Florida Department of Transportation

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DCE MEMORANDUM NO. 02-08

This Memo Has Expired

ROADWAY DESIGN BULLETIN 08-01

Date: January 14, 2008

To: District Construction Engineers and District Design Engineers

From: Brian A. Blanchard, P.E., Director, Office of Construction
David C. O'Hagan, P.E. State Roadway Design Engineer

Copies: Ananth Prasad, Jim Mills, David Sadler

Subject: Use of Steady Burn Lights on Temporary Traffic Control Devices

RECOMMENDATION: The MOTC recommends the continued use of steady burn lights on channelizing devices. Districts are therefore advised to enforce and maintain the use of channelizing devices in accordance with Index 600 requirements, and to cease with any further independent field experiments being conducted on this matter.

BACKGROUND: The Maintenance of Traffic Committee (MOTC) received several requests from the Districts to revisit the Department's policy requiring the use of Type C Steady Burn lights during hours of darkness on channelizing devices. In response, the MOTC reviewed a number of studies completed by different states and educational institutions which provided a range of recommendations and conclusions.

FINDINGS: Among those studies reviewed (see attached summary), several appear to point to "little or no benefit" when installing steady burn lights in work zones. The discussions range from "no effect in tangent areas" to "minimal benefit" in transitional areas dealing with specific driver reactions. On the other hand, none of the studies established sufficient evidence to support a decision to eliminate the use of steady burn lights at this time. Additionally, none of these studies were conducted in areas that would represent the unique driving characteristics within Florida which includes large numbers of elder road users and tourists, both domestic and foreign.

SUMMARY OF DOCUMENTATION
STEADY BURN LIGHTS USED ON CHANNELIZING DEVICES

Publications	Date	Title	Comments	For Lights	Remove Lights	Neutral
NCHRP 476	2002	Guidelines for Design and Operations of Nighttime Traffic Control	**NEW YORK, IOWA AND OHIO** *2.1.6.2 Steady-Burn Lights* Steady-bum lights are intended to define the edge of the travel path. Because the brightness and size of the light is overpowered by large reflectorized channelizing devices, the value of steady-bum lights to supplement large retroreflectorized channelizing devices is questionable. Studies in Ohio concluded that these lights did not enhance driver performance when attached to channelizing devices equipped with high-intensity sheeting (23, 24). Considering the large device size and close spacing recommended by these guidelines and the experience of states such as New York and Iowa, it is doubtful that steady-bum lights on channelizing devices will provide any value in night work zones (6). In addition to the questionable value for visibility, earlier research has shown that lights attached to channelizing devices may break windshields when impacted and may increase the risk of the channelizing device being thrown on impact rather than pushed down by the impacting vehicle (22).			x
ATSSA	1992	*Steady-Burn Warning Lights* Executive Summary	**SIMULATED WORK ZONES:** This research provides the basis for the following: Conclusions 1. Steady burn warning lights are generally effective in positively influencing driver behavior. Specifically, for distances exceeding 1200 feet, steady bum lights produced a higher percentage of correct responses, for all device and lighting configurations, than did devices with no lights. 2. The rate of decline in driver responses was far more pronounced at distances exceeding 1000 feet, for devices with no lights, than for devices with Type C lighting. 3. For all lighting treatments (full, alternate, none) and lane closure configurations (left, right), the older drivers (age 55+ years) recorded significantly less accurate responses than did the younger (under age 55) drivers. 4. The recommended deployment of Type C Steady-Burn Warning Lights are more effective than no lights, in stimulating correct responses by older drivers.	x		
TRB 1352	1992	*Effectiveness of Steady-Burn Lights for Traffic Control in Tangent Sections of Highway Work Zones*	**OHIO:** Study results indicated that steady-burn lights on drums marked with high-intensity reflective sheeting have little effect, if any, on driver behavior in tangent sections of rural divided highways. The study recommended that the use of steady-burn lights on drums marked with high-intensity reflective sheeting in tangent sections of construction work zones in rural divided highways including Interstate freeways be discontinued		x	

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TRB 1352	1992	*Steady-Burn Lights in Highway Work Zones: Further Results of Study in Ohio*	**OHIO:** The results showed that steady-burn lights had little effect, if any, on driver behavior in highway work zones. It appears that the high-intensity sheeting on drums and the flashing arrow panel had a powerful effect on drivers, thus leaving the steady-hum lights without any practical value in the work zones. It is concluded that stead y-burn lights are not required for traffic control when drums with high intensity sheeting and flashing arrow panel are used as channelizing devices in these highway facilities.		x	
TRB 85 Meeting	2006	*The Effectiveness of Steady Burn Warning Lights on Drums in Construction Work Zones*	**MICHIGAN:** Based upon the field experiments and associated statistical analyses for this study in Michigan, it can be concluded that there was no significant statistical difference in delineation and safety between drums with steady burn warning lights and drums without steady burn warning lights.			x
NCHRP 236		*Evaluation of Traffic Controls for Street and Highway Work Zones. (Project 17-4)*	The study suggested the following application guidelines: "Steady burn lights be used at night whenever feasible. Because their main advantage lies in their long detection distance, they are suited for tapers in the transition areas. They are also suitable for tangent sections, but can be spaced at longer distances than the devices on which they are placed….."	x		
TRIS		*"Construction zone safety and delineation study"*	**NEW JERSEY- DOT:** examined the feasibility of switching from steady burn lights to 5"x10" yellow reflectors for delineating portable concrete barriers in work zones. The results indicated that the reflectors caused no decrease in the proportion of vehicles using the lane adjacent to the portable concrete barrier and caused no change in the mean speed or speed variance.			x
		"Reflective sheeting study"	**KANSAS DOT** - survey 49 states and the District of Columbia. 29 states used steady burn lights in construction zones, but nine did not. Certain respondents suggested that the elimination of the lights is possible with the use of high performance sheeting. Others stated that the lights are needed for depth perception and attention getting and reflective intensity.			x
		"improving work zone delineation on limited access highways"	**Virginia Transportation Research Council** investigated vehicle guidance through the work zones by evaluating the effectiveness of steady burn lights on top of portable concrete barriers and of experimental reflectorized panels in tangent sections of highway work zones. The results of this investigation led to the recommendation that steady burn lights on portable concrete barriers should be replaced with reflectorized panels fabricated with high intensity sheeting.			
		"Crash tests of work zone traffic control devices"	**NEW YORK DOT** has reached similar conclusions regarding the safety hazard of steady burn lights when hit by vehicles.			
FDOT Cost History			**Cost History from 2003 to 2006 -** Barricades - 17 to 21 cents/ day Lights (Temp) Barrier Wall Mount - Type C Steady Burn - 14 to 17 cents/day			