



Tomales Emergency Response Network
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Tomales Emergency Response Network GMRS Radio Network Diagram

Key

- Green circles represent handheld radios and operators
- Solid green lines represent direct, line-of-sight, radio to radio transmissions
- Solid blue lines represent direct, line-of-sight, two-way radio to base station transmissions
- Dotted red lines represent two-way radio to repeater tower transmissions
- NOTE: TERN daily check ins use the base station to relay local check ins and traffic between the village and the eastern sector. Blue Mountain uses Tac-2 for this (separated by geography from the village) and a different channel when they're coordinating amongst themselves.

Local Tactical Channels vs Repeater Channels

The local channels have limited range and are intended to be used by neighborhood teams to coordinate their on-the-ground response to a disaster (search and rescue, for example). They are meant for tactical communications — hence the name, TAC-2 and so on. The limited range is a feature not a bug, so that their communications don't interfere with those of other neighborhood teams. The repeater channel is intended instead for higher level, strategic communications, coordinating across neighborhood teams and out to other disaster councils and to WMDC HQ, who in turn have the capacity to escalate messages if help is needed from further afield.

According to the model that WMDC uses, each neighborhood (tactical team) checks in with each other locally on their TAC channel, and then their ONE team leader (Neighborhood Liaison), checks in over the repeater to report how many checked in on each local channel. Because of the geography in our area and the distribution of radios and team members, we have instead a mix of people across the network with access to the repeater channel. And all are requested to check in every day on both the local and the repeater channels.

There are technical differences between the local and repeater channels too. The local channels are 'line of sight', meaning that transmissions flow from every radio out to be received directly by other radios tuned to that channel. The quality of a transmission sent and received depends on geography, so that if there's a hill or, say, a barn with a metal roof between one radio and another, the signal might be full of static or blocked entirely. Transmissions over the repeater channel travel instead up to the repeater tower and, as long as the antenna and tower are working, are received by the tower and sent back out again to the network — sent to and received through the repeater tower, not directly from to/from the sender and receiver's handheld radios.
