BlueTOAD®
Bluetooth® Travel-Time Monitoring
What is BlueTOAD

BlueTOAD Applications – over 600 units deployed

BlueTOAD Website:
  • Data Outliers
  • Extracting MAC addresses
  • Real-time application

BlueTOAD in 3rd-party applications
The Use and Need for Travel-Times and Data

- **Operations** – real-time accurate travel-times and speeds via a website and/or data push to your website. Arterials are a great application for BlueTOAD as it is a performance-based tool.

- **Work Zones & Evacuation Routes** – due to the flexible and simple installation being solar-powered and cellular uplink, it takes less than an hour to install a unit, BlueTOAD is being used for work zone projects.

- **Traveler Information & 511** – Having a complete turn-key solution, we are able to push out travel-times and speeds via XML real-time to your website.

- **ITS** – with real-time information, you are better informed on what is going on with key arterials and/or freeways.

- **Planning** – all data is being archived and can be used for later retrieval. This is also a great addition to travel-demand models as it can validate the model and add arterial data to it. Before and after studies of re-timed signals is now 24x7 and automated.
BlueTOAD
Bluetooth Travel-Time Origination And Destination
TrafficCast has leveraged the mobile phone industry’s use of open hardware and software platforms to create BlueTOAD for travel-times and speeds.

**Key Features:**

- Completely non-intrusive, MAC address pairing
- Limited or no configuration (~30 min. install)
- Stand alone or in existing cabinet
- Local and Wireless Operation (Ethernet)
- For use in Arterials and Freeways
- Real-time network and device monitoring
- Over-the-Air software downloading
- Web Services Interface (24x7 monitoring)
- Future expansion design
BlueTOAD Configuration Options

- Solar/Cellular BlueTOAD
- Ethernet BlueTOAD
- Mini-BlueTOAD

For all Configurations...

- Permanent or Temporary deployments
- Ethernet and/or Cellular communications
- AC or DC Solar Power
- Real-Time or Post Processed data collection
- Web-enabled and Archived data management
Solar/Cellular BlueTOAD

- GPS Antenna
- High-Performance GSM Blade Antenna
- GSM Cellular Data Modem
- 7 Day Backup Battery
- Solar Charge Controller
- Bluetooth Radio
- Patent Pending Detection & Control Circuitry
- Environmental Bluetooth Antenna
In-Cabinet Ethernet BlueTOAD

Ethernet BlueTOAD

- Suitable for outdoor electrical (traffic) cabinet installation
- IP addressable – static or DHCP
- Outbound network traffic only
- Ethernet 10Base-T/100Base-T
- Single slot only needed
Mini-BlueTOAD for Post-Processed Data

Mini-BlueTOAD

- 14-day battery
- 6” x 6” x 4” form factor
- AC or DC Solar Power
- 2 GB mini SD-Card Storage
- Simple upload (Post-Processed data)
- Optional Solar Panel
BlueTOAD is a highly integrated product offering by TrafficCast that includes:

- Web portal that allows customers to view the speed and travel times generated by the sensors
- Proprietary algorithms that smooth the data based upon road classes (i.e. arterial, expressways, etc.)
- Traffic engineering and data analysis that check to see if the data is accurate
Managing Real-Time Data

- Real time speed and travel time information displayed on website hosted by TrafficCast
- Statistical data reports covering speed, travel time, MAC pairs, origin/destination
- TrafficCast proprietary algorithms for processing flow speed.
- Data analysis and customized reports
- Data archiving
BlueTOAD IP (travel times and speeds):

- Detection matches, which do not fit the flow of traffic represented by the majority of Bluetooth pairs.
- Are factored by on-going real-time analysis of multiple matches,
- Recognizes and reduces or eliminates, weighting of simultaneous matches.
BlueTOAD
Applications

Over 600 BlueTOADs Installed
BlueTOAD Incident Detection

- Traveler Information website matches BlueTOAD data
Arterial Congestion Management

- Seminole County, FL
- Arterial travel-times for signal timing comparison (Before & After Report)
- Arterial DMS Updates (Chameleon 360 software interface)
- Arterial Congestion Monitoring (speed map monitoring)
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Ramp Metering

- Baton Rouge, LA
- Freeway travel-times/speeds monitoring (Before & After – ramp metering project)
- TMC Monitoring Tool using Dashboard & Speed map
- Freeway DMS Updates (coming soon…)

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<th>Speed Indicator</th>
<th>Type</th>
<th>Title</th>
<th>Origin</th>
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511 Traveler Information

- New Jersey DOT
- State route travel-times for 511 system (Ranked #2 for data source)
- Integrated to MPO Data Modeling Software (XML)
- ITS Tool for Congestion Management
Construction Management

- Washington State DOT
- Freeway travel-times/speeds for construction project DMS Updates
- Before and After for data planning
- ITS Tool for Congestion Management
Congestion Mitigation

- Fulton County, GA
- Arterial travel-times/speeds from two freeways for congestion mitigation
- Before and After studies for adaptive system
- Origin-Destination for freeway alternate routes
Optimized Signal Operations

- Florida DOT (District 2)
- City-wide (Jacksonville) network for signal timing improvements (arterials & freeway)
- Multi-jurisdictional data sharing (City, State, MPO)
- Modeling tool for MPO long term transportation plan
QWEST® Cybercenter® Facilities, BlueTOAD’s Foundation for Success

- QWEST NOC: “Built like a brick shipyard”
  - Blast resistant
  - Biometric Entry
  - Carrier Grade (peering location)
  - 3N + 1 generators
  - Hosts the Chicago Board Options Exchange

- Two TrafficCast server clusters
  - Real-time failover from primary to secondary
  - Major PND SLA is 99.9% uptime
  - Reporting 100% uptime most months
BlueTOAD
Third-Party Applications
Integration with Real-Time Systems using BlueTOAD Data
BlueTOAD Data Used in Third-Party Applications

22 BlueTOAD's

Cellular

BlueTOAD Website

XM Data Feed

DMS & Website

BlueTOAD Website

Real-Time Monitoring of Devices

Travel-Times & Speeds of Links

DMS Automated via BlueTOAD

Website - Travel-Times & Congestion Map

Website - Travel-Time & Speed Chart

Last 48 hours of Speeds & # of Matches

Confidential and Proprietary
Third-Party Integration

- XML data used in Advanced Transportation Management Systems (ATMS)
  - Econolite Centracs ATMS
  - Transcore ATMS
  - Delcan ATMS
  - 360 Surveillance
  - Arcadis T2 Analytics
  - Telvent
  - ASTI
Questions?

Thank You!