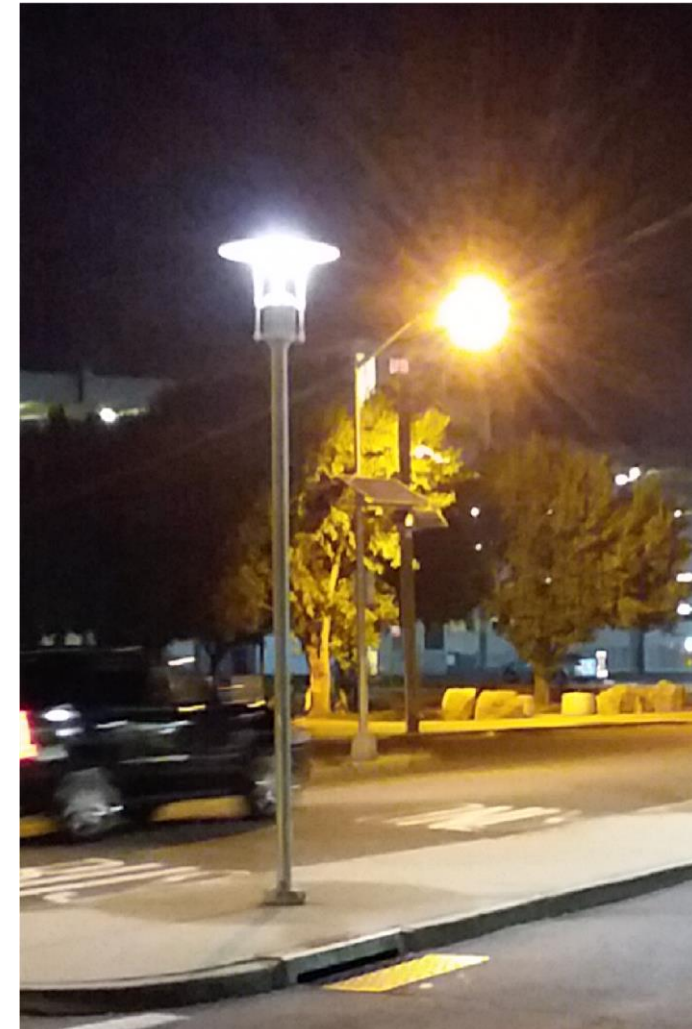


Pedestrian- Scale Lighting



BPAC Safety Subcommittee
October 1, 2019



Purpose and Benefits

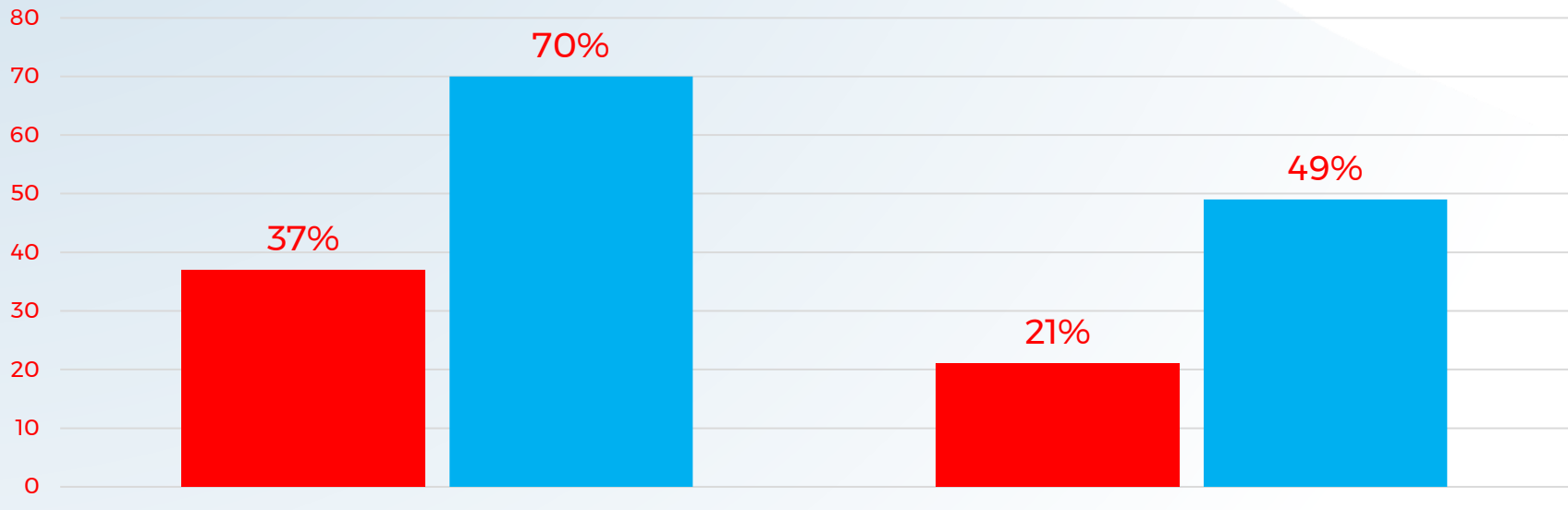
- What is pedestrian-scale lighting

Crashes

Fatalities



Crashes at Night*



*2013-2017

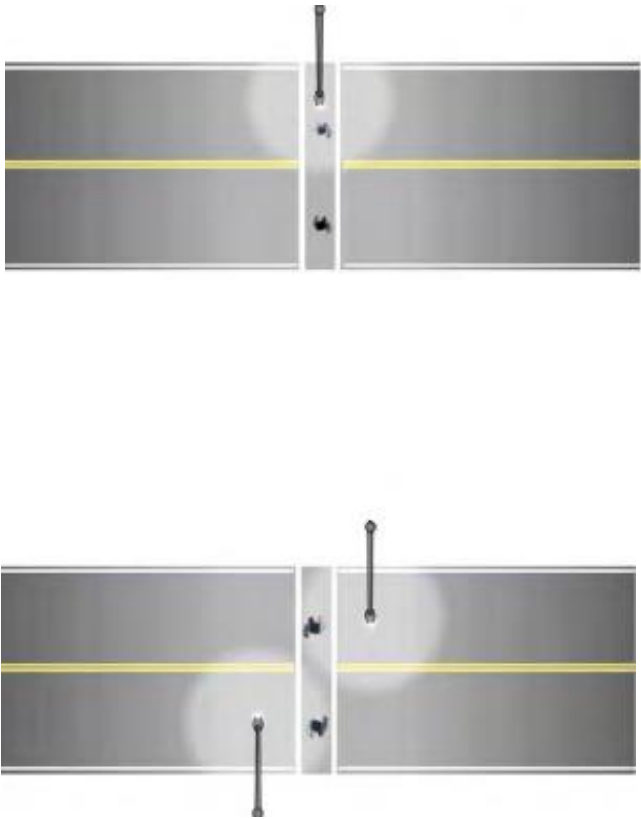
Crime Prevention Through Environmental Design



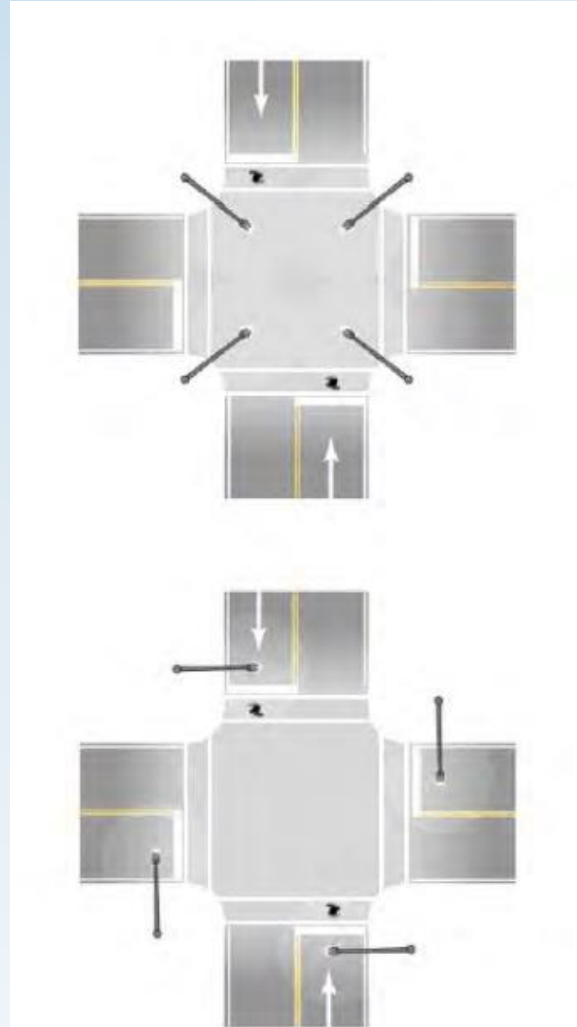
“an approach to problem solving that asks, what is it about this location that places people at risk, or that results in opportunities for crime?”

Location and Siting

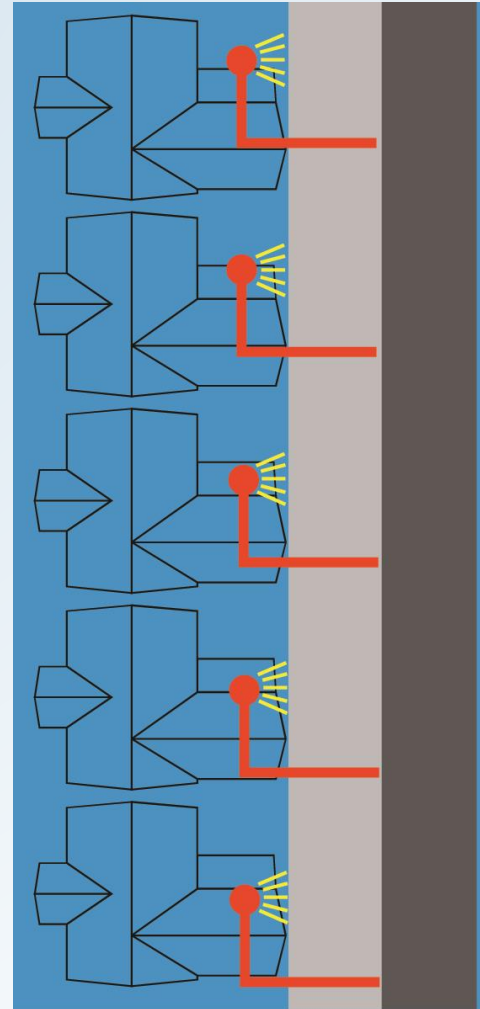
Mid-block



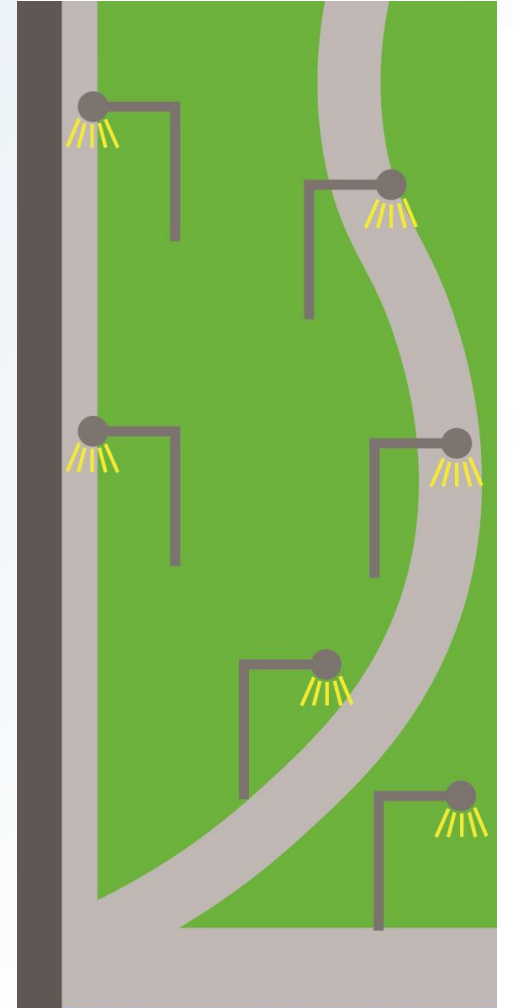
Intersection



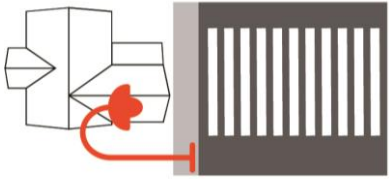
Corridor



Park/Institution



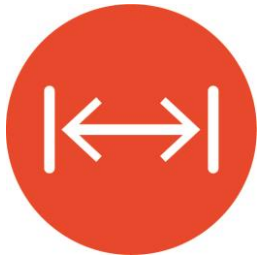
Methodology



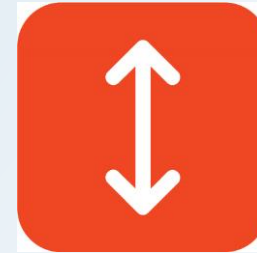
Proximity



Direction



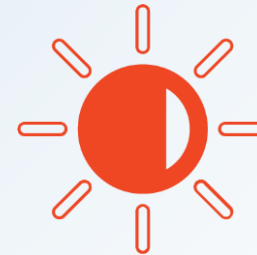
Spacing



Height



Brightness



Glare

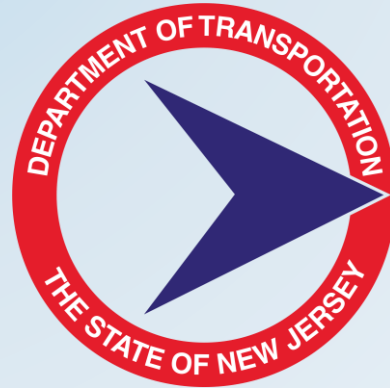


**Energy
Efficiency**

Municipal Role



Funding



NJTRANSIT
The Way To Go.



NJTPA



South Jersey
Transportation
Planning Organization

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

wsp



Importance

Pedestrian-scale lighting does more than make a neighborhood look good. Most street lighting in New Jersey was designed with motorists' in mind; assuring there was proper lighting to navigate roads at high speeds. This lighting does not take into account pedestrians. Pedestrian-scale lighting is first and foremost a safety concern, helping to improve pedestrian safety, security and comfort.

68% of pedestrian fatalities occur in dark conditions, similar to the 70% figure nationwide. On state highways in New Jersey, with higher speeds and wider roadbeds, this statistics increases to 84%! The presence of adequate pedestrian lighting helps promotes visibility between motorists and pedestrians, reducing the frequency of crashes.

Pedestrian-scale lighting, such as speed lamps, help to illuminate a sidewalk and improve pedestrian safety, security and comfort. Properly designed and installed pedestrian-scale lighting can both help define a streetscape and create a sense-of-place in a community.

Comparison of pedestrian at same location during day and at night



Pedestrian-Scale Lighting Siting

Simply put, pedestrian-scale lighting should be installed wherever there are significant volumes of pedestrians, particularly high nighttime volumes. This includes transit stops, commercial areas, community centers, houses of worship, parks, parking lots and other pedestrian generators.

The general location of pedestrian lighting can be broken down into four categories:

1. Intersection
2. Mid-Block
3. Corridor
4. Park/Institutional

Each of these type of sites have different needs and lighting requirements, but all should follow basic guidelines to insure adequate lighting is provided.



<https://www.mycentraljersey.com/story/news/local/development/2018/12/14/metuchen-2019-apartments-business-hub-woodmont/2291886002/>

Factors to Consider

Pedestrian-scale lighting should be installed with context in mind. Placing a lighting fixture without taking the proper precautions does not guarantee a fix. A number of factors should be considered to ensure the proper infrastructure is in place. These factors include:

1. Proximity
 - Poles should adequately light sidewalks and crosswalks without blocking them
2. Spacing
 - Along corridors poles should be evenly distributed (approximately 60 feet apart) to avoid dark zones
3. Brightness
 - Lighting must be bright enough to light pedestrian area and crosswalk; 20 lx five feet from crosswalks is typically adequate
4. Direction
 - Lighting fixtures should be faced downward to direct light to pedestrian area and avoid causing nuisance
5. Height
 - Pole fixtures should not be as tall as street lights; 12-16 feet is ideal
6. Glare
 - Pole fixtures should not be as tall as street lights; 12-16 feet is ideal
 - Brighter is not always better. A lighting fixture can be too bright, worsening visibility. Glare factors include fixture and background luminance, and size and angle of the fixture
7. Energy Efficiency
 - Due to routine deprecate of lamp light, lighting designers typically set the initial lighting level above what is required. Application of an adaptive technology can allow the street light to operate at its maintained level for the entire maintenance cycle, thus reducing the power input and saving energy.

Municipal Role

New Jersey counties provide limited support in pedestrian-scale lighting. Primary responsibility lies with municipalities.

Responsible Agencies

- Municipal planning and zoning boards
- Subdivision ordinances and site plan review
- Can require developments of certain size to install pedestrian lighting
- Can require lighting goals in comprehensive master plan



Funding

- Various agencies provide funding for pedestrian-scale lighting



Crime Prevention Through Environmental Design (CPTED)

- Arizona State University's Center for Problem-Oriented Policing described CPTED as "an approach to problem solving that asks, what is it about this location that places people at risk, or that results in opportunities for crime? In other words, why here?"



A 2016 report from *Sustainability Journal* reported a highly significant correlation between feelings of pedestrian safety and presence of pedestrian-scale lighting.

Key Resources

Numerous agencies and organizations have published research and guidance concerning pedestrian-scale lighting best practices. Some are listed below:

New Jersey Department of Transportation Pedestrian Compatible Planning and Design Guidelines

<https://www.state.nj.us/transportation/about/publicat/pdf/PedComp/pedintro.pdf>

New Jersey Outdoor Lighting Ordinance Guide

https://www.nj.gov/dep/opsc/docs/Sample_Lighting_Ordinance.PDF

Voorhees Transportation Center Report on Pedestrian Lighting in New Jersey: A Means to Improve Pedestrian Safety

http://vtc.rutgers.edu/wp-content/uploads/2014/07/Pedestrian_Lighting_NJ_Final_Report.pdf

Pedestrian and Bicycle Information Center

http://www.pedbikeinfo.org/webinars/webinar_details.cfm?id=13

FHWA Informational Report on Lighting Design for Midblock Crosswalks

<https://www.fhwa.dot.gov/publications/research/safety/08053/>

U.S. Department of Energy Report on Pedestrian Friendly Outdoor Lighting

https://www1.eere.energy.gov/buildings/publications/pdfs/ssl/2013_gateway_pedestrian.pdf

Seattle Pedestrian Lighting Citywide Plan

<http://www.seattle.gov/Assets/Documents/Departments/SDOT/About/DocumentLibrary/PedMasterPlan/PedLightingFINAL.pdf>

Chandler (AZ) Report on Crime Prevention Through Environmental Design

<http://www.chandlerpd.com/wp-content/uploads/2010/12/CPTED-Handbook-v4-20170627.pdf>



Pedestrian-Scale Lighting Guide for New Jersey

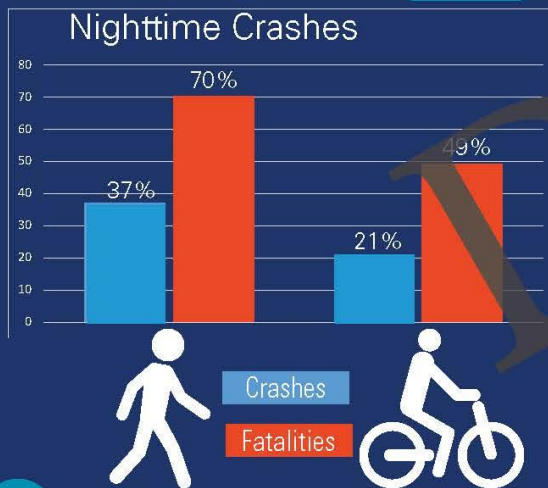
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i The presence of adequate pedestrian lighting helps promote visibility between motorists and pedestrians, reducing the frequency of crashes

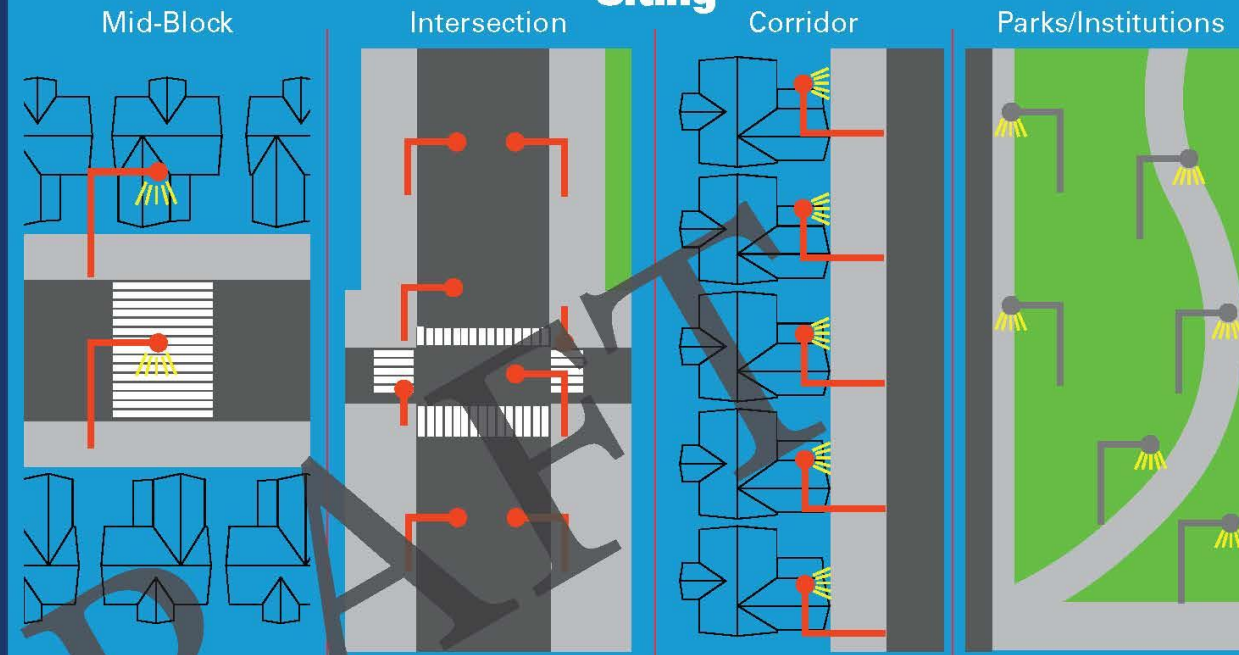
Crashes

- bike/ped fatalities in New Jersey inordinately occur at night



i Pedestrian-scale lighting helps illuminate sidewalks and improve pedestrian safety, security and comfort. Properly designed and installed pedestrian-scale lighting can both help define a streetscape and create a sense of place in a community.

Siting



Factors to Consider

Proximity

should light sidewalks and crosswalks without blocking them



Height

Poles should be shorter than street lights; 12-16 feet

Spacing

evenly distributed approximately 60 feet apart



Glare

brighter is not always better; glare factors include fixture and background luminance, and size and angle of the fixture



Brightness

20 lumen five feet from crosswalks



Energy Efficiency

due to light depreciation, initial light levels should be above what is required; adaptive technology can allow to operate at maintained level for longer times



Direction

fixtures faced downward to direct light onto pedestrians and avoid causing nuisance



Comments/Questions?

