

## Lighting Forum



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## LED Update

- ◆ LED Sign Lighting
  - ✓ Sign Lighting Specification Has Been Modified to Allow LED Fixtures
  - ✓ Effective July 1, 2013 On All Projects



## *LED Update*

- ◆ LED Conventional Lighting
  - ✓ Two Projects in Construction
  - ✓ Five Projects in Design
  - ✓ Currently Allowing Maintaining Agencies to Retrofit Existing Lighting on State Highway System with More Efficient Fixtures



## *LED Update*

- ◆ LED High Mast Lighting
  - ✓ Concluded a Retrofit Evaluation on I-10
  - ✓ Evaluating a New Fixture at Same Location



## Sign Lighting Research

- ◆ FDOT Contract No. BDK82 977-07



N. Mike Jackson, Ph.D., P.E. – Principle Investigator

Paul J. Carlson, Ph.D., P.E. – Research Engineer (TTI)



## Sign Lighting Research

- ◆ Life-Cycle Cost Spreadsheet

**Table 4.6 Life-Cycle Cost of Different Combinations of Legend Sheeting and Lighting on Straight and Flat Roadways**

Current usage	Treatment	Annual Cost(\$/year)	
		Urban area	Rural area
ASTM Type III with no sign lighting	Install Induction or LED	275	
	Replace ASTM Type III with IV legends & install Induction or LED	616	
	Replace ASTM Type III with IV legends	1703	341
	Replace ASTM Type III with VIII legends	345	
	Replace ASTM Type III with XI legends	347	
ASTM Type III with mercury vapor sign lighting	Replace Mercury vapor with Induction or LED	238	
	Replace ASTM Type III with IV legends & no light	1703	341
	Replace ASTM Type III with VIII legends & no light	345	
	Replace ASTM Type III with XI legends & no light	347	

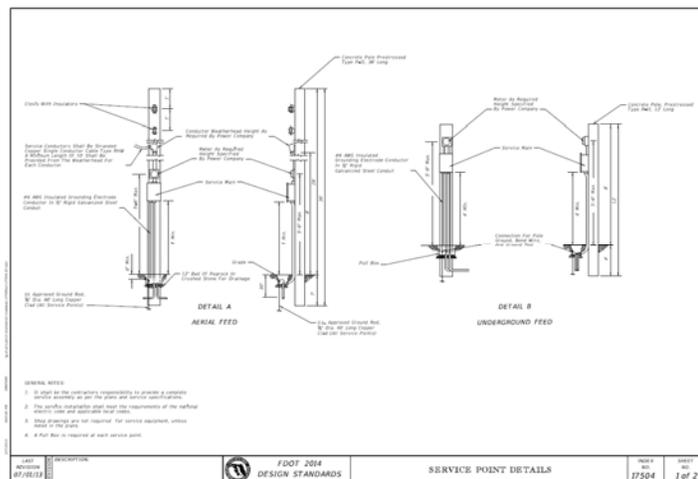


## Sign Lighting Research

- ◆ New Policy
  - ✓ Use Type XI sheeting on all new overhead signs in-lieu of sign lighting unless geometric constraints
  - ✓ Geometric constraints include horizontal curves  $\leq 880'$  in rural areas and  $\leq 2500'$  in urban areas.

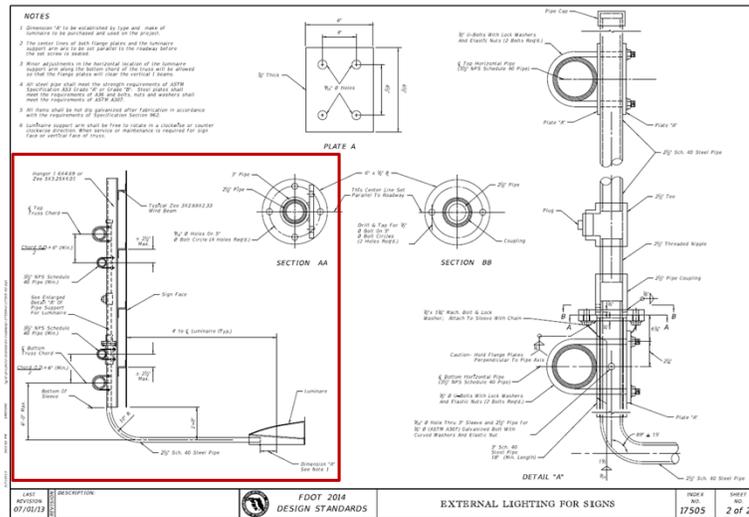


## New Service Point Detail Design Standard Index 17504

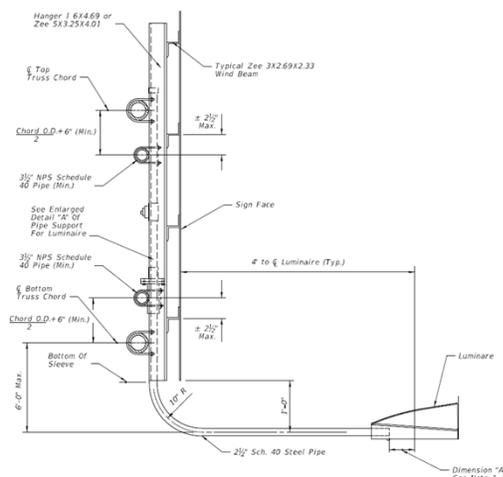




# Design Index 17505



# Design Index 17505



## *Proposed Design Standard Revisions*

- ◆ Index 17515
  - ✓ Include top mount fixture



## *Proposed Design Standard Revisions*

- ◆ Index 21210
  - ✓ 2" Sch. 80 Conduit to 2" Sch. 40 in Railing



## NEC Issues

- ◆ Place Section in Chapter 7 in PPM
  - ✓ Height restrictions for circuits exceeding 277 volts, nominal, to ground and not exceeding 600 volts.

**(D) 600 Volts Between Conductors.** Circuits exceeding 277 volts, nominal, to ground and not exceeding 600 volts, nominal, between conductors shall be permitted to supply the following:

- (1) The auxiliary equipment of electric-discharge lamps mounted in permanently installed luminaires where the luminaires are mounted in accordance with one of the following:
  - a. Not less than a height of 6.7 m (22 ft) on poles or similar structures for the illumination of outdoor areas such as highways, roads, bridges, athletic fields, or parking lots
  - b. Not less than a height of 5.5 m (18 ft) on other structures such as tunnels



## NEC Issues

- ◆ Place Section in Chapter 7 in PPM
  - ✓ For old installations installed with 480V, 1 Ph., 2W circuits, panelboards with 480V, 2P breakers. One phase conductor connect to one busbar and neutral connected to the other busbar.
    - 1) Grounded conductors (and busbars) typically have different spacing/clearance requirements.
    - 2) Equipment not used as it was designated to operate.



## *NEC Issues*

- ◆ Any other issues?





