

**Ted Bobowsky & Brendan Kaplan**  
**Port Authority of New York & New Jersey**

# Pros and Cons of "The Crowd" in Crowdsourced Data and How to Manage Them



**THE PORT AUTHORITY** OF NY & NJ



# Pros & Cons of "The Crowd" in Crowdsourced Data and How to Manage Them

I-95 Corridor Coalition  
Philadelphia, PA  
September 14, 2017



# Context: The Port Authority Scope of Operations

- Operates significant multi-modal facilities that connect the region:
  - Aviation
  - Ports
  - Tunnels, Bridges & Terminals
  - PATH (rail)
- 2016 Budget of \$7.4 Billion including \$2.9B Capital and \$3.1B Operating
- 10 Year Capital Plan of \$32 Billion
- Self-Sustaining Agency (no tax \$)



# Strategic Priorities

- Keep the region moving
- Leader in transportation
  - Traditional methods
  - Innovation
    - Embrace and lead in business and technology trends
    - Support & shape navigation preferences



# THE PORT AUTHORITY OF NY & NJ

How do we love automated, data-driven, crowdsourced, just-in-time, intelligent routing, communication, and road system awareness?

Let me count the Waze...



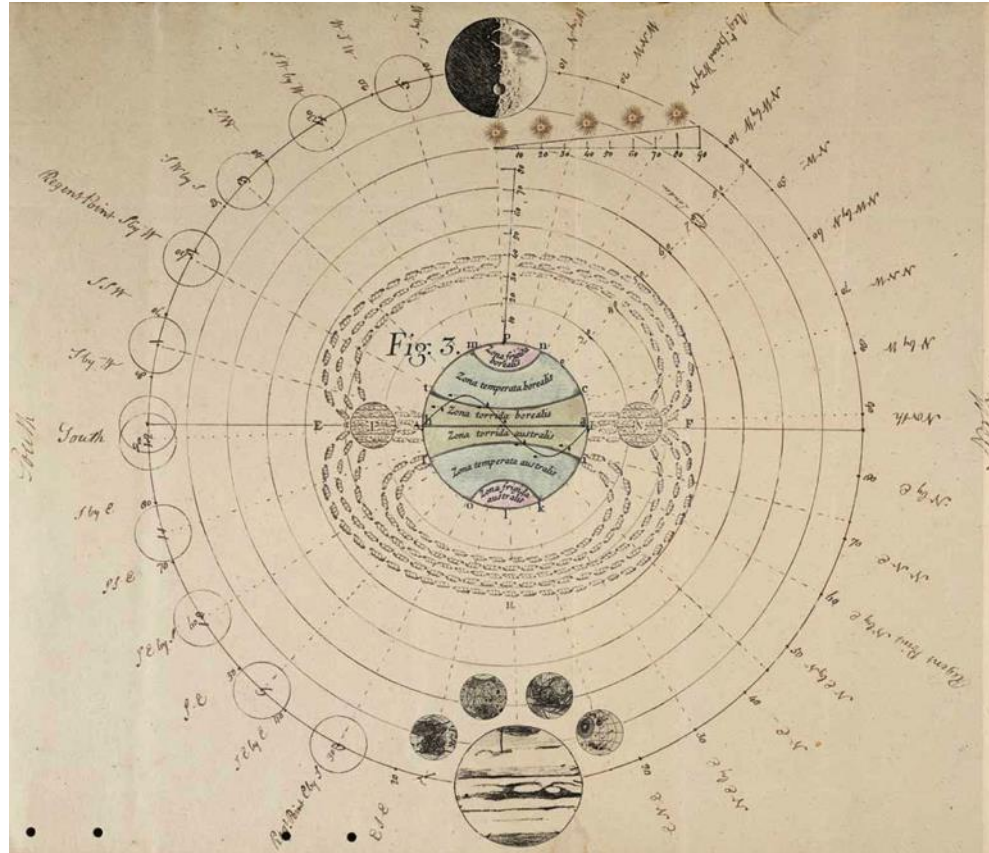
# THE PORT AUTHORITY OF NY & NJ



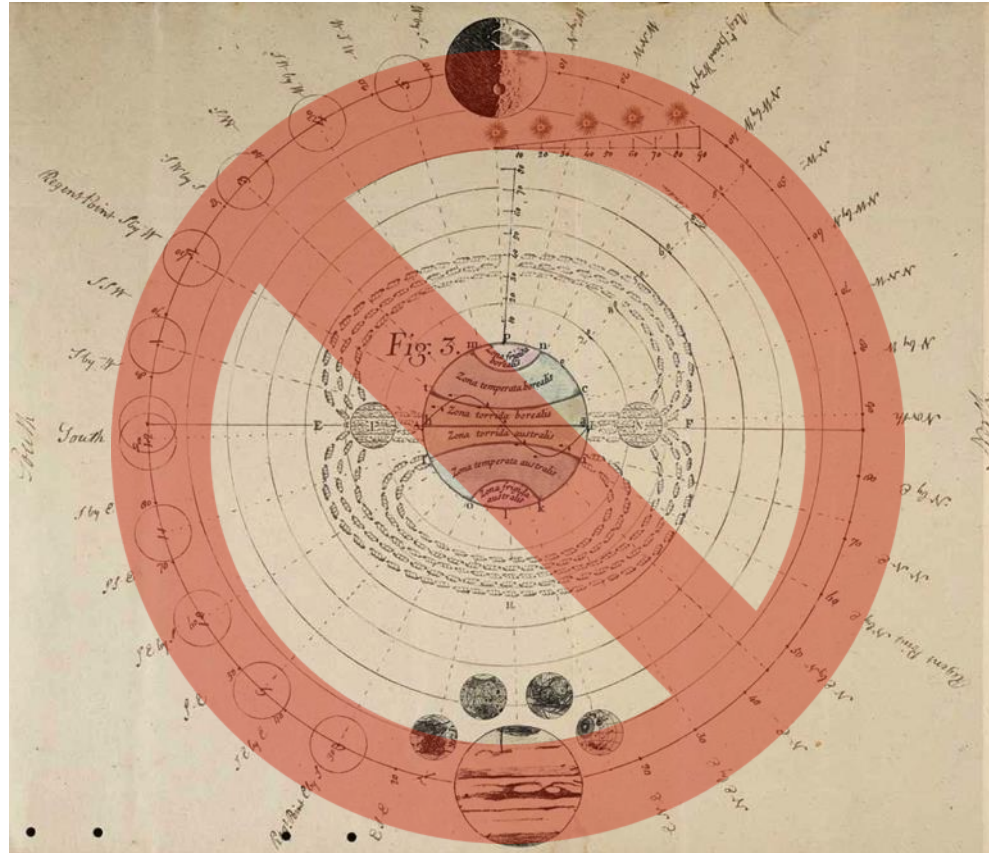
# Crowdsourcing – What it isn't, and what it is



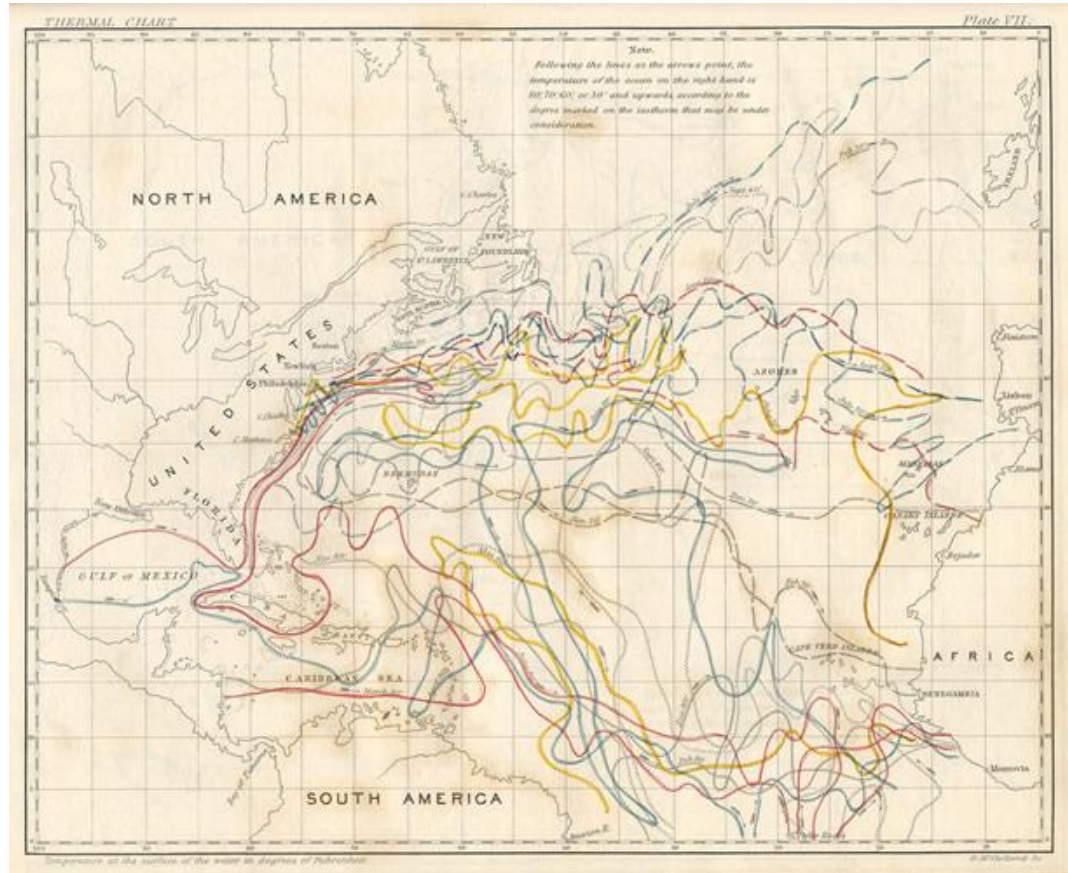
# Crowdsourcing – What it isn't, and what it is



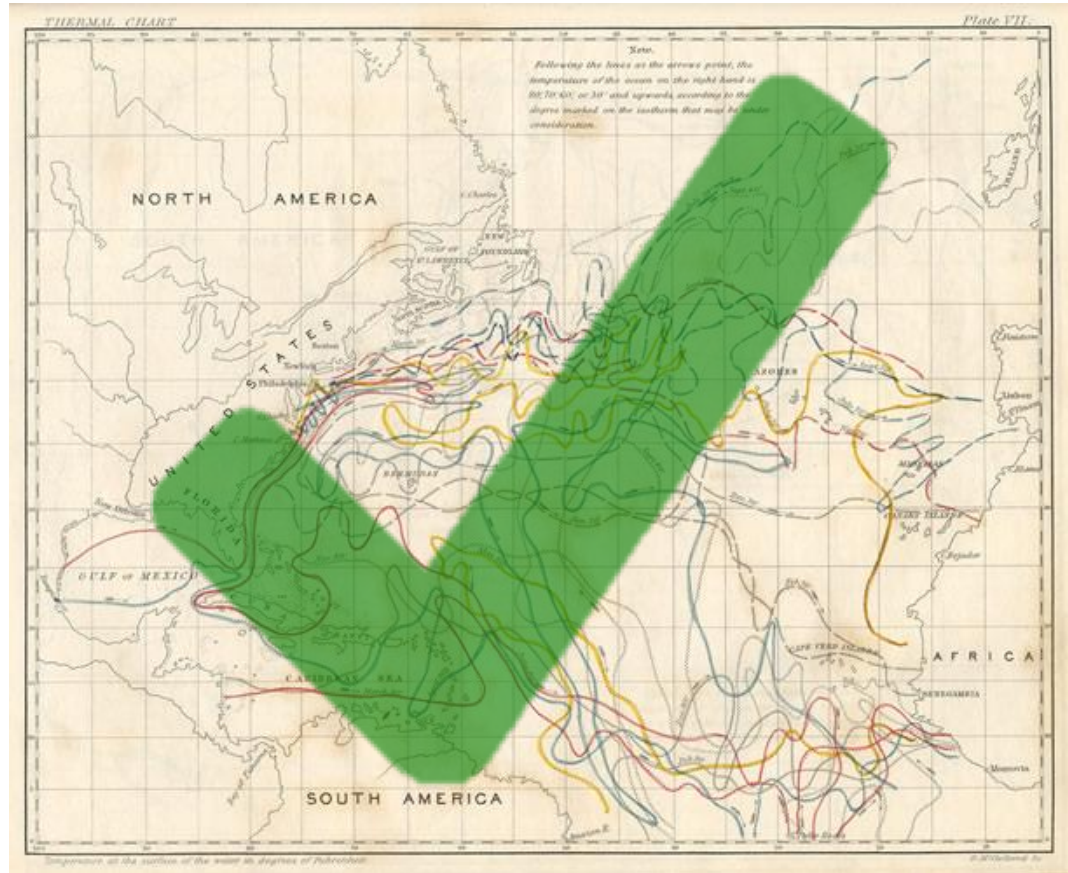
# Crowdsourcing – What it isn't, and what it is



# Crowdsourcing – What it isn't, and what it is



# Crowdsourcing – What it isn't, and what it is

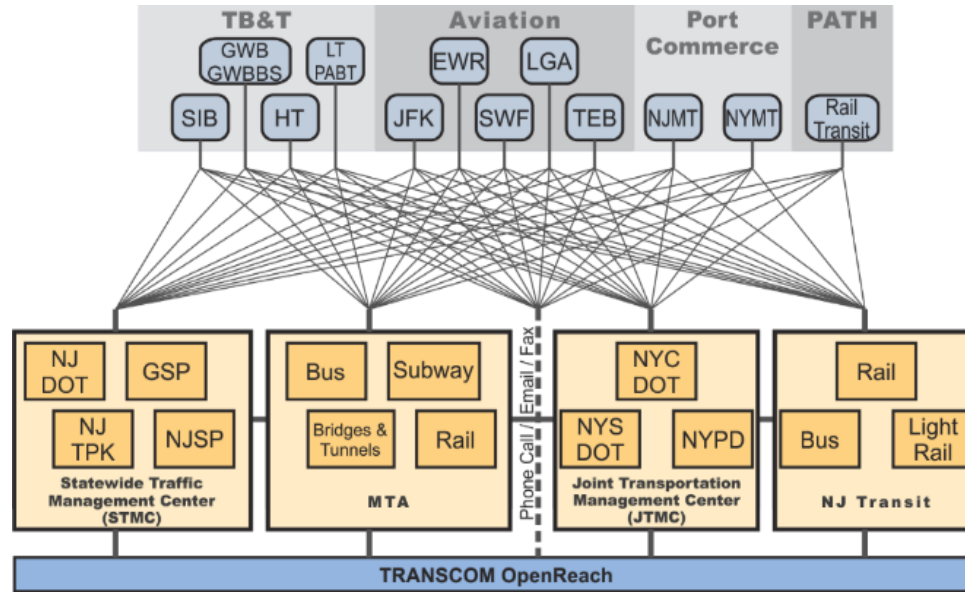


# How?

## Get, Process, Give

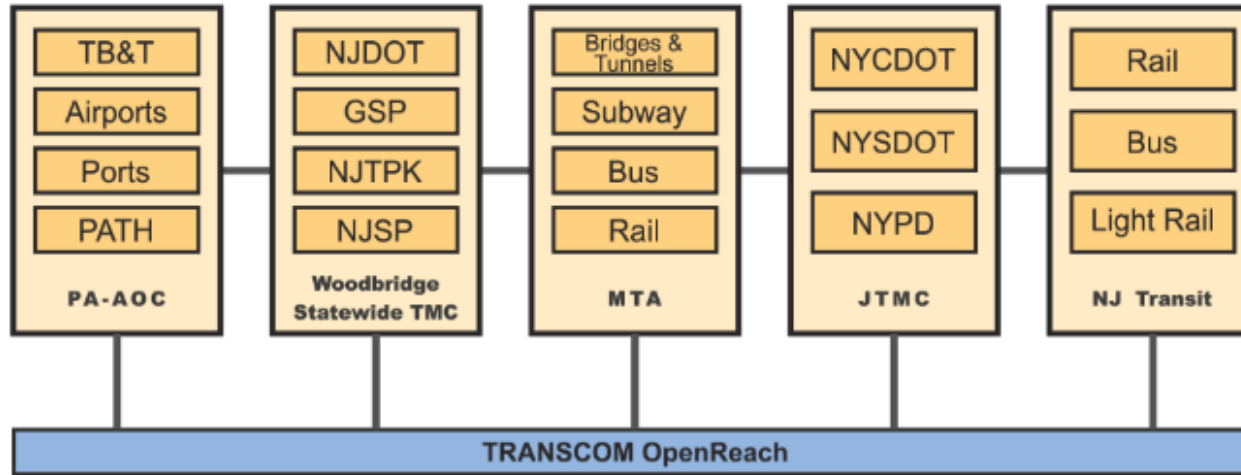


# Agency Operations Center (AOC)



## Regional Communications Before the AOC

# AOC



## Regional Communications With the AOC

# AOC

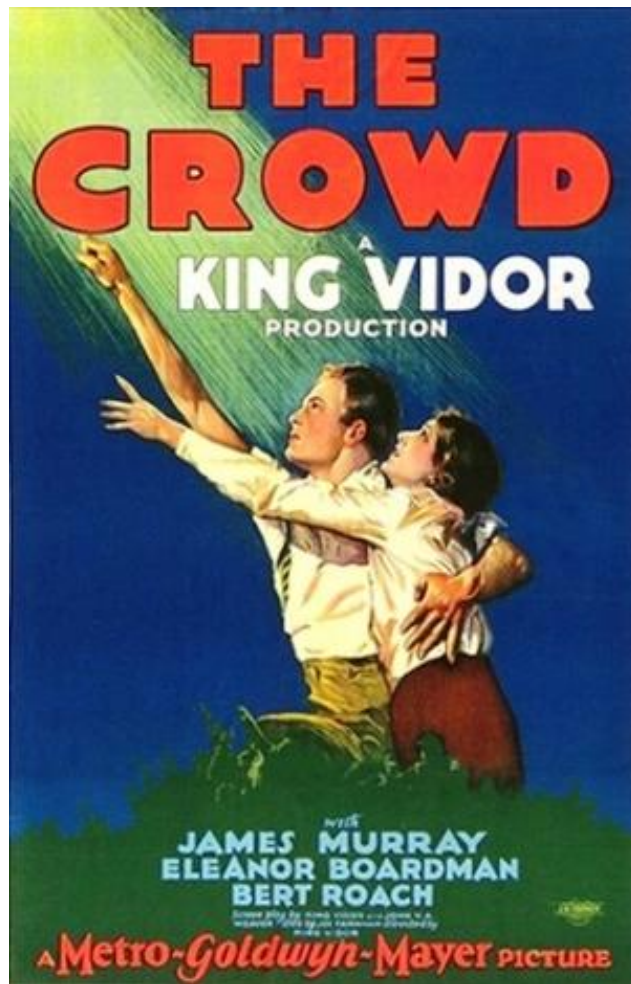


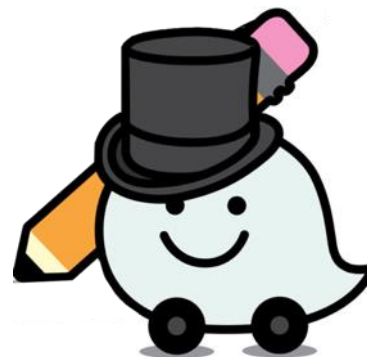
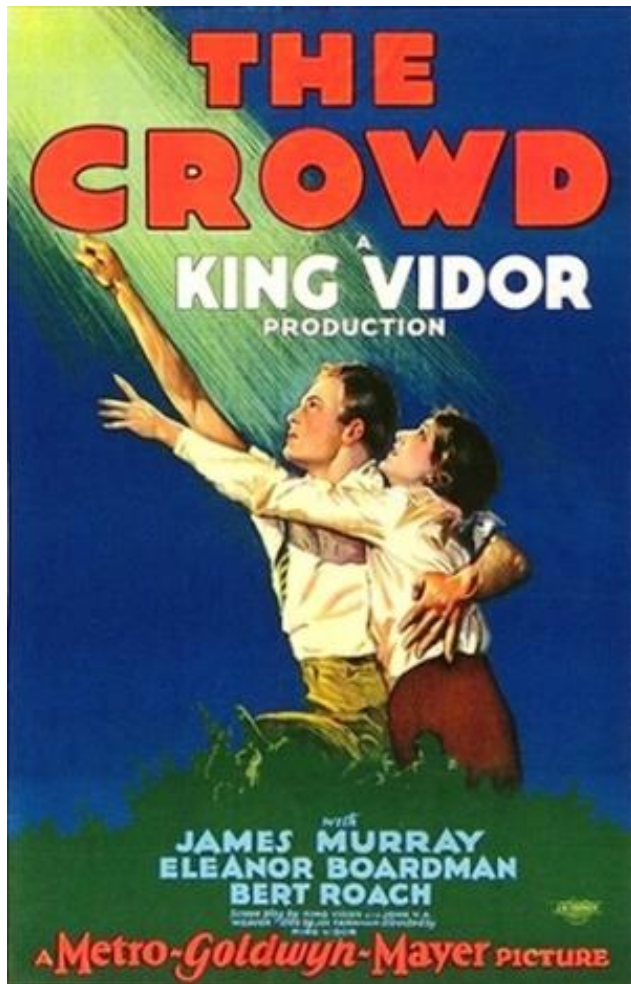
# AOC



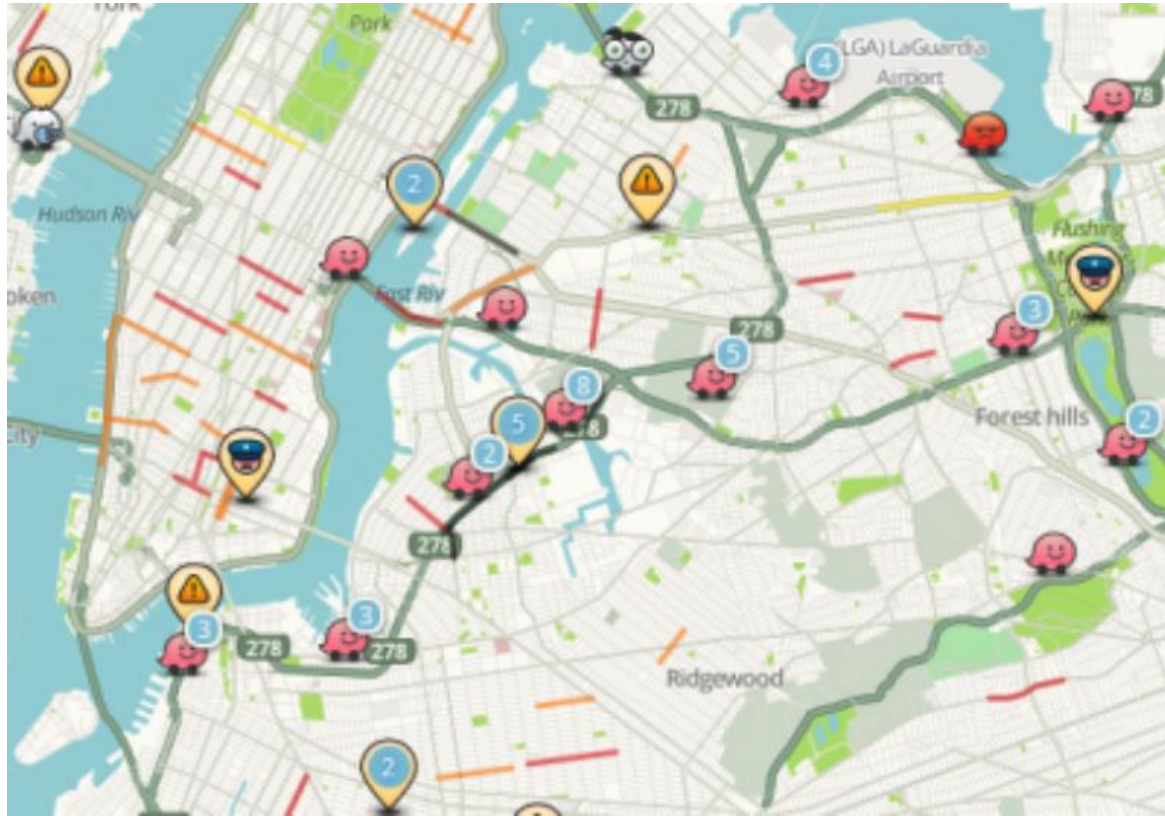
# Perfect Candidate



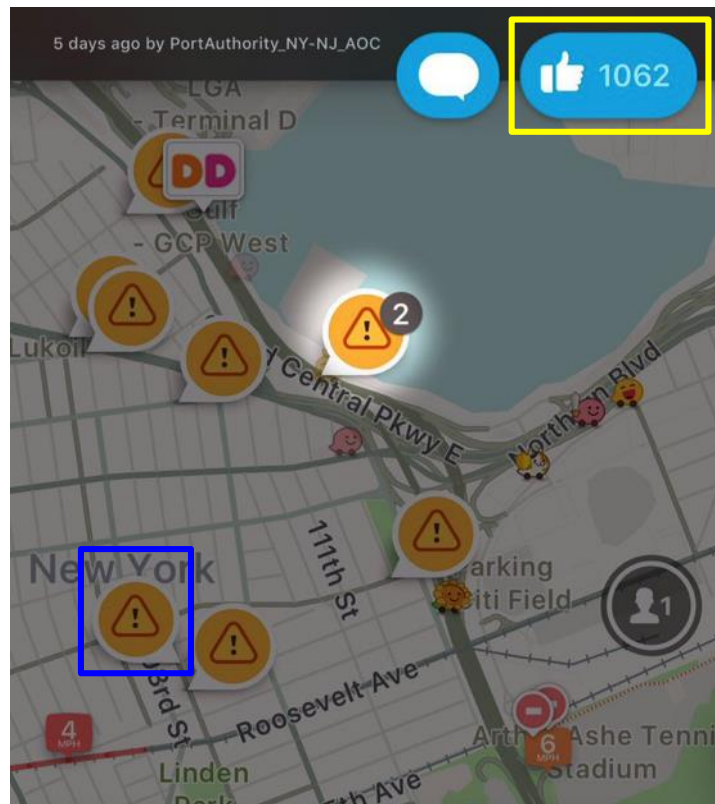




# Validation Baked In



# Validation Baked In – Weighted by Population

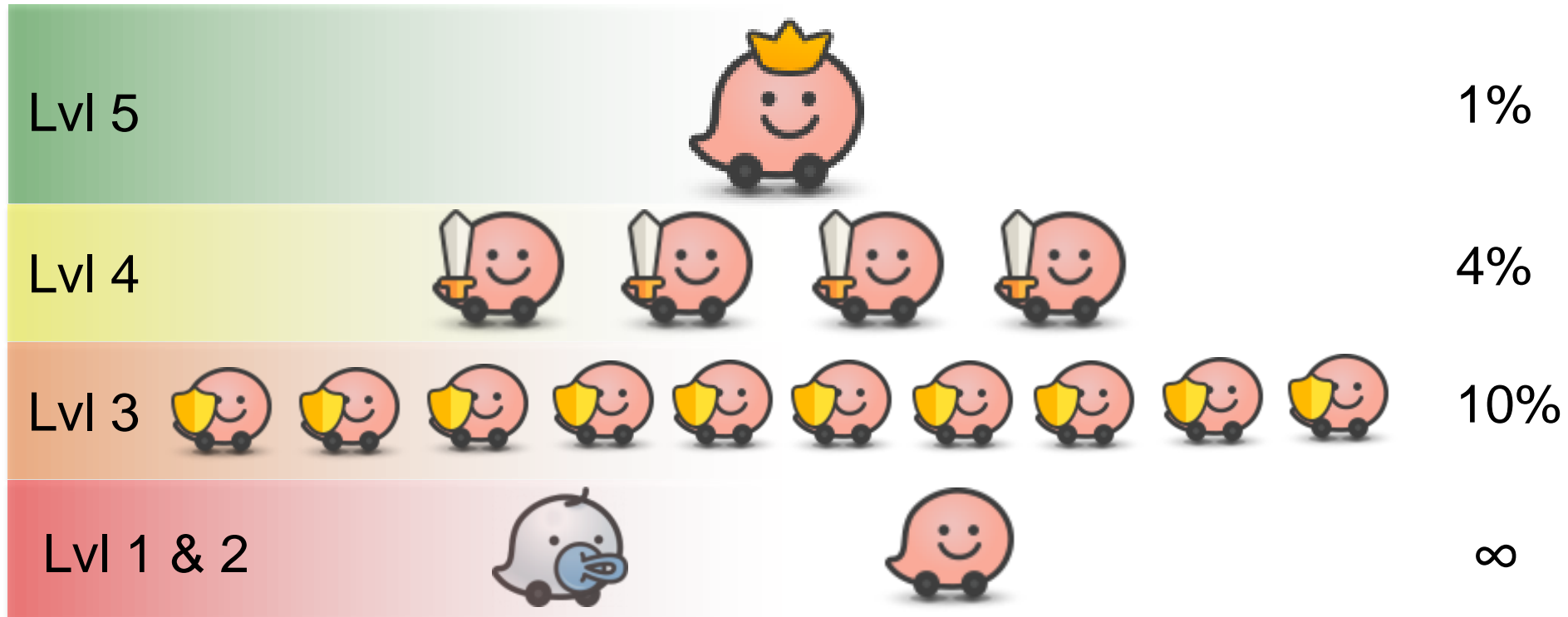


# Validation Baked In – Population Weighted by Value

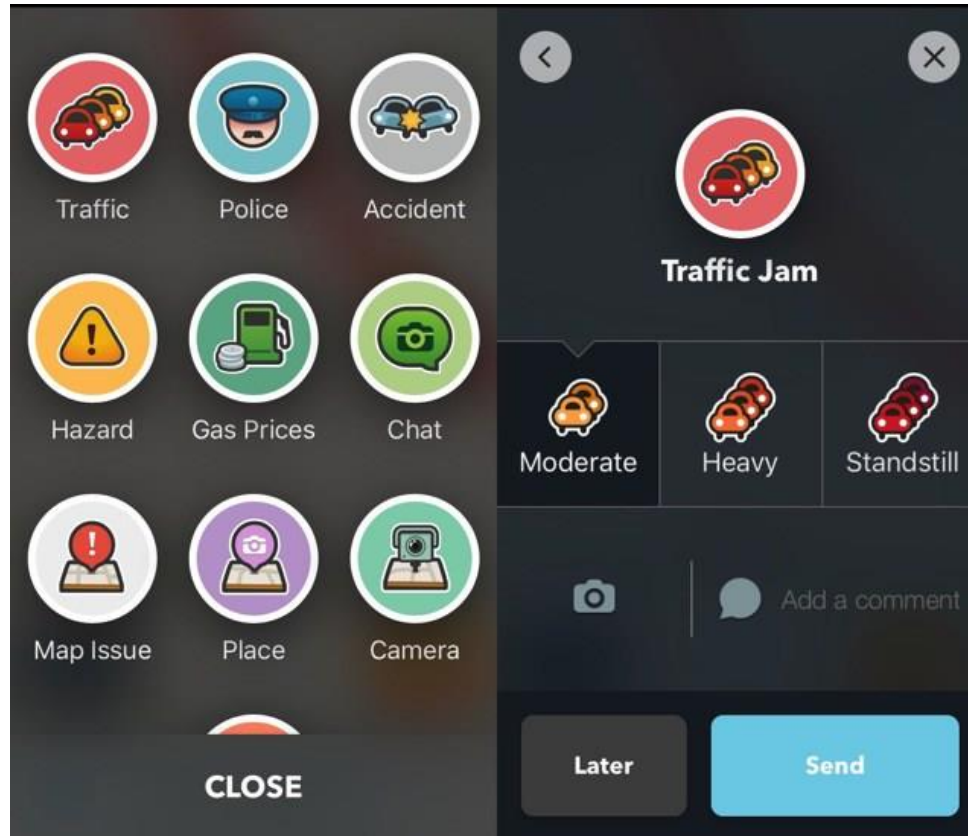


## Points, Levels, Authority

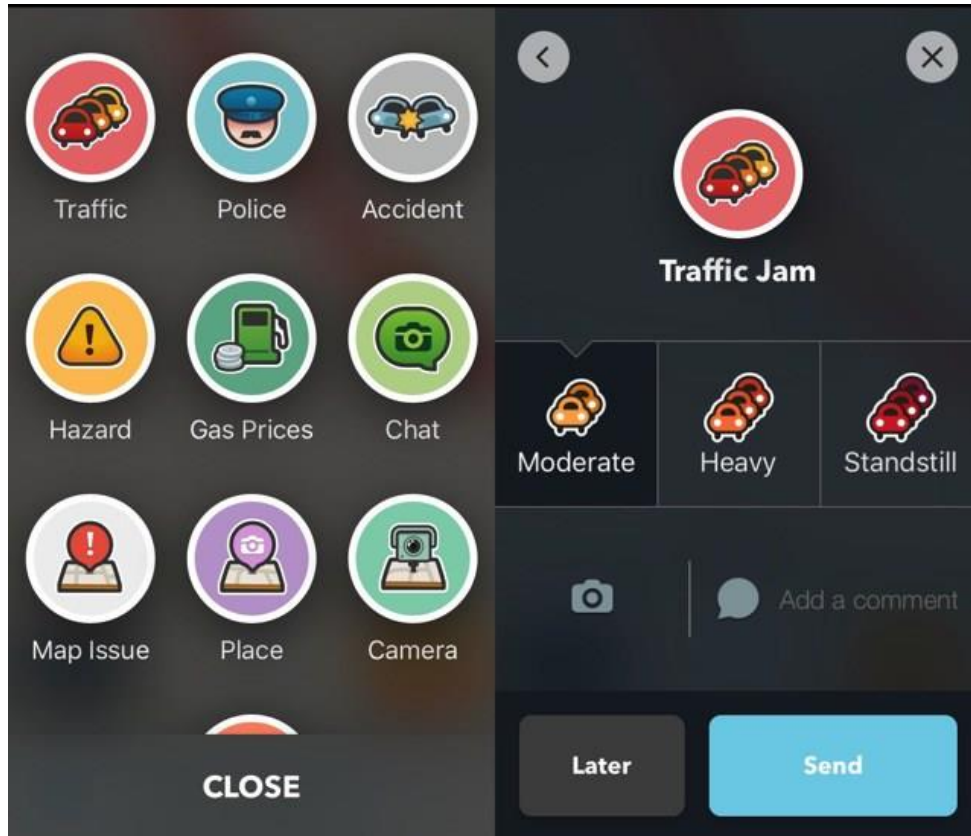
# Validation Baked In



# Leveling Up



# Leveling Up



Activity	Points	Unit
Road reporting <sup>1</sup>	6	per report
Gas/Fuel price reports	8	per report
Report comments	3	per comment
Editing the map <sup>2</sup>	3	per edit
Place photo	6	per photo
Place update	3	per detail added <sup>3</sup>
Solving map update requests	3	per request solved
Adding street names	3	per name <sup>4</sup>
Adding house numbers	1	per segment
Forum posts	2	per 3 forum posts
Road goodies	Face Value	per goodie

Activity	Per mile	Per km
Normal driving <sup>5</sup>	5	3.2
Road munching	16	10
New road recording (paving)	64	40

# Leveling Up

1 SEGMENT SELECTED

Holland Tunnel Outbound (west),  
Manhattan, New York

This segment is locked. You need to be a level 5 editor to edit this segment.

General

Closures

ROAD TYPE

Freeway

☐ Unpaved

☒ Tunnel

☐ Next to carpool/HOV/bus lane ⓘ

View restrictions

DIRECTION

One way (A → B)

SPEED LIMIT

A to B 35 mp/h

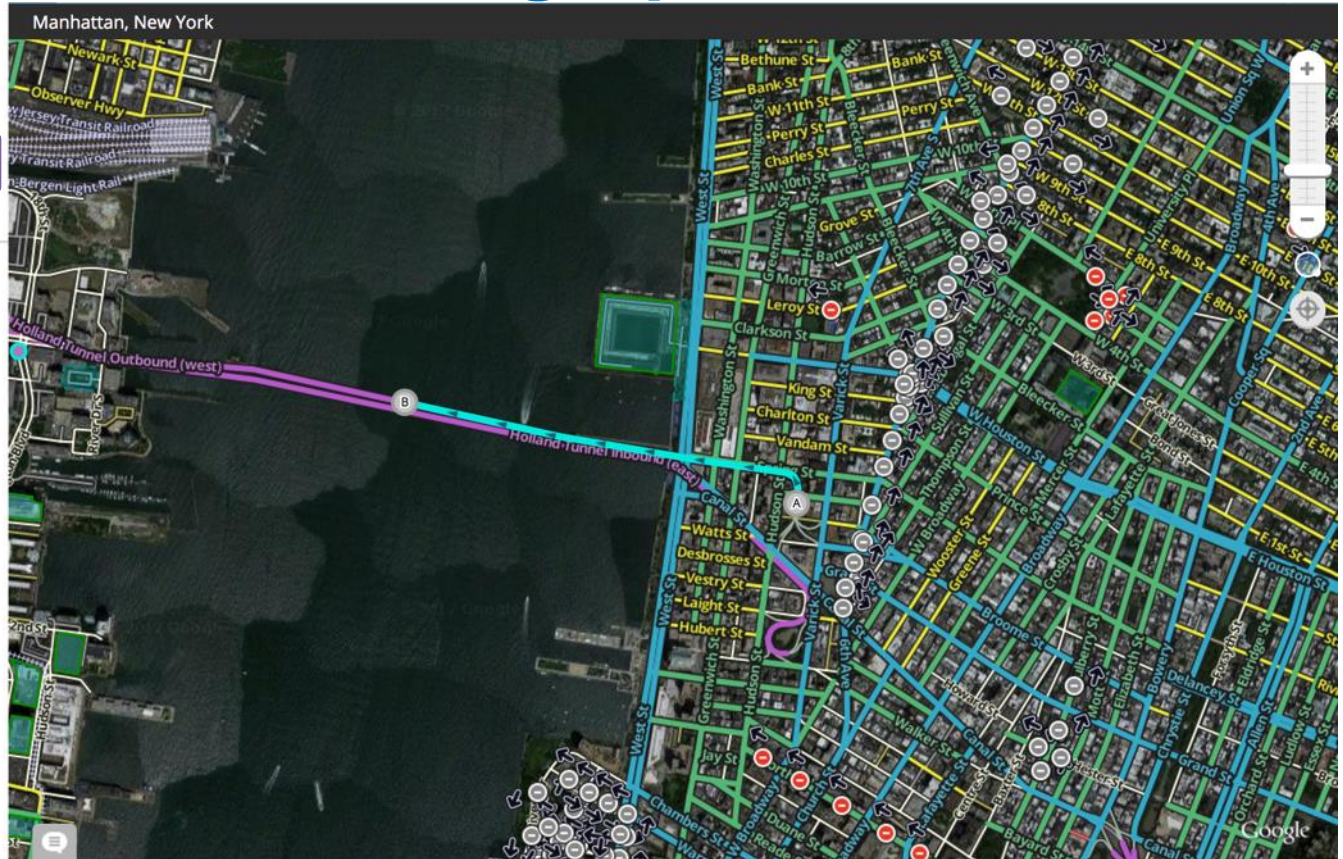
ELEVATION

-5

LOCK

5

Select entire street



# AOC + Waze: Maintain Situational Awareness



# AOC + Waze: Aid Customer Navigation



# Communicate w/ Customers to Set Expectations and Improve Experience

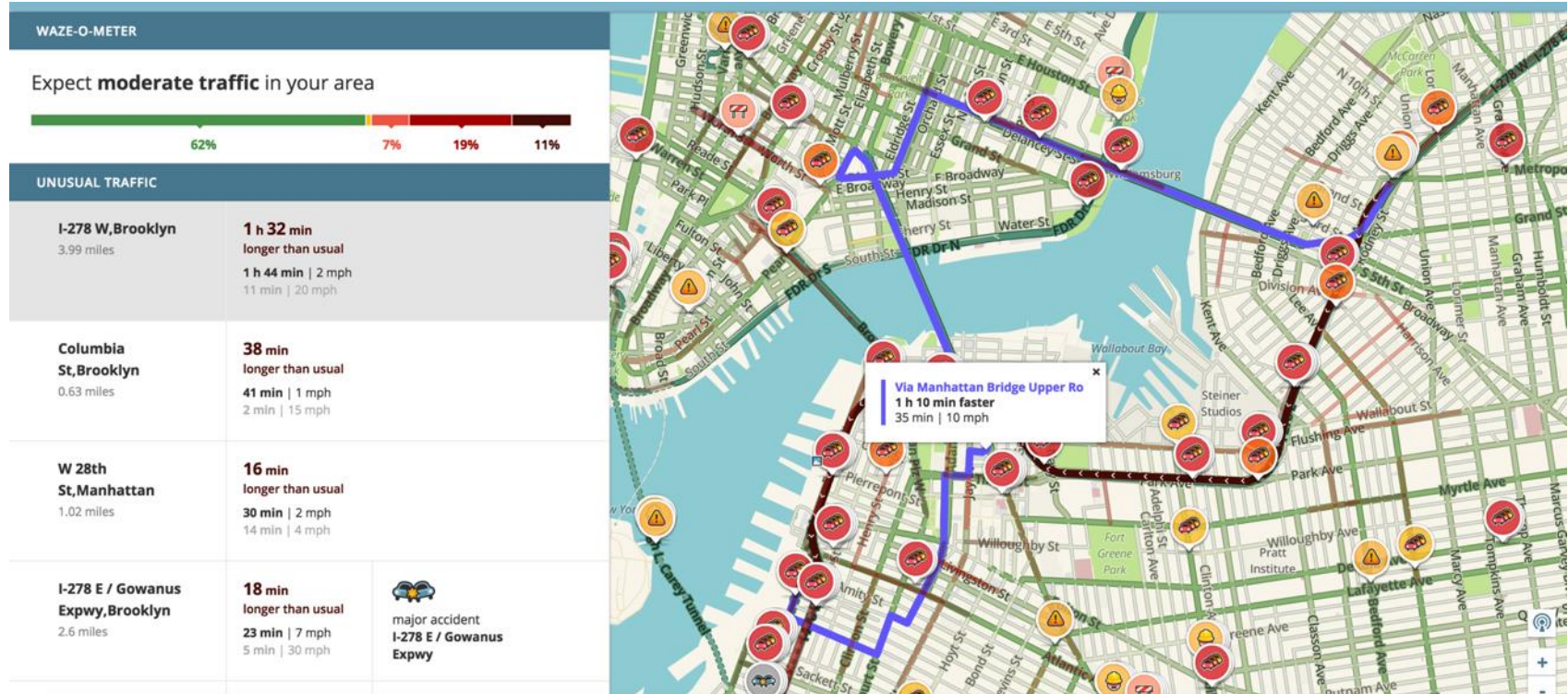


# Automation via Enterprise Software Integration



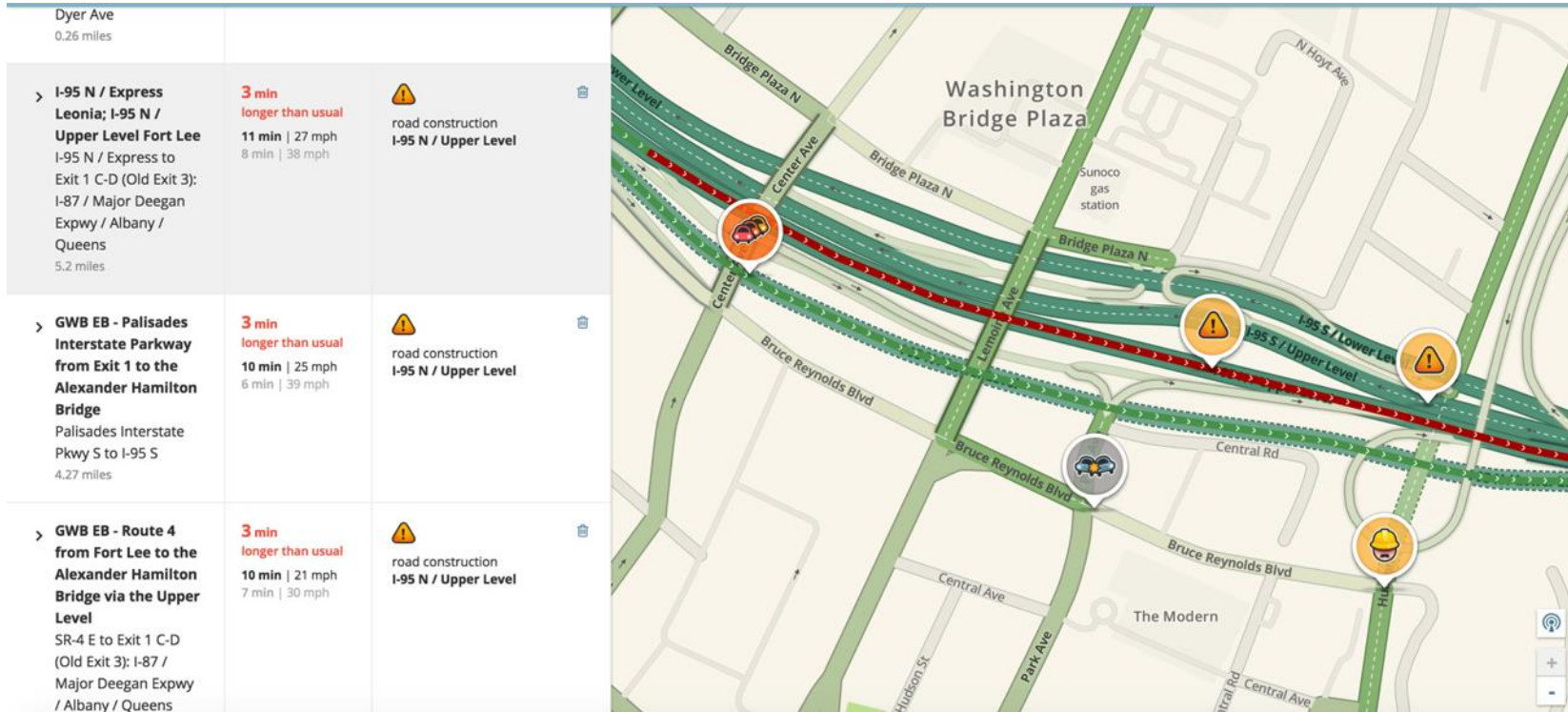


# Specifics – Maintain Situational Awareness



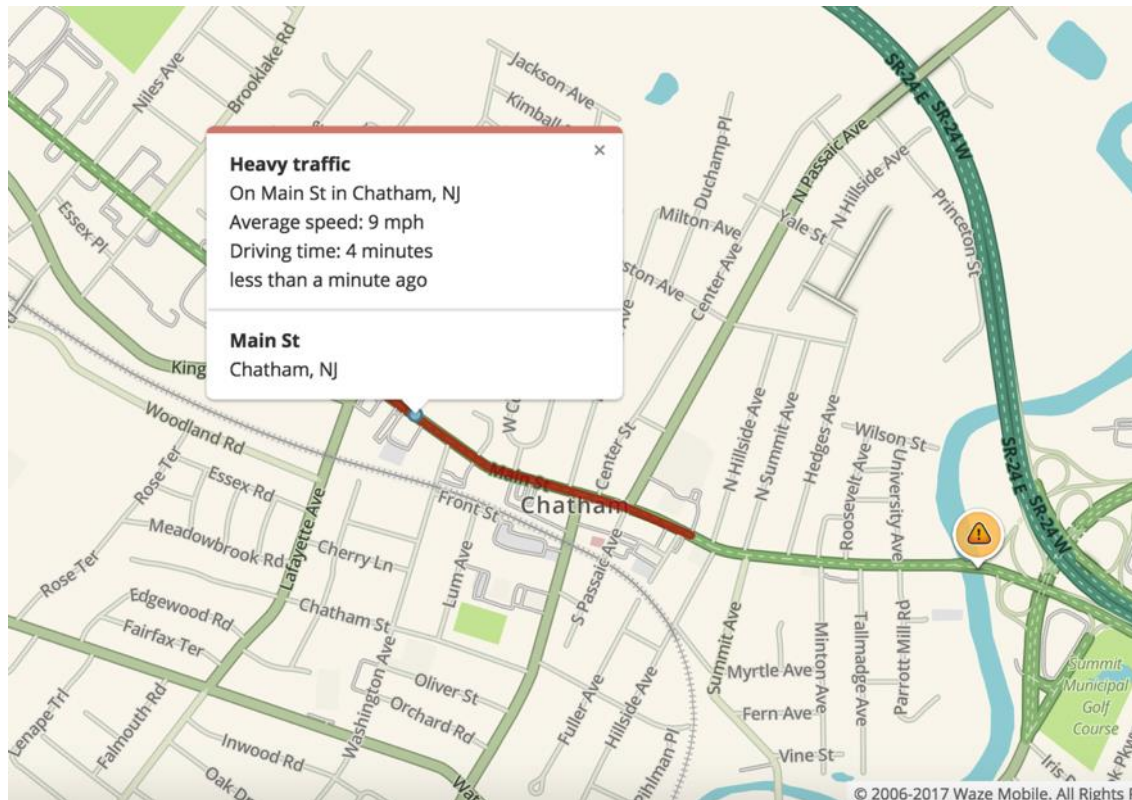


# Specifics – Maintain Situational Awareness





# Specifics – Maintain Situational Awareness

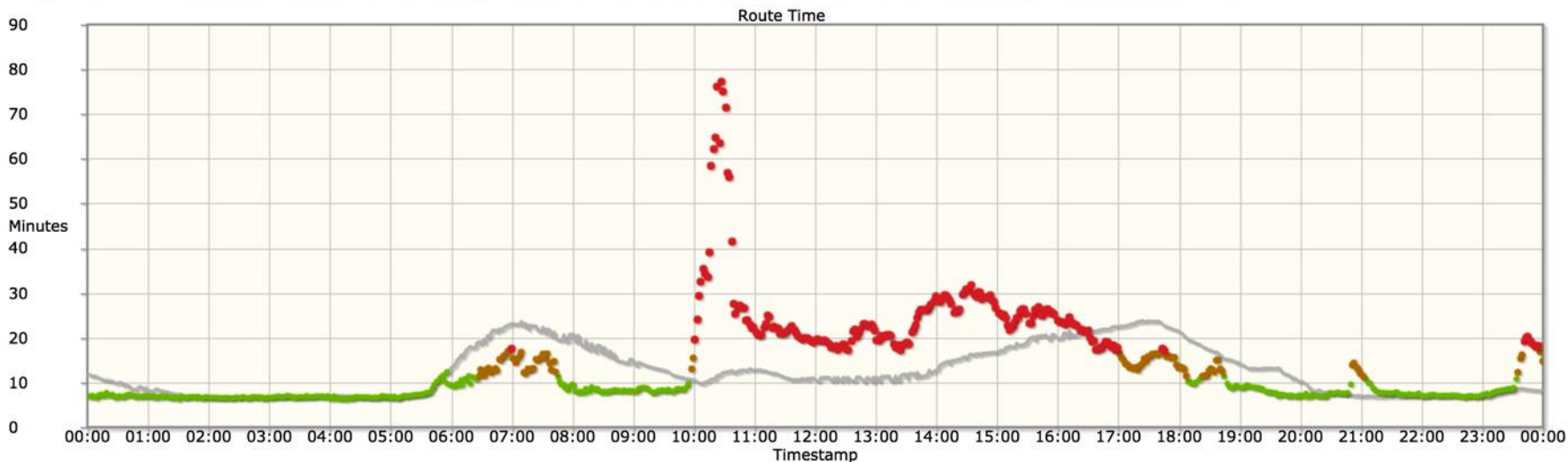




# Specifics – Maintain Situational Awareness











## GWB - PIP Helix Const - EB - NJ Side to NY Side (From I-80/I-95 Local to Amsterdam Ave via X-Over)

« [Route list](#) - Period: [2017-06-30](#) | [2017-07-01](#) | [2017-07-02](#) | [2017-07-03](#) | [2017-07-04](#) | [2017-07-05](#) | [2017-07-06](#) | **2017-07-07** | [2017-07-08](#) | [24 hours](#)



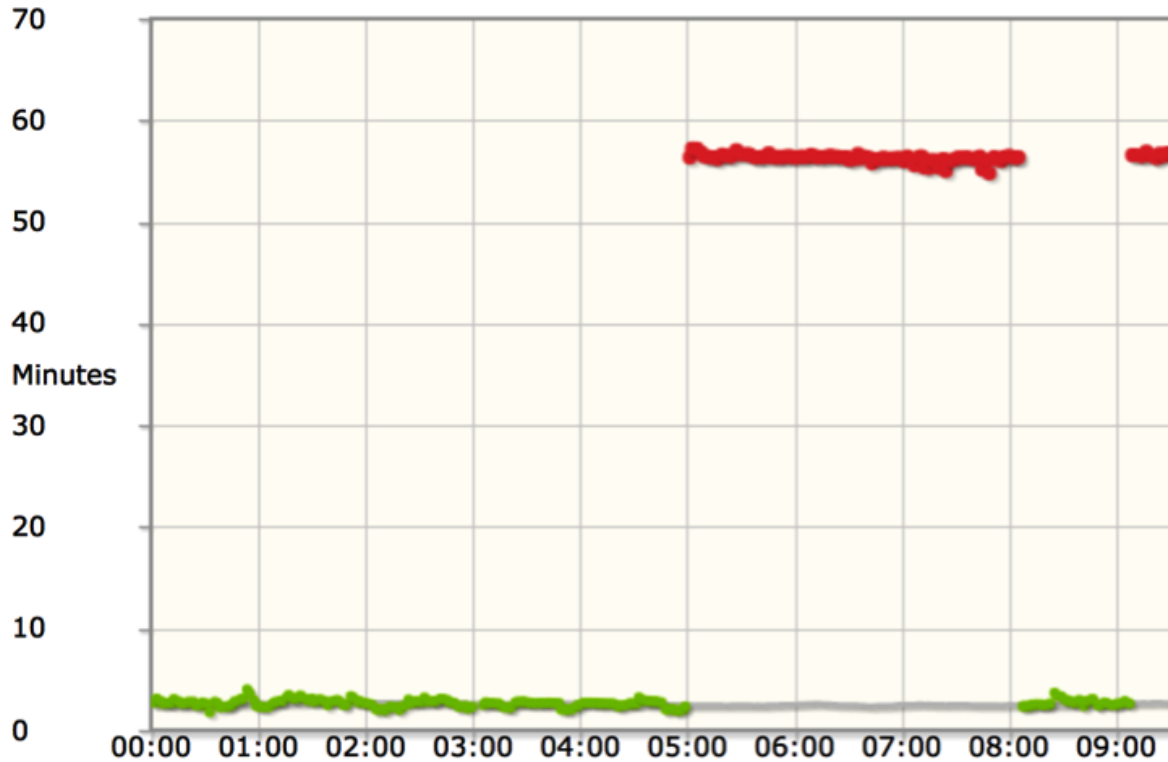


# Specifics – Maintain Situational Awareness

Timestamp	Route Time	Usual Time	Delay	Jam Level
<b>2017-07-07</b>				
23:59:48	14:46	08:10	7 mins (80%)	
23:57:04	16:48	08:12	9 mins (104%)	
23:55:41	18:11	08:12	10 mins (121%)	
23:52:58	17:56	08:14	10 mins (117%)	
23:51:36	18:18	08:15	10 mins (121%)	
23:48:52	18:45	08:21	10 mins (124%)	
23:47:32	19:12	08:23	11 mins (129%)	
23:44:40	20:14	08:26	12 mins (139%)	
23:43:19	19:56	08:30	11 mins (134%)	
23:41:56	19:10	08:32	11 mins (124%)	



# Specifics – Maintain Situational Awareness



# Specifics – Working w/ the Crowd:



Orbit, George, Jay, John, Pesach  
**THANK YOU!**



- Ted's Board
- Andy's Board
- Brendan's Board
- Waze Maps
- Technical Work
- Waze Community Board
- Home Base
- Status Board
- Rizwan's Board
- Farukh's Board
- Partner Responsibility Board
- Kathleen's Board

# Home Base

'My Mentions is Past 7 Days' below shows '@Mentions' that are directed towards you in past 7 days.

Filter Results: My Mentions in Past 7 Days

Updated ▾	T	Key	Summary	P
07/Jul/17		OPS-8	OPS-4 / Give 2nd Account to AOC and LGA MOC + Enter Trips into TrafficView	↑
07/Jul/17	<input checked="" type="checkbox"/>	FEED-1	GTFS Feed for JFK	↑
07/Jul/17	<input checked="" type="checkbox"/>	COM-7	Assist in adding Waze Live map to LGA Website	↑
07/Jul/17	<input checked="" type="checkbox"/>	COM-5	Use Waze as a crash mitigation strategy	↑
06/Jul/17	<input checked="" type="checkbox"/>	CLS-2	Jones Road MTE	↑
03/Jul/17		WFD-10	WFD-6 / Multiple Usernames CCP Umbrella Feature	↑
03/Jul/17	<input checked="" type="checkbox"/>	OPS-1	Multiple Usernames	↑

Your work graph will appear on top, with text tickets below.



Filter Results: My Work

T	Key	Summary	P
<input checked="" type="checkbox"/>	XCOM-3	Confirm movement of Waze DFE integration from dev to production	↑
<input checked="" type="checkbox"/>	XCOM-1	Format Waze Hazards for TRANSCOM consumption	↑

Add gadget

Edit layout

...

'Activity Stream' shows recent activity within the system, just like Facebook newsfeed shows all activity from all your friends on FB. Graph on top, text tickets below. Click 'Show More' at bottom of 'Activity Stream' for more items.



Activity Stream

Activity Stream

Yesterday

Ted Bobowsky attached one file to WDI-16 -

- Ted's Board
- Andy's Board
- Brendan's Board
- Waze Maps
- Technical Work
- Waze Community Board
- Home Base
- Status Board
- Rizwan's Board
- Farukh's Board
- Partner Responsibility Board
- Kathleen's Board

# Status Board

Add gadget

Edit layout

...

Filter Results: Status: To Do

Key ↑	P	T	Summary
ANY-3	↑	✓	Analyze TrafficView Logger data output for data quality review
APPL-6	↑	✓	Follow up With Scott M re: Document
ATMS-1	↑	✓	Brendan coordinate w/ Mike W. to scheduling time for ATMS interface building
ATMS-2	↑	✓	Brendan Initial Scheduling w/ Desk Staff
ATMS-6	↑	✓	Maps API Protocols

1-5 of 79123456789 ▾

Filter Results: Status: Done

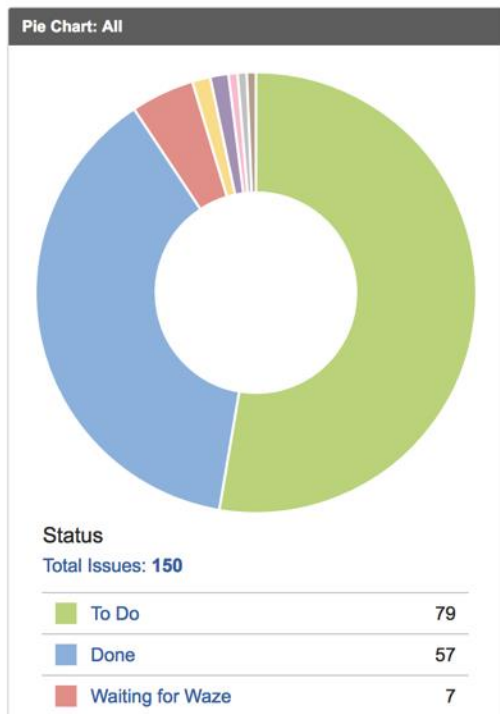
T	Key	Summary	P
✓	VOICE-4	JFK Airport Voice Match	↑
🗨️	WDI-24	WDI-16 / Address TravelTime Bug	↑
✓	WFD-8	Traffic View Bug	↑
✓	COM-7	Assist in adding Waze Live map to LGA Website	↑
✓	CLS-2	Jones Road MTE	↑

1-5 of 57123456789 ▾

Filter Results: Status: In Progress

T	Key	Summary	P
✓	VOICE-2	Port Newark/Elizabeth Voice Match	↑

1-1 of 1



Filter Results: Status: Waiting for Waze

T	Key	Summary	P
✓	WDI-25	Travel Time Formatting Bug	↑
🗨️	WDI-33	WDI-5 / Ask Waze difference between API urls	↑
✓	WFD-3	Frontage Feature	↑
✓	WFD-1	Waze - Flight Integration	↑
✓	VOICE-6	George Washington Bridge Voice Match	↑

1-5 of 712 ▾

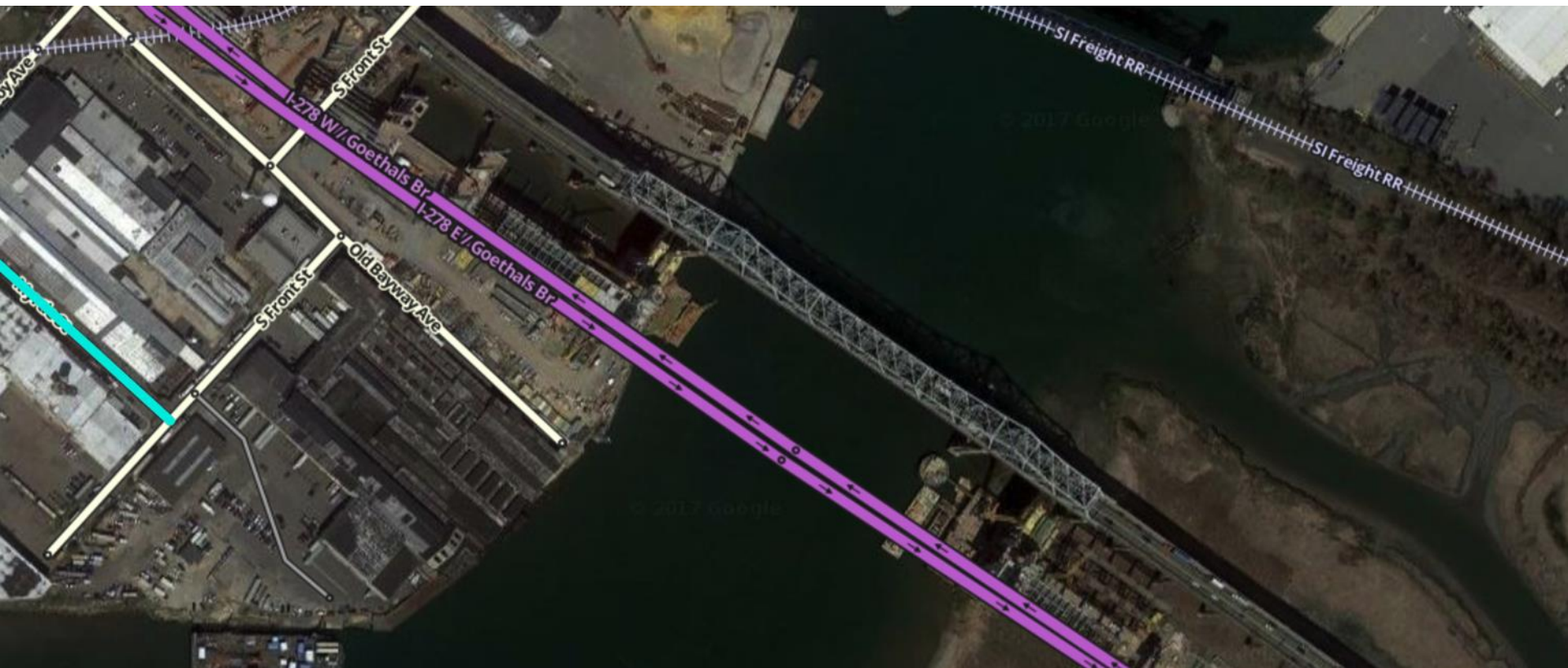
Filter Results: Status: On Hold

T	Key	Summary	P
✓	ANY-1	Zendrive @ LGA	↑

1-1 of 1



# Specifics – Basemap: Goethals Bridge





# Specifics – Basemap: LGA





# Specifics – Basemap: LGA





# Specifics – Basemap: LGA

to Grand Central Pkwy W,  
Queens, New York

This segment has one or more road closures.  
Remove all road closures to edit it.

General Closures

○ Add advanced closure

➕ Add a closure



LGA Redevelopment

START

2017-04-14

END

2017-04-17

20:00

10:30



LGA Redevelopment

START

2017-04-17

END

2017-04-20

20:00

10:30



LGA Redevelopment

START

2017-04-20

END

2017-04-21

20:00

10:30



LGA Redevelopment

START

2017-04-21

END

2017-04-24

20:00

10:30



LGA Redevelopment

START

2017-04-24

END

2017-04-27

20:00

10:30





# Specifics – Basemap: LGA

to Grand Central Pkwy W,  
Queens, New York

This segment has one or more road closures.  
Remove all road closures to edit it.

General Closures

○ Add advanced closure

➕ Add a closure



LGA Redevelopment

START

2017-04-14

END

2017-04-17

20:00

10:30



LGA Redevelopment

START

2017-04-17

END

2017-04-20

20:00

10:30



LGA Redevelopment

START

2017-04-20

END

2017-04-21

20:00

10:30



LGA Redevelopment

START

2017-04-21

END

2017-04-24

20:00

10:30



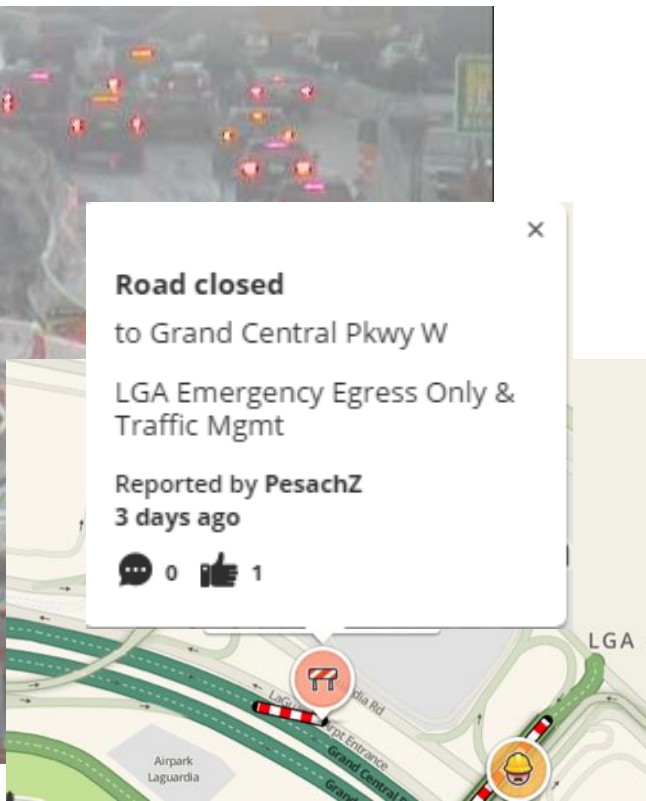
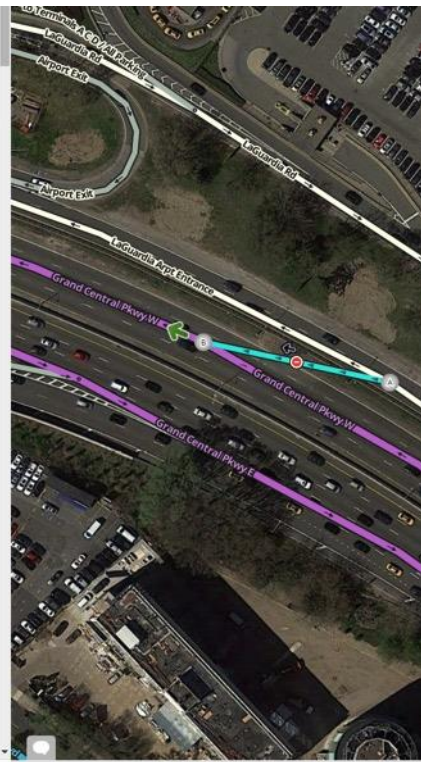
LGA Redevelopment

START

2017-04-24

END

2017-04-27





# Specifics - Navigation: Bayonne Bridge



Today



Future



# Specifics - Navigation: Bayonne Bridge





# Specifics - Navigation: Bayonne Bridge





# Specifics - Navigation: Bayonne Bridge



⊙ Add advanced closure

+ Add a closure

A > B Bayonne Bridge Repair

START	END
2017-04-24 09:00	2017-04-24 15:00

A > B Bayonne Bridge Repair

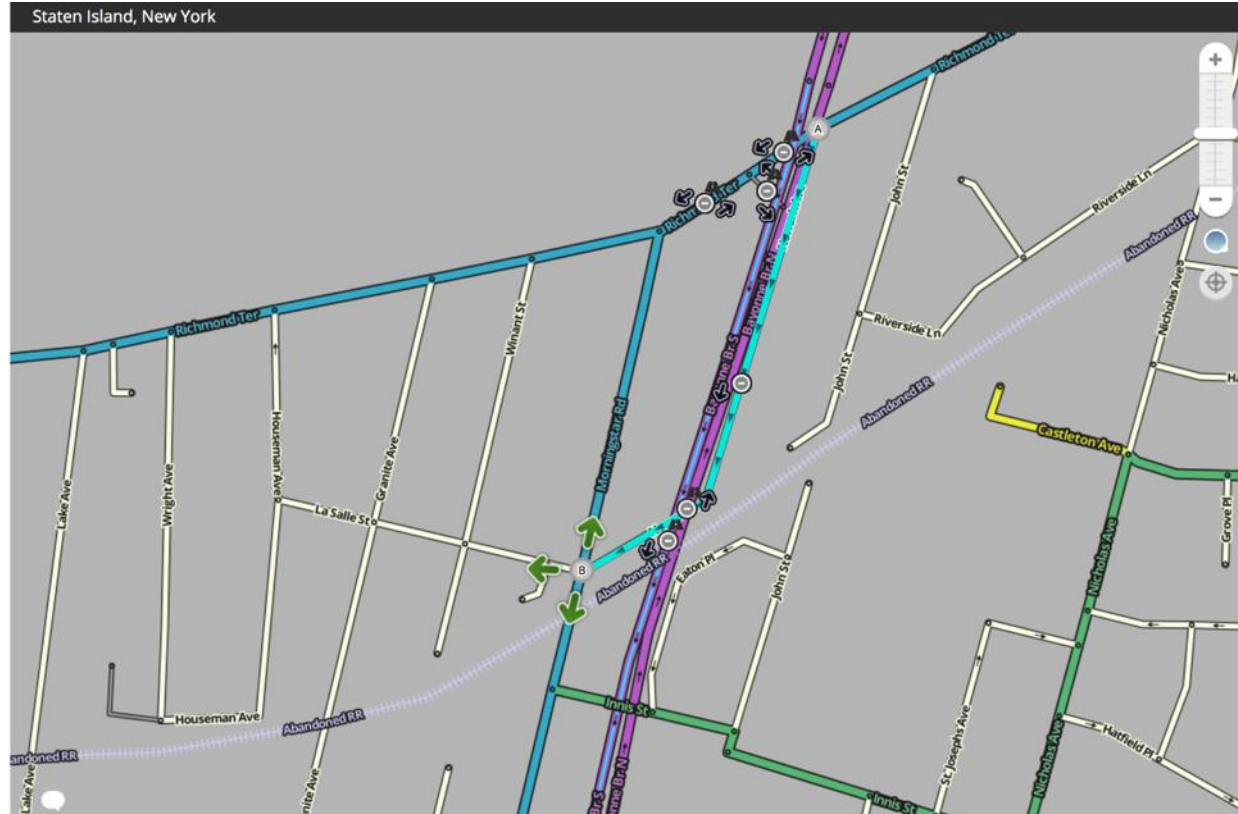
START	END
2017-04-25 09:00	2017-04-25 15:00

A > B Bayonne Bridge Repair

START	END
2017-04-26 09:00	2017-04-26 15:00

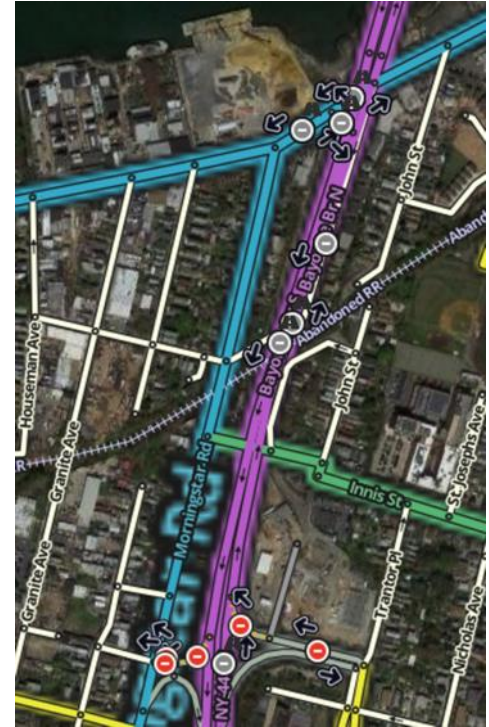
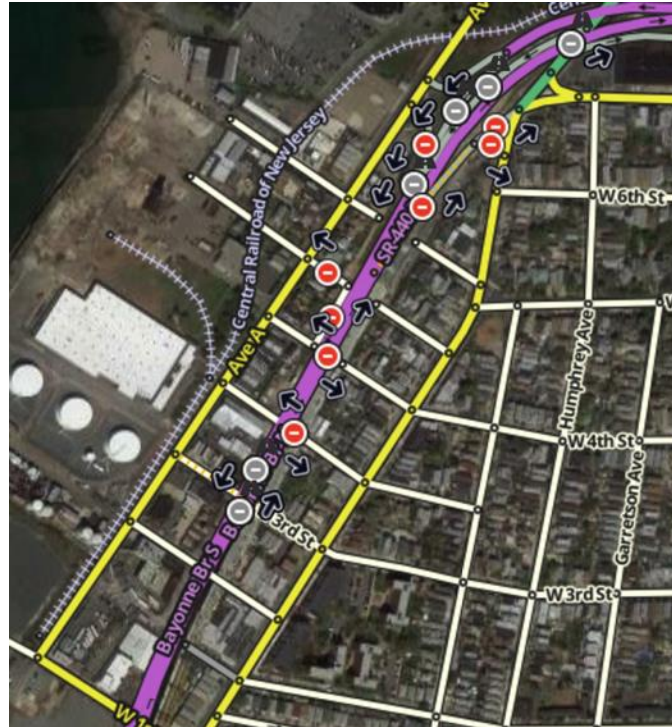
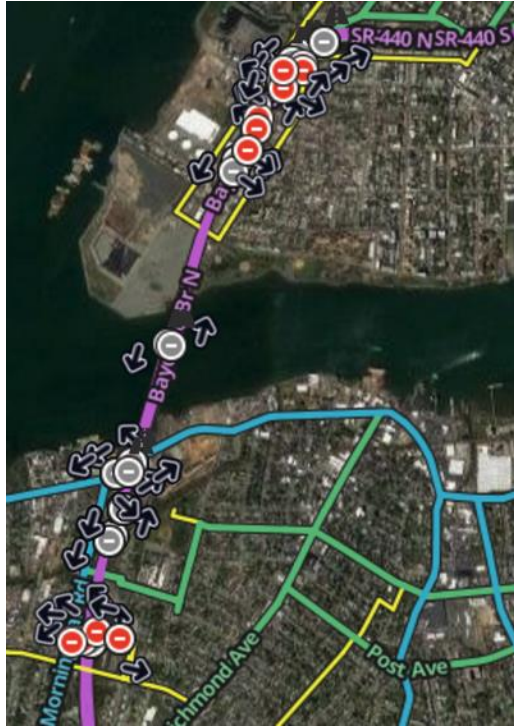
A > B Bayonne Bridge Repair

START	END
2017-04-27 09:00	2017-04-27 15:00







# Specifics - Navigation: Bayonne Bridge







**Bayonne Bridge**   
@BayonneBridge




The Bayonne Bridge in both directions is closed due to adverse weather. [07]




RETWEETS  
2

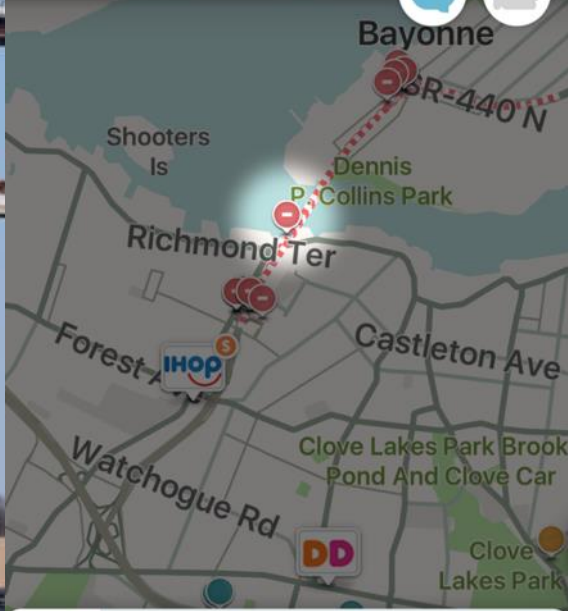



Search 9:32 AM 100% 11 MIN AGO




**18.7 miles away**  
Event, Bayonne Br S, Staten Island  
"Bridge Closed Due to High Winds"

 PortAuthority\_NY-NJ\_AOC  





Good morning 

THE PORT AUTHORITY OF NY & NJ 51

September 14, 2017

I-95 Corridor Coalition Crowdsourcing Summit

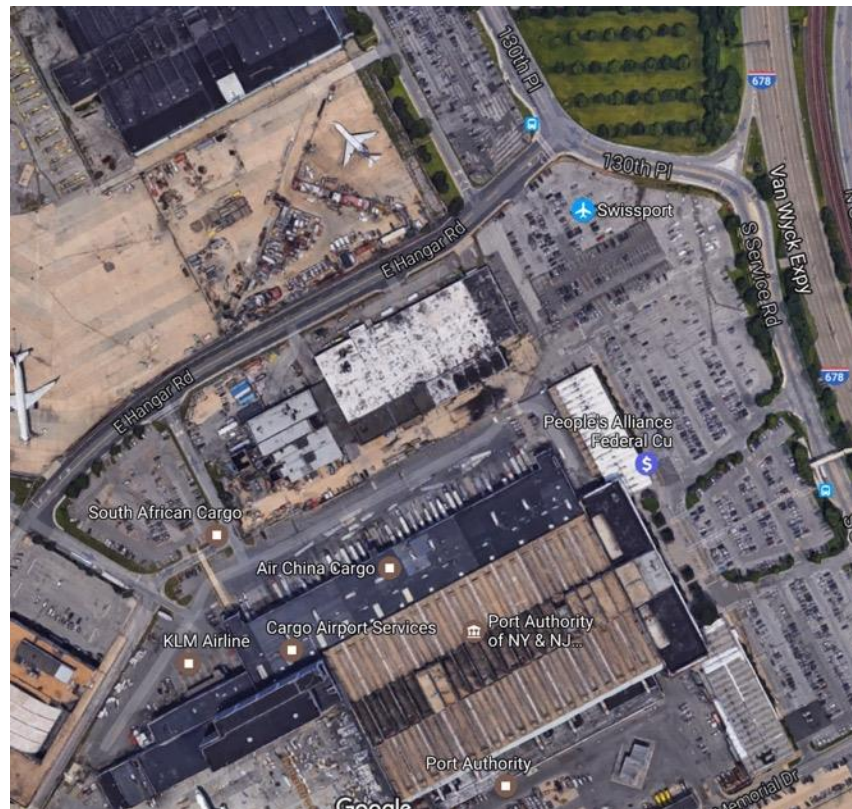


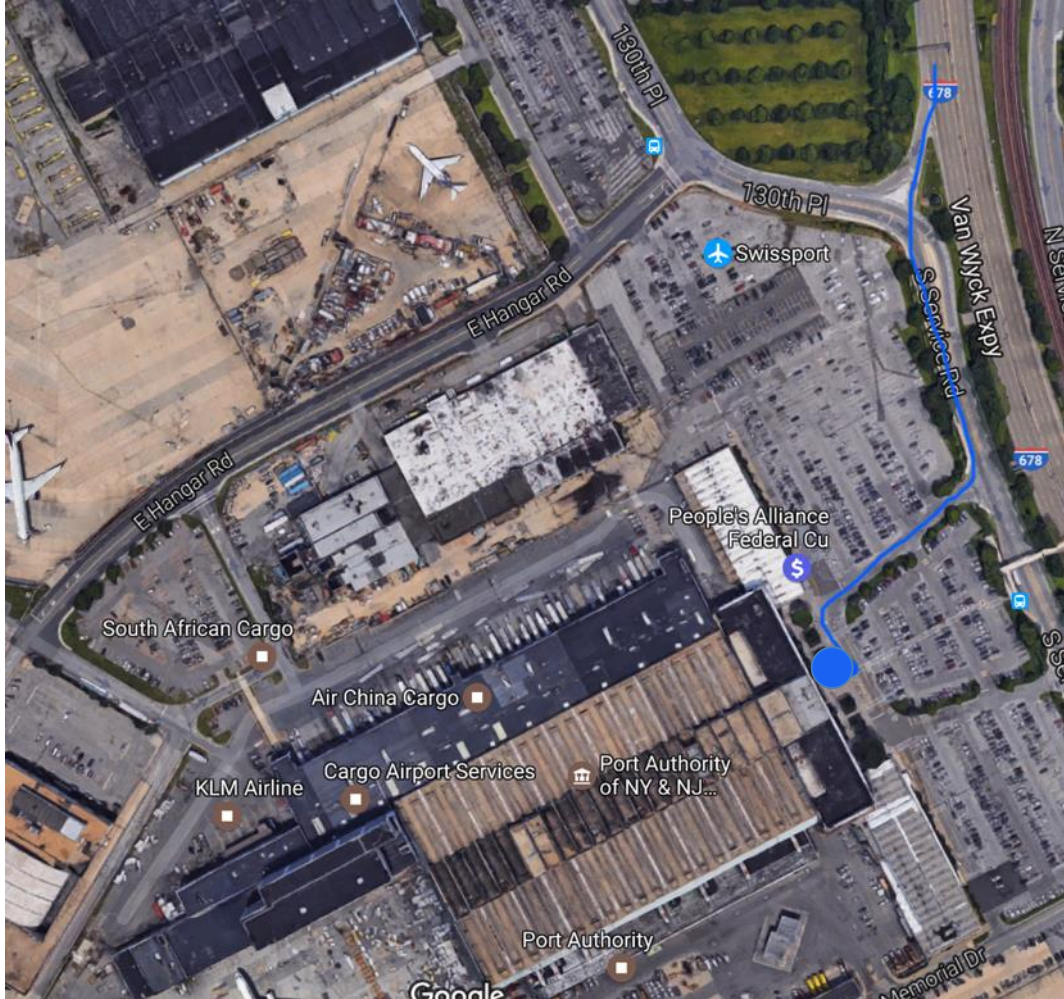
# Specifics – Navigation: Point Validation

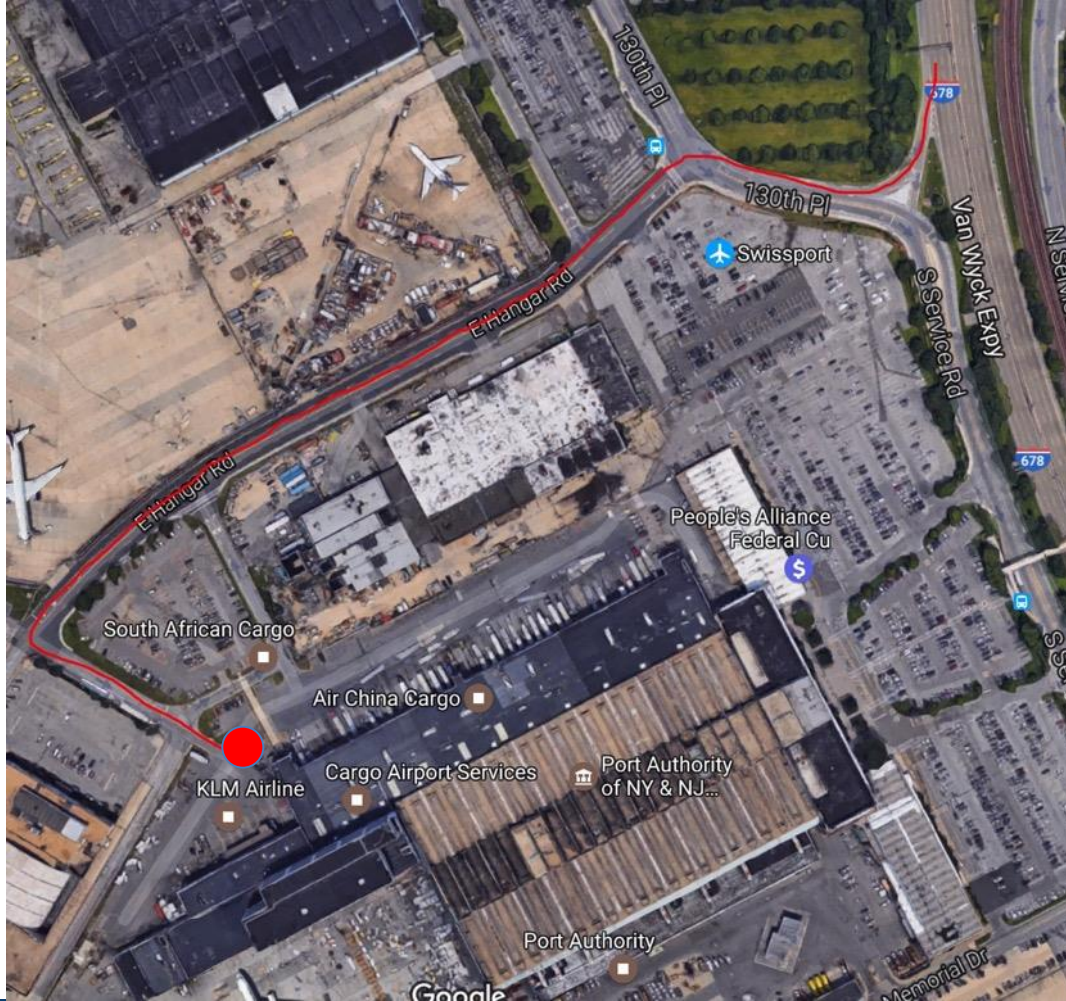




# Specifics – Navigation: Point Validation

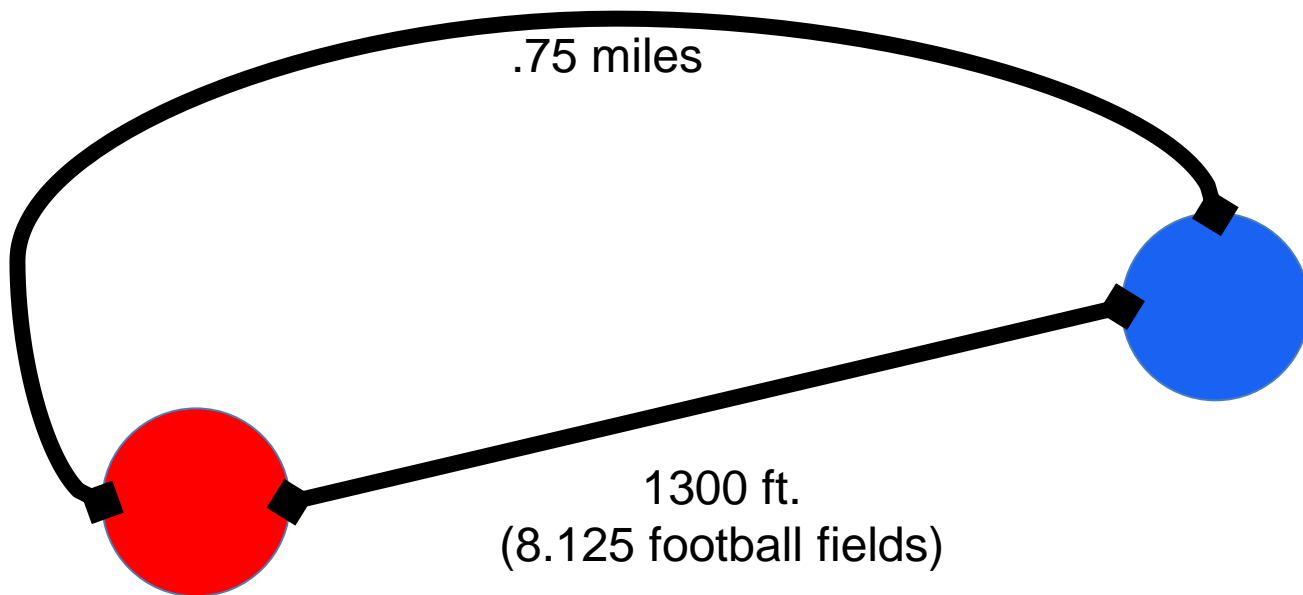






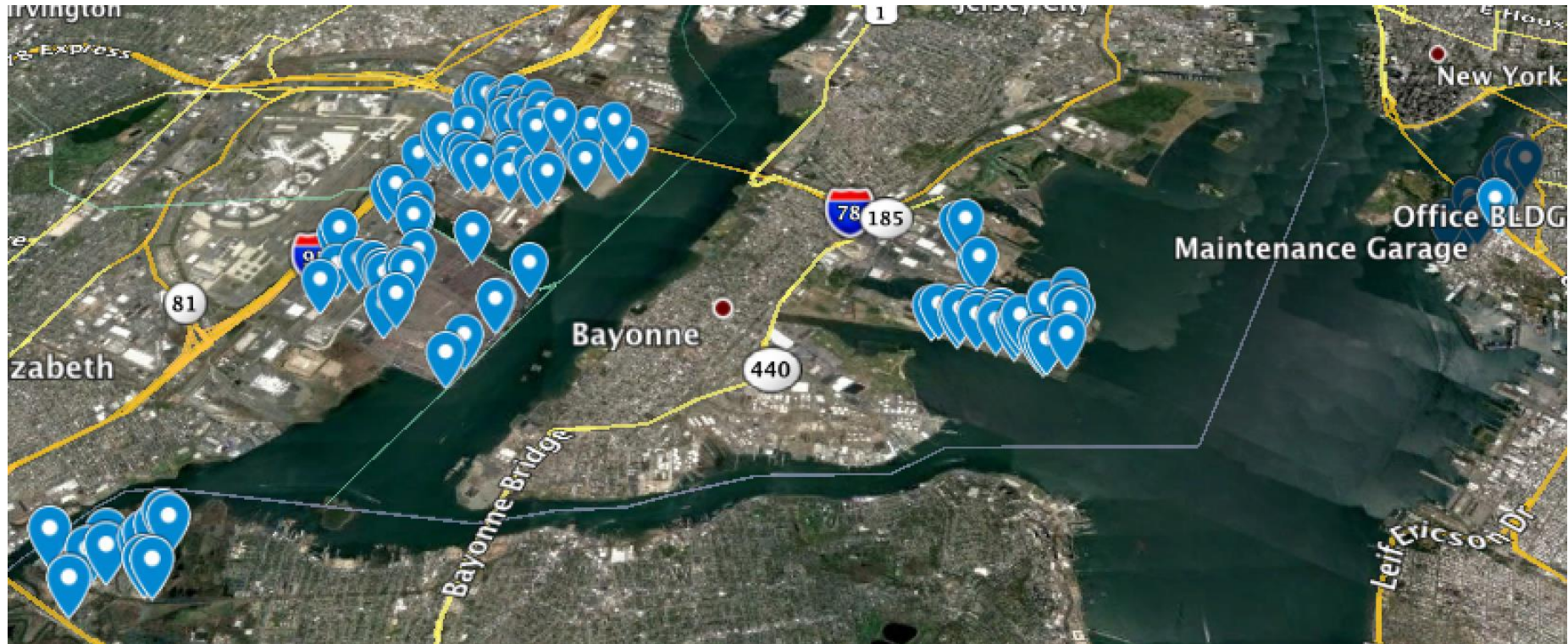


# Specifics – Navigation: Point Validation





# Specifics – Navigation: Point Validation





# Specifics – Communication: Upcoming MTEs



 14A Interchange ... Feb, 2017 - Feb, 2018

 LGA Redevelopm... Feb, 2017 - Jan, 2018


 Bayonne Bridge Repair Feb-Dec, 2017

 LGBT Pride Festival Aug, 2017

 I-280, SR-21 Improvem... Jan-Dec, 2017

 Midtown (Bogota... Mar, 2017 - Feb, 2018

 I-78 Ramp Recon... Mar, 2017 - Jan, 2018

 Pulaski Skwy Reh... Apr, 2014 - Dec, 2017

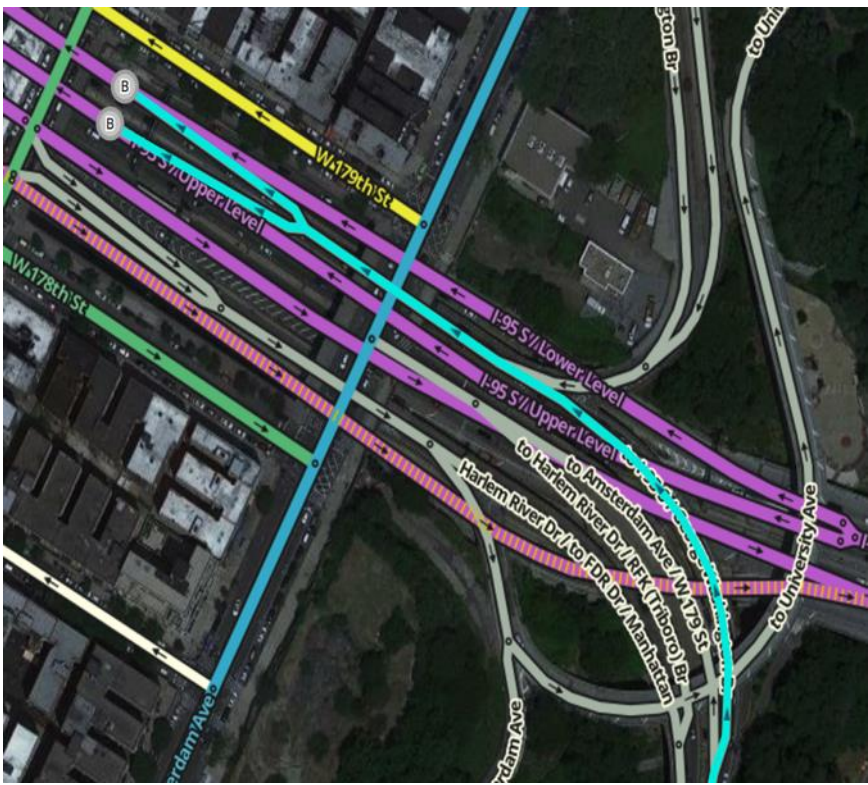
 Kosciuszko Bridge Proj Feb-Dec, 2017

 QMT Rehab - Sandy Feb-Sep, 2017



# Specifics - Navigation: Harlem River Drive → GWB





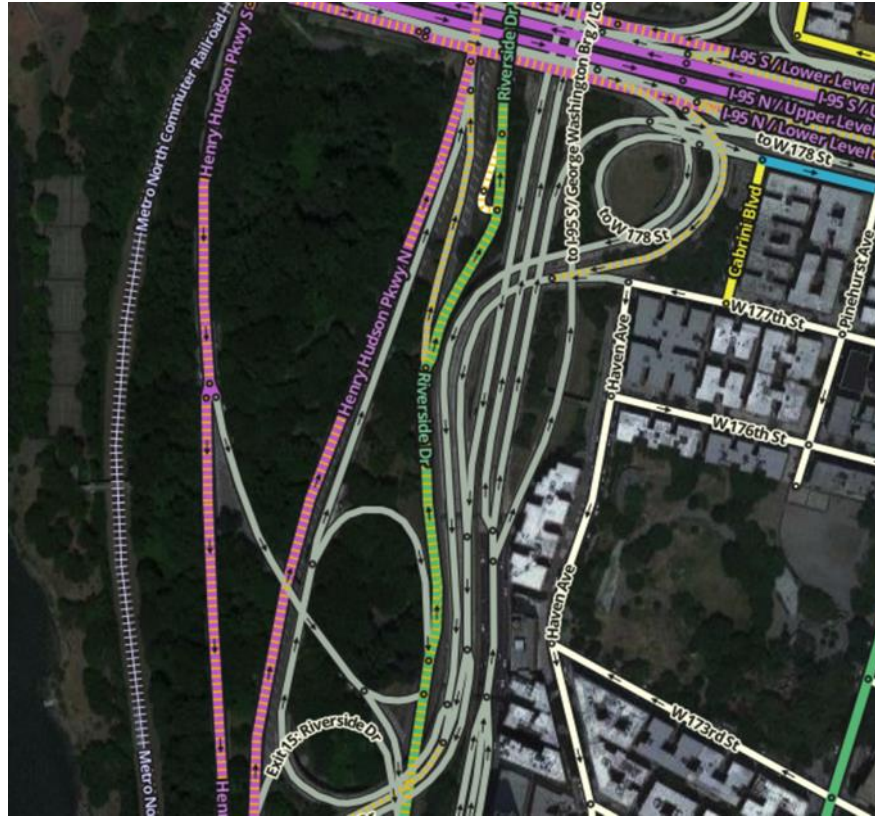


# Specifics - Navigation: Harlem River Drive → GWB



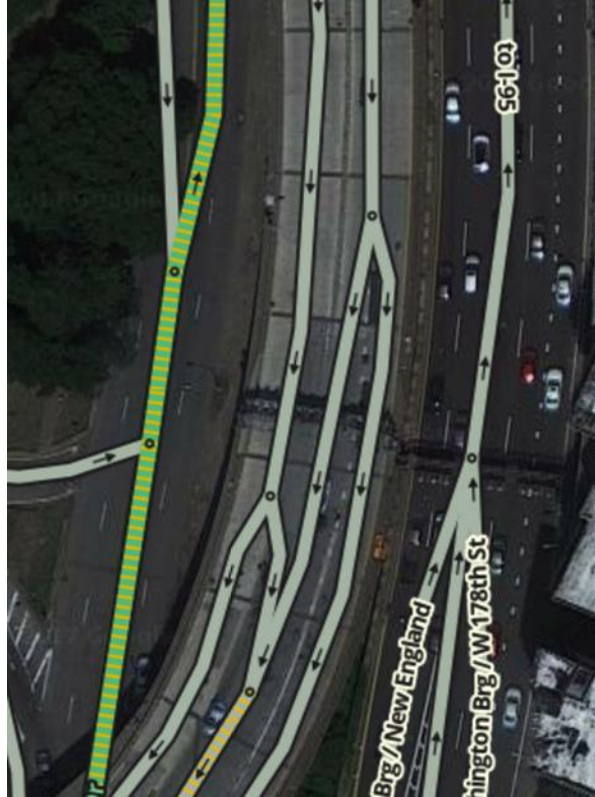


# Specifics – Communication: Road Sign/ Voice Direction Match



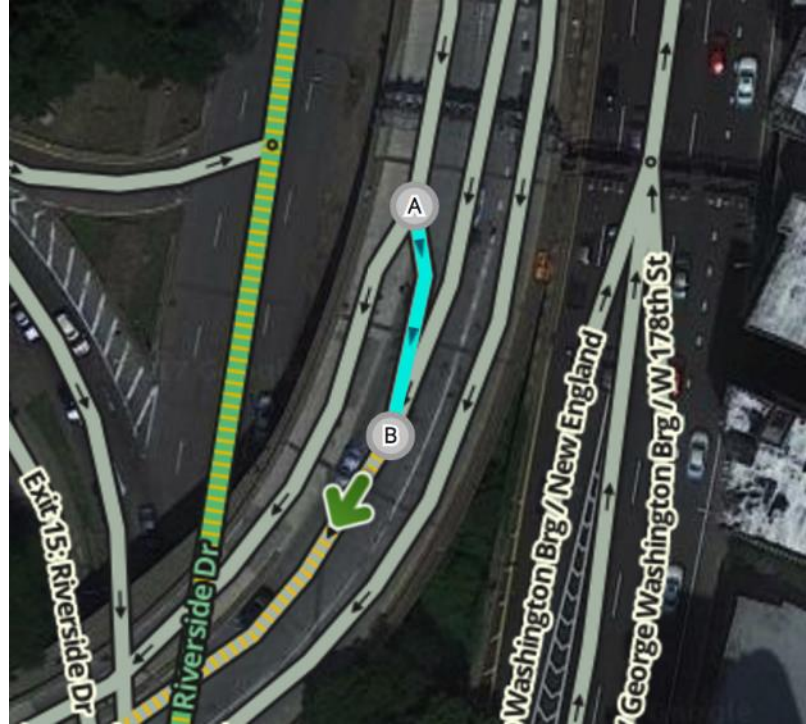


# Specifics – Communication: Road Sign/ Voice Direction Match



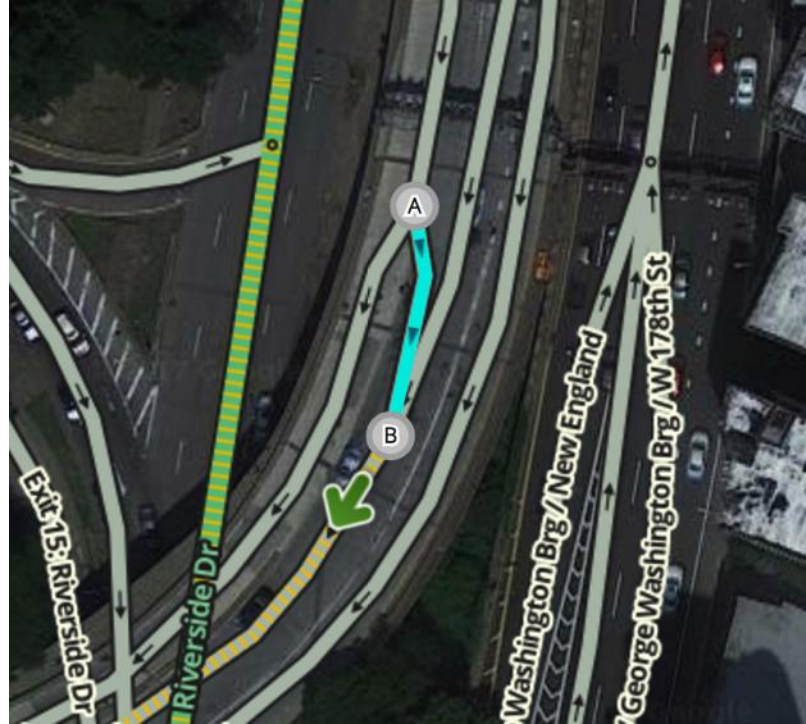


# Specifics – Communication: Road Sign/ Voice Direction Match





# Specifics – Communication: Road Sign/ Voice Direction Match



Keep Right

Keep Left

Keep Right

Keep Center

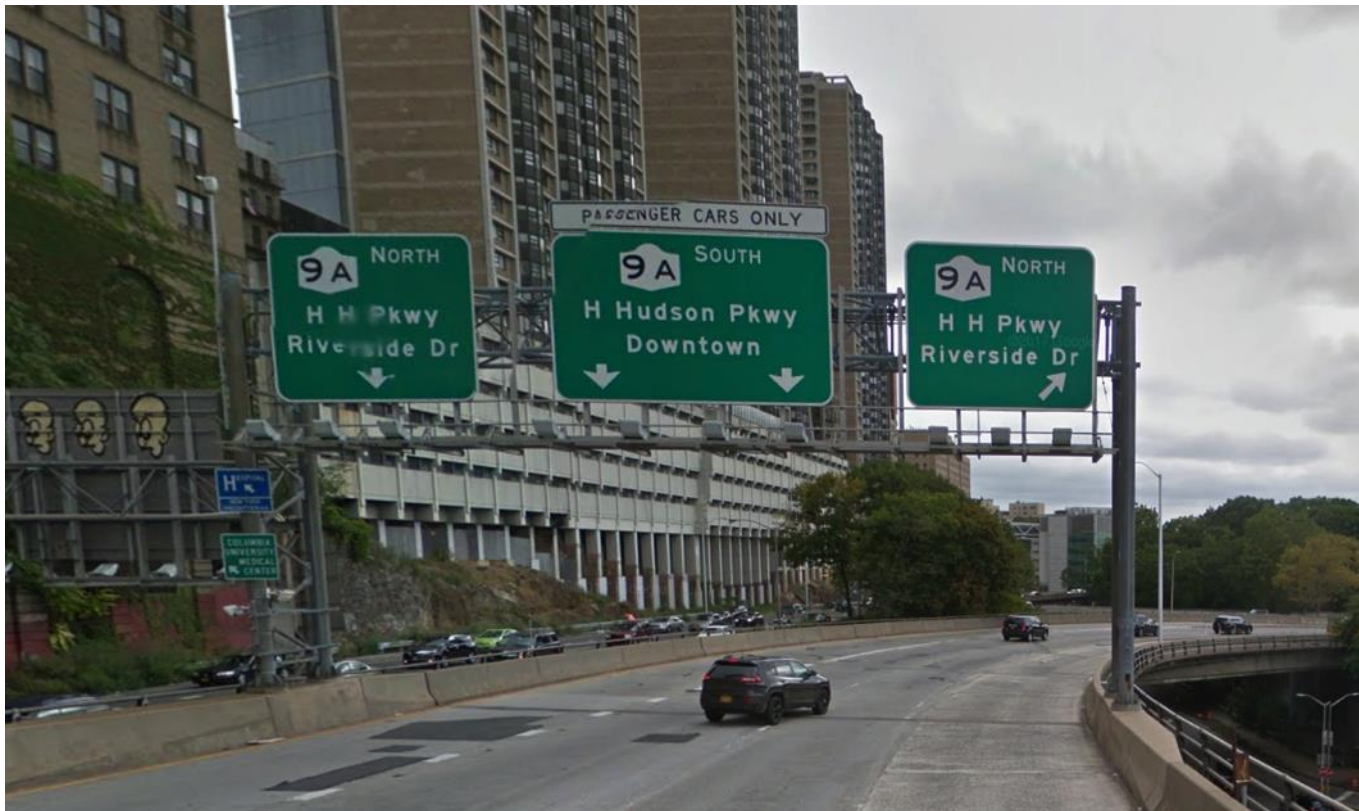


# Specifics – Communication: Road Sign/ Voice Direction Match





# Specifics – Communication: Road Sign/ Voice Direction Match





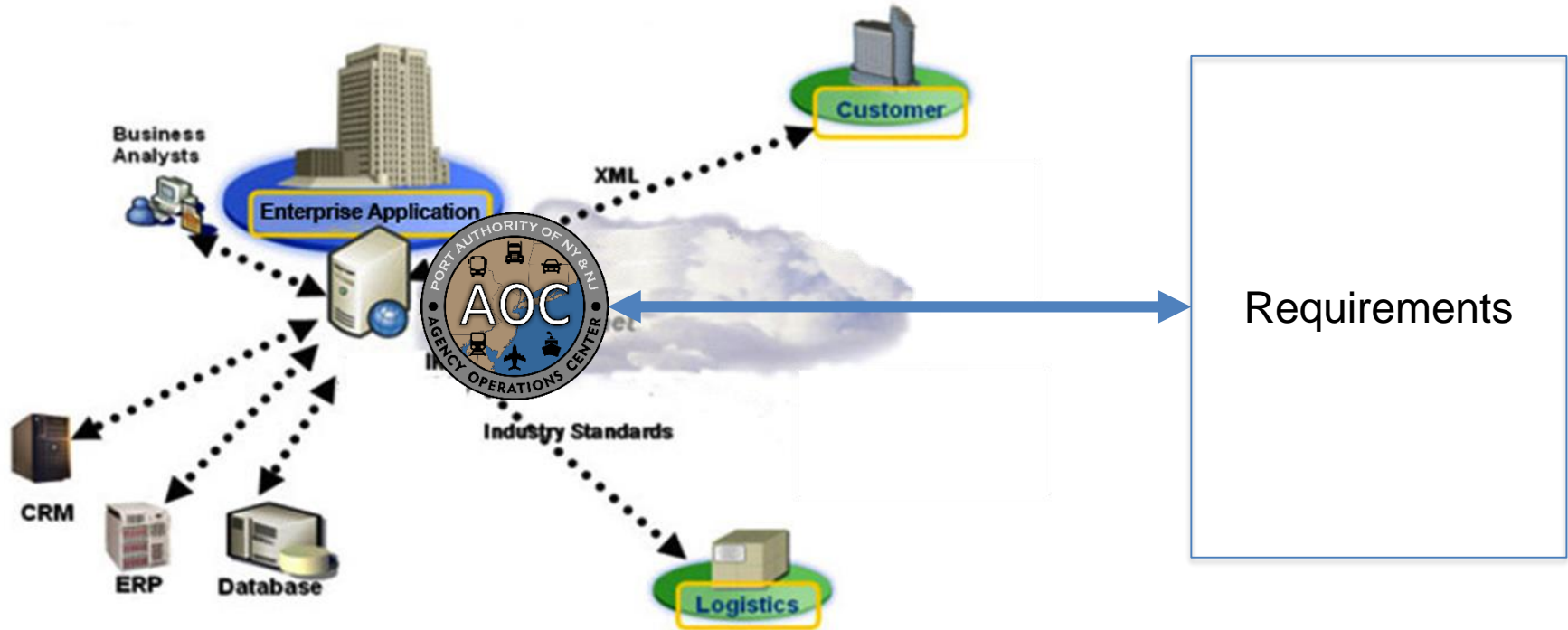
# Specifics – Communication: Road Sign/ Voice Direction Match



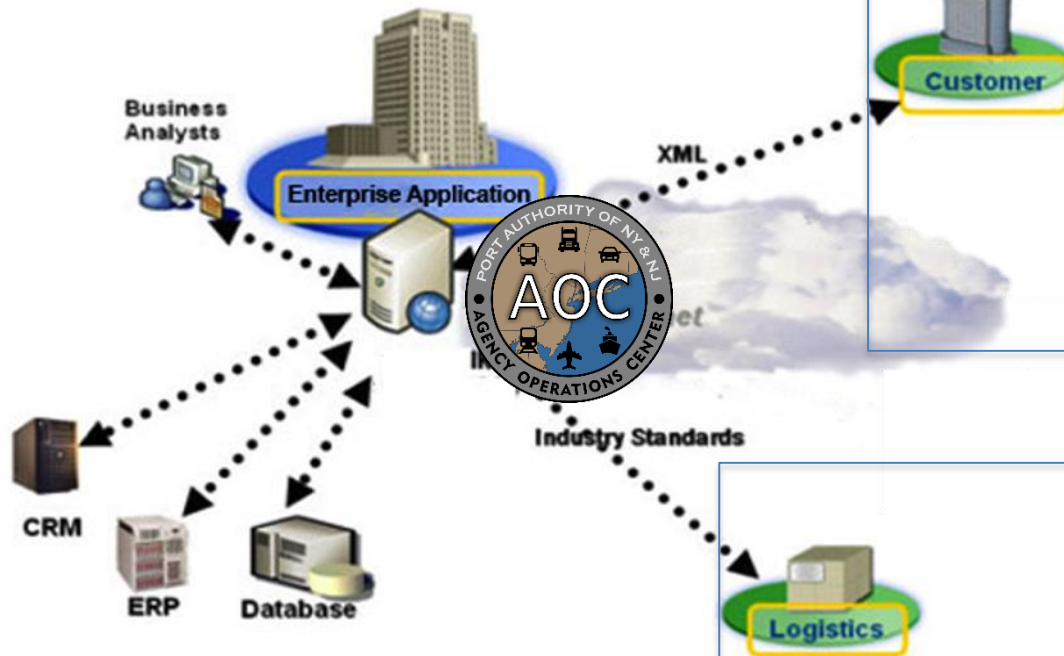
**1 SEGMENT SELECTED**

to NY-9A S / Henry Hudson Pkwy /  
Downtown, Manhattan, New York

# Specifics - Automation via Enterprise Software Integration



## Specifics - Automation via Enterprise Software Integration



NYC NJ PA TECH

# APPS

# WEBSERVICES

## INNOVATION

## LEADERSHIP

# PROTOCOLS

## STANDARDS

# PLATFORM BUILDING

# Thank You

## QUESTIONS?

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Break (15 min)

