

HH&C NYCEM User's Guide

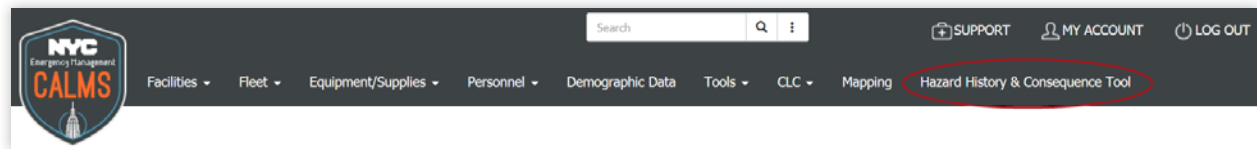


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Overview



The Hazard History & Consequence Tool (HH&C) has been developed by NYC Emergency Management as an enhancement of the 2014 Hazard Mitigation Plan. The tool provides a user-friendly, accessible, and comprehensive look at NYC's hazards and their consequences. What this tool offers:

- Central, archived resource to inform risk and vulnerability assessments
- Ability to enhance agency emergency planning, response, and community outreach by localizing risk
- Documented historical losses to better inform benefit-cost analysis
- Repository of historic hourly weather station data

The tool can be accessed through the Citywide Asset and Logistics Management System (CALMS) located at <https://nycemcalms.com>. For an account to CALMS and access to the HH&C Tool, or for support on using the tool, please contact **Bryan Mentlik** at BMentlik@oem.nyc.gov or at **718-422-8485**.

This user guide is intended for users searching, reviewing, and analyzing the storm events and historical consequence datasets accessible within HH&C Tool.

Every path though the user-level interface starts with searching for a desired storm event using various filtering strategies. Once the storm event has been identified, the user can then drill into event-level and consequence-level analysis pages. Users can also browse the weather, media, and text product datasets associated with a storm event.

Event Selection

By default, you can display all the storm events in the tool by ignoring the search fields and clicking the blue “**Search**” button.

Hazard History & Consequence Tool - Event Selection

Home

Event Selection

Event Overview

Hazard Details

Consequences

Overview

Beach Advisories

FEMA IA

FEMA PA

FEMA NFIP

Inland Flooding

NWS Text Products

Power Outages

Sanitation Metrics

Event Name Go

OR

Start Date 1/1/2000 12:00 AM

End Date 4/11/2017 8:13 AM

Event Type Any

Critical Issues None selected

Location Citywide

Magnitude Any

Search

Click this Go button if searching by Event name only

Searching by event name takes priority over lower criteria fields. If you enter a search string into the event name textbox, you will be searching by event name. Selecting any of the lower criteria fields will clear the event name textbox and allow you to search with the more specific criteria controls.

Search by Event Name

Searching by event name will find the storm events where the supplied text is contained within the storm event’s alias, name, or NYCEM ID fields within the dataset. For example, if you search for “Blizzard,” you will see matches for the storm event whose alias, name, or NYCEM Id is “Blizzard.” To perform a search by Event Name, enter **text or keyword** into the Event Name textbox and click to Go button.

Search by Criteria

The start date field will default to 1/1/2000, the earliest date for which storm event data have been included in the tool. The end date will default to today’s date.

Each criteria fields’ selection will be AND’d together to determine the matched storm events. For example, “where the storm event start date is within the specified date range AND the storm event covers the Bronx AND...” If a criteria field allows for multiple options to be selected, these selected options will be OR’d together, as a sub-expression of the criteria field’s AND clause. For example, “where the storm event start date is within the specified date range AND the storm event covers the Bronx AND Critical Issues are Coastal Flooding OR Coastal Storm...”

Event Name Go

OR

Start Date 1/1/2000 12:00 AM

End Date 4/17/2017 2:25 PM

Event Type Any

Critical Issues None selected

Location Citywide

Magnitude Any

Search

Any

Extreme Temperatures

Winter Storm

Severe Weather

Flooding

Drought

Coastal Storm

Select all

Coastal Flooding

Coastal Storm

Dense Fog

Drought

Any

Citywide

Borough

Any

Heat

Rain

Snow

Surge

Wind

Event Selection Results

Once the blue **“Search”** button is clicked on the Event Selection page, you will be presented with the matched results in a table. This table can be sorted and filtered further using the table’s upper-right search box. You can select a storm event from the table by clicking a row’s **“Select”** button, and then clicking **“View Storm Event.”** You will then be navigated to the Event Overview page. You may also return to the Event Selection page by using the top-left **“Back to Event Selection”** button on the page.

Hazard History & Consequence Tool - Event Selection

Please select an event from the list below that meets your searched criteria. ×

[Back to Event Selection](#) [View Storm Event](#)

Show entries

Search:

Event Id	Date	Name	Event Type	Location	Duration
Select SW0287	August 27, 2011	Hurricane Irene	Severe Weather, Flooding, and Coastal Storm	Manhattan, Bronx, Brooklyn, Queens, and Staten Island	12 hours

Showing 1 to 1 of 1 entries

[Previous](#) [1](#) [Next](#)

[View Storm Event](#)

Once a storm event has been selected, the storm event’s name, start date, and NYCEM Id will be displayed in the tool’s main header. The user can also expose the end date and duration by hovering over the blue info icon located next to the storm event start date in the header.

Hazard History & Consequence Tool - Event Overview

Home [← Back](#) [Next →](#)

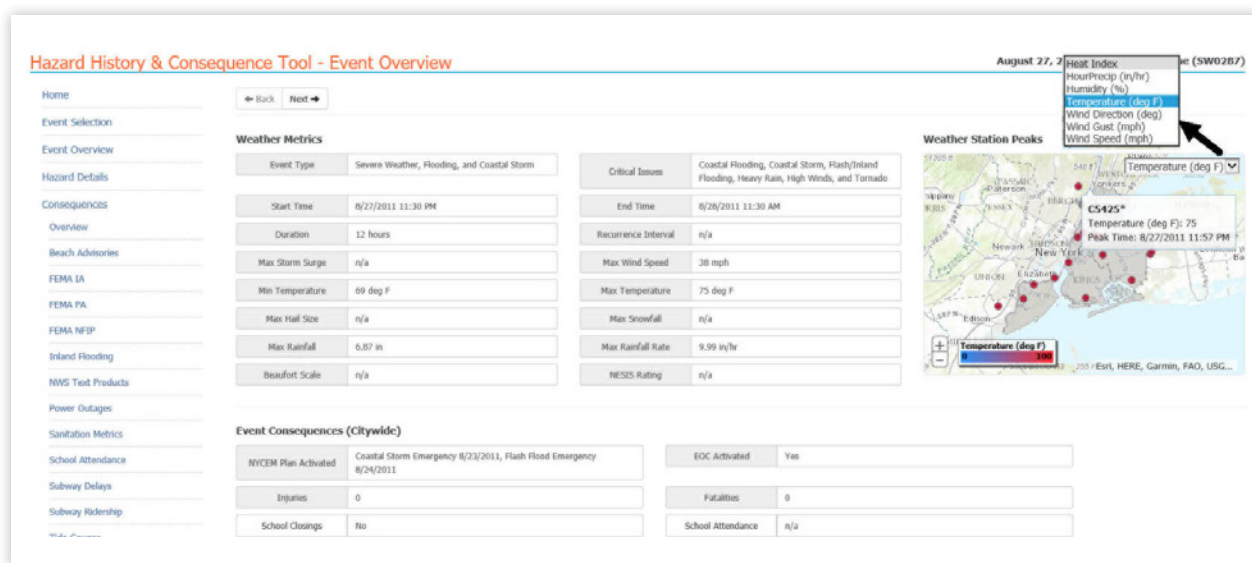
[Event Selection](#) [Weather Metrics](#) [Weather Station](#)

August 27, 2011 [Info](#) - Hurricane Irene (SW0287)

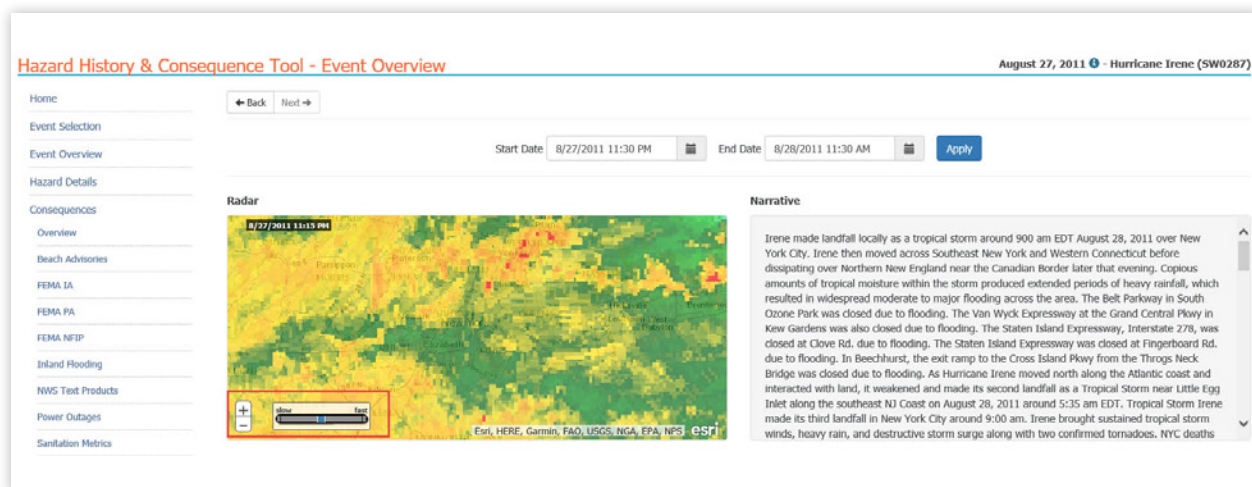
Event Start	8/27/2011 11:30 PM
Event End	8/28/2011 11:30 AM
Duration	12 hours

Event Overview

The first section of this page groups information by weather and consequence information citywide. Weather-related summary metrics are displayed in the top table along with a weather station peaks map. The lower table displays consequence summary metrics for each of the consequence datasets. The user can navigate to the corresponding consequence details page by clicking the buttons next to the consequence metrics. A map is included on the Event Overview to display the peak value for each weather station that reported data during the event for a chosen metric. A user may change the metric the map uses in the top right drop down.

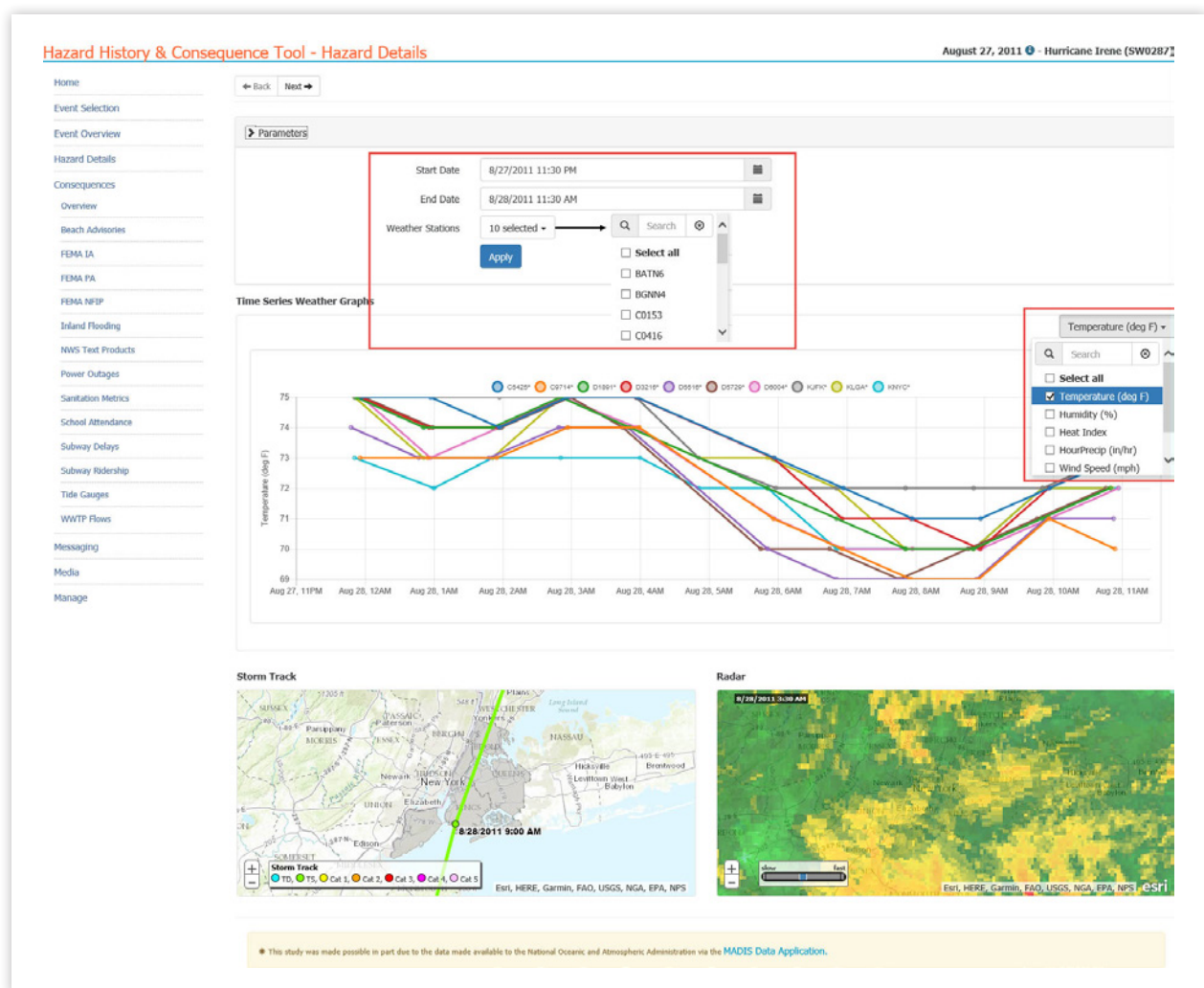


The second overview section, accessed using the top-left navigation buttons (**Back and Next**), offers a radar map and a narrative description of the storm event. In the lower left corner of the map, a user may zoom in/out on the map using the **+** and **-**, and the slider will speed up or slow down the map.



Hazard Details

This page offers a view of the storm event's weather data in the form of line charts and maps. The user also has the ability to further refine the date range and selected weather stations to include in the display, this is done within the Parameters area at the top of the page. The Time Series Weather Graph line chart can be changed to show different weather metrics by choosing the dropdown at top right of the line chart graph.



The second section of this page, accessed using the top-left navigation buttons (**Back and Next**), offers a tabular view of the same weather station data. The user also has the ability to further refine the date range and selected weather stations for this tabular view. At the top right of the table, a user can choose the Columns button to select which columns to display on the tabular view and export to CSV or Excel. The Copy button will copy the current tabular data to the user's local clipboard.

The screenshot shows a web interface for weather data. At the top, there's a 'Parameters' section with filters for 'Start Date' (8/27/2011 11:30 PM), 'End Date' (8/28/2011 11:30 AM), and 'Weather Stations' (10 selected). An 'Apply' button is below these filters. Below the filters is the 'Weather Data' section. It includes a 'Show 10 entries' dropdown, a search bar, and a table of weather data. The table has columns for Station, Timestamp, Temperature (deg F), Humidity (%), Hourly Precip (in/hr), Wind Speed (mph), Wind Gust (mph), and Wind Direction (deg). The table contains three rows of data for station CS425*.

Station	Timestamp	Temperature (deg F)	Humidity (%)	Hourly Precip (in/hr)	Wind Speed (mph)	Wind Gust (mph)	Wind Direction (deg)
CS425*	8/27/2011 11:57 PM	75	95	0.60	8	16	62
CS425*	8/28/2011 12:57 AM	75	95	0.56	8	26	75
CS425*	8/28/2011 1:57 AM	74	95	0.93	6	19	223

Consequence Overview

This page offers an overview of all the consequence datasets being tracked by the tool. A section in the overview listing can be expanded by clicking on the section title. Each section offers a summary of the dataset as well as its rough coverage by date range (gaps in the datasets may exist).

The screenshot shows the 'Consequence Overview' page. It features a text block explaining that the listed datasets are collected by NYC Emergency Management. Below this, there's a list of three datasets: 'Beach Advisories', 'FEMA Individual Assistance', and 'FEMA Public Assistance'. Each dataset entry has a green expand icon on the left and a 'Details' button on the right.

- Beach Advisories [Details](#)
- FEMA Individual Assistance [Details](#)
- FEMA Public Assistance [Details](#)

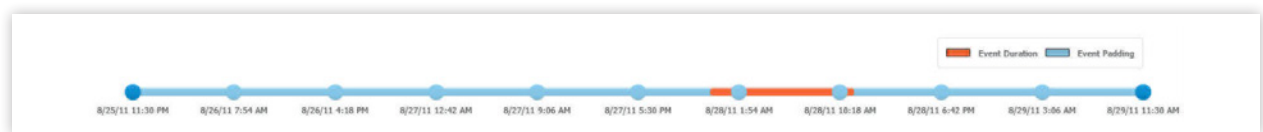
Consequence Detail Page(s)

The majority of the consequence details pages have the same look and feel. In general, a consequence details page will offer the user a form to refine the filter criteria for the storm event data displayed. Once the user has formed the desired filter, they can click the **"Apply"** button to produce the consequence map and chart. The user is also offered a date range slider to further refine the window of data displayed (using this control reuses any filter selections made above; only the displayed date range changes).

The charts have a feature to allow the user to enlarge for better visibility. Simply click on these icons to open the larger view:



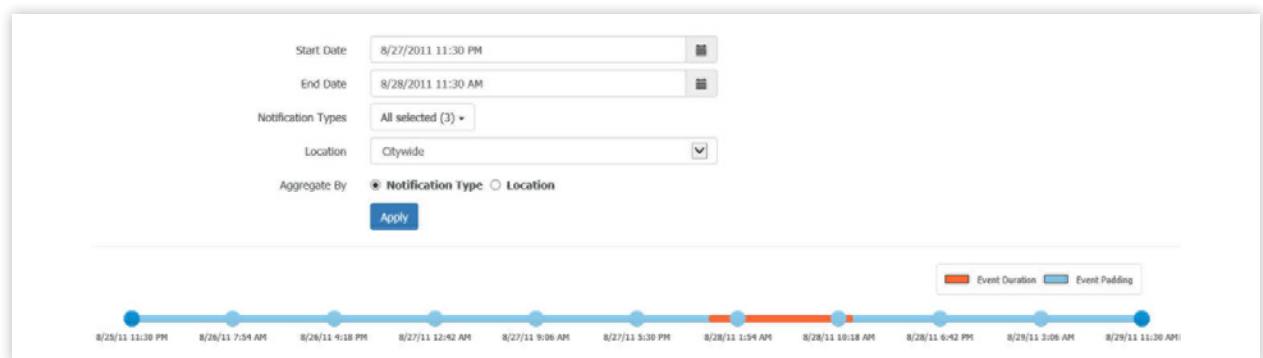
Some consequence datasets use date padding around the start and end date of the actual storm event. This allows the user to see the consequence's behavior leading up to and after the storm event. Any storm event date padding will be illustrated on the date range slider in blue while annotating the actual storm event duration in orange.



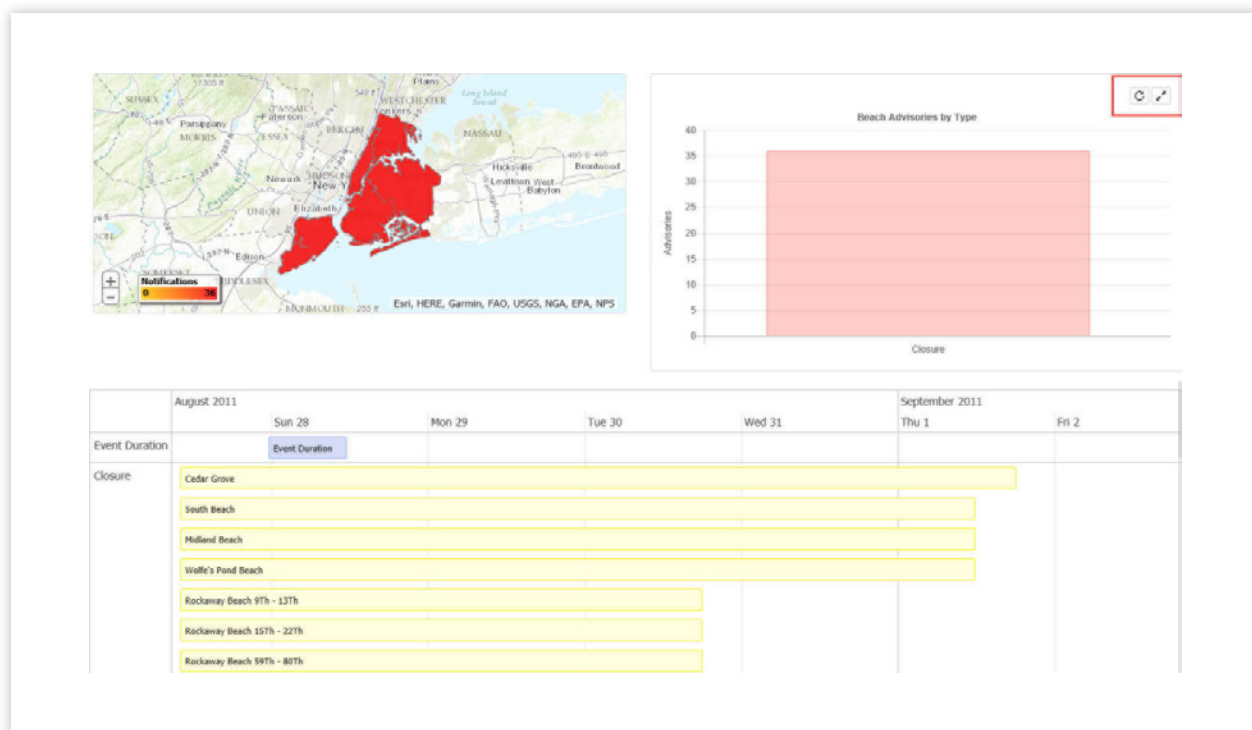
If no consequence data is available for the dataset a user is viewing then a message will be displayed at the top of the page alerting the user of that.

Consequence Details Page: Beach Advisories

The Beach Advisories page displays advisories and closures issued by DOHMH as a result of rainfall, and/or sampling of water at public and private beaches throughout NYC.



For Beach Advisories a user can filter Start and End date, Notification Types, and Location. The results set can be aggregated by either Notification Type or Location. The map will display the total count of beach advisories aggregated by locations selected the Location drop-down menu.



Consequence Details Page: FEMA Individual Assistance

The FEMA Individual Assistance page displays Individual Assistance claims—verified loss and rental assistance award.

Residence Type:

Ownership Type:

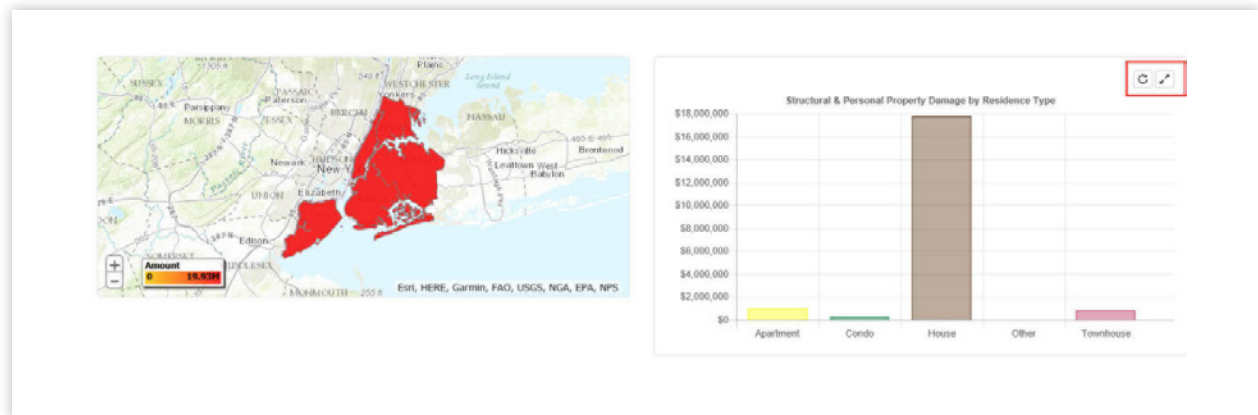
Property Damage:

Cause of Damage:

Location:

Aggregate By: ☒ Residence Type ☐ Cause of Damage

For FEMA Individual Assistance a user can filter by Residence Type, Ownership Type, Property Damage, Cause of Damage, and Location. The results set can be aggregated by either Residence Type or Cause of Damage. The map will display total amount of damages aggregated by locations selected in the Location drop-down menu.



Consequence Details Page: FEMA Public Assistance

The FEMA Public Assistance page displays Federal Share Obligated amounts for FEMA Public Assistance applications as a result of a weather-related disaster declaration.

Applicant Type: None selected ▼

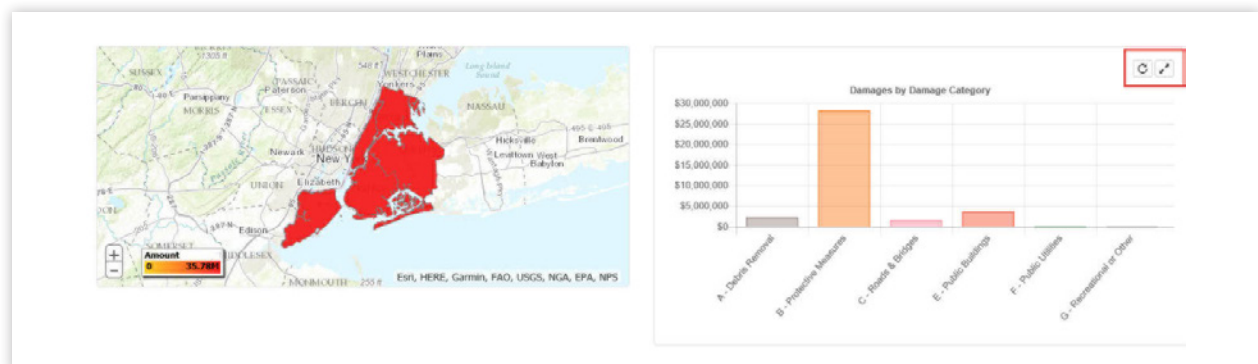
Damage Category: None selected ▼

Location: Citywide ▼

Aggregate By: ☐ Applicant Type ☒ Damage Category

Apply

For FEMA Public Assistance a user can filter by Applicant Type, Damage Category, and Location. The results set can be aggregated by either Applicant Type or Damage Category. The map will display total amount of public assistance aggregated by locations selected in the Location drop-down menu.



Consequence Details Page: FEMA NFIP

The FEMA NFIP page displays damage values attributed to flooding related issues on private properties. NFIP is applicable to residents in all events, not just disaster declarations.

Parameters

Start Date

8/27/2011 11:30 PM

End Date

8/28/2011 11:30 AM

Occupancy Type

None selected

Basement Type

None selected

Damage Cause

None selected

Damage Type

Building & Contents

Flood Level

None selected

Flood Zone

None selected

Is Elevated Building?

☐ Yes
☐ No
☒ Don't Care

Location

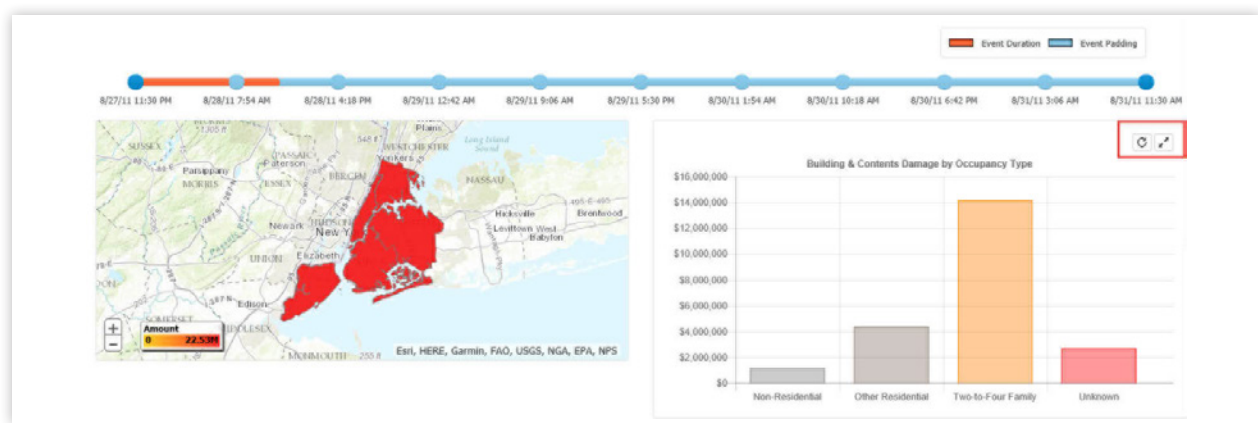
Citywide

Aggregate By

☒ Occupancy Type
☐ Basement Type
☐ Cause of Damage
☐ Flood Zone

Apply

For FEMA NFIP a user can filter by Start and End Date, Occupancy Type, Basement Type, Damage Cause, Damage Type, Flood Level, Flood Zone, Elevated Building, and Location. The results set can be aggregated by Occupancy Type, Basement Type, Cause of Damage, or Flood Zone. The map will display total amount of damages aggregated by locations selected in the Location drop-down menu.



Consequence Details Page: Inland Flooding

The Inland Flooding page displays any service requests as routed from the NYC 311 system through the NYC Department of Environmental Protection. These complaints originate from NYC residents who witness the consequence first hand.

Start Date

4/30/2014 8:45 PM

End Date

5/1/2014 2:45 AM

Complaint Types

All selected (2) ▾

Location

Neighborhood ▾

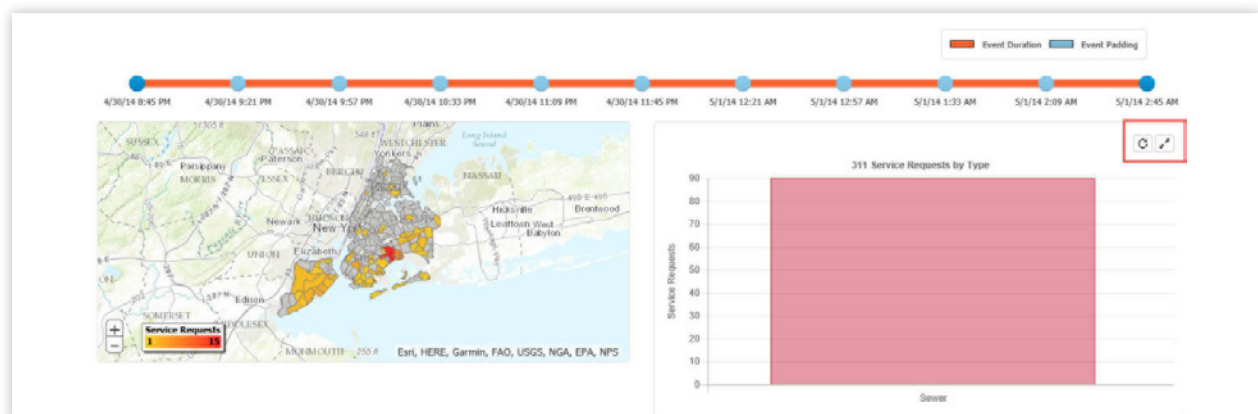
All selected (189) ▾

Aggregate By

☒ Complaint Type
 ☐ Location

Apply

For Inland Flooding a user can filter by Start and End Date, Complaint Types, and Location. The results set can be aggregated by Complaint Type, or Location. The map will display the total count of complaints aggregated by locations selected in the Location drop-down menu.



Consequence Details Page: NWS Text Products

The NWS Text Products page displays NWS Text Products issued for the NYC forecast area by the Upton, NY weather office (OKX). Historic text products have been archived by the Iowa Environmental Mesonet (IEM) with newer products being regularly added to the tool. NYCEM has pulled a selection of the text products for use in the HH&C tool.

Start Date

8/27/2011 11:30 PM

End Date

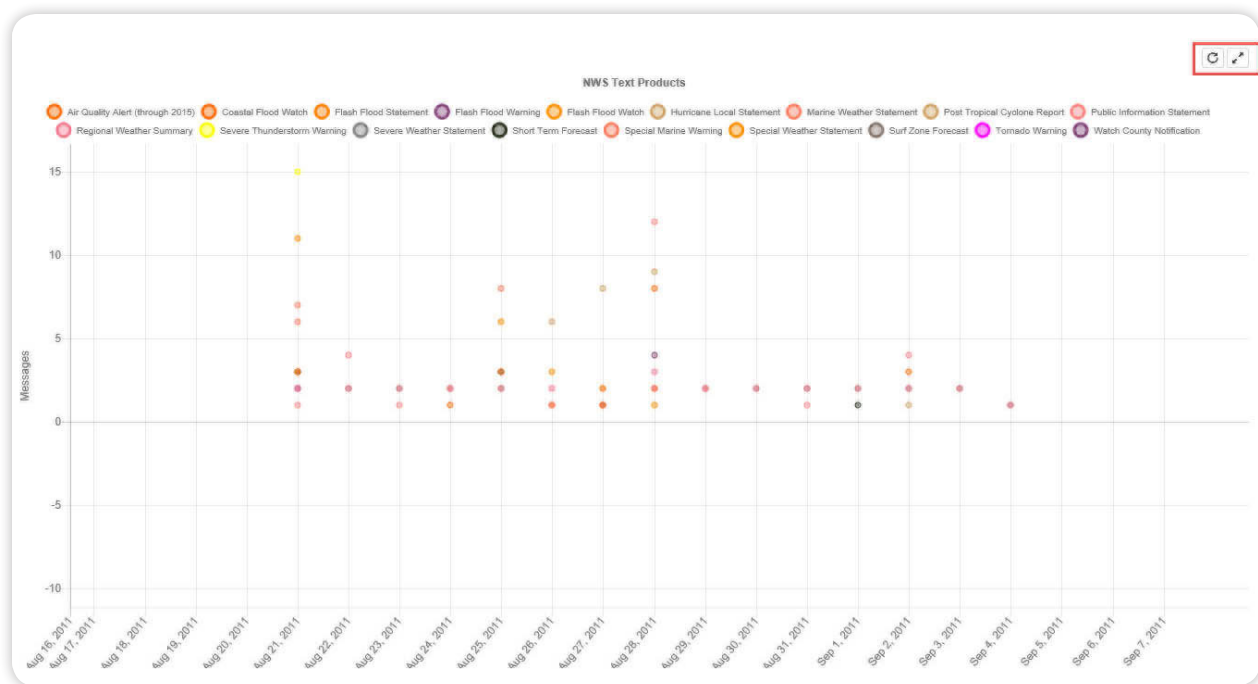
8/28/2011 11:30 AM

Code

All selected (23) ▾

Apply

For NWS Text Products a user can filter by Start and End Date, and Code. The Code is how NWS categorizes the text product—such as Air Quality Alert or Coastal Flood Watch.



Consequence Details Page: Power Outages

The Power Outages page displays the number of customers affected by power outages, at a network level, as reported by the power companies to NYS DPS (Department of Public Service).

Start Date

8/27/2011 11:30 PM

End Date

8/28/2011 11:30 AM

Location

All selected (5) ▾

Apply

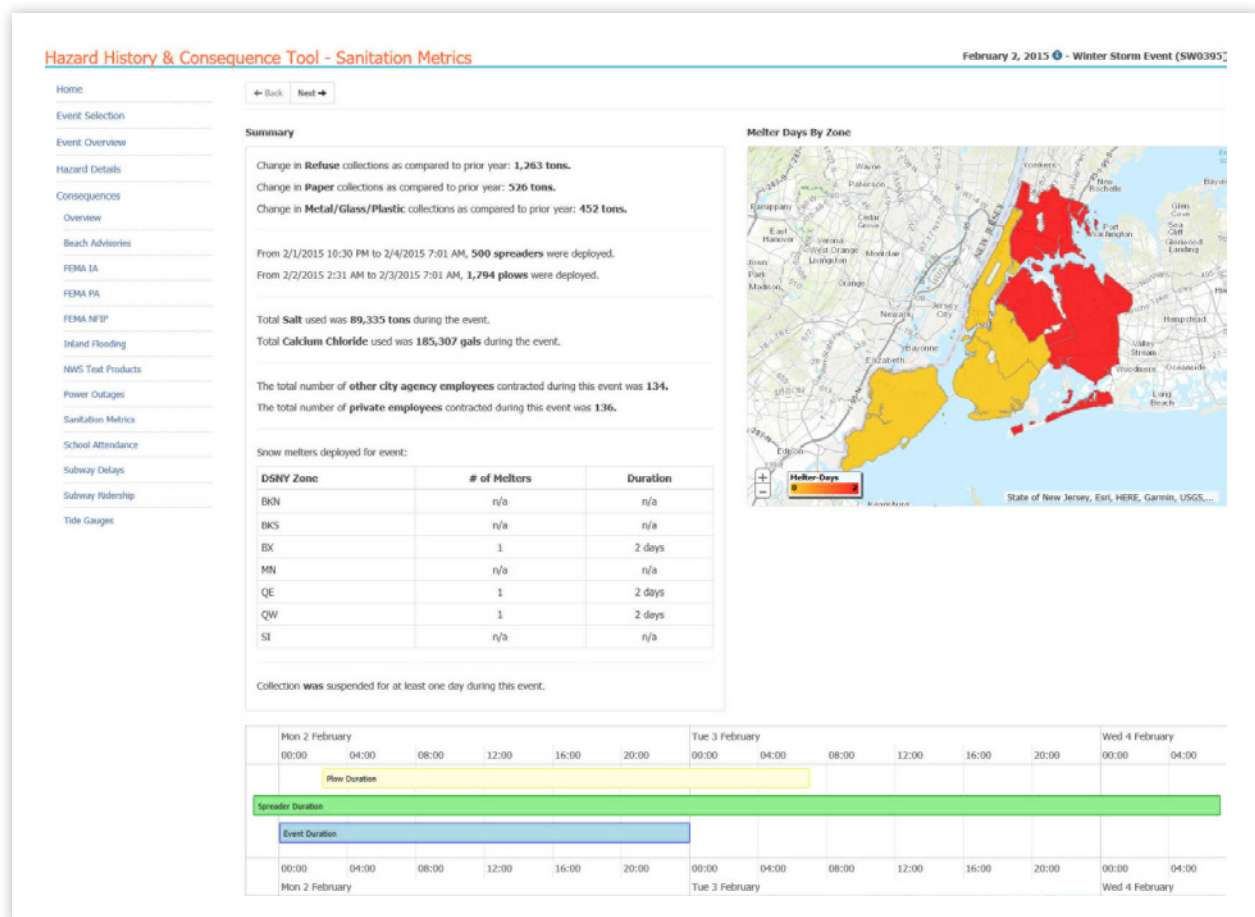
For Power Outages a user can filter by Start and End Date, and Location. The map will display count of customers affected by the outage aggregated by the selected Borough.

Consequence Details Page: Sanitation Metrics

The Sanitation Metrics pages displays a variety of metrics regarding DSNY Operations during severe weather events. Garbage and Recycling daily tonnage, at the citywide level, as collected by DSNY.

For Sanitation Metrics there are two sections, accessed using the top-left navigation buttons (Back and Next). The first section is a Summary, which and a Map showing total number of Melter-Days for each DSNY Zone. The summary shows the change in residential collection compared with the prior year. The summary also points out the various supporting resources and their required amounts. For example, 500 salt spreaders were deployed during the duration of the storm event and 80,000 tons of salt was used.

The Sanitation Metrics timeline shows the duration of activity of the salt spreaders and snow plows, with respect to the duration of the storm event. You can see when the storm event, salting and plowing started and stopped and how they overlap one another.



The second section allows a user to filter by Start and End Date, and Type.



Consequence Details Page: School Attendance

DOE requires all schools to track the number of students who are present/absent/released for every school day of the school year. These numbers were provided for the tool by DOE, by school organization. In order to attribute a location to each school location, it was assumed that the primary location for that organization could represent the location for all of the students in question.

Start Date: 2/2/2015 12:00 AM

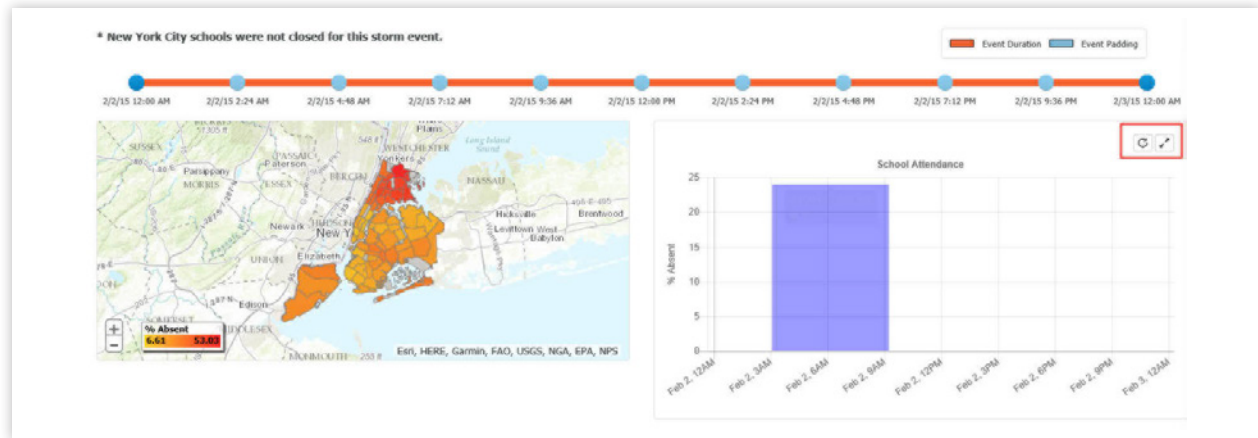
End Date: 2/3/2015 12:00 AM

Location: Community District

All selected (71)

Apply

For School Attendance a user can filter by Start and End Date, and Location. The map will display percent of students absent aggregated by locations selected in the Location drop-down menu.

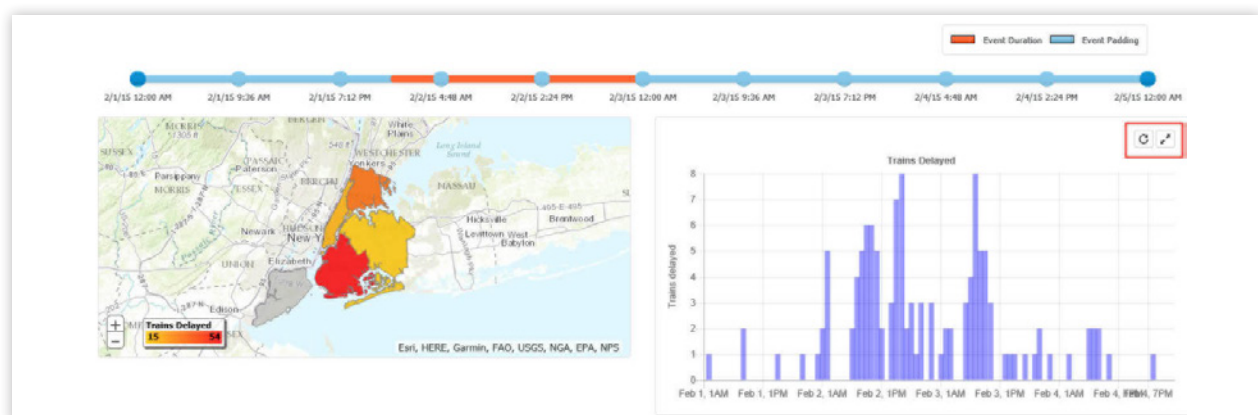


Consequence Details Page: Subway Delays

The Subway Delays page displays all train delays that were tagged with a weather related trouble code. For visuals, each subway delay was mapped to the concourse it was closest too. All subway delays were sourced from the TincMast system and provided by NYC Transit. A user can choose to show either the number of trains that were delayed or the number of trains that were affected by the initial delayed train.

The figure shows the filter interface for the Subway Delays page. It includes fields for Start Date (2/2/2015 12:00 AM) and End Date (2/3/2015 12:00 AM). There are dropdown menus for Boroughs (All selected (5)), Lines (All selected (23)), and Trouble Codes (All selected (8)). A Display Style section has two radio buttons: 'Trains Delayed' (selected) and 'Trains Affected by Delay'. An 'Apply' button is at the bottom.

For Subway Delays a user can filter by Start and End Date, Boroughs, Lines, and Trouble Codes. The data can be displayed by trains delayed or trains affected by delay. The map will display number of trains affected by delay aggregated by Borough.



Consequence Details Page: Subway Ridership

The Subway Ridership page displays all subway ridership (not including MTA workers or transfer swipes) at the subway concourse level.

Start Date

2/2/2015 12:00 AM

End Date

2/3/2015 12:00 AM

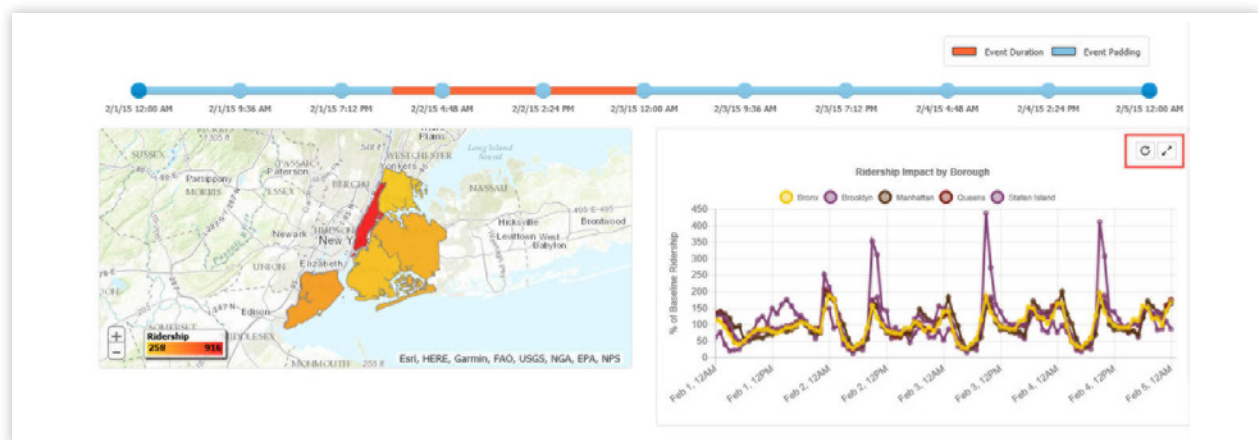
Filter By

☒ Borough
 ☐ Station

All selected (5) ▾

Apply

For Subway Ridership a user can filter by Start and End Date and Borough or Station. The map will display ridership aggregated by locations selected in the Location drop-down menu.



Consequence Details Page: Tide Gauge

The Tide Gauge page displays observed tide gauge readings, not forecasts at tide gauges monitored by the Stevens Flood Advisory System via the Urban Ocean Observatory at Davidson Laboratory. To determine surge levels, this tool displays the observed water levels at each gauge and compares them to flooding thresholds determined by the Flood Advisory System.

Start Date

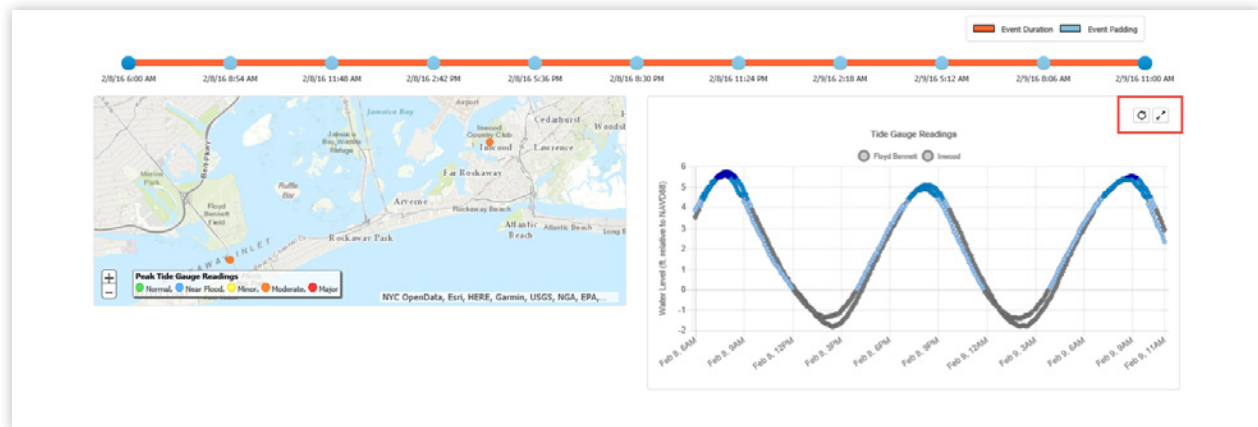
1/22/2016 2:00 AM

End Date

1/23/2016 10:00 PM

Apply

For Tide Gauge a user can filter by Start and End Date. The map will display locations of all tide gauges with their corresponding status (normal, near flood, moderate flood, minor flood, major flood).



Consequence Details Page: Wastewater Treatment Plant (WWTP) Flows

The WWTP Flows page displays the hourly influx of wastewater (a combination of sewage and rainwater) into each of DEP's wastewater treatment plants. The specific point at which the flow is measured during the treatment process varies from plant to plant, as some plants include recycling of older wastewater in their processing. The flow shown in this dataset is the best possible representation of the new influx of wastewater for the hour shown. Wastewater is measured by the rate of flow in terms of millions of gallons per day.

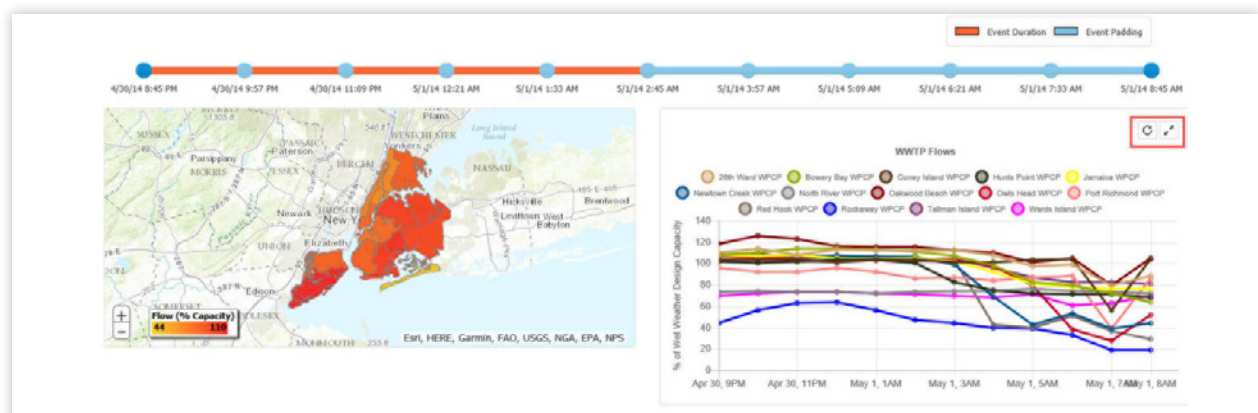
Start Date: 4/30/2014 8:45 PM

End Date: 5/1/2014 2:45 AM

Plants: All selected (14)

Apply

For WWTP Flows a user can filter by Start and End Date and Plants. The map will display catchment areas of the selected water treatment plants with their corresponding flow rates (in terms of design capacity percentage).



Messaging

Messaging offers a view of the NWS Text Products and Notify NYC alerts immediately prior to, during, and immediately after the storm event. Each textual record can be fully displayed using the **“View Message”** link within the displayed tables.

Hazard History & Consequence Tool - Messaging August 27, 2011

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FEMA PA
FEMA NFIP
Inland Flooding
NWS Text Products
Power Outages
Sanitation Metrics
School Attendance
Subway Delays
Subway Ridership

NWS Text Products - Chronology of Event

Code	Date/Time	View Message
Regional Weather Summary	8/21/2011 4:45 AM	View Message
Surf Zone Forecast	8/21/2011 4:50 AM	View Message
Flash Flood Watch	8/21/2011 6:00 AM	View Message
Special Weather Statement	8/21/2011 11:32 AM	View Message
Special Weather Statement	8/21/2011 12:13 PM	View Message
Severe Thunderstorm Warning	8/21/2011 12:26 PM	View Message
Severe Thunderstorm Warning	8/21/2011 12:38 PM	View Message
Severe Weather Statement	8/21/2011 12:48 PM	View Message
Special Weather Statement	8/21/2011 12:51 PM	View Message
Watch County Notification	8/21/2011 12:55 PM	View Message

Previous 1 2 3 4 5 ... 15 Next

During Event

Code	Date/Time	View Message
Hurricane Local Statement	8/28/2011 12:52 AM	View Message
Air Pollution: Black Smoke/ash 101K1	8/28/2011 1:13 AM	View Message

Regional Weather Summary: 8/21/2011 4:45 AM

588
AUGUST MONDAY 11AM
NYC
CITY OF NEW YORK
WEATHER SUMMARY FOR SOUTHEASTERN NY...NORTHEASTERN NJ AND SOUTHERN CT
NATIONAL WEATHER SERVICE NEW YORK NY
4:45 AM EDT SUN AUG 21 2011

A STRONG BT STREAM WILL DRAW A POTENT COLD FRONT THROUGH THE TRI-STATE REGION TONIGHT...AHEAD OF THIS FRONT...THUNDERSTORMS ARE EXPECTED TO DEVELOP FROM WEST TO EAST THROUGH THE DAY AND INTO THE OVERNIGHT...SOUTHWEST WINDS WILL INCREASE AHEAD OF THE FRONT...WITH BRISLY CONDITIONS NEAR THE SHORE BY AFTERNOON.

THE SOUTHWEST WINDS WILL KEEP TEMPERATURES WARM TONIGHT...FUELING CONTINUING THUNDERSTORMS...THE STORMY WEATHER WILL COME TO AN END AS THE FRONT CLEARS THE COAST EARLY MONDAY MORNING.

NORTHEAST WINDS AND FAIR WEATHER CAN BE EXPECTED ON MONDAY AS A REFRESHING AIRMASS BUILDS INTO THE REGION.

AA

THE FORECAST ULTRAVIOLET INDEX FOR TODAY IS 5...WHICH IS CLASSIFIED AS HIGH EXPOSURE.

Close

Media

Media offers a view of the recorded images, documents, and news articles related to the storm event. Images are displayed in the top carousel, while documents and hyperlinks can be organized in the table below. Users view the documents or hyperlinks using the **“View”** button of the entry.

Hazard History & Consequence Tool - Media April 30, 2014 - Heavy Rain, Flash Flood Event (SW0366)

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FEMA NFIP
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NWS Text Products
Power Outages
Sanitation Metrics
School Attendance
Subway Delays
Subway Ridership

Media Images

Media Links

Source	Link Description	View
AIRCITY	Heavy rain floods homes, basements in Howard Beach (Video)	View
FOX11	Howard Beach residents: Wednesday's freak storm made Sandy look like 'walk in'	View
QNS	DEP prolonging wait for compensation in Lindenwood flooding	View
Queens Tribune	Two Days of Flooding In Howard Beach	View
AM New York	Flooding in Ozone Park, Howard Beach and more Queens areas continues	View
NY Daily News	Rainstorm causes flash floods, mudslide in New York City area	View
Times Ledger	Residents seek answers after flood	View
Times Ledger	Massive flooding ravages Lindenwood residents	View
Twitter/ @btwnetTV	'Flooding' in Howard Beach, Queens this is where some roads are still	View
Twitter/ @SI_Nesman	'Residents of Howard Beach say flooding last night was worse than during Sandy.'	View
Twitter/ @SI_Nesman	'Major street flooding in Lindenwood section of Brooklyn. Residents blame sewer	View
DNInfo	Heavy Rain Leaves Roads Flooded and Drivers Trapped, Officials Say	View
Weather.gov	(Photo archive)	View
YouTube/CBSNewYork	Howard Beach Residents Clean Up Following Flooding	View

Event-related Studies

Study Title	View
Natural catastrophes and man-made disasters in 2014: connective and winter	View

