



Planning Education Series

Agenda

- Transportation Agencies and Partners
- City-wide Transportation Planning Initiatives
- Mobility Chapter – Neighborhood Plan
- Roadway Design
- Parking
- Transportation Demand Management
- Transit-Oriented Development
- First and Last Mile Connections
- Bike and Pedestrian Infrastructure
- Bike and Pedestrian Advocacy
- Q & A / Discussion



Port
Authority



Transportation Agencies and Partners

Department of Mobility and Infrastructure (DOMI)

- Manages the operation of and access to the public right-of-way (sidewalks, curbs, steps, streets, and bridges that make up our network).

Port Authority of Allegheny County (PAAC)

- Operates, maintains, and supports bus, light rail, incline, and paratransit services.

Bike PGH

- Member based nonprofit organization focused on advocacy, community, and education to help transform our streets and communities into vibrant, healthy places by making them safe and accessible for everyone to bike and walk.



Port
Authority



Transportation Agencies and Partners (con't)

Pittsburgh Parking Authority (PPA)

- Provides, maintains, and enforces public parking throughout the City.

Southwestern Pennsylvania Commission (SPC)

- Provides regional planning to the 10-county SPC region and directs the use of state and federal transportation and economic development funds allocated to the region.

Oakland Transportation Management Association (OTMA)

- Serves the Oakland community through advocacy and provision of information to encourage good transportation choices by commuters, residents, and visitors with the goal of increasing the use of modes other than automobile.

Healthy Ride

- Pittsburgh's bike share system, which allows for users to pick up a bicycle at one of the 100+ stations throughout the city and return the bike at any station in the system. Intended for quick trips around the City.



Department of Mobility and Infrastructure

Overview

- Pittsburgh's newest department. Formed in 2017.
- Combination of staff from other City departments plus some new additions.
- Manages the operation of and access to the public right-of-way (sidewalks, curbs, steps, streets, and bridges that make up our network).
- Focuses on five key areas:
 - **Safety.** Protecting and providing for all users.
 - **Access.** Connecting people and opportunities.
 - **Reliability.** Providing an efficient system and services.
 - **Adaptability.** Preserving now, preparing for the future.
 - **Human(e).** Engaging, empowering, and enabling residents.



City-wide Transportation Planning Initiatives

Complete Streets

- Complete Streets Policy adopted in 2016.
 - Puts walking, biking, and taking transit on equal footing with driving in an effort to improve the quality of life for all Pittsburghers.
- Working on the City's first Complete Streets Guidelines.
 - Will serve as the framework for reprogramming streets to be great public spaces that also facilitate the introduction of multi-modals corridors and safe, connected, and convenient transportation networks.
- To be completed in Winter 2019.

Pedestrian Safety Action Plan

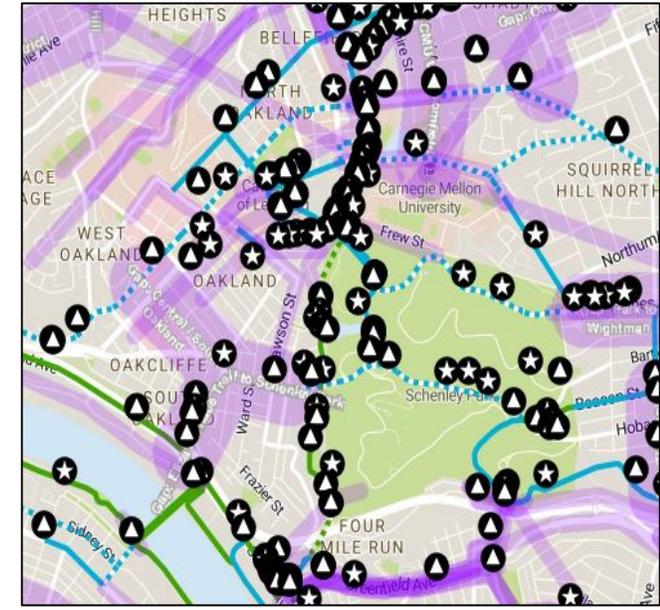
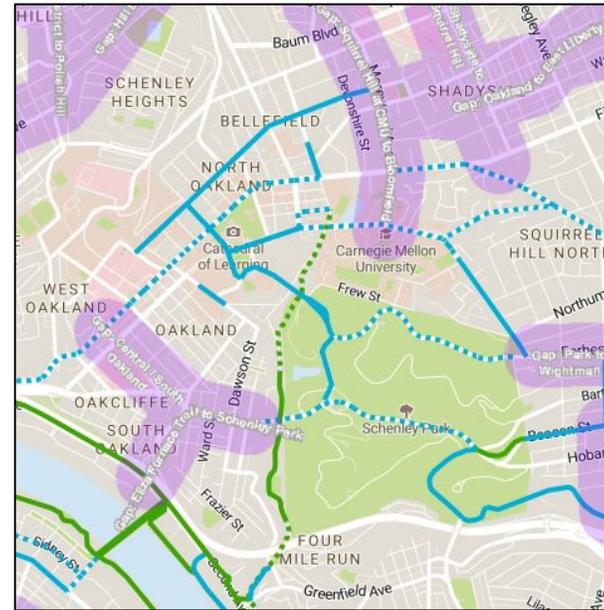
- Identify a network of streets for future pedestrian investments.
- Analyzes high-pedestrian crash locations, high-risk pedestrian corridors, high-need pedestrian corridors, and key walking streets.
- To be completed in Fall 2019.

A complete sidewalk and bicycle network are a non-negotiable part of our future. We are actively working towards achieving this goal.

City-wide Transportation Planning Initiatives (con't)

Bike Plan

- Objective is to build a safe, comfortable, and convenient bike network for all types of riders and all types of trips.
- Includes proposed bike lanes and trails as well as network gaps identified through public engagement.
- To be completed in Winter 2019.



Interactive map showing existing, proposed, and identified network gaps in the bike and trail network with and without comments from the public.

Mobility Chapter – Neighborhood Plan

Objectives

- Develop a multimodal network plan that supports existing and future residents and businesses.
- A curbside management strategy to optimize parking and loading access and use.
- A parking management strategy that optimizes both publicly and privately held parking resources and which is considerate of emerging mobility trends.
- Design a clear implementation strategy with estimated budgetary, operational, and organizational needs for the next 3-5 years.

How are we going to get there?

- Transportation-specific consultant.
 - Ongoing coordination with agency and organizational partners, stakeholders, and the public.
 - Steering Committee and Mobility Action Team.
 - Outreach activities and other opportunities to provide input.
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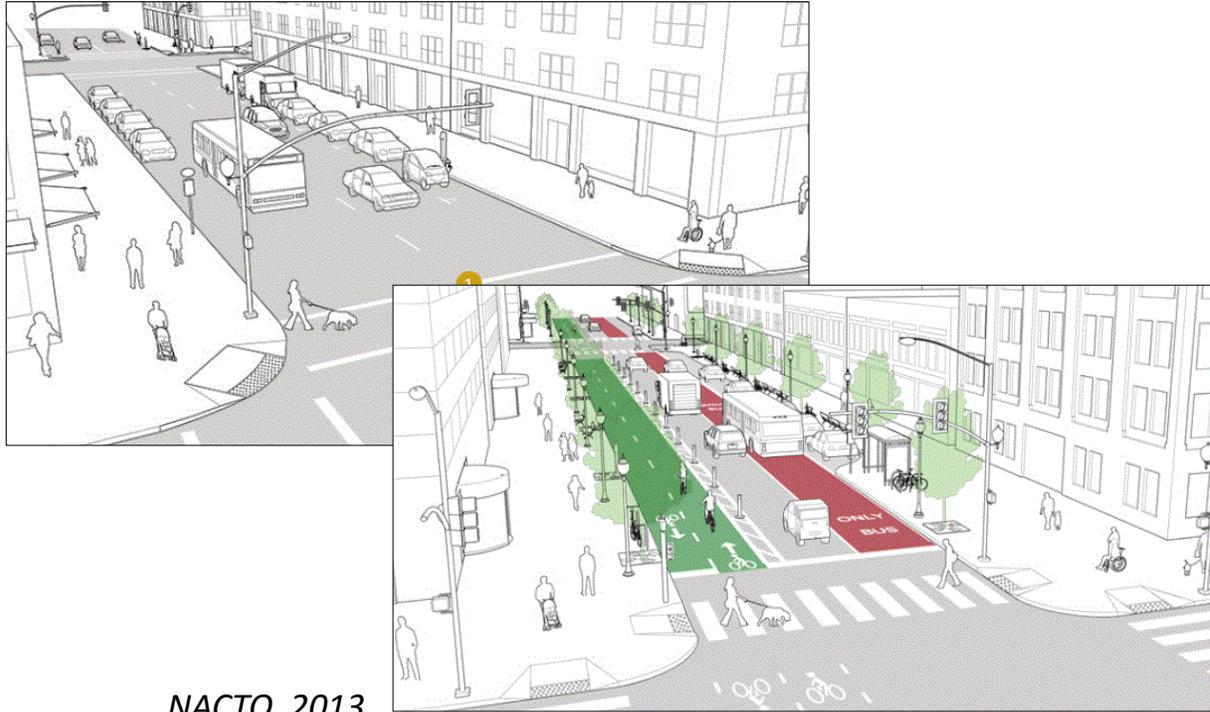
Mobility Chapter – Neighborhood Plan (con't)

Topics

- Network analysis – existing and future
- Roadway features and traffic conditions
- Buses and other circulators
- Parking
- Connectivity
- Sidewalks, steps, bike lanes, and curbs
- Pedestrian environment and safety
- Implementation strategy for the next 3-5 years
- Estimated budgetary, operational, and organizational needs



Roadway Design



NACTO, 2013.

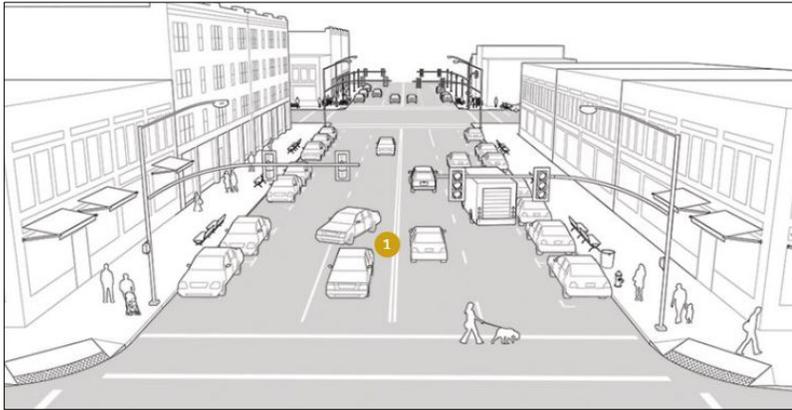


Streetscape improvements to a neighborhood street.

Before and after streetscape improvements to a primary corridor.

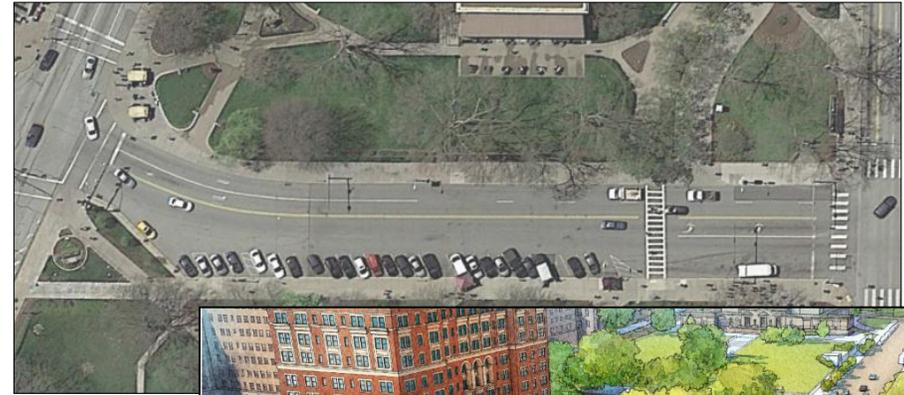
Streets for the last century have been designed to keep traffic moving but not to support the life alongside it. Many streets offer city dwellers poor options for getting around, discouraging walking and stifling vibrancy and the spontaneous social gathering and spending that energizes the world's greatest cities (Streetfight, 2016).

Roadway Design



NACTO, 2013.

Before and after streetscape improvements to a neighborhood main street.



Proposed streetscape improvements to Bigelow Boulevard.

Parking

- Impacted by employer, university, and development pressure.
- Recognize this is a concern for many residents.
- Drives congestion and delays in travel time.
- Reduction in the capacity of the street.
- Mobility chapter will evaluate:
 - The creation of a parking management district / shared parking district.
 - Performance-based parking and curbside management.
 - Transportation demand management (TDM) strategies to reduce single occupancy vehicle (SOV) trips.



Transportation Demand Management

- Goal is to reduce SOV trips by making it easier and more attractive for travelers to utilize transit, biking, walking, and other efficient travel options.
- Tools and strategies designed to provide transportation options that do not contribute to peak hour vehicle congestion.
- Customized for the environment.
 - Considers all users of the transportation network.
- Often times included as part of the transportation impact review process.

Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability (FHWA, 2004).

Transportation Demand Management (con't)

Example Strategies

- Coordinate efforts with OTMA, universities, and major employers.
- Unbundle parking so the cost of parking is separate from lease or deed (residential) or paid (office).
- Flexible work hours and / or telecommute programs for office development.
- Upgrades and enhancements for pedestrian safety at site access and intersections.
- Enhancements to pedestrian facilities that address the last mile problem from transit stops and non-vehicular paths.
- Bicycle storage facilities and shower rooms.
- Priority parking spaces for carpool, vanpool, and car shares.
- Increased employer-sponsored shuttle options for commuters.



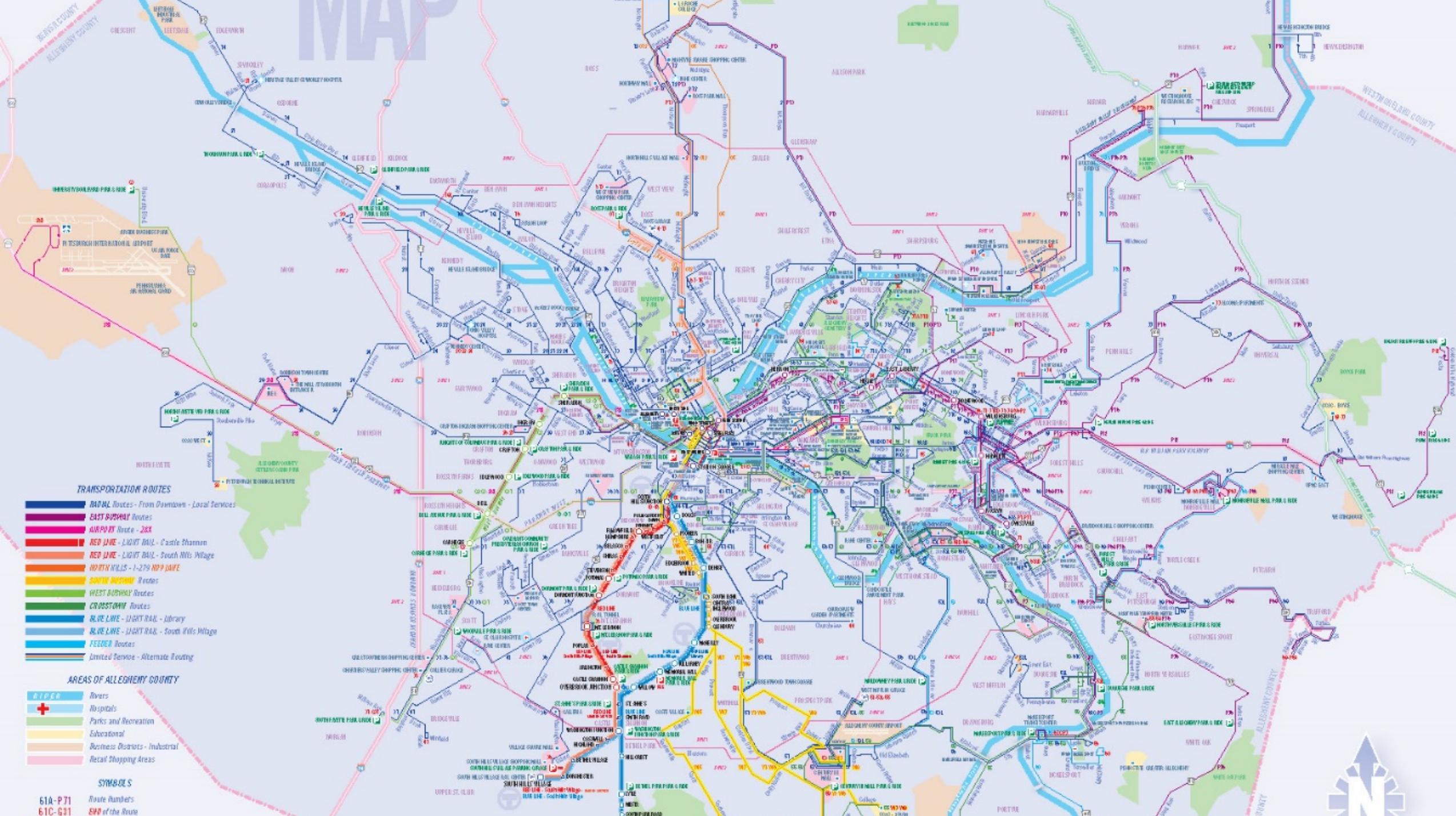
TRANSIT-ORIENTED COMMUNITIES

NOT JUST COMMUNITIES WITH TRANSIT

TOD Program
Planning & Evaluation Department
PortAuthority

MOVE OAKLAND
Pittsburgh Department of City Planning
Thursday, July 25, 2019

MAP



TRANSPORTATION ROUTES

- RAPID** Routes - From Downtown - Local Services
- EAST BUSWAY** Routes
- ARTO BY** Route - 26X
- RED LINE - LIGHT RAIL** - Castle Shannon
- RED LINE - LIGHT RAIL** - South Hills Village
- ROBIN HILLS** - 1-279 **HOV 3+** LANE
- DAVIDE BUSWAY** Routes
- WEST BUSWAY** Routes
- CRISTOFANI** Routes
- BLUE LINE - LIGHT RAIL** - Library
- BLUE LINE - LIGHT RAIL** - South Hills Village
- FEEDER** Routes
- Limited Service - Alternate Routing

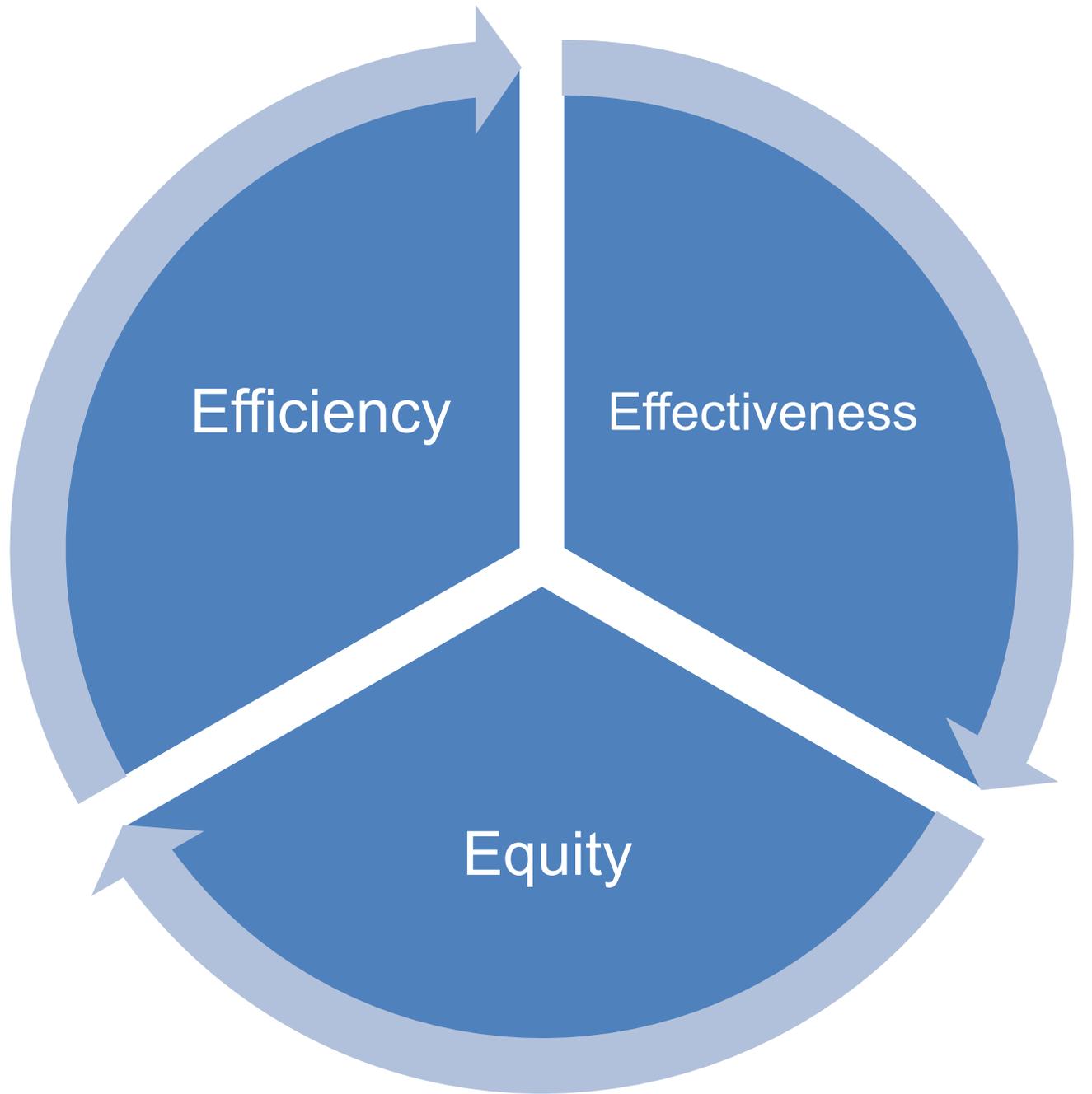
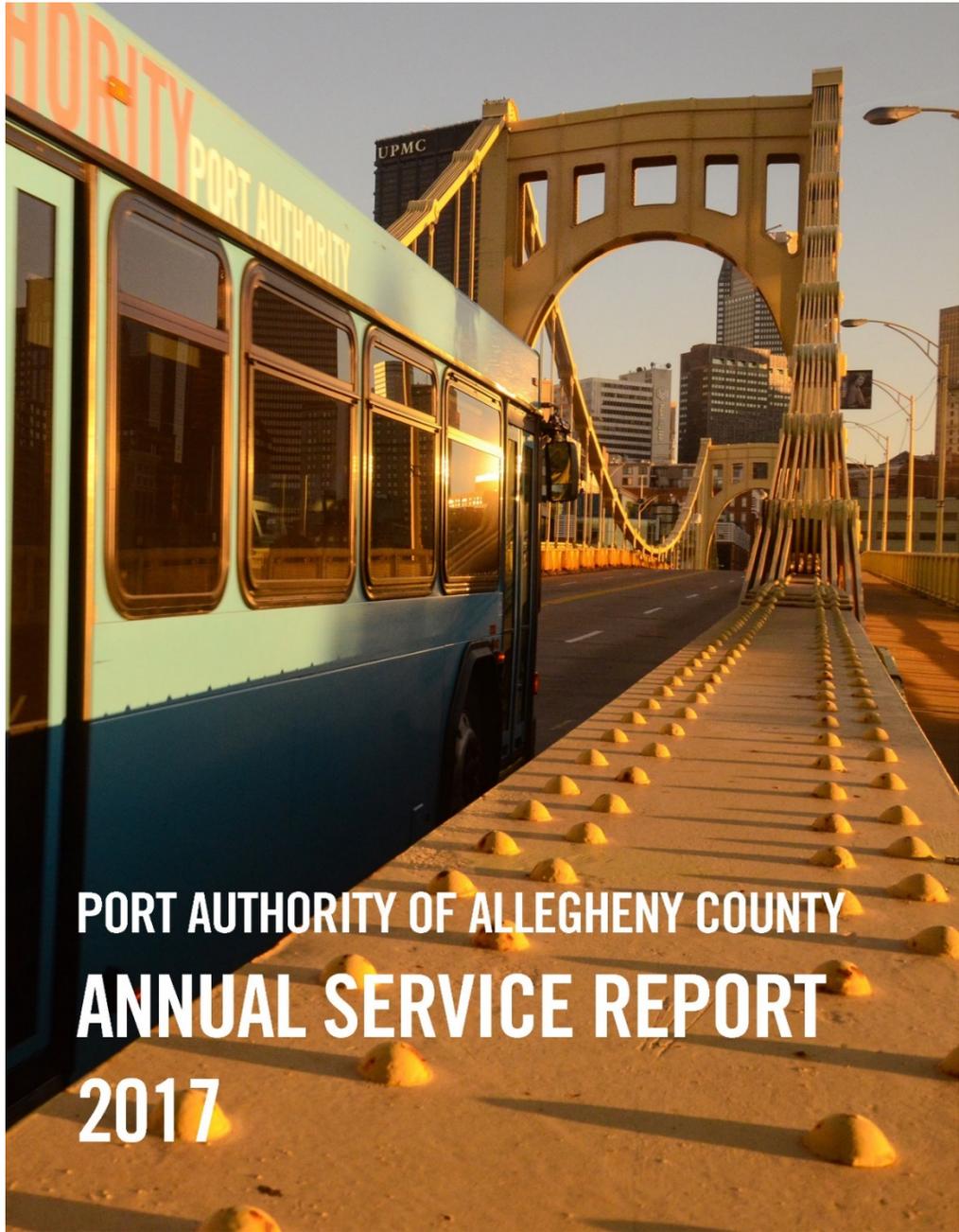
AREAS OF ALLEGHENY COUNTY

- RIVER** Rivers
- Hospitals
- Parks and Recreation
- Educational
- Business Districts - Industrial
- Retail Shopping Areas

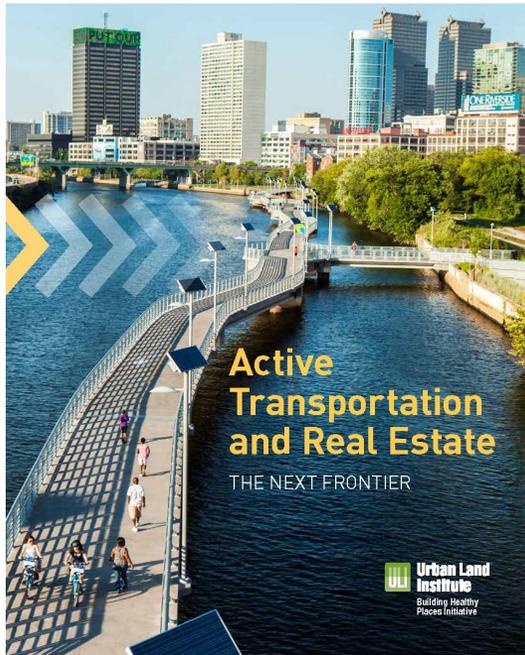
SYMBOLS

- Route Numbers
- BNP** of the Route



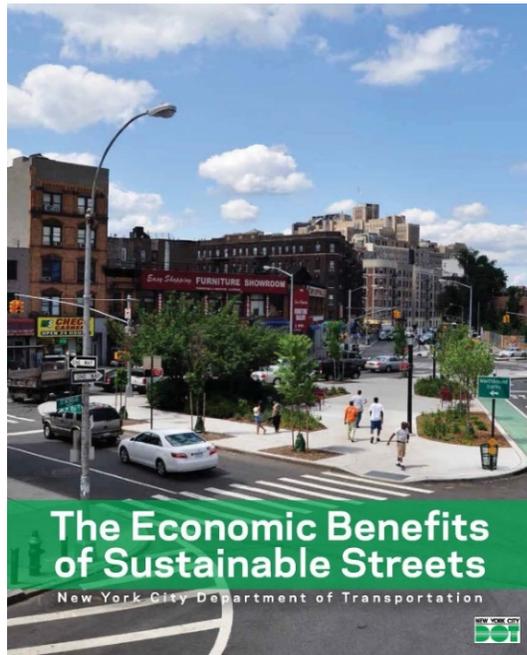


TRANSIT-ORIENTED DEVELOPMENT

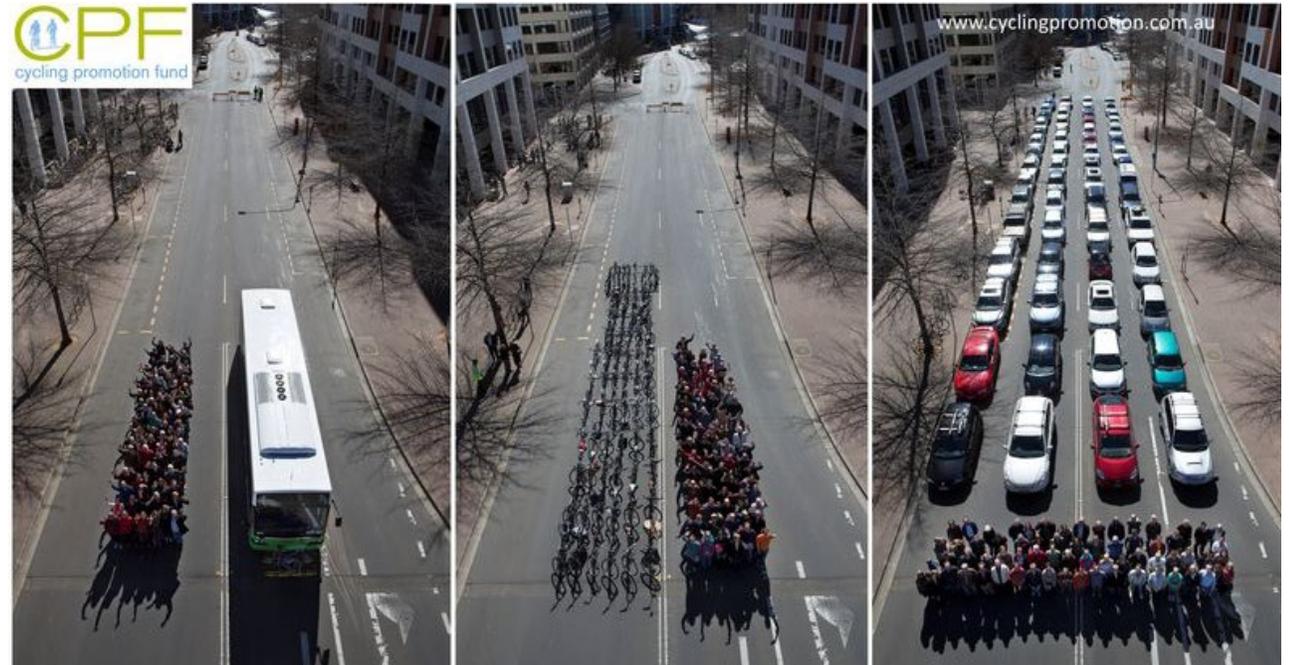
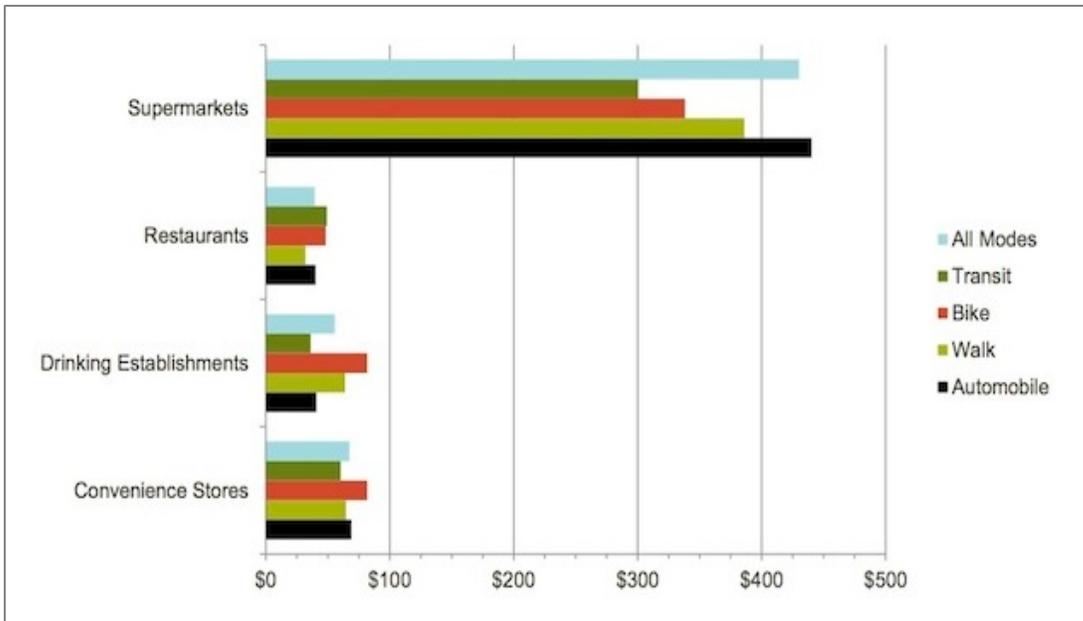
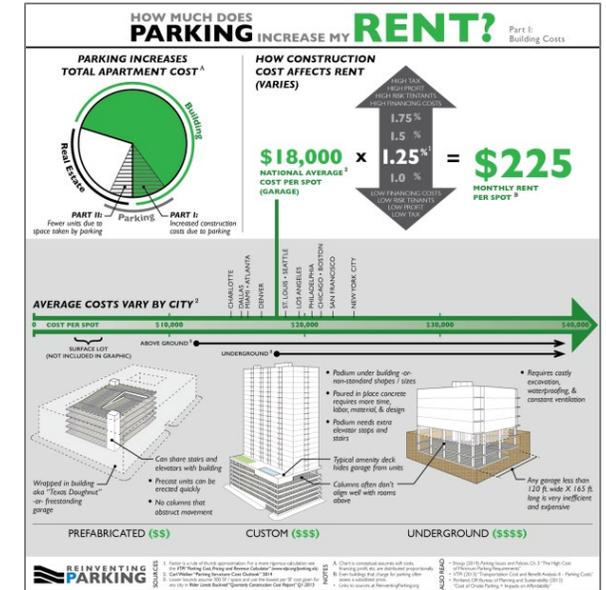
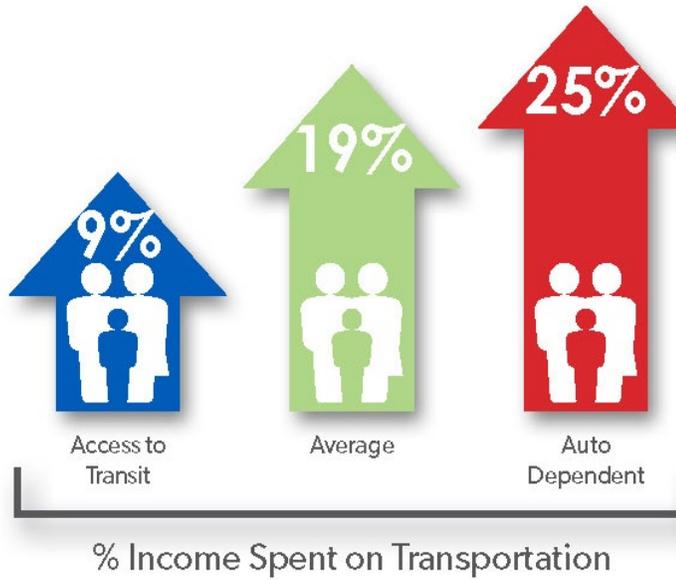


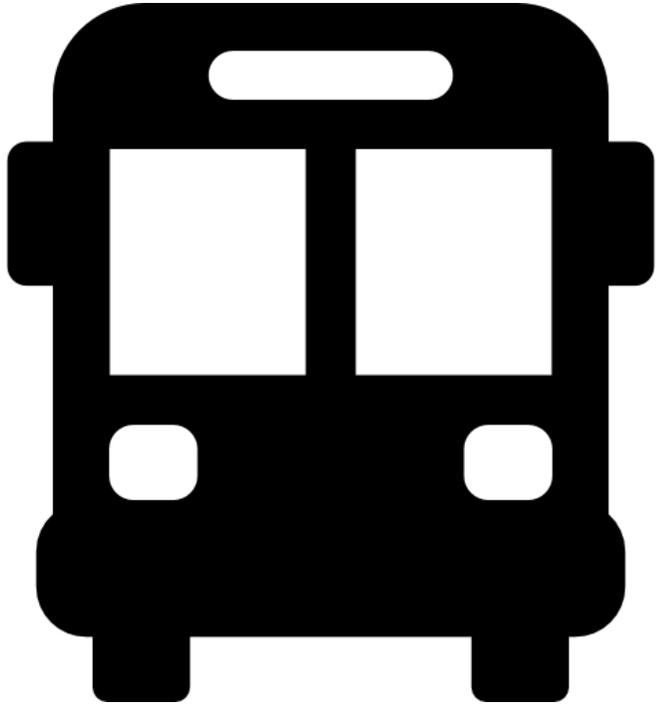
Active Transportation and Real Estate
THE NEXT FRONTIER

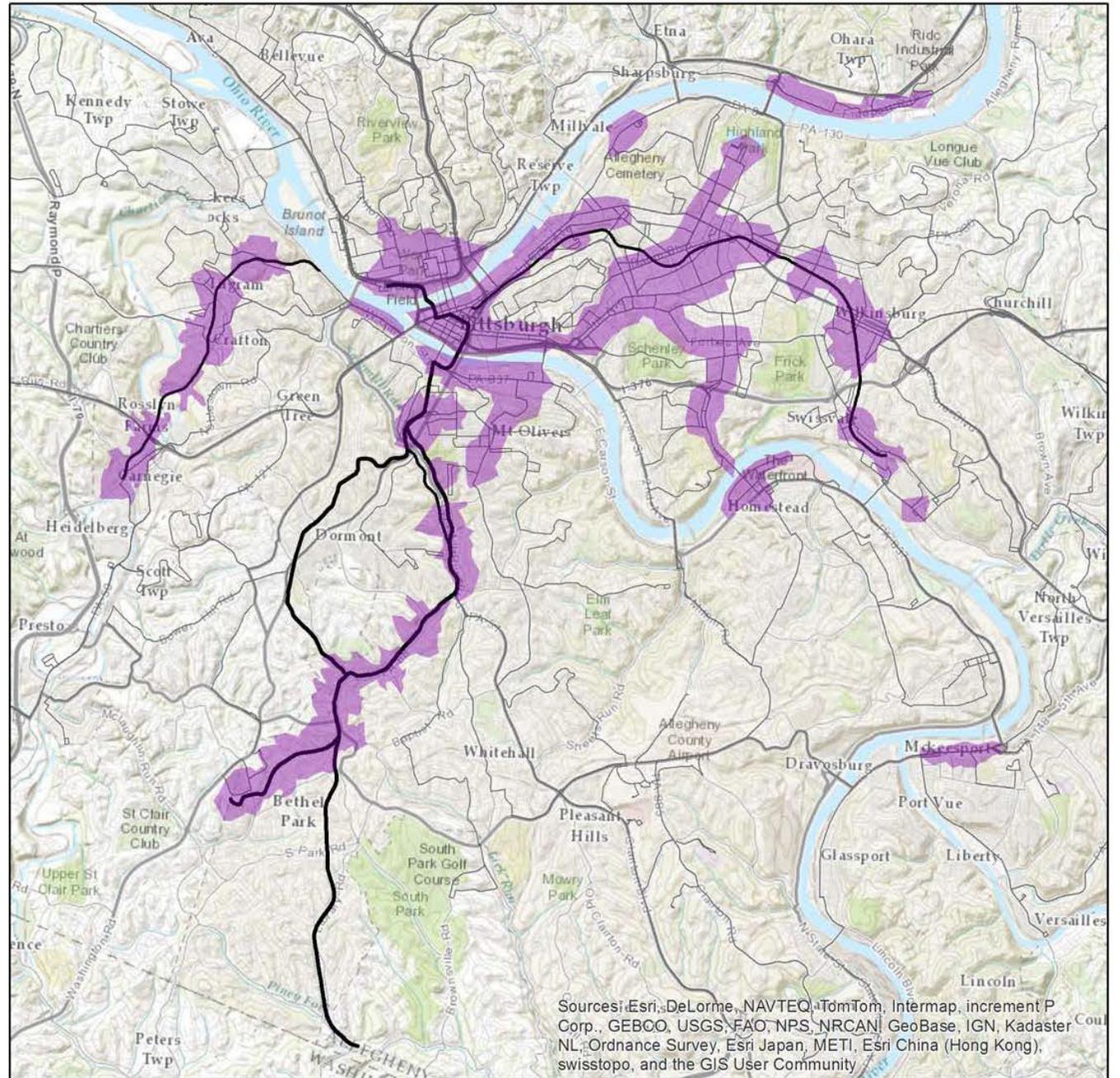
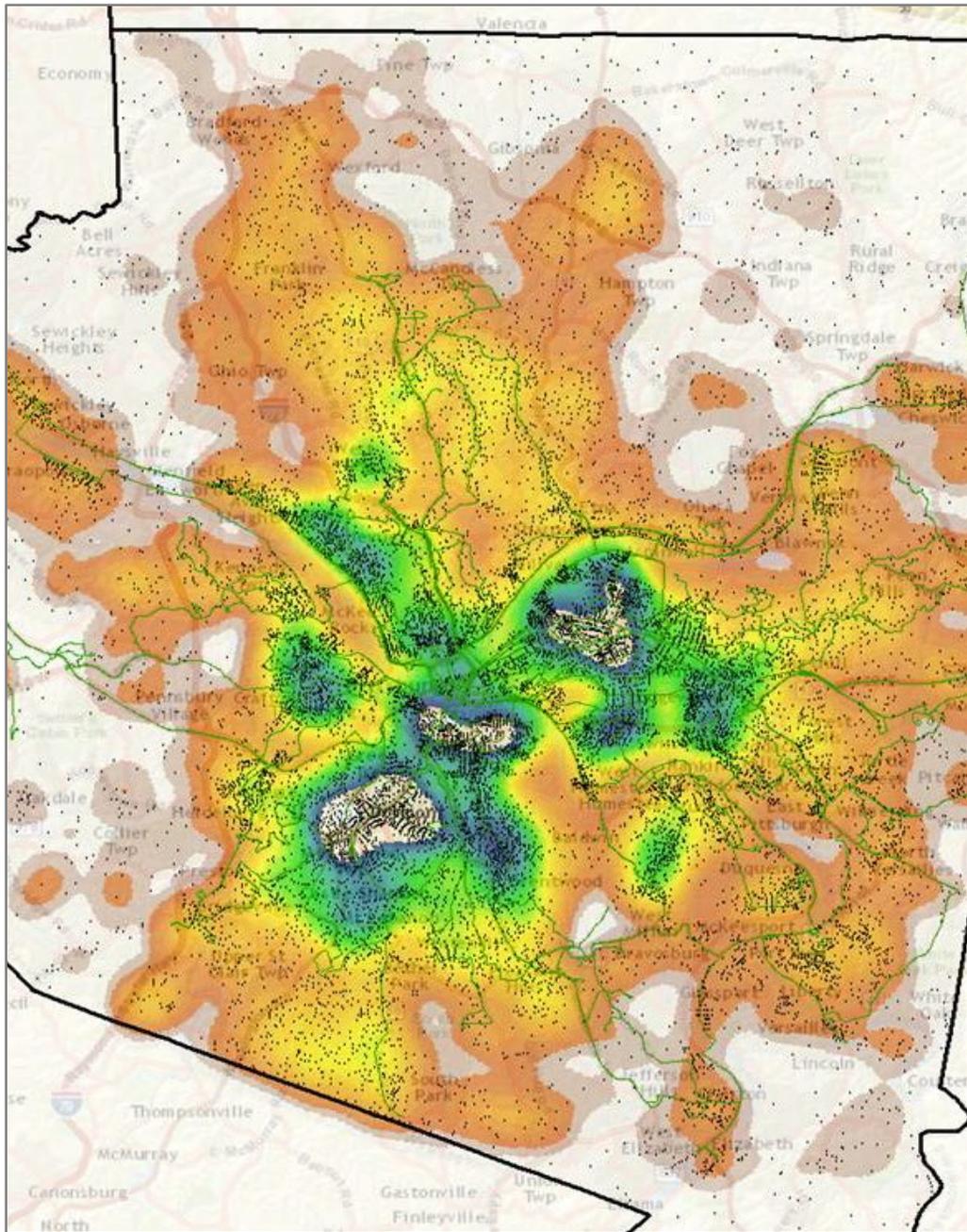
Urban Land Institute
Building Healthy Places Initiative



The Economic Benefits of Sustainable Streets
New York City Department of Transportation



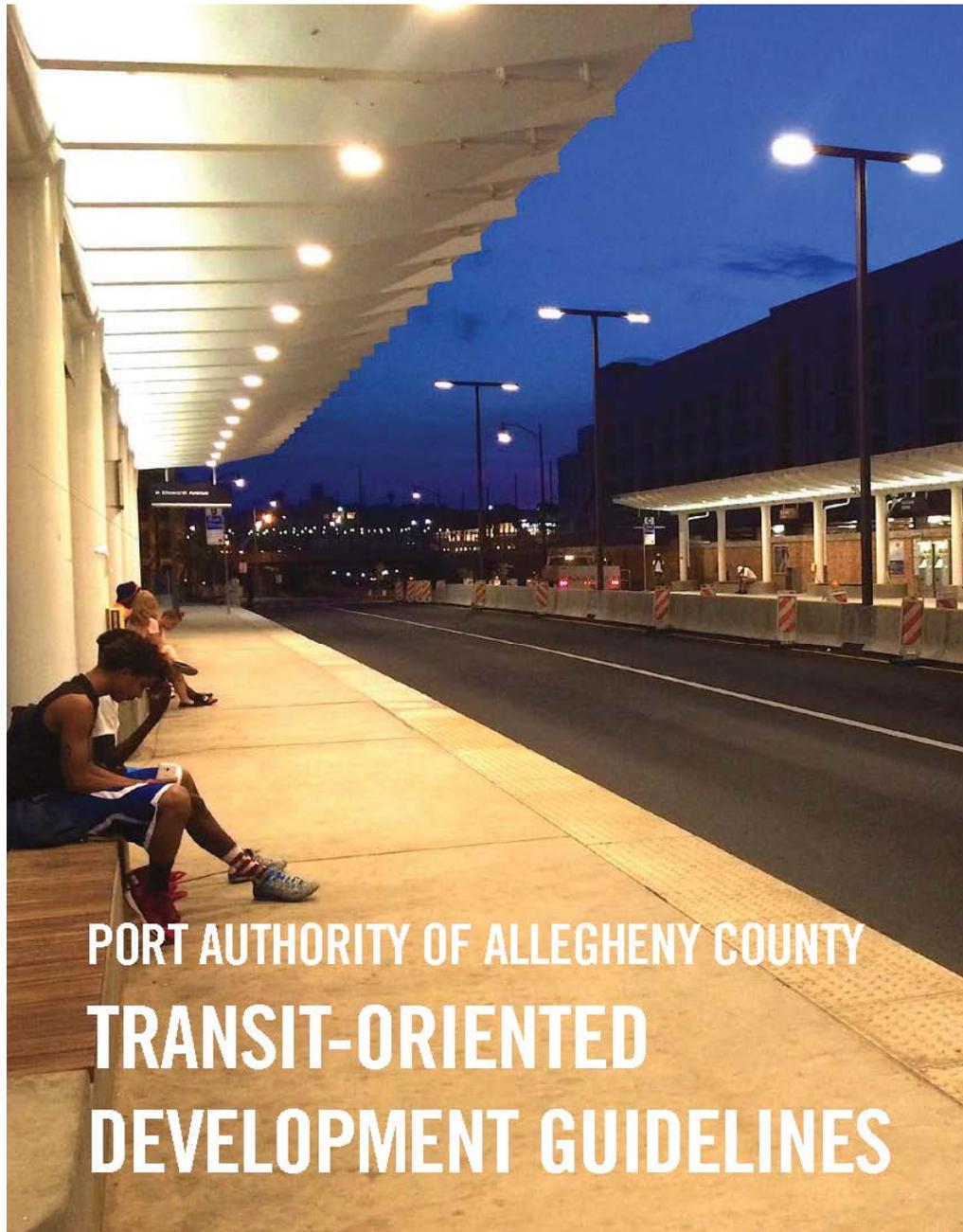




Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

PAAC Roles in TOD

- TOD **sponsor** for joint development
- TOD **stakeholder** for any development that occurs within the “zone of influence” of current or future stations
- TOD **advocate** for sustainable land use decisions along all of the Pittsburgh region’s transit corridors



PORT AUTHORITY OF ALLEGHENY COUNTY
**TRANSIT-ORIENTED
DEVELOPMENT GUIDELINES**

MULTIMODAL CONNECTIVITY

transit, bikes, cars, parking

WALKABILITY

*connectivity, streetscape,
public safety*

DEVELOPMENT

*density & uses, building design,
public space, public art,
infrastructure, policy tools*

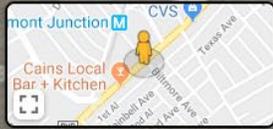


3201 US-19 Truck

Pittsburgh, Pennsylvania

Google

Street View - Aug 2018



Google



Activation and connection of the West Liberty Avenue corridor with lush vegetation, expanded sidewalks, and safer road crossings



Port Authority

FIRST AND LAST MILE CONNECTIONS

First and Last Mile Defined

Every transit trip begins and ends somewhere beyond the transit stop. Alternative methods of transportation, such as walking, biking, or driving, accompany transit on one's journey from origin to destination.

The other modes that complement transit usage along one's journey are referred to as first and last mile connections.



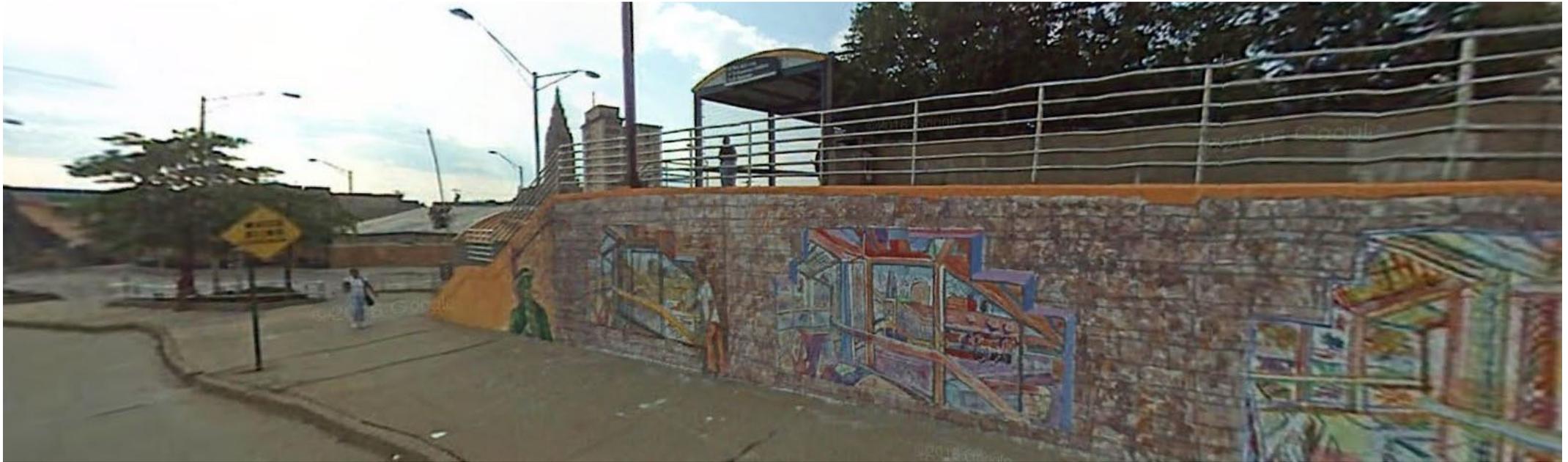
Pittsburgh



And now let's take a moment to shame Pittsburgh. This lovely hilly city is the only metro area to have four bus stops featured in this competition in the last two years alone. That's a badge of honor — or in this case, dishonor.

Two of America's 'sorriest bus stops' are in Allegheny County





Program Goals

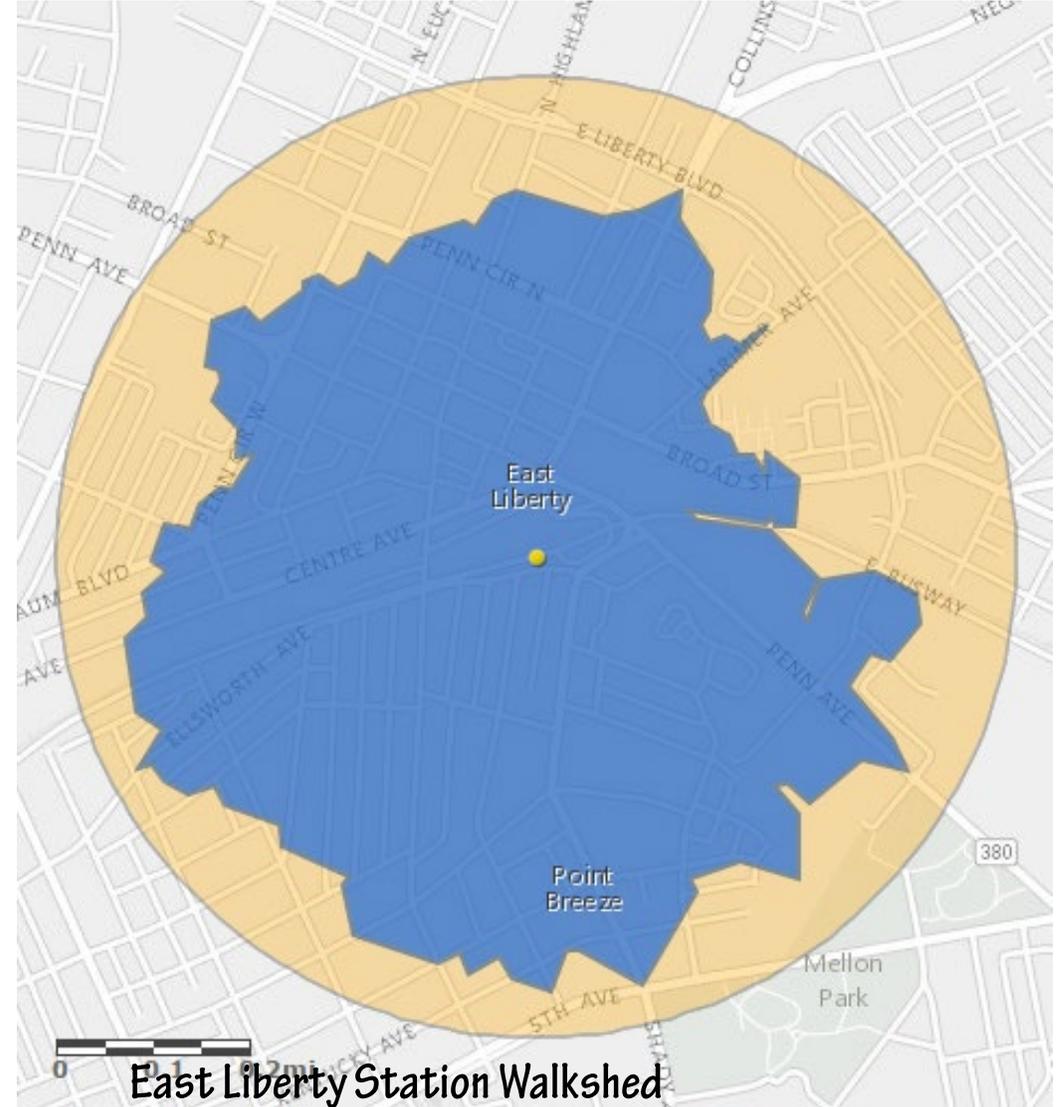
- *Increase transit ridership*
- *Increase non-single occupancy vehicle access to transit service*
- *Increase access to high frequency, rapid transit for those most likely to depend on it*

Program Goals

- Increase transit ridership **EFFICIENCY**
- Increase non-single occupancy vehicle access to transit service **EFFECTIVENESS**
- Increase access to high frequency, rapid transit for those most likely to depend on it **EQUITY**

Principles

- Accessibility
- Collaboration
- Mode hierarchy
- Public health
- Rider comfort and satisfaction
- Sustainability



2018 First and Last Mile Evaluation

Scope: Fixed-guideway stations

3 Categories of Metrics

Station Context

- What is happening around the station
- Factors that influence a user's personal motivation to use a station
- *Cannot be directly improved by first/last mile enhancements*

User Experience

- Factors that measure the conditions at a PAAC station or in the surrounding walkshed
- Can be improved by first/last mile advancements
- *Lack of user experience indicates the need for improvement*

Equity

- Port Authority Equity Index!

Station Context Characteristic	Definition
ACCESS Paratransit Drop-off/Pick-ups	# of Drop-off and Pick-up ACCESS locations in the walkshed
Destinations	Combination of grocery stores, libraries, general attractions, hospitals, universities, parks, schools, public buildings, fare locations in the walkshed
Destinations within .5 Miles	Destinations that are within a .5 mile buffer outside of the walkshed
Intersection Density	Amount of intersections in a walkshed. A high score indicates that an area is very walkable. Intersection density is considered to be one of the most important factors for increasing transit use.
Jobs	# of Jobs within the walkshed
Population	# of residents living in the walkshed
Ridership	How many riders are there at the station each day?
Unique Area	% of the walkshed that does not overlap with any other walkshed

User Experience Factor	Definition
Bike Access	Is the station bike accessible? (no steps are required)
Bike Infrastructure Score	"Bike Friendliness": (Protected Bike Routes x 10) + (Bike Lanes x 5) + (On-street Bike Routes x 2) + Cautionary Bike Routes
Bike Racks	Does the station have bike racks?
Crashes per Rider	# of car, bike, and pedestrian crashes per rider
Crime	Average of crime/year and crime/person at station
Drop-off/Pick-up Zones	Are there drop-off/pick-up zones located at the station?
Healthy Ride Score	Is there a Healthy Ride Station at the stop / are there many Healthy Ride docks within the walkshed?
Inaccessible Road	Total % of Bypass, Ext, Highway, Interstate, Ramp, Tunnel
Park & Ride	Is there a Park & Ride located at the station?
Sidewalks	Quality of sidewalks surrounding the station
Slope	(% of slope from 5-9.99% x .5) + (% of slope in walkshed above 10%)
Speed	Average speed of all of the roads in the walkshed
Station Visibility	How easily can the station be seen without obstacles blocking the line of vision? (Final numbers are area in square miles)
Street Level Presence	# of ways to enter the station directly at street level (no ramp or stairs required)
Trails	# of Trails within the walkshed
Transit Connections	# of bus/rail lines accessible within a 1/8 mile buffer of the station
Tree Cover	% of tree cover within 20 ft. of sidewalks in the walkshed
Unique Approaches to Station	# of entrances from different directions into the station

FLM Program Plan

- PAAC roles:
 - Advocate
 - Collaborator
 - Sponsor
- PAAC Action:
 - New projects
 - Implementing on agency property
 - Participating in other's plans
- Toolbox

FIRST AND LAST MILE TOOLBOX

PAAC has developed a Toolbox as part of the FLM Program. Inspired by project ideas found through industry best practice documents such as the National Association of City Transportation Officials (NACTO) guidelines and tools used by other transit agencies and municipalities, the Toolbox offers project suggestions about how to correctly address barriers within the first and last mile of a rider's commute.

REFERENCE GUIDES

There are numerous documents already in place that detail improvements for some of the challenges to transit connectivity referenced in this FLM Plan. Use these guidelines to find detailed recommendations for solutions to improve first and last mile connections:

- [National Association of City Transportation Officials \(NACTO\) Transit Street Design Guide](#)
- [NACTO Urban Bikeway Design Guide](#)
- [National Cooperative Highway Research Program \(NCHRP\) Systemic Pedestrian Safety Analysis](#)
- [Pedestrian and Bicycle Information Center](#)
- [PennDOT Pennsylvania's Traffic Calming Handbook](#)
- [Pittsburgh Bicycle Parking Guidelines](#)
- [U.S. Department of Transportation Federal Highway Administration Pedestrian Safety Guide for Transit Agencies](#)
- [Southwestern Pennsylvania Commission Active Transportation Research Center](#)

The following guidelines created by PAAC staff for external partners should also be reviewed and used when applicable. Additionally, external partners should coordinate with PAAC staff to ensure projects are consistent with standards used by PAAC's Engineering, Service Development and Road Operations Departments.

- [Transit-Oriented Development Guidelines](#)
- [Station Area Plans](#)
- [Bus Stop Design Guidelines](#) (to be linked when published)

BEST PRACTICE TOOLBOX

The Toolbox is not an exhaustive list of every possible suggestion for transit-friendly communities and is not intended to detail plans for specific stations in the PAAC system. When undertaking projects to fix connection barriers, each station will have unique needs and challenges. The FLM Toolbox is meant to offer guidance about best practices to improve such deficiencies. A successful FLM project will incorporate many of the suggestions offered in the Toolbox, using these methods to help build a safer, more transit-friendly walkshed.

PAAC'S FLM Program and the Toolbox do not supersede laws, regulations, or Board adopted policies applicable to PAAC or its municipal and implementation partners. Rather, the FLM Program and the Toolbox should be used to supplement existing standards (e.g. design guidelines, zoning, building code, etc.) and to guide access improvement where other standards do not.

In the Toolbox, improvement suggestions are split into 5 categories based upon mode prioritization:

1. Pedestrian
2. Bicycle
3. Transit
4. Drop-off
5. Park & Ride

Every transit rider is ultimately a pedestrian, walking at the very beginning or end of their commute. Therefore, pedestrian infrastructure improvements will positively impact all mode users at some point in their trip. Pedestrian improvements are outlined in the "Pedestrian" section of the Toolbox but should be considered in tandem with other modes. Above all, a successful mobility environment must be safe, visible, comfortable, accessible, and connected. These principles apply to every mode of transit.

The following checklist contains qualities to look for when aiming to enhance mobility and FLM options.

I. Pedestrian

- Minimize Crossing Distances
 - Curb Extensions: promote traffic calming and increase visibility
 - Pedestrian Islands: protect pedestrians from traffic at large intersections
- Clarify Crossing Locations
 - Piano Key Stripes: increase visibility of crosswalk
 - Tactile Warning Strips: help the visually impaired to locate the crossing
 - Maintain Crosswalks: ensure that the paint remains bright and unbroken
- Clarify Crossing Expectations
 - Leading Signals: give pedestrians time to establishing themselves in the intersection while cars are stopped
 - Countdown Timers: help pedestrians know when it is safe to cross
- Adequately Light Walkways
 - Spacing: ensure that lights are appropriately dispersed along pedestrian walkways to minimize dark spots
 - Location: ensure that wayfinding tools and transfer locations are highly visible
 - Light narrow stairways and other isolated locations
 - Add extra lighting to areas with a history of crime
 - Type: minimize shadowed areas and glares
- Connect Sidewalk Network
 - Install New Sidewalks: minimize missing links in sidewalks
 - Maintain Sidewalks: repair broken and cracked sidewalks
 - Comply with Regulations: ensure that sidewalks are wide



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Bike Pittsburgh

- **4,000 Member based, nonprofit organization**
- **Focus on: Advocacy, Community & Education**
- **Mission:**
 - **Bike Pittsburgh is transforming our streets and communities into vibrant, healthy places by making them safe and accessible for everyone to bike and walk.**



Outline:

- People On Bikes
- Bike Infrastructure
- Pedestrian Infrastructure
- City Plans & Policy Around Biking and Walking
- Advocacy

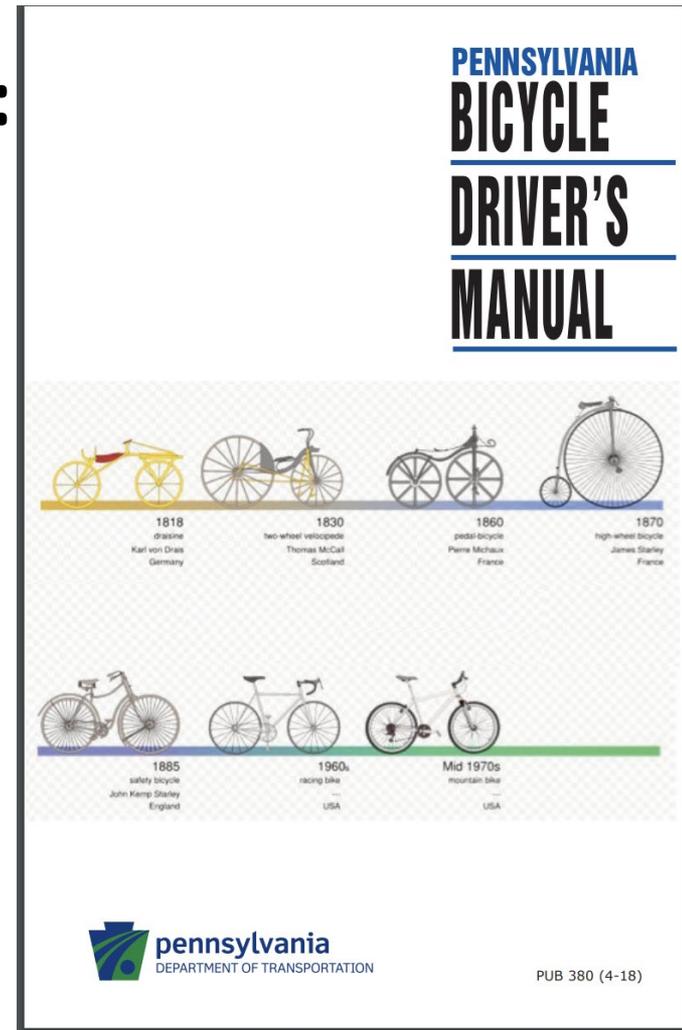


People on Bikes



What to Expect & What to Know:

- Overall Laws & Guidelines
 - PA Bicycle Driver's Manual
 - #1 advice: **Be predictable**
- Follow the law; stop at red lights/stop signs
- Where bicyclists can/cannot bike
- Bicyclists must take the lane in the direction they are heading



Interactions With People on Bikes



- Leapfrog, passing on the left
- Bus Blind Spot
- 4-ft law pass minimum
- Increased speed = increased risk





If hit by a person driving at:



Person Survives the Collision



Results in a Fatality

20 MPH



90%

10%



30 MPH



60%

40%



40 MPH

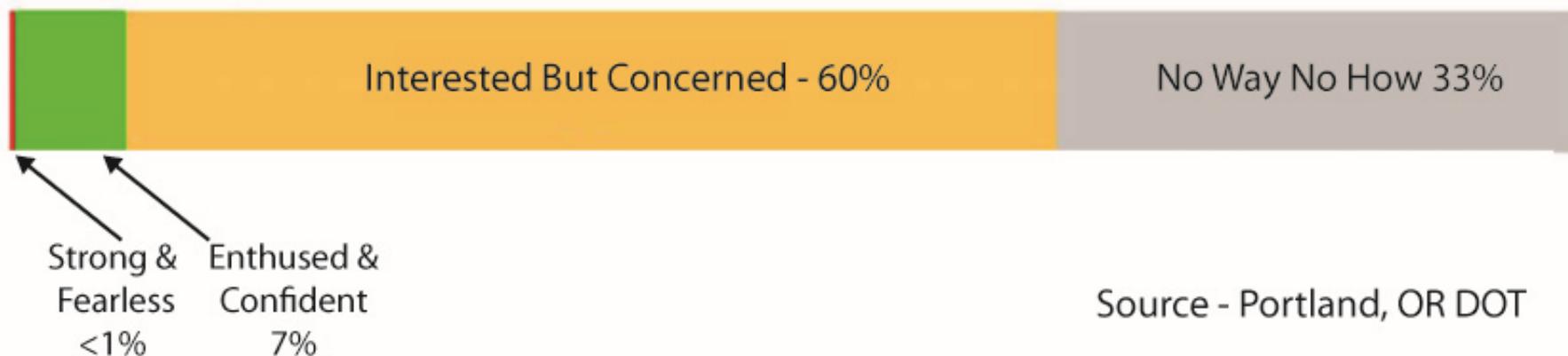


20%

80%



Four Types of Cyclists By Proportion of Population



Source - Portland, OR DOT

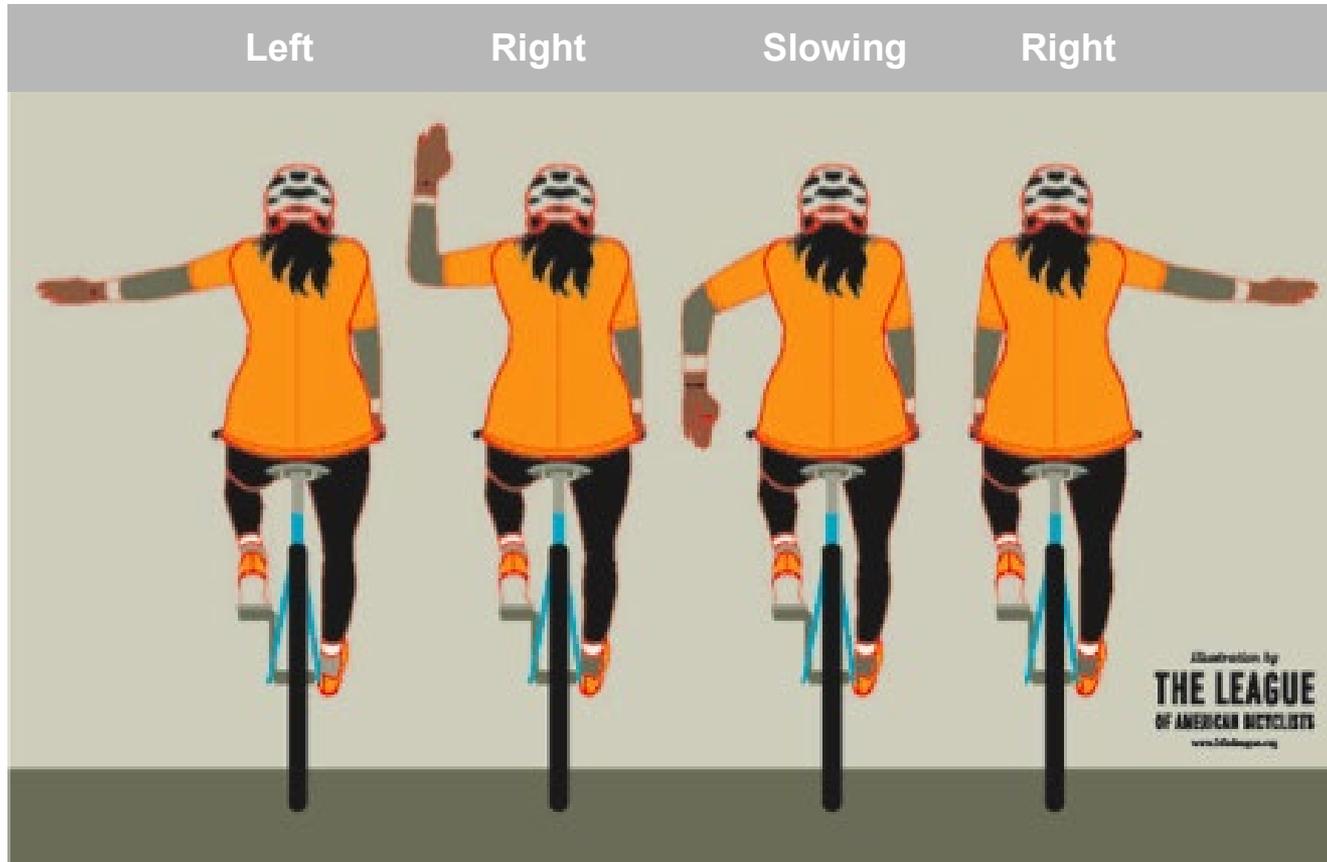


The Bicyclist's Perspective:

- People on bikes often act in ways that they think will make them safer
- Taking the lane
 - Predictable - straight line
 - Visibility
 - Door-zone danger
 - Debris, Potholes, Snow
 - Indicating that it's not safe to pass

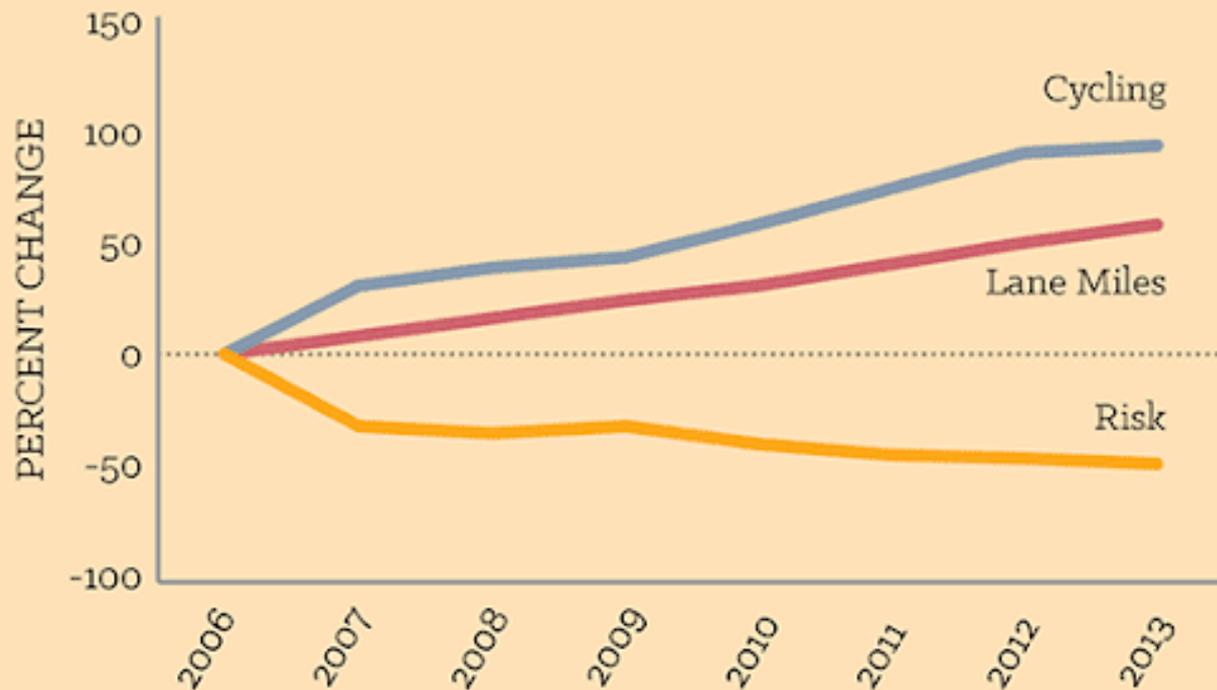


Hand Signals - predictability



Cycling is getting safer as more people ride.

Aggregate data from Chicago, Minneapolis, New York City, Philadelphia, Portland, OR, San Francisco and Washington, D.C.



Source: NACTO (2016)



Bike Infrastructure



Types of Bike Infrastructure

← LEAST PROTECTION

→ MOST PROTECTION

Shared Lane



Bike Lane



Buffered Bike Lane



Protected Bike Lane



Bus-Bike Lane



Bike Boxes



Contraflow Lanes



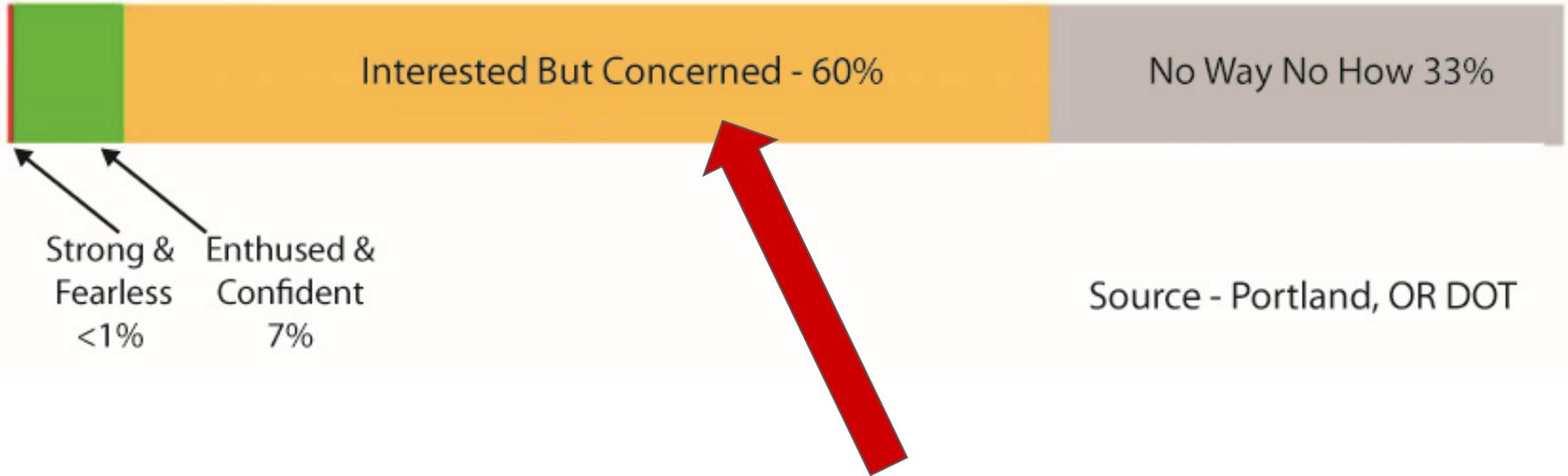
Sharrow



2-Stage Turn Box

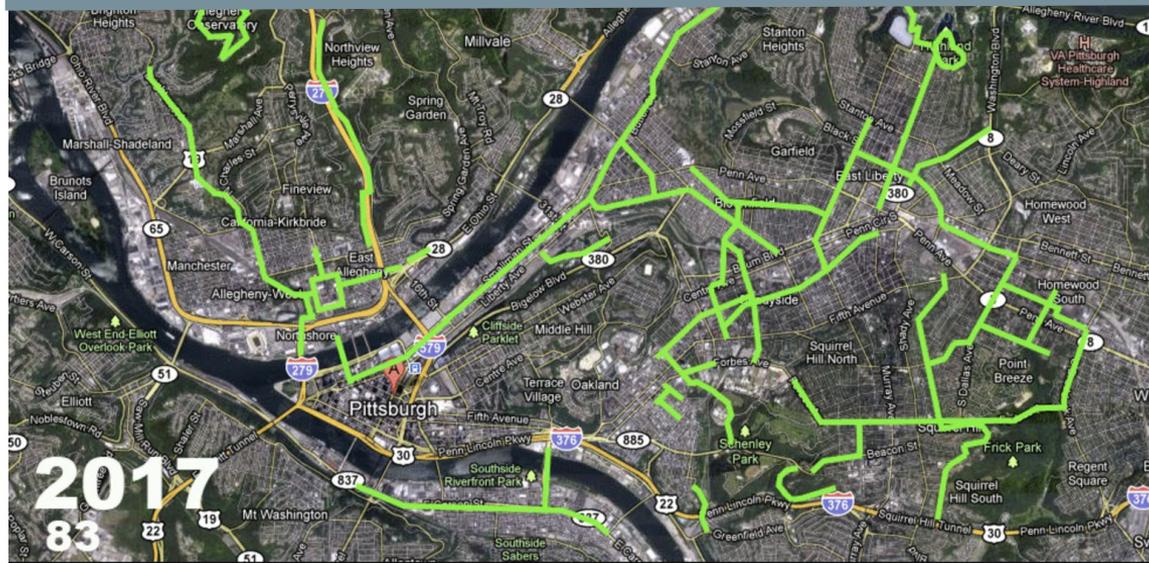


Four Types of Cyclists By Proportion of Population



Usually, plans and designs are made for the interested but concerned population.





Pedestrian Infrastructure



Walk Button



Flashing Ped-Crossing



Zebra Striped Crosswalk



Sidewalk



Steps



Mid-Block Crosswalk



City Plans & Policy Around Biking and Walking



Complete Streets Policy, 2016

- How it will inform future construction projects
- All projects must consider all road users

Pittsburgh Bike Plan

- Due: Winter 2019
- Helping to make a complete bike network

Pedestrian Safety Action Plan & Steps Plan

- Both plans have been published



What Is Complete Streets?

Complete streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.





Travel Lane, Transit Lane, Bike Lane, Pedestrian Infrastructure, Green Infrastructure

Complete Street Example

Before



After



Complete Street Example of a Side Street



Advocacy



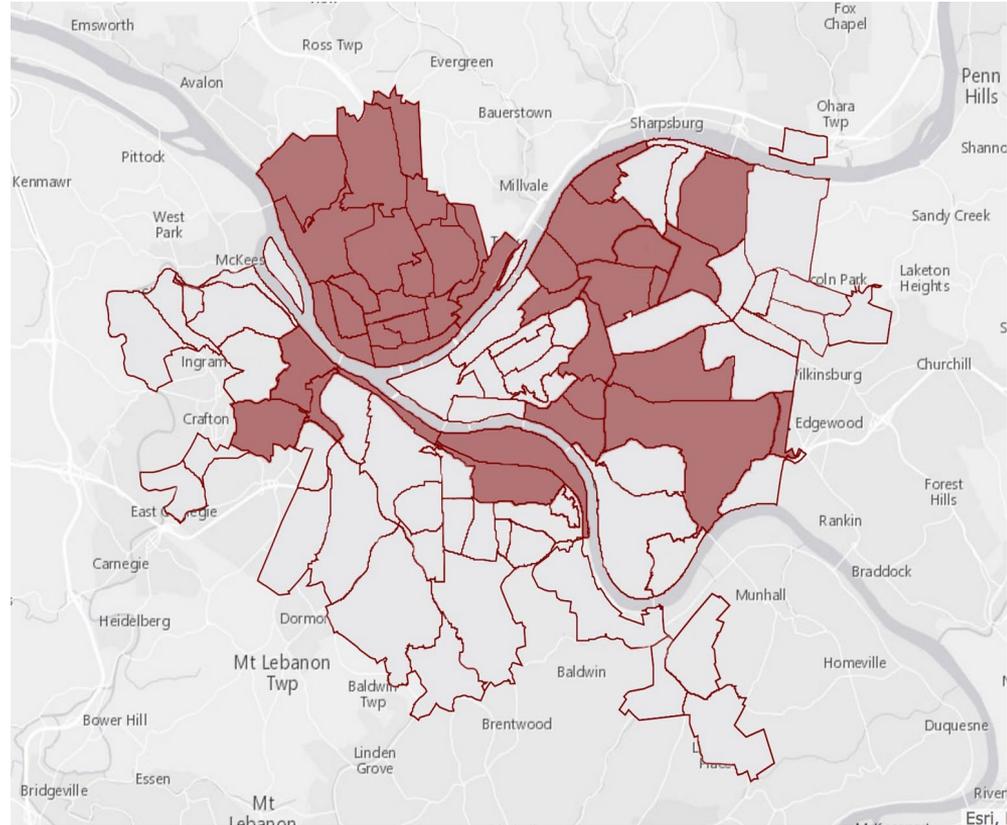
Your voice is important

Although we have members in every city neighborhood, it's necessary for residents to contact their elected officials with problems, praises, and making sure that they are aware of your desire to live in a walkable, bikeable neighborhood. Our message is amplified when citizens take the time to contact decision makers.



Neighborhood Bike/Ped Committees

- Grassroot, resident based neighborhood specific groups that advocate for better biking and walking in their area
- About 20 active bike/ped committees





Thank you!

Stay In Touch

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