



# City of Fort Bragg Tsunami Contingency Plan

## **PURPOSE:**

The purpose of this Tsunami Contingency Plan is to provide guidance to City and Police Department staff regarding procedures to be used during a Tsunami Alert event. These guidelines will address evacuations of the public from tsunami risk zones within the city limits. Although this Plan is designed to address a Tsunami Alert, these procedures can be modified and adopted for use for any major catastrophe, including fires, gas leaks, floods, etc. Areas of responsibilities, including evacuation areas and routes, may be modified at any time depending upon the type and location of the specific emergency.

## **GENERAL:**

A tsunami is a series of waves caused by undersea earthquakes. Earthquakes with a magnitude of 6.6 or higher can produce tsunamis. These can be distant earthquakes (epicenters along the Pacific Rim), or local earthquakes occurring in the Cascadian Subduction Zone, a fault zone lying approximately 32 to 70 miles off of and running parallel to the northern California coastline, or any other northern California fault line.

## **LOCAL EARTHQUAKE GENERATED TSUNAMIS:**

In the event that a local offshore earthquake precipitates a tsunami threat, the procedures outlined in this document are likely to be accelerated to the Tsunami Warning stage immediately, with the expected tsunami arrival time in five to 30 minutes. Consequently, the emergency warning systems may not have time to activate and provide warning. The obvious warning sign will be the local earthquake.

Given the potential for infrastructure damage to buildings, roadways, etc., along with potential mass casualties, actions by City and Police Department personnel in this type of situation will be dictated by the events, and by their training, experience and initiative. Public information dissemination will occur as soon as possible within the time frames allowed by the nature and location of the event. The public is advised, however, that in the event a strong local earthquake is felt, individuals should:

- Protect themselves from the earthquake until it is over
- Quickly move inland and to higher ground
- Travel on foot if at all possible
- Do not wait for official warning
- Do not pack or delay
- Do not return to the shore
- A tsunami may arrive in a few minutes, and additional larger waves may continue for several hours
- Wait for an "All-Clear" notice from local officials before returning to low-lying areas

## **AREA OF COVERAGE:**

This Contingency Plan addresses the areas within the Fort Bragg city limits, and portions of the Noyo Harbor and the Noyo Jetty.

## **WARNING CENTER NOTIFICATION SYSTEM:**

The West Coast and Alaska Tsunami Warning Center's (WCATWC) area of responsibility consists of the coastal and offshore areas of California, Oregon, Washington, British Columbia, and Alaska. The WCATWC will broadcast

within its area of responsibility one or more of five tsunami-related messages and/or bulletins to emergency response agencies after the occurrence of a significant earthquake anywhere in the Pacific Ocean basin. The Pacific Tsunami Warning Center (PTWC) in Hawaii is responsible for tsunami warnings in the greater Pacific Ocean basin. The Pacific Tsunami Warning Center's area of responsibility overlaps with the West Coast and Alaska Tsunami Warning Center area of responsibility. In some instances, the Pacific Tsunami Warning Center may issue an "Alert" message for a Western Pacific earthquake, and the West Coast and Alaska Tsunami Warning Center may issue an "Information" message to the West Coast for the same event. Since these messages are released to the public by both agencies, the possibility for confusion exists in their interpretation.

The Information Message or Bulletin is recognizable with the word "**Information**". They give general information about the occurrence of non-tsunami generating earthquake of less than magnitude 7.0, or for large earthquakes whose location is such that they pose no tsunami threat to the area of responsibility.

The Alert Bulletins are recognizable with the words **Advisory Bulletin**, **Watch Bulletin**, and **Warning Bulletin**. They give more specific information about earthquakes greater than magnitude 7.0 that could or have generated a tsunami. All alert bulletins require special attention and handling procedures by the alert bulletin recipients.

Specific information is included in all messages and/or bulletins including earthquake epicenter, magnitude, time of occurrence, bulletin coverage area, and follow-up actions by the West Coast and Alaska Tsunami Warning Center. Tsunami estimated times of arrival at specific points could also be noted along with any reported observations of tsunami impact or affects.

In practice, Watch Bulletins and Warning Bulletins are included in the same message. This procedure allows receiving public safety agencies to monitor the progression of the tsunami event over time for better response planning. In many cases, the only difference between a Watch Bulletin and a Warning Bulletin for a specific location is the projected time of arrival of tsunami waves at that location.

The following are the five types of Messages and Bulletins issued by the WCATWC:

**1. Information Message:**

Information Messages are issued for earthquakes below magnitude 6.5 that are strongly felt along coastal areas. The purpose is to rapidly inform coastal area citizens and residents that there is no tsunami danger.

**2. Information Bulletin:**

Information Bulletins are issued for earthquakes less than the warning threshold but greater than magnitude 6.6 which are not likely to trigger a tsunami. Unless further information is gathered on tsunami generation, only an Information Bulletin is used for the event.

**3. Advisory Bulletin:**

Advisory Bulletins are issued when a major earthquake has occurred outside the West Coast and Alaska Warning Center area of responsibility prompting the Pacific Tsunami Warning Center (PTWC), located in Hawaii, to issue a tsunami warning for their area of responsibility, which includes the entire Pacific Ocean basin. This occurs when the event is either far enough away so that the West Coast and Alaska Tsunami Warning Center area of responsibility is not within a watch and/or warning region, or the tsunami poses no threat to the West Coast and Alaska Tsunami Warning Center area of responsibility. Advisories are updated hourly as the Pacific Ocean Tsunami Center issues further bulletins, and can be upgraded to a watch or warning if necessary.

#### 4. **Watch Bulletin:**

Watch Bulletins are issued to areas outside the warning area. The area included in the Watch Bulletin is based on the magnitude of the earthquake. For earthquakes over magnitude 7.0, the watch area is one-hour tsunami travel time from the warning zone boundary. For earthquakes over magnitude 7.5, the watch area is three-hours tsunami travel time from the warning zone boundary. The Watch Bulletin will either be upgraded to a Warning Bulletin in subsequent bulletins or will be cancelled depending on the severity of the tsunami.

#### 5. **Warning Bulletin:**

Warning Bulletins indicate that a potentially damaging tsunami is imminent and that coastal locations in the warning area should prepare for flooding. The initial Warning Bulletin is typically based on seismic information alone. Earthquakes within the West Coast and Alaska Tsunami Warning Center area of responsibility over 7.0 trigger a Warning Bulletin covering the coastal regions within two-hours tsunami travel time from the epicenter. When the magnitude is over 7.5, the warning area is increased to three-hours tsunami travel time from the epicenter.

For earthquakes outside the West Coast and Alaska Tsunami Warning Center area of responsibility, Warning Bulletins are only issued for earthquakes greater than magnitude 7.5 and for those locations within three-hours tsunami travel time of the leading edge of the wave. As tidal gauge data showing the tsunami is recorded, the Warning Bulletin will be cancelled, expanded incrementally, or expanded to cover the entire West Coast and Alaska Tsunami Warning Center area of responsibility in the event of a major tsunami.

#### **DISTANT EARTHQUAKE BULLETINS:**

In the event of tsunamis created by distant earthquakes, up to several hours of advance notice may be available. Upon receipt of a **Watch Bulletin**, agencies will note the predicted arrival of time and alert local government officials. If the watch is upgraded to **Warning Bulletin**, the Law Enforcement Officer in Charge will determine if evacuation is necessary, and if so, will implement such action. Once a decision is made to evacuate threatened areas, the warning notifications shall be made in accordance with the Emergency Operations Plan. In summary, public evacuation notification will be accomplished via several concurrent warning methods:

1. Public address announcements via public safety vehicles patrolling threat areas
2. Local electronic media announcements (Refer to Addendum #1 for a sample media release)
3. Door to door notifications, if possible and practical

#### **POLICE DEPARTMENT ACTIONS UPON RECEIPT OF A TSUNAMI WATCH / WARNING BULLETINS:**

Once notified that a **Watch Bulletin** and/or **Warning Bulletin** has been issued by WCATWC and a tsunami wave may be imminent, the Mendocino County Sheriff's Office Communications Center shall be responsible for notifying the Shift Supervisor or Officer in Charge (if no supervisor is on duty) via radio. Upon receipt of a **Watch Bulletin** and/or **Warning Bulletin**, the Shift Supervisor or the Officer in Charge shall attempt to notify the Chief of Police and Police Lieutenant as soon as possible. The ranking department member present will then cause the following to occur:

- Notification of the City Manager or designee
- Confirm the District Fire Chief or designee has been notified
- Determine in conjunction with City Manager and District Fire Chief (if practicable) if public notification and/or evacuation is required immediately
- Assess the evacuation tasks needed to be taken
- Execute public evacuation notification procedures, if necessary

### NOTIFICATION TO PUBLIC:

If public notification is necessary, the ranking Police Supervisor, in conjunction with the City Manager and District Fire Chief (if practicable), will cause a warning notice to be issued to the public as follows:

- The City Manager / Director of Emergency Services (or designee) will provide local radio stations with a press release describing the tsunami threat, the expected arrival time, and the general evacuation instructions.
- City public safety forces will immediately patrol designated low-lying areas within the city limits providing public address (PA) announcements informing residents to evacuate to higher ground.

### Example Script of Announcement:

*THIS IS A TSUNAMI WARNING BULLETIN. A TSUNAMI WARNING HAS BEEN ISSUED FOR THE MENDOCINO COUNTY COASTLINE. TSUNAMI WAVES ARE EXPECTED TO ARRIVE AT APPROXIMATELY [ **Insert Time** ] AM / PM. YOU MUST EVACUATE INLAND TO HIGHER GROUND IMMEDIATELY. TUNE TO YOUR LOCAL RADIO STATION FOR MORE INFORMATION. THIS IS A TSUNAMI WARNING BULLETIN.*

- Generally, law enforcement will have the primary responsibility for evacuation notification within the city limits. Depending on availability, assets from the Police and Fire Departments, along with other available law enforcement agencies, may be used for evacuation notifications. Public safety officers will continue to patrol and provide evacuation notification until 30 minutes prior to the expected arrival time of the tsunami. At 30 minutes prior to the expected tsunami arrival, officers will withdraw to designated sight areas and may only enter the tsunami risk areas with the express approval of the Chief of Police or his/her designee.

### DESIGNATED LOW-LYING AREAS:

Generally speaking, all areas east of Main Street, between the Pudding Creek and Noyo River Bridges, are above the 60-foot elevation level, which is generally recognized as a safe elevation level for tsunami events. Further, the residential areas west of Main Street between West Elm and West Pine Street are also above the 60-foot elevation level.

Fort Bragg City Hall is at or above the 90 foot elevation level; the Fort Bragg Police Department is at or above the 100 foot elevation level. Both are considered safe elevations in the event of a tsunami.

Designated low-lying areas within the City of Fort Bragg include all areas below the 60-foot elevation level, including but not limited to, the following:

- All areas at and north of the Pudding Creek Bridge, including:
  - Pudding Creek Beach and ocean beach areas
  - Ocean Lake Adult Mobile Home Park (1184 North Main Street)
  - All hotel / motel facilities on the west side of North Main Street
- All areas north of West Elm Street and west of North Main Street to Pudding Creek
- All areas along the Mill Site Coastal Trail within the city limits
- Portions of the Noyo Harbor (north side) and the Noyo Beach Jetty areas
- All areas within Pomo Bluffs Park
- All areas generally west of Pacific Drive and south of Bay View Drive in the Todd's Point area
- All areas at and under (both west and east of) the Hare Creek Bridge

- The Fort Bragg Municipal Improvement District's Wastewater Treatment Plant

An attempt to send at least one public safety unit to make public address notifications to the north and to the south areas will be made. Additional units will be assigned to these areas as available. See attached map.

**EVACUATION ROUTES:**

North of Pudding Creek Bridge

- Pudding Creek Road – eastbound east of John Hyman Road
- Airport Road – eastbound east of Burrows Ranch Road

Pudding Creek Bridge to Noyo River Bridge

- Fir Street eastbound to Harold – Fort Bragg Middle School
- Pine Street eastbound to Harold – Fort Bragg Middle School
- Redwood Avenue eastbound to east of Harold Street
- Maple Street eastbound to Lincoln – Redwood School
- Chestnut Street eastbound to Dana – Fort Bragg High School

South of Noyo River Bridge

- SR 20 to east of Mile Post Marker: 20 MEN 2.00

Remember: Many people will be traveling on major highways in an effort to escape the coast. State Route 1 and State Route 20 are major escape routes. Do not stop or block the roadway.

If possible, it is strongly recommended people evacuate on foot to minimize traffic congestion problems. If citizens must evacuate in a car, doubling up with a neighbor or friend to help minimize traffic congestion is suggested. Never stop or block a roadway. Do not return to the low-lying areas until it is safe to do so. Listen to your local radio stations for updates and notification on when it is safe to return.

**PEOPLE WITH DISABILITIES:**

People with disabilities, or those who may have mobility problems (such as those with physical handicaps or elderly persons) should prepare as anyone else. In addition, they may want to consider some of the following steps:

- Create a network of relatives, friends or co-workers to assist in an emergency. If you think you may need assistance in a disaster, discuss your disability with them and ask them for their help. Give a key to a neighbor or friend who may be able to assist you in a disaster.
- If you need a wheelchair, show friends how to operate your wheelchair so they can move you if necessary. Make sure friends know the size of your wheelchair in case it has to be transported, and where to get a battery if needed.
- Wear medical alert tags or bracelets to identify your disability in case of an emergency.

**ADDITIONAL INFORMATION:**

The following Addendums to this document are provided for general information.

- Addendum 1: Sample Media Announcement forms
- Addendum 2: Public Awareness / Education
  - General Information
  - Building a FAMILY 72-HOUR EMERGENCY KIT

The following website addresses provide useful information:

- <http://city.fortbragg.com> -- City of Fort Bragg website
- <http://www.co.mendocino.ca.us> -- County of Mendocino website
- <http://wcatwc.arh.noaa.gov/message.shtml> -- NOAA West Coast and Alaska Tsunami Warning Center
- [www.redcross.org](http://www.redcross.org) -- American Red Cross – Disaster suggestions and supply lists
- <http://oem.cob.us/disastertsunami.asp> -- Ideas on what to do in the event of a tsunami
- [www.disastercenter.com](http://www.disastercenter.com) -- Ideas on what to do if a disaster hits
- [www.beprepared.com](http://www.beprepared.com) -- Commercial *Emergency Essentials* website

DOCUMENT INFORMATION:

Initial Creation Date: 01/01/2006

By: Fort Bragg Police Department  
Sergeant Mary Miller  
Lieutenant Floyd Higdon

Amended Date: 4/19/2006

By: Administration  
City Clerk Cynthia VanWormer  
City Manager Linda Ruffing