

# Bureau of Transportation Data & Safety

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## Traffic & Technology Section

Chris Zajac  
Section Chief

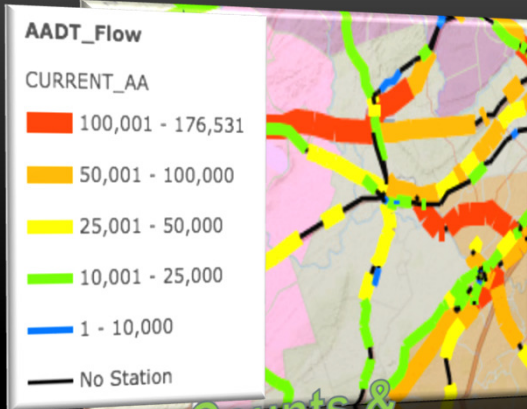


## Our Mission

- ❖ 1991 – Intermodal Surface Transportation Efficiency Act (ISTEA) initiated Traffic Monitoring System Program
  - The Act established additional seven management systems:
    - Highway Pavement
    - Bridges
    - Highway Safety
    - Traffic Congestion
    - Public Transportation facilities and equipment
    - Intermodal transportation
- ❖ TMS purpose -> provide roadway and travel data to support decision-making with regard to each of the systems alone, and as a part of an overall coordinate, interrelated operational management strategy.
- ❖ FHWA -> Highway Performance Monitoring Program Report -> Vehicles Miles Traveled -> Federal Funding
  - Roadway Characteristics
  - Traffic Data 

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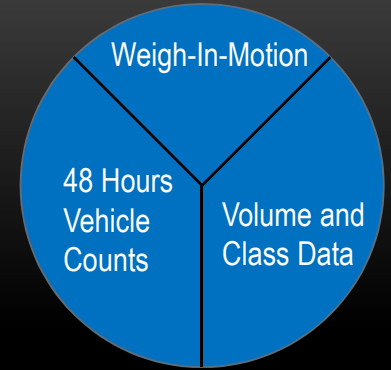
# Data Types



48 Hours Counts & Ramps Data



Vehicle Volumes and Speeds



FHWA Vehicle Classifications			
1. Motorcycles 2. Bikes, Scooters, etc.	2. Passenger Cars 3. Buses, School Buses, etc.	3. Pickup, Panels, Vans 4. Trucks, Van, Single Unit, etc.	4. Buses 5. 7 or 8 axle, 1st length
5. Single Unit 2-Axle Trucks 6. Single Unit 3-Axle Trucks 7. Single Unit 4 or More-Axle Trucks 8. Single Trailer 3 or 4-Axle Trucks	6. Single Unit 3-Axle Trucks 7. Single Unit 4 or More-Axle Trucks 8. Single Trailer 3 or 4-Axle Trucks	7. Single Unit 4 or More-Axle Trucks 8. Single Trailer 3 or 4-Axle Trucks	8. Single Trailer 3 or 4-Axle Trucks 9. Single Trailer 5-Axle Trucks 10. Single Trailer 6 or More-Axle Trucks
9. Single Trailer 5-Axle Trucks 10. Single Trailer 6 or More-Axle Trucks	11. Multi-Trailer 3 or Less-Axle Trucks 12. Multi-Trailer 4-Axle Trucks	12. Multi-Trailer 4-Axle Trucks 13. Multi-Trailer 5 or More-Axle Trucks	13. Multi-Trailer 5 or More-Axle Trucks 14. Multi-Trailer 6 or More-Axle Trucks

Vehicle Classification



Vehicle Weights

# Customers

Weigh  
In  
Motion

## Internal Customers

- Straight Line Diagrams
- Highway Performance Monitoring Program
- Data Warehouse
- Pavement Management
- Congestion Management
- Freight Services
- Crash Records Analysis

## Federal Programs

- Traffic Trends
- Strategic Highway Research Program (SHRP)
- VTRIS

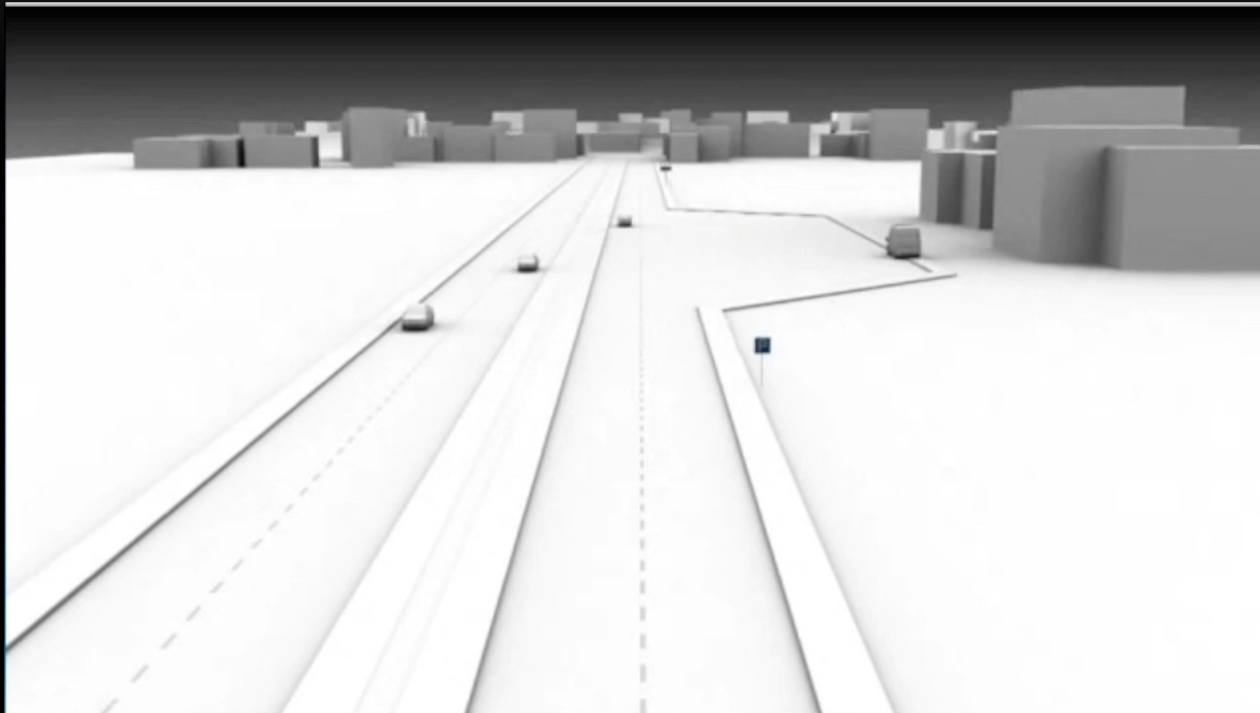
## Other

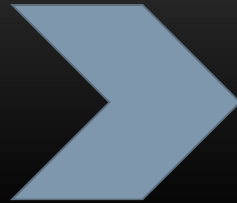
- MPOs
- Commercial Real Estate
- Commercial Mortgage
- Engineering Firms

How did it begin?



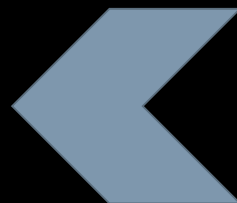
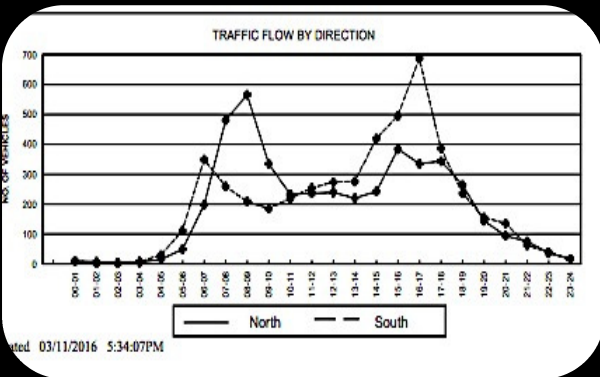
## WIM station simulation



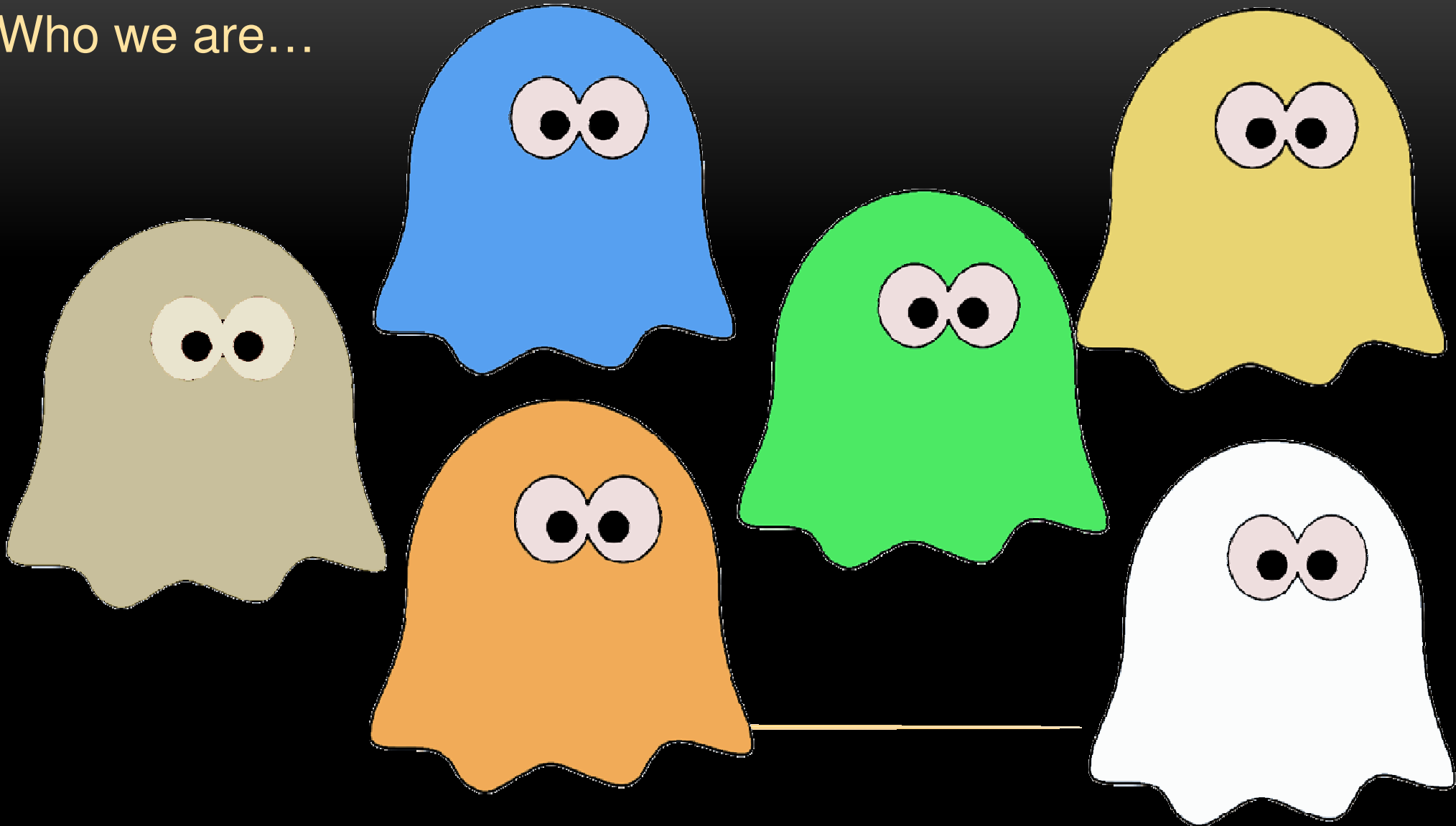


# Data processing flow

Data Wizards



Who we are...





# Finding our data...

Online traffic counts web search engine

**NJDOT Traffic Monitoring System - Mozilla Firefox**  
 File Edit View History Bookmarks Tools Help  
 http://ec2-50-17-223-196.compute-1.amazonaws.com:8080/njdot/tms/

**Advanced Search**

**Search By Radius**  
 Radius (miles):   
 Station Type: All Types  
 AADT From: 2006  
 AADT To: 2010  
 Submit

**Search By Boundary**  
 County: Select county  
 Municipality: Select municipality  
 Station Type: Select a type  
 AADT From: Pick a Year  
 AADT To: Pick a Year  
 Submit  
 \*2010 data January-April

**Station Information**

Station Type: Weigh in Motion  
 Street: null  
 County: Monmouth  
 Municipality: Upper Freehold Twp  
 SRI: 00000195  
 MilePost: 9.50 mi

AADT	Date	Report
50400	2009-01-01	
no data	2008-01-01	

**Query Results**

**Search by Radius Results**

Query Definition:  
 Search AADT information about "All Types" stations located in 3 miles radius from the pushpin's location. This information must be collected between 2006 and 2010

Total number of records found: 20  
 \*\*\*\* Click on a station number to locate it on the map \*\*\*\*

Station	SRI	MilePost	Station Type	Report	AADT	Year
5-8-005	11121030	0.02	Volume 48hrs		1857	2006
6-8-432	00000539	48.20	Classification 48hrs		7420	2006
6-9-421	00000195	12.50	Classification 48hrs		42851	2006
5-4-102	00000195	7.00	Volume 48hrs		57351	2007
091345	00000526	11.21	Volume 48hrs		7455	2010
091347	00000539	40.94	Volume 48hrs		4578	2010
6-4-461	03000612	6.50	Classification 48hrs		2033	2007
6-4-643	13511002	0.59	Volume 48hrs		76	2007
091344	00000526A	0.16	Volume 48hrs		5256	2010
091346	00000526	13.67	Volume 48hrs		1761	2010

Map Legend  
 http://ec2-50-17-223-196.compute-1.amazonaws.com:8080/njdot/tms/#

# Data Viewer 3 (Beta version available now) To be published in December 2016

Traffic Counts Data Viewer 2.0.3

Map Pictures Help Exit

Select SRI:  
00000001\_

Road length: 0-64.88

MP Begin (###.##)

Traffic Count Search Traffic Studies Search Chart

Select Station Number Search Results: **There are 51 stations found.**

Station	SRI	MP	Street	Location	FC	County	Municipali	Latitude	Longitud
11c175r	0000000	1	FR US 1 SB	FR US 1 SB to	12	Mercer	Trenton	40.218613	-74.75793
5-5-091	0000000	1.16	Trenton	BET PERRY &	12	Mercer	Trenton	40.221788	-74.75816
11c125r	0000000	1.3	FR US 1 NB	FR US 1 NB to	12	Mercer	Trenton	40.22415	-74.75773
11c153r	0000000	1.3	FR PERRY	FR PERRY ST EB	12	Mercer	Trenton	40.22415	-74.75773
11c176r	0000000	1.3	FR US 1 SB	FR US 1 SB to	12	Mercer	Trenton	40.2237	-74.75976
11c200r	0000000	1.3	FR PERRY	FR PERRY ST EB	12	Mercer	Trenton	40.2237	-74.75976
5-1-023	0000000	1.7	Trenton	BET PERRY ST &	12	Mercer	Trenton	40.22819	-74.7573
11c126r	0000000	2.1	FR US 1 NB	FR US 1 NB to	12	Mercer	Trenton	40.23459	-74.74847
11c127r	0000000	2.5	FR US 1 NB	FR US 1 NB to	12	Mercer	Trenton	40.23799	-74.74224
5-5-092	0000000	2.5	Trenton	BET NORTH	12	Mercer	Trenton	40.236464	-74.74494
11c154r	0000000	3	FR	FR MULBERRY	12	Mercer	Trenton	40.23905	-74.74028

Select Report Search Results: **There are 2 reports found.**

Report	Year	AADT	AADT N/E	AADT	Install Date	Remove Direct
5-5-091 on	01/01/10	62142	28925	33217	08/23/10	08/26/1 North/
5-5-091 on	01/01/14	66665	34153	32512	06/04/14	06/06/1 North/

Data Viewer 3

TMS Data SLD Data Crash Data

Search By:  
 SRI Number  
 County Name  
 Street Name  
 Station Id

Enter a route number i.e. 9

00000001\_

Road Length: 0-64.88

MP Begin (###.##)  
1

MP End (###.##)  
12

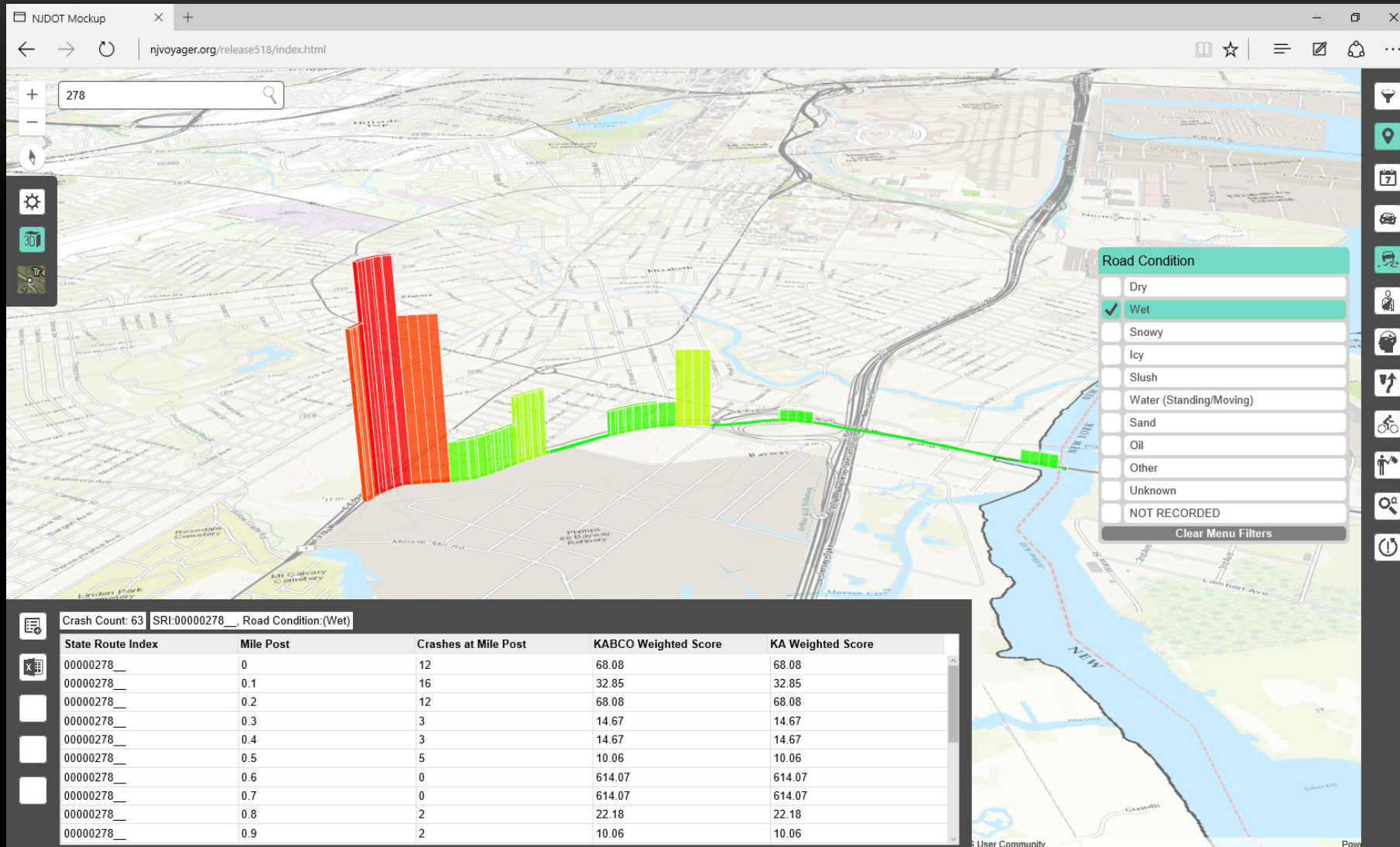
Search

Map

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# Data Viewer 2 Intranet -> Useful Tools

# Safety Voyager - online Crash Records and Traffic Counts application. Available – November 2016.



# Machine Learning Application – June 2015 Data

## WIM Data Streamer



Default View | Map Layers | Viewer | Manage | Reports | Welcome admin | Logout

Advanced Query Tool (01A US-1 S. Brunswick Twp)

Report Type: Daily Traffic Based on Station

Report for Daily Traffic Based Station

Date Range: From Date: 06/01/2015 To Date: 06/30/2015

Output Type: Chart

Submit Cancel

Equipment: IRD ISINC  
Last Calibration: 11/22/2014  
Status(100): 1  
Out Of Service:  
WGT: X  
VOL:  
Longitude: -74.551473

Options

Chart Report : Daily Traffic Based on Station

Date	Count
06/01	4000
06/02	4500
06/03	4500
06/04	4500
06/05	3000
06/06	2500
06/07	5500
06/08	12000
06/09	6000
06/10	6500
06/11	8000
06/12	5000
06/13	1500
06/14	4500
06/15	18000
06/16	20000
06/17	11500
06/18	6000
06/19	4000
06/20	1000
06/21	7000
06/22	9000
06/23	9500
06/24	5000
06/25	4500
06/26	2000
06/27	6500
06/28	20000
06/29	19000

Ready | Zoom Level: 8 of 19 (1:1,733,376) | 38.918819, -76.701050 | Report a map error | Administrators

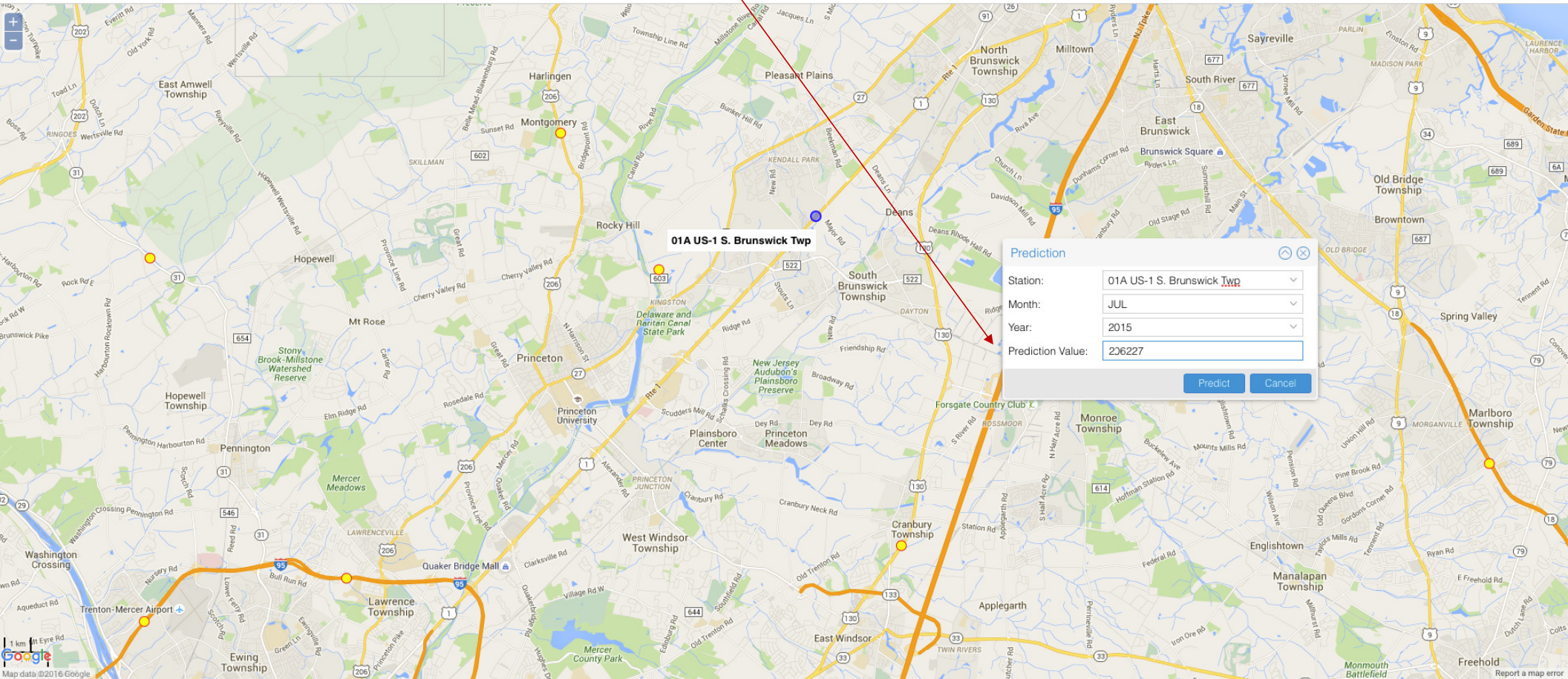
# Machine Learning Application – July 2015 Traffic Prognosis

**WIM** Data Streamer



Default View | Map Layers | Viewer | Manage | Reports

Welcome admin | Logout



Loading... | Zoom Level: 12 of 19 (1:108,336) | 40.403170, -74.551163

Administrators

# Next chapter



Amazon Web Services &  
Microsoft Azure Cloud

Real Time Speeds from WIM locations

Laser sensors for vehicle classification

Machine Learning Model

Portable Bridge WIM

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