On Board and Fixed End System

Metrobus Data Systems

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MetroBus Fleet

- 1583 transit bus fleet (CNG, Hybrid and Clean Diesel)
- Majority New Flyer fleet
- Average age of 7.5 years
- Replace buses at 15 years

- Variety of Preventive Maintenance programs in place to achieve operational performance

Consolidation of On Board Systems

- CoABE and FeS project competitively awarded in June 2011
- Combined on board communication and monitoring systems
- Includes AVL, APC, AVA, AVM and several integrations
  - Fixed End System Computer Assisted Dispatch/Automatic Vehicle Location (CAD/AVL);
  - Bus Radios for Voice & Data Communications;
  - On-board Automatic Vehicle Location (AVL);
  - Automated Voice Annunciation (AVA);
  - Automated Passenger Counting (APC);
  - Automated Vehicle Health Monitoring (AVHM)

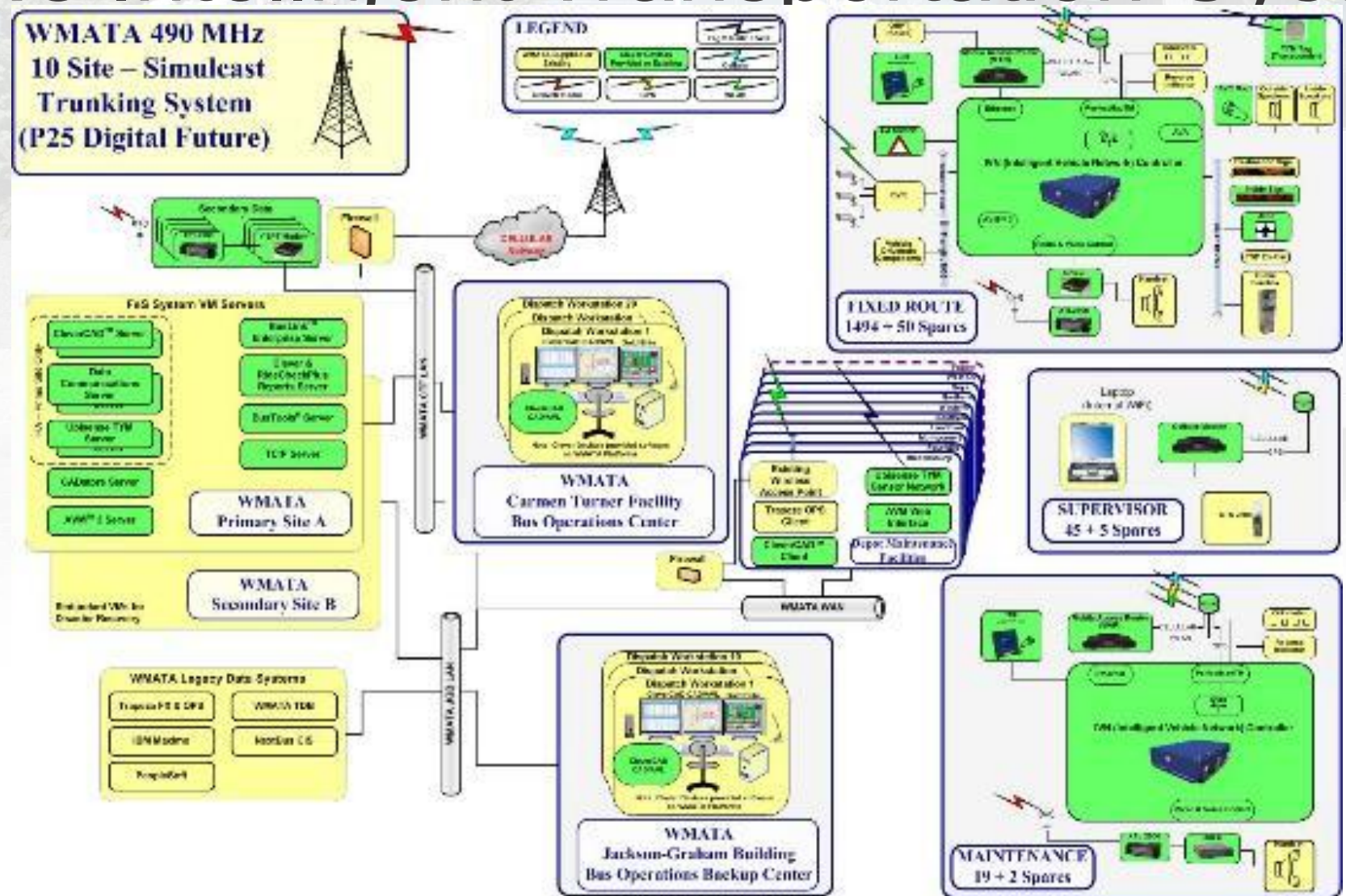- Vehicle mileage data recorders and fluid management system in place
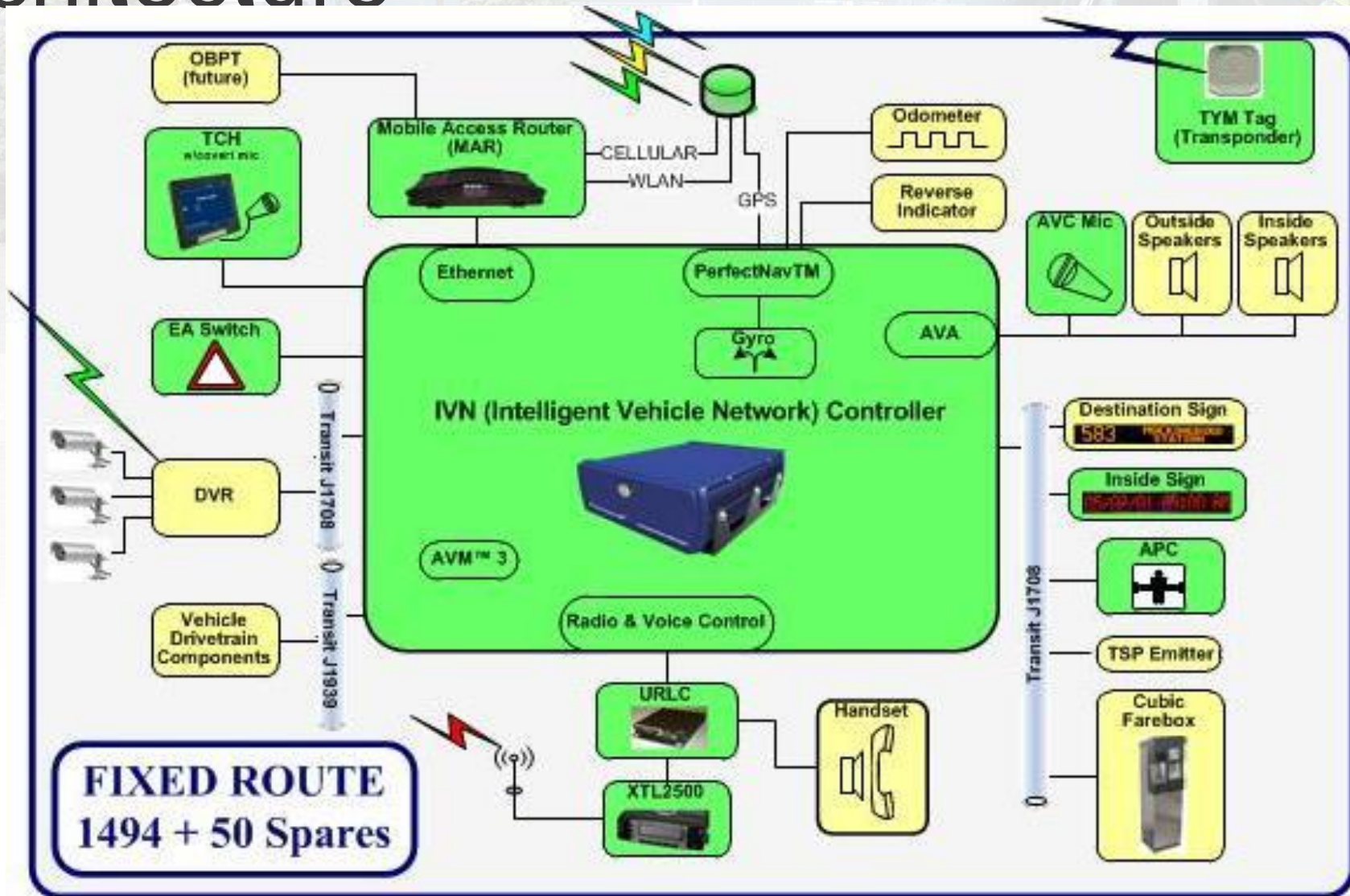
Wireless at Metrobus

- System comprised of…
  - Cellular wireless provided by AT&T
  - 490 MHz trunked radio for voice and backup data
  - Real Time Location Services at garages
  - GPS for AVL
  - Wireless recordation of mileage (J1708)

WMATA's Intelligent Transportation System

Bus Architecture

Vehicle Health Monitoring

- AVM™ is a decision support system that provides simple, accurate, and timely vehicle performance information

- Monitors and collects fault and operational performance data from on-board systems

- Automatic wireless transfer of information to maintenance and operations personnel

- Will be integrated with WMATA maintenance management information systems
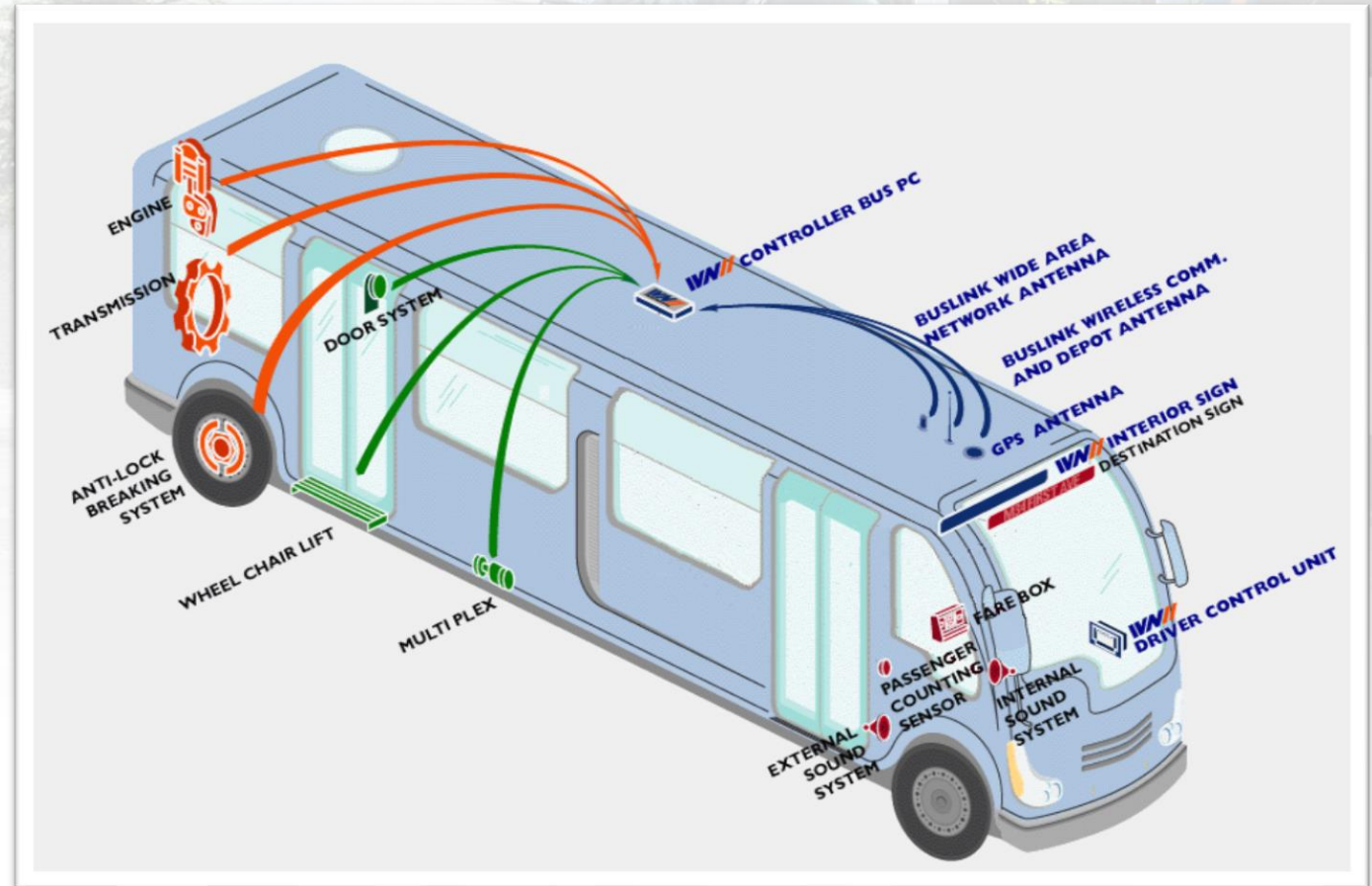
Vehicle Health Monitoring

Radio Garage Summary Report

This report provides defect counts for radio faults.

Filters

Date Between Last 24 Hours

Garage	% Of Fleet Affected	Buses Affected	Fleet Size
BLADENSBURG BUS DIVISION	1%	2	242
FOUR MILE BUS DIVISION	0%	1	215
LANDOVER BUS DIVISION	1%	2	173
MONTGOMERY BUS DIVISION	1%	2	214
NORTHERN BUS DIVISION	3%	4	159
SHEPHERD PARKWAY BUS DIVISION	1%	2	213
SOUTHERN AVE BUS DIVISION	0%		87
WEST OX BUS DIVISION	0%		95
WESTERN BUS DIVISION	1%	1	116
[Unassigned]	0%		41
			1,555

1

06 Mar 2016 6:01 AM

Distribution Status Report

Name	150817_S505 NON BST_sa
Description	Correction for files of August Distribution
Update	S0000505 NON BST
Effective	8/23/2015 4:00:00 AM
Created By	E017046 on 8/18/2015 1:27:10 AM
Status	Active, 0 of 1614 Complete
Server	JGAPPBUSLINKPV
Comments	[none]

Location Status Summary

Location	Update Successful	Update Failed	Workorder Posted	Workorder Received	Workorder Accepted	Workorder Rejected	Downloading Files	Waiting to Apply	Cancel Posted	Cancel Received	Cancel rejected	Cancelled	Location
[Unassigned]	0	0	109	0	3	0	3	27	0	0	0	1	143
BLADENSBURG BUS DIVISION	0	0	20	0	6	0	6	225	0	0	0	0	257
FOUR MILE BUS DIVISION	0	0	9	0	2	0	0	214	0	0	0	0	225
LANDOVER BUS DIVISION	0	0	23	0	0	0	0	70	0	0	0	0	93
MONTGOMERY BUS DIVISION	0	0	39	0	4	0	5	182	0	0	0	0	230
NORTHERN BUS DIVISION	0	0	12	1	0	0	1	139	0	0	0	0	153
Server Applications	0	0	0	0	0	0	0	1	0	0	0	0	1
SHEPHERD PARKWAY BUS DIVISION	0	0	24	0	2	0	4	197	0	0	0	0	227
SOUTHERN AVE BUS DIVISION	0	0	3	0	0	0	1	75	0	0	0	0	79
WEST OX BUS DIVISION	0	0	1	0	1	0	0	94	0	0	0	0	96
WESTERN BUS DIVISION	0	0	7	0	1	0	1	101	0	0	0	0	110
Total	0	0	247	1	19	0	21	1325	0	0	0	1	1614

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Maintenance system

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Reports

Select a report from the list, or click Create Report to create an ad hoc report.

| On Demand Reports | Scheduling Status |

Reports to Run ▼ Filter 6 - 10 of 37 ↪ Download

Description ▲

BMNT Component Char
BMNT Component Chang
BMNT License Plate Exp
Bus Latest Mileage by Bu
Bus Latest Mileage by Da

☐ Select Records

Bus Availability Report — Bulletins: (0) Go To Reports Start Center Profile Sign Out ? Help IBM.

Find: Select Action

| List | Main |

Bus Availability Report

	TOTAL BUSES	BUS RUN SCHEDULED		EXTRA SERVICE		TOTAL AVAILABLE		SUMMARY		
		SCHEDULED AM	SCHEDULED PM	EXTRA SERV. AM	EXTRA SERV. PM	AVAILABLE AM	AVAILABLE PM	TOTAL OOS	% AVAILABLE	ARTIC OOO
WEST OX	96	82	82	1	1	11	11	2	98	0
BLADENSBURG	255	210	210	7	6	24	25	14	95	5
FOUR MILE	221	184	183	6	7	26	26	5	98	0
MONTGOMERY	213	162	171	5	6	31	21	15	93	2
NORTHERN	153	125	116	8	10	10	17	10	93	0
SHEPHERD PKWY	234	184	182	3	4	16	17	31	87	0
SOUTHERN AVE	79	65	65	0	1	13	12	1	99	0
WESTERN	117	100	96	1	1	14	18	2	98	0
LANDOVER	170	131	141	5	6	23	12	11	94	0
TOTALS	1,538	1,243	1,246	36	42	168	159	91	94	7

BMNT Work Orders Out Of Service ▶ Filter 1 - 10 of 137 ↪ Download

Maintenance Office	Work Order	Asset ▲	Created Date ▲	OOS Date/Time	Status	Operational Status	Status Reason	OOS Reason	Failure Description	Problem Description	Part Number	Rel Exp
BMNT-DVSN-NOMT	T12157544	B2108	12/10/15 10:49	12/13/15 9:42	**BMNTDEF**	**REM FR SER**	**IN SHOP**	**MECHANICAL FAILURE**	**ENGINE**	**CUTS OFF**		**N**
BMNT-BMNT-BMNT	T11834712	B2110	10/23/15 10:01	10/26/15 7:28	BMNTDEF	OPERATING	GAR CRIP	MECHANICAL FAILURE	FRONT BRAKES AND HUBS	SAFETY INSPECTION		N
BMNT-BMNT-BMNT	T10178131	B2118	2/25/15 21:49	3/13/15 12:11	BMNTDEF	REM FR SER	GAR CRIP	MECHANICAL FAILURE	ENGINE	CHECK ENGINE LIGHT		N
BMNT-DVSN-NOMT	T12663228	B2119	2/17/16 5:25	2/17/16 9:35	INPRG	OPERATING	GAR CRIP	MECHANICAL FAILURE	ENGINE	FLUID CHECK		N
BMNT-BMNT-BMNT	T11148587	B2146	7/17/15 15:15	8/26/15 5:54	BMNTDEF	REM FR SER	GAR CRIP	MECHANICAL FAILURE	SUSPENSION	SAGGING		N

Yard Management

Yard Management

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What about the Users

- Customers
  - Trip Planner
    - https://www.wmata.com/schedules/trip-planner
  - Real Time Arrival Information
    - https://busETA.wmata.com
  - Active developer community
  - Information Displays at stops

Customer information
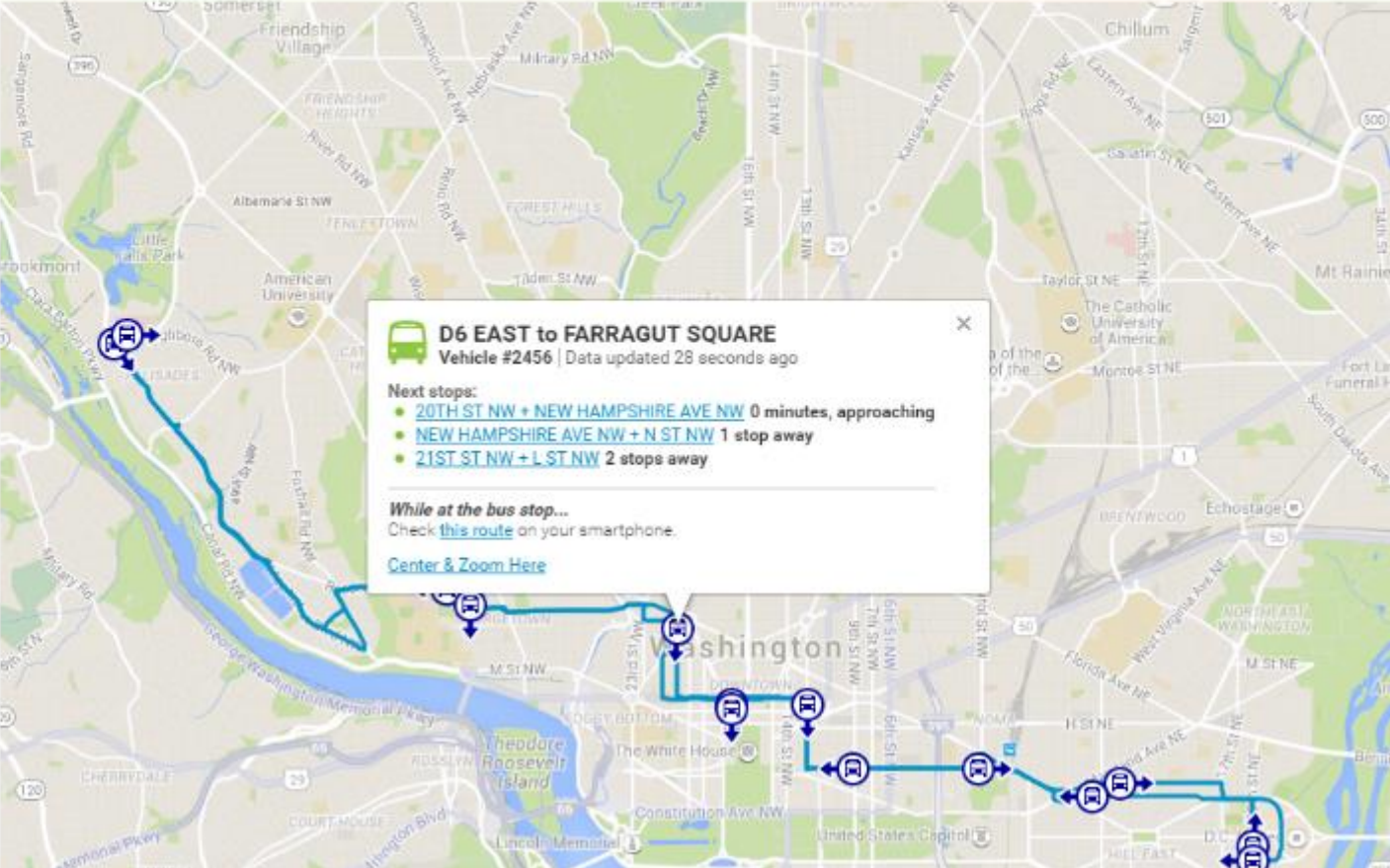
What about the Users

- Operators
  - Communications
    - Voice and Text Messaging
  - Emergency messaging
  - Security
  - Traffic Signal Prioritization

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On Going Challenges

- **More real time information**
  - Costs/Bandwidth are a concern
- **Open payments**
  - No standard platform in transit
- **Customer Expectations**
  - Up time/Reliability
- **Customer Experience (WiFi / Infotainment)**
  - Up time/Reliability
  - Costs vs Potential