

# ITS Power Design Analysis Report

[Project Name]

[Project Description]

[Project Location (County & MM Limits)]

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

## **Prepared for:**

Florida's Turnpike Enterprise  
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## **Prepared by:**

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**Submission Information: [Phase ##]**

**Submission Date: [##/##/####]**

**Project:** [Project Name]  
**Project No.:** [FPID XXXXXX-X-XX-XX]  
**Scope of Responsibility:** [Description]  
**Section(s) / Page Range(s):** [Sections X.X through X.X]

I certify that the engineering features in this ITS Power Design Analysis Report have been designed by me or under my responsible charge and in my professional opinion conform to sound engineering principles and all applicable rules and specifications.

The official record of this document is the electronic file digitally signed and sealed under rule 61G15-23.004, F.A.C.

[Place digital seal/signature here]

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[EOR's Name], P.E., State of Florida, Professional Engineer, License No. [XXXXX]  
[Company Name]  
[Company Address]

This item has been digitally signed and sealed by [EOR's Name], P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

[Provide multiple signatures/seals for multiple EOR's and describe sections for which each EOR is taking responsibility, as applicable. Duplicate the above as necessary]

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Appendix F: Device Cut Sheets

Appendix G: Correspondence with Utility Power Companies

### Notes to Consultants:

- *All design considerations must be documented in the PDAR.*
- *Design Exceptions, Design Variations, and deviations from Turnpike standard practice and guidelines must be identified separately in the Table of Contents and fully clarified under the “Design Methodology” sub-sections of the PDAR.*
- *Correspondence regarding deviations from criteria should be included as an appendix to the report and referenced as needed for clarification. A summary of deviations from FDOT criteria described in the design methodology shall be documented in the “Conclusions” section of the PDAR.*
- *Coordinate with maintaining agencies, as well as other Department stakeholders as applicable, to ascertain their standard practices and guidelines and obtain all other pertinent information required to provide an acceptable design.*

## **Section 1 – Project Description**

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

## **Section 2 – Power Service Summary**

- Provide a summary table of the project's power services with information including service name (ITS FM nomenclature), power company name, county, whether new or existing services, and notes.

## **Section 3 – ITS Load Analysis**

- Describe methodology, assumptions and design alternatives (if required).
- Describe reference standards, criteria, guidance etc. used.
- Provide detailed load summary for
  - Every ITS device type
  - Every local hub/cabinet type (combination of different device types)
  - Every circuit modified or new
  - Every service point modified or new
- Provide analysis and calculations for sizing uninterrupted power supplies (UPS).

## **Section 4 – Voltage Drop Calculations**

- Describe methodology and assumptions (if applicable).
- Provide all equations and data used in the calculations.
- Provide voltage drop summary and calculations for each circuit and for the load center.

## **Section 5 – Short Circuit Analysis**

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

- Short Circuit Analysis - (For software-based analysis)
  - Provide description of methodology, software and assumptions.
  - Provide data input summary for one-line/riser diagram.
  - Provide a one-line/riser diagram.
  - Provide calculation summary from software.

## **Section 6 – Device Coordination Study Analysis**

- Provide a description of design considerations and device coordination methodology.
- Provide overlays of time current curves.

## **Section 7 – Arc Flash Hazard Analysis**

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

## **Section 8 – 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.

## **Appendices A through G**

- Provide reports and associated supporting information in the Appendices.