I-59/I-20 Smart Work Zone Overview
Alabama Section ASCE
September 2018
What is a Smart Work Zone System?
➢ Wavetronix HD SmartSensor
➢ Dual Beam/Sidefire Technology
➢ 22 lanes or 250 ft
➢ 230 watt solar / 30-day battery bank
➢ Cellular Communication
➢ 17 ft mast

Queue
Trailer-Mounted Queue Detection

The Queue Trailer is a portable trailer that provides a versatile and lightweight platform with a small footprint to mount a microwave radar unit to detect speed, volume and occupancy for up to 22 lanes of traffic. When equipped with ASTI’s communication package, the Queue Trailer can provide data remotely to a variety of information-gathering components.

Features
- Industrial grade trailer to give years of dependable service
- Reports the speed, length and classification of individual vehicles
- Adjustable solar array for maximum exposure to sun
- Optional digital cellular communications
- Detects up to 22 lanes of traffic
- Accurately detects lane changing vehicles
- Available as a portable unit or permanent mount
- Removable tongue
- Battery bank sized for 30-day autonomy
➢ CohuHD RISE 4228 Dome
➢ Network/IP
➢ High quality night vision
➢ 560 watt solar / 30-day battery bank
➢ Cellular Communication
➢ 30 ft mast

MVT
Mobile Video Trailer

The MVT provides a portable, self-contained all-weather, trailer-mounted equipment platform. Through the use of wireless communication, the MVT provides the end user a rapidly deployable real-time video system viewable from a remote location. The MVT can be used as a stand-alone camera system or tied into a larger existing CCTV system.

Features
• Can use virtually any camera
• Additional mast heights available
• Day/Night Adjustable
• Pan/Tilt/Zoom IP addressable cameras
• 32-ft. extendable mast with 360-degree lockable rotation
• Capable of providing streaming or snapshot video
• Optional electric hoist available for rapid deployment
• Battery bank sized for 30-day autonomy
• Industrial-grade trailer to give years of dependable service
• Microwave and digital cellular communications available
• 360-degree adjustable solar array for maximum exposure to sun
• Custom options are available and can include a WaveOptix sensor for traffic detection
➢ LED Full Matrix
➢ Text, graphic symbols or both
➢ 140 watt solar
➢ Cellular Communication
➢ Remote Programmable
➢ 13 ft mast
Smart Work Zone Adds

Probe Data

Bluetooth Readers
Bluetooth Travel Times

d: set distance

\( t_0 \): initial time

\( t_1 \): final time
Most systems are set up for 60 second polling.

Queue detectors are usually set at \( \frac{1}{2} \) mile increments for the best real time data collection.

Each sensor is polled for speed, volume, density, volume and classification.

That data collected determines which message set to post.

“Real Time” traffic conditions are then reported to the message boards, the project website, the 511 page, DOT personnel, the TMC and anyone that has access to the system.
Secure User Web Access
Multiple Projects - Single Access Point
View All Field Devices At Once
Current Speeds Lane By Lane
Real Time Video
View All Current Cameras W/ A Video Wall
Current Conditions
View All Current Messages
Scheduling/Overriding Of Messages

You can select additional devices from the Group Boards list to override or change the default message on multiple message boards simultaneously.

Select a 'Begin Time' which is local to the project's time zone.

If you want the override to never end, select 'Never'. If you want the override to end at a certain time, select 'End Time' and enter the time.

Current Override Schedules (no schedules)
## Device Information

**Device 28041560i**
- **Battery Voltage**: NA [V]
- **Modem RSSI**: 0
- **Last Check In**: Tue Jan 17 2017 18:56:25 GMT-0500 (Eastern Standard Time) (2 minutes ago)

**Device 36937801i**
- **Battery Voltage**: NA [V]
- **Modem RSSI**: 0
- **Last Check In**: Tue Jan 17 2017 18:56:25 GMT-0500 (Eastern Standard Time) (2 minutes ago)

**Device 36937811i**
- **Battery Voltage**: NA [V]
- **Modem RSSI**: 0
- **Last Check In**: Tue Jan 17 2017 18:56:25 GMT-0500 (Eastern Standard Time) (2 minutes ago)

**Device 3717741i**
- **Battery Voltage**: NA [V]
- **Modem RSSI**: 0
- **Last Check In**: Tue Jan 17 2017 18:56:25 GMT-0500 (Eastern Standard Time) (2 minutes ago)

**Device 37177601i**
- **Battery Voltage**: NA [V]
- **Modem RSSI**: 0
- **Last Check In**: Tue Jan 17 2017 18:56:25 GMT-0500 (Eastern Standard Time) (2 minutes ago)

**Device 37177621i**
- **Battery Voltage**: NA [V]
- **Modem RSSI**: 0
- **Last Check In**: Tue Jan 17 2017 18:56:25 GMT-0500 (Eastern Standard Time) (1 minutes ago)
Historical Speed, Volume And Density Reporting Features
Smart Work Zone in Action
Benefits Of A SWZ

➢ Reduce the amount of rear end collisions and secondary crashes.

➢ Gets traffic information to the traveling public immediately.

➢ Congestion alerts can be sent to Traffic and TSMO engineers allowing them to override system messages if necessary.

➢ Data gathered enables forecasting/adjustments to traffic control plans.

➢ Safer work zone for workers and the traveling public.
In 2015 there were an estimated 96,626 crashes in work zones nationally.
In 2015, Alabama had 2,452 crashes in work zones and 23 were fatal.
Stanford economists have demonstrated that the average value of a year of quality human life is about $129,000.

Average US life expectancy – 79.8

Do the math - $129k x 79.8 = $10,294,200 Human Life Value

Fatal Crashes in Alabama 23 in 2015

Do the math - $236,766,600 million in Human Life Loss due to roadway accidents

So, what’s the cost of not implementing work zone safety?
ANY QUESTIONS?
Thank you for your time today!

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