Florida Department of Transportation

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TRAFFIC OPERATIONS BULLETIN 02-12
ROADWAY DESIGN BULLETIN 12-19
DESIGN STANDARDS REVISION R2013-03

Date: November 2, 2012

To: District Traffic Operations Engineers, District Design Engineers, District Structures Design Engineers, District Directors of Operations, and District Directors of Transportation Development

From: Mark C. Wilson, P.E., State Traffic Operations Engineer
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Subject: Pivotal Adjustable Hanger Use on Two Point Span Wire Traffic Signal Projects

Background

The State of Florida experienced catastrophic damage to traffic signals on span-wire type supports during the 2004-05 hurricane seasons due to structural failures of traffic signal heads and traffic signal hanger devices. The FDOT immediately began investigating this issue and sponsored a research project with the University Of Florida (UF) to find a solution to this problem. This research resulted in changes in the FDOT's standard design of new installations of traffic signals on span-wire support systems to improve the resistance to hurricane force winds.

In 2007, a company approached the FDOT with a new device, called a "pivotal adjustable hanger assembly" that was designed specifically to be used to retrofit existing two-span-wire type supports to withstand hurricane force winds. At that time the FDOT and the UF did not have the resources needed to test and evaluate this new device; therefore FDOT based the analysis and evaluation of this new device on a "theoretical analysis" and approved the device for reinforcement of traffic signals on two-span-wire supports in Florida.

In 2010, FDOT began a second research project with UF to test and evaluate traffic signal hanger devices for span-wire supports. This research project included wind-load testing of the pivotal adjustable hanger assembly, pipe hanger, adjustable hanger, and cable hanger in the single and dual-point configurations commonly used for span-wire supported traffic signals in Florida.

The results of this research project in conjunction with our knowledge of the structural failures during the 2004-06 hurricane seasons indicate that the pivotal adjustable hanger assembly and cable hanger attachments will improve the performance of the two point span wire assembly design.

In October of 2011, the FDOT received FHWA approval of the submitted Public Interest Finding to use the proprietary device for new or replacement hangers on federal-aid projects* (*except this work is not eligible for federal-aid safety funds).

The pivotal adjustable hanger assembly is currently available and approved for retrofitting existing span wire support systems and for new installations of span wire supported traffic signal systems.

Implementation

All new design starts are to use the pivotal adjustable hanger assembly with two point cable span on any new signalized intersections with span-wire type supports. Index 17727 has been revised to indicate the new pivotal adjustable hanger assembly.

Projects (e.g., RRR) that are not modifying the span wire traffic signals or otherwise impacting the span wire traffic signals are not required to be retrofitted with the pivotal adjustable hanger assembly.

Polycarbonate traffic signal heads should not be specified for use on new span wire traffic signal design projects and should not be specified or re-used on upgrade or retrofit span wire projects. Polycarbonate traffic signal heads may continue to be used on mast arm projects. In all cases, use traffic signal heads and hangers on the Approved Product List.

These requirements may be implemented immediately on all span wire projects LET prior to July 1, 2013 at the discretion of the District. These changes are required for all span wire projects with LET dates after July1, 2013.

This Bulletin does not affect the Department's existing Mast Arm Boundary policy.

MCW/fhh