

Recent Updates to INDOT's Highway Lighting Design Practice

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Transition to Solid State

■ Research & Testing

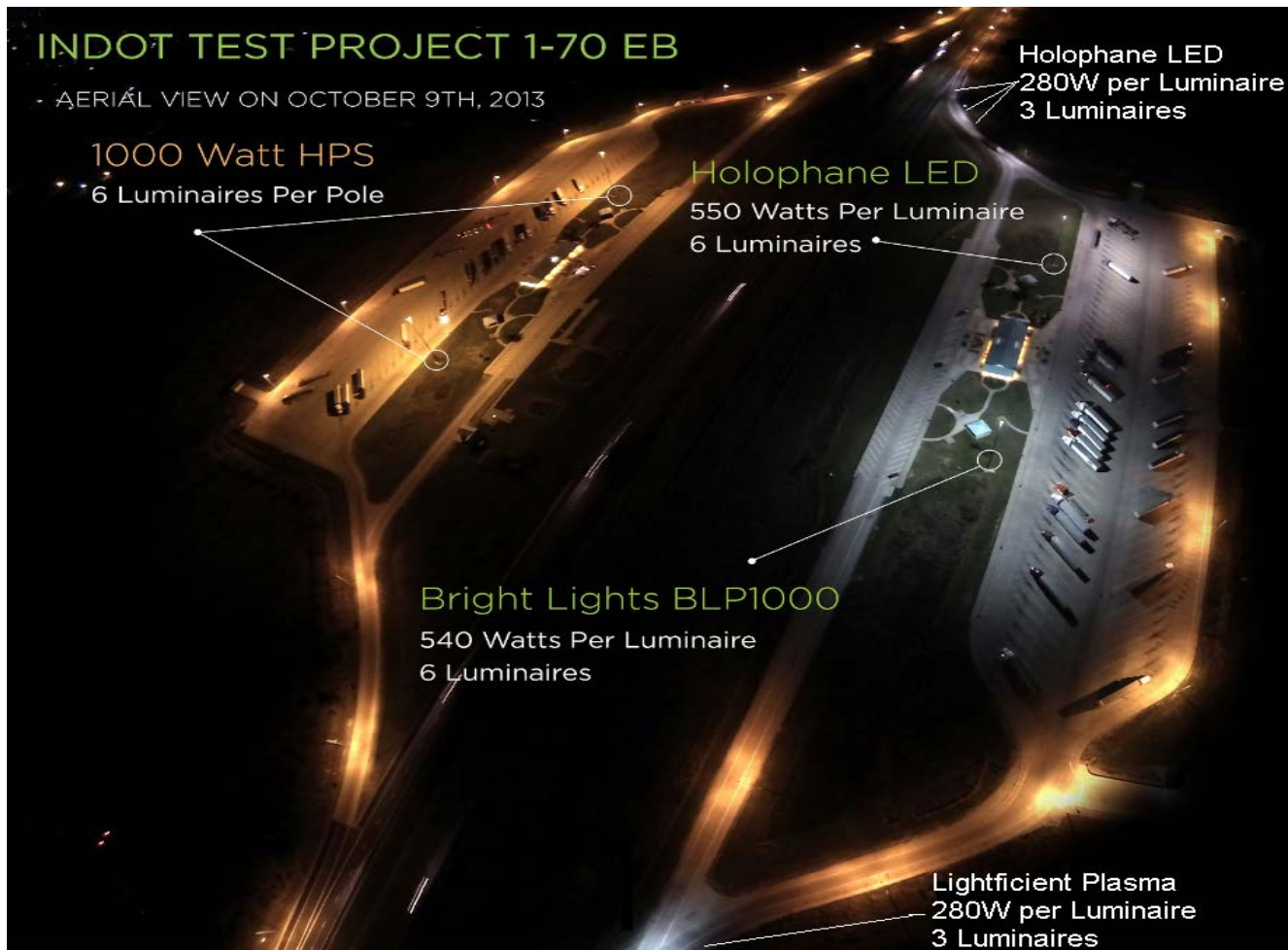
- Started in 2011
- 2 JTRP projects
- 8 test bed locations
- 20 manufacturers/24 models
 - LED, plasma, metal halide, induction

■ Specifications/Design Procedure

- First revisions 2013
- Second set effective as of Jan. 2016



Test Sites



I-70 Hancock County Rest Area



Recent Design Changes

■ Service Cost Calculation

- Used to select the most economical light source
- Now based on service life rather than warranty
- Cost of electricity updated

■ Electric Services

- Flat rate tariffs are not yet available
- Should be metered



Recent Design Changes (cont)

■ Adaptive Lighting (Curfews)

- Strictly voluntary practice
- Guidance available: FHWA-HRT-14-050
 - Lighting reduced when volumes drop off

■ Pedestrian/Bicycle Facilities

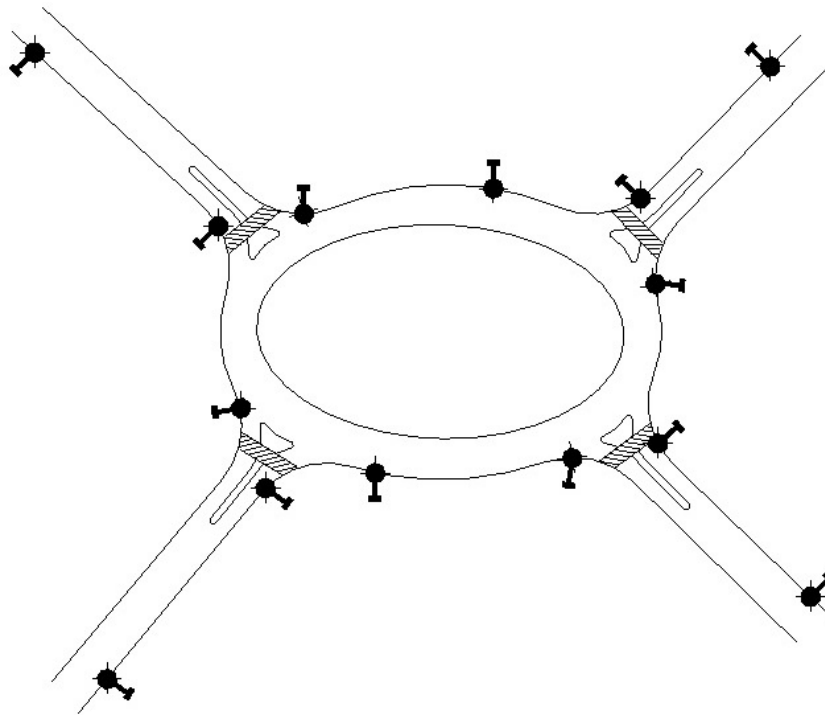
- Light levels per AASHTO Roadway Guide:
 - Ave maintained illuminance: 1.4 to 2.0 fc
 - Uniformity Ratio 3:1



Recent Design Changes (cont)

■ Lighting at Roundabouts

- Circular roadway, approaches, splitter islands, pedestrian crosswalks should be lighted



Future Developments

- **Criteria for Alternative Intersections**
 - Potentially needed regardless of B/C analysis
 - Where wrong way movements are possible
 - Abrupt changes in alignment
 - At crossovers, U-turn movements
 - Pedestrian Islands
 - References:
 - FHWA publications
 - AAHSTO/TRB Research
 - Experiences at our intersections



Future Developments

■ Luminaire Approved Materials List

- Separate lists for:
 - Roadway
 - High mast
 - Underpass
- Will require light output matching HPS, much lower energy consumption
- Still under consideration:
 - Limiting the number of models (maintenance)
 - How to capture sustainability of manufacturer
- Next step: industry review



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