Sense, Report, Act, and Refine:
A Smart City Collaboration

Our Challenge
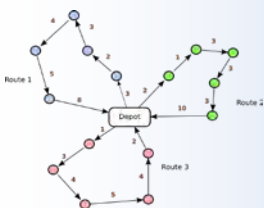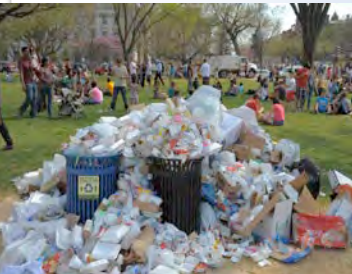
DOWNTOWNDC
ecoDistrict

Management   vs   Expectations

Management:
- Routine operations
- Surge conditions

- Situational awareness
- Multi-objective resource optimization

- Service Routing
- Changing uses

Expectations:
- Clean
- Safe
- Walkable

- Reliable operations
- Special events

- Livability
- Healthy environment
- Fresh food

- Web sources and blogs
- Realtime information (traffic, weather, transit, …)
- Citizen participation

Our Goals

How to Improve Public Space Waste Management

The Sustainable DC Plan, developed with extensive citizen input, established 2032 goals and actions designed to make Washington DC the most sustainable city in North America.

The relevant Sustainable DC goals to this project include:
- Develop a Zero Waste plan for the city
- Ban polystyrene from the city
- Decrease all citywide waste streams
- Increase recycling bins in public realm
- Coordinating a city-wide education programs



The 2016 BID management goals include:
- More efficient use of labor and equipment
- Ability to adapt to address special event impacts
- Reducing contamination in recycling bins
- Enhancing public perceptions regarding cleanliness
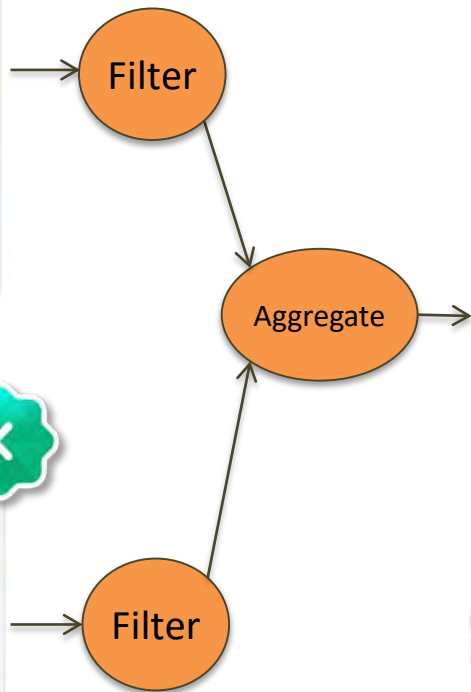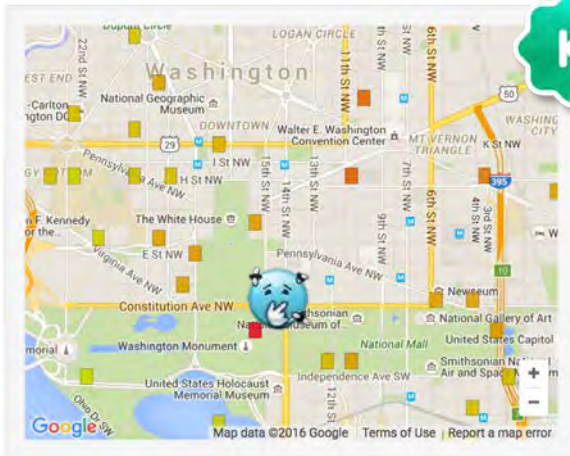- Effective use of technology and data

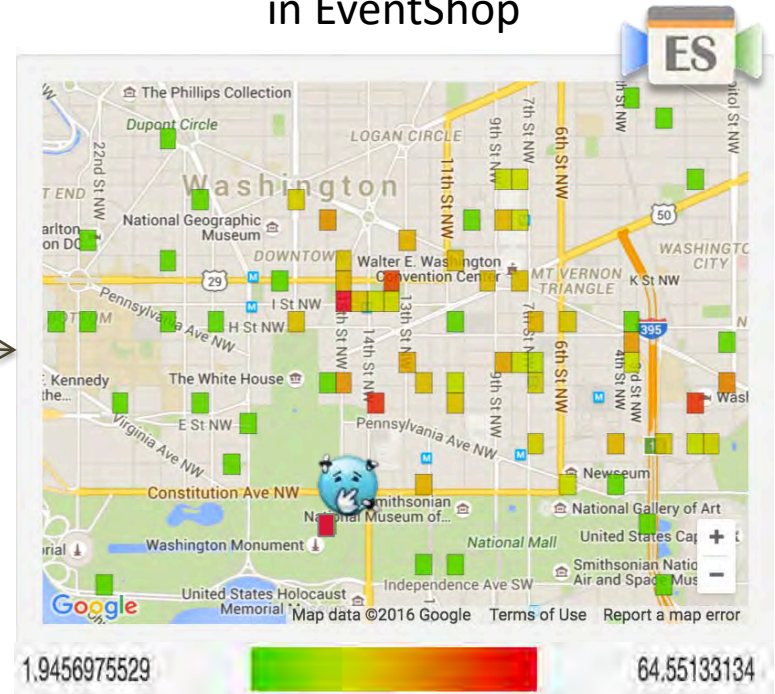# Real-time Trash Situations from Sensors and Micro-Reports

Trash Bin Sensors Data

Real-Time Trash Fill Level Situation in EventShop
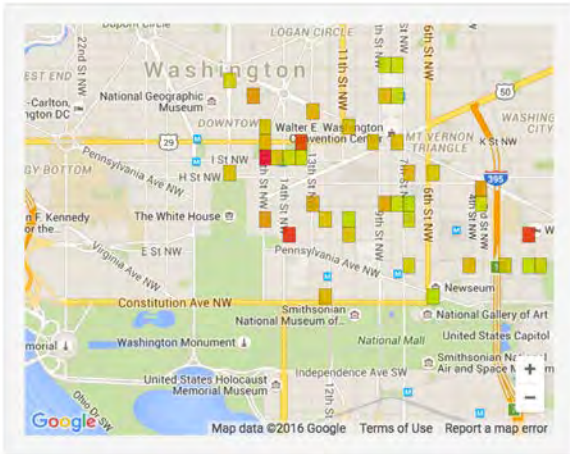
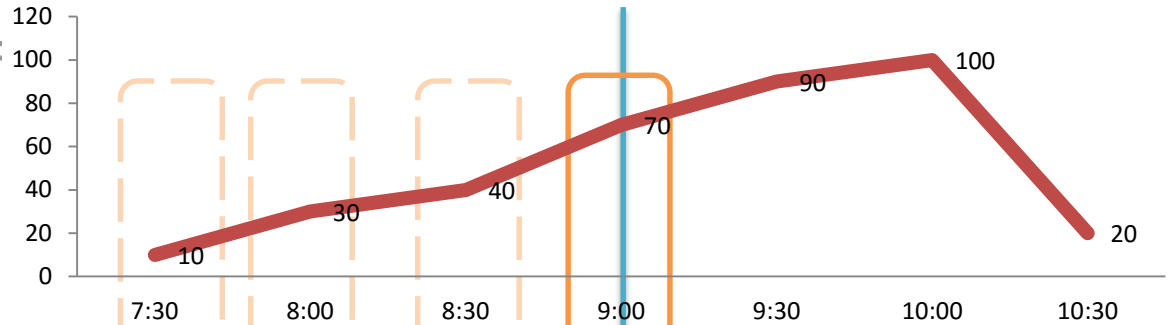**Micro Reports from Krumbs**

Filter

Filter

Aggregate

1.9456975529   64.55133134

Prediction based on Events History

Events Data

Real-Time Trash Fill Level Situation

Predicted Trash Fill Level
in 30 minutes at a given location
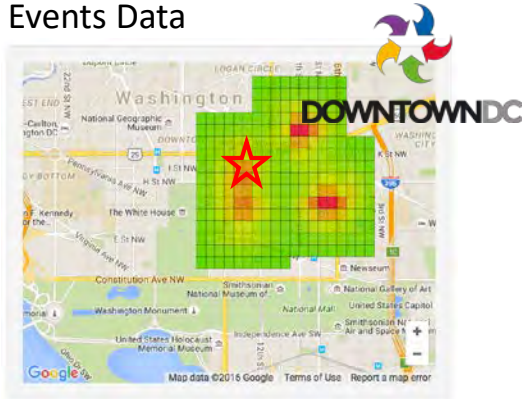
Projected Trash Fill Level at a given location based on Event History
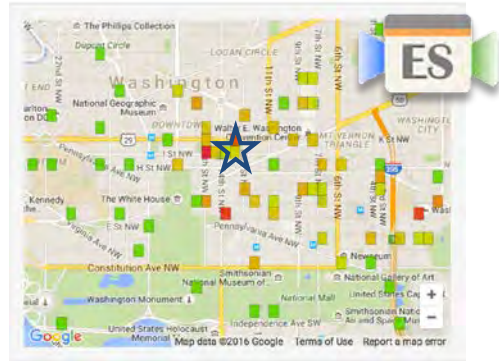
Real-Time Fill Level Situations at a given location of an event

| 5 | 32 | 45 | 95 |

30 minutes

Now
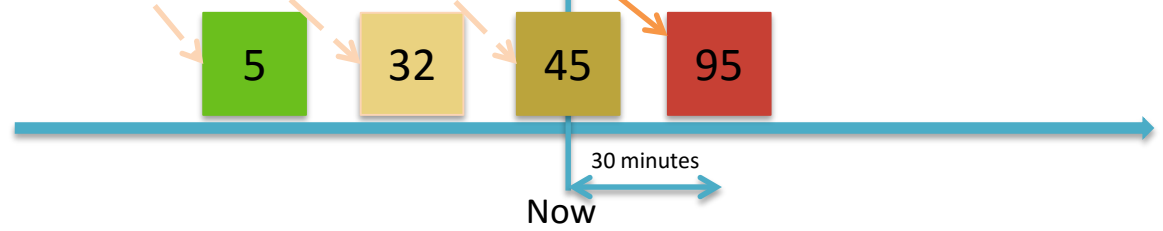
Situation Recognition Model in ES

Timeline and KPI's

April - June 2016 – Establis baselines, develop incentives, and determine metrics. Initial prototype.
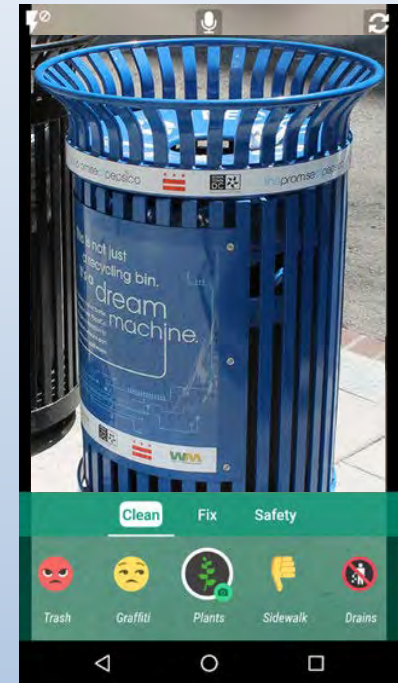
June – October 2016
Prototype system and evaluation for trash management, Evaluation for scaling efforts and incorporation into other services

November - March 2017: Review program and revise, create winter services plan, develop city-wide expansion plan,

April - June 2017
Scaled effort and KPI evaluation

- **Reduction in time spent servicing bins**
- **Participation in Micro Reporting**
- **Reduction in Recycling Contamination**
- **Improved perceptions of downtown cleanliness**
- **Enhanced reputation of BID services**

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