

Analytics



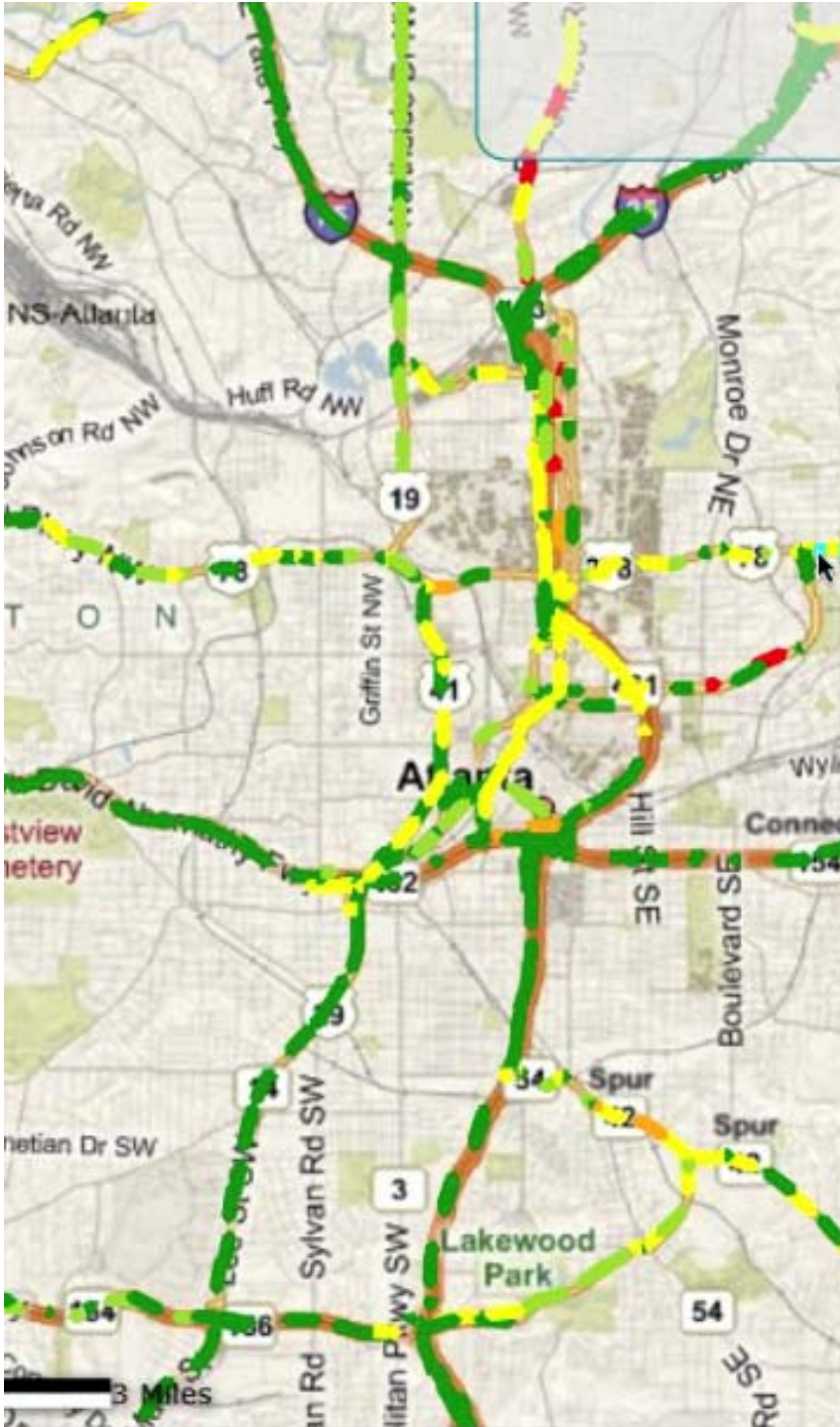
Dynaflow

GRITS/NRITS = Sept 16-19, 2012



ARCADIS

Infrastructure · Water · Environment · Buildings



Agenda

- ARCADIS: Who we are?
- ARCADIS IPM Expertise
- ARCADIS Role with Intelligent Travel Time System (T²Analytics)
- Practical Solutions for Y(our) Clients
- How does Bluetooth/Bluetooth work?
- T2Analytics Software – what is it?
- Current deployments in Metro Atlanta
- Demonstration Movie
- Future Applications
- Questions



ARCADIS is an international company providing consultancy, design, engineering and management services in the fields of infrastructure, water, environment and buildings. We aim to enhance mobility, sustainability and quality of life by creating balance in the built and natural environment.

Business Lines



Infrastructure



Water



Environment



Buildings

Imagine the result

ARCADIS at a Glance

Key Statistics

- \$2.7 billion annual revenue
- 22,000 employees worldwide
- Over 400 offices throughout Europe, Middle East, Asia & Americas

Global Leader

- Extensive international network supported by strong local market positions
- Ranked among the top 10 management and engineering consultancies in the world and the U.S.



ARCADIS IPM Expertise (U.S)

- Professional Registered Engineers involved in National and International ITS deployments and Standards development practices
- Basic traffic engineering analysis to complex ITS, ATMS and Traffic Engineering designs
- Local and state agency employees
- Capable of the “total solution” for private, local and State Agencies

T²Analytics & ARCADIS – Definition and Role

- ARCADIS' Role
- Provide our clients and the industry with innovative tools
- Enhances BlueToad and DynafLOW data reporting
- Customizes applications to fit clients' needs
- Increases analytical capabilities
- Transforms Data into Wisdom

T²Analytics



DynafLOW

Imagine the result

Practical Solutions for Y(our) Clients' Real Traffic Problems

User friendly, efficient and cost effective

Short term operational solutions

Long term planning strategies

Analyze accurate arterial flow

Apps to increase reliability of the System

Gain accountability from stakeholders

T2Analytics – COTS

Source Company	Technology Name	Description	License
ARCADIS	SlipStream	SlipStream portion of the application must remain Open Source under the GPL license.	GPL - License Page
ESRI	ArcGIS Server Standard	This is the GIS backend for the application. This also includes the ESRI Silverlight API.	ARC GIS
Microsoft	Silverlight	This is the software platform that the application is developed on.	License Page
Microsoft	SQL Server 2008 R2	This is the database backend for the application.	SQL Server license
Microsoft	StreamInsight	Part of SQL Server 2008 R2	
Microsoft	SQL Server Analysis, Reporting and Integration Services	Part of SQL Server 2008 R2	
Microsoft	Windows Server 2008	This is the Operating System for the servers hosting the application.	Windows License
Telerik	Rad Controls for Silverlight	These are some advanced controls (user interface elements) for the Silverlight application. Several components of the application leverage these controls.	License Page

3rd Party Data License Information

Source	Data Type/Name	Description	License
Microsoft	Bing Map Layers	Road and aerial maps for the application.	License Page
TrafficCast	BlueTOAD and Dynaflow	The traffic data.	Thru agreement with TrafficCast
GDOT	Georgia NaviGator	Incident events, traffic cameras, etc	NaviGator Site

Imagine the result

Level of Services Analysis Included in Application

EXHIBIT 15-2. URBAN STREET LOS BY CLASS

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55 to 45 mi/h	45 to 35 mi/h	35 to 30 mi/h	35 to 25 mi/h
Typical FFS	50 mi/h	40 mi/h	35 mi/h	30 mi/h
LOS	Average Travel		Speed (mi/h)	
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	<16	≤ 13	<10	<7

•Highway Capacity Manual 2000

Imagine the result

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:

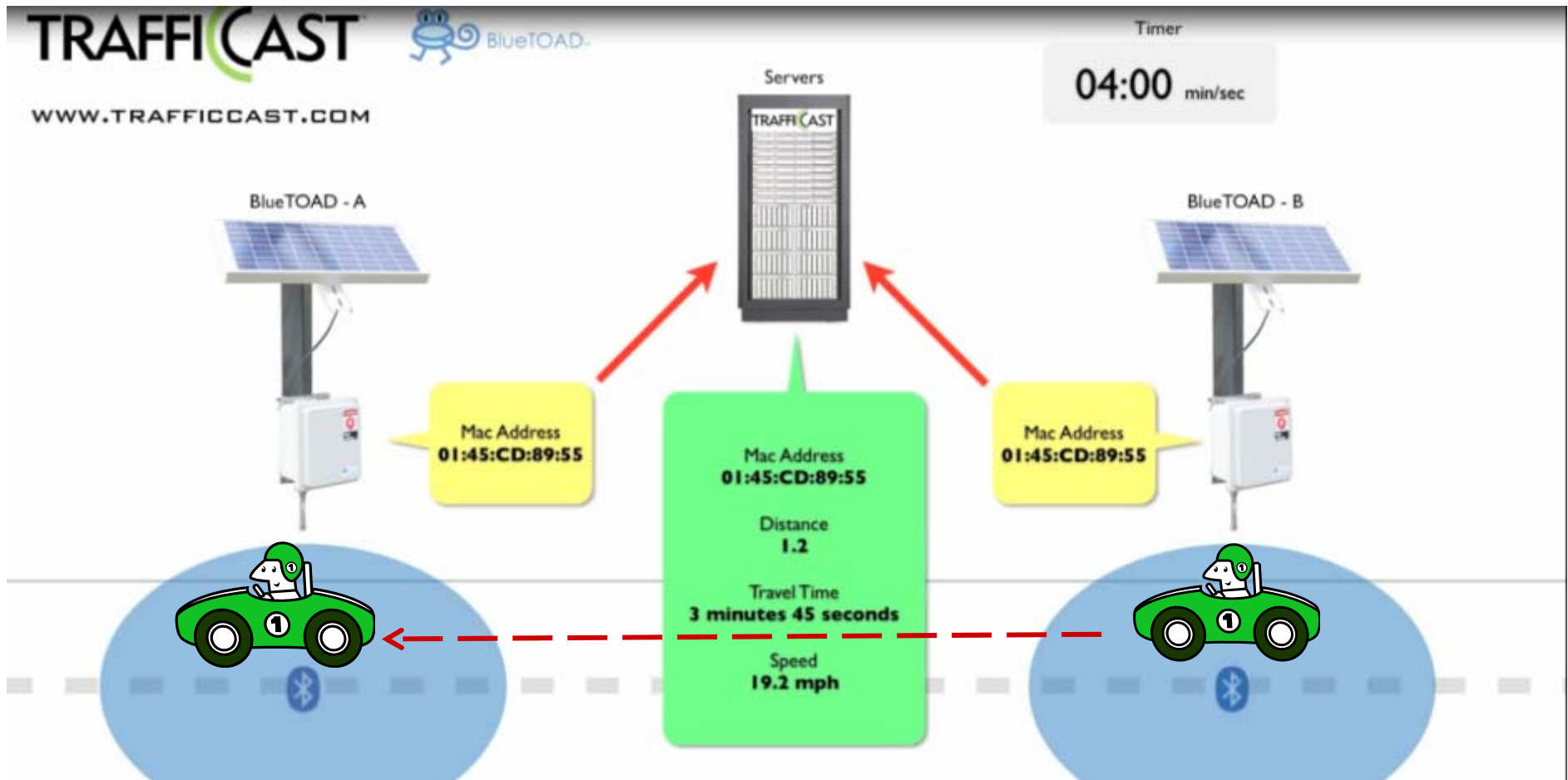
- Completely non-intrusive, MAC address pairing
- Limited or no configuration (~30 min. install)
- Stand alone or in existing cabinet
- Local and Wireless Operation (Ethernet)
- For use in Arterials and Freeways
- Real-time network and device monitoring
- Over-the-Air software downloading
- Web Services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



Imagine the result

BlueTOAD – Bluetooth Travel-Time Origination And Destination

Tracking a MAC address from one BlueTOAD unit to another.



Imagine the result

Bluetoads –current deployments

- 12 BTS in Fulton County (FIB, Cascade Road) – (2011, 2012)
- 4 BTS in City of Alpharetta (2011)
- 19 BTS in Cobb County (2012)
- 17 BTS in Clayton County (2012)
- Receiving Dynaflow Data on all Metro Interstates and beyond since Nov 2010

AnalyticsSM

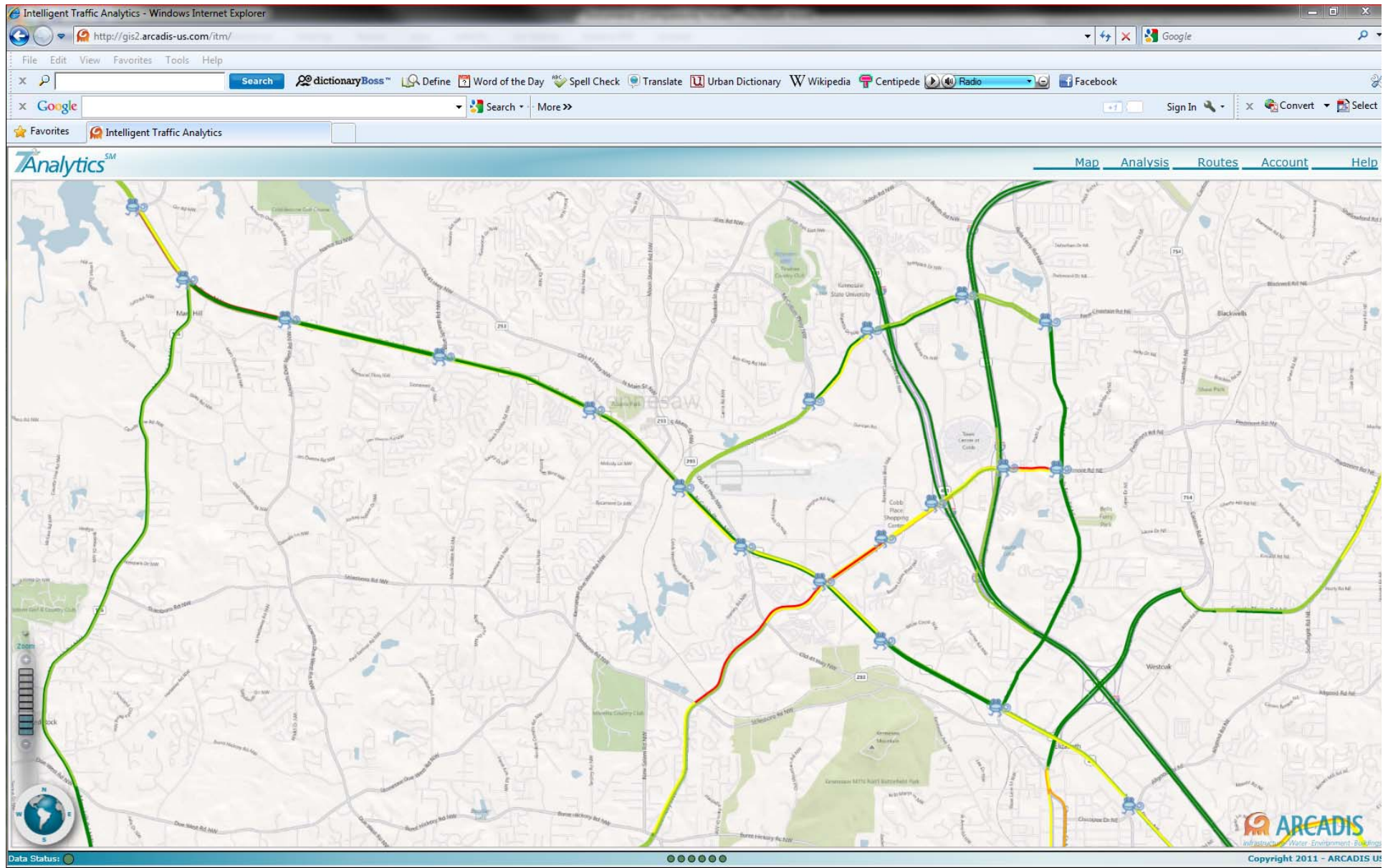


by TRAFFICCASTTM

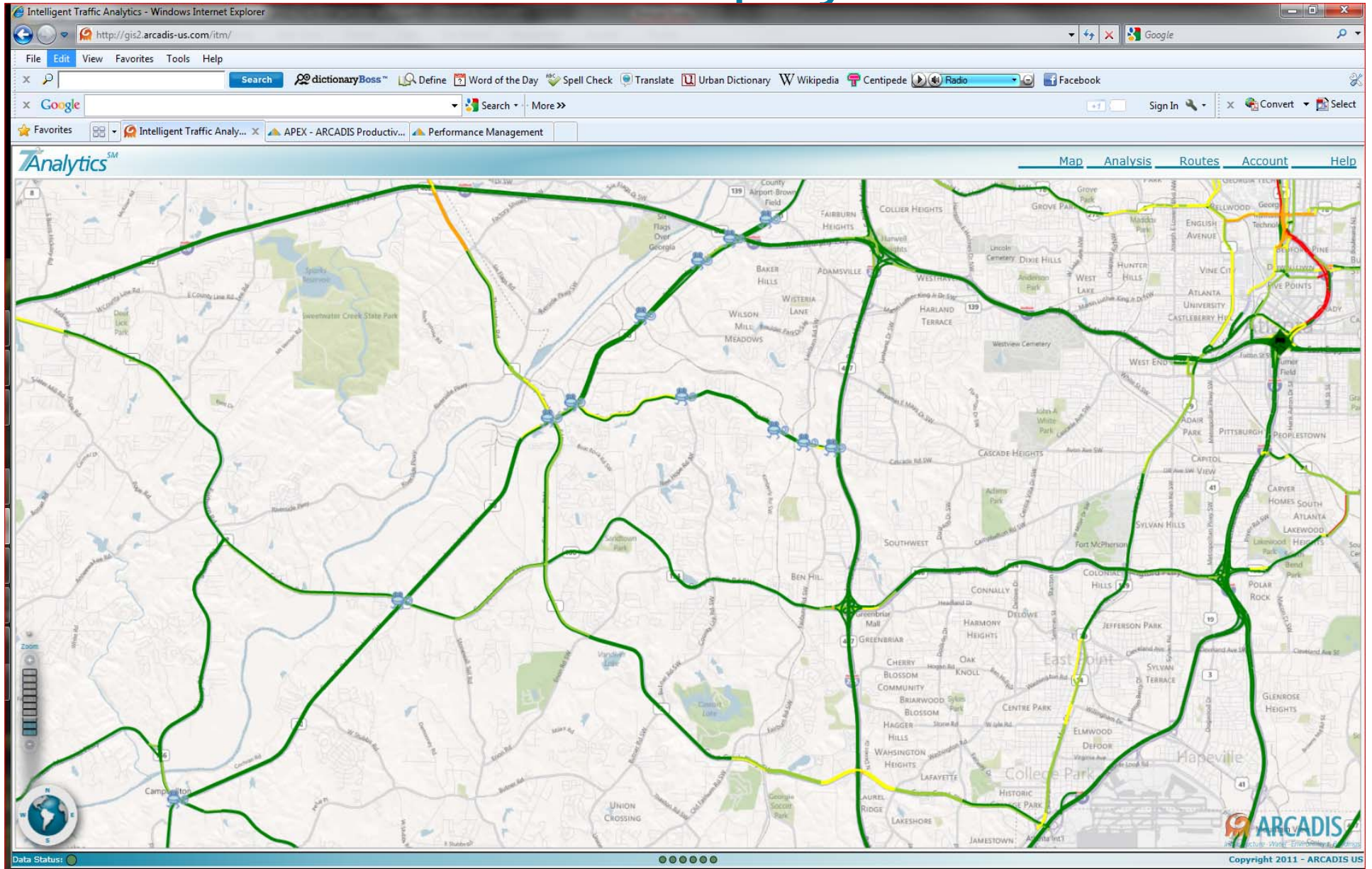
Dynaflow

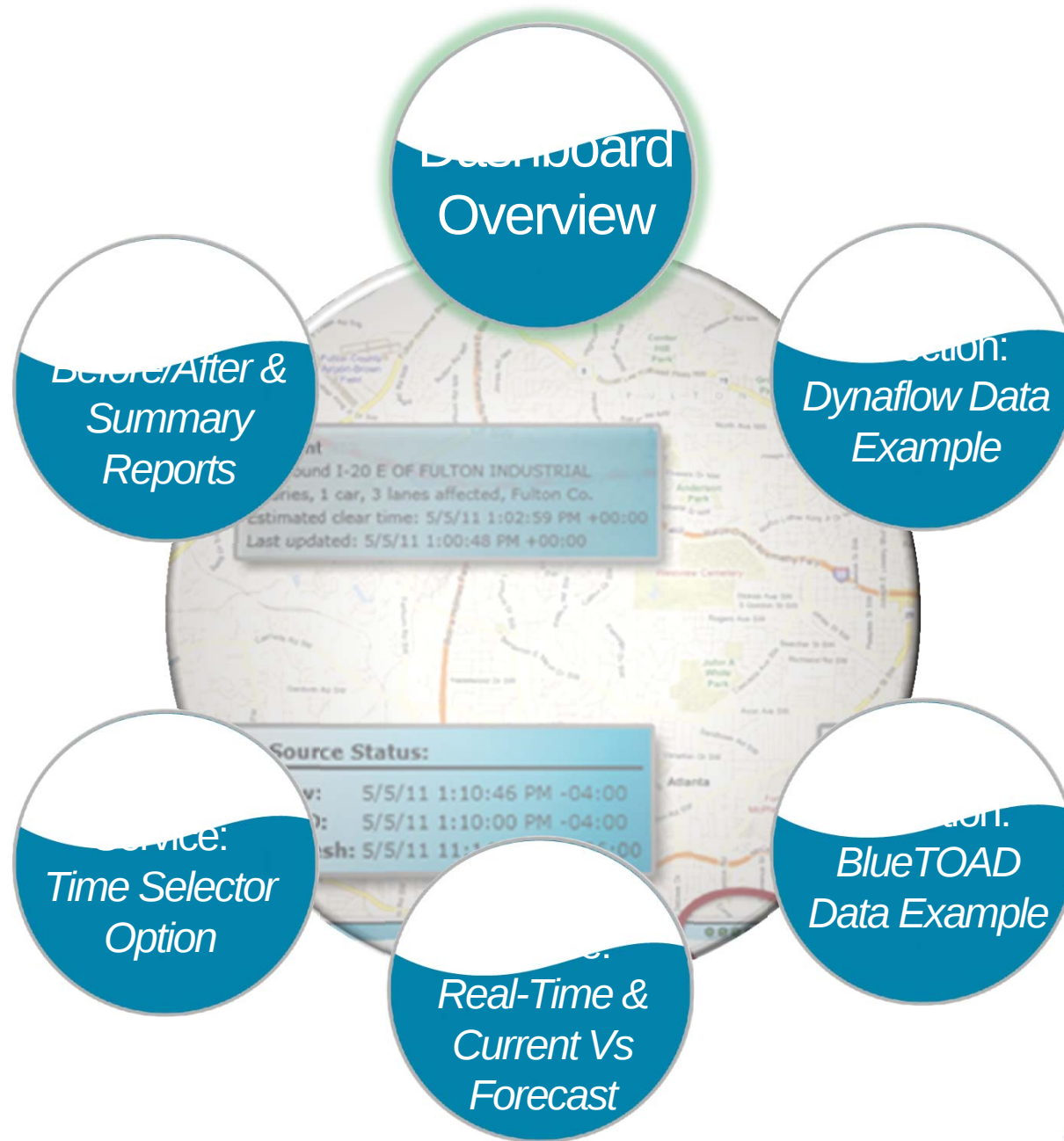
Imagine the result

Bluetoads –current deployments -Cobb

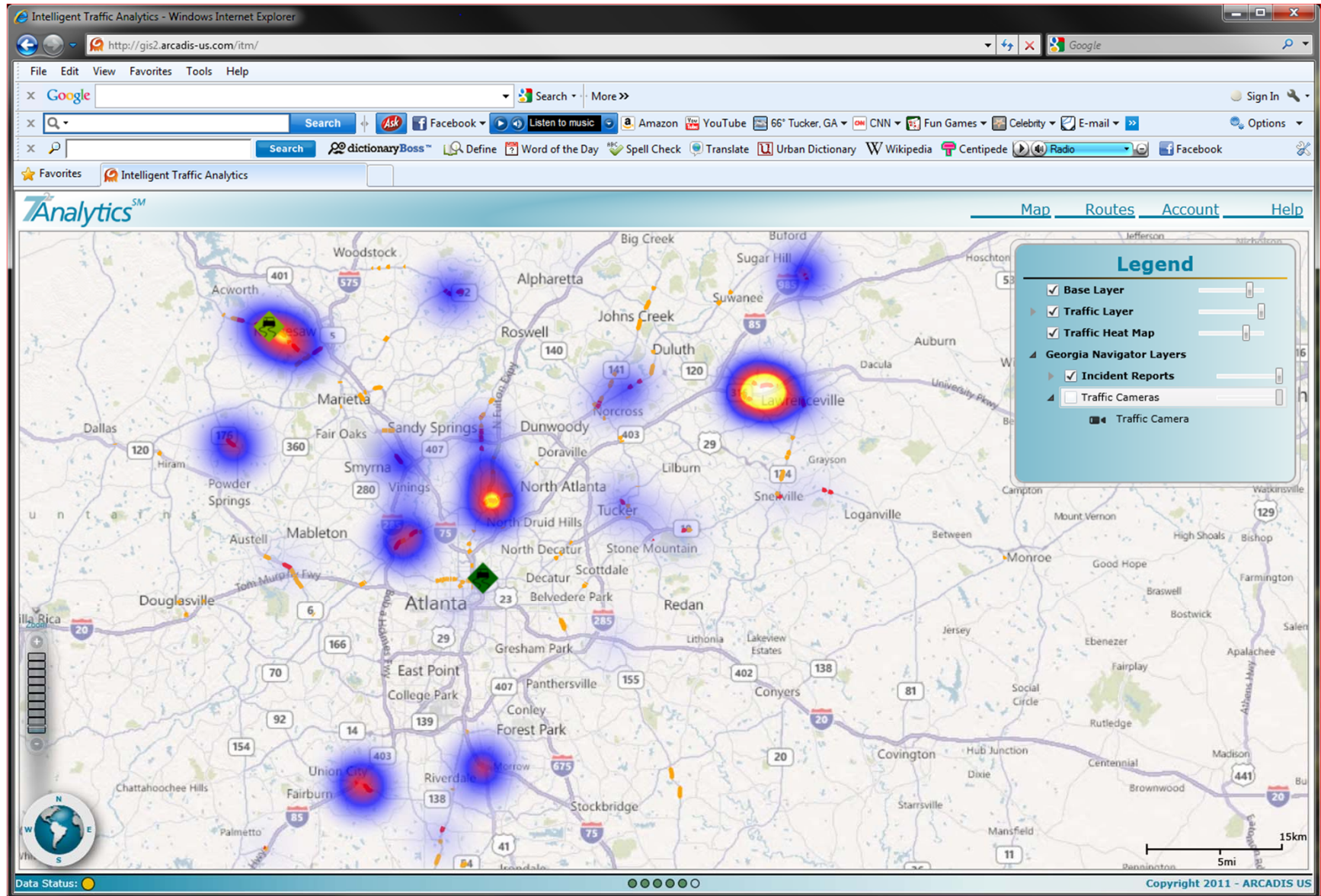


Bluetoads –current deployments -Fulton





Demonstration Movie



Imagine the result

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Some Potential Future Applications

Before/After Travel Time Snapshots - Done

Benefit/Cost Analysis Applications

Event Planning Tool

Origin Destination Analysis Tool

Transportation Model Calibration Tool

Route/Segment Reliability Index Tools

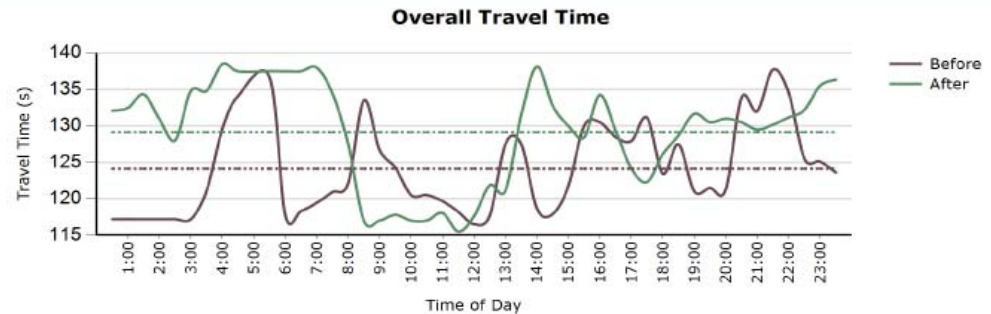
Some Potential Future Applications

Before and After Report

Baseline Start: September 07, 2011 **Comparison Date Start:** September 10, 2011
Baseline End: September 07, 2011 **Comparison Date End:** September 10, 2011

Source	Segment Name	Segment Length (ft)
BlueTOAD	Cascade Rd & Danforth Rd to Cascade Rd & New Hope Rd	7,920
Total:		1 7,920

Overall Travel Time Comparison



Time of Day	Before	After	Change
00:30	117.20	132.08	12.70%
01:00	117.20	132.47	13.03%
01:30	117.20	134.32	14.60%
02:00	117.20	130.93	11.72%
02:30	117.20	128.00	9.22%
03:00	117.20	134.80	15.02%
03:30	121.10	134.80	11.31%
04:00	129.55	138.48	6.90%
06:00	117.80	137.50	16.72%
06:30	118.30	137.50	16.23%
07:00	119.43	138.00	15.55%
07:30	120.90	134.45	11.21%
14:00	118.67	138.13	16.40%
14:30	117.90	132.78	12.62%
15:00	121.73	130.00	6.79%
19:00	121.02	131.67	8.80%
19:30	121.48	130.50	7.42%
20:00	121.25	131.00	8.04%
22:30	125.55	132.17	5.27%
23:00	125.10	135.50	8.31%
23:30	123.60	136.33	10.30%
Entire Day	124.11	129.13	4.28%

Before and After Report

Daily Travel Time Comparison

Overall Driver Hours Comparison

Time of Day	Before	After	Change	Cost	Gas Lost (gal)
00:00	3.16	5.40	2.24	\$47.11	1.68
01:00	1.76	4.35	2.59	\$54.37	1.94
02:00	1.24	2.63	1.39	\$29.21	1.04
03:00	0.77	2.13	1.36	\$28.55	1.02
06:00	4.23	2.22	-2.01	-\$42.15	-1.51
07:00	6.04	2.84	-3.20	-\$67.30	-2.40
08:00	9.29	2.96	-6.33	-\$132.93	-4.75
09:00	9.86	5.35	-4.51	-\$94.72	-3.38
11:00	5.83	7.19	1.35	\$28.39	1.01
13:00	10.02	11.64	1.63	\$34.15	1.22
14:00	9.39	14.34	4.96	\$104.12	3.72
15:00	9.66	13.46	3.80	\$79.87	2.85
17:00	14.35	12.70	-1.66	-\$34.85	-1.24
18:00	17.01	13.60	-3.42	-\$71.80	-2.56
19:00	17.63	11.33	-6.30	-\$132.30	-4.73
20:00	13.55	10.58	-2.97	-\$62.38	-2.23
21:00	10.81	9.73	-1.09	-\$22.83	-0.82
22:00	8.04	9.00	0.95	\$20.05	0.72
23:00	4.46	7.11	2.65	\$55.73	1.99
Entire Day	186.23	178.50	-7.73	-\$162.33	-5.80

Some Potential
Future
Applications

Questions

