

Introducing...

Todd Smith

Manager of Traffic Operations Center
Traffic Engineering & Operations
Pennsylvania Turnpike Commission
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(717) 831-7740



WAZE AND TRAFFIC INCIDENT MANAGEMENT



NATIONAL UNIFIED GOAL



The Pennsylvania Turnpike
Commission's Adoption
of the
National Unified Goal of



TRAFFIC INCIDENT MANAGEMENT

MISSION

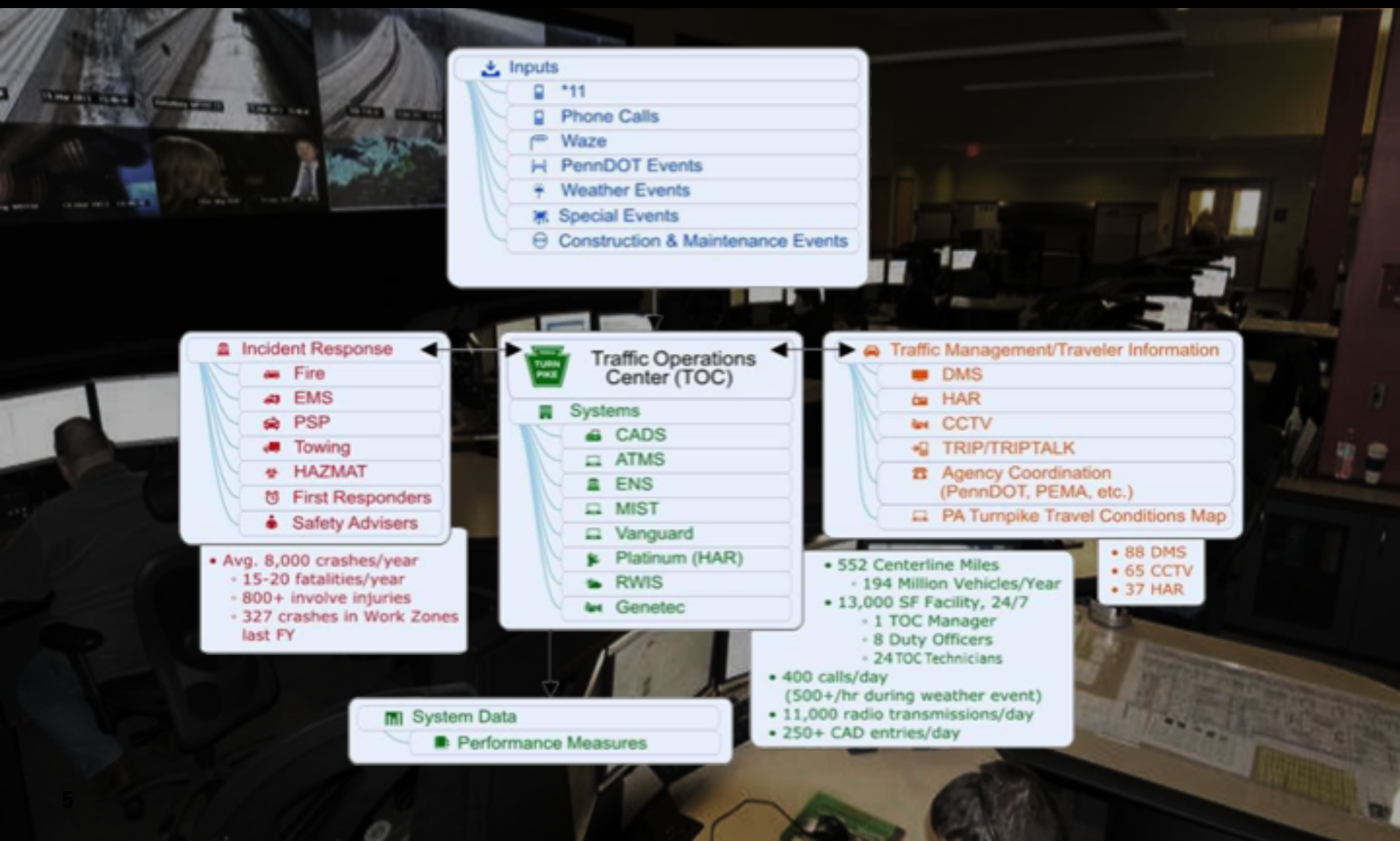
To operate a safe, reliable, customer-valued toll road system that supports national mobility and commerce.

1. Focus on the safety of yourself, all first responders and our customers
2. Clear the road as quickly and safely as possible
3. Provide prompt and reliable communications

TRAFFIC OPERATIONS CENTER



TRAFFIC OPERATIONS CENTER



Inputs

- *11
- Phone Calls
- Waze
- PennDOT Events
- Weather Events
- Special Events
- Construction & Maintenance Events

Incident Response

- Fire
- EMS
- PSP
- Towing
- HAZMAT
- First Responders
- Safety Advisers

- Avg. 8,000 crashes/year
- 15-20 fatalities/year
- 800+ involve injuries
- 327 crashes in Work Zones last FY

Traffic Operations Center (TOC)

Systems

- CADS
- ATMS
- ENS
- MIST
- Vanguard
- Platinum (HAR)
- RWIS
- Genetec

Traffic Management/Traveler Information

- DMS
- HAR
- CCTV
- TRIP/TRIPTALK
- Agency Coordination (PennDOT, PEMA, etc.)
- PA Turnpike Travel Conditions Map

- 552 Centerline Miles
 - 194 Million Vehicles/Year
- 13,000 SF Facility, 24/7
 - 1 TOC Manager
 - 8 Duty Officers
 - 24 TOC Technicians
- 400 calls/day (500+ /hr during weather event)
- 11,000 radio transmissions/day
- 250+ CAD entries/day

- 88 DMS
- 65 CCTV
- 37 HAR

System Data

- Performance Measures

EMERGENCY NOTIFICATION SYSTEM (ENS)



ENS ROADWAY CONDITIONS

PA Turnpike

Emergency Notification System

Jump **There are 1 WAZE/CitRep Alerts**

Jump **There are 2 Pending Condition Approvals**

Roadway Conditions
|
Approvals
|
Waze
|
Update Advisories
|
New Adviso

WebMap
|
WebMap Status
|
VMS
|
RWIS
|
Cameras
|
PlanX
|
Archives

Pennsylvania Turnpike Roadway & Weather Conditions

Roadway Conditions Description Document

Current Device OverRide Statistics			
Speed Sensors:	0	CCTV Cameras:	0
Weather Stations:	8	Message Signs:	8
Pending Condition Approvals:	2		
Pending Lane Closures:	0		
Pending WAZE Reports:	1		
Pending Lane Closures (Construction Admin)	42		

Auto-Callout Status:
ON

SCHEDULE CALLS - [Show](#)

SUBMIT CHANGES

Western Region
SCHEDULE CALLS FOR SELECTED
UNSCHEDULE CALLS FOR SELECTED

Select All In District

Location	Temperatures		Roadway Conditions						Maintenance Action		Weather Conditions							Visibility		Comments	Last Reported	Approved	Disa	
	Air	Road	1	2	3	4	5	6	Treating	Plowing	Plow Trains	No Precip.	Rain	Snow	Sleet	Windy	Fog	Good	Poor					
<input type="checkbox"/> Homewood Maintenance (MM# 0 - 24.8, B14.6 - B32.0) <input type="checkbox"/> Resubmit Current Conditions	50	55	●	●	●	●	●	●	■	■	■	●	●	●	■	■	●	●	Sunny, Roadway Dry.		11/8/2017 2:01:21 PM	11/8/2017 2:02:45 PM		



**Waze...putting
us “in” our
customer’s cars!**

ENS ROADWAY CONDITIONS

PA Turnpike
Emergency Notification System

[Roadway Conditions](#) | [Approvals](#) | [Waze](#) | [Update Advisories](#) | [New Advisories](#)
[WebMap](#) | [WebMap Status](#) | [VMS](#) | [RWIS](#) | [Cameras](#) | [PlanX](#) | [Archives](#)

There are 1 WAZE/CitRep Alerts
There are 2 Pending Condition Approvals

Pennsylvania Turnpike
Roadway & Weather Conditions

[Roadway Conditions Description Document](#)

Speed Sensors:	0	CCTV Cameras:	0
Weather Stations:	8	Message Signs:	8
Pending Condition Approvals:	2		
Pending Lane Closures:	0		
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Auto-Callback Status:

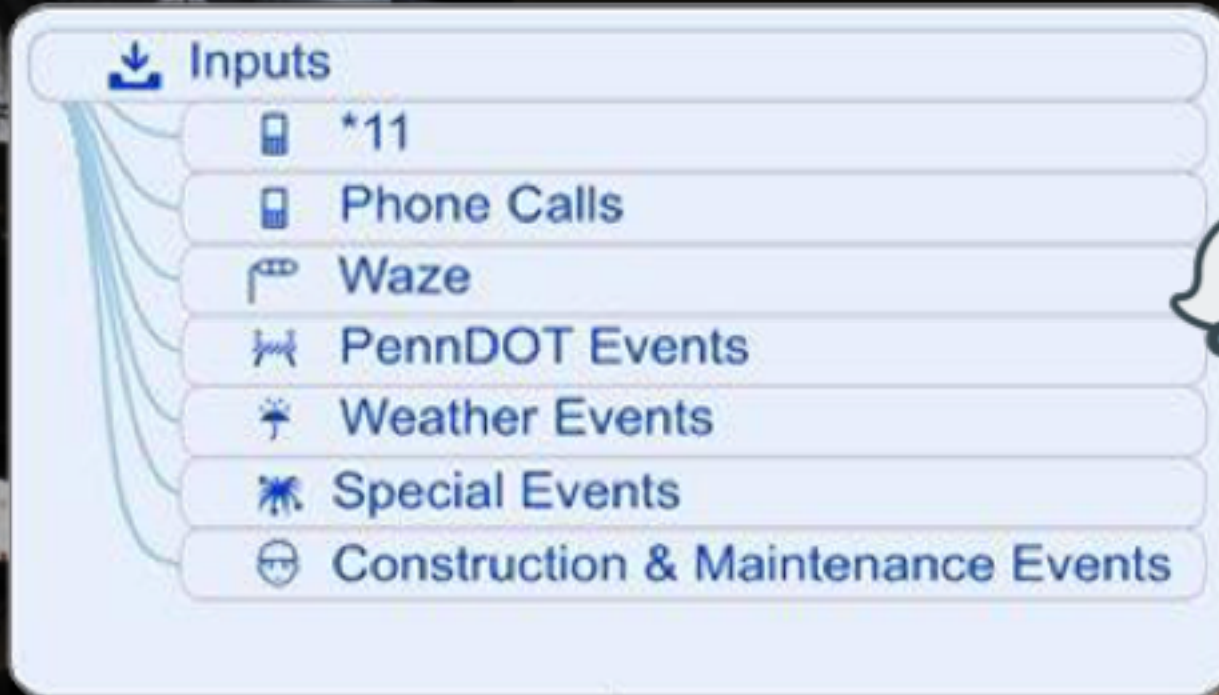
Visibility				Comments	Last Reported	Approved	Disa
Windy	Fog	Good	Poor				
		*		Sunny, Roadway Dry.	11/8/2017 2:01:21 PM	11/8/2017 2:02:45 PM	



Current Device OverRide Statistics

Speed Sensors:	0	CCTV Cameras:	0
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GENERAL PHILOSOPHY



**ENHANCING
AWARENESS**



**VERIFICATION
AND ANALYSIS**



**TRAVELER
INFORMATION**

WAZE CONNECTED CITIZENS PARTNERS



- Pennsylvania Turnpike among the “Early Adopters”
- 11th agency to join program – there are now over 600!

EMERGENCY NOTIFICATION SYSTEM

Accidents

HomeWood Maintenance
(MM# 0 - 24.8, B14.6 - B32.0)
63 69
Jump
There are 2 WAZE Alerts
Resubmit Current Conditions

PA Turnpike Emergency Notification System

Technical problems?
Call Information Logistics at
856-324-1600, 800-317-9560,
Or at 215-675-8181 after hours.

[Roadway Conditions](#) | [Approvals](#) | [Waze](#) | [Update Advisories](#) | [New Advisory](#) | [Tweet](#) | [Home](#) | [Logout](#)

[WebMap](#) | [WebMap Status](#) | [VMS](#) | [RWIS](#) | [Cameras](#) | [PlanX](#) | [Archives](#) | [Construction](#)

Waze Reports

Mainline Turnpike

Date/Time	Milepost	Type	Rating	Confidence	Reliability
1/9/2017 7:57 AM	Within 52 feet of MP 341.8	Minor Accident	3	0	5
DISMISS	I-276 W				CREATE ADVISORY

EMERGENCY NOTIFICATION SYSTEM

Special Events

7/30/2016 1:59 PM	Within 22 feet of MP 151.6	JAM JAM_HEAVY_TRAFFIC
DISMISS	Hillary motorcade has i76 west shut down	



ENS ROADWAY CONDITIONS (CONSTRUCTION)

PA Turnpike
Emergency Notification System

Jump There are 1 WAZE/CitRep Alerts

Jump There are 2 Pending Condition Approvals

Roadway Conditions | Approvals | Waze | Update Advisories | New Advisories
WebMap | WebMap Status | VMS | RWIS | Cameras | PlanX | Archives

Pennsylvania Turnpike
Roadway & Weather Conditions

Roadway Conditions Description Document

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Auto-Callout Status:

Visibility				Last Reported	Approved	Disa
Windy	Fog	Good	Poor			
		*		Sunny, Roadway Dry.	11/8/2017 2:01:21 PM	11/8/2017 2:02:45 PM



Speed Sensors:	0	CCTV Cameras:	0
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Pending Lane Closures (Construction Admin)	42		

ENS APPROVALS

PA Turnpike

Emergency Notification System

Technical problems?
Call Information Logistics at
856-324-1900, 800-317-9550,
or at 215-675-3131 after hours.

[Roadway Conditions](#) | [Approvals](#) | [Waze](#) | [Update Advisories](#) | [New Advisory](#) | [Tweet](#) | [Home](#) | [Logout](#)

[WebMap](#) | [WebMap Status](#) | [VMS](#) | [RWIS](#) | [Cameras](#) | [PlanX](#) | [Archives](#) | [Construction](#) | [Contacts](#) | [EPOs](#)

Submitted Lane Closures

There are currently no submitted lane closures.

Submitted Roadway Conditions

There are currently no submitted road conditions.

Pending Submitted Lane Closures (By Construction Admin Users)

Schedule Date/Time: 11/8/2017 5:00:00 PM	Date/Time Opened: 11/09/2017 06:00 AM	Created By: ANDREW FRANK
Mileposts: 31.8 to 25.7	Direction: Southbound	Lanes Affected: multiple lanes
Contact Person: Julius Reid	Construction Project #: A-020.00T002-3-07	
	Create New Advisory Remove	
Schedule Date/Time: 11/8/2017 6:00:00 PM	Date/Time Opened: 11/09/2017 07:00 AM	Created By: LYNN GROFF
Mileposts: 239.7 to 243.3	Direction: Eastbound	Lanes Affected: the left lanes
Contact Person: Lynn Groff	Construction Project #: T-242.00T002-3-03	
	Create New Advisory Remove	
Schedule Date/Time: 11/8/2017 6:00:00 PM	Date/Time Opened: 11/09/2017 07:00 AM	Created By: LYNN GROFF
Mileposts: 243 to 241.6	Direction: Westbound	Lanes Affected: the left lanes
Contact Person: Lynn Groff	Construction Project #: T-242.00T002-3-03	
	Create New Advisory Remove	
Schedule Date/Time: 11/8/2017 6:00:00 PM	Date/Time Opened: 11/09/2017 07:00 AM	Created By: LORI CORDEN
Mileposts: 294.4 to 291.5	Direction: Westbound	Lanes Affected: the right lanes
Contact Person: Barb Burzhnick	Construction Project #: EN-00198-03-05	
	Create New Advisory Remove	

ENS APPROVALS

PA Turnpike

Emergency Notification System

Technical problems?
 Call Information Logistics at
 856-224-1886, 800-317-8000,
 or at 215-673-8131 after hours.

Roadway Conditions
Approvals
Waze
Update Advisories
New Advisory
Tweet
Home
Logout

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Submitted Lane Closures

There are currently no submitted lane closures.

Submitted Roadway Conditions

There are currently no submitted road conditions.

Schedule Date/Time: 11/8/2017 5:00:00 PM Mileposts: 31.8 to 25.7 Contact Person: Julius Reid	Date/Time Opened: 11/09/2017 06:00 AM Direction: Southbound Construction Project #: A-020.00T002-3-07 Create New Advisory Remove	Created By: ANDREW FRANK Lanes Affected: multiple lanes
Schedule Date/Time: 11/8/2017 5:00:00 PM Mileposts: 31.8 to 25.7 Contact Person: Julius Reid	Date/Time Opened: 11/09/2017 06:00 AM Direction: Southbound Construction Project #: A-020.00T002-3-07 Create New Advisory Remove	Created By: ANDREW FRANK Lanes Affected: multiple lanes
Schedule Date/Time: 11/8/2017 6:00:00 PM Mileposts: 239.7 to 243.3 Contact Person: Lynn Groff	Date/Time Opened: 11/09/2017 07:00 AM Direction: Westbound Construction Project #: T-242.00T002-3-03 Create New Advisory Remove	Created By: LYNN GROFF Lanes Affected: the left lanes
Schedule Date/Time: 11/8/2017 6:00:00 PM Mileposts: 243 to 241.6 Contact Person: Lynn Groff	Date/Time Opened: 11/09/2017 07:00 AM Direction: Westbound Construction Project #: T-242.00T002-3-03 Create New Advisory Remove	Created By: LYNN GROFF Lanes Affected: the left lanes
Schedule Date/Time: 11/8/2017 6:00:00 PM Mileposts: 294.4 to 291.5 Contact Person: Darb Burshnick	Date/Time Opened: 11/09/2017 07:00 AM Direction: Westbound Construction Project #: EN-00198-03-05 Create New Advisory Remove	Created By: LORI CORDEN Lanes Affected: the right lanes

CONSTRUCTION TAB

PA Turnpike Emergency Notification System

Tech
Call
856-
Or at

Jump

There are 1 Pending Condition Approvals

[Roadway Conditions](#) | [Approvals](#) | [Waze](#) | [Update Advisories](#) | [New Advisory](#) | [Tweet](#) | [Home](#) | [Logout](#)

[WebMap](#) | [WebMap Status](#) | [VMS](#) | [RWIS](#) | [Cameras](#) | [PlanX](#) | [Archives](#) | [Constructor](#) | [Contacts](#) | [EPOs](#)

Month: November, 2017 ([CHANGE](#))

Updated: November 6, 2017

Header: ANTICIPATED NOVEMBER LANE CLOSURES ([UPDATE](#))

[Create New Item](#)

[Print](#)

[Save PDF](#)

EDIT	10-New Castle - 28-Cranberry Title: BRIDGE REPLACEMENT	Mile Posts: 11.0 - 14.0
EDIT	13-Beaver Valley - 28-Cranberry Title: BRIDGE REPLACEMENT	Mile Posts: 19.5 - 21.5
EDIT	39-Butler Valley - 48-Allegheny Valley Title: TREE TRIMMING	Mile Posts: 38.0 - 44.3
EDIT	39-Butler Valley - 48-Allegheny Valley Title: ROADWAY & BRIDGE RECONSTRUCTION	Mile Posts: 39.6 - 48.0
EDIT	39-Butler Valley - 57-Pittsburgh Title: TREE CLEARING	Mile Posts: 47.0 - 56.0
EDIT	57-Pittsburgh - 67-Irwin Title: TREE CLEARING	Mile Posts: 61.0 - 67.0
EDIT	57-Pittsburgh - 67-Irwin Title: BRIDGE REPLACEMENT	Mile Posts: 58.0 - 61.0
EDIT	110-Somerset - 146-Bedford Title: TREE TRIMMING	Mile Posts: 138.0 - 143.0
EDIT	146-Bedford - 161-Breezewood Title: TREE TRIMMING	Mile Posts: 157.0 - 162.0
EDIT	146-Bedford - 180-Fort Littleton Title: TREE TRIMMING & SHOULDER REPAIR	Mile Posts: 157.0 - 162.0
EDIT	189-Willow Hill - 201-Blue Mountain Title: BITUMINOUS RESURFACING	Mile Posts: 190.0 - 200.0
EDIT	201-Blue Mountain - 226-Carlisle Title: ROADWAY AND BRIDGE RECONSTRUCTION	Mile Posts: 202.0 - 206.0
EDIT	226-Carlisle - 242-Harrisburg West Shore Title: BRIDGE REPLACEMENT & ROADWAY REPAIRS	Mile Posts: 227.0 - 238.5
EDIT	242-Harrisburg West Shore - 247-Harrisburg East Title: TOTAL RECONSTRUCTION	Mile Posts: 242.0 - 245.0

CONSTRUCTION TAB

PA Turnpike Emergency Notification System

There are 1 Pending Condition Approvals

[Roadway Conditions](#) | [Approvals](#) | [Waze](#) | [Update Advisories](#) | [New Advisory](#) | [Tweet](#) | [Home](#) | [Logout](#)

[WebMap](#) | [WebMap Status](#) | [VMS](#) | [RWIS](#) | [Cameras](#) | [PlanX](#) | [Archives](#) | **Construction** | [Contacts](#) | [EPOs](#)

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EDIT	242-Harrisburg West Shore - 247-Harrisburg East Title: TOTAL RECONSTRUCTION	Mile Posts: 242.0 - 245.0

COMPUTER AIDED DISPATCH SYSTEM (CADS)

I/Dispatcher Event Information

Create
 Update
 Select

Loc: @T226W
 Primary Commonplace: T226W

Type: RO - ROADWAY OBSTRUCTION
 Subtype:

Name: REBEKA PITA
 Phone: (567) 342-4597
 Mun: MIDDLESEX
 Misc: COW ON THE SHOULDER

Call Src:

Construction Zone: Static
 Left Shoulder
 Left Lane
 Center Lane
 Right Lane
 Right Shoulder
 Ramp
 Traffic Stopped

Backlog MM

Unit: NV100
 St: AR

Ev: Add: 16:36:41
 SS: Disp: 16:37:21
 CLEAN: Enr: 16:37:23
 Arrv: 16:42:47
 Tr:
 Tr Ar:

History: < 5 of 5 >
 PSP Number(s):

System
 Stacked

Remarks: Dup #: Orig Term: cv-bws06 Person: 760016

Attachments Graphics

Calls

16:36:41	SYSTEM	MISC: COW ON THE SHOULDER
16:36:41	ODIALLO	** LOI search completed at 10/23/16 16:36:41
16:37:21	DFRITZ	** Recommended unit NV100 for requirement 1RSPND (N/A)
		According to Waze it's WB just prior to Waggoners Gap RD
		.

COMPUTER AIDED DISPATCH SYSTEM (CADS)

Dispatcher Event Information

Loc: @T226W

Primary Commonplace: T226W

Type: RO - ROADWAY OBSTRUCTION

Subtype:

Name: REBEKA PITA

Phone: (567) 342-4597

Mun: MIDDLESEX

Misc: COW ON THE SHOULDER

Unit: NV100

St: AR

Ev: Add: 16:37:21

SS: Disp: 16:37:21

CLEAN: Arrv: 16:42:47

Tr: Tr Ar:

History: 5 of 5

System: Stacked

Remarks: Dup #: Orig Term: cv-bws06 Person: 760016

Accept Event

GOOGLE

Construction Zone: Static

Left Shoulder

Left Lane

Right Lane

Right Shoulder

Stopped

MM

Chronology

Notify DO

Cross Ref

Print

Notifications

Attachments

Graphics

Recommend

Calls

Accept Advised

16:36:41	SYSTEM	MISC: COW ON THE SHOULDER
16:36:41	ODIALLO	** LOI search completed at 10/23/16 16:36:41
16:37:21	DFRITZ	** Recommended unit NV100 for requirement 1RSPND (N/A)
		According to Waze it's WB just prior to Waggoners Gap RD

PHONE
RADIO
EMP-PHN
EMP-RAD
WAZE-S/M

Waggoner's Gap

Redwood Dr

I-76

Road Hazard

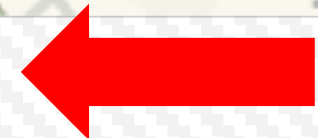
I-76 W

Cow out of fence

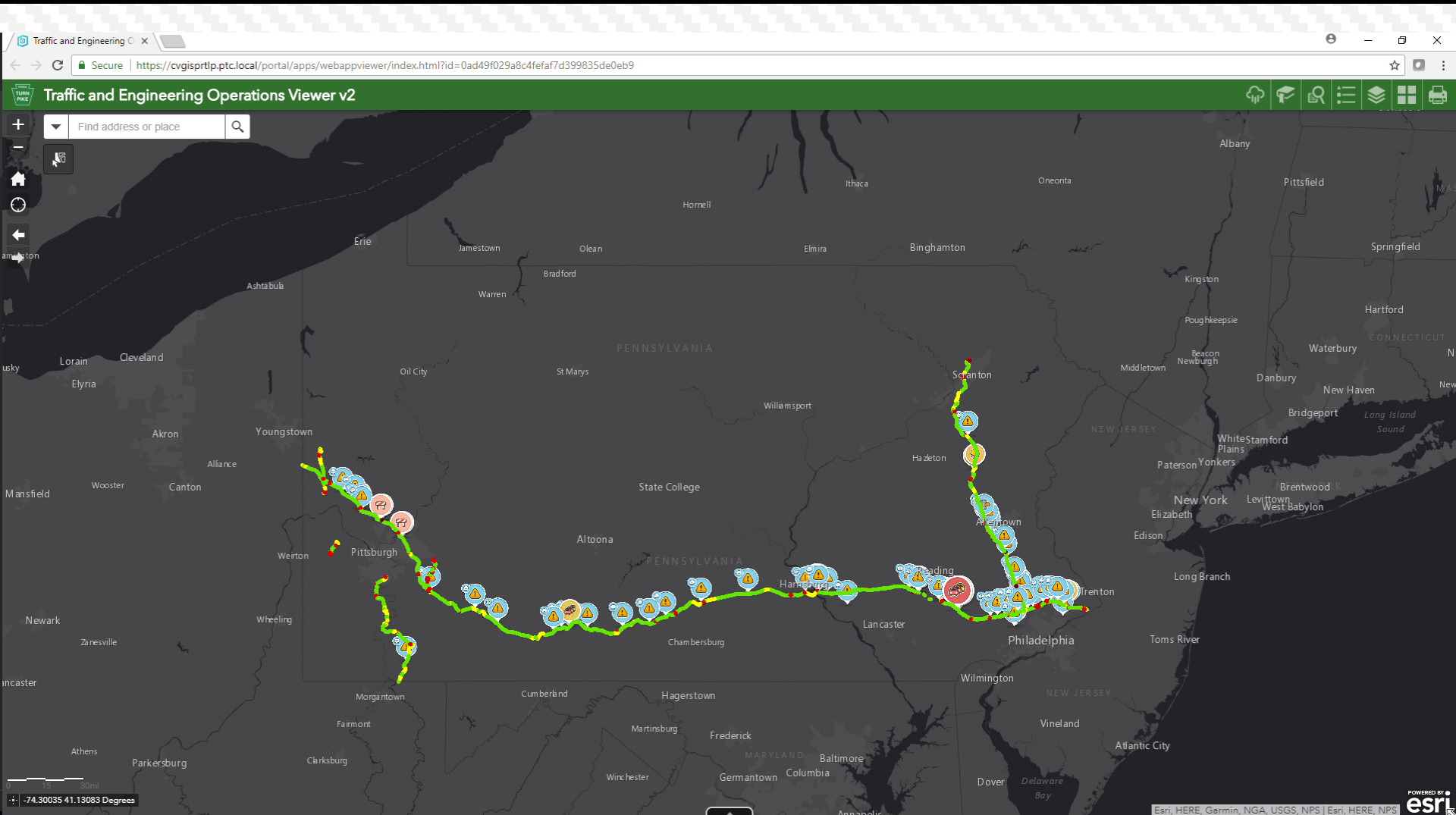
Reported by adgjkjg

15 min ago

0 1



TRAFFIC OPERATIONS VIEWER



WAZE REPORTING TOOL

waze

LIVE MAP

EVENTS

SUPPORT

BLOG

ABOUT

Search for an address or place

Filter See all

Add a new alert

Alert type *

Road Hazard

Sub-type *

Weather Hazard

Comment

Truck and Trailer restrictions. Turnpike Speed Limit 45 MPH.

Start

optional



End

optional

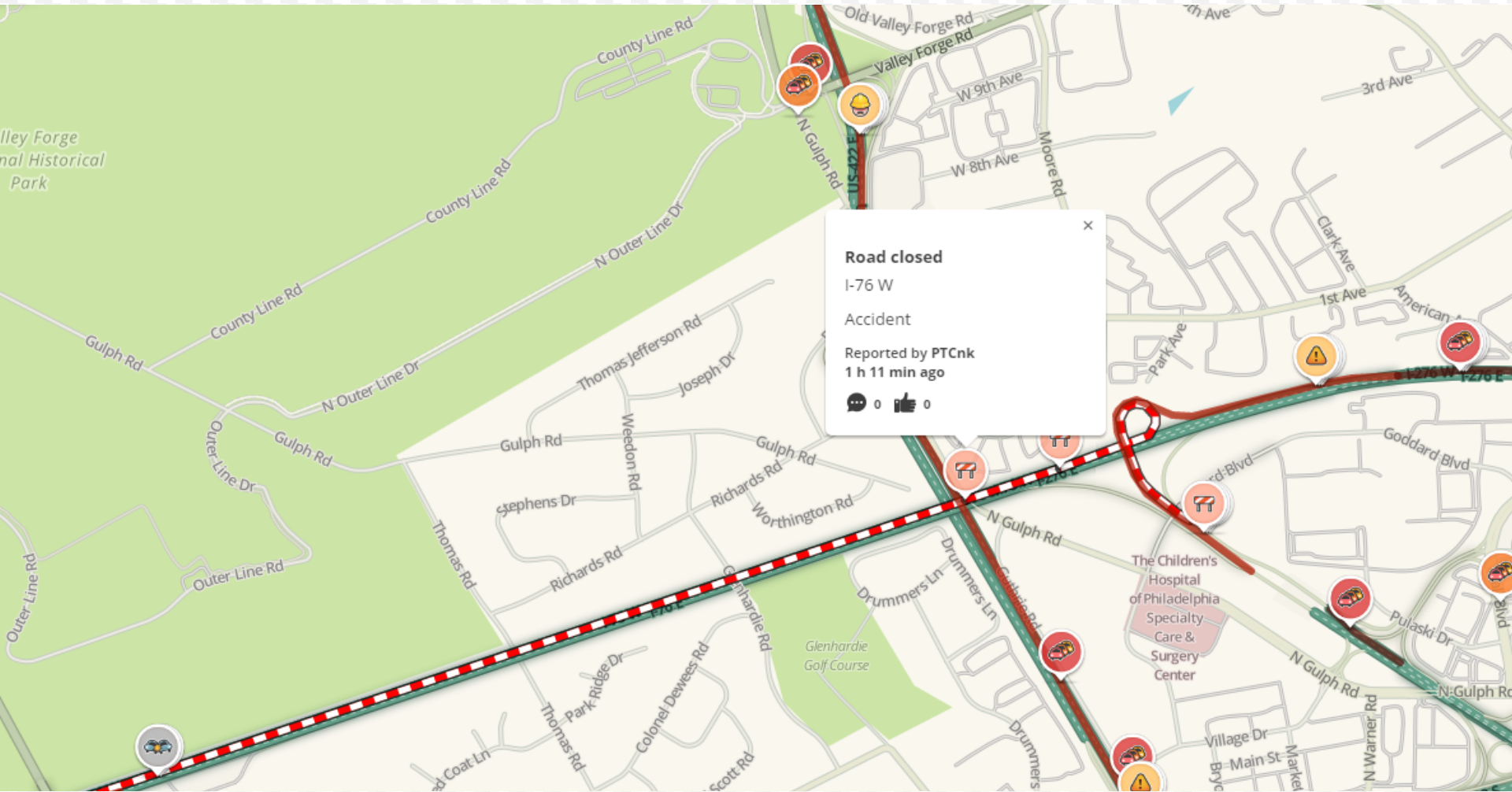


Submit

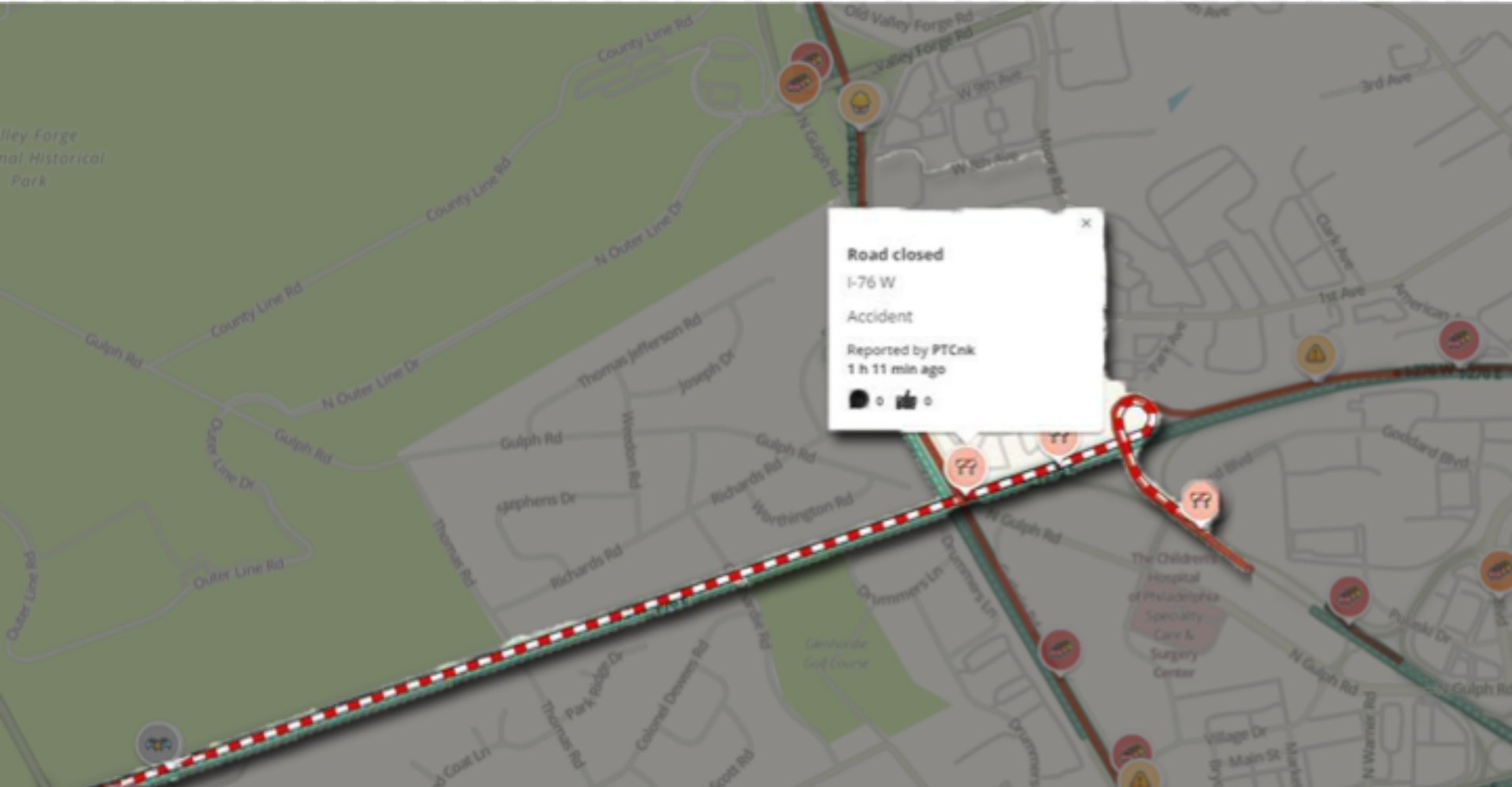
Cancel

40.229,-77.143

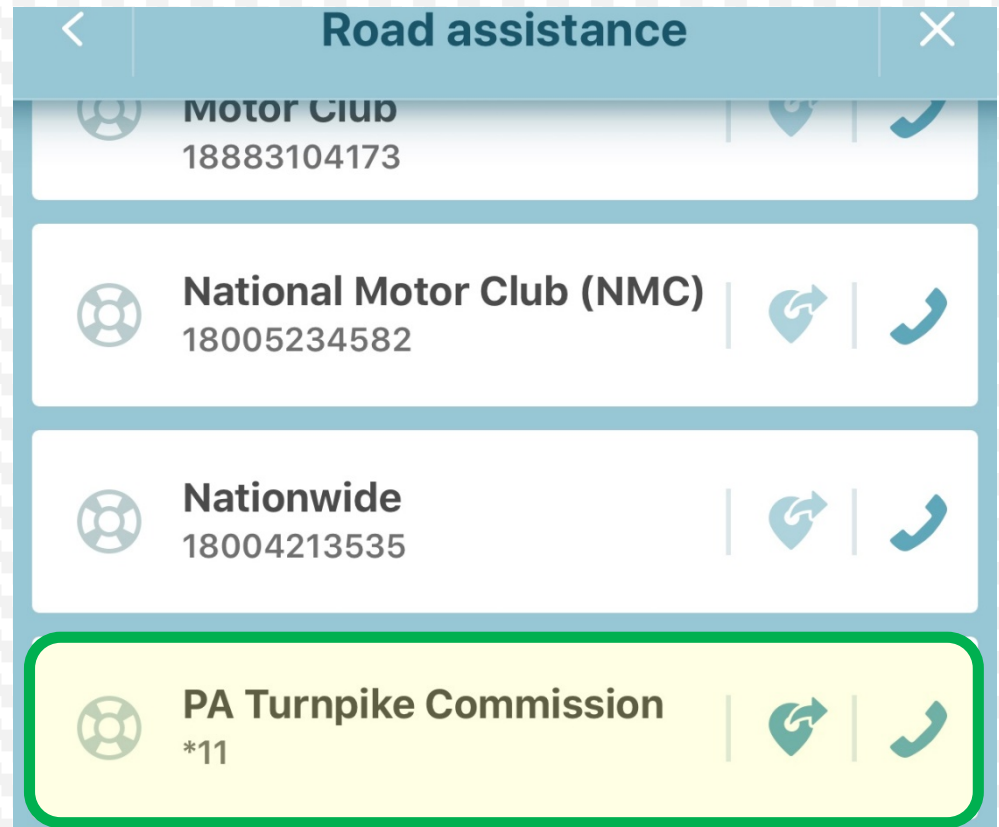
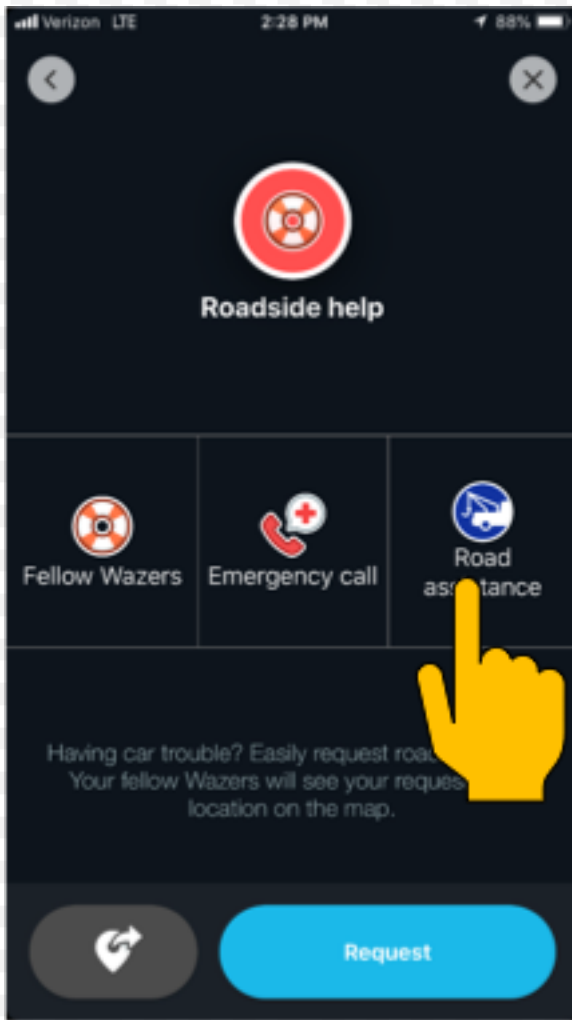
MAP EDITING AND CLOSURES



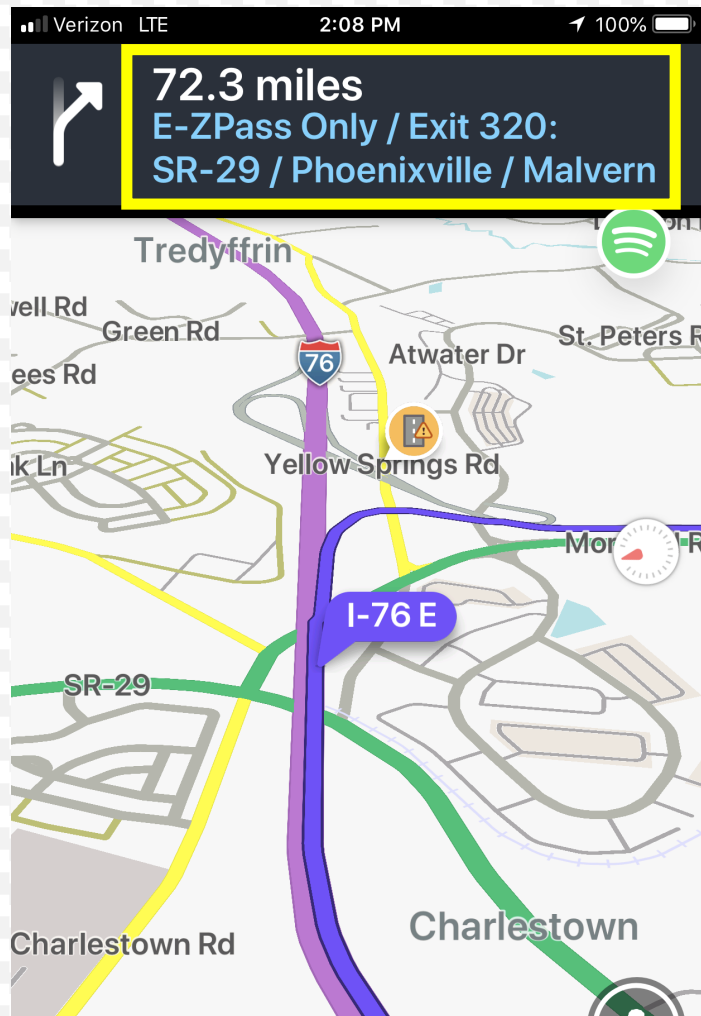
MAP EDITING AND CLOSURES



CUSTOMER SAFETY – ROADSIDE ASSISTANCE




E-Z PASS ONLY ROUTING



- E-Z Pass Only Routing functionality added December 6th 2017
- Provides higher level of customer service and convenience
- Reduction in toll violations

THE FUTURE! GETTING PREDICTIVE

Pennsylvania Turnpike Early Warning Detection



Early Warning Detection
as of: 12/3/2017 4:11:21 PM

District

Roadway

- District 1
- District 2
- District 3
- District 4
- District 5

- A. Hutchinson
- Beaver Valley
- Mainline
- Mon-Fayette
- NE Ext.
- Southern Belway

Speed Threshold

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0

← [Slider] →

Waze Type

- Accident
- Jam
- Weather Hazard

Waze Rating Minimum

0 1 2 3 4 5

← [Slider] →

Waze Confidence Minimum

0 1 2 3 4 5

← [Slider] →

Waze Reliability Minimum

0 1 2 3 4 5 6 7 8 9 10

← [Slider] →

Visibility Threshold

5 Active Watch Points

District	Segment	Conditions	Speed Differential	Speed (LastHour)	Waze Alerts	Visibility	Wind Speed	NWS Alerts
District 2	Mainline, Westbound: 161.7 - 161.8	Fair (50.0F)	-10		0	10.00	8.1 (Northwest)	0
District 3	Mainline, Eastbound: 202.3 - 202.8	Fog/Mist (37.0F)	-6		0	5.00	0 (North)	0
District 3	Mainline, Eastbound: 277.1 - 277.7	Fair (43.0F)	-1.0		1	7.00	0 (North)	0
District 3	Mainline, Westbound: 294.4 - 294.9	Fair (43.0F)	-		1	10.00	0 (North)	0
District 4	Mainline, Eastbound: 324.4 - 324.8	Mostly Cloudy (46.0F)	-6		0	10.00	3.5 (Northwest)	0

Source: PA Turnpike Commission

THE FUTURE! GETTING PREDICTIVE

Pennsylvania Turnpike Early Warning Detection

PENNA
TURN
PIKE

Early Warning Detection
as of: 11/30/2017 10:35:29 AM

District	Roadway
<input type="checkbox"/>	<input type="checkbox"/> A. Hutchinson
<input type="checkbox"/> District 1	<input type="checkbox"/> Beaver Valley
<input type="checkbox"/> District 2	<input type="checkbox"/> Mainline
<input type="checkbox"/> District 3	<input type="checkbox"/> Mon-Fayette
<input type="checkbox"/> District 4	<input type="checkbox"/> NE Ext.
<input type="checkbox"/> District 5	<input type="checkbox"/> Southern Beltway

Source: PA Turnpike Commission

THE FUTURE! GETTING PREDICTIVE

Pennsylvania Turnpike Early Warning Detection



Speed Threshold

-52 -50 -48 -46 -44 -42 -40 -38 -36 -34 -32 -30 -28 -26 -24 -22 -20 -18 -16 -14 -12 -10 -8 -6 -4 -2 0
-53 -51 -49 -47 -45 -43 -41 -39 -37 -35 -33 -31 -29 -27 -25 -23 -21 -19 -17 -15 -13 -11 -9 -7 -5 -3 -1

Waze Type

Accident
 Jam
 Weather Hazard

Waze Rating Minimum

0 1 2 3 4 5

Waze Confidence Minimum

0 1 2 3 4 5

Waze Reliability Minimum

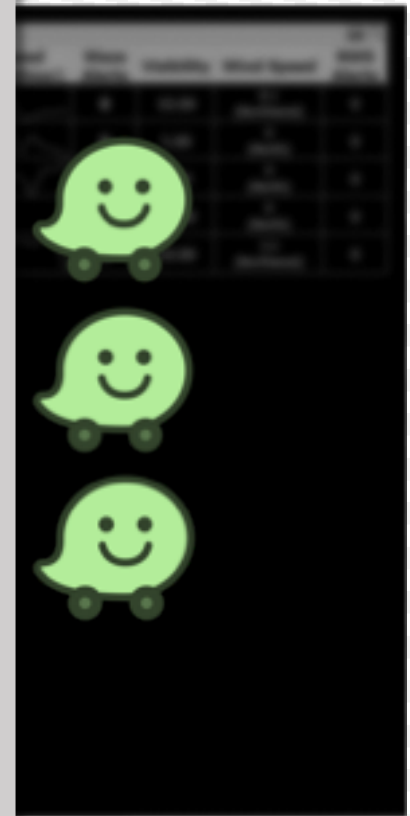
0 1 2 3 4 5 6 7 8 9 10

Visibility Threshold

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Wind Speed Threshold

0 5 10 15 20 25 30 35 40 45 50



Source: PA Turnpike Commission

THE FUTURE! GETTING PREDICTIVE

Pennsylvania Turnpike Early Warning Detection



3 Active Watch Points XL								
District	Segment	Conditions	Speed Differential	Speed (LastHour)	Waze Alerts	Visibility	Wind Speed	NWS Alerts
	NE Ext., Northbound: 130.1 - 130.6	<u>Fair (37.0F)</u>	-12		0	10.00	0 (North)	0
District 1	Mainline, Westbound: 75.5 - 75.6	<u>Mostly Cloudy (50.0F)</u>	-12		0	10.00	11.5 (South)	0
District 5	NE Ext., Southbound: 122.7 - 123.2	<u>Fair (37.0F)</u>	-53		1	10.00	0 (North)	0
District 5	NE Ext., Northbound: 130.1 - 130.6	<u>Fair (37.0F)</u>	-12		0	10.00	0 (North)	0

Source: PA Turnpike Commission

ADVANCED TRAFFIC MANAGEMENT

- Phase 1 Implementation – Q1 2019
- Integration of multiple systems including:
 - Emergency Notification System (ENS)
 - 3 DMS software packages
 - Highway Advisory Radio (HAR)
 - E-mail notifications
 - Travel Conditions Map
 - Waze!

Questions?

Todd Smith

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