

# Temporal vulnerability in community-based early warning:

## Felton Grove's flood siren

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### Introduction

- Temporal vulnerability is the temporally produced condition of population vulnerability. An analysis of temporal vulnerability evaluates the degree to which ecological surprise could occur within a population due to issues of memory and timing.
- Community-based early warning initiatives are important ways to reduce temporal vulnerability.
- This poster illustrates the 15-year struggle of floodplain residents in a neighborhood called "Felton Grove" (Town of Felton, Santa Cruz County, California, USA) to realize their wish for a neighborhood early warning siren.

### Methods

- In the context of dissertation research, ethno-historical fieldwork was done in the neighborhood of Felton Grove, including interviews with residents, planning and mitigation officials, and archival research.
- Data was analyzed using qualitative software (Nvivo).

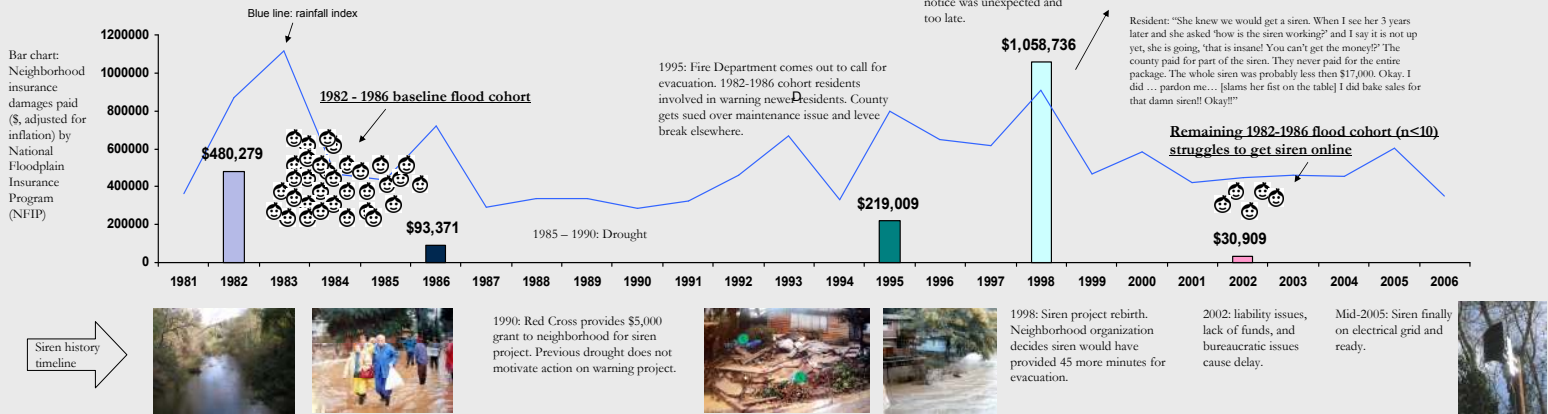
## RESULTS

### Perspectives on liability and early warning

Perspectives from Santa Cruz County	Perspectives from neighborhood organization
"But there is a responsibility that comes with having this technology and having the telemetry information. Then put your staff at some liability all hours, 24 hours a day, to be there to read the equipment from a remote location and make the call as necessary. So a lot of people don't sleep at night. We would be better off not having the equipment some people say, we would not be liable for a bad call." [County official]	"I must have spent several months debating with the county official about who should be responsible for setting the siren off. And it all boiled down to who is going to take responsibility. His position was the community should. And I said "bullshit; you are the one mandated to providing this service to the community. It is your responsibility." We must have had that conversation five or six times." [Resident]
"This case was called <i>Arco v. Superior Court</i> versus Monterey County. That was a huge lawsuit which ultimately said no matter how much work you have done in the river, no matter if you make predictions of flooding, you are financially responsible for damages if you are supporting a project. It hurt us very badly. ...The annual revenue for this whole fund is about \$440,000 a year. As part of the settlement of the '95 floods, this District is paying \$300,000 a year for 20 years to help finance the settlement. There are other Districts that pay more. But it is taking three-fourths of the revenues of the District to finance this." [County official]	"The reality is that right now it is like if I don't maintain it—I pretty much put it up—if I don't maintain it, it is going to fall into disuse. If the community does not pay for it then the electricity nobody else will. The county at least has the responsibility to actually set it off when we have possible flooding. But people have an expectation of it working. If it does not work, are they going to blame me? Even if it is a loss of life or something. You hate to think about it, but some people aren't very good in taking responsibility, blaming others when something goes wrong. The county has greater resources for defending itself than I do." [Resident]
"We work hard to train the engineers to consider a broader perspective. Sometimes it works; sometimes it does not. That lawsuit really set back that effort. Because part of what the engineering mindset is, is... litigation. Everybody worries about litigation. People don't want to do anything that is perceived as taking a chance." [County official]	"And you know, frankly, it took a year to get the electrical service hooked up, a year more than it should have. After all this stuff I told you about, I hit a wall and could not fill out anybody's paperwork. And the PTE paperwork was too daunting for me. It sat on my desk, and I picked it up and said "I can't do this right now." [Resident]
"I think they needed \$2,000 to get the electrical system hooked up. What I was told that FEMA had, through which we got money to elevate houses, and for which we had asked to have early warning systems, would not pay for the siren, not pay for any of the measures other than elevation, relocation, and acquisition." [County official]	"The county was absolutely not interested and had nothing to do with it. The fact that we have this siren at all is primarily our responsibility. We pulled the permits, issued the construction contracts. We located the equipment, wrote the grants. We found all the funds and raised the remainder ourselves." [Resident]



### Flood damage claims and siren initiative timeline



### Conclusion

Although an apparently simple neighborhood-based initiative suitable for a flash flood environment, the implementation of the early warning siren appeared surprisingly difficult due to a lack of structural financial support, issues of liability, lack of neighborhood risk awareness, and bureaucratic hurdles. As a result, temporal vulnerability in the Santa Cruz County neighborhood of Felton Grove was increased.

County support for the initiative was compromised due to a lawsuit which motivated fiscal and legal conservatism. Neighborhood support was compromised because of major changes in ownership and the dwindling number of residents from the flood-experienced 1982-1986 cohort.

Without the dedication and persistence of a small (and dwindling) group of residents connected to the 1982-1986 baseline flood cohort, the siren project would have collapsed.

Temporal vulnerability is increased due to 1) the negative impact of neighborhood change which jeopardizes community memory, and 2) an organizational risk environment in which early warning is seen as an institutional liability.



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