



# Dealing With Debris:

## A Comprehensive Debris Assessment Program

Presented By: City Of Sugar Land GIS

## OBJECTIVES



Importance of minimizing complexities in data collection



Keeping projects scalable allows an organization to deploy quicker at any level



Data driven decision making gives allows Cities to better serve citizens while saving money.

# PROBLEM

- After Winter Storm Uri, Sugar Land faced an unprecedented debris events
- The amount of debris to be picked up caused the debris contractor to get behind schedule
- Debris sat months after the initial freeze event



# HISTORICAL APPROACH

- No real way to plan for debris pickup
  - Paper maps
  - Contractor running assessments and reporting back
- Focus was on Damage Assessments





# SOLUTION

- Collect data
- Analyze data
- Evidence based resource allocation

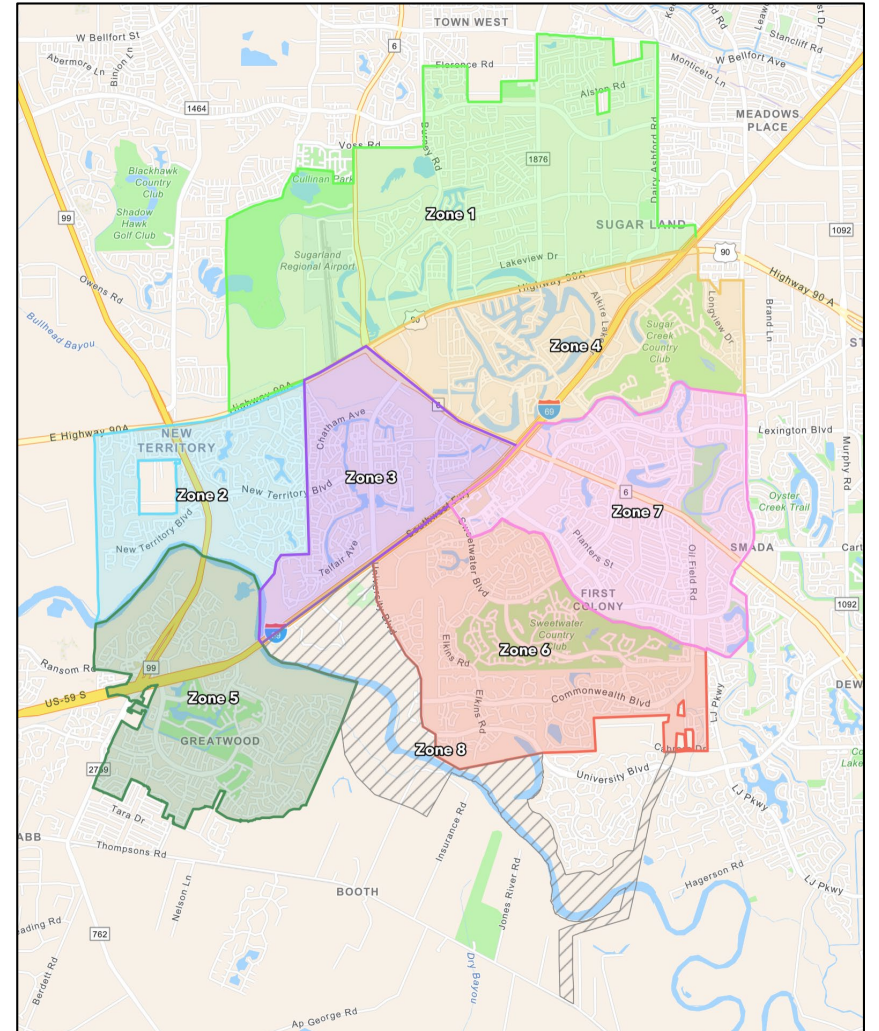
This is where **GIS** stepped in

## Weaponized Data

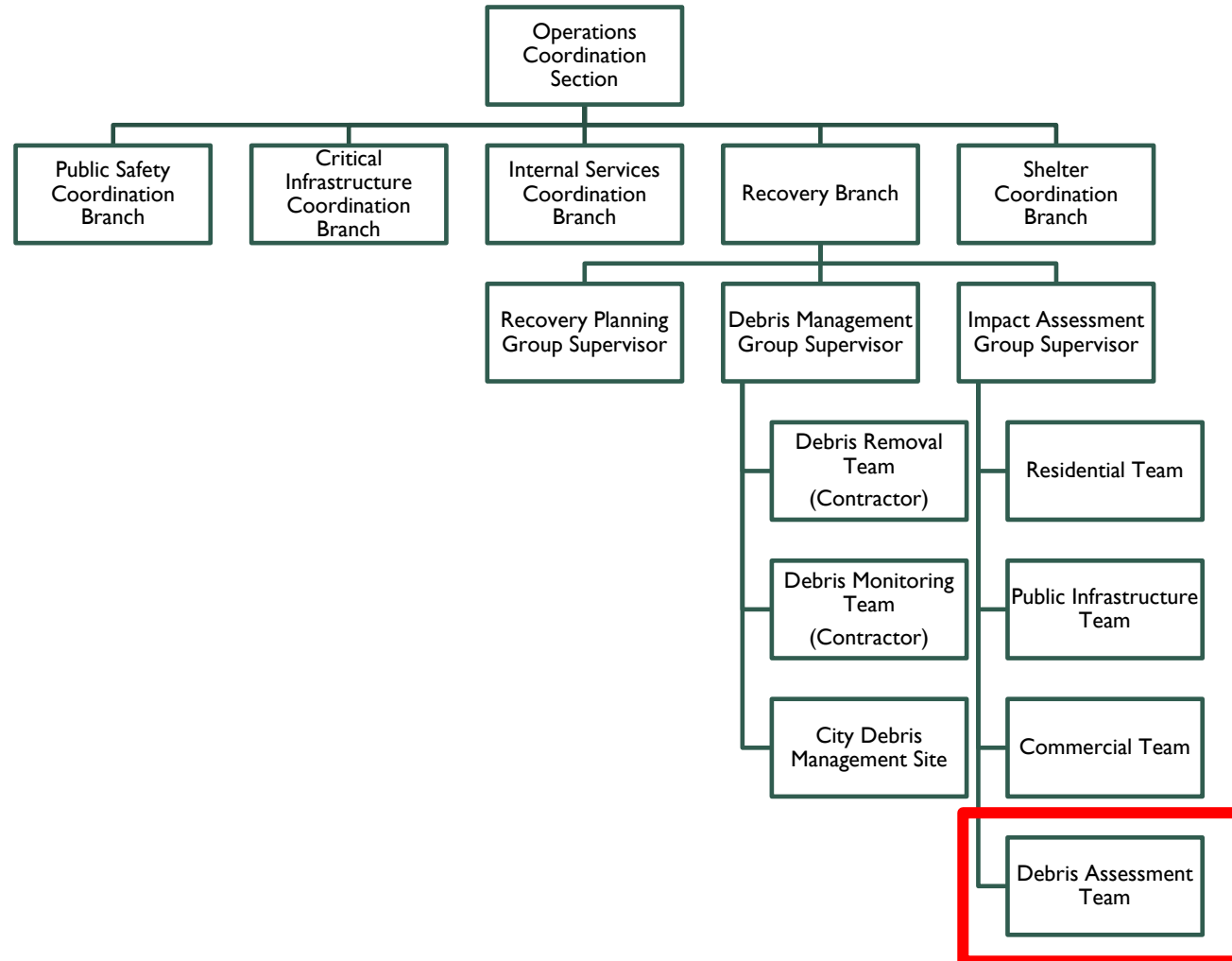


# DATA COLLECTION ASSESSORS

- Labor Pool
- Quarterly Training
- Assessment Zone Planning
- Assigned as under Operations Section
- Daily briefs during incident



# DATA COLLECTION ASSESSORS



# DATA COLLECTION

## THE APP

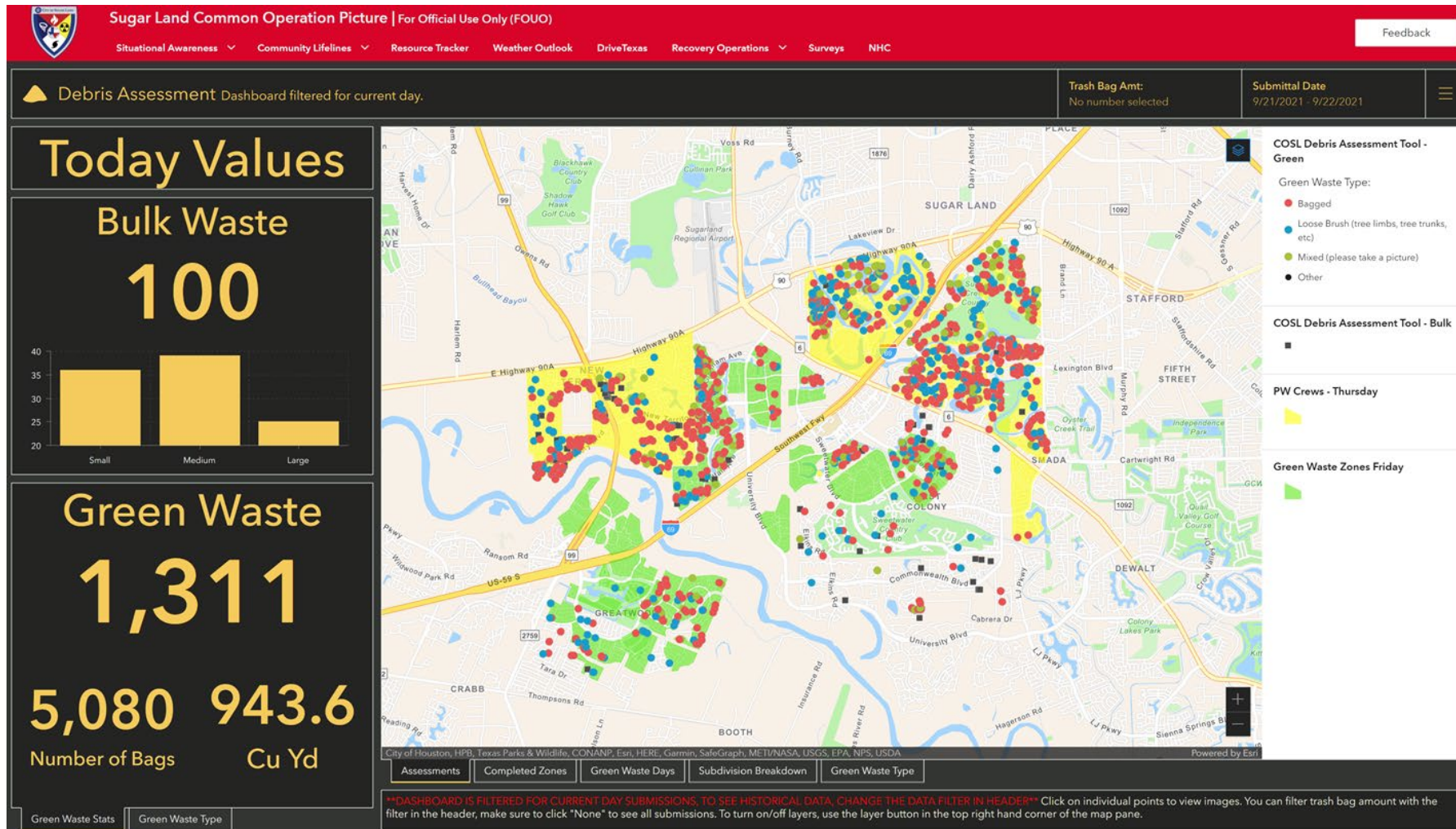
With Surveryl 23, we can easily collect the location and following questions

- Debris Type
  - Green Waste or Bulky Waste
- Amount
  - Question based off debris type
- Assessment Zone
  - Predetermined assessment zones for scheduling/tracking
- Images
  - For anything interesting





# DATA ANALYSIS VISUALIZATION



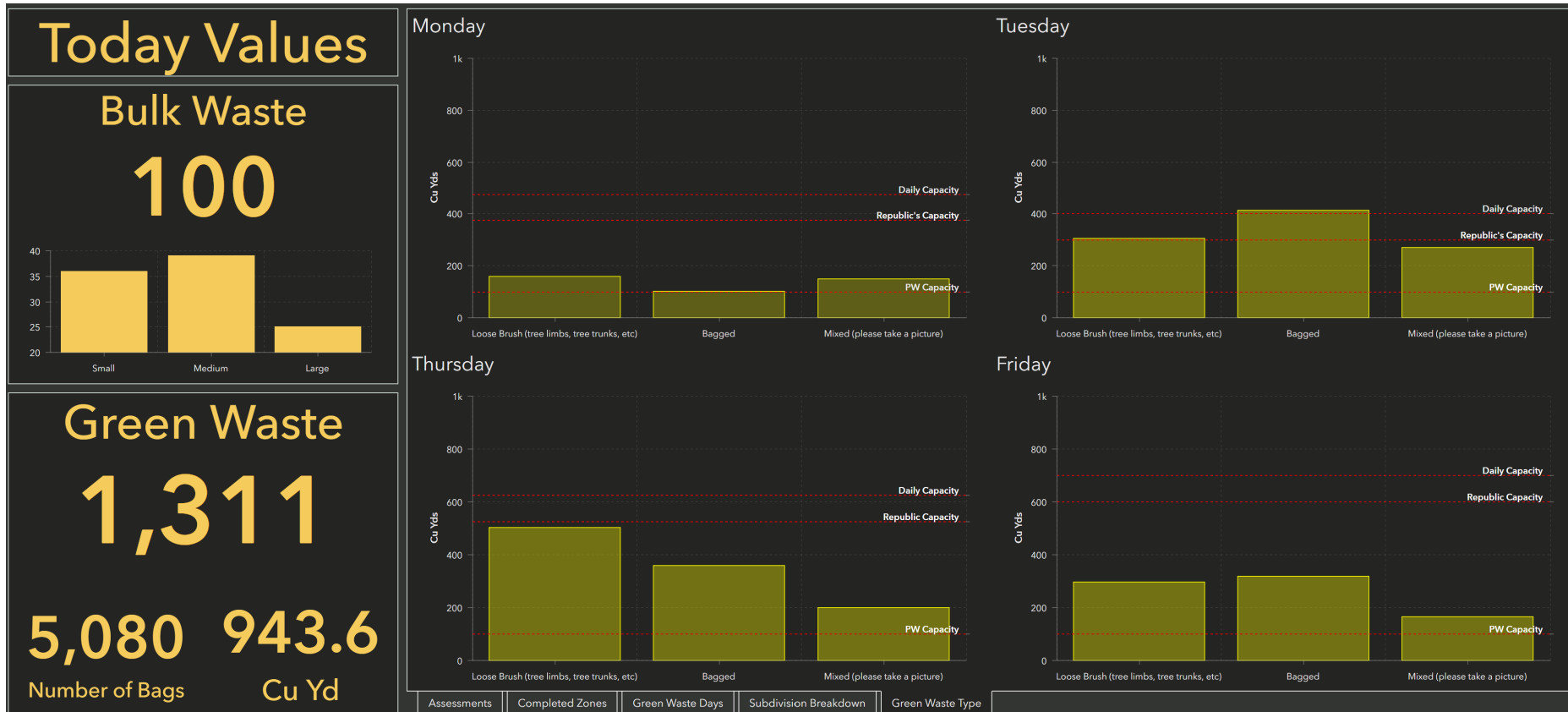
# DATA ANALYSIS

## IMPACT TRENDS



Debris data is broken up by Service Day to allow for accurate planning

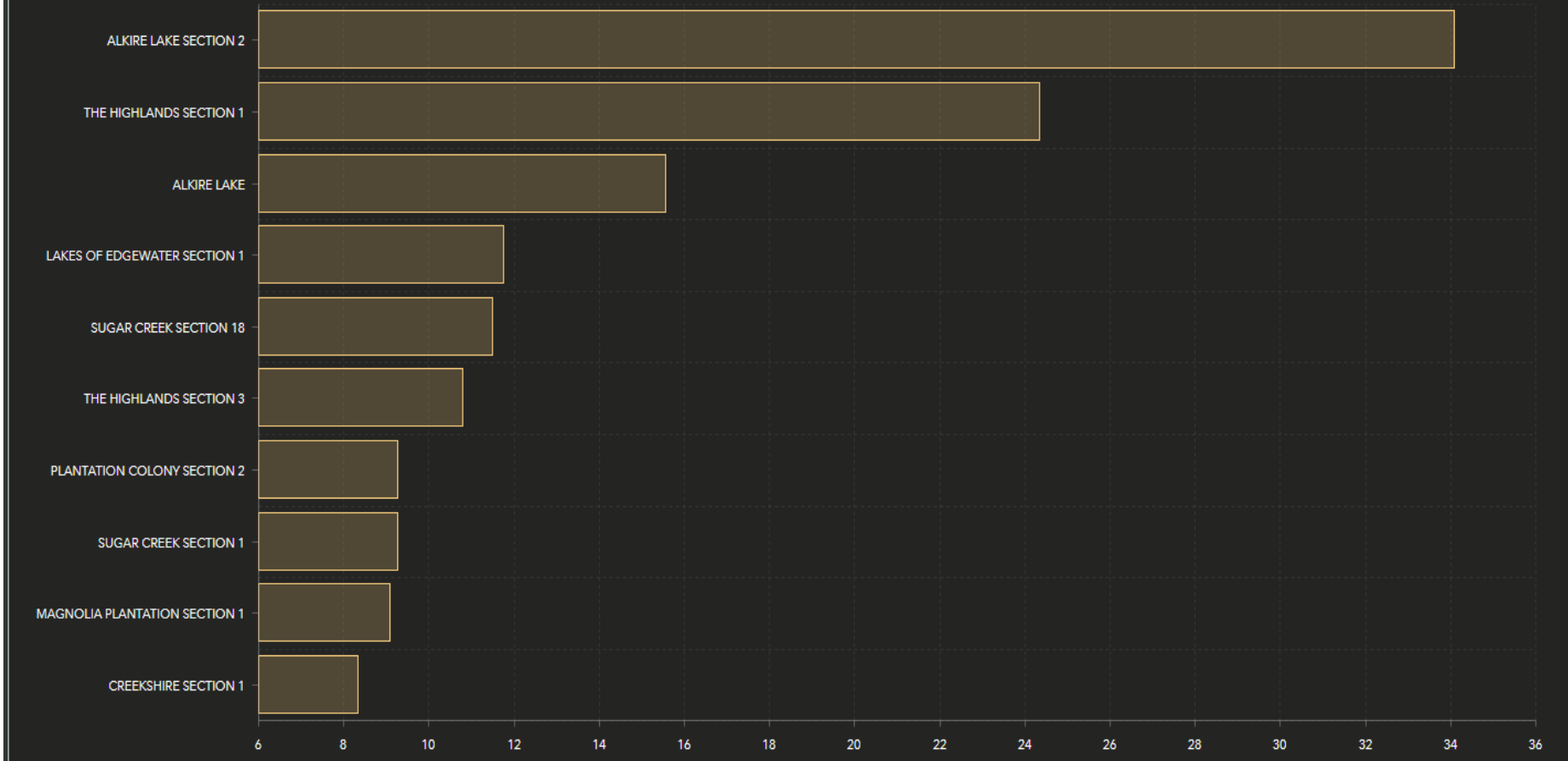
# DATA ANALYSIS RESOURCE TYPING



The data, along with empirical data, is analyzed and presented to the solid waste stakeholders

# DATA ANALYSIS FOCUS AREAS

Subdivision Breakdown | 9/21



Assessments

Completed Zones

Green Waste Days

Subdivision Breakdown

Green Waste Type



# DATA ANALYSIS SHARING

- Since we're operating in AGO, we can share with our solid waste/debris contractors easily
- Viewer account for contractors to view the data
- Replaces the need for our contractor to canvass the city so they can focus on pick up
  - We have a data analysts attending debris tactics meetings





# FIELD OBSERVATIONS



## **Reduced expenses with evidenced based resource decisions.**

Standard contract  
Service plus up  
Full debris contract)



## **Efficient resource deployment**



## **Provided framework for a comprehensive impact assessment program:**

Debris  
Infrastructure Damage  
Commercial Damage  
Residential Damage

# ❄️ February Winter Event

Total Submissions

**18,728**

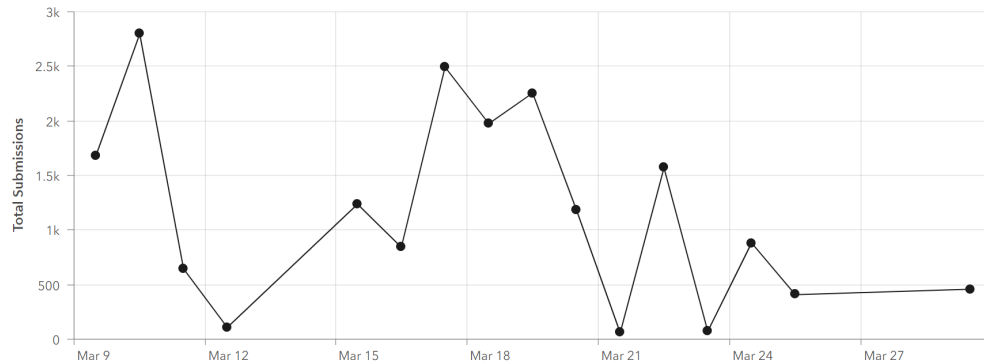
Submissions

**1,337.71**

per day

Number of Days

**14**



Est. Volume

**198.3k**

Number of Bags

# 🌀 Tropical Storm Nicholas

Total Submissions

**13,294**

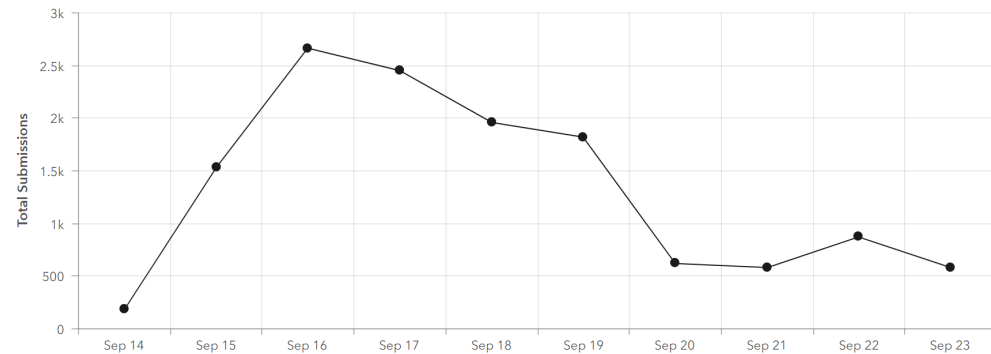
Submissions

**1,329.4**

per day

Number of Days

**10**



Est. Volume

**68.9k**

Number of bags

# WAY AHEAD

- Neighborhood based analysis to predict hardest hit areas BEFORE an event occurs
- Integration with Workforce for assigning areas
- Use of drones to complete aerial reconnaissance





# QUESTIONS & COMMENTS



# THANK YOU

- Erik Schenck
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