

36871



# City of Portland

## Flood Response Appendix

March 2011



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## Table of Contents

<b>1</b>	<b>Introduction.....</b>	<b>1-1</b>
1.1	Purpose.....	1-1
1.2	Goal.....	1-1
1.3	Scope.....	1-2
1.4	Definitions.....	1-2
1.5	Situation.....	1-4
1.6	Assumptions.....	1-6
<b>2</b>	<b>Concept of Operations .....</b>	<b>2-1</b>
2.1	Phased Operation.....	2-1
2.1.1	Phase 1.....	2-1
2.1.2	Phase 2.....	2-2
2.1.3	Phase 3.....	2-4
2.1.4	Phase 4.....	2-5
2.1.5	Phase 5.....	2-7
2.1.6	Phase 6.....	2-9
<b>3</b>	<b>Roles and Responsibilities .....</b>	<b>3-1</b>
3.1	Portland Bureau of Transportation (PBOT).....	3-1
3.2	Portland Office of Emergency Management (POEM).....	3-2
3.3	Bureau of Environmental Services (BES).....	3-2
3.4	Portland Parks and Recreation (Parks).....	3-3
3.5	Water Bureau.....	3-3
3.6	Portland Police Bureau (PPB).....	3-3
3.7	Portland Fire & Rescue.....	3-4
3.8	Bureau of Development Services (BDS).....	3-5
3.9	Bureau of Technology Services.....	3-5
3.10	Multnomah County Drainage District (MCDD).....	3-5
3.11	Port of Portland.....	3-7
3.12	US Coast Guard (USCG) – Sector Columbia River, Station Portland.....	3-7
3.13	US Army Corps of Engineers (USACE).....	3-7
<b>4</b>	<b>Direction and Control .....</b>	<b>4-1</b>
4.1	Incident Command.....	4-1
4.2	Incident Command Post.....	4-1
4.3	Emergency Coordination Center.....	4-2
4.4	Mayor and City Council.....	4-2
4.5	Legal Authorities (not included in the BEOP).....	4-3
<b>5</b>	<b>Plan Development and Maintenance.....</b>	<b>5-1</b>
5.1	Plan Administration.....	5-1
5.2	Schedule of Exercises and Training.....	5-1
5.3	Record of Plan Changes.....	5-1
5.4	Plan Distribution.....	5-2

## List of Tables

Table 1-1	River Elevation Conversion.....	1-4
Table 5-1	Record of Plan Changes.....	5-1

## List of Figures

Figure 2-1	Phase 1 Command Structure.....	2-1
Figure 2-2	Phase 2 Command Structure.....	2-3
Figure 2-3	Phase 3 Operations Section .....	2-4
Figure 2-4	Phase 4 Expanded Operations Section .....	2-6
Figure 3-1	MCDD Boundaries .....	3-6



# 1 Introduction

## 1.1 Purpose

The purpose of the Flood Response Appendix is to establish, clarify and assign responsibilities and authorities for flood response activities within the City of Portland and to the bureaus and employees of the City of Portland.

This Appendix augments the Basic Emergency Operations Plan (BEOP) to address flood-specific emergencies and uses the concepts of the National Incident Management System (NIMS).

## 1.2 Goal

The goal of the Flood Response Appendix is to coordinate and facilitate resources, protection of lives, property and the environment from the impact of flood by focusing on the following flood response priorities:

- Preventing life-threatening situations by facilitating alert, warning and notification to the public, evacuating threatened areas and limiting access to threatened areas.
- Rescuing persons in life-threatening situations, to the extent possible, without unreasonable risk to the health and safety of responders.
- Implementing protective measures to protect the environment and critical public infrastructure.
- Ensuring streets and drainage ways remain open and operational to the extent possible.
- Closing streets and passageways, as necessary, and providing alternate routing.
- Performing flood-fighting activities on City-owned and operated property.
- Providing flood-fighting assistance and support to other regional governmental partners.
- Providing flood-fighting assistance to private property owners to the extent possible.

These prioritized goals are listed in order of significance and should be considered in that order. Circumstances may require that they be acted upon in a different order, depending on the tactical needs of the situation.

### 1.3 Scope

This Flood Appendix recognizes the Portland Bureau of Transportation (PBOT) as the lead response bureau and applies to all City bureaus, Multnomah County Drainage District (MCDD), Port of Portland Marine and Aviation terminals, United States Coast Guard (USCG) Sector Columbia River, United States Army Corps of Engineers (USACE) and other partners that may be requested to provide assistance or conduct operations in response to a flood emergency impacting the City of Portland. Although the scope of this Appendix only applies to City bureaus, it acknowledges that a major flood emergency may require a coordinated response by a combination of local, regional, state, federal, private-sector and non-governmental entities.

This Appendix is designed to provide a consistent and flexible framework within which government and private entities at all levels can work in a coordinated manner to respond to a flood emergency. This Appendix is considered the tactical, operational plan for PBOT as the lead bureau, and outlines an overall concept of operations for support and coordination provided by other bureaus and regional partners providing requested assistance.

Parts, or all, of this Appendix may be activated with or without an emergency declaration.

### 1.4 Definitions

The following definitions are relevant to this Appendix:

*Flood Advisory* – Indicates weather conditions that may result in ponding of water on roadways and in low-lying areas, as well as rises in small stream levels. A flood advisory is used for events that may cause traffic disruptions including road closures and detours.

*Flood Watch* – Issued by the National Weather Service (NWS) to inform the public and cooperating agencies that current and developing hydro-meteorological conditions are such that there is a threat of flooding, but the occurrence is neither certain nor imminent.

*Flood Warning* – Issued by the NWS to inform the public of flooding conditions that are occurring or are imminent, along larger streams, in which there is a serious threat to life or property. A flood warning will usually contain river stage (level) forecasts.

*Minor Flooding* – Indicates minimal or no property damage, although the event may still pose a public safety threat.

*Moderate Flooding* – Indicates some inundation of structures and roads near the stream. Moderate flooding may require limited evacuations of people and/or relocating property to higher elevations.



Major Flooding – Indicates extensive inundation of structures and roads. Widespread evacuations may be required.

100-year flood – Used by the Federal Emergency Management Agency (FEMA) to describe an event that statistically has a one percent chance of occurring in any given year.

500-year flood – Used by FEMA to describe an event that statistically has a 0.2 percent chance of occurring in any given year.

Special Flood Hazard Area Floodplain – Land that is subject to a one percent or greater chance of flooding in any given year.

Geodetic Datum – Used in navigation and surveying to translate positions and calculate the coordinates of points on the earth to determine elevations.

Within the greater metropolitan area, several versions of geodetic data are utilized to record riverine flood levels. No agreement has been reached on the regional use of a single version. As a result, it is important to recognize the differences among the datums when establishing thresholds and, particularly, ensuring that the threat and the assessment are being made using the same datum. The National Geodetic Survey website <http://www.ngs.noaa.gov/faq.shtml> provides additional conversion information and guidance.

- *The City of Portland* elevations are referenced as *City Datum*. This system is used by both the Bureaus of Transportation and Environmental Services.
- FEMA Flood Insurance Rate Maps (FIRM) are referenced to the *North American Vertical Datum (NAVD)* of 1988, which is used by the Water Bureau.
  - To convert *NAVD 1988 Datum* to *City Datum*, subtract 2.1 feet from the elevation referenced to NAVD 1988 level.
- *National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level (MSL)* used by Multnomah County Drainage District (MCDD) and Oregon Department of Transportation (ODOT).
  - To convert *NGVD/MSL Datum* to *City Datum*, add 1.4 feet to the elevation referenced to *NGVD/MSL* level.
- *National Weather Service (NWS) Datum*
  - For the Columbia River – to convert *NWS Datum* to *City Datum*, add 3.2 feet to the elevation referenced to NWS level.
  - For the Willamette River – to convert *NWS Datum* to *City Datum*, add 2.9 feet to the elevation referenced to NWS level.

Table 1-1 River Elevation Conversion

RIVER ELEVATION CONVERSION				
All elevations in feet, rounded to nearest 0.1'				
	NWS	NGVD/MSL (MCDD, ODOT)	CITY OF PORTLAND (PBOT, BES)	NAVD088 (Water Bureau)
COLUMBIA RIVER GAUGE @ VANCOUVER	0.0	1.8	3.2	5.3
	(1.8)	0.0	1.4	3.5
	(3.2)	(1.4)	0.0	2.1
	(5.3)	(3.5)	(2.1)	0.0
	NWS	NGVD/MSL (MCDD, ODOT)	CITY OF PORTLAND (PBOT, BES)	NAVD088 (Water Bureau)
WILLAMETTE RIVER @ MORRISON GAUGE	0.0	1.6	2.9	5.0
	(1.6)	0.0	1.4	3.5
	(2.9)	(1.4)	0.0	2.1
	(5.0)	(3.5)	(2.1)	0.0

## 1.5 Situation

Portland is subject to flooding from river overflow from the Columbia, Willamette, Tualatin and Sandy Rivers and Johnson and Fanno Creeks, as well as flooding from stormwater systems. Flooding is caused by spring snowmelt and intense winter rainstorms. The flood season for Portland extends from late October through April. Historically, the majority of flooding occurs in December, January and February. Flooding results when heavy or prolonged rain or snowmelt creates water flows that exceed the capability of a creek, ditch, sump, or storm drain to remove runoff. During periods of urban flooding, streets can become swift moving rivers and basements can fill with water. Storm drains and catch basins can also back up with vegetative debris and cause localized flooding.

The existing flood defense and seawall elevations are adequate to protect the downtown central business district for a 100-year flood event without installation of seawall panels. The proposed flood defense plan is adequate to protect the downtown core against a 500-year flood event. Additional protection options have also been assessed for methods to extend the harbor wall along the south portion of Waterfront Park known as the South Bowl, and north from the Steel Bridge to the Fremont Bridge.

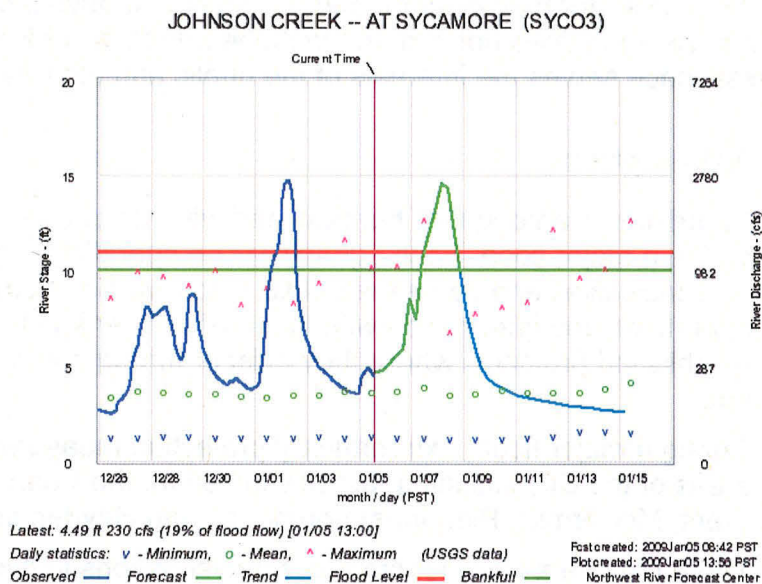


The plan would establish protection down the middle of NW Naito Parkway to NW 9th<sup>th</sup> Avenue and to NW 15<sup>th</sup> Avenue if resources allow<sup>1</sup>.

Major flood levels are likely to necessitate a level of operations that the City cannot achieve on its own. In the event of a major flood, the Mayor may declare a State of Emergency and request appropriate aid and assistance from outside resources<sup>2</sup>.

Despite ongoing risk reduction **Figure 1-1 Sycamore Gauge**

efforts, Johnson Creek can potentially cause some level of flooding each year. Flooding hazards to the Johnson Creek area are roughly correlated to the [Sycamore Gauge NWS](#) datum readings. Forecasted gauge readings above 11 feet (flood stage) yields varying degrees of localized flooding of streets or buildings along Johnson Creek. Johnson Creek is a volatile basin that can rise and fall rapidly.



Holgate Lake, an ephemeral lake near the intersection of SE Holgate Boulevard and SE 136<sup>th</sup> Avenue has inundated residential areas several times since the 1940's. The water surface elevation of the lake closely tracks with the elevation of the water table in a nearby well, indicating that the occurrence of the lake is an expression of the water table.

Street flooding due to storm drains clogged with vegetative debris frequently occurs during periods of heavy rains or snowmelt and results in street closures throughout the City.

This Appendix includes reference to the emergency flood response plan of the Multnomah County Drainage District (MCDD). This plan is included to provide an understanding of MCDD's capabilities, limitations and expectations from various City bureaus and staff. MCDD maintains 33 miles of levees along the Columbia River and Columbia Slough. The levees protect more than 10,000 acres of land, 2,000 landowners, Portland International Airport, Portland International Raceway and the Columbia South Shore Well Field (groundwater supply). As outlined in Phase 4, MCDD

<sup>1</sup> See Attachment C - Harbor wall installation and map of Portland Flood Defense.

<sup>2</sup> See Attachment A - River stage data for the significance of various levels.

may request PBOT Maintenance install the stop log closures on North Marine Drive. Installation of the stop log closure on North Marine Drive near Portland Road provides flood control protection to Peninsula Drainage District #1. The inclusion of this plan does not relieve MCDD of responsibility and authority for operations within the respective drainage districts, [www.mcdd.org](http://www.mcdd.org).<sup>3</sup>

This Appendix does not address protecting private property within the City. Private property owners have the full responsibility for their own flood protection. However, the Incident Commander may elect to offer assistance to private property owners, as long as such assistance does not interfere with the priorities set forth in this Appendix and such assistance serves the interests of the public and the City.

## 1.6 Assumptions

- Coordination among City bureaus and with regional partners will be necessary during a major flood. Each agency will be operating in good faith to fulfill its responsibilities and serve the public. Each will be attempting to coordinate its operations and information with those of partner agencies according to established protocols where they exist or through ad hoc means where they do not.
- During a major flood, extraordinary protection measures may be necessary for areas of the City including, but not limited to: the Pearl District, South Water Front, McCormick Pier, inner southeast, and Hayden and Swan Islands.
- There may be a need for large scale evacuations in flood inundated residential areas and the need to provide shelter for displaced residents.
- Landslides and debris flows may occur in the North- and Southwest hills and may divert resources from the flood fighting response.
- Private citizens may volunteer to assist with response efforts. The Emergency Coordination Center will manage the tracking, tasking and coordination of Neighborhood Emergency Team and emergent volunteers.
- A regional command structure may be necessary if flooding seriously impacts several counties.
- Floating debris may build up against bridge infrastructure, Waterfront Park Seawall, and facilities associated with the Eastbank Esplanade, potentially causing serious damage.
- The City has no control regarding flood control strategies at dams located on the main stem of the Columbia and Willamette Rivers.

<sup>3</sup> See Attachment B - MCDD Emergency Plan High Water Response.



## 2 Concept of Operations

### 2.1 Phased Operation

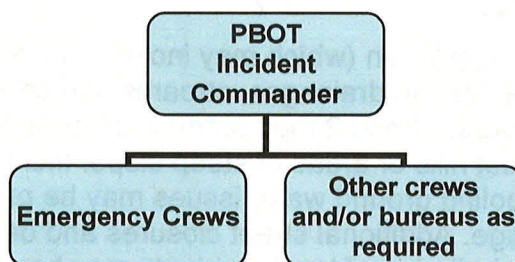
The BEOP outlines three levels of citywide emergency response to an incident. These levels broadly correspond to four operational levels of response to events of increasing complexity, resource demands and coordination requirements and that pose increasing risk of significant damage, disruption, or loss of life.

Flood response operations will normally be implemented in phases. The phase of operation will depend on the severity of conditions and shall not necessarily be implemented in numerical order. The six phases of flood response operations are scaled to the increasing equipment and personnel requirements of the response effort.

#### 2.1.1 Phase 1

Phase 1 is characterized by heavy rain within a short duration, clogged catch basins, overloaded sumps in saturated ground, blocked ditches, trash racks, and culverts that result in local street flooding and urban ponding.

Figure 2-1 Phase 1 Command Structure



### Portland Bureau of Transportation (PBOT)

Flood response work required in this phase is generally within the scope of PBOT. Primary tasks for crews include but are not limited to: monitoring water levels in flood hazard areas, monitoring road conditions and performing routine maintenance operations to decrease street flooding, monitoring and cleaning storm drains, culverts, trash racks, and ditches to help prevent street flooding, property damage, and road hazards.

The Johnson Creek area may begin to experience flooding requiring street closures and enforcement of pre-designated detours.

PBOT will coordinate with Portland Parks & Recreation for the assessment of and possible removal of some of the floating docks along the Willamette River and limit access to the Eastbank Esplanade<sup>4</sup>.

PBOT PIO will coordinate with POEM PIO and other response bureau PIOs to provide consistent messaging/information to local media and the public regarding water levels, location of sand bagging supplies, detour routes, any potential hazards and the expected timeframe of potential hazard impacts.

### **Portland Office of Emergency Management (POEM)**

POEM may be at an enhanced level of operation.

- When requested by the Incident Commander, the POEM Duty Officer will create a new incident in WebEOC. All operational bureaus directly involved in the flood response will document activities and post incident information to the appropriate bureau boards and, when appropriate, to the City Significant Events Board.
- POEM Duty Officer will monitor City and regional activity and disseminate information as needed. As required, the Duty Officer will update and post information to WebEOC.
- If necessary, POEM will convene daily teleconference calls with response bureaus and regional partners, as outlined in Attachment G Johnson Creek Alert and Notification SOP Level II, to enhance situational awareness.

#### **2.1.2 Phase 2**

Phase 2 is characterized by heavy rain (which may include snowmelt) of a longer duration resulting in local flooding on drainages, streams and creeks leading to the Willamette and Columbia Rivers. Phase 2 may produce some local debris flows and landslides primarily in the west hills or areas of steep slope. Increasing numbers of clogged storm drains and pooling ground water issues may be present. Johnson Creek may be at or above flood stage. Additional street closures and detours may be necessary. Evacuation and sheltering of local residents may be required.

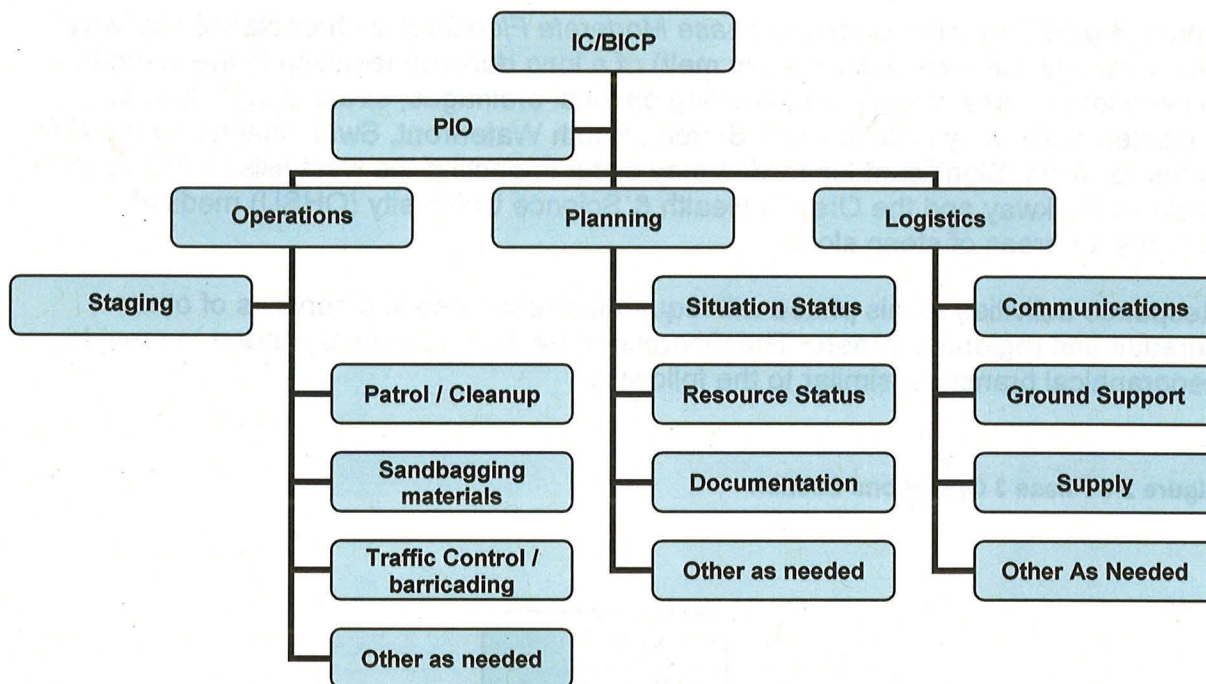
The flood response required at this phase is generally within the scope of PBOT resources; however, assistance from other bureaus may be needed. All bureaus will coordinate their flood response activities with the Incident Commander.

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<sup>4</sup> See Attachment F – Parks and Recreation Docks



Figure 2-2 Phase 2 Command Structure



## PBOT

PBOT, in addition to the activities performed in Phase 1, will:

- Activate Bureau Incident Command Post, if not already done.
- Provide additional sand, sandbags and instructions at pre-identified locations.
- Perform debris flow cleanup – placing traffic controls and street closures with detours as appropriate.
- Conduct road and street closures in the Johnson Creek area and re-route traffic per designated plans.
- At the request of MCDD, the Incident Commander will assign personnel including Portland Water, Parks, PBOT and staff from Riverside and Heron Lakes Golf Courses to conduct levee monitoring.

## POEM

In addition to the activities performed in Phase 1, POEM will provide staffing at the Emergency Coordination Center in preparation for a partial activation.

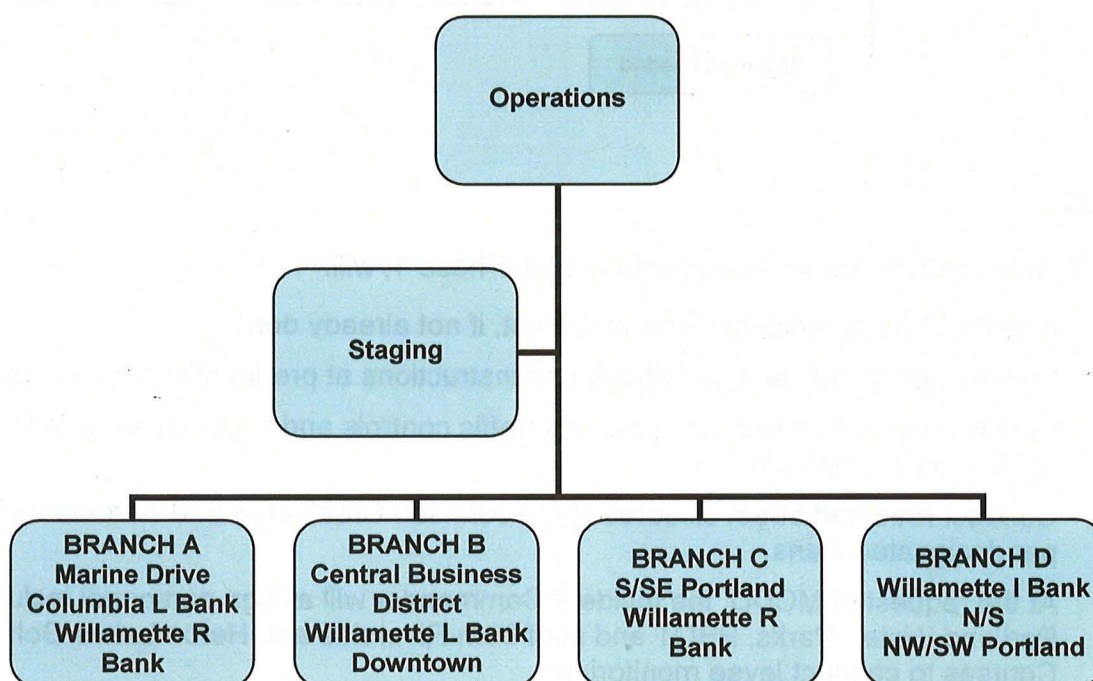
At the direction of the Incident Commander, POEM will coordinate with the Red Cross regarding the potential need for sheltering displaced residents in the Johnson Creek area and possibly other areas of the City due to flood.

### 2.1.3 Phase 3

Phase 3 (*NWS may consider this phase Moderate Flooding*) is characterized by very heavy rain (which may include snow melt) of a long duration resulting in the inundation of secondary roads, widespread flooding on local drainages, streams and creeks. Impacted areas may include Oaks Bottom, South Waterfront, Swan Island and the NW Industrial Area. Significant landslides may occur impacting the west hills including Sam Jackson Parkway and the Oregon Health & Science University (OHSU) medical campus, or areas of steep slope.

Response activities at this phase will require the resources and services of other bureaus and regional partners. The Operations Section may be expanded to provide geographical branches, similar to the following:

Figure 2-3 Phase 3 Operations Section





## PBOT

In addition to previous phases, PBOT may:

- Place temporary barriers, dig temporary ditches or otherwise improvise to direct or divert flood flows.
- Contact the POEM Duty Officer and request the City Emergency Coordination Center (ECC) be activated with partial to full staffing. PBOT Incident Command may relocate from the Bureau Incident Command Post to the ECC.

## POEM via the City Emergency Coordination Center

At the request of the Incident Commander, the POEM Duty Officer will activate the ECC to take actions to coordinate, direct or control response activities. The Duty Officer will activate the ECC at a sufficient level to ensure:

- Voluntary evacuation coordination with Portland Police Bureau.
- Sheltering coordination with the American Red Cross.
- Warning and notification to the public.
- Coordinated emergency public information.

The Duty Officer will ensure the timely notification of POEM staff, Emergency Management Steering Committee members, Disaster Policy Council members and regional emergency management partner agencies of all changes in the operational level of the city emergency management system.

## Disaster Policy Council / Mayor

- Determine level of critical infrastructure protection and prioritization of protection efforts within the expected floodplain.

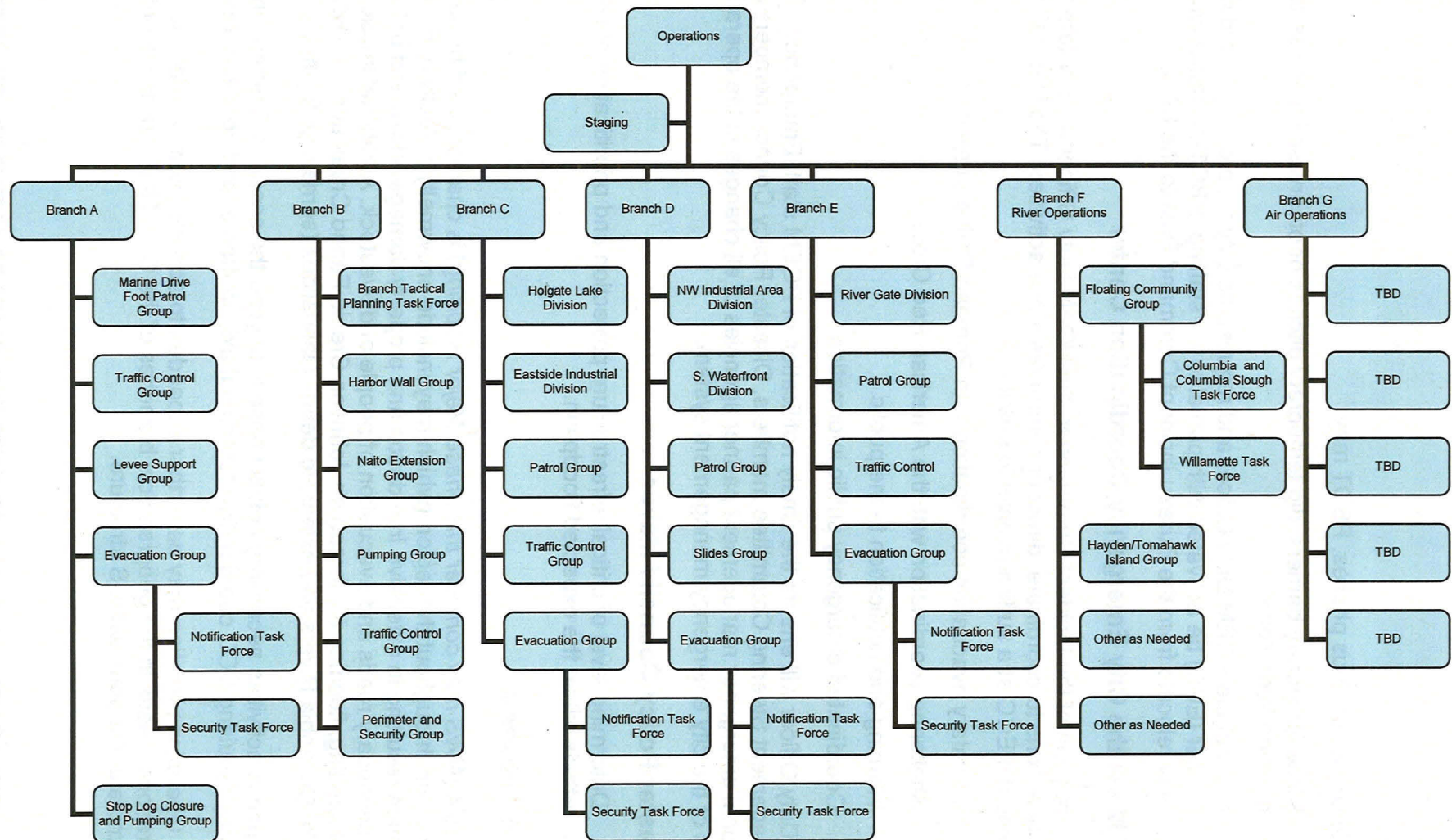
### 2.1.4 Phase 4

Phase 4 (*NWS may consider this phase Major Flooding*) is characterized by sustained heavy rain throughout the region (which may include snowmelt) typically of a long duration resulting in extensive inundation and property damage, closure of both primary and secondary roads and evacuation of people and livestock. Additional impacts include local flooding, flooding (or threat) on Johnson Creek, Fanno Creek and the Willamette and/or Columbia Rivers and extensive debris / landslides (some significant).

Response activities necessary at this phase is beyond the scope of City resources thereby requiring ECC coordination for mutual aid, contractor and volunteer resources.

The Operations Section may be further expanded to accommodate additional operational needs in the geographical branches of the City. The following is only an example of the potential ICS structure.

Figure 2-4 Phase 4 Expanded Operations Section





## **City Emergency Coordination Center**

- PBOT Bureau Incident Command Post will coordinate requests for resources and/or mutual aid with POEM and/or the City ECC during enhanced, partial and full activations.
- Citywide policy and scarce resource allocation decisions will be made by the Disaster Policy Council and decisions implemented by the Emergency Coordination Center.
- Emergency declaration process may be initiated.

## **Protective Actions**

PBOT may coordinate any or all of the following protective actions:

- Installation of the mile-long harbor wall (erecting the harbor wall is expected to take 1,000 labor hours, or 40 people working 24 hours).
- Proposed installation options of the harbor wall extensions along Naito Parkway will be completed by contracted services. Protection options for the Pearl District include the use of cement ultra block barriers or water filled dams.
- Stop log closures installed on N. Marine Drive.
- Limited evacuations started, notifications made to floating communities and other areas identified to be at risk of inundation.
- Coordination with the Captain of the Port and U.S. Coast Guard (USCG) Sector Columbia River to restrict river traffic. A USCG declared Safety Zone may be appropriate.
- Placement of two floating log booms up river from the Steel Bridge to a length that will divert floating debris through the center lift span section of the bridge that is raised during high water events and keeps floating debris from making contact with the bridge, sea wall and Eastbank Esplanade.

### **2.1.5 Phase 5**

This phase may be characterized by floodwaters overtopping the harbor wall and/or overtopping or failure of the Columbia River levee system (500-year flood emergency). Impacts include extensive flooding of residential, commercial and industrial areas throughout Portland and the metro area. Significant evacuations may be required throughout the metro area with the need for rescues and attention to life safety issues.

### **City Emergency Coordination Center**

- Coordinate and prioritize critical actions: life safety, protection of public health and safety, property and restoration of critical services impacted by the flood emergency.
- Document actions, communications and decisions in WebEOC.
- Facilitate the disaster declaration process and coordinate, obtain and track additional resources from regional, state and federal agencies.
- Maintain financial records for expenses incurred during the event.
- Coordinate information management – maintain active communications, coordination, information sharing and documentation among bureaus and regional partners.
- Coordinate emergency public information activities with and among governmental agencies, hospitals, schools, support agencies, private entities and the general public through the JIC/JIS.
- Receive and disseminate warnings. Ensure activation of the community notification system, Emergency Alert System (EAS) and other appropriate alert and notification systems.
- Identify populations and special facilities at risk and coordinate protective actions for those special populations and facilities.
- Coordinate with the Red Cross and other non-governmental organizations to provide for mass shelter and housing.
- Coordinate with private sector utility owners to assess damage to critical infrastructure and prioritize and restore lifelines.
- Activate Neighborhood Emergency Teams (NET) and assign NETs appropriate missions consistent with their scope of training.
- Support decision-making and policy coordination and implement Disaster Policy Council decisions and recommendations.
- Plan and manage programs for long term economic and community recovery.
- Facilitate critical resource management – ordering, prioritizing and allocating.
- Identify critical needs and resource requirements and coordinate requests to meet those needs.
- Coordinate damage assessment and debris management activities.



### **2.1.6 Phase 6**

In this phase, floodwaters have crested and started to recede, rain has stopped or slowed, weather and river forecasts indicate that the response phase is coming to an end.

The transition from response to recovery has started. Damage Assessment Teams (DATs) are in the field, repair and restoration work planning begins. PBOT Maintenance will manage recovery repairs and related issues with technical assistance from PBOT Engineering and Development. Cleanup and road repairs will be split between Water Bureau crews and hired contractors. After initial cleanup, contract repairs to major roadway failures will require several months to restore total functionality to the transportation system.

#### **BDS - Private Property Damage Assessment**

The Bureau of Development Services (BDS) is responsible for the damage assessment of structures on private property. As receding floodwater and debris removal allow safe entry of BDS DATs into impacted areas, rapid damage assessment of damaged communities and structures to determine if they are safe or unsafe to enter will be performed.

Once the initiation rapid assessment is performed, BDS DATs will start to perform the more in-depth detailed damage assessments and start working with property owners on reoccupying and remediating unsafe structures.





## **3 Roles and Responsibilities**

This section provides an overview of the key functions and procedures that City bureaus and local agencies will accomplish during the response to a flood emergency. City bureaus are responsible for the development of response plans that guide internal operations. Bureaus may also develop standard operating procedures, continuity of operations plans and other policies or procedures that address emergency operations. Each bureau is tasked with protecting their respective facilities and infrastructure and is expected to provide personnel and resources to perform integrated flood fighting operations under the direction of the Incident Commander. During a flood emergency all participants in the flood fight must be prepared for sudden changes in flood level forecasts and/or changes in strategy or tactics.

### **3.1 Portland Bureau of Transportation (PBOT)**

As the lead bureau for flood response, PBOT is responsible for command and control for flood emergencies.

The Director of the Portland Bureau of Transportation, or designee, oversees the administration of this Appendix, coordinates with other bureaus and agencies, and provides such policy guidance as may be appropriate.

PBOT provides for the management and operation of Portland's street system, drainage and sewer systems, support and assistance with traffic control, security, search and rescue, damage assessment and other activities as appropriate to the labor, equipment, and materials. PBOT oversees the installation of the harbor wall, placement of the Marine Drive stop log closures, assists with levee protection and liaisons with public utilities. The response to a flood will begin prior to the flooding. Activities such as monitoring weather reports and beginning to plan for the response will affect the management structure.

PBOT will document and post information into appropriate position, section and incident-specific boards in WebEOC.

#### **Traffic Engineer**

The placement of barricades or other traffic control devices to close streets, or alter traffic flow shall be initiated by the Incident Commander in response to dangerous road conditions or roads that are unfit for travel due to high water. The authority to designate street closures lies with the Traffic Engineer and is delegated to the Incident Commander during operations conducted in accordance with this Appendix. The removal of barricades or other traffic control devices should be initiated when hazardous conditions no longer exist and as resources allow.

### **3.2 Portland Office of Emergency Management (POEM)**

The Portland Office of Emergency Management reports to the Mayor and coordinates emergency management activities within the City of Portland and among its regional partners in the public, private and non-profit sectors. The Office of Emergency Management maintains the PublicAlerts.org website, Twitter feeds, and other community notification systems. The office also maintains the Emergency Coordination Center (ECC), which serves as the coordinating entity for City bureaus and offices in the event of an emergency.

The POEM Duty Officer serves as a single point of contact for other City bureaus and regional partners to request citywide assistance and conduct notification of incidents requiring emergency management coordination until the ECC is activated and staffed.

POEM will monitor and disseminate incident information including weather advisories and other warnings to appropriate City bureaus and post significant information in WebEOC.

The POEM PIO will coordinate with PBOT PIO as needed to ensure complete and concise emergency public information is disseminated.

### **3.3 Bureau of Environmental Services (BES)**

BES is tasked with protecting critical infrastructure including the Columbia Boulevard and Tryon Creek Water Treatment Plants, the Water Pollution Control Laboratory, pump stations and maintenance shop.

BES will monitor the Willamette River elevations at the Ankeny pump station and coordinate with the Incident Commander to determine when to implement the Diversion Flood Control Plan<sup>5</sup>. The purpose of that plan is to protect the City's sewer pump stations and the sewage treatment plant from excessively high flows during high river levels.

BES will document and post information into appropriate position, section and incident-specific boards in WebEOC. BES crews and resources will be available to the Incident Commander.

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<sup>5</sup> See Attachment E – Diversion Flood Control Plan.



### 3.4 Portland Parks and Recreation (Parks)

Parks is tasked with the maintenance and safety of park properties, bike paths, hiking trails and floating docks along the rivers which include, but are not limited to:

- Ankeny Dock
- Swan Island
- Willamette Park
- Marine Drive bike path
- Eastbank Esplanade
- Sellwood Riverfront
- Cathedral Boat and Fishing Dock

The Incident Commander will coordinate with Multnomah County Public Health if flood waters are believed to be contaminated and pose a health threat to the public. Parks may need to limit public access to rising waters and associated facilities.

Parks will document and post information into appropriate position, section and incident-specific boards in WebEOC. Parks personnel and resources will be available to the Incident Commander<sup>6</sup>.

### 3.5 Water Bureau

The Water Bureau is tasked with the protection of water bureau assets and critical infrastructure including reservoirs, the Columbia South Shore Well Field and the Bull Run watershed.

Heavy rain and snow melt may cause turbidity issues for the Portland water system.

The Water Bureau will document and post information into appropriate position, section and incident-specific boards in WebEOC. Water Bureau crews and resources will be available to the Incident Commander.

### 3.6 Portland Police Bureau (PPB)

Police resources may be called upon for support in managing traffic flow, detouring traffic where immediate hazards exist and reporting dangerous areas to PBOT Maintenance. PPB will enforce appropriate traffic regulations and parking restrictions within the impacted flood area.

<sup>6</sup> See Attachment F – Portland Parks and Recreation Docks.

When requested by the Incident Commander, PPB will assist with evacuation planning and execution in flood inundation areas which include, but are not limited to the following:

- Hayden Island
- Swan Island
- Pearl District
- Inner SE Waterfront
- Terminal 4
- Terminal 6 – Rivergate
- Columbia Slough Floating neighborhoods
- Tomahawk Island
- Oaks Bottom
- South Water Front
- Johnson Creek
- Terminal 5
- Marine Drive
- Holgate Lake (also known as Ramona Lake)

### **3.7 Portland Fire & Rescue**

Fire resources may be called upon to support ECC activation and operation and other activities as necessary and appropriate. Portland Fire & Rescue will document and post information into appropriate position, section and incident-specific boards in WebEOC.

Fire personnel should canvas their Fire Management Area (FMA) and order the removal of hazardous materials from the danger area, concentrating on 55-gallon drums. If not already addressed, large tanks should be ordered secured.

In coordination with the Incident Commander or ECC, the Harbor Master and fire boats at station 6 in the NW Industrial area, station 21 at the east end of the Hawthorne Bridge on the Willamette River and station 17 at Jantzen Beach on the Columbia River will:

- Ensure the debris jams around the bridges are cleared through contracted services as the fire boats are busy with their FMA and emergencies.
- Coordinate with US Coast Guard / Multnomah County Sheriff's Office River Patrol Unit to monitor river traffic, as the wakes of passing vessels tends to wash away at the levees and cause damage to the harbor wall and Eastbank Esplanade.
- Communicate with river residents (floating communities) to ensure awareness of river status and potential dangers.



### **3.8 Bureau of Development Services (BDS)**

BDS serves as the City's Damage Assessment Coordinator for structures on private property impacted in a flood event. Emergency response duties include:

- Coordinate rapid and detailed damage assessment of structures on private property impacted by floodwaters and debris.
- Assist property owners and businesses in making needed repairs to damaged properties and/or their demolition; maintaining a permitting system to track the repairs and/or demolition of damaged structures.
- Issue demolition permits to maintain accurate records of building inventories and properly documenting and inspecting structures that are removed due to extensive damage.
- Reassign personnel and resources as required for emergency response and recovery.

### **3.9 Bureau of Technology Services**

The BTS Corporate Geographic Information System (Corporate GIS) assists with querying, displaying and analyzing information necessary to support mission-critical operations.

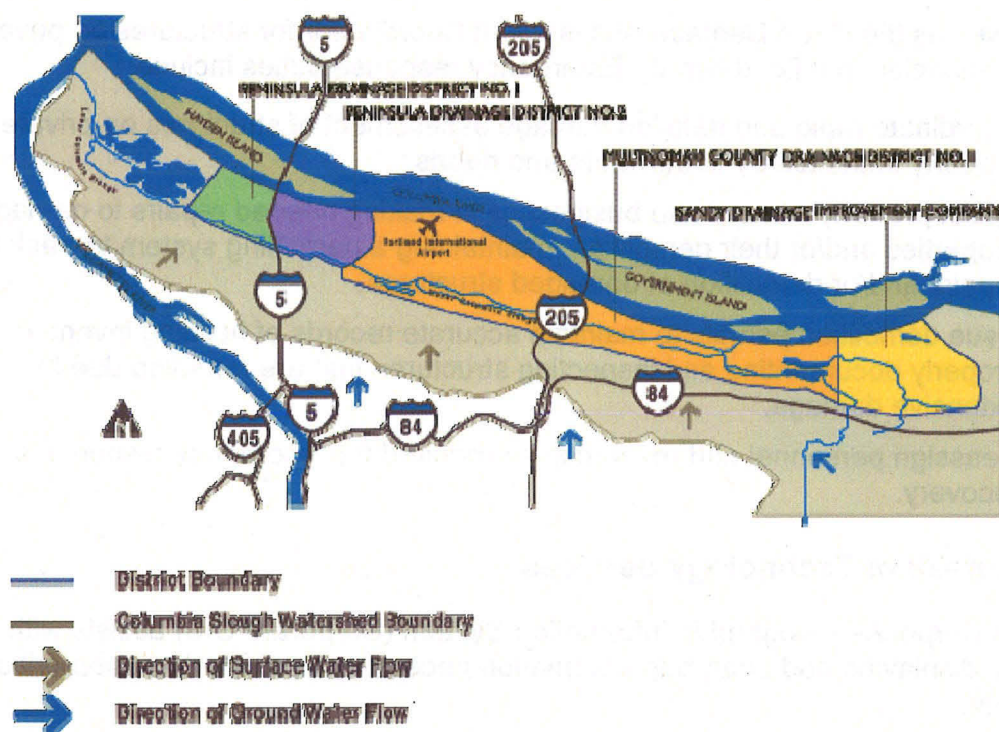
Corporate GIS analysts will assist with mapping different geographic information: flood elevations, floodplain boundaries, steep slope and landslide areas, tax lot data, repetitive loss properties, critical infrastructure, evacuation routes, shelters and other significant data. This information will then be used to inform future land use planning and permitting.

### **3.10 Multnomah County Drainage District (MCDD)**

MCDD manages the Columbia River floodplain to prevent flooding from high water levels and from stormwater runoff. The Drainage Districts manage external flooding with levees along the Columbia River, Lower Columbia Slough, cross levees and with a closely monitored system of pump stations and conveyance systems.

The four Drainage Districts include: Peninsula Drainage District No. 1 (PEN1), Peninsula Drainage District No. 2 (PEN2), Multnomah County Drainage District No. 1 and Sandy Drainage Improvement Company.

Figure 3-1 MCDD Boundaries



MCDD will keep the City of Portland updated with their status throughout the flood emergency. The Incident Commander will coordinate with MCDD, monitor their activities and provide assistance as required.

Water levels of 18-23.5 feet NGVD29 (19.4-29.4 City Datum) are equivalent to a high water event in the Columbia River. Field staff will make daily inspections of all levee systems. No external requests for assistance are expected during this stage.

MCDD High Water Response Plan will be put into effect when the Columbia River, Vancouver Gauge levels are expected to exceed 24 feet NGVD29 (MSL). River levels of 23.6-27.3 feet NGVD (25-28.7 feet City Datum) are considered to be a moderate high water event in the Columbia River.

At this stage MCDD expects to:

- Notify Incident Commander that the MCDD EOC will be activated for 24 hour operations and surveillance of the levee.
- Through the Incident Commander, may request additional City personnel from Water Bureau, PBOT Maintenance and Parks personnel from Riverside or Heron Lakes Golf Course and Port of Portland Maintenance to conduct levee monitoring.



Columbia River levels of 27.4 to 28.9 feet NGVD29 (28.8 feet to 30.3 feet City Datum) are considered the equivalent of a 100-year high water event:

- Areas of concern will have already been identified and surveillance will be increased for those areas. If an emergency has been declared by the Governor MCDD will request night time infrared aerial surveillance of the levees by the Oregon National Guard. River and weather forecasts will be checked daily.
- A request will be made of PBOT Maintenance to install the stop log closures along North Marine Drive.

The levee designs for PEN1, PEN2 and the lower Columbia Slough levee in MCDD, are designed for 100-year high water event. If the Columbia River water elevations are predicted to rise above 29 feet NGVD29 (31.4 City Datum) precautions will be made through the City ECC to ready all Districts for evacuation.

### **3.11 Port of Portland**

The Port of Portland is responsible for over \$1.6 billion in marine and aviation transportation infrastructure and real estate assets. A flood contingency plan for the Marine Terminals provides direction and guidelines for port employees during a flood emergency. The Port expects to establish a Command Center at the Terminal 6 Rivergate Administrative Building.

Port staff at Portland International Airport coordinate with MCDD during threats of flooding. The Port expects to activate their EOC when the Columbia River reaches 30 feet NGVD at the Vancouver Gauge. Plans are in place if actual flooding is likely to affect airport operations.

### **3.12 US Coast Guard (USCG) – Sector Columbia River, Station Portland**

Located on Swan Island, at river mile 8 on the Willamette River, Station Portland is responsible for 127 river miles on the Columbia and Willamette Rivers.

Sector Columbia River has navigational control of traffic on both the Columbia and Willamette Rivers and will coordinate with the Incident Commander to limit traffic or close the rivers to all traffic.

When requested by the Incident Commander, USCG assets including helicopters from USCG Group Astoria, may also assist the Harbor Master and Multnomah County Sheriff's Office River Patrol Unit with search and rescue, aerial surveillance, assistance with marine hazards and other response actions during flood events.

### **3.13 US Army Corps of Engineers (USACE)**

Under the Flood Control and Coastal Emergency Act, the USACE provides preparedness services and advance planning measures designed to reduce the amounts of damage caused by an impending emergency. The emergency management

branch provides technical and direct assistance to communities in risk or affected by floods and provides advanced measures, post flood response and emergency water assistance.

The USACE, Portland District Office administers multi-purpose "projects" (dams, reservoirs and related infrastructure) in order to allow navigation, flood control, shore protection, hydropower, water supply and environmental activities in several Oregon Watersheds. The USACE built and operates three run-of-river reservoirs on the lower Columbia and 13 storage projects in the Willamette River Basin which control both high and low water flows.



# 4 Direction and Control

## 4.1 Incident Command

As the lead agency for flood response PBOT is responsible for command and control for flood emergencies.

PBOT maintains a cadre of qualified Incident Commanders and will assign someone as needed. PBOT also maintains an on-call list for Senior Managers for use after hours and during weekend emergencies. As the flood emergency progresses, the Incident Commander has the tactical and operational responsibility to determine the appropriate response to existing and predicted conditions.

## 4.2 Incident Command Post

The Bureau Incident Command Post (BICP) for command and control functions will normally start at Stanton Yard.

Through the progression of flood response, Command will ensure:

- Identification of critical City infrastructure within the known floodplain and development of protection strategies and priorities should the event near and/or reach major flood stage predictions.
- Establish and identify potential threshold/trigger points for coordination escalation.
- Identification of resources, roles and responsibilities.
- Development and posting of an Incident Action Plan (IAP) in WebEOC.
- The development and distribution of a communications plan to include: private stakeholders, neighborhoods, associations, local, regional, state and federal partners, etc.
- All bureau personnel are made available to make up the emergency crews. PBOT may request personnel from other bureaus to assist with incident management and/or to provide incident resources. All City operational bureaus will support PBOT in ensuring the goals and objectives outlined in this plan are met.

The extent of ICS structure to be used will be determined by the Incident Commander based on the situation as it develops.

If the emergency develops into a large scale/citywide/regional emergency command and control may transition to the City's Emergency Coordination Center.

### **4.3 Emergency Coordination Center**

The ECC serves as the coordination entity that supports on-scene response. The ECC is the centralized location to coordinate, collect, monitor and distribute damage information and assess impacts, develop overall strategies and policies in support of emergency flood response and recovery efforts, coordinate the allocation and management of resources based on incident priorities, document all communications, decisions, activities, and the deployment and tracking of resources and provide coordinated information to the media and general public including issuance of protective action recommendations.

If local resources are insufficient or overwhelmed to respond to the event, the City of Portland may request assistance from other jurisdictions, organizations and agencies. The City will coordinate resource requests through Multnomah County, including the request for a declaration of a county, state, and/or federal emergency.

A transition of the use of the ECC as a command post is appropriate in the following circumstances:

- The scope or scale of operations exceeds the operational capability of a bureau incident command post.
- Coordination of the response and resource management requirements of two or more bureaus requires face-to-face communication or co-location.
- Bureau responses require single-point-of-contact or access to facilitate coordination with regional emergency management partners or other outside entities.

### **4.4 Mayor and City Council**

The Mayor and City Council are responsible for providing general oversight of the City of Portland's emergency management program, including the authorization and appropriation of resources necessary to establish and maintain emergency notification and warning systems. Their leadership ensures the coordinated response of all City bureaus and the engagement of Portland's civic and commercial institutions. Partnerships between the City and these institutions helps ensure an effective response to emergencies.

#### **Disaster Policy Council (DPC)**

The Disaster Policy Council advises the Mayor concerning emergency management arrangements before, during and after an emergency. In the event of a declared emergency or disaster, the Mayor may rely on the Disaster Policy Council to formulate strategies and policies for managing the City's response and recovery. This role may include determining the areas targeted for flood defense and the notification thresholds for issuing public warnings.



#### 4.5 Legal Authorities (not included in the BEOP)

##### Portland City Code

- Title 24 – Building Regulations
- Title 33 - Planning and Zoning
- Title 16.10.200.N – Duties of the City Traffic Engineer

##### Limits to Legal Liability

The City assumes no legal responsibility for the implementation of this Appendix.

It is impossible to anticipate all of the variable factors in an emergency situation. This Appendix is a guide to approaching emergency situations. No provisions in this Appendix are intended to be mandatory. This Appendix may be carried out in a flexible manner.

The content of this Appendix should not be interpreted as a guarantee that any specific task will be completed in a specific order or that any specific task will be done at all. This Appendix represents an optimal approach to an emergency situation. It does not create a right to rely on the City, its employees, officers or agents to carry out the Appendix in any particular manner or at all.

Property owners, residents and visitors should not rely on this Appendix to assure the operation or availability of any public service. Persons should develop and maintain their own plans and systems where it is necessary to prevent property damage and/or loss of life.

Property owners and occupants should not rely on the City or this Appendix to inform them of flood and/or slide risks or to protect their property from damage or destruction. This includes assisting in sandbagging, pumping or dewatering activities. Property owners and occupants should fully educate themselves about the flood and/or slide risks associated with their property and develop their own plan for dealing with emergency situations.

Any emergency, as outlined in City Code Chapter [15.04.030 \(b\)](#) may involve other units of government. Other units of government and regional partners should not rely on this Appendix to be implemented.





# 5 Plan Development and Maintenance

## 5.1 Plan Administration

The update of this Appendix is the responsibility of the Portland Bureau of Transportation. The Portland Office of Emergency Management will facilitate the vetting and coordination of this Appendix with stakeholders and the community. All plans will be reviewed and approved by the Emergency Management Steering Committee and Disaster Policy Council prior to adoption by the Portland City Council.

## 5.2 Schedule of Exercises and Training

In preparation for winter weather, PBOT coordinates annual training and exercises involving City personnel from operational bureaus, MCDD and USACE personnel that include but are not limited to:

- Sand bagging demonstration.
- Harbor wall installation.
- Installation of Marine Drive stop log closures.

## 5.3 Record of Plan Changes

The Flood Response Appendix will be reviewed and adopted every five years or as needed after an actual incident or exercise of the plan. Between the date of Council adoption, updates and revisions to the plan will be tracked and recorded in the following table. This process will ensure the most recent version of the plan will include these changes.

Table 5-1 Record of Plan Changes

Record of Plan Changes for HSA 5 – Flood Response		
Date	Change Number	Summary of Changes
March 2011	Original Release	

## 5.4 Plan Distribution

Primary distribution of the Flood Response Appendix will be done electronically using the Adobe Portable Document Format (.PDF) version 8 or later. The Flood Response Appendix will be posted on the [www.portlandoregon.gov/oem](http://www.portlandoregon.gov/oem) website. Electronic copies will contain **hyperlinked text** (in blue) that will allow users to immediately jump to other portions of the document or to associated information on the Internet. Paper copies will not be distributed but will be available upon request.

### Attachments

Attachment A	River Stage Data
Attachment B	MCDD Emergency Plan – High Water Response
Attachment C	Flood Defense Plan
Attachment D	Harbor Wall Installation Assembly and Map
Attachment E	Diversion Flood Control Plan / Diversion Plugging and Unplugging
Attachment F	Portland Parks and Recreation Docks
Attachment G	Johnson Creek Alert and Notification Standard Operating Procedure
Attachment H	PBOT Compensation document referencing HR 8.03
Attachment I	PBOT Action Guides (Under Development)
Attachment J	BES Action Guides (Under Development)
Attachment K	Portland Police Action Guides (Under Development)
Attachment L	Portland Fire & Rescue, Harbor Master Action Guides (Under Development)
Attachment M	Portland Parks & Recreation Action Guides (Under Development)