Work Zone “Presence Lighting”

Steve Kite, PE  State Work Zone Engineer
Work Zone Safety Innovation- “Presence Lighting”

- Utilizes “balloon/anti-glare” lighting systems that *supplement* task/tower lighting…not replacements
- Install throughout full length of lane closure
Work Zone “Presence Lighting”

- Improve WZ “conspicuity” throughout full length of lane closure
- Create “uniform” speeds throughout full length of lane closure
- Reduce excessive speeding
- Improve Worker Visibility
- Give drivers the idea of an “active” work zone
Results

• Average Speeds “Before” Presence Lights were activated = 57.7 MPH

• Average Speeds “After” Presence Lights were activated = 51.94 MPH

• A **5.76 MPH average speed reduction** was achieved with the “Presence” Lighting
Observations

• The closer the light units are to the driver, the more impact they’ll have (ie slower speeds)

• The lighted surface area of the light fixture impacts its “presence” (ie easier to see) and therefore affects the spacing between the light units

• Currently, each light unit is powered by an individual generator

• Levelling of the stands is currently not possible
**Recommendations**

Recommend the following spacing based on light outputs and lighted surface area of each light unit

<table>
<thead>
<tr>
<th>Light Output (Lumens)</th>
<th>Minimum Lit Surface Area (Sq Ft)</th>
<th>Max Spacing (Ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000-65,000</td>
<td>4.6</td>
<td>750’</td>
</tr>
<tr>
<td>66,000-80,000</td>
<td>4.6</td>
<td>1,000’</td>
</tr>
<tr>
<td>81,000-100,000+</td>
<td>26.0</td>
<td>1,500’</td>
</tr>
</tbody>
</table>
Recommendations

• Recommend placing the units on the paved shoulder if possible to maximize the impact on the motorist

• Recommend a rechargeable power source (ie dry cell battery) instead of individual generators due to costs, storage impacts and theft. The generators will be a highly sought after item in the field

• Recommend improving the stands to have ability to “level” when placement on a paved shoulder isn’t possible
Moving Forward- What’s Next

• Beginning in Spring 2016, we’ll begin “Pilot” projects on NC’s freeway and interstate system

• Approximate costs around $750/light/month rental or $10,000 each for purchase

• Utilize from 4 to 6 light units per mile depending on light intensity and “balloon” surface area
Issues....Already!@#$
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Questions?

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