DRAFT

SIDEWALK WIDTH ANALYSIS

NYC Department of City Planning Transportation Division

December 2021

NYC PLANNING

Goal

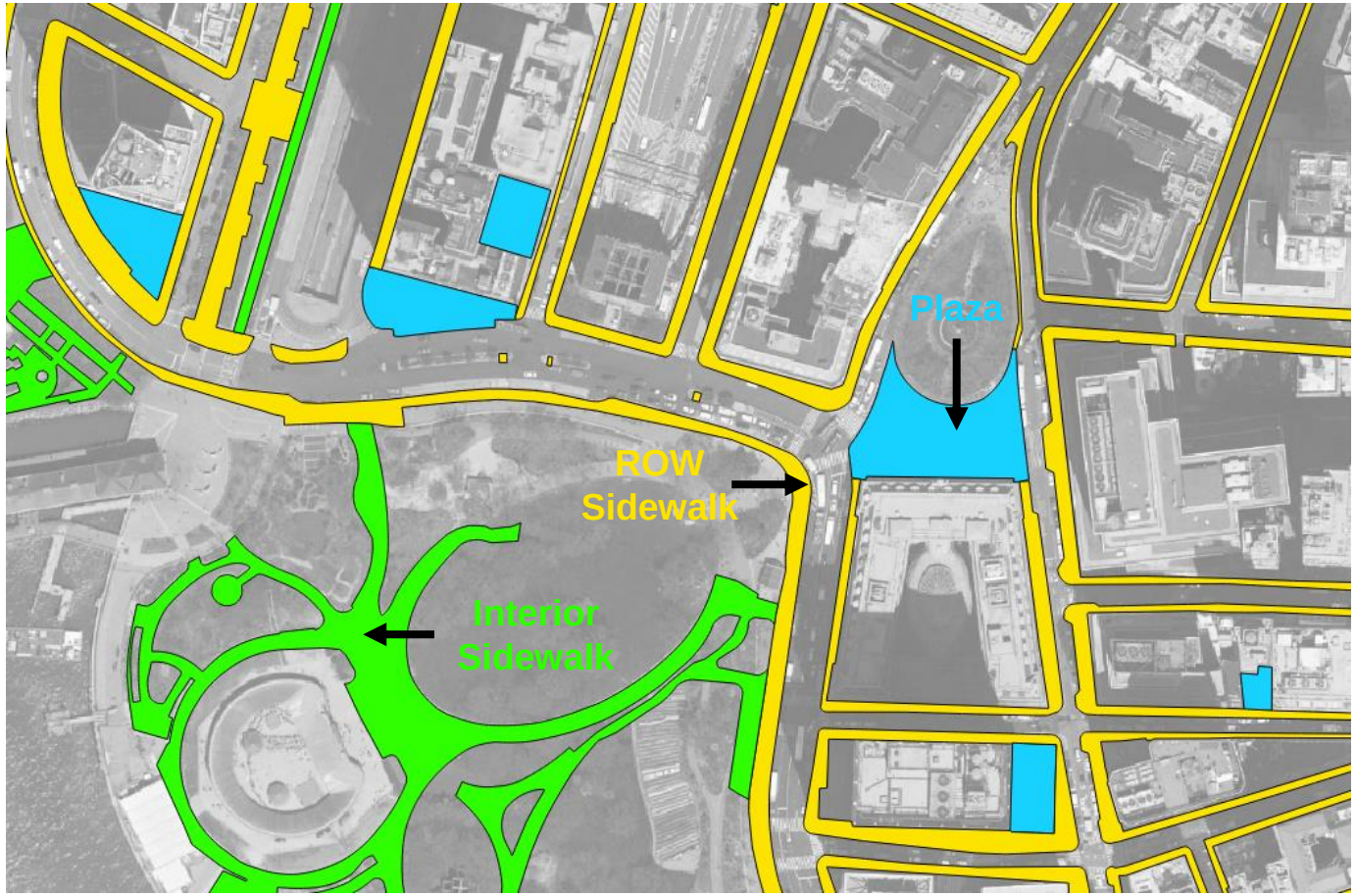
- With the outbreak of COVID-19 and the need for social distancing, DCP became interested in creating a sidewalk shapefile measuring the width and length of sidewalks to help understand the possible human capacity that sidewalks could safely accommodate while following social distancing guidelines. The output shapefile would be helpful for DCP and DOT planners as they evaluate and prioritize different streets for COVID-19 response projects like street closures to vehicular traffic, sidewalk bump outs, and strategy for helping retail/restaurant businesses operate safely.

Methodology – Blockface

- Data Source:
  - Planimetrics: https://github.com/CityOfNewYork/nyc-planimetrics/blob/master/Capture_Rules.md
- The sidewalk widths are measured for each blockface, which is the Edge of Pavement layer from planimetrics.

Methodology – Sidewalk Area

- Data Source:
  - Planimetrics: https://github.com/CityOfNewYork/nyc-planimetrics/blob/master/Capture_Rules.md
- The sidewalk area to be measured is a combination of ROW Sidewalk, Interior Sidewalk and Plaza data from the planimetrics.

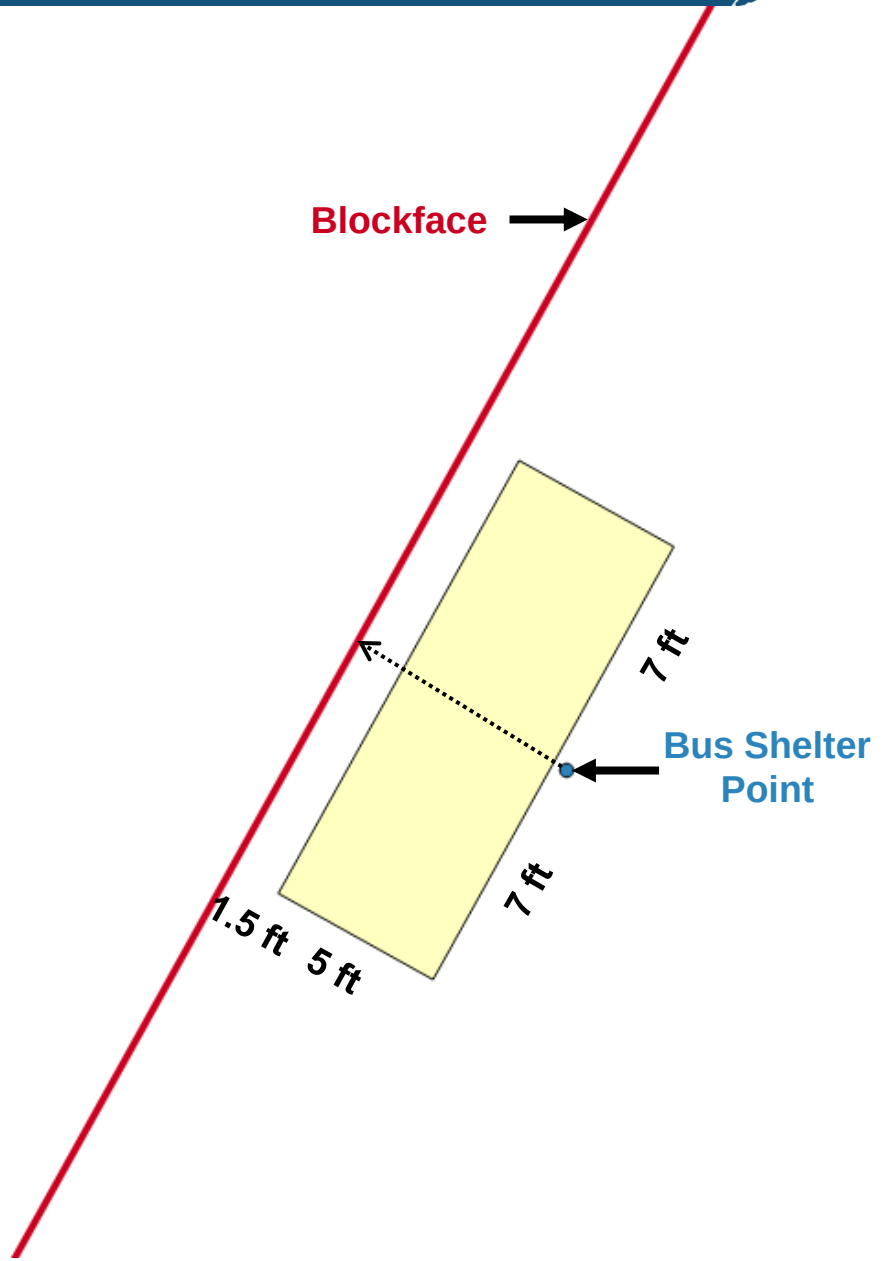


Methodology – Impediment

- Data Source:
  - Planimetrics (Railroad Structure): https://github.com/CityOfNewYork/nyc-planimetrics/blob/master/Capture_Rules.md
  - CityBench: https://data.cityofnewyork.us/Transportation/City-Bench-Locations/8d5p-rji6
  - WalkNYC: https://data.cityofnewyork.us/Transportation/WalkNYC-Sign-Locations/q49j-2bun
  - Meter: https://data.cityofnewyork.us/Transportation/Parking-Meters-GPS-Coordinates-and-Status/5jsj-cq4s
  - Bus Shelter: https://data.cityofnewyork.us/Transportation/Bus-Stop-Shelters/qafz-7myz
  - LinkNYC: https://data.cityofnewyork.us/Social-Services/LinkNYC-Locations-Shapefile/7b32-6xny
  - Pay Phone: https://data.cityofnewyork.us/Social-Services/Public-Pay-Telephone-Locations-Map/sq67-3hcy
  - News Stand: https://data.cityofnewyork.us/Transportation/News-Stands/kfum-nzw3
  - Hydrant: https://data.cityofnewyork.us/Environment/Hydrants-of-the-City-of-New-York/6pui-xhxz
  - Litter Bin: https://data.cityofnewyork.us/dataset/DSNY-Litter-Basket-Inventory/uhim-nea2
  - Recycle Bin: https://data.cityofnewyork.us/Environment/Public-Recycling-Bins/sxx4-xhzg
  - Tree (On the Curb): https://data.cityofnewyork.us/Environment/2015-Street-Tree-Census-Tree-Data/pi5s-9p35

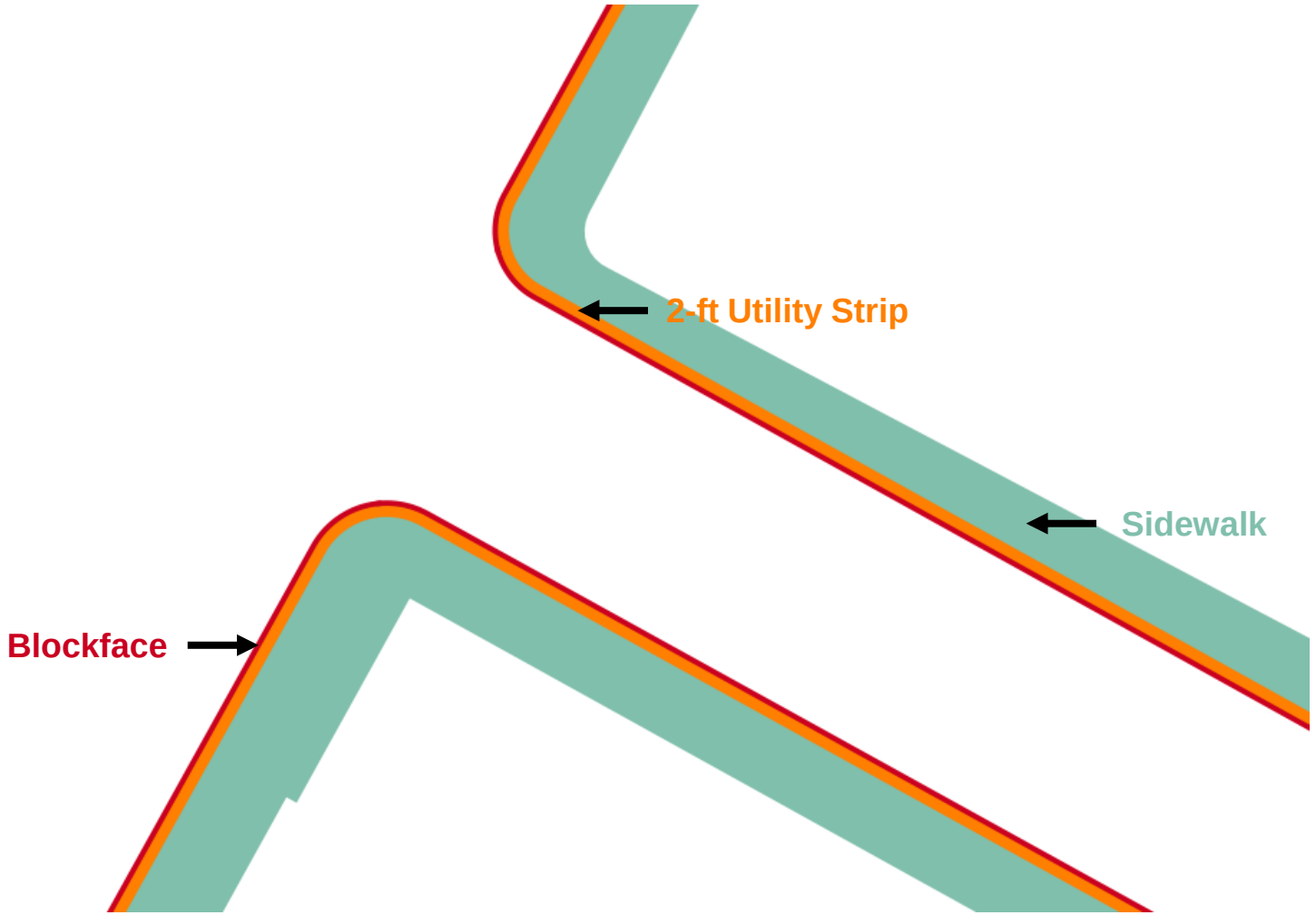
Methodology – Impediment

- Snap the point impediment data to the blockface and then create polygons based on the following assumptions:
  - CityBench: 1-foot buffer from curb; 2-foot wide; 8-foot long
  - WalkNYC: 1-foot buffer from curb; 4-foot wide; 1-foot long
  - Meter: 1-foot buffer from curb; 1-foot wide; 1-foot long
  - Bus Shelter: 1.5-foot buffer from curb; 5-foot wide; 14-foot long
  - LinkNYC: 1-foot buffer from curb; 4-foot wide; 1-foot long
  - Pay Phone: 1-foot buffer from curb; 4-foot wide; 4-foot long
  - News Stand: 1-foot buffer from curb; 5-foot wide; 10-foot long
  - Hydrant: 1-foot buffer from curb; 1.5-foot wide; 1.5-foot long
  - Litter Bin: 1-foot buffer from curb; 2-foot wide; 2-foot long
  - Recycle Bin: 1-foot buffer from curb; 2-foot wide; 2-foot long
  - Tree (On the Curb):1-foot buffer from curb; 5-foot wide; 5-foot long



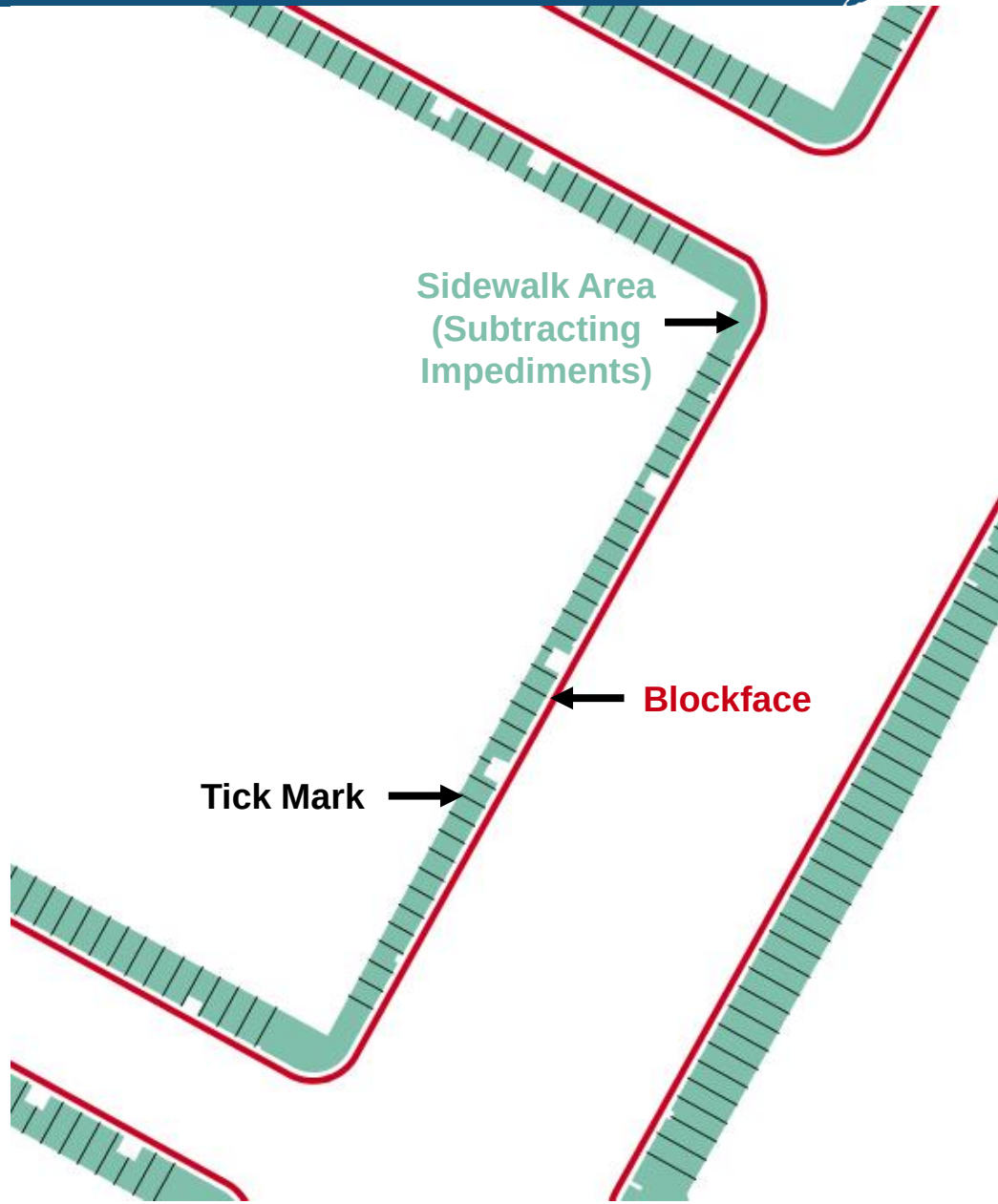
Methodology – Impediment

- Utility Strip:
  - 2-feet buffer from the pavement edge to capture other impediments such as signage, light pole, etc.



Methodology – Measurement

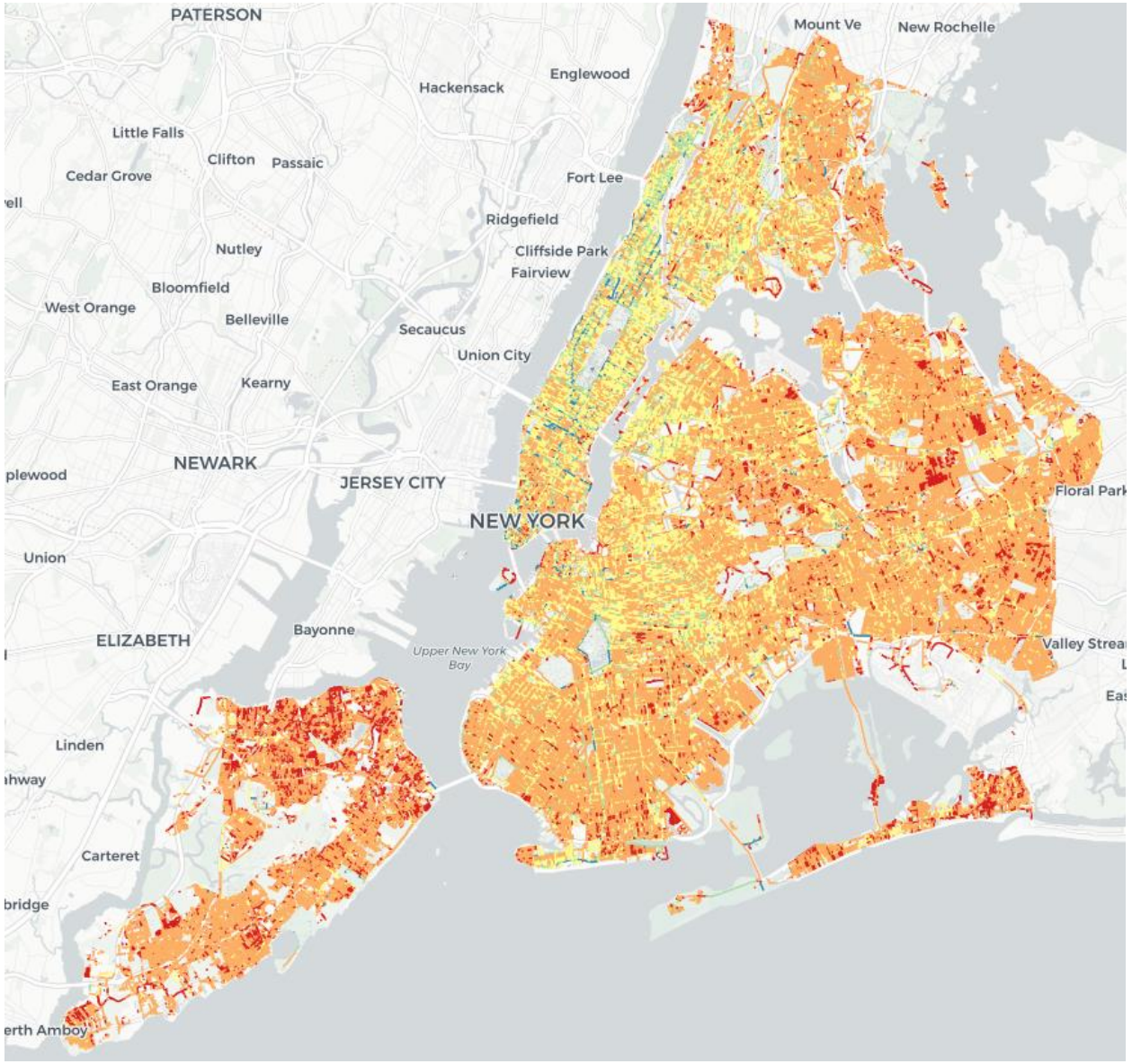
- Create 50-foot-long tick marks for every 5 feet along each blockface (excluding the first and last 20 feet)
- Find the portions of tick marks intersecting with the sidewalk areas (subtracting impediments)
- Measure the lengths of final tick marks as effective sidewalk widths
- Calculate the min, max, and median effective sidewalk widths for each blockface



Limitations

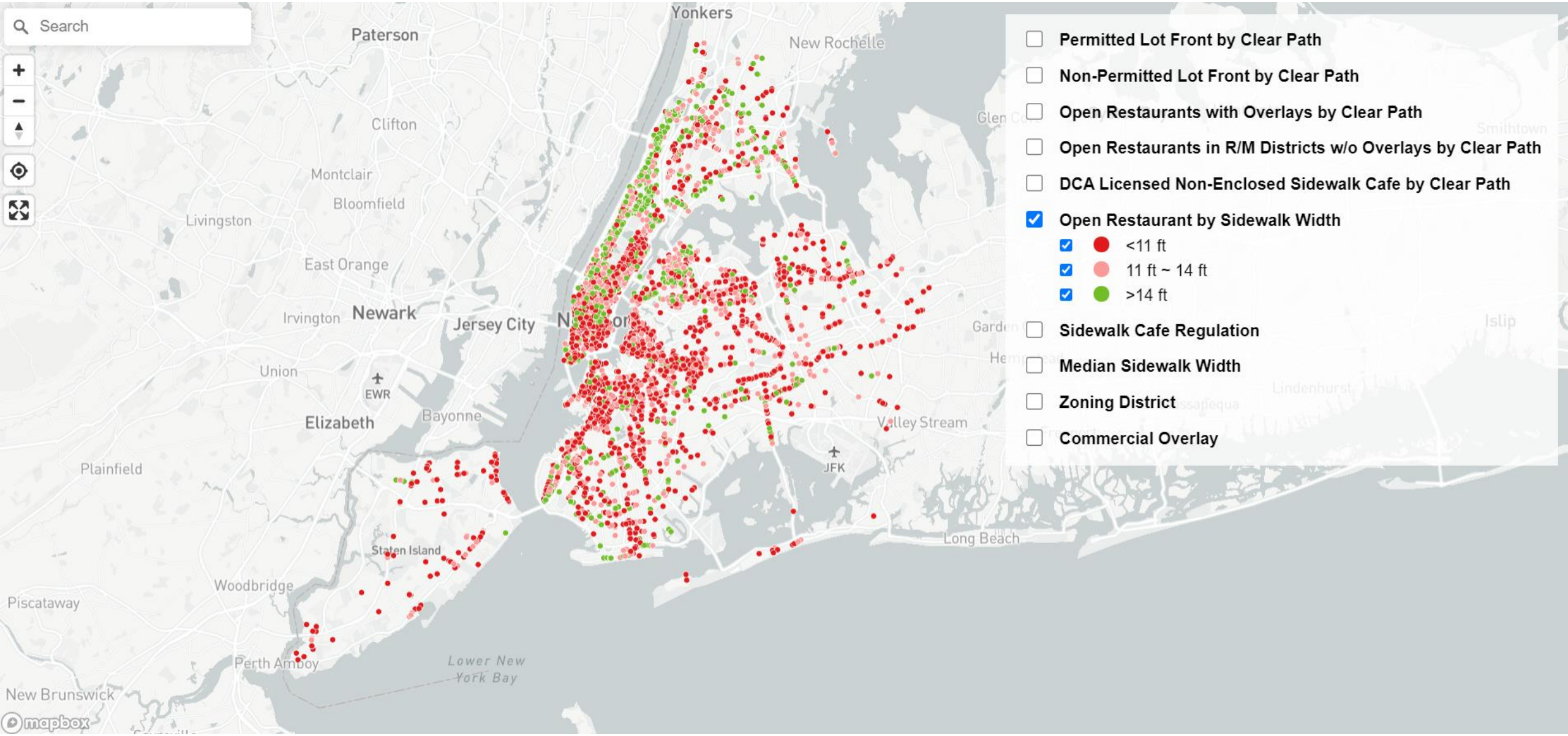
- Sidewalk data is based on 2014 imagery and may be out of date or inaccurate for certain locations.
- Impediments may not be accurate as they are derived from point data and created based on general assumptions.
- Grass/shrub was not captured but can be potentially incorporated with the land cover data derived from LiDAR (https://data.cityofnewyork.us/Environment/Land-Cover-Raster-Data-2017-6in-Resolution/he6d-2qns).
- About 2% of the blockfaces longer than 40 feet cannot be measured due to geoprocessing errors.

Product



Interactive Map: https://nycplanning.carto.com/u/dcpbuilder/builder/8cb4fdfa-75f0-4686-b91c-835cc6613ed2/embed
Python Script: https://github.com/NYCPlanning/td-covid19/blob/master/streetclosure/sidewalk.py
Data Download: https://nycdcp.box.com/s/l8vwebigpevut2p3wp66rcn2iigbhsco

Use Cases



https://nycplanning.github.io/td-covid19/sidewalkcafe/clearpath#10.45/40.7153/-73.8799

Other Resources

- **Sidewalk Widths NYC:**
  - https://www.sidewalkwidths.nyc/#13/40.71563/-74.01512
  - https://github.com/meliharvey/sidewalkwidths-nyc