

# LIGHT TRESPASS ON HIGHWAYS

Don McLean,  
DMD & Associates Ltd.





# LIGHT TRESPASS ON HIGHWAYS

## PURPOSE OF REPORT

- To identify problem lighting installations in close proximity to Highways which may impact a drivers visibility.
- To develop guidelines aimed at reducing impacts.

## ISSUES

- Bright light sources may seriously affect a drivers visibility. Glare is the main issue here.
- Visible confusion by extraneous light sources can affect the drivers ability to recognize signal lights.
- Generally bright light sources extraneous to the roadway lighting system offer no benefit to the drivers visibility.

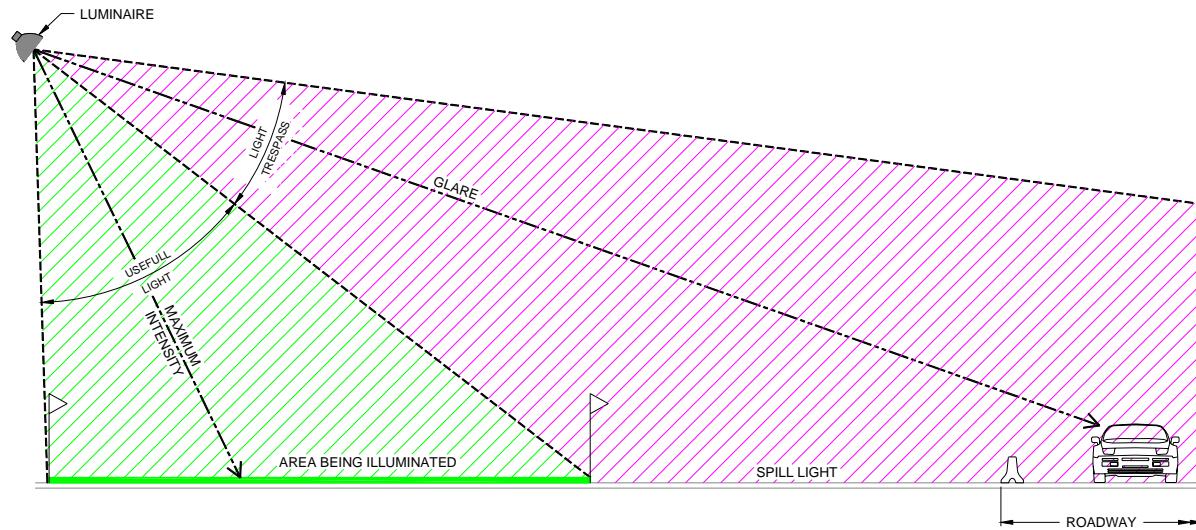


# LIGHT TRESPASS

## DEFINING THE PROBLEM

- If not properly controlled artificial lighting may be a hazard to the Highway driver.
- Uncontrolled lighting is typically referred to as light trespass.
- The International Commission on Illumination (CIE) defines light trespass as *“Unwanted light, which because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction, or a reduction in the ability to see essential information”*.
- From this definition it can be seen that light trespass may be caused by several characteristics of nighttime lighting. These include ***spill light and glare***.

# LIGHT TRESPASS



## SPILL LIGHT

Light falling on a surface outside the area being illuminated. Easy to measure with light meter.

## GLARE

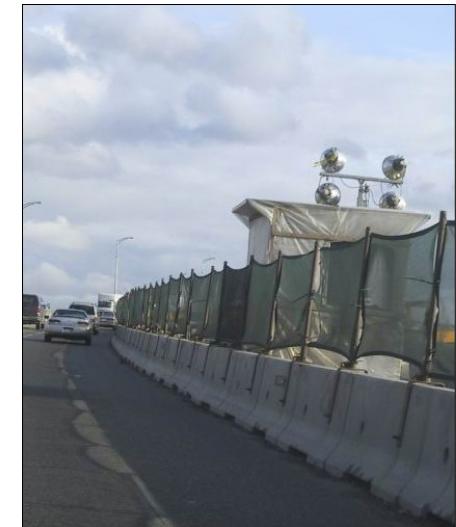
What one sees when looking into the light source.  
Difficult to measure

# PROBLEM LIGHTING

## TEMPORARY CONSTRUCTION LIGHTING



- High wattage floodlights
- Low mounting heights
- Priority is lighting the work zone
- No design



# PROBLEM LIGHTING

## GOLF COURSE DRIVING RANGE LIGHTING

- Low mounting heights (on roof)
- High wattage luminaires
- Priority to light backside of ball

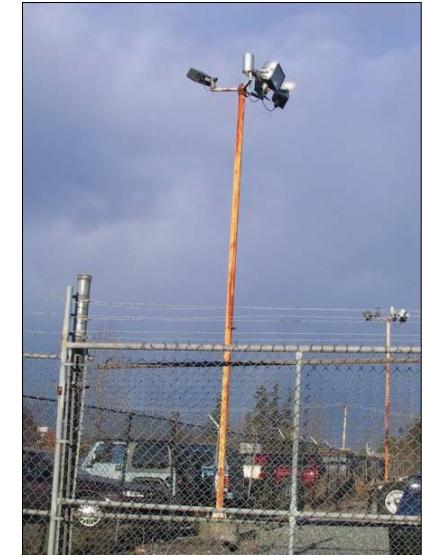


# PROBLEM LIGHTING

## SPORTS LIGHTING



- Mounting height often too low
- High wattage luminaires
- Spill and glare control devices not always requested



# PROBLEM LIGHTING

## STORAGE YARDS AND BUILDING FLOOD LIGHTS



- Low mounting heights used to reduce cost
- Luminaires often have no light control – They live up to the name “*Floodlight*”





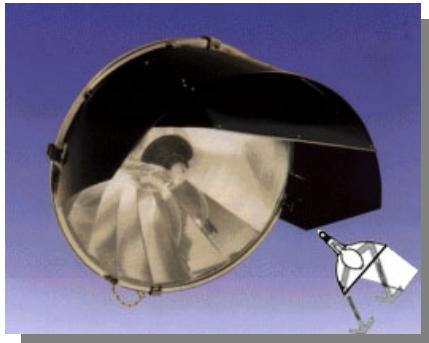
# PROBLEM LIGHTING

## ADVERTISING SIGNS

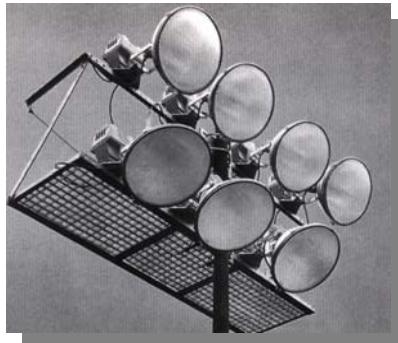
- Distracting to motorists



# LIGHTING PRODUCTS



Sports Light with glare control visor and lamp guard



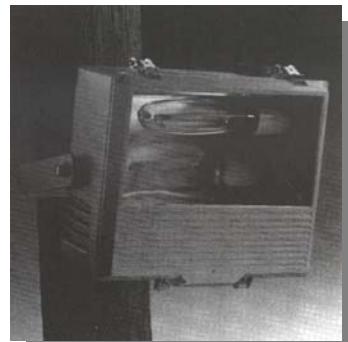
Sports light with no glare control



Area luminaire with down ward throw optics



Cobra head style luminaire with full cut-off optics



Area Floodlight with no glare control



Shoe Box style luminaire with cut off optics

# REDUCING LIGHT TRESPASS

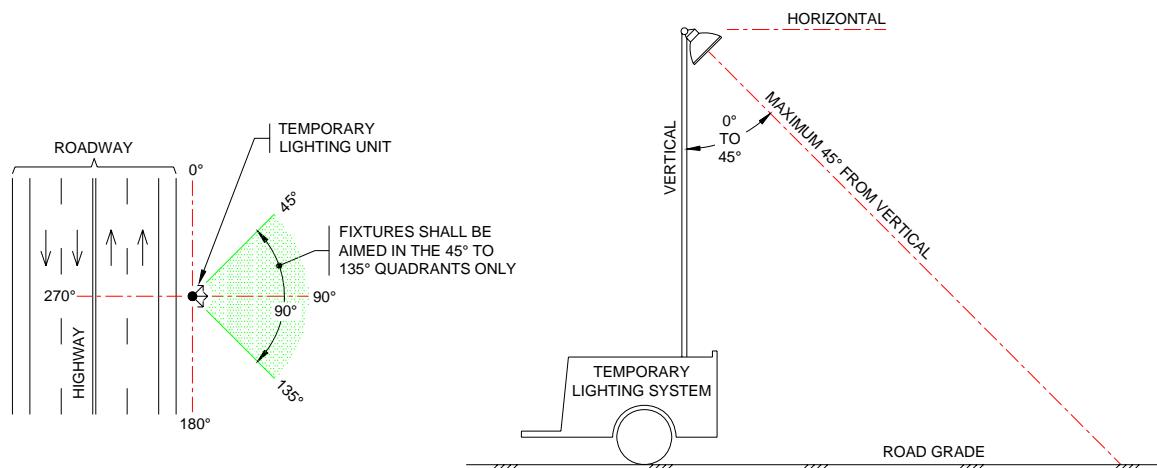
- Use qualified Engineering Firm who are independent to the luminaire supplier.
- All fixtures are not created equal. Select luminaires with optical systems with reduce light trespass.
- Undertake lighting calculations using computer lighting program. Analyze luminaire candle power curves.
- Use full cut-off luminaires where possible. Where full cut-off are not suitable, use external shielding.



Example of different luminaires

# REDUCING LIGHT TRESPASS

- Select Suitable luminaire mounting heights.
- Define standards for temporary construction lighting.



Example of setup for construction zone lighting

# Thank-you

**Don McLean,  
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