How the NYC Data Analytics Team Responded to and Learned from a Catastrophe…

Dr. Amen Ra Mashariki

The Washington Post

To Your Health

Seven dead, 86 infected as New York officials identify and disinfect cooling towers filled with Legionnaires bacteria

By Ariana Eunjung Cha August 4, 2015

Citywide Outreach Effort

MODA

Update the Model

Disseminate the list of Cooling Tower Locations

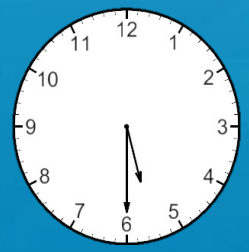
City Agencies

Share Canvassing Results

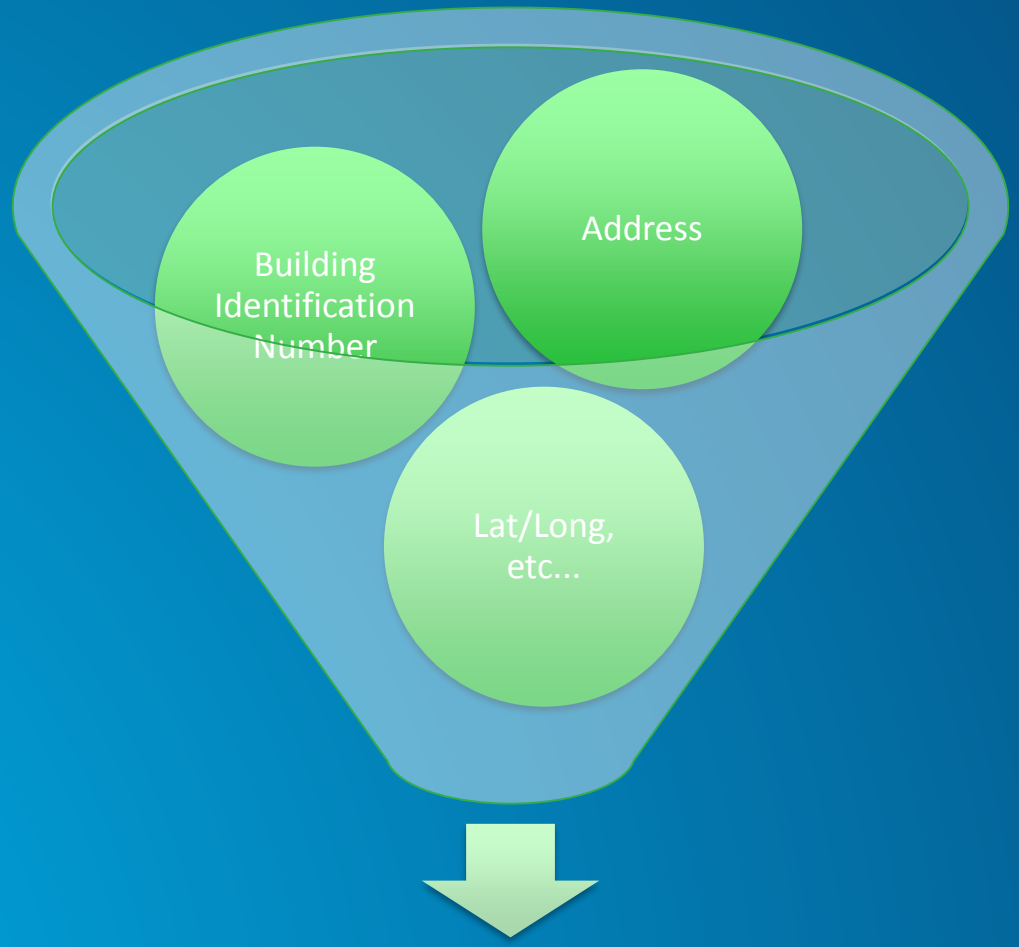
MODA

Send the Reports

City Leadership



Reconciling Location for Buildings in NYC



Integrated Building Master

Geosupport

- Geocoding system of record for NYC Govt.
- Specific to and customized for NYC
- Developed in the early 80’s by City Planning
- Mainframe, desktop and web versions
- Access through function calls
  - Address/Place
  - Intersection
  - On Street & Two Cross Streets

What is Geosupport for?

- Provide public access to NYC government's geocoding system of record (Geosupport)
- Access to key identifiers used throughout City government (BIN, BBL)
- Help the community engage the City

Location Types

- Address
- BBL
- BIN
- Blockface
- Intersection
- Place

Parameter Types

- House Number
- Street
- Borough
- Building Identification Number
- Block
- Lot
- Compass Direction

Address

- Input
  - **houseNumber**
  - **street**
  - **borough**

- Output
  - Block-level data
  - Property-level data

Intersection

- Input
  - **crossStreetOne**
  - **crossStreetTwo**
  - **borough**
  - **boroughCrossStreetTwo** (optional)
  - **compassDirection** (optional)
- Output
  - Geographic information related to the intersection

Blockface

- Input
  - **onStreet**
  - **crossStreetOne**
  - **crossStreetTwo**
  - **borough**
  - **boroughCrossStreetOne** (optional)
  - **boroughCrossStreetTwo** (optional)
  - **compassDirection** (optional)
- Output
  - Block-level data

BBL - Borough, Block, Lot

- Input
  - **borough**
  - **block**
  - **lot**
- Output
  - Function **BL**
  - Building and property-specific data
  - Address range information

BIN - Building Identification Number

- Input
  - **BIN**(building identfication number)
- Output
  - Building and property-specific data about a single building
  - Address range information which applies to the building

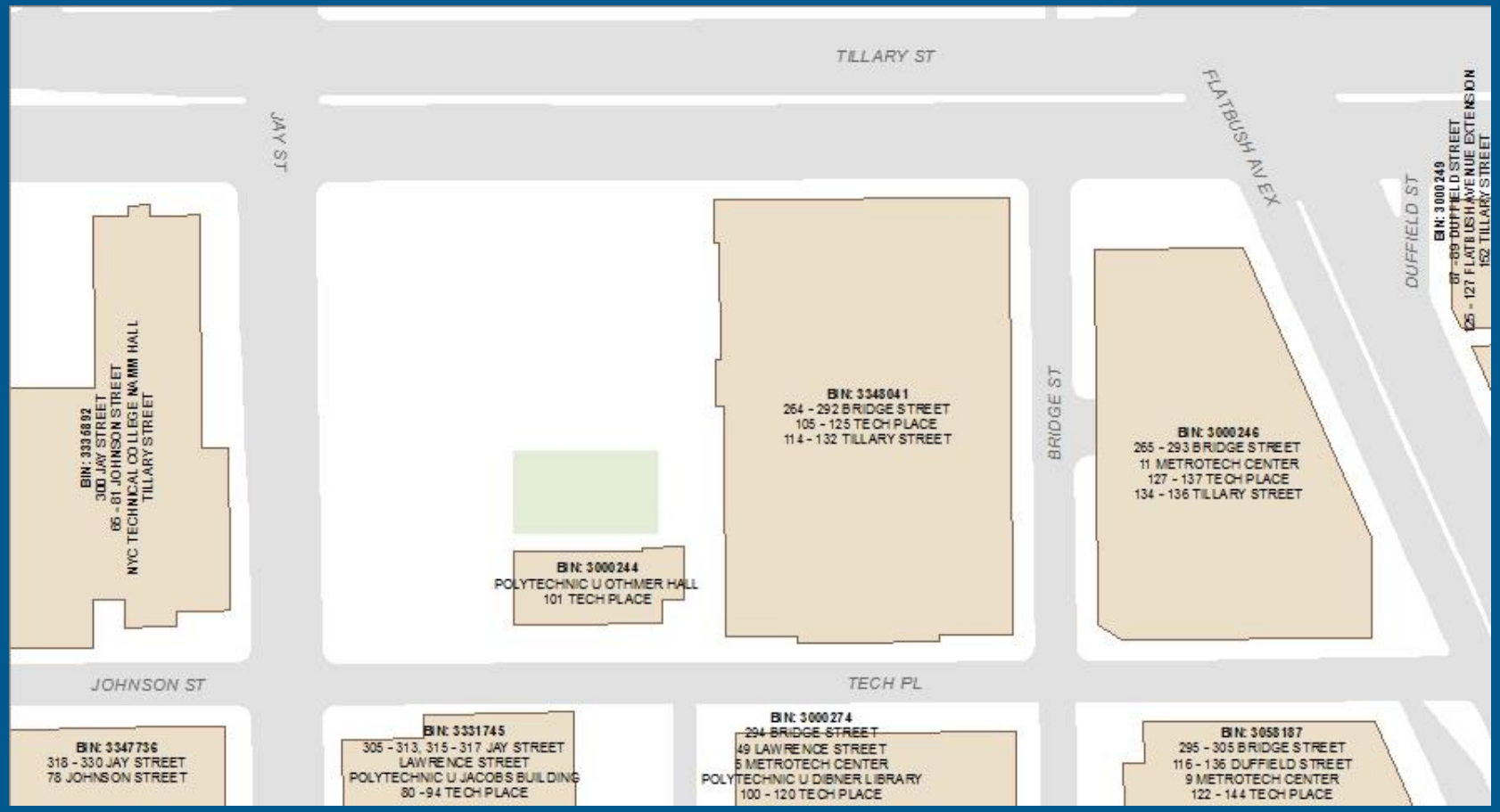
Place

- Input
  - **name**
  - **borough**
- Output (same as Address)
  - Block-level data
  - Property-level data

Building Database – Citywide Base Version

DCP determines PAD address range and assigns BIN

DoITT associates BIN with Building Footprint

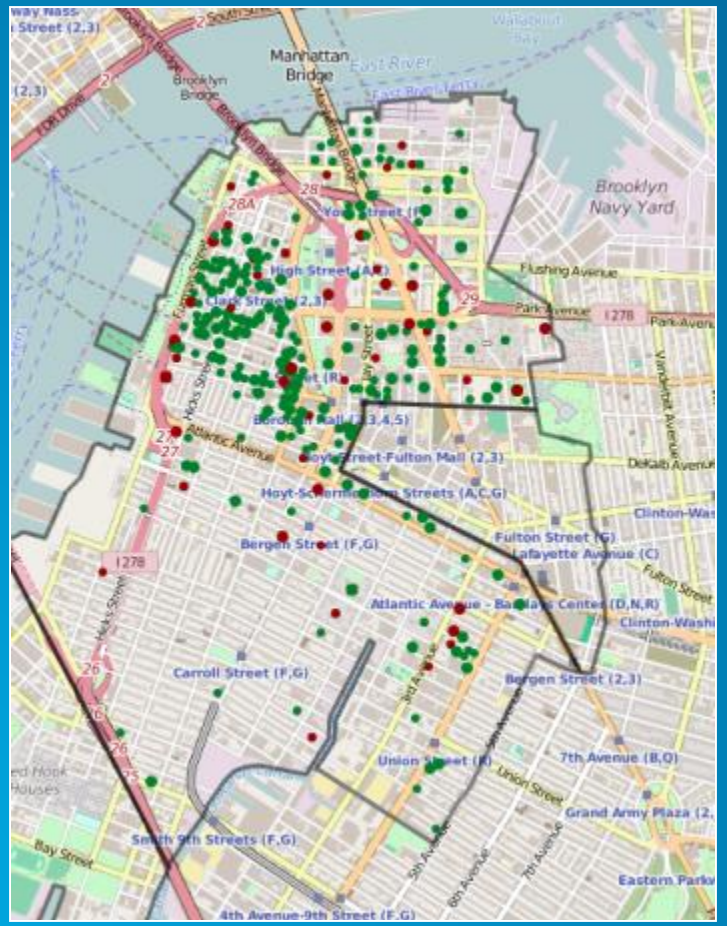


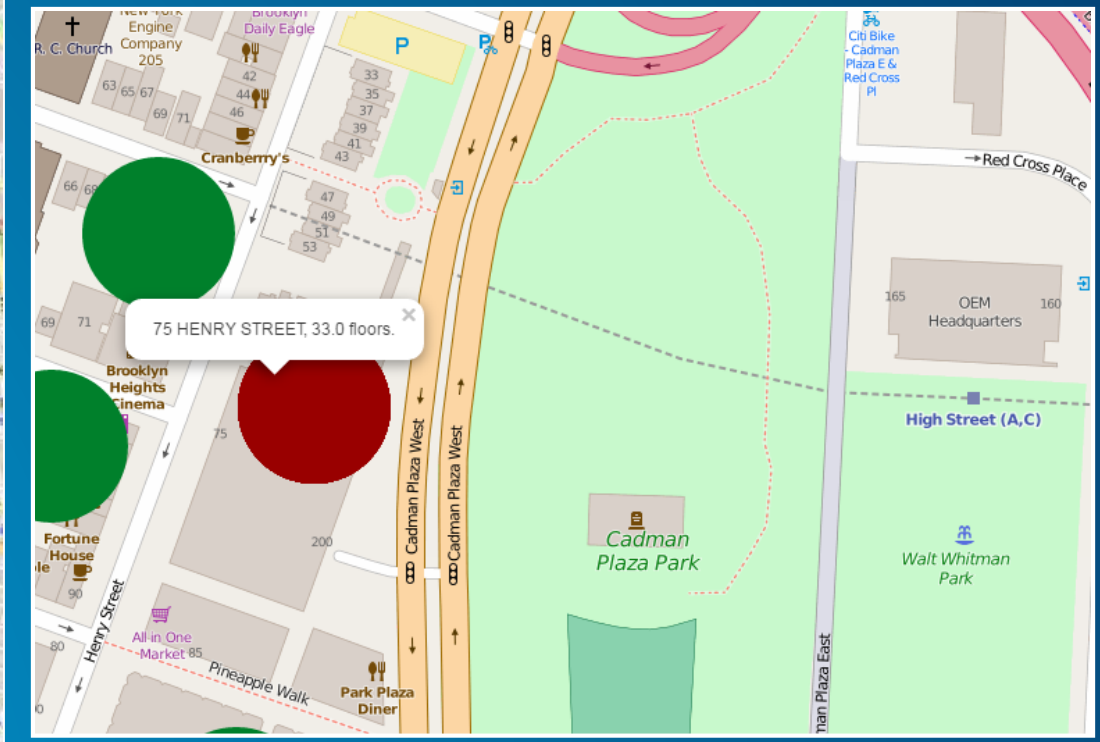
Integrated Building Master

SUMMARY FOR INTEGRATED DATASET					
				Total Number	Percentage
ALL BUILDINGS	no elevator			8568	93.53
	with elevators	less than 6+ floors		295	3.22
		6+ floors	with generator	22	0.24
			no generator	276	3.01
TOTAL				9161	
ALL UNITS	no elevator			26264	56.51
	with elevators	less than 6+ floors		1544	3.32
		6+ floors	with generator	776	1.67
			no generator	17894	38.5
TOTAL				46478	
RESIDENTIAL BUILDINGS	no elevator			7653	95.64
	with elevators	less than 6+ floors		140	1.75
		6+ floors	with generator	3	0.04
			no generator	206	2.57
TOTAL				8002	

Sources: Elevators (FDNY), Generators (FDNY, DOB), Building Info (DCP, DOITT, PLUTO)

Integrated Building Master *Data Detail*





Integrated Building Master *Data Detail*

Integrated Bin Master

	BIN	BBL	DOB generator	FD generator	HPD Contact Info	Dialysis Center	Health Care Facility	Pharmacy	LandUse	UnitsRes	NumFloors	Residential	Address	Borough	ZipCode	elevator
2648	3002699	3002710018							4	6	0	yes	117 COURT STREET	BK	11201	yes

OEM Building Composite

BIN	DOITT_ID	CD	BldgClass	LandUse	OwnerName	OwnerType	NumBldgs	NumFloors	LotArea	UnitsRes	UnitsTotal	BsmtCode	ProxCode	LotType	YearBuilt
3002699	1086722	302	RM	4			2	10	3115	7	8	5	0	3	2010

Bisweb

13 Building Characteristics

		2014/2008 Code Designations?
Occupancy Classification: Existing:	J2: RESIDENTIAL	☐ Yes ☒ No
Proposed:	J2: RESIDENTIAL	☐ Yes ☒ No
Construction Classification: Existing:	I-C: 2 HOUR PROTECTED	☐ Yes ☒ No
Proposed:	I-C: 2 HOUR PROTECTED	☐ Yes ☒ No
Multiple Dwelling Classification: Existing:	HAEA	
Proposed:	HAEA	
Building Height (ft.): Existing:	120	
Proposed:	120	
Building Stories: Existing:	10	
Proposed:	10	
Dwelling Units: Existing:	7	
Proposed:	7	

Mixed use building? ☒ Yes ☐ No

- Over A million buildings in your City.
- Limited human and financial resources for inspection and canvassing.
- Accuracy and expediency are crucial
- Do not want another person in your city to get sick from Legionella.

What Would You Do?

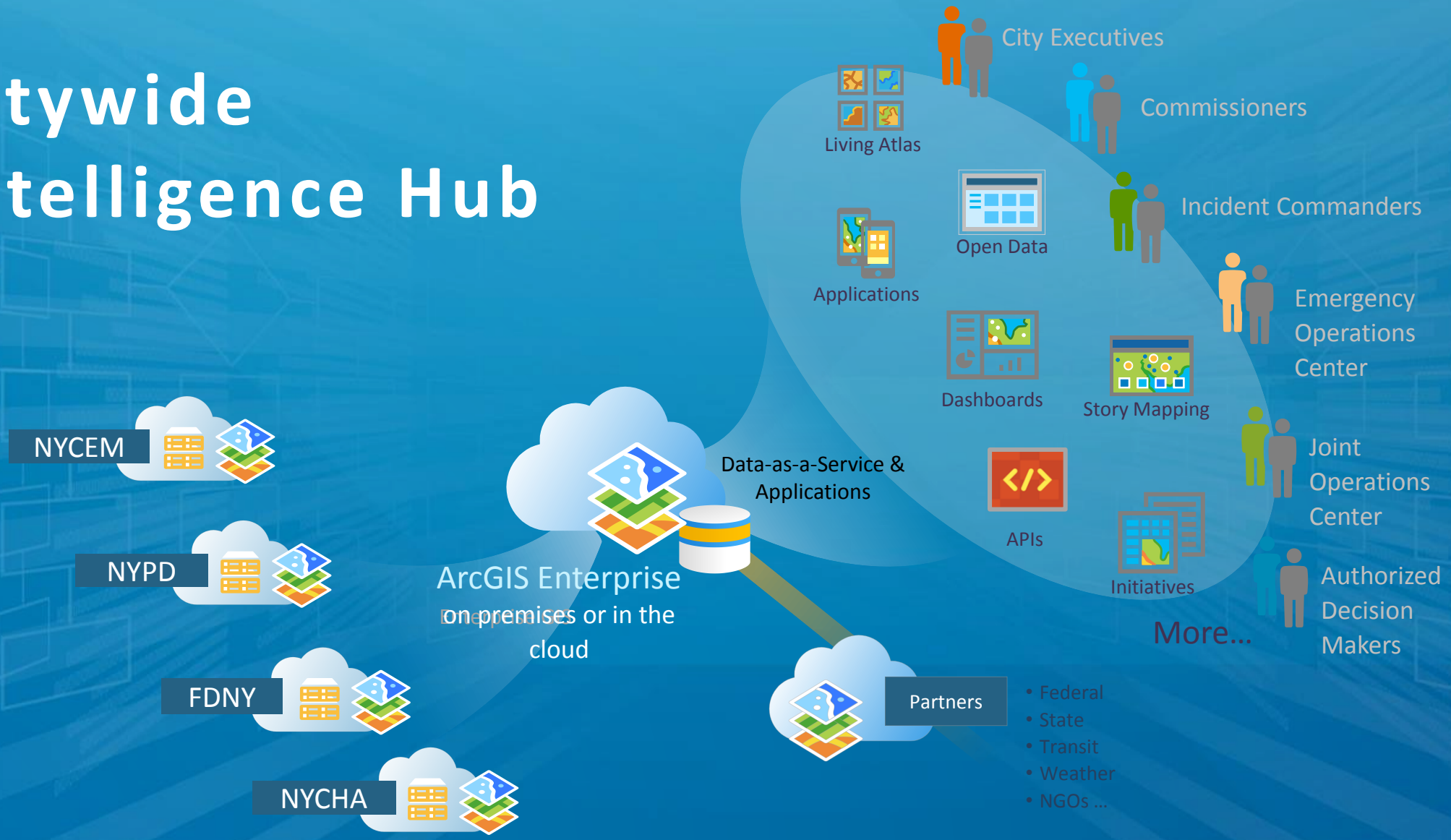
Without Data and Analytics – There was a 1 in 10 chance of us identifying a building that had a cooling tower.

With Data and Analytics – There was 8 in 10 chances that we would identify a building that had a cooling tower.

Tactical Analytics Response Checklist

- [x] Translate a city question into a clearly Defined analytics problem.
- [x] Access to City data, and ascertain it’s provenance and quality.
- [x] Use Data and Analytics as a mechanism to create more informed decision makers in your organization.
- [x] Constant and consistent “ground-truthing” built into your analytics effort.
- [x] Communicate, Communicate, Communicate.
- [x] Embed the team of data scientists with the teams of Domain experts.

Citywide Intelligence Hub



NYC Emergency Data Drill

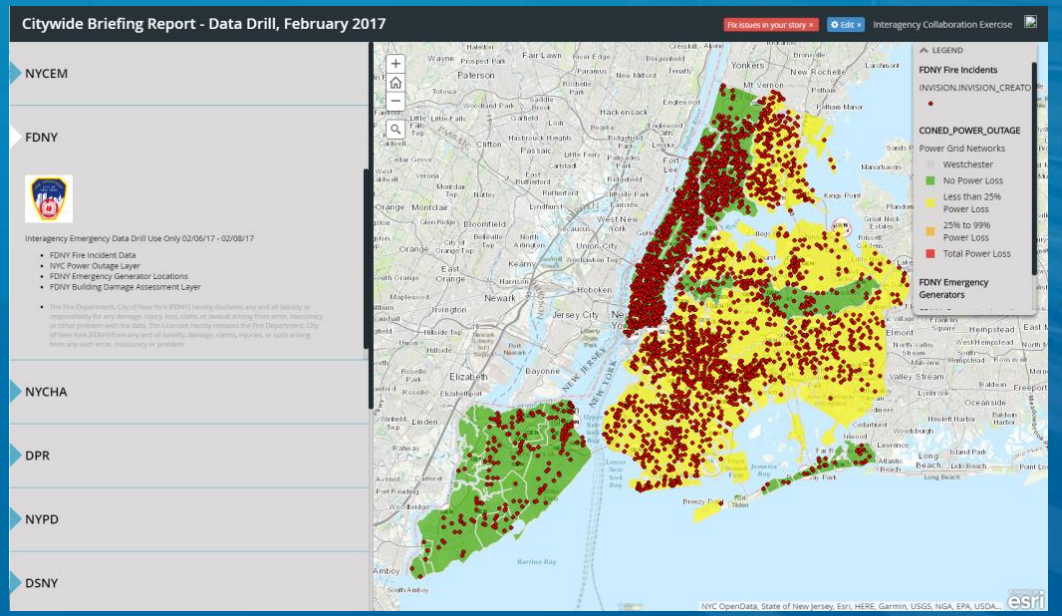
Schedule

- 11 trainings over 3 weeks prior
- Training attendees : 70
- POC users: 121
- Agencies: 22

Tuesday, February 7th – Part 1
- 43 participants on Initial Interagency Call
- Review agency datasets
- Develop Critical Operational Tool
- Collaboration Exercise – Citywide Briefing Report

Wednesday, February 8th – Part 2
- ~ 100 items uploaded/created by Feb. 8th
- NYCEM convening and call
- Review Critical Operational Tool prototype
- Review Collaboration Exercise Citywide Briefing Report

Agency division participation:
- IT and Telecommunications
- Policy and Planning
- Performance Tracking and Analytics
- Enforcement and Neighborhood Services
- Technology and Strategic Development
- Data Integration Team
- Property Division
- Management Analysis and Planning
- GIS Unit/Specialists/Developers
- Operations Research/Management
- Forestry, Horticulture, and Natural Resources
- Environmental Health/Epidemiology
- Business Solutions



Thank You