City of Chester
Green Stormwater Infrastructure Plan

Chris Linn, RTC, July 2016

dvrpc

Project Team

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Chester City

14th most populous municipality in PA

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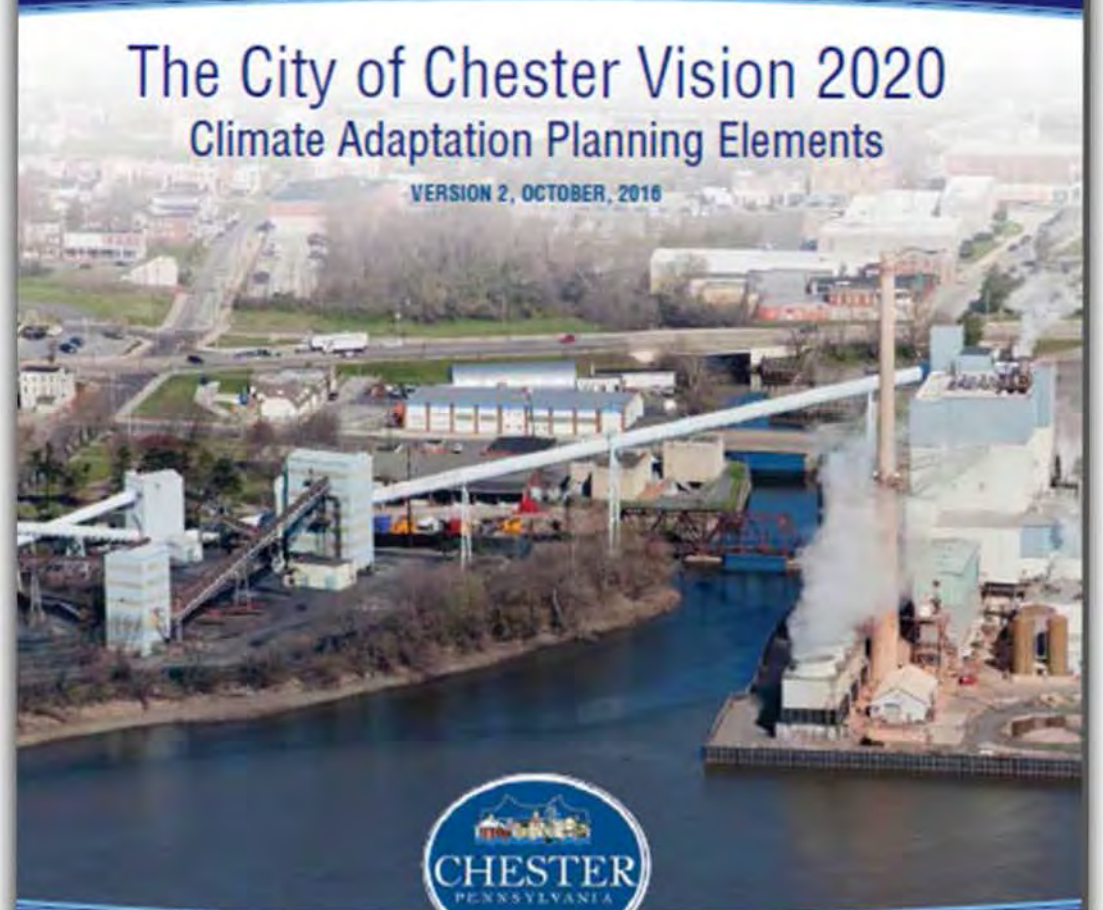
Talen Energy Stadium

Sea Grant
Pennsylvania

The City of Chester Vision 2020

Climate Adaptation Planning Elements

VERSION 2, OCTOBER, 2016



CHESTER
PENNSYLVANIA

APROVED BY CHESTER CITY COUNCIL

June 25, 2014

Authored By: The Chester Hazards And Climate Project Team

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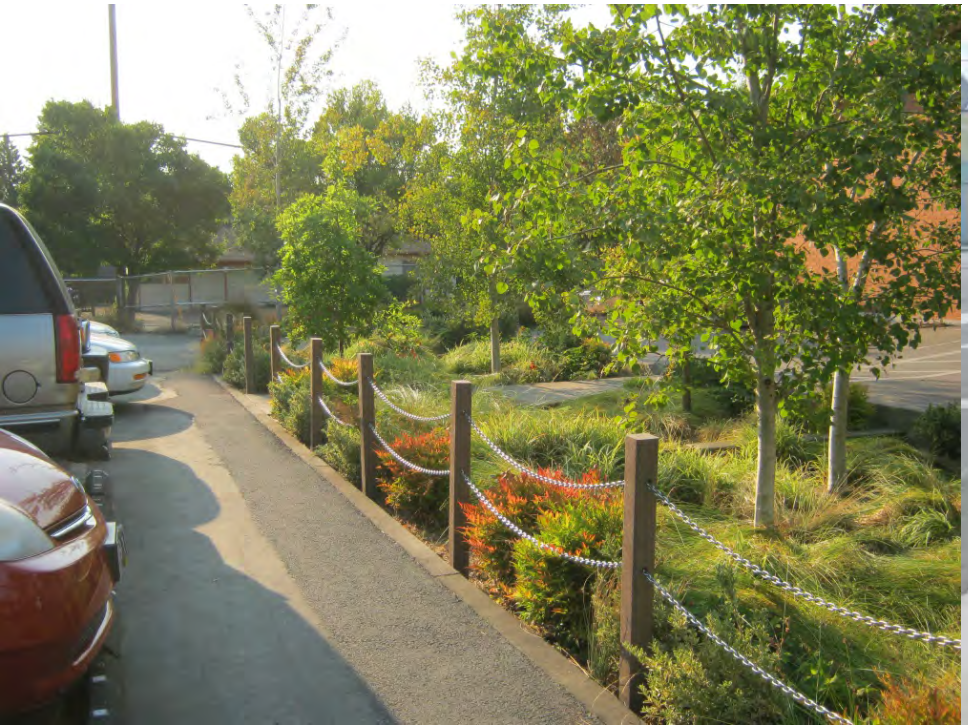
Recommendation

Develop a Plan to Implement Green Stormwater Infrastructure (GSI)



Combined Sewer Overflows

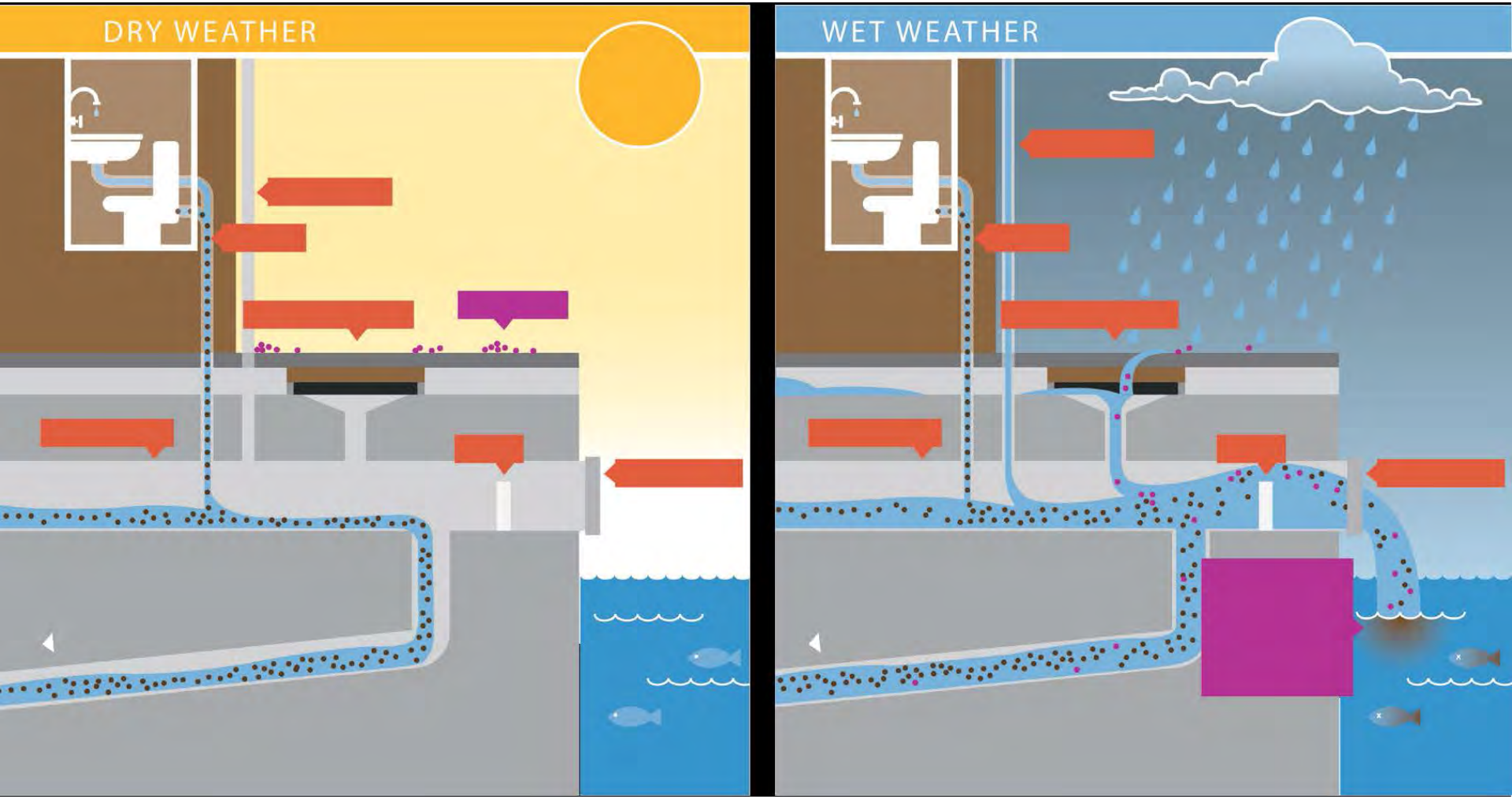


Image courtesy of US EPA 2014

Benefits of GSI

Common GSI Techniques

Image courtesy of Philadelphia Water Department

CITY APPLICATION	APPLICABLE GSI TECHNIQUE	OPPORTUNITIES	GROUP RESPONSIBLE
Streets & Sidewalks Chester's public right-of-way includes a significant amount of the city's impervious surfaces, and represents a critical opportunity to keep stormwater out of its overtaxed sewer system. Two basic green strategies to capture and infiltrate runoff from streets, sidewalks, and alleys are to use vegetated areas or to use subsurface infiltration trenches (with or without porous pavement).	• Downspout Planter • Stormwater Tree Trench • Stormwater Bump-out • Porous Pavement	• Initial projects could occur at street corners undergoing ADA ramp upgrades and in areas slated for roadway repaving/reconstruction and streetscape improvements. • Adopt a "Green Streets" program like the Philadelphia Water Department to incorporate GSI in streetscape improvements, traffic calming devices, and greening efforts.	Streets Department
Buildings & Sites There are three basic green stormwater infrastructure strategies for public and private buildings and sites: manage water on the roof, manage water as it flows off of the roof, or manage water where it falls on site.	• Rain Garden • Rain Barrel/Cistern • Green Roof • Stormwater Tree Trench • Downspout Planter • Stormwater Bump-out • Porous Pavement	• Existing school and library properties are good candidate projects. Strategic use of rain barrels and rain gardens can tie into science curriculum and engage students. • Pavement related projects are most cost effective when the pavement is in need of replacement or the lot requires reconfiguration for other reasons.	City Departments and Authorities Private Land Owner
Parks & Open Space Chester has 27 parks of varying sizes and characteristics. Each park has the potential to utilize GSI. Typically, parkland contains significant permeable surfaces that already absorb rainwater. If properly designed and integrated into ongoing restoration work, many park sites can be enhanced to create hydraulic connections to larger land areas that are generally impervious, such as streets and sidewalks.	• Rain Garden • Rain Barrel/Cistern • Green Roof • Stormwater Tree Trench • Downspout Planter • Stormwater Bump-out • Porous Pavement • Depaving • Conservation Landscaping	• Investigate GSI retrofits during the preparation of the Park, Recreation, and Open Space Plan to be completed in 2017. • See Veterans Memorial Park case study.	Parks & Recreation Department
Vacant Land Chester has numerous vacant parcels. Although not always under public control, these parcels offer excellent opportunities for building GSI projects during the redevelopment process.	• Porous Pavement • Depaving • Conservation Landscaping	• Implementing a variety of green infrastructure techniques to manage stormwater generated on-site can also manage additional impervious areas from adjacent properties. • It is important to investigate any limitations to the use of the site when considering the incorporation of GSI on a brownfield site.	City of Chester / CEDA

Route PA 291

A
Rain Garden

C
Stormwater Planter

E
Tree Trench

H
Porous Pavement

Aerial Image by Google Earth, provided by Oak Valley Design.

Potential GSI Treatments:

A RAIN GARDEN

C STORMWATER PLANTER

D GREEN ROOF

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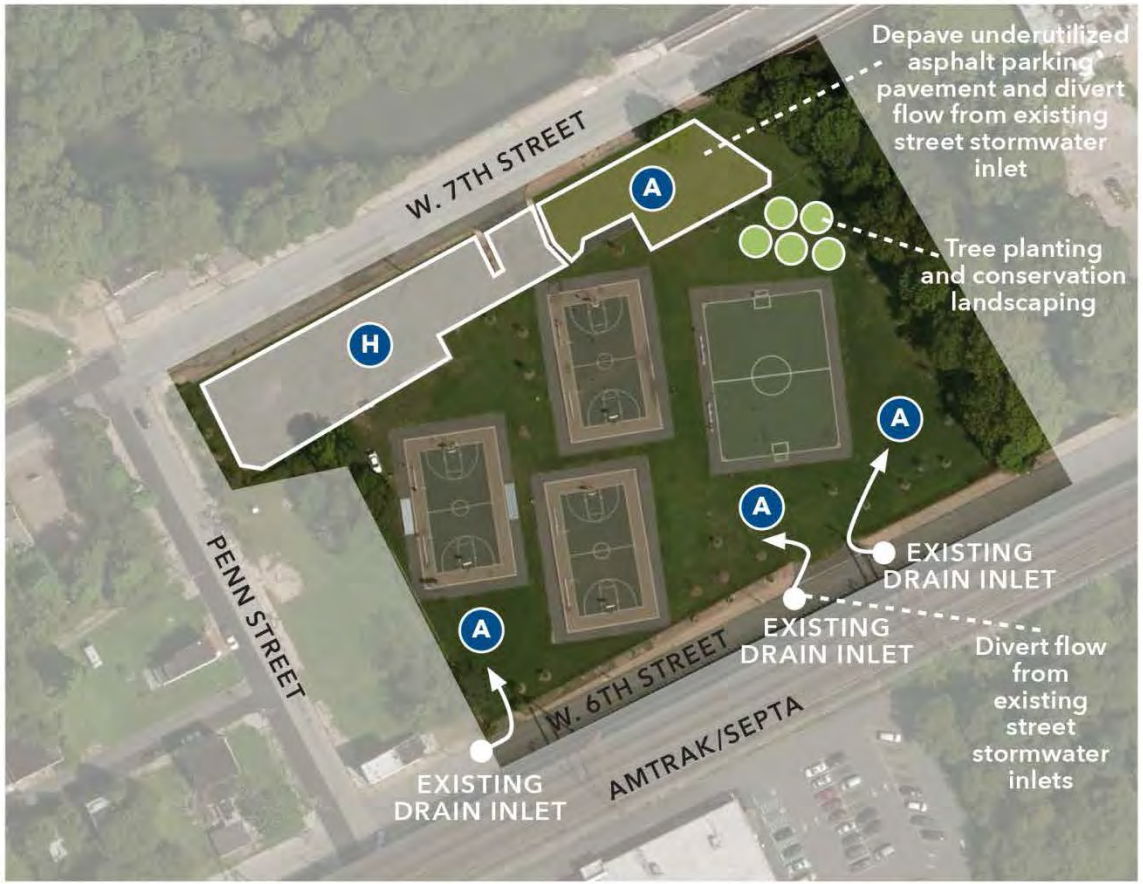

Aerial Image by Google Earth, provided by Oak Valley Design.

Potential GSI Treatments:

A RAIN GARDEN

H POROUS PAVING

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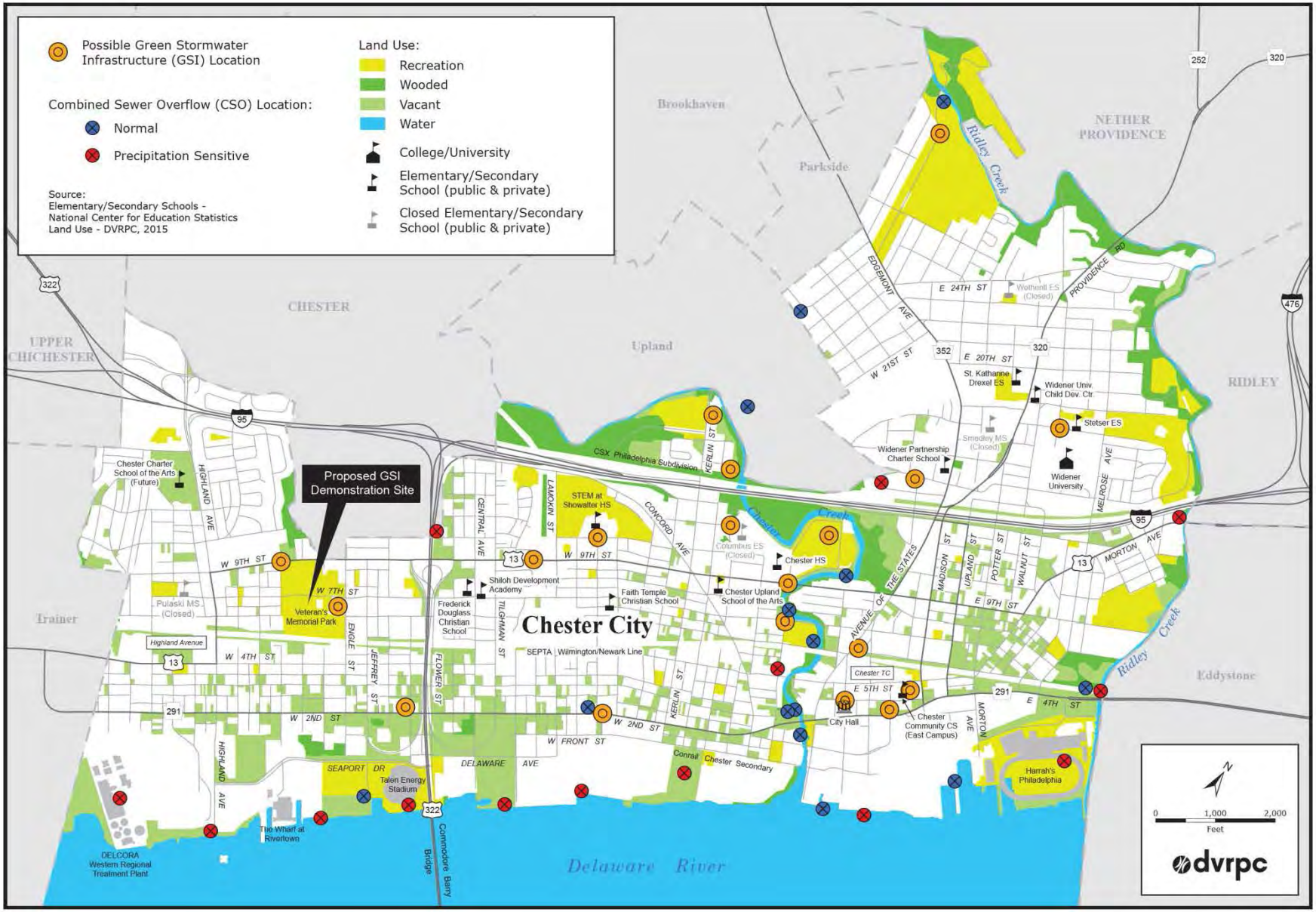
Possible Green Stormwater Infrastructure (GSI) Location
Combined Sewer Overflow (CSO) Location:
Normal
Precipitation Sensitive
Source:
Elementary/Secondary Schools - National Center for Education Statistics
Land Use - DVRPC, 2015
Land Use:
Recreation
Wooded
Vacant
Water
College/University
Elementary/Secondary School (public & private)
Closed Elementary/Secondary School (public & private)
Proposed GSI Demonstration Site
Chester City
Brookhaven
Parkside
NETHER PROVIDENCE
CHESTER
Upland
UPPER CHICHESTER
RIDLEY
Trainer
Eddystone
Ridley Creek
Chester Creek
Delaware River
CSX Philadelphia Subdivision
SEPTA Wilmington/Newark Line
Conrail Chester Secondary
Commodore Barry Bridge
Chester Charter School of the Arts (Future)
Pulaski MS (Closed)
Veteran's Memorial Park
Frederick Douglass Christian School
Shiloh Development Academy
STEM at Showalter HS
Columbus ES (Closed)
Faith Temple Christian School
Chester HS
Chester Upland School of the Arts
Wolfendl ES (Closed)
St. Katharine Drexel ES
Widener Univ. Child Dev. Ctr
Smedley MS (Closed)
Widener Partnership Charter School
Stetser ES
Widener University
City Hall
Chester TC
Chester Community CS (East Campus)
Harrah's Philadelphia
Talen Energy Stadium
The Wharf at Rivertown
DELCORA Western Regional Treatment Plant
Highland Avenue
W 9TH ST
W 7TH ST
W 4TH ST
W 2ND ST
W FRONT ST
E 24TH ST
E 20TH ST
E 9TH ST
E 5TH ST
E 4TH ST
SEAPORT DR
DELAWARE AVE
AVENUE OF THE STATES
HIGHLAND AVE
CENTRAL AVE
LAMOKIN ST
CONCORD AVE
KERLIN ST
TILGHMAN ST
FLOWER ST
ENGLE ST
JEFFREY ST
EDGEMONT AVE
PROVIDENCE RD
MELROSE AVE
MADISON ST
UPLAND ST
POTTER ST
WALNUT ST
MORTON AVE
95
476
322
252
320
352
291
13
0
1,000
2,000
Feet
dvrpc

Veteran's Memorial Park

Images by CH2M/Viridian Landscape Studio.

Potential GSI Treatments:

A RAIN GARDEN

G STORMWATER BUMP-OUT

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IMPLEMENTATION

Questions?

Graphic courtesy of Philadelphia Water Dept.

LOCATION	ADDRESS	NOTES	CORRIDOR AND TARGET AREAS	POSSIBLE GSI TECHNIQUES
PA 291 & Lloyd	Intersection of PA 291 & Lloyd Street	Visible to PA 291 traffic, private property surrounds area. Floods.	Waterfront Corridor Revitalization Target Area D	Bioswales, rain gardens, tree trenches, subsurface infiltration/storage
PA 291 Median Strip *	PA 291	Turning lane on PA 291, could go the whole stretch of Chester City.	Waterfront Corridor Revitalization Target Area B	Bioswales, rain gardens, tree trenches, subsurface infiltration/storage
PA 291 & Reaney	Intersection of PA 291 & Reaney Street	Next to PPL Park, very visible, medium sized plot, on corner, high traffic, flooding area.	Waterfront Corridor Revitalization Target Area A	Tree trenches, bumpouts, rain gardens
The "Triangle" *	79 East 6th Street	Very visible, next to train and bus stop, unused vacant land, community oriented, can be used for public events.	Central Business District Revitalization Target Area D	Rain gardens, bumpouts, porous paving, tree trenches
Basketball Court	14th & Crosby Streets	Privately owned, high crime area - take care not to create hiding places, one court surrounded by steep slopes, avoid GSI on slopes.	None	Porous paving, rain gardens, tree trenches
Basketball Courts*	Bounded by 6th, 7th & Penn Streets & Chester Creek	Heavily used, newly blacktopped courts, parking lot n bad shape, well cleaned, grassy areas around courts, direct drainage to Chester Creek.	Central Business District, close to Revitalization Target Area D and proposed Chester Creek trail.	Porous paving in parking area, bioswales, rain gardens
Chester Community Charter School	214 East 5th Street	Privately owned. Not highly visible, limited green space, fenced-in so not very accessible to the community.	Partially in Central Business District	Cisterns/rain barrels, downspout planters
Chester High School*	200 West 9th Street	The front corner is visible to community, back is open but not very visible; localized basement flooding & flooding in adjacent park.	Close to proposed Chester Creek Trail	Bioswales, rain gardens, tree trenches, porous pavement, bumpouts
Chester Park Line	East Elkinton Boulevard & Edgmont Avenue	Big park, seems well maintained and attractive, lots of lawn.	None	Rain gardens, bioswales, tree trenches, bumpouts, conservation landscaping
City Hall	Edgmont & PA 291	Very visible to PA 291 and community, existing vegetation may be impacted by proposed GSI.	Waterfront Corridor, Revitalization Target Area D	Porous paving, bioswales, tree trenches, rain gardens, depaving
Columbus Elementary	Parker Street & West 10th Street	Vacant school property that may be renovated or receveloped in the future.	Close to proposed Chester Creek Trail	Dependent on future development or future use
Crozer Park	Finland Drive & Kerlin Street	Large, hilly, visible, large parking area, primarily turf and recreation fields.	Close to proposed Chester Creek Trail	Bioswales, bumpouts, tree trenches, porous paving, rain gardens
Eyre Park	Between Chester High School & Chester Creek	Large vacant area, needs some attention, not that visible, only visible to high school; potential to partner with trails.	Partially in I-95 Corridor (Medical Education Corridor)	Rain gardens, conservation landscaping, depaving
Parker Manor	Parker & West 13th Streets	Housing across from Crozer Park, down hill, next to creek. 10 houses recently removed, floods (either from creek or runoff).	Close to proposed Chester Creek Trail	Depaving, conservation landscaping, rain gardens, bioretention
Pocket Park	Intersection of 8th and Lloyd Streets	Playground equipment outdated. Could reduce impervious surfaces and utilize the park more efficiently. High potential for green techniques.	None	Depaving, underground storage below playground, conservation landscaping, community gardens, rain gardens
Talen Energy Stadium	1 Stadium Drive	Privately owned, possibility for long term maintenance and financial support.	Revitalization Target Area A	Rain gardens, porous pavement, grassy pavers, bumpouts, tree trenches
Ruth L. Bennett Housing	1701 West 7th Street	Could be a bunch of smaller projects, visible to neighborhood, external downspouts on newer housing could be disconnected.	None	Rain gardens, tree trenches, bioswales, bumpouts, rain barrels, downspout planters
Showalter STEM High School	1100 West 10th Street	Large area in front of school with pavement around flag pole. Good location to work with schools on related educational projects; large parking areas only used part of the year.	None	Rain gardens, bioswales, bumpouts, depave/grassy pavers, porous pavement
Stetser Elementary	Melrose Avenue & East 17th Street	Large spaces, pavement/parking unused, could be depaved and planted, privately owned by Widener University.	None	Rain gardens, bioswales, bumpouts, tree trenches, porous pavement
Veterans Memorial Park & J. Lewis Crozer Library *	2300 West 7th Street	Big, lots of area, visible to community members, fields, library parking lot floods.	None	Rain gardens, bioswales, bumpouts, conservation landscape, tree trenches, porous pavement

DVRPC's Regional
Sidewalk Inventory
Project

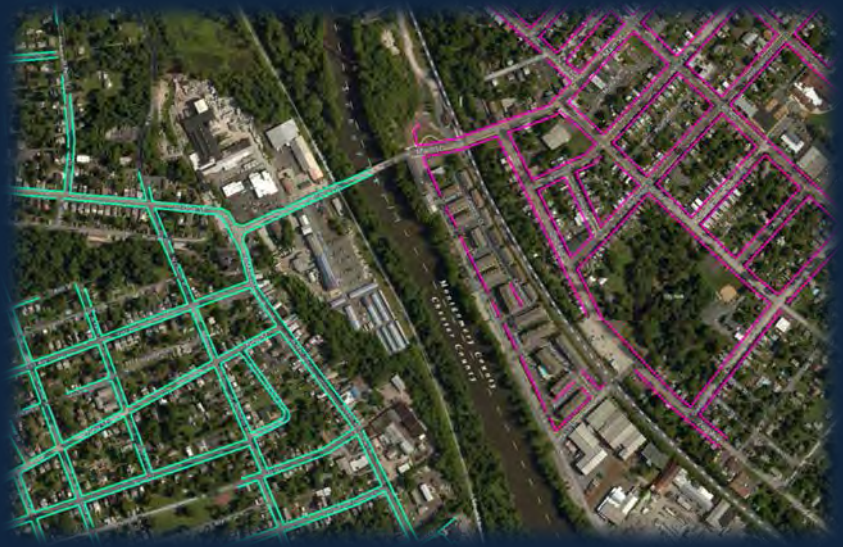
Kim Korejko
Manager, Data Coordination
July 11, 2017

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

To assist with planning efforts to help communities in the region become more pedestrian-friendly and accessible, DVRPC is developing a new regional sidewalk inventory and an online platform for a shared regional conversation on local and regional walkability.

Two Components

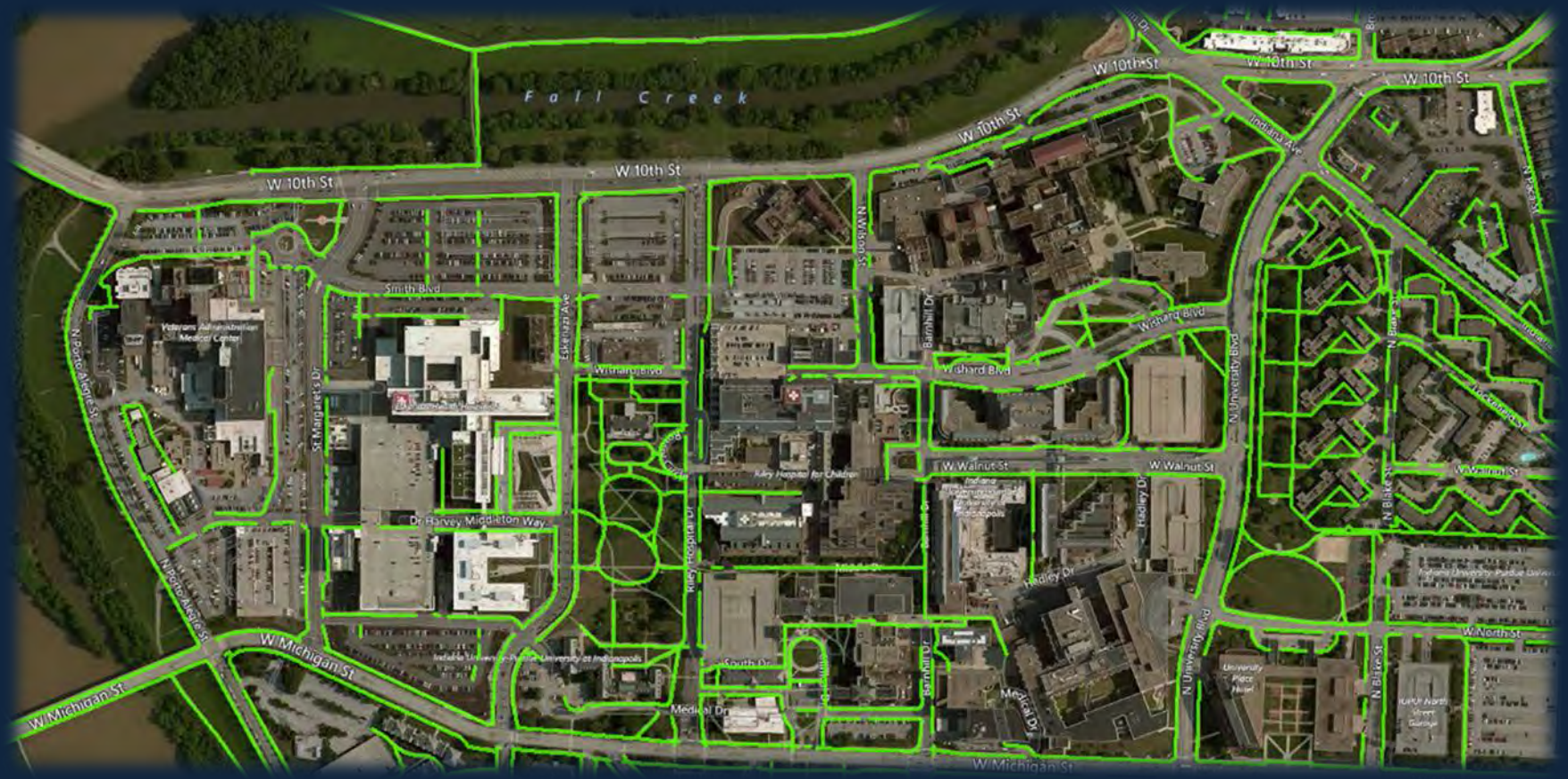
1. Regional GIS Dataset



2. Online public engagement platform

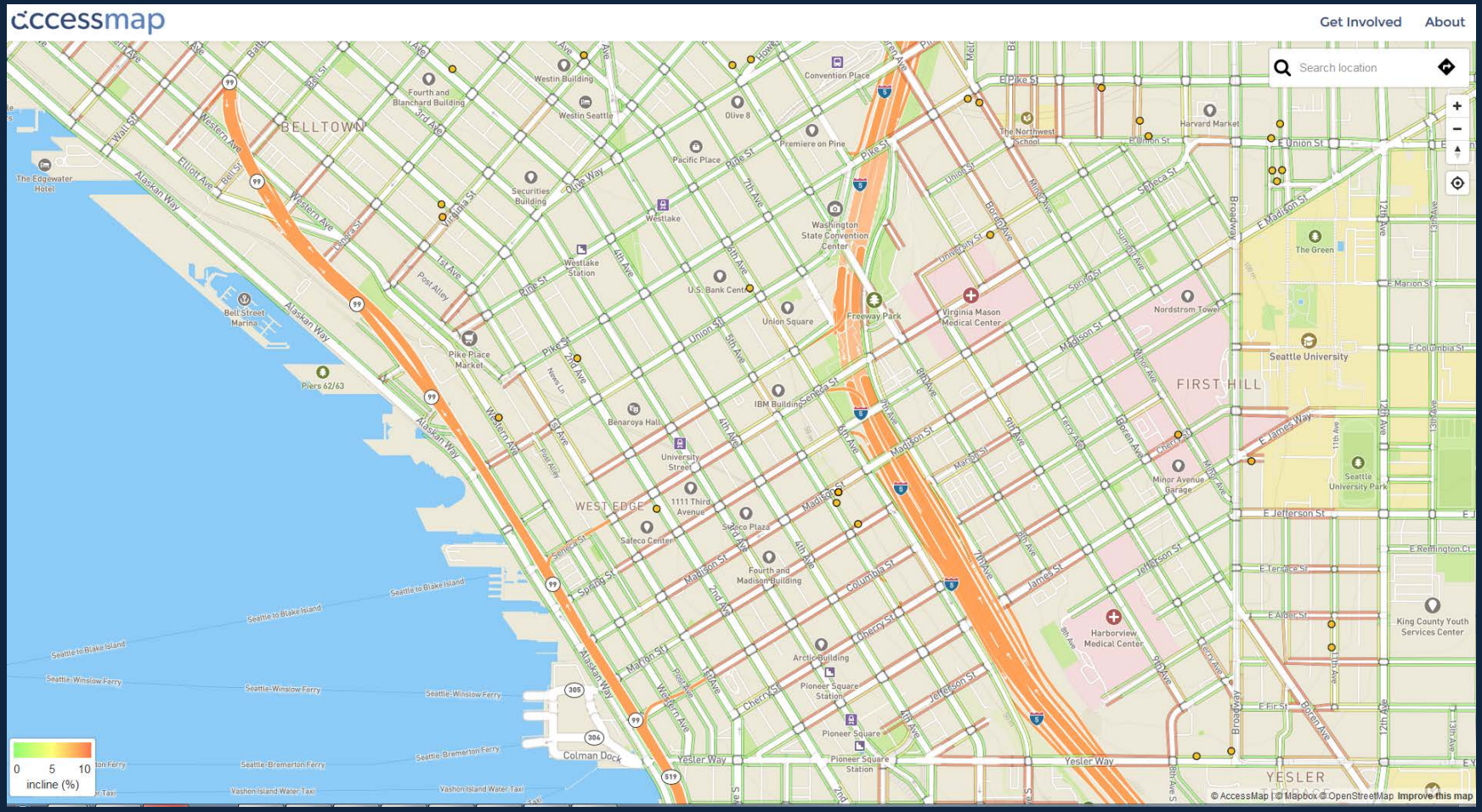
Examples of Sidewalk Inventories

Asset Management: Indianapolis MPO



Examples of Sidewalk Inventories

Routing: AccessMap, Seattle



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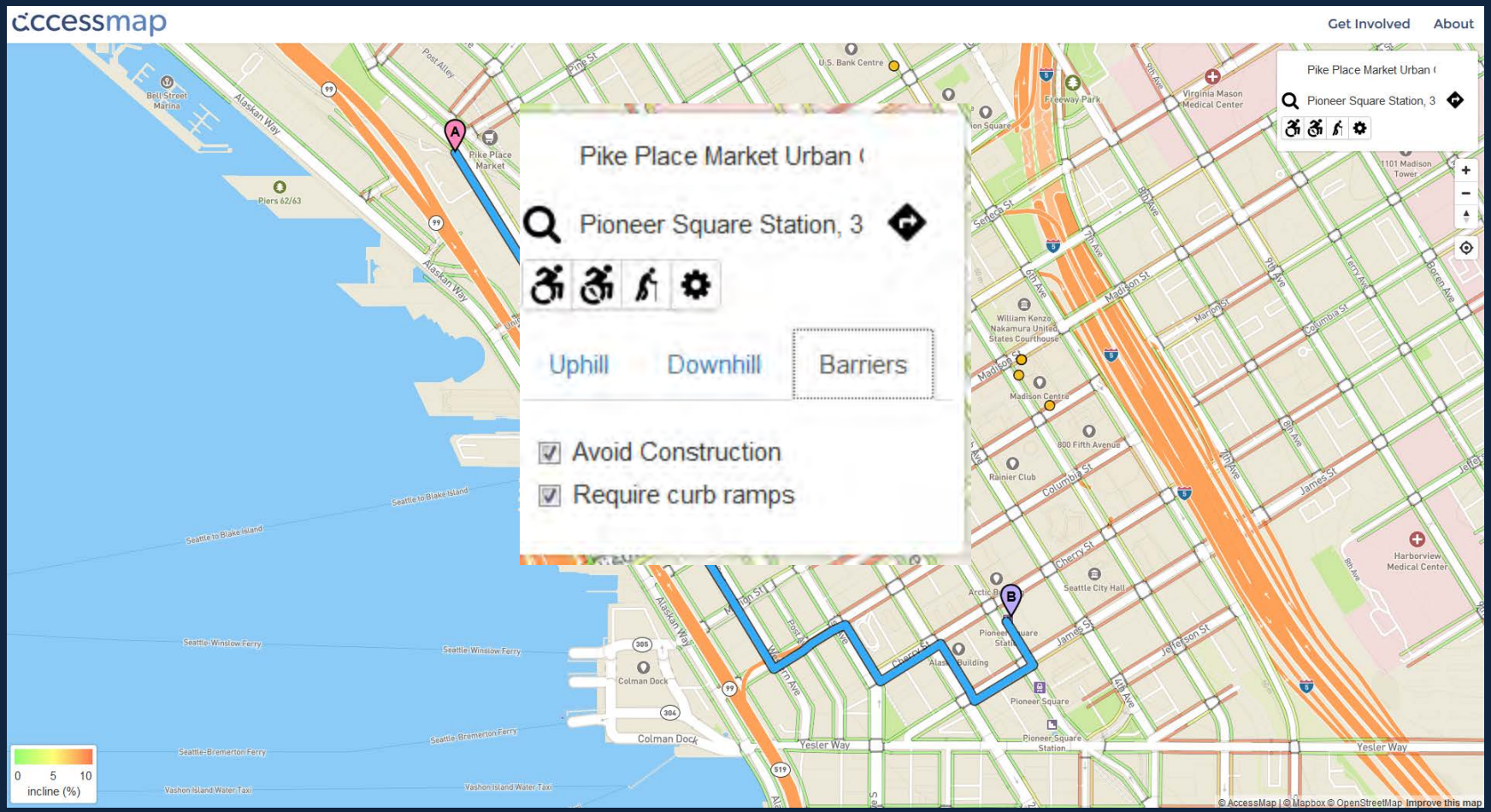
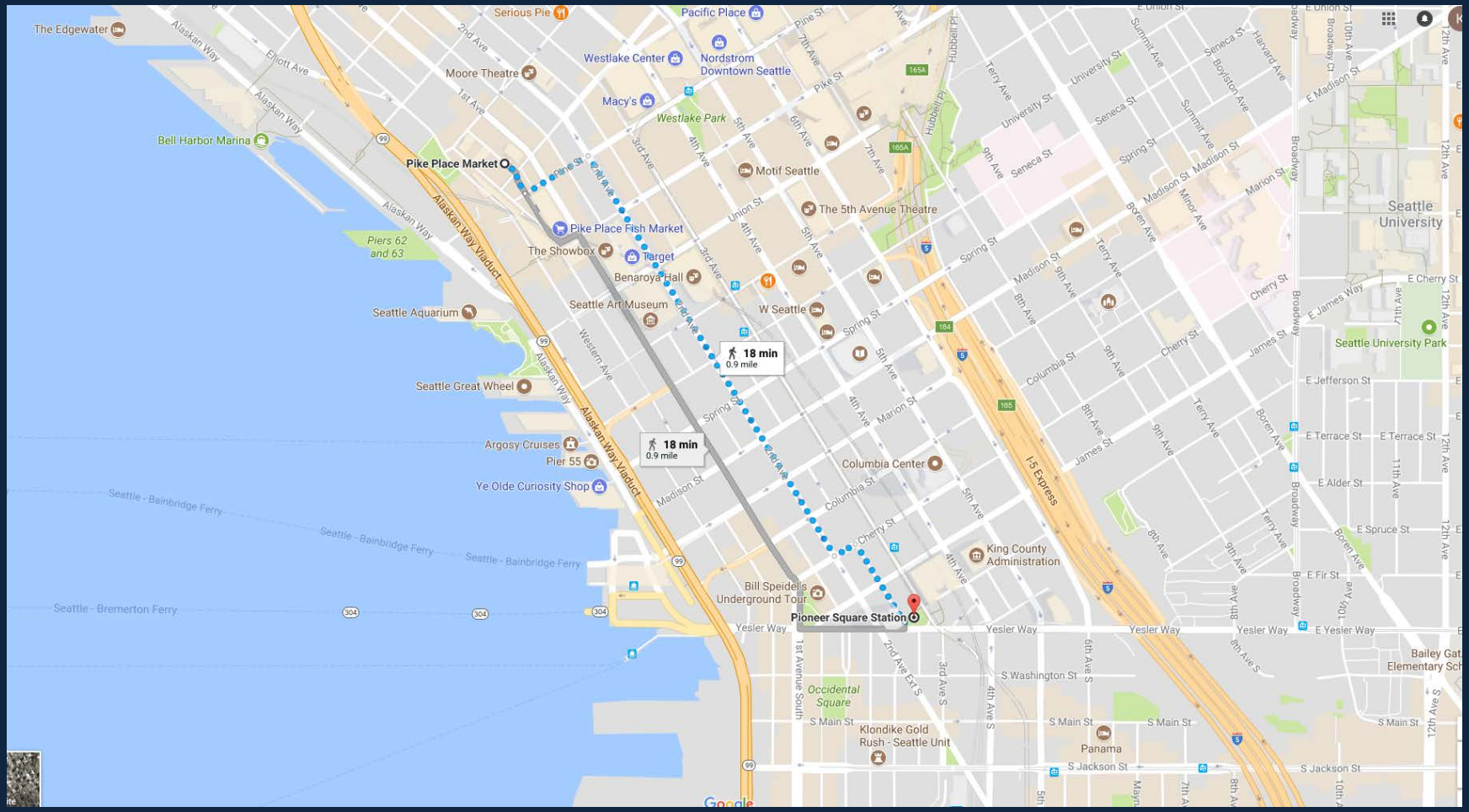


Examples of Sidewalk Inventories

Routing: Google



Examples of Sidewalk Inventories

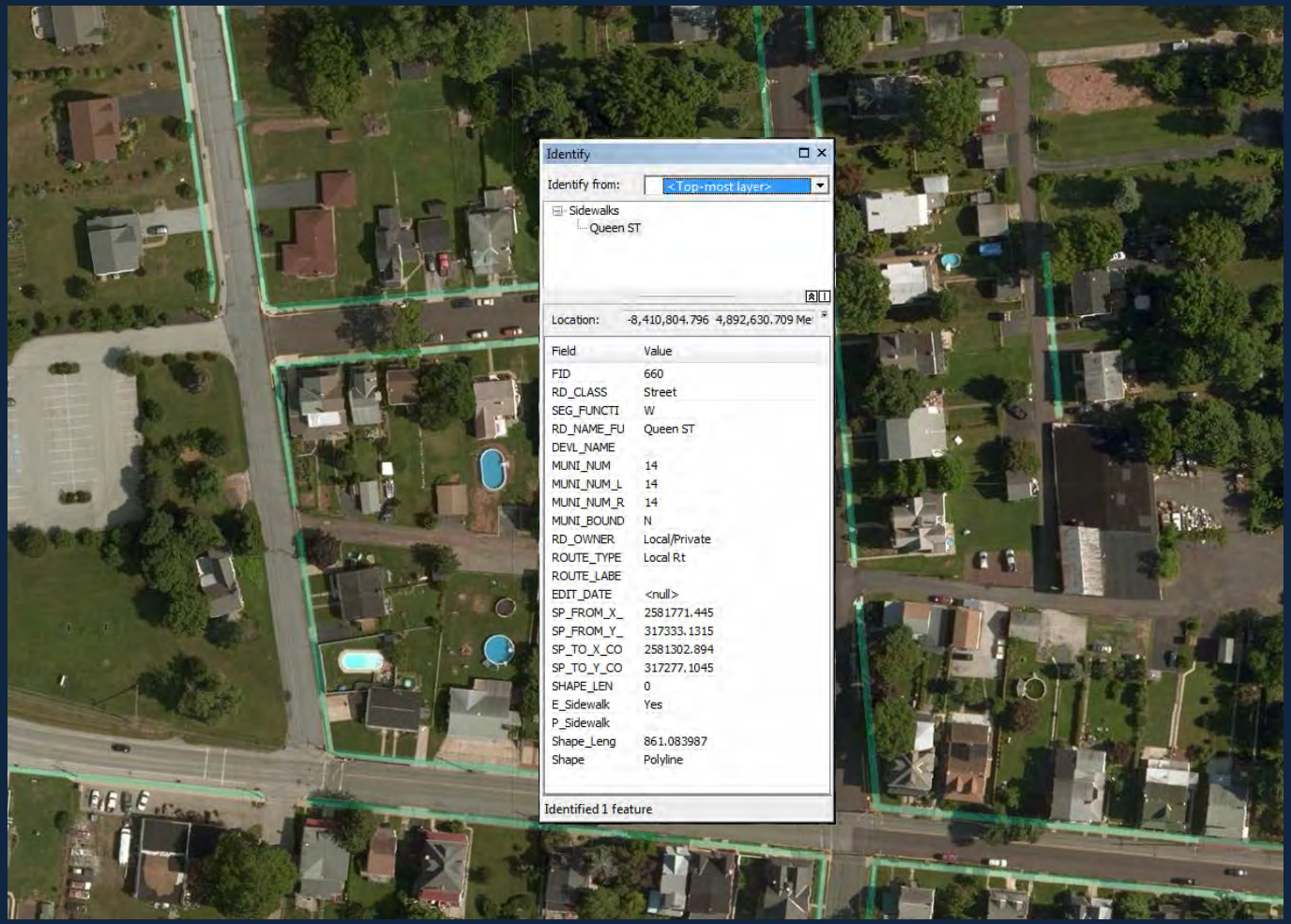
In our region: NJDOT's County Road Sidewalk Inventory

Examples of Sidewalk Inventories

In our region: Chester County

Examples of Sidewalk Inventories

In our region: Chester County

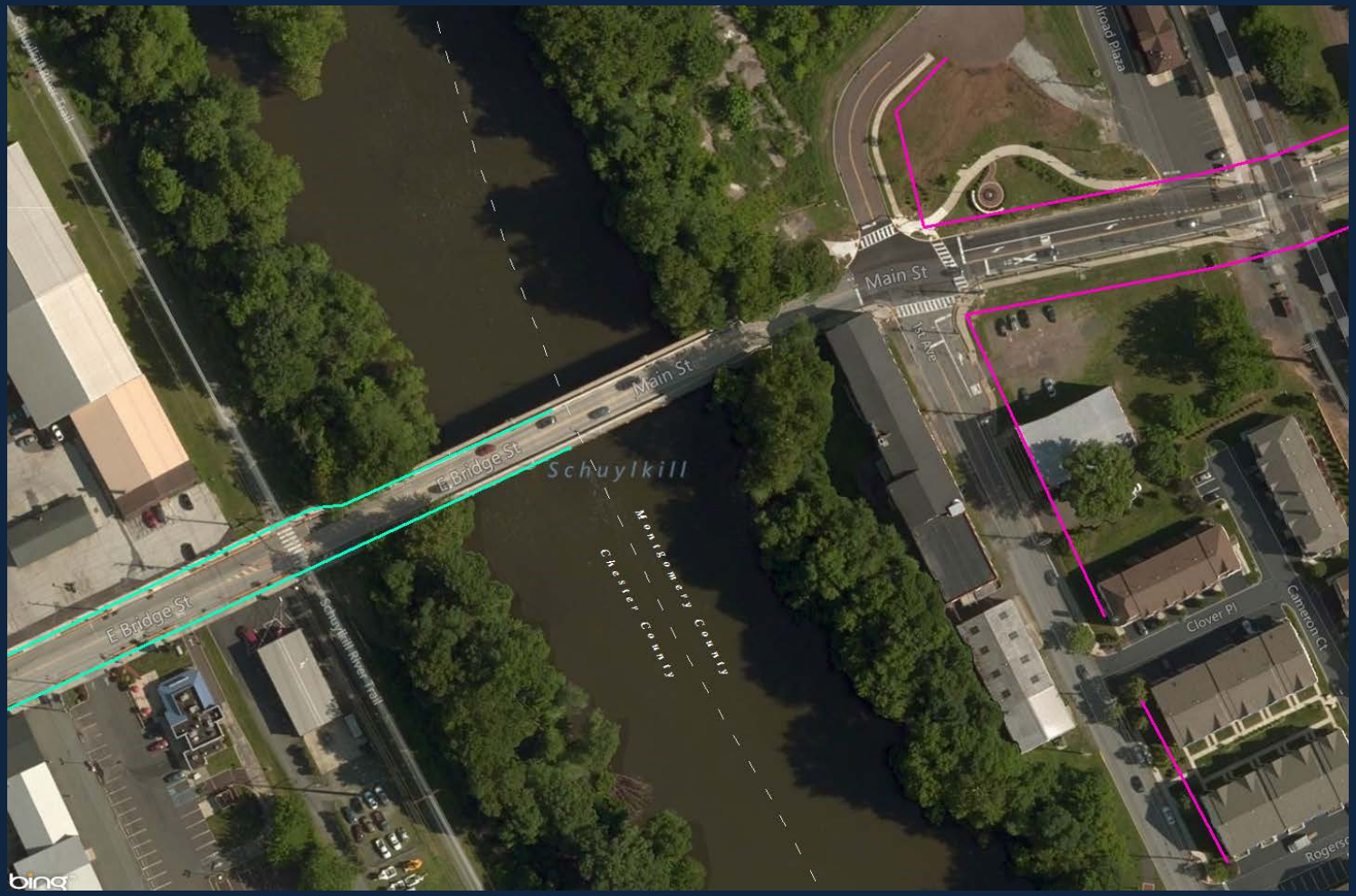


Examples of Sidewalk Inventories

In our region: Montgomery County

Examples of Sidewalk Inventories

In our region: Where the sidewalk ends…



DVRPC's Sidewalk Dataset

THE PLAN

- **Select a consultant to create seamless, standardized GIS dataset of sidewalks in the DVRPC region**
- **Build from existing networks**
- **Create new features where datasets don't exist**

FY18: DVRPC's PA Counties
FY19: DVRPC's NJ Counties

DVRPC's Sidewalk Dataset

HOW THE ADVISORY COMMITTEE CAN HELP

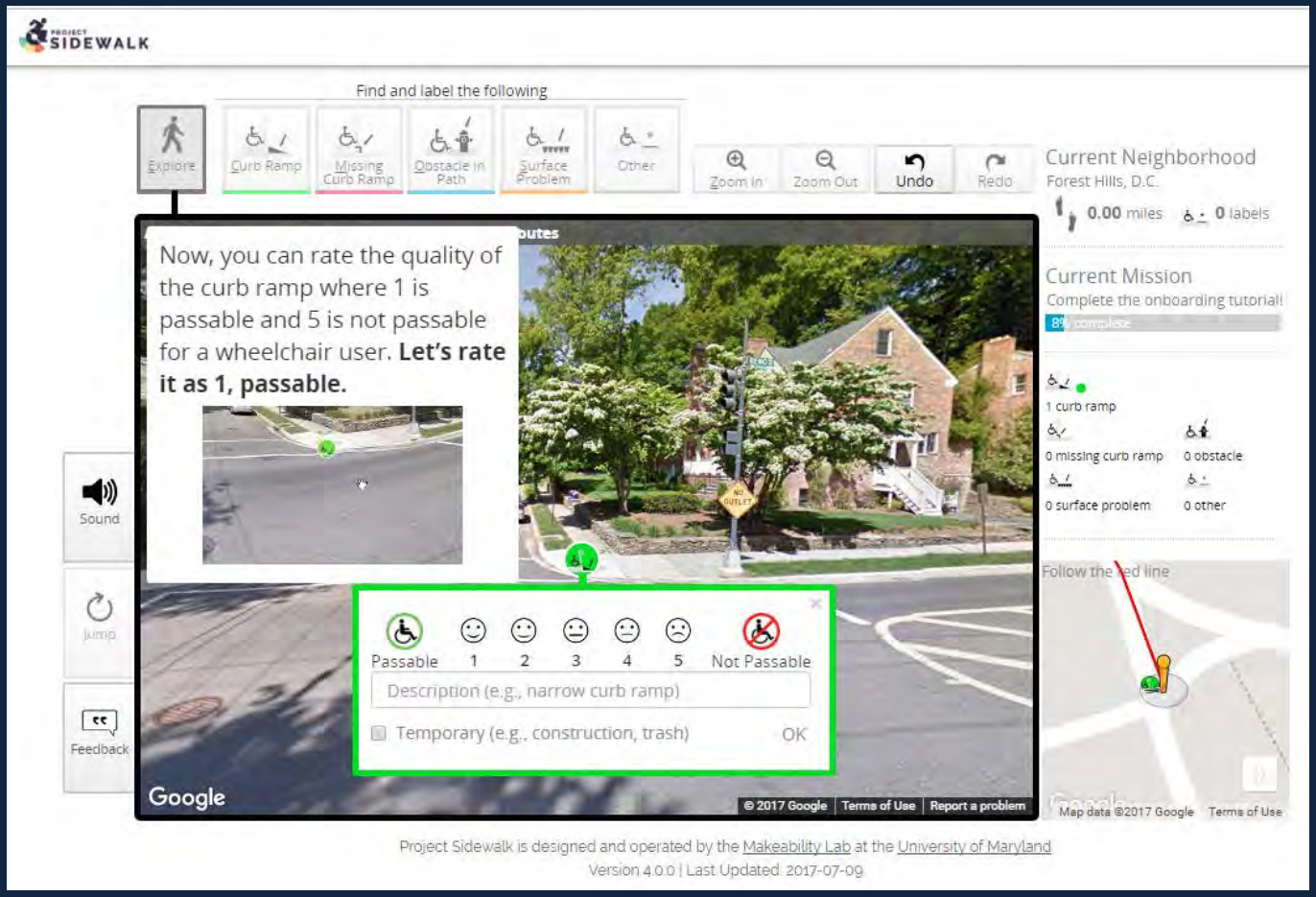
- How will this dataset be used in your planning efforts?
- What's most important to you?
- Who should we be talking to?

DVRPC's Online Walkability Engagement Platform

To complement the sidewalk inventory, DVRPC will create an online walkability engagement tool that will allow participants to share qualitative information about sidewalk and walking conditions in their communities.

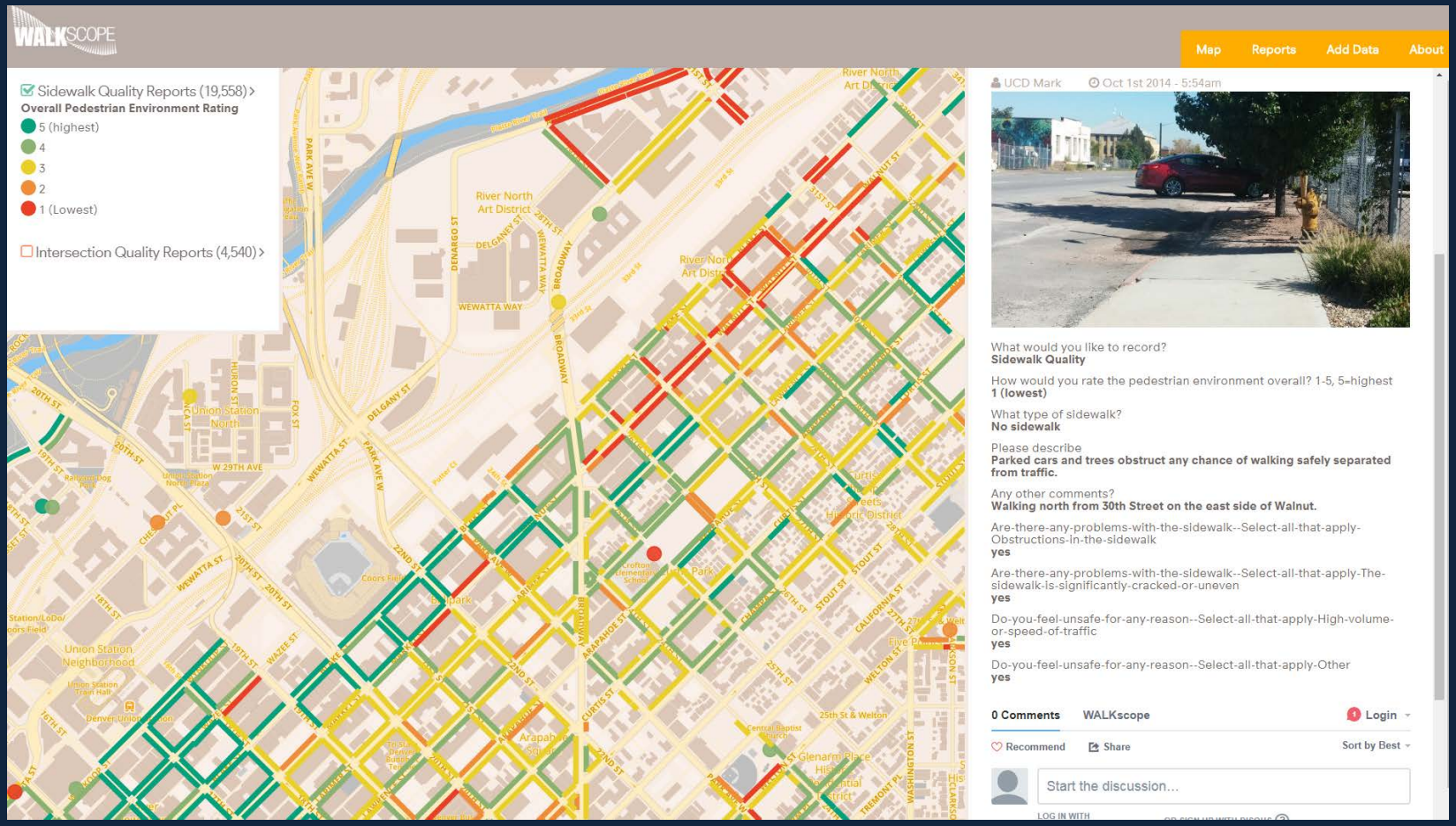
Examples of Pedestrian-Related Public Outreach Efforts

Project Sidewalk: Washington, D.C.



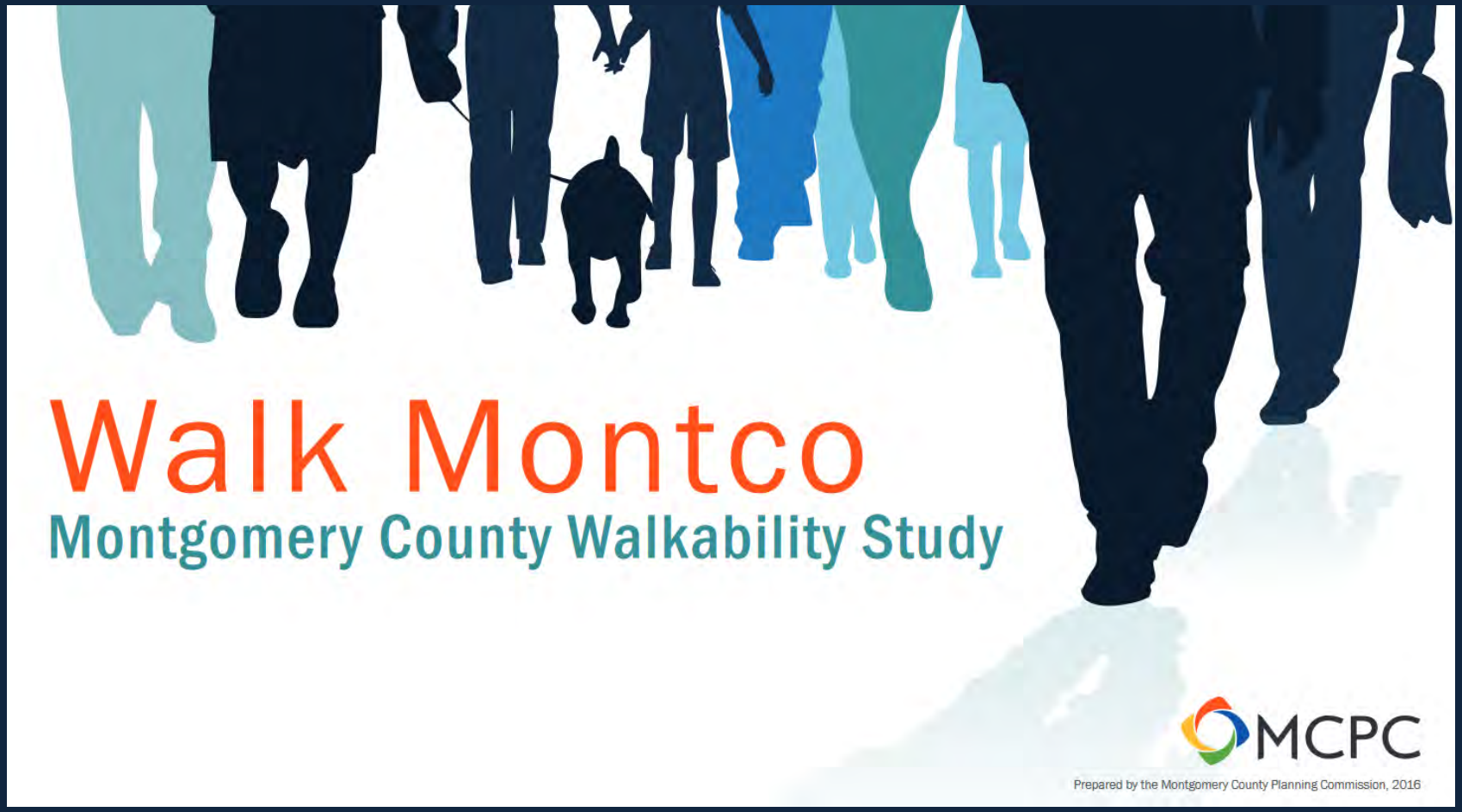
Examples of Pedestrian-Related Public Outreach Efforts

WalkScope: Denver, CO



Examples of Pedestrian-Related Public Outreach Efforts

In our region: Wikimapping and sidewalk audits for Walk Montco



Examples of Pedestrian-Related Public Outreach Efforts

In our region: Wikimapping and sidewalk audits for Walk Montco

WikiMapping

Where planners get public input on a map

Ask Questions

Here, a snapshot from Collegeville's walk audit report—where detailed recommendations show proposed improvements throughout the downtown.

DVRPC's Online Walkability Engagement Platform

THE PLAN

- Create a platform that is accessible to the most users
- Focus on building a large network of users
- Collect qualitative information about pedestrian environments that will help guide future pedestrian planning efforts
- Complement the pedestrian-related activities going on in the region

DVRPC's Online Walkability Engagement Platform

HOW THE ADVISORY COMMITTEE CAN HELP

- Fill us in on existing efforts we may not be aware of
- Help us with outreach effort by sharing resources
- User group to test the application and provide feedback

Thank you!

Kim Korejko
kkorejko@dvrpc.org

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

REGIONAL TRANSIT PLANNING PROGRAM

Project update & FY2018 preview

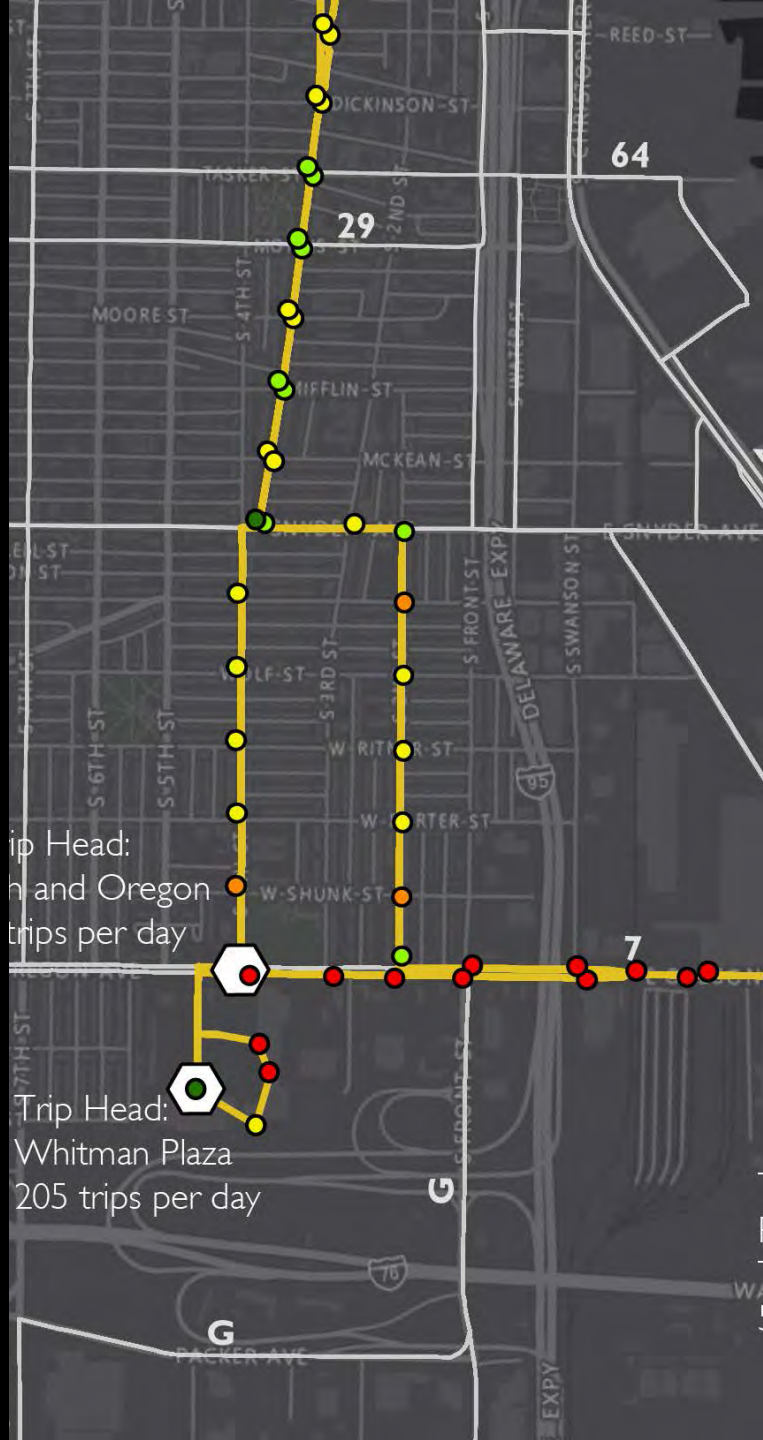
G. Krykewycz, PP, AICP
RTC
July 11, 2017

South Phila. Transportation Center

Determine the best location and develop a design for a future South Philadelphia Transportation Center.

Project outline:

1. Existing Conditions and Parcel Analysis for potential transportation center locations (completed)
2. Ongoing: Analysis of bus operations (routing & frequency) for three potential T.C. locations
3. Fall: Develop conceptual transportation center design
4. Developing GIS shapefiles with proposed routing and ridership information as an interim deliverable for SEPTA to use for upcoming operations planning




25
Famous Dave's

Exton Station Area Concept Plan

Bring together and coordinate plans by SEPTA, PennDOT/Amtrak, Chester County, and West Whiteland Township for phased improvements at/around Exton Station.

Project outline:

1. Existing conditions, fieldwork, and design workshop (completed)
2. Next: Develop a phased program of consensus improvements that can be made over time as funding is available
3. Worked with PennDOT Central Office to design and facilitate workshops to develop similar phasing programs around all our region's Amtrak Keystone Stations (Access the Keystone project)

Specific Study Area Recommendations

High Priority

A	Main Street at Exton to Exton Station Connection
B	Exton Station Improvement Plan
C	Four-way Controlled Intersection
D	Chester Valley Trail (CVT) Extension Connection
E	Existing CVT to CVT Extension Connection
F	Main Street at Exton to CVT Extension Connection
G	US 30 to Four-way Intersection Connection
H	US 30 to Four-way Intersection Tunnel Connection

I	Residences to Exton Station Connection
J	Shared-use Parking for Exton Station
K	Structured Parking for Exton Station
L	Walkertown Road Clearance for Buses
M	Direct and Intuitive Connection for Existing CVT
N	Realigned On-ramp for US 30
O	Single Point Interchange US 30/PA-100
P	Bartlett and Carlisle Path Signage
Q	Additional PA-100 Road Capacity

Legend for Recommendation Designs

- Parking Lot
- Station Improvements Planned/Under Construction
- Road Connection/Improvement
- Pedestrian/Bicycle Connection
- Planned Crosswalk

MODERN TROLLEY STATION DESIGN GUIDE

- Once-in-a-generation complete fleet replacement
- Access for people with disabilities and ADA compliance

<u>Improvements in:</u>

- Service speed
- Boarding experience
- Station amenities

DRAFT/WORKING

CITY TRANSIT

TROLLEY ROUTES

SUMMER 2017

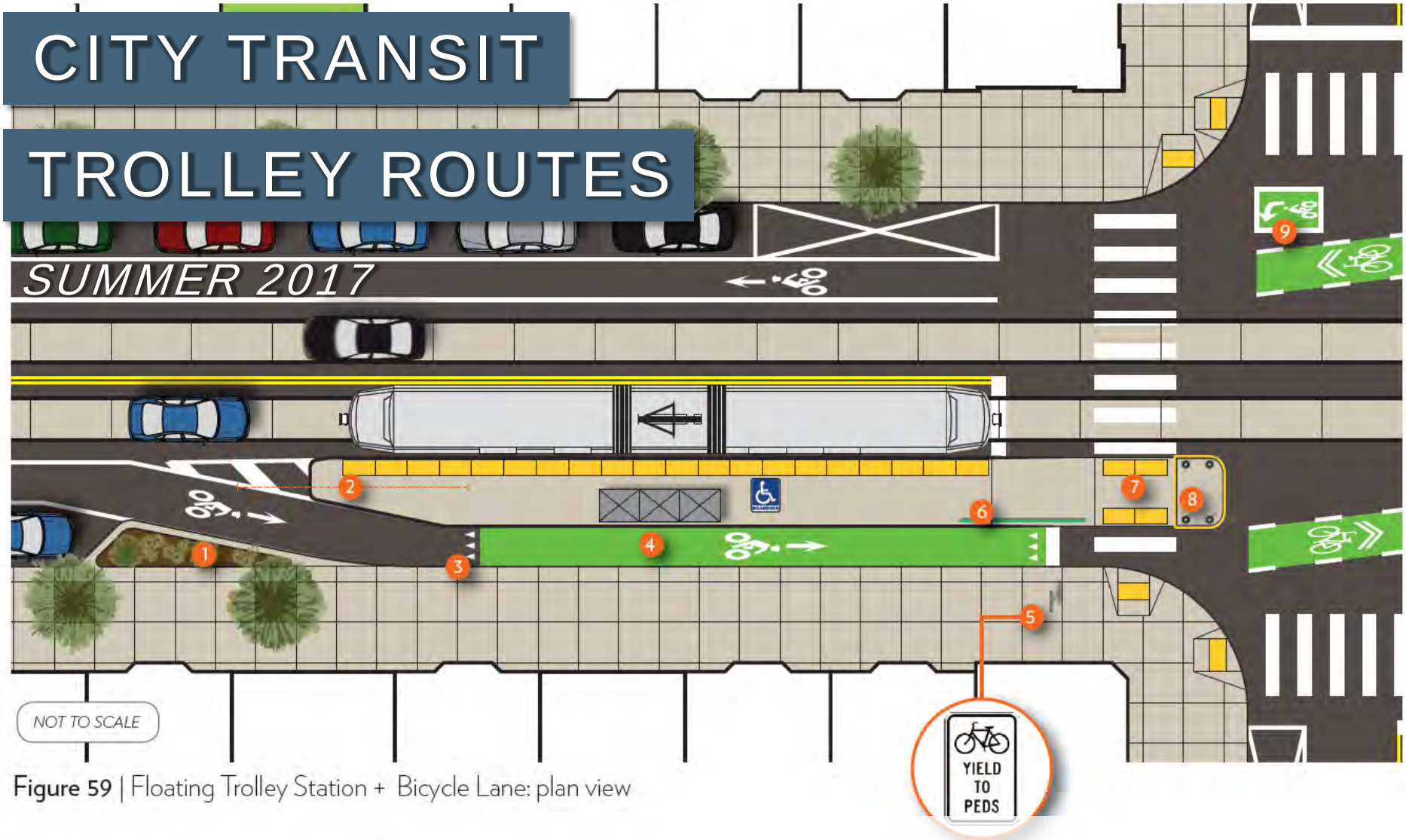


Figure 59 | Floating Trolley Station + Bicycle Lane: plan view

- > 6 routes
- > 30.5 miles
- > 80,000 riders/day

<u>7 station concepts for a variety of street types</u>:

- > Bike lanes
- > Stormwater management
- > Multi-lane streets

DRAFT/WORKING

DELAWARE COUNTY FOCUS

ROUTES 101/102

FALL 2017

- Focused look at Media/ Sharon Hill lines
- Much more exclusive right-of-way
- Very different design challenges (i.e. State Street, Media)

DRAFT/WORKING

Station Area Planning for NHSL King of Prussia Extension

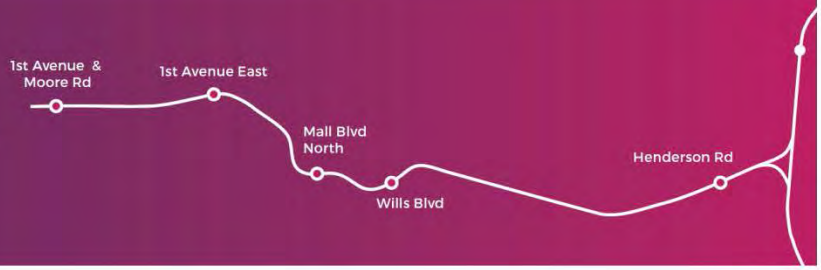
Evaluate a variety of transportation and land use issues in the areas surrounding the five proposed stations.

Project outline:

1. Supplement ongoing EIS work and Upper Merion Township Comprehensive Plan Update
2. Promote multimodal access to proposed stations
3. Identify transit-supportive development opportunities
4. Spring: Gather feedback from residents, township officials, and local businesses

KING of PRUSSIA RAIL

STAKEHOLDER OUTREACH & ENGAGEMENT



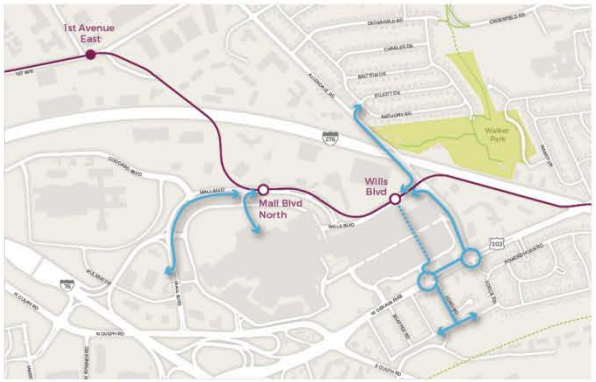
KING of PRUSSIA RAIL

STAKEHOLDER OUTREACH & ENGAGEMENT

Key Connections

1ST AVENUE STATIONS

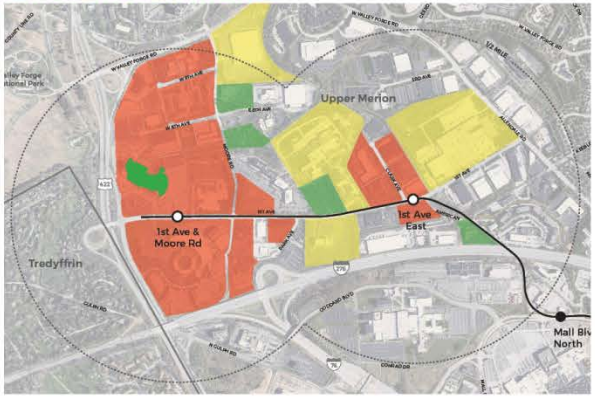
KOP MALL STATIONS



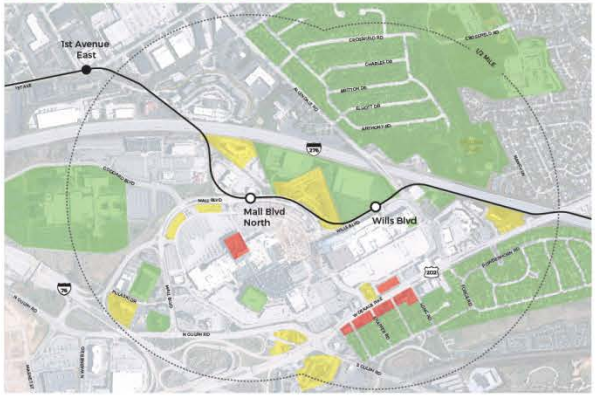
HENDERSON ROAD STATION

Growth & Development

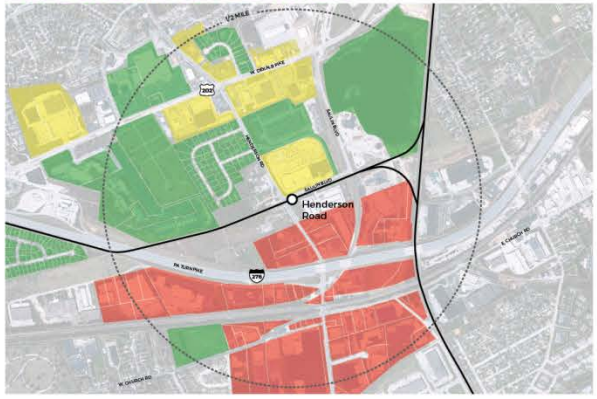
1ST AVENUE STATIONS



KOP MALL STATIONS



HENDERSON ROAD STATION



FY2018 Transit Work Outlook

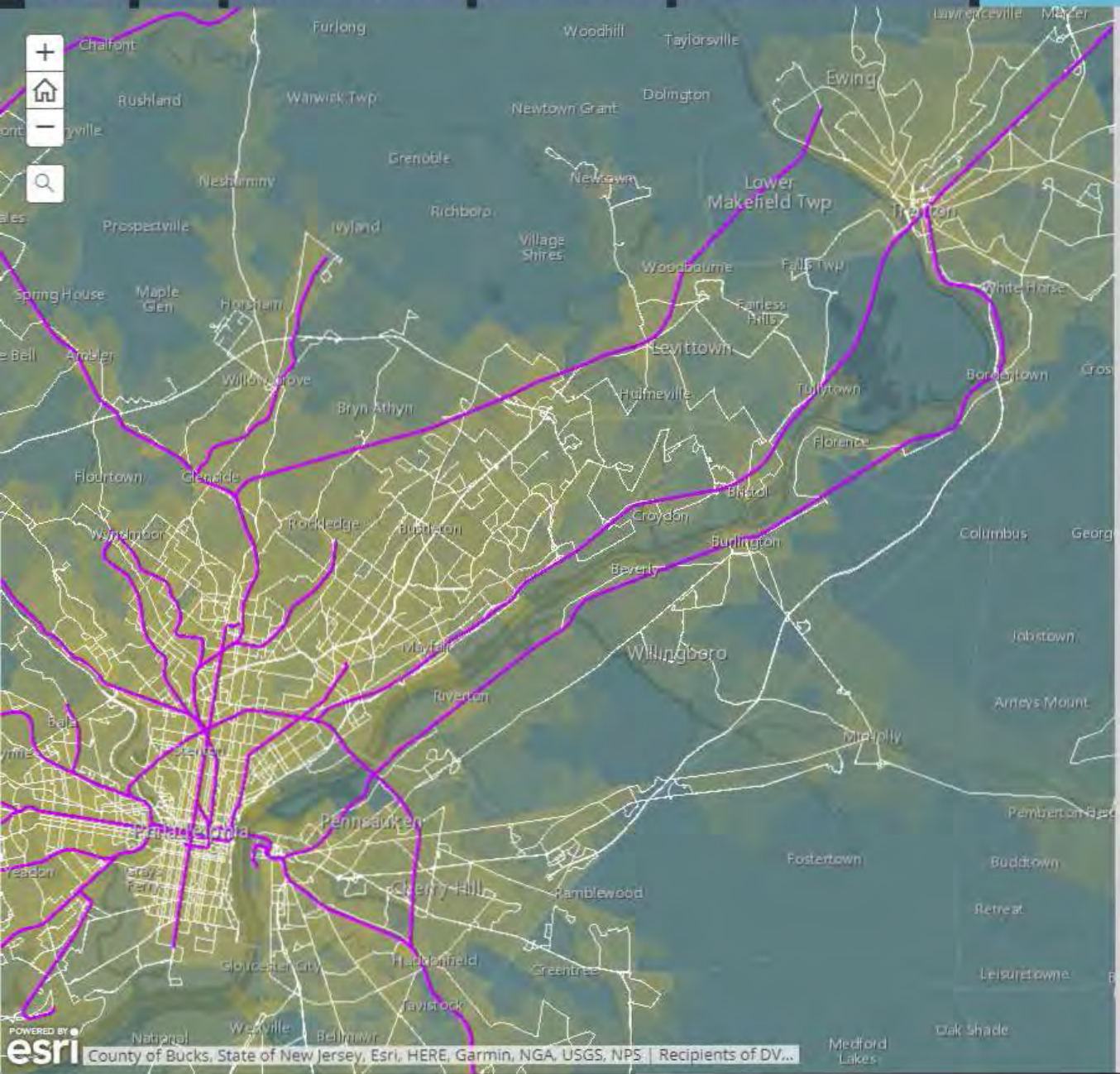
New planning work:

- Regional transit priority setting: gap analysis and tool development

DVRPC's Equity Through Access Map Toolkit

EQUITY THROUGH ACCESS | dvrpc

Welcome | About | 1. Vulnerable Populations | 2. Essential Services | 3. Population-Services Mismatch | 4. Transit Accessibility | 5. Priority Score



Purpose: To highlight areas that are less accessible by transit

The spatial mismatch between vulnerable populations and essential services becomes more severe when public transit access is unavailable to help bridge the gap. This map reflects a composite measure of regional public transit accessibility, considering:

- How many areas a person could access in a 45 minute transit trip
- The general number of essential services accessible in a 45 minute transit trip
- Frequency of service
- Walkability of the block group to transit stations/stops

Using accessibility data at the block group level, the four characteristics were combined and ranked 1 through 10. Higher values were assigned to areas that are less accessible by transit and lower values were assigned to areas that are more accessible by transit. Click on an area of interest on the map to view the detailed data.

Sources: DVRPC, NJ Transit, SEPTA
Accessibility data was derived from DVRPC's transit journey time skim matrix at the TAZ-level and assigned to its related block group.

Note: Zoom in to display transit* and walkshed data

Bus route

Passenger rail

Bus and rail walksheds
(5 minute walk to bus stop or a 15 minute walk to rail station)

Transit Accessibility

Less accessible - greater need (10)

More accessible - less need (1)

***Shuttle routes are not shown, but service is reflected in underlying**

FY2018 Transit Work Outlook

New planning work:

- Regional transit priority setting: gap analysis and tool development
- SEPTA station shed (license plate) surveys
- TOD policy analysis
- Update to SEPTA Bus Stop Design Guidelines
- Concept design and operations analysis for Girard Avenue trolley modernization

Transit survey work:

- NJ TRANSIT bus surveys
- SEPTA station shed surveys

New forecasting work:

- 30th Street Station access forecasts, including MFL-Amtrak/RR forecasts

REGIONAL TRANSIT PLANNING PROGRAM

Project update & FY2018 preview

G. Krykewycz, PP, AICP
RTC
July 11, 2017

Regional Trails Program: Phase V NJ Grant Awards

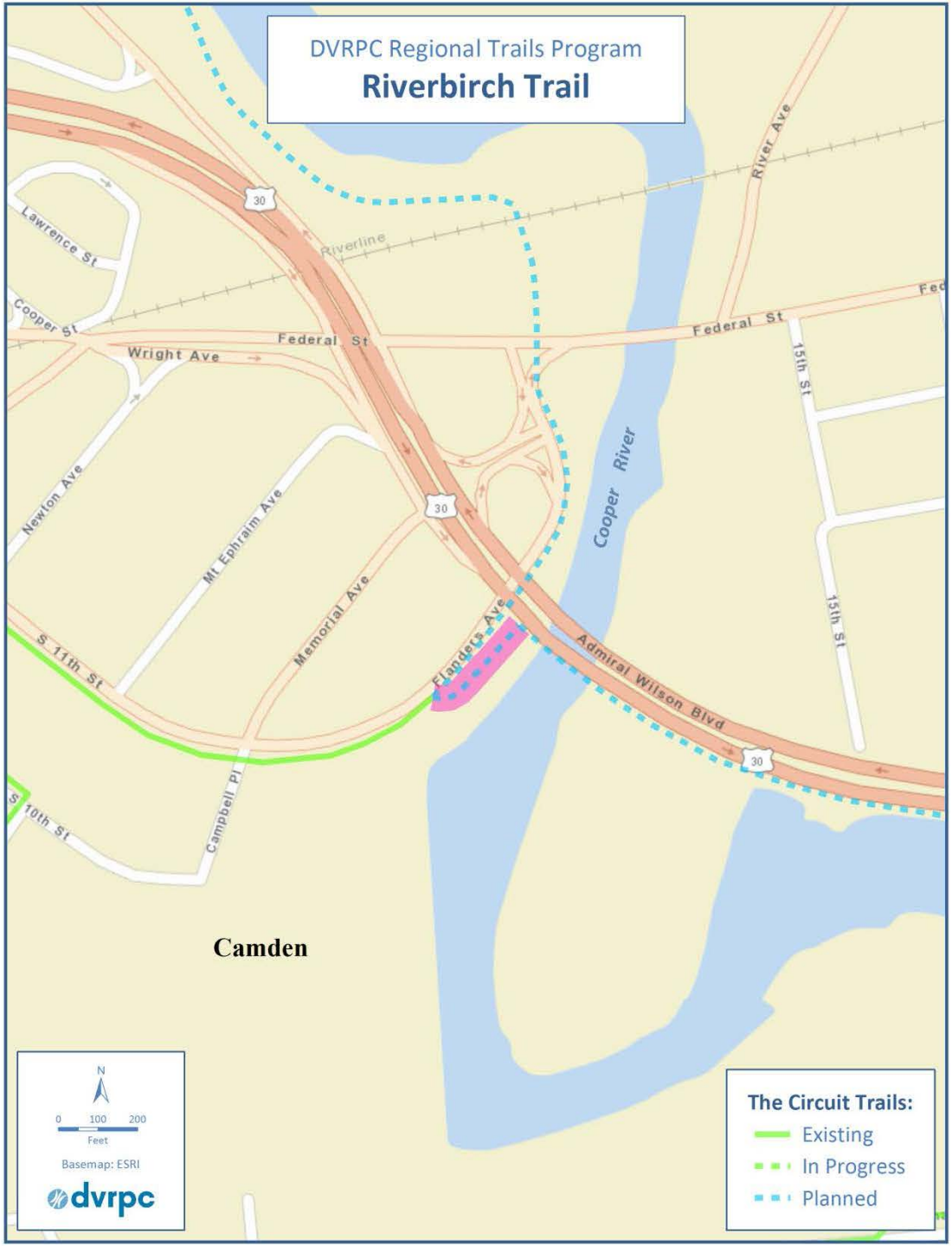
Regional Technical Committee Meeting

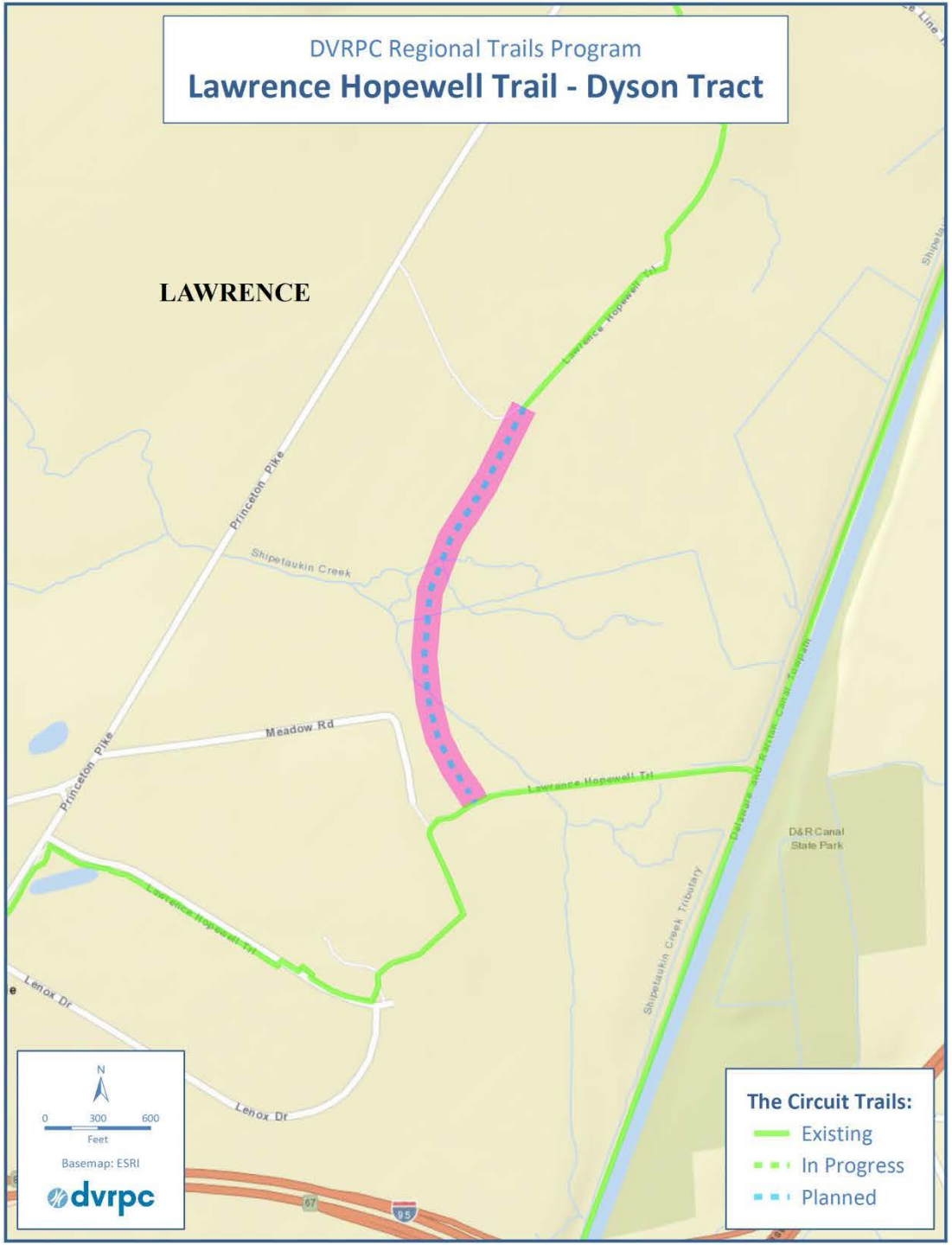
July 11, 2017

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Proposed Grant Awards

1. Riverbirch Trail (design), Cooper's Ferry Partnership - $50,000 ($50,000 WPF match)
2. Lawrence Hopewell Trail - Dyson Tract (alternatives analysis), Lawrence Township - $15,600
3. Union Transportation Trail - East Windsor Township (study and preliminary engineering), East Windsor Township - $135,000


DVRPC Regional Trails Program
Riverbirch Trail
Lawrence St
Riverline
River Ave
Cooper St
Federal St
Federal St
Wright Ave
15th St
Newton Ave
Mt Ephraim Ave
Memorial Ave
Cooper River
15th St
S 11th St
Flanders Ave
Admiral Wilson Blvd
Campbell Pl
S 10th St
Camden
30
30
30
N
0 100 200
Feet
Basemap: ESRI
dvrpc
The Circuit Trails:
Existing
In Progress
Planned


DVRPC Regional Trails Program
Lawrence Hopewell Trail - Dyson Tract
LAWRENCE
Princeton Pike
Shipetaukin Creek
Meadow Rd
Lawrence Hopewell Trl
Lenox Dr
Shipetaukin Creek Tributary
D&R Canal State Park
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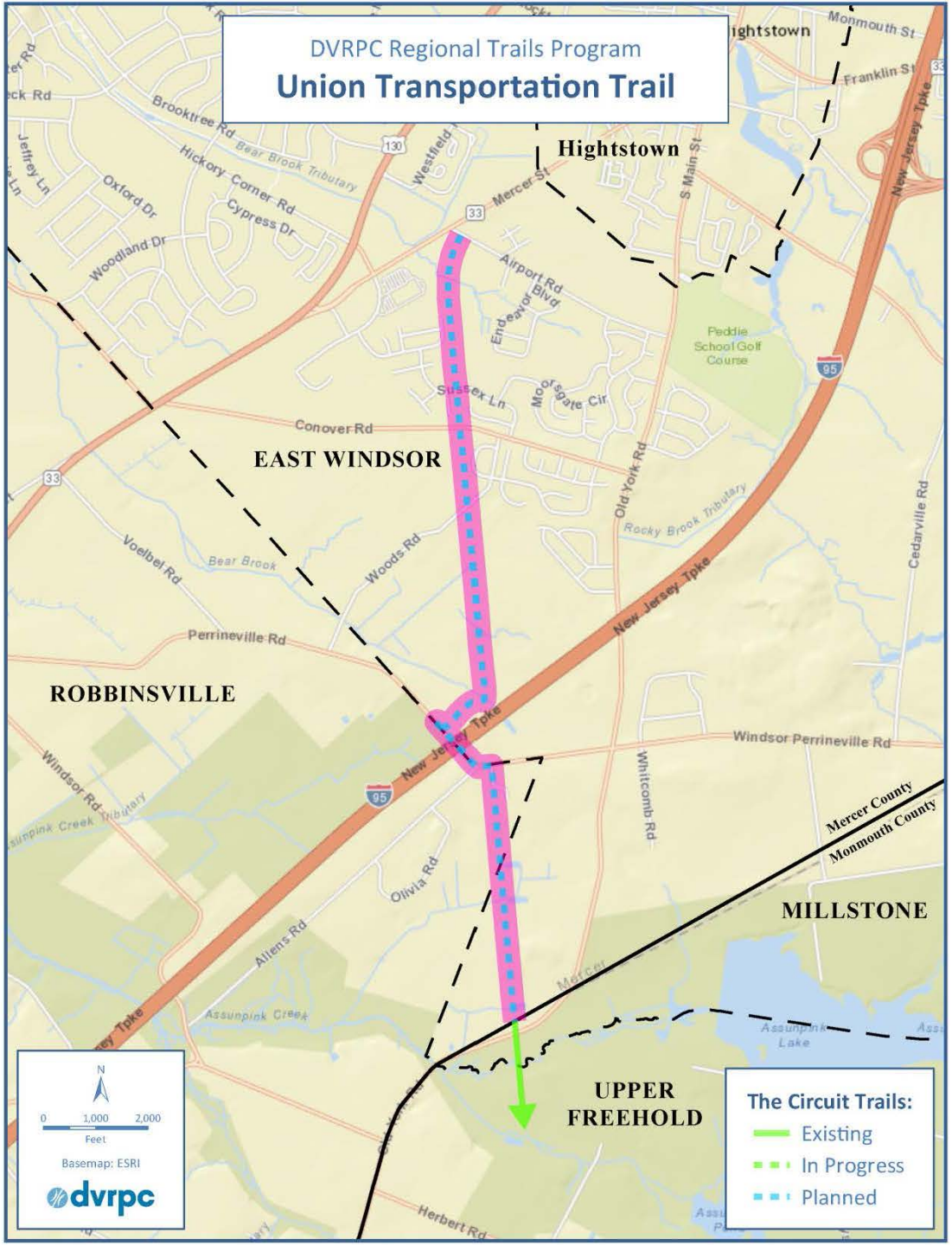
Feet
Basemap: ESRI
dvrpc
The Circuit Trails:
Existing
In Progress
Planned


DVRPC Regional Trails Program
Union Transportation Trail
Hightstown
EAST WINDSOR
ROBBINSVILLE
MILLSTONE
UPPER FREEHOLD
Monmouth St
Franklin St
Brooktree Rd
Bear Brook Tributary
Hickory Corner Rd
Cypress Dr
Oxford Dr
Woodland Dr
Jeffrey Ln
Westfield
Mercer St
S Main St
New Jersey Tpke
Airport Rd
Endeavor Blvd
Peddie School Golf Course
Sussex Ln
Moorsgate Cir
Conover Rd
Old York Rd
Rocky Brook Tributary
Cedarville Rd
Voelbel Rd
Bear Brook
Woods Rd
Perrineville Rd
Windsor Perrineville Rd
Windsor Rd
Assunpink Creek Tributary
Whitcomb Rd
Mercer County
Monmouth County
Olivia Rd
Allens Rd
Assunpink Creek
Assunpink Lake
Herbert Rd
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Feet
Basemap: ESRI
dvrpc
The Circuit Trails:
Existing
In Progress
Planned

Action Proposed

The RTC recommends that the Board approve these three Phase V New Jersey Regional Trails Program grant awards.

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PLANNING COMMISSION

TIP Actions

Transportation Improvement Program

New Jersey TIP (FY2016-2019)

Pennsylvania TIP (FY2017-2020)

July 2017

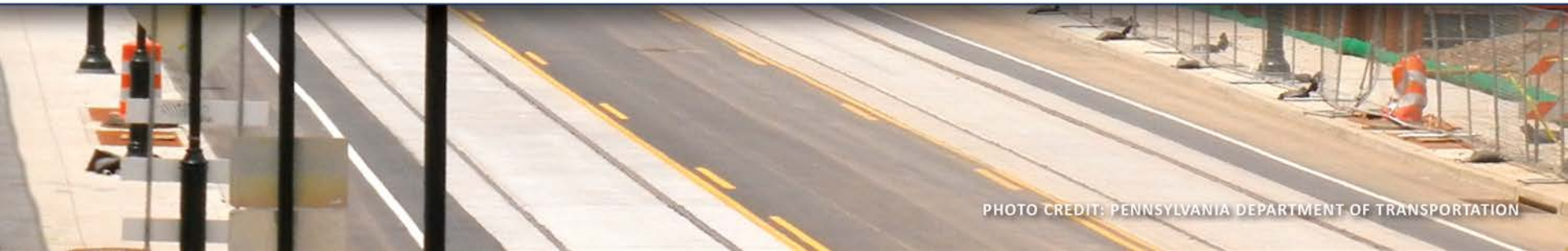
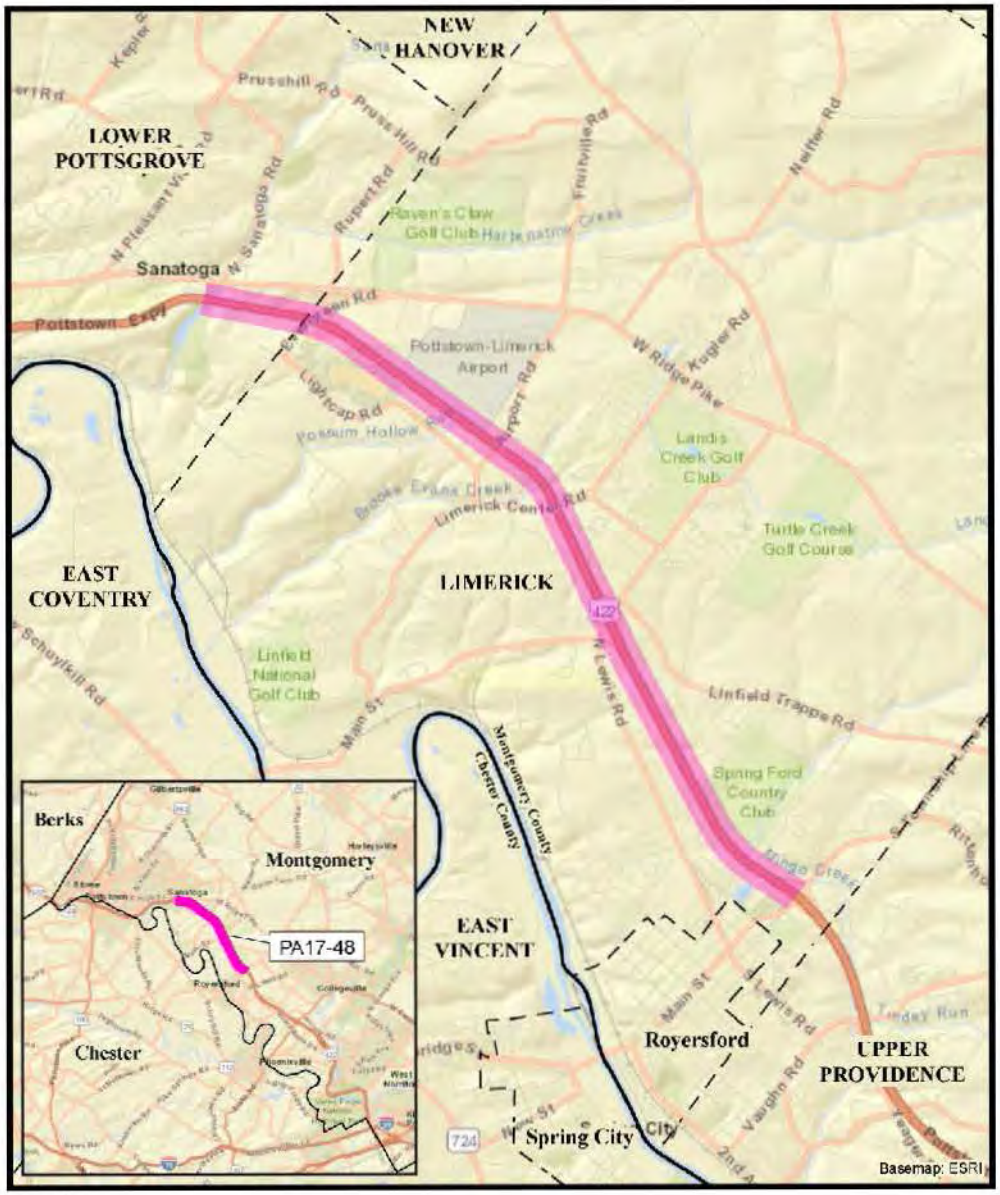


PHOTO CREDIT: PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

US 422, Resurfacing (PM2)
Montgomery County | CON Cost Increase

- **Action Type:** TIP Amendment
- **Action:** Increase CON phase by $6,000,000 from $9,000,000 to $15,000,000, accordingly:
  - FY17 - $564,000 STU
  - FY20 - $5,436,000 STU
- **Reason:** Only $9,000,000 was carried over for advance construct conversion during TIP development, with $9,772,000 expecting to be obligated under FY2015 TIP. Design delays precluded CON obligation and full CON funding must now be programmed.

PA17-48: US 422, Resurfacing (PM2)



TIP Action | Proposed – PA

Amend the PA TIP for the Following Project:

a. US 422, Resurfacing (PM2), Montgomery County

That the RTC recommend that the Board approve TIP Action PA17-48, amending the TIP by increasing CON phase by $6,000,000 accordingly:

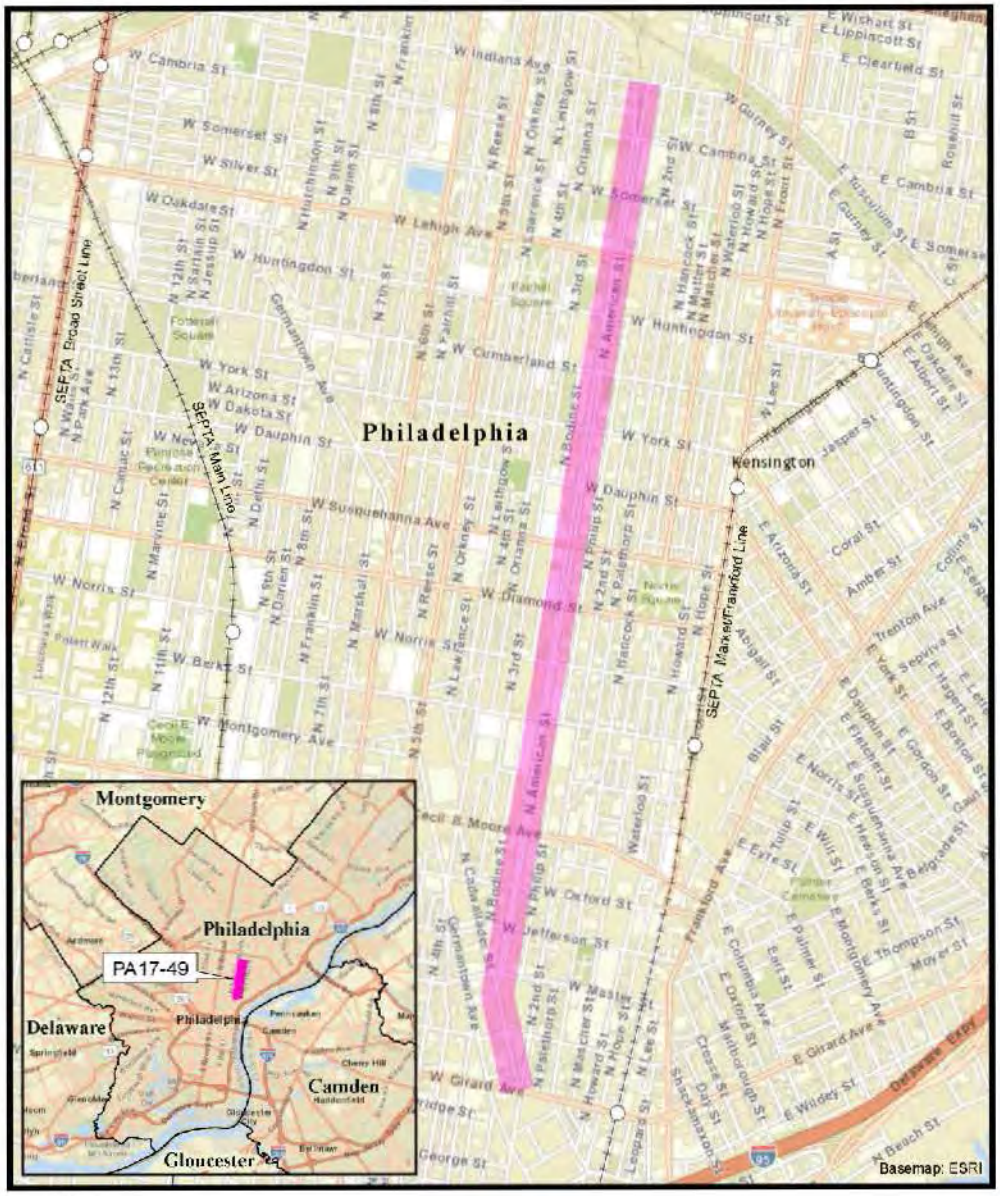
- FY17 - $564,000 STU
- FY20 - $5,436,000 STU

American Street Streetscape (TIGER)
City of Philadelphia | Cost Increase

- **Action Type:** TIP Amendment
- **Action:** Increase CON phase by $12,621,000 from $16,323,000 to $28,944,000, accordingly:
  - FY18 - $7,523,000 ($4,079,000 STU/$3,444,000 Local)
  - FY20 - $5,098,000 ($4,079,000 STU/$1,019,000 Local)
- **Reasons:** Additional funding needed to complete full depth reconstruction of American St. to provide consistent grading for current ADA standards and additional curbing for protected bike lanes.

Increased costs associated with GSI elements are funded at 100% by PWD local funds

PA17-49: American Street Streetscape (TIGER)



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DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

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Feet

TIP Action | Proposed – PA

Amend the PA TIP for the Following Project:

b. American Street Streetscape (TIGER), City of Philadelphia

- **That the RTC recommend that the Board approve TIP Action PA17-49, amending the TIP by increasing the CON phase by $12,621,000 from $16,323,000 to $28,944,000, accordingly:**
  - FY18 - $7,523,000 ($4,079,000 STU/$3,444,000 Local)
  - FY20 – $5,098,000 ($4,079,000 STU/$1,019,000 Local)

Thank You!

www.dvrpc.org/TIP

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PLANNING COMMISSION

Analysis Approaches for Vision Zero Philadelphia

Regional Technical Committee

July 11th, 2017

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

What is Vision Zero?

Vision Zero

A policy that states clearly that traffic deaths are preventable and unacceptable.

CORE PRINCIPLES:

- Human life takes priority over mobility;
- Human error is inevitable and unpredictable;
- People are inherently vulnerable and speed is a fundamental predictor of crash survival;
- Safe human behaviors, education, and enforcement are essential contributors to a safe system.

Why Vision Zero in Philadelphia?

Every year, there are over 10,000 reported crashes in Philadelphia.

5-YEAR TREND:

- 2012: 107 killed / 291 severely injured
- 2013: 89 killed / 257 severely injured
- 2014: 97 killed / 257 severely injured
- 2015: 94 killed / 275 severely injured
- 2016: 101 killed / 301 severely injured

100 PEOPLE EVERY YEAR

100 people are killed in traffic related crashes.

Philadelphia Vision Zero

Rate of crash deaths per 100,000 residents:

Data source: NHTSA, 2015

Crash Analysis Standards & Recommendations - City of Philadelphia

Problem Statement:

Philadelphia lacks a systematic way of tracking and analyzing crash trends that is coordinated among all safety partners, is data driven, easily updatable, and informs an investment strategy.

Crash Analysis Standards Project and Vision Zero PHL (Evaluation/Data Subcommittee)

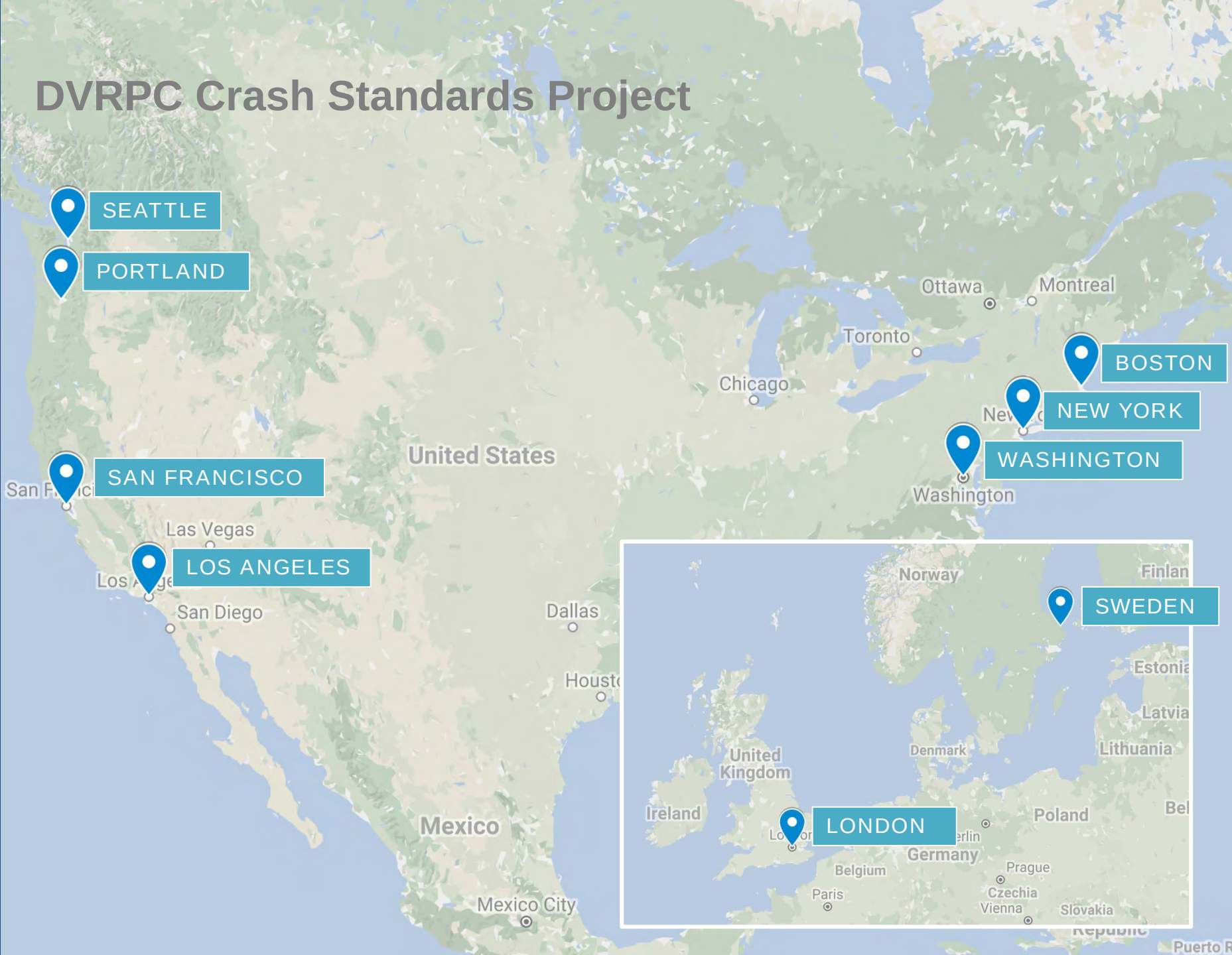
Common Goals:

1. Research best practices in data collection and measurement;
2. Propose system for tracking and analyzing crash trends in Philadelphia.

Product:

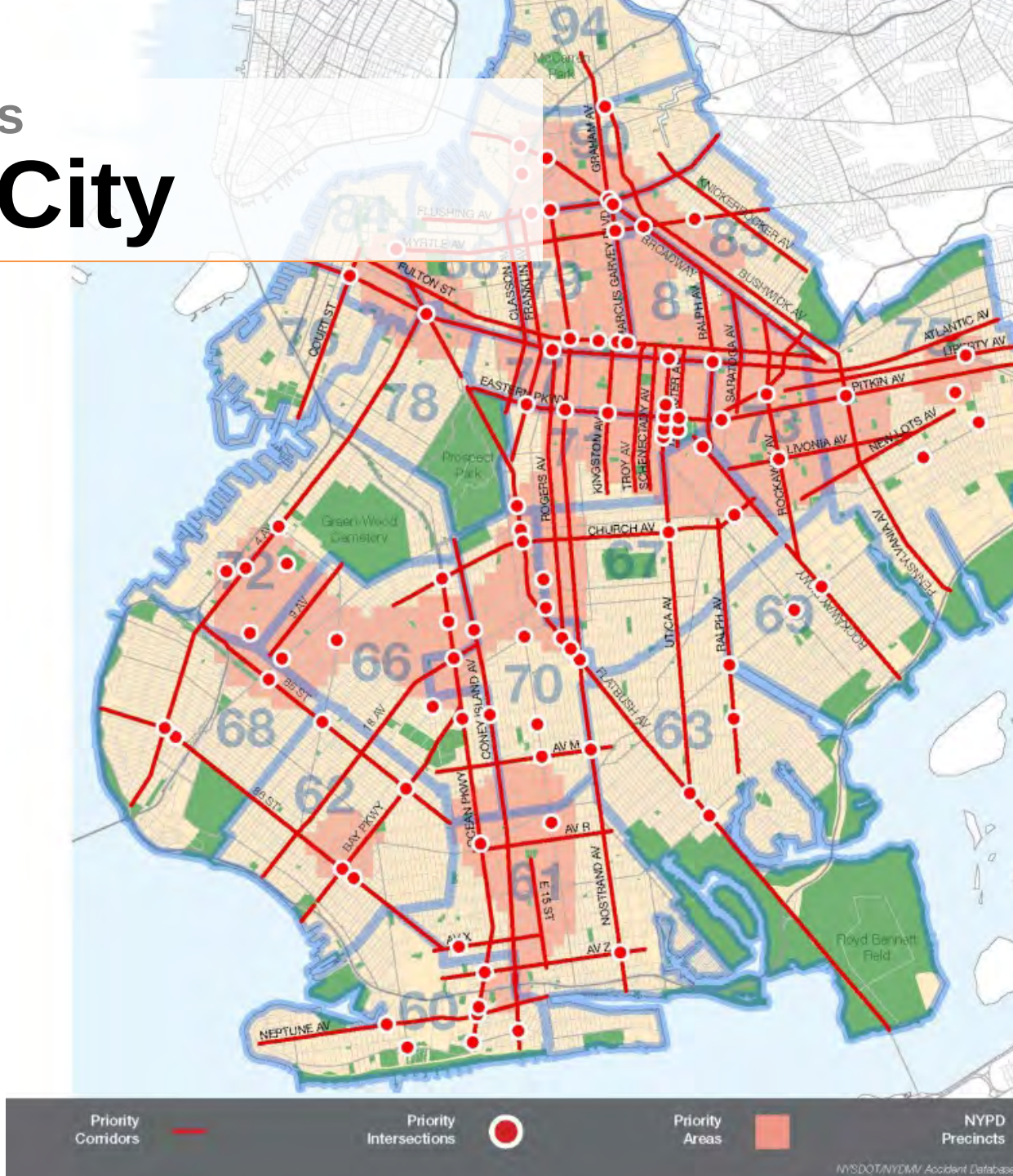
Best practices recommendation to City of Philadelphia on which data to use, and how to use it to identify a High Injury Network (HIN) for the Vision Zero Philadelphia action plan.

DVRPC Crash Standards Project



Peer City Examples

New York City

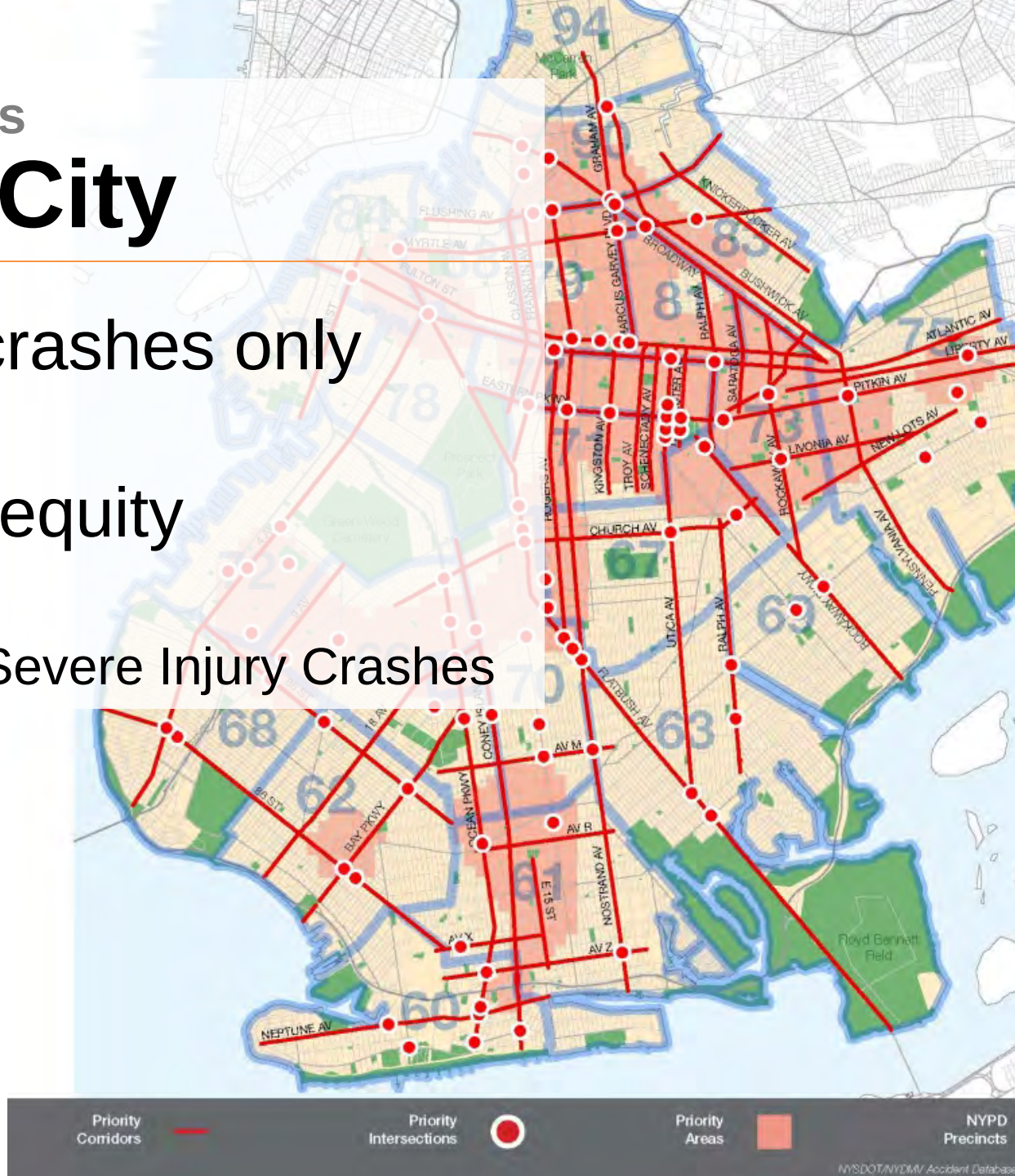


Peer City Examples

New York City

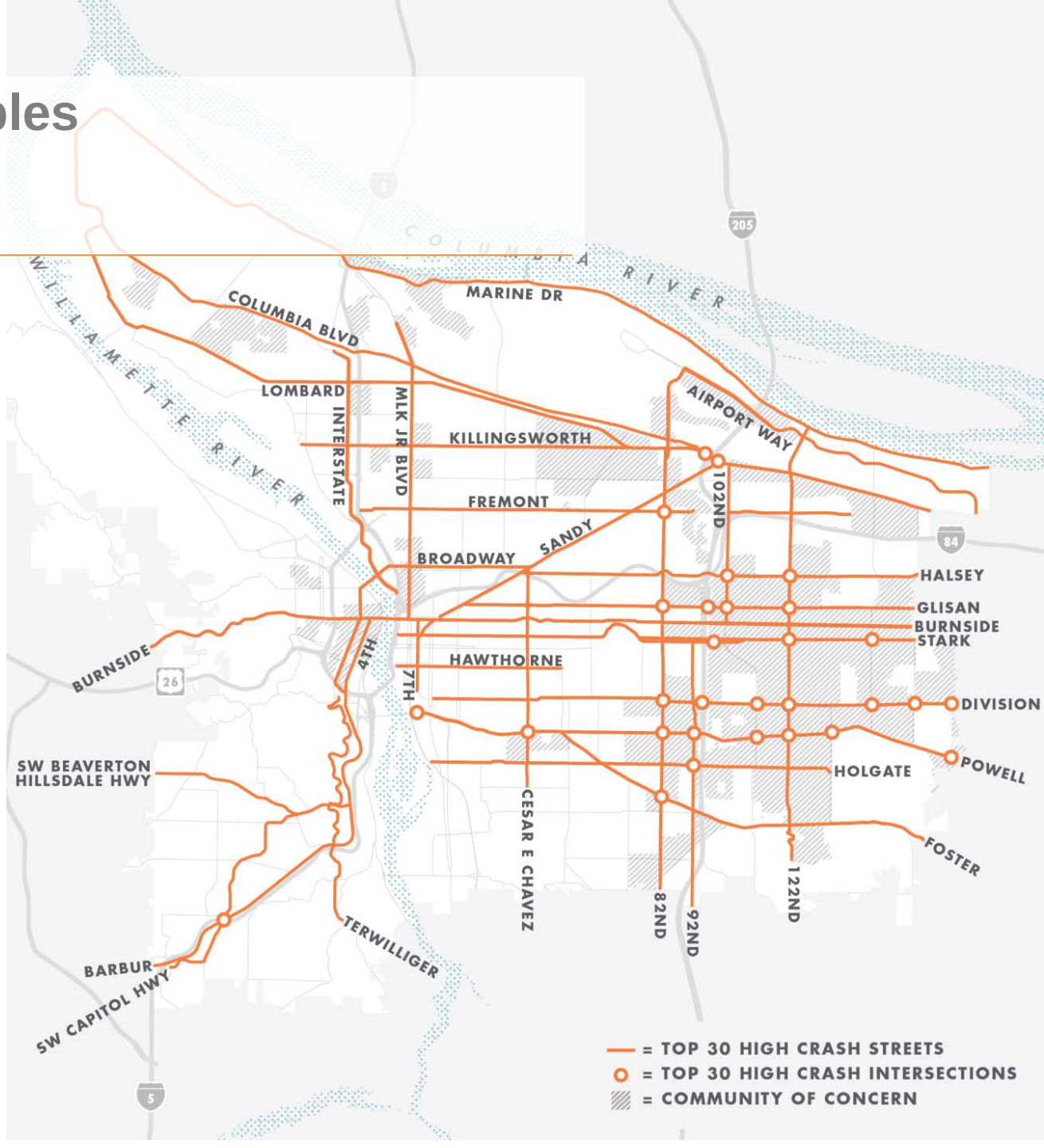
- Pedestrian crashes only
- KSI/mile*
- Geographic equity

*KSI = Killed and Severe Injury Crashes



Peer City Examples

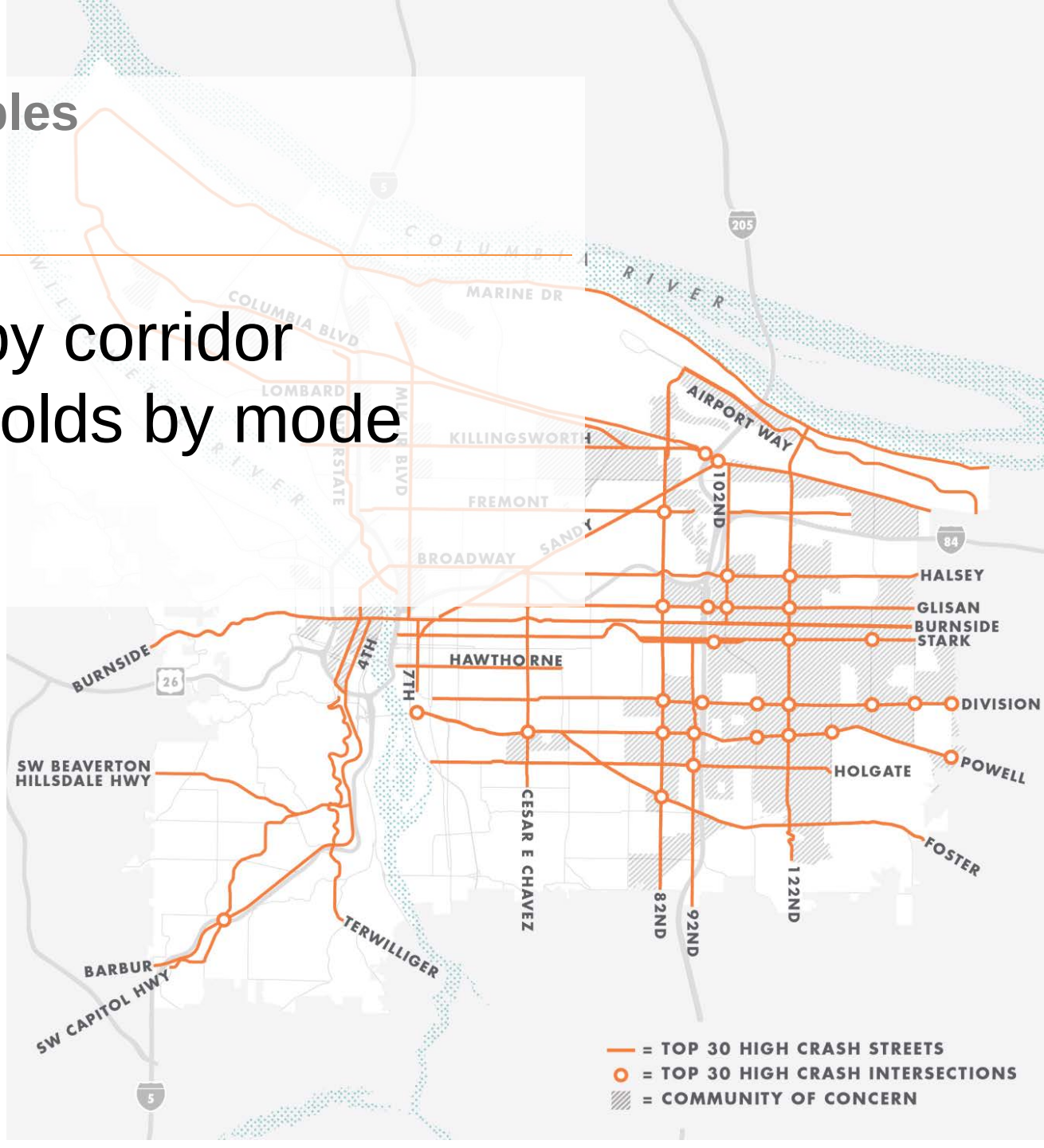
Portland



Peer City Examples

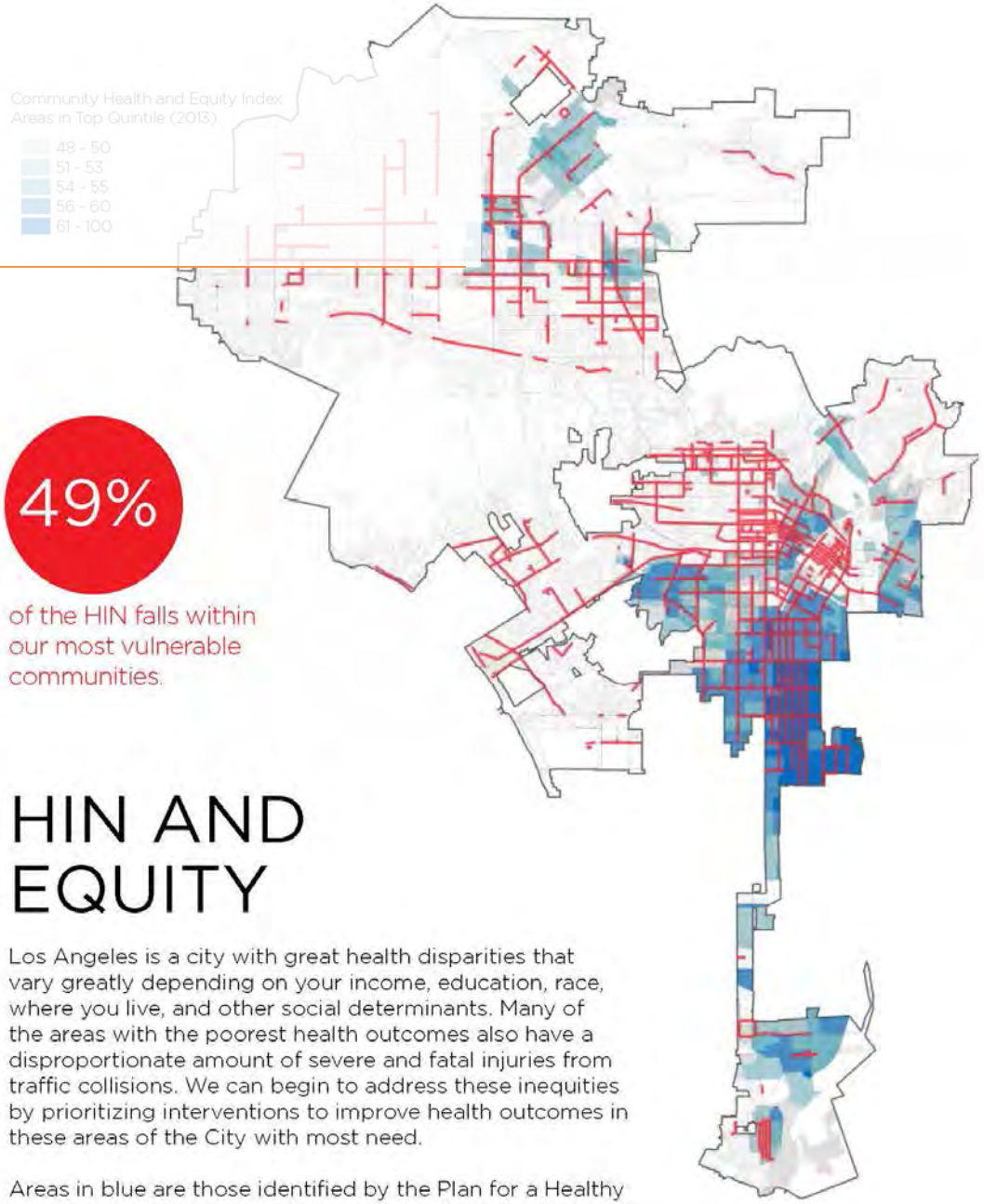
Portland

- Total KSI by corridor
- KSI thresholds by mode



Peer City Examples

Los Angeles



49%

of the HIN falls within our most vulnerable communities.

HIN AND EQUITY

Los Angeles is a city with great health disparities that vary greatly depending on your income, education, race, where you live, and other social determinants. Many of the areas with the poorest health outcomes also have a disproportionate amount of severe and fatal injuries from traffic collisions. We can begin to address these inequities by prioritizing interventions to improve health outcomes in these areas of the City with most need.

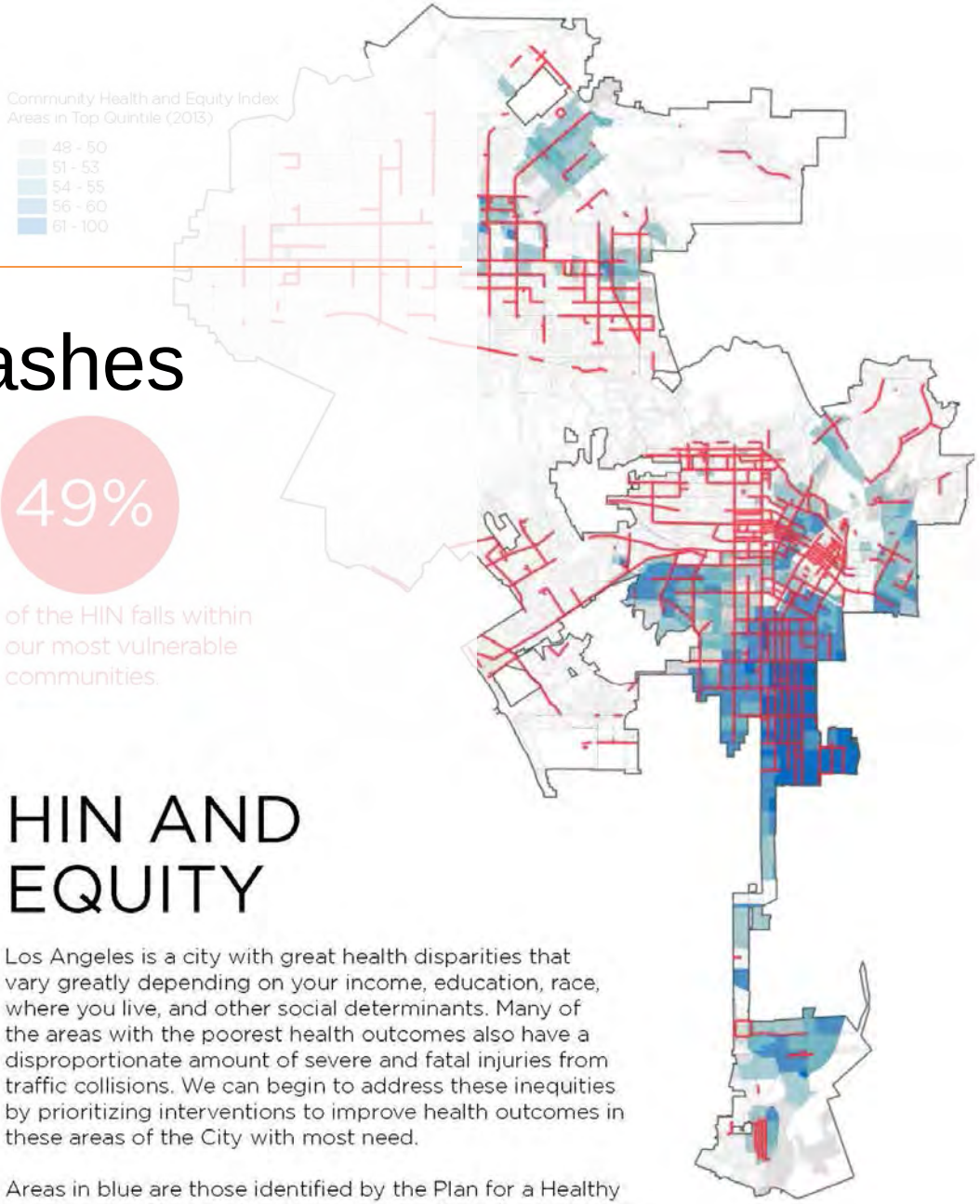
Areas in blue are those identified by the Plan for a Healthy Los Angeles' Community Health and Equity Index to be the most disadvantaged in terms of health outcomes.

healthyplan.la

Peer City Examples

Los Angeles

- Bike and ped crashes
- KSI density
- Equity index



HIN Recommendations

Geographic Analysis

- NYC: Corridors and intersections
- DC: Corridors
- Portland: Corridors and intersections
- LA: Corridors and intersections
- Boston: Corridors and intersections
- Seattle: Corridors*
- SF: Corridors and intersections
- London: Corridors and intersections

*Seattle's risk assessment model (developed after HIN) is based on intersections

HIN Recommendations

Metric

- NYC: Pedestrian **KSI**/mile
- DC: Bike/ped fatalities
- Portland: All **KSI**/corridor
- LA: Bike/ped **KSI** density
- Boston: High injury intersections
- Seattle: Road type, crash and **KSI** density
- SF: **KSI**/mile
- London: **KSI**/km

HIN Recommendations

Crash Data

- NYC: State data (5 years)
- DC: District data (5 years)
- Portland: State data (10 years)
- LA: State data (5 years)
- Boston: Homicide and EMS data (3 years)
- Seattle: Local police data (5 years)
- SF: State data (5 years)
- London: National data (4 years)

Additional Data

- NYC: None
- DC: Crowdsourced
- Portland: None
- LA: Equity index
- Boston: “Equity lens”
- Seattle: Road characteristics
- SF: None
- London: Travel demand survey

Vulnerable User Focus

- NYC: **Ped** (exclusively)
- DC: Bike/**Ped**
- Portland: Bike/**Ped**
- LA: Bike/**Ped**; Older adults/children
- Boston: Older adults/children
- Seattle: None
- SF: None
- London: Bike, motorcycle

Equity Analysis

- NYC: None (distribution by borough)
- DC: None
- Portland: Existing equity index
- LA: Existing equity index
- Boston: Professional judgment
- Seattle: Existing equity reporting req.
- SF: Existing equity index
- London: Existing equity reporting req.

HIN Recommendations

Top Trends

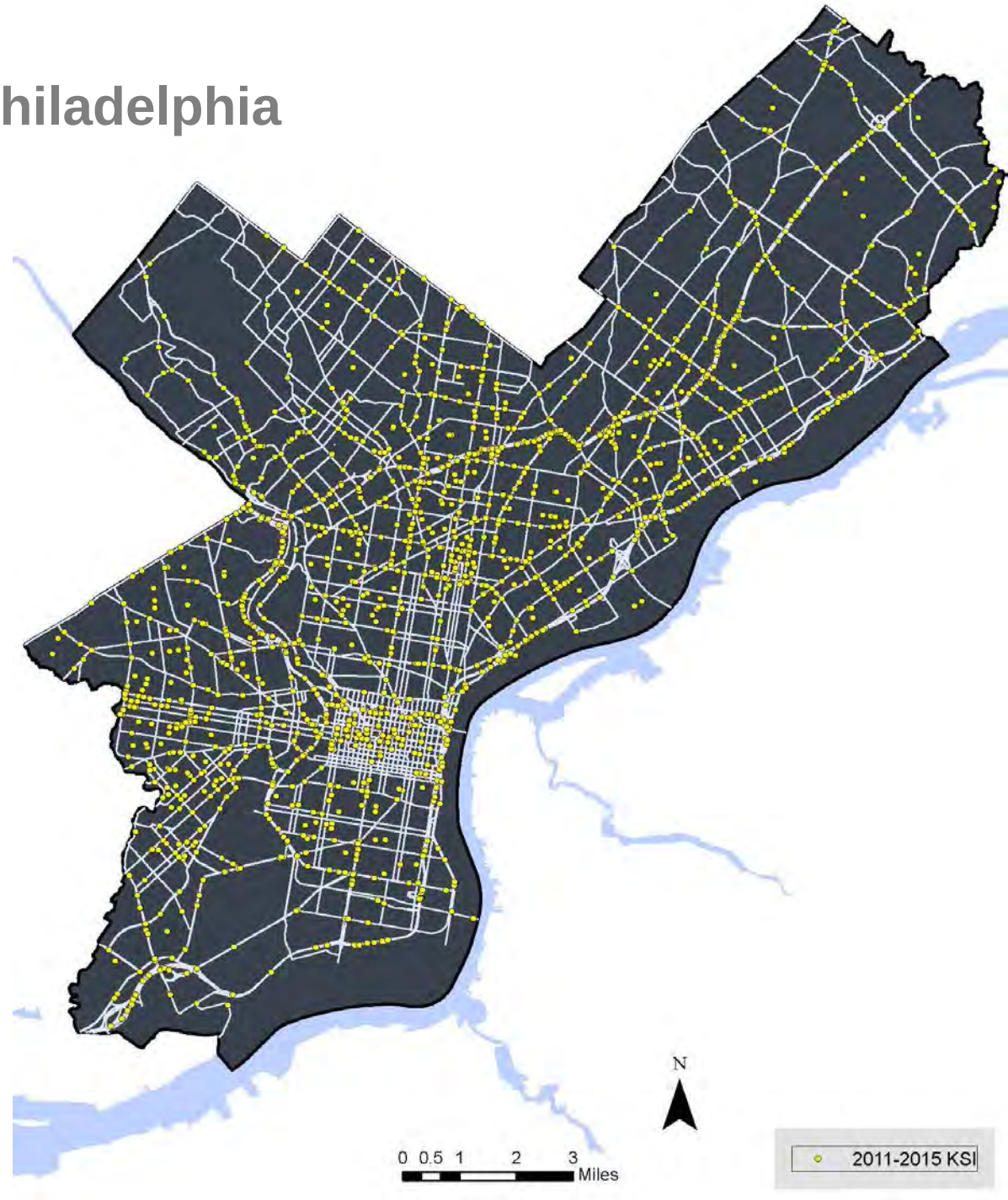
- HIN consists of corridors and intersections
- Use KSI/mile metric
- Analyze 5 years of state DOT crash data
- Don’t incorporate additional data
- Focus on pedestrians and cyclists
- Compare to existing equity index

Mapping a HIN for Philadelphia

All KSI

- PennDOT 2011-2015 KSI crash events
- Total: 1,659

STREET NAME	KSI
ROOSEVELT BL	117
DELAWARE EX	88
BROAD ST	66
FRANKFORD AV	45
SCHUYLKILL EX	41
ALLEGHENY AV	28
GIRARD AV	26
MARKET ST	25
LEHIGH AV	22
ARAMINGO AV	19



Mapping a HIN for Philadelphia

Bike/Ped KSI

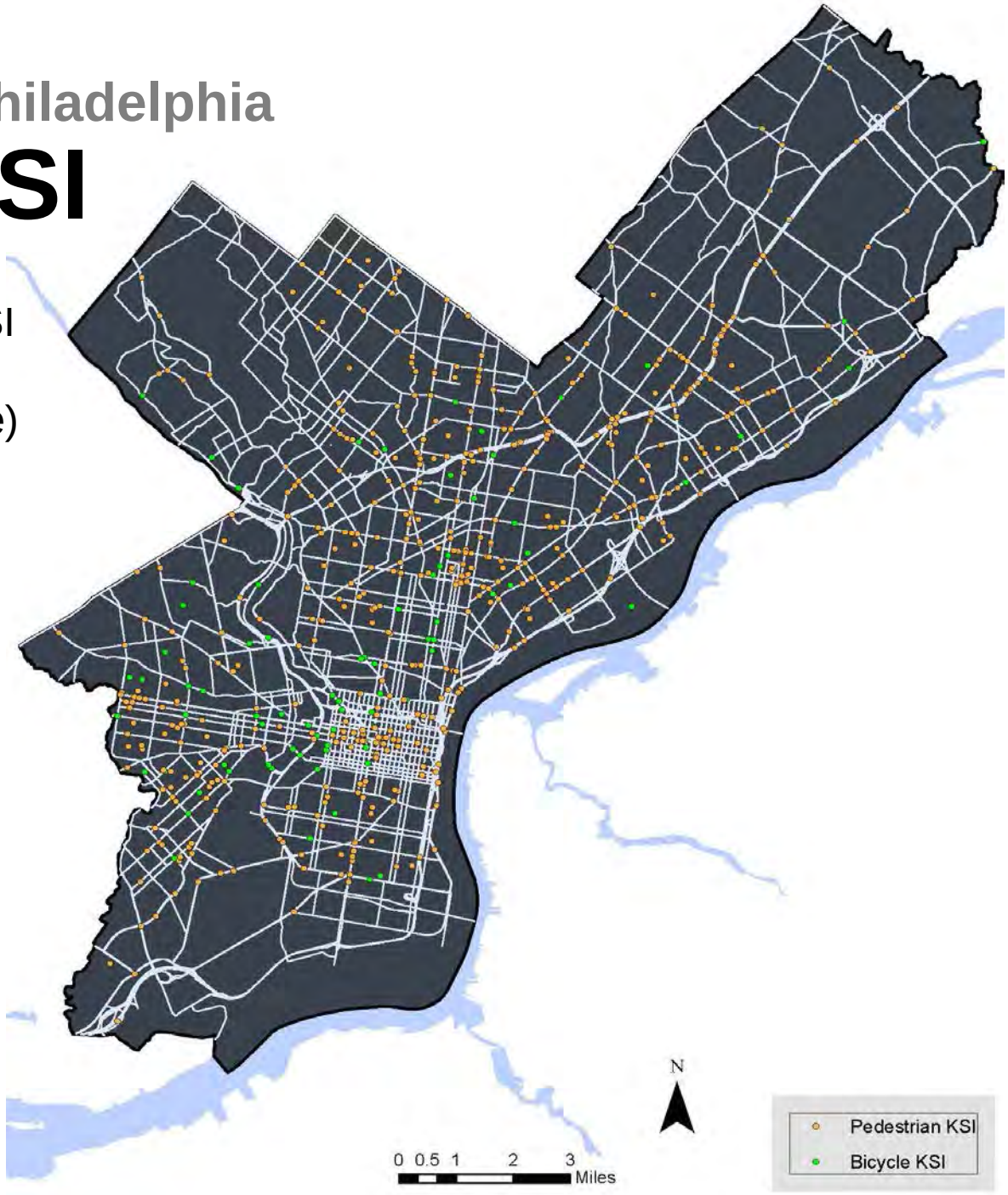
- PennDOT 2011-2015 KSI crash events
- Total: 224 (ped), 69 (bike)

PEDESTRIAN

STREET NAME	KSI
ROOSEVELT BL	30
BROAD ST	29
FRANKFORD AV	20
ALLEGHENY AV	15
MARKET ST	14
CHESTNUT ST	12
LEHIGH AV	11
GIRARD AV	10
TORRESDALE AV	10
COTTMAN AV	9

BIKE

STREET NAME	KSI
BROAD ST	3
GIRARD AV	3
TORRESDALE AV	3
BENJAMIN FRANKLIN PY	2
COBBS CREEK PY	2
ERIE AV	2
FIFTH ST	2
FIFTYSECOND ST	2
LEHIGH AV	2
MARKET ST	2

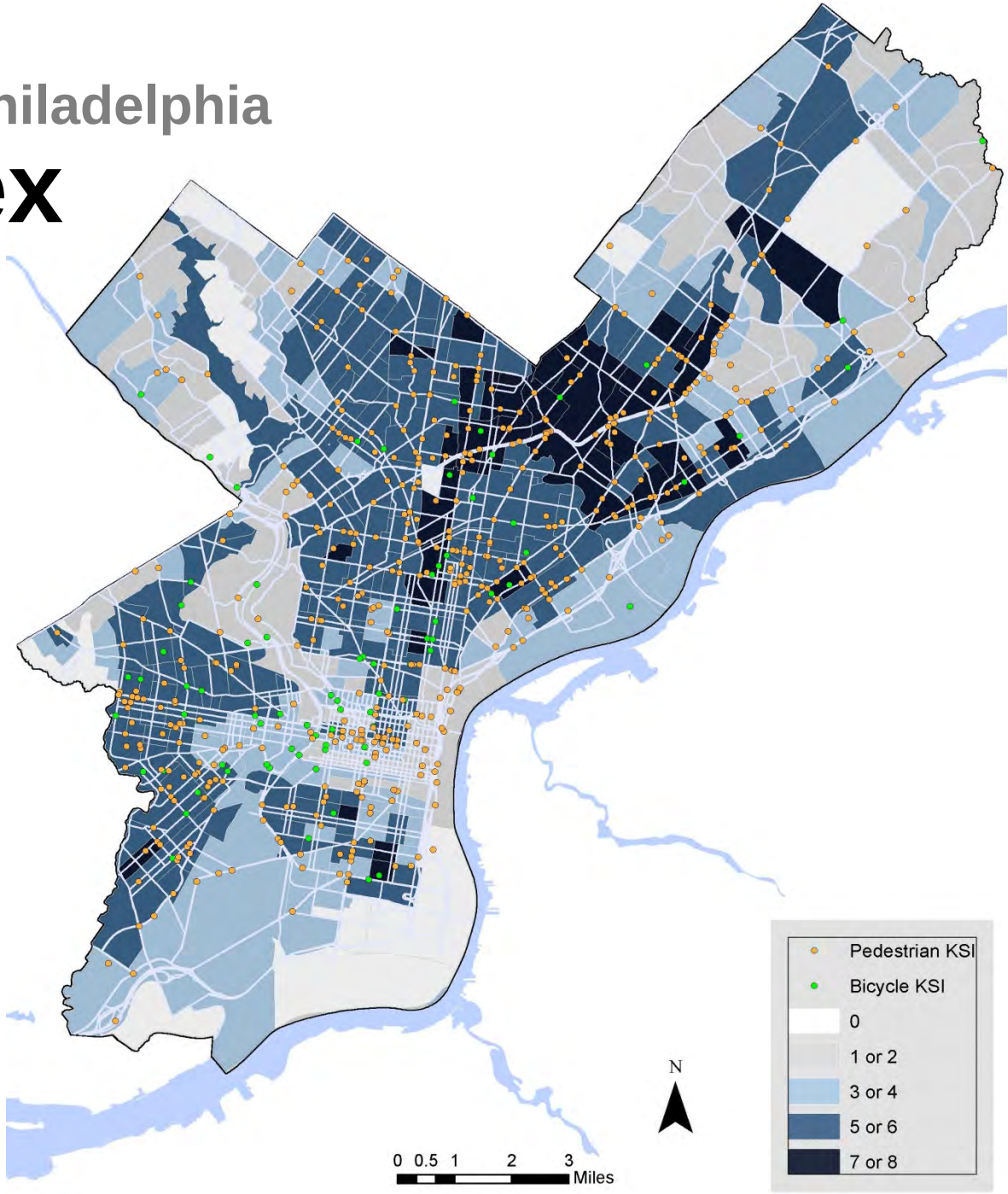


Mapping a HIN for Philadelphia

Equity Index

- PennDOT 2011-2015 ped/bike KSI crash events

- Indicators of Potential Disadvantage:
  - Non-Hispanic Minority
  - Carless Households
  - Households in Poverty
  - Female Head of Household with Child
  - Elderly (over 75 years)
  - Hispanic
  - Limited English Proficiency
  - Persons with Disabilities



What's next for Philadelphia?

→ *Zero traffic-related deaths in Philadelphia by 2030.*

PHILADELPHIA'S VISION ZERO TIMELINE:

- March 2017: Draft Action Plan released for public comment
- Spring – Summer 2017:
  - Public engagement;
  - High-Injury Network Defined
- September 2017:
  - Action Plan released to public
  - Work starts, and clock starts ticking down
- September 2018:
  - Vision Zero Year One update released to public

Thank you

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PLANNING COMMISSION

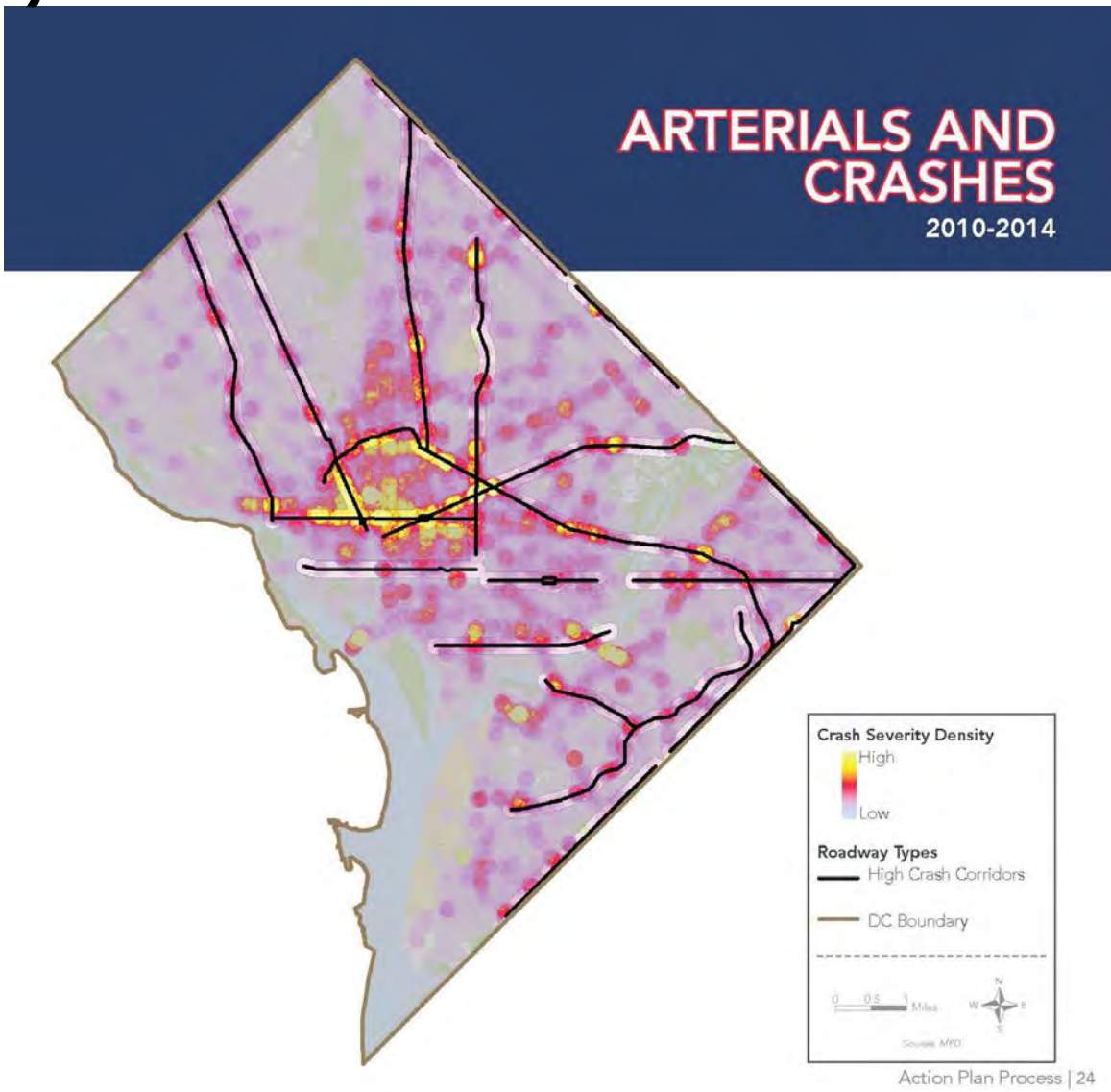
Analysis Approaches for Vision Zero Philadelphia

1. DVRPC Crash Standards Project
2. Philadelphia's Vision Zero Initiative
3. Project Evolution/Methodology
4. Peer City Examples
5. HIN Recommendations
6. Mapping a HIN for Philadelphia

Peer City Examples

Washington, DC

- Corridors drawn based on crash density
- Also incorporated crowdsourced public perception
- High Crash Corridors account for >50% of pedestrian/bicycle fatalities



Peer City Examples

San Francisco

- Initial strategy created HINs for pedestrians, bicyclists and vehicles
- SF Dept. of Public Health felt this put too much weight on certain streets with low crash incidence
- Moving to new method that will measure only KSI/mile on quarter-mile street segments

Peer City Examples

Seattle

- Created a HIN ranking system of top 100 corridors based on road class, AADT, collision density and KSI density
- Recently published Bicycle and Pedestrian Safety Analysis (BPSA)
- BPSA created risk model to identify high risk locations based on factors like roadway characteristics, land use, topography, etc.