



# AFTER THE IMPACT

Jim Buck

**This will be a disaster of a magnitude similar to Katrina or Banda Aceh and the bulk of the national and international response will simply not even begin to arrive before day 4.**

***After the Impact* is aimed at beginning discussions about how isolated communities might deal with their own problems until enough outside assistance is re-established to move injured out and supplies in.**

**Blue Cascades III contains the following statement,**

**“Communities in lower priority areas found they needed to be self-sustaining for weeks.” I don’t represent any lower priority communities and I challenge any responsible elected official to step forward and say he/she does.**

**So let's talk about  
creating community  
responses that serve  
our people's needs.**

# The following is a list of goals for the breakout session:

- Discuss the impact “Context of the Scenario” has on populations
- Discuss the impact “Context of the Scenario” has on first responders and volunteers
- Discuss the impact the scenario has on facilities.
- Discuss the effect a CSZ quake would have on the ability of people to help with response.
- Discuss a community plan for Joyce, WA.

## **The vague time of year injects many potential contextual alterations into the scenario:**

- 1) For instance, 8 PM in late May (Pacific Peril's time of event) means most people are home or heading home while 1:45 PM in late winter means most people are still at work or school. This changes the entire early-responder/volunteer dynamic.**
- 2) It also changes weather and daylight considerations which influence rescue activities and recon of damage. Time of day and time of year are important considerations, i.e., - nice summer day versus lousy winter day.**

	<b>Time</b>	<b>People</b>	<b>Traffic</b>
<b>Blue Cascades III</b>	<b>1345 hrs ± March 1</b>	<b>At work, school, etc.</b>	<b>Normal</b>
<b>Pacific Peril</b>	<b>2000 hrs May 23</b>	<b>At home</b>	<b>Light</b>
<b>WA Emergency Management</b>	<b>Noon July 5</b>	<b>On holiday weekend</b>	<b>Moderate</b>
<b>Buck Worst Case</b>	<b>1645 hrs January 20</b>	<b>In transit</b>	<b>Heavy</b>
<b>1700 CSZ</b>	<b>2100 hrs January 26</b>	<b>At home</b>	<b>?</b>



	<b>Weather</b>	<b>Forecast</b>	<b>Tide</b>
<b>Blue Cascades III</b>	<b>Cold – no rain</b>	<b>Rain in 24 hrs</b>	<b>+ 5.0</b>
<b>Pacific Peril</b>	<b>Cool w/showers</b>	<b>Cool w/showers</b>	<b>+ 4.2</b>
<b>WA Emergency Management</b>	<b>Nice</b>	<b>Warm &amp; Dry</b>	<b>+ 3.3</b>
<b>Buck Worst Case</b>	<b>Heavy Rain</b>	<b>Cold &amp; Wet for 36 hrs</b>	<b>+ 9.0</b>
<b>1700 CSZ</b>	<b>?</b>	<b>Cold &amp; Wet for 36 hrs</b>	<b>+ 4.0</b>

	<b>Daylight Remaining</b>	<b>Darkness</b>	<b>Flight Potential</b>
<b>Blue Cascades III</b>	<b>~ 3 hrs</b>	<b>13 hrs</b>	<b>OK for 24 hrs</b>
<b>Pacific Peril</b>	<b>~ 1 hr</b>	<b>9 hrs</b>	<b>OK</b>
<b>WA Emergency Management</b>	<b>~ 10 hrs</b>	<b>7 hrs</b>	<b>OK</b>
<b>Buck Worst Case</b>	<b>~ 5 hrs</b>	<b>16 hrs</b>	<b>IFR only for 36 hrs</b>
<b>1700 CSZ</b>	<b>~ 0 hrs</b>	<b>16 hrs</b>	<b>IFR only for 36 hrs</b>

**Let's consider the effect  
of date, time and  
weather on your  
personal location; work,  
home or in-transit, when  
the event occurs.**

**Let's consider the effect  
of date, time and  
weather on a first  
responder's location?  
Can they still respond?**

**Let's consider how the scenario affects your mindset by comparing "home with family in the dark" versus "at work with family scattered at school, daycare, clubs or jobs."**

**Now consider the first responders' mindset in the same circumstances.**

**They are the same as yours. Will they be able to respond at all?**

**If they respond, how fast will they respond? Is the quality of the response taken into account in subsequent parts of the scenario or does the scenario assume a full workday of man-hours with all hands reporting?**

**Let's consider how the effect of date, time and weather on the availability of manpower for response. How will this affect future assumptions in the scenario about what activities have been completed?**



# **Your First Response**

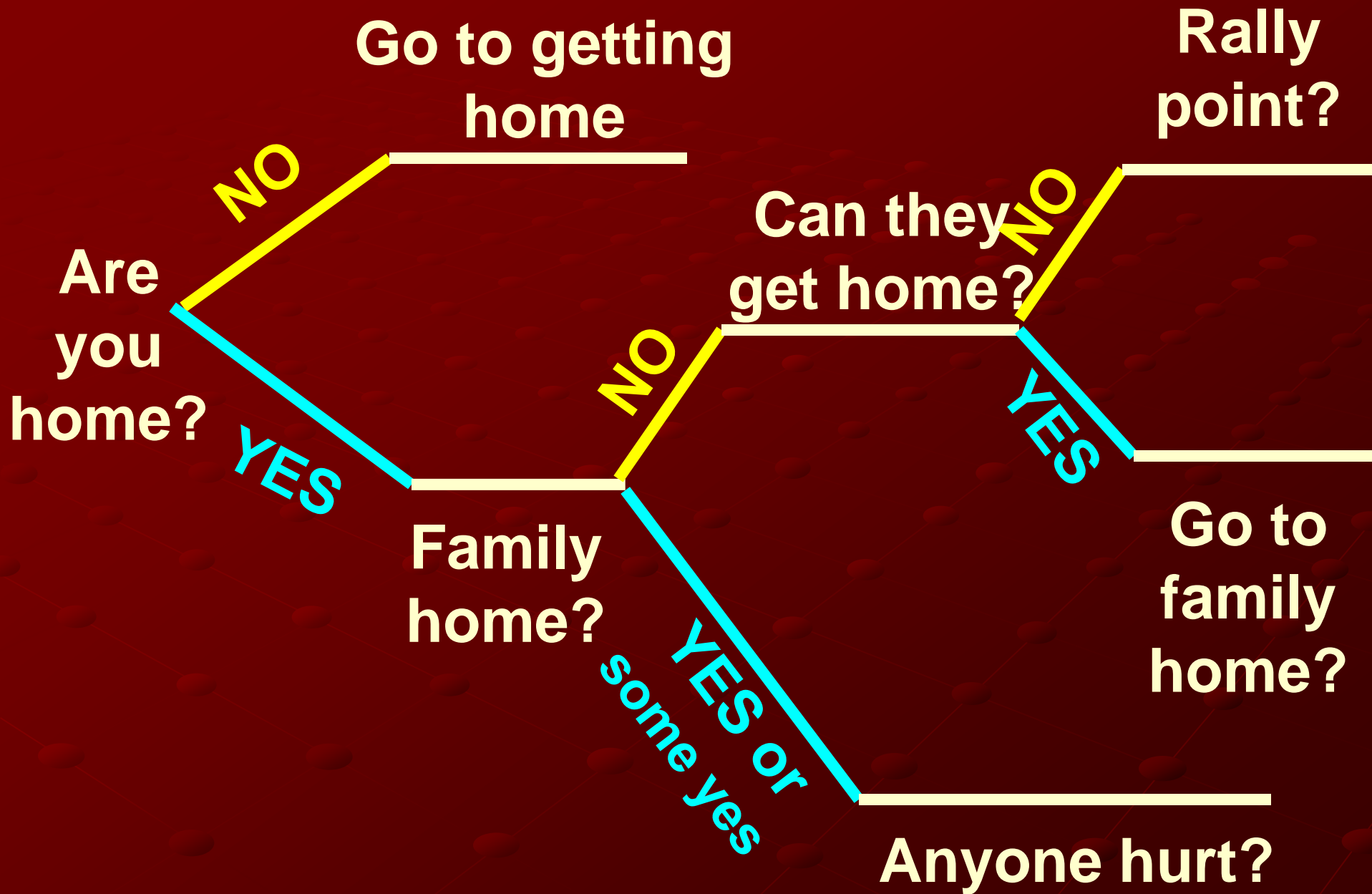
**Many rural jurisdictions are staffed entirely by volunteer firefighters and EMT first responders. Volunteer first responders are a rare breed. They run to an emergency at all hours of the day and night. They can do this because they assume their families and property are safe while they are doing so.**

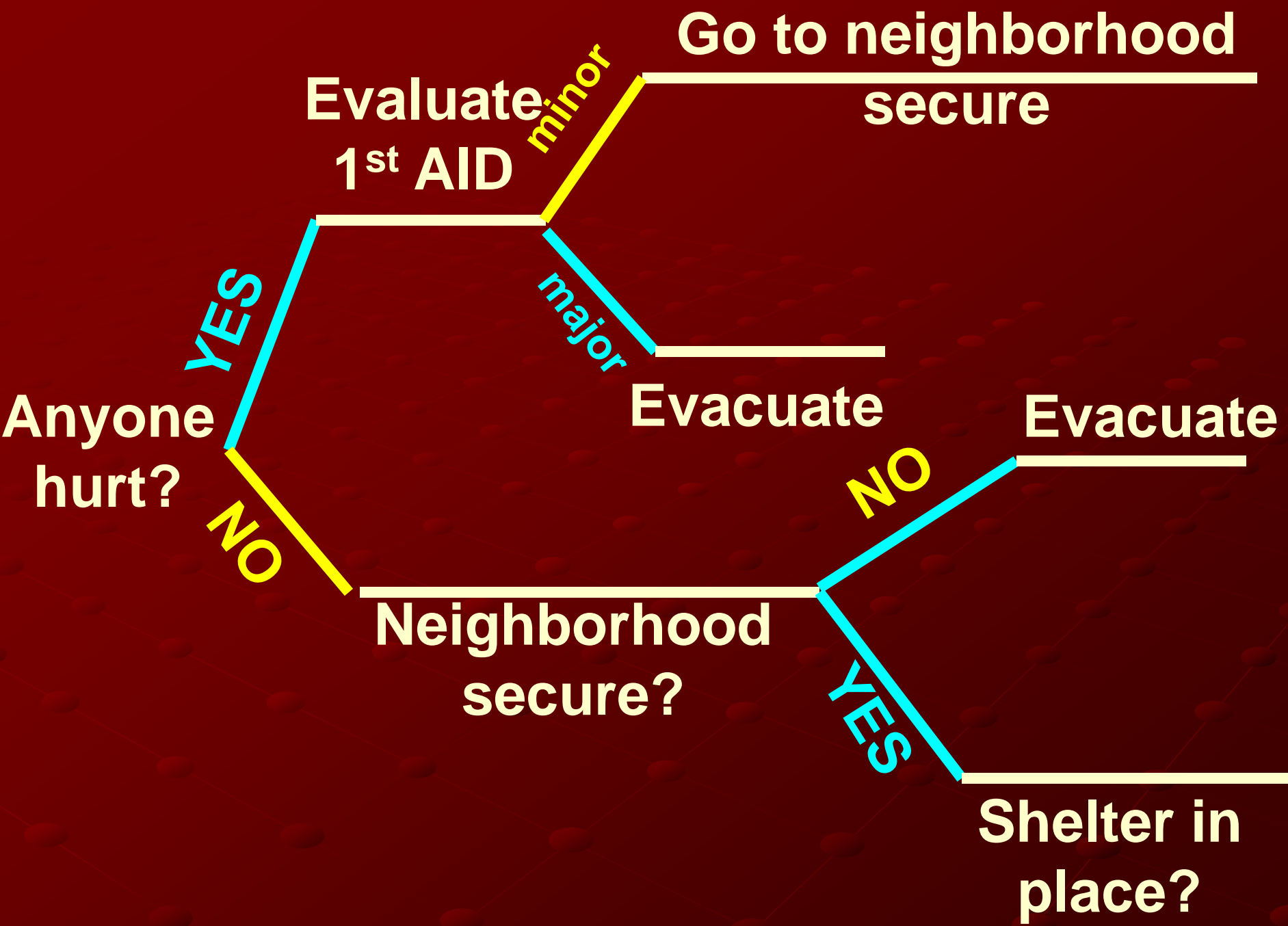
**How do you  
document  
volunteers?**

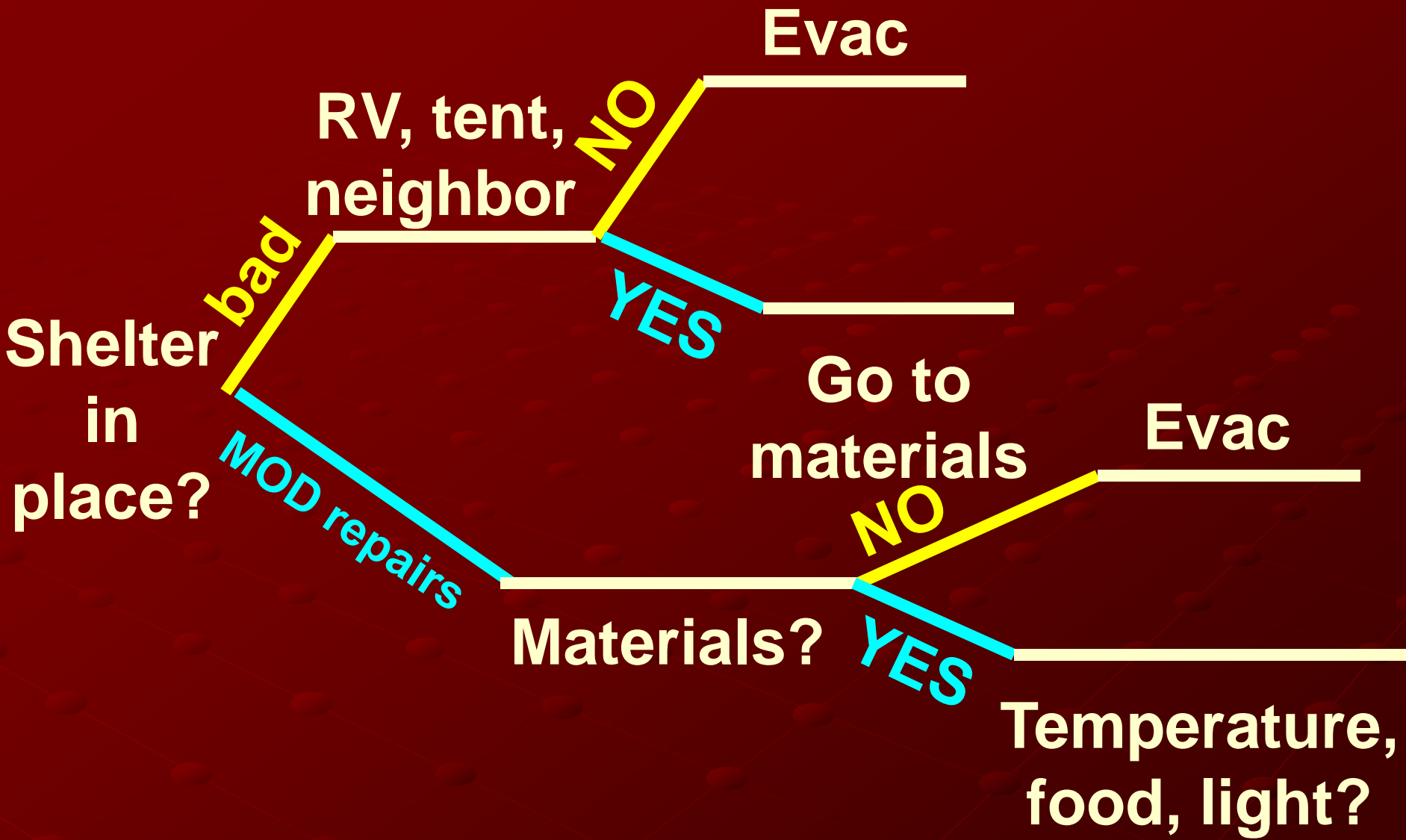
**How do you keep  
track of equipment  
time and man-hours  
for reimbursement?**

**How do you keep  
record of  
commandeered  
equipment and  
supplies?**

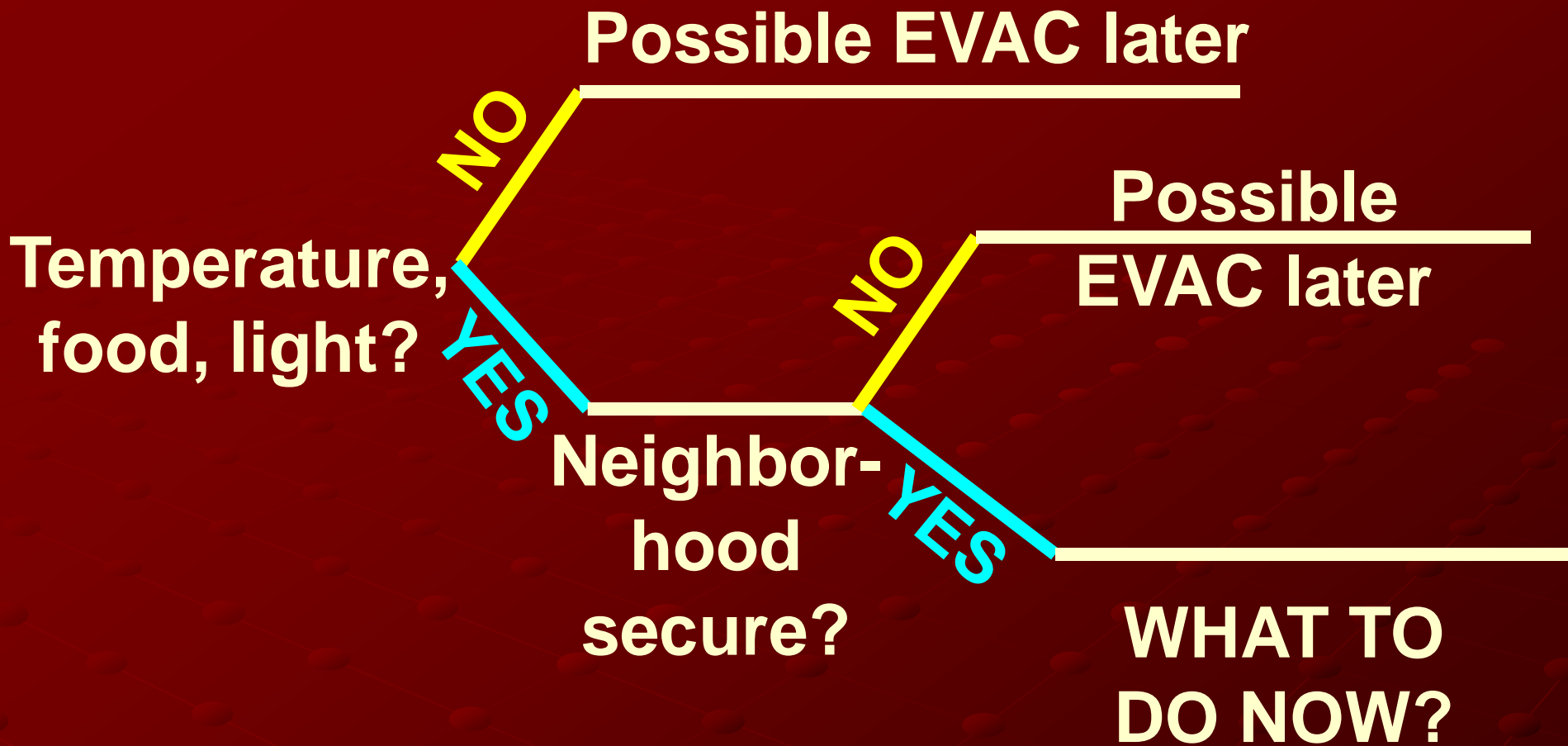
**How do you keep records to reimburse property owners for using their property for temporary shelters and aid stations?**









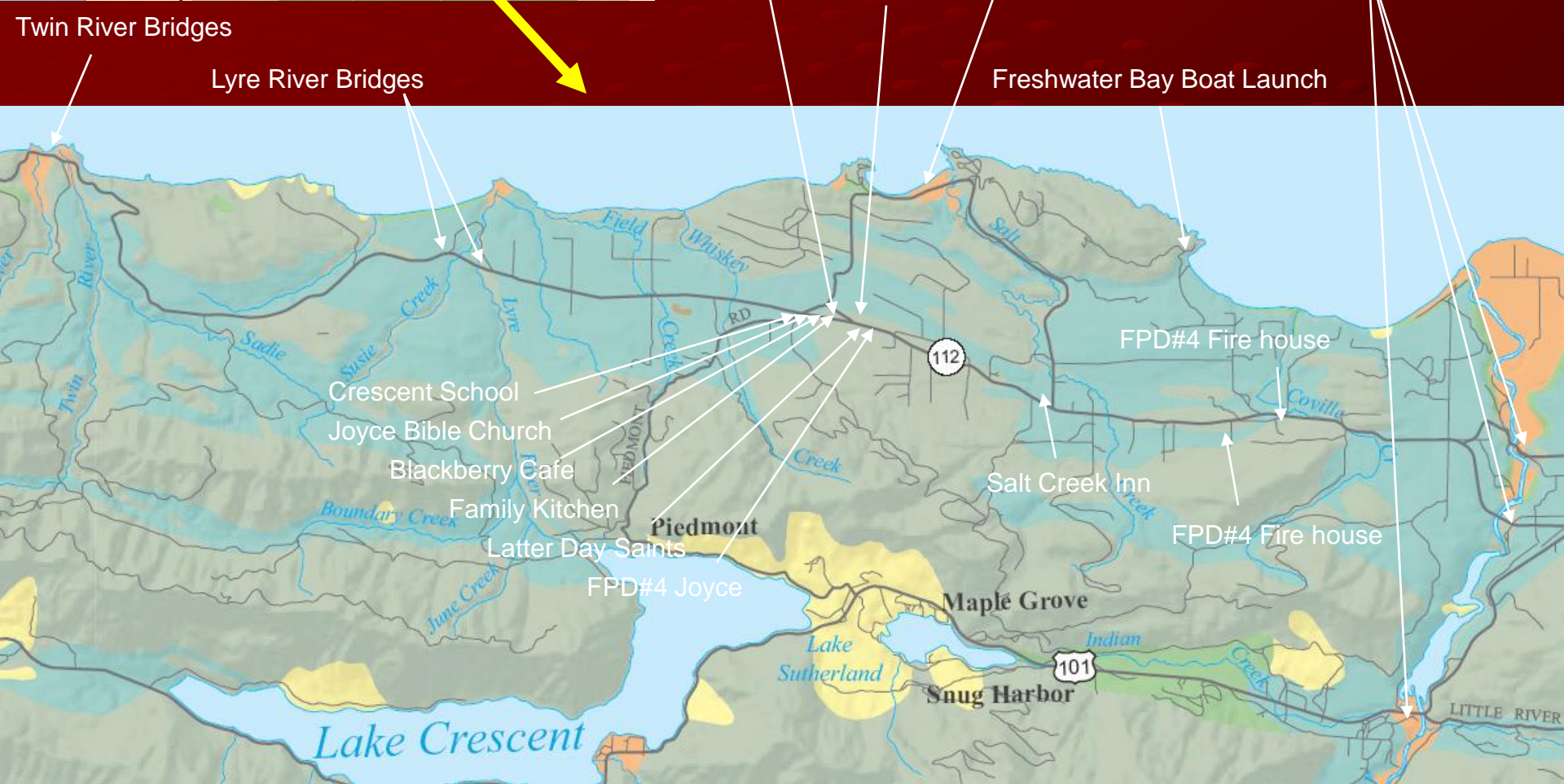


**NEIGHBORHOOD PLAN**

# Developing a Neighborhood Plan

## The Joyce Scenario

# Joyce



# Day 1

## *(Night Situation)*

Situation as of January 20,  
1650 hrs – Provides an estimate  
of the situation

**A magnitude 9.2 CSZ earthquake struck 130 miles off Pacific Northwest Coast with duration of 4.5 minutes.**

**The entire west end of the Olympic Peninsula subsided (sunk) 6 feet and seawater rushed in to cover the new beach.**

**The tide stage at 1745 hrs is 9 feet, which added to the loss of 6 feet from subsidence, is now 15 feet.**

**Surf is washing over the road at  
Crescent Beach and the Twin  
Rivers. A tsunami warning has  
been issued but with  
communications down, few hear  
it.**

**Weather - Temp 35° , rain heavy is expected for the next 24 hrs, snow level 1,000 feet, visibility ¼ mile with winds from the south gusting to 25 mph. Soils are saturated.**



**Communications – Road**

**conditions are unknown but it is suspected that the Elwha River, Salt Creek, Lyre River and Twin Rivers bridges have collapsed and that slides and liquefaction have cut Hwy 112 at the Twin Rivers and the Piedmont Road to Lake Crescent.**

**Utilities – The Clallam County EOC is off the air. There is no power or phone service and cell phone systems are out. The water system has lost pressure.**

**Buildings – The Joyce Fire Protection District 4 firehouse collapsed on the equipment. The masonry structures at Crescent School collapsed and the grange and Laundromat are destroyed.**

# UNREINFORCED MASONRY - COLLAPSED



**The Modular and stick built classrooms at Crescent School, Joyce General Store, Joyce Café, old railway station, Joyce Bible Church and gym, Church of Latter Day Saints, Mini-storage garages, strip mall and Family Kitchen are damaged but standing.**

# STICK BUILT STRUCTURES ARE DAMAGED BUT STANDING



# STICK BUILT STRUCTURES ARE DAMAGED BUT STANDING



# Joyce





# Day 1 Night Mission

for Next 12 hours of

darkness

1/20 1645 hrs to

1/21 0500 hrs

**Individuals – By 1730 hrs and until further notice, rescue, evacuate out and stay out of tsunami zone, shelter-in-place, in RVs or with near-neighbors if possible, evacuate to Joyce only if necessary. Emergency services may be available in Joyce after 2100 hrs.**

**JOYCE IN A POWER FAILURE AFTER DARK**

**Community - Establish aid station/shelter in Joyce, prepare to offer limited emergency services by 2100 hrs at the aid station/shelter, get fire equipment out of Joyce firehouse, establish some kind of communications with Clallam County EOC.**

**Recon Hwy 101, Piedmont Road,  
Freshwater Bay Road and Camp  
Hayden Road. Move school buses to  
aid station shelter for emergency  
warming, mobilize volunteer assets  
for morning recon.**



# Execution

**Individuals** – Proceed to high ground if in tsunami zone, rescue trapped individuals, if possible, and take shelter for the night to avoid hypothermia. Unnecessary travel after dark should be discouraged.



**Community** – Law enforcement, FPD# 4 personnel, public employees and other selected individuals will mobilize at Joyce General Store at 2000 hours to assess damage to Joyce buildings and decide where to establish the aid station/shelter.



**Keeping in mind the reality of after-shocks, these people will make necessary temporary repairs and try to establish emergency heat, power and sanitation along with signage directing people to the facility. School buses will be moved to the shelter for emergency warming.**



**Recon Hwy 101, Piedmont Road,  
Freshwater Bay Road and Camp  
Hayden Road. Move school buses to  
aid station shelter for emergency  
warming, mobilize volunteer assets  
for morning recon.**



**An equipment operator will use the loader at the DOT sand stockpile to lift the roof off the fire house so the equipment can be moved out (NOTE: This loader is only on site during the winter).**



**Makeshift repairs to the fire equipment are to be made during the night. Communication in the community and with the EOC may be possible via police/fire radios or CB radios until HAM facilities can be established at the site.**

**Law enforcement is to immediately lock down the fuel at Joyce General Store and Crescent School. Law enforcement is to scout Hwy 101, Piedmont Road, Freshwater Bay Road and Camp Hayden Road.**



**Restaurants and the stores are to immediately conserve food, water and sanitation supplies. Collect rainwater. Unnecessary travel after dark should be discouraged.**



# Admin and logistics

Individual – People need to communicate with neighbors and assist as needed. Make do with what you have until daylight, relocate to RVs, near-neighbors or evac to Joyce as a last resort. Limit travel at night as much as possible.



**Community – State Patrol, Sheriffs, Corrections Officers in the area at the time of the event, PUD, Crescent Water, School District, state, county and city workers and other public personnel will be the core of the response and recovery effort until road communications is re-established with Port Angeles.**

*Attachments/detachments* –

**None – no mutual aid available**



# Communications

Police/fire radios, Hams, CB,  
satphone ?????, cellphone ??????,  
runner (ORV)

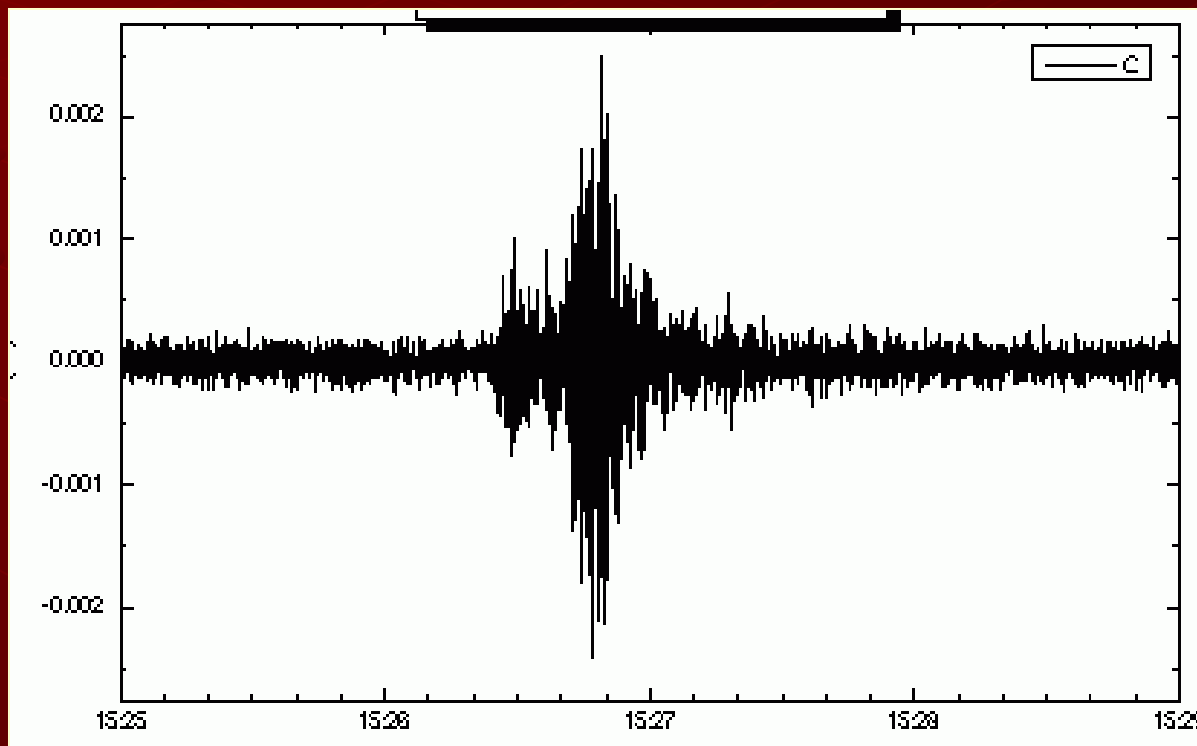


# Day 2

## *(Morning Situation)*

Situation for Daylight hours of  
January 21, 0500 hrs to 1700 hrs

**After-shocks continue to occur with one as large as magnitude 7.5.**



**During the night, tsunamis in the range of 20 feet above tide stage with an additional 6 foot run-up struck the coast of the Strait between the Twin Rivers, Crescent Beach and Freshwater Bay.**

**Everything below a pre-quake elevation of 35 feet above sea level is either destroyed and/or covered with debris.**



**The strait began to settle down about 0400 and no new tsunami warnings have been issued. There is a lot of floating debris.**

**Weather - Temp 35, rain heavy in morning easing to showers during the next 12 hrs. Forecast is for clearing and colder tonight with freezing level dropping to sea level and improving visibility.**



## *Communications* –

**Police/fire radio communications has been established with the Clallam County EOC. Limited scouting during the night established that the Elwha River, Salt Creek, Lyre River and Twin Rivers bridges collapsed.**





**Significant liquefaction at MP 58 closed Hwy 112 for ½ mile. A detour through Eden Valley and Dan Kelley Road has been established. Highway 112 at the Twin Rivers is closed due to landslides, liquefaction, and tsunami debris.**

**Survivors are stranded on Hwy 112 west of the Twin Rivers. Numerous localized road failures at small bridges, culverts and fills make the following roads passable to horses, ORVs and some 4 wheel drive vehicles only - Hwy 112, Freshwater Bay Road, Camp Hayden Road, Eden Valley Road, Dan Kelley Road and Place Road.**

**Crescent Beach Road has been destroyed at west Crescent Beach and will need major reconstruction. The Camp Hayden Road has localized road failures and slides but could be reopened for evac and resupply through Crescent Beach if a bridge can be built at Salt Creek.**

**Tsunami debris blocks Crescent Beach and the Freshwater Bay boat ramp and will hinder marine evac/resupply if not dealt with.**



# Slides block Piedmont Road, cutting off communication with Lake Crescent ...



**but a resident hiked the 4.5 miles to Joyce during the night and reports landslides into Lake Crescent created waves as high as 10 feet and have damaged homes and roads along the lake.**

**Utilities** - There is no power or phone service and cell phone systems are off the air. The water system continues to have no pressure.

**Buildings** – EMS equipment has been pulled out of the collapsed Fire Protection District 4 firehouse. The Freshwater Bay firehouse is damaged but usable.



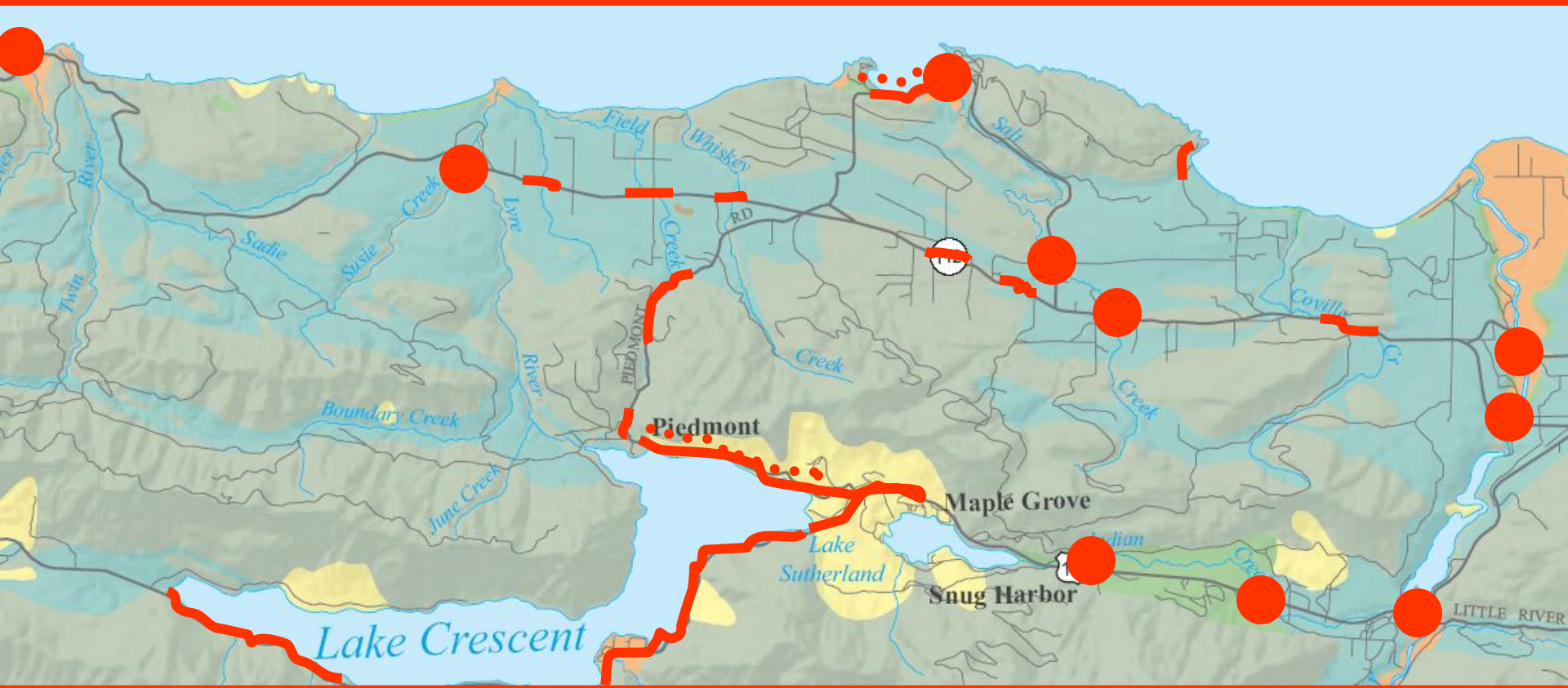
# The Joyce General Store, Joyce Bible Church & gym, Church of Latter Day Saints, Storage Garages, strip mall & Family Kitchen are damaged but usable.



# The Salt Creek Inn is damaged but usable.



# Joyce



**Day 2**  
**Mission**

for

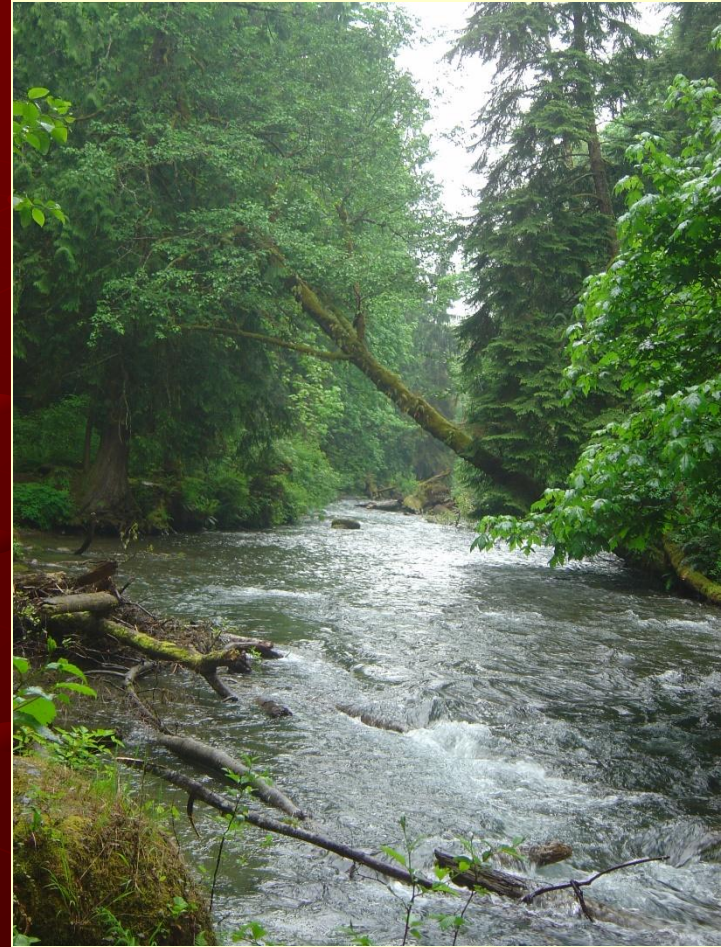
**daylight hours**

**1/21 0800 hrs to 1700 hrs**

**Individuals** – House to house search for injured and at risk people. Evacuate injured and at risk people to Joyce, assess and repair damage to homes/shelters, If homes/shelter is untenable, evac to RVs or available neighboring shelter or to Joyce if necessary.

**If family is secure, able-bodied people should mobilize to Joyce for job assignments, conserve food and fuel.**

*Community* – Recon  
community roads and  
support house to  
house search as  
needed, set up ferry  
across the Lyre River  
at Norman's, rescue  
people west of the  
Twin Rivers, establish  
contact with Lake  
Crescent community,



**use daylight to improve  
shelter/aid station, arrange  
helicopter or boat medivac if  
possible, inventory boats, heavy  
equipment and operators,  
prioritize use of boats and heavy  
equipment.**



**Crescent water to see if water  
service can be restored,  
Inventory and conserve food and  
fuel at Joyce General Store,  
Restaurants, school, churches  
and grange.**

# Execution

**Individuals – Conduct house to house search for injured or at risk people, Assess and begin repairs to home/shelter or move to RV, set up basic sanitation, take shelter to avoid hypothermia. Unnecessary travel should be discouraged. Conserve food and water.**

**Community** – Law enforcement personnel with school buses and Fire Protection District 4 equipment and personnel will be placed at Hwy 112 intersections to receive injured or at risk individuals. Equipment with lifting capability will respond as needed for rescue extrication.

**Heavy equipment as available will try to reopen Hwy 101, and Piedmont Road. Freshwater Bay Road and Camp Hayden road are next priority. Use local boats and cable to set up ferry across Lyre River.**



**People with carpentry skills will improve the aid station shelter and prepare temporary shelter and try to rig emergency heat, power and sanitation.**



**Volunteers in the Salt Creek area will try to establish an aid station/shelter at the Salt Creek Inn. Volunteers in the Freshwater bay area will try to establish an aid station/shelter at the Freshwater Bay FPD#4 firehouse.**

**Horse back riders/ ORVs will establish contact with Lake Crescent and rescue stranded people west of the Twin Rivers. Crescent Water employees to recon water system.**



**An equipment operator will use the DOT loader to reopen the Freshwater Bay boat ramp. Communication in the community and with the EOC is now possible via police/fire radios.**



**HAM radio facilities are established at the site. Collect rainwater. Fuel, food and water are being rationed. Unnecessary travel should be discouraged.**



# Admin and logistics

Individual – People need to communicate with neighbors and assist as needed. Make do with what you have, relocate to RVs, near-neighbors or evac to Salt Creek or Joyce as a last resort. Limit travel at as much as possible.

**Community – State Patrol, Sheriffs, Corrections Officers in the area at the time of the event, PUD, Crescent Water, state, county and city workers and other public personnel will be the core of the response and recovery effort until road communications is re-established with Port Angeles.**

*Attachments/  
detachments*

**– A Washington National Guard helicopter delivered several medics and medical supplies and removed several severely injured individuals to Port Angeles.**



# Communications

Police/fire radios, Hams, CB,  
satphone ?????, cellphone ??????,  
runner



# Day 2

## *(Night-time Situation)*

***Situation*** - Night time for 1/21 1700  
to 1/22 0500 hrs

**After-shocks continue to occur  
but no new tsunami warnings  
have been issued.**

**Weather - Temp 32. Forecast is for clearing and colder tonight with lows in the 20s. Expect rain/snow in 24 hours.**





**Communications – Police/fire  
radio communications continues  
with the Clallam County EOC.  
The house to house search was  
completed and found  
approximately 200 injured, 12  
dead and 80 at risk people.**

**Those needing care have been moved to Joyce or Salt Creek Inn. Hwy 112, Freshwater Bay Road and Camp Hayden Road are open but with one lane traffic in many places and it is necessary to ford some streams.**

**The ferry across the Lyre River has been installed. The Freshwater bay boat ramp is open but debris on the water makes it too dangerous to use boats after dark.**



**The aid stations and shelters have heat, generators and sanitation. Contact with Lake Crescent and Lake Sutherland has been established but many homes around both lakes have been destroyed by waves from generated by landslides.**

**The Piedmont road is covered with slides and debris but a cat trail has been pioneered to Log Cabin Resort. Hwy 101 is blocked along Lake Crescent by debris and slides and by slides at Lake Sutherland.**

**People are sheltering in place but will need a way out tomorrow. There are many casualties. People west of the Twin Rivers have been evacuated to Joyce.**

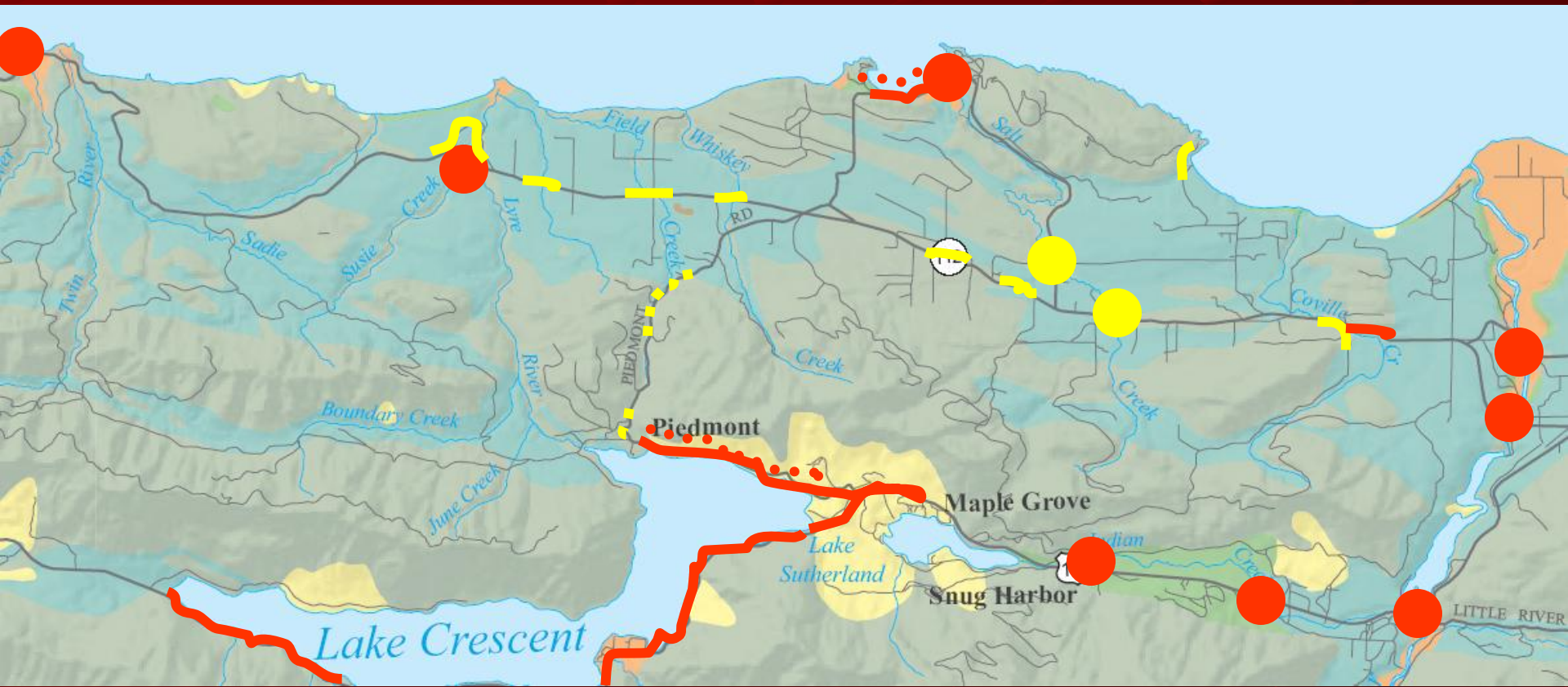


**Utilities** - There is no power or phone service and cell phone systems are off the air. The water system continues to have no pressure. Crescent Water employees estimate several weeks before service is restored.

**Buildings – The Joyce General Store, Joyce Bible Church and gym, Church of Latter Day Saints, Storage Garages, Salt Creek Inn and strip mall are all being used as temporary shelters. The family Kitchen is the community food service.**



# Joyce



# Day 2 Night Mission

## Night time

for 1/21 1700 to 1/22 0500

**Individuals** – Continue to shelter-in-place, improve shelters, if family is secure able-bodied should mobilize to Joyce for volunteer assignment, conserve food and fuel. Avoid unnecessary travel.

**Community** – Maintain, monitor and improve aid stations/ shelters.

Respond to emergencies as needed, communicate with EOC to arrange helicopter resupply and evacuations from Crescent School football field.

Begin to coordinate boat evacuation/resupply effort with EOC.

**Overnight, volunteers will try to get one lane of Piedmont Road open to Lake Crescent so people can evac to Joyce if necessary. Prepare for additional evacuees from Lake Crescent and Lake Sutherland. Inventory heavy equipment and operators and prepare heavy equipment assignments for next day.**



# Execution – Shelter in place or at Community Center and restore road/bridge communications



# **Admin and logistics** – make do

with what you have for ?????

Use local labor and equipment

Communicate with neighbors

Restore temp facilities if damaged

Salvage as needed.

Triage evacuees by whatever

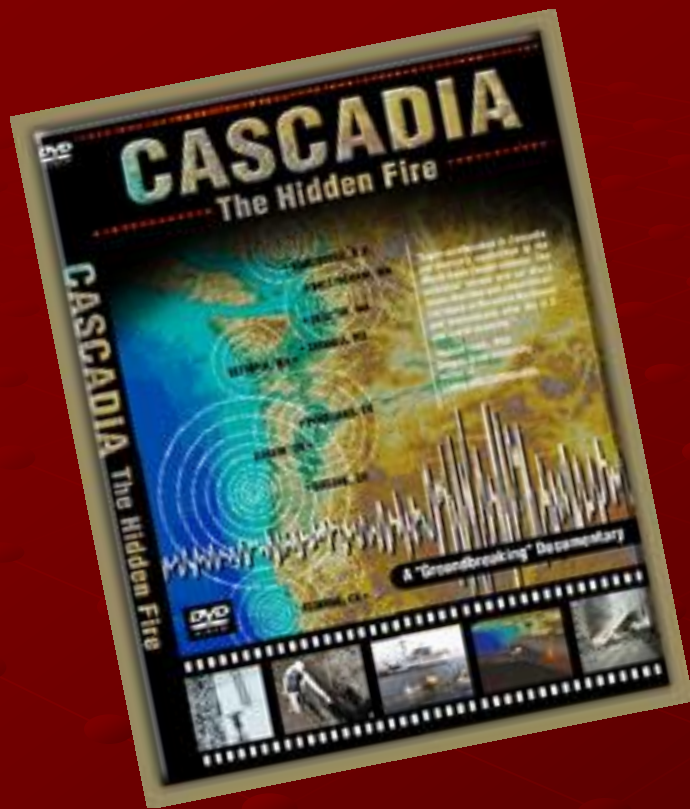
Share food and fuel

Law enforcement as required



# Communications – Hams, CB, satphone, cellphone ??????





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