

## **Town of Ross**

### **Flood Warning System**

**Approved by Town Council May 9, 2013**

The Town of Ross is subject to periodic flooding from Corte Madera and Ross Creeks. The potential for flooding is present during every rainy season. The Ross Valley watershed can become saturated during prolonged and heavy storms. If rainfall is intense, heavy runoff can result in high creek flows, exceeding the capacity of the creek in places where conveyance is constrained. Floodwaters breach the creek bank in downtown San Anselmo, north of the Town of Ross, and above the Lagunitas Bridge in the Town of Ross. Floods in the Town of Ross develop rapidly, but are short in duration and usually subside within 24 hours. In 1982, flood depths of 4 to 5 feet were reported. Additional information and maps of flood prone areas may be found in the Town of Ross Local Hazard Mitigation Plan, adopted in 2012.

#### **The Flood Warning System**

The Town uses National Weather Service warnings as notification that flooding is possible. The Town of Ross is served by a local police department and the Ross Valley Fire Department (RVFD). When a flood producing storm is expected, the Town managers for the three incorporated communities in the Ross Valley watershed (Ross, Fairfax and San Anselmo) hold a conference with the RVFD Chief and Ross Police Chief to review the flood warning plan.

A member of the RVFD is responsible for monitoring the National Weather Service for updates and advisory warnings and local stream gages when flooding is possible. The RVFD has National Oceanic and Atmospheric Administration (NOAA) monitoring equipment located in an office that is staffed 24 hours a day. The RVFD has two weather stations at fire stations in San Anselmo and Fairfax. During flood events the RVFD personnel monitor the Doppler radar, satellite and other resources available including local creek gages.

The RVFD staff monitor creek gage levels at three locations to determine when flooding is imminent. Two gages are located upstream of the Town and one within the Town. Flooding occurs when the Ross stream gage is at 19 feet. A flood threat is recognized when the stream gage is at 18 feet (or lower if rainfall is heavy and continuous). At that time, the Ross Police Chief is notified to disseminate a flood warning.

The Marin County Flood Control and Water Conservation District maintains the stream gage station in Corte Madera Creek, near Ross Town Hall, (Latitude 37°57'47", Longitude 122°33'21" referenced to North American Datum of 1927, Marin County, CA). The station provides real-time data on the level of the creek. The station transmits information via radio antenna to a computer. A link to the local stream gage data is on the Town of Ross Flood Information web page. A mobile version of this data is also available through the County of Marin OneRain web site (see "Corte Madera Creek"). The USGS also maintains a creek gage at this station (11460000 Corte Madera Creek at Ross, CA).

### **Emergency Warning Dissemination**

The Town of Ross' flood warning system consists of three ways of warning the public of potential flooding: 1.) two automatic telephone dialing systems; 2.) siren; and 3.) Town-wide email list. The Town seeks to provide up to an hour of advance warning. However, the continuously changing variables of precipitation, creek levels, and forecasts have a major effect on meeting this goal.

### ***Telephone Alert Systems***

The Ross Police Chief initiates telephone alert systems to warn residents and businesses about floods and provide recorded messages containing important information. The message to be played will depend on the flood threat to the area at that time.

The Marin County Telephone Emergency Notification System (TENS) is a high speed communications system that delivers emergency information or warnings to designated geographic areas. TENS is a combination of telephone, computer, and Geographic Information System (GIS) technologies. Using TENS, the Town can deliver recorded warning messages directly to the public via telephone, SMS text and/or email in a very short time. The Marin County Sheriff's Office (MCSO) Office of Emergency Services (OES) manages and is the primary activator of the system. The system also provides a customized self-registration portal for cell phone numbers, VOIP and email services, and TTY/TDD messaging.

Maintenance of the communications equipment is provided for by contracts with the manufacturers.

### ***Email***

The Town disseminates flood warnings and information by a Town-wide email list to which residents subscribe. Residents may be included on the list by contacting the Town Clerk.

### ***Siren***

All of the Ross Valley communities coordinate to use horns and sirens simultaneously when a flood is determined to be imminent. When the creek is expected to exceed a flood stage, the RVFD sounds a siren that may be heard throughout the Town.

The Town siren is located on a 40-foot monopole behind the public Works garage building, at 35 Sir Francis Drake Boulevard. Residents are warned through the Town web site, emails and other public information that the sound of the siren means to be alert for information. Sources of information include: local television stations, local AM radio stations (KCBS AM 740), the Telephone Emergency Notification System (TENS), or the public address from a passing patrol car. The Ross Valley Fire Department tests the siren once a month on a Saturdays at noon and the siren receives back up power from an emergency generator located above the base flood elevation. Maintenance of the siren is provided for by a contracts with the manufacturer.

### **Other Response Efforts**

The Town implements other activities to minimize flood damage:

**Sand Bags.** Sand and bags are available during the winter months at the entrance to Natalie Coffin Greene Park at the end of Lagunitas Road. No shovels are provided.

**Coordination with Critical Facilities.** The Ross fire station, police station, Ross Valley Paramedic ambulance and administrative offices are located in a Flood Hazard Area. Personnel are notified and move vehicles and necessary equipment to higher elevations when a flood is imminent.

**Barricades and Traffic Direction.** The Town police and public works staff barricade streets expected to flood and flooded streets and bridges. Shady Lane and Bolinas Avenue are the first roads to be closed by rising water. Other streets that flood include Bolinas Avenue, Shady Lane, Ross Common, Redwood Avenue, Poplar, Lagunitas Road, areas of Sir Francis Drake, and the Winship Bridge. Police direct traffic to avoid flooded streets.

**Mobile Public Address System.** The Ross Police Department sends a patrol car along streets in the floodplain (Bollinas, Fernhill, Poplar, Ross Common, Shady Lane, Locust, Sir Francis Drake and Sylvan Lane) to warn residents with its public address system. The police patrol cars are used daily, so there is no special testing or maintenance documentation needed for them.

**MERA.** The Town is a member of the Marin Emergency Radio Authority (MERA), a Joint Powers Authority formed to plan, implement and manage a countywide public safety and emergency radio system for the use of all member agencies. This system helps unify public safety response and ensures communication among individual agencies and departments. The system of 17 base station radio and receiver sites provides regional or County wide radio communications among dispatch centers and mobile units throughout the county. The Emergency Communications System is comprised of property and equipment constituting a public safety, emergency, and public services wireless radio communications system, using frequencies in the 480 MHz UHF-T band. The system was designed to provide the members with effective and reliable radio communications for routine intra-agency operations and inter-agency communications during mutual aid and disaster operations within County.

**EOC.** The Town Manager activates the Emergency Operations Center, if necessary.

**Evacuation Shelters.** The Red Cross opens evacuation shelters.

**Security.** The Ross police establish security and other protection measures.

### **Annual Evaluation**

The Town will exercise and evaluate the flood warning and response plan each year (this evaluation will be met if the plan is implemented in response to a flood). After the exercise, there will be an evaluation of the performance of the plan and recommended changes that may be needed.