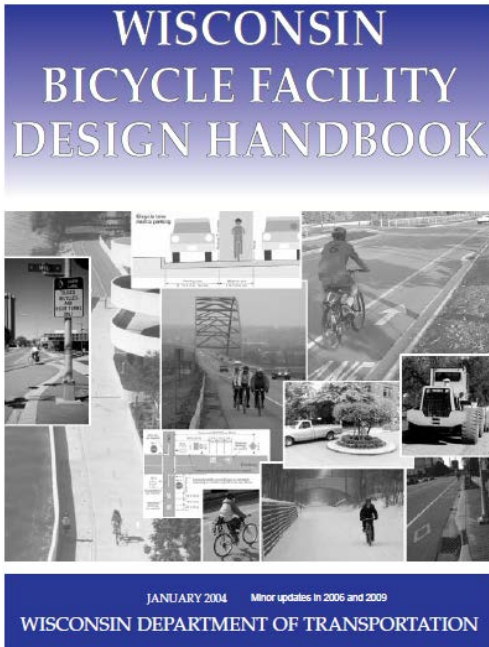


# TE's SW Path lighting proposal: -violates WisDOT guidelines -would *reduce* safety of SW Path users

Perry Sandstrom BSEE

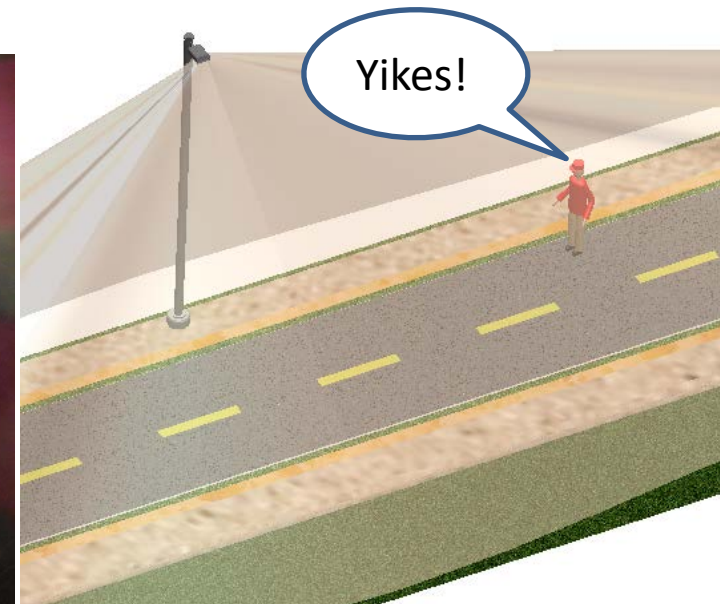
Daily (and often nightly) Southwest Path biker & runner  
11/25/12 - Southwest Path Alliance - Facebook/owlpath



WisDOT Guidelines

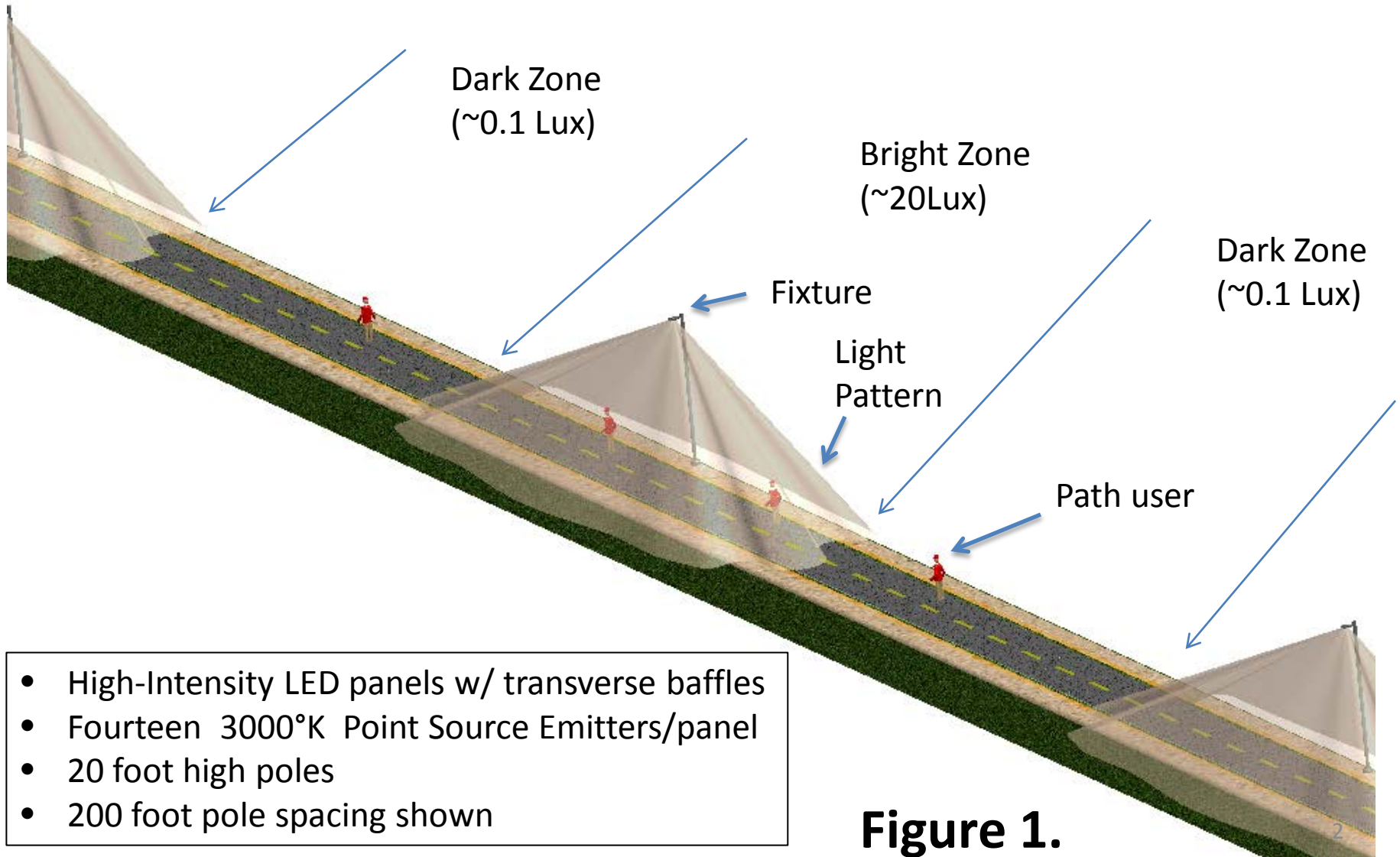


Test Light #3

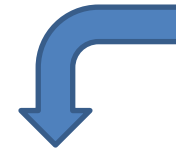
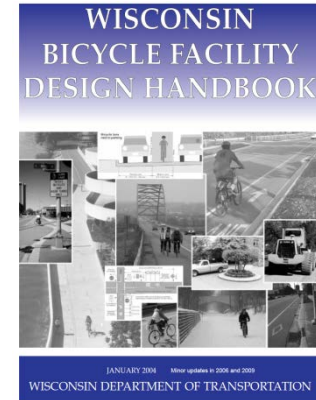


The Future?

# Figure 1. Current Overhead LED Proposal

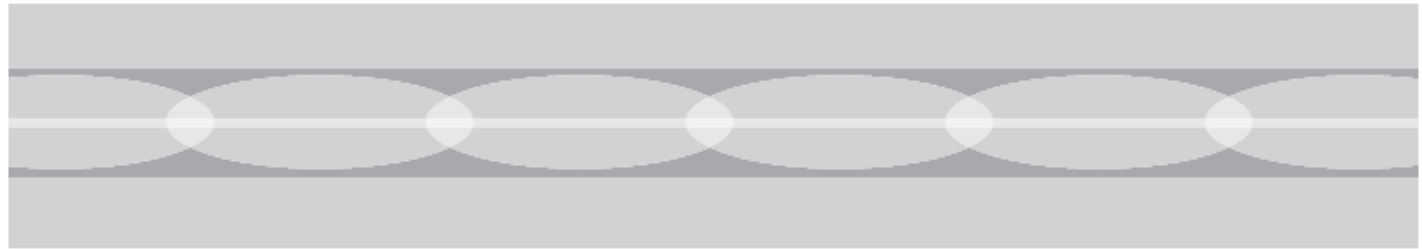


# Project does not meet WisDot Guidelines for uniformity

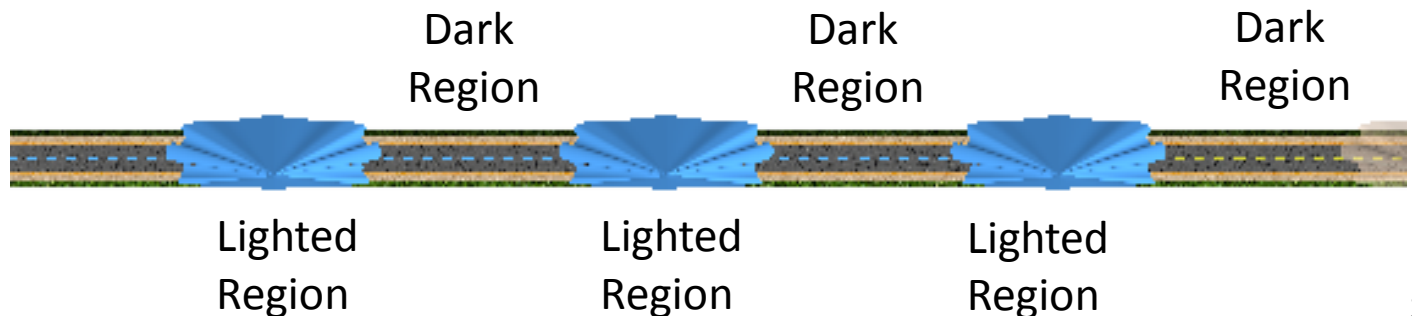


“Figure 4-53: Properly spaced luminaires overlap  
To provide a more constant visual environment”

WisDot  
Handbook:  
(overlap)

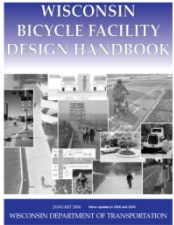


Proposal:  
(no overlap)



**Figure 2.**

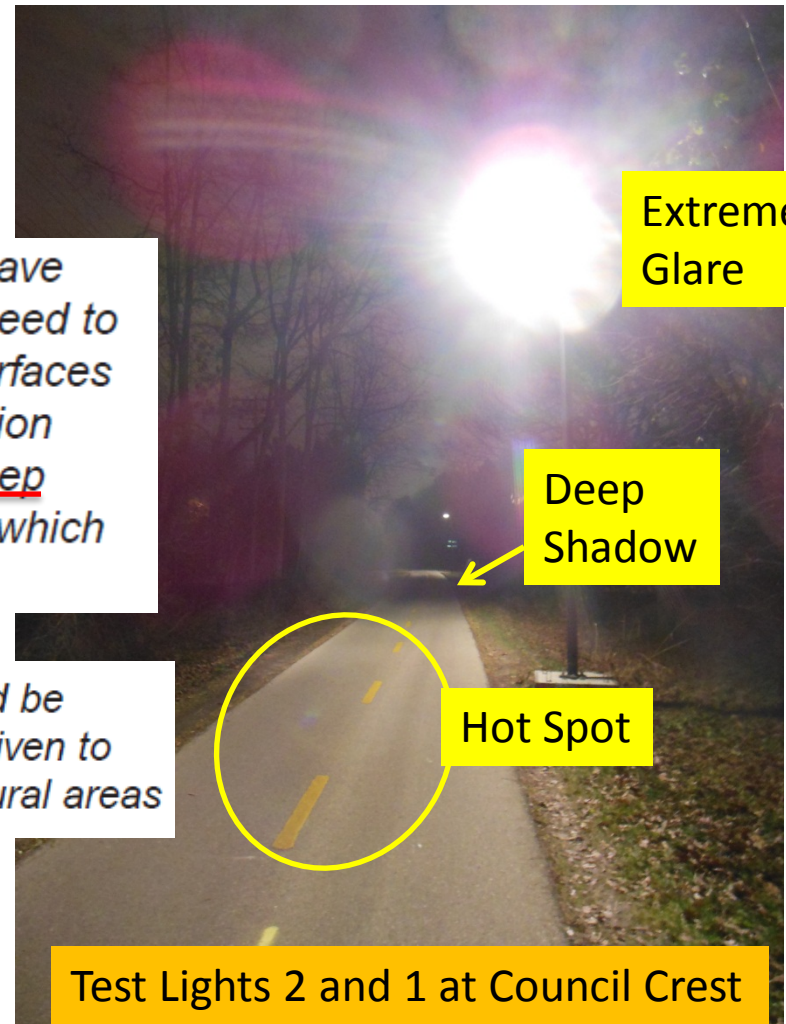
# Project Violates WisDOT Guidelines for path vision and glare



- **Night vision:** Both bicyclists and pedestrians have specific requirements for nighttime seeing. Both need to see small obstacles and changes in pavement surfaces to feel safe using paths at night. Uniform illumination should be provided that avoids “hot spots” and deep shadows, and care must be taken to avoid glare, which can compromise night vision.

- **Full cutoff:** Glare from cobra-style luminaires should be avoided in all cases. Particular attention should be given to pathways adjacent to residences, waterways, or natural areas

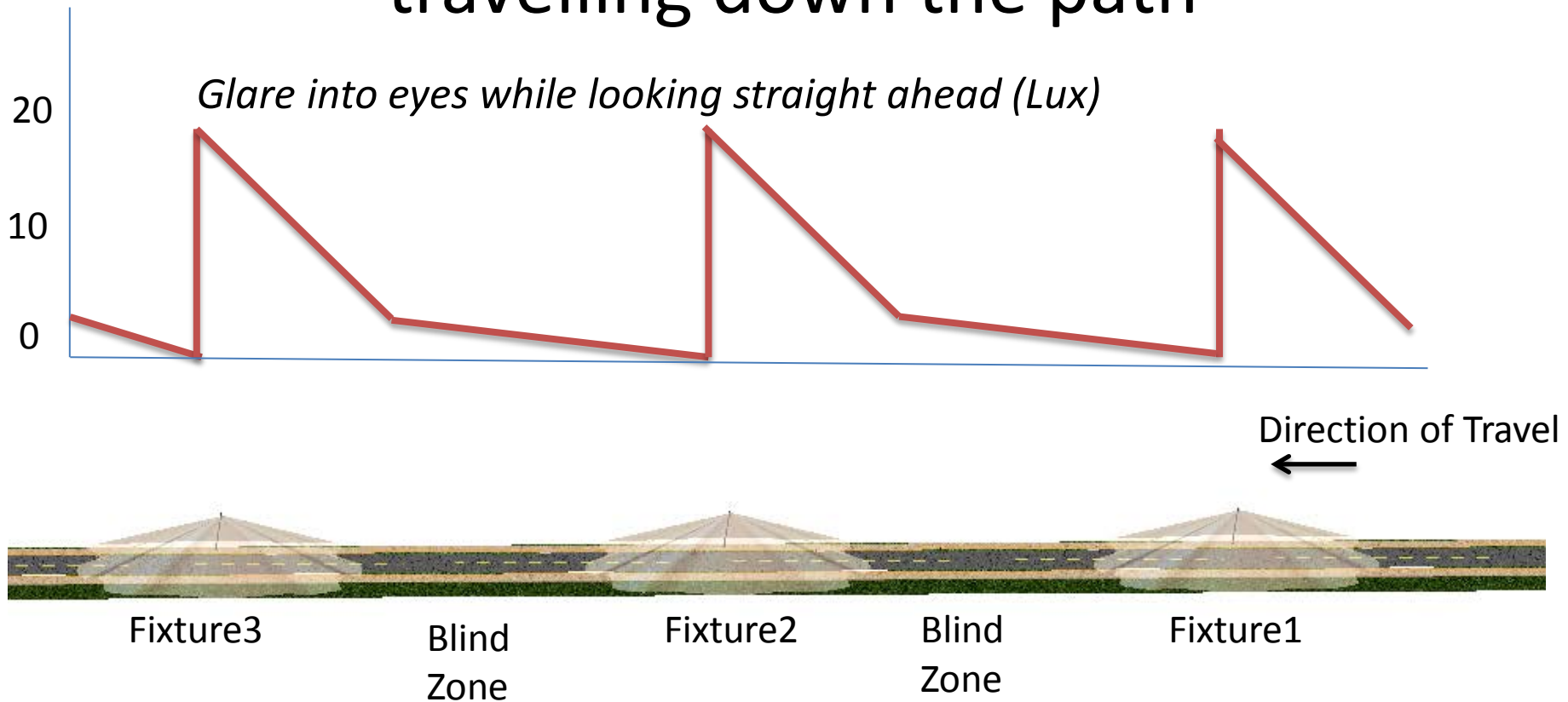
(these LED Fixtures are *higher* glare than cobras)



**Figure 3.**



# Causes “Saw-tooth” Eye Adaptation while travelling down the path

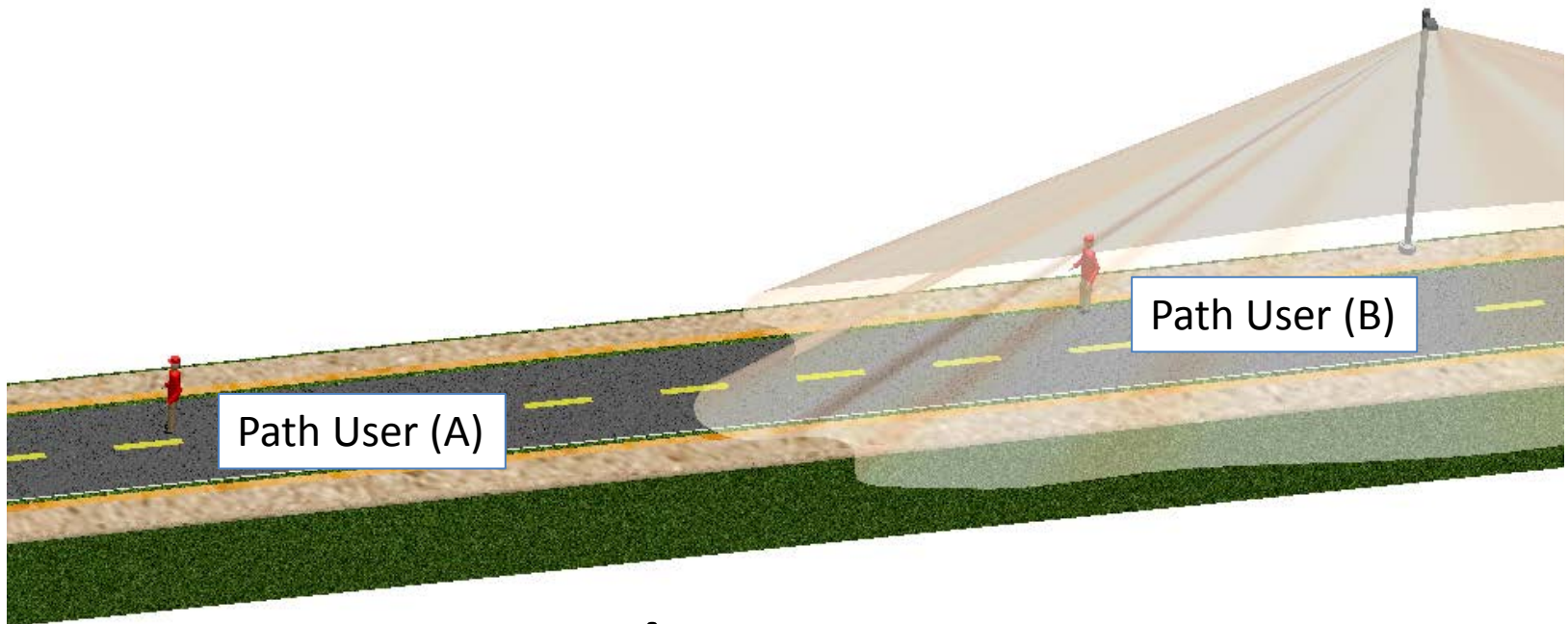


Wide variation causes fatigue and overall reduction in visual acuity.  
Limited on streets by higher poles, closer spacing, type1 fixtures and car roofs.

**Figure 4.**

# Project will Introduce a Known Visibility Hazard

Path user (A) is difficult for Path User (B) to see because of Loss of B's dark-adaptation from glare and A's relative darkness



**Figure 5.**

# Moving through transitions

Council Crest Test Light Pair; Walking NE

← Travel & Camera Direction

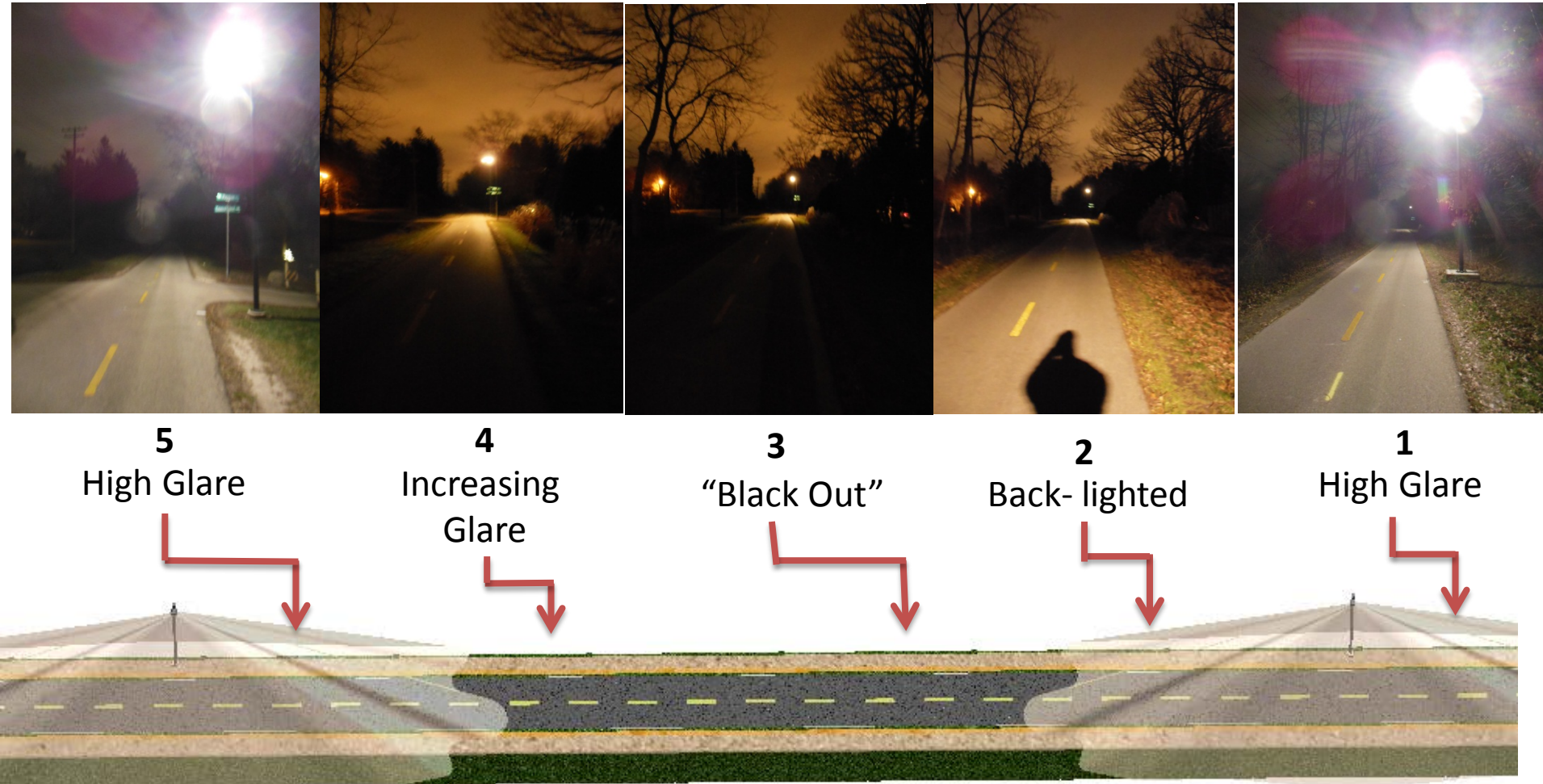


Figure 6.

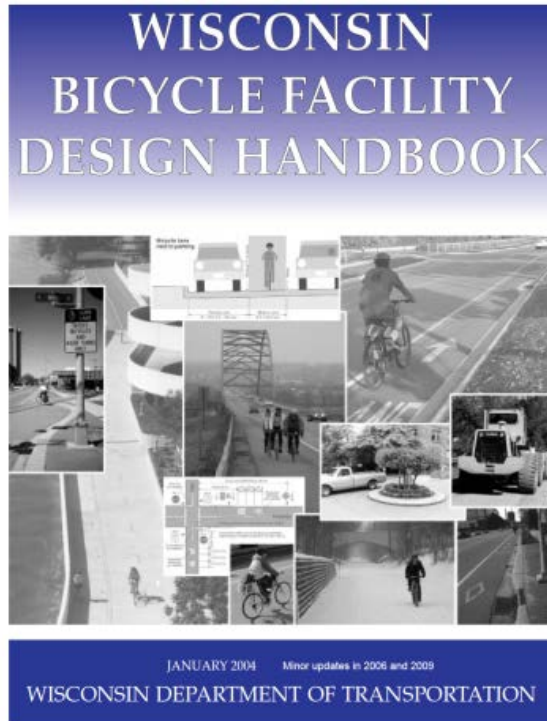
# Does project meet objectives anyway?

- Give greater “detection distance“ for “black-clad” pedestrians.
  - Sometimes, but not if they’re in the wrong place at the wrong time.
- Make path “more inviting” to new users.
  - Who knows?; Users would be “on stage” in isolated space w/ look and feel of a high crime area.
- Increase or at least not reduce current level of *actual* security.
  - Unlikely; Overhead lighting in isolated corridors can even facilitate victim selection
- Allow cyclists to see debris/ice on the path.
  - NO; Design actually obscures debris/ice in dark zones, even with bike light.
- Avoid discomfort glare and squinting.
  - NO;
- Retain visual cue for pedestrian of bike approaching from behind.
  - NO; Overhead lights wash out cues from ALL other lights and reflectors
- Make it so people won’t use high-powered front lights
  - Not likely, bikers would need more light than before for “fill in”

## Figure 7.



# Violate DOT guidelines?...Less safe? Aren't you just another owl lover? (Answers: yes, yes, & who isn't?)



“The proposed lighting ...will create unsafe conditions for both bicyclists and other path users.”

“..more hazardous than if the path were left unlit”

“ Both bicyclists travelling at speed and pedestrians will be confronted by visual “dead zones”, as they move from brightly lit to dark sections of the path, where objects, animals, intruders or other path users may not be seen.”



**David S. Leibl**, UW Madison outdoor lighting expert & Author of section 4-13 (Lighting) of the WisDOT *Wisconsin Bicycle Facility Design Manual*;