FDOT Roadway Wind-Speed Monitoring

Florida Department of

In 2012 FDOT began monitoring wind speed conditions in real-time on approximately 20 critical roadways in the Jacksonville, Florida area

- The information is available in the FDOT traffic management centers around the state and shared with local public safety agencies
- During the 2012 Hurricane Season two tropical storms hit Jacksonville and the wind speed monitoring system supported the FDOT and public safety response
- The FHWA has named the project a "Best Practices" transportation tool for state DOTs

How it works

 FDOT has worked with the National Oceanic and Atmospheric Administration (NOAA) to win approval to use their satellite-based "Data Collection Service" (DCS) to deliver wind speed sensor data







Significant Cost Savings

- Equipment/Installation Cost ~ \$10,000 per site
- No operational costs for receiving sensor data via NOAA satellite service
 - Using cellular modems at 100 sites would cost:
 \$5,000 a month / \$300,000 over 5 years
- No distribution costs for delivering data via the FDOT microwave network
 - Installing dedicated data communication circuits from the satellite ground station database to 8 locations such as TMCs would cost:
 - \$8,000 a month / \$480,000 over 5 years

Data Integrity

- The FDOT ground stations at Lake City and Tallahassee receive the wind speed data directly from the GOES satellite.
- Dissemination to FDOT TMCs is via FDOT's redundant and resilient enterprise microwave and fiber network
- The internet has proven unreliable during severe weather events but this system does not rely on it to deliver wind speed data to the TMCs.
- Many TMCs have public safety representatives present during emergencies, reducing further the reliance on the internet for even partner agencies to receive wind speed information.

The Data

- Each site sends in wind speed data as often as once an hour or when a preset threshold is crossed.
- · Data that will be transmitted will include specific wind statistics: Mean, Std. Dev., etc.
- · Data transmissions for wind speed threshold alarms will be sent multiple times to ensure successful communications.
- Transmissions are limited in size.

Wind Speed Data Website: Displaying Original 20 Wind Sensors in Jacksonville FL area

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Project Status



- Two ground stations installed 2012-2013.
- Ground Stations updated 2016.
- 25 additional sites installed in the Florida Keys in 2016



First Installation: Atlantic Blvd, Jacksonville, Florida 8/16/2011

FDOT Wind Speed Sensor Sites

- · Using lessons learned from the initial Jacksonville deployments and to save costs the FDOT selected existing concrete pole locations close to strategic Keys bridge sites
- · The following table lists the deployment sites in the Keys



Florida Kevs: Wind Sensor Location List

Sta Native	Location Decorption	Mile Market	Pole Stage	Polo Balger Alterno Gerund Larvei (Face)
1	CCTV Pole	111 - 43	Round	.76
1.1	CCTV Inte	151-14	Square	19.
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. 4.	CCTV Pele	1911-18	Normal.	34.:
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10	CCTV/Ne	1882 - 39-8	Sceni	48.
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. 14	OCTV Pulz	USt - 62.8	Round	996
15	CCTV Pale	1211-04	Rosal	40
14	COTV Pole	1017-213	Rend	306
11	EUTV Ne	VH - 17	Normal	34
18	CCTV Pile	011-10	Round	- 28 -
10	CCTV Inte	18 = 18.1	Round	81
-20	CCTy Jule	151 - 91	Square	44
11	ECTV Pube	1911-110.8	Round	14
- 23	CCTV Net	101-107.8	Round	79
-73	CCTV Pela	198 - 132	Renal	11
. 14	CCTV Pole	180-121-1	Round	18
- 25	CCTV hde	C8801-8.T	Round	18