

**OHIO DEPARTMENT OF TRANSPORTATION  
OFFICE OF TRAFFIC ENGINEERING  
RESEARCH IMPLEMENTATION PLAN**

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**Title:** LED (Light-Emitting Diode) Traffic Signal Lamp (TSL) Characteristics

**State Job Number:** 14748  
**PID Number:** N/A  
**Research Agency:** Athens Technical Specialists  
**Researcher(s):** James and Ted Gilfert  
**Technical Liaison(s):** Satya Goyal  
**Research Manager:** Monique Evans  
**Sponsor(s):** Tony Vogel, Dave Holstein  
**Study Start Date:** 6/6/2000  
**Study Completion Date:** 6/30/2002  
**Study Duration:** 25 months  
**Study Cost:** \$47,906.00  
**Study Funding Type:** 80 % Federal 20% State from ODOT SPR (2)

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**STATEMENT OF NEED:**

LED Traffic Signal lamps (TSL) are being use to replace incandescent traffic signal lamps because of the long term cost saving associated with reduced energy consumption.

**RESEARCH OBJECTIVES:**

To verify whether or not current production LED TSLs satisfy the electrical compatibility requirements of the incandescent lamp in traffic signal which allow detection by the signal monitor.

**RESEARCH TASKS:**

Determine normal state impedance; determine failed state impedance and design-identifier data for acceptance testing.

**RESEARCH DELIVERABLES:**

Recommended to use testing method for LED lamps.

**RESEARCH RECOMMENDATIONS:**

A testing procedure is established and LED testing should be carried out.

**PROJECT PANEL COMMENTS:**

LED Traffic Lamps are comparable to Incandescent lamps and will provide a service lifetime in excess of five years.

**IMPLEMENTATION STEPS & TIME FRAME:** None

**EXPECTED BENEFITS:** None

**EXPECTED RISKS, OBSTACLES, & STRATEGIES TO OVERCOME THEM:** N/A

**OTHER ODOT OFFICES AFFECTED BY THE CHANGE:** N/A

**PROGRESS REPORTING & TIME FRAME:** N/A

**TECHNOLOGY TRANSFER METHODS TO BE USED:** The final report has been posted on the ODOT Office of Research & Development website and the hard copy of this report was distributed to other national libraries.

**IMPLEMENTATION COST & SOURCE OF FUNDING:** N/A

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**Approved By:** (attached additional sheets if necessary)

Office Administrator(s):

Signature: Dave Holstein Office: Traffic Engineering Date: 6/2/2006

Division Deputy Director(s):

Signature: Tony Vogel Division: Highway Operations Date: 6/2/2006