BlueTOAD™

BlueARGUS

REAL-TIME & HISTORICAL FEATURES OF THE BLUEARGUS SOFTWARE SUITE

DATA DRIVEN

Optimized for travel-time data and dashboard-based visualization, BlueARGUS is the most comprehensive database manipulation software available in the industry.

WEB-BASED DESIGN

Monitor traffic congestion right from your browser. BlueARGUS provides data analysis using intuitive data selection menus - No programming needed!

REPORT GENERATION

From spreadsheets and graphs to standalone databases and cloud services, use BlueARGUS to uncover any travel-time data using TrafficCast's BlueTOAD travel-time-based performance software!

TRAVEL-TIME RELIABILITY

Aggregate dozens of unique data calculations to combine multiple views of travel-time data. Get richer insight to changing traffic patterns and trends.

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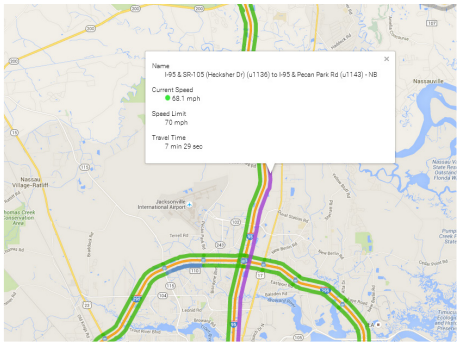
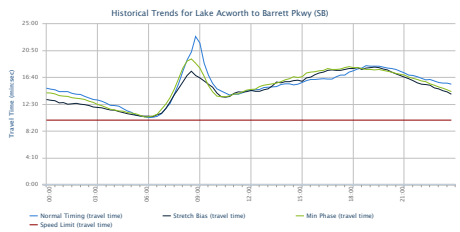
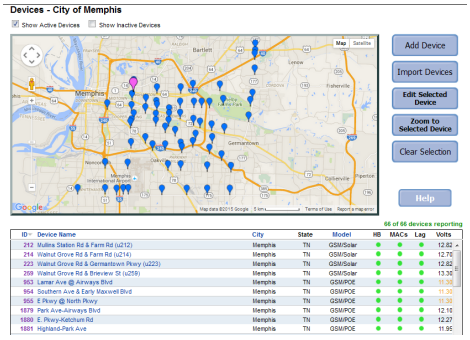






BlueTOAD™ Travel-Time System

Real-Time & Historical Features of the BlueARGUS Software Suite

The ability to see accurately what is occurring on your road network in real-time is an essential ITS operations management utility. In addition, having the ability to report on travel-times and speeds using a host of reporting options is an important performance based tool for the Traffic Engineer and Planner. The BlueARGUS software suite combines both real-time features, along with reporting features to deliver the most comprehensive travel-time system in the market.

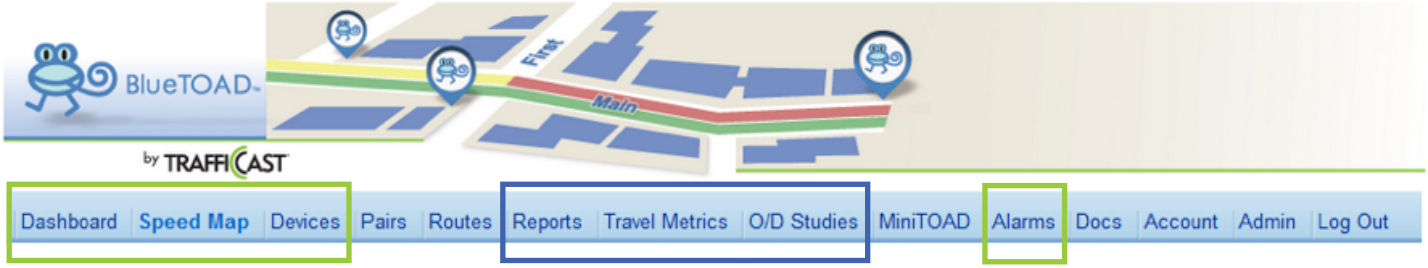
This document will show some of the highlights of each component for the ITS Engineer, Traffic Engineer and Planners.

www.trafficcast.com/bluetoad.html

BlueARGUS

The BlueTOAD system consists of 2 main components in the BlueARGUS software:

- Real-Time Information: all pertinent are outlined **GREEN** (See Main Menu Bar below).
- Historical/Archived Data: all pertinent pages are outlined **BLUE** (See Main Menu Bar below).

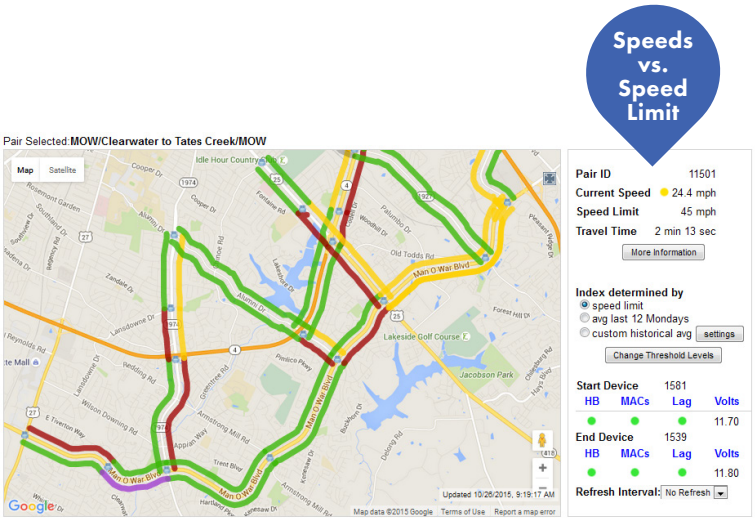


BlueTOAD Website: http://www.trafficcast.com/bluetoad.html

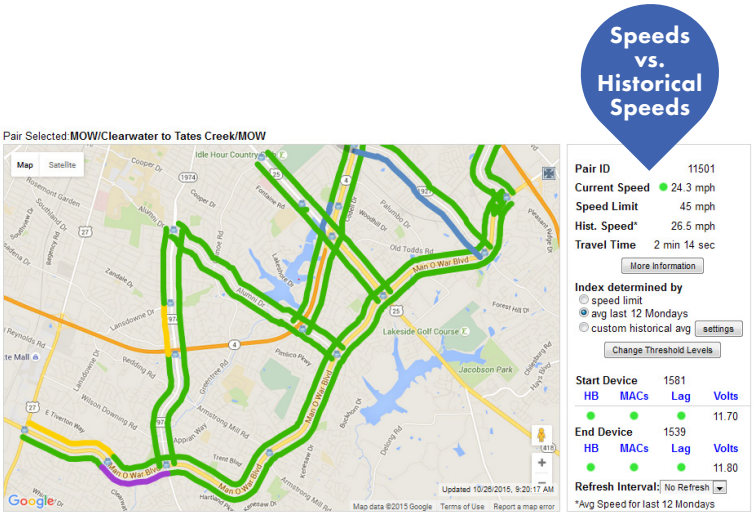
BlueARGUS Customer Login: https://bluetoad.trafficcast.com/

BlueTOAD
Real-Time Information

The BlueARGUS Speed Map



Speed Map color coded based on comparing BlueTOAD Speeds versus the Speed Limit.



Same Speed Map as above except the color coding is based on BlueTOAD Speeds versus Historical Speeds, thereby showing reoccurring congestion levels.

Speed Map

The BlueTOAD system provides a real-time speed map that allows the user to see every link and all the corresponding information, such as the travel-time and average speed. In addition, the BlueTOAD speed map allows the user to view the color indication based on either the speed limit or historical average. These scenarios are ideal for monitoring reoccurring congestion in real-time for the roadway network.

Example:

If the index is set for "speed limit" and the BlueTOAD speed is 15 mph in the morning hours and the speed limit is 50 mph, the color designation will most likely be RED based on the user defined threshold against the chosen index.

If the index is set for "average of last 12 weeks", the color designation will be based on the average speed of the previous 12 weeks. If the average speed is reoccurring at 15 mph in the morning hours, then the color designation the map would be **GREEN**, not **RED**.

The BlueARGUS software also allows the user to create an encrypted link to view the speed map in real-time outside of the website. The user has the option of viewing the data in either speed limit or historical average index as indicated above. This is an essential tool to view the travel-time in real-time on a TMC video wall or second monitor without needing to login. This URL can be shared over and over again.

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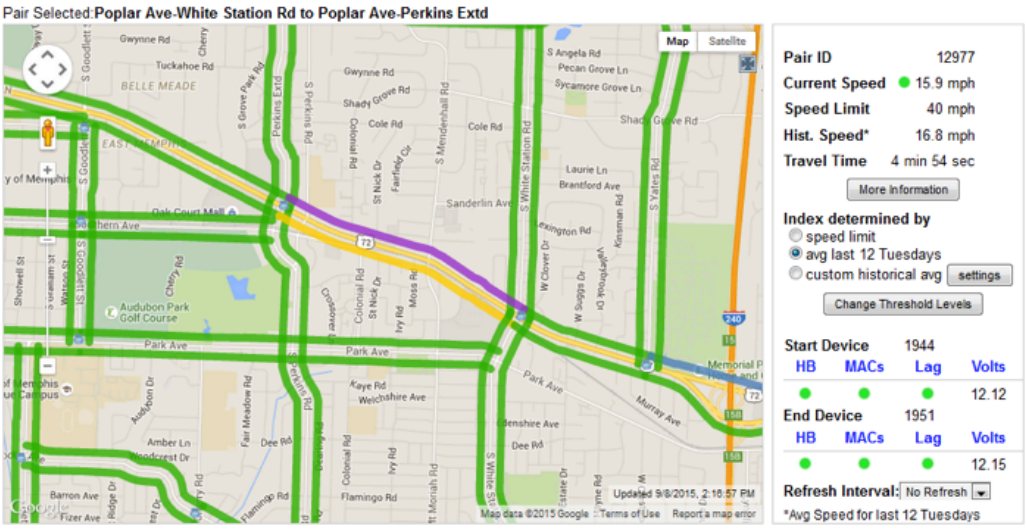
Speed Map

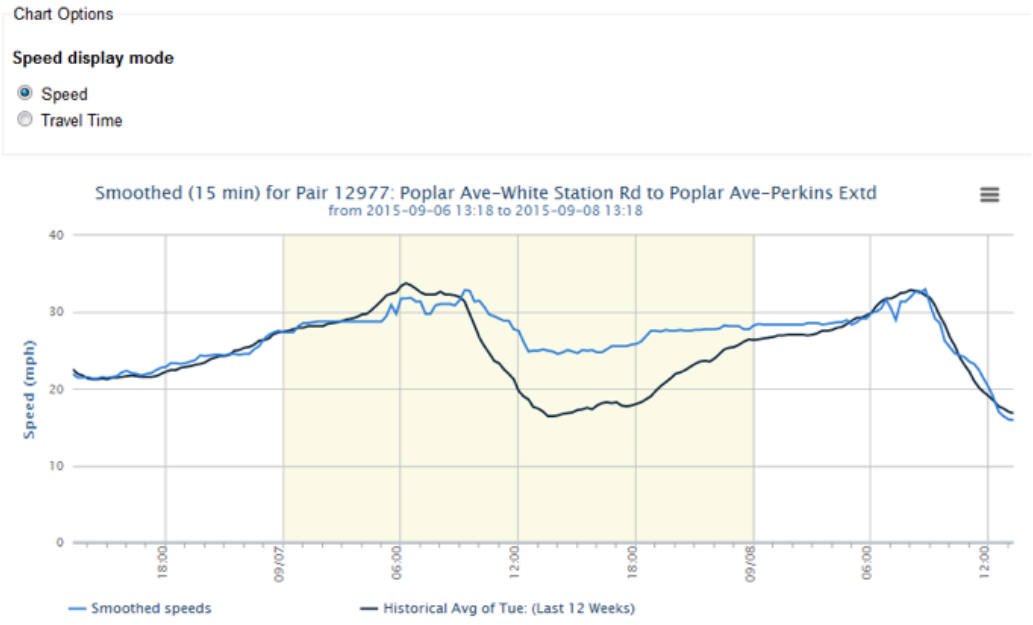
When a link is selected on the speed map, you will see the real-time information on the right side. This will include the Historical Speed of the index you selected (in this case, avg last 12 Tuesdays), along with a graph that shows the last 48 hours as well. If the index you select is "avg of last 12 weeks", a 48 hour graph of that historical data will be included as well (shown on the right).

In addition, the user has the ability to toggle between Speed and Travel Time on the graph and zoom in on the graph as well.

Labor Day (9/7/15) which has much higher speeds than a typical Monday as displayed in the chart on the right.



Real-Time information of selected link (highlighted purple), along with speed limit and the average Historical Speed based on the selected Index.



BlueTOAD
Real-Time Information

Dashboard

Dashboard - City of Memphis

☑ Show Pairs ☑ Show Routes

Type	ID	From	To	*	Name	Speed	Time	Last Match
Pair	18868	1879	1935		Airways at Ketchum (Bypass) (SB)	30 mph	7:41	10-07 07:57
Pair	18869	1935	1879		Airways at Ketchum (Bypass) NB)	34 mph	6:52	10-07 07:56
Pair	12945	1935	1880		Airways Blvd-Winchester Rd to E. Pkwy-Ketchum Rd	41 mph	2:45	10-07 08:00
Pair	12954	1935	1956		Airways Blvd-Winchester Rd to Lamar Ave-Winchester Rd	35 mph	6:45	10-07 07:59
Pair	12946	1935	1934		Airways Blvd-Winchester Rd to Shelby Dr-Airways Blvd	38 mph	3:28	10-07 07:51
Pair	14403	1935	1966		Airways Blvd-Winchester Rd to Shelby Dr-Boeingshire Dr - Bypass for u1934	31 mph	4:58	10-07 07:50
Pair	23053	1935	5072		Airways Blvd-Winchester Rd to Winchester & Elvis Presley (u5072)	31 mph	3:54	10-07 07:57
Route	19647	1934	1888		Airways/ E. Parkway NB	35 mph	18:08	10-07 07:58
Route	19648	1888	1934		Airways/ E. Parkway SB	35 mph	17:56	10-07 07:51
Route	13466	1941	1895		American Way (EB)	35 mph	6:44	10-07 07:58
Pair	13083	1899	1895		American Way (Getwell to Mt. Moriah) (Bypass) (EB)	36 mph	4:43	10-07 07:59
Pair	16245	1895	1899		American Way (Mt. Moriah to Getwell) (Bypass) (WB)	33 mph	5:05	10-07 07:59
Route	13467	1895	1941		American Way (WB)	33 mph	7:11	10-07 07:56
Pair	12970	1895	1897		American Way-Mount Moriah Rd to Mount Moriah Rd-Hickory Hill Rd	30 mph	3:10	10-07 07:57
Pair	13106	1895	1943		American Way-Mount Moriah Rd to Perkins Road-American Way	29 mph	2:29	10-07 07:56
Pair	12517	1883	1886		E. Pkwy-Central Ave to Central Ave-Goodwyn	39 mph	2:00	10-07 07:54
Pair	12513	1883	1891		E. Pkwy-Central Ave to E. Pkwy-Poplar Ave	47 mph	2:18	10-07 07:58
Pair	12512	1883	1882		E. Pkwy-Central Ave to Spottswood-Airways	12 mph	3:54	10-07 07:39
Pair	12944	1880	1935		E. Pkwy-Ketchum Rd to Airways Blvd-Winchester Rd	35 mph	3:13	10-07 08:00
Pair	19280	1880	953		E. Pkwy-Ketchum Rd to Lamar Ave @ Airways Blvd	29 mph	3:49	10-07 08:00
Pair	12507	1880	1879		E. Pkwy-Ketchum Rd to Park Ave-Airways Blvd	27 mph	4:27	10-07 07:58
Pair	19286	1891	955		E. Pkwy-Poplar Ave to E Pkwy @ North Pkwy	20 mph	2:08	10-07 07:58
Pair	12514	1891	1883		E. Pkwy-Poplar Ave to E. Pkwy-Central Ave	54 mph	2:01	10-07 08:01
Pair	12521	1891	1885		E. Pkwy-Poplar Ave to Highland-Poplar Ave	28 mph	4:56	10-07 08:00

* Black => no data Colors => speed relative to ○ speed limit ◉ historical avg ○ custom settings Change Thresholds

The BlueARGUS Dashboard allows the user to see all of their pairs and routes (combination of pairs) in a single view.

You are also able to view the color indication by selecting "speed limit" or "historical avg" at the bottom.

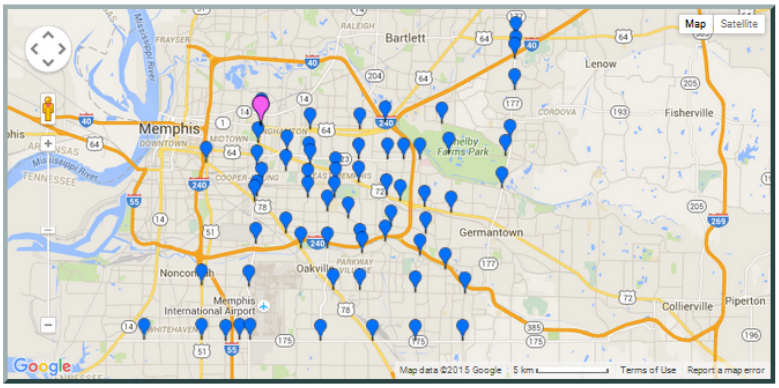
Devices

The BlueARGUS devices tab not only displays all the BlueTOAD hardware devices and information of each device but also displays the real-time status of each device. The Heartbeat (HB), Mac address inputs, Lag and Voltage are all monitored and if any of these indications fall below the acceptable threshold, the indication displays a **RED** dot, otherwise it is real-time displayed as **GREEN**.

You are also able to quickly see how many devices are up and running by the "x of y devices reporting" message.

Devices - City of Memphis

☑ Show Active Devices ☐ Show Inactive Devices



Add Device
Import Devices
Edit Selected Device
Zoom to Selected Device
Clear Selection
Help

66 of 66 devices reporting

ID	Device Name	City	State	Model	HB	MACs	Lag	Volts
212	Mullins Station Rd & Farm Rd (u212)	Memphis	TN	GSM/Solar	●	●	●	12.82
214	Walnut Grove Rd & Farm Rd (u214)	Memphis	TN	GSM/Solar	●	●	●	12.70
223	Walnut Grove Rd & Germantown Pkwy (u223)	Memphis	TN	GSM/Solar	●	●	●	12.82
259	Walnut Grove Rd & Brieview St (u259)	Memphis	TN	GSM/Solar	●	●	●	13.30
953	Lamar Ave @ Airways Blvd	Memphis	TN	GSM/POE	●	●	●	11.30
954	Southern Ave & Early Maxwell Blvd	Memphis	TN	GSM/POE	●	●	●	11.30
955	E Pkwy @ North Pkwy	Memphis	TN	GSM/POE	●	●	●	11.30
1879	Park Ave-Airways Blvd	Memphis	TN	GSM/POE	●	●	●	12.10
1880	E. Pkwy-Ketchum Rd	Memphis	TN	GSM/POE	●	●	●	12.27
1881	Highland-Park Ave	Memphis	TN	GSM/POE	●	●	●	11.95
1882	Lamar - Bellevue	Memphis	TN	GSM/POE	●	●	●	11.97

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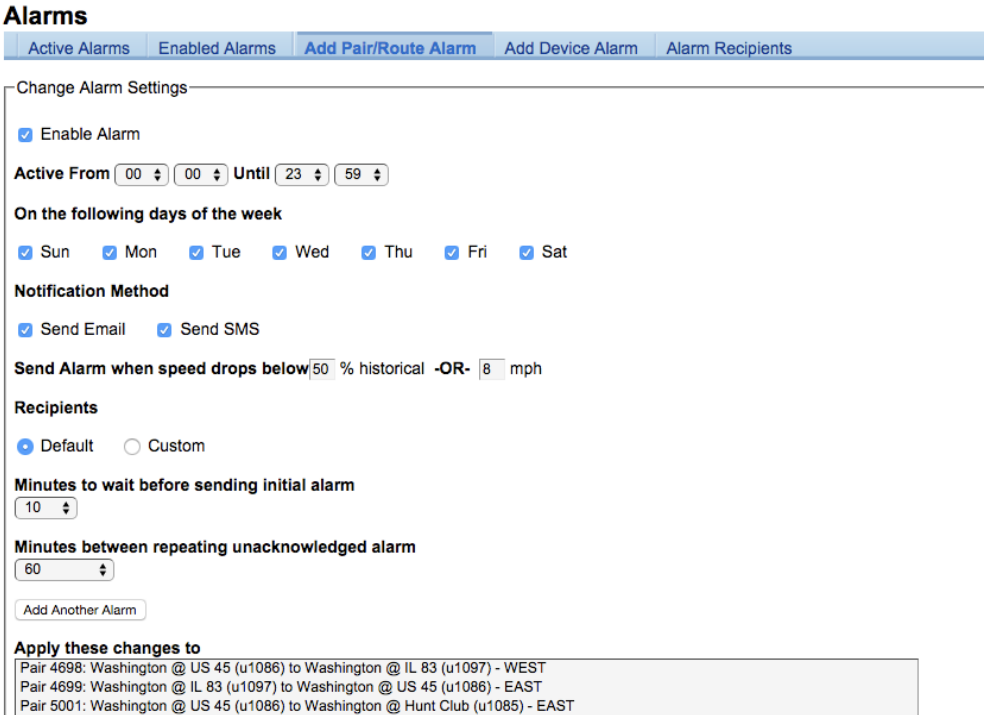
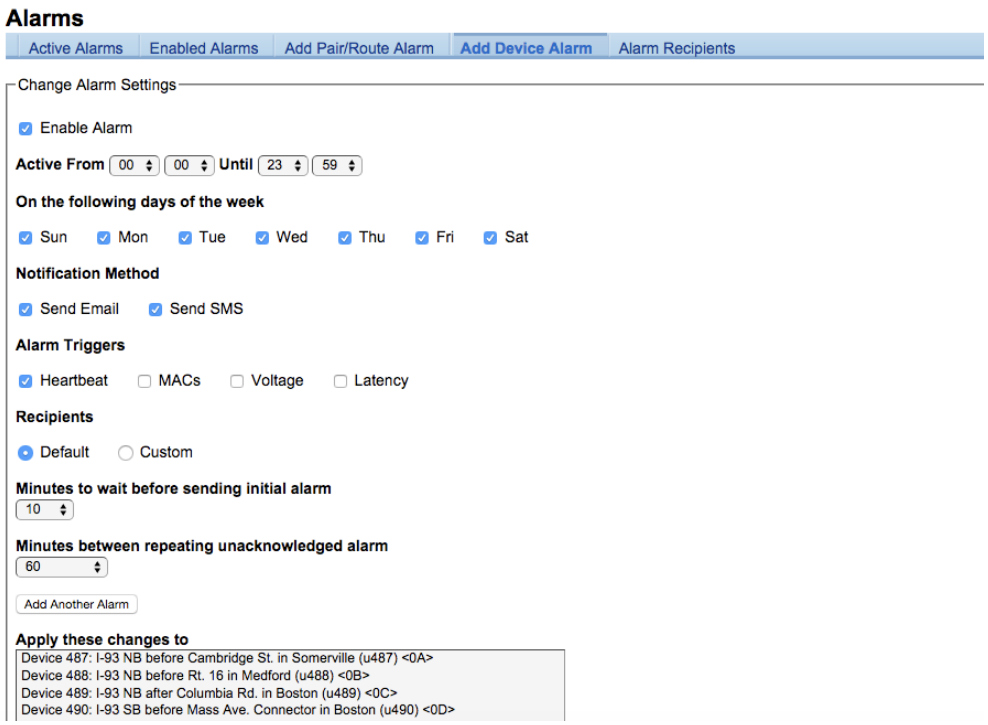
Alarms

The BlueARGUS alarms allow you to be alerted via a text message and/or email when a pair or route's speed drops below a user defined level based on a % of the historical speed or absolute number. For example, if the speed drops more than 50% of its normal speeds at a user defined time or the speeds drops below 8 mph, you will receive a text message and email telling you that. All alarms are saved and reports can be generated to view when and where the alarms were triggered. In addition, all BlueTOAD devices can have an alarm based on No Heartbeat, No MAC addresses discovered, Low Voltage (if applicable) and Latency issue.



Alarms based on Speed Conditions



Alarms based on Device Conditions

BlueTOAD

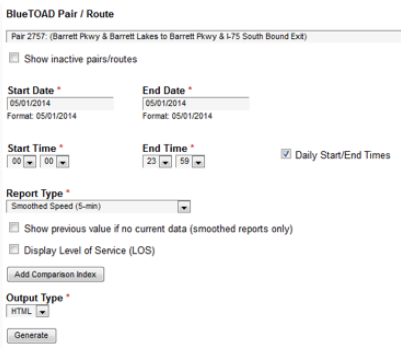
Historical/Archived Reporting Tools

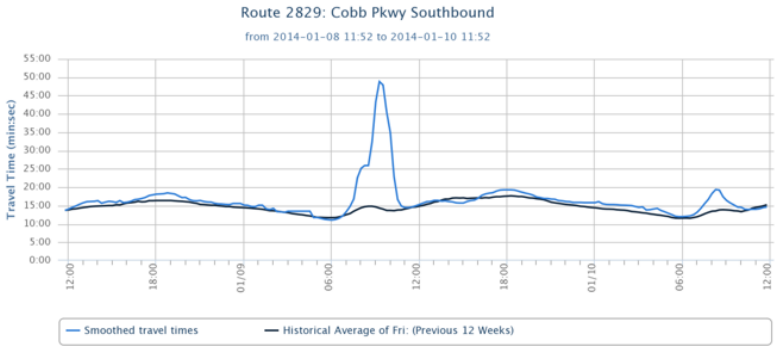
The BlueARGUS reporting tool allows you to access the historical, archived data in multiple usable format. All graphs can be saved as a JPG, PNG or PDF and all data can be downloaded to a CSV format. The BlueARGUS reports consist of the following options:

Pair/Route Report

Customers can create a pair/route report in 5 or 15-minute increments based on travel-time or speed, with the option of individual speeds and number of matches. These reports can be exported as HTML, CSV or graph formats.

The pair/route report has the additional feature of allowing the user to overlay a comparison index to the data you are reporting.



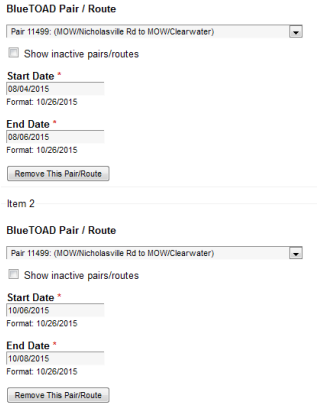


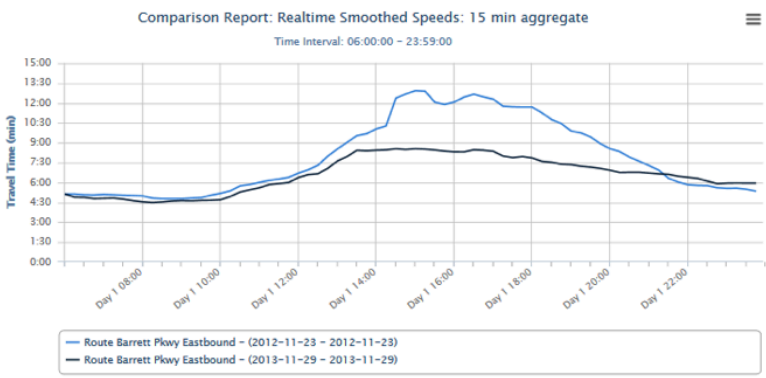
For example, Cobb County, GA was able to measure the impact of a freeway incident that impacted their corridor by overlaying the previous 12 week average speed in order to quickly gauge the impact of the incident as shown in the graph above.

Comparison Report

The user can compare any pair/route to another pair/route (or the same one) with different dates. For example, the user has the ability to compare travel-times before and after a signal upgrade project to gauge the impact it has on travel times. Also, the user can add multiple pairs and routes while not being limited to just two comparisons.

Another example of the use of the Comparison Report was when an agency wanted to see the impact on traffic signal timing plans for Black Friday in 2012 to Black Friday in 2013. The results can be viewed via a graph (as shown below) or data downloaded via a CSV file.





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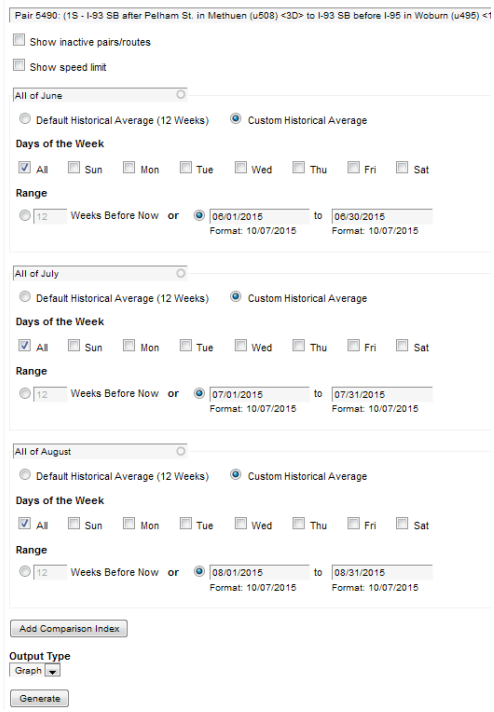
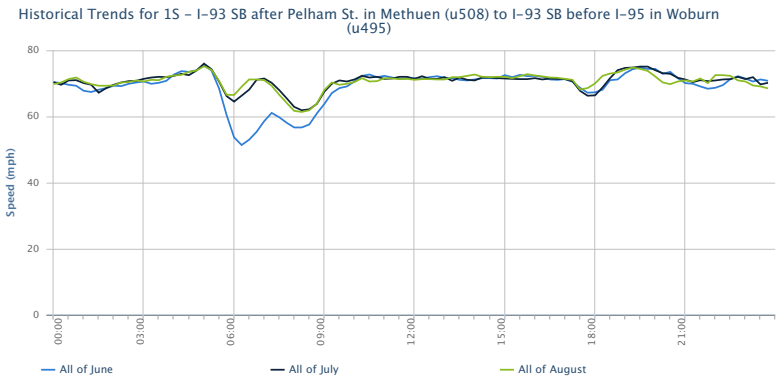
Historical Report

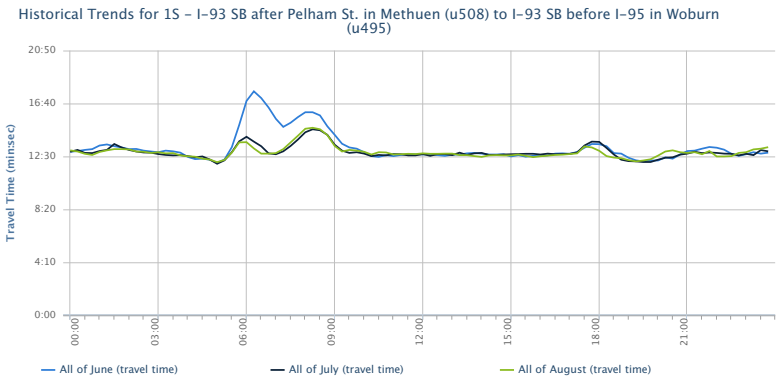
With the use of historical reports, the user can aggregate and compare data in virtually any combination of days, weeks, months or years. Once the information has been generated into graphical format, the user can simply include the legend data and it will appear in the reports.

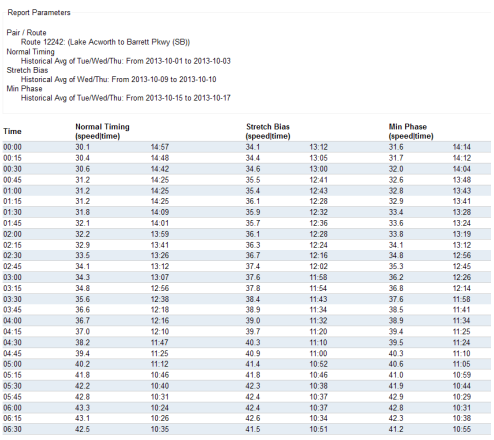
For example, the user can compare the travel-times or speeds from June, July, and August, as shown in the graph below:





Or, a user might want to compare three different traffic signal timing plans and see which one produced the best results:

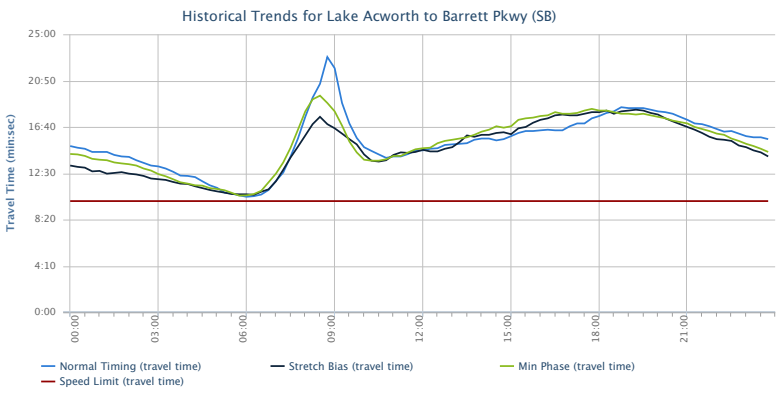




Report Parameters

Pair / Route
Route 12242: (Lake Acworth to Barrett Pkwy (SB))
Normal Timing
Historical Avg of Tue/Wed/Thu: From 2013-10-01 to 2013-10-03
Stretch Bias
Historical Avg of Wed/Thu: From 2013-10-09 to 2013-10-10
Min Phase
Historical Avg of Tue/Wed/Thu: From 2013-10-15 to 2013-10-17

Time	Normal Timing (speed/time)		Stretch Bias (speed/time)		Min Phase (speed/time)	
00:00	30.1	14:57	34.1	13:12	31.6	14:14
00:15	30.4	14:48	34.4	13:05	31.7	14:12
00:30	30.6	14:42	34.6	13:00	32.0	14:04
00:45	31.2	14:25	35.5	12:41	32.6	13:48
01:00	31.2	14:25	35.4	12:43	32.8	13:43
01:15	31.2	14:25	36.1	12:28	32.9	13:41
01:30	31.8	14:09	35.9	12:32	33.4	13:28
01:45	32.1	14:01	35.7	12:36	33.6	13:24
02:00	32.2	13:59	36.1	12:28	33.8	13:19
02:15	32.9	13:41	36.3	12:24	34.1	13:12
02:30	33.5	13:26	36.7	12:16	34.8	12:56
02:45	34.1	13:12	37.4	12:02	35.3	12:45
03:00	34.3	13:07	37.6	11:58	36.2	12:26
03:15	34.8	12:56	37.8	11:54	36.8	12:14
03:30	35.6	12:38	38.4	11:43	37.6	11:58
03:45	36.6	12:18	38.9	11:34	38.5	11:41
04:00	36.7	12:16	39.0	11:32	38.9	11:34
04:15	37.0	12:10	39.7	11:20	39.4	11:25
04:30	38.2	11:47	40.3	11:10	39.5	11:24
04:45	39.4	11:25	40.9	11:00	40.3	11:10
05:00	40.2	11:12	41.4	10:52	40.6	11:05
05:15	41.8	10:46	41.8	10:46	41.0	10:59
05:30	42.2	10:40	42.3	10:38	41.9	10:44
05:45	42.8	10:31	42.4	10:37	42.9	10:29
06:00	43.3	10:24	42.4	10:37	42.8	10:31
06:15	43.1	10:26	42.6	10:34	42.3	10:38
06:30	42.5	10:35	41.5	10:51	41.2	10:55



BlueTOAD

Historical/Archived Reporting Tools

Origin-Destination (OD) Report:

In addition, the BlueARGUS software has an Origin/Destination module, which allows the user to create OD reports based on their requirements. With the OD report, a user can create as many routes as they wish and compare the percentage of matches to each other.

In this example, the customer created three routes, each with the same common origin but different destinations:

Start Date
2014-04-04 00:00:00

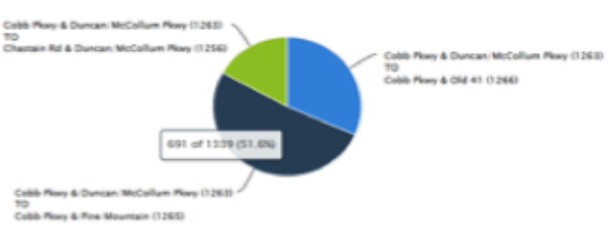
End Date
2014-04-11 23:59:00

Origin	Destination	Waypoint	Map/Graph Color	
Cobb Pkwy & Duncan/McCollum Pkwy (1263)	Cobb Pkwy & Old 41 (1266)			Edit path
Cobb Pkwy & Duncan/McCollum Pkwy (1263)	Cobb Pkwy & Pine Mountain (1265)			Edit path
Cobb Pkwy & Duncan/McCollum Pkwy (1263)	Chastain Rd & Duncan/McCollum Pkwy (1256)			Edit path

As an example, a user can select different output options such as Pie Chart, Bar Chart, HTML Table, CSV file or Map with Totals as shown in the images below:

Match counts

Origin	Destination	Waypoint	Map/Graph Color	Number of matches	Percentage of matches	
Cobb Pkwy & Duncan/McCollum Pkwy (1263)	Cobb Pkwy & Old 41 (1266)			3033	31.91%	Edit path
Cobb Pkwy & Duncan/McCollum Pkwy (1263)	Cobb Pkwy & Pine Mountain (1265)			4757	50.04%	Edit path
Cobb Pkwy & Duncan/McCollum Pkwy (1263)	Chastain Rd & Duncan/McCollum Pkwy (1256)			1716	18.05%	Edit path
Total				**9506**	**100%**	



BlueTOAD

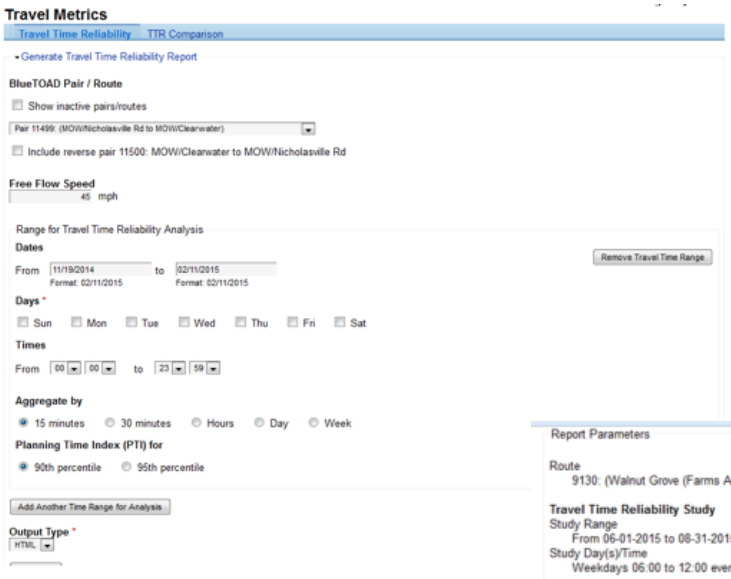
Historical/Archived Reporting Tools

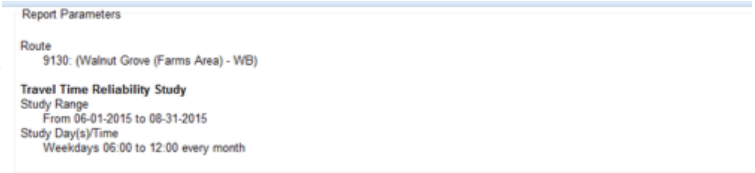
Travel-Time Reliability Report

Travel Time Reliability is a new approach to measure a driver's experience by quantifying variability from a drivers prospective, in addition to providing an average travel-time.

Utilizing the Travel Time Reliability report, the users now have the ability to analyze their roadway networks performance based on reoccurring congestion, non-reoccurring congestion and volatility. Travel Time Reliability (TTR) is an index based on three factors:

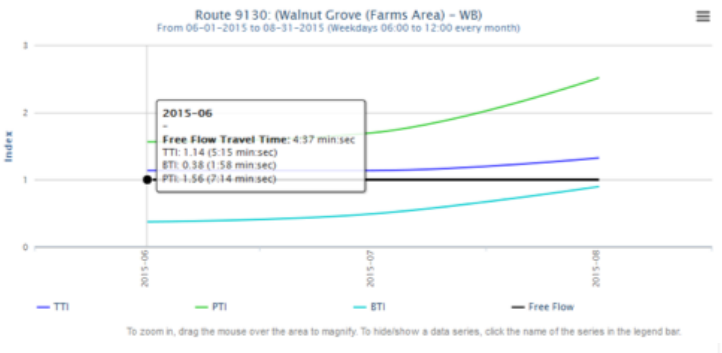
- Travel Time Index (TTI)
- Buffer Time Index (BTI)
- Planning Time Index (PTI)





The TTR outputs allow you to view the data in multiple formats and increments.

In the example below, the TTI, BTI and PIT are displayed by the average weekdays monthly from 06:00 – 12:00 in multiple formats:



Travel Time Reliability Study
Study Range
From 06-01-2015 to 08-31-2015
Study Day(s)/Time
Weekdays 06:00 to 12:00 every month

From 06-01-2015 to 08-31-2015 (Weekdays 06:00 to 12:00 every month)			
Day/Time	**TTI**	**BTI**	**PTI**
06-2015	1.14 (5:15)	0.38 (1:58)	1.56 (7:14)
07-2015	1.14 (5:16)	0.49 (2:36)	1.7 (7:51)
08-2015	1.33 (6:08)	0.9 (5:31)	2.52 (11:38)