

# AGENDA



## CITY OF IMPERIAL BEACH TIDELANDS ADVISORY COMMITTEE

Council Chambers  
825 Imperial Beach Blvd.  
Imperial Beach, CA 91932  
OCTOBER 13, 2014  
3:00 P.M.

---

### NOTICE TO THE PUBLIC

SPEAKERS ARE REQUESTED TO COMPLETE A "REQUEST TO SPEAK" FORM PRIOR TO THE COMMENCEMENT OF THE MEETING AND SUBMIT IT TO THE SECRETARY. "REQUEST TO SPEAK" FORMS ARE LOCATED IN THE BACK OF THE COUNCIL CHAMBERS. PERSONS ADDRESSING THE COMMITTEE ARE LIMITED TO THREE (3) MINUTES.

### AMERICANS WITH DISABILITIES ACT

THE TIDELANDS ADVISORY COMMITTEE IS ENDEAVORING TO BE IN TOTAL COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT. IF YOU REQUIRE ASSISTANCE OR AUXILIARY AIDS IN ORDER TO PARTICIPATE AT TAC MEETINGS, PLEASE CONTACT THE COMMUNITY DEVELOPMENT DEPARTMENT AT (619) 628-1356 AS FAR IN ADVANCE OF THE MEETING AS POSSIBLE. FOR INDIVIDUALS WITH HEARING AND VOICE IMPAIRMENTS, PLEASE UTILIZE THE CALIFORNIA RELAY SERVICE. (TT) 1-800-735-2929 / (VOICE) 1-800-735-2922.

---

1. CALL TO ORDER
2. ROLL CALL
3. PUBLIC COMMENTS - Each person wishing to address the Tidelands Advisory Committee regarding items not on the posted agenda may do so at this time. In accordance with State law, the Tidelands Advisory Committee may not take action on an item not scheduled on the agenda. If appropriate, the item will be referred to City staff or placed on a future agenda.
4. REPORTS
  - 4.1 CITY OF IMPERIAL BEACH TSUNAMI PLAN AND PREPERATION
5. PROJECT UPDATES BY STAFF (Informational Items Only)
6. ADJOURNMENT

\_\_\_\_\_  
/s/  
Larissa Lopez, Recording Secretary

For your convenience, a copy of the agenda and meeting packet may be viewed in the office of the City Clerk at City Hall or on our website at [www.ImperialBeachCA.gov](http://www.ImperialBeachCA.gov). Go to the Imperial Tidelands Advisory Committee Page located under the Government Section/City Boards and Committees Tab.

Any writings or documents provided to a majority of the Tidelands Advisory Committee regarding any item on this agenda will be made available for public inspection in the office of the City Clerk located at 825 Imperial Beach Blvd., Imperial Beach, CA 91932 during normal business hours.





**STAFF REPORT  
CITY OF IMPERIAL BEACH**

**TO:** TIDELANDS ADVISORY COMMITTEE 

**FROM:** ROBERT STABENOW, LIFEGUARD CAPTAIN

**MEETING DATE:** OCTOBER 13, 2014

**ORIGINATING DEPT.:** PUBLIC SAFETY DEPARTMENT

**SUBJECT:** REPORT: CITY OF IMPERIAL TSUNAMI PLAN AND PREPERATION.

---

**BACKGROUND:**

Following the Indian Ocean tsunami on December 26, 2004, the President of the United States moved to protect lives and property by launching a national coastal community tsunami planning initiative. Imperial Beach's Emergency Plan was updated on March 21 2007, to include a Tsunami Plan. This was achieved by incorporating the TsunamiReady program. The addition of this program assists communities with the development of standardized emergency response planning, communication strategies and heightens the citizen awareness.

**DISCUSSION:**

Although the frequency of damaging tsunami in the Southern California is very low compared to many other natural disasters, the Indian Ocean event was a reminder that the impacts of a tsunami be extremely high. Tsunami response planning has similar elements to other potential disasters such as earthquakes, dam failures, radiological and hazardous material emergencies. The emergency planning framework for a tsunami risk incorporates an all-risk approach and builds upon the existing Emergency Plan.

The City of Imperial Beach's Tsunami Plan describes a comprehensive emergency management system, which provides for a planned response to a tsunami disaster situation. It delineates operational concepts relating to a tsunami situation, identifies components of the Emergency Management Organization, and describes the overall responsibilities for protecting life and property. The plan also identifies the sources of outside support, which would be provided through automatic/mutual aid and specific statutory authorities by other jurisdictions.

The objectives of the Imperial Beach Tsunami Plan are to:

1. Provide a system for the effective management of a tsunami event.
2. Identify lines of authority and relationships.
3. Assign tasks and responsibilities.
4. Ensure adequate maintenance of facilities, services, and resources.

5. Provide a framework for adequate resources for recovery operations.
6. Assure continuity of government.

Tsunami emergency plans are exercised by the participating regional partners and are reviewed and updated as needed. Imperial Beach has limited safety resources and relies on the community take direction in the event of a tsunami warning/notification.

Attachments:

1. Tsunami Plan

**CITY OF IMPERIAL BEACH  
EMERGENCY PLAN**

**APPENDIX C**

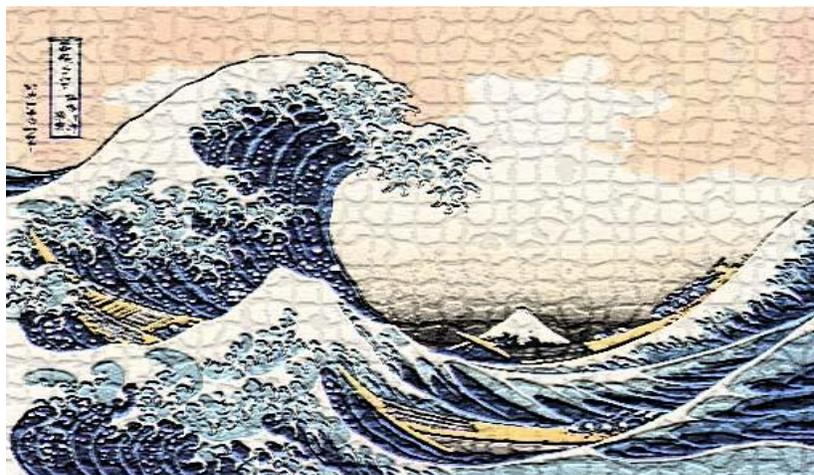
**Tsunami Plan**



For additional information contact:  
Imperial Beach Public Safety Department  
619-423-8223

# Table of Contents

1. Background
2. Purpose
3. Reference
4. Notification
5. Organization and Responsibilities
6. Attachments
  - A. IC Checklist
  - B. Tsunami Inundation Contour Maps
  - C. Tsunami Evacuation Plan
  - D. Tsunami Hazard Specific Information
  - E. Terminology/Acronyms
  - F. Example of a Tsunami Watch Message



# 1. Background

All tsunamis are potentially dangerous, even though they may not damage every coastline they strike. A tsunami can strike anywhere along most of the U.S. coastline. The most destructive tsunamis have occurred along the coasts of California, Oregon, Washington, Alaska, and Hawaii.

A tsunami is a series of sea waves of local or distant origin that result from large-scale seafloor displacements associated with large earthquakes, major underwater landslides, or exploding volcanic islands. A tsunami can travel at speeds in excess of 450 mph. The first wave is almost never the largest and damaging waves may potentially arrive for hours. Tsunami is a Japanese word meaning "harbor (tsu) wave (nami)".

In the past, tsunamis were sometimes incorrectly referred to as tidal waves as they appeared to be very rapidly rising or extremely receding tides. Tides are the result of gravitational influences of the moon and the sun. Tsunamis are not caused by or related to tides, although a tsunami striking a coastal area is influenced by the tide level at the time of impact.

According to the California Seismic Commission, California is at risk from both near-source and distant-source tsunamis. Eighty-two possible or confirmed tsunamis have been observed or recorded in California during historic times. Most of these events were small and only detected by tide gauges. Eleven were large enough to cause damage and four events caused deaths. Two tsunami events caused major damage. The 1960 Chilean earthquake produced a great tsunami that impacted the entire Pacific basin. Damage was reported in California ports and harbors from San Diego to Crescent City and losses exceeded one million dollars. The worst event was the 1964 tsunami generated by the M 9.2 Alaska earthquake that killed 12 in Northern California and caused over \$17 million in damages.

Historically distant-source (or *tele-tsunami*) tsunamis have caused more damage in California than local-source tsunamis. Local-source tsunami events can reach the target coastline with a propagation time of less than 20 minutes (i.e. very limited warning time for evacuation). The 1992 Cape Mendocino earthquake produced a one foot tsunami reached Humboldt Bay about 20 minutes after the shaking. Although not damaging, this tsunami demonstrated that locally generated tsunamis can reach our coastline quickly.

A tsunami generated by a M 6.5+ earthquake from a local offshore fault or from an underwater landslide could arrive just minutes after the initial shock. The lack of warning time from such a nearby event would result in higher casualties than would a distant tsunami where the Tsunami Warning System for the Pacific Ocean could warn threatened coastal areas in time for evacuation.

The California Office of Emergency Services has produced an Estimated Tsunami Inundation area map. Tsunami Modeling was based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. Maximum run-up to a 12.8 meters contour was determined to be reasonable (attachment A).

A 40-foot tsunami inundation contour places the entire City of Imperial Beach within the inundation zone and potential exposure to tsunami risk. History has shown that the probability of a tsunami in the City of Imperial Beach is low. However, if a sizeable tsunami should occur, the consequences could be catastrophic.

## 2. Purpose

- a. To establish general guidelines ensuring an adequate response to the threat of a tsunami.
- b. This plan defines centralized control, coordination and direction of personnel as organizational relationships within the City of Imperial Beach Emergency Services organization and the San Diego County Emergency Services organization during a Tsunami Watch, Tsunami Warning, local earthquake 6.5 or greater and actual tsunami impact.
- c. This plan is designed to provide City departments with tools and guidance for both planning and response. The Public Safety Director, in coordination with the San Diego County Operational Area, will direct implementation and execution of this plan. Response operations will be consistent with those described in the San Diego County Operational Area Response Plan, and the City of Imperial Beach Emergency Operations Plan.

## 3. References

- a. City of Imperial Beach Emergency Plan
- b. San Diego County Office of Emergency Services – Operational Area Emergency Plan

## 4. Notification

- a. Potential tsunamis are monitored by the West Coast/Alaska Tsunami Warning Center (WC/ATWC) in Palmer, Alaska.
- b. The information is received by the Office of Emergency Services (OES) Warning Center via the National Warning System (NAWAS).
- c. The Imperial Beach Public Safety Director and Lifeguard Captain will be directly paged by WC/ATWC and forwarded pertinent tsunami information.
- d. All information received from the WC/ATWC is passed directly to the local operational areas via the California Law Enforcement Telecommunications System (CLETS), California Warning System (CALWAS), and Emergency Digital Information System (EDIS).
- e. The San Diego County Operational Area will disseminate the information to local jurisdictions through the San Diego County Sheriff's Department.
- f. The National Weather Service will activate the Emergency Alerting System (EAS) automatically. This message will go to the public at the same time it is disseminated to the State, Counties and Cities.

- i. Weather radios are located at the Fire, Sheriff, and Lifeguard stations, City Hall, and the Public Works yard. Weather radios will automatically turn on during an EAS warning.
- g. Public Alert and Warning
  - i. Lifeguards will immediately alert and warn beach and pier visitors using public address systems (vehicles and pier)
  - ii. Reverse 911 Call-Back system
  - iii. Sheriff unit public address system
  - iv. Sheriff's ASTREA helicopter public address system
  - v. Fire apparatus public address system
  - vi. Door-to-door canvassing
  - vii. 211 non-emergency phone service
    - Offers a wide range of information during disasters. (Administrative offices 858-300-1300 or [www.211sandiego.org](http://www.211sandiego.org))
  - viii. Foreign language speakers
    - 911 and 211 and other social service and law enforcement agencies offer communication in many foreign languages; and can link callers to interpreters' in a three-way call.
- h. WC/ATWC Bulletin Definitions:
  - i. **Tsunami Warning:** The highest level of tsunami alert. Indicates that a tsunami is imminent and that coastal locations in the designated inundation areas should be alerted and evacuated immediately. The initial warning is typically based on seismic information alone. Earthquakes over magnitude 7.0 trigger a warning covering the coastal regions within 2 hours tsunami travel time from the epicenter. When the magnitude is over 7.5, the warned area is increased to 3 hours tsunami travel time. As water level data showing the tsunami is recorded, the warning will either be cancelled, restricted, expanded incrementally, or expanded in the event of a major tsunami.
  - ii. **Tsunami Watch:** The second highest level of tsunami alert. An alert issued to areas outside the warned area. The area included in the watch is based on the magnitude of the earthquake. For earthquakes over magnitude 7.0, the watch area is 1 hour tsunami travel time outside the warning zone. For earthquakes over magnitude 7.5, the watch area is 3 hours tsunami travel time outside the warning zone. The watch will either

be upgraded to a warning in subsequent bulletins or will be cancelled depending on the severity of the tsunami.

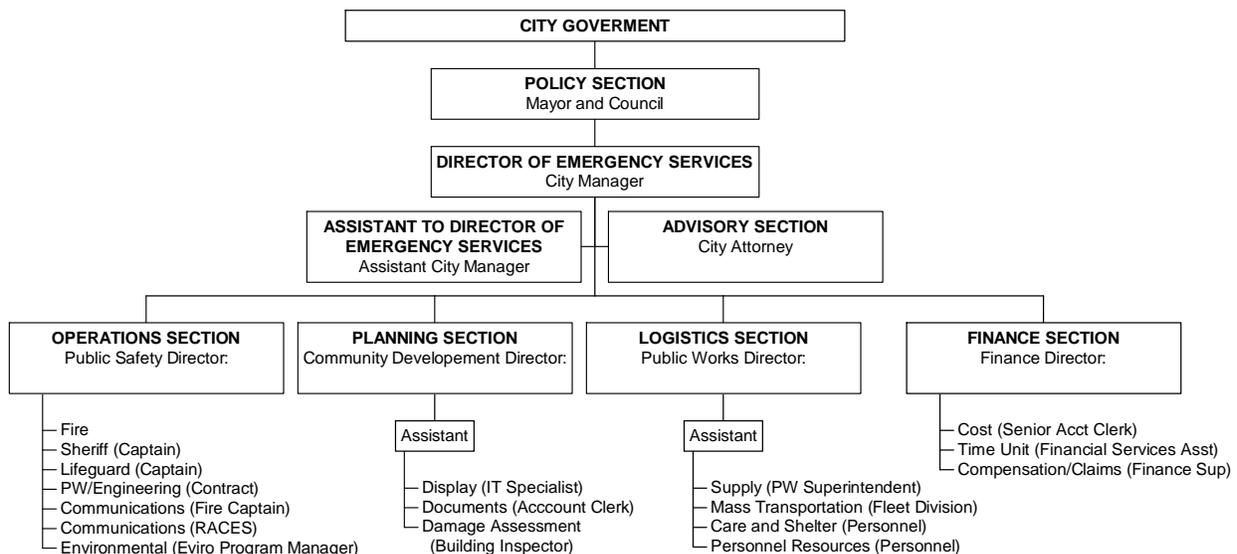
- iii. **Tsunami Advisory:** The third highest level of tsunami alert. Advisories are issued by the WC/ATWC to coastal populations within areas not currently in either warning or watch status when a tsunami warning has been issued for another region of the same ocean. An Advisory indicates that an area is either outside the current warning and watch regions, or that the tsunami poses no danger to that area. The Center issuing the Advisory will continue to monitor the event, issuing updates at least hourly. As conditions warrant, the Advisory will either be continued, upgraded to a watch or warning, or ended.

## 5. Organization

- a. The City Public Safety Department is responsible for developing and maintaining this plan. Execution of this plan will be directed by the Director of Emergency Services. Assigned departments and agencies will work under the umbrella of the City EOC using the Standardized Emergency Management System/National Incident Management System (SEMS/NIMS). To accomplish the mission successfully, assigned City departments, multi-agencies, and multi-disciplined coordination will be used in response to a tsunami threat or event.
- b. This plan becomes effective upon notification of a Tsunami Watch or Warning issued by the West Coast/Alaska Tsunami Warning Center (WC/ADWC), and on order of the San Diego County Office Emergency Services, or by the Director of Emergency Services for the City of Imperial Beach.

FOR OFFICAL USE ONLY

## Basic Organizational Chart



## 6. Objectives

### a. Overall Objectives

- i. Make internal notifications to Police, Fire, and Lifeguards (Whoever receives the Tsunami Warning first)
- ii. Establish a Unified Command with Sheriff, Fire, and Lifeguard
- iii. Evacuate all beaches and beachfront areas (Lifeguard)
- iv. Evacuate the designated inundation areas (Sheriff, Fire, Lifeguard)
- v. Activate the EOC (may be outside of the City) and notify the County EOC
- vi. Determine if local emergency will be proclaimed (Policy Section)
- vii. Recall off duty personnel (Sheriff, Fire, Lifeguards, Public Works, EOC personnel)
- viii. Request mutual aid (Law Enforcement, Fire, search and rescue teams, debris removal teams, etc.)
- ix. Set up staging areas (Fire)
- x. Alert and warn the public by activating EAS, and 9-1-1 call back (Sheriff)
- xi. Set up and operate Care & Shelter Centers

### b. Management Section Objectives

- i. Determine if a Local Emergency should be proclaimed
- ii. Provide the City Council with periodic briefings
- iii. Provide legal advice to the Unified Command on such issues as Voluntary vs. Mandatory Evacuations, etc.
- iv. Liaison with neighboring cities, school districts, and special districts
- v. Alert & Warn the public to evacuate from the tsunami inundation areas using EAS, 9-1-1 call back, the media, the City's website, and any other systems available
- vi. Participate in the countywide Joint Information System (JIS) by sending a City PIO representative to the Joint Information Center (JIC)

**c. Operations Section Objectives**

- i. Make internal notifications to Police, Fire, and Lifeguards (Whoever receives the Tsunami Warning first)
- ii. Establish a Unified Command with Police, Fire and Lifeguard
- iii. Evacuate all beaches and beachfront areas (Lifeguard)
- iv. Activate the EOC
- v. Recall off duty personnel (Sheriff, Fire, Lifeguards, Public Works, and EOC personnel)
- vi. Request mutual aid (Law enforcement, Fire etc.)
- vii. Set up and manage Staging Area
- viii. Alert and Warn the public by activating EAS and 9-1-1 call back (Sheriff)
- ix. Have Traffic Engineering reset the traffic signals moving evacuees east (Public Works)
- x. Coordinate communications through Regional Communication System 800 Mhz radios, RACES, VHF marine radios
- xi. Set up Care & Reception Centers; request American Red Cross assistance

**d. Planning Section Objectives**

- i. Gather and display intelligence using Tsunami Maps
- ii. Provide weather, research, reports, technical support as needed
- iii. Coordinate damage assessment information of the inundated area from assessment teams for evaluation and consolidation

**e. Logistics Section Objectives**

- i. Provide operational and logistical support for response personnel at the Staging Areas, and the EOC
- ii. Coordinate transportation resources by requesting buses from San Diego Transit Corporation at the County/Operational Area EOC
- iii. Set up transportation assembly points
- iv. Coordinate facility needs
- v. Coordinate human resources and volunteer operations

**f. Finance Section**

- i. Purchase needed supplies
- ii. Dispatch personnel to the following sites to track employees, mutual aid, and volunteer hours; also track equipment, and material for: EOC, command post, staging areas
- III. Payroll processing, contracts management, and personnel issues

## Attachment A

# IC Checklist

**This Tsunami Plan is broken down into 4 levels:**

**Level I: Tsunami Watch** - Issued for possible distant tsunamis from a location over three hours away.

**Level II: Tsunami Warning** - Tsunami Warning is issued for possible or confirmed tsunami is imminent and coastal locations in the determined inundation areas should be alerted and evacuated immediately (the potential arrival time is under three hours).

**Level III: Local Earthquake 6.5 or Greater** – Local offshore quakes M6.5 or greater that can cause near-source tsunamis, or larger earthquakes onshore that can cause underwater landslides that result in tsunamis, which can strike the coast of San Diego County in as little as 3 to 15 minutes.

**Level IV: Actual Tsunami Impact**

## Level I: Tsunami Watch

Tsunami Watch is issued for possible distant tsunamis from a location **over three hours away**.

Tsunami Watch requires preparatory actions to ensure timely movement and staging of resources to assist with coastal evacuations and respond to a potential tsunami impact in the City of San Diego.

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>o <b>A Unified Command will be formed</b> <ul style="list-style-type: none"> <li>o Sheriff</li> <li>o Fire</li> <li>o Lifeguard</li> </ul> </li> </ul>	Police Fire Lifeguards
<ul style="list-style-type: none"> <li>o <b>Internal Notifications</b> <ul style="list-style-type: none"> <li>o Contact information see Imperial Beach Emergency Plan – Personnel Information Attachment</li> <li>o Call and inform of Tsunami Watch message with pertinent information                             <ul style="list-style-type: none"> <li>▪ City Manager</li> <li>▪ Assistant City Manager</li> <li>▪ Public Safety Director</li> <li>▪ Sheriff Captain</li> <li>▪ Lifeguard Captain</li> <li>▪ PIO:</li> </ul> </li> <li>o Notify EOC Section Chiefs</li> </ul> </li> </ul>	Whoever first learns about the Tsunami Watch should call

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>▪ Planning               <ul style="list-style-type: none"> <li>• Community Development Director</li> </ul> </li> <li>▪ Logistics               <ul style="list-style-type: none"> <li>• Public Works Director</li> </ul> </li> <li>▪ Finance               <ul style="list-style-type: none"> <li>• Finance Director</li> </ul> </li> <li>○ Broadcast to all field units of Tsunami Watch message with pertinent information               <ul style="list-style-type: none"> <li>▪ Sheriff</li> <li>▪ Fire</li> <li>▪ Lifeguard</li> </ul> </li> </ul>	<p>Sheriff Dispatch Heartland Dispatch Lifeguard Dispatch</p>
<ul style="list-style-type: none"> <li>○ Determine if EOC should be activated               <ul style="list-style-type: none"> <li>○ If yes, call all additional EOC personnel listed on the EOC Activation List</li> </ul> </li> </ul>	<p>Operations</p>
<ul style="list-style-type: none"> <li>○ Verify and consistently monitor for tsunami information updates:               <ul style="list-style-type: none"> <li>○ NOAA weather radio</li> <li>○ NOAA website <a href="http://wcatwc.arh.noaa.gov/eventmap.html">http://wcatwc.arh.noaa.gov/eventmap.html</a></li> <li>○ Review California Integrated Seismic Network (CISN) at <a href="http://quake.usgs.gov/recenteqs/latest.htm">http://quake.usgs.gov/recenteqs/latest.htm</a></li> <li>○ Review Emergency Digital Information Service (EDIS) <a href="http://www.edis.ca.gov/bulletins/">http://www.edis.ca.gov/bulletins/</a></li> <li>○ Monitor the TV and Radio media broadcast</li> </ul> </li> </ul>	<p>Planning</p>
<ul style="list-style-type: none"> <li>○ Prepare to evacuate the beaches and inundation area if a Tsunami Warning is issued</li> </ul>	<p>Sheriff, Lifeguard</p>
<ul style="list-style-type: none"> <li>○ Establish communication and assign tactical and command channels</li> </ul>	<p>Fire</p>
<ul style="list-style-type: none"> <li>○ Establish resource tracking and personnel accountability system</li> </ul>	<p>Finance</p>
<ul style="list-style-type: none"> <li>○ San Diego Sheriff Department to establish local operational area and manage entry to operational area</li> </ul>	<p>Sheriff</p>
<ul style="list-style-type: none"> <li>○ The need to request Sheriff ASTREA support for evacuation should be evaluated to Tsunami Warning</li> </ul>	<p>Sheriff</p>
<ul style="list-style-type: none"> <li>○ Alert the American Red Cross for possible opening of staging areas/shelters</li> </ul>	<p>Care and Shelter</p>
<ul style="list-style-type: none"> <li>○ If signs of the approach of one or more tsunamis are observed (e.g. outflow, water elevation changes, currents in harbors and marina, etc), whoever first witnesses them shall sound the warning by announcing Emergency Traffic on the appropriate Command Frequency and announcing that signs of incoming tsunamis are being observed, and direct field units in tsunami inundation zones to conduct an Operational Retreat to high ground</li> </ul>	<p>Lifeguard, Sheriff, Fire</p>
<ul style="list-style-type: none"> <li>○ The City of Imperial Beach will remain at Level I Tsunami Watch until conditions increase to Level II Tsunami Warning or the Tsunami Watch is cancelled.</li> </ul>	<p>N/A</p>

## Level II: Tsunami Warning

Tsunami Warning is issued for possible or confirmed tsunami is imminent and coastal locations in the determined inundation areas should be alerted and evacuated immediately (the potential arrival time is under three hours).

Tsunami Warning requires actual, non-delayed movement and staging of resources to assist with coastal evacuations and to prepare to respond to a potential tsunami impact in the City of Imperial Beach. Response, movement, and staging of resources shall be immediately deployed during Tsunami Warning operations.

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>o <b>Evacuate beach front and pier areas immediately</b> <ul style="list-style-type: none"> <li>o Broadcast to all field units of Tsunami Warning message with estimated time of wave arrival and to evacuate beach front and pier areas immediately                             <ul style="list-style-type: none"> <li>▪ Sheriff</li> <li>▪ Fire</li> <li>▪ Lifeguard</li> </ul> </li> </ul> </li> </ul>	<p>Sheriff Dispatch Heartland Dispatch Lifeguard Dispatch</p>
<ul style="list-style-type: none"> <li>o <b>A Unified Command will be formed</b> <ul style="list-style-type: none"> <li>o Sheriff</li> <li>o Fire</li> <li>o Lifeguard</li> </ul> </li> </ul>	<p>Sheriff Fire Lifeguards</p>
<ul style="list-style-type: none"> <li>o <b>Internal Notifications</b> <ul style="list-style-type: none"> <li>o See City Emergency Operation Plan - Imperial Beach E.O.C. – Personnel Information</li> <li>o Call and inform of Tsunami Warning message with pertinent information                             <ul style="list-style-type: none"> <li>▪ City Manager</li> <li>▪ Assistant City Manager</li> <li>▪ Public Safety Director</li> <li>▪ Sheriff Captain</li> <li>▪ Deputy Fire Chief</li> <li>▪ Lifeguard Captain</li> <li>▪ PIO:</li> </ul> </li> <li>o Notify EOC Section Chiefs                             <ul style="list-style-type: none"> <li>▪ Planning                                     <ul style="list-style-type: none"> <li>• Community Development Director</li> </ul> </li> <li>▪ Logistics                                     <ul style="list-style-type: none"> <li>• Public Works Director</li> </ul> </li> <li>▪ Finance                                     <ul style="list-style-type: none"> <li>• Finance Director</li> </ul> </li> </ul> </li> </ul> </li> </ul>	<p>Whoever first learns about the Tsunami Warning should call:</p>
<ul style="list-style-type: none"> <li>o <b>Determine safe zone area for EOC</b> <ul style="list-style-type: none"> <li>o Potential EOCs outside the City of Imperial Beach                             <ul style="list-style-type: none"> <li>▪ Otay Mesa-Nestor Branch Library 3003 Coronado Ave., San Diego, CA 92154 (619) 424-0474</li> <li>▪ Pence Elementary School</li> </ul> </li> </ul> </li> </ul>	<p>Operations</p>

ACTION	RESPONSIBILITY
<p>877 Via Tonga Ct. (619) 662-8100</p> <ul style="list-style-type: none"> <li>○ Ensure physical condition of the EOC meets acceptable operational standards</li> <li>○ Ensure all special-purpose equipment (computers, phones and faxes) are available and operational.</li> <li>○ Call all additional EOC personnel listed on the EOC Activation List</li> </ul>	
<ul style="list-style-type: none"> <li>○ Continuously monitor information updates for wave verification and timeline for arrival on our coast. <ul style="list-style-type: none"> <li>○ NOAA weather radio</li> <li>○ NOAA website <a href="http://wcatwc.arh.noaa.gov/eventmap.html">http://wcatwc.arh.noaa.gov/eventmap.html</a></li> <li>○ Review California Integrated Seismic Network (CISN) at <a href="http://quake.usgs.gov/recenteqs/latest.htm">http://quake.usgs.gov/recenteqs/latest.htm</a></li> <li>○ Review Emergency Digital Information Service (EDIS) <a href="http://www.edis.ca.gov/bulletins/">http://www.edis.ca.gov/bulletins/</a></li> <li>○ Monitor the TV and Radio media broadcast</li> </ul> </li> </ul>	EOC
<ul style="list-style-type: none"> <li>○ Monitor for approaching tsunami <ul style="list-style-type: none"> <li>○ Imperial Beach Unified Command shall coordinate with City of San Diego's established Look-Outs for LCES</li> <li>○ SD Sheriff Astrea helicopter</li> </ul> </li> </ul>	EOC Sheriff
<ul style="list-style-type: none"> <li>○ <b>Determine evacuation areas for the City of Imperial Beach</b> <ul style="list-style-type: none"> <li>○ <b><u>ALWAYS</u></b> evacuate the beachfront and pier areas</li> <li>○ To assist evacuation area decision making consider the following factors: <ul style="list-style-type: none"> <li>▪ Estimated tsunami height and time of arrival</li> <li>▪ Weather conditions and tides</li> <li>▪ Time of the day and availability of response personnel</li> <li>▪ Attachment B - Tsunami Inundation Contour Maps</li> </ul> </li> <li>○ The City of Imperial Beach retains the authority to determine when and what areas to evacuate inside the City limits</li> </ul> </li> </ul>	Fire Sheriff Lifeguard
<ul style="list-style-type: none"> <li>○ Post/Announce Boundary Map of estimated Inundation Zone</li> </ul>	Sheriff
<ul style="list-style-type: none"> <li>○ <b>Sheriff will direct and initiate pre-planned evacuation response</b> <ul style="list-style-type: none"> <li>○ Refer to Attachment C - Tsunami Evacuation Plan</li> </ul> </li> </ul>	Sheriff
<ul style="list-style-type: none"> <li>○ Fire, Lifeguard and Public Works personnel efforts in assisting evacuation shall be at the direction of SD Sheriff in alerting and notifying the public, and traffic and access control operations, as needed</li> </ul>	Sheriff Fire Lifeguard Public Works
<ul style="list-style-type: none"> <li>○ Establish staging area for equipment and personnel away from the inundation area</li> </ul>	Fire
<ul style="list-style-type: none"> <li>○ Establish communication and assign tactical and command channels</li> </ul>	Fire
<ul style="list-style-type: none"> <li>○ Temporary Evacuation Points (TEPs) <ul style="list-style-type: none"> <li>○ In cooperation with the Red Cross, designate suitable</li> </ul> </li> </ul>	Care and Shelter

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>facilities which can be utilized as TEPs                             <ul style="list-style-type: none"> <li>o Coordinate with the American Red Cross mass care and shelter operations outside of the inundation area</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>o Ensure coordination of animal rescue and shelter outside of the inundation zone</li> </ul>	Animal Control
<ul style="list-style-type: none"> <li>o Establish Operations Branch and Search and Rescue Divisions/Groups</li> </ul>	Sheriff, Fire, Lifeguard
<ul style="list-style-type: none"> <li>o Request law enforcement, fire, medical mutual aid as required</li> </ul>	Sheriff & Fire
<ul style="list-style-type: none"> <li>o Proclaim Local Emergency</li> </ul>	Policy Section
<ul style="list-style-type: none"> <li>o Close and secure all non-essential City facilities</li> </ul>	City Staff
<ul style="list-style-type: none"> <li>o Stage all Sheriff, Fire, Lifeguard and Public Works equipment and resources out of the Tsunami Inundation Zone until the All Clear is sounded 2 hours after the last wave.</li> </ul>	Sheriff Fire Lifeguard Public Works
<ul style="list-style-type: none"> <li>o Recall off-duty personnel                             <ul style="list-style-type: none"> <li>o Call in off duty Fire, Lifeguards, Public Works, and any other personnel needed.                                     <ul style="list-style-type: none"> <li>▪ See Attachment D - Imperial Beach E.O.C. – Personnel Information</li> <li>▪ Activate RACES for emergency communications</li> <li>▪ Activate CERT volunteers</li> </ul> </li> <li>o Call-back responders should enter the City on Elm Avenue</li> </ul> </li> </ul>	Personnel Resources
<ul style="list-style-type: none"> <li>o Establish resource tracking and personnel accountability system</li> </ul>	Finance
<ul style="list-style-type: none"> <li>o Request San Diego Sheriff Astrea Helicopters to provide aerial tsunami lookout, assist with notifying the public to evacuate coastline areas, and prepare for search and rescue operations if a tsunami impact occurs</li> </ul>	Sheriff
<ul style="list-style-type: none"> <li>o Request Sheriff USAR support with special attention to Inflatable Rescue Boats, Personal Watercraft and Rescue Swimmer Teams.</li> </ul>	Sheriff
<ul style="list-style-type: none"> <li>o Establish Medical Branch</li> </ul>	Fire
<ul style="list-style-type: none"> <li>o <b>Staff PIO</b> - to address media/public information needs, including public notification of Tsunami Warning and actions to be taken by the public in potential tsunami inundation zones                             <ul style="list-style-type: none"> <li>o Acts as the official spokesperson for the City of Imperial Beach</li> <li>o Develop a press release</li> <li>o Coordinate with the County Joint Information Center (JIC) to establish consistent emergency information and priorities</li> <li>o Monitor news reports and take action to correct any inaccurate information being reported</li> <li>o Schedule regular briefings with news media representatives</li> </ul> </li> </ul>	City PIO
<ul style="list-style-type: none"> <li>o If signs of the approach of one or more tsunamis are observed (e.g. outflow, water elevation changes, currents in harbors and</li> </ul>	Whoever first witnesses an

ACTION	RESPONSIBILITY
marina, etc), whoever first witnesses them shall sound the warning by announcing Emergency Traffic on the appropriate Command Frequency and announcing that signs of incoming tsunamis are being observed, and direct field units in tsunami inundation zones to conduct an Operational Retreat to high ground	approaching tsunami

### Level III: Local Earthquake 6.5 or Greater

Local offshore quakes M6.5 or greater that last longer than 30 seconds can cause Near-Source Tsunamis, or larger earthquakes onshore that can cause underwater landslides that result in tsunamis, which can strike the coast of San Diego County in as little as 3 to 15 minutes.

Full evacuation may be impossible, due to the imminent impact of a tsunami with insufficient response time or no warning.

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>o All personnel shall conduct standard earthquake evacuation of all Administrative Sites based on the emergency exit plan for the site               <ul style="list-style-type: none"> <li>o Pull apparatus out of fire stations into safe areas</li> <li>o Ensure personnel accountability and safety</li> <li>o Perform an administrative site damage assessment</li> </ul> </li> </ul>	City Staff
<ul style="list-style-type: none"> <li>o All field units in potential tsunami inundation zones shall begin area damage surveys and take appropriate emergency actions (e.g. life-saving, environment and property protection)</li> </ul>	Sheriff, Fire, Lifeguard, Public Works
<ul style="list-style-type: none"> <li>o <b>Immediately evacuate beachfront and pier areas</b> <ul style="list-style-type: none"> <li>o Lifeguards should make the following announcement: <i>“Due to the earthquake, a tsunami may have been formed. You need to leave the beach immediately! Move to higher ground or upper floors of buildings. Do not take the time to go to your car.”</i></li> </ul> </li> </ul>	Lifeguard
<ul style="list-style-type: none"> <li>o If signs of the approach of one or more tsunamis are observed (e.g. outflow, water elevation changes, currents in harbors and marina, etc), whoever first witnesses them shall sound the warning by announcing Emergency Traffic on the appropriate Command Frequency and announcing that signs of incoming tsunamis are being observed, and direct field units in tsunami inundation zones to conduct an Operational Retreat to high ground</li> </ul>	Whoever first witnesses an approaching tsunami
<ul style="list-style-type: none"> <li>o Close and secure all non-essential City facilities</li> </ul>	City Staff
<ul style="list-style-type: none"> <li>o Stage all Sheriff, Fire, Lifeguard and Public Works equipment and resources out of the Tsunami Inundation Zone until the All Clear is sounded 2 hours after the last wave, or a <i>Tsunami</i></li> </ul>	Sheriff, Fire, Lifeguard Public Works

ACTION	RESPONSIBILITY
<u>Watch or Warning</u> is cancelled	
o The need to request Sheriff ASTREA support for evacuation should be evaluated to Tsunami Warning	Sheriff
o An All-Call shall be issued if a <u>Tsunami Watch</u> or <u>Tsunami Warning</u> is announced by the West Coast and Alaska Tsunami Warning Center	Communications Branch
o An All Call shall be issued if the <u>Tsunami Watch or Warning</u> is cancelled	Communications Branch

---

#### Level IV: Actual Tsunami Impact

One or more tsunami impacts (whether from near-source or distant-tsunami) will necessitate simultaneous land-based **and** marine search and rescue operations in order to save the most lives, including victims swept into the ocean and victims missing or trapped in inundated areas, damaged structures, capsized boats, etc. This must be done under the threat of additional tsunami waves, so appropriate precautions are necessary. State OES plans to announce an “All Clear” if two hours passes with no evidence of tsunamis, or when an All Clear is issued by the West Coast Alaska Pacific Tsunami Warning Center.

Following tsunami impact, an immediate assessment of rescue conditions and damage shall be initiated:

- o Designate the flooded areas
- o Collapsed buildings
- o Fires
- o Missing victims in the ocean and inundated land
- o Casualties
- o Hazardous material releases
- o Other tsunami-related consequences

Assessment can be done using helicopters and other methods that limit exposure of personnel to additional tsunami waves, until the danger of secondary events has passed or been reduced. Full-scale ground-based and water-based search and rescue operations shall also commence across the affected areas.

In order to make access to and effect rescues in vessels, automobiles, and damaged structures, departmental vessels (surfboats, fireboats, PWC’s, etc) and helicopters should be equipped with basic forcible entry tools like axes, chain saws, sawz-alls, etc. It may be necessary to transfer this equipment from engines, trucks and squads, USAR apparatus, and other ground-based units.

Until determined otherwise through jurisdictional surveys and a Primary Search of all affected areas, it shall be assumed that there may be casualties, missing victims, and structural damage

requiring emergency action in the aftermath of tsunami impact. Therefore, Department personnel should be prepared to reach these areas using whatever means necessary (including helicopters, boats, bulldozers, front end loaders, high water vehicles, and by foot) and engage in life-saving operations, while maintaining situational awareness, LCES protocols, and readiness for an immediate Operational Retreat at all times.

Every structure, automobile, boat, and other structures shall be physically searched for victims, marked using standards USAR Structure and Victim Markings with fluorescent orange spray paint, and documented. In inundated areas, personnel shall be prepared to make forcible entry into, and physically search, all attics, roofs, upper floors, and other areas of potential refuge to which victims may have escaped, and to mark each structure and document the findings. All other areas of structures shall be searched, marked, and documented as conditions allow (as water recedes, etc), as shall automobiles, vessels, and debris piles.

All coastal cities and affected agencies in San Diego County have developed a consensus agreement that land-based operations shall be directed by the State OES Command (SDF/R Coordinator) as the overall command element for post-tsunami operations in the County.

In accordance with the Air/Sea Disaster Plan and the City of Imperial Beach Tsunami Plan, the U.S. Coast Guard will be the overall Incident Commander of marine SAR operations (in Unified Command with Sheriff, Fire, Lifeguard, and other fire agencies, etc)

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>o If signs of the approach of one or more tsunamis are observed (e.g. outflow, water elevation changes, currents in harbors and marina, etc), whoever first witnesses them shall sound the warning by announcing Emergency Traffic on the appropriate Command frequency and announcing that signs of incoming tsunamis are being observed, and direct field units in tsunami inundation zones to conduct an Operational Retreat to high ground</li> </ul>	<p>Whoever first witnesses an approaching tsunami</p>
<ul style="list-style-type: none"> <li>o Upon receiving information indicating one or more approaching tsunami impacts, all units in the tsunami inundation zones shall immediately conduct an Operational Retreat, and then after they reach a Safe Area, conduct a Head Count and transmit a Personnel Accountability Report (PAR), in order to determine if any units or personnel are missing or in need of assistance getting to a Safe Area               <ul style="list-style-type: none"> <li>o If there are any missing units or units reporting they are in need of rescue, a Rapid Intervention operation shall be initiated.</li> </ul> </li> </ul>	<p>All responding units</p>
<ul style="list-style-type: none"> <li>o The State OES plans to announce an "All Clear" if two hours pass with no evidence of tsunamis, or when an All Clear is issued by the West Coast Alaska Pacific Tsunami Warning Center               <ul style="list-style-type: none"> <li>o The City of Imperial Beach will issue an "All Clear" broadcasted over the appropriate Command frequency</li> <li>o Only first responders will be allowed back in the impacted area</li> </ul> </li> </ul>	<p>Communications Branch</p>

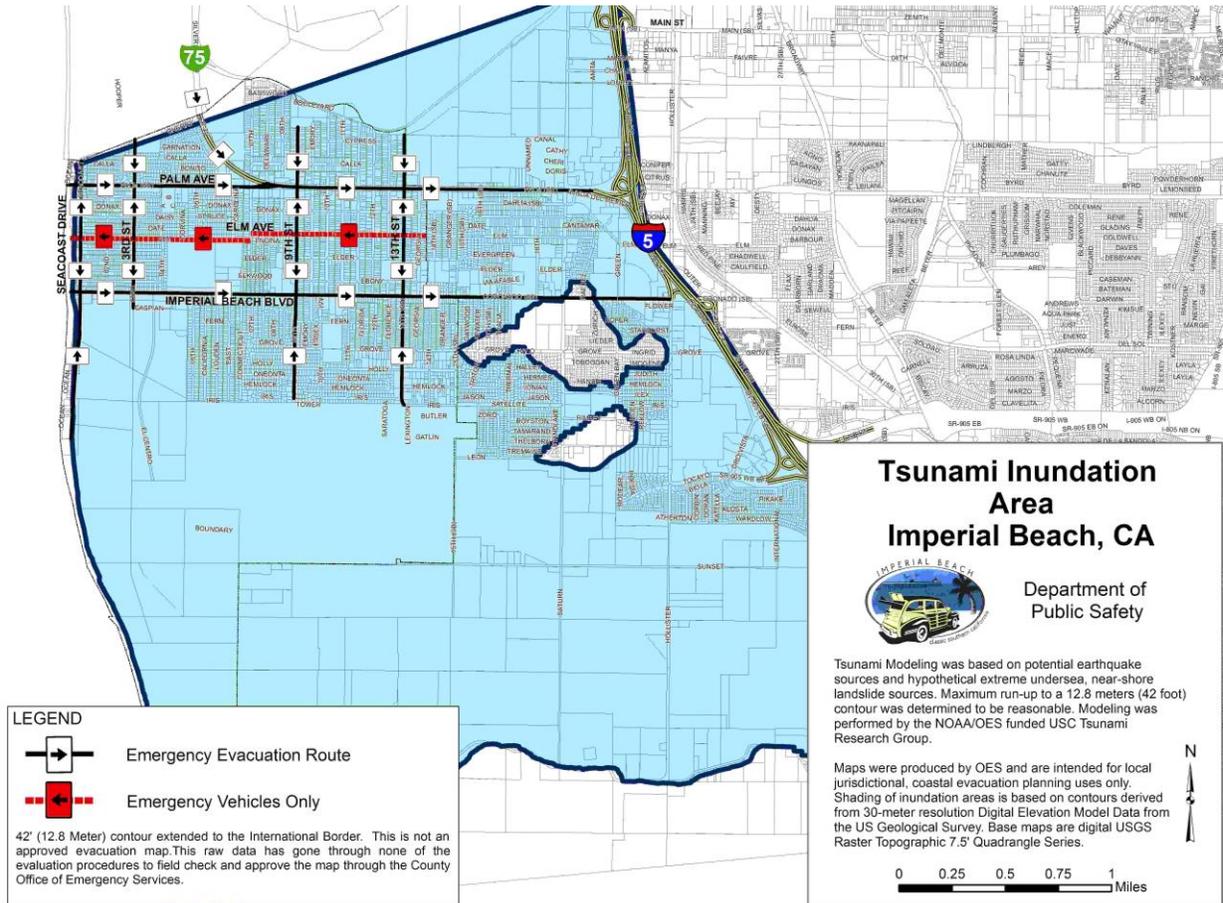
ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>o Set up barricades and secure the impacted area</li> </ul>	Public Works
<ul style="list-style-type: none"> <li>o Sheriff, Fire, Lifeguards, Building, Utilities and Public Works will conduct damage surveys and report all damage to the EOC</li> </ul>	Sheriff, Fire, Lifeguard Public Works
<ul style="list-style-type: none"> <li>o The Imperial Beach Unified Command shall coordinate with SD County Sheriff Department to conduct SAR operations, and request additional resources as necessary</li> </ul>	EOC / Sheriff
<ul style="list-style-type: none"> <li>o <b>Debris removal</b> <ul style="list-style-type: none"> <li>o Dozer Teams shall be dispatched to Imperial Beach Unified Command staging area as required</li> </ul> </li> </ul>	Damage Assessment Branch
<ul style="list-style-type: none"> <li>o <b>Night Operations</b> <ul style="list-style-type: none"> <li>o Light Units shall be dispatched to Imperial Beach Unified Command staging area as required</li> </ul> </li> </ul>	Fire / Sheriff
<ul style="list-style-type: none"> <li>o <b>USAR</b> <ul style="list-style-type: none"> <li>o Area Command shall activate CATF-8 (all members as per the local CATF-8 disaster deployment plan[under development], including the Swiftwater Rescue Task Force components) to respond to the Imperial Beach Unified Command Staging for post-tsunami impact SAR operations, or as otherwise requested by the Unified Command</li> <li>o Area Command shall consider requesting additional OES/FEMA US&amp;R Task Forces and Swiftwater Rescue Task Forces to respond to Imperial Beach Unified Command</li> <li>o Area Command shall consider requesting available California OES Swiftwater Rescue Task Forces to respond to the Branch Commands for SAR operations</li> </ul> </li> </ul>	Sheriff, Fire, Lifeguard
<ul style="list-style-type: none"> <li>o After a damaging tsunami impact, all available helicopters shall begin immediate aerial damage surveys of the tsunami impact area <ul style="list-style-type: none"> <li>o The Aerial Branch shall request (through the Area Command) additional aerial resources as necessary, and initiate search and rescue operations in conjunction with the U.S. Coast Guard, and other boat-based resources, and ground units</li> </ul> </li> </ul>	Aerial Branch
<ul style="list-style-type: none"> <li>o After a damaging tsunami impact, boat resources (Surfboats, Fireboats, Inflatable Rescue Boats, PWC's, etc) shall initiate search and rescue operations on the ocean, and in inundated areas when conditions allow, and keep in mind the potential for secondary tsunami impacts <ul style="list-style-type: none"> <li>o All capsized, sunk, and floating vessels must be searched for potential victims trapped within, and marked using the standard USAR Victim Marking System and orange spray pain</li> <li>o All submerged automobiles must be searched for victims and marked if possible</li> <li>o Floating debris piles must be searched eventually for</li> </ul> </li> </ul>	Lifeguard Coast Guard

ACTION	RESPONSIBILITY
<ul style="list-style-type: none"> <li>victims, and marked if feasible               <ul style="list-style-type: none"> <li>o Beaches must also be searched for victims</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>o Land-based units (engines, trucks, squads, Patrols, USAR Task Forces, Swiftwater Rescue Teams, etc) shall initiate search and rescue operations in tsunami impact areas when conditions allow, keeping in mind the potential for secondary tsunamis to impact the coast               <ul style="list-style-type: none"> <li>o All structures, automobiles, and vessels in the impacted areas shall be physically searched for victims, and marked using the standard USAR Structure and Victim marking system and fluorescent orange spray paint</li> <li>o Similar to response to earthquakes, hurricanes, and other “large area” disasters, comprehensive grid searches must be planned and conducted to ensure that all structures and vehicles, and debris piles are physically searched, and that all survivors are rescued, treated, and transported                   <ul style="list-style-type: none"> <li>▪ Every structure and vehicle searched should be documented on grid maps, listings of addresses, and other means of ensuring that all potential victim locations have been thoroughly searched; this also allows for coordination between assisting units and the commanders to ensure that all search areas have been covered</li> </ul> </li> </ul> </li> </ul>	<p>Sheriff, Fire, Lifeguard</p>
<ul style="list-style-type: none"> <li>o <b>Disposition of bodies:</b> <ul style="list-style-type: none"> <li>o All bodies shall be identified with Triage Tags indicating “Deceased”, and the Tag number documented on grid maps, lists, or other means</li> <li>o The location of bodies shall be identified using the standard USAR Victim Marking System and fluorescent orange spray paint (or if in the water, other forms of marking like Fireline Tape)</li> <li>o If GPS instruments are available, bodies shall be identified with the GPS Coordinates on grid maps, lists, or other means, to allow recovery crews to locate and remove them</li> <li>o All bodies shall be photographed in place when possible, in order to aid in the identification of location, cause of death, etc.</li> <li>o Unless circumstances or official directives dictate otherwise, all bodies shall be covered and left in place for recovery by the Coroners Office, Disaster Morgue Teams (DMORT), or others assigned this task</li> <li>o Bodies floating in water shall be recovered when possible, because otherwise they may sink before recovery is possible</li> <li>o It may be necessary for departmental personnel to assist</li> </ul> </li> </ul>	<p>Medical Branch</p>

ACTION	RESPONSIBILITY
<p>in the extraction of bodies trapped in debris or other conditions requiring technical means and equipment</p> <ul style="list-style-type: none"> <li>○ The Coroner (through the Area Command and Unified Commands) may dictate alternate means of identifying, documenting, and recovering bodies</li> </ul>	
<ul style="list-style-type: none"> <li>○ If, during post-tsunami operations, signs of the approach of one or more secondary tsunamis are spotted, the Lookouts (and anyone else who witnesses them) shall sound the warning by announcing Emergency Traffic on the appropriate Command Frequency and announcing that signs of incoming tsunamis are being observed                         <ul style="list-style-type: none"> <li>○ Imperial Beach EOC communications branch shall then initiate the Emergency Traffic protocols and announce that incoming tsunami activity has been observed and direct field units in tsunami inundation zones to conduct an Operational Retreat to high ground.</li> </ul> </li> </ul>	<p>Whoever first witnesses an approaching tsunami</p>

Attachment B

# Tsunami Inundation Contour Maps



**42' Tsunami Inundation Area  
Imperial Beach, CA**

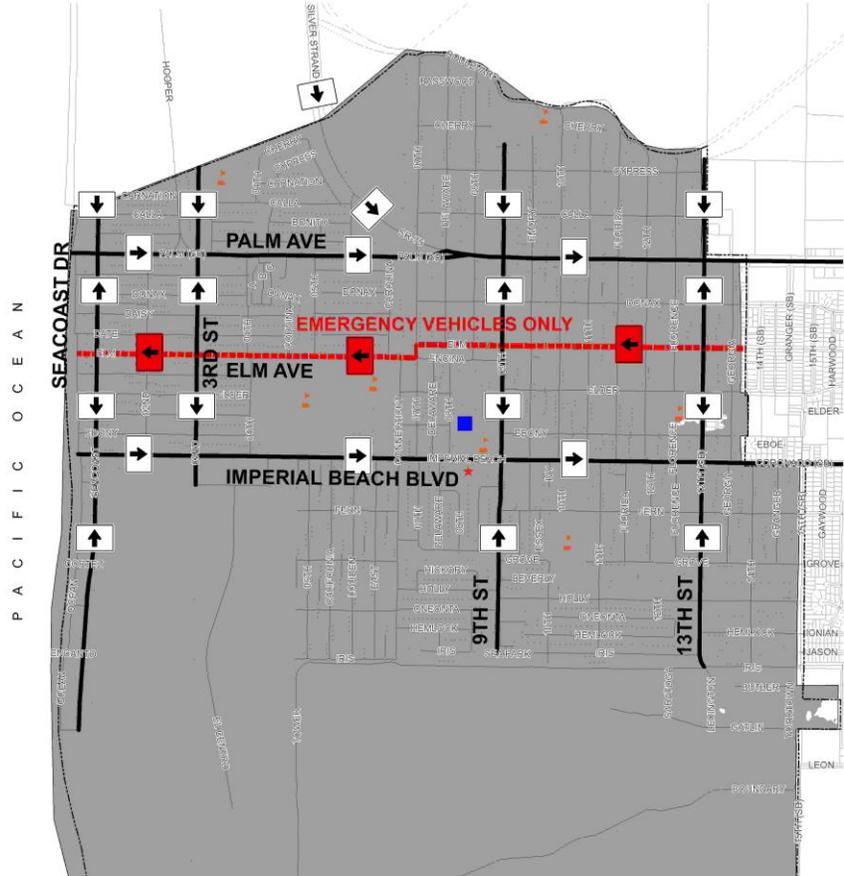


Department of Public Safety

**LEGEND**

-  City Boundary
-  Inundation Area
-  Parcel Boundary
-  Emergency Evacuation Route
-  Emergency Vehicles Only
-  School
-  City Hall / Sheriff / Fire
-  Community Room





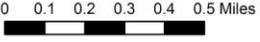
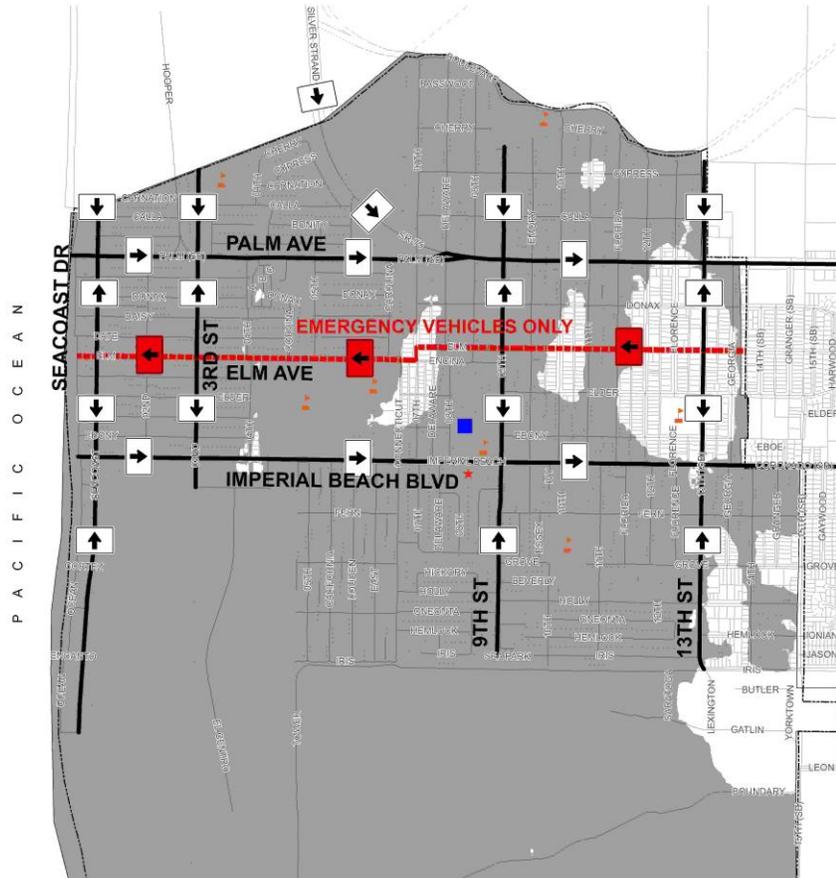
**30' Tsunami Inundation Area  
Imperial Beach, CA**



Department of Public Safety

**LEGEND**

-  City Boundary
-  Inundation Area
-  Parcel Boundary
-  Emergency Evacuation Route
-  Emergency Vehicles Only
-  School
-  City Hall / Sheriff / Fire
-  Community Room

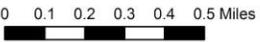
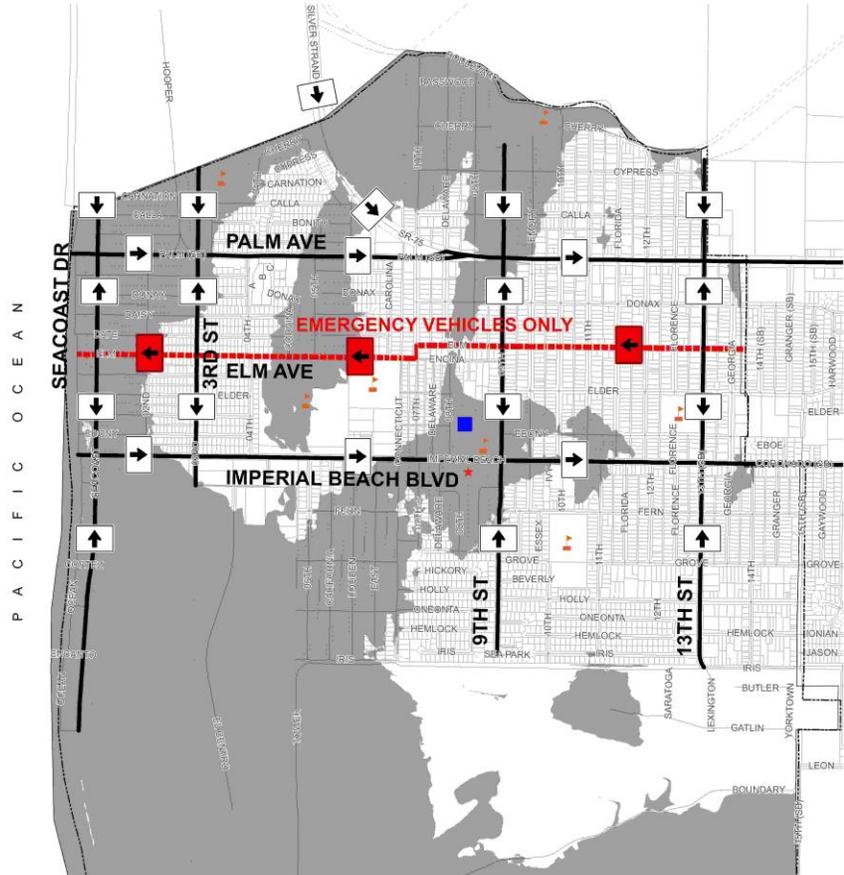
**20' Tsunami Inundation Area  
Imperial Beach, CA**

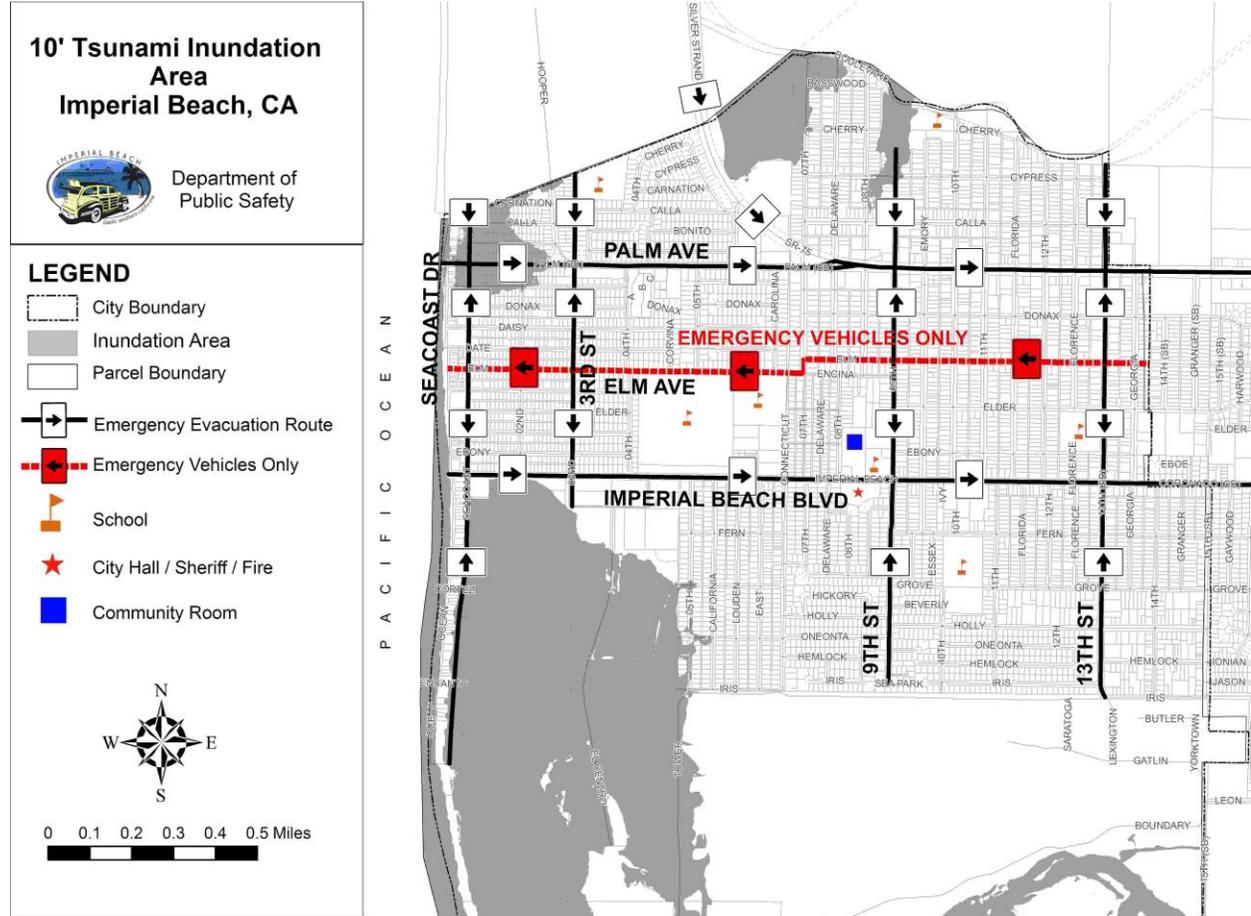


Department of Public Safety

**LEGEND**

-  City Boundary
-  Inundation Area
-  Parcel Boundary
-  Emergency Evacuation Route
-  Emergency Vehicles Only
-  School
-  City Hall / Sheriff / Fire
-  Community Room



## Attachment C

# Tsunami Evacuation Plan

## 2. Purpose

- a. This procedure defines organizational responsibilities for evacuation and traffic control during a Tsunami Emergency. In addition, it provides guidance for the orderly implementation of an evacuation, if required, and describes specific traffic control points and evacuation routing.

## 3. References

- a. San Diego County Emergency Plan
  - i. Annex G Care and Shelter Operations
  - ii. Annex O Animal Services
- b. City of Imperial Beach Emergency Plan
- c. San Diego County Sheriff's Tsunami Response Plan 9.9.1
- d. Local Red Cross Chapter Disaster Plan

## 4. Responsibilities

- a. **This Tsunami Evacuation Plan is broken down into 4 levels:**
  - i. **Level I: Tsunami Watch** - Issued for possible distant tsunamis from a location over three hours away.
  - ii. **Level II: Tsunami Warning** - Issued for possible or confirmed tsunami is imminent and coastal locations in the determined inundation areas should be alerted and evacuated immediately (the potential arrival time is under three hours).
  - iii. **Level III: Local Earthquake 6.5 or Greater** – Local offshore quakes M6.5 or greater that can cause tsunamis, or larger earthquakes onshore that can cause underwater landslides that result in tsunamis, which can strike the coast of San Diego County in as little as 3 to 15 minutes.

## 5. LEVEL I: Tsunami Watch

- a. Prepare to increase traffic control efforts. Begin precautionary preparations in case an evacuation should become necessary.

- 
- b. Imperial Beach Public Safety Department & the Sheriff's Department, if directed to by the Director, will develop, activate, and coordinate an evacuation plan for the impacted areas.
  - c. Tsunami event and site-specific information, which identifies inundation areas at risk and evacuation areas, will be coordinated through the Operational EOC. The Sheriff Department will direct the orderly evacuation of the public located in the affected areas to Care and Shelter and Temporary Evacuation Points (TEPs).
  - d. During a worst-case scenario (42 foot Tsunami), the recommended evacuation safe zone is east of Interstate 5. After thorough analysis of updated conditions and factors by the Operational EOC, the evacuation area may be reduced.
  - e. The City of Imperial Beach retains the authority of determining when and what areas to evacuate inside the City limits.
  - f. Evacuation and Tsunami Inundation maps are located in *Attachment B*.
  - g. Traffic Control Measures
    - i. Will not be instituted until the decision is taken to evacuate all or a portion of the impacted area.
    - ii. Once the decision to evacuate has been made, or public panic evacuation has made it necessary, traffic control points will be established, barricades erected, and traffic rerouted to avoid the affected areas.
    - iii. The primary concern will be to provide traffic control along routes of travel eastward on Palm Avenue and Imperial Beach Boulevard, and westward on Elm Avenue through Imperial Beach.
    - iv. CHP will have primary responsibility for traffic control on Interstate 5 and State Highway 75 (Palm Avenue). The Sheriff's Department and other local police agencies may be requested to provide assistance.
  - h. Evacuation Tactics
    - i. Unlimited contra-flow for cars on Palm Avenue and Imperial Beach Blvd: all normally westbound lanes used for eastbound traffic.
    - ii. Close off westbound off-ramps from Interstate 5 at Palm Avenue and Coronado Avenue.
    - iii. Dedicate Elm Avenue eastbound and westbound lanes for emergency vehicles only.
    - iv. Traffic light control.
    - v. Use portable electronic signs for evacuation information.

- 
- i. Temporary Evacuation Points/Emergency Shelters
    - i. The American Red Cross (ARC) is officially designated by Federal, State, and local authorities to run temporary evacuation points/emergency shelters.
    - ii. If ARC is unable to respond the County's Health and Human Services Agency or individual cities would take over.
    - iii. Notification will be broadcasted over the County's Emergency Alert System (on KOGO/AM 600 – back up is KLSD/AM 1360) and other media outlets. A toll free number to find shelters sites is 866-438-4636
    - iv. The ARC will handle food, first-aid treatment, crisis counseling and individual services, such as supplying clothes, arranging temporary housing and assisting the shelter cost, medication, and occupational supplies.
    - v. Minors: The County Child Protective Services office is responsible for caring for unaccompanied minors. Call the hotline at 800-344-6000
    - vi. The centers will be needed to support the evacuation from the impacted areas, and provide for emergency mass care and shelter until the emergency passes.
    - vii. Temporary Evacuation Points will be coordinated through the Operational Area EOC and American Red Cross (ARC) according to the determined safe zone.
      1. American Red Cross (ARC)  
Mass Care and Shelter / Temporary Evacuation  
Phone 24 hour hotline 1-858-309-1300  
Contact:  
Andy McKeller,  
Disaster Relief Operations Associate  
1-858-309-1311  
– or -  
Marisa Mierzwa  
Disaster Relief Operations Associate  
1-858-309-1309
    - viii. Operational Area will notify the Red Cross and other appropriate agencies of the pending emergency.
    - ix. San Diego/Imperial Chapter of the American Red Cross will notify personnel of potential need to open Temporary Evacuation Points.

<b>Potential Mass Care Facilities American Red Cross Approved</b>			
<ul style="list-style-type: none"> <li>• In order from West to East</li> <li>• Capacity limits without an amount are pending ARC site survey</li> <li>• 40 square feet (4'x10') is required for each person</li> </ul>			
Sites	Contact	Address	Capacity
West View Elementary School Elevation: 11 ft Miles from coast: .25	Campus Main Phone 619-628-8900	525 3 <sup>rd</sup> Street Imperial Beach, CA 91932 Thomas Guide 1329 F7	
Mar Vista High School Elevation: 23 ft Miles from coast: .5	* Dr. Louise Phipps, Principal Cell: 619-719-2883 * Robert Aguilar, Asst Principal Cell: 619-619-948-9936 * Campus Main Phone 619-628-3074 *School District Bus Trans 619-691-5527	505 Elm Avenue Imperial Beach, CA 91932 Thomas Guide 1349 F1	
South Bay Union School District Elevation: 23ft Miles from coast: .5	*Ray Teran, Emergency Coordinator Cell: 619-947-5990 *School District Bus Trans Sandy Hall Cell 619-921-2113	601 Elm Avenue Imperial Beach, CA 91932 Thomas Guide 1329 F1	
Imperial Beach Elementary School Elevation: 28ft Miles from coast: .5	Campus Main Phone 619-628-5600	650 Imperial Beach Blvd Imperial Beach, CA 91932	
Bayside Elementary School Elevation: 13ft Miles from coast: 1	Campus Main Phone 619-628-2500	490 Emory Street Imperial Beach, CA 91932 Thomas Guide 1329 G5	
Oneonta Elementary School Elevation: 23ft Miles from coast: 1.25	Campus Main Phone 619-628-8600	1311 10 <sup>th</sup> Street Imperial Beach, CA 91932 Thomas Guide 1349 H1	
Central Elementary School Elevation: 40ft Miles from coast: 1.5	Campus Main Phone 619-628-5000	1290 Ebony Avenue Imperial Beach, CA 91932 Thomas Guide 1349 H1	
Mar Vista Junior High School Elevation: 40ft Miles from coast: 2	Campus Main Phone 619-628-5100	1276 Thermal San Diego, CA 92154 Thomas Guide 1349 G1	
South Bay Recreation Center Elevation: 46ft Miles from coast: 2.25	619-424-0470	1885 Coronado Ave San Diego, CA 92154 Thomas Guide 1350 A1	217
Emory Elementary Elevation: 46ft Miles from coast: 2.5	Campus Main Phone 619-628-5300	1951 Coronado Ave San Diego, CA 92154 Thomas Guide 1350 A1	

Berry Elementary Elevation: 43 ft Miles from coast: 2.5	Campus Main Phone 619-628-3500	2001 Rimbey Ave San Diego, CA 92154 Thomas Guide 1350 A2	
Southwest High School Elevation: 33 ft Miles from coast: 3	Campus Main Phone 619-628-3023	1685 Hollister St. San Diego, CA 92154 Thomas Guide 1350 B2	
Nestor Elementary School Elevation: 33 ft Miles from coast: 3	Campus Main Phone 619-628-0900	1455 Hollister St. San Diego, CA 92154 Thomas Guide 1350 B2	
Sunnyslope Elementary School Elevation: 66 ft Miles from coast: 3.25	Campus Main Phone 619-628-8800	2500 Elm Avenue San Diego, CA 92154 Thomas Guide 1330 B7	
Southwest Middle School Elevation: 49 ft Miles from coast: 3.5	Campus Main Phone 619-628-4000	2710 Iris Ave San Diego, CA 92154 Thomas Guide 1350 C2	184
Silver Wing Recreation Center Elevation: 220 ft Miles from coast: 4	619-424-0465	3737 Arey Drive San Diego, CA 92154 Thomas Guide 1330 E7	101
Montgomery-Waller Park & Rec Elevation: 134 ft Miles from coast: 4	619-424-0466	3020 Coronado Ave San Diego CA, 92154 Thomas Guide 1350 D1	125
Montgomery High School Elevation: 125 ft Miles from coast: 4	Campus Main Phone 619-628-3700	3250 Palm Ave San Diego, CA 92154 Thomas Guide 1330 D6	
Montgomery Middle School Elevation: 179 ft Miles from coast: 4.25	Campus Main Phone 619-662-4000	1051 Picador Blvd San Diego, CA 92154 Thomas Guide	90
Pence Elementary School Elevation: 124 ft Miles from coast: 4.25	Campus Main Phone 619-662-8100	877 Via Tonga Court San Diego CA, 92154 Thomas Guide 1330 E7	

- j.     Transportation
  - i.     San Diego County Operational Area: The Director of the CEOS will ensure that an adequate and current inventory of available transportation assets, particularly bus and ambulance, is maintained.
  - ii.    Operational Area EOC staff will coordinate with Metropolitan Transit District and County Office of Education to identify available transportation assets.
  - iii.   Monitor the situation and determine transportation requirements for any precautionary movements of personnel.
  - iv.    Be prepared to provide transportation support and assistance to impacted areas if needed.
  - v.     The EOC Staff will coordinate with the Operational Area EOC and other jurisdictions to determine transportation assistance availability.
  
- k.     Special Need Groups
  - i.     Some people will not have access to a motor vehicle for various reasons. Some people with disabilities or illnesses may require special transportation assistance.
  - ii.    Buses, vans, ambulances, and other transport vehicles will be requested from transportation providers.
  - iii.   The public evacuation announcement, if initiated, will include directions for those who do not have access to a vehicle or have special needs where to go to obtain transportation and a telephone number will be announced for people to call who require special assistance.
  - iv.    Special instructions will be given and assistance will be dispatched to their location as soon as the resources are available.
  
- l.     The Sheriff's Department
  - i.     Will lead and direct the coordination traffic control efforts.
  - ii.    Establish traffic control points when and where required.
  
- m.     The Department of Public Works

Will be prepared to deploy traffic barricades as directed by the Sheriff's Department.

n. CALTRANS

Will be prepared to deploy traffic barricades along Highway 75 (Palm Avenue) as directed by Sheriff's Department and coordinated through the California Highway Patrol.

o. California Highway Patrol (CHP)

Assist in traffic control measures along state and federal highways Interstate 5 and Highway 75 (Palm Avenue).

## 6. LEVEL II: Tsunami Warning

a. Tsunami Warning requires actual, non-delayed movement and staging of resources to assist with coastal evacuations and to prepare to respond to a potential tsunami impact in the City of Imperial Beach. Response, movement, and staging of resources shall be immediately deployed during Tsunami Warning operations.

b. Evacuation and Tsunami Inundation maps are located in *Attachment B*.

c. Tsunami Evacuation Level II may require up to 5 hours to complete. In the event the tsunami arrives in less than 5 hours, the City will complete as many of these actions as time permits.

d. At 30 minutes prior to the Tsunami wave arrival, an announcement will be made over all radio systems (Sheriff's Department, Fire, Lifeguards, Public Works and any other response agencies) to immediately evacuate all personnel out of the impact area.

e. The Imperial Beach Public Safety and Sheriff's Departments, if not initiated under Tsunami Watch, activate and coordinate an evacuation plan for the determined inundation areas as detailed under Tsunami Watch.

i. If activated under the Tsunami Watch, will continue to provide traffic control and coordinate evacuation activities. Provide public evacuations and warnings in affected areas.

f. Alert and Warn the Public

i. Lifeguards will immediately alert and warn beach and pier visitors using public address systems (vehicles and pier).

ii. 911 Call-Back system.

iii. Sheriff unit public address system.

iv. Sheriff's ASTREA helicopter public address system.

v. Fire apparatus public address system.

- vi. Door-to-door canvassing.
- vii. Activate Emergency Alert System (EAS).
- viii. Consider placing the press release and maps on the City's website.
- ix. Consider setting up Phone Hot Lines to answer public's questions.
- g. Special Needs Sites (schools, nursing home, senior apartments)
  - i. If after school hours, send a Sheriff Deputy to each school site to evacuate anyone at the site.
  - ii. Notify all schools activate their evacuation plan and to call their district transportation department and request buses.
  - iii. If there is insufficient time for a full evacuation, at 30 minutes prior to the Tsunami wave arrival a vertical evacuation to the 2<sup>nd</sup> or 3<sup>rd</sup> floors, building rooftops, or football stadium bleachers should begin.
  - iv. Notify the following facilities to evacuate, and ask if they have any special transportation needs.

School Sites	Contact	Address	Estimated Evacuees
Mar Vista High School	* Dr. Louise Phipps, Principal Cell: 619-719-2883 * Robert Aguilar, Asst Principal Cell: 619-619-948-9936 * Campus Main Phone 619-628-3074 *School District Bus Trans 619-691-5527	505 Elm Avenue Imperial Beach, CA 91932 Thomas Guide 1349 F1	2,300 Students/ Staff
South Bay Union School District	*Ray Teran, Emergency Coordinator Cell: 619-947-5990 *School District Bus Trans Sandy Hall Cell 619-921-2113	601 Elm Avenue Imperial Beach, CA 91932 Thomas Guide 1329 F1	40 Staff
Imperial Beach Elementary School	Campus Main Phone 619-628-5600	650 Imperial Beach Blvd Imperial Beach, CA 91932 Thomas Guide 1349 G1	600 Students/ Staff
West View Elementary School	Campus Main Phone 619-628-8900	525 3 <sup>rd</sup> Street Imperial Beach, CA 91932 Thomas Guide 1329 F7	400 Students/ Staff
Bayside Elementary School	Campus Main Phone 619-628-2500	490 Emory Imperial Beach, CA 91932 Thomas Guide 1329 G5	600 Students/ Staff
Oneonta Elementary School	Campus Main Phone 619-628-8600	1311 10 <sup>th</sup> Street Imperial Beach, CA 91932 Thomas Guide 1349 H1	650 Students/ Staff

VIP Village Pre School	Campus Main Phone 619-628-8690	1001 Fern Avenue Imperial Beach, CA 91932 Thomas Guide 1349 H1	750 Students/ Staff
Central Elementary School	Campus Main Phone 619-628-5000	1290 Ebony Avenue Imperial Beach, CA 91932 Thomas Guide 1349 H1	650 Students/ Staff
St James Plaza Senior Apartments	Manager 24 hrs 575-3232 *Manager has detailed list of residents with special needs	1052 9 <sup>th</sup> Street Imperial Beach, CA 91932 Thomas Guide 1349 G1	*80 walking seniors *20 special needs
Sun and Sea Manor Alzheimer's Care	Vernon Roberson, Director of Ops. Cell: 619-947-2008 Main Bldg: 619-429-0633	740 7 <sup>th</sup> Street Imperial Beach, CA 91932 Thomas Guide 1329 G7	30 special needs

7. Transportation of the populace.

a. Temporary Evacuation Points (TEPs)

- i. Inform the public requiring assistance where to report and transportation routes.
- ii. San Diego/Imperial Chapter of the Red Cross will direct operation of TEPs when activated.
- iii. San Diego County Department of Human resources shall assign personnel to centers for administration support.
- iv. San Diego County Health and Human Services Agency shall make available staff personnel to assist in managing TEPs and to aid evacuees with health concerns and public assistance problems.
- v. San Diego County Mental Health Services shall make available professional mental health staff personnel to assist evacuees at each center.
- vi. San Diego County law enforcement agencies shall provide for security of TEPs and mass care centers.

b. Pets and Animals

- i. Animals brought to a designated temporary shelter will not be permitted in any living areas. *Annex O Animal Services* to the County Emergency Plan will be activated.
- ii. Owners will provide food and water for their animals and will provide restraints for them.
- iii. Additional assistance will be provided, as required, by the Chula Vista Animal Control and County Department of Animal Control.

- 
- iv. The San Diego Human Society's volunteer Animal Rescue Reserve, 619-299-0871, operates a 24-hour service to help recover horse, livestock and household pets.
  - c. Sheriff's Department
    - i. Will lead the coordination of law enforcement activities in the affected areas and implementation of Imperial Beach jurisdictional evacuation plans.
    - ii. Supervise transportation of evacuees and maintain access control over evacuated areas.
    - iii. Provide public evacuations and warnings in affected areas.
    - iv. Establish communications with the law enforcement agencies of Coronado, and San Diego.
    - v. Provide / coordinate security and crowd control at vital installations, key industrial facilities, storage areas and evacuation areas.
  - d. Department of Public Works

Shall install, maintain and remove traffic barricades as directed by Sheriff Department.
  - e. CALTRANS

If requested by the Imperial Beach Sheriff's Department, and coordinated through the California Highway Patrol, shall install, maintain and remove traffic barricades along Highway 75 (Palm Avenue).
  - f. California Highway Patrol
    - i. Coordinate with Sheriff's Department, traffic control measures on Highway 75 (Palm Avenue).
    - ii. Establish roadblocks on I-5 preventing traffic from proceeding (if desired) westerly on Palm Avenue and Imperial Beach Blvd/Coronado Avenue.
    - iii. Prevent unauthorized entry into secured areas.

## 8. LEVEL III: Local Earthquake 6.5 or Greater

- a. Local offshore quakes M6.5 or greater that last longer than 30 seconds can cause Near-Source Tsunamis, or larger earthquakes onshore that can cause underwater landslides that result in tsunamis which can strike the coast of San Diego County in as little as 3 to 15 minutes.
- b. Full evacuation may be impossible, due to the imminent impact of a tsunami with insufficient response time or no warning.
- c. All personnel shall conduct standard earthquake evacuation of all Administrative Sites based on the emergency exit plan for the site.
  - i. Pull apparatus out of fire stations into safe areas.
  - ii. Ensure personnel accountability and safety.
  - iii. Perform an administrative site damage assessment.
- d. Immediately evacuate beachfront and pier areas.
  - i. Lifeguards should make the following announcement:
    1. “Due to the earthquake, a tsunami may have been formed. You need to leave the beach immediately! Move to higher ground or upper floors of buildings.”
- e. Close and secure all non-essential City facilities.
- f. Stage all Sheriff, Fire, Lifeguard and Public Works equipment and resources out of the Tsunami Inundation Zone until the All Clear is sounded 2 hours after the last wave, or a *Tsunami Watch or Warning* is cancelled.
- g. If signs of the approach of one or more tsunamis are observed (e.g. outflow, water elevation changes, currents in harbors and marina, etc), whoever first witnesses them shall immediately sound the warning by announcing Emergency Traffic on the appropriate Command Frequency and announcing that signs of incoming tsunamis are being observed, and direct field units in tsunami inundation zones to conduct an Operational Retreat to high ground.
- h. An All-Call shall be issued if a Tsunami Watch or Tsunami Warning is announced by the West Coast and Alaska Tsunami Warning Center.
- i. An All-Call shall be issued if the Tsunami Watch or Warning is cancelled.
- j. All field units in potential tsunami inundation zones shall begin area damage surveys and take appropriate emergency actions (e.g. life-saving, environment and property protection).

## 9. Precautions

- a. Barricade positions and traffic flow patterns may have to be adjusted based on the status of the emergency and weather conditions.
- b. The State OES plans to announce an “All Clear” if two hours pass with no evidence of tsunamis, or when an All Clear is issued by the West Coast Alaska Pacific Tsunami Warning Center.
  - i. The City of Imperial Beach will issue an “All Clear” broadcasted over the appropriate Command frequency.
  - ii. Only first responders will be allowed back in the impacted area.
- c. After an “All Clear” is announced Sheriff and Public Works will coordinate setting up barricades and securing the impacted area.

## 10. Equipment and Supplies

- i. Department of Public Works will maintain an adequate supply of signs and barricades.
- ii. CALTRANS will maintain adequate supplies of signs and barricades as well as a current inventory of available heavy equipment/wreckers for route clearance.

## Attachment D

### Tsunami Hazard Specific Information

- o For the purpose of this plan, we have narrowed tsunamis to two basic types: **Local-Source** (arrives within minutes) and **Distant-Source** (an hour or more before arrival).
- o There are no warning systems for a Local Tsunami. When a strong earthquake is felt, a Local Tsunami may be generated within minutes.
- o The City of Imperial Beach receives all tsunami information from the West Coast and Alaska Tsunami Warning Center located in Alaska.
- o News reports of tsunami warnings or watches issued from the Pacific Tsunami Warning Center in Hawaii are not for Imperial Beach or the West Coast of California.
- o The City of Imperial Beach has installed earthquake and tsunami notification systems called California Integrated Seismic Network (CISN), Emergency Digital Information System (EDIS), and Weather Radios in the following sites: Sheriff and Fire Stations, EOC, Lifeguard Headquarters, and Public Works Yard.
- o A Local Tsunami could strike with little or no warning. An San Diego County off shore fault could cause a tsunami that impacts San Diego County Coastline in as little as 10 minutes.
- o For Pacific-wide Tsunamis, warning time may allow the City time to warn the public, evacuate critical facilities, establish temporary shelters, and secure the coastal areas.
- o Estimated Times of Arrival:
  - Catalina Island 10 minutes
  - Alaska 5.5 hours
  - Hawaii 10 hours
  - Chile 14 hours
- o For Pacific-wide tsunami events, the West Coast and Alaska Warning Center will issue updates at least every hour.
- o For Pacific-wide events, the national Tsunami Warning System may take up to 5 minutes to develop and deliver a warning message via CLETS to the San Diego County Sheriff's Department Emergency Communications Bureau. It may take up to 15 minutes for the National Weather Service to activate the Emergency Alert System (EAS). Local public safety agencies will initiate response upon receipt of the warning.
- o Tsunamis usually consist of several waves and the first wave may not be the largest.
- o After the arrival of the first wave, waves can be up to two hours apart. Risk areas can be reopened for public safety access two hours after the last observed wave.
- o Intervals between successive major waves may be dissimilar. There is no regular period of time between successive waves.

- o Maximum wave height to be expected on the San Diego County coastline is approximately 40 feet or 12.8 meters, but can vary considerably from one location to another.
- o Boats may evacuate until one hour before the tsunami wave is due to strike. Boats should remain two miles offshore until the “all clear” is issued.
- o Public and media may overwhelm the 9-1-1 system.
- o Heavy use of telephones by the public may impact the ability of public safety agencies to communicate and to warn the public.
- o A Tsunami Warning may attract sightseers to the beaches.
- o The County will prepare an Emergency Alerting System (EAS) message and disseminate it to the entire San Diego County coastline.
- o The City may choose to prepare and disseminate its own message. Sample messages are included in this Tsunami Plan.

## Attachment E

# Terminology/Acronyms

## Terminology

**Amplitude:** The rise above or drop below the ambient water level as read on a tide gauge.

**Arrival time:** Time of arrival of the first wave of the tsunami at a particular location.

**Bore:** Traveling wave with an abrupt vertical front or wall of water. Under certain conditions, the leading edge of a tsunami wave may form a bore as it approaches and runs onshore. A bore may also be formed when a tsunami wave enters a river channel, and may travel upstream penetrating to a greater distance inland than the general inundation.

**Estimated time of arrival (ETA) of Tsunami:** Time of tsunami arrival at some fixed location, as estimated from modeling the speed and refraction of the tsunami waves as they travel from the source. ETA is estimated with very good precision if the bathymetry and source are well known (less than a couple of minutes).

**First Motion:** Initial motion of the first wave.

**Harbor Resonance:** The continued reflection and interference of waves from the edge of a harbor or narrow bay, which can cause amplification of the wave heights, and extend the duration of wave activity from a tsunami.

**Horizontal Inundation Distance:** The distance that a tsunami wave penetrates onto the shore, measured horizontally from the mean sea level position of the water's edge. Usually measured as the maximum distance for a particular segment of the coast.

**Inundation Line:** Inland limit of tsunami inundation, measured horizontally from the mean sea level (MSL) line.

**Leading-Depression Wave:** Initial tsunami wave is a trough, causing a draw down of water level.

**Leading-Positive Wave:** Initial tsunami wave is a crest, causing a rise in water level. Also called a leading-elevation wave.

**Marigram:** Tide gauge recording showing wave height as a function of time.

**Marigraph:** The instrument which records wave height.

**Mw: Moment Magnitude.** Magnitude based on the size and characteristics of the fault rupture, and determined from long-period seismic waves. It is a better measure of earthquake size than surface wave magnitude, especially for very large earthquakes. Calibrated to agree on average with surface wave magnitudes for earthquakes less than magnitude 7.5.

**Near-field Tsunami (Also Known As Local Tsunami):** A tsunami from a nearby source, generally less than 200 km away. A local tsunami is generated by a small earthquake, a landslide or a pyroclastic flow. This is the most serious tsunami hazard for San Diego County, because the wave heights are likely to be highest and the forces are likely to be the strongest (due to proximity to the precipitating event), because these tsunami waves can arrive in as little as 3 to 15 minutes of the event, and because they may occur after a disastrously damaging coastal earthquake, creating another layer of disaster, threatening the public and personnel responding to the earthquake, and complicating search, rescue, treatment, firefighting, and hazardous materials management.

**Normal Earthquake:** An earthquake caused by slip along a sloping fault where the rock above the fault moves downward relative to the rock below.

**Pacific Disaster Center (PDC):** An information processing center to support emergency managers in the Pacific region. Funded by the U.S. Department of Defense.

**Period:** The length of time between two successive peaks or troughs. May vary due to complex interference of waves. Tsunami periods generally range from 5 to 60 minutes.

**Runup:** Maximum height of the water onshore observed above a reference sea level. Usually measured at the horizontal inundation limit.

**Seiche:** A standing wave oscillating in a partially or fully enclosed body of water. May be initiated by long period seismic waves, wind and water waves, or a tsunami.

**Strike-Slip Earthquake:** An earthquake caused by horizontal slip along a fault.

**Thrust Earthquake:** An earthquake caused by slip along a gently sloping fault where the rock above the fault is pushed upwards relative to the rock below. The most common type of earthquake source of damaging tsunamis.

**Tidal Wave:** Common term for tsunami used in older literature, historical descriptions and popular accounts. Tides, caused by the gravitational attractions of the sun and moon, may increase or decrease the impact of a tsunami, but have nothing to do with their generation or propagation. However, most tsunamis give the appearance of a fast-rising tide or fast-ebbing as they approach shore and only rarely as a near-vertical wall of water.

**Tsunami:** A Japanese term derived from the characters "tsu" meaning harbor and "nami" meaning wave. Now generally accepted by the international scientific community to describe a series of traveling waves in water produced by the displacement of the sea floor associated with submarine earthquakes, volcanic eruptions, or landslides.

**Tsunami Earthquake:** A tsunamigenic earthquake which produces a much larger tsunami than expected for its magnitude.

**Tsunamigenic Earthquake:** Any earthquake which produces a tsunami.

**Tsunami Evacuation Map:** A drawing or representation that outlines danger zones and designates limits beyond which people must be evacuated to avoid harm from tsunami waves.

**Tsunami Magnitude:** A number which characterizes the strength of a tsunami based on the tsunami wave amplitudes. Several different tsunami magnitude determination methods have been proposed.

**Tsunami Travel Time:** Time required for the first tsunami wave to propagate from its source to a given point on a coastline.

**Tsunami Travel Time Map:** Map showing isochrones or lines of equal tsunami travel time calculated from the source outwards toward terminal points on distant coastlines.

**West Coast/Alaska Tsunami Warning Center (WC/ATWC):** Originally established in 1967 to issue warnings to Alaska of local tsunami events. WC/ATWC is now responsible for issuing warnings for any event likely to impact either Alaska, the west coast of the US, or the Pacific coast of Canada.

#### **WC/ATWC Bulletin Definitions:**

**Tsunami Warning:** The highest level of tsunami alert. A warning indicates that a tsunami is imminent and that coastal locations in the determined inundation area should be immediately alerted and evacuated. The initial warning is typically based on seismic information alone. Earthquakes over magnitude 7.0 trigger a warning covering the coastal regions within 2 hours tsunami travel time from the epicenter. When the magnitude is over 7.5, the warned area is increased to 3 hours tsunami travel time. As water level data showing the tsunami is recorded, the warning will either be cancelled, restricted, expanded incrementally, or expanded in the event of a major tsunami.

**Tsunami Watch:** The second highest level of tsunami alert. An alert issued to areas outside the warned area. The area included in the watch is based on the magnitude of the earthquake. For earthquakes over magnitude 7.0, the watch area is 1 hour tsunami travel time outside the warning zone. For earthquakes over magnitude 7.5, the watch area is 3 hours tsunami travel time outside the warning zone. The watch will either be upgraded to a warning in subsequent bulletins or will be cancelled depending on the severity of the tsunami.

**Tsunami Advisory:** The third highest level of tsunami alert. Advisories are issued by the TWCs to coastal populations within areas not currently in either warning or watch status when a tsunami warning has been issued for another region of the same ocean. An Advisory indicates that an area is either outside the current warning and watch regions, or that the tsunami poses no danger to that area. The Center issuing the Advisory will continue to monitor the event, issuing updates at least hourly. As conditions warrant, the Advisory will either be continued, upgraded to a watch or warning, or ended.

**Wrap Around Effect:** Regardless of their direction of travel, tsunamis wrap around all coastlines. While wave heights vary, all coastal areas remain vulnerable, particularly harbors.

## **Acronyms**

ARC	American Red Cross
CALTRANS	California Department of Transportation (DOT in State Agency Tables)
CALWAS	California Alert and Warning System
CHP	California Highway Patrol
CLETS	California Law Enforcement Teletype System
DMAT	Disaster Medical Assistance Team
DOT	United States Department of Transportation
EAS	Emergency Alert System
EMSA	California Emergency Medical Services Authority
EOC	Emergency Operations Center
ETA	Estimated time of arrival
FEMA	Federal Emergency Management Agency
ITIC	International Tsunami Information Center
LCES	Lookout, Communication, Emergency, System
NAWAS	National Alert and Warning System
NOAA	National Oceanic and Atmospheric Administration
NTHMG	National Tsunami Hazard Mitigation Program
NWS	National Weather Service
OA	Operational Area
OEHHA	California Office of Environmental Health Hazard Assessment
OES	California Office of Emergency Services
PAR	Personnel Accountability Report
PTWC	Pacific Tsunami Warning Center
PWC	Personal Watercraft
REOC	Regional Emergency Operations Center (OES)
SEMS	Standardized Emergency Management System
SSWWS	Seismic Sea Wave Warning System
TEPs	Temporary Evacuation Points
TIME	Tsunami Inundation Mapping Effort
WC/ATWC	West Coast/Alaska Tsunami Warning Center
USCG	United States Coast Guard

## Attachment F

# Example of a Tsunami Watch Message

WEPA41 PAAQ 011301  
TSUWCA

TO - TSUNAMI WARNING SYSTEM PARTICIPANTS IN  
ALASKA/BRITISH COLUMBIA/WASHINGTON/OREGON/CALIFORNIA  
FROM - WEST COAST AND ALASKA TSUNAMI WARNING CENTER/NOAA/NWS  
SUBJECT - TSUNAMI WARNING - INITIAL  
BULLETIN NUMBER 1  
ISSUED 07/01/2006 AT 1301 UTC

...THIS MESSAGE IS FOR TEST PURPOSES TO SHOW AN EXAMPLE  
WEPA41 MESSAGE...

...A TSUNAMI WARNING IS IN EFFECT WHICH INCLUDES THE  
CALIFORNIA AND OREGON COASTAL AREAS FROM POINT SUR  
CALIFORNIA TO CASCADE HEAD OREGON...

...AT THIS TIME THIS MESSAGE IS ADVISORY ONLY FOR OTHER  
AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH  
COLUMBIA - AND ALASKA...

### EVALUATION

IT IS NOT KNOWN - REPEAT NOT KNOWN - IF A TSUNAMI EXISTS BUT A  
TSUNAMI MAY HAVE BEEN GENERATED. THEREFORE PERSONS IN LOW  
LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR  
LOCAL EMERGENCY OFFICIALS. PERSONS ON THE BEACH SHOULD MOVE TO  
HIGHER GROUND IF IN A WARNED AREA. TSUNAMIS MAY BE A SERIES OF  
WAVES WHICH COULD BE DANGEROUS FOR SEVERAL HOURS AFTER THE  
INITIAL WAVE ARRIVAL.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 7.3  
TIME - 0500 ADT 07/01/2006  
0600 PDT 07/01/2006  
1300 UTC 07/01/2006  
LOCATION - 40.2N 124.5W  
45 MILES SW OF EUREKA CALIFORNIA  
200 MILES NW OF SAN FRANCISCO CALIFORNIA  
DEPTH - 3 MILES

PZZ255-350-353-356-450-455-550-530-535-555-ORZ002-021-022-  
CAZ001-002-005-007-006-075-074-009-011401-  
COASTAL AREAS BETWEEN AND INCLUDING POINT SUR CALIFORNIA TO  
CASCADE HEAD OREGON

...A TSUNAMI WARNING IS IN EFFECT WHICH INCLUDES THE  
CALIFORNIA AND OREGON COASTAL AREAS FROM POINT SUR  
CALIFORNIA TO CASCADE HEAD OREGON...

### ESTIMATED TIMES OF INITIAL WAVE ARRIVAL

CRESCENT CITY-CA 0700 PDT JUL 1 SAN FRANCISCO-CA 0722 PDT JUL 1

CHARLESTON-OR 0719 PDT JUL 1

\$\$

PKZ176-175-172-170-171-155-150-132-136-138-137-130-141-140-  
120-121-129-127-125-126-128-052-051-053-022-012-043-013-  
011-021-032-031-042-034-033-035-041-036-PZZ130-131-133-134-  
132-135-150-153-156-110-250-210-670-673-650-655-750-AKZ191-  
185-181-171-145-111-101-121-125-131-135-017-020-018-019-  
021-022-023-024-025-026-028-029-027-WAZ001-002-005-006-007-  
008-009-010-011-013-014-015-016-021-ORZ001-CAZ034-035-039-  
040-087-041-042-043-011401-  
COASTAL AREAS FROM THE CALIFORNIA-MEXICO BORDER TO POINT  
SUR CALIFORNIA AND FROM CASCADE HEAD OREGON TO ATTU ALASKA

...TSUNAMI ADVISORY STATEMENT...

NO - REPEAT NO - TSUNAMI WATCH OR WARNING IS IN EFFECT FOR  
THE COASTAL AREAS FROM THE CALIFORNIA-MEXICO BORDER TO  
POINT SUR CALIFORNIA AND FROM CASCADE HEAD OREGON TO ATTU  
ALASKA

FOR INFORMATION ONLY - ESTIMATED TIMES OF INITIAL WAVE ARRIVAL

SEASIDE-OR	0801 PDT JUL 1	JUNEAU-AK	1012 ADT JUL 1
SAN PEDRO-CA	0801 PDT JUL 1	SEWARD-AK	1017 ADT JUL 1
LA JOLLA-CA	0816 PDT JUL 1	SAND PT.-AK	1034 ADT JUL 1
NEAH BAY-WA	0824 PDT JUL 1	VALDEZ-AK	1035 ADT JUL 1
ASTORIA-OR	0830 PDT JUL 1	CORDOVA-AK	1045 ADT JUL 1
TOFINO-BC	0834 PDT JUL 1	DUTCH HARBOR-AK	1049 ADT JUL 1
LANGARA-BC	0923 PDT JUL 1	ADAK-AK	1110 ADT JUL 1
SITKA-AK	0905 ADT JUL 1	COLD BAY-AK	1110 ADT JUL 1
KETCHIKAN-AK	0935 ADT JUL 1	HOMER-AK	1122 ADT JUL 1
YAKUTAT-AK	0955 ADT JUL 1	SHEMYA-AK	1151 ADT JUL 1
KODIAK-AK	1009 ADT JUL 1		

\$\$

TSUNAMI WARNINGS ARE ISSUED DUE TO THE IMMINENT THREAT OF TSUNAMI.  
WARNINGS CAN BE BASED SOLELY ON SEISMIC INFORMATION... OR BASED  
ON CONFIRMATION THAT A POTENTIALLY DESTRUCTIVE WAVE HAS OCCURRED.  
COASTAL RESIDENTS IN THE WARNING AREA WHO ARE NEAR THE BEACH OR  
IN LOW-LYING REGIONS SHOULD MOVE IMMEDIATELY INLAND TO HIGHER  
GROUND.

THE PACIFIC TSUNAMI WARNING CENTER AT EWA BEACH HAWAII WILL  
ISSUE MESSAGES FOR HAWAII AND OTHER AREAS OF THE PACIFIC  
OUTSIDE THE STATES AND PROVINCES LISTED ABOVE.

MESSAGES WILL BE ISSUED HALF-HOURLY OR SOONER IF CONDITIONS  
WARRANT. THE TSUNAMI WARNING WILL REMAIN IN EFFECT  
UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE  
WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION AND EXPECTED ARRIVAL  
TIMES.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST  
MESSAGE.

\$\$