



# **Sidewalk Inventories: A Tool for Equity and ADA Compliance**

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# **Sidewalk Inventories: A Tool for Equity and ADA Compliance**

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# Background

- Sidewalk networks are important for economy, environment, and health
- Few reports describe sidewalk inventory methods, uses, or costs
- Current research focuses on available technology



Fig.1: Cloud Point Go, 10 Ways to Use GIS for Sidewalk and ADA Compliance, 2016

# Research Questions

- What are the best practices for conducting a sidewalk inventory?
- Why are inventories conducted and how are they used?
- What methods produce the most complete and accurate inventories?
- What are the costs of inventories?

# Definitions

- **Basic Inventory:** Identify sidewalk network segments (present or absent)
- **Condition Assessment:** Identify sidewalks and quality of each segment
- **Complete Sidewalk Inventory:** Identify sidewalks with field inspection of each segment for quality



Fig.2: SDOT, Sidewalk Condition Assessment Report, 2017

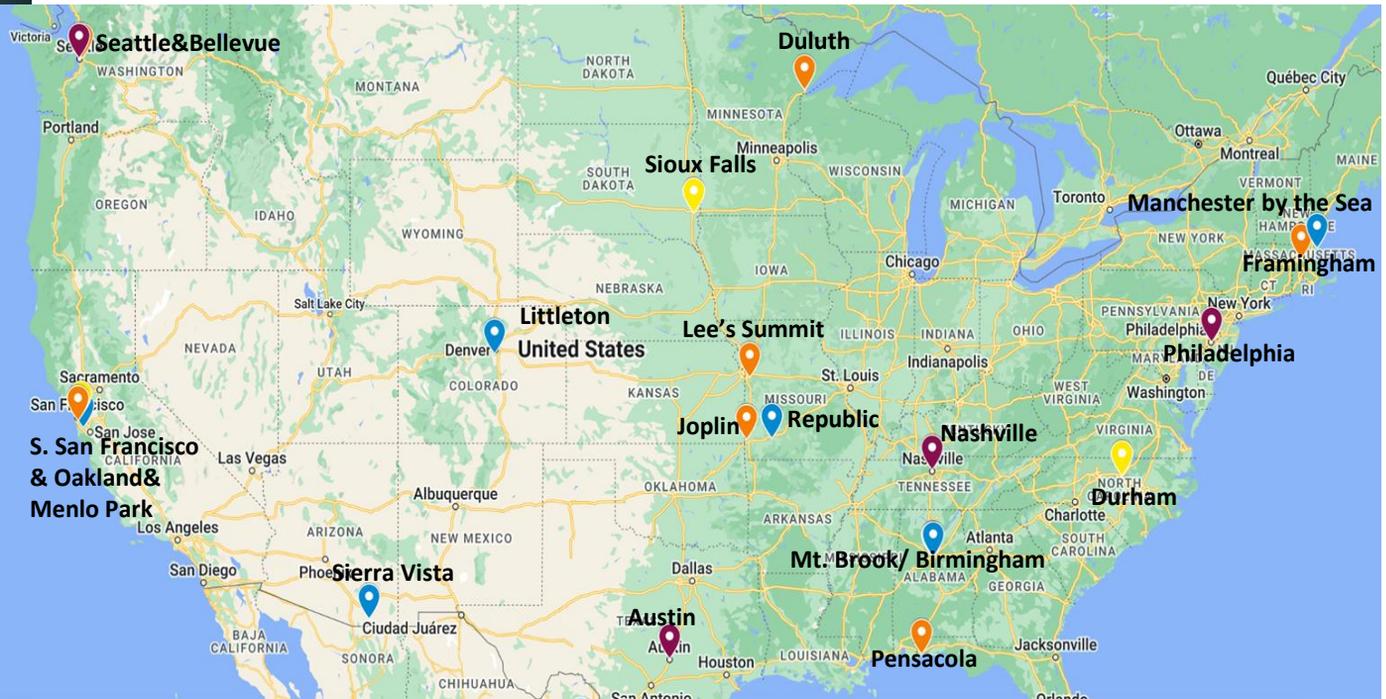
# Methods

- Literature review
- Internet search for sidewalk inventories
- Selection of study cities from among 120 inventories identified
- Key informant interviews with public works departments in 21 cities



Fig.3: [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Ryan Snyder

# Cities Selected for Sidewalk Inventory Review (n=21)



Cities were selected for diversity in geography and population size

# Sidewalk Inventory Methods



Fig.4: Geo-matching, Sidewalks and Walkways Survey with Mobile Lidar

Mobile Lidar

App-based collection



Fig. 5, Champaign County Regional Planning Commission, Sidewalk Network Inventory and Assessment for the Champaign-Urbana Urbanized Area, 2016



Fig.6: Urbanist, Map of the Week: Lack of Sidewalks in Seattle, 2015

Satellite/GIS

Map Based



Fig.7: Global Designing Cities Initiative,

Measuring the Streets  
Paper-based  
Collection

# Sidewalk Inventory Practices

	Accuracy	Labor Intensity	Time Requirement
Field observers walk each sidewalk segment with tablets	***	***	***
Field observers using Segway or vehicle with Lidar	***	**	**
GIS/satellite data plus field observers	**	**	**
GIS/satellite data without field observers	*	*	*
Sample of existing sidewalk network data	*	*	*

# Value of Sidewalk Inventories

Inventories critical for equitable sidewalk networks - construction and maintenance

- Replaces reliance on 311 calls
- Necessary to identify gaps, ADA compliance
- Facilitates active transport to access services



Fig.8: [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden

# Sidewalk Inventory Costs

- Inventory cost \$86 - \$826 per mile of road in 6 cities that provided data
- Inventory costs usually do not exceed 1% of budget for department responsible for sidewalks
- Costs vary widely based on: inventory type, miles of sidewalk covered, technology, and labor used



Fig.9: [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden

# ADA Compliance and Inventories

While the ADA is the primary impetus for conducting inventories, need local political will

- Concern over ADA lawsuits is a key motivation
- Local priorities determined by municipal leaders



Fig.10: [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden

# Next Steps

- Develop a practical guide to help advocates and city agencies conduct sidewalk inventories
- Develop better estimates of costs and benefits for sidewalk inventories
- Document incremental health benefits obtained for each additional investment in sidewalk construction and repair



Fig. 11, Champaign County Regional Planning Commission, Sidewalk Network Inventory and Assessment for the Champaign-Urbana Urbanized Area, 2016

# Sidewalk Inventories: A Tool for Equity and ADA Compliance

Preprint:

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4100935](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4100935)

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Fig.12: [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden

# Citations

- Fig.1: CloudPoint Geospatial. Photo of Worker Measuring. April 18, 2016. <https://www.cloudpointgeo.com/blog/4/2016/18/using-gis-for-sidewalk-inventory-and-ada-compliance>
- Fig.2: Seattle Department of Transportation. Photo of Sidewalk Condition Assessment Team. 2017. [https://www.seattle.gov/documents/Departments/SDOT/About/SidewalkAssessExecSummary\\_4\\_6\\_2018R5.pdf](https://www.seattle.gov/documents/Departments/SDOT/About/SidewalkAssessExecSummary_4_6_2018R5.pdf)
- Fig.3: Snyder, Ryan. Photo of Sidewalk and Street. [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Ryan Snyder
- Fig.4: Geomatching. Photo of man riding segway with Lidar. 2015. <https://geomatching.com/content/sidewalks-walkways-survey-with-mobile-lidar>
- Fig.5: Champaign County Regional Planning Commission. Photo of sidewalk inventory being conducted. 2016. [https://illinois.edu/assets/docs/ADA\\_Transition\\_Plan\\_Supplement\\_2018-12-12\\_Appendix-D.pdf](https://illinois.edu/assets/docs/ADA_Transition_Plan_Supplement_2018-12-12_Appendix-D.pdf)
- Fig.6: Urbanist. Photo of Seattle Sidewalk GIS Map. 2015. <https://www.theurbanist.org/2015/08/18/map-of-the-week-lack-of-sidewalks-in-seattle/>
- Fig.7: Global Designing Cities Initiative. Photo of street measurements being taken. <https://globaldesigningcities.org/publication/global-street-design-guide/measuring-evaluating-streets/measuring-the-streets/>
- Fig.8: Burden, Dan. Photo of pedestrians. [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden
- Fig.9: Burden, Dan. Photo of older pedestrians. [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden
- Fig.10: Burden, Dan. Photo wheelchair using pedestrians. [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden
- Fig.11: Champaign County Regional Planning Commission. Photo of sidewalk inventory being conducted. 2016. [https://illinois.edu/assets/docs/ADA\\_Transition\\_Plan\\_Supplement\\_2018-12-12\\_Appendix-D.pdf](https://illinois.edu/assets/docs/ADA_Transition_Plan_Supplement_2018-12-12_Appendix-D.pdf)
- Fig.12: Burden, Dan. Photo of pedestrians. [www.pedbikeimages.com/](http://www.pedbikeimages.com/) Dan Burden

# CITY OF BIRMINGHAM SIDEWALK INVENTORY EFFORTS AND CHALLENGES

July 2023



# Why Sidewalk Inventories Are Helpful

## Big City Infrastructure

- Approx. 1,000 miles of sidewalks
- \$200 Million in Deferred Maintenance

## Smaller City Dynamics

- Birmingham Pop ca. 1960: Approx 350,000
- Birmingham Pop ca. 2023: Approx 200,000
- FY24 Sidewalk Funding: \$250,000
- Private or Public Responsibility?

## Help Is Needed

- Inventory
- Action Plan
- Commitment to Deliver the Plan



# Past Efforts

- Pre-2015:
  - Sidewalk repairs prioritized by complaints or field inspection
- 2015: Sidewalk Master Plan
  - Consultant walked each street
  - Blocks given 'good' and 'poor' ratings
  - Priority Corridors per 23 Communities
  - Short-, Medium-, and Long-Term Projects

# Challenges

- Inadequate Funding to Implement
- Slow Project Development
- No One to Manage Data
- Labor Intensive Inventory Process
- Infrastructure is Dynamic
- Liability Concerns



# Going Forward

- Continued Use of Old Inventory Methods
- Creative Project Deliveries
- New Asset Management Techniques and Technology



# OpenSidewalks part of the TDEI

Presented at

## America Walks – PBIC Sidewalk Inventory Webinar

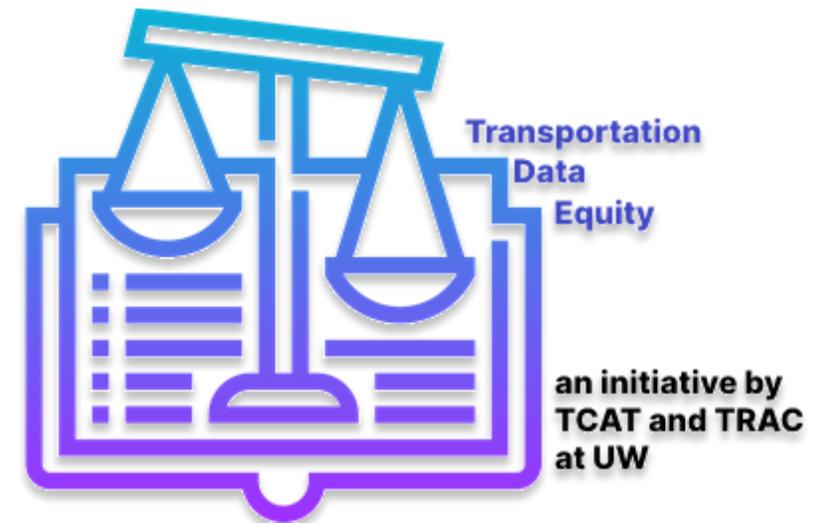
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University of Washington



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The logo for ITS4US features the number '4' in a large, blue, stylized font. A dashed yellow line with a red location pin at the top and bottom ends runs through the '4'. The rest of the text 'ITS' and 'US' is in a dark grey, bold, sans-serif font.

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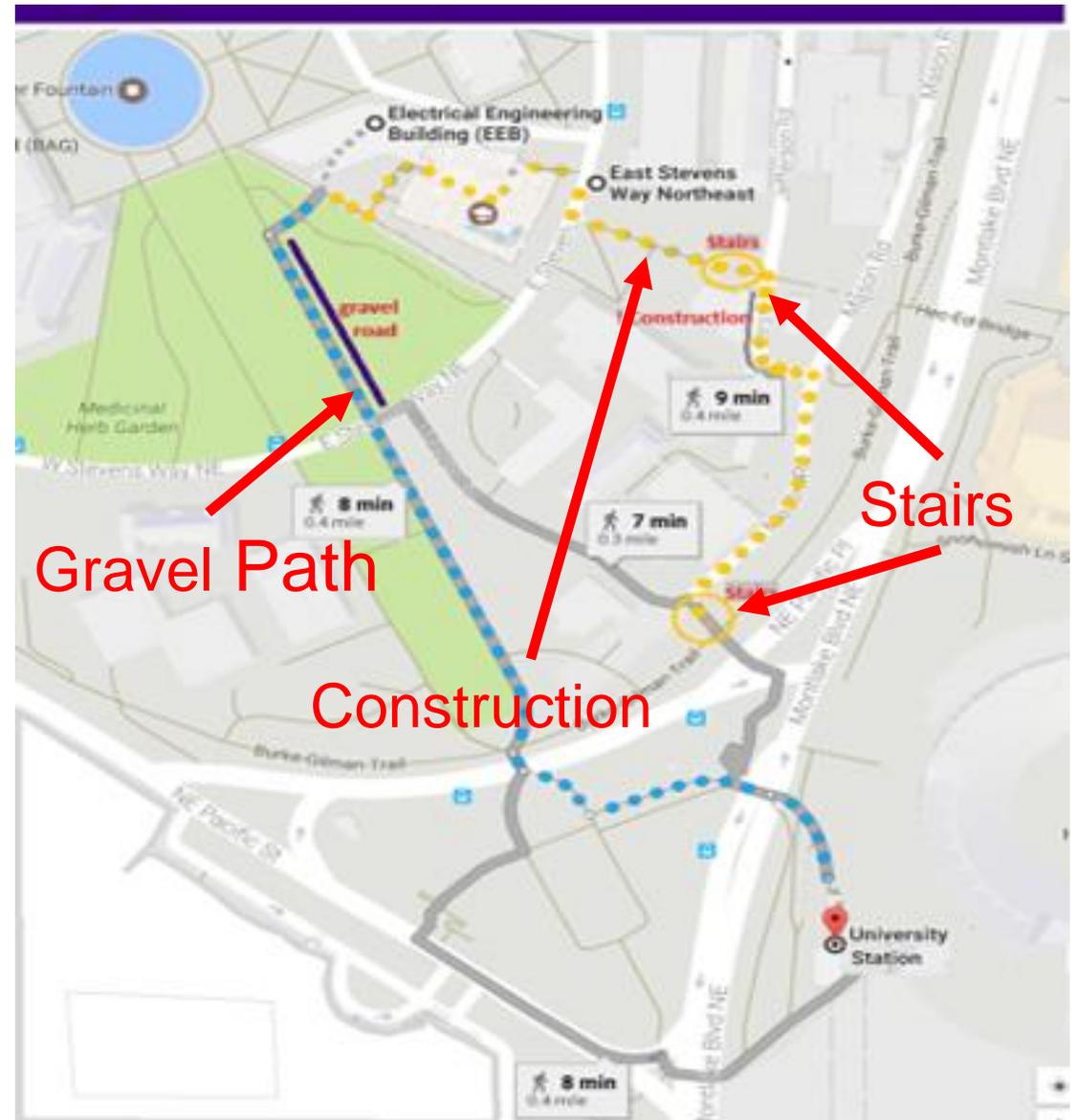
<https://its.dot.gov/its4us/>

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# Current electronic maps lack key pedestrian path features

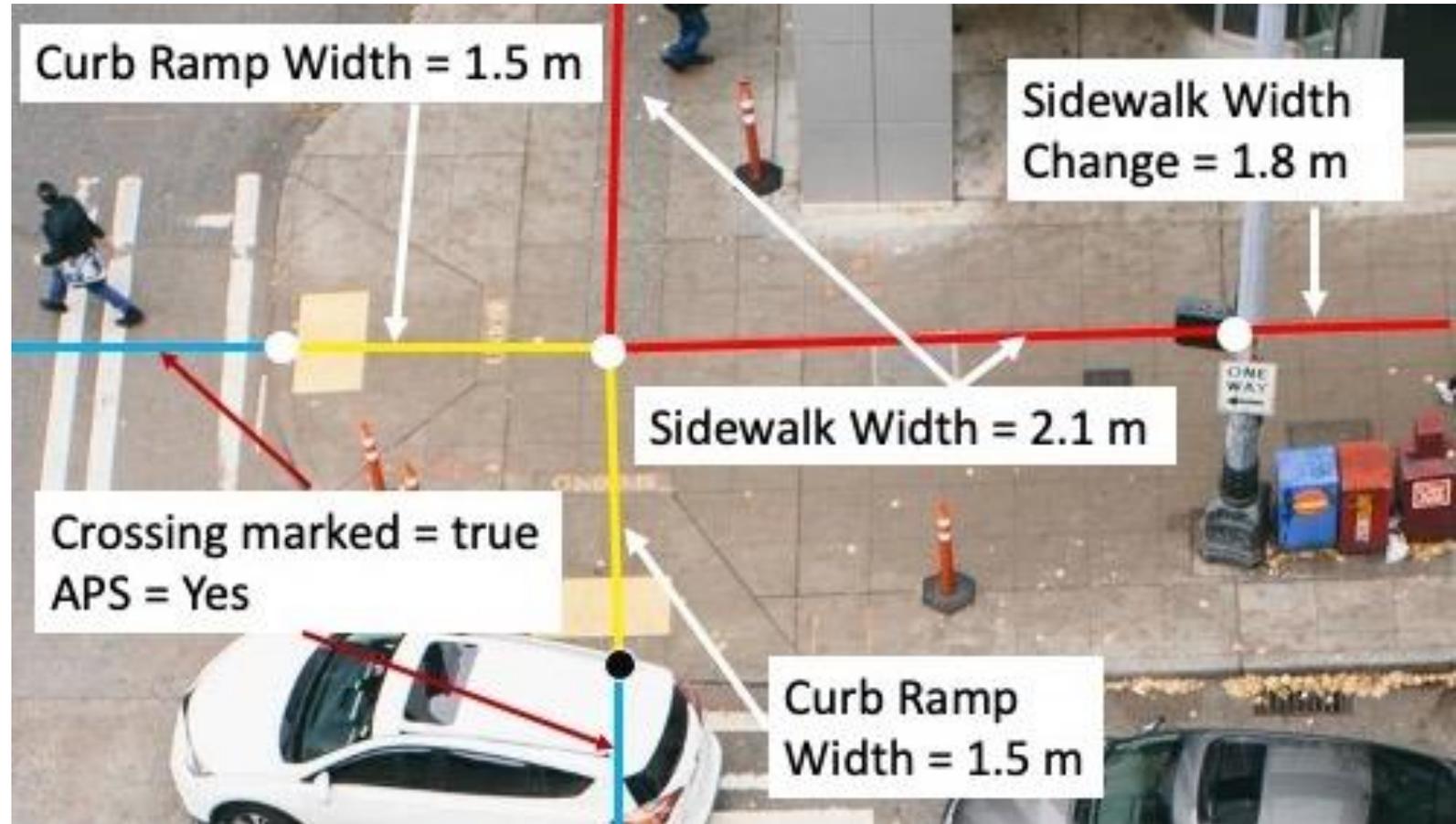
- Pedestrian navigation instructions are often not useful when using a wheelchair or pushing a stroller
- Planners lack information about pedestrian infrastructure (sidewalks)



Map image sourced from Google Maps

# OpenSidewalks: standardized, accessible data help achieve mobility equity, improving quality of life

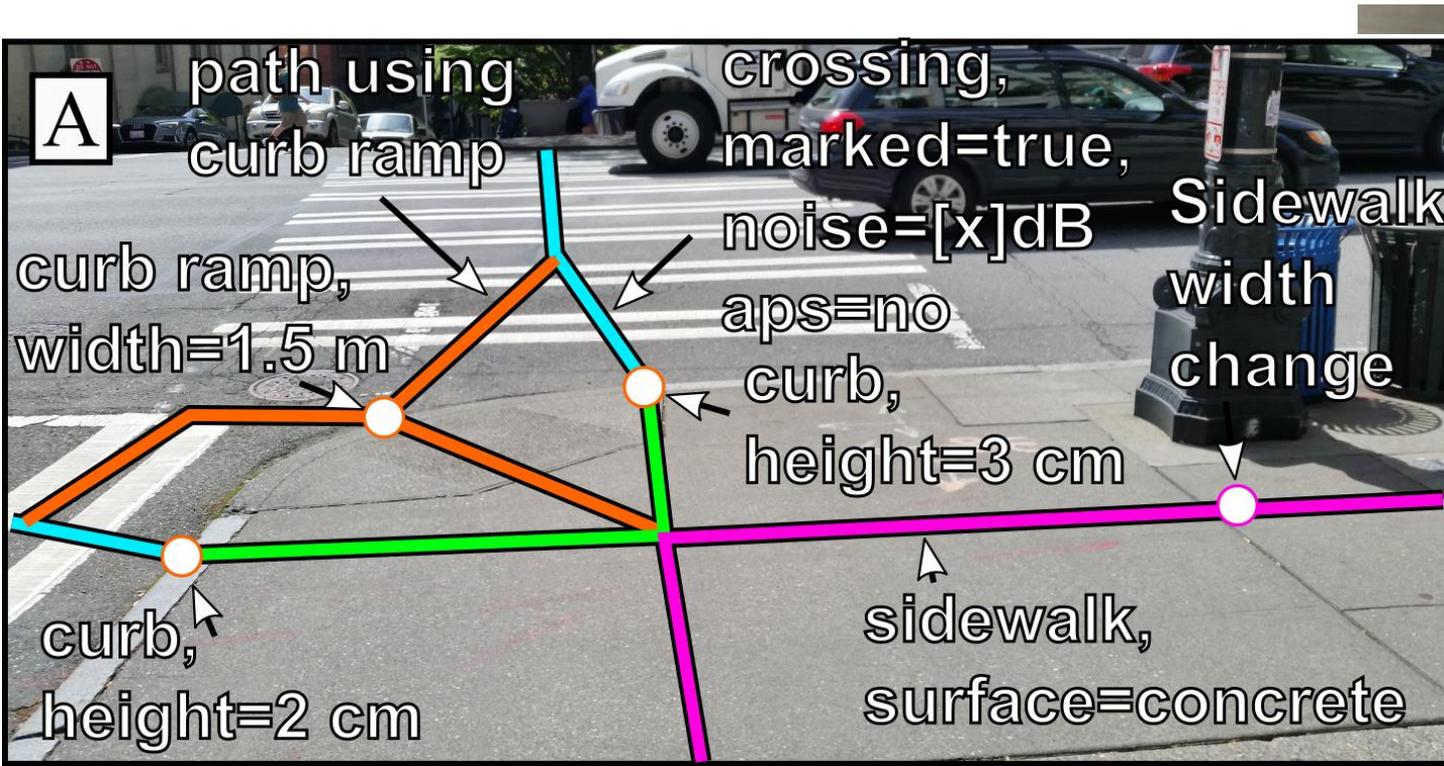
- Pedestrian movements require a connected network
- Barriers break up that connectivity
- What constitutes a barrier is specific to each individual
- We need to collect objective data
- Allow users to identify barriers that impact their travel opportunities
- Agencies can't manage their infrastructure and services if they don't understand what exists and how it connects



There are many ways to record data about sidewalk infrastructure  
A routable, urban pedestrian network, usable by all, requires:

## Objective descriptions of infrastructure not subjective “accessibility” labels

- sidewalks
- street crossings
- links (connections)



# Detailed data on pedestrian infrastructure allow personalized routing and navigation

“I need curb ramps,  
I cannot go up steep slopes  
I want to cross streets using  
crosswalks and traffic signals”



These sidewalks are too narrow

No crosswalks!

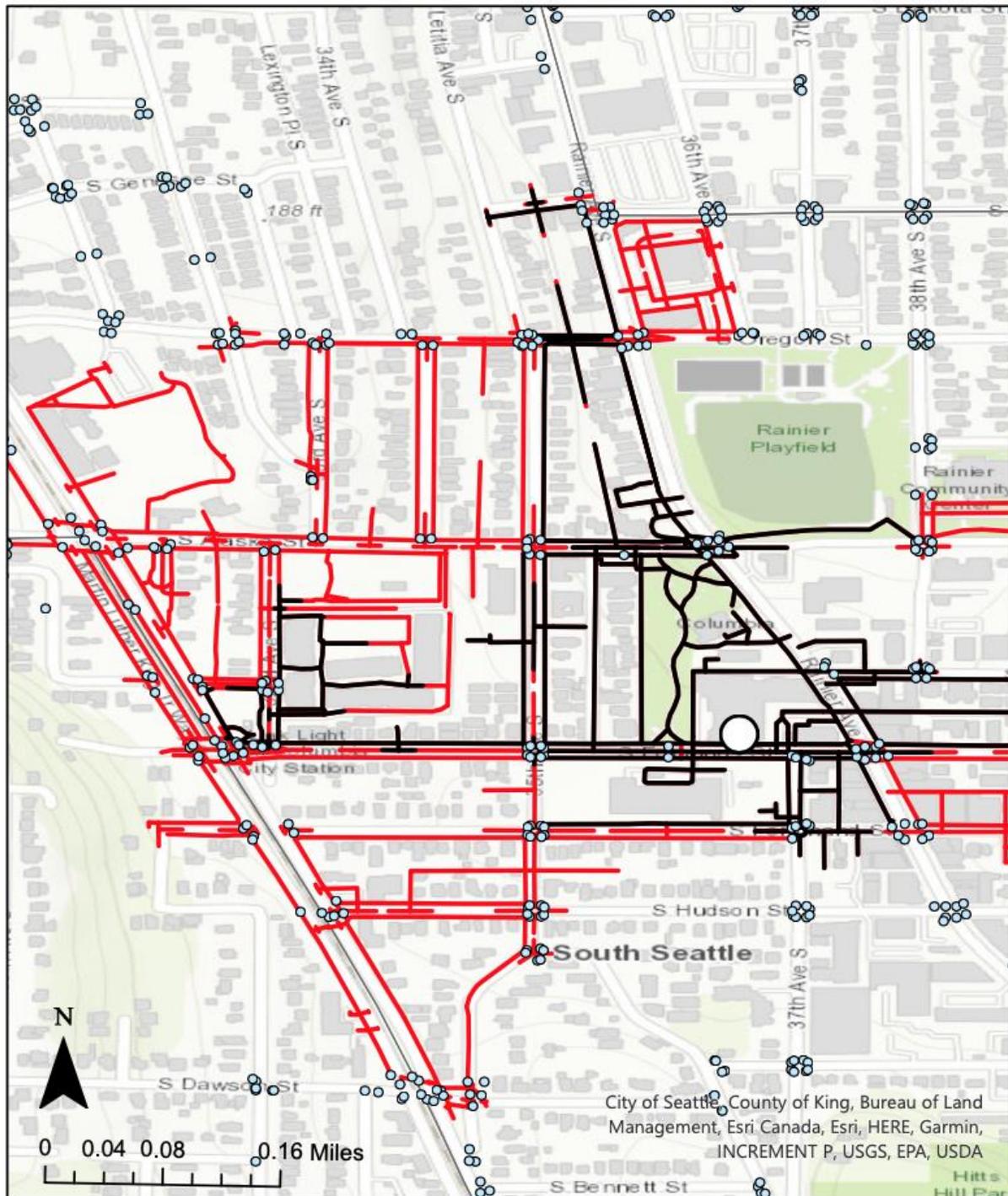
No curb ramps!

Too steep for me!

Use the skybridge

Use the elevators to go up the hill

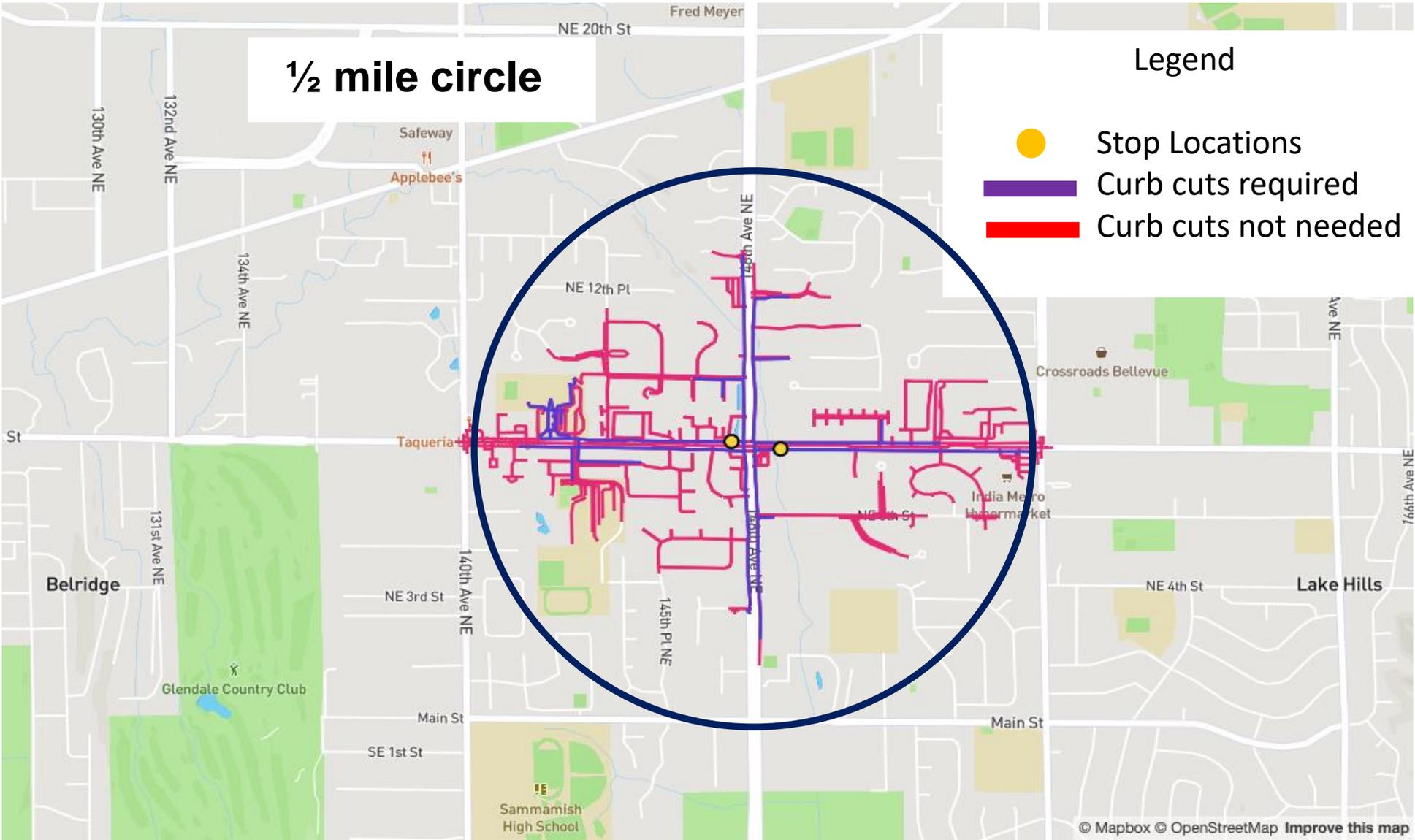
# Who can walk to locations of interest?



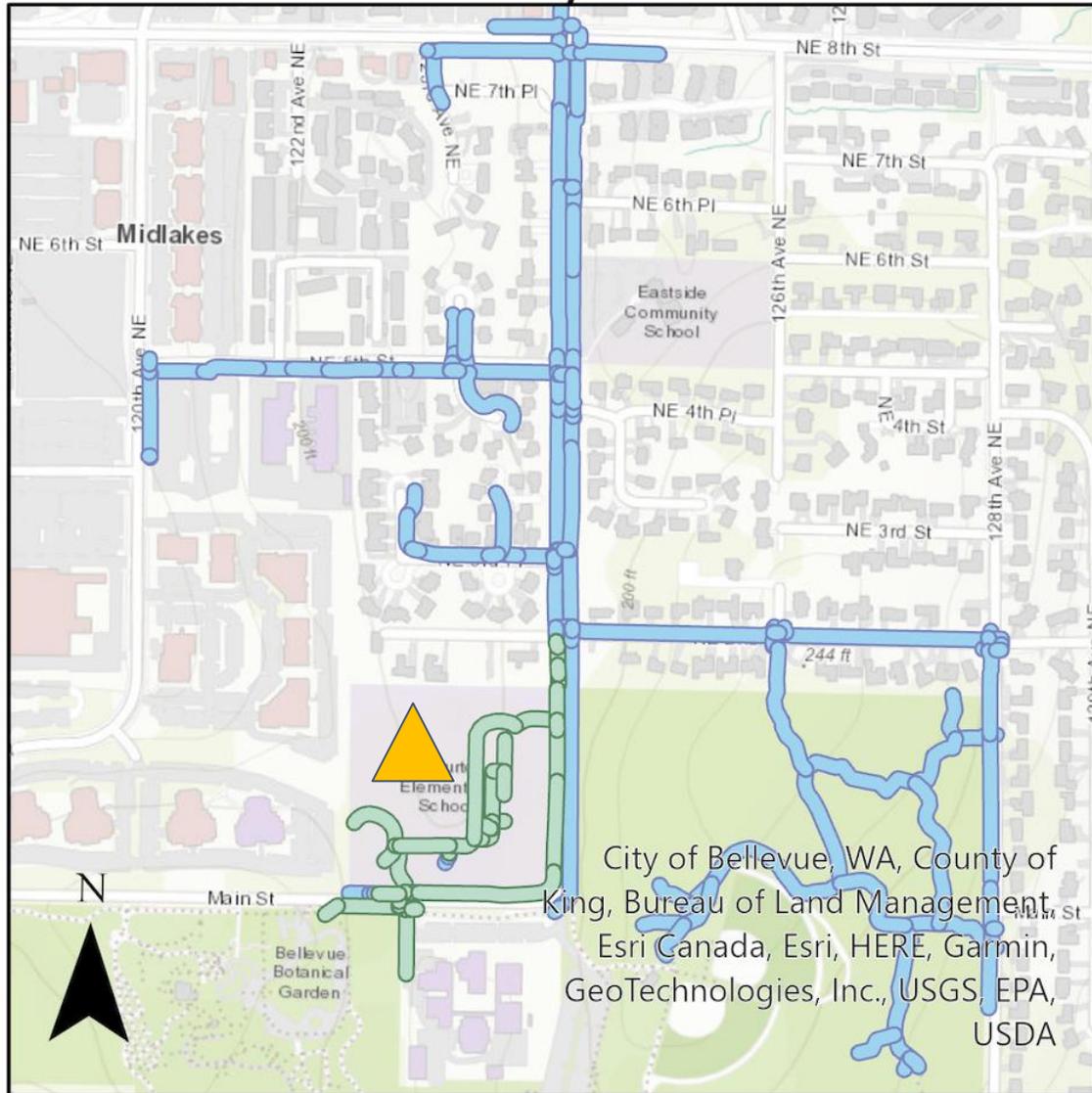
- Accessible 15-Minute Walkshed
- Inaccessible 15-Minute Walkshed
- Neighborhoods
- grocery store locations
- Curb\_Ramps

15-minute walk shed requiring curb cuts (accessible) and 15-minute walk shed not requiring curb cuts (inaccessible) around a grocery store in South Seattle and showing existing curb cuts..

# Who can actually walk to transit? 10-minute Walkshed to B-Line BRT Stops, Bellevue, WA



# Comparison of 15-min walksheds around Wilburton Elementary School



Curb-cut required walkshed:  
- 9 total crossings, all marked

Curb-cut not required walkshed:  
- 66 crossings  
- 49 marked, 17 unmarked

- 15-min walkshed with curb-cuts
- 15-min walkshed without curb-cuts

Wilburton Elementary School

# Getting Connected

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