

The Florida Department of Transportation's ITS WAN

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As the Florida Department of Transportation (FDOT) expands its Intelligent Transportation Systems (ITS) infrastructure throughout the state, it is building the ITS Wide-Area Network (ITS WAN) to transport ITS data statewide. The ITS WAN interconnects FDOT's regional Traffic Management Centers (TMC), enabling a free flow of data and traffic-camera video statewide.

FDOT's SunGuide™ software utilizes the ITS WAN to share incident data and surveillance camera views. The data communicated includes information about crashes, traffic congestion, construction, travel times and other incidents on roadways covered by ITS technology.

The ITS WAN is a backbone network that uses a combination of fiber optic and microwave circuits to enable TMCs to share vital traffic incident data. Three TMCs in South Florida are already connected to each other: District Six's Miami TMC, which also serves the Miami-Dade Expressway Authority; District Four's Ft. Lauderdale TMC; and the Florida Turnpike's Pompano Beach TMC. The Turnpike has already connected its Turkey Lake TMC to the Pompano facility with its own fiber network, allowing all of its data and video to be shared between the two facilities. FDOT is currently expanding the ITS WAN to include District Two's TMC Jacksonville RTMC and District Five's Orlando TMC.

FDOT is preparing plans for the inclusion of District One's Fort Myers RTMC and District Seven's Tampa TMC. When those projects are complete, the ITS WAN will connect all existing TMCs in Florida, enabling ITS data sharing among all the districts.

The data servers for Florida's next-generation 511 resource, which will be housed in Tampa, will also be connected to the ITS WAN.

The fiber circuits in the network are gigabit Ethernet links (1000 megabits per second); microwave circuits are limited to approximately 30 megabits per second.

The ITS WAN's fiber infrastructure is built by interconnecting existing intra-district fiber to create an inter-district network. Using existing FDOT district fiber is more cost efficient and secure than leasing commercial telecommunications circuits. The fiber network is an existing FDOT asset which has already been installed and paid for, and is maintained by FDOT. It is more reliable than the Internet and has fewer latency and disconnection issues. The ITS WAN is a private FDOT intranet limited to ITS applications and connecting only to FDOT districts; there is no connection to the global Internet, which significantly reduces security concerns.

As FDOT builds new TMCs, including those in Pensacola and Tallahassee, they will connect to the ITS WAN, sharing ITS data and video and connecting to Florida's 511 Travel Information Resource.

Other specifications of the ITS WAN include:

- Core-to-Core Backbone Network: directly connects TMCs, which are the points of presence (POP) — or available connection points — on the ITS WAN
- Routed Network: supports with the TCP/IP protocol suite
- Coarse Wave-Division Multiplexing (CWDM): fiber-optic links may simultaneously use different wavelengths of light, each wavelength capable of carrying two separate gigabit Ethernet circuits, thereby enabling significant bandwidth growth to meet future needs.
- Unicast network engineered to support future multicast applications.