Project Sidewalk: Characterizing Physical World Accessibility at Scale

WalkHackNight | February 8, 2017

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HCIL

MAKEABILITY LAB

Project Sidewalk was here in 2015!

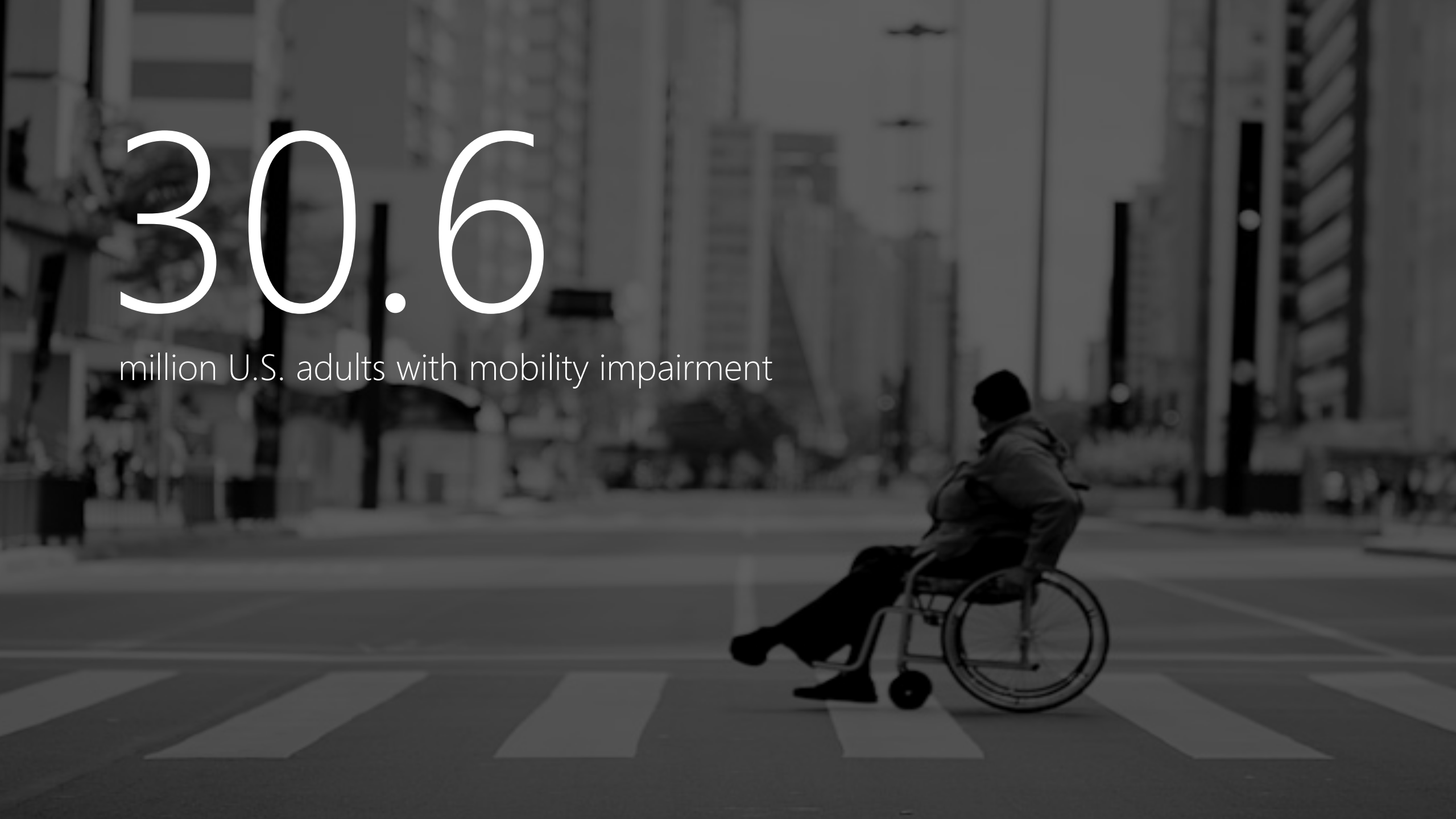
Kotaro Hara

Graduated in 2016!

Manaswi Saha

Me!

Quick Recap


30.6
million U.S. adults with mobility impairment

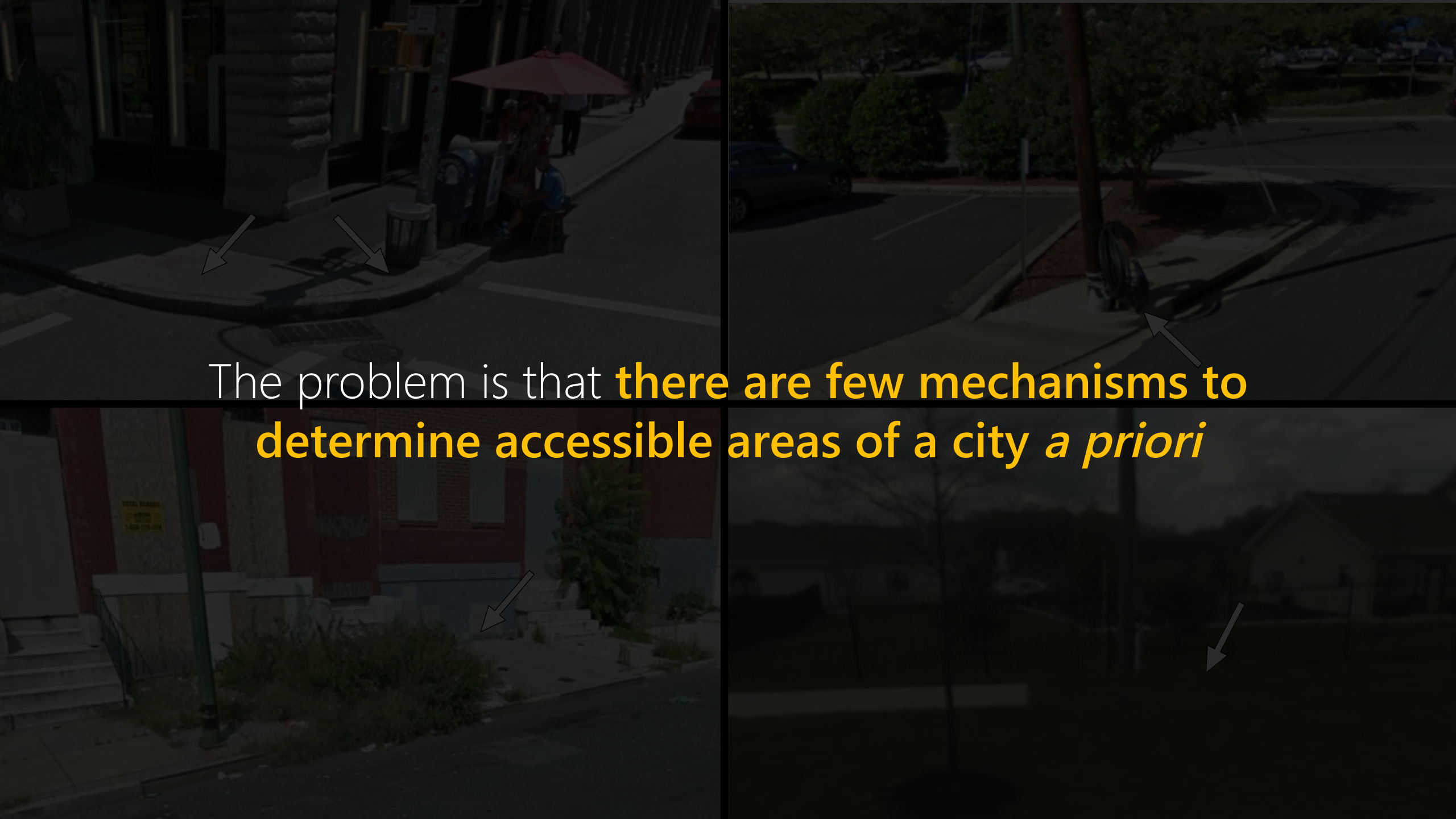
15.2
million use an assistive aid

Missing Curb Ramp

Obstacle

Surface Problem

No Sidewalk

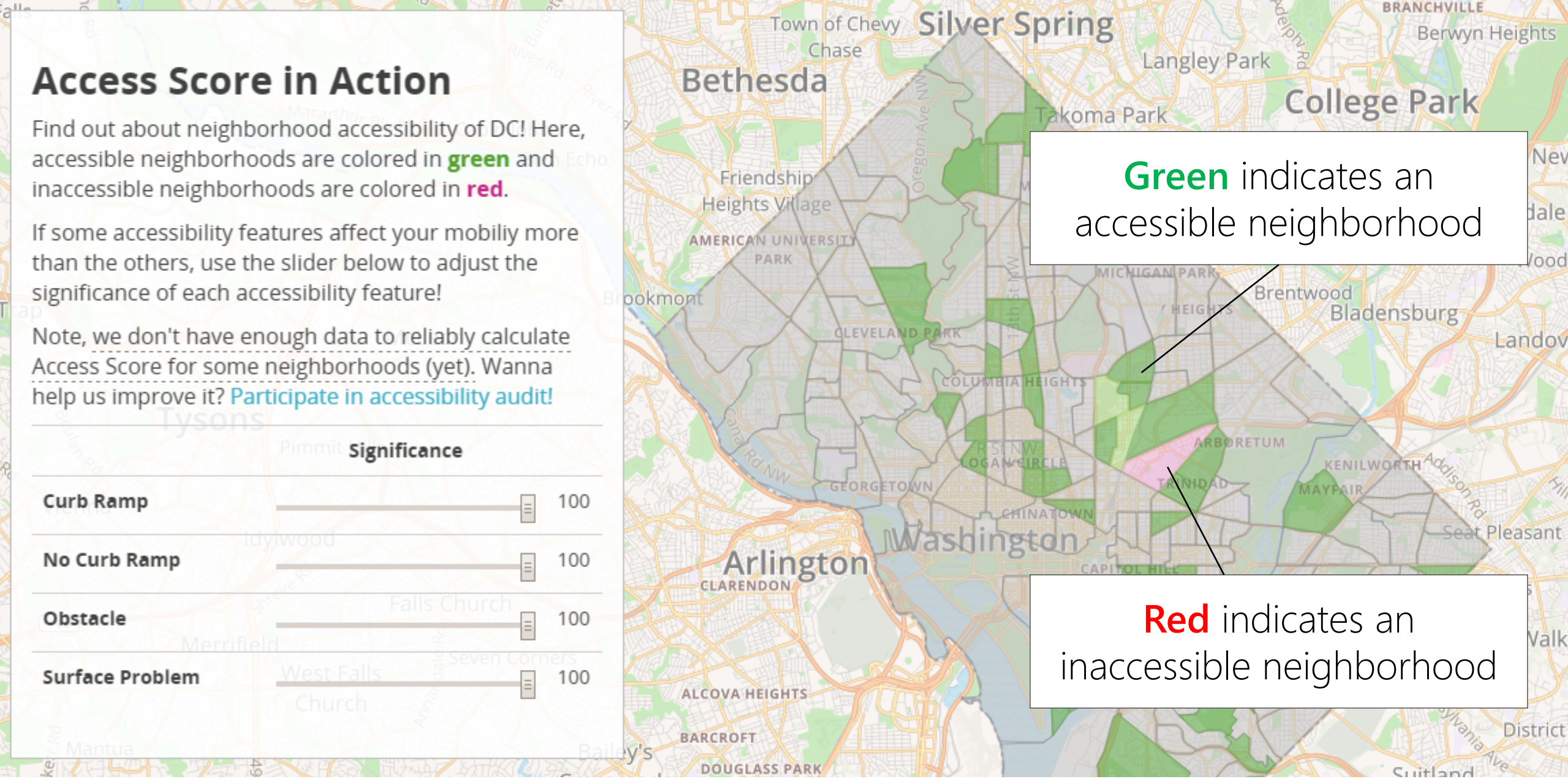


The problem is that **there are few mechanisms to determine accessible areas of a city** ***a priori***

cf. Nuernberger, 2008; Thapar *et al.*, 2004

OUR VISION

Design systems that transform the way accessibility information is **collected** and **used**.



Proof-of-Concept Application of Accessibility Data

Accessibility-aware Navigation

THESE APPLICATIONS HAVE

HUGE DATA

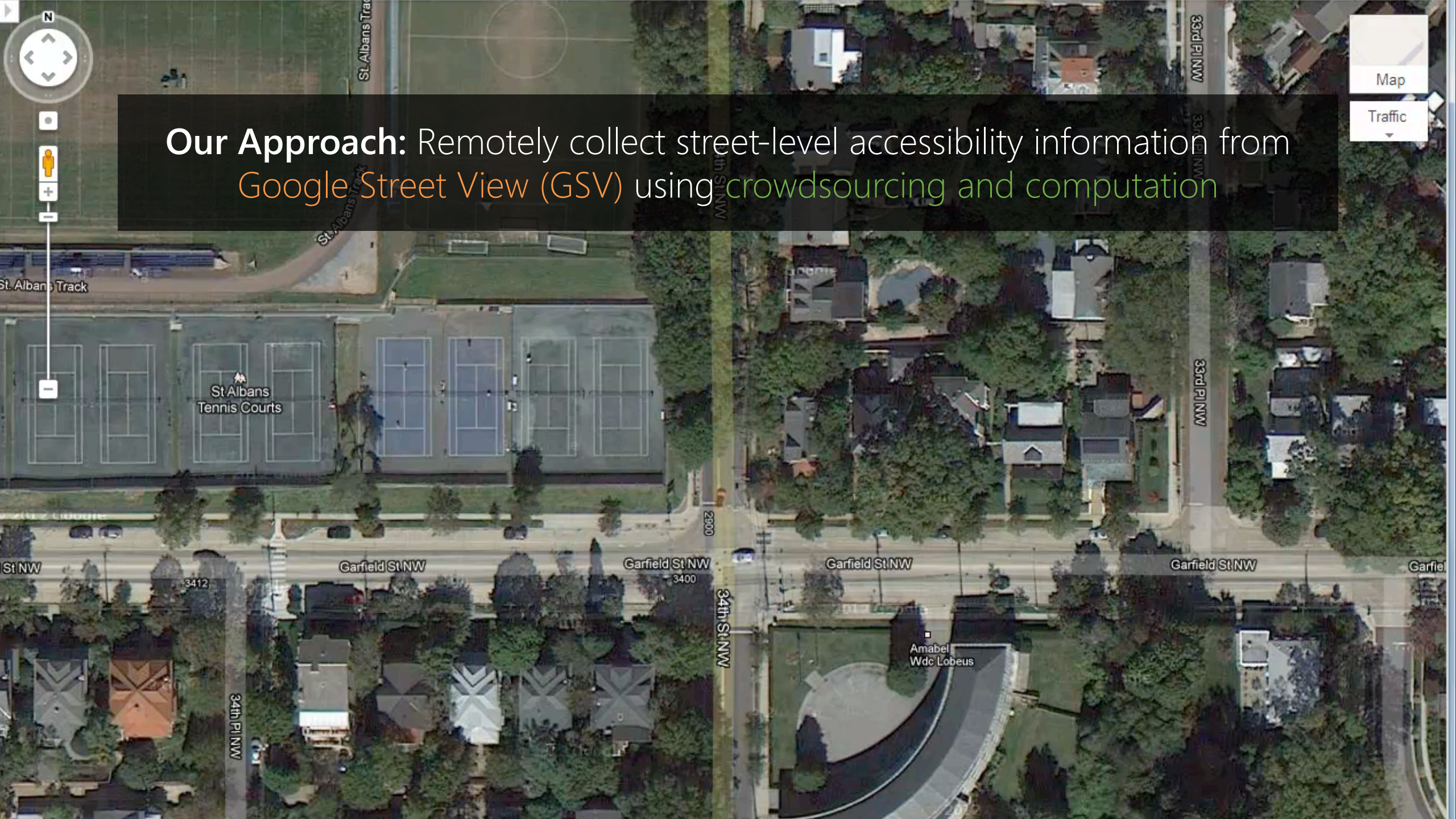
REQUIREMENTS

THESE APPLICATIONS HAVE

HUGE DATA

REQUIREMENTS

Where is this data going to come from?


Our Approach: Remotely collect street-level accessibility information from Google Street View (GSV) using crowdsourcing and computation
Map
Traffic
St. Albans Track
St Albans Tennis Courts
Garfield St NW
33rd Pl NW
34th St NW
34th Pl NW
Amabel Wdc Lobeus

Incomplete Sidewalks
Physical Obstacles
Surface Problems
No Curb Ramps
Stairs/Businesses
HESS
DO NOT ENTER

Developments since 2015

1

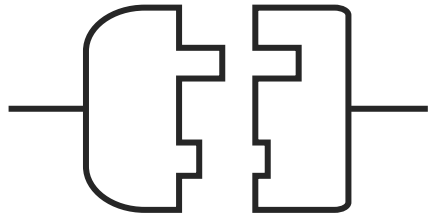
PROJECT
SIDEWALK

New Branding!

2

http://sidewalk.umiacs.umd.edu

Volunteered Accessibility Data Collection



`GET /v1/access/*`

Accessibility Data Serving APIs

Chrome File Edit View History Bookmarks People Window Help Aug 14 3:44 PM

Project Sidewalk

Kotaro Hara

localhost:9000

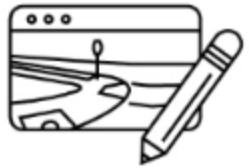
Apps Gmail Calendar Google Maps Drive Scholar YouTube Chase GitHub Makeability Proxy SVG Crowbar Other Bookmarks

Project Sidewalk beta

Demo FAQ **Start Auditing** Sign in

Help us make sidewalks more accessible for everyone

Participate



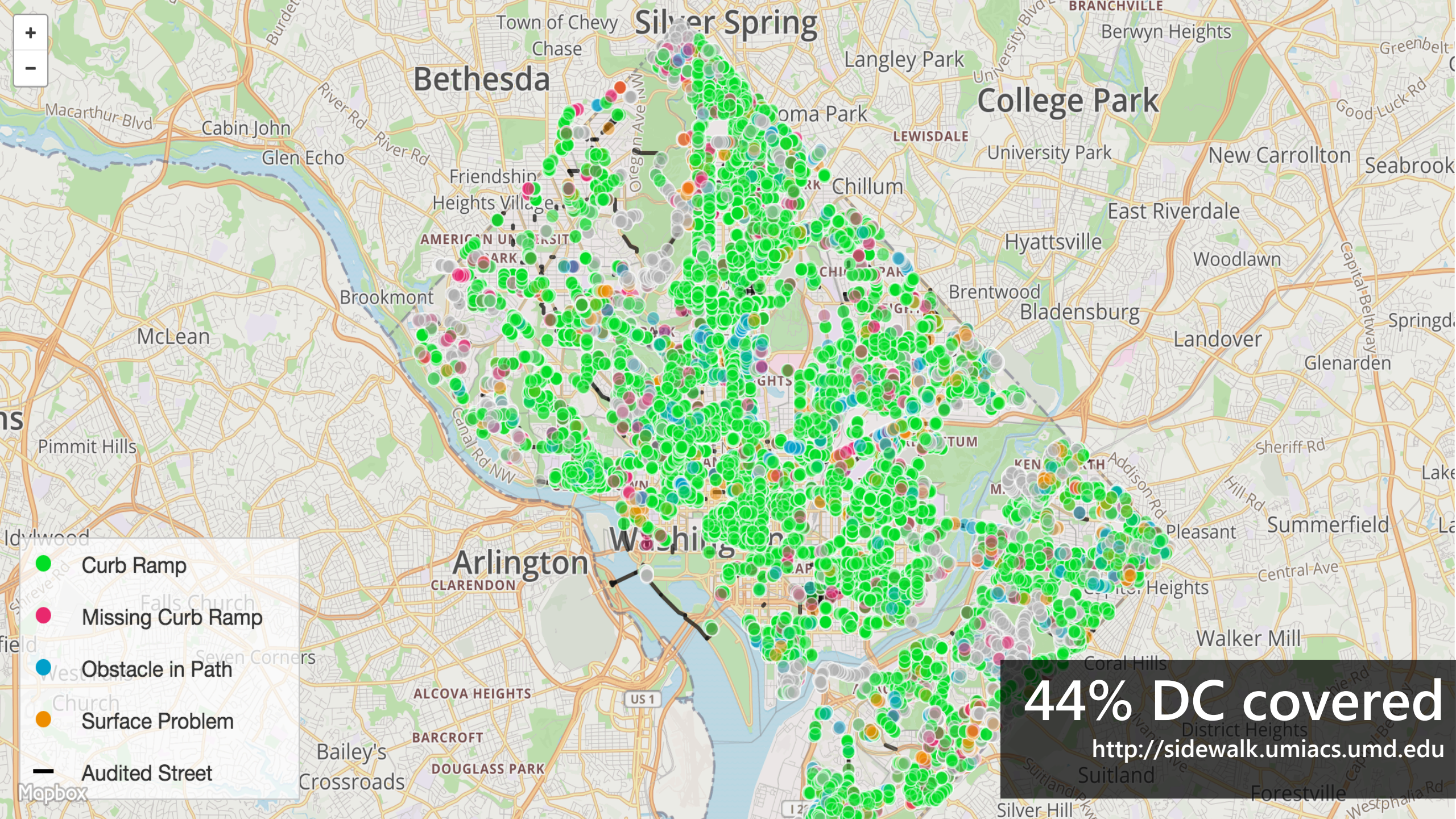
Use our tool to label accessibility attributes in

The collected data is stored on our server and

The data will be used to enable new accessibility-

3 Deployed since Fall 2016!

>64000 labels collected
22572 problems points identified
44% of DC covered ~ **463** miles!
475 users contributed, 277 registered users


Curb Ramp
Missing Curb Ramp
Obstacle in Path
Surface Problem
Audited Street
44% DC covered
http://sidewalk.umiacs.umd.edu
Mapbox

Future Work

Cover 100% of DC

Build *amazing* accessibility-aware tools

Integrate automated methods for labeling data (psst..remember Tohme?)

Continue to make the tool AWESOME! ☺

PROJECT
SIDEWALK

http://sidewalk.umiacs.umd.edu

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github.com/ProjectSidewalk

Thank you!

Feel free to contact us or contribute!

Contact Us

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