Welcome KYTC Partnering Conference Attendees

BlueTOAD - Probe Data

Lexington, KY
BlueTOAD®

Bluetooth® Travel-Time Monitoring
Discussion Points

• What is BlueTOAD
• What is Bluetooth and a MAC address
• How does BlueTOAD use Bluetooth to generate Travel-Times & Speeds
• BlueTOAD Applications
• BlueTOAD Configurations
• BlueTOAD Website:
  • Real-time speed map
  • Real-time Information
  • Real-time vs Historical Reports
  • Archived Data
BlueTOAD

Blue tooth Travel-Time Origination And Destination
Bluetooth is an open wireless technology standard for exchanging data over short distances from fixed and mobile devices, creating personal area networks (PANs) with high levels of security.

Bluetooth uses a radio technology called frequency-hopping spread spectrum and is in the 2.4 GHz short-range radio frequency band.

A Media Access Control address (MAC address) is a unique identifier assigned to network interfaces for communications on the physical network segment.
How does BlueTOAD work with Bluetooth..
Key Features of The BlueTOAD System:

- Completely non-intrusive installation (~30-60 min. install)
- Reliable Data using MAC address pairing
- Limited or no configuration
- Stand alone System or use existing cabinet
- Cellular and/or Ethernet Communications
- For use in Arterials and Freeways
- Real-time network and device monitoring
- Over-the-Air software downloading
- Web Based GUI
- Future expansion design
BlueTOAD Turnkey Solution

**Filters/Algorithms:**
- 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

**Web based Backend:**
- Real time speed and travel time information displayed on website hosted by TrafficCast
- Statistical data reports covering speed, travel time, origin/destination

**Hardware:**
- AC or DC Power
- Ethernet and/or Cellular
- Stand alone or existing cab.
Effectively Filter Data Outliers in Real-Time

**Pair ID**
- 11514

**From Device**
- 1551

**To Device**
- 1545

**Pair Name**
- Alumni/New Circle (outer) to MOW/Alumni

**From Device Name**
- Alumni/New Circle (outer)

**To Device Name**
- MOW/Alumni

**Attributes**
- **Distance:** 0.500 mi/km
- **Direction:** SE
- **Speed Limit:** 35 mph

**Smoothing Method**
- Two Stage Mean

**Road Class**
- None

**XF1 (user-defined)**

**XF2 (user-defined)**

**Settings**
- **Match-Speed Limits**
- **Min Speed:** Auto
- **Max Speed:** 30 mph
- **Stale Time:** 30 min

**Speed Map Color Thresholds (% of speed limit)**
- **Yellow:** 28.5714%
- **Orange:** 28.5714%
- **Green:** 57.1429%
- **Blue:** 100%

**Alarms**
- **Preset Alarms**
- Falls below 26
  - From 06:00 to 20:00 (MTWRF)

**Save Pair**

**Add Reverse**

**Cancel**
BlueTOAD Applications

- Arterial Travel-Times
  - Operation Performance, OD, Before/After Analysis
- Freeway Travel-Times (OD, DMSs)
- Work Zone applications
  - Timing Mods based on Travel Speeds or Travel Times
- 511/Traveler Information Systems
- Planning/Modeling
- Incident Management
  - Trigger Traffic Responsive via Threshold Alarms
BlueTOAD Configuration Options

For all Configurations...

- Permanent or Temporary deployments
- Ethernet and/or Cellular communications
- AC or DC Solar Power
Solar/Cellular BlueTOAD

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

- Power Over Ethernet (POE) for simple installation
- IP addressable – static or DHCP
- Outbound network traffic only
- Ethernet 10Base-T/100Base-T
- Cellular Option
- Free of knockdowns & Vandalism
- No drilling in to the cabinet; possibly voiding the warranty
Stand Alone Speed Map

Thresholds based on either Speed Limit or Historical Average
Real-Time vs. Historical

Comparison Report: Smoothed Speed (5-min)
Time Interval: 07:45:00 - 08:30:00

- Richmond/New Circle(outer) to Richmond/St. Ann–Fontaine - (2014-09-02 - 2014-09-02)
- Richmond/New Circle(outer) to Richmond/St. Ann–Fontaine - (2014-09-04 - 2014-09-04)
Archived Data - Reports

<table>
<thead>
<tr>
<th>Pair / Route</th>
<th>Speed Limit</th>
<th>MOW East - June</th>
<th>Historical Avg of Fri: From 2014-06-01 to 2014-06-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 12207: (Man O War - East)</td>
<td>44mph</td>
<td>MOW East - July</td>
<td>Historical Avg of Fri: From 2014-07-01 to 2014-07-31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOW East - August</td>
<td>Historical Avg of Fri: From 2014-08-01 to 2014-08-31</td>
</tr>
</tbody>
</table>

**Historical Trends for Man O War – East**

- MOW East – June (travel time)
- MOW East – July (travel time)
- MOW East – August (travel time)
- Speed Limit (travel time)
Questions?

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