

Vulnerability Assessment Mapping in South Portland

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Project Overview

What We're Working Towards:

1. Improving community resilience
2. Identifying gaps in City plans
3. Using a data-driven approach
4. Equipping staff with tools
5. Expanding to citizens and other communities



This presentation was prepared by the City of South Portland under award to Maine Coastal Program from the National Oceanic and Atmospheric Administration.

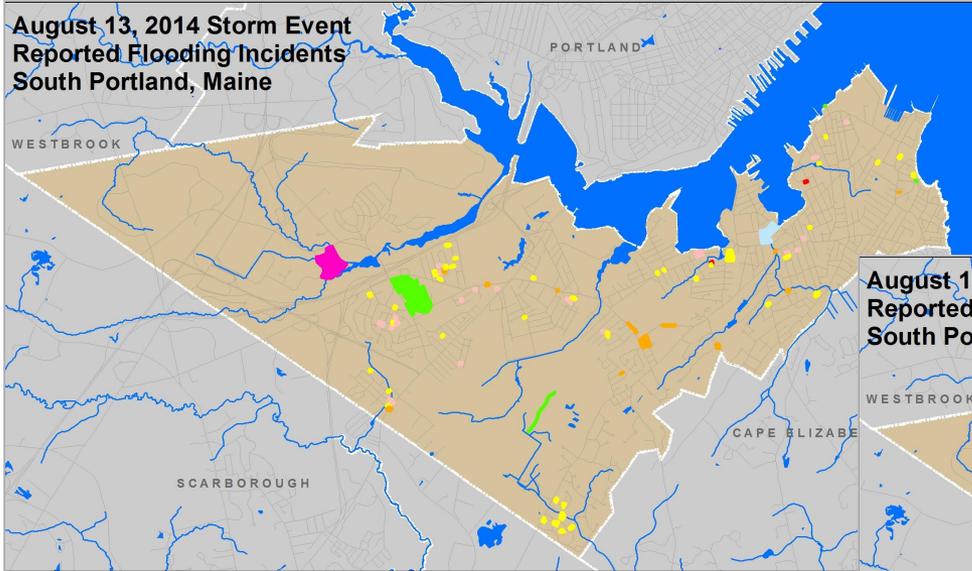


ONE CLIMATE FUTURE

**Charting a Course *for*
Portland and South Portland**

Historic Flooding Events

**August 13, 2014 Storm Event
Reported Flooding Incidents
South Portland, Maine**



- Problem Type**
- Sewage in street (2)
 - Sewage in basement (23)
 - Stormwater in street (12)
 - Stormwater in basement (42)
 - Flooded area (1)
 - Washout (4)
 - Culvert failure (1)

On 8/13/14, the Portland Jetport recorded 6.43" of precipitation from a 50 year event that dropped over 3" in a one hour period during the peak of the storm. Consequently, numerous properties throughout the City experienced basement flooding as indicated on the map.

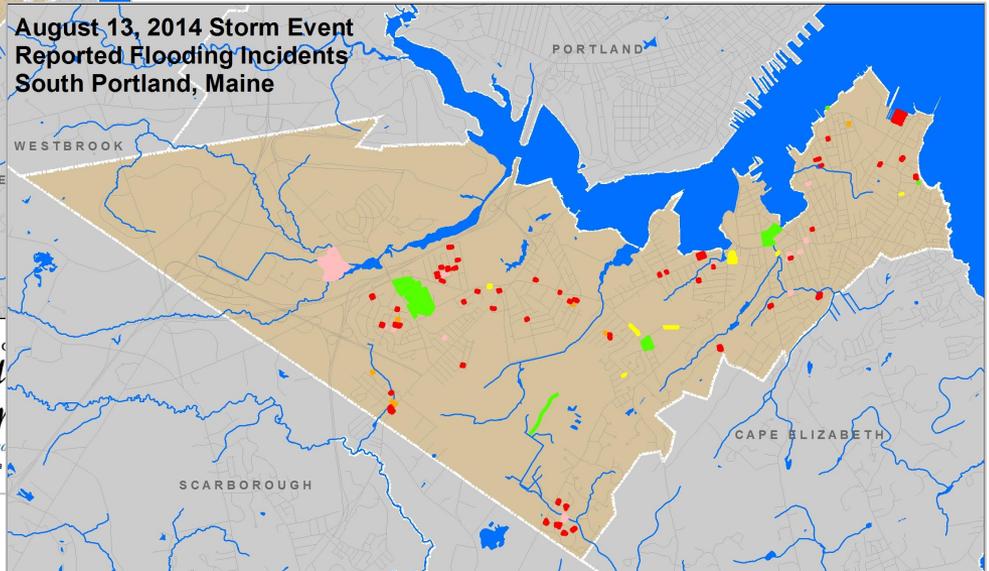


City of
**South
Portland**
Water Resource
Protection
Data



**August 13, 2014: 50-year storm
6" precipitation (3" in one-hour period)**

**August 13, 2014 Storm Event
Reported Flooding Incidents
South Portland, Maine**



Departments Responding

- Fire Dept (53)
- WRP (14)
- WRP-FD (7)
- Public Works (7)
- PRW (6)

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City of
**South
Portland**
Water Resource
Protection
Data Sources: CoSP, MEGIS
8/28/14 by F. Dillon



Maine Flood Resilience Checklist



Scope of Work

- Phase 1: Development of Flood Data Collection Protocol
- Phase 2: Data Collection and Aggregation
- Phase 3a: Vulnerability Assessment Map Concept Design
- Phase 3b: Vulnerability Assessment Map Build-out
- Phase 4: Outreach to Support Local and Regional Planning Efforts

Lead Project Partners

Southern Maine Planning and Development Commission
Gulf of Maine Research Institute



Flood Data Collection Analysis

Table Tool

File Home Insert Page Layout Formulas Data Review View Design

Cut Copy Paste Format Painter Clipboard Font Alignment

K2

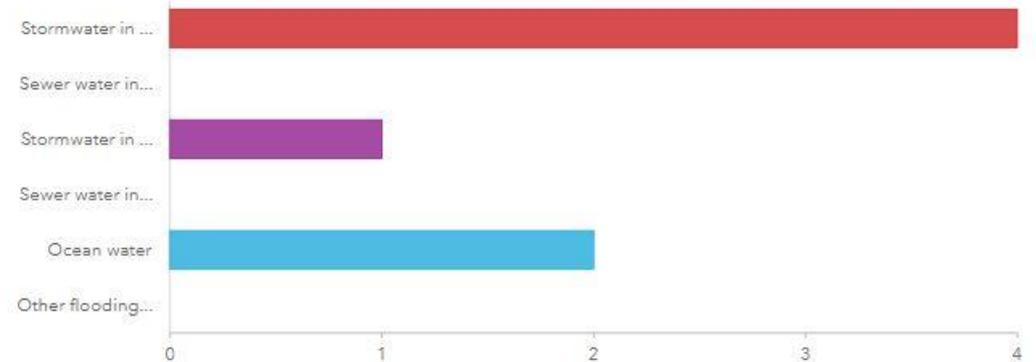
	A	B	C
1	type	name	label
2	dateTime	observation_date_time	Date and time of observation
3	geopoint	observation_location_c	Location
4	text	observation_location_c	Location
5	select_one created_by	created_by	Created by
6	username	username	User
7	image	created_by_signature	Signature
8	select_one departmen	department	Department
9	select_multiple update	updated_by	Updated by
10	begin group	event_information	Event Information
11	text	weather_conditions	Weather conditions
12	text	storm_name	Storm name
13	text	storm_duration	Storm duration
14	decimal	precipitation_amount	Precipitation amount (inches)
15	decimal	tide_level_predicted	Tide level - Predicted (feet)
16	decimal	tide_level_observed	Tide level - Observed (feet)
17	integer	storm_surge_level_ft	Storm surge (feet)
18	end group		
19	begin group	flooding_information	Flooding information
20	select_multiple floodin	flooding_type	Flooding type
21	select_multiple floodin	flooding_cause	Cause of flooding
22	text	flooding_description	Description of flooding
23	decimal	duration_flood_event_f	Duration of flooding event (hours)
24	text	floodwater_extent_des	Description of geographic extent of flooding
25	text	floodwater_depth	Depth of floodwater
26	image	flooding_photos	Photos of flooding
27	end group		
28	begin group	flooding_impacts_dam	Flooding Impacts and Damage

survey choices settings types

Flooding information

Flooding type

Column Bar



[Hide table](#)

Empty categories [Sort](#)

Answers	Count	Percentage
Stormwater in street	4	80.00%
Sewer water in street	0	0.00%
Stormwater in basement	1	20.00%
Sewer water in basement	0	0.00%
Ocean water	2	40.00%
Other flooding type	0	0.00%

Answered: 4 Skipped: 1

Flood Data Map View

Survey123 for ArcGIS My Surveys Help Lucy

TEST Flood Data Collection Form Overview Design Collaborate Analyze **Data** Settings

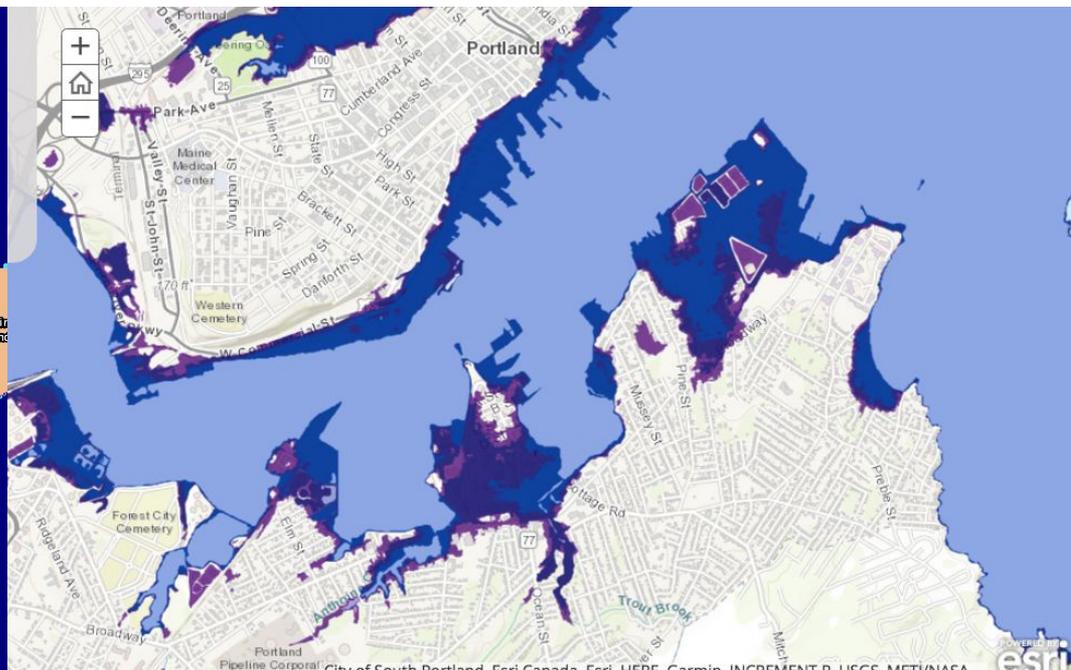
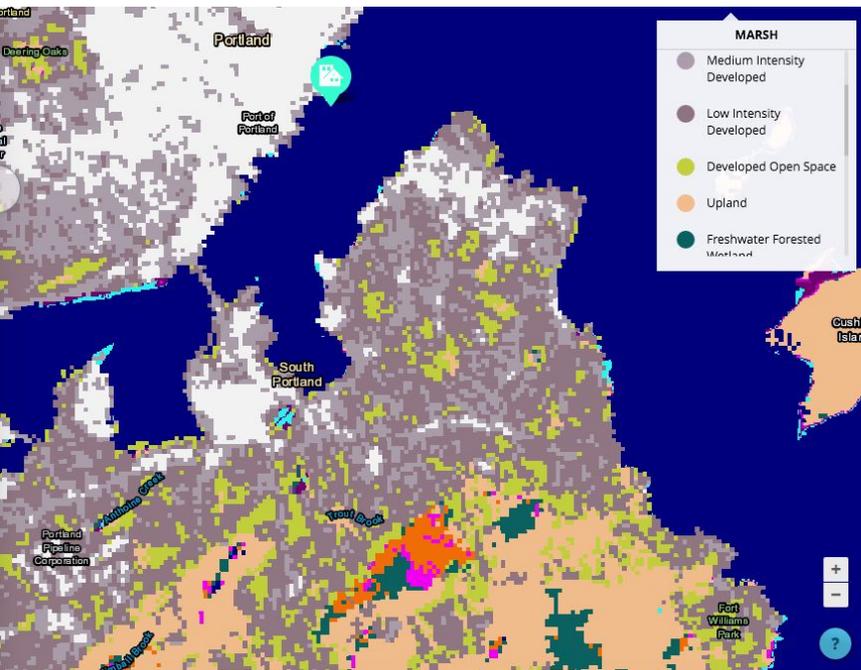
5/15/19 - 6/4/19 Filter Report (Beta) Export Open in Map Viewer Show individual response 5/5



Form_1 (Features: 5, Selected: 0)

Date And Time Of Observation	Location	Created by	username	Department	Updated by	Weather conditions	Storm name	Storm duration
Jun 6, 2019, 4:15 PM	Cottage Rd	Staff name 4	lbrennan@sopo.org	Water Resource Protection Department		Heavy precipitation	August 14 storm	5 hours
Jun 5, 2019, 12:15 AM	Mill Creek	Staff name 4	lbrennan@sopo.org	Water Resource Protection Department		heavy rain, prolonged storm		4 horus
May 1, 2019, 10:00 AM			lbrennan@sopo.org					

Vulnerability Assessment Map



Coastal Risk Explorer

networks will be inaccessible to emergency responders, and how that relates to the overall social vulnerability of the community. Social vulnerability is provided for each coastal block group, based upon 17 socioeconomic and demographic factors.

Choose a Town to Explore:

Coastal Roads Inaccessible to Emergency Services

Sea Level Rise Prediction

Current 1 ft 2 ft 3.3 ft 6 ft

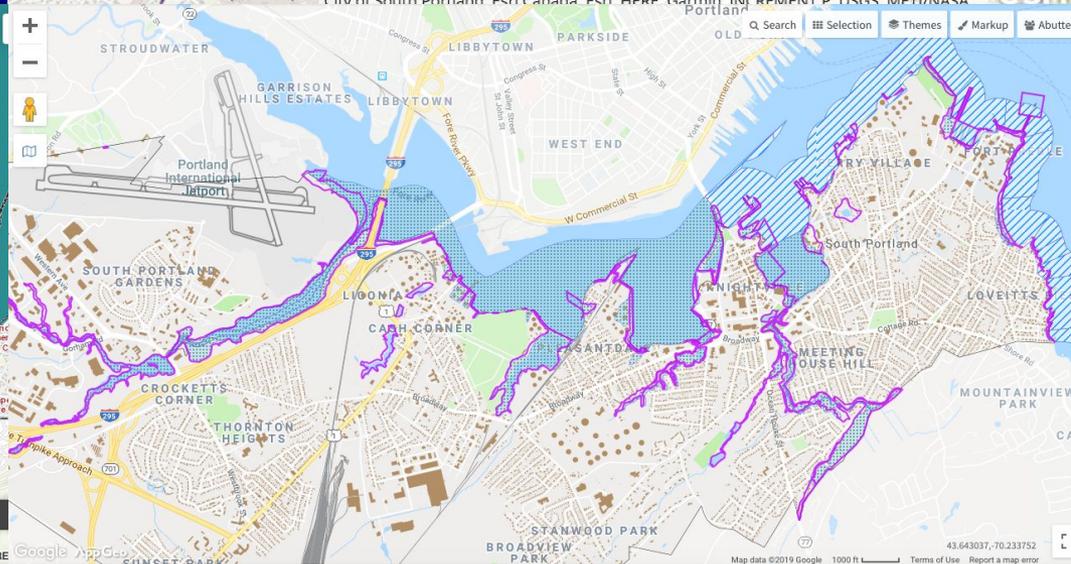
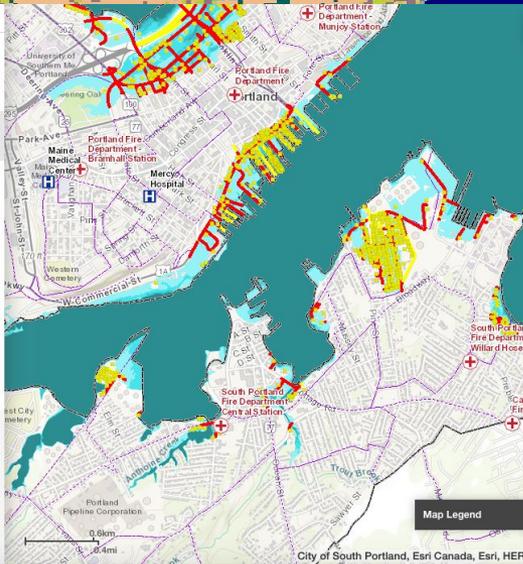
NUMBER OF ADDRESSES INACCESSIBLE TO EMERGENCY SERVICES	APPROXIMATE COST TO UPGRADE INUNDATED ROADS
373	\$8,710,000
TOWN TOTAL	TOWN TOTAL
2	\$50,000
BLOCK GROUP TOTAL	BLOCK GROUP TOTAL

Social Vulnerability Ranking

Least Vulnerable Most Vulnerable

Social Vulnerability Index

SOCIAL VULNERABILITY RANKING MEASURES



Gulf of Maine Research Institute

- Citizen Science for Public Engagement AND Local Data to inform Decisions
- Planning and Prioritization tool for Decision-Making

City of South Portland

- Synthesis with One Climate through Public Engagement and Resilience Planning
- Data Analysis Framework for City Staff