



# Planning for Bad Weather: A Utility Perspective

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Portland, Maine





## Air and Water Temperatures Increase

Regional air temperatures are predicted to rise between 2° and 6°F by mid-century, and

## More Frequent and Intense Precipitation

Data from the Portland Jetport (confirmed by the *2015 Update of Maine's Climate Future*) show that Maine is experiencing increases in both annual precipitation

## Rising Sea Level Exacerbates Flooding Risks

Over the past century, Portland's tide gauge has shown an average annual increase in sea level of 1.9 mm per year (7.5 inches per century), close to global

Casco Bay Estuary Partnership

# State of the Bay

## 2015 Report



# Overview

- Why prepare?
- The prompt
- The process
  - Pre-storm
  - Mid-Storm
  - Post-Storm
- Wrap-up











Portland  
pop. 60,000



# Portland Water District



- Drinking Water since 1908
- Wastewater since 1978
- 200,000 consumers in 11 communities
- 186 employees

**11 Departments**



**Admin**



**Water Treatment**



**Water Storage**



**Source Protection**



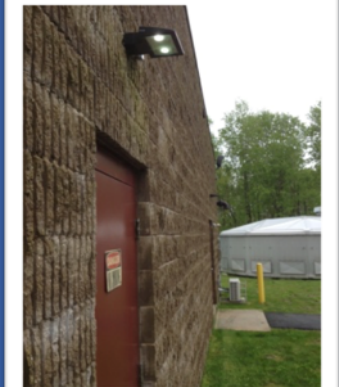
**Water Distribution**

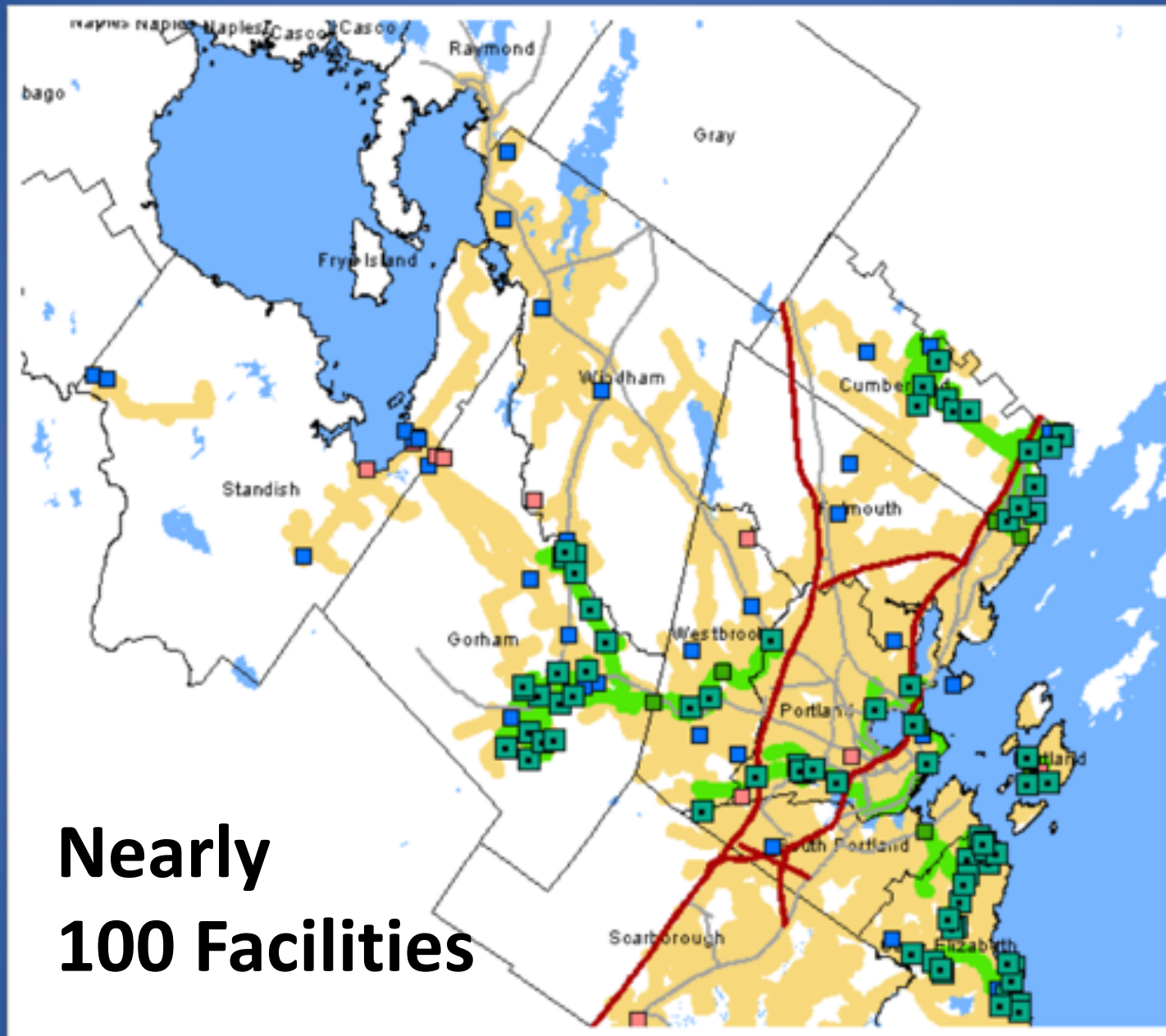


**WW Collection**



**WW Treatment**





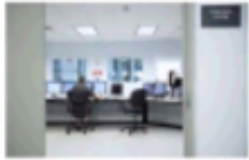
**Nearly  
100 Facilities**







# Why Prepare?



Re  
Secure  
V

Critic

Water Sector  
Strategic Priorities Working Group

May 2013

Table B.1. Strategic Priorities Working Group Identified Risks for the Water Sector

## Most Significant Risks

- Natural disasters (such as water quality and quantity impacts from floods, hurricanes, earthquakes, ice storms, pandemic flu, and other geographic catastrophes)
- Economic implications of aging infrastructure
- Cyber events
- Capability in managing an area-wide loss of water
- Although the Water Sector has been defined as a lifeline sector, it is not commonly recognized among all relevant stakeholders, which can escalate consequences during area-wide events



# Prepare: By Department

Each department identified how to prepare for:

Level 0, 1, 2, or 3 storm

- Level 0, No impact, business as usual
- Level 1, Light impact, localized
- Level 2, Medium impact , more widespread
- Level 3, High impact, full response, system-wide



# Example of Department Plan

## Water Treatment/Pumping – A3

Portland Water District

Storm Response Procedures

### Level 2 Storm Response

1. Check and Set
2. Place all storage systems in “Storm” mode (keep full). No unnecessary plant shutdowns.
3. Portable standby generator fueled and deployed at Prides Corner Pump (on Wier Rd/Gorham as
4. Confirm SLW (days). Order fuel generator run SOP.
5. Confirm propane/diesel levels appropriate for 3-4 day outage (order if necessary and time allows) at the following locations:

# Example of Department Plan

## Wastewater Systems – L9 Portland Water District Storm Response Procedures

### Level 2 Storm Response

1. Place generator at Broad Cove N. Pump Station. Confirm generators/fuel for Shore
2. Ac
3. Confirm generators/fuel for telemetry sites.
4. Contacted septage haulers for availability during the event to assist with pumping selected pump stations during power loss.
5. Monitor ev

3. Place Elec./Mech. Maintenance person on-call.



# The Prompt: What Gets Things Going?



Cumberland County EMA  
Storm Alerts



## National Weather Service

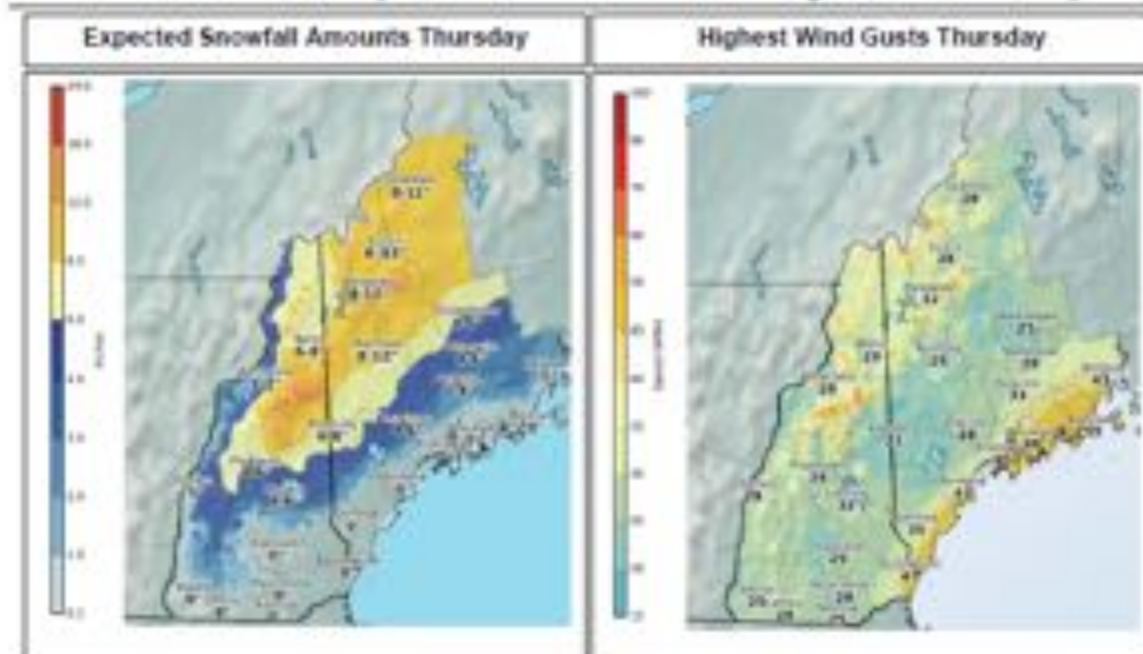
Gray, Maine (Phone: 207-688-3224 / Email: [gray.skywarn@noaa.gov](mailto:gray.skywarn@noaa.gov))



February 26, 2020

10:14 AM

### Current Situation: Heavy Rain and Snow with Strong Winds Thursday



### Highlights / Key Messages

- A period of heavy precipitation is expected from just before daybreak Thursday through early afternoon
  - ✓ Snow is expected in the mountains
  - ✓ A mix of rain and snow is expected in the foothills (more snow as you go up in elevation)
  - ✓ Rain is expected over southern New Hampshire and along the coast of Maine.
- In areas with rain, street flooding is possible from 5 am to 12 pm Thursday
  - ✓ Significant river flooding is not expected
- In areas with snow, snowfall rates of 1-2" per hour are likely.
  - ✓ Snowfall will be heavy and wet, increasing the risk for isolated power outages
- Strong winds are expected Thursday morning, particularly along the coast where gusts over 45 mph are likely
- Splash over and minor coastal flooding are possible at the time of high tide early Thursday afternoon from Portland south to the New Hampshire Seacoast



# Pre Storm: Incident Assessment

Table 2-2:  
Incident Level

Points	Assessment
0-1	LEVEL 0
2-3	LEVEL 1
4-7	LEVEL 2
> 7	LEVEL 3

**Purpose:** To evaluate an incident and define as requiring a Level 0, 1, 2, or 3 departmental response level. Communicating incident level / response knowledge of likely response measures being implemented by neighboring jurisdictions.

**Procedure:** In advance of a forecasted storm or in the initial phase of an emergency information and identify the incident as a level 0, 1, 2 or 3. When or appropriate department responses. Incident evaluations will be submitted based on best available information.

**Awareness Level 0 – Incident not expected to impact District assets or residents.**

**Evaluator:** KGAZ  
**Incident:**

**Incident Assessment:** (place point value in appropriate box)

8-9-2013

**Incident Assessment:** (place point value in appropriate box)

- Anticipated Extent of PWD Response or Asset Damage**

None – Enter 0	Minor – Enter 1	Moderate – Enter 2	Severe – Enter 3	Points
		2		2
- Anticipated Duration of Event and/or PWD Response**

None – Enter 0	0 - 6 hrs – Enter 1	6 - 16 hrs – Enter 2	16 hrs – Enter 3	Points
			3	3
- Anticipated Impact to Level of Service**

Single Location – Enter 0	Scattered – Enter 1	Widespread – Enter 2	Regional – Enter 3	Points
	1			1

5:21 AM

Gradient Planning  
PWD Incident Management Plan

2-2

Revision: 0  
October 19, 2012

# Pre-Storm: Virtual EOC

- Share Level with VEOC members
- Emergency steps implemented
- Individual department plans become utility plan

So when the storm hits...





11 department plans working as one

# Mid-Storm: Op Briefings

With the utility plan being executed...

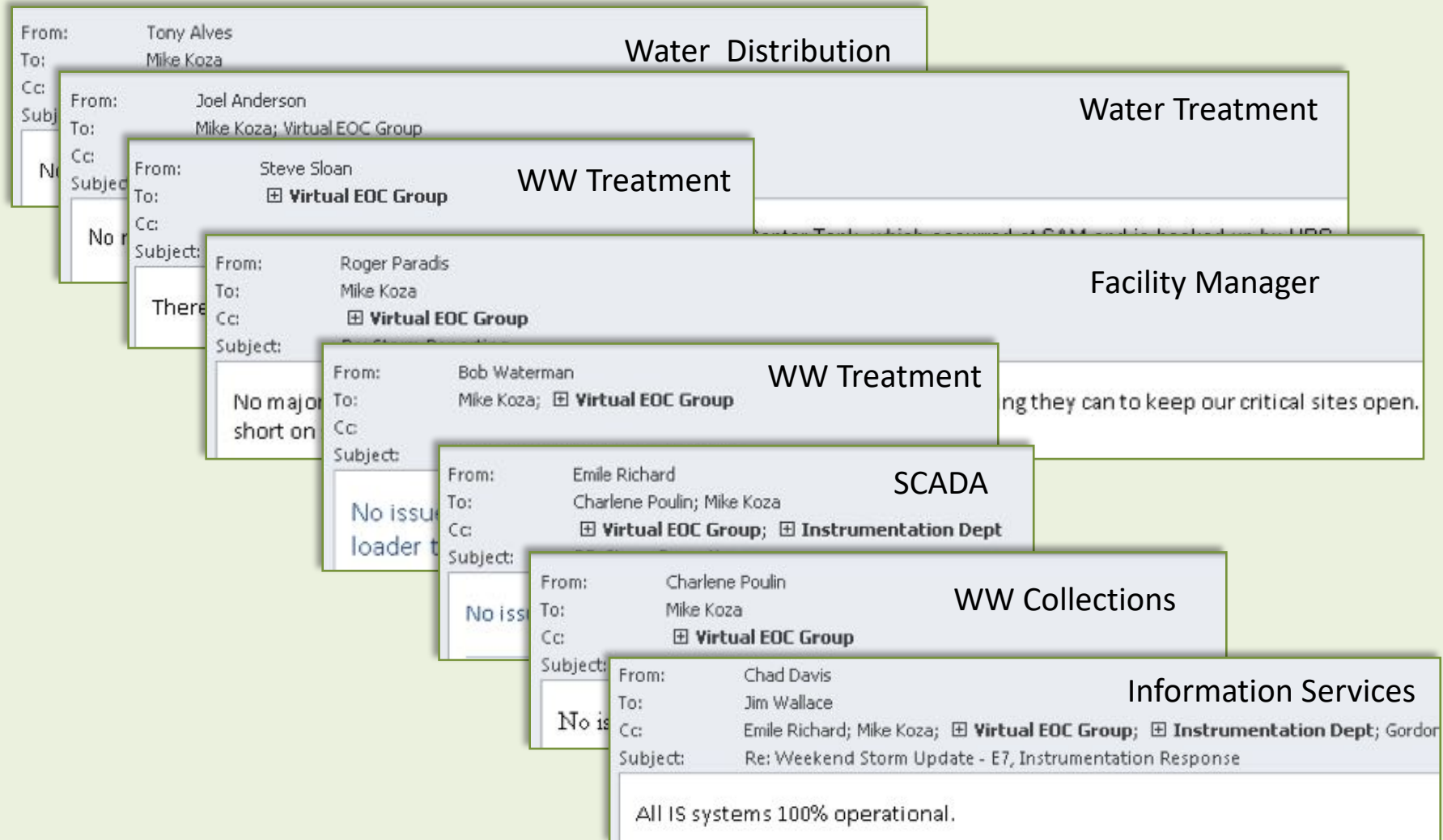
- Communication continues
- Things change
- Establish operation periods of 6 to 8 hrs

In preparing for battle I have always found that plans are useless, but planning is indispensable.

-- Dwight D. Eisenhower



# Mid-Storm: Op Briefings







# Post Storm: Restoration

From: Tom Quirk  
To: Mike Kooz; [Virtual EDC Group](#)  
Cc:  
Subject: RE: Weekend Storm Update

If your staff is opening Work Orders to deal with storm related issues please have them use the following budget numbers:

13011J - Water  
13012J - Cape Elizabeth WW  
13013J - Cumberland WW  
13014J - Gorham WW  
13015J - Portland WW  
13016J - Westbrook WW  
13017J - Windham WW

# Post-Storm: MEMA Reimbursement

MAINE EMERGENCY MANAGEMENT AGENCY DAMAGE and INJURY ASSESSMENT		FORM 7 June 2008
<input checked="" type="checkbox"/> Original <input type="checkbox"/> Revision # _____		Date: December 19, 2008
Type of Disaster: Storm, ice and snow	Date(s) of Occurrence: December 11 – 14, 2008	
Jurisdiction (town, county, agency, etc.): Portland Water District	County: Cumberland	
Area Affected (northeast, west side, etc.): Entire Greater Portland service area		
Information provided by:		
Name: Michael Koza	Title: Regulatory/Security Advisor	
Address: Portland Water District PO Box 3553 Portland ME 04101	Day Phone: (207) 774-5961 x3314	
	Evening Phone: (207) 595-1398	
<b>PUBLIC DAMAGE</b>		
A	DEBRIS REMOVAL (trees, building wreckage, sand, mud, silt, gravel, vehicles, and other disaster-related material)	\$ 2,500.00
B	EMERGENCY PROTECTIVE MEASURES (sandbagging, barricades, signs, extra police and fire, and emergency health measures)	\$ 53,000.00
C	ROADS AND BRIDGES (roadway debris, bridge damage, etc.)	\$



# Wrap-up

1. Increase in storm frequency/intensity
2. Tough guy mentality gone
3. Coordinating before, during and after
4. Assessment form prompts action before the storm
5. Communication is regular during the storm
6. Overall sense of unity

ROSES ARE RED  
VIOLETS ARE BLUE

CMP

WE NEED YOU

Questions?