



ITS Canada

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Niagara Falls, Ontario

Anticipating Traffic Changes during Severe Weather

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INTERNATIONAL ROAD DYNAMICS INC.

Overview

- When severe weather or disaster events strike, provincial and state agencies would like to anticipate how traffic will be impacted.
- This presentation will review recent examples of severe weather and the impact to traffic.

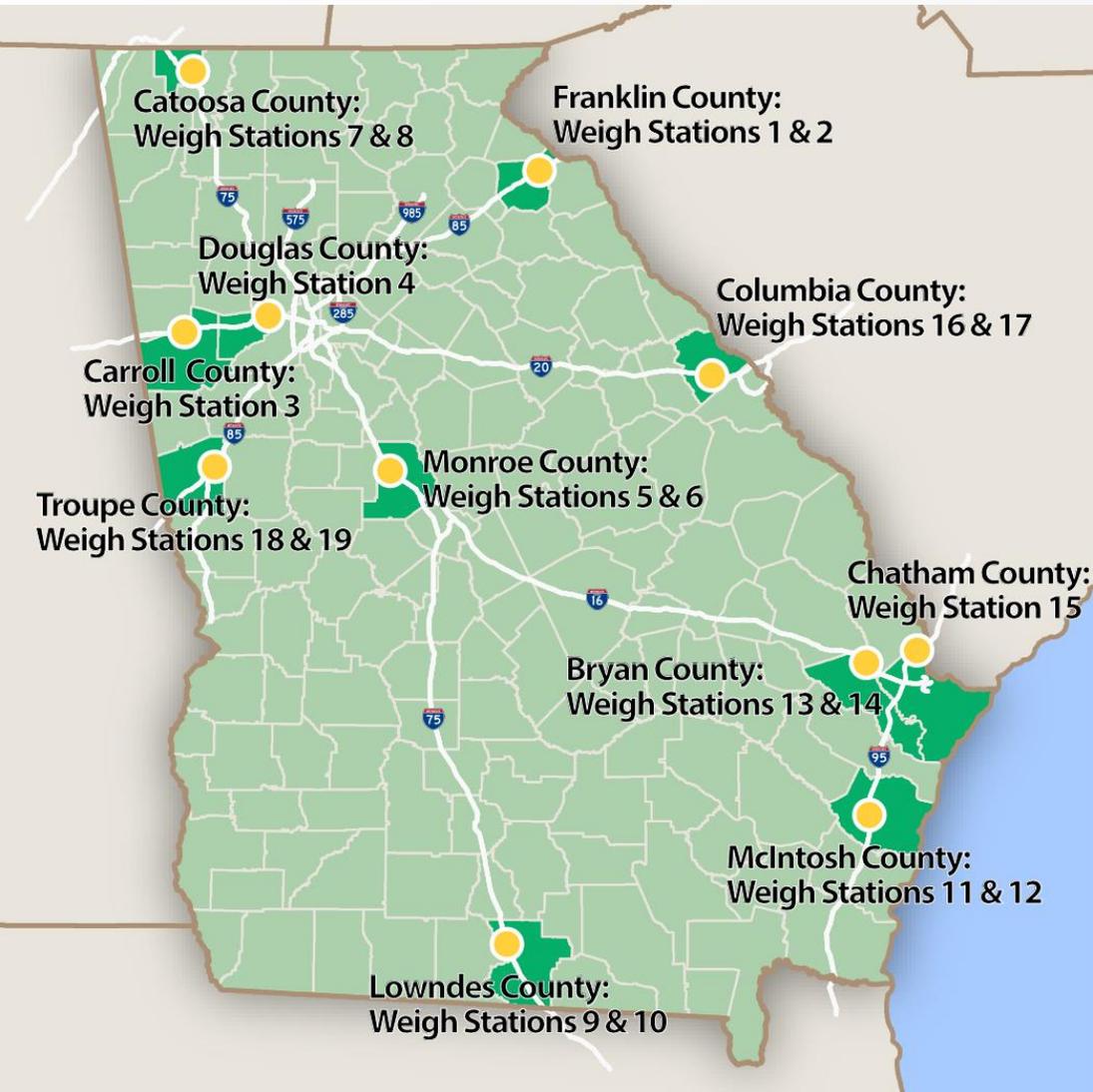


Hurricane Irma Evacuation
September 2017



Nor'easters in the Maritimes
March 2018

Georgia Statewide WIM Project – 19 Weigh Stations



- **19 weigh stations with existing Ramp WIM systems.**
- **Project was to add:**
 - Mainline WIM
 - LPR and USDOT electronic screening
 - Signalling of commercial vehicles via blank-out message signs
- **Full upgrade of existing Ramp WIM system.**
- **Installation Timeline**
 - 532 days
 - Sept 2015 to Feb 2017
- **Maintenance Acceptance pending**
 - Planned for May 18, 2018



Hurricane Irma - Evacuation



Hurricane Irma

Formed: Wed Aug 30, 2017

Dissipated: Wed Sep 13, 2017

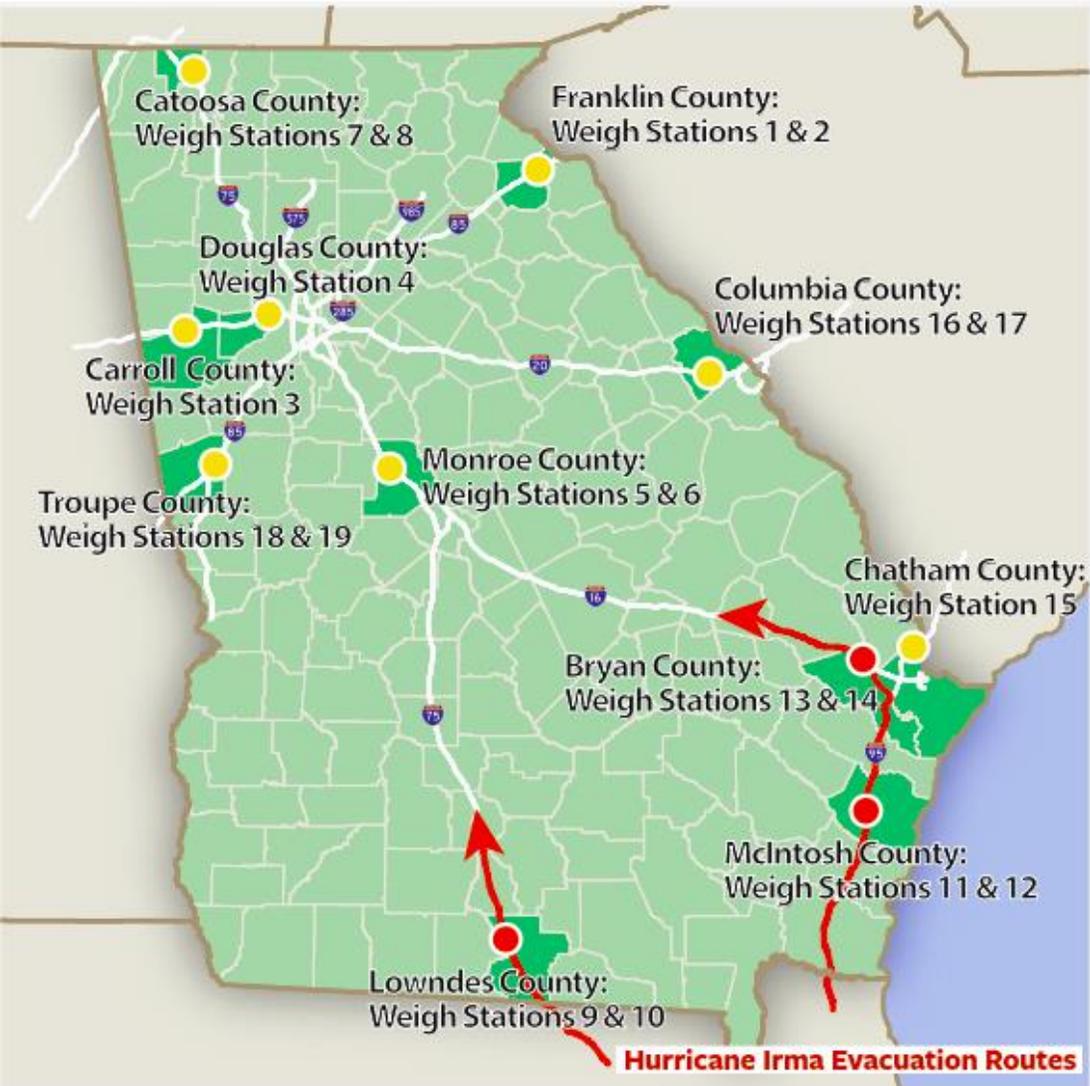
“An estimated 6.3 million people have been ordered to evacuate.”

“The dramatic mass exodus from South Florida could become one of the largest evacuations in US history, CNN senior meteorologist Dave Hennen said.”

“There was bumper-to-bumper traffic late Friday in northbound lanes of I-95 south of Savannah, Georgia, CNN senior producer Bill Kirkos reported.”

<https://www.cnn.com/2017/09/08/us/hurricane-irma-evacuation-florida/index.htm> - Sept 9, 2017

Hurricane Irma - Evacuation Routes



Georgia VWS Landing Pa x Virtual Weigh Station - S x

Secure | <https://ga-bryan-wb.site.irdinc.com:8443/#summary:>

ird Summary Vehicles Bryan WB GA_Virtual

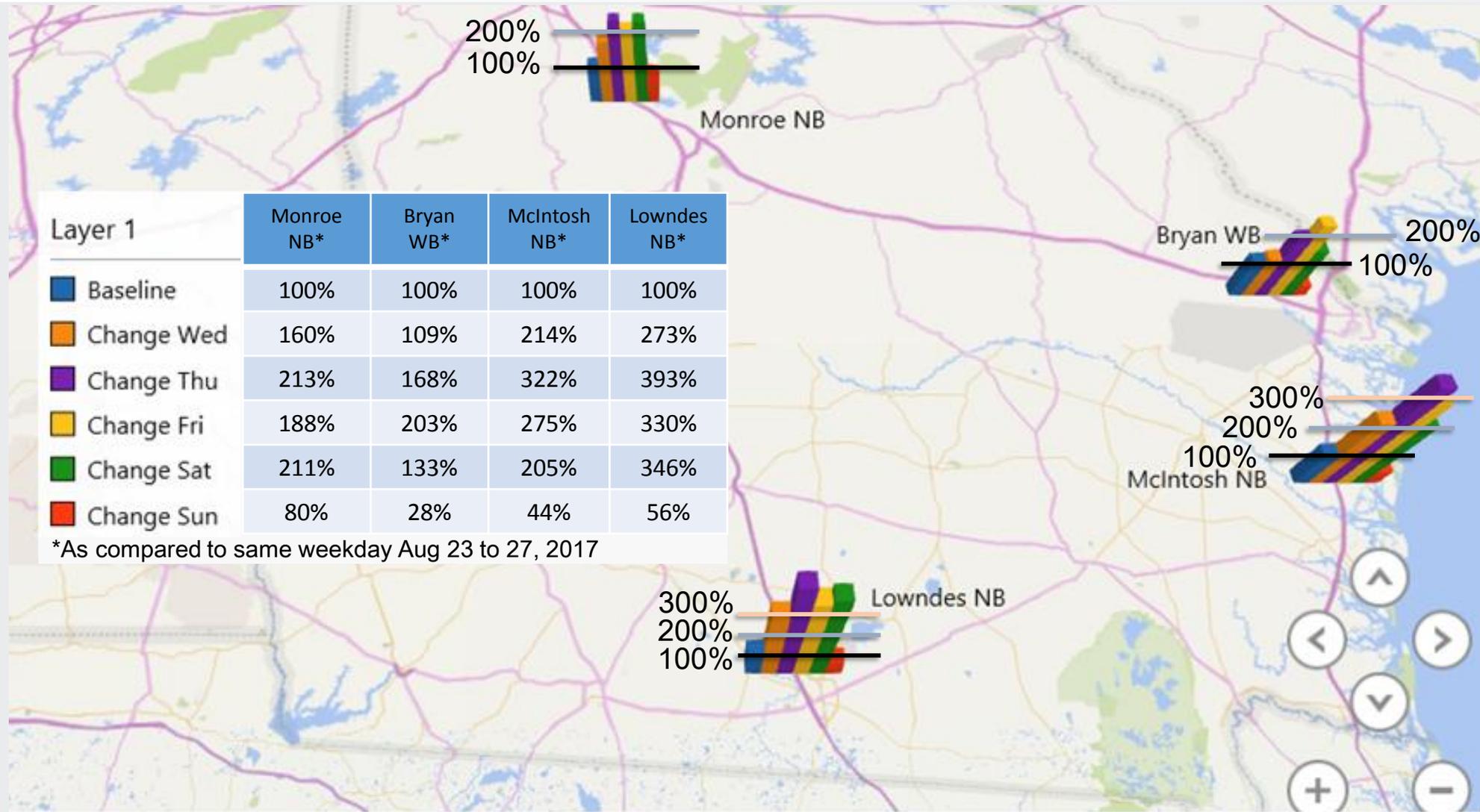
Last update: Thursday, September 7, 2017 06:21:44 PM GMT-04:00

Bryan WB	Average Speed	Average Occupancy	Vehicle Count
Main Drive	59.93 mph	5.75 %	1003
Main Pass	67.55 mph	6.41 %	1521
Ramp Exit	0.00 mph	0.00 %	4
Byp Drive	66.35 mph	5.68 %	1058
Byp Mid	0.00 mph	0.00 %	0
Byp Pass	73.14 mph	4.16 %	1468
Ramp Sensor	0.00 mph	0.00 %	4
Ramp	0.00 mph	0.00 %	4
Scale Report	0.00 mph	0.00 %	0
Scale Bypass	0.00 mph	0.00 %	4
Scale Sensor	0.00 mph	0.00 %	0
Lane 15	0.00 mph	0.00 %	0



Inbound Evacuation Routes

%Change in traffic - Wed Sept 6 to Sun Sept 10, 2017



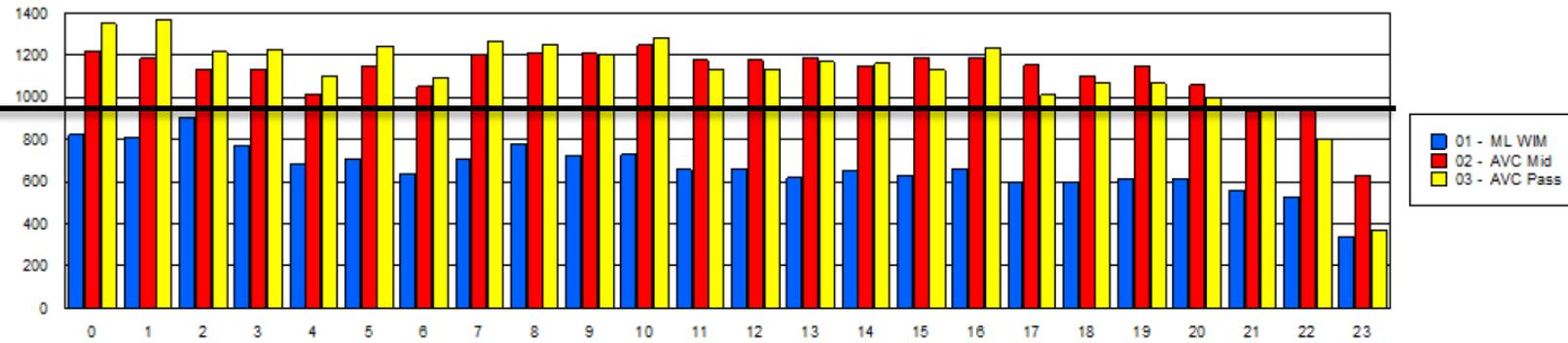
Lowndes NB Volume - Sat Sept 9 versus Sat Aug 26

Average 989
per hour for
each lane

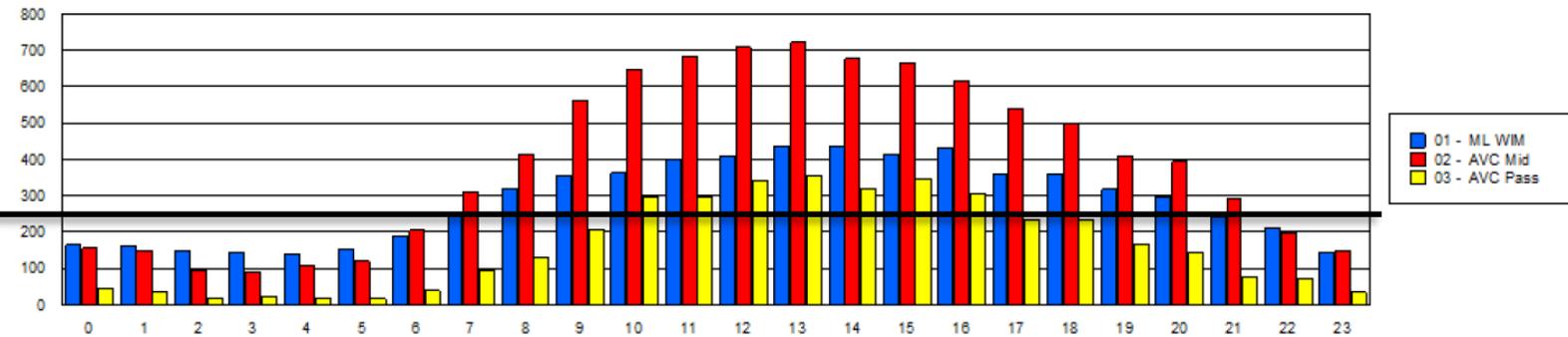
346%
increase



Average 279
per hour for
each lane



Lane by Hour – Sat Sept 9, 2017



Lane by Hour – Sat Aug 26, 2017



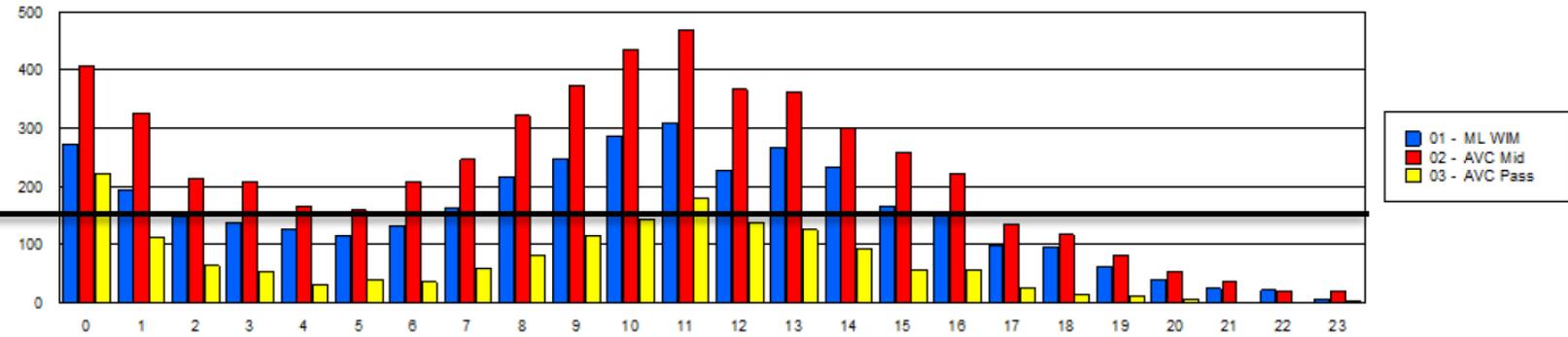
Lowndes NB Volume – Sun Sept 10 versus Sun Aug 27

Average 151
per hour for
each lane

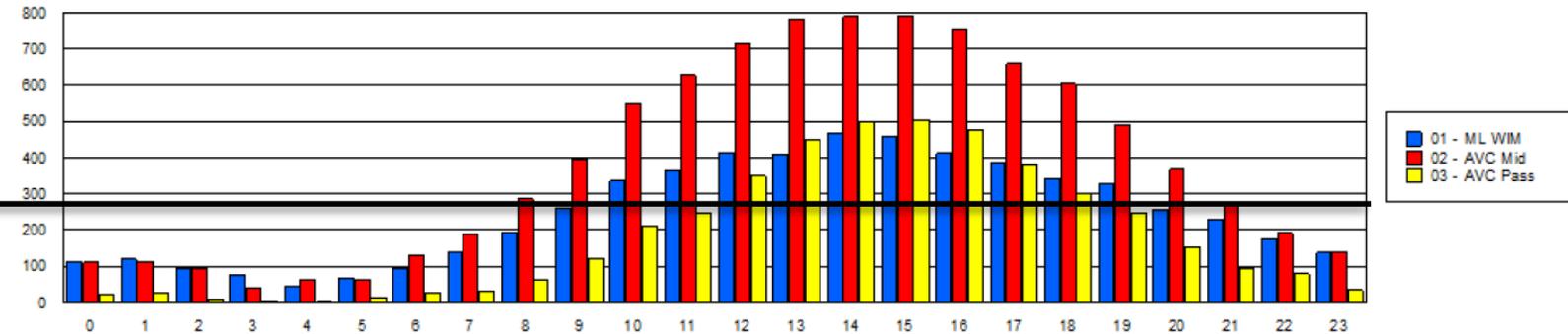
56%
decrease



Average 270
per hour for
each lane



Lane by Hour – Sun Sept 10, 2017



Lane by Hour – Sun Aug 27, 2017

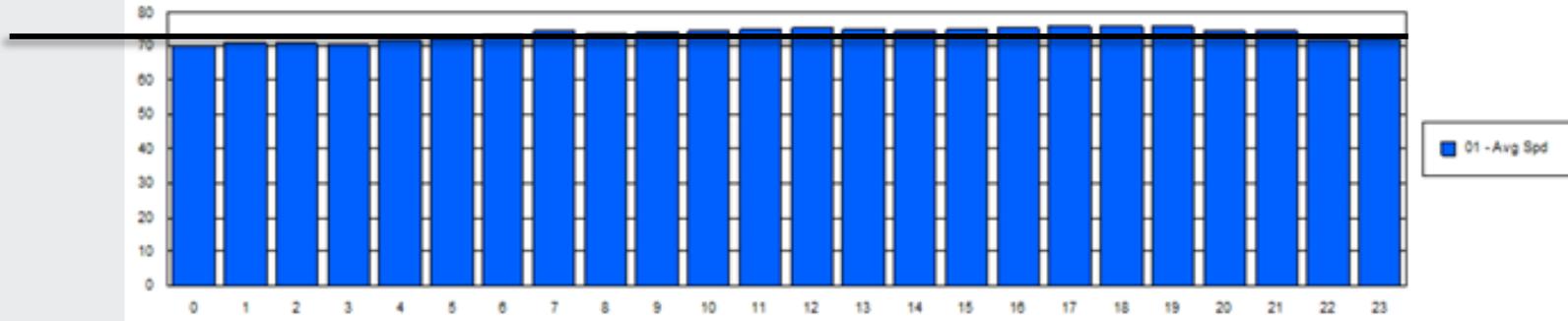


Lowndes NB Speed By Hour Fri Sept 8 versus Fri Aug 25

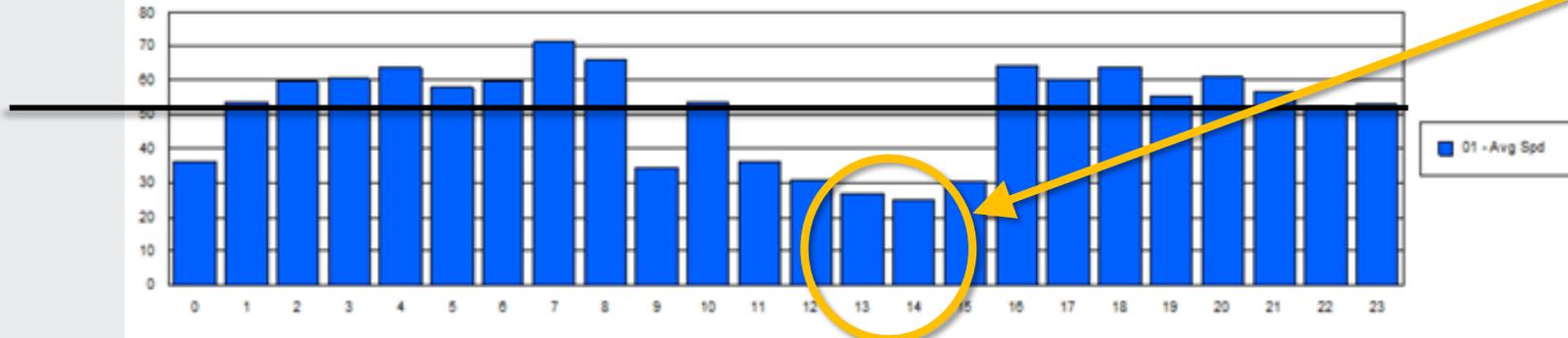
73 MPH
Average
speed hour
across all
lanes

**30%
decrease**
↓

51 MPH
Average
speed hour
across all
lanes



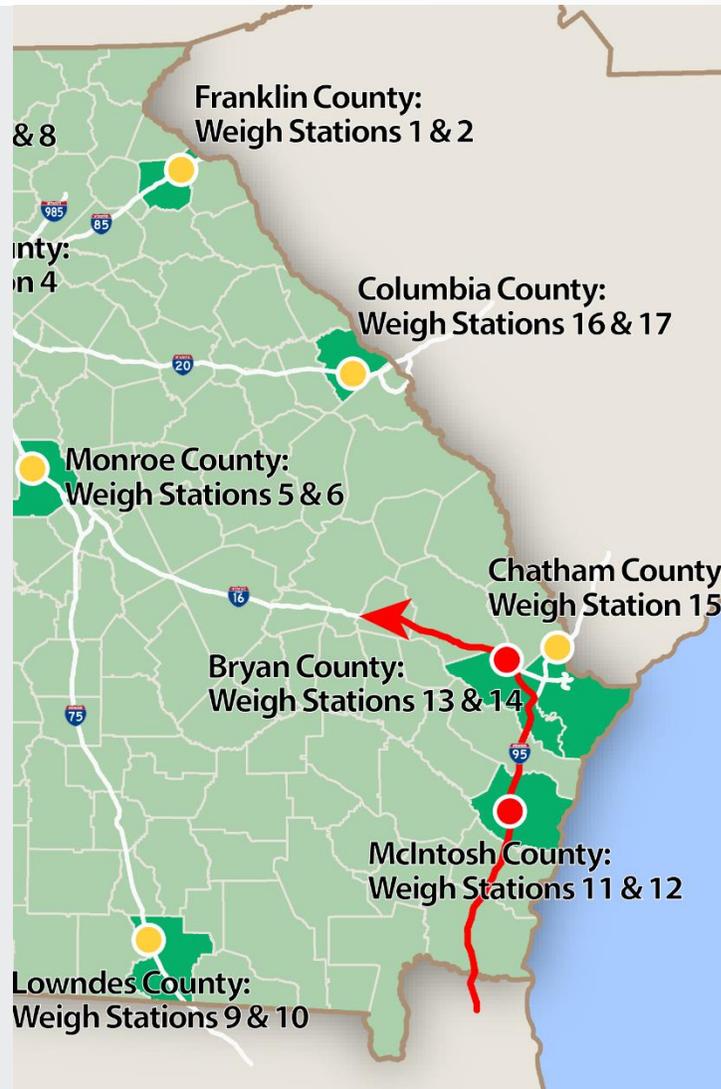
Average Speed by Hour – Fri Aug 25, 2017



Average Speed by Hour – Fri Sept 8, 2017

**As low as
25 MPH**

Bryan EB - Georgia contra-flow operations Sept 9, 2017



Vehicle	Class	Axle	Length (ft)	Speed (mph)	GVW (lb)	2017-09-09 05:59:40 AM EDT
9756	8	4	47.1	65	26,912	Main Drive Bryan EB

Max GVW (lb)	Max GVW (%)
67,500	40

pass



sign override



Vehicle	Class	Axle	Length (ft)	Speed (mph)	GVW (lb)	2017-09-09 07:59:00 AM EDT
9767	0	0	0.0	0	0	Main Pass Bryan EB

Max GVW (lb)
0

fail

truck not in WIM lane
 loops hit in wrong order



Vehicle	Class	Axle	Length (ft)	Speed (mph)	GVW (lb)	2017-09-09 07:59:31 AM EDT
9771	0	0	0.0	0	0	Main Pass Bryan EB

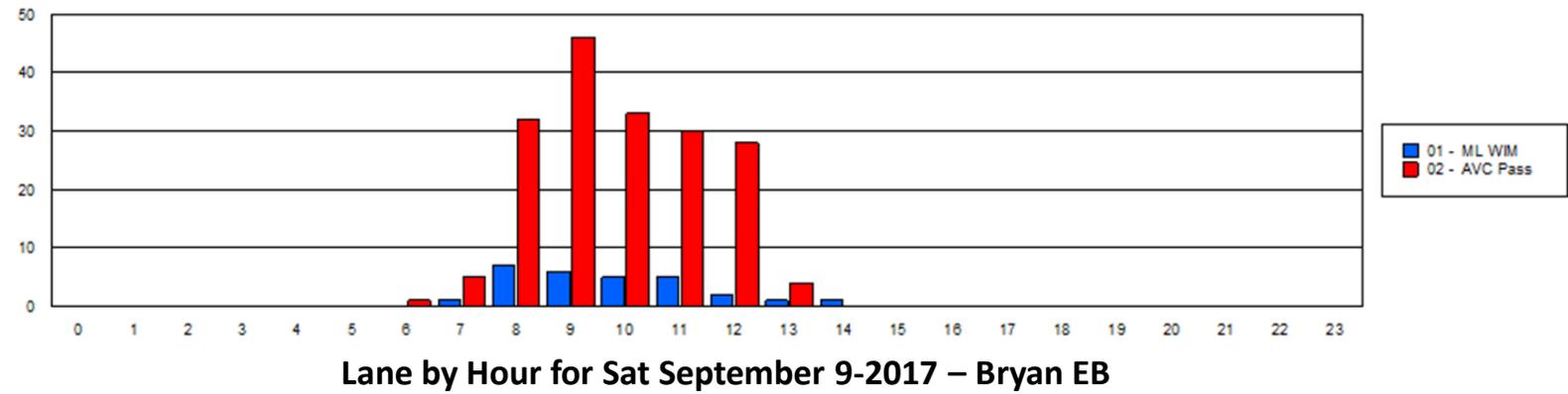
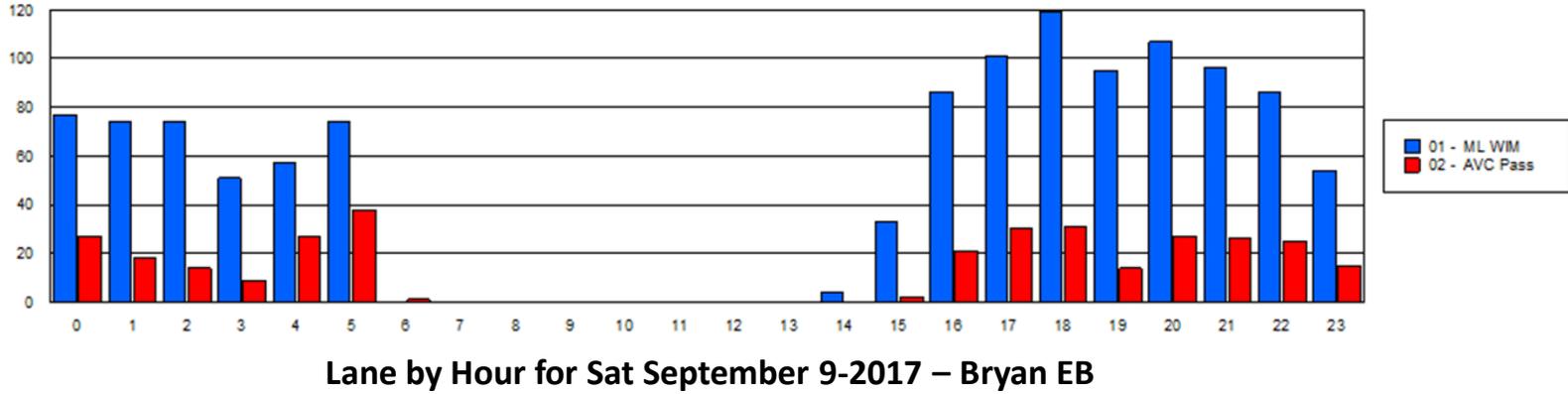
Max GVW (lb)
0

fail

truck not in WIM lane
 loops hit in wrong order



Bryan EB - Contra-flow Sept 9, 2017 - 6AM to 2PM



- 207 contra-flow vehicles
- All Personal Vehicles



Bryan EB - Georgia contra-flow operations

Bryan EB Mainline 2017-09-09 10:18:52



**Both sides of
I-16 with
traffic flow
Westbound**



Bryan EB - Georgia contra-flow operations



Vehicle	Class	Axle	Length (ft)	Speed (mph)	GVW (lb)
10169	0	0	0.0	0	0

2017-09-09 01:10:52 PM EDT
Main Pass
Bryan EB

Max GVW (lb)
0

fail

truck not in WIM lane
 loops hit in wrong order



Vehicle	Class	Axle	Length (ft)	Speed (mph)	GVW (lb)
10171	0	0	0.0	0	0

2017-09-09 01:11:54 PM EDT
Main Pass
Bryan EB

Max GVW (lb)
0

fail

truck not in WIM lane
 loops hit in wrong order

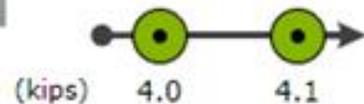


Vehicle	Class	Axle	Length (ft)	Speed (mph)	GVW (lb)
10174	5	2	23.2	88	8,084

2017-09-09 02:09:46 PM EDT
Main Drive
Bryan EB

Max GVW (lb)	Max GVW (%)
40,000	20

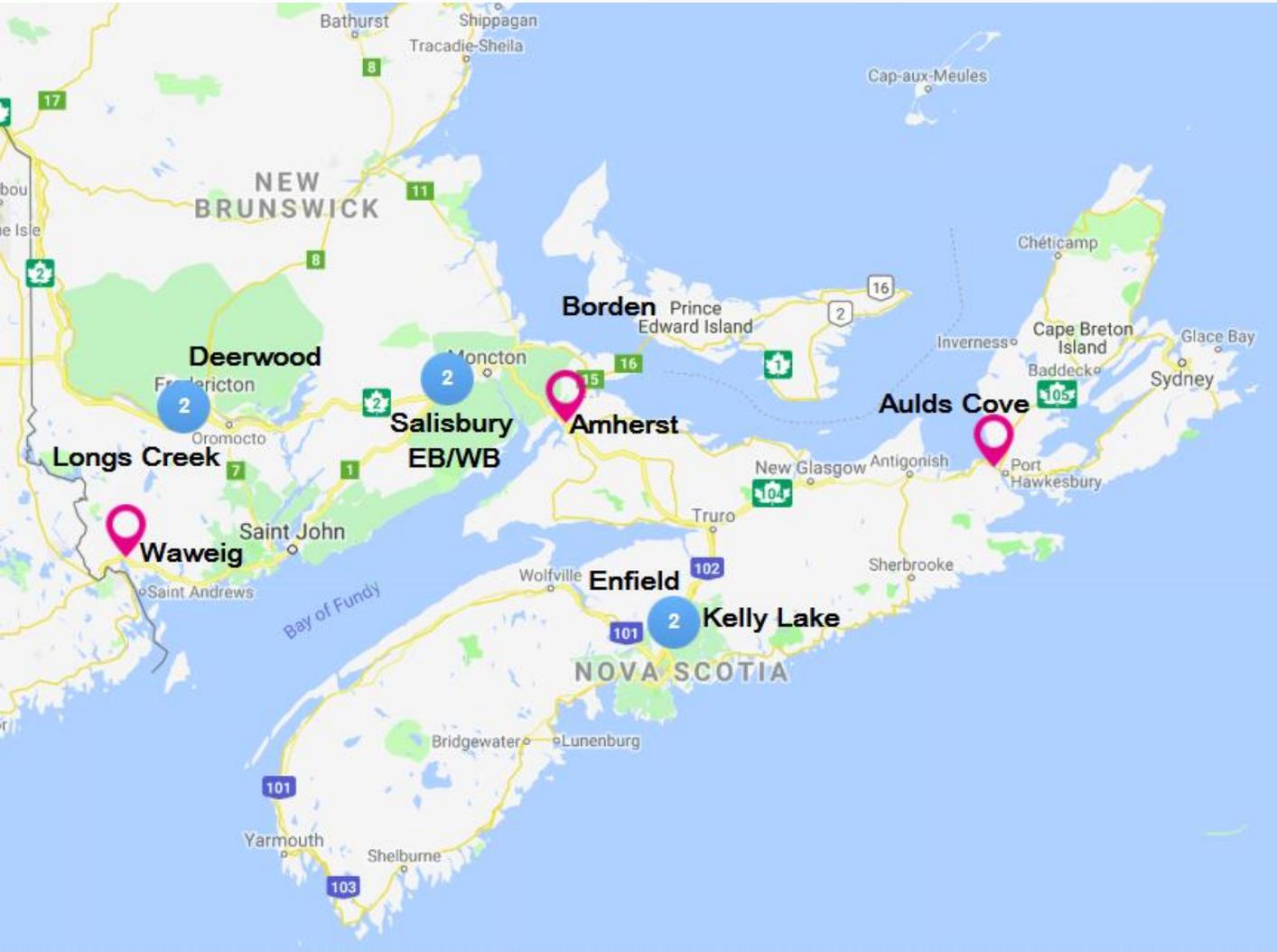
fail



sign override



Maritimes Weigh Stations - CVO with Mainline WIM



Site Type Legends

-  CVO
-  TWO SITES AT ONE LOCATION

- New Brunswick
 - Waweig
 - Longs Creek
 - Deerwood
 - Salisbury EB
 - Salisbury WB
- Prince Edward Island
 - Borden
- Nova Scotia
 - Amherst
 - Enfield
 - Kelly Lake
 - Aulds Cove

WIM = Weigh-In-Motion

CVO = Commercial Vehicle Operations

Nor'easters causing decrease in traffic

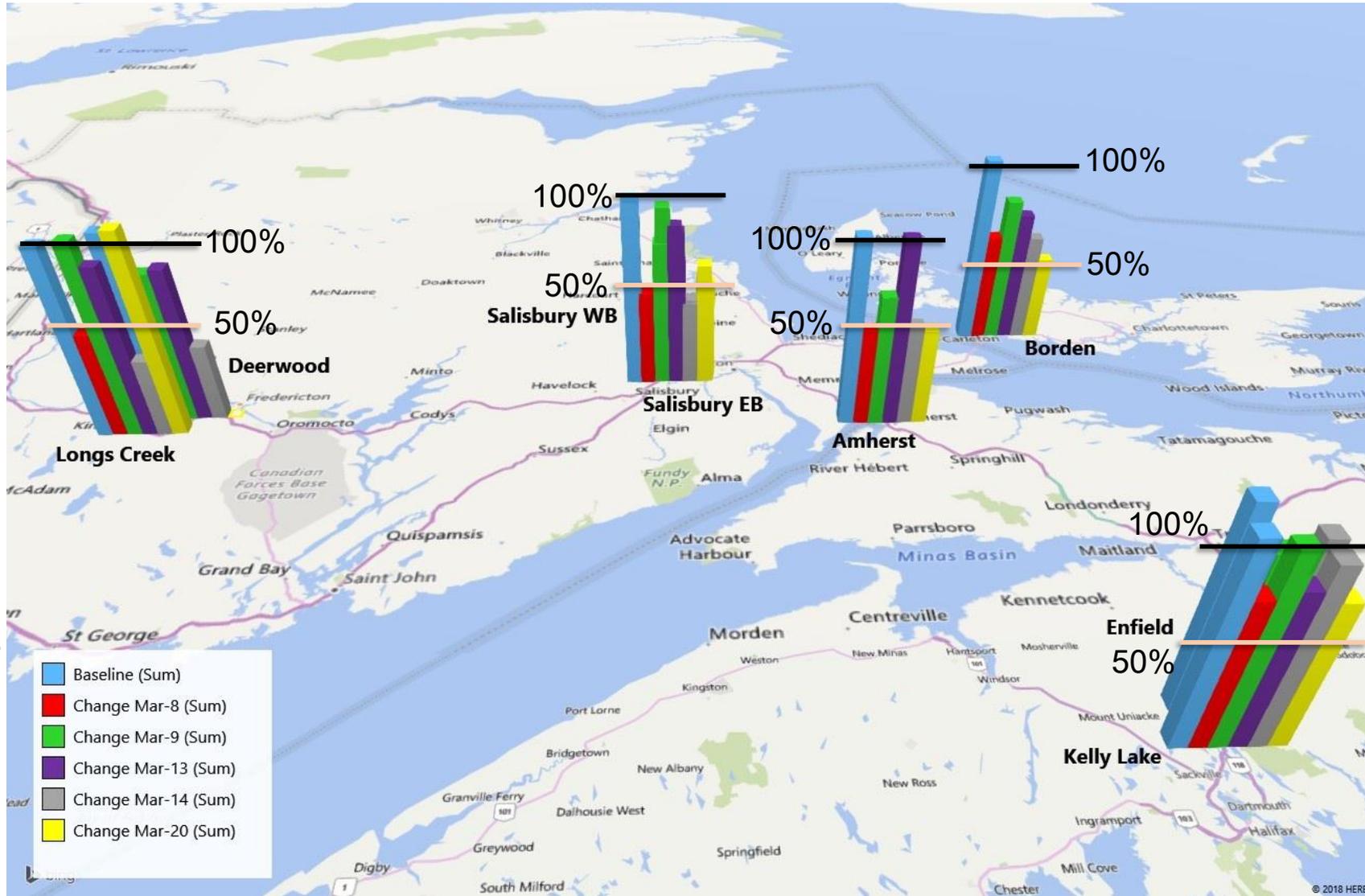
Nor'easter 1

Change
Thursday
March 8, 2018
27% to 54%
decrease



Change
Friday
March 9, 2018

0% to 30% decrease



Nor'easter 2

Change
Tuesday
March 13, 2018
1% to 29%
decrease



Change
Wednesday
March 14, 2018
12% to 59%
decrease



Nor'easter 3

Change
Thursday
March 20, 2018
0% to 54%
decrease



Note: Data review was limited to a few sites in each province.

Developing Predictive Models – Refining Response Plans

- Traffic data from these severe weather events could be further reviewed to develop a predictive model for how similar weather and emergency events in the future could affect traffic.
- This could assist provincial and state agencies to refine response plans for future severe weather events.



THANK YOU

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