



FDNY GIS Unit

GISMO NYC Agency Applications Fair

Wednesday, November 20, 2019

NYU Pfizer Auditorium



Who We Are

11,314 Firefighters and Fire Officers

4,294 EMT's, Paramedics and Officers

341 Engine and Ladder Companies

65 Specialty Fire Apparatus

(such as Squads, Rescue, etc.)

359 Ambulances

171 Fire Marshals

356 Fire Inspectors

174 Dispatchers

1,957 Administrative Support Personnel

(Mechanics/Trades-people, Technologists, Civilian Professionals, Etc.)



Services Provided

Fire Apparatus responded to:
316,000 fires, non-fire emergencies
(Over 1.1 Million Total Runs)

EMS responded to over 1.5 Million medical emergencies
(1.75 Million Total Runs)

Fire Marshalls investigated 7,062 fires for potential arson
Inspectors conducted 203,052 fire code regulatory inspections
11,063 Fire & Life Safety Education Presentations



Interagency Cooperation

New York City Agencies:

NYC Emergency Management

Police Department

Dept. of Information Technology & Telecommunications

Department of City Planning

Department of Environmental Protection

Department of Parks

Department of Transportation

Borough President Offices...

State Agencies

Bi-State Agencies

Non NYC Local Government Agencies

Federal Agencies...USSS (UNGA)



Preparedness

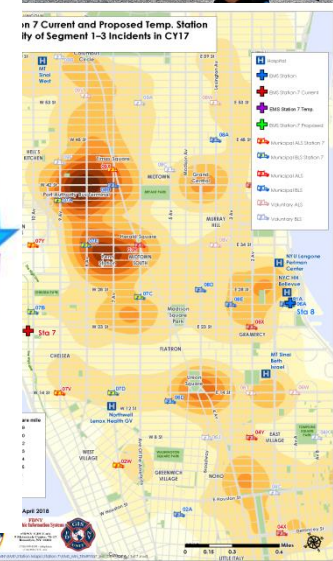
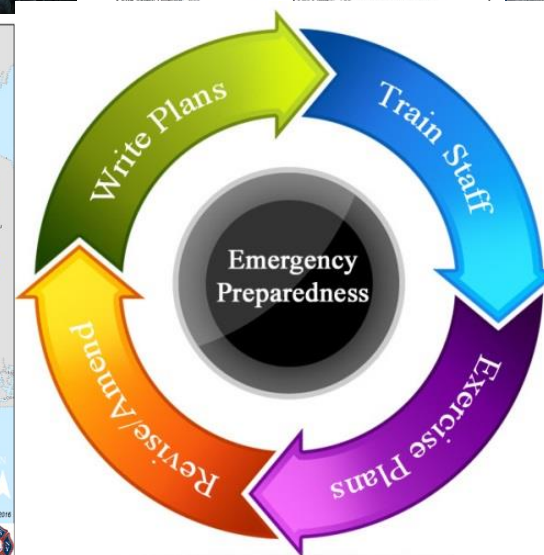
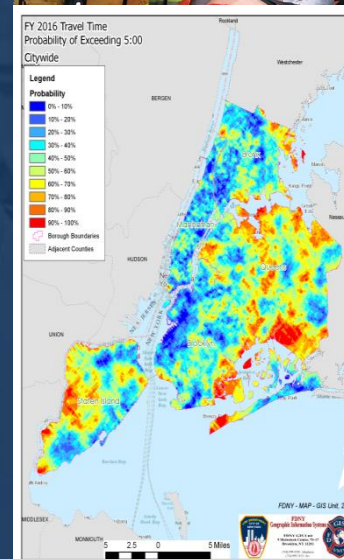
- **Preparation** is a continuous cycle of forecasting, planning, organizing, training, conducting exercises, evaluating, analyzing and making improvements
 - GIS is more than mapping
 - Analytical, Data Management & Visualization Tools
 - Data can be mapped, analyzed and utilized to make improved decisions
 - Decision Makers can exercise response and recovery plans during non-emergency drills



FDNY PRE-INCIDENT GUIDELINES

Every PG must be included in the CIBS program, and PG must be listed as the FD designation

Division	Remainder	Alarm Unit	E-23	PG	Date 08/12/2014
Address: 760 5th Ave., 1 CPS, 3 W 58 St.		Cross Street: 56 St. & Central Park South			
Nearby A.A. Plaza Hotel		Apparatus Access: 5th Ave., 58 St. & Central Park South			
Exp 1: Street		First Alarm Assignment			
Exp 2: Street		Escapes: E-23, E-8, E-39			
Exp 3: 13 City MD		Ladders: L-2, L-10, L-4			
Exp 4: Street		Stgs: 8			
Year Built: 1967		Construction	Stories	Sts	Width
Occupancy: Hotel, MD, Retail		Steel + Precast	20	251	200
Contact #: (212) 540-6331					Depth
					250
					Stage
					U
Building Features:					
Type of Store: Open and Enclosed			Interconnected: See Note		
Store Location: Throughout			Staircase Location: Hotel Stairs, MD Stairs, A&D		
Elevators: Yes			Sprinklers: Yes		
Fire Towers: No			OS&Y Location: Subcellar Central Park South Side		
Below Grade Info: 2 Cellars			Sprinkler Shut-off: On Floors at Standpipes		
Other Suppression Systems: Dry Sprinkler in Loading Dock			Fire Pumps: Yes		



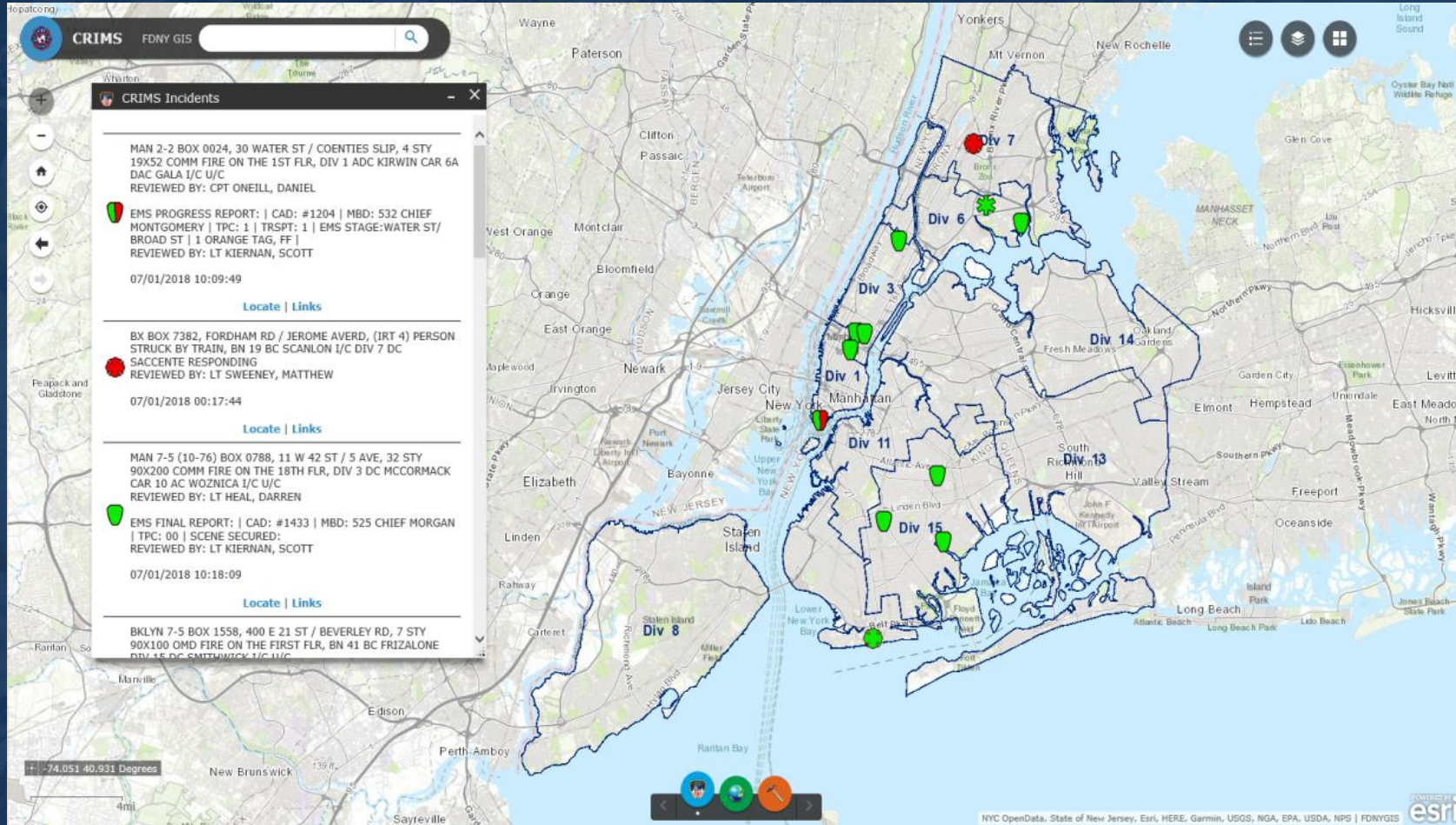


Progression to Feature Services

- No reliance on paper maps or forms
- Greater sharing and collaborating
- Greater situational awareness and true common operating picture
- Create simple more intuitive applications for the non GIS professional user
- More cost effective now across PC's, laptops, tablets and smartphones vs expensive difficult to use GPS devices

FDNY CRIMS MAP

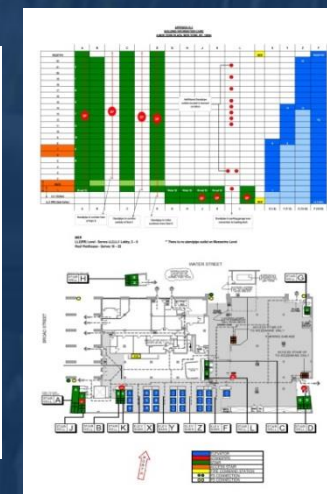
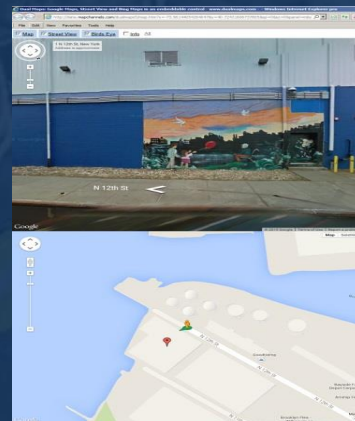
(Critical Response Information Management System)



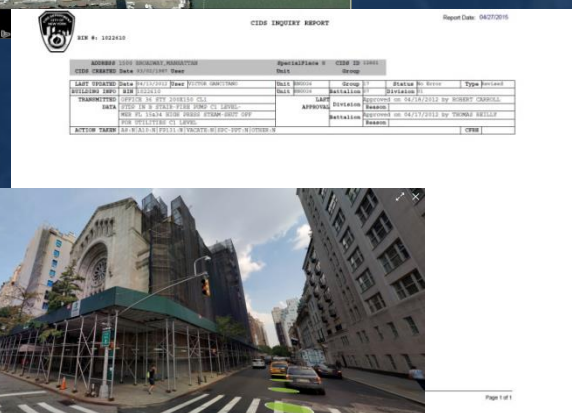
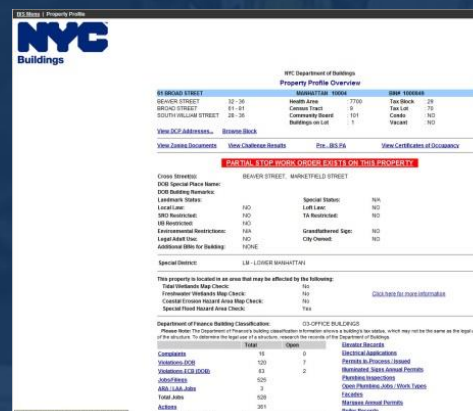
- Internal WEB Map application displays Incident Locations and other data



- **Pop ups provide attribute data and links to both internal and external applications and data.**



- DOB Building Search Page
- Dual Maps Street View Page
- Cyclomedia API – StreetSmart Page
- Pre Incident Guides
- CIDS Information
- Floor Plans, BIC Card (EAP)

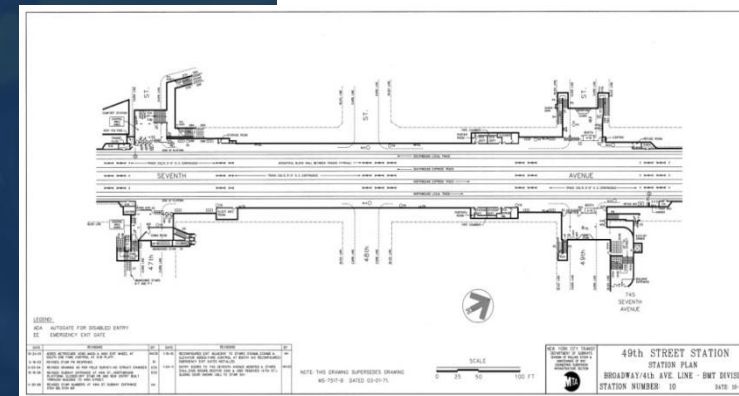
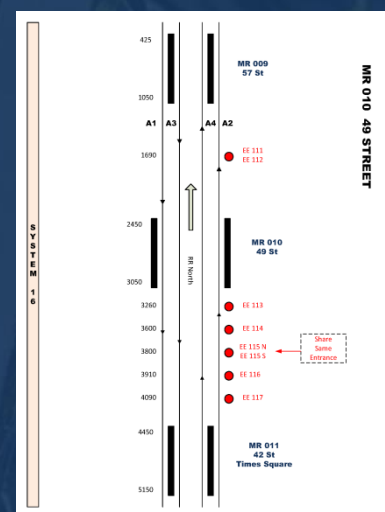
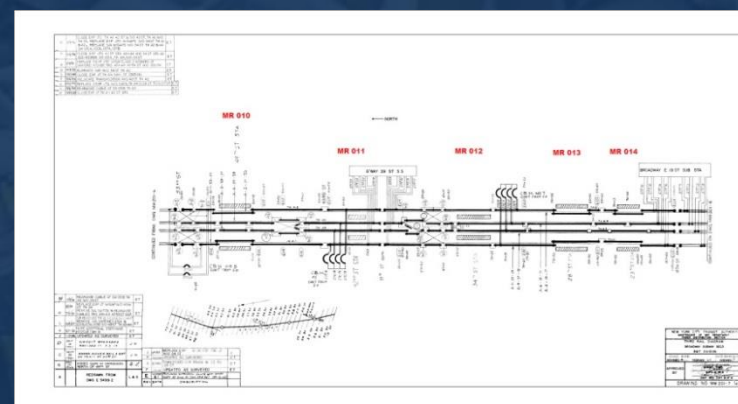
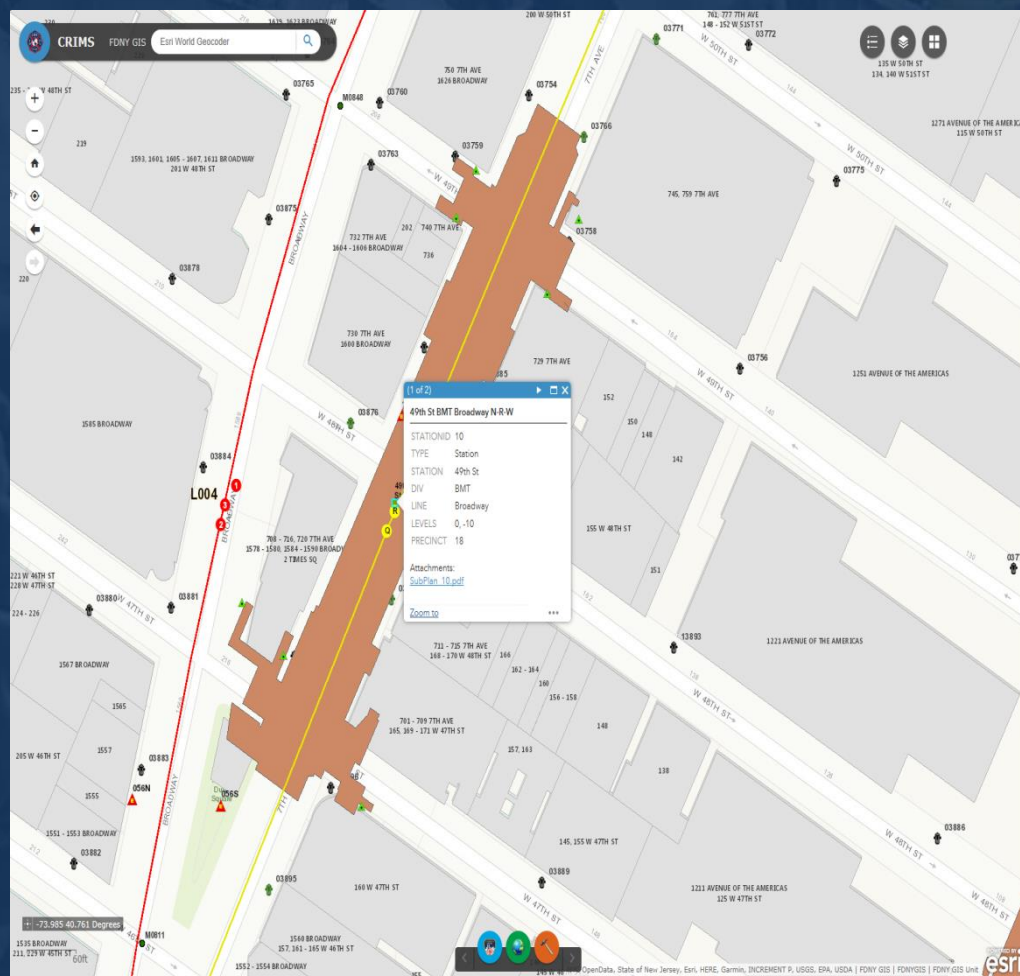




FDNY CRIMS MAP Content

Subway Station Plans

- Plans linked to the station data, provide critical information for planning and incident commanders.



Station: 47-50 Sts-Rockefeller Ctr Master Ref No: 225

Line: 6th Ave TA Division: IND Train: B-D-F-M Under River Tunnel

Column No Northend 1074+40 Column No Southend 1067+75 Station Type: Sub

SUBWAY REPEATER INFORMATION

Repeater System: 17 Antenna Location: ES 6 Av s/o 47 St

OTHER INFORMATION BIN: 1799225 Alarm Box: 7225 Unit: L004 Batt: 09 Div 03 Boro: MN

Next Station No - 57 St MR # 224

Next Station No - 42 St MR # 226

Platform - 2 Island platforms

Tracks - B3, B1, B4, B2

EMERGENCY EXIT INFORMATION

Exit #	Access to track	Location	Column No	Depth
101	Stand	ES 6 Ave - 27th St W 44 St	1081+40	40
102	Stand	US 63 LLL-B1	W 5 Ave - 77th St W 45 Ave	1062+40 at 36, 8 54
103	Stand	US 63 LLL-B4	SS 62 St - 10th St W 45 Ave	1081+30 at 36, 8 52
104	Stand	US 63 LLL-B2	NS 62 St - 57th St W 45 Ave	1081+70 at 36, 8 56
105	Stand	ES 6 Ave - 57th St W 53 St	1085+40	34
106	Stand	W 5 Ave - 77th St W 53 St	1085+40	24

TOKEN BOOTH INFORMATION

Booth ID	Booth Name	Booth Location	Comments	Hours
N050	718 712-5336	49 St & 6 Ave	center of station	PT

SIAMESE INFORMATION

Location	Remarks	Sound Per Phone
NONE		<input type="checkbox"/>

FAN PLANT INFORMATION

Fan Plant No	MODE	Location	Column No	MR
6349	Exhaust	52ND ST & 6TH AVE SW	1081+40	225
6350	Exhaust	52 ST & 6 AVE N/E	1081+11	225
6351	Exhaust	BTWN 44 & 45 ST. AVE/AMERICAS	1062+36	225
6352	Exhaust	BTWN 44TH & 45TH ST. AVE/AMERICAS	1061+50	225

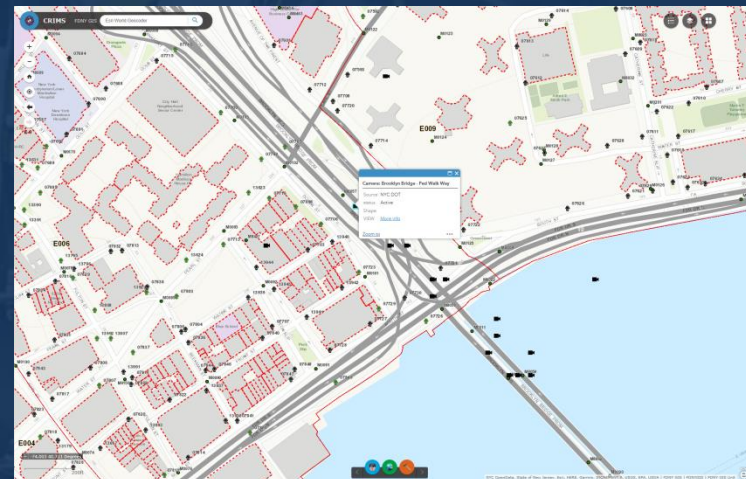
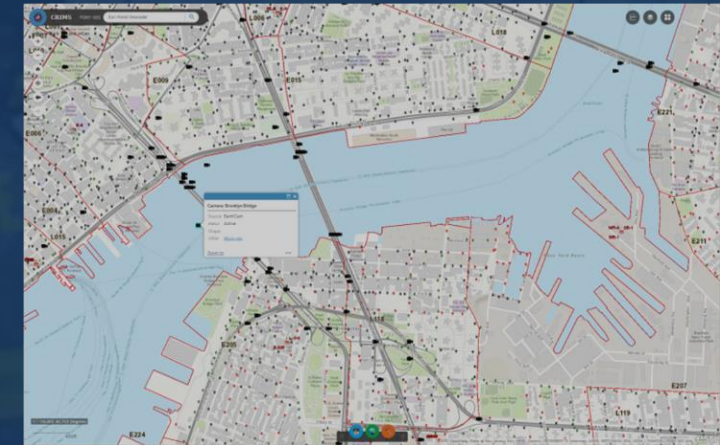
FDNY CRIMS MAP Content



CCTV Cameras

Dept. of Traffic (DOT)
EarthCam

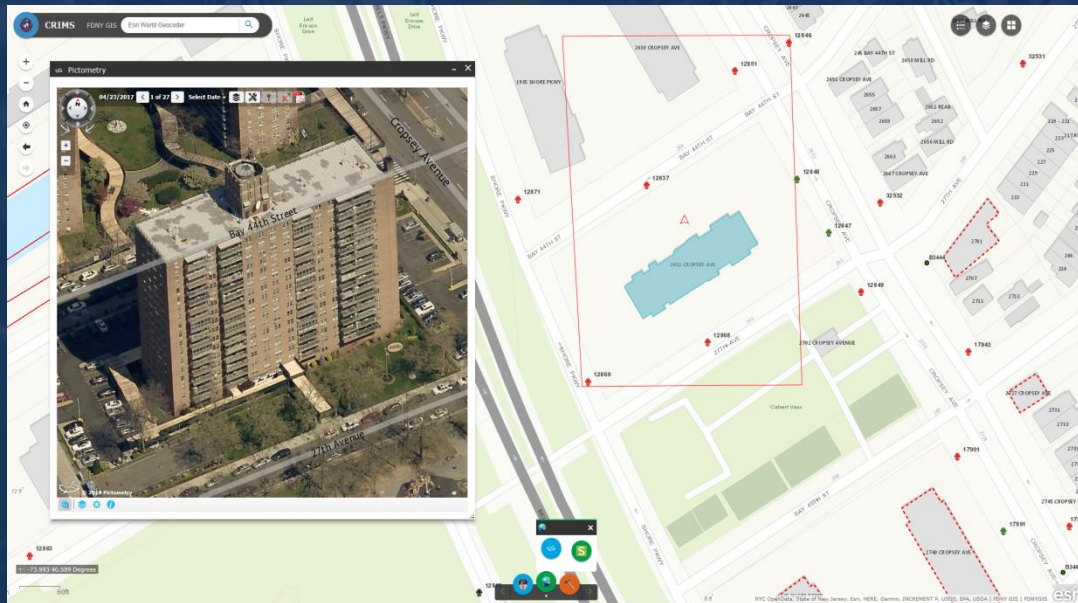
- Links to public facing cameras from DOT
- Links to EarthCam Live streaming cameras
- Possible Collaboration to consume camera feeds from private partnerships



FDNY CRIMS MAP Custom Widgets



- **Pictometry On-line Widget** provides **oblique imagery**, with the ability to view archived imagery by date of capture
- Provides staff chiefs and Incident Commanders with **situational awareness, size-up** & exposure identification prior to arriving on scene

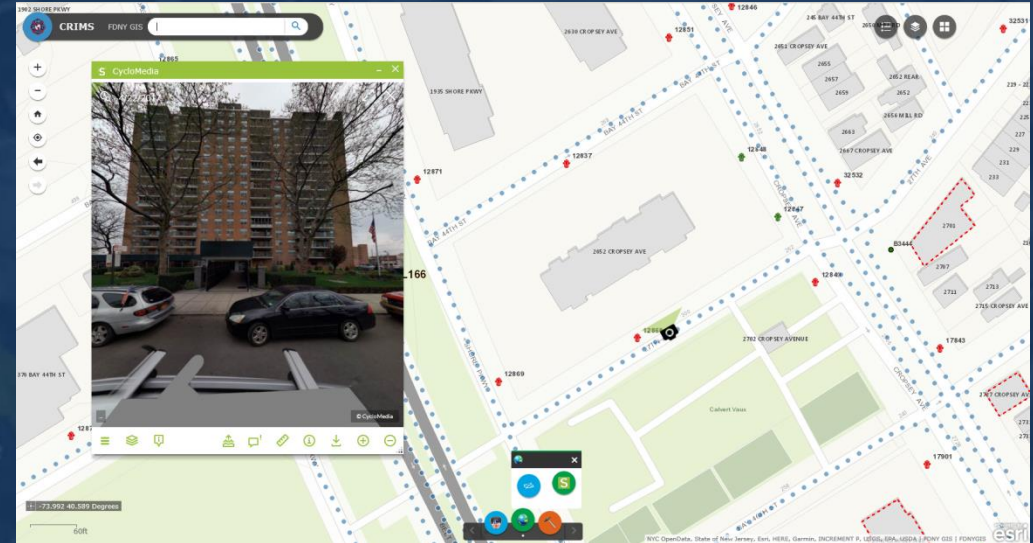


- Valuable when creating Preplans, Profiles & Exercises
- **Archived imagery** used to compare areas from a previous date, as was the case for Hurricane Sandy
- Tools can be used to **measure area, height, length of buildings or areas**

FDNY CRIMS MAP Custom Widgets

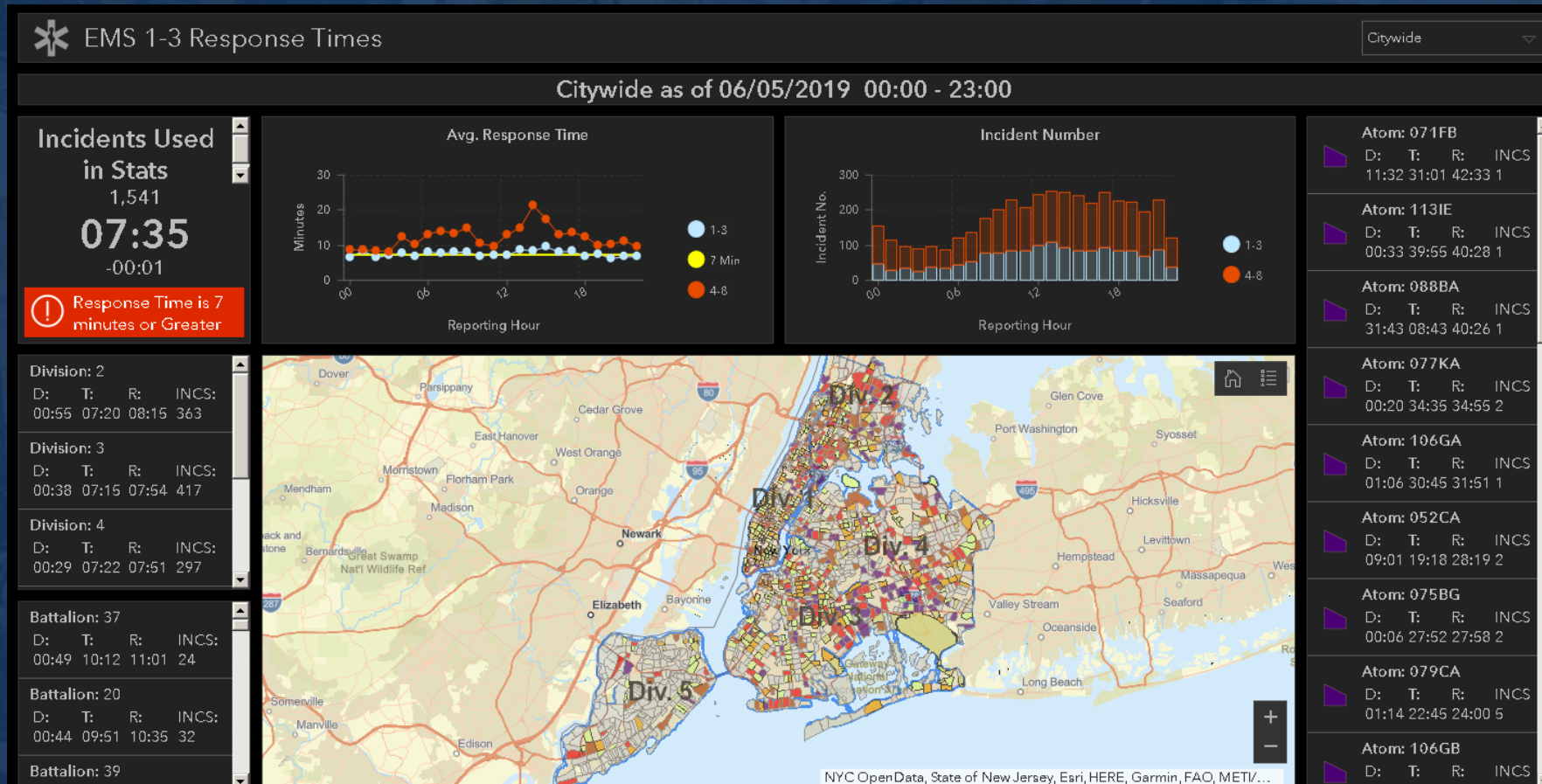


- **Cyclomedia Street Smart Widget** provides **CURRENT** High Resolution Street View Imagery, collected 2X year
- **High Resolution**- see addresses, tags, features clearly
- Provides staff chiefs and Incident Commanders prior to arriving on scene, **size up, situational awareness**
- Advantageous for **Inspections, Pre-Planning, Exercises**



- **Archived imagery** provides comparisons of building facades, addresses, street conditions
- **Images are easily extracted & included in print and electronic packages** for the Incident Commander, staff heading to scene, operations group

FDNY EMS Hourly Map & Operations Dashboard



- Internal WEB Map application displays EMS Incident / Response Data
- Provides EMS Operations Current Situational Awareness for response times / call volume



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- **External WEB Map application using Amazon EC2 & ArcGIS Server, AGOL, Explorer & Collector Apps, as a work around, due to firewalls & security settings**

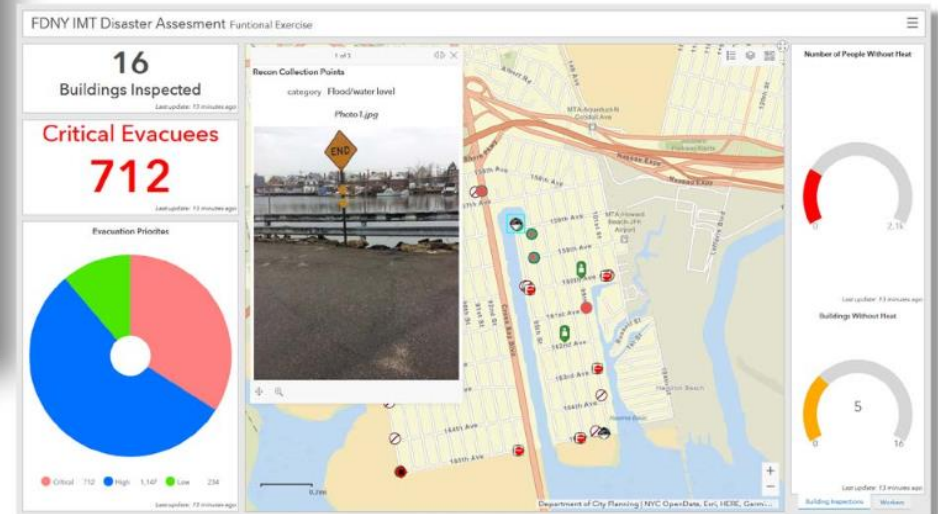


Incident Management Team



FDNY Incident Management Team

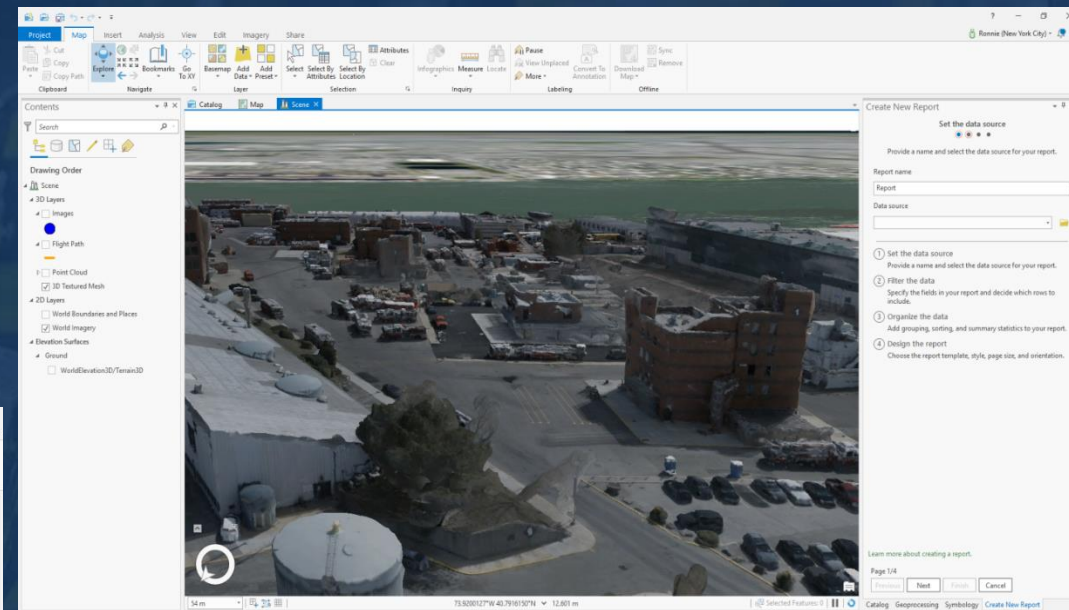
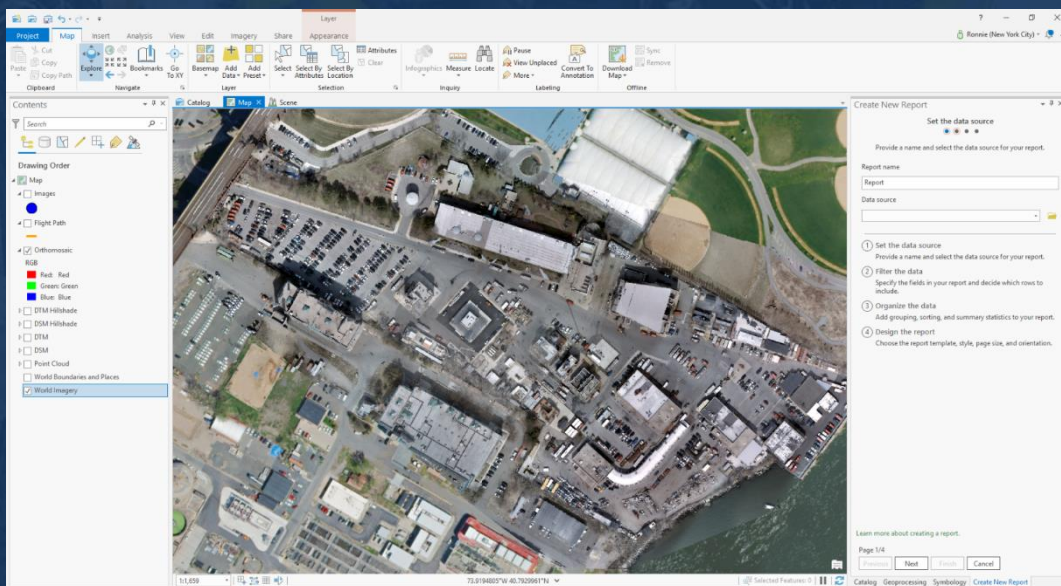
Technology





Drone 2 MAP

- Ability to take DRONE imagery captured, during missions and create GIS layers.
- Situational awareness for briefings and planning



- Create 2D and 3D map products from DRONE Imagery



DOB COOP 2019 Full Scale Exercise

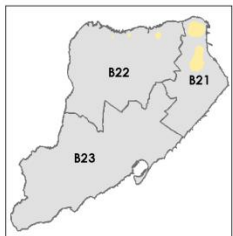
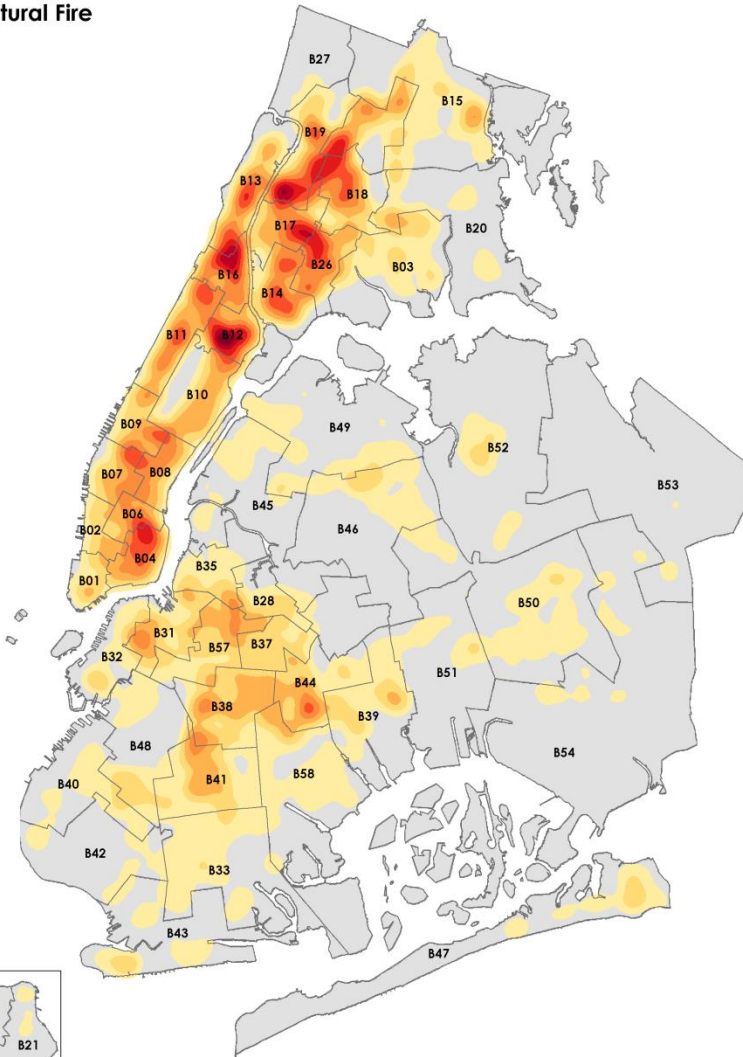
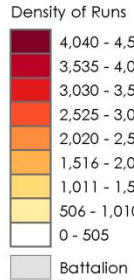




FDNY Bureau of Management, Analysis and Planning (MAP)

- MAP is FDNY's analytic center
- Organized as 4 Teams:
 - GIS Unit
 - Operations Research
 - Data Quality
 - Strategic Planning
- Interdisciplinary team with backgrounds in geography, economics, epidemiology, statistics, data science, computer science, public policy, etc.

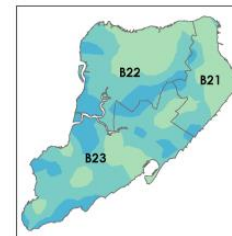
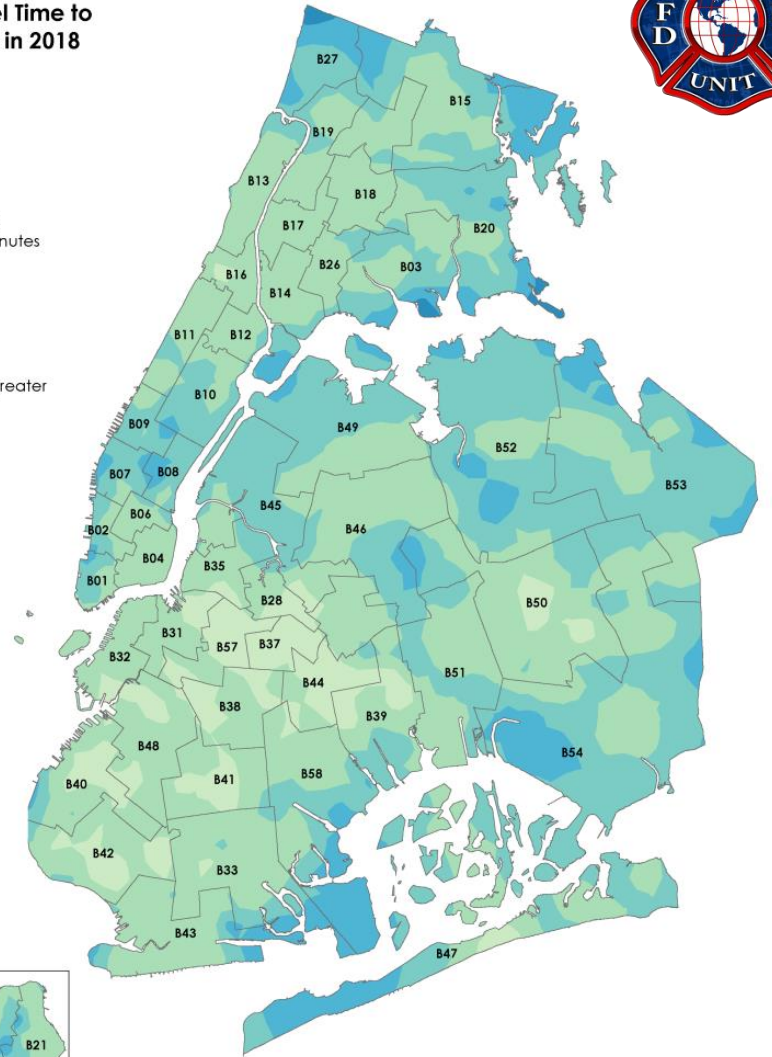
Density of Structural Fire
Runs in 2018



Spatio-temporal Incident Demand and Response Time

*(our most
frequent
analysis)*

Average Travel Time to
Structural Fires in 2018

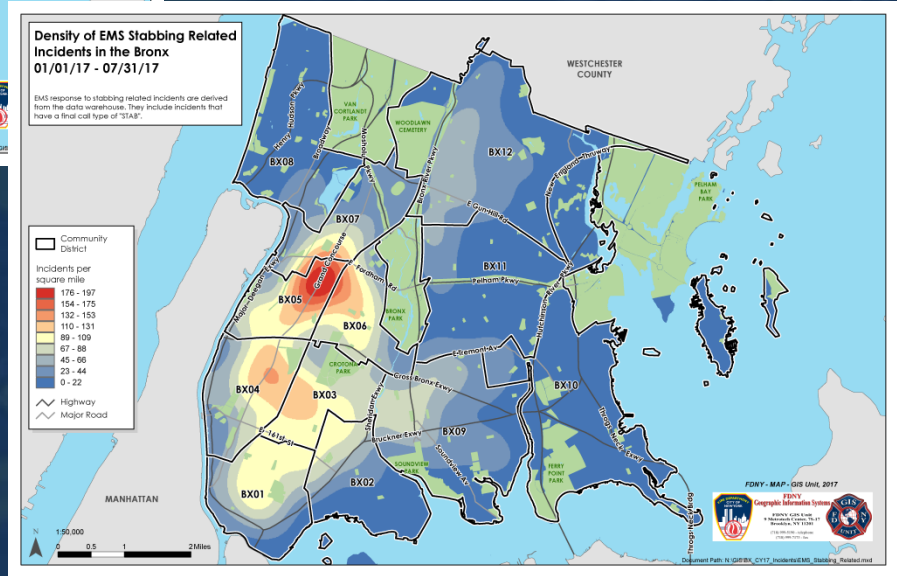
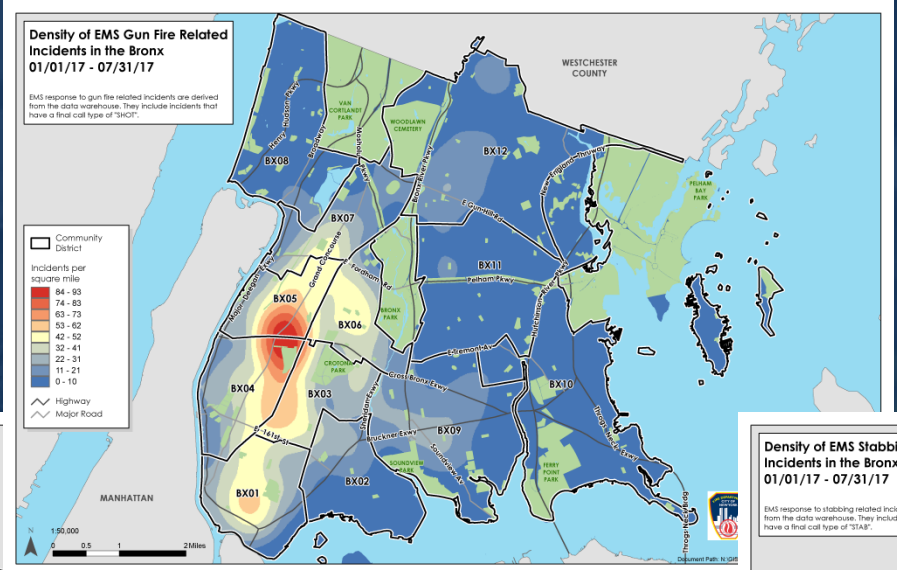
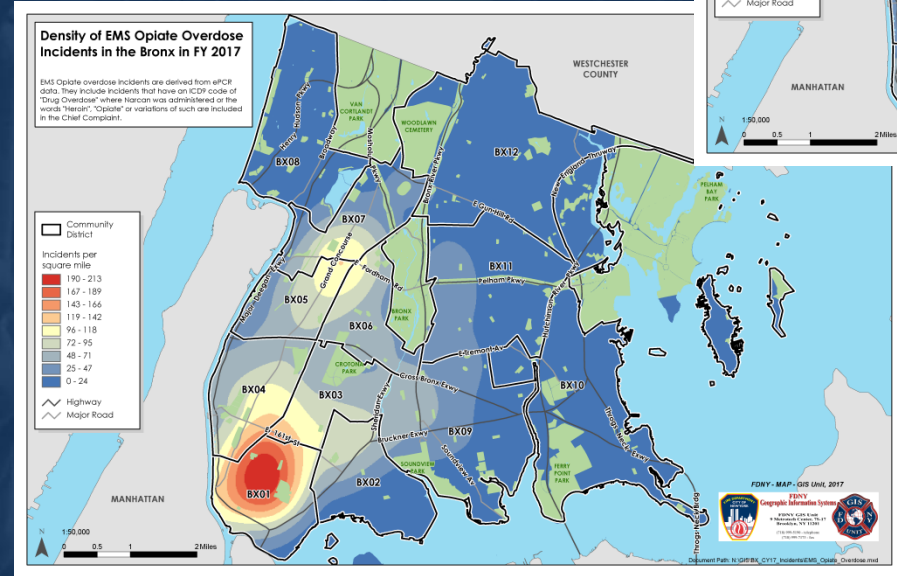




Even More so for EMS Than for Fire!

Opiate
Overdoses

Stabbing
Related



Gun Fire
Related



GIS Data Essential for Statistical Modeling

Risk-Based Inspection System (RBIS) uses a risk model to prioritize building inspections dependent upon both GIS techniques and data

PROBABILITY



IGNITION
MODEL

Deep learning

Probability of
major fires

X

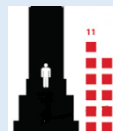
IMPACT / CONSEQUENCE



IMPACT
MODEL

Disease
surveillance

Risk ratio of civilian
injuries and deaths



PEOPLE LOAD
MODEL

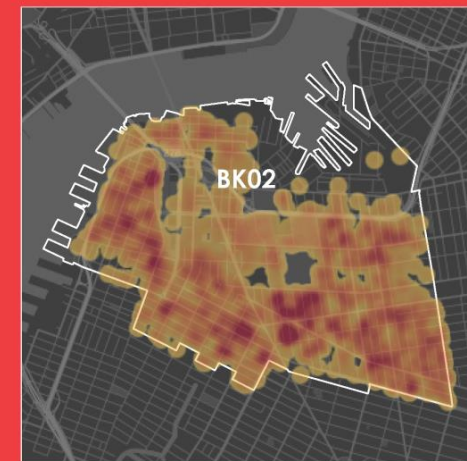
Dasymetric
mapping

Night-time
population estimate

=

RISK

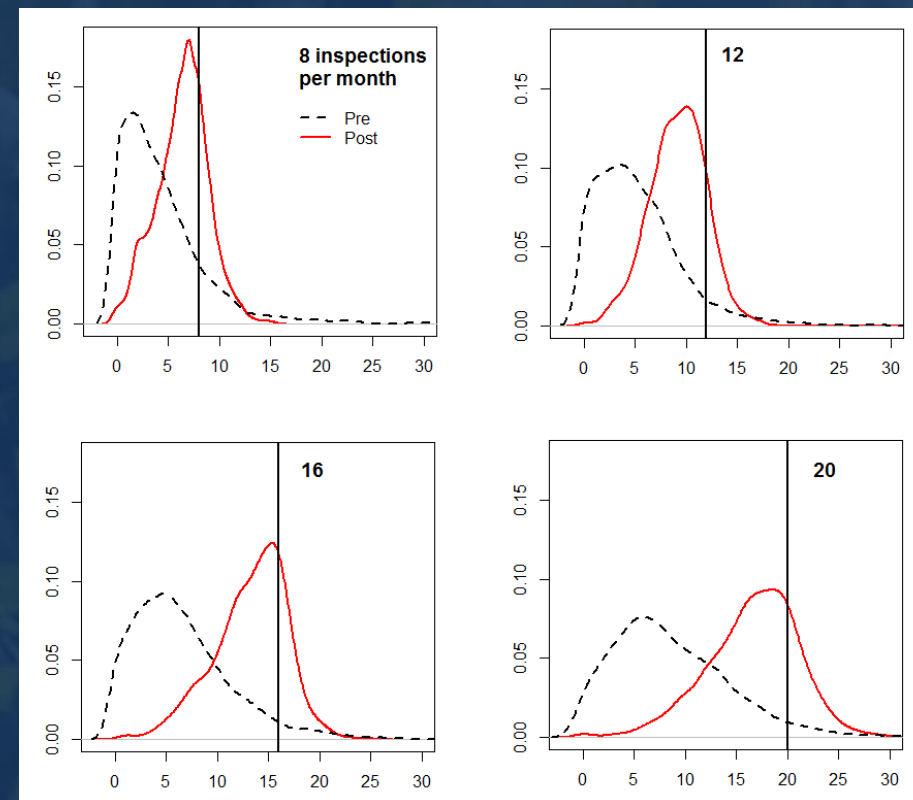
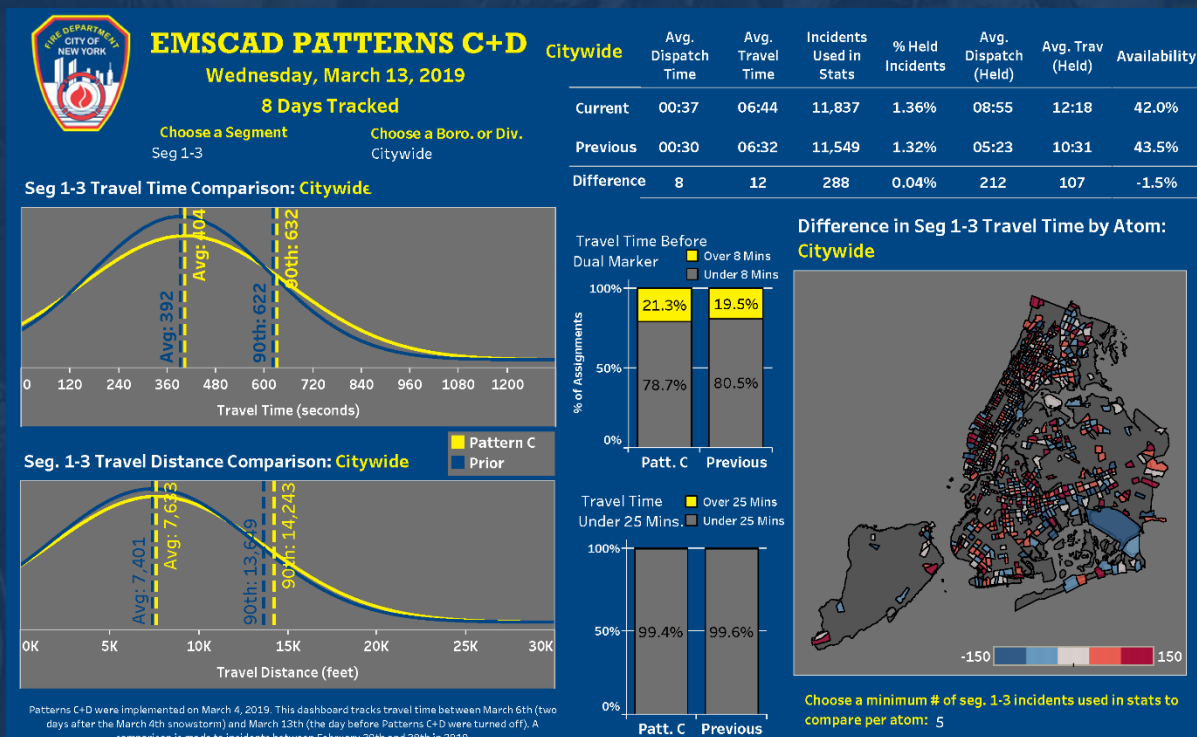
Where is the highest risk
for residential building fire?





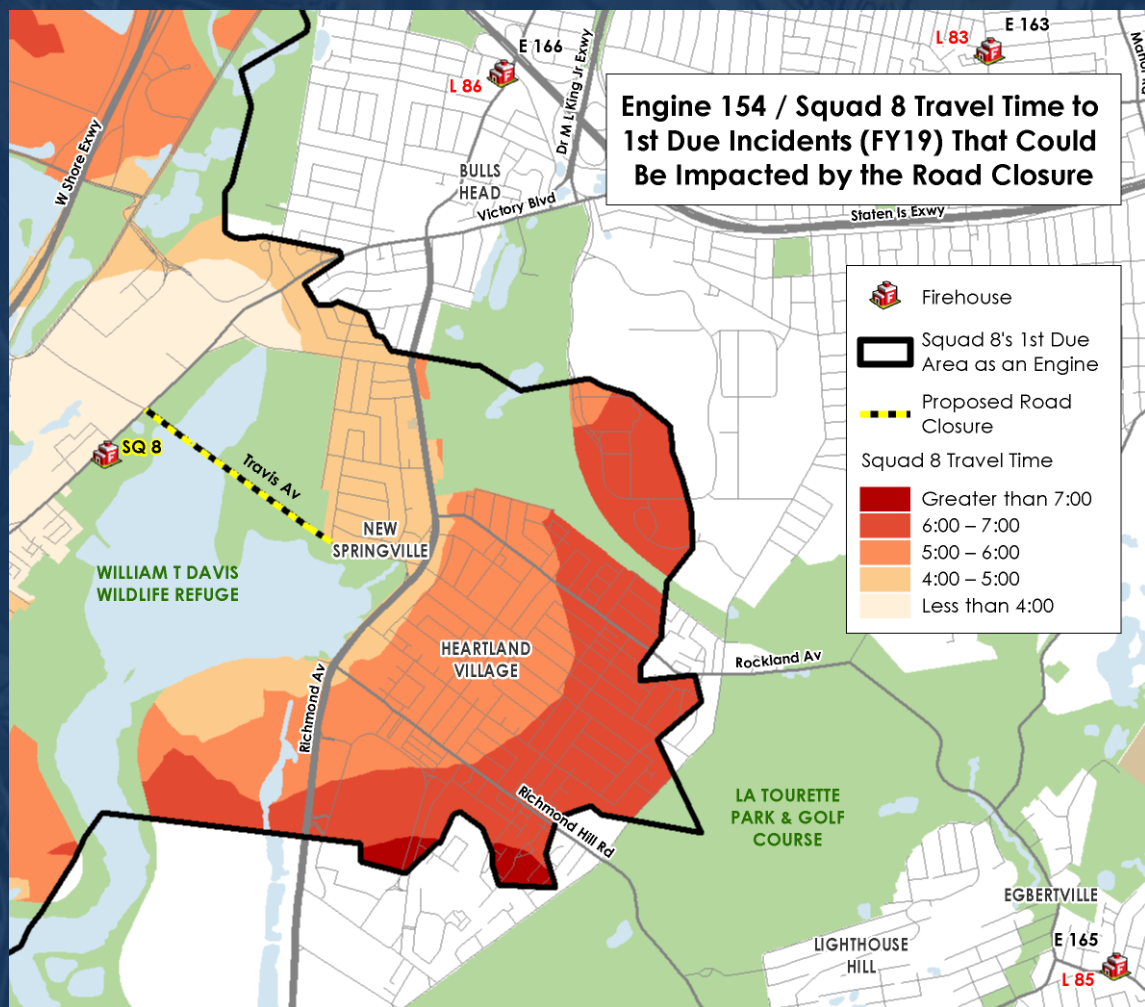
Track/Evaluate Pilot Programs

- Both EMS and Fire
- Set up dashboards to track pilots in Tableau
- Both descriptive and statistical analyses



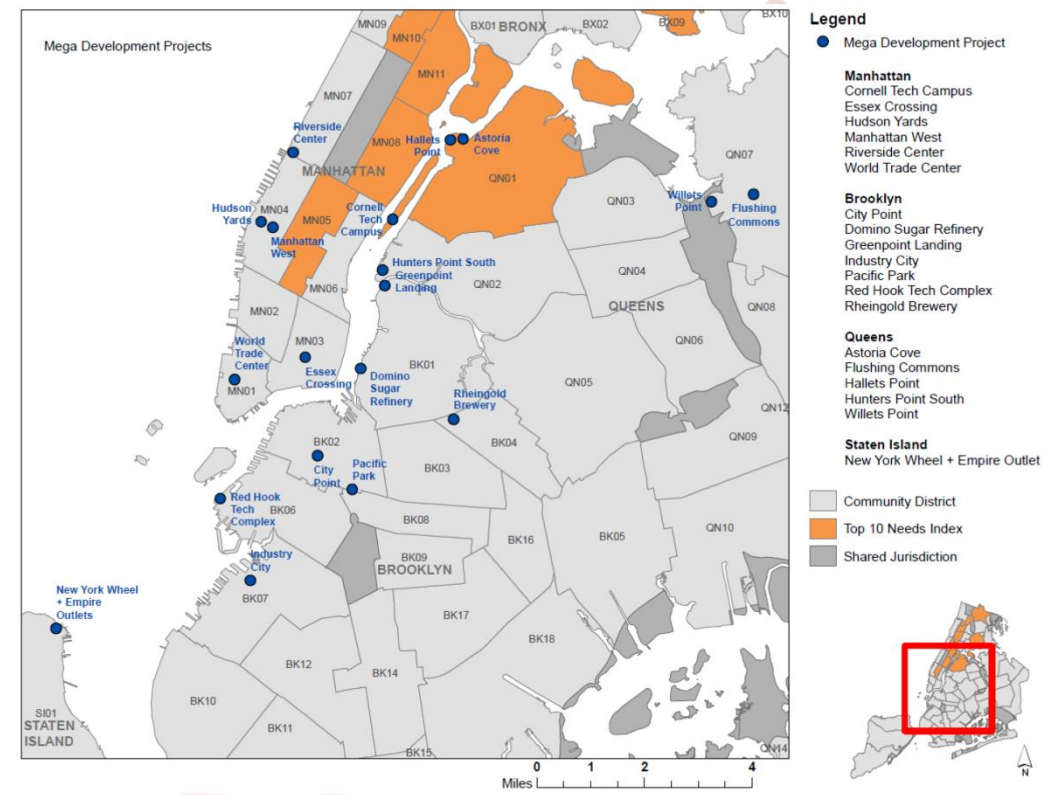


Facility Planning / Demand Forecasting / New Needs



F. Forecasting Need in Growth Areas

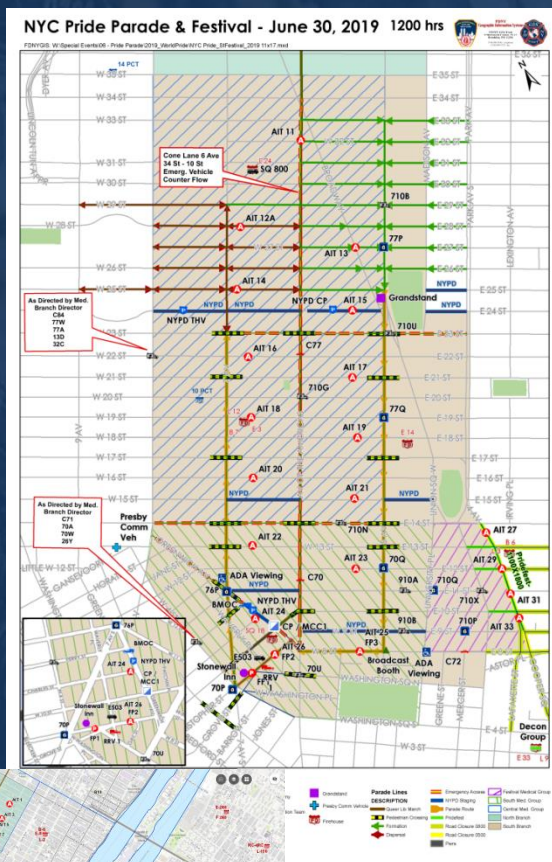
Major new construction projects can have a discernible impact on needs planning. The location of major new construction projects within community boards are displayed in Map 6. Some areas currently slated for major development or where major developments have been proposed are in areas of existing high need; Manhattan Community Board 8 and Queens Community Board 1 both fall into the top 10.



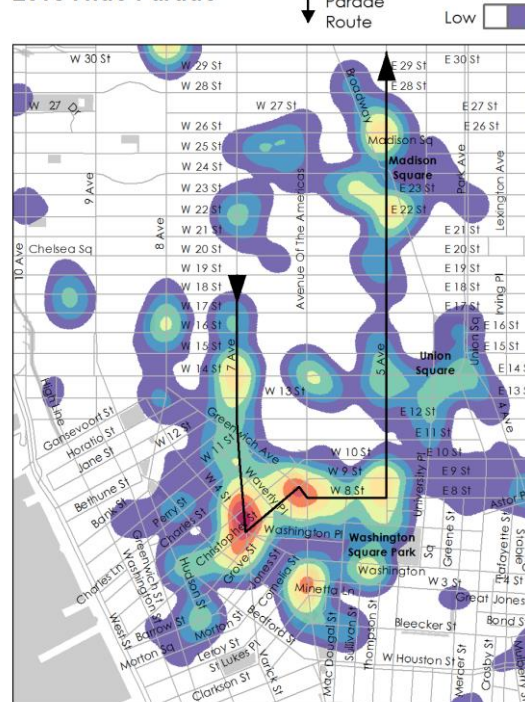


Special Event Planning

2019 World Pride Parade



2018 Pride Parade



Average Sunday
in June/July

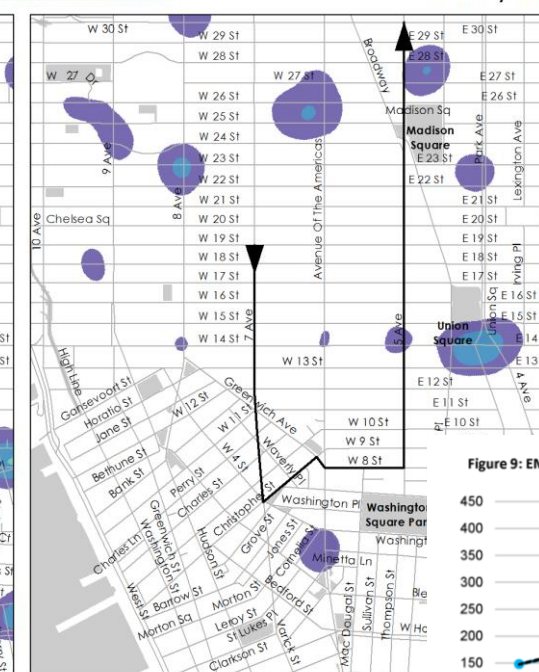
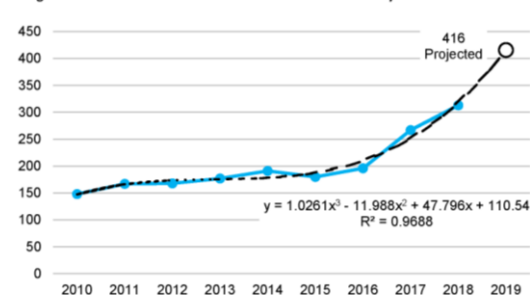


Figure 9: EMS Incidents After 11am in Pride March Area by Year with Trend Line





Fire Department City of New York



Battalion Chief Michael Brady
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718-999-5193

Matt Adams
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