

SAN LORENZO VALLEY WINTER DEBRIS FLOW UPDATE: Review and Recommendations

Prepared by:
Friends of San Lorenzo Valley Water (FSLVW)
November 8, 2021

Summary

FSLVW commends the County for making substantial improvements in debris flow evacuation planning and implementation. The new, detailed Atkins Debris Flow Maps provide sufficient data to determine the level and types of risks associated with intense rainfall at the individual property level. The Sheriff's office made door-to-door visits to residents at risk for debris flow hazards prior to the recent large storm. FSLVW had recommended these improvements in a memo submitted to the County on December 21, 2020.

However, there are at least three issues that arose during the recent storm causing considerable confusion and consternation among San Lorenzo Valley residents. Specifically:

1. The Code Red alert system sent evacuation orders via texts and automated phone calls to numerous residents who were not in evacuation zones. This was confirmed by several residents when they called the code red information number and were told to ignore the automated evacuation orders.
2. The Zonehaven evacuation zones still do not distinguish between evacuation orders due to debris flow hazards, road blockages, and minor flooding. The lack of clarity on the reason for evacuation creates confusion for residents and risks exacerbating evacuation fatigue.
3. Providing information on debris flow planning and evacuation resources can be improved. The County appears to have discontinued the Sheriff's brochure on the topic, and the on-line material is less comprehensive. FSLVW also recommends assessing the feasibility of maintaining vital on-line and cell phone services during evacuation periods.

Background

FSLVW representatives met with county officials during last year's rainy season (December 18, 2020) to provide community input into the debris flow evacuation planning process. FSLVW submitted a memorandum on December 21, 2020, that included seven recommendations that emerged from the meeting. FSLVW is providing this community perspective on the status of those recommendations based on the evacuation orders issues associated with the recent storm and lists three additional concerns.

Status of FSLVW December 18, 2020, Recommendations

1. Provide more detailed mapping of debris flow risk and tailoring of evacuation zones.

The County addressed this recommendation when it released the *Atkins Workmaps Debris Flow Maps of CZU Fire Zone* (“Atkins maps”) in September 2021 providing site-specific details regarding debris flow risks. Residents can find their individual homes on the maps and the type and extent of risks associated with heavy rain storms. The County also tailored the Zonehaven evacuation zones, reducing the number of neighborhoods subject to evacuation.

2. Ensure that residents living in zones at high risk from debris flows are well-informed.

Our understanding is that the Sheriff’s Department coordinated in-person visits to all residents in debris flow risk areas based on the Atkins maps, confirming that at-risk residents knew of the impending emergency and its effect on their specific property.

3. Create hazard maps that delineate zones of low, medium and high debris flow hazard.

The Atkins maps provide the clear delineations of debris flow hazards in watersheds with medium to high-debris flow hazards.

4. Distinguish between debris flow hazards and blockade on evacuation map.

The Zonehaven evacuation zones still do not distinguish between debris flow hazards, possible road blockages, and minor flooding. The Atkins maps provide the data needed to make these distinctions in the watersheds studied in detail, but not in other watersheds within the study area.¹ Prior to and during the recent storm, social media sites and many individual residents filled this information gap by providing guidance to family, friends and neighbors using the Atkins maps which showed the risks individuals and their properties were facing (see e.g., NextDoor post by Gail Mahood, Appendix A). As stated in FSLVW’s December 18, 2021, memorandum: “This distinction is highly consequential for residents planning details of their evacuation such as how long they are likely to be gone, what to leave behind, and whether to shut off gas, water and/or electricity.” We also note that many residents who are at risk of being blockaded due to road closures (but not at risk for debris flows) may choose to remain in place (see, e.g., Marc Shargel’s communication to the Felton Area CERT Team leaders – see Appendix B).

5-7: Revise the Sheriff’s Office brochure about preparation for debris flow hazards to remove errors, and make the revised version available on-line; determine messaging during unforecasted intense rainfall event; clarify evacuation support.

FSLVW was unable to locate the Sheriff’s brochure on any County website. Information on preparing for debris flow hazards is available on the County website and on the Sheriff’s Facebook page.

Lessons from the Recent Storm and Evacuation Orders

Although these improvements provided essential information in debris flow planning, problems with the evacuation orders issued prior to and during the recent storm caused considerable

¹ The Atkins maps did not provide detailed information for areas in San Lorenzo Valley south of Brookdale.

confusion for residents. FSLVW recommends that the County address these problems in order to ensure effective evacuations in the future, promote compliance among residents, and avoid “evacuation fatigue.” Specific recommendations include the following:

1. Coordinate the Code Red automated evacuation order system with the Zonehaven evacuation zones.

Numerous residents erroneously received automated calls and texts ordering them to evacuate even though their homes were not in danger and were not in an evacuation zone as delineated in the Zonehaven maps. The erroneous calls created considerable confusion and consternation in the neighborhoods affected. The County should make sure that this error does not recur.

2. Use the data in the Atkins maps to distinguish between evacuation orders due to life-threatening debris flow risk and evacuation orders due to potential road closures or minor flooding.

See discussion above. We recommend that the County alert residents if their properties are at risk for road blockages and/or minor flooding without ordering evacuations. Mandated evacuations should be reserved for those residing in properties that face life-threatening debris-flow risk. The current practice exacerbates “evacuation fatigue” including among those who do face potential life-threatening debris flows. This is a serious problem: a sheriff’s representative recently reported that only one-third of those visited by sheriff deputies chose to evacuate.²

3. Improve debris flow evacuation information and emergency communication

The Sheriff’s brochure used in 2020 needed some revisions but was a useful tool for residents, particularly when Internet resources are not available. Additional information on evacuation resources is needed both prior to and during evacuation orders, yet the vehicles for communicating with residents – Internet and cell phone service – frequently break down during heavy storms. FSLVW also recommends assessing the feasibility of maintaining vital Internet and cell phone services during major storms and power outages, working collaboratively with Internet and cell phone service providers and installing new equipment.

² Wise, C. Sheriff’s Office: Most Residents Stayed During Evacuations. *Press Banner*, November 4, 2021. Available at: <https://pressbanner.com/sheriffs-office-most-residents-stayed-during-evacuations/>

Appendix A
NextDoor Posting
Gail Mahood, October 23, 2021

Some automated evacuation orders seem to have been sent out in error. In order to assess your situation, you can phone the call center at the Sheriff's Office at 831-454-2181, consult the Zonehaven evacuation map, and find your home on the "Atkins map". The Atkins map, the most recent and most detailed map of debris flow (and flooding) hazards, was produced 8/31/2021 by consulting hydrologists for the County, and is available at: http://www.co.santa-cruz.ca.us/Portals/0/County/OR3/Workmaps_SantaCruz_Optimized.pdf It is a very large file and may take minutes to download completely. As a geologist with familiarity with debris flows, I consider the map a big improvement in our understanding of the hazards. Those folks with homes in the pink primary debris flow path hazard zone are in a life-threat situation if rainfall intensities reach debris-flow-triggering thresholds Sunday/Monday. Evacuate. Were my home in the yellow potential debris flow breakout hazard zone, I would evacuate. The Atkins map also includes blue inundation zones where there could be "normal" flooding, muddy floods, and dilute debris flows. The hazards in these blue areas are variable. If you are in the inundation zone of a small creek that doesn't have extensive headwaters in the burned zone, you might get a muddy flood: messy but not life-threatening. However, if you are in the inundation zone of a big creek (e.g., Fall Creek, Clear Creek, Foreman Creek, Boulder Creek) or on the San Lorenzo River, the volume, speed, and mass of a flood could be life-threatening, especially if there is a surge because of a debris flow or landslide spilling into them. These hazards appear on the Atkins map but aren't incorporated into the Zonehaven map, which only depicts debris flow hazards. Finally, even if your home is not located in a dangerous spot, you may be stranded by events in the pink, yellow and/or blue zones. If you or a member of your family cannot tolerate being stranded--whether it be because they have to get to work or because of the possibility of a medical emergency--you should evacuate.

Appendix B
Communication from Marc Shargel, member, Felton Area CERT Team, to
CERT Team leaders Liz Taylor-Selling and Felton Fire Chief Robert Gray
October 26, 2021

You are probably aware that there is some mapping inconsistency between the SCR 911 system and the Zonehaven maps. In particular, there were many phone numbers that received “evacuation order” SCR reverse-911 calls at residences that were not within mapped evacuation zones shown on Zonehaven. My house was one of those. The phone message said “evacuate” and Zonehaven said there was no such order and no cause. Many people in Felton got similar conflicting information from reverse 911 vs the Zonehaven maps. I know because discussion arising from that confusion that reached me via email. As a CERT volunteer I wanted to clarify things, but I had nothing to contribute to the conversation as I was just discovering the snafu as they were.

I know the system is relatively new, and this kind of problem is to be expected. But it needs to be rectified, preferably before the next time debris flow evacuation orders have to be issued.

Also, there has been a fundamental issue with debris flow evacuations being a “blunt instrument.” For example, all the homes in the road association I help manage are well above creeks and drainage ravines and therefore in no physical danger from debris flow movement (with two possible exceptions). The danger, and rationale for evacuation, is from the potential for egress and emergency services to be cut off for days if roads are obstructed. Most of us understand the dangers and demands of life in the woods from years of living here. I, for one, would rather be stuck in my house than away from it if it were inaccessible for several days. Even if power was out as well. We’ve experienced that recently in this neighborhood, when a PG&E pole broke off last January and wasn’t repaired for six days. We’d still be able to get in and out on foot or bicycle as needed.

My point here is that evacuation due to physical danger and evacuation due to potential isolation should be differentiated on the maps and the reverse 911 calls. I realize this is a fine resolution distinction that’ll take time and work.

I know we are all adapting to this new danger and all responsible are refining communications about it as rapidly as possible. So please understand these recommendations are sent in a constructive spirit, hoping to make all our jobs easier.

Gratefully for all you do,

Marc Shargel
Co-president, Upper Laurel Road Association
CERT Volunteer since 2018