Lighting Design Analysis Report

[Project Name]

[Project Description]

[Project Location (County)]

Project FPID: [#####-##-##-##]

Prepared for:

Florida’s Turnpike Enterprise
Mile Post 263, Building 5315
Ocoee, FL 34761

Prepared by:

[Company Name]
[Company Address]
[Company City, State]
[Company Certificate of Authorization]

Submission Information: [Phase ## (#%)]
Submission Date: [#/#/#/#####]

Engineer of Record: [Name]
P.E. Number: [#_##]
Table of Contents:

Section 1 – General Description  Page [xx]
Section 2 – Roadway Lighting  Page [xx]
  2.1 - Design Methodology  Page [xx]
  2.2 - Photometric Analysis  Page [xx]
  2.3 - Luminaires  Page [xx]
Section 3 – Underdeck Lighting  Page [xx]
  3.1 –Design Methodology  Page [xx]
  3.2 –Photometric Analysis  Page [xx]
  3.3 –Luminaires  Page [xx]
Section 4 – Sign Lighting  Page [xx]
  4.1 –Design Methodology  Page [xx]
  4.2 –Photometric Analysis  Page [xx]
  4.3 –Luminaires  Page [xx]
Section 5 – Airspace Obstruction Analysis  Page [xx]
Section 6 – Load Analysis  Page [xx]
Section 7 – Voltage Drop Calculations  Page [xx]
Section 8 – Short Circuit Analysis and Device Coordination  Page [xx]
Section 9 – Arc Flash Hazard Analysis  Page [xx]
Section 10 – Conclusions  Page [xx]
Section 1 – General Description

- Describe project location.
  - Provide location map (if required).
- Describe the type and general condition of the existing light fixtures, poles, and electrical equipment (load centers, enclosures, pull boxes, etc.) within the project limits.

Sections 2, 3, 4 – [Roadway, Underdeck, Sign] Lighting

[2, 3, 4].1 - Design Methodology
- Describe how the lighting design was developed.
  - Discuss design alternatives (if required).
- Describe reference standards, criteria, etc. used.
- Describe lighting criteria.
- Describe any standards and specifications for light fixtures.
- Describe software used.
- Describe calculation methodology.
- Describe calculation assumptions.

[2, 3, 4].2 - Photometric Analysis
- Provide luminaire schedule from software.
- Provide calculation summary from software.
- Provide location map showing photometric calculation zones (if multiple zones are used).
- Provide legible point by point calculations (11” x 17” pages).

[2, 3, 4].3 - Luminaires
- Provide luminaire cut sheet from manufacturer.
- Indicate complete catalog number.

Section 5 – Airspace Obstruction Analysis

- Provide evaluation of proximity to airport(s) and/or heliport(s).
- Provide evaluation of project site(s).
- Provide analysis of project site and nearby airport(s) and/or heliport(s) against CFR, Title 14, Part 77, 77.9 criteria.
- Provide copies of FAA Forms 7460-1 (if required) or provide "No Airspace Obstructions Letter".

Section 6 – Load Analysis

- Provide load summary for each circuit and for the load center.

Section 7 – Voltage Drop Calculations
• Provide voltage drop summary for each circuit and for the load center.
• Provide voltage drop calculation for each circuit and for the load center.
• Provide all equations and data used in the calculations.

Section 8 – Short Circuit Analysis and Device Coordination

Short Circuit Analysis - (For manual calculations)
• Provide available fault current summary for each piece of electrical equipment.
• Provide available fault current calculation for each piece of electrical equipment.
• Provide one-line/riser diagram.
• Provide all equations and data used in the calculations.

Short Circuit Analysis - (For software based analysis)
• Provide data input summary for one-line/riser diagram.
• Provide one-line/riser diagram.
• Provide calculation summary from software.

Device Coordination
• Provide description of design considerations and device coordination methodology.
• Provide overlays of time current curves as needed.

Section 9 – Arc Flash Hazard Analysis

• Provide data input summary for one-line/riser diagram.
• Provide one-line/riser diagram.
• Provide calculation summary from software.
• Provide copies of all arc flash labels.

Section 10 – Conclusions

• Document all major design decisions.
• Document any “non-standard” design items.
• Document any items that the Turnpike should consider for this project or future projects.