

PennDOT Bicycle and Pedestrian Planning and Design



2018 TESC
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Bicycle and Pedestrian Planning and Design

Statewide Bicycle and Pedestrian Master Plan

Design Guidance and PennDOT Project Example

Statewide Bicycle and Pedestrian Master Plan

- ▶ Outline a vision and framework for improving conditions for walking and bicycling across Pennsylvania, most notably for those Pennsylvanians who walk and bicycle out of necessity rather than for leisure and recreation.
- ▶ Identify and help prioritize strategies that increase the number of people walking and bicycling, while supporting safety and multimodal connectivity throughout the state.

Statewide Bicycle and Pedestrian Master Plan

Community Survey

- ▶ Primary Public Out-Reach effort
- ▶ Over 13,000 responses
- ▶ Capture information on barriers to walking and biking

Statewide Bicycle and Pedestrian Master Plan

2017 Plan Focal Points

- Safety
- Access
- Community Health
- Equity

Statewide Bicycle and Pedestrian Master Plan

Safety

Reduce Bicycle Related Crashes from 2017

- **21 Fatalities - Up 30% - and 1127 Injuries**
- **Reported** bicycle crashes represent 1.0% of all crashes but 1.8% of fatalities

Statewide Bicycle and Pedestrian Master Plan

Safety

Reduce Pedestrian Related Crashes from 2017

- **150 Fatalities** and **4086 Injuries**
- Ages 0-19 accounted for 7% of fatalities and 29% of injuries
- Pedestrian crashes represent 3.2% of all crashes but **13.2% of fatalities**

Statewide Bicycle and Pedestrian Master Plan

Access

Access is critical to underserved, disabled, or disadvantaged populations

- Approximately 1 in 7 Pennsylvanians had a disability between 2012 and 2018
- 27% of those disabilities involved mobility issues
- 47% of the population with disabilities had two or more types of disability
- 71.6% of those with disabilities were over age 65

Statewide Bicycle and Pedestrian Master Plan

Community Health

The transportation system is designed to move people and goods efficiently; however, there is a growing awareness across communities that transportation systems impact quality of life and health*.

*<https://www.cdc.gov/transportation/>

Statewide Bicycle and Pedestrian Master Plan

Community Health - Diabetes

\$9.3 Billion in Direct Costs

\$3.5 Billion in Indirect Costs

*<http://main.diabetes.org/dorg/assets/pdfs/advocacy/state-fact-sheets/Pennsylvania2018.pdf>

Statewide Bicycle and Pedestrian Master Plan

Equity

A central goal of transportation equity is to facilitate social and economic opportunities *through equitable levels of access particularly* for populations that are traditionally underserved

OUTCOMES

Engaged Communities to Develop Active Transportation Plans

More Competitive Non-Motorized Grant Applications for Multimodal Funding

Well-Rounded TIP Projects via PennDOT Connects

Improved Inter-Agency Coordination

DOT Objectives, Goals and Performance Measures

Engineering

NEW FACILITY DESIGNS COMING TO A ROAD NEAR YOU

Engineering

Roadway design intended to be self-enforcing

Accommodating all modes, ages, and abilities

Seen as long term solutions / not as flexible over time / expensive

Constrained by legislation in some cases

Standards change over time

Small Town and Rural Multimodal
Networks

**Achieving Multimodal Networks: Applying
Design Flexibility and Reducing Conflicts**

Separated Bike Lane Planning and Design
Guide

Bicycle Facilities and the Manual on
Uniform Traffic Control Devices (MUTCD)

AASHTO GREEN BOOK Design Flexibility

The intent of this policy is to provide guidance to the designer by referencing a recommended range of values for critical dimensions.

Good highway design involves balancing safety, mobility, and preservation of scenic, aesthetic, historic, cultural, and environmental resources.

This policy is therefore not intended to be a detailed design manual that could supersede the need for the application of sound principles by the knowledgeable design professional.

Sufficient flexibility is permitted to encourage independent designs tailored to particular situations.

PENNDOT Engineering / Policy

2007 Bicycle and
Pedestrian Master
Plan

2016 Transportation
Advisory Committee's
Bicycle and Pedestrian
Policy Study

Design Manual 1

Design Manual 2

Publication 111 –
Pavement Markings
and Signing Standards

Publication
236M Sign Index

Publication 383

Traffic Calming
Handbook

Roundabouts

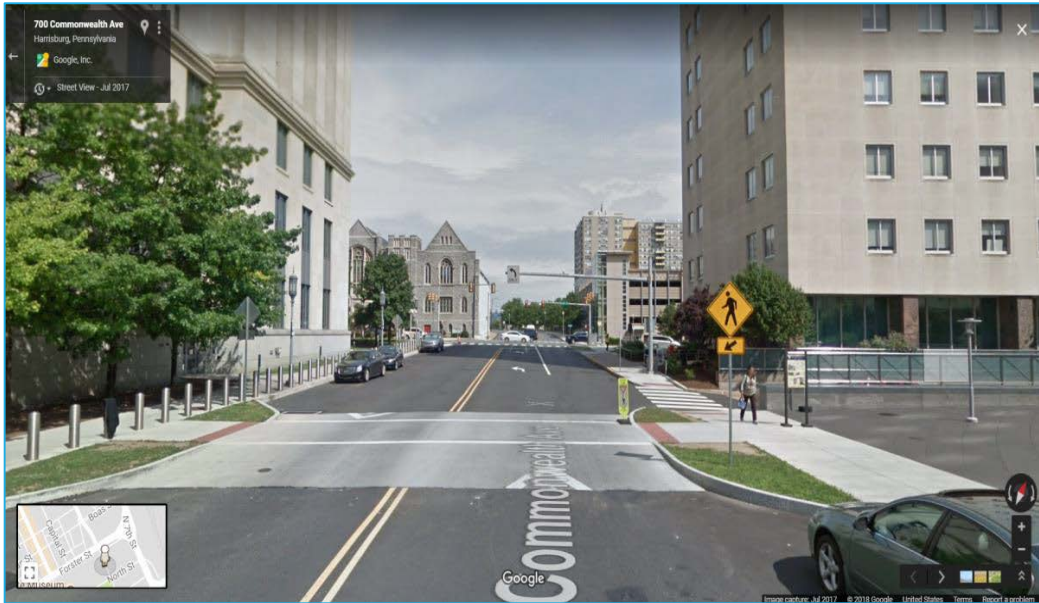
PennDOT Projects

CAPITOL COMPLEX PEDESTRIAN PROJECT: EDC CASE STUDY

Before and After: Raised Intersection



Before and After: Raised Crosswalk



Before and After: Bike Lane



Before and After: Refuge Median

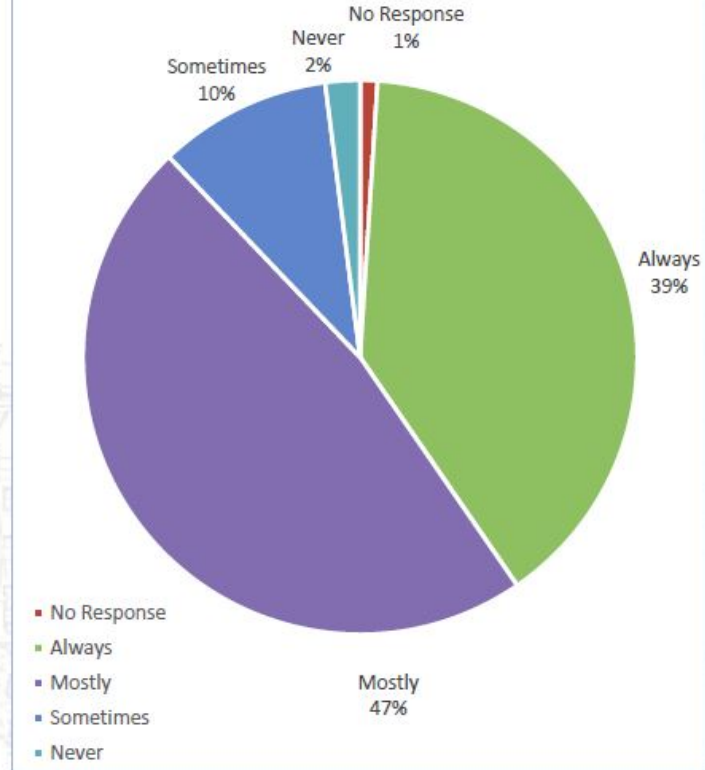
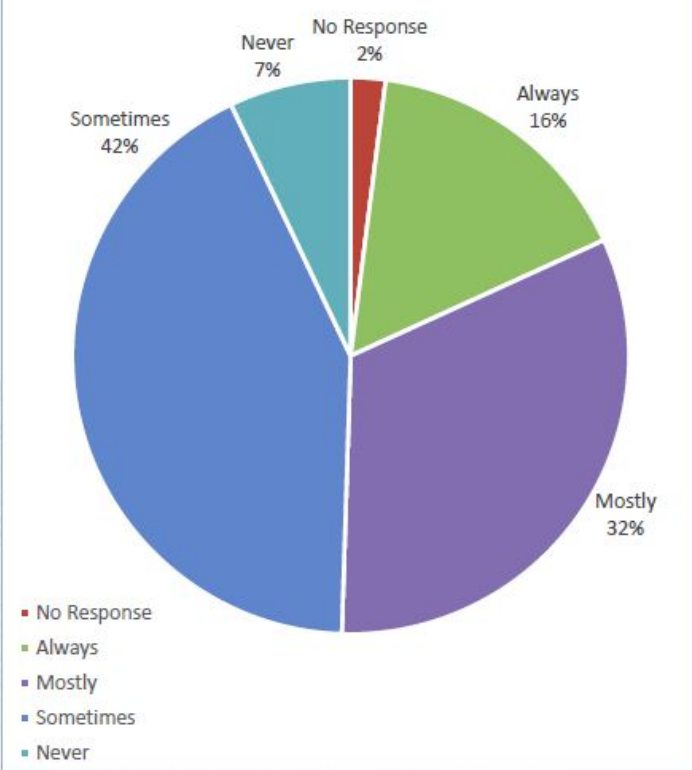


BEFORE

AFTER

Self-Reported Prior Crosswalk-Use

Self-Reported Current Crosswalk-Use



Survey Results

SIGNIFICANT INCREASE IN USE OF CROSSWALK

Questions?

I HAVE SOME FOR YOU...





Designing For These?

UPS E-Assist Delivery Bikes

- Holds up to 400 lbs of cargo
- Requires rider to actively pedal
- Currently in 30 major cities and now Seattle, WA



How about these?

Pedal Assisted E-Bike with Cab

- 20 mph with throttle along and up to 30 mph
- Carries up to 550 lbs



Basic E-Scooter

- Up to 15 mph but top speed adjustable by vendor software
- Carries one person + gear



NANROBOT

And This?

45 MPH
40 Mile Range
Independent suspension
Hydraulic Brakes
Weighs 70 lbs.



36 inches is
your design
standard
