DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

DELCO Planning

Data-Driven Decision Making for Bicycle and Pedestrian Connectivity

Tools for Planners and Local Officials

APA PA Conference, October 2025

Image Credit: DVRPC

Agenda

- Why are we here?
- Sidewalk Priority Score
- Link
- Delaware County Active Transportation Plan
- Resources to replicate

Why are we here?

- Data Driven Decision Making
- Grant Applications
- Robust & implementable plans
- Removes politics and bias
- Builds community trust

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Sidewalk Priority Score

Image Credit: DVRPC

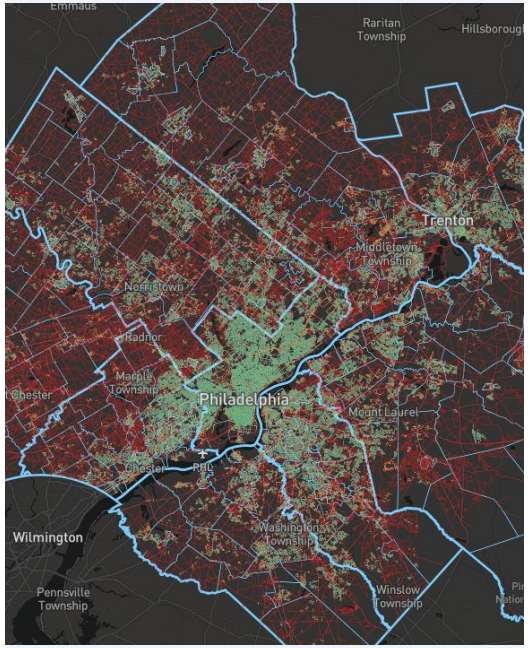
What is the Sidewalk Priority Score?

- Screening tool for needed sidewalk connections
- Covers the nine-county, bi-state DVRPC region
- Shows priority scores for road segments with incomplete sidewalks on both sides

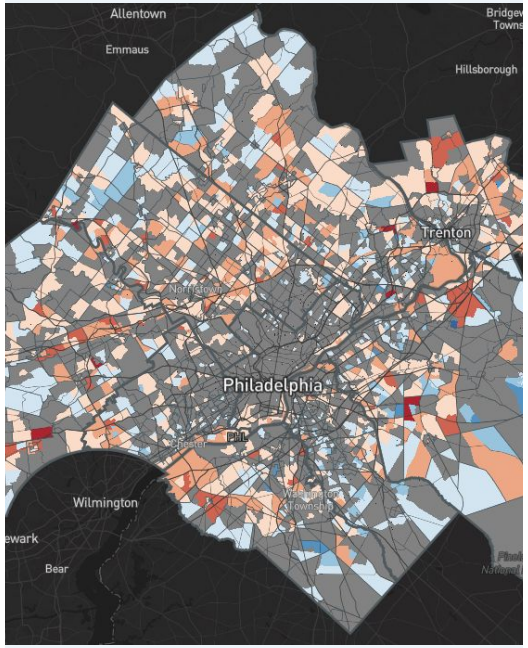
  A sidewalk is considered complete if its length is at least 80% of the length of the street segment
- Priority scores from 1 to 10, with 10 being the highest priority
- Based on roadway characteristics and proximity to other features

Built on Other DVRPC Tools

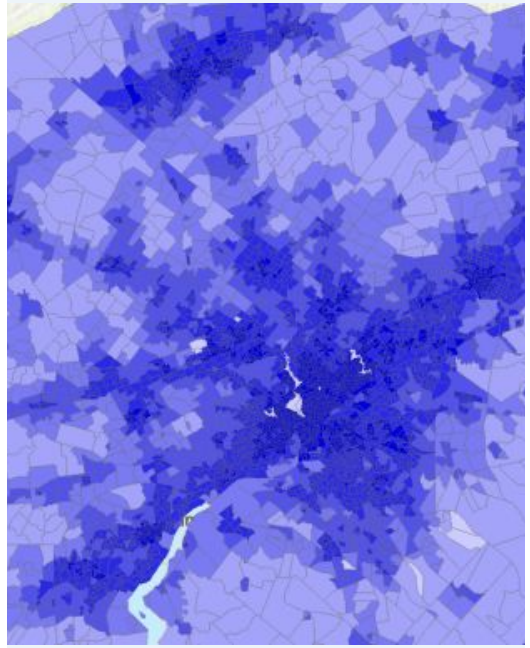
Sidewalk Gap Analysis



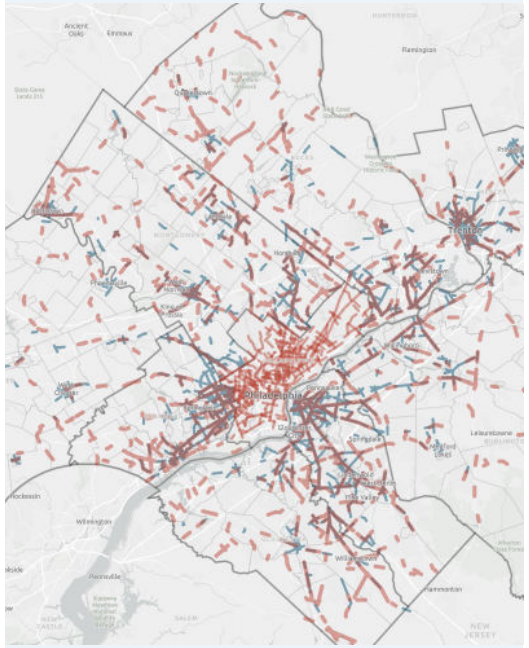
CHSTP Priority Score



Development Intensity Zones



Regional High Injury Network



Scoring Methodology

Indicator	Weight	Methodology
Transportation Need (based on CHSTP Priority Score)	15%	• 10 points: Score between -90 and -25, or 25 and 90 • 7 points: Score between -25 and -15, or 15 and 25 • 4 points: Score between -15 and -10, or 10 and 15 • 1 point: Score between -10 and 10
High Injury Network	15%	• 10 points for being on the Bike/Ped Regional High Injury Network, or 1 if not
Roadway Classification	10%	• 10 points: Principal arterial • 7 points: Minor arterial • 4 points: Collector • 1 point: Local
Development Intensity	10%	• 10 points: Highest intensity • 8 points: High intensity • 6 points: Medium-high intensity • 4 points: Medium-low intensity • 1 point: Low or lowest intensity or protected space
Proximity to: • K-12 school • Recreation opportunity • Passenger rail station • Bus stop	10% each	• 10 points: Less than ⅛ miles away • 7 points: Between ⅛ and ¼ miles away • 4 points: Between ¼ and ½ miles away • 1 point: More than ½ miles away
Proximity to Existing Sidewalk	10%	• 10 points: An adjacent segment with at least 75% sidewalk coverage • 5 points: An adjacent segment with 50-75% sidewalk coverage • 1 point: No adjacent segment with at least 50% sidewalk coverage

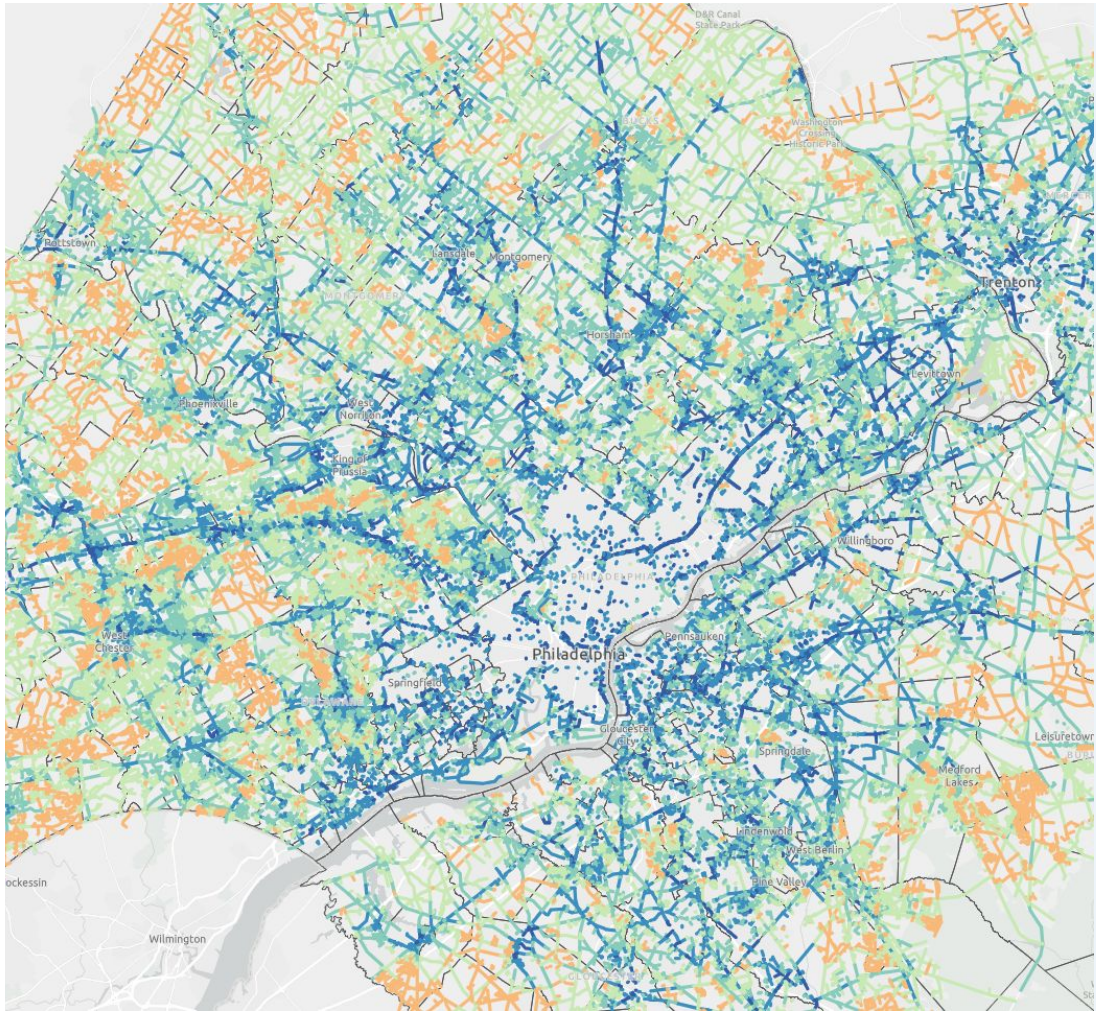
Using the Sidewalk Priority Score

Uses

- Grant applications
- Project selection

Limitations

- Does not consider sidewalk quality
- Includes some divided roads and highway ramps that don’t need sidewalks
- Planning judgement needed



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LINK

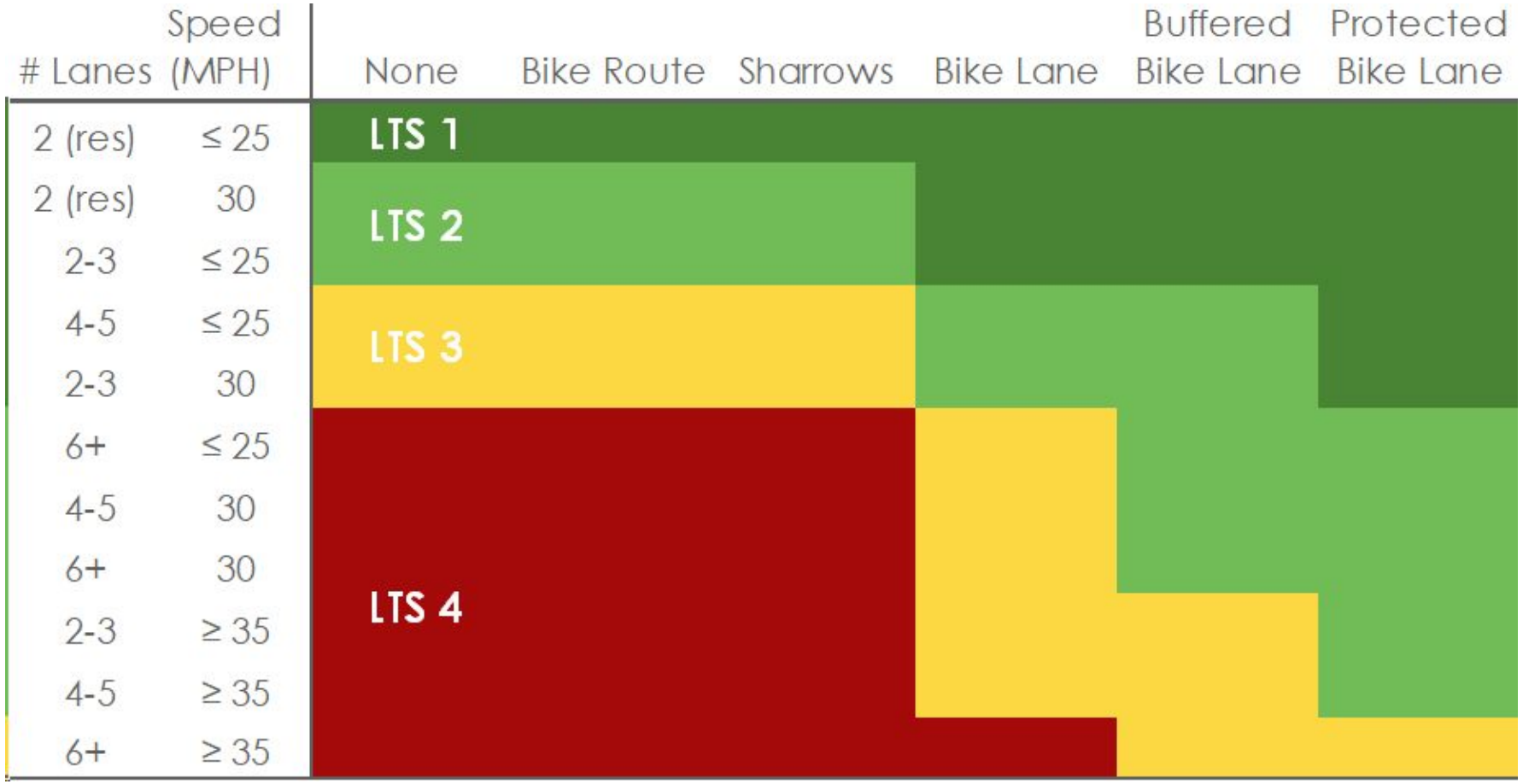
Image Credit: DVRPC

Level of Traffic Stress (LTS)

LTS	Comfortable Enough For (Cyclist Type)	Characteristics
1	Most People	Lowest stress Comfortable for most ages and abilities
2	Interested, but Concerned	Suitable for most adults Presenting little traffic stress
3	Enthused and Confident	Moderate traffic stress Comfortable for those already biking in American cities
4	Strong and Fearless	High traffic stress Multilane, fast moving traffic

Mekuria, M., Furth, P. and Nixon, H. "Low-stress bicycling and network connectivity", *Mineta Transportation Institute*, No. Report 11-19, 2012.
Geller, R. "Four Types of Cyclists," Portland Bureau of Transportation, Portland, OR, 2006.
www.portlandoregon.gov/transportation/article/264746. Accessed Aug, 11, 2016.

Assigning LTS

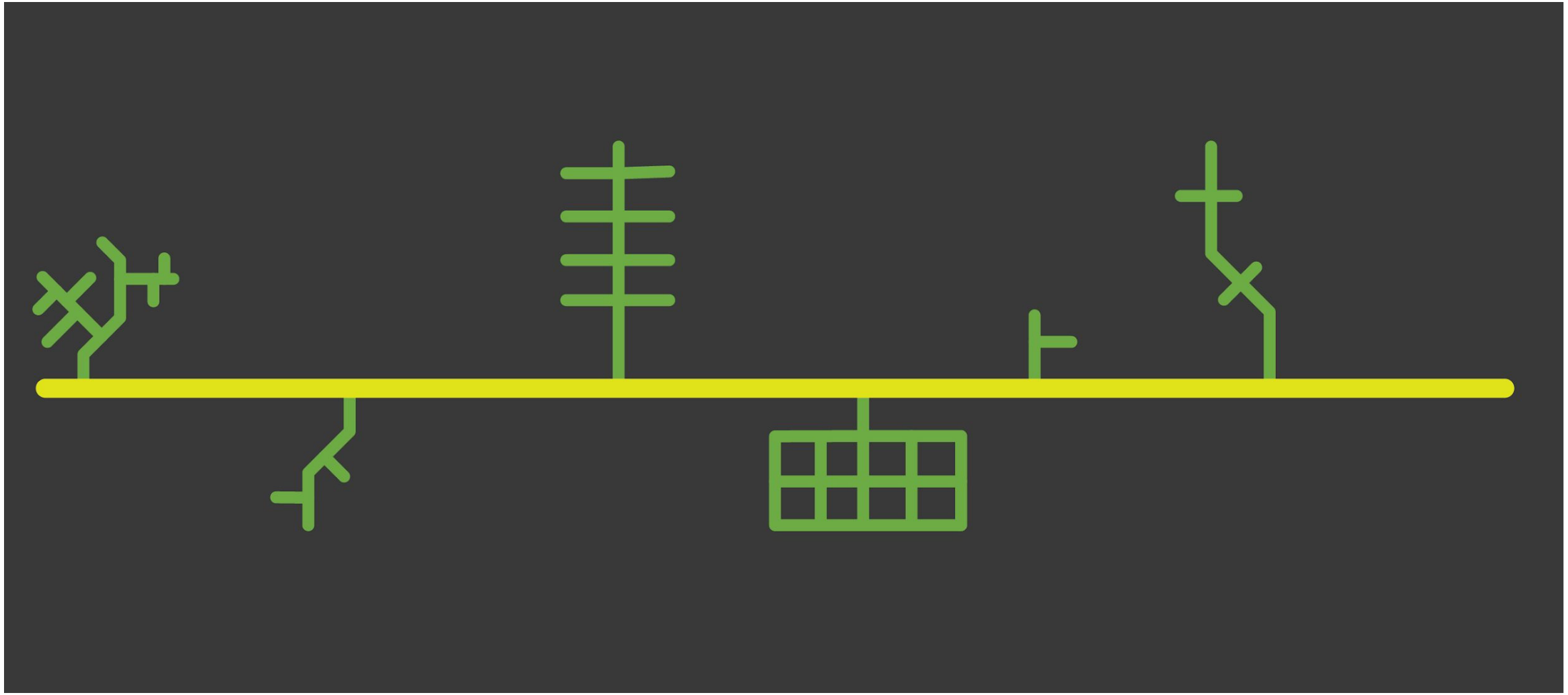


Lowry, M., Furth, P., and Hadden-Loh, T. Low-Stress Neighborhood Bikeability Assessment to Prioritize Bicycle Infrastructure. Presented at the 95th Annual Meeting of The Transportation Research Board, Washington D.C., 2016.

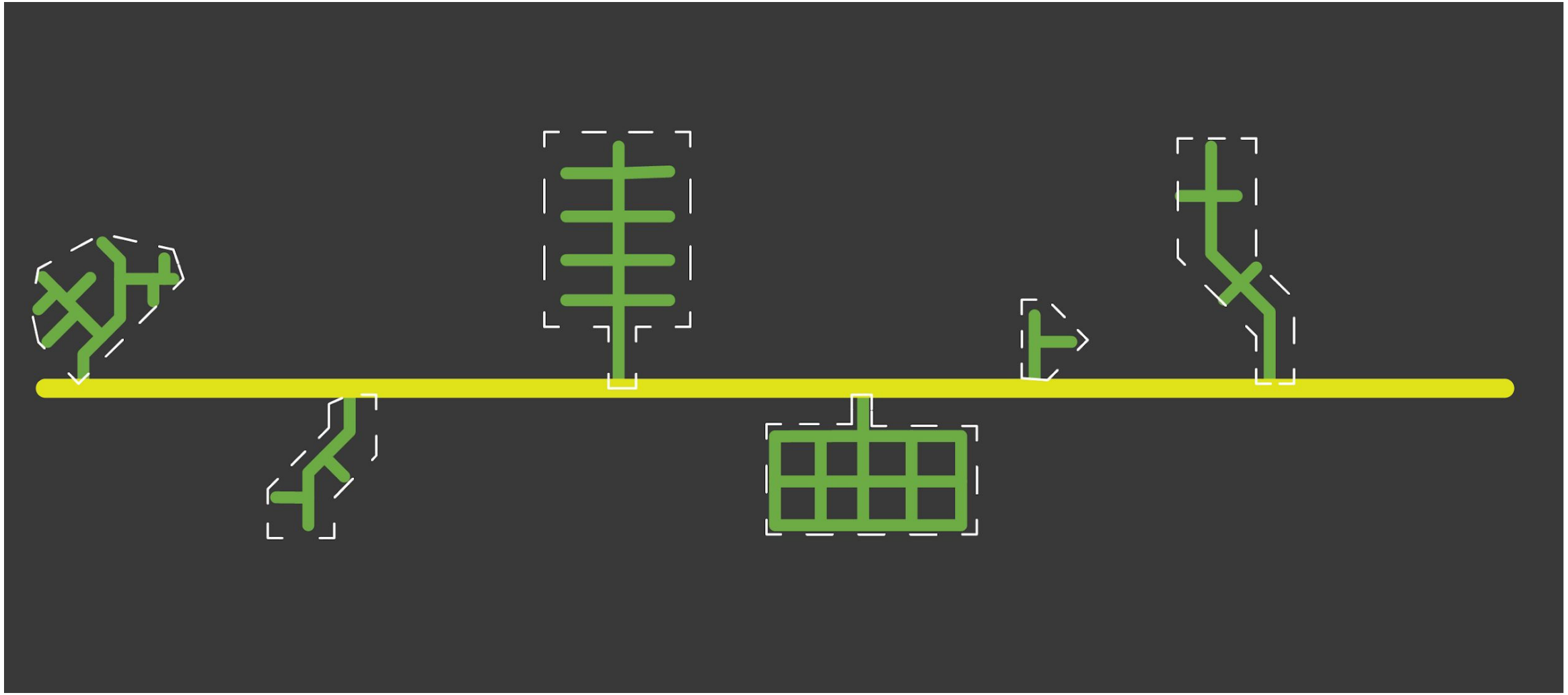
New Approach to Connectivity

- Focus on local segments
- Provide information relevant for funding/grant applications
- Allow users to analyze all LTS levels and off-road segments
- Also works for sidewalks

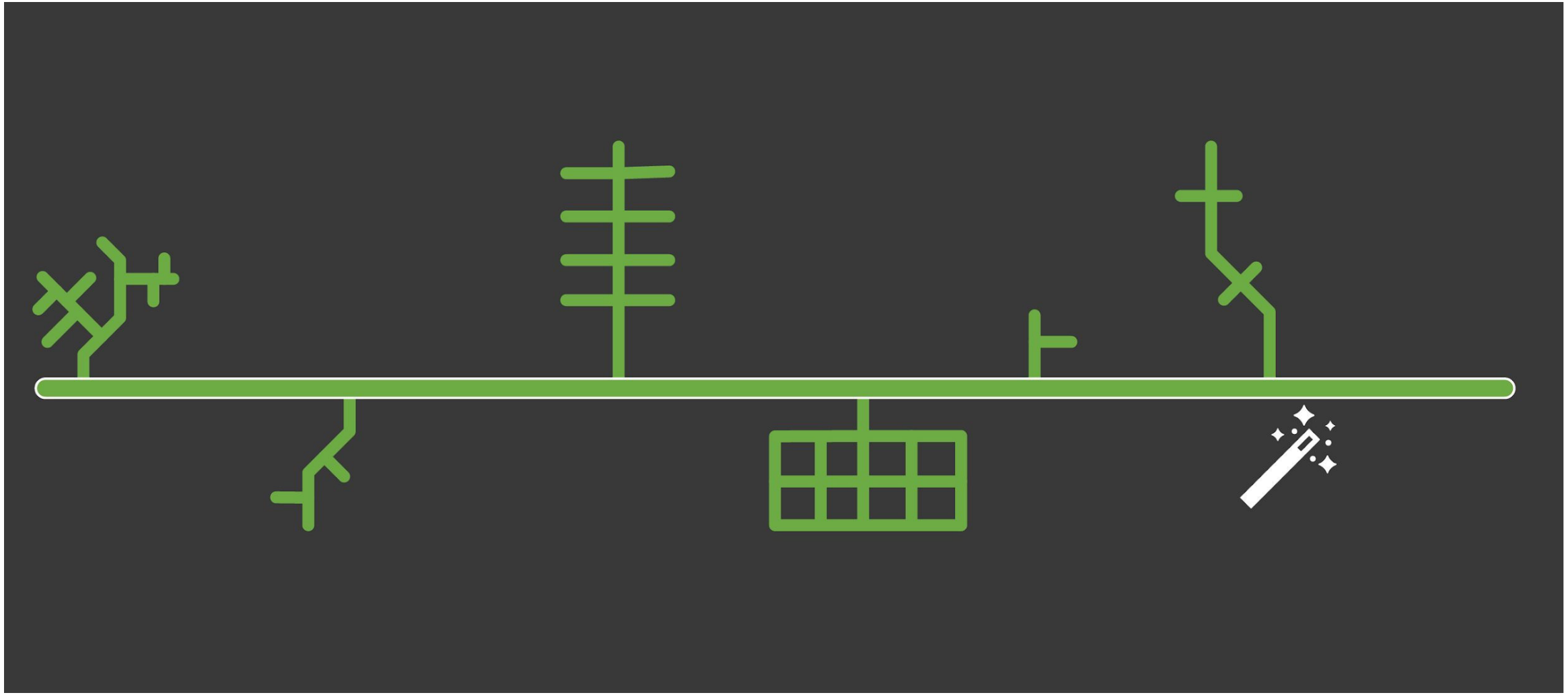
How it works



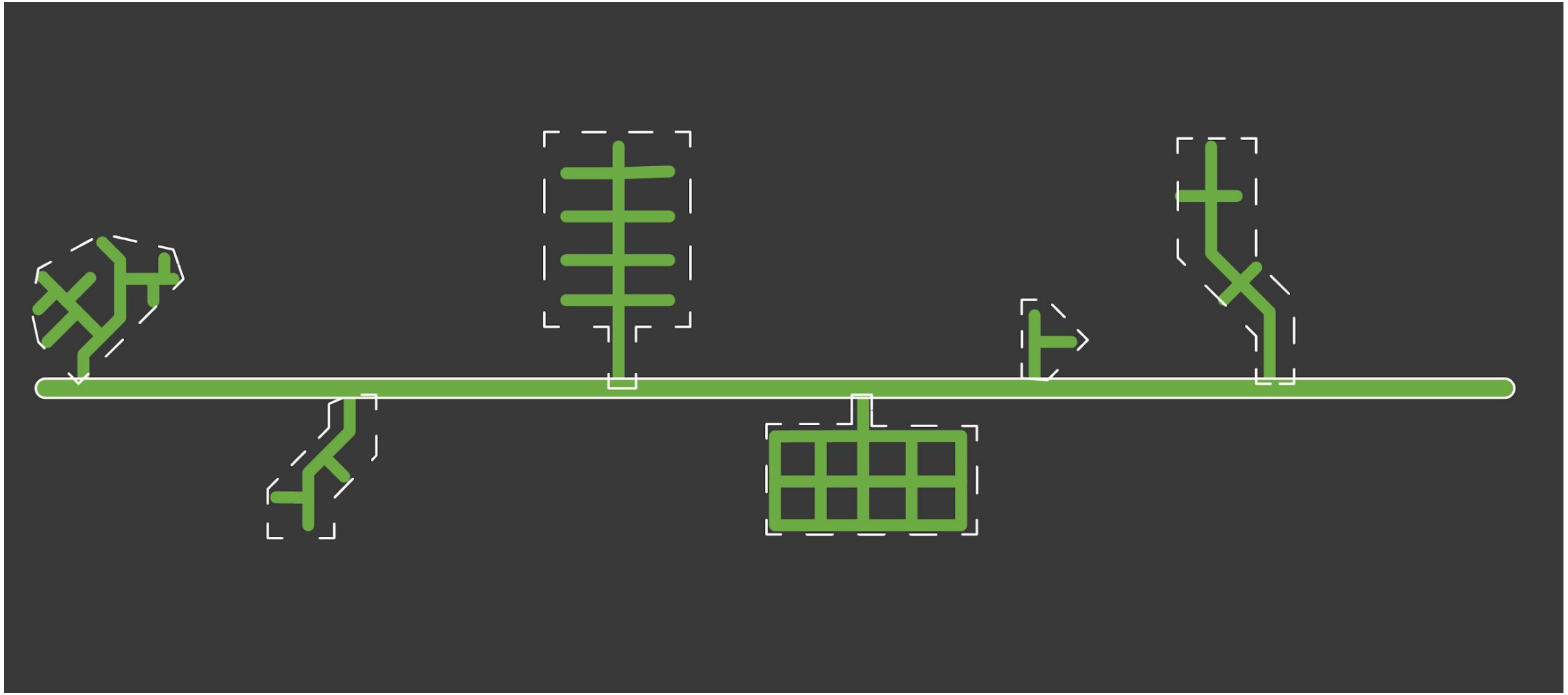
How it works



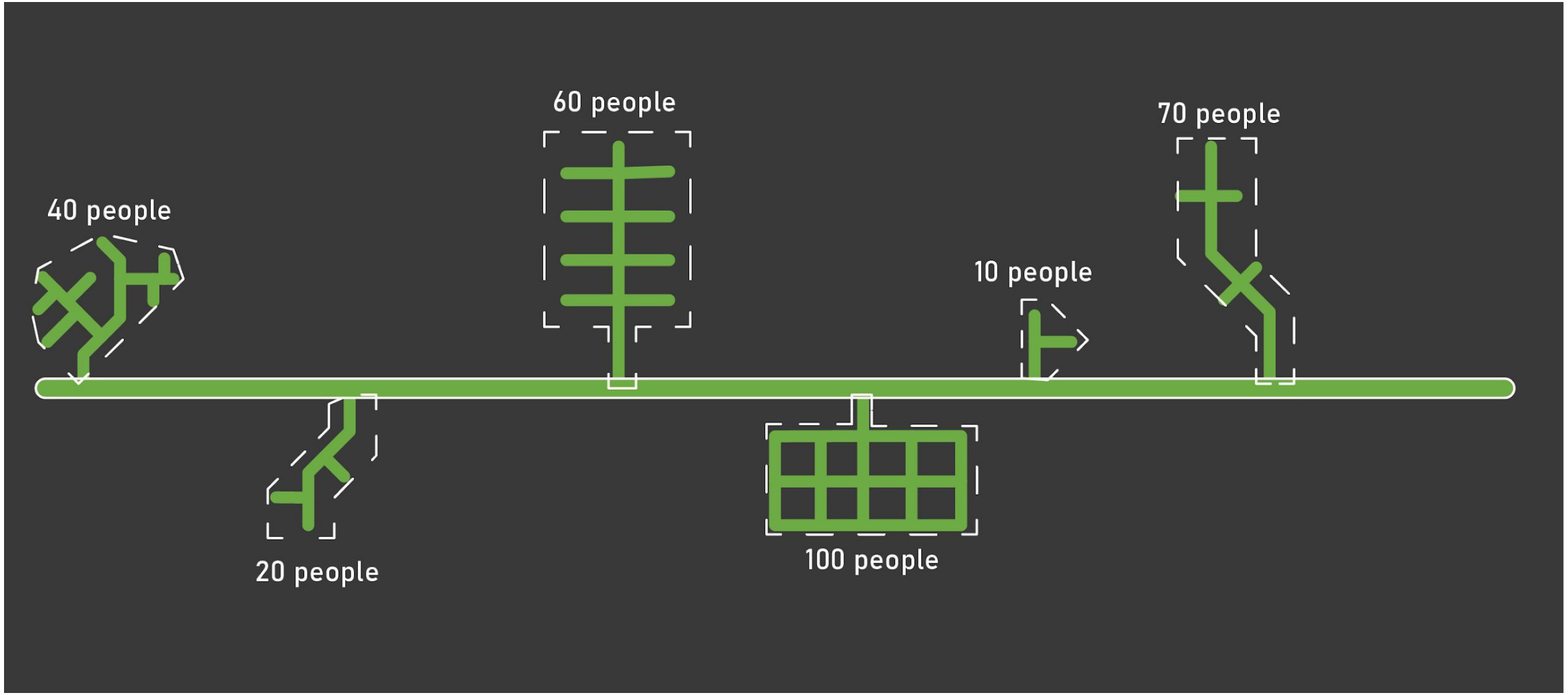
How it works



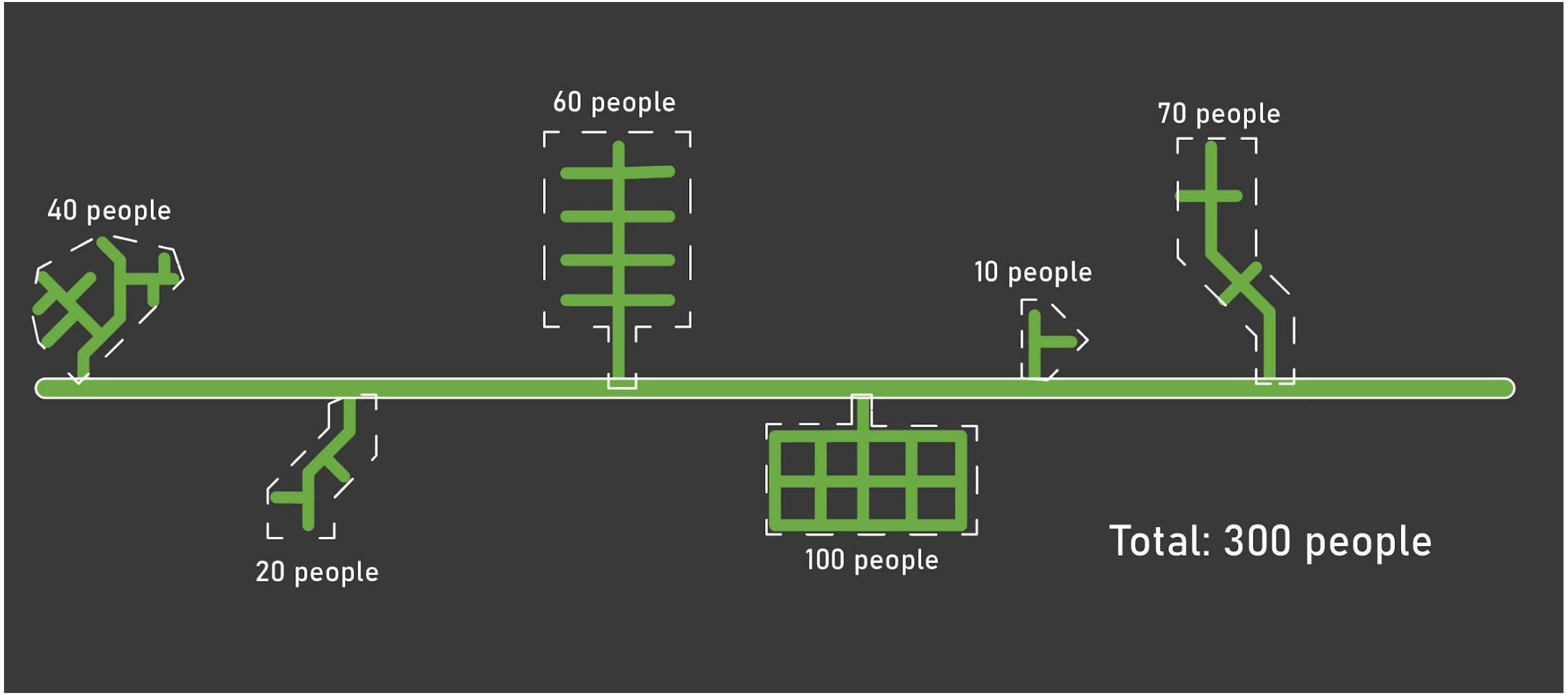
How it works



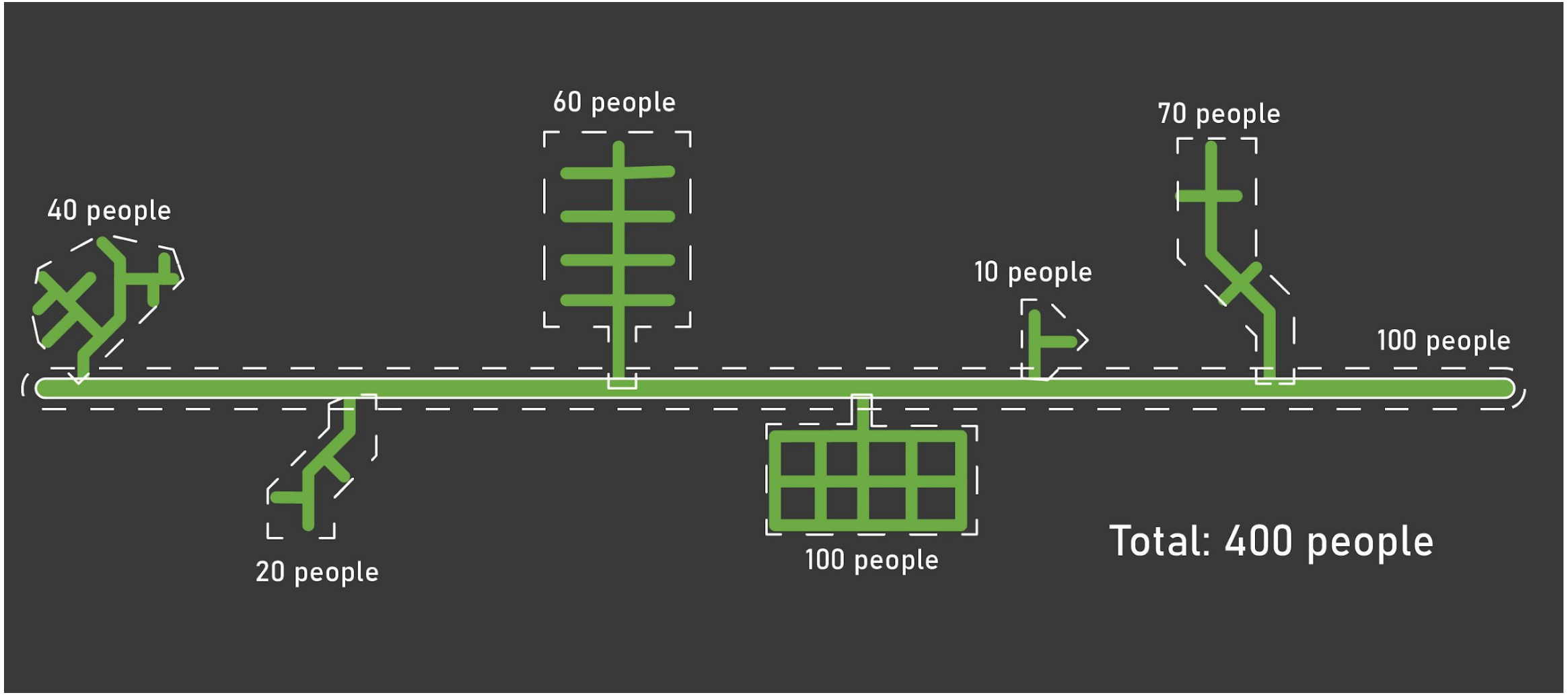
How it works



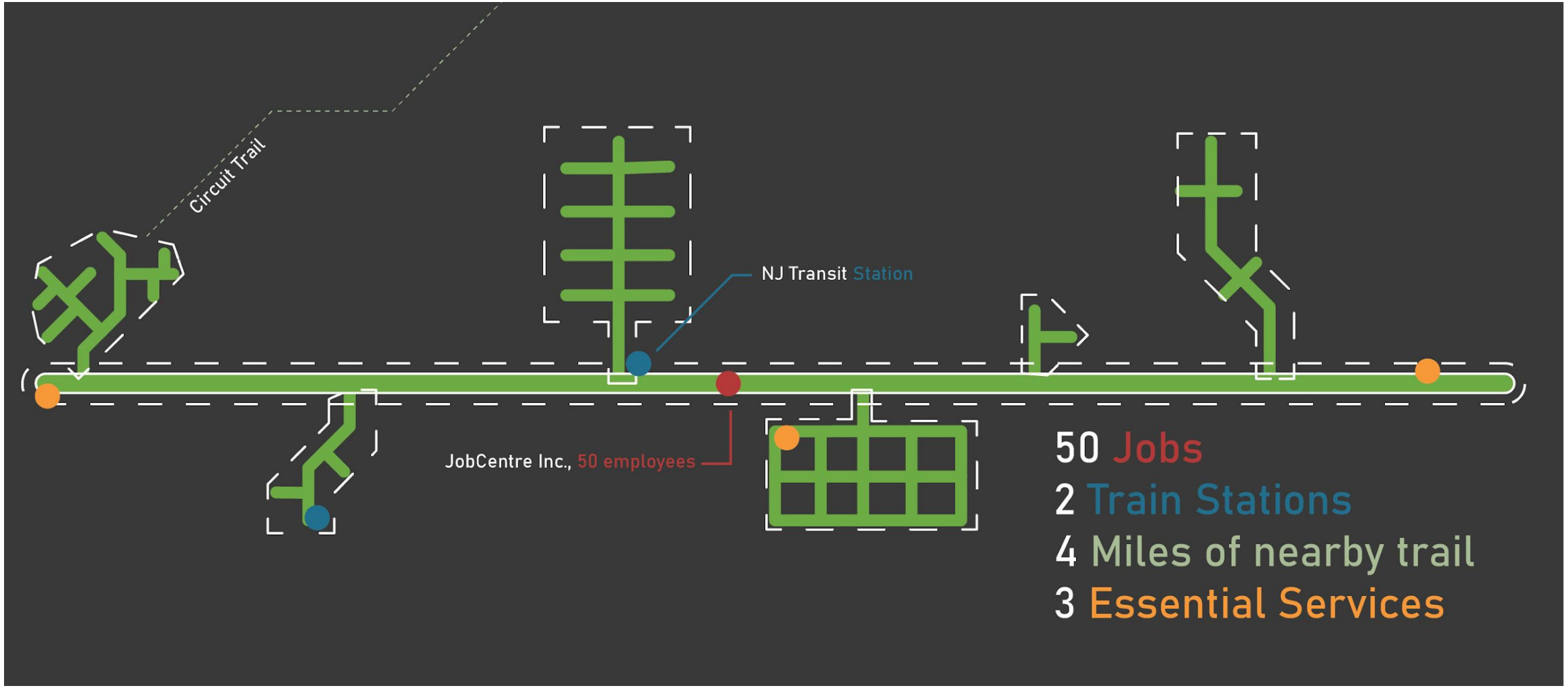
How it works


60 people
70 people
40 people
10 people
20 people
100 people
Total: 300 people

How it works


60 people
70 people
40 people
10 people
100 people
20 people
100 people
Total: 400 people

How it works


Circuit Trail
NJ Transit Station
JobCentre Inc., 50 employees
50 Jobs
2 Train Stations
4 Miles of nearby trail
3 Essential Services

Data Sources

Data Type	Source	Years
Population Data	US Census American Community Survey (ACS) 5-year estimates	2017-2021
Employment Data	American Census Bureau's LODES 8 dataset	2020
Crash Data	NJDOT and PennDOT	2019-2023
Transit Stops and Routes	NJ Transit and SEPTA	2023
Circuit Trails	DVRPC	2023

Limitations

- LTS assignment does not account for intersections/crossing stress
- Estimating population is tricky; people are not uniformly distributed throughout census tracts

Use Cases

- Transportation Alternatives Set-Aside (TASA) Application
  - **Connectivity** - describe what and who will be connected by a potential project
  - **Safety and Public Health** - what will folks have access to; will they be able to avoid high-stress roads
  - **Community Enhancements** - which types of nearby destinations will be connected by the proposed project

- Local Bicycle and Pedestrian Plans
  - Walk Roll DelCo

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Walk Roll Delco

WALK ROLL DELCO!

Image Credit: DVRPC

Why Walk Roll Delco

GOAL: *Unite previous planning efforts into one comprehensive vision for active transportation in Delco.*

The Existing and Planned Network

There are currently:

24 miles of shared lanes
4 miles of bike lanes

61 miles of paved trails

3,800 miles of sidewalks

Previous planning efforts have recommended:

369 miles of on-road bikeways

94 miles of trails

Radnor Trail

Photo Credit: Friends of Haverford Trails

Darby Creek Trail

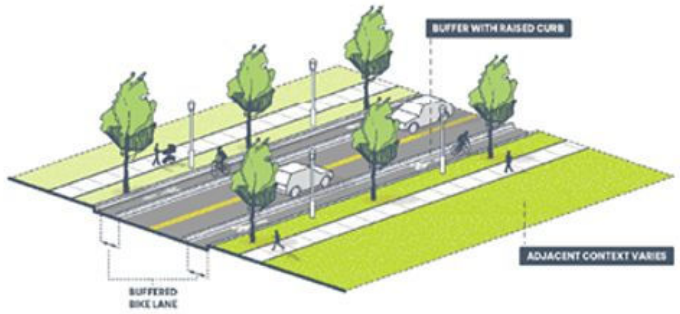
Sproul Rd (PA 320) Bike Lanes in Springfield

Greenwood Ave Bike Lane in Landsdowne

Network Facilities contained in the Plan

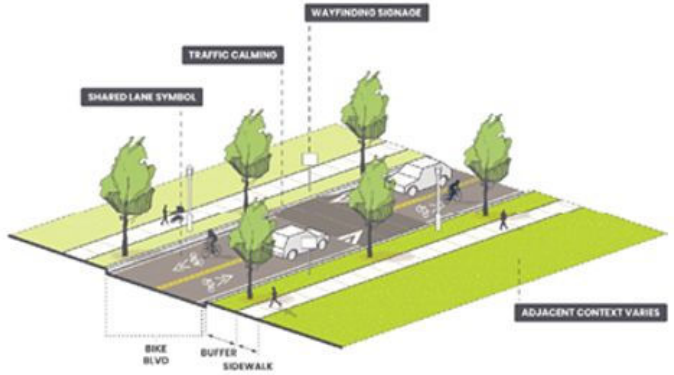
Bikeway

On road biking facilities. Includes separated and non-separated facilities.



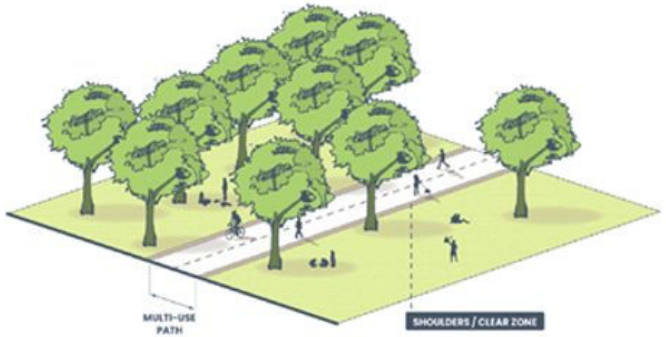
Bike Boulevard

Routes that provide a comfortable bicycling experience for all riding abilities through signage, intersection improvements, and volume or speed management techniques.



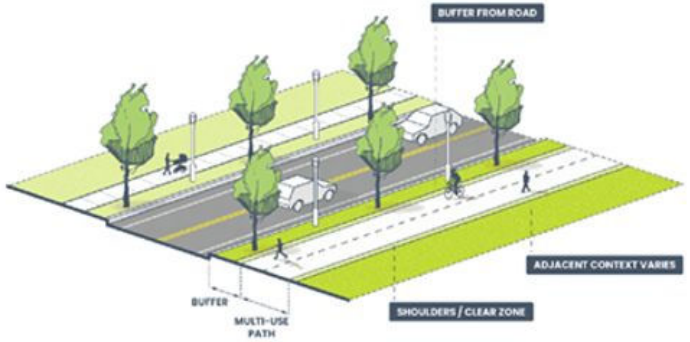
Greenway

Routes through open space for walking and biking. Could include paved or unpaved trails.



Sidepath

A shared use path located immediately adjacent and parallel to a roadway.



Reimagined Arterial

A comprehensive strategy involving access management, traffic calming, crossing enhancements, and separated walking and biking facilities. These typically are longer-term and larger-scale projects on state maintained roadways.

Priority Sidewalk

Missing sidewalks that connect to transit and everyday destinations, such as schools and parks.

Spot Improvement

Identified opportunities for crossing enhancements,wayfinding, or special biking facilities (such as a contraflow bike lane).

NETWORK GOALS

01 Previous Plans

02 Access

- Connect to destinations
- Connect to transit

Connectivity

- Connect our neighborhoods
- Connect the network
- Connect the region

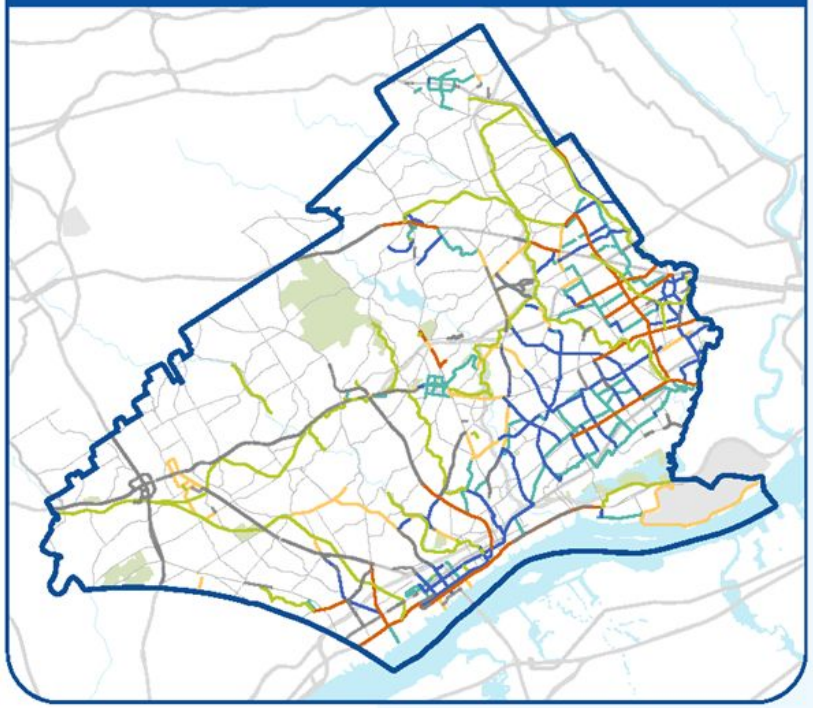
Equity

- Connect to and within equity emphasis areas

03 Listening and Refining

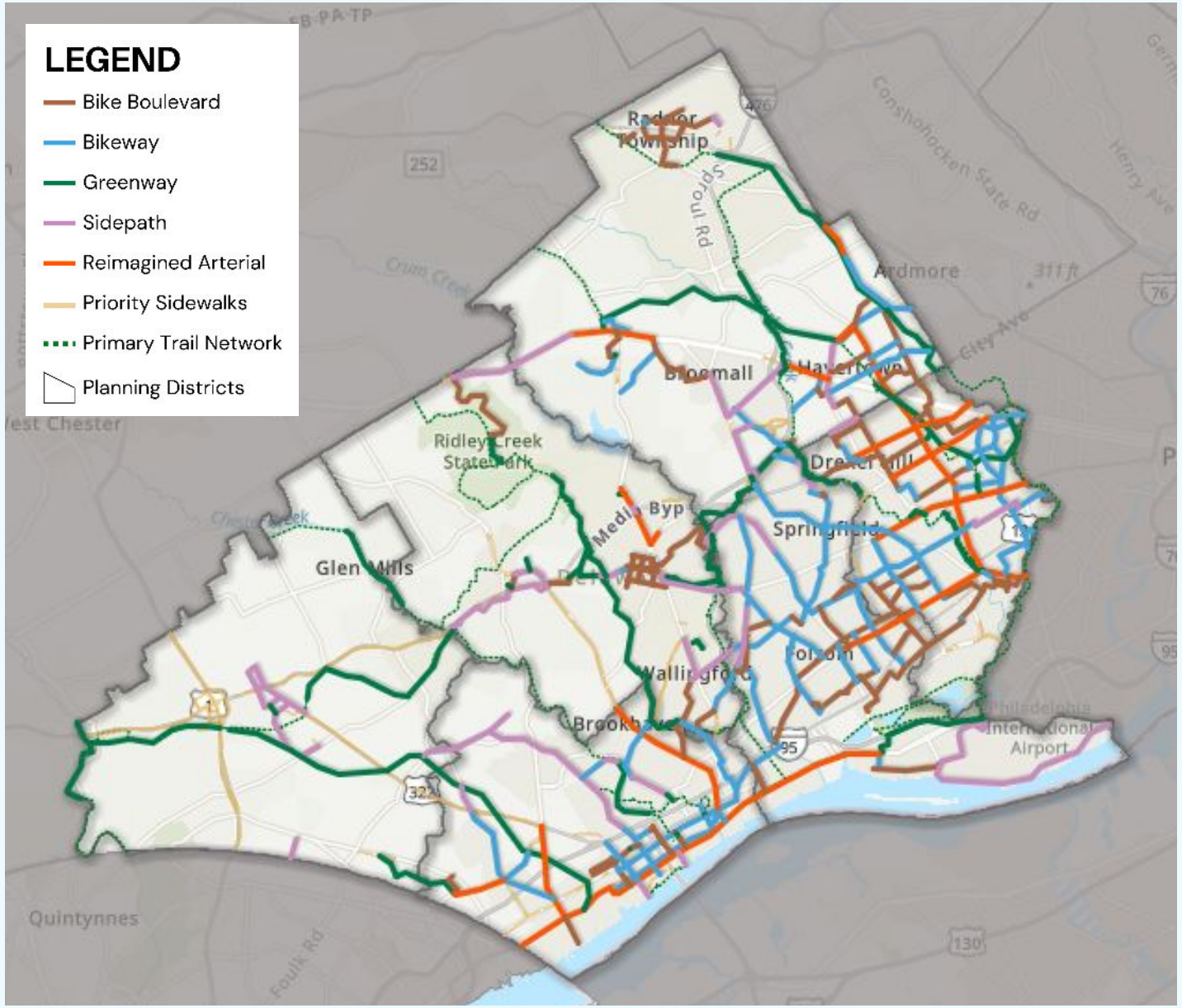
- Incorporating public and stakeholder feedback

Final Network



How do we prioritize?

- Biggest bang
- Balancing demands
- Safety
- Short term and long term
- What we heard
- Connections
- Funding priorities



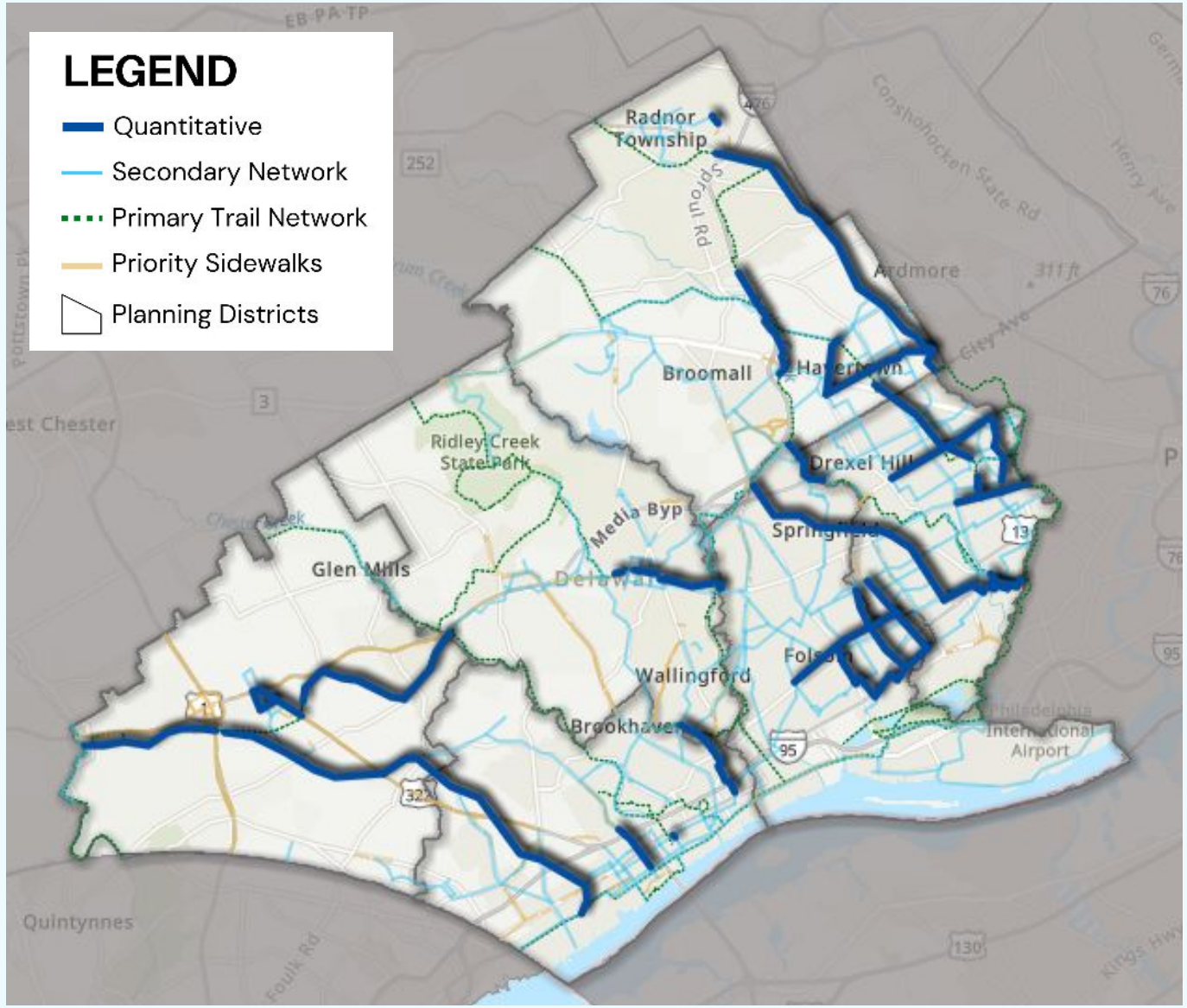
Steps to developing the priority network

Category	Element	Source	Max Score
Connect our neighborhoods	**Equity Emphasis Areas**	Local Data	10
	Total population	LINK	10
Connect our Region	**Total Jobs**	LINK	10
Connect the network	**Bike/Ped Crashes**	LINK	10
	Existing Circuit trails	LINK	10
Connect to transit	**Rail stop**	LINK	10
Connect to destinations	**Schools (public/private k-12)**	LINK	10
	Universities	LINK	10
	Essential services (food store, health facility, senior facility)	LINK	10
	Parks	Local Data	10
total score			100

Steps to developing the priority network

Quantitative network

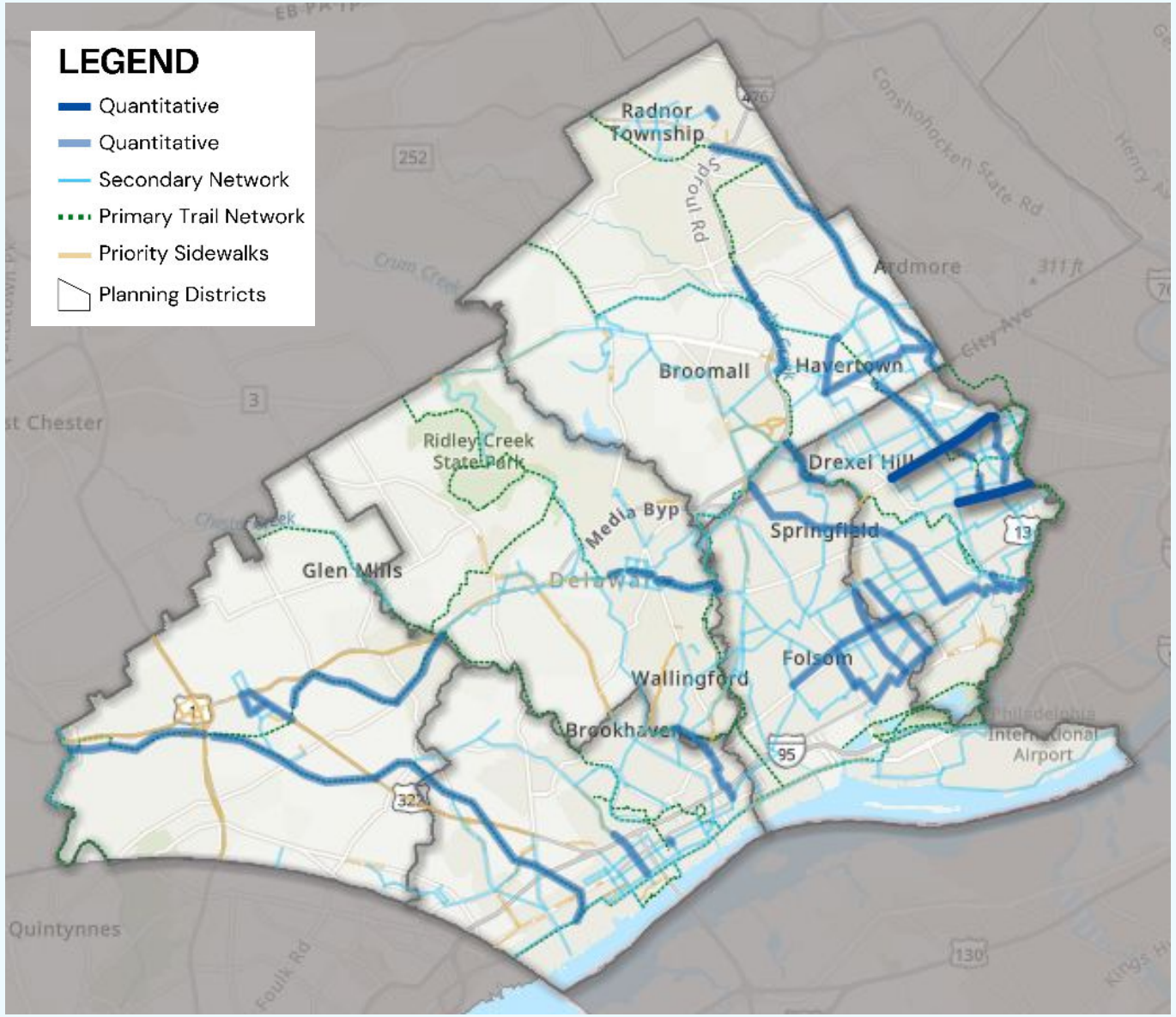
Selecting the top scoring routes in each planning district



Steps to developing the priority network

Quantitative network

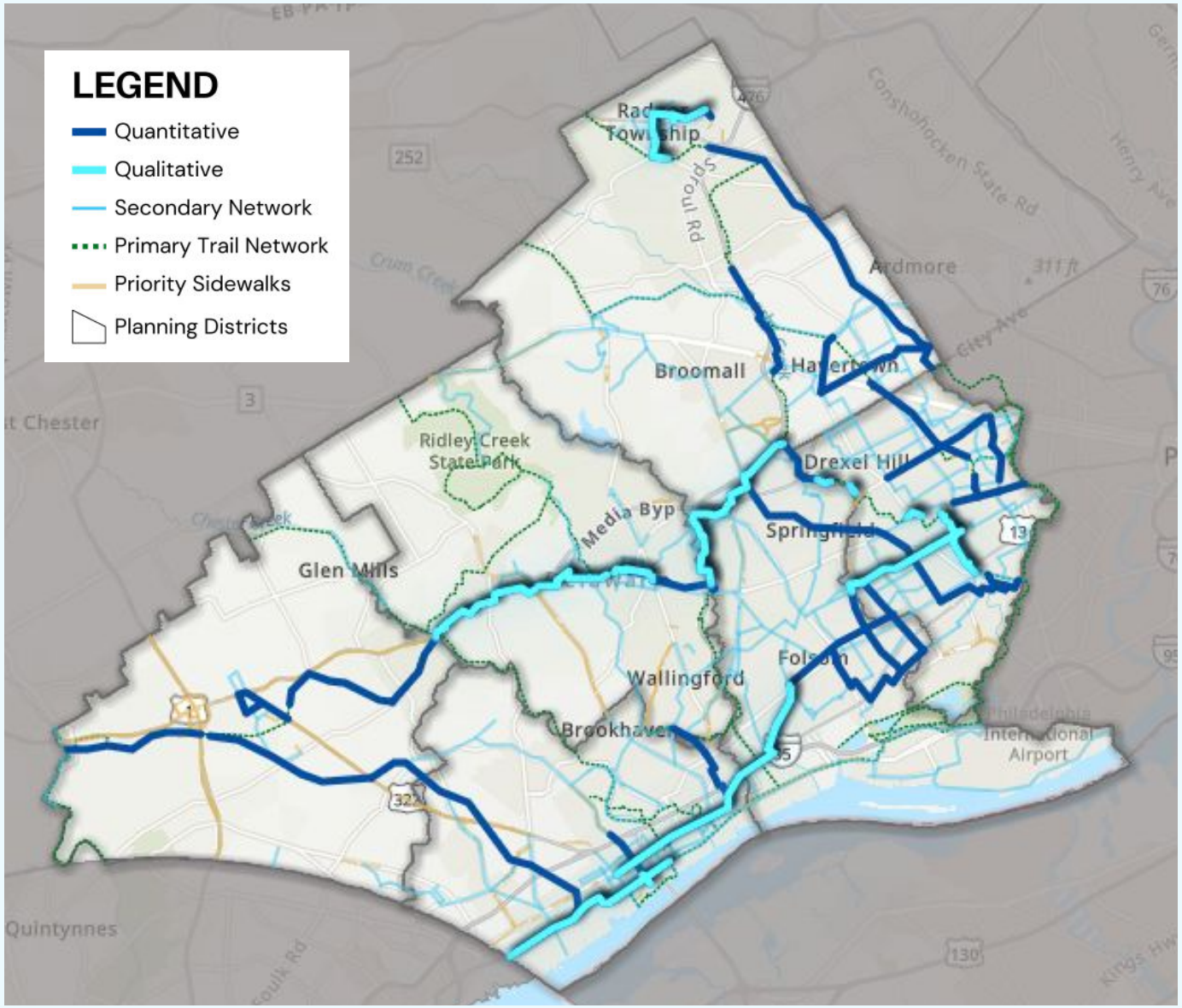
Selecting the overall top scoring reimagined arterials



Steps to developing the priority network

Qualitative network

Filling in gaps in the quantitative network to connect the whole county

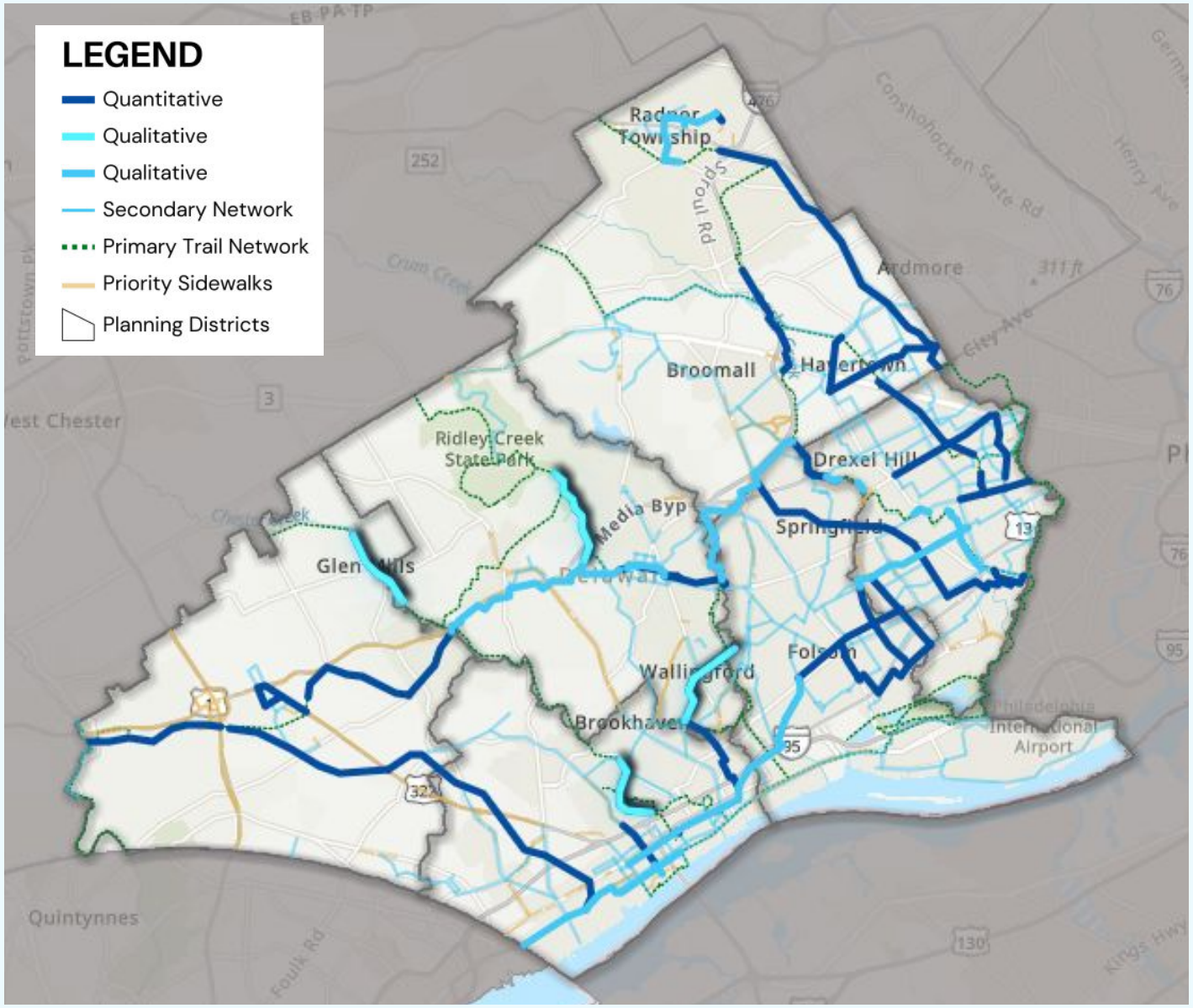


Steps to developing the priority network

Qualitative network

Connecting to

- Parks
- Activity Centers
- Equity Emphasis Areas
- Existing Facilities

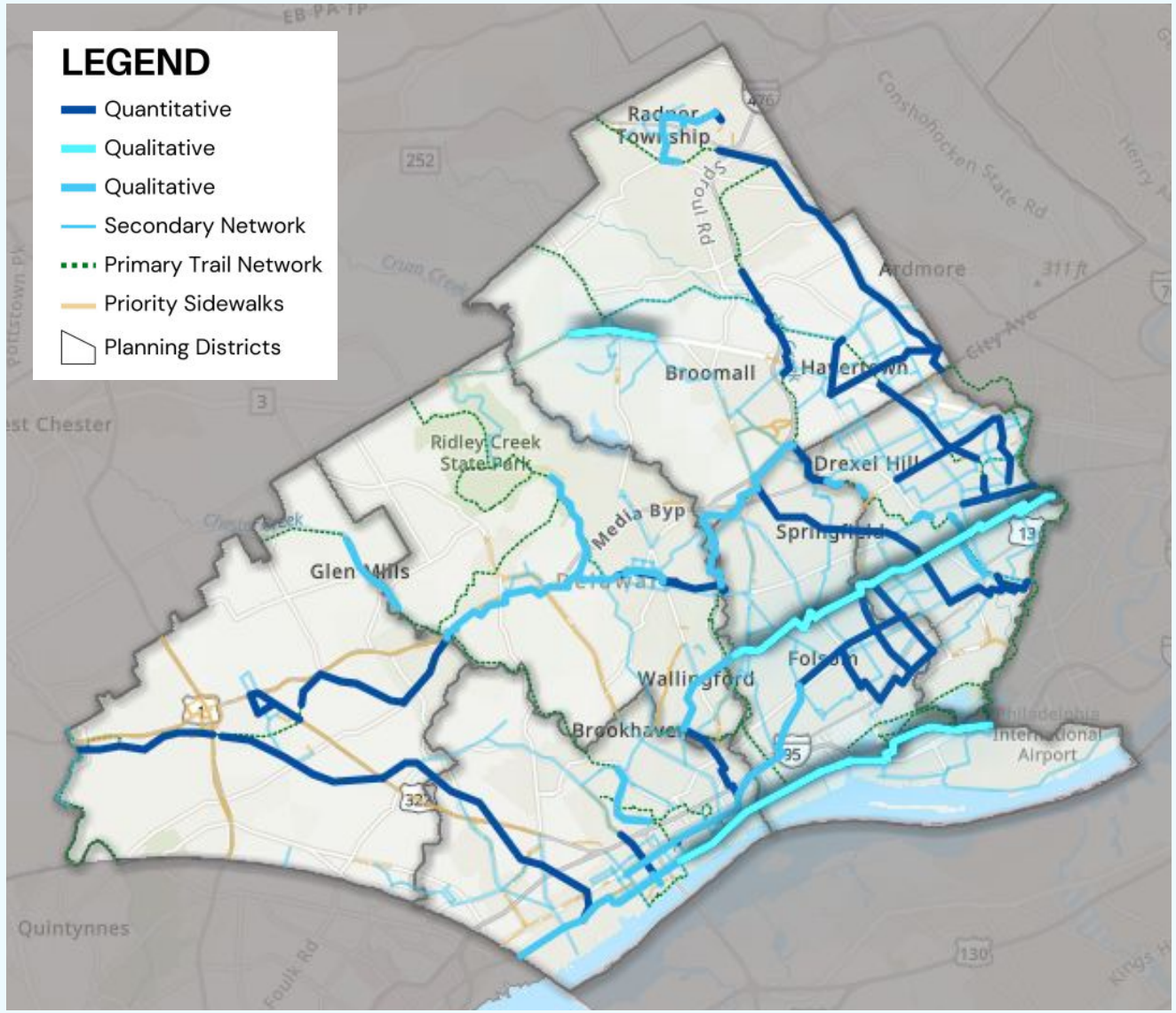


Steps to developing the priority network

Qualitative network

Including Countywide priorities…

- Bikeable Baltimore Pike
- Route 291 & East Coast Greenway
- Primary trail & Circuit trail network
- PennDOT VRU Corridors
- Vision Zero Corridors of Concern



The Walk Roll Delco Network

14%

Short Term Priority (less complex)

- 0.3mi greenways
- 20 mi bikeways
- 15 mi bike boulevards

28%

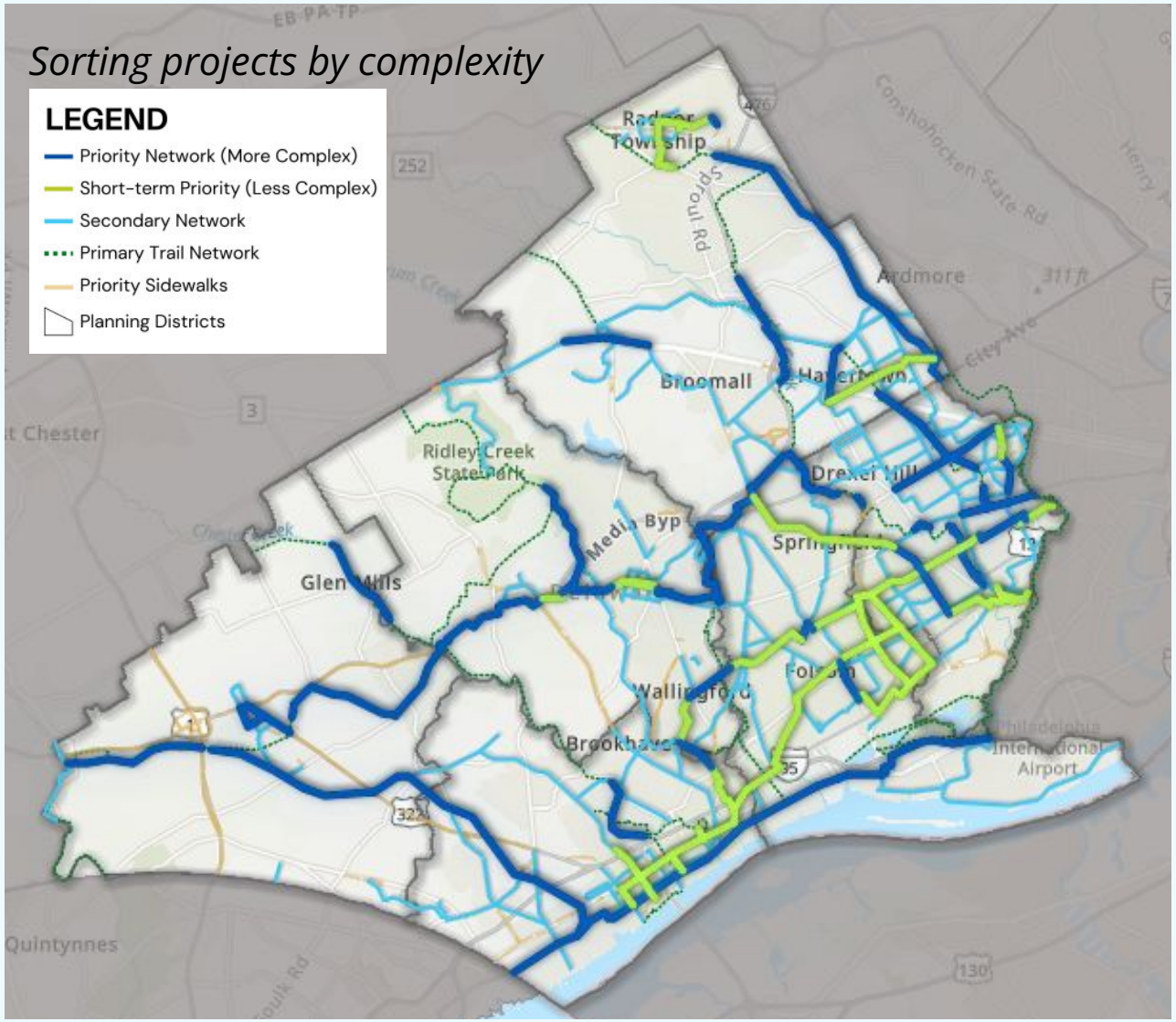
Priority Network (more complex)

- 48mi of greenways
- 4 mi of bikeways
- 5 mi sidepaths
- 14mi reimagined arterials

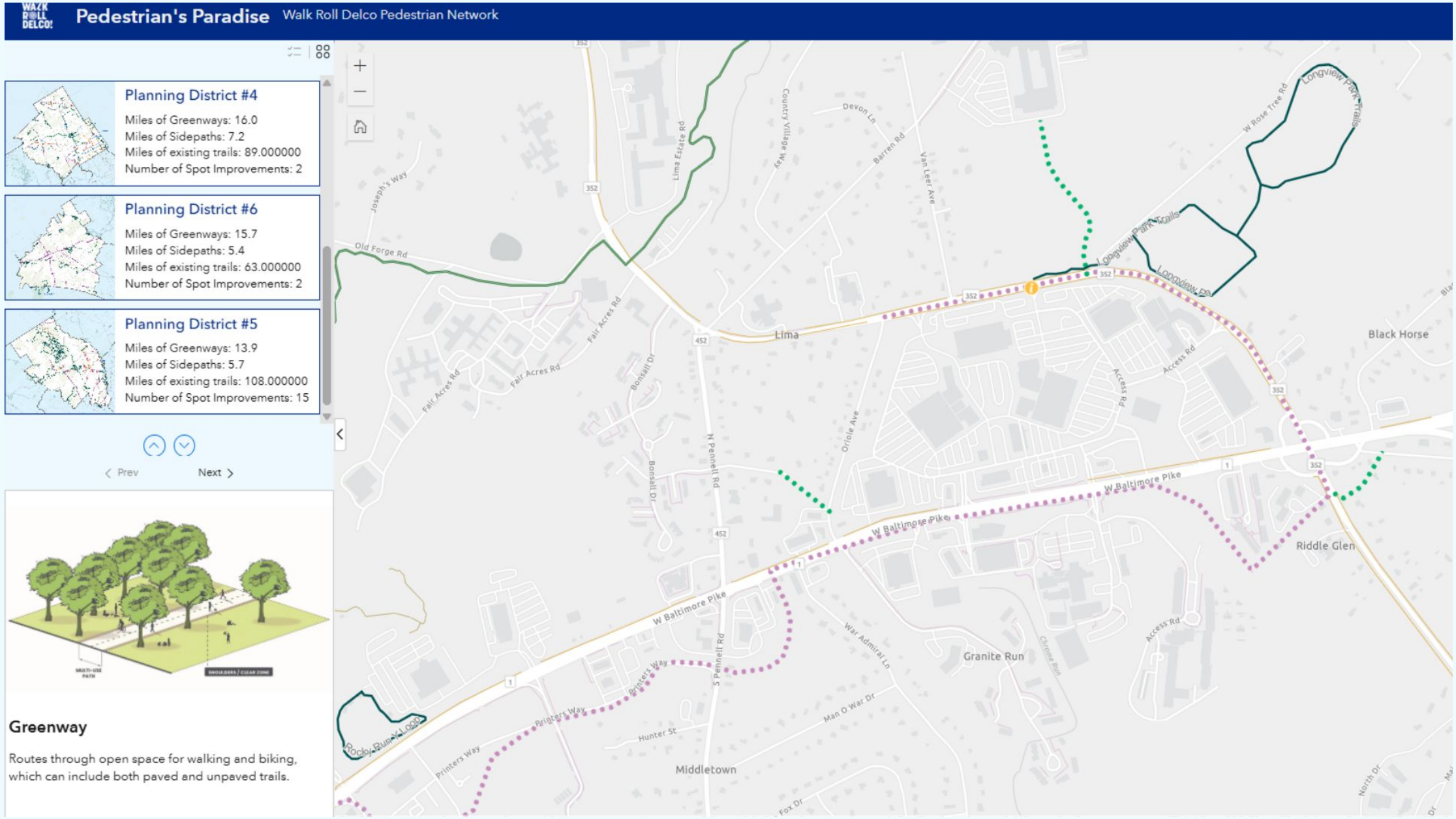
58%

Secondary Network

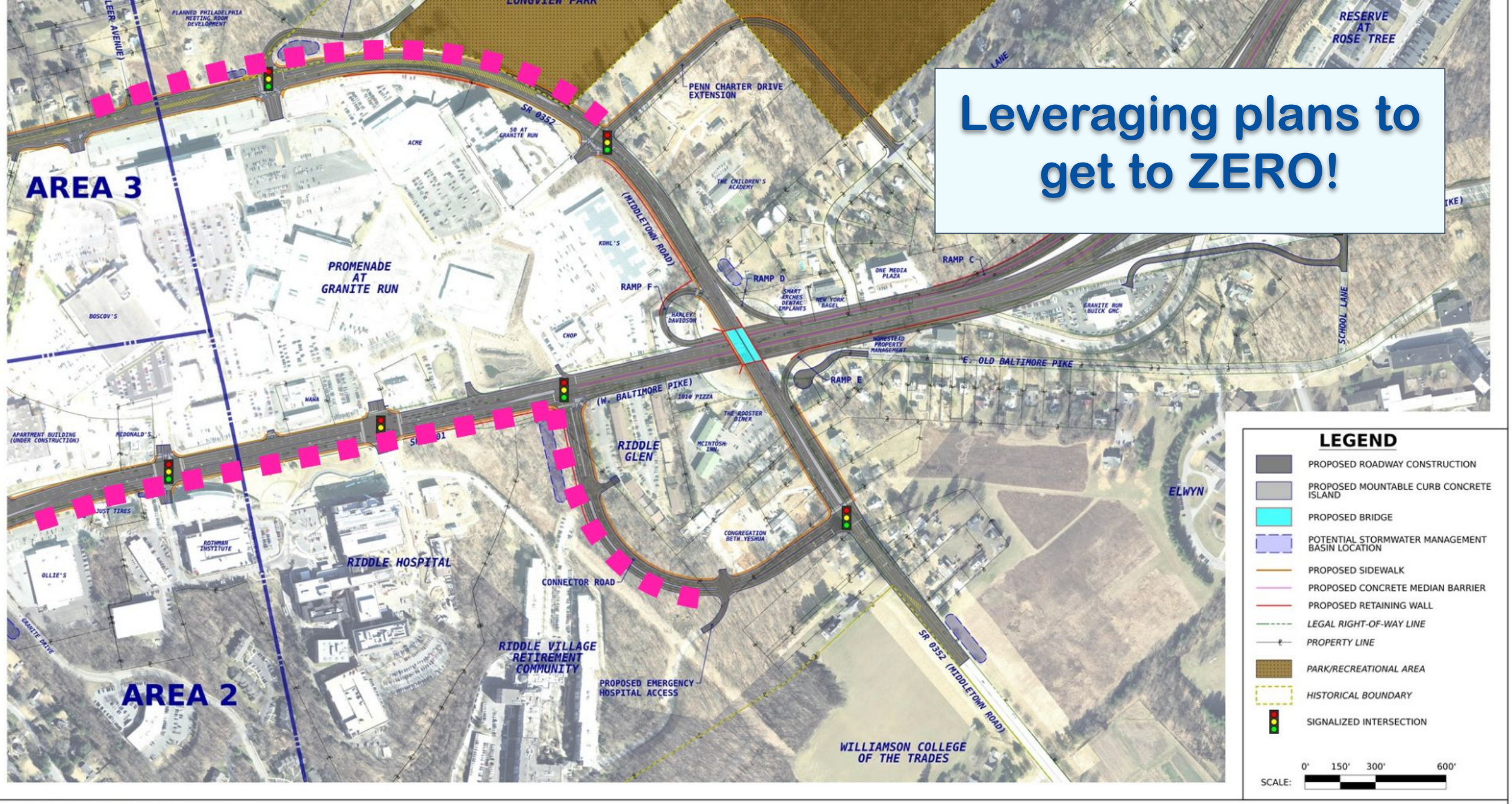
- 17mi greenways
- 42mi bikeways
- 29 mi sidepaths
- 40mi bike boulevards
- 25mi reimagined arterials



Putting Plans to Work!



Leveraging plans to get to ZERO!



U.S. Department of Transportation Federal Highway Administration

pennsylvania DEPARTMENT OF TRANSPORTATION

Jacobs AECOM NAVARRO & WRIGHT CONSULTING ENGINEERS, INC. A.D. MARBLE environmental-cultural-engineering ARROW LAND SOLUTIONS, LLC DCTMA DELAWARE COUNTY TRANSPORTATION MANAGEMENT ASSOCIATION

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Want to build tools like these?

Image Credit: DVRPC

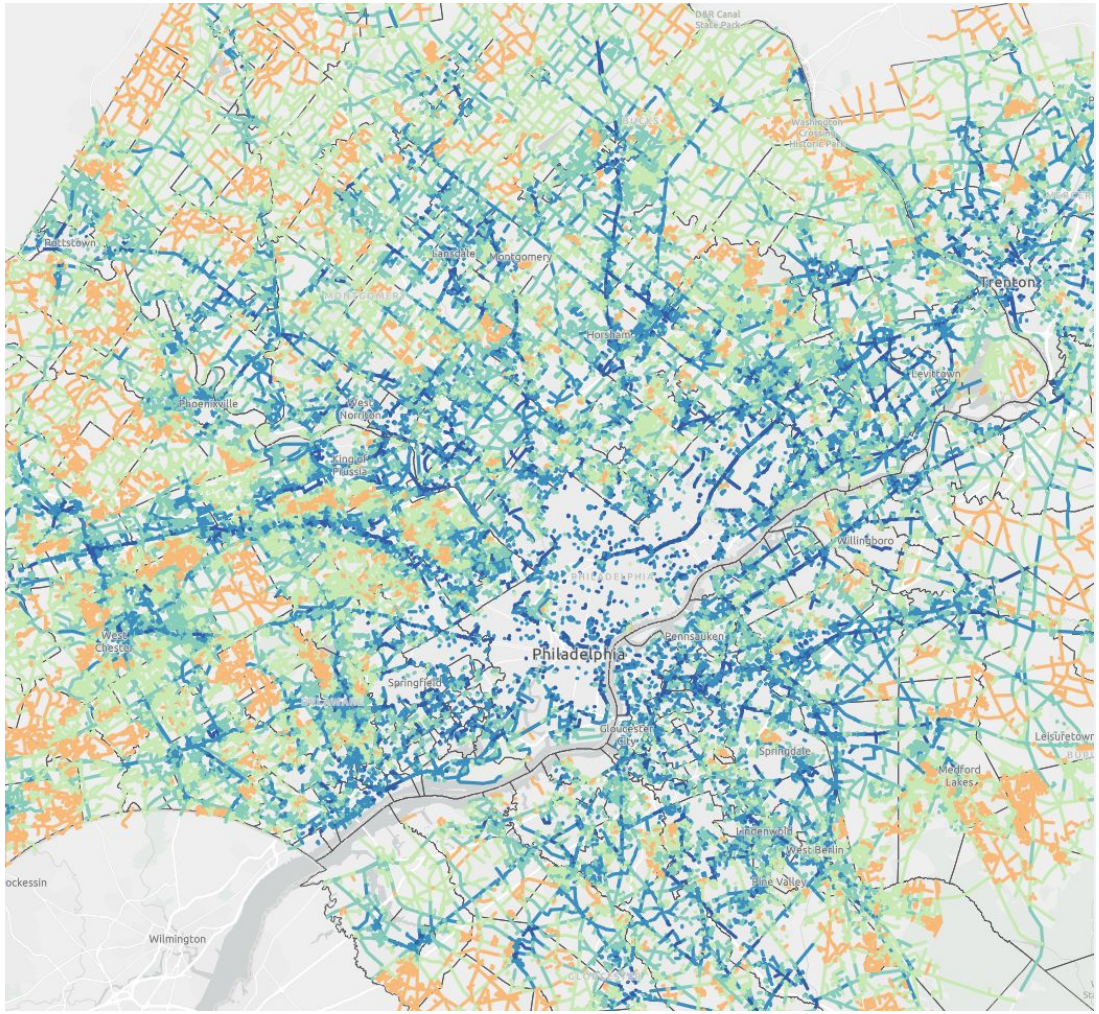
Tools

Sidewalk Priority Score

- ArcPy

Link

- React
- FastAPI
- Postgres (with PostGIS + PGrouting)
- ogr2ogr



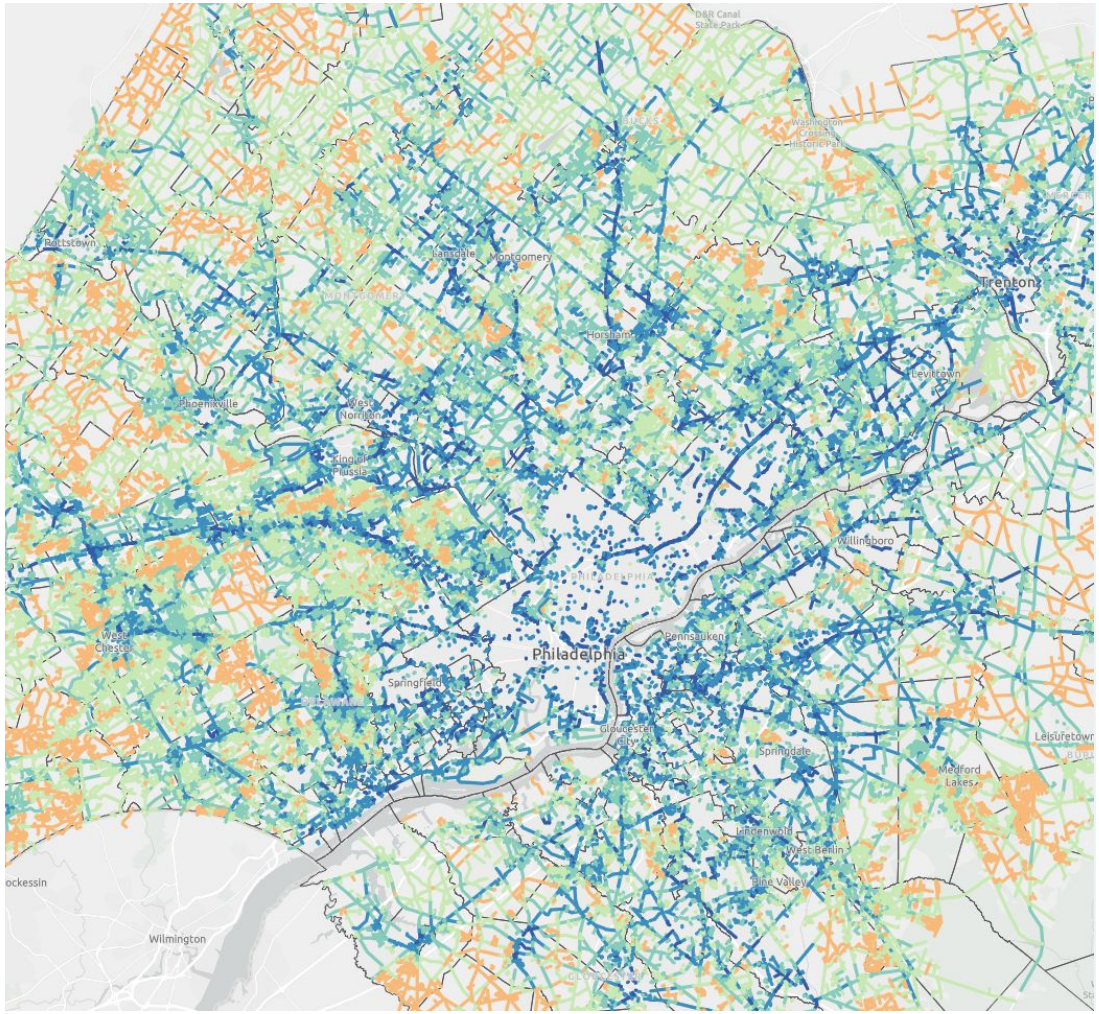
Data

Sidewalk Priority Score

- Sidewalk gaps + network
- Transportation need score
- High injury network
- Development intensity
- Transit stops
- School locations (NCES)

Link

- Sidewalk network
- On + Off road bicycle facilities
- Population (ACS)
- Employment (LODES)
- Crash data
- Transit stops and routes



Resources

Links to

- Github
- Documentation
- Slides

https://tinyurl.com/dvrpctoolresources

Thank you!

Cathy Spahr (spahrc@co.delaware.pa.us)
Baxter Barrett (bbarrett@dvrpc.org)
Sarah Moran (smoran@dvrpc.org)

Image Credit: DVRPC