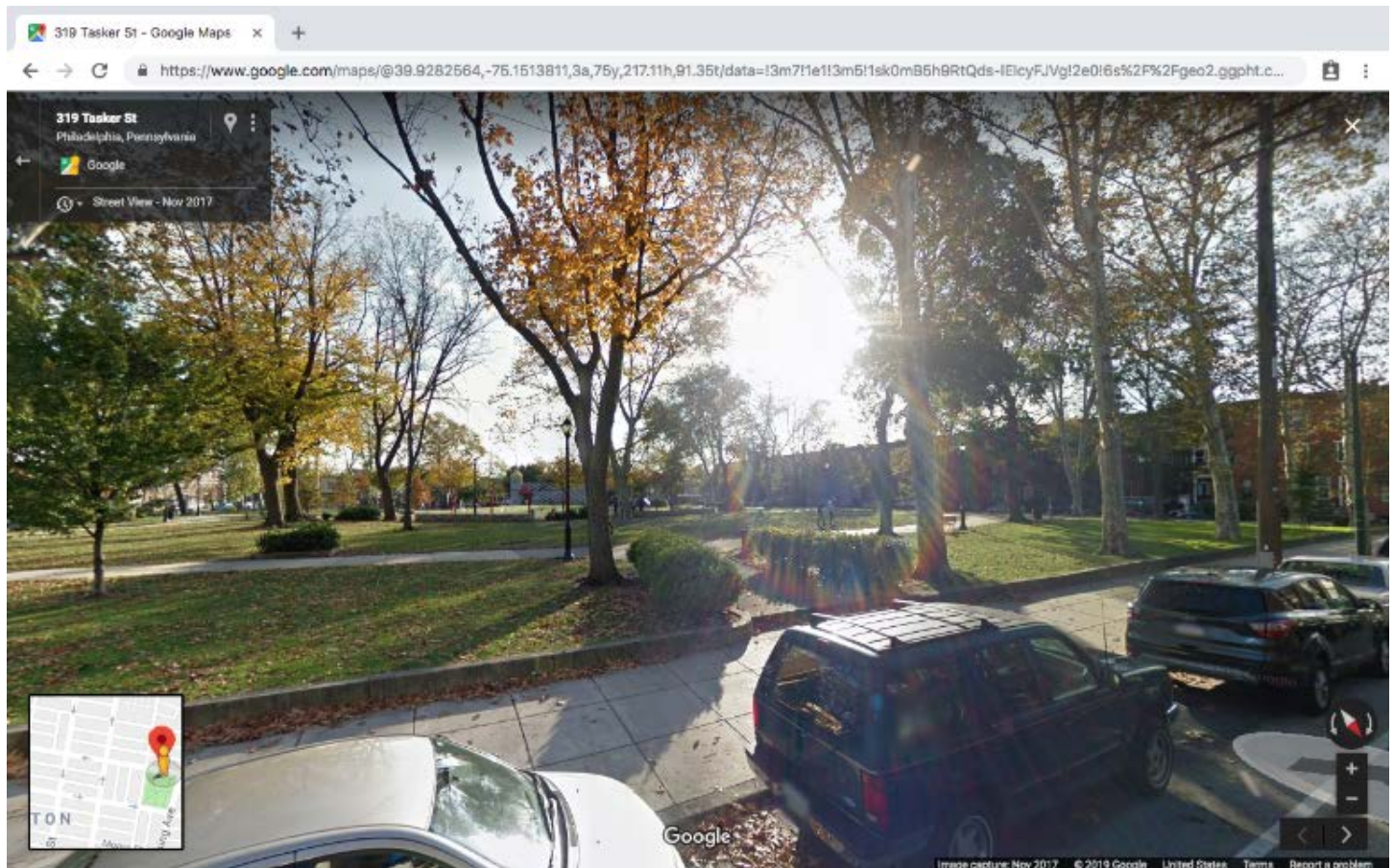
## Low-hanging





## Vegetation and Parks

The first set of items assesses the presence and type of vegetation and parks visible from the street. The presence of greenspace and vegetation is a positive aesthetic attribute of neighborhoods that has been used as an indicator of order in neighborhoods.<sup>4</sup>



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<sup>4</sup> Foster, S., & Giles-Corti, B. (2008). The built environment, neighborhood crime and constrained physical activity: an exploration of inconsistent findings. *Preventive medicine*, 47(3), 241-251.



## Item 15 | veg\_pres

## Question

Is there any vegetation visible in the segment?

## Response choices

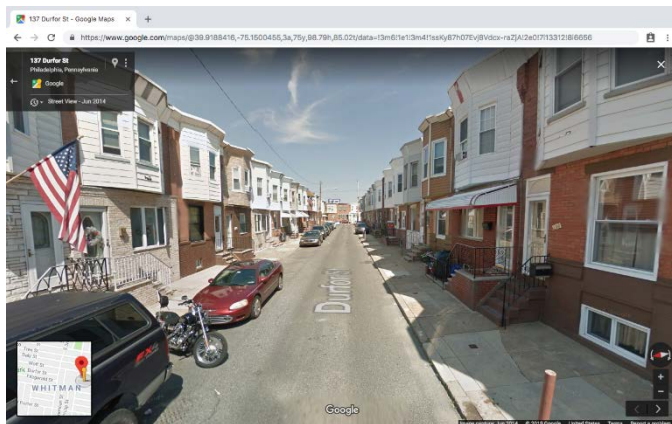
- 0. No
- 1. Yes

## Skip if

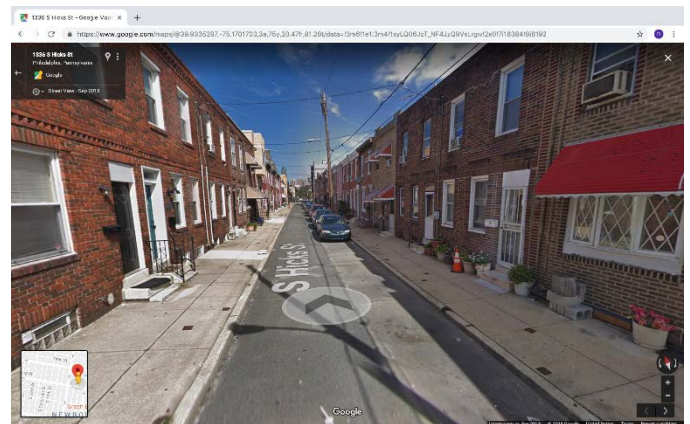
[not skippable]

**Instructions:** Indicate the presence of any trees, greenery, or plants in the segment. The vegetation may be within a private yard or inaccessible in some other way as long as it is visible from the segment. Vegetation of any size and quality, including grass, should be indicated by this item. Do not indicate plants that are "breaking through" cracks in pavement.

No



Yes





## Item 16 | veg\_tree

## Question

How many trees are in the segment?

## Response choices

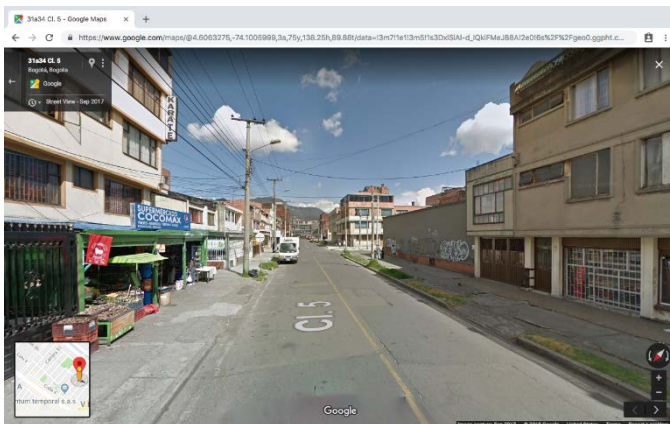
0. None
1. One or few
2. Some
3. Many
4. The segment is completely surrounded by forest.

## Skip if

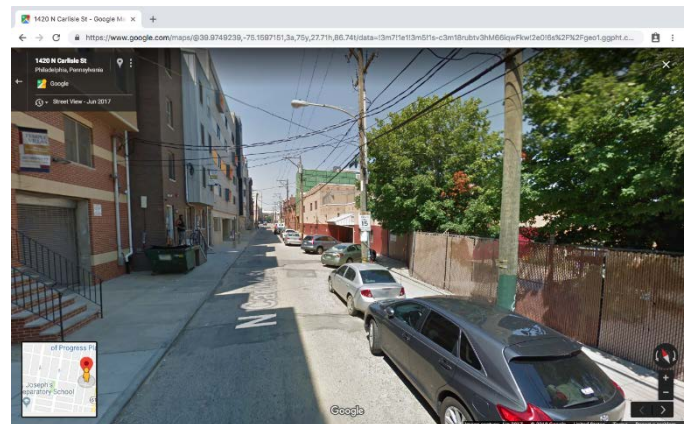
veg\_pres = 0

**Instructions:** Indicate the approximate number of trees visible from the segment. Trees of any size, including saplings, should be indicated by this item. Include street trees, trees within parks or greenspace, and trees that are on private property or inaccessible in some other way as long as they are visible from the StreetView imagery.

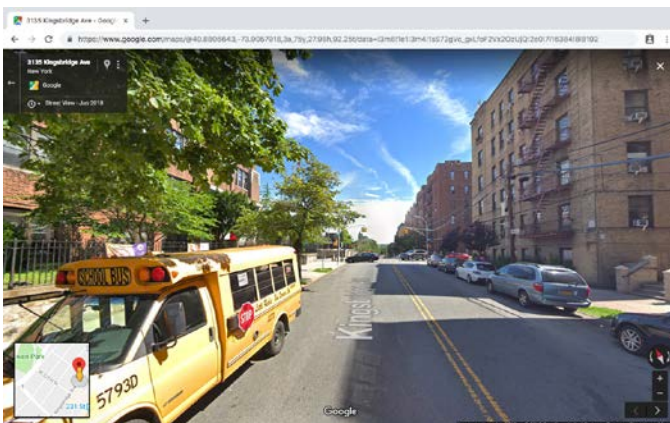
None



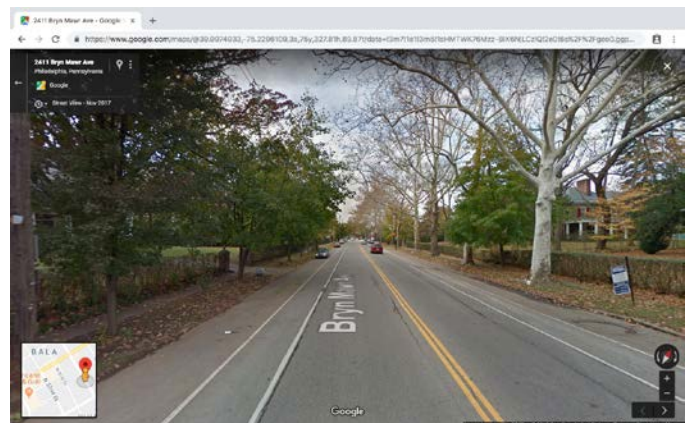
One or few



Some



Many



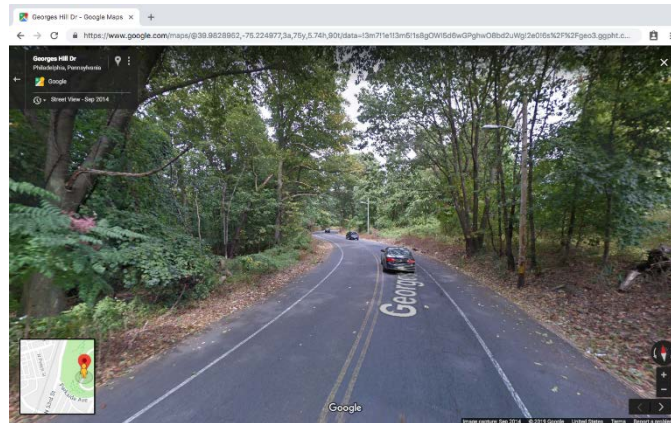
(continued on next page)



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## Completely surrounded by forest

---



## Item 17 | veg\_gard

## Question

How many gardens / potted plants are in the segment?

## Response choices

0. None
1. One or few
2. Some
3. Many
4. The segment is completely landscaped.

## Skip if

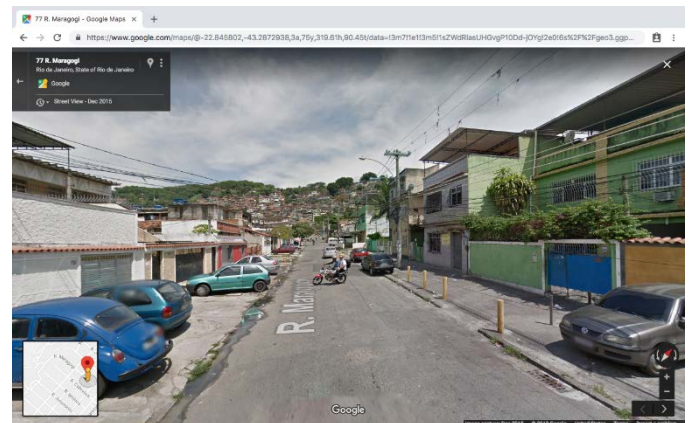
veg\_pres = 0

**Instructions:** Indicate the approximate number of gardens or potted plants visible from the segment. Include both private and public gardens, sidewalk planters, and hanging baskets. The gardens or potted plants do not have to be accessible as long as they are visible in the StreetView imagery.

## None



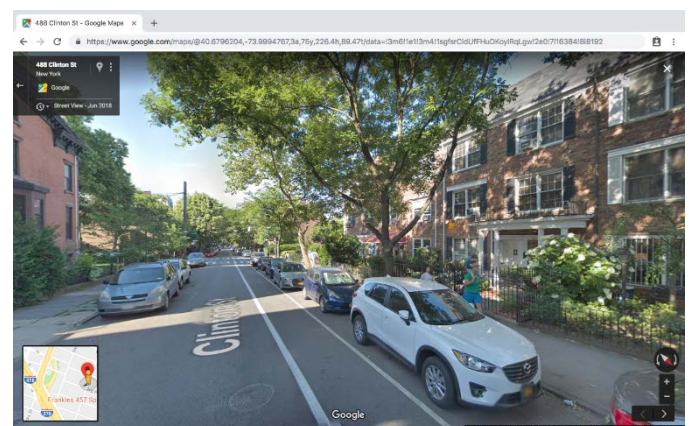
## One or few



## Some



## Many

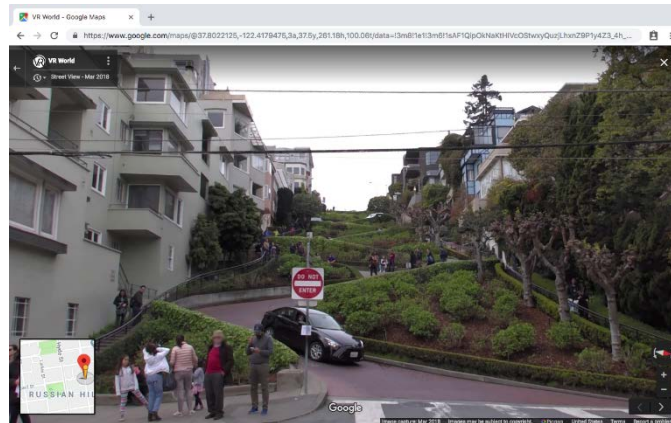


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## Completely landscaped

---





## Item 18 | veg\_park

## Question

Is there a public park or greenspace visible from the segment?

## Response choices

0. No
1. Yes

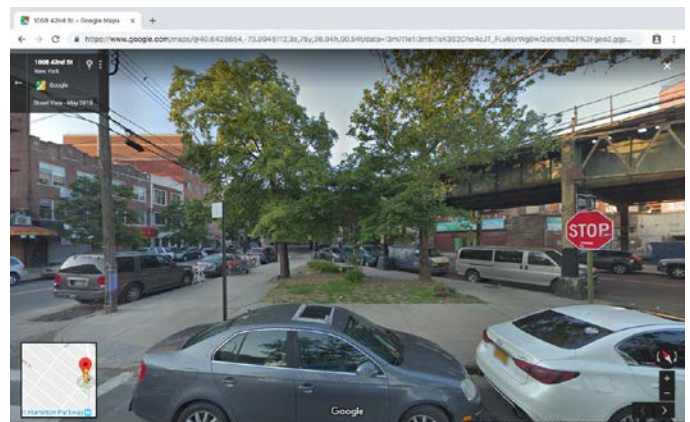
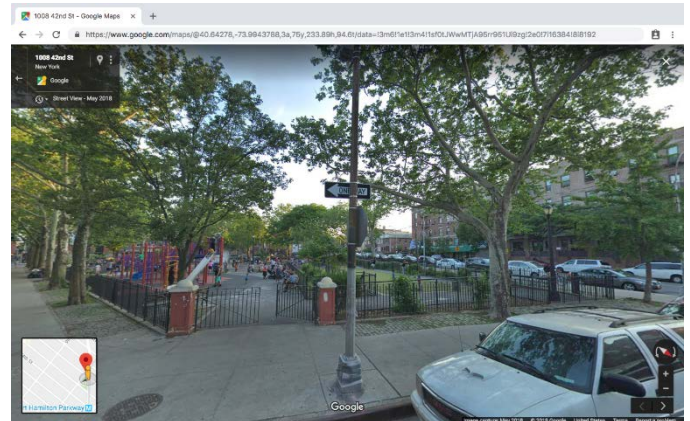
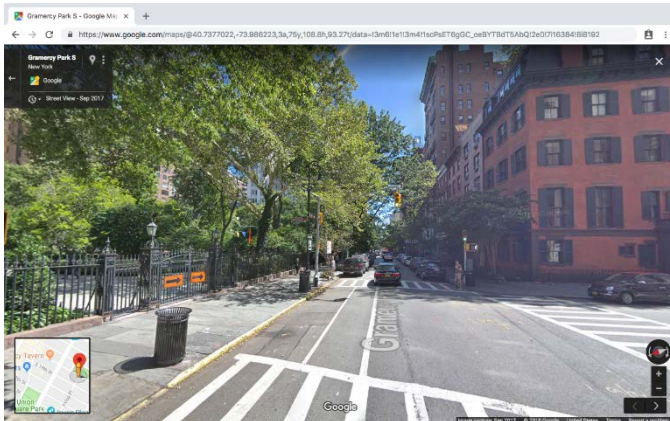
## Skip if

[not skippable]

**Instructions:** Indicate the presence of a publicly-accessible park or greenspace of any size.

No



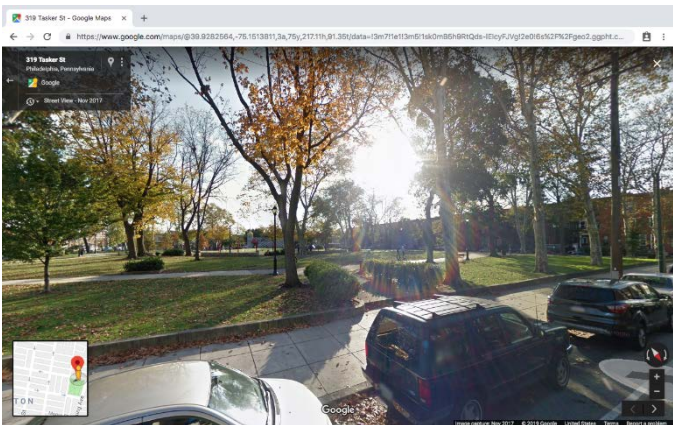
Yes



Item 19 | veg\_pveg

Question	Response choices	Skip if
Does the park or greenspace include vegetation?	0. No 1. Yes	veg_park = 0

**Instructions:** Indicate the presence of any trees, greenery, or plants in the publicly-accessible park or greenspace. Vegetation of any size and quality (other than grass) should be indicated by this item.

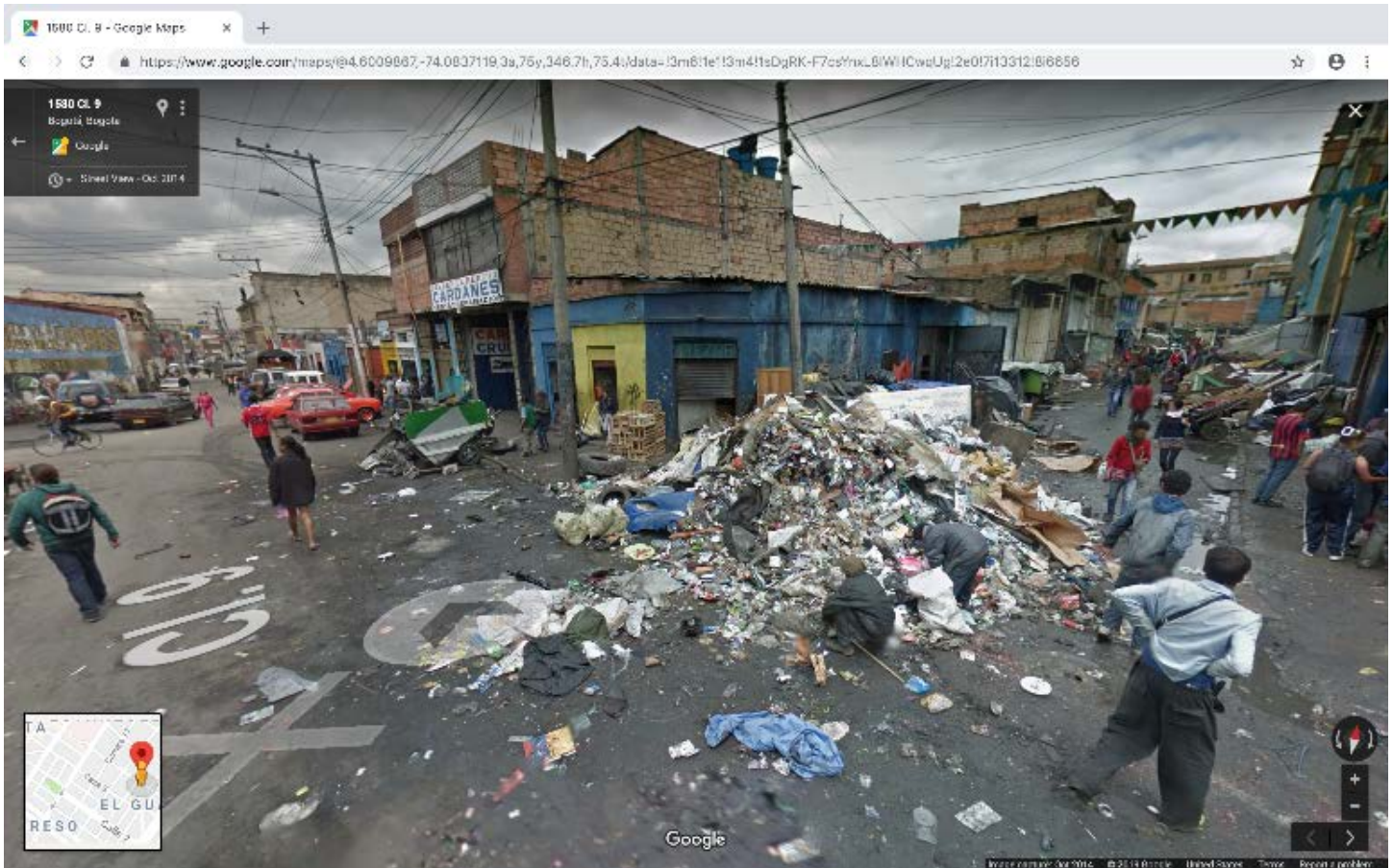
No	Yes
	 





## Litter

The third set of items assesses the presence and nature of visible litter in the segment. Litter and trash is a common indicator of physical disorder.<sup>5</sup> Items assess the presence of waste containers, which may help to reduce litter, and examine how the litter is distributed in the segment.



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<sup>5</sup> Ross, C. E., & Mirowsky, J. (1999). Disorder and decay: The concept and measurement of perceived neighborhood disorder. *Urban Affairs Review*, 34(3), 412-432.





## Item 20 | litter\_cont

## Question

Are designated waste containers visible on the segment?

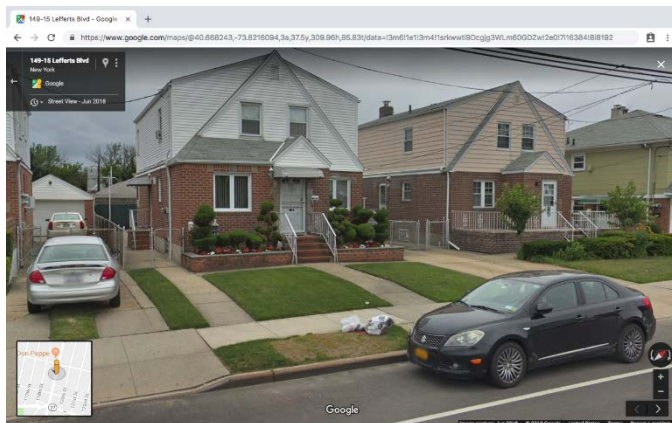
## Response choices

0. No
1. Yes

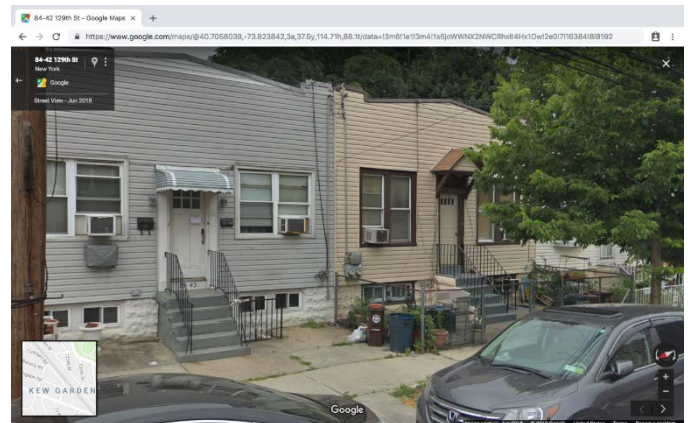
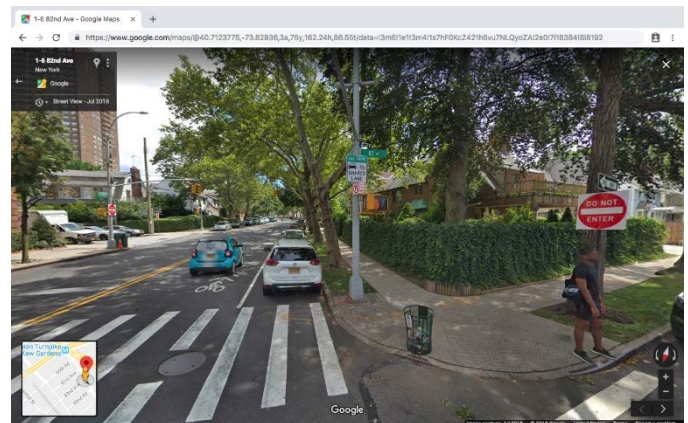
Skip if  
[not skippable]

**Instructions:** Indicate the presence of trash cans, litter bins, recycling bins, or other designated waste containers on the segment. Include both public and evidently-private trash cans.

No



Yes



## Item 21 | litter\_pres

**Question**

How much visible litter is there in the segment (garbage outside of designated waste container)?

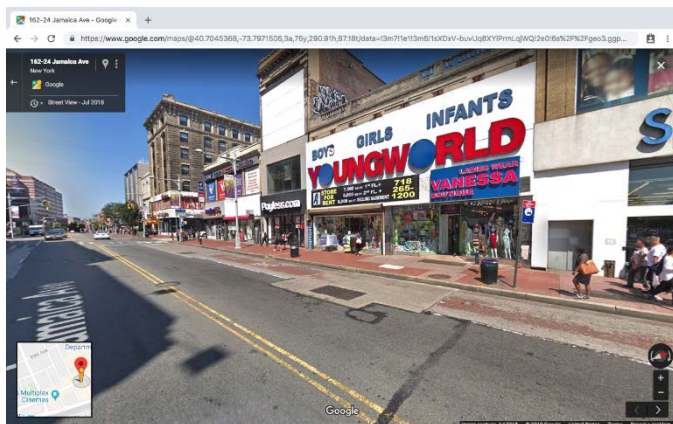
**Response choices**

0. None
1. A little
2. Some
3. A lot
4. There is so much litter as to significantly obstruct pedestrian or vehicular movement.

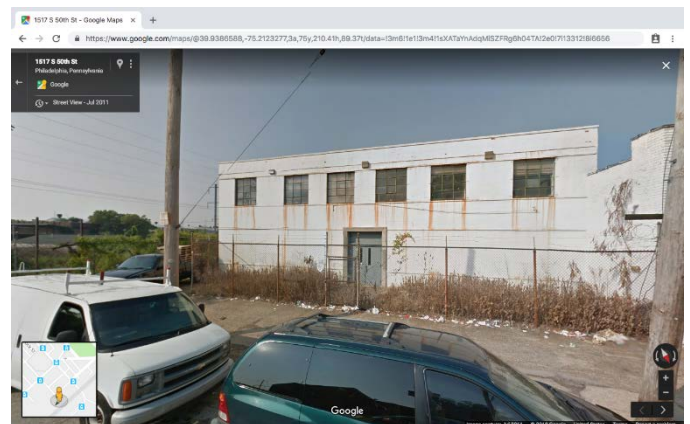
**Skip if**  
[not skippable]

**Instructions:** Estimate the quantity of litter visible in the segment. Include both litter that is on or beside the street or sidewalk as well as litter that is visible on building lots within the segment.

None



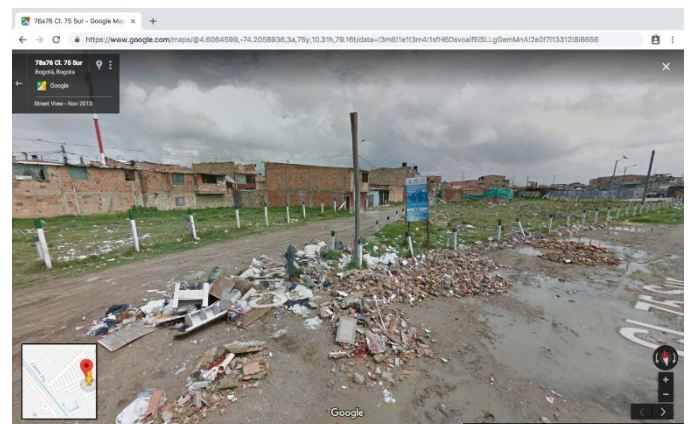
A little



Some



A lot

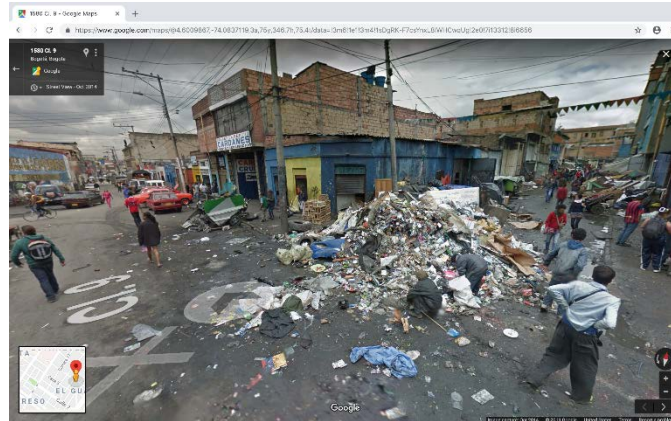


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## Obstruct pedestrians or vehicles

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## Item 22 | litter\_qual

## Question

How does litter primarily appear in the segment?

## Response choices

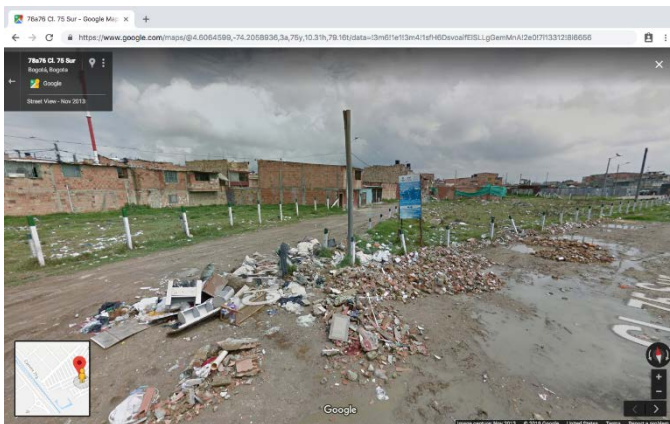
0. Scattered, spread, or strewn across segment
1. Contained in organized piles

## Skip if

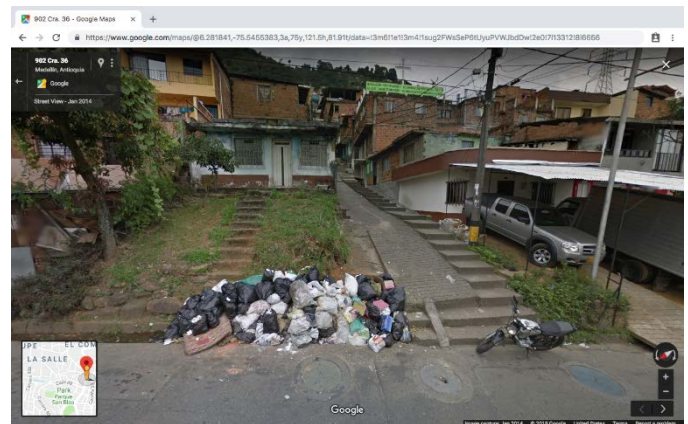
`litter_pres = 0`

**Instructions:** Indicate whether the majority of litter in the segment is scattered or in piles.

## Scattered, spread, or strewn





## Contained in organized piles



Item 23 | litter\_cars

<b>Question</b>	<b>Response choices</b>	<b>Skip if</b>
Are there any abandoned cars in the segment?	0. No 1. Yes	[not skippable]

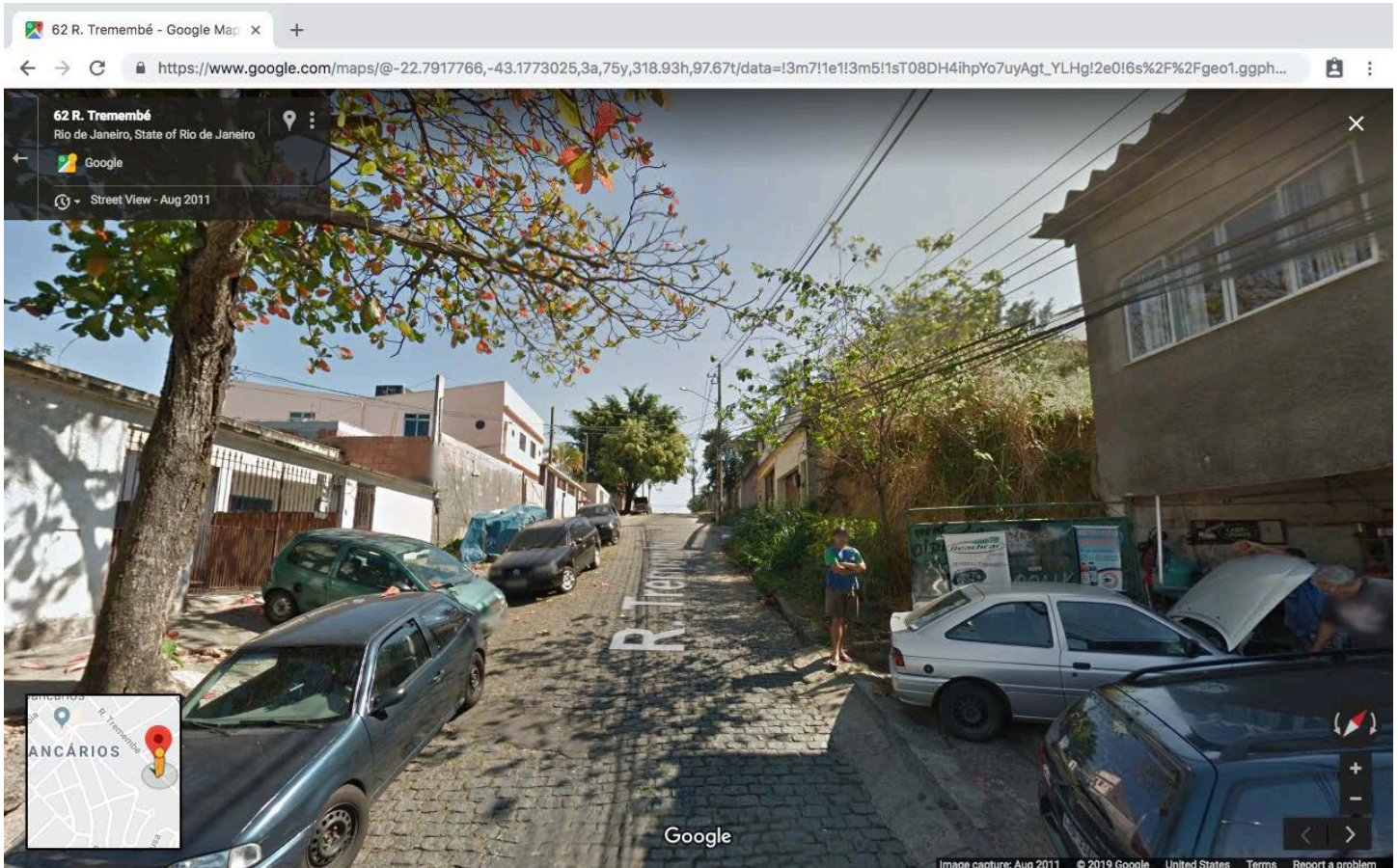
**Instructions:** Indicate the presence of any abandoned or unused cars in the segment. Include only cars that are on the street or sidewalk. Look for cars with flat or missing tires, that are in extreme disrepair, and / or that are lifted on blocks. When in doubt, assume that the car is not abandoned.

No	Yes
	



## Street Conditions

The fourth set of items assesses street conditions. Poorly-maintained streets may be an indicator of disorder. Other items assess characteristics of street design that are relevant to pedestrian safety, such as the presence of crosswalks, bike lanes, and pedestrian refuges that can help pedestrians to cross busy streets.







## Item 24 | str\_mat

## Question

What is the material of the roadway?

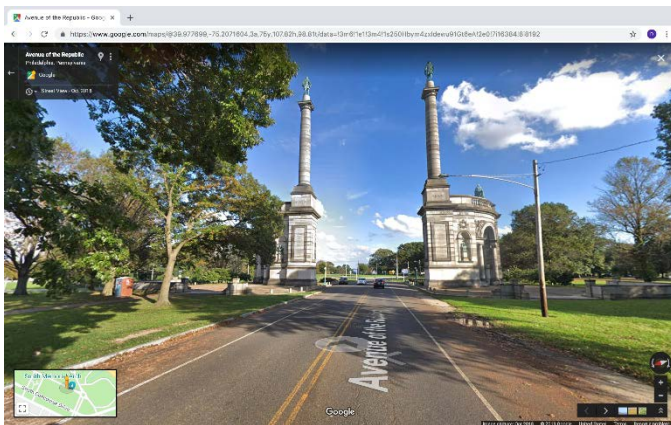
## Response choices

0. Asphalt
1. Brick / cobble
2. Concrete
3. Dirt / grass
4. Gravel / crushed stone
5. Other

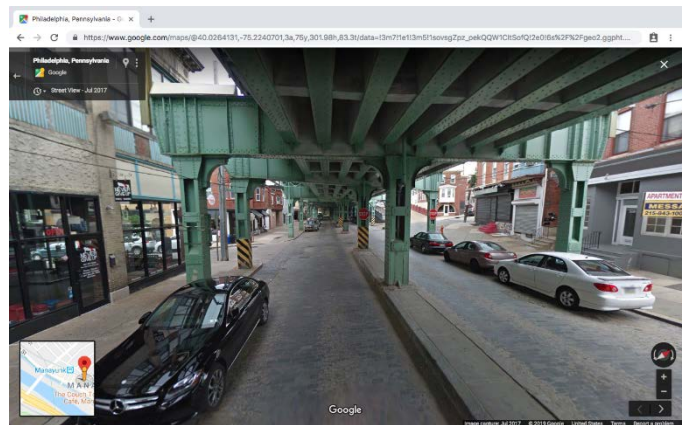
Skip if  
[not skippable]

**Instructions:** Indicate the material of the roadway. If multiple materials are used, indicate the material that comprises the greatest proportion of the surface area of the road.

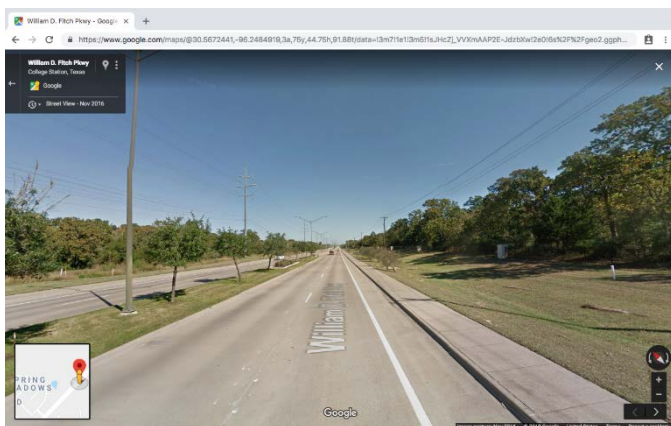
Asphalt



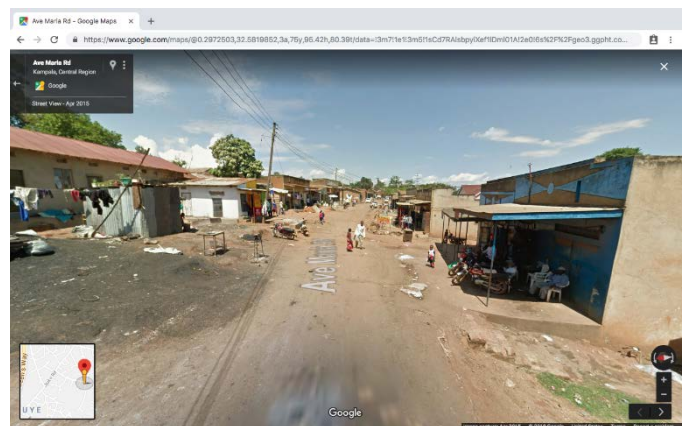
Brick / cobble



Concrete



Dirt / grass

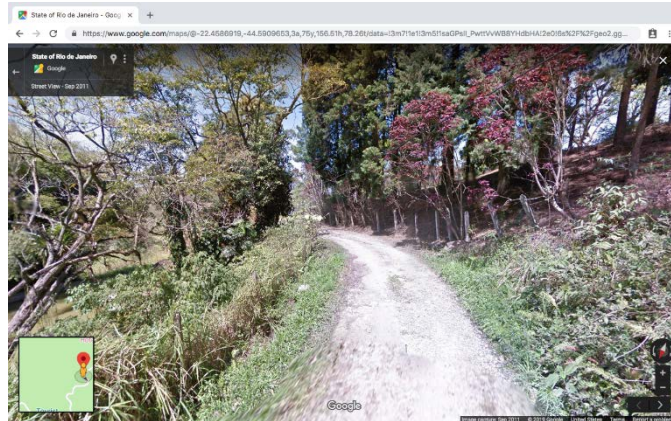


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## Gravel / crushed stone

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## Item 25 | str\_cond

## Question

What is the apparent condition of the roadway?

## Response choices

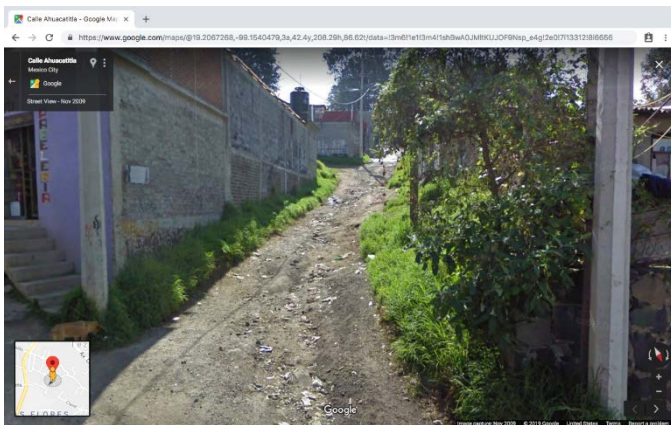
0. Bad
1. Poor
2. Fair
3. Good
4. Very good

## Skip if

[not skippable]

**Instructions:** Indicate the condition or quality of the roadway. Do not conflate quality with material: a smooth and level dirt road may be in better condition than an uneven, potholed asphalt road.

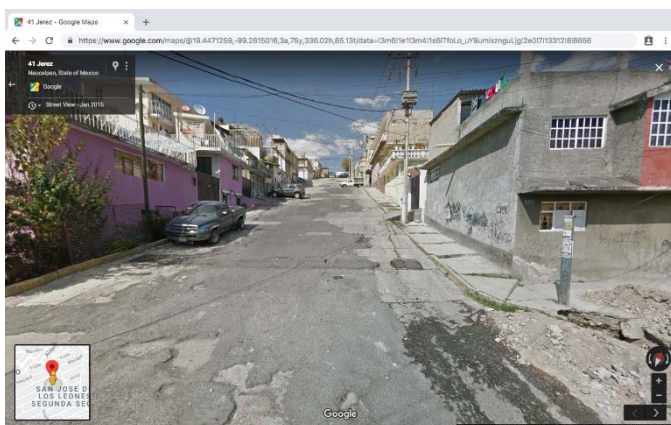
## Bad



## Poor



## Fair



## Good



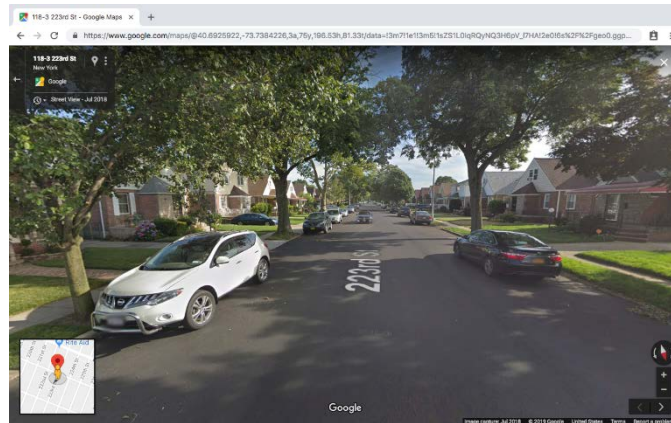
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Very good

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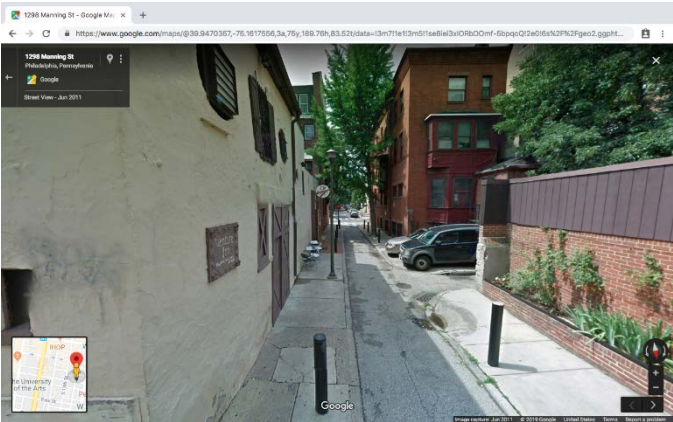
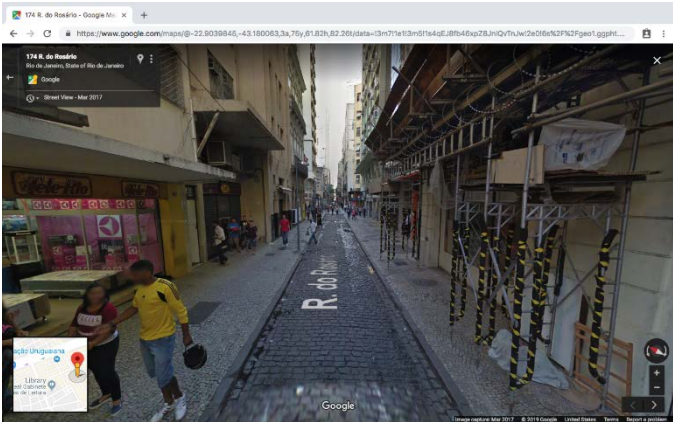




Item 26 | str\_lanes

Question	Response choices	Skip if
Can cars pass entirely through the segment?	0. No 1. Yes, one car 2. Yes, two or more cars	[not skippable]

**Instructions:** Estimate the width of the road based on how many cars could comfortably navigate the segment side-by-side.

No	Yes, one car
	
Yes, two or more cars	



## Item 27 | str\_dir

## Question

What is the directionality of the street?

## Response choices

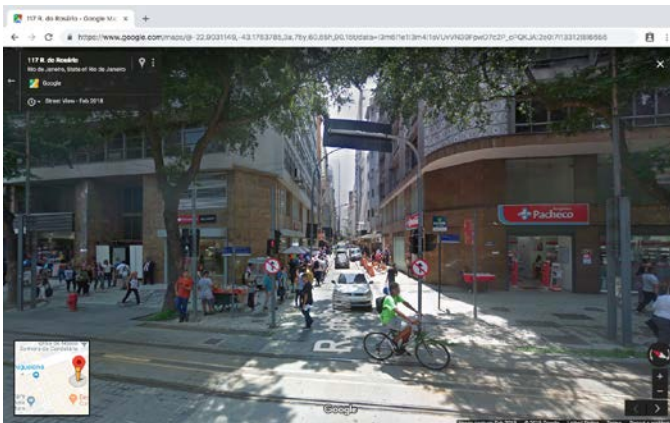
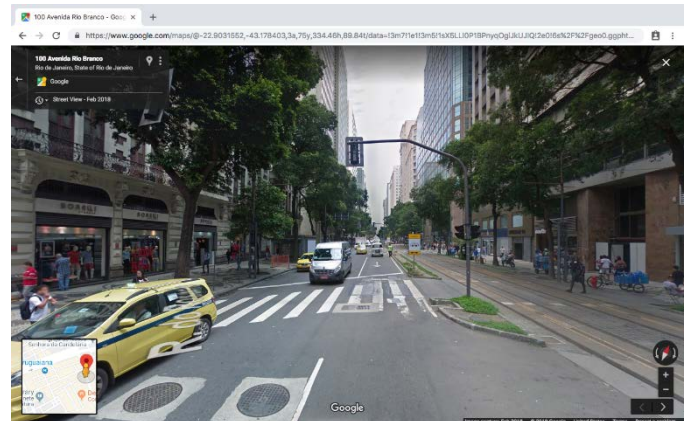
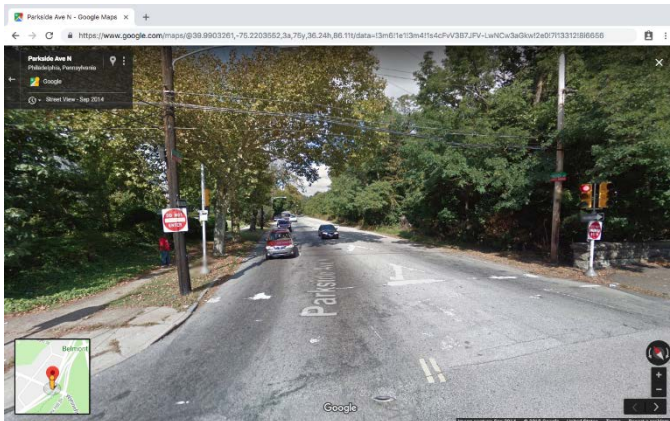
0. One-way
1. Two-way

## Skip if

[not skippable]

**Instructions:** Indicate whether the street is one-way or two-way. If there is no visible signage to indicate that the street is one-way, assume that it is two-way, regardless of width.

## One-way

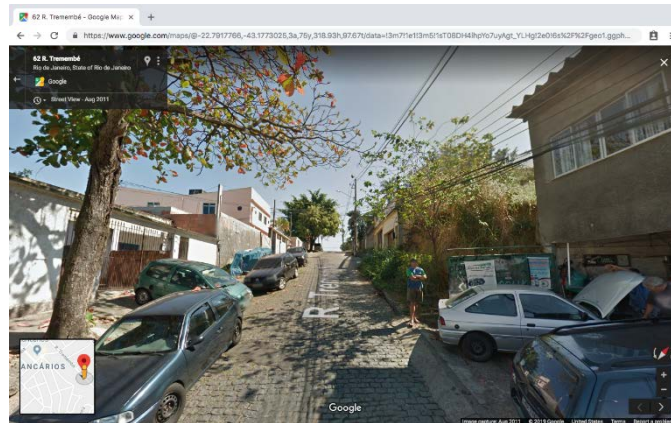


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## Two-way

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## Item 28 | str\_lanevis

## Question

How visible are the lane markings?

## Response choices

0. No visible lane markings
1. Low visibility
2. Medium visibility
3. High visibility

## Skip if

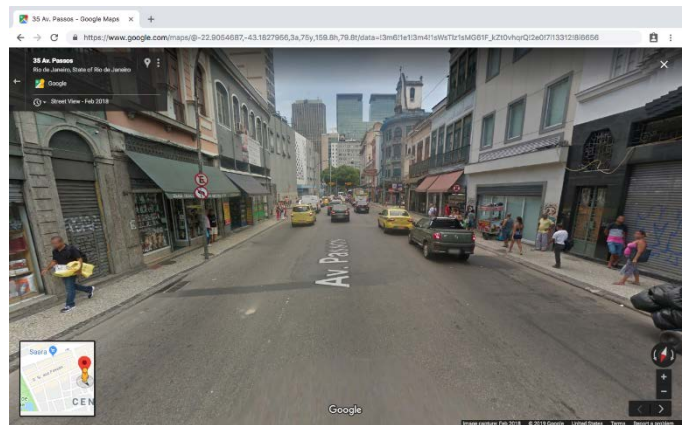
[not skippable]

**Instructions:** Indicate whether there are lane markings on the street, and if so, how clearly visible they are. Consider lane dividers as well as shoulder lines and painted bike lanes.

## No visible lane markings



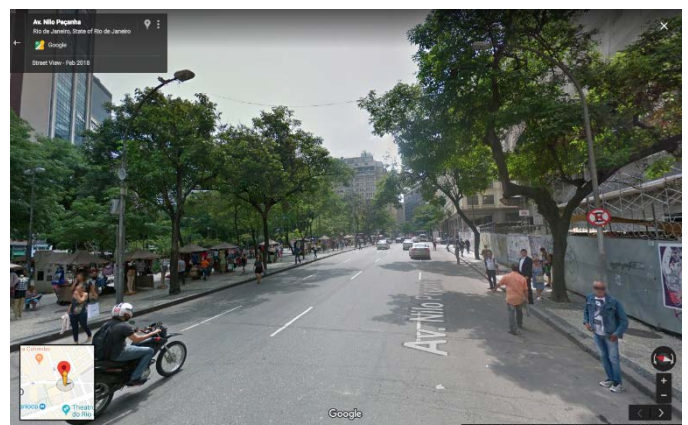
## Low visibility



## Medium visibility



## High visibility





## Item 29 | str\_med

**Question**

What type of median lane is present in the roadway?

**Response choices**

0. None
1. Painted
2. Raised without pedestrian refuge
3. Raised with a pedestrian refuge

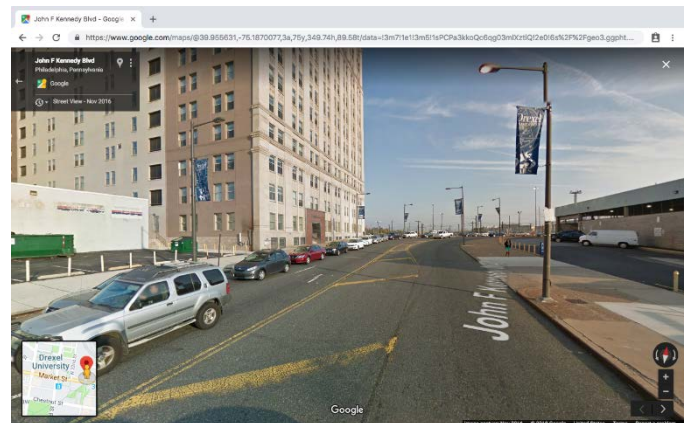
**Skip if**  
[not skippable]

**Instructions:** Indicate whether there is a median lane marked or constructed in the street, and if present, what type it is.

None



Painted



Raised w/o pedestrian refuge



Raised with pedestrian refuge



## Item 30 | str\_tcont

## Question

What type of traffic control device is present?

## Response choices

0. None
1. Stop sign
2. Roundabout/circle
3. Traffic light

## Skip if

[not skippable]

**Instructions:** Indicate the presence of a device to direct or control traffic with regard to the intersection closest to the green marker. The traffic control device may be located outside the segment as long as it controls the green marker intersection—for example, a stop sign that controls entry into a one-way segment may be on the opposite side of the intersection as the segment but would still be indicated by this item.

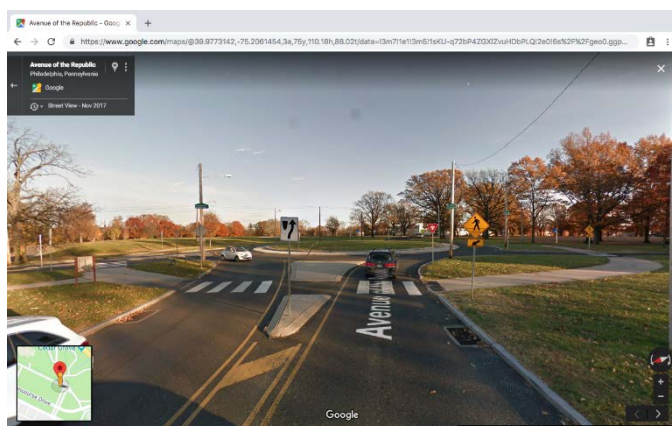
## None



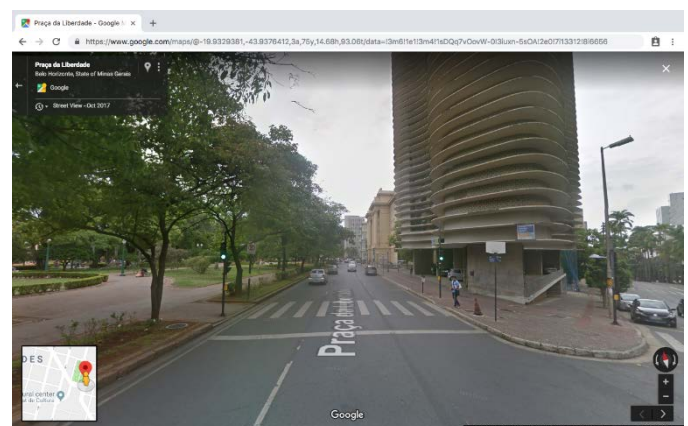
## Stop sign



## Roundabout/circle



## Traffic light





## Item 31 | str\_scont

**Question**

What type of speed control device is present?

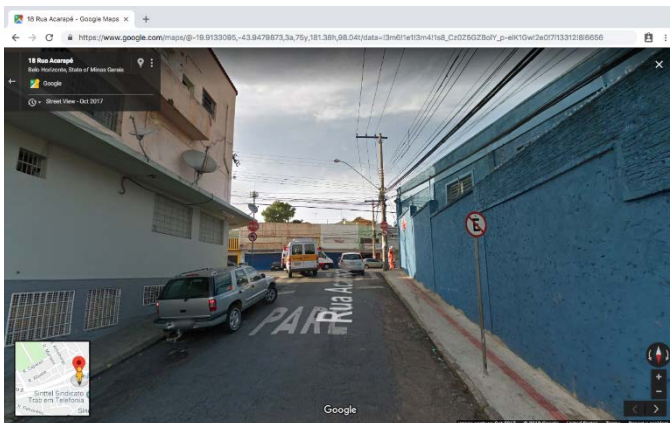
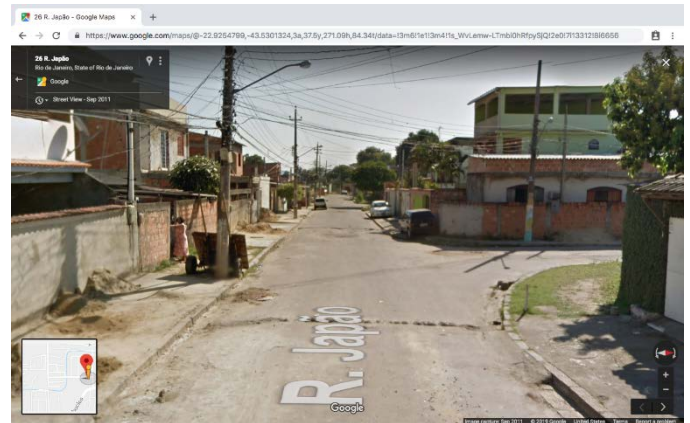
**Response choices**

0. None
1. Speed bump
2. Lane choker or bus bulb
3. Chicane
4. Multiple types

**Skip if**

[not skippable]

**Instructions:** Indicate the presence of a device to control or limit the speed of motor vehicles. Consider devices that are at the intersection closest to the green marker or in the midblock, but not devices that are completely located at other intersections.

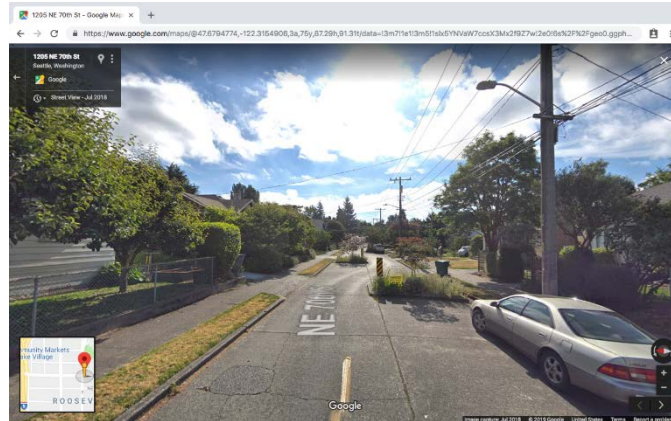
**None****Speed bump****Lane choker or bus bulb**

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## Chicane

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## Item 32 | str\_rest

**Question**

What type of device is present to restrict traffic?

**Response choices**

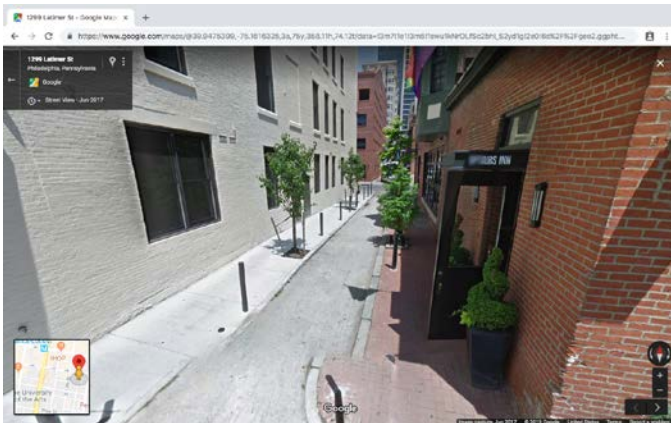
0. None
1. Cones
2. Bollards
3. Gate
4. Multiple types

**Skip if**

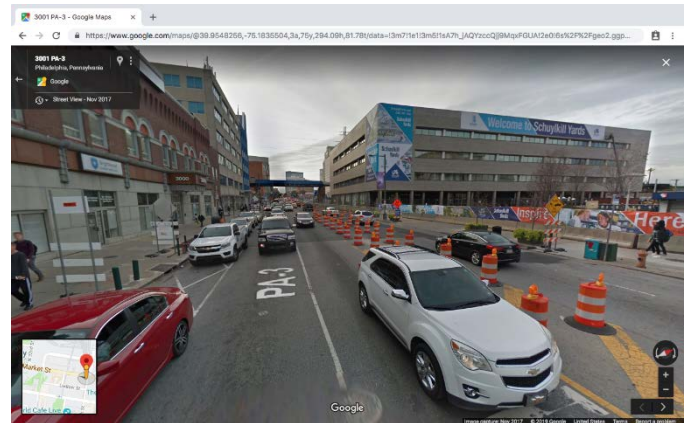
[not skippable]

**Instructions:** Indicate the presence of a device to restrict the passage of motor vehicles into, out of, or through the segment. Consider devices that are at the intersection closest to the green marker or in the midblock, but not devices that are completely located at other intersections.

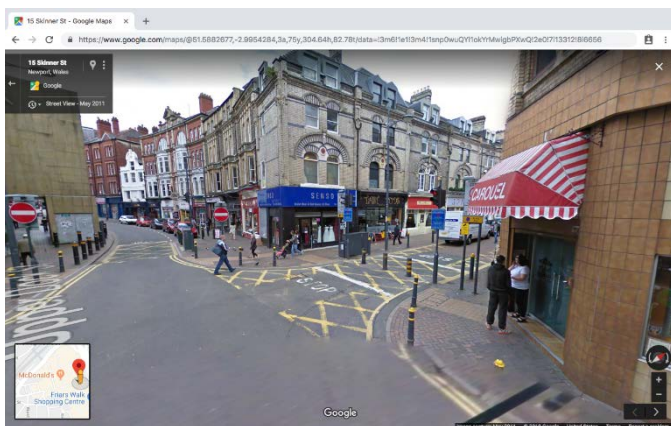
None



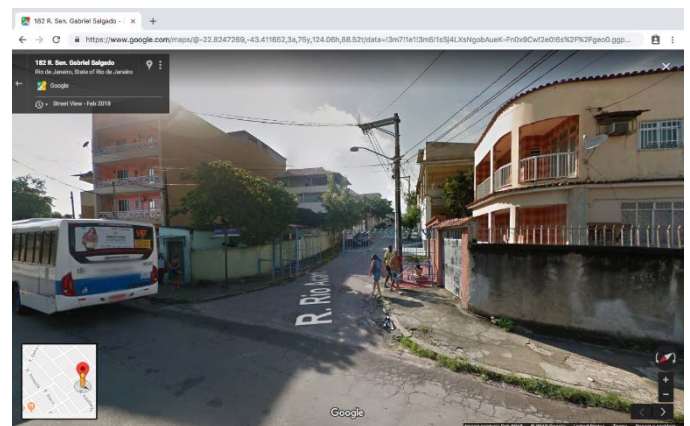
Cones



Bollards



Gate



## Item 33 | str\_cwalk

## Question

Is there a crosswalk present in the segment?

## Response choices

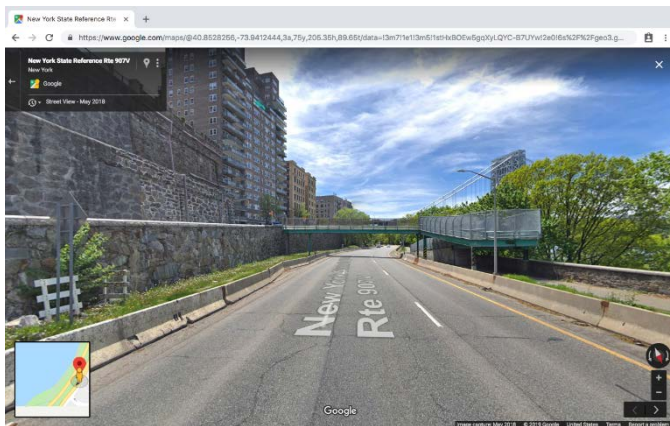
- 0. No
- 1. Yes

## Skip if

[not skippable]

**Instructions:** Indicate the presence of a crosswalk in the segment. Consider only crosswalks that are at the intersection closest to the green marker or in the midblock.

No



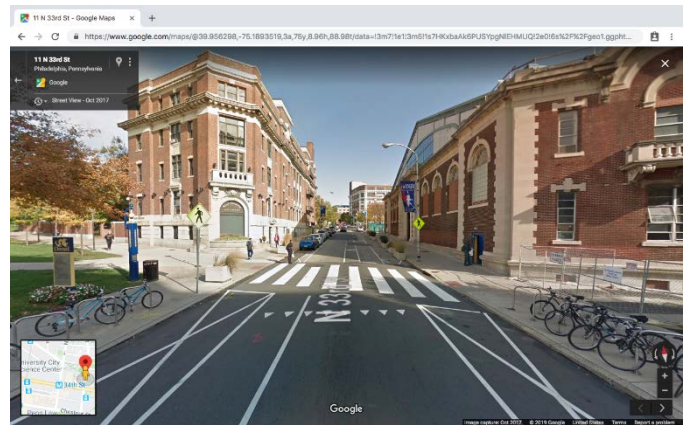
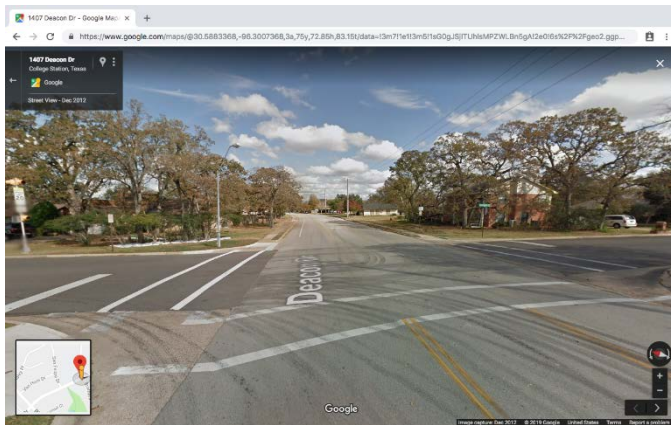
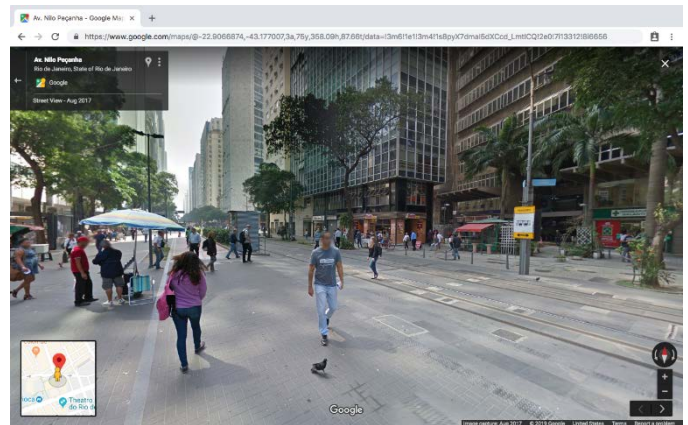
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Yes

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Item 34 | str\_cstop

Question

What is the driver stop type at the crosswalk?

Response choices

0. None

1. Yield

2. Stop sign


3. Traffic signal

Skip if


str\_cwalk = 0

**Instructions:** Indicate the type of traffic control present at the crosswalk. If multiple crosswalks are present, consider only the crosswalk that is at or closest to the intersection closest to the green marker.

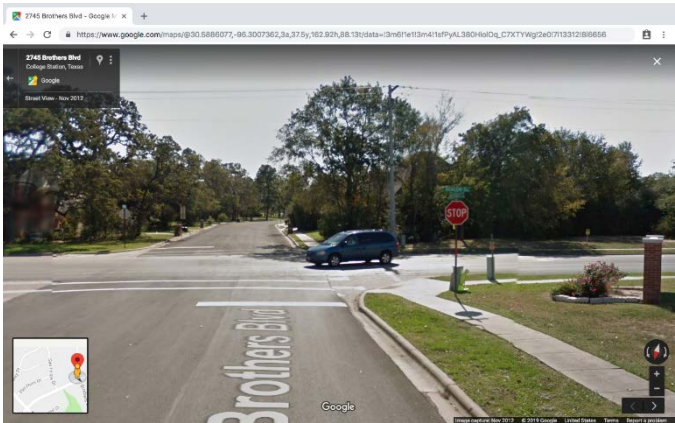
None



Yield



Stop sign



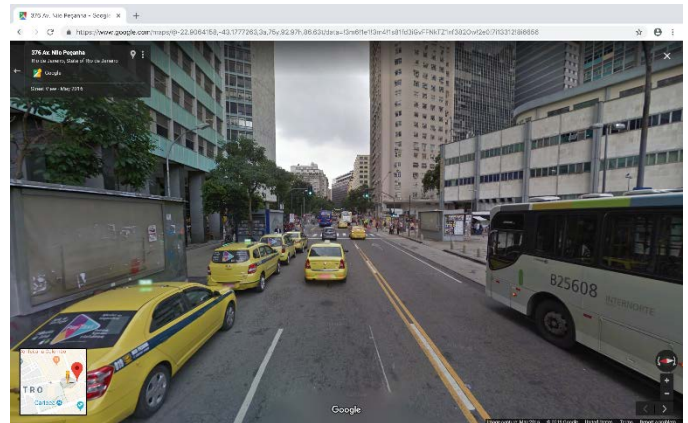
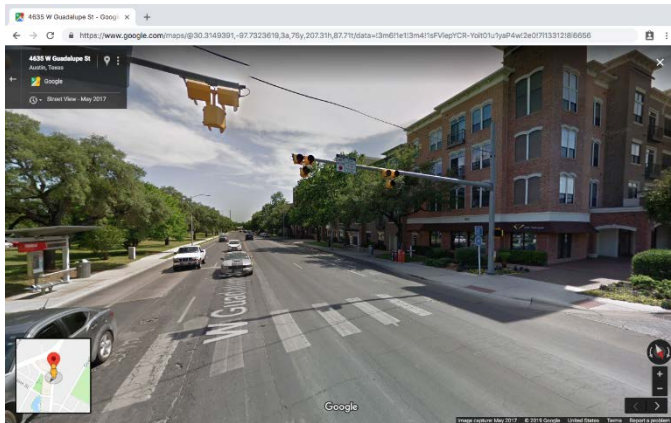
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Traffic signal

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Item 35 | str\_ccurb

Question

Does the curb extend out from the sidewalk at the crosswalk?

Response choices

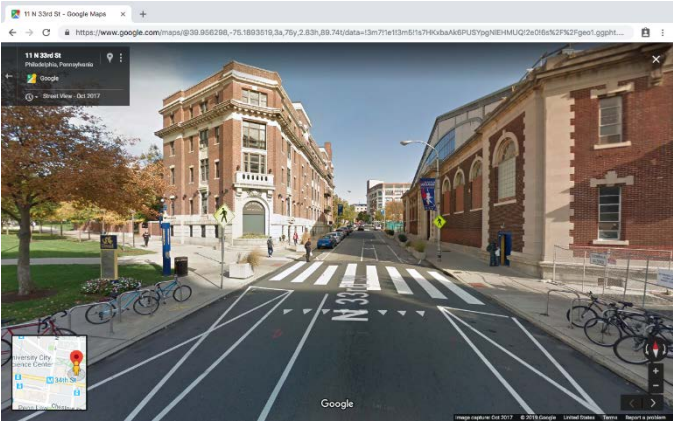

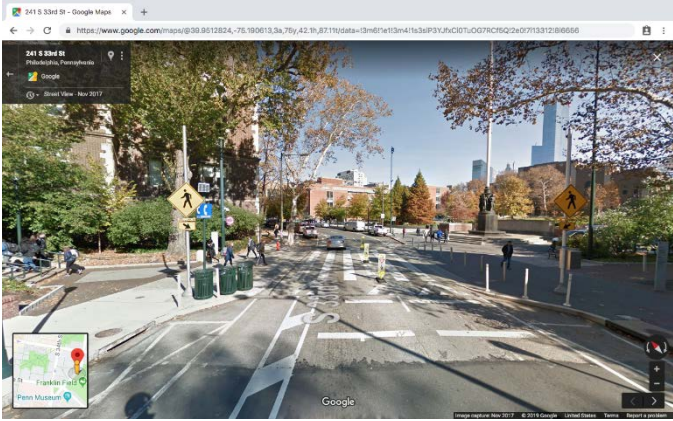
0. No

1. Yes

Skip if

str\_cwalk = 0

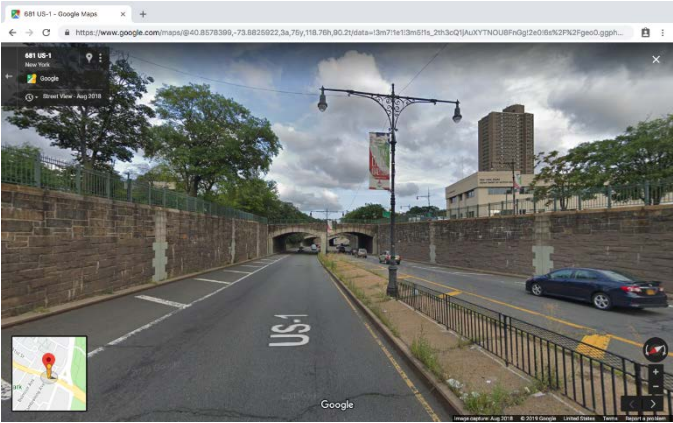

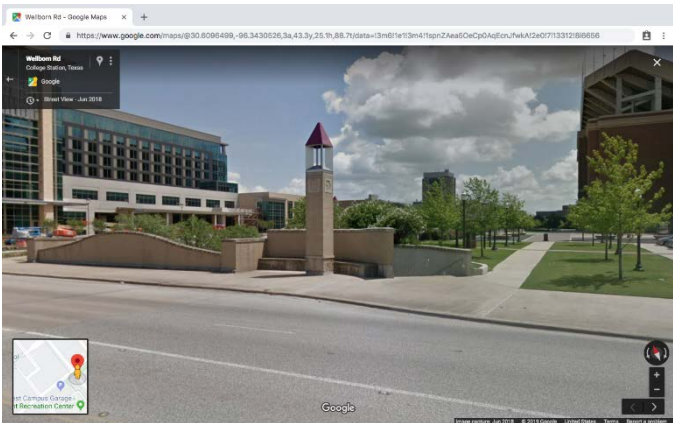
**Instructions:** Indicate whether the sidewalk extends into the street at the crosswalk. If multiple crosswalks are present, consider only the crosswalk that is at or closest to the intersection closest to the green marker.

No	Yes
	 

Item 36 | str\_opass

Question	Response choices	Skip if
Is there a pedestrian over- or underpass?	0. No 1. Yes	[not skippable]

**Instructions:** Indicate whether there is a pedestrian bridge or tunnel on the segment. Consider only structures that are at the intersection closest to the green marker or at the midblock.

No	Yes
	 



## Item 37 | str\_intyp

## Question

What is the intersection type in the segment?

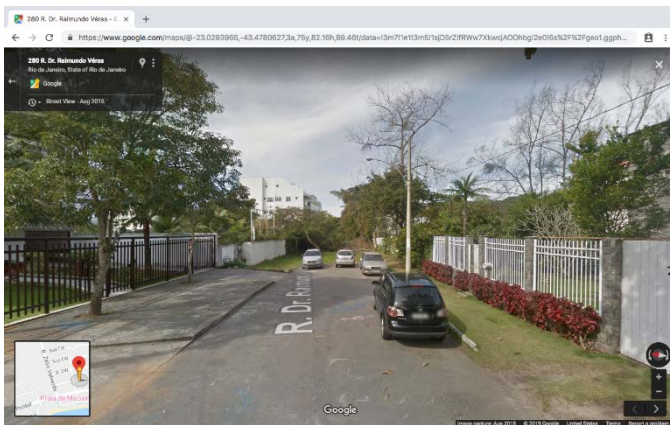
## Response choices

0. Cul-de-sac
1. Midblock
2. 3-segment
3. 4-segment
4. 5 or more

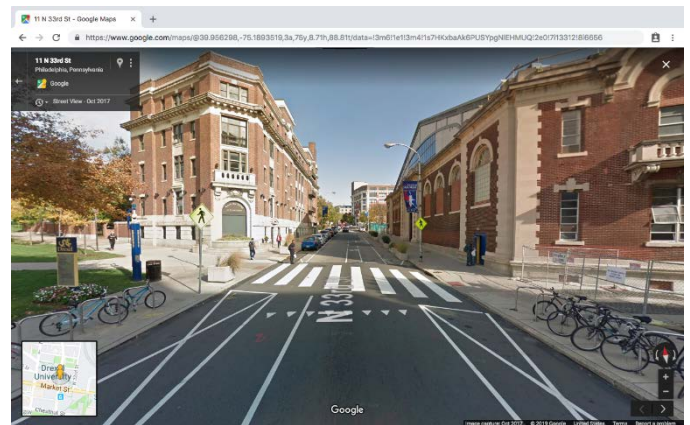
Skip if  
[not skippable]

**Instructions:** Indicate the type of intersection that is closest to the green marker.

## Cul-de-sac



## Midblock



## 3-segment



## 4-segment



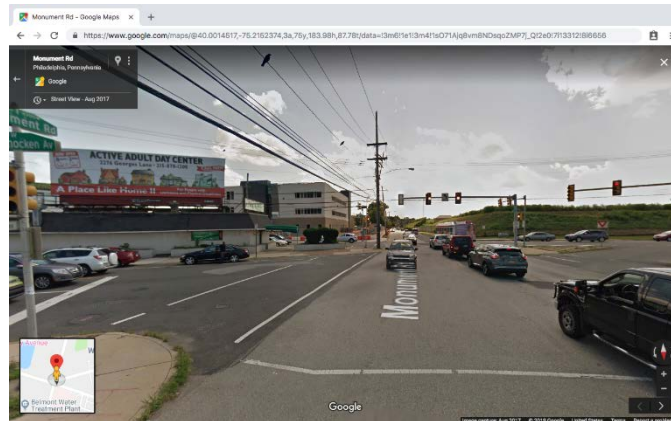
(continued on next page)



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5 or more

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## Item 38 | str\_lane

## Question

What is the bike lane type?

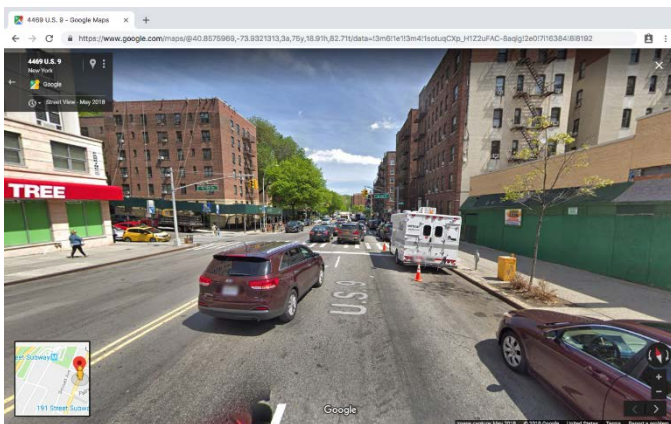
## Response choices

0. None
1. Sharrow w/ all vehicles
2. Sharrow w/ buses
3. Unprotected
4. Protected
5. Separated path

Skip if  
[not skippable]

**Instructions:** Indicate the type of bike lane present in the segment. Consider bike lanes that extend through the entire segment as well as bike lanes that are discontinuous. If the bike lane in the segment changes type along its length, select the response that describes the greatest proportion of the length of the bike lane.

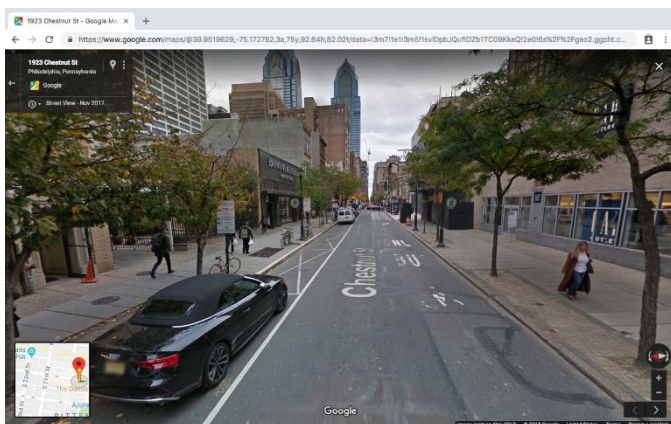
None



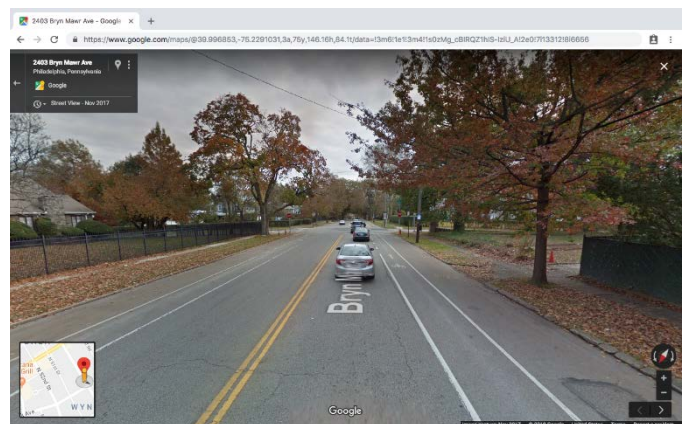
Sharrow w/ all vehicles



Sharrow w/ buses



Unprotected

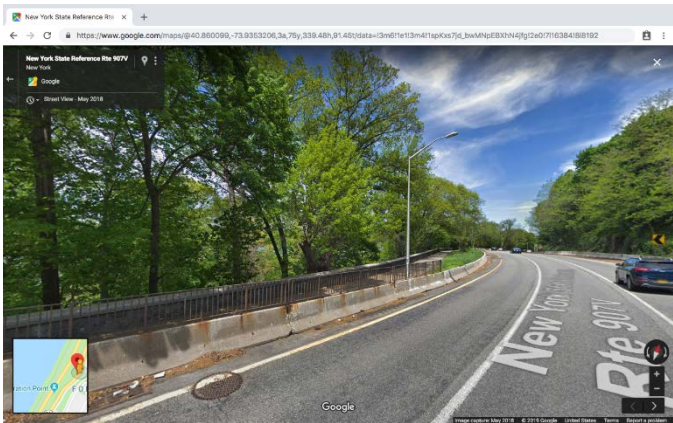


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Protected



Separated path





## Item 39 | str\_mod

## Question

Does the street provide any temporary modifications to motor vehicle traffic?

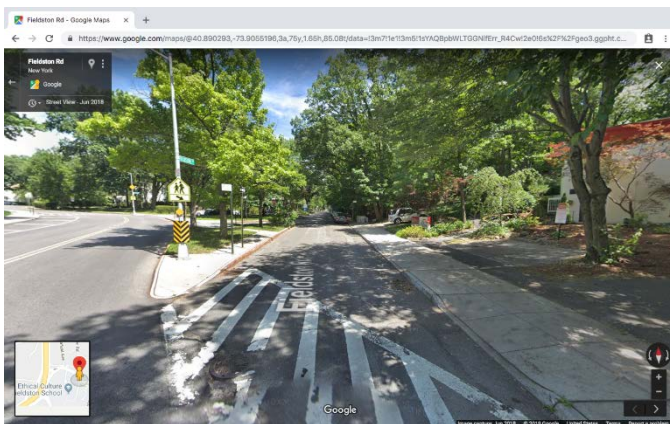
## Response choices

0. No
1. Yes, a school zone
2. Yes, a recreation zone
3. Yes, a temporary bike lane
4. Yes, some other modification

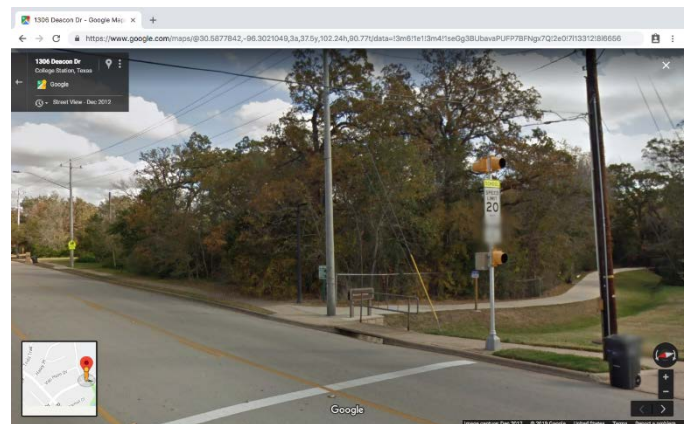
Skip if  
[not skippable]

**Instructions:** Indicate whether there is any visible evidence that motor vehicle traffic is ever modified, such as by a school zone. Temporary modifications may include changes to the speed limit, lane closures, or complete closures of the street.

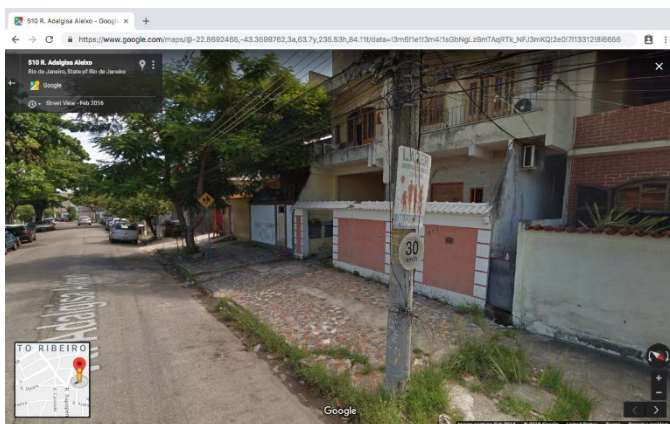
No



Yes, a school zone



Yes, a recreation zone



Yes, a temporary bike lane





## Sidewalk Conditions

The fifth set of items assesses sidewalk conditions. Sidewalks are a critical component of pedestrian infrastructure, providing physical separation between cars and pedestrians. Because of the wide spectrum of how sidewalks can appear in different cities, this section divides the concept of sidewalks into multiple aspects to assess their presence, quality, continuity, and level of obstruction.





## Item 40 | swalk\_pres

## Question

Is there a sidewalk present on the segment?

## Response choices

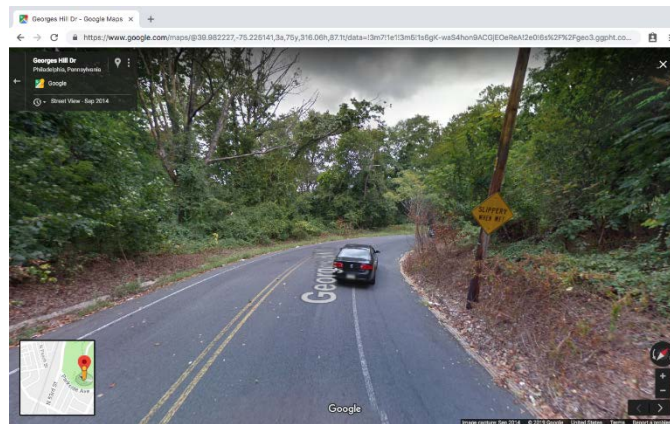
0. No
1. Yes, on one side
2. Yes, on both sides

## Skip if

[not skippable]

**Instructions:** Indicate the presence of a pedestrian path on the side of the road. The sidewalk may be paved or unpaved, may be even or uneven, and may or may not overlap with driveways for buildings along the segment.

No

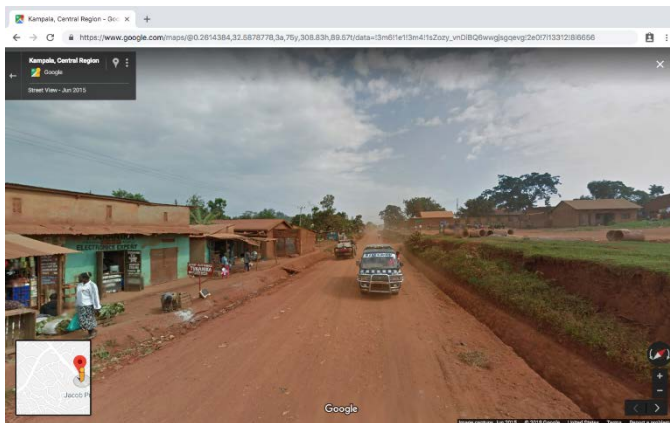


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## Yes, on one side

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## Yes, on both sides

---





Item 41 | swalk\_sep

Question





Is the sidewalk separated from the roadway?

Response choices

- 0. No separation or curb only
- 1. Separated with buffer, fence, or wall

Skip if  
swalk\_pres = 0

**Instructions:** Indicate whether the sidewalk is separated from the roadway. If one side is separated and the other is not, indicate that the sidewalk is separated. If the sidewalk is separated at some places and not at others, indicate the response that corresponds with the greater proportion of the length of the sidewalk.

No separation / curb only	Separated with buffer / fence/ wall
 	 

## Item 42 | swalk\_mat

## Question

What is the material of the sidewalk?

## Response choices

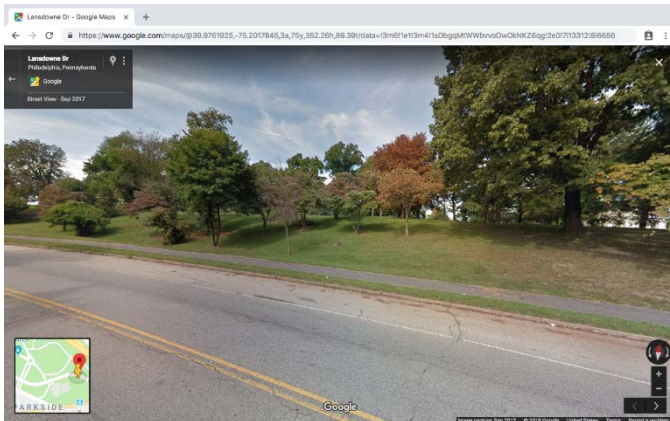
0. Asphalt
1. Brick / cobble
2. Concrete
3. Dirt / grass
4. Gravel / crushed stone
5. Other

## Skip if

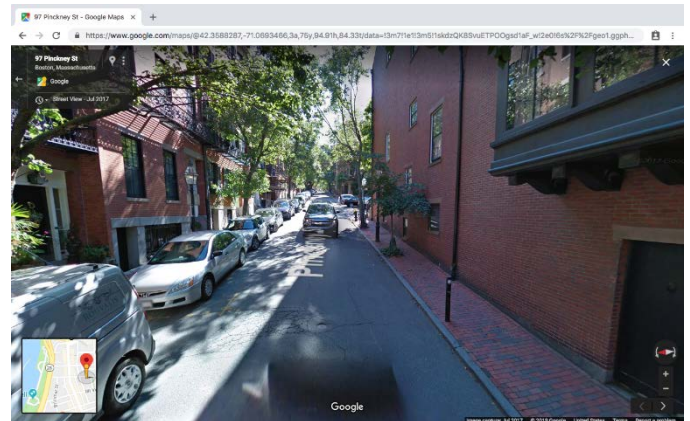
swalk\_pres = 0

**Instructions:** Indicate the material of the roadway. If multiple materials are used, or if different materials are used on alternate sidewalks, indicate the material that comprises the greatest proportion of the total surface area of sidewalk.

## Asphalt



## Brick / cobble



## Concrete



## Dirt / grass



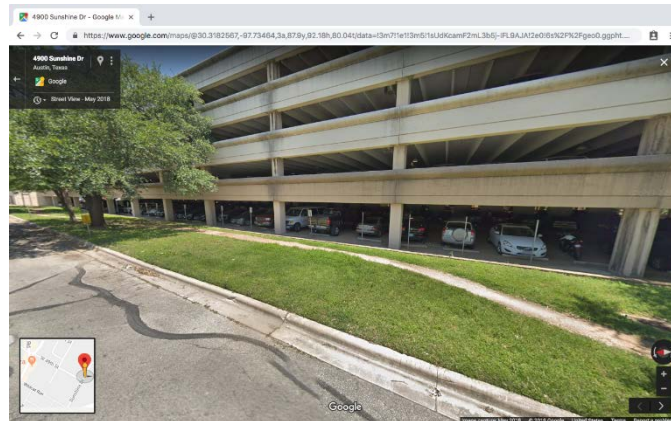
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## Gravel / crushed stone

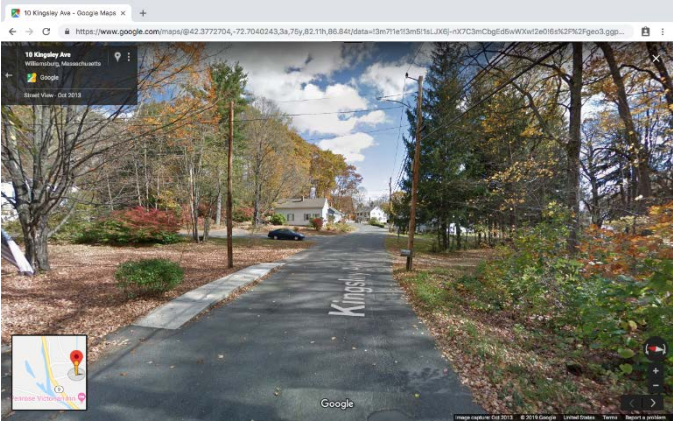

---



Item 43 | swalk\_ext

Question	Response choices	Skip if
Does the sidewalk extend along the entire segment?	0. No 1. Yes, on one side 2. Yes, on both sides	swalk_pres = 0

**Instructions:** Indicate whether the sidewalk exists along the entire length of the segment in any form, paved or unpaved.

No	Yes, on one side
	

Yes, on both sides





## Item 44 | swalk\_uneven

## Question

Is the sidewalk even along its entire length?

## Response choices

0. No
1. Yes, on one side
2. Yes, on both sides

## Skip if

swalk\_pres = 0

**Instructions:** Indicate whether the sidewalk is smooth, unbroken, and at a reasonably consistent grade along its entire length. As a guideline, consider whether a person in a wheelchair could comfortably navigate the entire sidewalk. Sidewalks that are obstructed by any object other than the surface of the sidewalk itself should be indicated by Item 47 "swalk\_cont."

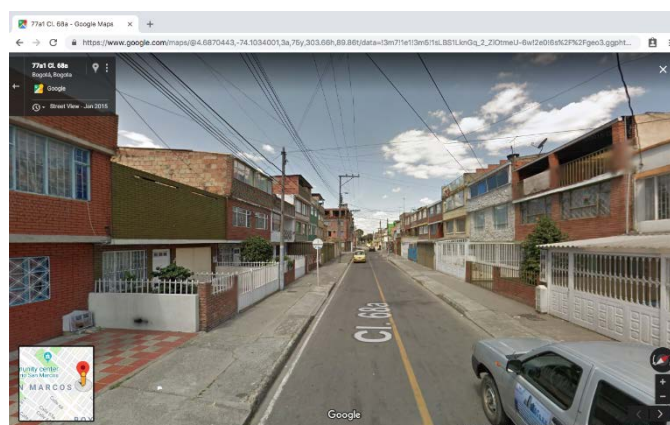
No



Yes, on one side



Yes, on both sides



Item 45 | swalk\_cont


**Question**  
Is the sidewalk unobstructed along its entire length?

**Response choices**  
0. No  
1. Yes, on one side  
2. Yes, on both sides


**Skip if**  
swalk\_pres = 0

**Instructions:** Indicate whether the sidewalk is clear and unobstructed along its entire length. As a guideline, consider whether a pedestrian would be able to navigate the entire segment without deviating from the centerline of the sidewalk. Sidewalks that are impassable due to brokenness or an uneven grade should be indicated by Item 46 "swalk\_uneven."

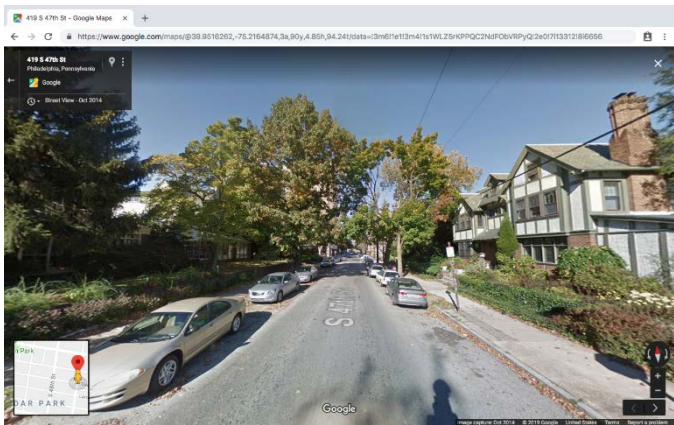
No

A Google Street View image showing a street with a clear, unobstructed sidewalk. The sidewalk is on the left side of the street, and there are parked cars along the curb. The street is labeled "C22" in the center.

Yes, on one side

A Google Street View image showing a street with a clear sidewalk on one side. The sidewalk is on the right side of the street, and there are parked cars along the curb. The street is labeled "121" in the center.

Yes, on both sides





## Item 46 | swalk\_why

## Question

What is obstructing the sidewalk?

## Response choices

0. Cars parked on sidewalk
1. Construction / construction materials
2. Street vendors, café tables, or other business activity
3. Other obstruction on sidewalk
4. Multiple issues

## Skip if

swalk\_cont = 2

**Instructions:** Indicate the reason why the sidewalk is obstructed.

Cars



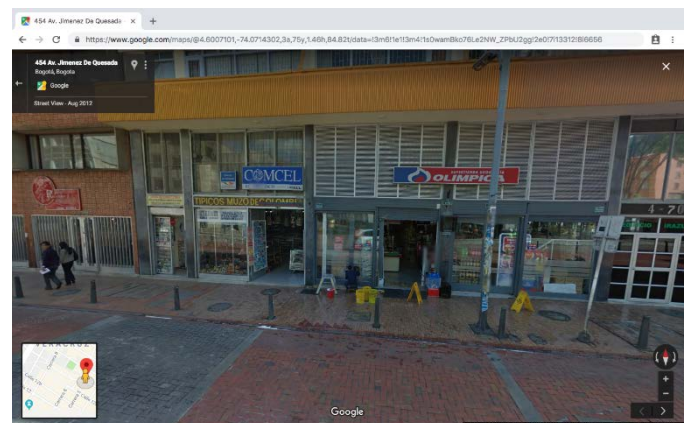
Construction



Street vendors / café tables



Other obstruction

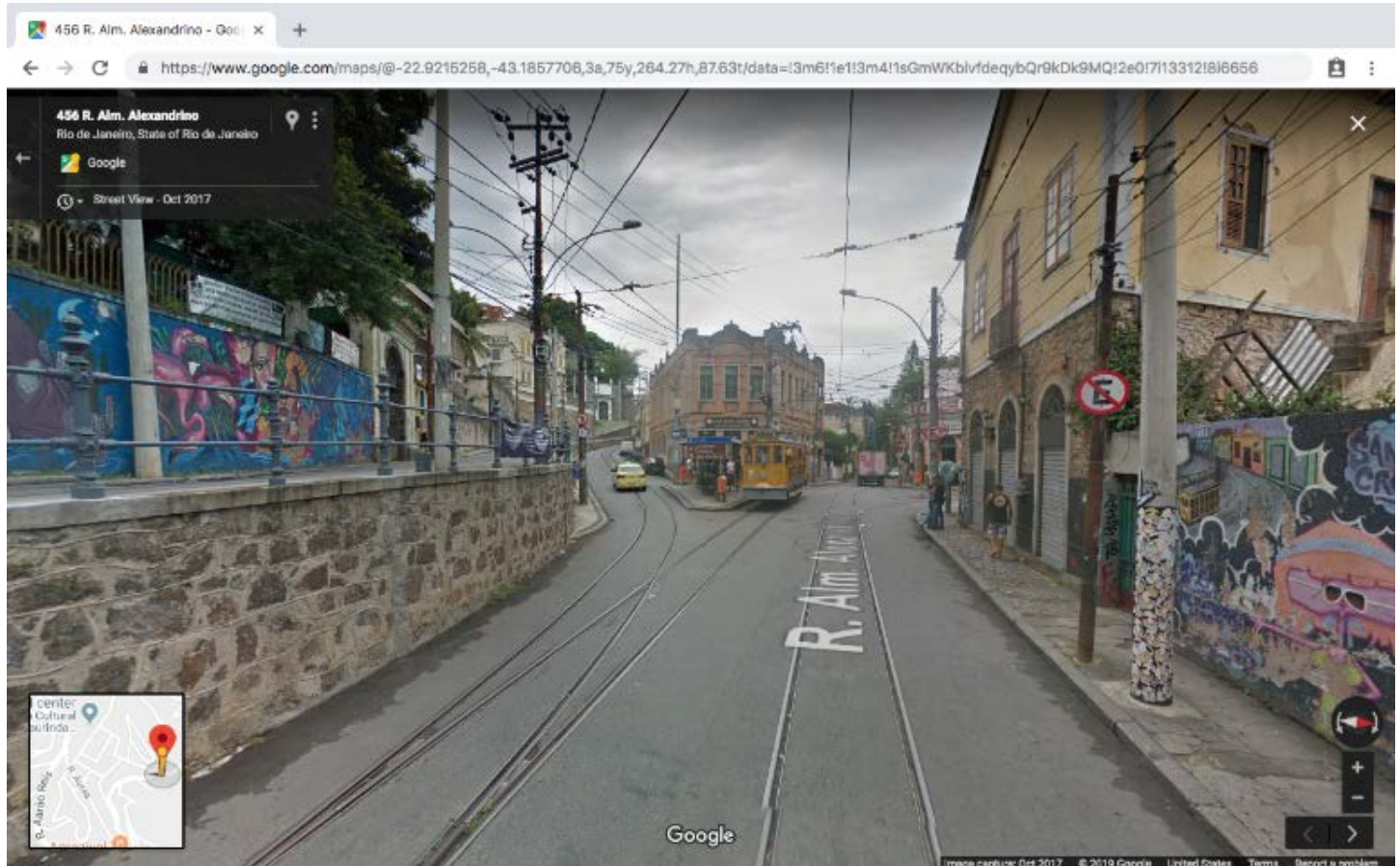






## Public Transit

The sixth and final set of items assesses public transportation. Although the extent and nature of public transportation is often found in public data, some cities may have privately run or informal transit options that do not appear in these data sources. In the pilot audit, this set of items is used to assess whether Google Street View can be reliably used to identify the presence of public transportation. Further, some aspects of public transit design are relevant to pedestrian safety, such as the presence of railroad safety features.








Item 47 | trans\_stop

Question	Response choices	Skip if
Is there a transit stop / station visible on the segment?	0. No 1. Yes	[not skippable]

**Instructions:** Indicate whether there is a visible transit stop or station on the segment. Any type of formal or informal transit should be indicated, but only consider those stations and stops for which there is visible evidence in the StreetView imagery. Consider transit stops that are at the intersection closest to the green marker or at the midblock, but not stops that are completely at other intersections.

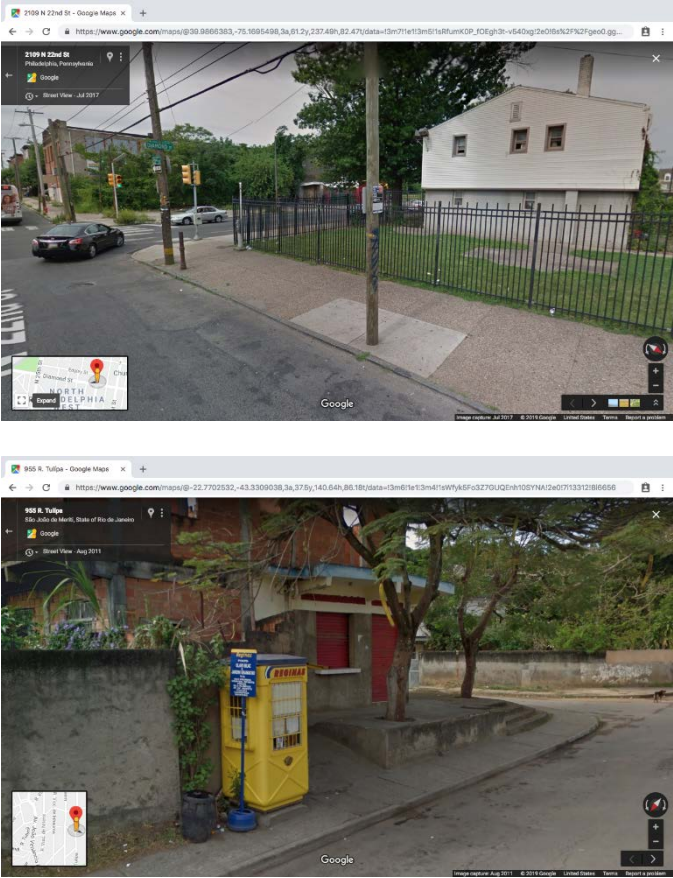

No	Yes
	 



Item 48 | trans\_how

<p><b>Question</b></p> <p>How is the stop / station visible?</p>	<p><b>Response choices</b></p> <div><div>0. Signage and / or structure</div><div>1. Passengers visibly embarking / disembarking</div></div> <p><b>Skip if</b></p> <p>trans_stop = 0</p>
--	---

**Instructions:** Indicate the reason why the transit stop is visible in the StreetView imagery.

Signage / structure	Passengers embarking / disembarking
	



Item 49 | trans\_blane

Question	Response choices	Skip if
Does the segment contain a dedicated bus lane or streetcar / light rail tracks?	0. No 1. Yes	[not skippable]

**Instructions:** Indicate the presence of a bus lane or light rail tracks on the segment. Consider lanes or tracks that extend along the segment or that traverse the intersection closest to the green marker.

No

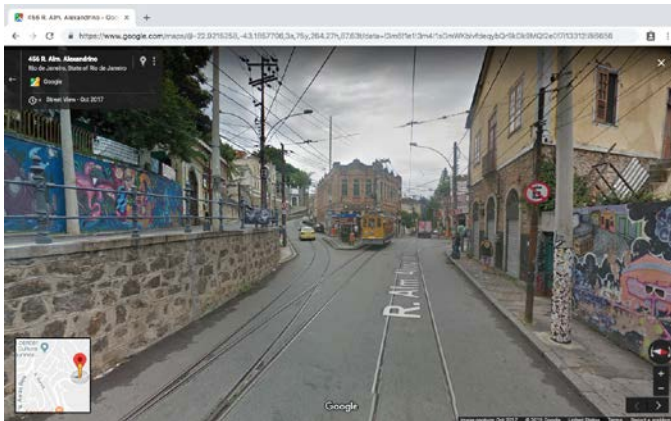


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Yes

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## Item 50 | trans\_bsep

## Question

Is the bus lane or streetcar / light rail tracks separated from other vehicle traffic by barriers, curbs, or any other structure?

## Response choices

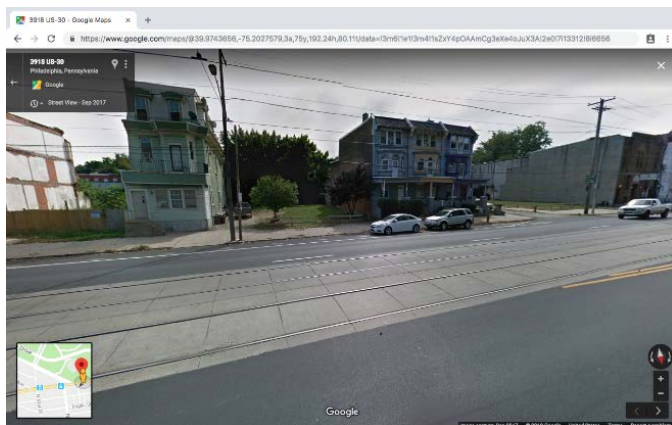
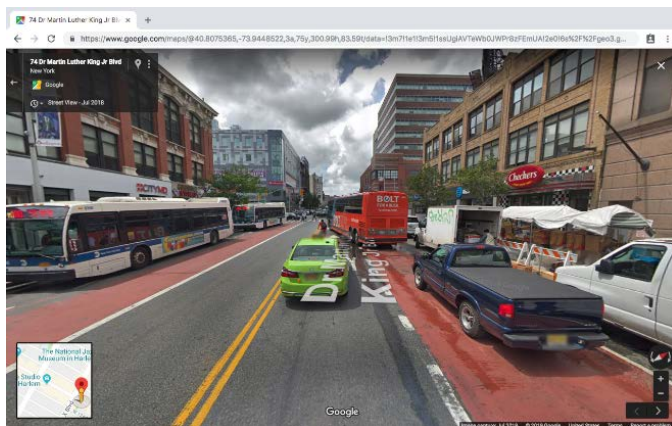
0. No
1. Yes

## Skip if

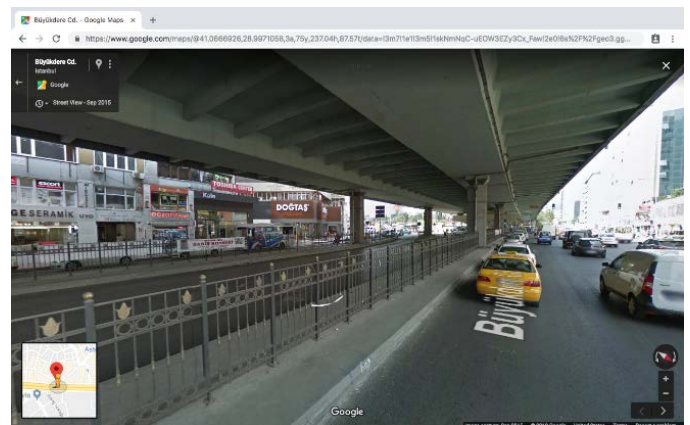
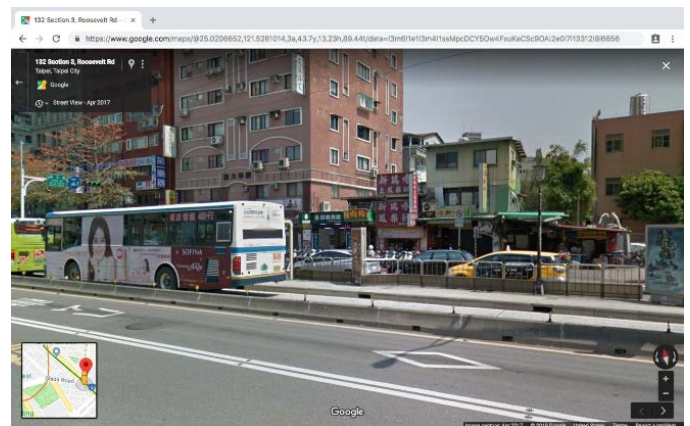
trans\_blane = 0

**Instructions:** Indicate whether the bus lane or light rail tracks are physically separated from other traffic. Consider curbs, fencing, or grade separation, but not paint or signage.

No



Yes





## Item 51 | trans\_train

## Question

Are there heavy-rail train tracks present?

## Response choices

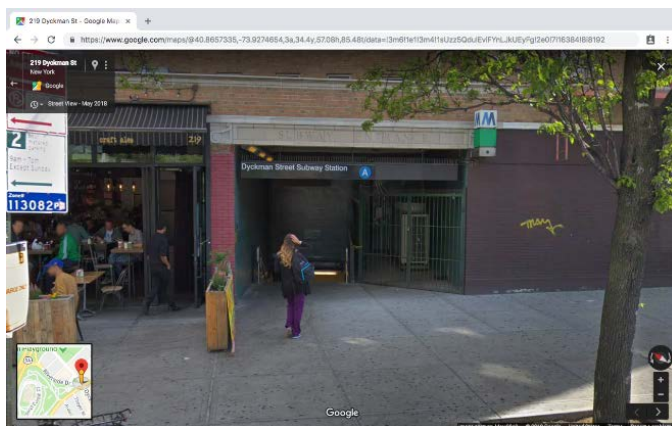
0. No
1. Yes

## Skip if

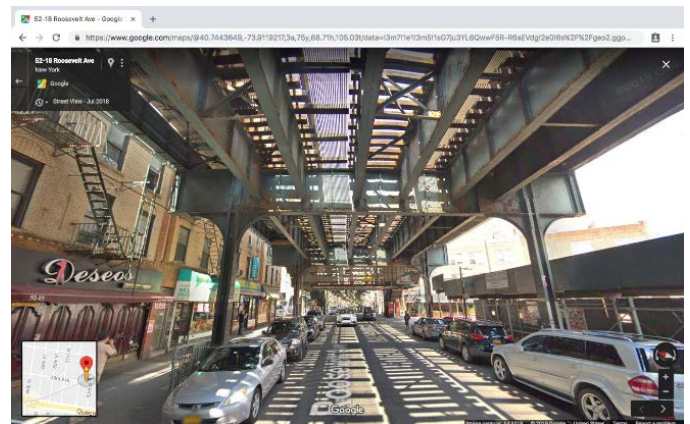
[not skippable]

**Instructions:** Indicate whether there are heavy rail tracks visible from the segment. Consider tracks that are alongside the segment or elevated above it, as well as tracks that cross the segment at the intersection closest to the green marker.

No



Yes





## Item 52 | trans\_tsafe

## Question

What railroad safety measures are present?

## Response choices

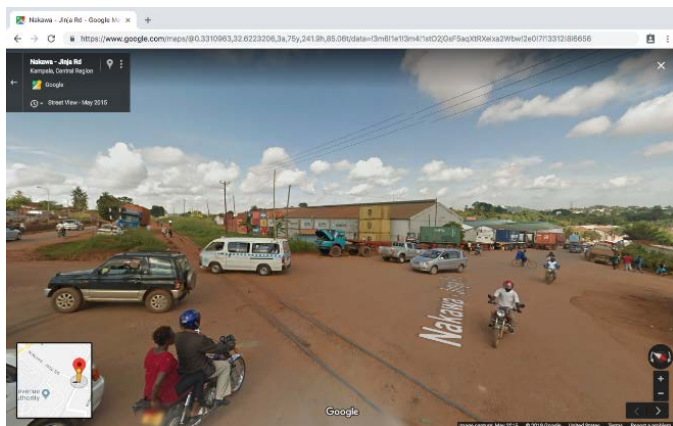
0. None
1. The tracks are grade separated
2. Signage, pavement markings, or texturing
3. Barrier arm, fencing, or a pedestrian barrier

## Skip if

trans\_train = 0

**Instructions:** Indicate the presence of railroad safety measures with regard to the heavy rail tracks.

## None



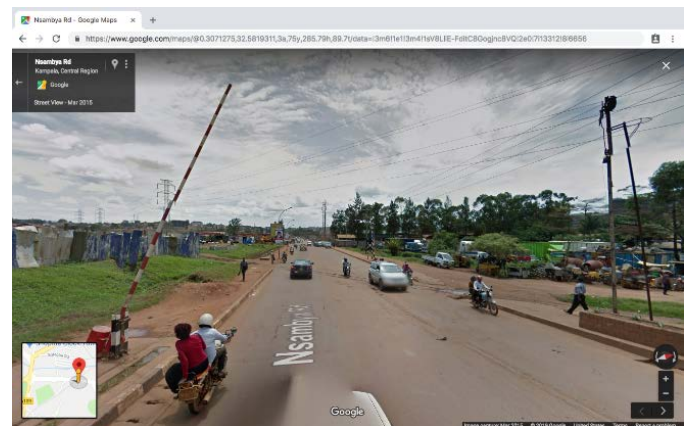
## Grade separated



## Signage / markings / texturing



## Barrier arm / fencing / pedestrian barrier





## Glossary

**aesthetic** – concerned with beauty or the appreciation of beauty<sup>1</sup>

**asphalt** – a mixture of dark bituminous pitch with sand or gravel, used for surfacing roads<sup>1</sup>

**awning** – a roof-like covering or canvas of similar material, used as a shelter from sun, rain, etc.<sup>1</sup>

**barrier arm** – a pole that pivots up and down to block vehicular access at a controlled point

**bike lane** – a lane, typically on or alongside a road, that is reserved for cyclists, or on which cyclists have priority over other traffic<sup>1</sup>

**bollard** – a short post used to prevent traffic from entering an area<sup>1</sup>

**breezeblocks** – a lightweight building brick made from small cinders mixed with sand and cement<sup>1</sup> - sometimes with a hollow, decorative pattern

**brick** – a small rectangular block typically made of fired or sun-dried clay<sup>1</sup>

**bus bulb** – curb that extends outward onto the road for a bus stop

**bus lane** – a traffic lane restricted to use by buses (and sometimes other designated vehicles), either all day or at certain times<sup>1</sup>

**bus shelter** – a shelter at a bus stop, providing protection from the weather for people waiting for a bus<sup>1</sup>

**centerline** – a real or imaginary line through the center of something<sup>1</sup>

**chicane** – design features placed on road that create a sharp bend to slow traffic

**cobble** – small round stone used to cover road surfaces<sup>1</sup>

**concrete** – a building material made from a mixture of broken stone or gravel, sand, cement, and water, which can be spread or poured into moulds and forms a mass resembling stone on hardening<sup>1</sup>

**cone** – a cone-shaped warning sign placed on the roadway, etc., and used in (temporary) road traffic control<sup>1</sup>

**crosswalk** – a pedestrian crossing<sup>1</sup>

**cul-de-sac** – a street, lane, or passage closed at one end, a blind alley; a place having no outlet except by the entrance<sup>1</sup>

**curb** – a margin of stone or other strong material protecting the outer edge of a sidewalk and separating it from the roadway<sup>1</sup>

**directional** – indicating the direction in which something is moving<sup>1</sup>

**false façade** – a fake exterior wall on the front of a building that is not representative of what is lies behind it

**grade** – amount of inclination to the horizontal<sup>1</sup>

**gravel** – a mixture of gravel with coarse sand, used for paths and roads<sup>1</sup>

**greenspace** – an area of grass or other vegetation<sup>1</sup>

**heavy-rail track** – mode of transit service operating on a railway with the capacity for a heavy volume of traffic<sup>2</sup>



- ironwork** – work done in iron; material or articles made of iron; iron fittings<sup>1</sup>
- intersection** – a point at which two or more things intersect, especially a road junction<sup>1</sup>
- landscaped** – laid out with plants, ornamental features<sup>1</sup>
- lane choker** – curb that extends outward onto the road to slow down traffic
- lane marking** – painted lines on the road that separate traffic lanes
- light rail** – mode of transit service operating short passenger rail cars on fixed rails<sup>2</sup>
- masonry** – stonework, brickwork<sup>1</sup>
- median lane** – area that separates opposing lanes of traffic
- midblock** – located somewhere in the middle of the block but not at an intersection
- overpass** – a footbridge<sup>1</sup>
- planter** – a pot, tub, or container for growing or displaying plants<sup>1</sup>
- pothole** – a depression or hollow forming a defect in the surface of a road, track, etc.<sup>1</sup>
- recreation zone** – area that is designated (temporarily or permanently) for recreational purposes
- roundabout** – a junction of several roads consisting of a central (usually circular) island around which traffic moves in one direction<sup>1</sup>
- sanction** – official permission or approval<sup>1</sup>
- sapling** – a young tree<sup>1</sup>
- school zone** – area that is near a school where there will be younger pedestrians on the roads and sidewalks at certain hours
- setback** – the distance by which a building or part of a building is set back from the property line<sup>1</sup>
- sharrow** – a road marking in the form of two inverted V-shapes above a bicycle, indicated which part of a road should be used by cyclists when the roadway is shared with motor vehicles<sup>1</sup>
- speed bump** – ridge set on a road surface to control the speed of vehicles<sup>1</sup>
- streetcar** – a passenger vehicle, now typically powered by electricity conveyed by overhead power lines, running on rails set in a public road; a tram<sup>1</sup>
- tag** – a nickname or other identifying mark written as the signature of a graffiti artist<sup>1</sup>
- underpass** – a section of road providing passage beneath another road or railway<sup>1</sup>
- vegetation** – plants or plant life collectively<sup>1</sup>

<sup>1</sup> Oxford English Dictionary

<sup>2</sup> American Public Transit Association – Fact Book Glossary