

Session 65

Chester Henson

Florida Dept. of Transportation

Single-Point Signal Installation

Topic Description

The single point connection has been shown to be a much better system than the two point connection under hurricane force winds. The session will review the details of the single point connection and the new Interim Standard and the associated signal hardware requirements. The session will also review revisions to other Standard Indexes that utilize a two point connection.

Speaker Biography

Chester has more than 35 years of transportation experience in the areas of planning, design, construction and management of highway, bridge, and general civil engineering projects. He is currently the State Traffic Standards Engineer and is responsible for policy, standards and specifications in the areas of signing, pavement marking, signalization and lightings.

Session 65

Mark Wilson

FL. Dept. of Transportation - Traffic Engineering

Single-Point Signal Installation

Topic Description

Discussion of research and analysis of two-cable span-wire design (FDOT's current design) and single-cable span-wire design (FDOT's proposed design)

Speaker Biography

Mark is a professional engineer and an Auburn University graduate with a BS in Civil Engineering. Mark is currently the Deputy State Traffic Operations Engineer over the Operations Section in the Traffic Engineering Office in Tallahassee. Mark has worked for the Florida Department of Transportation for the past 18 years in the areas of traffic engineering, roadway design, project management, and professional services.



Session 65

Single Point Span Wire



Hurricanes

2004 – 2005 Season

Charley (Aug. 2004)

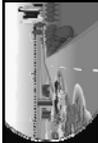
Frances (Sep. 2004)

Ivan (Sep. 2004)

Jeanne (Sep. 2004)

Dennis (. 2005)

Wilma (Oct. 2005)



Traffic Signal Inventory

District No.	Signals	Mast Arms	Span Wires	Span Wires Damaged
1	1,778	802	976	496
2	1,585	537	1,048	40
3	987	300	687	265
4	3,329	1,180	2,149	735
5	2,972	458	2,514	1,885
6	2,640	1,848	660	0
7	2,151	518	1,633	102
Sum	15,442	5,643	9,667	3,523





Component Failures: Aluminum Disconnect Boxes





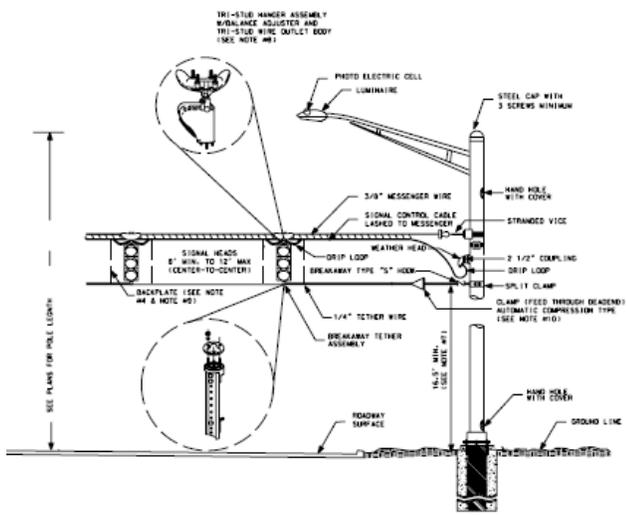
City of St. Petersburg Standard



Approach To Revisions

- **We Reviewed Ways to Strengthen Hanger**
- **We Reviewed Some County Standards**
- **We Reviewed Other State Standards**

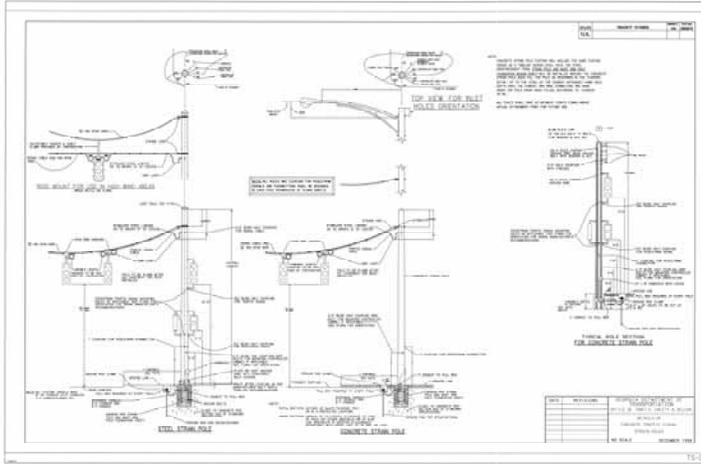
Alabama Standards



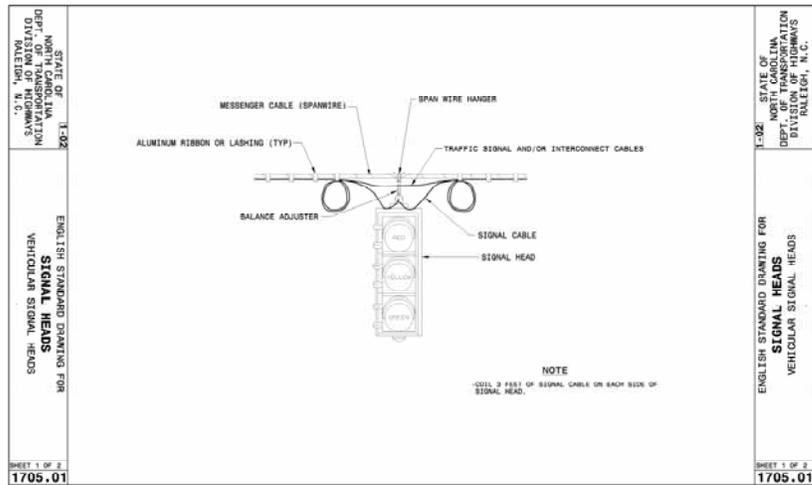
Alabama Signal



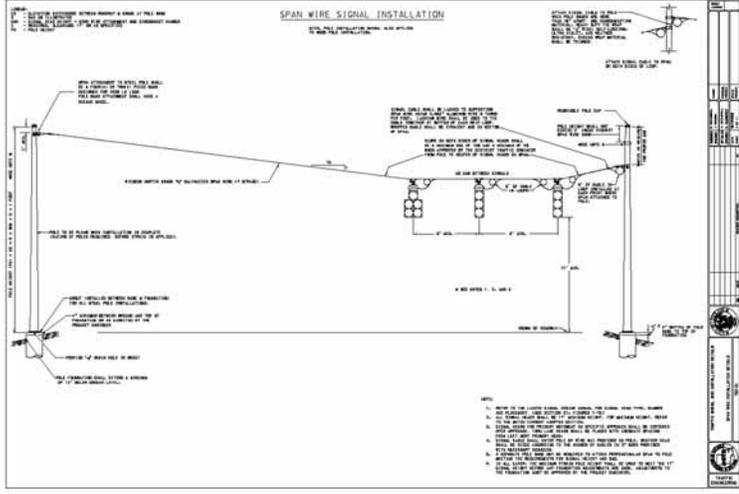
Georgia Standard



North Carolina Standard



Louisiana Standard



Texas Standard

STRAIN POLE DESCRIPTION

Item	Description	Quantity	Unit
1	Strain Pole	1	EA
2	Strain Pole Cap	1	EA
3	Strain Pole Base	1	EA
4	Strain Pole Bolt	1	EA
5	Strain Pole Nut	1	EA
6	Strain Pole Washer	1	EA
7	Strain Pole Seal	1	EA
8	Strain Pole Gasket	1	EA
9	Strain Pole Pad	1	EA
10	Strain Pole Ring	1	EA
11	Strain Pole Flange	1	EA
12	Strain Pole Bracket	1	EA
13	Strain Pole Arm	1	EA
14	Strain Pole Head	1	EA
15	Strain Pole Lens	1	EA
16	Strain Pole Housing	1	EA
17	Strain Pole Mounting	1	EA
18	Strain Pole Support	1	EA
19	Strain Pole Base	1	EA
20	Strain Pole Cap	1	EA
21	Strain Pole Bolt	1	EA
22	Strain Pole Nut	1	EA
23	Strain Pole Washer	1	EA
24	Strain Pole Seal	1	EA
25	Strain Pole Gasket	1	EA
26	Strain Pole Pad	1	EA
27	Strain Pole Ring	1	EA
28	Strain Pole Flange	1	EA
29	Strain Pole Bracket	1	EA
30	Strain Pole Arm	1	EA
31	Strain Pole Head	1	EA
32	Strain Pole Lens	1	EA
33	Strain Pole Housing	1	EA
34	Strain Pole Mounting	1	EA
35	Strain Pole Support	1	EA
36	Strain Pole Base	1	EA
37	Strain Pole Cap	1	EA
38	Strain Pole Bolt	1	EA
39	Strain Pole Nut	1	EA
40	Strain Pole Washer	1	EA
41	Strain Pole Seal	1	EA
42	Strain Pole Gasket	1	EA
43	Strain Pole Pad	1	EA
44	Strain Pole Ring	1	EA
45	Strain Pole Flange	1	EA
46	Strain Pole Bracket	1	EA
47	Strain Pole Arm	1	EA
48	Strain Pole Head	1	EA
49	Strain Pole Lens	1	EA
50	Strain Pole Housing	1	EA
51	Strain Pole Mounting	1	EA
52	Strain Pole Support	1	EA
53	Strain Pole Base	1	EA
54	Strain Pole Cap	1	EA
55	Strain Pole Bolt	1	EA
56	Strain Pole Nut	1	EA
57	Strain Pole Washer	1	EA
58	Strain Pole Seal	1	EA
59	Strain Pole Gasket	1	EA
60	Strain Pole Pad	1	EA
61	Strain Pole Ring	1	EA
62	Strain Pole Flange	1	EA
63	Strain Pole Bracket	1	EA
64	Strain Pole Arm	1	EA
65	Strain Pole Head	1	EA
66	Strain Pole Lens	1	EA
67	Strain Pole Housing	1	EA
68	Strain Pole Mounting	1	EA
69	Strain Pole Support	1	EA
70	Strain Pole Base	1	EA
71	Strain Pole Cap	1	EA
72	Strain Pole Bolt	1	EA
73	Strain Pole Nut	1	EA
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75	Strain Pole Seal	1	EA
76	Strain Pole Gasket	1	EA
77	Strain Pole Pad	1	EA
78	Strain Pole Ring	1	EA
79	Strain Pole Flange	1	EA
80	Strain Pole Bracket	1	EA
81	Strain Pole Arm	1	EA
82	Strain Pole Head	1	EA
83	Strain Pole Lens	1	EA
84	Strain Pole Housing	1	EA
85	Strain Pole Mounting	1	EA
86	Strain Pole Support	1	EA
87	Strain Pole Base	1	EA
88	Strain Pole Cap	1	EA
89	Strain Pole Bolt	1	EA
90	Strain Pole Nut	1	EA
91	Strain Pole Washer	1	EA
92	Strain Pole Seal	1	EA
93	Strain Pole Gasket	1	EA
94	Strain Pole Pad	1	EA
95	Strain Pole Ring	1	EA
96	Strain Pole Flange	1	EA
97	Strain Pole Bracket	1	EA
98	Strain Pole Arm	1	EA
99	Strain Pole Head	1	EA
100	Strain Pole Lens	1	EA

SHIPPING PARTS LIST

Item	Description	Quantity	Unit
1	Strain Pole	1	EA
2	Strain Pole Cap	1	EA
3	Strain Pole Base	1	EA
4	Strain Pole Bolt	1	EA
5	Strain Pole Nut	1	EA
6	Strain Pole Washer	1	EA
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97	Strain Pole Bracket	1	EA
98	Strain Pole Arm	1	EA
99	Strain Pole Head	1	EA
100	Strain Pole Lens	1	EA

Texas Signal



Summary of State Standards

States Using Two Point Span Wires:

Georgia (Limited Use) & Florida

States Using Single Point Span Wires:

Alabama

North Carolina

Georgia

South Carolina

Louisiana

Texas

Mississippi



Approach To Revisions

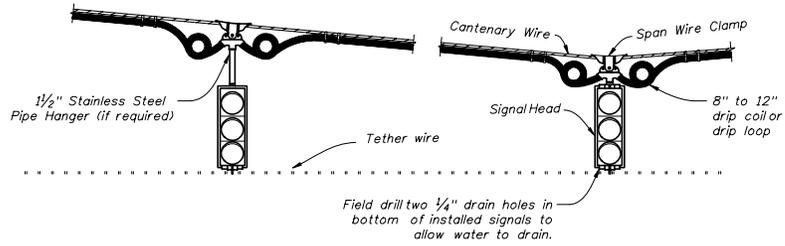
- **We Reviewed Ways to Strengthen Hanger**
- **We Reviewed Some County Standards**
- **We Reviewed Other State Standards**
- **We Developed A New Single Point Standard**



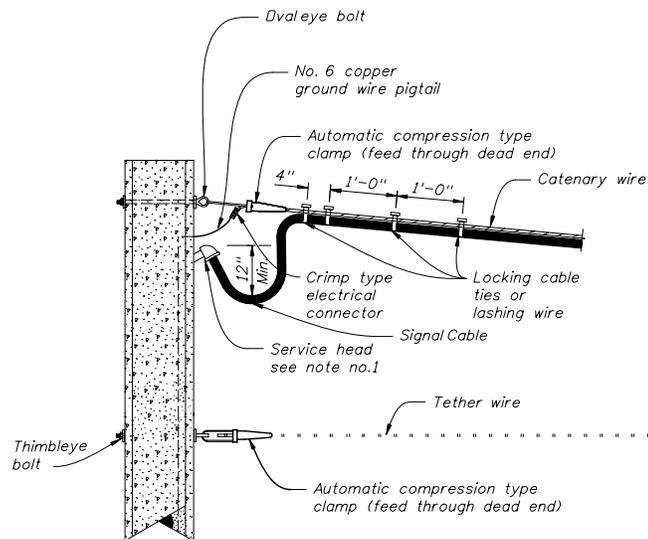
Existing Single Point Standard



Draft Single Point Standard



Draft Single Point Standard





Issues With Single Point

- Rotation of Signal Under Low Wind
- Need for a Tether Wire
- Elimination of Disconnect Box
- Required Different Signal Wiring
- Uniform Height of Signal Heads



Wind & Lab Testing

University of Florida with Support from
Florida International University

Lab Testing: Long Strap



Lab Testing: Short Strap





FICE/FDOT Design Conference 2006
Designing For More Than Bridges & Roads

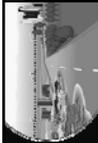
Testing Equipment



FICE/FDOT Design Conference 2006
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Testing Equipment





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Testing Equipment



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Testing Equipment



Testing Equipment



A black and white photograph showing a man in a dark polo shirt sitting at a desk in a control room. He is looking at a computer monitor displaying various graphs and data. The desk is cluttered with various pieces of electronic testing equipment, including a large rack-mounted device, a keyboard, and several cables. The room has wood-paneled walls and a printer mounted on the wall.

FICE/FDOT Design Conference 2006
Designing For More Than Bridges & Roads

Wind Testing: Dual Cable (Current Design)



A black and white photograph of an outdoor wind testing facility. In the foreground, there is a large, rectangular wooden structure. In the background, a tall, slender metal structure is being assembled or tested, featuring a dual cable design. The facility is situated in an open area with a paved ground. In the distance, there are several white vans and a building with a gabled roof under a cloudy sky.

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