

## **MEMORANDUM**

Date **October 12, 2009**

**TO:** Tay Yoshitani, Chief Executive Officer, Port of Seattle  
Tim Farrell, Executive Director, Port of Tacoma

**FROM:** Kathy Gleaves, Mike Merritt, Port of Seattle  
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**SUBJECT:** Emergency Management Planning – Green River and Puyallup River  
Winter Conditions

### **TODAY'S BRIEFING:**

One of the areas of cooperation identified by the Port of Seattle and Port of Tacoma commissions is emergency planning. This memo provides information in two areas:

1. on the condition of the Howard Hansen Dam, potential effects of flooding along the Green River due to releases from the dam this winter, and potential areas for further coordination between the ports; and
2. the possibility of flooding along the Puyallup River and associated impacts.

### **BACKGROUND**

#### **Background – Green River and the Howard Hanson Dam**

The dam, constructed in 1962, is located upriver from Enumclaw and has served as a flood protection dam for the Green River and numerous cities in south King County including Auburn, Kent, Tukwila, and Renton. Once past Renton, the Green becomes the Duwamish River and flows by several Port of Seattle properties before emptying into Elliott Bay.

The U.S. Army Corps of Engineers discovered significant damage and leakage within the earthen portion of the dam following last winter's record rainfall. The Corps is installing a "grout curtain" due for completion in November. The curtain is a temporary fix at best and cannot be thoroughly tested until next summer.

To ensure the stability of the structure, the Corps will not allow the dam's reservoir to hold as much water as it has in the past. While this cautious operation will protect against failure of the dam, the water releases may cause repeated flooding in the valley below. The Corps estimates the likelihood of major flooding as one-in-four.

Since the dam's construction, development in the valley communities has been rapid. Hundreds of residential units, manufacturing, industry, retail and other uses have sprung up in the valley. Transportation routes, pipelines, electrical substations, communications nodes, and government

buildings all have a home in the flood zone. Many important local, regional and state transportation corridors cross the valley, as does the BNSF and UP railroads' north-south mainline and the Stampede Pass line. Locally-built levees lining the river are old and many were never built to withstand the flow rates likely to result from a significant storm event. The combination of increased population density, critical infrastructure, old levees and unchecked river flows is cause for deep concern.

## **Port Impacts**

The ports of Seattle and Tacoma face a wide range of direct and indirect impacts from flooding that may result from Howard Hansen dam releases this winter.

- Seattle-Tacoma International Airport may experience loss of electrical service from valley substations.
- Closure of the pipelines will affect supplies of jet fuel and natural gas.
- Depending on the extent of the floods, evacuation of some communities may be necessary. An estimated 1,800 airport employees, including workers at airlines, concessionaires and suppliers, may be displaced. Many Port of Seattle Seaport and Corporate employees may also be affected either by direct flooding or closed transportation routes to work.
- Road, bridge and rail line closures may result in major congestion and stem the flow of goods into and out of docks at both ports, as well as terminals, air cargo facilities, and warehouses. Flooding could affect distribution of goods to other centers outside the region.
- Debris dislodged by fast-running water could flow into the Duwamish and may present significant hazards to navigation in Elliott Bay, increase siltation along the waterway, turning basin and at the docks. Private docks, shipping facilities, bridges and other structures may be damaged by debris.
- Local businesses and governments may look to ports to assist them with storage of goods and materials. Red Cross may request use of Port of Seattle facilities for shelter for valley evacuees. Requests for assistance are being received from the railroads, emergency response agencies, tenants and local warehouse owners looking for any expanse of flat, dry land.
- Storm water back-ups may cause flooding in some low-lying buildings in the South Seattle area, including the Port of Seattle's Maintenance shop.
- Waterways may be affected by sewage and storm-water overflows.
- Port of Seattle police and fire departments anticipate increased demand for services from port facilities, as well as calls for mutual aid from valley cities.

## **NEXT STEPS**

Flooding of the Green River will likely not be a one-time event. The Corps estimates permanent repairs could take from three to five years. Local jurisdictions, aided by federal grants, are rushing to complete levee improvements and mitigation projects and plan for the evacuation of up to 35,000 residents, and their pets and livestock. Levees are being reinforced and barricades erected around critical infrastructure.

Port of Seattle emergency management staff are creating teams of port experts to develop communication plans, informing employees, tenants and vendors of the situation, working hard to mitigate as much damage as possible while planning for the worst-case scenario, and attempting to assist our neighbors while protecting our assets as well.

Port of Seattle staff also are coordinating with their counterparts in valley cities, county and state government to develop contingency plans, and are beginning discussions with freight, railroad and distribution companies about potential impacts to their operations.

In the last two months, port staff have participated in regular meetings coordinated by King County, met with the Red Cross, attended the utilities briefing, the truckers' association briefing and a briefing for business owners organized by the combined chambers of commerce in the valley cities. The next item is a meeting focused specifically on the impacts to transportation networks in the valley, especially in Auburn where goods from both ports are handled by distribution centers located there.

Currently the City of Renton and King County have declared a State of Emergency. The cities of Kent, Tukwila and Auburn will soon follow suit. The State recently increased their response to the Howard Hanson Dam to a Level 2 and FEMA is already working with local jurisdictions. Emergency Declarations will open the way for increased Federal assistance now and in the future.

### **Background – Puyallup River**

Recent work by the Federal Emergency Management Agency (FEMA) indicates that the Puyallup River Levees are no longer providing the required three feet of additional capacity (freeboard) needed for a 100-year storm event. The lack of adequate flood capacity could impact the Port's ability to operate during a significant flood event.

In late 2005, FEMA issued a directive requiring effected communities to commit to repair the levees and bring them to minimum standards within ten (10) years. As lead agency, Pierce County created the Puyallup River Executive Task Force (Task Force), which includes representatives of affected communities and government agencies. Commissioner R. Ted Bottiger represents the Port of Tacoma on the Task Force.

### **Port Impacts**

The ports of Seattle and Tacoma face a wide range of direct and indirect impacts from flooding that may result on the Puyallup River.

- Some marine terminals and Port of Tacoma-owned facilities (such as the Fabulich Center) are located within the flood plain and could be affected directly by flooding;
- Depending on the extent of the floods, evacuation of some communities may be necessary. Many port employees, longshore or other port-related workers may be affected either by direct flooding or closed transportation routes to work;

- Road, bridge and rail line closures may result in major congestion and stem the flow of goods into and out of docks at both ports, as well as terminals, air cargo facilities, and warehouses. Flooding could affect distribution of goods to other centers outside the region;
- Debris dislodged by fast-running water could flow into the Puget Sound and may present hazards to navigation in Commencement Bay;
- Waterways may be affected by sewage and storm-water overflows.

## **NEXT STEPS**

The Puyallup River Task Force has identified potential issues and roadblocks, set criteria for evaluation of options, identified solution elements (dredging, setback levees, etc.). The Task Force has concluded that the next step in the process is to begin the General Investigation necessary to evaluate required levee improvements, which would be led by the US Army Corps of Engineers (Corps). Preliminary discussions are underway regarding the ability of Pierce County to restructure the flood control districts into a zone, potentially providing funding for the capital improvements that will eventually be necessary.

Port of Tacoma staff will continue to work with the Task Force to implement a cost sharing and funding mechanism to ensure all participating members share equitably in the study costs.

### **Coordination between ports on planning for flood impacts**

There is a need for further communication and coordination between the ports about potential impacts and contingencies for flooding of both the Green River and the Puyallup River. Our customers depend on the state and local transportation network, as well as the BNSF and UP rail lines, which are at risk if major flooding occurs. Thus it is important for the ports to work with customers and tenants on planning for continuity of service and maintenance of operations.

Ports can also play an important role in representing the interests of freight and the industrial sectors in regional emergency planning.