FALLING INTO THE PACIFIC: CALIFORNIA LANDSLIDES AND LAND USE CONTROLS*

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I. INTRODUCTION

Landslides present a geological dilemma in many areas around the world, and in few places is this more evident than California. The Golden State faces natural erosion due to its long coastline along the Pacific Ocean. Seismic activity and unpredictable rainfall exacerbate the problem.[1] Because of major development along the California coastline, the frequency of damage from landslide events has increased. While information in this Comment could be applicable to any emergency or disaster, the imminent landslide problem in California served as the impetus for this Comment, which addresses the attributes and glitches of the current legal controls influencing landslide-prone areas.

To illustrate the different responses to landslide disasters, this paper will compare the aftermaths of the 2005 landslides in La Conchita and Laguna Beach. These two coastal towns in southern California provide a contrast in both geology and demographics, and the rebuilding and mitigation processes following the disasters could not have been more different. While several La Conchita homes remain under a mass of rock

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* To Arles Siloni and Sidney Kay for the conversations on legal philosophy we would have enjoyed.

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1. Regular heavy rainfall can provide indications for locations of slope instability from excess runoff. Because California is often in drought, hillside construction may commence and be completed long before it is known that the structures would be unsafe.

and dirt, Laguna Beach has commenced full scale mitigation and rebuilding.

Comparing the communities, their political structures and demographics helps to illustrate how local governments should respond to and prepare for natural disasters. By highlighting these issues, Pacific Rim communities can aspire to implement as many preventative measures as possible. Furthermore, it is my hope that victims of natural disasters, such as the landslides that plagued La Conchita and Laguna Beach, will find comfort and support from their community during the rebuilding process. My experience of losing my home in the 1991 firestorm that raged through the hills of Oakland, California, gives me a personal connection to victims of other natural disasters. Even on a micro-scale, it is unforgivable to ignore those who have lost their homes. Knowing that victims will receive insurance compensation and acquire new possessions does not address the daunting challenges and barriers facing those who have lost their homes.

Completely preventing damage from natural disasters is not possible, but mitigating their destructive wrath is a feasible mission. Although government leaders, emergency teams and first response units have and will make mistakes, it is our duty to learn from history to avoid repeating yesterday's errors. As a nation and as a state, we have come too far to see the mistakes of Hurricane Katrina reenacted in California.

Part II of this paper defines and describes the landslide issues in California. Part III presents a case study comparison between La Conchita and Laguna Beach. Part IV discusses options for land use controls that could help prevent landslide destruction. Part V examines the federal, state and local government aid agencies and organizations for natural disaster response and recovery. Part VI offers a proposal to adopt a national insurance program for landslide-prone areas. Finally, a short statement for the future concludes the analysis.

II. LANDSLIDES

The primary purpose of this paper is to address California landslides and the concomitant dilemma regarding land use controls. Part II focuses on landslides and includes a definition, a description of the susceptibility of California coasts and a discussion of technology devices used to detect landslide-prone areas.

A. WHAT IS A LANDSLIDE?

A landslide can be defined as follows:

> [T]he movement of a mass of rock, debris, or earth down a slope. Landslides are a type of "mass wasting" which denotes any down slope movement of soil and rock under the direct influence of gravity. The term "landslide" encompasses events such as rock falls, topples, slides, spreads, and flows. Landslides can be initiated by rainfall, earthquakes, volcanic activity, changes in groundwater, disturbance and change of a slope by man-made construction activities, or any combination of these factors.[2]

Landslides are caused when the destabilizing forces acting on the earth of a hillside are greater than the stabilizing forces; this ratio is sometimes called the "factor of safety," for when the ratio is less than 1.0, the slope fails.[3] In other words, when the forces that act on a mass of earth to cause movement are greater than those that act to keep it in place, the earth moves (this would be true for any physical matter, not just dirt and rocks). To illustrate this point, imagine placing a square block on a kitchen table. Lifting one end of the table makes the angle of the table steeper; at some point the block will begin to slide off the table. When the block begins to slide, its factor of safety has reached less than one.[4] Ideally, geologists and engineers want a very high factor of safety. Higher factors of safety mean it is less likely for external events to cause a decrease below 1.0 and cause the slope to fail. The math gets a little tricky when factoring in water, material unit-weight, slope angles, saturation thickness and the slope-normal thickness of the failure slab.[5] In sum, given the right circumstances, slopes will fail.

Specific characteristics, including the length, width and depth of the area affected, the volume of rock and soil, the frequency of occurrence and the speed of movement, determine the magnitude of a landslide.[6] Landslides may be described using different names depending on the

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2. CITY COUNCIL, CITY OF WEST COVINA, CAL., NATURAL HAZARD MITIGATION PLAN pt. 2, § 7 (2004), *available at* http://www.westcov.org/fire/hazard/page11.html [hereinafter MITIGATION PLAN]; *see also* Robert B. Olshansky & J. David Rogers, *Unstable Ground: Landslide Policy in the United States*, 13 ECOLOGY L.Q. 939 (1987).

3. *See* Olshansky & Rogers, *supra* note 2, at 943.

4. For purposes of this demonstration, make sure all glassware and plates are cleared *before* you lift the table.

5. *See* RANDALL W. JIBSON ET AL., U.S. GEOLOGICAL SURVEY, A METHOD FOR PRODUCING DIGITAL PROBABILISTIC SEISMIC LANDSLIDE HAZARD MAPS: AN EXAMPLE FROM THE LOS ANGELES, CALIFORNIA, AREA (1998) (Report No. 98-113).

6. *See* Olshansky & Rogers, *supra* note 2, at 942-43.

characteristics of the particular slide, including the slope of the ground, the level of water saturation and the composition of the underlying ground material.[7] For instance, "slides" generally are slow moving and deep, while running in contact with the underlying surface.[8] "Slumps," however, are shallow, rotational slides.[9] "Debris flows" are rivers of water-saturated earth, rocks and other scooped up matter that often travel in excess of twenty miles per hour.[10] Because of their overwhelming velocities, debris flows are a danger to both property and personal safety. As when describing the factor of safety, basic physics is used to describe the landslide process—when earth becomes loose on a slope and the gravitational forces outweigh the frictional and stabilizing forces, the earthen slope will crumble until the balance of forces is reestablished.[11]

B. CALIFORNIA COASTS: A LANDSLIDE SPECIALTY

Weathering and decomposition in California makes a rich environment for landslides, and the human touch only exacerbates the problem in ancient landslide areas. As population growth continues to skyrocket, development nudges people toward settling in unstable locations.[12] Building on steep slopes is particularly hazardous. Grading for road construction and utilities often increases slope steepness. Adding weight to the top of hills through development can destabilize the entire geologic formation.[13] Heavy population growth did not occur in California until the past two hundred years—this is in stark contrast to many other developed domestic and international regions.[14] While the relatively recent settlement of California fosters a cavalier "pioneer spirit," this same

7. *See id.* at 942 n.5.
8. *See id.* at 1010.
9. *See id.*
10. *See id*. at 942 n.6.
11. *See id*. at 943.
12. Measuring density is not as simple as dividing population totals by square miles, as many metropolitan areas include non-developed regions such as waterways, steep slopes and reserved parkland. Witold Rybczynski, *Measuring Sprawl* (Wharton Sch. Samuel Zell & Robert Lurie Real Estate Ctr., Univ. of Penn. Working Paper No. 420, 2002), *available at* http://realestate.wharton.upenn.edu/papers.php. More accurate density models incorporate urbanized density, centralization of employment and densification of metropolitan areas over time. *See id.* Contrary to common belief, Los Angeles and Phoenix have higher population densities than many East Coast cities. *See id*.; *see also* ROBERT BRUEGMANN, SPRAWL: A COMPACT HISTORY (2005).
13. *See* R.M. RICE, SOCIAL, TECHNOLOGICAL, AND RESEARCH RESPONSES TO POTENTIAL EROSION AND SEDIMENT DISASTERS IN THE WESTERN UNITED STATES, WITH EXAMPLES FROM CALIFORNIA 1 (1985), *available at* http://www.fs.fed.us/psw/publications/rice/Rice85.pdf.
14. *See id.*

attitude hampers private and government landslide prevention.[15] The land prospecting mentality is that, with so much land, those who claim their stake on unsure ground should live with the consequences.[16]

Recent years have also highlighted the propensity for wildfires in California. Intense heat from fires glazes soil with a wax-like surface layer that impedes water absorption.[17] Without the benefits of absorption, water runoff pools and creates landslide-prone conditions.[18]

Some locations face a greater risk of landslides than others: areas on or in close proximity to steep hills, road cuts or excavations; places of historic or existing landslides; areas with signs of tilted electric/phone poles, tilted trees or cracked asphalt and ground; areas where water runoff is funneled, such as culverts, the bottom of canyons, valleys and deep streams; canyon outlets, especially beneath hills burned by fires within the past six months; and areas where hills are modified or not well-maintained by human development.[19] In addition, people have often settled in areas known as debris cones, "where steep mountain streams debouched onto the valley floor."[20] These areas are attractive for their available water supply, but pose a grave risk of landslides, particularly following increased population growth.[21]

Water flow often signals an ominous potential for landslides. Actions that funnel and increase water movement activate landslide triggers.[22] For instance, water lines that break or leak and runoff channels that force water into specific locations pose glaring dangers. But even keeping a lawn well-watered or poorly managing storm drainage may heighten the danger of landslides.[23] Seemingly benign devices, such as roof drains, gutters, downspouts and other construction tools used to manipulate water, may therefore increase the risk of landslides. Furthermore, altering the vegetation on a slope or hilltop through development may also increase this risk.

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15. *See id.* at 2.
16. *See id.*
17. *See id.* at 5.
18. *See id.*
19. *See generally* Olshansky & Rogers, *supra* note 2; RICE, *supra* note 13.
20. *See* RICE, *supra* note 13, at 4.
21. Glendora, in the San Gabriel Valley of California, is the site of a debris cone. *See id.*
22. *See id.* at 5.
23. *See id.* at 6.

C. IDENTIFYING LANDSLIDE-PRONE AREAS: THESE ARE NOT THE PLAINS OF KANSAS

Identifying areas prone to landslides, and the probability of occurrence in these areas, is a critical requisite to gaining some control over a landslide's magnitude of destruction. The United States Geological Survey (USGS) has led the way in publishing landslide information.[24] However, its efforts are limited because the already insufficient funding it receives has been further reduced in recent years.[25] In California, the legislature approved the Landslide Hazard Identification Program; it produced several maps that helped local planners with landslide planning.[26] Unfortunately, the California program was replaced in the 1990s by the Seismic Hazard Mapping Act, which has failed to provide sufficient detail for quality planning because it only maps broad zones of potential landslides.[27] While the USGS now believes it has established a new means of identifying landslide hazard zones with greater detail than ever before,[28] the necessary funding for a comprehensive program has yet to be approved.

Part of the funding problem is the cost of a mapping program—a nationwide program would cost anywhere from $1 million to over $20 million annually, depending on the level of sophistication.[29] Disaster prevention is typically funded by federal and state programs through information sharing and local subsidization.[30] Local governments, however, may be asked to provide some of the funding for such programs, depending on the level of information the municipality desires.[31] Thus, the USGS will research specific municipal requests depending on need and available funding.[32] It is impossible to overstate the prudence of spending an ounce on prevention to avoid a pound of grief. The federal government, however, has put this issue on the backburner. Perhaps the recent disaster and mishandling of Hurricane Katrina will put enough pressure on federal

24. *See* ROBERT B. OLSHANSKY, LANDSLIDE HAZARD REDUCTION: THE NEED FOR GREATER GOVERNMENT INVOLVEMENT 1, *available at* http://www.eriskcenter.org/uploaded/planningpaperwednesday.pdf (last visited Nov. 26, 2006).

25. *Id.* at 1-2.

26. *Id.* at 2.

27. *Id.*

28. *See* Olshansky & Rogers, *supra* note 2, at 954.

29. *See id.* at 955 n.77. When compared with the hundreds of millions of dollars spent every year on landslide damage, this may not be such an outlandish preventative cost.

30. *See* RICE, *supra* note 13, at 2.

31. *See id.*

32. *See id.*

lawmakers to seriously consider a national, comprehensive disaster-prevention program.

D. TECHNOLOGICAL ADVANCES TO DETECT LANDSLIDES: KNOWLEDGE IS POWER

Underground conditions that lead to landslides may now be detected with new technology.[33] Two promising technologies are the Ladwein Map and a mapping system based on Newmark's permanent-deformation analysis.[34]

The Ladwein Map technology, named after the chief developer, Richard Ladwein, can purportedly pinpoint the precise location of landslide prone conditions[35] and would offer several advantages over past methods of land surveying if put into practice. First, the technology would be able to detect the exact location of geologic weak-spots that are susceptible to landslide activity.[36] City engineers, geologists or surveyors could then use a Ladwein Map to determine where it was safe or unsafe to build. Second, as opposed to broadly classifying entire swaths of land as "too dangerous" to build, the Ladwein Map would be capable of showing municipal safety officials the location of safe havens for construction.[37] This methodology would enable cities to be efficient in permitting development without sacrificing safety.[38] Results and reviews of this technology are forthcoming, but the idea is sound: develop an analytic technology that can evaluate geologic points of weakness. However, until further trials are conducted, conclusive and permanent utilization of Ladwein mapping will remain in doubt.

The second potential mapping technology was developed using "Newmark's permanent-deformation (sliding-block) analysis yields estimates of co-seismic landslide displacement."[39] Using landslide data from the 1994 Northridge earthquake in southern California, geologists discovered that most of the landslides occurred in higher probability areas

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33. *See, e.g.*, Geomorphologic Research Center Homepage, http://www.geoka.com/english/index.html (last visited Nov. 26, 2006); *see also New Map Detects Geological Weak Spots*, GOV'T TECH., June 3, 2005, http://www.govtech.net/magazine/channel_story.php/94188.

34. *See New Map Detects Geological Weak Spots*, *supra* note 33; *see also* JIBSON ET AL., *supra* note 5, at 1.

35. *See New Map Detects Geological Weak Spots*, *supra* note 33.

36. *See id.*

37. *See id.*

38. *See id.*

39. *See* JIBSON ET AL., *supra* note 5, at 1.

of the earthquake mapping system.[40] While this system was calibrated for southern California and seismic events, the mathematical equations could be applied to other areas as well.[41]

E. DISCLOSING THE LANDSLIDE PROBLEM IN PROPERTY SALES: POWER OF INFORMATION

Required disclosure of landslide-related information for real property in California should lead prospective buyers to think twice before purchasing a property in a designated hazard zone. California's Natural Hazards Disclosure Act[42] and the National Flood Insurance Program[43] require sellers of real property within a designated hazard zone or flood hazard zone, respectively, to disclose such information to prospective buyers. While warning signs, particularly those readily available through disclosure services,[44] are slowly becoming more abundant and easier to access, failure to heed those signs may leave some new homeowners susceptible to future heartache. In a perfect world, landslide victims would never say, "I didn't know this could happen here." As land use measures and disclosure requirements converge, homebuyers should know exactly what they are getting into.

F. DAMAGE AND COSTS OF LANDSLIDES: BILLIONS OF DOLLARS, LOTS OF TEARS

Damage from landslides can be extensive and include direct and indirect costs. Direct costs include "replacement, repair, or maintenance due to damage to installations or property within the boundaries of the responsible landslide."[45] Infrastructure both above and below ground may be destroyed, and the sum of labor, raw material and transportation costs constitutes the bulk of direct landslide costs.[46] Indirect costs, however, include the net loss of income (both agricultural and industrial), litigation, utility disruption and costs incurred to alter the slope to prevent further

40. *See id.* at 14.

41. Altering the variables in the equation could reduce accuracy.

42. CAL. CIV. CODE §§ 1103-1103.14 (Deering 2006).

43. 42 U.S.C. §§ 4011-4031 (2000).

44. Property ID, a company based in Los Angeles, offers extensive disclosure material for home purchasers at reasonable prices. *See* Property ID Homepage, http://propertyid.com (last visited Nov. 26, 2006).

45. Robert L. Schuster & Robert W. Fleming, *Economic Losses and Fatalities Due to Landslides*, 23 BULLETIN OF THE ASS'N OF ENG'G GEOLOGISTS 11, 11-12 (1986).

46. *See id.*

landslides.[47] The public may also pay costs associated with wages dedicated to government employees who engage in actions related to the landslide, including emergency personnel. Therefore, there may be costs for the repair of public utilities and thoroughfares, as well as for city inspectors and engineers who must examine the downed slope for any anticipated rebuilding process.[48]

Of course, these economic terms fail to address the human costs of landslide disasters. Losing one's home is a traumatic experience. Losing a loved one in the same instant can be debilitating. Post-disaster stress has been known to increase suicide rates, tear families apart and cause great mental strain.[49] Sometimes, people never recover.

One family of four, who lost their home in the 1991 Oakland hills firestorm, completely fell apart.[50] Within a year after the fire, the parents had separated, the oldest son had dropped out of a prestigious private high school after being on the honor roll, and the youngest son was hospitalized for suicidal thoughts and emotional distress. Facts may differ, but it takes an amazingly resilient family core to withstand the trauma of re-purchasing the basic necessities, relocating, battling with insurance (if lucky enough to be covered) and facing the planning and guaranteed delays of rebuilding. Psychological research has termed the aftermath of a loss and dealing with disaster relief agencies as the "second disaster."[51] More often than not, the lives of victims are irreversibly changed—whether it is as benign as moving out of the neighborhood or as severe as losing a loved one.

My house was one of the 3471 homes destroyed in the Oakland hills firestorm.[52] Along with my house and other possessions, two hundred stamped and sealed Bar Mitzvah invitations, the event but a month away, were lost in the flames. Two goldfish, survivors of a local fair, who had

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47. *Id.* at 12.

48. *See id.*

49. Mental strain of this nature can also manifest itself as physical ailments. *See* Diane Myers, *Psychological Recovery from Disaster: Key Concepts for Delivery of Mental Health Services*, NAT'L CTR. POST TRAUMATIC STRESS DISORDER CLINICAL Q., Spring 1994, at 1, 1, http://www.ncptsd.va.gov/publications/cq/v4/n2/myers.html.

50. As mentioned above, this was a very trying time for not only my family, but other families as well.

51. The process of seeking help from government, volunteer agencies and insurance companies is fraught with rules, red tape, hassles, delays and disappointment for disaster survivors. Feelings of helplessness and anger are common. *See* Myers, *supra* note 49.

52. *See* Emil Pocock, E. Conn. State Univ., Disasters in the United States, 1650-2005, http://www.easternct.edu/depts/amerst/disasters.htm#Urban (last visited Nov. 26, 2006); *1991 Oakland Firestorm*, WIKIPEDIA: THE FREE ENCYCLOPEDIA, http://en.wikipedia.org/wiki/Oakland_Hills_firestorm (last visited Nov. 26, 2006).

been with us for seven years (the two Methuselah of goldfish), along with a tank of tropical fish, all perished. True, no one in my family was among the twenty-five people killed in the fire, or the 150 people physically injured;[53] but "traumatic" can only begin to describe the experience of being evacuated by police and watching my entire neighborhood burn to the ground on thirty big-screen televisions at a regional shopping mall. Sifting through the rubble that was our house for any signs of our previous life, however, paled in comparison to the tremendous boredom that came with our move to an isolated development in the Bay Area.

What is often unknown to those who do not have personal experience with such loss is that one's life routine is completely thrown asunder. Hours upon hours were spent searching through new belongings for an item that had been incinerated. Adding insult to injury in my family's situation, our rental was burglarized two months later—after we had finally started to get our feet back on the ground. It was as if nothing could go right; imagine the embarrassment of sorting through clothing "donations" at school combined with the frustration of seeing how quickly classmates forgot anything had ever happened. Even fifteen years later, I periodically dream of being back home on Acacia Avenue—everything is there, just as it was when we left on October 20, 1991.

Less than two years after the fire, my family relocated to Columbus, Ohio. I gave up a starting position on the high school baseball team, the friends of my youth and the only home I had ever known in exchange for an infinite number of strip mall restaurants and mountains of snow four months a year. None of this would have happened had the fire stopped two houses sooner. At the end of the day, after repurchasing clothes and furniture, battling the insurance company for a settlement, and picking up life's pieces, those of us who have lost our homes in disasters remain forever tainted by a black hole in time. Acting as though things have returned to normal does not replace the lost span of life or mute the omnipresent wish that some semi-parallel universe exists where homes were never destroyed, and that somehow, in ways left to the imagination, life turned out better.

G. A BRIEF HISTORY OF CALIFORNIA LANDSLIDES: A RECORD OF DESTRUCTION

Over the past hundred years, landslides have plagued development in southern California. Landslides are not isolated to California, but the

53. 1991 OAKLAND FIRESTORM, *supra* note 52.

frequency of events on the west coast has cost California residents billions of dollars in damage.[54] A brief history of California's landslides illustrates a repetitive cycle of development, destruction and high-priced repair.

The first half of the twentieth century saw many damaging landslides, often due to major human construction. On March 12, 1928, the St. Francis Dam failed in Los Angeles County, forcing a destructive wave of water over fifty miles through the Santa Clara Valley and into the Pacific Ocean; roughly 500 people lost their lives and damage exceeded $600 million (in year 2000 dollars).[55]

However, promulgating the perception that landslides happen solely as a result of human encroachment on nature is inappropriate, even though human encroachment does often exacerbate destabilizing forces and increase the amount of damage. For instance, the Portuguese Bend landslide, which started in 1956 and lasted into the summer of 1957, was a continuation of landslides occurring over thousands of years in the Palos Verdes region.[56] While humans may not have been the proximate cause of the landslide, the development in Palos Verdes contributed to the $14 million in damage (particularly since many of the single family homes had landslide-aggravating septic tanks).[57] Other heavily developed areas have seen similar amounts of damage. From 1958 to 1971, landslides in Pacific Palisades cost over $29 million.[58] During that same period, landslides occurred in Mulholland Cut that cost over $41 million, at Seventh Avenue in Los Angeles County that cost over $14 million, and in Princess Park that cost over $29 million.[59] In terms of homes destroyed, the most devastating landslide of this period occurred in Glendora, where 175 homes were lost and damage exceeded $26 million.[60]

Earthquakes and other natural phenomena can also induce landslides, and damage from these events increased in the 1970s and 1980s as areas became more developed.[61] For example, damage occurred to the Upper and Lower Van Norman Dams, located in San Fernando, due to the 7.5 magnitude San Fernando earthquake on February 9, 1971.[62] Repairing the

54. *See* discussion *infra* notes 55-72 and accompanying text.
55. MITIGATION PLAN, *supra* note 2.
56. *See* MITIGATION PLAN, *supra* note 2.
57. *See id*.
58. *See id.*
59. *See id.*
60. *See id.*
61. *See id.*
62. *See id.*

dams cost over $300 million.[63] The same earthquake also caused landslides that damaged San Fernando's Juvenile Hall, among other structures, causing over $266 million in damage.[64] From 1977 to 1980, over $15 million in landslide damage occurred in Monterey Park, located in Los Angeles County. In 1980 alone, 100 houses were damaged.[65] In Bluebird Canyon, located in Orange County, a landslide following heavy rains in 1978 damaged sixty houses, at a cost of over $52 million.[66] One year later, a landslide in Big Rock, Los Angeles County, damaged Highway 1 and cost over $1 billion.[67] In 1983, landslides in Orange County's San Clemente and Big Rock Mesa cost over $700 million in damage and litigation fees.[68] In addition, the Big Rock Mesa slide led to the condemnation of thirteen homes.[69]

This trend, of course, continued into the last decade of the twentieth century. The 1994 Northridge earthquake, with a magnitude of 6.7, caused more than 11,000 landslides in an area of 10,000 square kilometers. Dozens of homes were destroyed, and roads and oil-field infrastructure were damaged.[70] The landslide activity also released a spore that caused *Coccidioidomycosis* (otherwise known as "valley fever"), leading to several deaths.[71] The following year, above-average rainfall caused landslides in Los Angeles and Ventura counties, including the La Conchita landslide, in which twelve homes were severely damaged or destroyed.[72]

Geological records show that landslides have been occurring in California since pre-historic times; indeed, it seems that California is falling into the sea. It should come as no surprise, then, to find a direct relationship between an increase in development along the coastline and increased destruction caused by landslides. In Part III of this paper, two recent landslides—the 2005 landslides in La Conchita and Laguna Beach—will be the focus of this analysis.

63. *See id.*
64. *See id.*
65. *See id.*
66. *See id.* The Bluebird Canyon landslides will be discussed at length in Part III, *infra*.
67. *See* MITIGATION PLAN, *supra* note 2.
68. *See id.*
69. *See id.*
70. *See id.*
71. *See id.*
72. *See id.* The La Conchita landslide will be discussed at length in Part III, *infra*.

III. CASE STUDY COMPARISON: LA CONCHITA AND LAGUNA BEACH

Two stories of California coastal communities provide a stark contrast in the recovery and rebuilding process following landslides. Both La Conchita and Laguna Beach suffered destructive landslides in 2005. Laguna Beach has since moved forward with reconstruction efforts—heavily supported in both financing and logistical support by the local government and community. In contrast, there has been a relative lack of response and recovery in La Conchita, where the destruction is as visible today as it was in the first hours after the January 2005 landslide.

A. LA CONCHITA, CALIFORNIA

La Conchita is part of Ventura County, which was formed from Santa Barbara County in 1873.[73] The county covers 1873 square miles, including forty-three miles of pristine coastline.[74] The public has access to 7.5 miles of ocean beaches and 411 acres of state parks.[75] Nearly half of the county's land is dedicated to the 860 square miles of Los Padres National Forest.[76]

Approximately 750,000 people live in Ventura County.[77] The median household income is $61,944, with six out of ten households having an annual income in excess of $35,000.[78] The county hosts three community colleges, two universities, and two branch campuses of California public universities.[79]

Ventura County's major industries include agriculture, biotechnology, telecommunications and advanced technologies, manufacturing, tourism, and military testing and development.[80] If Ventura County were a state, its economy would have ranked 45th in 1999.[81] Port Hueneme serves as a major deep-water port for automobile distribution—over 200,000 cars were

73. CountyofVentura.org, Ventura County Visitor Center, http://www.countyofventura.org/visitor/visitor.asp (last visited Nov. 26, 2006).

74. *Id.*

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.* Estimated values as of 1999. *Id.*

79. *Id.* These include California State University, Channel Islands in Camarillo; California Lutheran University in Thousand Oaks; and branch campuses of California State University, Northridge and University of California, Santa Barbara in Ventura. *Id.*

80. *Id.*

81. *Id.*

imported in 1999 alone.[82] The port also has the largest refrigerated fruit terminal on the Pacific Coast, primarily for bananas and lemons.[83] Crop valuation was estimated at $1 billion in 1999.[84] U.S. Naval presence contributes $1.2 billion in annual economic impact and is the largest employer for the county.[85]

Ventura County is governed by a five-person Board of Supervisors.[86] Each supervisor is elected for their particular district, and the Board's legal decisions can bind the county generally, or bind only unincorporated areas.[87] Incorporated cities include Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, and San Buenaventura (Ventura).[88] Numerous independent Special Districts exist outside the incorporated cities to address water provision, sanitation, parks and recreation, resource conservation, community services, and cemeteries.[89] La Conchita is located in the Third Supervisory District; the supervisor is Kathy Long, who answers to 72,265 eligible voters.[90] La Conchita's population is approximately 338 persons, or approximately 0.4% of the eligible voters of the Third Supervisory District.[91] It is isolated from other communities in Ventura County: there are no adjacent towns or convenient roads to neighboring communities.

Driving along California's Highway 101, one may not notice the homes of La Conchita nestled between the highway and the 600-foot coastal cliffs.[92] Featuring ocean views and manageable commutes to Santa Barbara or Ventura, La Conchita is an attractive place to call home for those seeking a small-town feel within steps of the Pacific Ocean. Covering twenty-eight acres, La Conchita ranges from twenty to one hundred feet above sea level.[93] Rising elevations in the town are due to mudflow build-ups accumulated from cliff runoff.[94] And what a cliff it is—soaring vertically nearly 600 feet and so close to the ocean that the

82. *Id.*
83. *Id.*
84. *Id.*
85. *Id.*
86. *Id.*
87. *Id.*
88. *Id.*
89. *Id.*
90. Telephone Interview with Clerk, Ventura County Election Bd. (Feb. 15, 2006).
91. *Id.*
92. Jeffrey J. Hemphill, Assessing Landslide Hazard over a 130-Year Period for La Conchita, California (Sept. 12, 2001) (unpublished article, http://www.geog.ucsb.edu/~jeff/projects/la_conchita/apcg2001_article/apcg2001_article.html).
93. *Id.*
94. *Id.*

cliff's appearance is distinct from other areas along Highway 101.[95] Fresh earth exposes a crumbled, unstable appearance as the cliff hangs precariously above La Conchita's 150 homes.[96] Atop the cliff sits the 680-acre La Conchita Ranch, which mostly grows citrus and avocado trees.[97] Residents have long blamed the ranch for contributing to the instability of the cliff, but no firm evidence can confirm this belief.[98]

La Conchita's record of landslides can be traced back to the 1860s.[99] A local investigator named Kristing Coddington produced a synopsis of debris movements in the La Conchita area between 1865 and 1958.[100] During the late 1800s, a local wagon trail was covered by debris flows, as was a rail line built by Southern Pacific Railroad.[101] In 1909, following a landslide at Punta Gorda, a Santa Barbara journalist wrote that the cliff above La Conchita "rises almost abruptly from the sea, is such that there can be no security from slides, such as the avalanche of dirt and rocks that last Saturday swept down on the road and buried a work train."[102] Attempting to provide some security for the rail line, Southern Pacific excavated and flattened the area between the line and the cliff.[103] Development of the newly flattened and scenic open space adjacent to the railway commenced in 1924 with the La Conchita del Mar subdivision. [104]

At first, the subdivision was primarily farmland, while some lots were even identified as mudflow debris.[105] In 1942, geologist William C. Putnam published a report for the Geologic Society of America on La Conchita.[106] His report noted fresh signs of debris flow on the cliff's face, as well as sediments of sea life that indicated the ocean's elevation reached the peak of the cliff about 40,000 years ago.[107] La Conchita's tectonic uplifting rate ranks as one of the most rapidly moving pieces of earth in the world at 4.2 to 5 meters per millennium.[108] Putnam's report also identified two unusually deep drainage borders resulting from the tectonic uplifting

95. *Id*.
96. *Id.*
97. *Id.*
98. *See id*.
99. *See id.*
100. *Id.*
101. *Id*.
102. *Id.*
103. *See id*.
104. *See id*.
105. *See id.*
106. *Id*.; *see also* W.C. Putnam, *Geomorphology of the Ventura Region, California*, 53 BULL. GEOLOGICAL SOC'Y AM. 691 (1942).
107. *See* Hemphill, *supra* note 92.
108. *Id.*

which enclose the La Conchita Ranch.[109] Describing the potential for landslides in La Conchita, Putnam speculated that "[n]early every square foot of surface on the hill slopes underlain by upper Pico clay shale is in motion down slope or has moved in the very recent geologic past."[110] Recently, geologists from the University of California at Santa Barbara (UCSB) identified a "mega-slide" that occurred in the La Conchita area about 20,000 years ago.[111] A major seismic fault line bisects the Rincon Mountain behind La Conchita, indicating that another mega-slide is possible.[112]

Recent debris flow history exhibits the common occurrence of landslides in the La Conchita area. In January 1995, a tremendous debris flow foreshadowed the 2005 fatal landslide.[113] Preceding the 1995 slide, two other significant landslides occurred in 1988 and 1991.[114] Neither of these earlier slides created enough momentum to send debris below the ranch road.[115] However, the 1995 slide was so immense that the ranch road disappeared underneath 1.7 million cubic yards of debris.[116]

In the aftermath of the 1995 landslide, La Conchita residents sued the La Conchita Ranch for $24 million in damages.[117] Residents claimed that the ranch's transition from grazing land to irrigated citrus and avocado groves shifted the balance of the landslide-prone cliff, proximately causing the 1995 slide.[118] The presence of the ranch may be a factor in La Conchita landslides because of its location on the peak of the hillside, which restricts water sources to irrigation or rainfall.[119] Irrigation systems can raise water tables that could potentially cause the frail cliff to give way.[120] However, the court ruled that the La Conchita Ranch was not responsible, and removed any possibility for others to sue the ranch under similar claims in

109. *See id.*
110. *Id.* (quoting Putnam, *supra* note 106).
111. Gregory W. Griggs, *State to Study La Conchita's Slide Problem*, L.A. TIMES, Mar. 31, 2006, at B5.
112. *Id.*
113. *See* Hemphill, *supra* note 92.
114. *See id.*
115. *See id.*
116. RANDALL W. JIBSON, U.S. GEOLOGICAL SURVEY, LANDSLIDE HAZARDS OF LA CONCHITA, CALIFORNIA 5 (2005) (Report No. 2005-1067), *available at* http://pubs.usgs.gov/of/2005/1067/pdf/OF2005-1067.pdf.
117. *See* Hemphill, *supra* note 92.
118. *See id.*
119. *See id.*
120. *See id.*

the future.[121] Furthermore, because the landslide occurred during a winter of heavy rains, it is unlikely the ranch used irrigation.[122]

The court realized that there could have been any number of causes for the 1995 slide. Most significantly, eighteen inches of rain fell in January of 1995—an unusually high amount of precipitation.[123] As a result, the cliff-side saturation was likely minimally affected by any excess water from the ranch's irrigation system.[124] Gravity drags water downward, and as the water from above pours through the cracks in the cliff's facade, the ground loosens.[125] Jeffrey Hemphill describes his findings from the 1995 slide as follows:

> There is an active fault that runs directly through the cliff face where the slide mass broke loose, and this could have potentially been the point of weakness that caused the landslide. The groundwater table within the elevated mesa can maintain a relatively constant level so long as the water entering the uppermost surface can be balanced by groundwater percolation, transmission though the soil layers, and eventual drainage out of springs in the canyon walls or out of the cliff face. The rainfall that causes landslides must be of sufficient duration and strength to raise the field capacity of the soil, the point where under gravity infiltration will equal percolation. At this point, the soil layer will become saturated with additional infiltration. With an abrupt increase in infiltration that exceeds percolation, the pore-pressure between soil particles decreases, and the upper layers of soil become saturated. As water replaces air between the soil granules, the resistance of soil layers to shear stress decreases and the mass of the saturated soil breaks loose.[126]

Prior to the 1995 landslide, early signs indicated deterioration of the La Conchita cliff.[127] The year before, ranch hands reported cracks in the road immediately above the debris flow origin.[128] Slight movements were detected by motion sensors placed at the base of the cliff to monitor potential landslides.[129] Some warning preceded the 1995 slide; an initial section of cliff cracked free, but stopped short of the town.[130] Within a

121. *See id.*
122. *See id.*
123. *Id.*
124. *See id.*
125. *See id.*
126. *See id.* (citation omitted).
127. *See id.*
128. *See id.*
129. *See id.*
130. *See id.*

half-hour of this first debris separation, two additional sections ripped from the cliff and rushed toward the town as one giant landslide.[131]

One might think that the vegetation growth on the La Conchita cliff helps to prevent landslides by grasping the earth and holding it in place. Unfortunately for La Conchita residents, the local plant life has just the opposite effect.[132] Coastal shrubbery covered the cliff above La Conchita before the massive landslides.[133] While trees and undergrowth typically solidify and reinforce earth stability with their root matrix, the layer of coastal shrubbery actually may make landslides more likely—its dense humus layer decreases direct runoff and increases soil saturation.[134] Surprisingly, dust was in the air following the 1995 landslide and most of the debris that crashed upon La Conchita was dry material.[135] This indicates that, instead of being a water-instigated mudflow, the La Conchita slides are the result of a more sustained cliff failure.[136]

Following the 1995 landslide, a resident asked geologist James O'Tousa if La Conchita was now safe.[137] He responded, "No, you're not. I anticipate more slides where you are."[138] And he was right.

B. 2005 LA CONCHITA LANDSLIDE: ARE FATALITIES REQUIRED TO GET HELP?

January 10, 2005 at La Conchita, California: ten dead and thirty-six homes damaged or destroyed.[139] In contrast to the 1995 landslide, the 2005 landslide and its 250,000 cubic yards of debris tore through La Conchita without any visible warning (according to county officials).[140] Because the slide originated from a deep rift in the cliff, the dry layer on top acted as a battering ram as it accelerated toward La Conchita.[141] Sensors on the cliff overlooking La Conchita detected no sign of a pending landslide before

131. *See id.*
132. *See id.*
133. *See id.*
134. *See id.*
135. *See* JIBSON, *supra* note 116, at 8.
136. Dust was also in the air following the 2005 landslide, and video of the 2005 landslide showed vegetation falling intact atop the debris flow. *Id.* This suggests the top portion of the landslide was being carried by a much deeper rift of the cliff that gave way. *See id.*
137. Tamara Koehler & Kathleen Wilson, *Future of Tiny Community Is a Big Question*, VENTURA COUNTY STAR, Jan. 13, 2005, § News, at 11, *available at* http://www1.venturacountystar.com/vsc/county_news/article0,1375,VCS_226_3467616,00.html.
138. *Id.*
139. *See* JIBSON, *supra* note 116, at 3.
140. *See id* at 6; *see also* Koehler & Wilson, *supra* note 137.
141. *See* JIBSON, *supra* note 116, at 8.

tons upon tons of earth-debris came roaring down the mountainside.[142] Rescue operations searched for survivors at a frantic pace and at a cost of $750,000 per day; meanwhile, victims accused county officials of ignoring them since 1995.[143]

C. GEOLOGY BEHIND THE 2005 LANDSLIDE: THERE'S HISTORY IN THE HILLS

Geologic analysis of the 2005 La Conchita landslide revealed that it moved as a "slower moving, upper slump with a faster moving, lower debris" flow.[144] While the 2005 landslide consisted of much less than half of the 1995 landslide complex, they are both only a small portion of the much larger landslide complex in the region.[145] Cliff failure in both 1995 and 2005 are from a "Holocene paleosea cliff [which] is the seaward edge of an ancient landslide that has produced prehistoric and historic slides, slumps, debris and mud flows."[146]

The rock formations on the cliff include marine sediment from the Monterey and Pico formations.[147] High on the cliff, the rock consists of siliceous shale, siltstone and sandstone of the Middle to Upper Miocene Monterey formation.[148] The lower part of the slope consists of siltstone, sandstone, and mudstone of the Pliocene Pico formation.[149] These two formations contact the active Red Mountain Fault, which spans the entire cliff face.[150]

Research at the UCSB Department of Geological Sciences has revealed that the 1995 and 2005 landslides are at the western edge of a much larger and slower moving landslide called the La Conchita landslide

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142. Part of the problem may have been that the sensors were placed at the base of the cliff, rather than at the top where the landslide originated. *See* Ted Rowlands et al., *Rescuers Search for Missing in Mudslide*, CNN.COM, Jan. 11, 2005, http://www.cnn.com/2005/WEATHER/01/11/california.mudslide/index.html.

143. Tamara Koehler, *Damage Tops $90 Million*, VENTURA COUNTY STAR, Jan. 14, 2005, § News, at 1, *available at* http://www1.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_3470771,00.html.

144. Larry D. Gurrola & Edward A. Keller, *Prehistoric Landslide Complexes in the Landscape and Associated Hazards: La Conchita, California*, GEOLOGICAL SOC'Y AM. ABSTRACTS WITH PROGRAMS, Oct. 16–19, 2005, at 519, *available at* http://gsa.confex.com/gsa/2005AM/finalprogram/abstract_97725.htm.

145. *Id.*

146. *Id.*

147. *See* JIBSON, *supra* note 116, at 3.

148. *Id*

149. *Id*

150. *Id.*

complex.[151] Data suggest that the landslide above La Conchita began about a few thousand years ago, but is younger than the subsurface, landslide marine-terrace off La Conchita's coast.[152]

Differences between the 1995 and 2005 landslides have geologic significance. The 1995 slide occurred in a dry period, over one month after heavy rains saturated the area.[153] Deep landslides, such as the one in 1995, often take weeks to develop, for they are often "triggered by deep infiltration of rainfall."[154] In contrast, the 2005 slide came at the peak of a two-week rain.[155] The superficial, rapid landslide that resulted is typical during a torrent of heavy rains.[156] Active seismic activity and tectonic uplifting combine negatively with the relatively weak rock densities, steep cliff face and local water springs to create an extremely precarious landslide-prone area above La Conchita.[157] As Professors Larry Gurrola and Edward Keller state, "The question is not if, but when the next landslide will impact the community of La Conchita, California."[158]

D. LA CONCHITA RESIDENTS FIGHT TO SAVE LIVES: ARE THEY THE ONLY ONES TRYING?

Five days of heavy rains preceded the landslide and flooding had already resulted in twenty deaths in California.[159] Ventura County Fire Chief Bob Roper asserted that, had detectors sent signals of a pending landslide, the local authorities would have sent warning and "ordered the evacuations."[160] While residents claimed that a few people saw visible cracks in the cliff hours before the deadly landslide, Sheriff Bob Brooks claimed,

> We wish there was a perfect system. We wish there was some kind of a register that scientifically could tell us there is an imminent threat to an area like that [La Conchita]. It was not available to us. We had threats occurring all over the county at the same time that were obviously imminent.[161]

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151. *See* Gurrola & Keller, *supra* note 144.
152. *See id.*
153. *See* JIBSON, *supra* note 116, at 6.
154. *Id.* at 8.
155. *Id.*
156. *See id.*
157. *See* Gurrola & Keller, *supra* note 144.
158. *Id*.
159. Rowlands et al., *supra* note 142.
160. *Id.*
161. Marjorie Hernandez, *Despite Warnings of Danger, La Conchita Residents Return*, VENTURA COUNTY STAR, Jan. 15, 2005, § News, at 1 (quoting Bob Roper, Ventura County Fire

Even with a last-second warning system, the landslide fell at a lethal 30 feet per second.[162] County Executive Officer, Johnny Johnston, reiterated that "there is no warning system in place that could have alerted emergency and government officials [about the landslide]."[163] Johnston went on to state that the dilemma they are facing is

> one of risk and responsibility. People would like to think there is a way to be warned. Well, we have been warned; Mother Nature has warned us more than one time, but there isn't going to be something that says, 'You now have three hours to gather your belongings and exit the building.' When that warning comes, it will coincide with the actual disaster.[164]

In other words, Ventura County officials believe that residents of La Conchita are on notice that they live in a hazardous zone. Much like new residents in California must come to terms with the fact that earthquakes are a part of life in the Golden State, Ventura County has taken the stance that La Conchita should take the good with the bad—and leave county officials out of it. This sentiment was reinforced by County Counsel Noel Klebaum, who described the county's legal responsibility to protect or warn residents of landslides as being nonexistent.[165] Mr. Klebaum and company seem intent on considering La Conchita an albatross, for which they will render no rehabilitation. Mr. Klebaum declared, "The county does not have any legal obligation to protect landowners and residents in disasters like this. Nor does it have a legal obligation to warn people of such events."[166] As Ventura County Supervisor Judy Mikels said, "Can you prevent an earthquake? No."[167] She said that homeowners have "a personal responsibility because they knew where they were living. La Conchita is designated a geologic hazardous area and notices are posted on each home."[168]

Residents whose homes were red-tagged were not allowed back into their homes by county authorities.[169] Several of the structures remain broken and decrepit to the present day—nearly two years later.[170] Also of

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Chief), *available at* http://www1.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_3473639,00.html.

162. *See* JIBSON, *supra* note 116, at 6.

163. Hernandez, *supra* note 161.

164. *Id.*

165. *Id.*

166. *Id.*

167. Koehler & Wilson, *supra* note 137.

168. *Id.*

169. Hernandez, *supra* note 161.

170. Chuck Shultz, *La Conchita's Future at Stake*, SANTA BARBARA NEWS-PRESS, Apr. 5, 2006, *available at* http:/democrats.assembly.ca.gov/members/a35/news/n352006070.htm.

note, homeowner insurance is unlikely to protect against landslides.[171] While some insurance carriers offer special landslide insurance, it is rarely part of a typical homeowner's policy.[172] As a result, victims of landslide damage likely face a total loss.[173]

E. THE LANDSLIDE: A BOOMING "CRACK" AND AN EARTHEN BATTERING RAM

On that fateful day in La Conchita, more residents stayed at home than usual because the highway to the north had become blocked by a previous landslide.[174] The highway access to the south was also blocked by flooding.[175] Shortly before 1:30 p.m., all hell broke loose. La Conchita resident Bill Harbison said he "heard a noise, almost like a pop. . . . I looked up and I saw the entire mountainside just come down and just race through part of our little town here."[176] Video footage caught some of the landslide and showed a huge chunk of the cliff break off and tear down the hill toward the town, "carrying trees, power lines and thick mud into homes below. Several cars were crushed, and a bus was tossed into one of the homes."[177] Sheriff Bob Brooks said the landslide was "instant; there was no time to run for cover. Even those residents watching and ready to go couldn't get very far."[178]

Barriers erected after 1995 to prevent further landslide damage to La Conchita property was no match for the 600,000 tons of sand and mud coming down.[179] The 18-foot-high wooden barrier wall snapped "like matchsticks."[180] Some of the residents believed that the retaining wall would reduce the danger of future landslides.[181] Their understanding stood in stark contrast to the statements from county officials, who stated the

171. *See* Koehler, *supra* note 143.
172. *See id.*
173. *See id.*
174. Rowlands et al., *supra* note 142.
175. *Id.*
176. *Id.*
177. *Id.*
178. Koehler & Wilson, *supra* note 137.
179. Rowlands et al., *supra* note 142.
180. Tamara Koehler, *Some in La Conchita Say County Is to Blame*, VENTURA COUNTY STAR, Jan. 12, 2005, § News, at 1, *available at* http://www1.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_3464651,00.html.
181. However, other residents mocked the barrier and coined it "The Great Wall of La Conchita," and prophetically explained in 2000 that it would do nothing to stop another large landslide. *See* John Scheibe, *La Conchita Residents Call Wall 'Band-Aid,'* VENTURA COUNTY STAR, Oct. 13, 2000, § News, at B1, *available at* http://www1.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_3462965,00.html.

barrier was not for this purpose.[182] According to Ron Coons, a Public Works Agency director, the $450,000 wall was intended to stop the random small boulders from rolling through town.[183] Debris from the 2005 landslide completely covered the barrier.[184] A geology professor at UCSB, Arthur Sylvester, explained that a sturdier wall than the one built after 1995 would have made no difference.[185] "No wall will keep back a landslide. The thing to do is tell people, 'You live in a dangerous area, so take some responsibility.'"[186]

F. LA CONCHITA RESPONDS: RESIDENTS BAND TOGETHER TO PREVENT FUTURE DISASTERS

Although county officials have announced that La Conchita stands on its own, many residents have declared they will never leave. As Mike Bell explained, "We're La Conchita. . . . We're tight. We are a community, we are not going anywhere, and they are not making us go anywhere."[187] Realizing that it was time to take some responsibility, community members stepped up to the plate.

Responding to the deadly 2005 landslide, residents took matters into their own hands.[188] Residents were warned by Ventura County Fire Chief Bob Roper that "if another slide does occur, emergency personnel may not be able to get to the area in time."[189] Their answer: formation of a local safety team to coordinate communications and safety, warning and prevention tasks.[190] Resident Chuck Smith is convinced that the ten slain victims of the 2005 landslide could have been saved.[191] "There were warning signs," he said, "but [the residents who detected cracks in the cliff just hours before the landslide] didn't know what to do with the warning signs."[192]

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182. *See* Koehler, *supra* note 180.
183. *Id.*
184. *See id.*
185. *Id.*
186. *Id.*
187. Hernandez, *supra* note 161.
188. *See, e.g.*, *id.*
189. *Id.*
190. *See* Kevin Clerici, *Mudslide Sparks Plans for Safety Team*, VENTURA COUNTY STAR, Jan. 21, 2005, § News, at 11, *available at* http://www1.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_3487647,00.html.
191. *Id.*
192. *Id.*

Five resident volunteers would be trained by firefighters and given police support. Named, the "Good Neighborhood Network," the safety team would provide protection for residents by establishing an intranet communications system.[193] Identifying "safe houses" to rush to in case of emergency, residents would no longer be directionless and consider remaining in their homes or in the streets as the safest option.[194] As Chuck Smith put it, "There was no leadership. People saw signs of a problem, but there was no way to get the word out."[195] Although emergency teams from outside the town are often highly trained and useful, their skills are not always relevant when major landslides strike.[196] This realization led to the formation of the local level Good Neighborhood Network, which is capable of managing emergency situations before county and state reinforcements can come to the rescue.[197]

G. THE GOVERNMENT DECIDES TO IGNORE LA CONCHITA: WHERE IS THE CAVALRY?

Following the landslide, Ventura County and State officials, as well as members of Ventura County's Office of Emergency Services, the Federal Emergency Management Agency (FEMA) and the U.S. Small Business Administration (SBA), traveled to La Conchita and toured the destruction.[198] Although Governor Schwarzenegger declared a state of emergency, funds that would typically flow in from FEMA and federal disaster relief did not arrive.[199]

Immediately following the landslide, County Supervisor Kathy Long, chairwoman of the Board of Supervisors and whose Third Supervisory District includes La Conchita, said that condemnation and eminent domain remained an option for Ventura County—just as they did after the 1995 landslide.[200] There are times when condemning property is cheaper than rebuilding, and there are certainly some instances where condemnation should be used to prevent further loss of life and costly property

193. *Id.*
194. *Id.*
195. *Id.*
196. *Id.*
197. *Id.*
198. Marjorie Hernandez, *Relief Officials Assess Damage*, VENTURA COUNTY STAR, Jan. 16, 2005, § News, at 1, *available at* http://www1.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_3475363,00.html.
199. *Id.*
200. Koehler & Wilson, *supra* note 137.

destruction.[201] While Ventura County would likely seek court approval for condemnation—perhaps over the protests of La Conchita residents—the county would only have to pay for the value of the land post-landslide disaster, which would likely be significantly cheaper than other coastline property.[202]

La Conchita's weak political influence may also factor into the inaction. Having only 338 residents puts La Conchita at a mere 0.4% of the total voters in the Third Supervisory District of Ventura County.[203] Moreover, there are no towns or cities in close proximity to easily garner additional support.[204] La Conchita sits as an island—surrounded by cliffs and ocean. If only 10% of eligible voters showed up for local elections, then all of La Conchita would still only amount to 4.7% of the votes.[205] Without political clout, La Conchita remains at a considerable disadvantage to communities like Bluebird Canyon in Laguna Beach, where the community and neighboring developments contain a large share of the voting public.

Attempts to fix the cliff in order to prevent or mitigate further destructive landslides could cost upwards of $45 million.[206] Even a study to determine what must be done to anchor and brace the cliff would cost millions of dollars.[207] Supervisor Long anticipated that residents who stayed in La Conchita after the 1995 landslide would ask for state and federal aid to prevent further landslides.[208] While Ventura County did fund a $1 million study after the 1995 landslide, remedies remain in doubt.[209] As Long said, "I frankly think it will be a really tough solution," adding, "We don't know the condition and the possible aftereffects of this slide. We may need an independent commission to do an in-depth study of the hillside. We are dealing with what geologists are saying is a 10,000-year-old ancient landslide area. It's a complex question that will have complex answers."[210]

In light of the liability that the county would incur if mitigation measures failed, thereby causing further damage, it may be an unwritten

201. *See id.*
202. *See id.*
203. *See* Telephone Interview with Clerk, *supra* note 90.
204. *Id.*
205. *Id.*
206. *See* Koehler & Wilson, *supra* note 137.
207. *Id.*
208. *See* Hernandez, *supra* note 198.
209. *Id.*
210. *Id.*

policy to take a wait-and-see approach. As officials wait, nature will take its course on La Conchita. However, specialists have come to the defense of the county's position. Ken Topping, a professor at California Polytechnic State University, San Luis Obispo, in the City and Regional Planning department and a specialist in disaster recovery and prevention, explained that several geologists have been studying the La Conchita area and have concluded that it is not a reasonable mitigation target.[211] The forces of nature behind the rapidly decaying La Conchita cliff are too great—even if not using a traditional cost-benefit analysis.[212]

Residents are not as concerned with the price tag as they are with feeling forgotten by the county. Annelle Beebe proclaimed that the comparison between La Conchita and Malibu, in Los Angeles County, highlights the stark difference: "La Conchita always gets forgotten. It's very, very frustrating."[213]

Responding to continuous lobbying efforts on behalf of La Conchita residents, in March 2006, Governor Schwarzenegger approved $667,000 for a year-long study to "examine the geologic, economic, social and environmental factors necessary to craft a sound and equitable solution."[214] Despite opposition to "mitigating" the cliff, Ventura County officials will participate and join agents of FEMA, the U.S. Geological Survey and the U.S. Department of Transportation, as advisors.[215]

H. FINANCIAL MITIGATION AND RECOVERY ASSISTANCE: MONEY TALKS

Financial support has been offered by the Director of the Governor's Office of Emergency Services (OES), but these funds cannot be unilaterally granted by the state government.[216] In order to acquire these funds for La Conchita mitigation efforts, the Ventura County Board of Supervisors

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211. Telephone Interview with Ken Topping, Professor, Cal. Polytechnic State Univ., San Luis Obispo (Jan. 25, 2005). Ken Topping has also served as the Director of Planning for Los Angeles and San Bernardino County. *Id.* In addition, Mr. Topping co-authored *Planning for Post-Disaster Recovery and Reconstruction*, PAS Report 483/484, published by FEMA and APA. *Id.*

212. Under cost-benefit analysis, one would be willing to pay up to ninety-nine cents in prevention costs to avoid paying one dollar in guaranteed damage. Stating that successful mitigation in La Conchita involves abandoning traditional cost-benefit analysis means that, even if one were to spend greater than one dollar on mitigation costs to prevent one dollar in damage, a project guaranteeing safety from landslides in La Conchita is still not feasible.

213. Koehler & Wilson, *supra* note 137.

214. Griggs, *supra* note 111.

215. *Id.*

216. Archived Printout of La Conchita Discussion Forum, http://www.santabarbara.com/forums/laconchita/viewtopic.php?t=166&sid=70b1395ccd48408ed048a0f8af65 (Sep. 15, 2005) (on file with author).

would have to request it directly.[217] Federal assistance would require similar requests by county officials.[218] Additionally, CalTrans (California's roadway and infrastructure maintenance agency) has pledged to participate in "any county-initiated study that is necessary to determine how to better protect the residents of La Conchita."[219] However, accepting these funds and spending them on mitigation measures would not only have a high probability of failure, but also would leave Ventura County susceptible to liability.[220] Meanwhile, the Office of Emergency Services pledged to fund a vital emergency preparedness and environmental study of the community of La Conchita and the surrounding transportation infrastructure.[221]

There is precedent for FEMA to contribute financial assistance to communities affected by landslides. The city of Pacifica, California received funds from FEMA and California's OES to help purchase ten residential properties that were destroyed by a landslide.[222] El Nino struck the California coast in the late 1990s; the excess precipitation served as the impetus for the landslide, leaving these ten homes uninhabitable.[223] Through FEMA's Hazard Mitigation Grant Program, funds were earmarked to purchase the homes—the first time California had spent government funds to mitigate landslide risks.[224] Of the funds, seventy-five percent came from FEMA with the remaining twenty-five percent coming from OES. Debris and remaining structures were cleared from the property and the city dedicated the land as open space.[225]

Some financial relief for property owners exists under California tax law.[226] Under this law, property damaged or destroyed by disasters is

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217. *Id.*

218. *Id.*

219. *Id.*

220. *Id.*

221. *See* Assemblymember Pedro Nava – April 2006, Assemblymember Pedro Nava Holds Press Conference to Announce Funding for Vital La Conchita Study, http://democrats.assembly.ca.gov/MEMBERS%5Ca35%5Cinternetoutreach%5CAD35ENews200604.htm (last visited Nov. 27, 2006).

222. Cal. State Lands Comm'n, Summary of Mtg. on Dec. 16, 2002 (2002), http://archives.slc.ca.gov/Meeting_Summaries/2002_Documents/12-16-02/.%5CItems%20and%20Exhibits%5CC38.pdf; Archived Printout of Article from FEMA Website, *Pacifica to Receive More Than $1.2 Million to Acquire Properties Affected by El Niño Landslides*, http://www.fema.gov/regions/ix/1998/r9_038.shtm (1998) (on file with author).

223. *See* sources cited *supra* note 222.

224. *See* sources cited *supra* note 222.

225. *See* sources cited *supra* note 222.

226. *See* CAL. REV. & TAX. CODE § 170 (Deering 2006).

eligible for property tax reassessment.[227] Residents who incur losses to their home of greater than $10,000 have a twelve month window to apply for property tax reassessment.[228] Because Governor Schwarzenegger declared a state of emergency, property owners also have the right to defer property tax payments for one installment.[229] While this may seem a trivial amount when compared to losing a home, forcing residents to pay a property tax on land with zero usable value is simply unrealistic. In essence, these clauses permit victims to adjust their property tax payments to the decrease in value their homes sustained following the 2005 landslide.[230]

Even if government officials fail to fund mitigation efforts, La Conchita residents remain determined to stand together and embrace their community—regardless of the danger.[231] As resident Bruce Hurst explained in 2000, "Just look at the view. . . . Besides, you have to be buried someplace."[232]

I. INSURANCE CLAIMS AND LANDSLIDE DAMAGE: EFFICIENT PROXIMATE CAUSE AND BATTLING THE PREMIUM BLACK HOLE OF INSURANCE COMPANIES

Victims of Hurricane Katrina are well aware of what happens when they file for insurance claims.[233] The conversation may resemble something of this nature:

> Insured Homeowner: Fortunately, I kept a copy of my insurance coverage at the bank vault, which survived the hurricane. Here is my policy number, as you can see my entire house was destroyed by the hurricane.
>
> Insurance Company: Oh yes. Your house is definitely a goner. Wow, look at all that water damage. Looks like a whole lake came flooding in here.
>
> Insured Homeowner: Everything was destroyed. We don't even have enough money to clear the lot to begin rebuilding. Right now we're living out of a motel, and we are yet to receive a dime from our insurance coverage.

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227. *See id.*
228. *See id.* § 170(b); *see also* La Conchita Discussion Forum, *supra* note 216.
229. *Id.*
230. *Id.*
231. *Id.*
232. Scheibe, *supra* note 181.
233. *See Trent Lott Sues State Farm over Katrina Damage*, CONSUMERAFFAIRS.COM, Dec. 16, 2005, http://www.consumeraffairs.com/news04/2005/katrina_lott.html.

> Insurance Company: What? Yes, this is a real tragedy. Unfortunately, because your policy does not cover water damage or flooding, we are not going to be providing coverage. Sorry about your house. Have a nice day.

This hypothetical conversation is of course a spoof and not intended to mock what victims do experience. It should not be surprising that insurance companies have maintained a unified front in denying compensation to policyholders. Even Senator Trent Lott was denied full coverage.[234]

The problem stems from an insurance legal doctrine called "efficient proximate cause."[235] When two or more possible causes combine to damage an insured home, coverage is confirmed if both causes are endorsed by the insurance policy.[236] Problems arise when one of these causes is excluded from coverage. In California, Insurance Code section 530 addresses this issue and states that coverage will be evaluated by examining the efficient proximate cause.[237] Coverage will be granted when the loss is sustained, in part, by a non-endorsed cause.[238] This means that efficient proximate cause is applied—and coverage will not be excluded—if a covered cause is a dominant cause of the loss and in the chain of causation.[239] Public policy requires the efficient proximate cause standard because, without the efficient proximate cause doctrine, even the smallest contributing cause, if excluded, could invalidate an insured's claim.[240]

La Conchita residents may find success by arguing that rain was the dominant cause of the landslide (if they are covered for water damage and not earth movement). Depending on the policy, it may be prudent to argue the reverse and promote earth movement was the cause, and not rainfall and ground saturation. Regardless of the policy language, insurance companies are likely to balk at providing compensation. Furthermore, since La Conchita has long been labeled a geologic danger zone, the likelihood of any residents being able to afford insurance that covers landslides, and the equal unlikelihood of an insurer offering such coverage, creates a doubtful probability for insuring future landslides.

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234. *Id.*

235. *See* H. WALTER CROSKEY ET AL., CALIFORNIA PRACTICE GUIDE: INSURANCE LITIGATION ¶ 6:135 (2005).

236. *See id.*

237. *See* CAL. INS. CODE § 530 (Deering 2006).

238. *See id.*

239. *See generally* CROSKEY, *supra* note 235.

240. *See id.*

Specific landslide protection policies are offered from Lloyd's of London insurance syndicate.[241] The cost of coverage would vary depending on the site, but any landslide coverage includes an expensive premium and high deductible. Landslides according to one policy are defined thus: "Landslide means the natural and sudden fall, slipping or displacement of earth or rock, including mudflow and land collapse other than that arising out of Earthquake Shock."[242]

Landslides caused by an earthquake would be excluded from coverage under this policy, so concurrent earthquake coverage would be highly recommended in California. Another critical exclusion includes:

> 4. Loss or damage arising out of acts or decisions, including the failure to act or decide, of any person, group, organization or governmental body relating to faulty, inadequate or defective
>
> a) Planning, zoning, development, surveying, siting
>
> b) Design, specifications, workmanship, repair, construction, renovation, remodeling, grading, compaction
>
> c) Materials used in repair, construction, renovation or remodeling; or
>
> d) Maintenance of all or part of any property on or off the Premises.[243]

Excluding coverage for damages resulting from "inadequate zoning, development, design, workmanship, grading, materials used, maintenance, etc." can be manipulated and used as an excuse to deny coverage claims.[244] Who defines faulty maintenance? Did the drainage pipe that never worked right qualify for an exclusion from coverage? If the city, in hindsight, should have had lower-density zoning in a community, does this mean the insurer has a valid claim for denying coverage? Certainly, it does not take an insurance expert to anticipate the struggle between insurer and insured in the event of a claim.

The policy also does not cover loss of land.[245] Should a lot slide into the ocean or collapse down a cliff, it would be unrecoverable under the policy. The exclusions section of the policy states: "1. Land, land values, soil, water, air, or any interest or right therein."[246] The nature of such

241. Lloyd's of London, Insurance Policy: Authority Number: B066404MTS699 3 (2005) (on file with author).
242. *Id.*
243. *Id.*
244. *Id.*
245. *Id.*
246. *Id.* at 5.

insurance is to permit as few potential claims as possible and limit the policy coverage in the event of a claim.

In sum, even if a victim purchased insurance coverage, recovering on a claim is not guaranteed. When residents in landslide prone areas such as La Conchita decide (or are forced) to self-insure, the end result may be a total loss.[247] Absent government assistance or private contributions, victims may become destitute.

J. DANGERS PERSIST FOR LA CONCHITA: NOWHERE TO RUN, NOWHERE TO HIDE

The USGS presented a report in 2005 that outlined several remaining dangers for La Conchita residents. The highlights of this report are listed below:

> 1. Historical accounts and geologic evidence show that landsliding of a variety of types and scales has been occurring at and near La Conchita for many thousands of years, and on a relatively frequent basis, up until the present. There is no reason to believe this pattern of landsliding will stop.
>
> 2. Even in the absence of additional significant rainfall this year (2005), the remainder of the 1995 landslide could still remobilize, most likely as a deep slump—earth flow similar to that in 1995. This mode of movement would most likely be relatively slow (compared to 2005) but still could pose serious hazards to property and, perhaps, life.
>
> 3. If significant additional rainfall occurs, either this year or in future years, several landslide scenarios are possible: (a) deep movement of the 1995 deposit, as described above, (b) mobilization of the 1995 (and possibly the 2005) deposit into a rapid debris flow such as occurred on January 10, 2005, (c) triggering of subsidiary landslides from parts of the 1995 and 2005 deposits or scarps, (d) triggering of slumps and (or) earth flows on adjacent hillsides, and (e) triggering of rapid debris flows from various nearby slopes, particularly in ravines.
>
> 4. The landslide scenarios sketched above potentially could impact any part of the La Conchita community. Future landslide activity could move into the same areas that recently have been damaged or could mobilize in other directions that could damage any or all of the developed area.[248]

247. Even if landslide coverage were available in all areas, it may be prohibitively expensive for middle and lower-middle class residents.

248. JIBSON, *supra* note 116, at 8-11.

If mitigation funds are not designated and efforts not immediately implemented, it truly is only a matter of time before another destructive landslide will torment the La Conchita community.

K. LAGUNA BEACH, CALIFORNIA

The city of Laguna Beach, California, is located in Orange County. Founded in 1889, the County Seat is in the city of Santa Ana.[249] The county spans 798 square miles and is home to thirty-four cities.[250] Visitors and residents enjoy nine beaches that stretch over forty-two miles of coastline.[251] Nature lovers may also revel in the 38,694 acres of regional parkland and explore the 382 miles of trails and bikeways.[252] Tourist attractions include Disneyland in Anaheim, the Los Angeles Angels of Anaheim, Knott's Berry Farm amusement park in Buena Park, and the Richard Nixon Library and Birthplace.[253]

Thomas Wilson is the supervisor in charge of Orange County's Fifth District, which includes Laguna Beach, as well as such notable cities as Mission Viejo, Laguna Niguel and San Clemente.[254] Orange County's Board of Supervisors serves its constituency by overseeing "the management of County government and many special districts including Flood Control, Development Agency, lighting districts, county service areas and sewer maintenance districts."[255] Elected supervisors serve four-year terms.[256] Though their geographic jurisdictions vary in size, the five districts have approximately the same population and number of registered voters.[257]

As a city, Laguna Beach has a separate budget and elected officials with municipal power.[258] In 2005, the city's financial statements include revenues and transfers of just over $38 million, with expenditures equal to

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249. CEO FINANCE & BUDGET, COUNTY OF ORANGE, ORANGE COUNTY FACTS AND FIGURES 2005 (2005), *available at* http://www.oc.ca.gov/finance/ff2005/pages_frm.asp?OPT=facts_full.

250. *Id.*

251. *Id.*

252. *Id.*

253. *Id.*

254. Orange County Gov't Online, Fifth District Supervisor – Tom Wilson, http://bos.ocgov.com/fifth/index.html (last visited Nov. 27, 2006).

255. Orange County Gov't Online, Board of Supervisors, http://www.ocgov.com/Supervisors/Supervisors.asp (last visited Nov. 27, 2006).

256. *Id.*

257. *Id.*

258. *See* CITY OF LAGUNA BEACH, CAL., ADOPTED BUDGET: FISCAL YEAR 2005-06 8-9 (2005), *available at* http://www.lagunabeachcity.net/government/reference/budget06/ (follow "Revenue Summary" hyperlink).

$37.8 million.[259] The city maintains savings from previous budgets of over $3 million.[260] Of expenditures, $4.6 million was spent on capital improvements.[261]

As of 2000, there were 11,511 households in Laguna Beach, with approximately 2.05 people per household.[262] Roughly 84.2% of the Laguna Beach citizens are eligible to vote.[263] The median household income in the city was $75,808 for an individual and $100,778 for a family.[264] Only 5.1% of the population lives below the poverty line.[265]

The website for Laguna Beach includes disaster preparedness information.[266] Links for shelters, emergency supplies, floods, fires, earthquakes and even preplanning evacuation schedules are posted.[267] Additionally, a link provides an extensive history of the Bluebird Canyon Landslide, and sheds light on the "human" losses that occurred.[268]

L. BLUEBIRD CANYON LANDSLIDE: "YOU COULD HEAR THE HOMES BREAKING. YOU COULD HEAR THE CRACKING WOOD."[269]

The Bluebird Canyon landslide in 2005 served as a wakeup call that could be used by disaster mitigation proponents to advance landslide prevention measures. The community's main ingress and egress point, Flamingo Road, had been subdivided in 1959, and only one home in the area was less than fifteen years old.[270] There were no recent triggering events to promote geotechnical work in the area—despite a landslide in October 1978 that destroyed or damaged fifty homes.[271] While the current

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259. *See id.*

260. *See id.*

261. *See id.*

262. *Laguna Beach, California*, WIKIPEDIA: THE FREE ENCYCLOPEDIA, http://en.wikipedia.org/wiki/Laguna_Beach%2C_California (last visited Nov. 27, 2006).

263. *Id.*

264. *Id.*

265. *Id.*

266. City of Laguna Beach Home Page, http://www.lagunabeachcity.net (last visited Nov. 27, 2006).

267. *See id.*

268. City of Laguna Beach, 2005 Bluebird Canyon Landslide, http://www.lagunabeachcity.net/about/landslide/ls_2005.htm (last visited Nov 27, 2006).

269. Ben Fox, *Nearly 30 Homes Wrecked; Neighbors Forced to Flee*, SAN DIEGO UNION-TRIBUNE, June 2, 2005, http://www.signonsandiego.com/uniontrib/20050602/news_1n2slide.html.

270. Robert Burnham, Speech on Fire, Famine, Flood, and Pestilence: Man vs. Nature at the UCLA Extension Annual Land Use Law and Planning Conference (Jan. 20, 2006).

271. On October 2, 1978, seven months after a heavy rainfall season, 50 homes were destroyed or damaged by a landslide that traveled 12 miles per hour. RICE, *supra* note 13. at 7. Intense geologic investigations suggested that the slide was caused by low permeability of the slide mass and a stream

rules in Laguna Beach demand subdivisions (as opposed to single family homes) to provide geotechnical data that would detect potential landslides, there is still no assurance that this disaster would have been prevented.[272] Put simply, the area is prone to disasters; there is recent history of destruction including a 1998 landslide that damaged 300 homes and a fire in 1993 that completely destroyed 400 homes.[273]

The Bluebird Canyon landslide in Laguna Beach, California, consisted of a bedrock mass that was sixty to eighty feet deep.[274] Five injuries were confirmed and twenty-eight homes were either destroyed or severely damaged.[275] According to Ed Harp, a geologist with the USGS, the landslide was "almost certainly" the result of heavier than usual winter rains.[276] Dr. John Foster, a geologist and professor at California State University at Fullerton, agreed that winter rains likely caused the landslide.[277] Typical years average about 12.6 inches of rain, but from July 1, 2004, up until the landslide, there was twice as much rainfall—27.85 inches.[278] Residents were also quick to point out their belief that one of the neighboring houses caused slope instability.[279] This house, known by neighbors as the "Sinatra House," had been under construction for the past four years and was perhaps too large for the hill, but it did not have appropriate pilings to penetrate the slope's bedrock.[280] Neighbors claimed that when the Sinatra House shifted, it started a chain reaction that led to the larger slide.[281] A local architect, whose home overlooks Bluebird Canyon unofficially investigated the Sinatra House debris and determined that the caissons of the house failed to pierce the underlying bedrock.[282]

In the aftermath of the landslide, Laguna Beach was far more susceptible to imminent flooding and potentially more susceptible to destabilization and landslides.[283] Homes that were unsafe to enter were

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undercutting the ancient landslide. *See id.* Officials conducted reshaping, reinforcing, and draining of the slide mass in an effort to prevent further landslides. *See id*.

272. Burnham, *supra* note 270.

273. *See* Fox, *supra* note 269.

274. Burnham, *supra* note 270.

275. *See* Fox, *supra* note 269.

276. *Id.*

277. KCET, Life & Times Transcript 07/25/05 (July 25, 2005), http://www.kcet.org/lifeandtimes/archives/200507/20050725.php.

278. *See* Fox, *supra* note 269.

279. *See id.*

280. *See id.*

281. *See id*.

282. *See id.*

283. Burnham, *supra* note 270.

red-tagged.[284] A red tag does not mean a house is destroyed; rather, it is an indication that reentering the property is too hazardous.[285] The building official, with the help of a geotechnical engineer, determined which homes were unfit for habitation.[286] They combined their expertise to analyze the potential for further damage from additional movement and consulted with the fire department to determine the city's ability to provide life safety services.[287] According to City Manager Ken Frank, over half of the red-tagged homes were adjacent to the landslide and unharmed.[288] Many of the homes were red-tagged because city officials feared that entering the homes would be unsafe. Residents whose homes received a yellow tag were permitted to retrieve valuables and personal possessions from their homes.[289] Nevertheless, the spirit of the survivors was unwavering. One resident, Scott Moore, who narrowly escaped losing his home, claimed that he would "stay here forever."[290] He continued by asserting, "It's kind of a freak of nature that lightning would strike in the same place twice."[291] However, without mitigation efforts, this statement would likely prove false. Unlike lightning, slope instability occurs after an initial landslide due to fresh, loosened earth on the hillside and often causes even more debris flow events.[292]

The city became involved in this mitigation project because the property owners lacked the financial ability or legal authority to take the appropriate actions to prevent further damage.[293] Private property damage was estimated at between $15 million and $23 million.[294] Laguna Beach

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284. Gwendolyn Driscoll & John McDonald, *Landslide Toll Rises to 22 Homes*, OCREGISTER.COM, June 2, 2005, http://www.ocregister.com/ocr/2005/06/02/sections/breaking_news/article_544398.php.

285. *Id.*

286. Email from Bob Burnham, former City Attorney for the City of Newport Beach, to author (Mar. 6, 2006, 5:09 PM PST) (on file with author).

287. *Id.*

288. *See* Driscoll & McDonald, *supra* note 284.

289. *See id.*

290. Fox, *supra* note 269.

291. *Id.*

292. Burnham, *supra* note 270.

293. *Id.* While Laguna Beach is an affluent community, victims from the landslide were not all financially comfortable. *See* KCET, *supra* note 277. For example, Ginger Kelly expressed frustration when responding to commentators such as Rush Limbaugh, who claimed that the victims were "rich." *See id.* She asserts that her life savings was put into her home, which was destroyed, and instead of being able to spend time with her daughter, she was now going to have to return to work. *See id.* While her anger led her to say Rush Limbaugh should "take another Oxycontin," she did not hesitate to praise the City and community for their support. *See id.*

294. Burnham, *supra* note 270.

was willing to undertake this massive project.[295] Initially, neither state nor federal agencies (FEMA, anyone?) offered assistance.[296] Laguna Beach was on its own. As Bob Burnham elaborated, "First, and I think this was a major factor, the mayor committed to rebuilding the public facilities in the emergency meeting held the day of the slide. That statement set the tone for the remainder of the process."[297]

While Laguna Beach took the brunt of responsibility, Orange County did provide some immediate support. The Police and Sheriff's Departments came to the scene, including the deployment of a helicopter.[298] The county also agreed to defer payments on dump fees and charges.[299] The State of California did not contribute to the recovery process but has given "support and guidance" on how to acquire FEMA funds.[300] The State has indicated that they will pick up the final 25% of the tab if FEMA decides to reimburse Laguna Beach for their standard 75%.[301]

In addition to the private property damaged, there was extensive damage to public works. Over 500 feet of roadway and parallel utilities were destroyed on Flamingo Road. Waterlines were destroyed in Bluebird Canyon as well as a connector between district reservoirs. Sewers and storm drains were also destroyed or disabled.

The threat of more rain meant possible flooding. If the landslide mass was not removed, then the local reservoir was in danger of overflowing and creating even more damage.[302] Without ensuring drainage, repairing the damaged road and waterlines was not feasible.[303]

Before any other reconstruction could commence, the drainage problem had to be resolved.[304] Immediate action was needed in order to prevent further flooding, as well as securing nearby homes.[305] Facing the danger of more rain, the city had little choice but to assert its full power in mitigating further damage.[306] First, the city installed a long storm drain

295. *Id.*
296. *Id.*
297. *See* Email from Bob Burnham, *supra* note 286.
298. Burnham, *supra* note 270.
299. *Id.*
300. *Id.*
301. *Id.* FEMA typically reimburses cities 75% of disaster expenses—it is common for the state government to pick up the remaining 25%. *Id.*
302. *Id.*
303. *Id.*
304. *Id.*
305. *Id.*
306. *Id.*

and waterline exceeding 120 feet.[307] Next, the city constructed a 100-foot-long shoring wall that would enable them to excavate, install utilities, place fill to firm up the underlying ground and create runoff drainage features on the surface.[308]

Attempting to reduce erosion and further saturation of the landslide area, city personnel removed the destroyed homes and debris, installed plastic sheeting on the steeper portions of the slope and created temporary collection facilities to absorb water runoff from Flamingo Road.[309] Soil treatments were also applied to reduce further sliding, as well as protective devices on the boundaries of the landslide.[310] Even goats were brought in to graze areas in order to create firebreaks.[311]

M. THE COMMUNITY OF LAGUNA BEACH GIVES SURVIVORS DIRECTION AND DECIDES TO REBUILD

In the immediate aftermath of the landslide disaster, the city manager assigned three staff members as specialized victim assistants.[312] Their duties included helping with temporary housing and providing clothing and other personal items.[313] There was a terrific community response as they bonded together to support the victims.[314] Instead of declaring the entire area a public nuisance, the city gave financial assistance to victims to recover personal property and to remove destroyed houses.[315] Communication remained open and frequent between victims and community leaders.[316]

The mayor of Laguna Beach decided that the best way to move forward was to rebuild.[317] In doing so, he gave the victims hope that their

307. *Id.*
308. *Id.*
309. *Id.*
310. *Id.*
311. *Id.*
312. *Id.*
313. *Id.*
314. *Id.*
315. *Id.*
316. *Id.*
317. However, not everyone agrees with this decision. *See* KCET, *supra* note 277. Dr. Judy Rosener, a UC Irvine professor who has served on the Coastal Commission, feels that "local officials who approve hillside building these days have trouble saying no because the requests come from people they know who are determined to live the California dream. No matter what happens in California, people always seem willing to go back and to rebuild." *Id.* Back in 1978, when Bluebird Canyon suffered another landslide, she recalled a Coastal Commission meeting where their jurisdiction permitted them to determine whether new permits were to be issued—in a losing effort, she voted to deny rebuilding permits. *Id.* Dr. John Foster also expressed concern over today's rebuilding unless it is

lives would return to normal.[318] Additionally, the emergency escape road for 350 homes in Bluebird Canyon would be restored.[319] To reconstruct Flamingo Road and its parallel utilities, the city had to increase the safety factor of the landslide area to at least 1.5 (recall that a factor of safety below one indicates a failing slope).[320] In a win-win situation for the property owners, their rebuilding efforts were necessarily aligned with the city's attempt to improve the factor of safety.

The potential political impact was greater for local leaders in Laguna Beach than in La Conchita. Over 375 homes were directly affected by the Bluebird Canyon landslide, representing 3.25% of the households in Laguna Beach. [321] When local elections regularly fail to draw more than 20% of eligible voters, a Bluebird Canyon voting block could make up to 16% of votes cast.[322] Factoring in activism, empathy votes and the financial dedication of Bluebird Canyon's victims could easily increase this number even further. A politically-charged and well-organized group, like a Bluebird Canyon Landslide Victims' Committee (this name is fictitious), could not only make the difference in an election, but could also carry enough votes to elect their own candidates. Fortunately, this scenario never reached fruition. Moreover, it was never conceived because the municipal leaders in Laguna Beach took the initiative in rebuilding their community.

Currently, Laguna Beach is completing $8 million in emergency mitigation for Bluebird Canyon.[323] In addition, $7 million has been earmarked for rebuilding Flamingo Road.[324] FEMA reversed a decision not to permit landslide areas to be designated as disasters by the president's disaster declarations in December 2005,[325] which bolstered the hopes and aspirations of Laguna Beach. Initial reviews for landslide expenditure reimbursements began almost immediately.[326] At the same time, the city

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drastically improved from the original construction. *See id.* After looking over some of the reports for Bluebird Canyon homes, he noticed that even some of the fill conditions were not compacted properly. *Id.*

318. Burnham, *supra* note 270. Although the official decision to rebuild was not made until the City Council approved non-liability agreements with the victims of the landslide in exchange for the City's commitment to finish the emergency protective measures and restoration of Flamingo Road. *Id.*

319. *Id.*

320. For a description of the factor of safety, see discussion *supra* Part II.A.

321. Burnham, *supra* note 270.

322. Following along the math: (11,511 total Laguna Beach households) * (0.2 or 20%) = 2302 likely voting households; (375 households affected in Bluebird Canyon) / (2302 likely voting households) = 16%.

323. Burnham, *supra* note 270.

324. *Id.*

325. *Id.*

326. *Id.*

and victims joined forces and gained approval of a local one-half-cent sales tax that will generate an estimated $10 million in the next six years.[327]

As a result of these combined efforts, rebuilding began in April 2006.[328] After repair, the slope will be extremely stable and pose no foreseeable risk to those who decide to rebuild.[329] To prevent the city from double-payment (once for the repairs and again to defend lawsuits) and in exchange for permitting rebuilding, all but two of the homeowner victims have signed release contracts with the city and the local water district, agreeing to discharge liability and promising to contribute to the cost of repairs.[330] Former victims seemed to have no problem signing such releases because they now know that the city will come to their aid.[331] The few property owners that were hesitant to rebuild are having their hand forced by the city. Laguna Beach declared properties in disrepair due to the landslide to be public nuisances, thereby requiring the owners to repair the structures.[332]

Generally, the threat of tort liability is an enormous strain on developers, vendors, and adjacent landowners.[333] The California Supreme Court adopted a duty analysis for adjacent landowners, meaning that a plaintiff would only have to prove that landowners who caused damage did not use reasonable care in the management of their property.[334] This decision seems to disregard California Government Code section 831.25, which grants immunity to government entities in tort from landslide damage to adjacent private property, if the landslide was caused by a natural condition to unaltered public property.[335] This decision displays the importance of Laguna Beach acquiring the liability releases from landowners in Bluebird Canyon.

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327. *Id.*

328. *Id.* This date is far ahead of the schedule estimated by City Manager Ken Frank immediately following the disaster—his hope at the time was that rebuilding could begin by 2007. *See* KCET, *supra* note 277.

329. Burnham, *supra* note 270.

330. For a copy of the liability release agreement, see Appendix A (on file with author).

331. Burnham, *supra* note 270.

332. *Id.*

333. *See, e.g.*, Sprecher v. Adamson Co., 636 P.2d 1121 (Cal. 1981) (reversing summary judgment for uphill homeowner whose land slid and caused damage to downhill homeowner's property).

334. *See* Rowland v. Christian, 443 P.2d 561, 568 (Cal. 1968). In doing so, the Court departed from the traditional rule stating that landowners would not be liable for natural occurrences on their land (such as landslides). *See Sprecher*, 636 P.2d at 1126. This duty would also apply to government entities. *See* Wildensten v. East Bay Reg'l Park Dist., 231 Cal. App. 3d 976 (Ct. App. 1991).

335. *See Wildensten*, 231 Cal. App. 3d at 981-82.

Had Laguna Beach not restored public utilities and left the victims without any recourse or assistance, litigation would be likely. At the onset of any legal action, repair decisions would have become complex and disputed. Furthermore, frustration would escalate among victims as they attempted to recover damages approximating their property value. Impatience with the city likely would have led to political entanglements that may have engulfed the entire community. Under such circumstances, passing the increased sales tax would have been unlikely and the entire mitigation plan may have gone unfunded. Additionally, some might argue that the primary beneficiaries of the city's mitigation and rebuilding efforts have been those in the immediate proximity whose homes were not damaged.[336] The decreased threat of future slides improved ingress and egress, and continuous utility services are all benefits of the city's response to the Bluebird Canyon landslide.

In an effort to prevent further disasters from occurring, Laguna Beach is examining several mitigation strategies.[337] The General Plan already requires a "soils and geology report" for "all development projects" and "borings or subsurface explorations" for subdivisions.[338] Still, the city's "hillside protection" designation does not include analysis beneath the surface, which would be the determining factor for landslide predictions.[339] The General Plan could also have a set safety level of slope stability, and the combined data could then be examined against this figure to determine the safety of future construction.[340]

N. BUDGET ALLOCATION: HOW DO CITIES DIVIDE THE LOOT?

Budget disbursements in Laguna Beach work like those in other California cities. Authorization for expenditures is granted annually in the budget with a mid-year adjustment.[341] Initiation of the budget production process begins with the city manager, who meets with directors of the city's departments to evaluate their financial obligations and desires.[342] The city manager then presents findings to the City Council along with estimates on future revenue and a calculation of a recommended reserve

336. Telephone Interview with Laura Parisi, City Treasurer, City of Laguna Beach (Feb. 6, 2006).
337. *Id.*
338. *Id.*
339. *Id.*
340. *Id.*
341. Email from Bob Burnham, former City Attorney for the City of Newport Beach, to author (Feb. 27, 2005, 4:38 PM PST) (on file with author).
342. *Id.*

fund.[343] Finalizing the budget does not lock funding, for the City Council can make changes to the budget throughout the year.[344] Repairs like the ones needed in Bluebird Canyon can take several years.[345] In order to keep these projects funded, special expenditures must be approved annually in the city's budget.[346] At the time of the Bluebird Canyon landslide, Laguna Beach adjusted its cash flow forecasting and management to fund the rebuilding and mitigation projects.[347] This was possible because not all of the projects earmarked in the current budget had yet been funded. In other words, the city had to "borrow" from other areas to stave off a potentially devastating flood from the Bluebird Canyon landslide.[348]

O. LAGUNA REBUILDS: WHY NOT LA CONCHITA, TOO?

Differences exist between the landslide recovery process of Laguna Beach and La Conchita. The government and community rallied around the victims of the Bluebird Canyon landslide and committed themselves to funding mitigation measures and rebuilding. Laguna Beach's independent and substantial financial strength allowed it to commence with the rebuilding process and patiently wait for FEMA reimbursement. Meanwhile, La Conchita's tiny community, which if physically transferred would be nothing more than a subdivision in Laguna Beach, does not possess the monetary power to mirror Laguna Beach's efforts. Dozens of memorial charities and rebuilding funds have been established, but they have not raised the necessary funds to finance mitigation of the La Conchita cliff. Furthermore, the cost of mitigation in La Conchita would likely be more than three times that in Laguna Beach.[349]

Geological differences between the two landslide sites are profound. Bluebird Canyon's debris flow originated beneath the homes.[350] The underlying ground sustaining the homes slid down the hillside, taking the

343. *Id.*

344. For example, the Bluebird Canyon landslide occurred after the annual budget had been drafted, so the City Manager and City Council had to adjust the Capital Improvement Program by decreasing or deferring improvements in other areas, as well as putting a freeze on city hiring. Telephone Interview with Laura Parisi, *supra* note 336.

345. *Id.*

346. *Id.*

347. *Id.*

348. *Id.*

349. Ventura County Supervisor Kathy Long estimated that La Conchita mitigation would cost $45 million. *See* Koehler & Wilson, *supra* note 137. Laguna Beach estimates spending about $15 million in repairs and mitigation measures. Burnham, *supra* note 270.

350. Telephone Interview with Ken Topping, *supra* note 211.

homes along for the tortuous ride.[351] The cliff overlooking La Conchita is adjacent to the homes; here, the houses were destroyed by the tremendous amount of debris that slid off the cliff.[352] Because of vast size of the cliff and the sheer mass of the debris it contains, even the most sophisticated mitigation efforts may still fail.[353]

Potential political fallout also differs. La Conchita could muster less than five percent of the vote in a political election with a ten percent turnout. Rallying neighboring communities would be difficult because of La Conchita's isolated geography. Meanwhile, with a ten percent city turnout, Bluebird Canyon's voters could comprise thirty percent of those going to the polls and could amass even more support from adjacent developments and neighborhoods inside Laguna Beach. While no evidence suggests that decisions in Ventura County have been made as a result of La Conchita's political weaknesses, it can be postulated that La Conchita would receive more attention if residents had the power to tilt the local election. Tendencies in political psychology suggest that officials will continue to pay close attention to the demands of powerful constituents.[354]

Other considerations factored into the decisions as well. Laguna Beach also had to consider the 350 homes that lost emergency ingress and egress from the Bluebird Canyon landslide. Without rebuilding, hundreds of homeowners would have been detrimentally affected—far beyond the list of victims who had their homes destroyed or damaged. Furthermore, by getting a liability release from residents, Laguna Beach could plan their budget without having to withhold reserves for litigation expenses. In Ventura County, however, a major concern is that failed mitigation efforts could result in liability. Meanwhile, the affected roads in La Conchita are still closed, and the destroyed and damaged houses linger as a constant reminder for the small beachside community of emotional scars and losses of dear friends.

Some experts have proposed a mass buyout of La Conchita.[355] This would involve moving the entire town to another location, or simply giving residents an opportunity to relocate.[356] As illustrated in Part III.E, *supra*, many residents of La Conchita do not want to move. Moreover, the residual value of their properties are likely dramatically decreased since the

351. *Id.*
352. *Id.*
353. *Id.*
354. *Id.*
355. *Id.*
356. *Id.*

landslide. By commencing a massive community-wide buyout using eminent domain, Ventura County would only have to pay market value. Because the landslide would be the proximate cause of decreased value to the land, and not the state, homeowners would be stuck with whatever Ventura County wanted to pay.[357]

IV. LAND USE CONTROLS

Land use controls can help prevent and mitigate landslides' destructive wrath by preventing binge building on oceanfront and cliffside areas that probably should be left undeveloped. The following discussion will analyze government options for limiting growth and enacting protocols to promote safe construction.

A. THE MELTING OF AMERICA'S COASTLINE—SPECIAL RESTRICTIONS ARE PERMISSIBLE ON SEAFRONT PROPERTY TO PREVENT COASTAL DECAY

Regulations along the coasts or in floodplains are often upheld as permissible uses of zoning controls to prevent environmental deterioration or a high probability of structure damage. In *McNulty v. Town of Indialantic*, a Florida coastal town refused to issue a variance to allow building on a plot that was in a zone designated to protect sand dunes.[358] The court noted that the owner retained the right to exclude while not granting an encroaching easement.[359] The property in *McNulty* was not included on zoning maps until four years after the plaintiff purchased the property, but the court ruled that plaintiff was on notice that property was subject to restrictions on development.[360] If broadly interpreted, this ruling would mean that any zoning ordinance would not be a taking under the Fifth Amendment because purchasers are aware that municipalities can pass zoning controls.

Dune ordinances are typically upheld to prevent building in an effort to maintain the protective sand dune formations in coastal regions.[361] However, in *Seidner v. Town of Islip*, a dune protection ordinance was

357. *See* Albers v. County of L.A., 398 P.2d 129 (Cal. 1965) (finding that in order to prevail in an inverse condemnation case, there must be some connection between the government's activity and the damage to the property).

358. 727 F. Supp. 604, 605-06 (M.D. Fla. 1989).

359. *See id*. *But see* Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 838-39 (1987) (holding invalid the town's requirement of an easement for pedestrian traffic as a condition for granting a building permit).

360. *McNulty*, 727 F. Supp. at 604.

361. *See, e.g.*, Spiegle v. Borough of Beach Haven, 218 A.2d 129 (N.J. 1966).

ruled invalid in part because the town gave no proof that the restriction on building did not deprive the landowner of all practical use of her property.[362] The plaintiff's house had been washed out to sea in a storm, and the U.S. Department of the Interior had offered to purchase the property after the house was destroyed and the dune ordinance was enacted.[363] Nevertheless, the court ruled that any price the federal government had been willing to pay at one time did not overcome the restrictive uses.[364]

In California, courts have deferred to local governments for decisions in furtherance of community development.[365] In *McCarthy v. City of Manhattan Beach*, a the California Supreme Court held that a the city-wide ordinance restricting beach property to recreational purposes was a legitimate exercise of the city's police power, being in the interest of public health, safety, morals and general welfare.[366] The court continued by stating that some financial detriment does not require a rollback of the ordinance, and the plaintiff failed to display evidence of his property value before and after the passage of the zoning ordinance.[367]

While there is no bright-line rule in these cases, the judiciary appears to be balancing private property rights and a government's duty to maintain public safety and social benefits. Several factors help reach a conclusion to this balancing. Edward Ziegler has listed some of these factors in his article regarding police powers:

> 1. The character of the government action;
>
> 2. The nature of the burden imposed;
>
> 3. Owner expectations as shaped by background principles of state property law;
>
> 4. Causation and proportionality nexus relationships; between the conduct restricted and the social problem addressed by regulation; and
>
> 5. Whether there are significant reciprocal benefits accruing to burdened owners or whether benefits are widely shared throughout the community while costs are focused on a few.[368]

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362. 439 N.E.2d 352 (N.Y. 1982).
363. *Id.*
364. *Id.*
365. *See* McCarthy v. City of Manhattan Beach, 264 P.2d 932 (Cal. 1953).
366. *Id.*
367. *Id.*
368. Edward H. Ziegler, *Partial Taking Claims, Ownership Rights in Land and Urban Planning Practice: The Emerging Dichotomy Between Uncompensated Regulation and Compensable Benefit Extraction Under the Fifth Amendment Takings Clause*, 22 J. LAND RESOURCES & ENVTL. L. 1, 11-12 (2002).

B. HOW LOCAL GOVERNMENT CAN AVOID TAKINGS CLAIMS: THE LAST THING WE WANT IS A LEGAL BATTLE GIVING US BAD PR

To avoid claims that zoning laws amount to takings, landslide regulations should advance legitimate state interests, but should not deny owners all economically viable uses of their land or unduly burden individuals. Takings claims and eminent domain actions have been vehemently litigated. Landslide regulations should be supported by empirical scientific data and ideally would not significantly reduce effected property values. Possible solutions to landslide regulations that limit development on unstable ground are:

1. Transfer development rights from the regulated landslide area to a more stable area.

2. Allow the construction contingent on strict adherence to engineering mitigation to prevent landslides.

3. Enable a government land-bank to purchase the land and then resell it with the appropriate restrictions on development.

4. Enact low-density zoning.[369]

Successful prohibitions on development may only occur in the most unstable and dangerous of areas. In lieu of insisting on geologic and engineering reports for suspicious development locations, local governments may also succeed in limiting development to safe areas by enforcing a strict uniform building and grading regulation for dangerous locations, while allowing some site specific variances for individual plots.

C. DEVELOPMENT, PLANNING, AND LAND USE CONTROLS: PROACTIVE STEPS THAT MUNICIPALITIES CAN TAKE TO REDUCE AND PREVENT DAMAGE FROM LANDSLIDES

California requires its cities to adhere to a general plan for development.[370] A general plan must take landslide potentials into consideration.[371] Some jurisdictions require slope-density regulations, which limit the development density depending on the degree of steepness of the slope.[372] However, the California Supreme Court has clarified that general plans remain tentative in nature and are "several leagues short" of

369. *See* Olshansky & Rogers, *supra* note 2.
370. *See id.* at 957.
371. *See id.*
372. *See id.* at 957-58.

an organized scheme to condemn property.[373] Still, general plans may designate private property for public use, such as a future open space.[374] Without further action, having a general plan dedicate the future of a private parcel for public use does not equal a taking and therefore may not be subject to an inverse condemnation claim.[375]

Portola Valley, California, adheres to a general plan that should be used as a model to help deal with potential landslides. Portola Valley has witnessed several landslides, and put a geologic and slope-stability map into its general plan. These maps must be used for all local government decisions. Land uses are determined by looking at varying development densities based upon an area's slope stability category.[376]

D. CALIFORNIA'S ENVIRONMENTAL QUALITY ACT: HELPING TO KEEP US SAFE FROM ALL ANGLES

The California Environmental Quality Act (CEQA)[377] may also provide an outlet for considering landslides in land use planning. CEQA requires an environmental assessment of development projects when discretionary public decisions may have significant environmental impacts.[378] When CEQA is triggered, local governments prepare environmental impact reports for significant public and private projects in their jurisdiction.[379] California's legislature requires impact reports in order "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided."[380] If landslide problems exist on a development site, the local government should consider

373. Selby Realty Co. v. City of San Buenaventura, 514 P.2d 111, 117 (Cal. 1973).

374. *Id.*

375. CITY OF LARKSPUR, CALIFORNIA, GENERAL PLAN: APPENDIX AND FIGURES, http://www.ci.larkspur.ca.us/GeneralPlan-AppendixAndFigures.html (last visited Nov. 27, 2006); *Selby Realty Co.*, 514 P.2d at 111 (deciding that a general plan designating a future street dedication is not a taking); Orsetti v. City of Fremont, 80 Cal. App. 3d 961, 967 (Ct. App. 1978) (holding a general plan amendment labeling private property as open space is not a taking); Rancho La Costa v. County of San Diego, 111 Cal. App. 3d 54 (Ct. App. 1980) (holding that declaration of intent to amend the general plan designation from residential to agricultural is not a taking); Gilliland v. County of L.A., 126 Cal. App. 3d 610 (Ct. App. 1981) (holding that adoption of a general plan is not a taking); Guinnane v. City & County of S.F., 197 Cal. App. 3d 862 (Ct. App. 1987) (holding that mere planning designation is not the equivalent of an announced intent to condemn, and thus not a taking).

376. *See* Olshansky & Rogers, *supra* note 2, at 956-57.

377. Codified at CAL. PUB. RES. CODE §§ 21000-21771 (Deering 2006).

378. *See* CAL. PUB. RES. CODE § 21080 (Deering 2006).

379. *See* CAL. PUB. RES. CODE § 21080 (Deering 2006).

380. *See* CAL. PUB. RES. CODE § 21002.1(a) (Deering 2006).

the possibility of landslides when approving the development, and possibly require mitigation efforts to negate the increased risk.

E. LANDSLIDES RANK LOW ON LOCAL PRIORITIES: WHY THE POTENTIAL FOR A BIG DISASTER MAY NOT BE THE BIGGEST FISH TO FRY

While the risk of landslides increases with development, it is not uncommon that these risks are ignored by local politicians.[381] Because the primary layer of protection against natural disasters is at the local level, the attitude of local politicians leads to general inaction.[382] Several explanations may lead local authorities to side-step landslide issues. Often, short term political pressure to approve economically beneficial development supersedes any doubts about the safety of such construction.[383] Although zoning laws and construction of protective barriers are powerful preventive measures available to local officials, adopting restrictive zoning or other land use methods may stymie economic prosperity in their area.[384] Moreover, local officials may not be worried about landslides because of their reliance on improved engineering, or they may have greater concerns that override landslide issues.[385] Uneasiness regarding takings claims that may arise following land use restrictions on private property is also one of the most significant apprehensions of local politicians.[386] The incentive to hinder development in landslide-prone areas may be politically minimal, while taking no action may reap political or financial rewards.[387]

F. GRADING ORDINANCES: PRIVATE PROPERTY OWNERS CAN BUILD TO THEIR HEART'S CONTENT—JUST MAKE SURE THE GROUND IS LEVEL

Grading ordinances may be a solution to the friction between developers and local governments in landslide-prone areas. Licensing and/or review boards of professional colleagues are concomitant to a grading ordinance system that requires detail and professional expertise in preparing geologic and engineering reports.[388] The purpose of a grading ordinance is to require developers to acquire grading permits that provide

381. *See* RICE, *supra* note 13, at 2.
382. *See id.*
383. *See id.*
384. *See id.*
385. *See id.*
386. *See* Olshansky & Rogers, *supra* note 2, at 959-61.
387. *See id.*; *see also* RICE, *supra* note 13, at 2.
388. *See* Olshansky & Rogers, *supra* note 2, at 963.

geologic and engineering reports for their development.[389] These reports are designed to evaluate slope stability and earth fill, as well as analyze site preparation.[390] While building codes can be general, grading ordinances must be site-specific because the types of earth over a wide area are not identical.[391] However, the Uniform Building Code does provide some level of standards for slopes, setbacks, drainage, and erosion control.[392] Relying on such standards may be a more popular road for local agencies to negotiate because it does not involve the wide-spread prohibitions and limitations of zoning an entire area, but retains individual control with public safety in mind—much like building codes.[393] Furthermore, the administration of grading ordinances does not have to differ from established procedures for building permits.[394]

G. STATISTICAL EVIDENCE OF GRADING ORDINANCE SUCCESS: EXAMPLES OF GRADING ORDINANCE RESULTS

Los Angeles implements a highly successful grading ordinance with a top-to-bottom inspection system that is self-sufficient through development fees and also reduces landslide damage by over 90%.[395] California's Building Code addresses dangers regarding grading on property.[396]

Before 1952, Los Angeles had no development limitations specific to steep slopes.[397] The next ten years showed progressive steps to impose some building standards, and since 1963 Los Angeles has adhered to strict standards above and beyond those required by the Uniform Building Code.[398] Updated Los Angeles grading ordinances provide that building would be prohibited on slopes steeper than a fifty percent grade (with some exceptions), that there be a mandatory separation of space between buildings and graded slopes, and that properties maintain sufficient

389. *See id.*
390. *See id.*
391. *See id.*
392. INT'L CONFERENCE OF BLDG. OFFICIALS, UNIF. BLDG. CODE §§ 7009-7013 (1985 ed.). A newer version of the Code exists (1997), but this version will soon be replaced. *See* Cal. Bldg. Standards Comm'n Website, www.bsc.ca.gov (last visited Nov. 28, 2006).
393. *See* Olshansky & Rogers, *supra* note 2, at 964.
394. *See id.*
395. OLSHANSKY, *supra* note 24.
396. L.A., CAL., MUN. CODE § 91.106.1.2 (2006).
397. *See* Olshansky & Rogers, *supra* note 2, at 964.
398. *See id.*; *see also* L.A., CAL., MUN. CODE § 91.106.1.2 (2006).

drainage.[399] Furthermore, the code demands that property owners grade dangerous slopes to approved levels and imposes a limit on fill heights.[400]

The effectiveness of these standards may be illustrated by the heavy storms in 1969: 10% of pre-1952 structures (1040 sites) were damaged at a cost of $3.3 million (averaging $330 per structure), while damage incurred on structures built between 1952 to 1962 was slightly higher than 1% (350 structures) at a cost of $2.767 million (averaging only $100 per structure built).[401] These statistics are highlighted by a finding of damage to only seventeen structures that were built after 1962. This constitutes a paltry 0.15% of structures built after 1962, and the damage cost only $80,000 (averaging an affordable $7 per structure built).[402]

Similarly, enacting slope-density regulations forces property owners to have either larger parcel sizes or higher percentages of open space.[403] San Mateo County in northern California employs a landslide susceptibility map limiting construction in landslide prone areas of up to one structure for every forty acres.[404] Builders must submit a geologic report for construction in a susceptible area, although variances are permissible if the geologic report illustrates safe density increases.[405] Los Altos Hills, California, requires parcel sizes of one acre or greater per structure on ten percent slopes ranging up to a four-acre minimum for forty-five percent slopes.[406] Nevertheless, these measures may not dramatically decrease the risk of landslides. Low density areas still need access roads and utilities that increase the probability of landslides (roads can funnel water into slope areas susceptible to landslide).[407] To make matters worse, isolated homes generally use septic tanks that raise the level of groundwater, thereby increasing the likelihood of landslides.[408] In fact, the frequency of septic tanks in Malibu was a leading cause in the Big Rock landslide because of the elevated groundwater levels.[409]

399. *See* L.A., CAL., MUN. CODE § 91.106.1.2 (2006).
400. *See id.* § 91.7005.
401. RICE, *supra* note 13, at 3.
402. *Id.*
403. *See* Olshansky & Rogers, *supra* note 2, at 958.
404. *See id.*
405. *See id.*
406. *See id.* at 960 n.117.
407. *See id.* at 961.
408. *See id.*
409. *See id.* at 961 n.120.

H. ABATEMENT DISTRICTS: WE OWN HOMES IN THE DANGER ZONE, SO WE NEED TO PROTECT OURSELVES

One possible solution for local governments is to enact abatement districts. The purpose of these districts is to permit a combination of private and public financing to establish a type of co-insurance and maintenance program in areas that are prone to landslides.[410] However, as opposed to insurance, the main goal of abatement districts is prevention. Abatement districts have the power to acquire, build, operate, manage or maintain improvements on public or private lands.[411] Abatement districts may charge private property owners for improvements or purchases by the district and these charges attach a lien to the property and are payable at the same time as standard property taxes.[412]

Established in 1979 by California Public Resources Code sections 26500–26654, the Geologic Hazard Abatement District law permits jurisdictions to form districts able to address disasters such as landslides.[413] California currently has over forty abatement districts, mostly located in northern California.[414]

Abatement districts open the doors to development in areas that would otherwise be unsuitable for construction.[415] They may insulate the local jurisdictions from liability for allowing development on otherwise questionable ground and have a clear advantage in the collection of financing over home owner's associations.[416]

I. OTHER LAND USE CONTROLS

Several methods of land use controls can mitigate potential disasters or prevent the exacerbation of existing problems. These methods include building moratoriums, easements, infrastructure development policies, annexation plans, zoning, setbacks, subdivision regulations, open space requirements, vegetation conservation requirements, tax increment financing and transfer of development rights.[417]

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410. *See id.* at 993.

411. *See id.* at 993-96.

412. *See id.*

413. Daniel J. Curtin Jr. & Bryan W. Wenter, *Areas Prone to Landslides Can Use Abatement Districts*, DAILY J., July 5, 2005.

414. *See id.*

415. *See id.*

416. *See id.*

417. For a more thorough analysis of these issues, see GEORGE LEFCOE, REAL ESTATE TRANSACTIONS 726-28, 739-48, 749-58, 783-90 (4th ed. 2003).

Building moratoriums can help municipalities buy valuable time while determining how to proceed in the wake of a natural disaster.[418] The local building department is typically responsible for conducting the overview of a moratorium.[419] However, city officials and development planners should consult with building department personnel in order to coordinate pre- and post-disaster planning.[420]

Easements are a great tool to help prevent damage from natural disasters. One effective way to help create open space and prevent development on dangerous ground is for local government to partner with non-profit land trusts.[421] In theory, the land trust would purchase property and then record easements.[422] These easements could prevent development entirely or make development unattractive to any future purchaser.[423]

Following a disaster, a municipality has a second chance to move development to another part of the city. One way to do this is for an adjacent city to annex the portion of land that has been affected by the disaster and induce a property exchange with building permits for another part of the city.[424]

Zoning may also be used to limit or avert development in a dangerous area. It can reduce building density and force builders to concentrate on preventive measures.[425] Municipalities can also use zoning to assist or impede building following a natural disaster.[426] Short of forbidding construction altogether, down-zoning may be the most effective measure to prevent damage from disasters.[427] Unlike engineering mitigation or guesswork on the part of developers, down-zoning limits the number of houses that are in a particular danger zone.

Serving the same purpose, but to a lesser degree, are setback ordinances.[428] The purpose of a setback is to limit the space a structure

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418. *See* JIM SCHWAB ET AL., PLANNING FOR POST-DISASTER RECOVERY AND RECONSTRUCTION 114 (1998).

419. *See id.*

420. *See id.*

421. *See id.* at 118.

422. *See id.*

423. *See id.* Entities like the Big Sur Land Trust in Monterey County, California, purchase large quantities of land for nature preservation. *See* The Big Sur Land Trust, http://www.bigsurlandtrust.org (last visited Nov. 27, 2006).

424. *See* SCHWAB ET AL., *supra* note 418, at 120-123.

425. *See id.* at 123-130.

426. *See id.*

427. *See id.*

428. Related to setbacks, the Alquist-Priolo Act in California limits development near seismic fault lines. *See id.* at 129.

occupies on a given plot.[429] The greater the distance between each house, the fewer square feet of structure a disaster can affect.[430] For example, imagine a 200-foot-wide landslide rumbling down a 200-foot-wide gully. If the base of this gully contains four fifty-foot-wide lots are completely filled with buildings, then the landslide will impact each house regardless of where the landslide starts or stops. Now imagine if the landslide was only 160 feet wide. If the structures still stretched to the exact border of the lot, all five houses would still be damaged. However, if each house had a ten-foot setback, and the landslide started at the edge of the fully, the fifth house would be unscathed.[431]

Subdivision regulations, like zoning and setbacks, permit municipalities to determine the size of each lot.[432] The greater the lot size, at least for single family homes, the fewer the families that would be affected if a disaster had a limited area of influence. This tool may be difficult to use once a lot is established, as it is incredibly challenging to prevent building.[433] Errors of judgment in subdivision planning can be a grave mistake.

To prevent landslides, as well as other disasters, planners should be particularly mindful of open space requirements and vegetation conservation requirements.[434] As the density in landslide-prone areas increases, so does the likelihood and magnitude of damage from a future landslide. Furthermore, allowing developers to scrape the landscape bare of vegetation can lead to landslide-rich conditions.[435] Without the root systems and water absorption qualities found in most plant life, a hillside becomes a much more likely candidate for landslides.[436]

Finally, municipal planners should consider implementing programs to transfer development rights away from high-risk disaster areas.[437] Popular among downtown developers, environmental polluters, and wetland and endangered species banking, the purpose of transferring development rights is to economically induce developers to trade their building rights in one area to an equally or more attractive opportunity

429. *See id.*
430. *See id.*
431. Two hundred feet of lot minus 160 feet of landslide equals 40 feet of untouched lot. If the fifth house is set back ten feet from the edge of the last lot, then it would be mathematically untouched.
432. *See* SCHWAB ET AL., *supra* note 418, at 130-33.
433. *See id.* at 130.
434. *See id*. at 133.
435. *See id.* at 134.
436. *See id.*
437. *See id.* at 142.

somewhere else.[438] Once established, the transfer of development rights would prevent building in the disaster-prone location. Hence, disasters are averted without sacrificing economic prosperity.

V. GOVERNMENT DISASTER RELIEF

American taxpayers expect security from domestic and international foes. Protection and assistance pertaining to natural disasters is another assumed perk of American citizenship. The following section will analyze how the government organizes, deploys and executes "aid" agencies for natural disaster relief. This discussion will encompass federal, state and local government authorities.

A. FEDERAL RESPONSE: WHEN MOTHER NATURE ATTACKS AMERICA

Natural disasters in America often require immensely complex relief efforts. To coordinate these efforts and ensure that designs on paper are implemented on the ground, FEMA was created.[439] While drawing intense criticism for its response to the Hurricane Katrina catastrophe in New Orleans, FEMA has a distinguished history of providing disaster relief and federal aid to states overwhelmed by nature's destructive power.

1. History of FEMA—Fragments to High Profile Federal Agency

The history of FEMA can be traced back to 1803 when Congress passed a disaster bill to help a small New Hampshire town following a devastating fire.[440] Through the 1930s, dozens of ad hoc Congressional emergency bills were passed to grant an immediate response to natural disasters.[441] President Franklin Delano Roosevelt's New Deal established broad spending measures for post-disaster loans and repairs.[442] Legislation was passed to grant the president greater authority to coordinate disaster relief in lieu of the piecemeal efforts that required detailed Congressional action.[443] By the 1960s, development had expanded to the point that disasters affected population centers with greater frequency.[444] The

438. *See id.*
439. *See* 42 U.S.C. § 5121 (2000 & Supp. 2003).
440. FEMA, FEMA History, http://www.fema.gov/about/history.shtm (last visited Nov. 27, 2006).
441. *See id.*
442. *See* Howard Gillman, Comment, *Disaster Relief, "Do Anything" Spending Powers, and the New Deal*, 23 L. & HIST. REV. 443 (2005).
443. *See* FEMA, *supra* note 440.
444. *See id.*

Federal Disaster Assistance Administration was established under the Department of Housing and Urban Development (HUD), and in 1968 the National Flood Insurance Act was initiated.[445] The birth of present-day presidential disaster declaration powers came in 1974 with the Disaster Relief Act.[446]

Multiple legislative initiatives created a disaster relief picture that included over one hundred federal agencies.[447] In response to pleas from the National Governors Association, President Carter consolidated these agencies with an executive order in 1979.[448] Former agencies came under FEMA's umbrella, including the Federal Insurance Administration, the National Fire Prevention and Control Administration, the National Weather Service Community Preparedness Program, the Federal Preparedness Agency of the General Services Administration, the Federal Disaster Assistance Administration, activities from HUD, and civil defense elements from the Defense Department's Defense Civil Preparedness Agency.[449]

FEMA's disaster résumé includes relief for the Three Mile Island accident, the Cuban refugee crisis, the Loma Prieta Earthquake and Hurricane Andrew.[450] Director James L. Witt, President Clinton's appointee, redirected FEMA's primary mission away from civil defense and toward disaster relief, recovery and mitigation.[451] To better coordinate emergency response efforts, FEMA was placed under the Department of Homeland Security in 2003.[452] While disaster relief remains a central purpose of FEMA's existence, the September 11 terrorist attacks refocused priorities toward national preparedness and homeland security.[453]

2. Deploying the Troops—How FEMA Goes into Action

By passing the Robert T. Stafford Disaster Relief and Emergency Assistance Act and other related amendments, Congress formed the

445. *See id.*
446. *See id.*
447. *See id.*
448. *See id.*
449. *See id.*
450. *See id.* As someone who experienced the 1989 Loma Prieta Earthquake, I would like to comment on how the quick actions of emergency personnel saved many lives and got San Francisco's Bay Area back to business sooner than many local leaders thought possible.
451. *See id.*
452. *See id.*
453. *See id.*

deployment criteria for federal relief distribution to disaster areas.[454] These criteria involve communication between the local, state and federal branches of government.[455] Determining whether a disaster should be handled by local authorities or designated a national crisis can depend on a variety of factors.[456] Quantifying a predictable equation cannot be accomplished, because politics, economics and publicity all play significant roles—perhaps as great an influence as actual damage.

There are four mechanisms to begin federal assistance deployment.[457] The first and second mechanisms require the president to declare a state of major disaster or state of emergency.[458] Politics may play a role in presidential disaster declarations.[459] According to a Harvard study, states with competitive electoral races can expect up to 60% more disaster declarations than states that are uncompetitive.[460] Since 1980, a president can expect an average boost of 1.7% in the polls for states granted even a single disaster declaration.[461]

After initiating the state emergency response plan, a governor may ask the president for federal assistance when a disaster is beyond the containment ability of state disaster agencies.[462] When making this request, a governor is required to provide information describing the "nature and amount of State and local resources" devoted to the disaster relief effort and make a showing of how the state will comply with federal cost-sharing requirements.[463] Concurrently, state officials must give federal authorities a breakdown of the future resources the state will dedicate to disaster relief and the anticipated federal assistance required.[464] Presidential disaster declarations mobilize a wide range of federal loan

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454. Disaster Relief Act of 1974, Pub. L. No. 93-288, 88 Stat. 143 (codified as amended in scattered sections of 42 U.S.C.).

455. *See id.*

456. *See id.*

457. *See* Steve Hughes, *The Next New Madrid Earthquake*, 61 J. MO. B. 186 (2005).

458. *See id.*

459. *See id.*

460. Andrew Reeves, Political Disaster?: Presidential Disaster Declarations and Electoral Politics (2005) (unpublished student manuscript, Harvard University) *available at* http://www.gov.harvard.edu/student/reeves/fema.pdf.

461. *Id.*

462. *See* 42 U.S.C § 5122(2) (2000) (defining major disaster to include any "hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, any fire, flood, or explosion"); *see also* 42 U.S.C. § 5170 (2000 & Supp. 2003) ("[A] disaster is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected local governments and that Federal assistance is necessary.").

463. *See* 42 U.S.C. § 5170 (2000 & Supp. 2003).

464. *See id.*

programs for victims and the affected area[465]—including SBA loans.[466] However, disasters that do not merit a governor petitioning the president for help can still receive help from the SBA.[467] Surveys of the damage from state and local officials begin the process for SBA loans.[468] The SBA will declare a physical disaster if twenty-five homes or business are damaged and at least forty percent of their value is uninsured.[469] When disasters inflict less damage, the SBA can still declare an economic injury disaster that also qualifies for aid.[470]

The third mechanism leaves the power to declare federal relief solely in the hands of the president.[471] Under circumstances where the federal government "exercises exclusive or preeminent responsibility," the president may send in disaster relief.[472] President Clinton first used this following the Oklahoma City bombing.[473]

The fourth and final mechanism allows the president to use military resources prior to declaring a major disaster or emergency.[474] Such a decision would be optimal in situations like the aftermath of Hurricane Katrina, where public health and safety are in grave danger and rule of law on the ground is virtually nonexistent.

There is a financial restraint on all of these disaster relief alternatives. Congress instituted a five million dollar cap on disaster emergency aid, but this cap can be removed by presidential approval.[475]

While no operating manual for federal disaster relief exists, a set of guides was prepared that incorporated the Federal Response Plan's emergency support functions using "transportation, communications, public works and engineering, fire fighting, information and planning, mass care, resource support, health and medical services, urban search and rescue, hazardous materials, food, and energy."[476]

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465. *See id.*

466. *See* U.S. Small Bus. Admin., Understanding How Disaster Declarations Are Made, http://www.sba.gov/localresources/disasteroffices/disaster_recov/basics/declarations.html (last visited Nov. 27, 2006).

467. *See id.*

468. *Id.*

469. *See id*.

470. *Id.*

471. *See* Hughes, *supra* note 457.

472. *See* 42 U.S.C. § 5191 (2000).

473. *See* Hughes, *supra* note 457.

474. *See id.*; s*ee also* 42 U.S.C. § 5170(c) (2000 & Supp. 2003).

475. *See* 42 U.S.C. § 5193 (2000).

476. Hughes, *supra* note 457. A different federal agency leads the support in each role: transportation, U.S. Dep't of Transp.; communications, Nat'l Commc'ns Sys.; public works and

Part of FEMA's charter encourages "the development of comprehensive disaster preparedness and assistance plans, programs, capabilities, and organizations by the States and local governments."[477] While FEMA has a reactive responsibility to coordinate disaster relief efforts and assist programs providing assistance for public and private losses following disasters, FEMA also has a proactive mission to encourage "individuals, States, and local governments" to obtain insurance coverage to avoid total loss scenarios.[478]

Mitigation funds are contained in FEMA's Hazard Mitigation Grant Program.[479] FEMA also has a duty to encourage disaster mitigation efforts such as "land-use and construction regulations, floodplain management, protection of wetlands, and environmental planning" to help prevent or reduce damage from disasters.[480]

Once a major disaster or emergency is declared, FEMA takes the lead in providing essential aid.[481] At the disaster site, a headquarters is set up housing FEMA and other federal agencies assigned to the area, which is called a "Disaster Field Office."[482] There should also be a station for the Army Corps of Engineers and an Emergency Response and Recovery Office for the field organization.[483]

To illustrate the mechanism of this system, Steve Hughes outlined the emergency response to the Oklahoma City bombing in *The Next New Madrid Earthquake*:

> In 1992, a Memorandum of Understanding between FEMA and . . . federal departments and agencies, including the Department of Defense, established a Federal Response Plan. FEMA executed the Federal Response Plan during the Oklahoma City tragedy. A regional director was appointed the federal coordinating officer and orchestrated federal support from the disaster field office (DFO), predicated on President Clinton's emergency declaration. Consistent with the Stafford Act, local and state officials responded first, with Governor Keating declaring a state of emergency at 9:45 a.m. The Oklahoma City fire department was

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engineering, U.S. Army Corps of Eng'rs; firefighting, U.S. Forest Serv.; information and planning mass care, FEMA; resource support, U.S. Gen. Servs. Admin.; health and medical services, U.S. Pub. Health Serv.; urban search and rescue, Dep't of Def.; hazardous materials, U.S. Envtl. Prot. Agency; food, U.S. Dep't of Agric.; and energy, Dep't of Energy. *Id.*

477. 44 C.F.R. § 206.3(b) (2005).
478. *See* 44 C.F.R. § 206.3(d) (2005).
479. FEMA, *supra* note 440.
480. *See* 44 C.F.R. § 206.3(e) (2005).
481. *See* 42 U.S.C. § 5170(b) (2000 & Supp. 2003); *see also* 42 U.S.C. § 5192 (2000).
482. *See* Hughes, *supra* note 457.
483. *See id.*

> on the scene within seconds, the staff from the state Department of Civil Emergency Management arrived within minutes of the blast, and 465 members of the Oklahoma National Guard were activated within an hour of the bombing to provide security.[484]

Gaps in the federal response have become apparent in the wake of Hurricane Katrina. Besides administrative and hierarchical shortcomings, FEMA has also neglected its charge to provide the national emergency medical response.[485] Fifty-five teams of physicians, nurses, and other emergency medical practitioners form the National Disaster Medical System (NDMS).[486] Hospitals and urgent care centers are often disrupted or inoperable after disasters; the purpose of the NDMS teams is to provide immediate medical help.[487] Created in 1984, NDMS initially belonged to the Department of Health and Human Services.[488] In 2003, Congress moved NDMS into the Homeland Security Department where it was placed under FEMA's chain of command.[489] Despite courageous individual efforts, FEMA sent NDMS teams into the storm of post-Katrina New Orleans without proper supplies.[490] In a logistical snafu, additional medical supplies did not reach NDMS teams until they were trucked in from Washington state[491]—the most geographically challenged among us should see that this is, at best, inefficient. California Congressman Henry Waxman remarked that NDMS requires "new leadership and a major overhaul."[492]

Federal emergency agencies and programs should work as a supplement to state and local responders. After all, it is those on the scene, familiar with the culture—both environmentally and socially—who will best be able to pick up the pieces.

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484. *See id.*
485. *See* Mimi Hall, *'Significant Gaps' Reported in Disaster Medical System*, USA TODAY, Jan. 18, 2006, at A04.
486. *See id.*
487. *See id.*
488. *See id.*
489. *See id.*
490. *See id.*
491. *See id.*
492. *See id.*

B. CALIFORNIA EMERGENCY RESPONSE: A BIG STATE WITH BIG DISASTERS

The Governor of California's OES has established a state emergency response plan.[493] California experienced eighteen disasters between 1989 and 1998, the year of the plan's most recent revision.[494] "Disaster Cycles" contain four phases: mitigation, preparation, response, and recover.[495] California's plan deals with each step of disaster relief.[496]

The state emergency plan outlines the responsibilities for the state agencies and various levels of the California Emergency Organization, as well as designating assignments for state agencies, interagency and intergovernmental responsibilities and support capabilities, and creating supporting plans and procedures.[497] The state's highest operational priority during emergency operations is protecting life, property and the environment.[498]

493. CAL. GOVERNOR'S OFFICE OF EMERGENCY SERVS., STATE OF CALIFORNIA EMERGENCY PLAN (2005), *available at* http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/California Emergency Plan/$file/CEP-05.pdf.

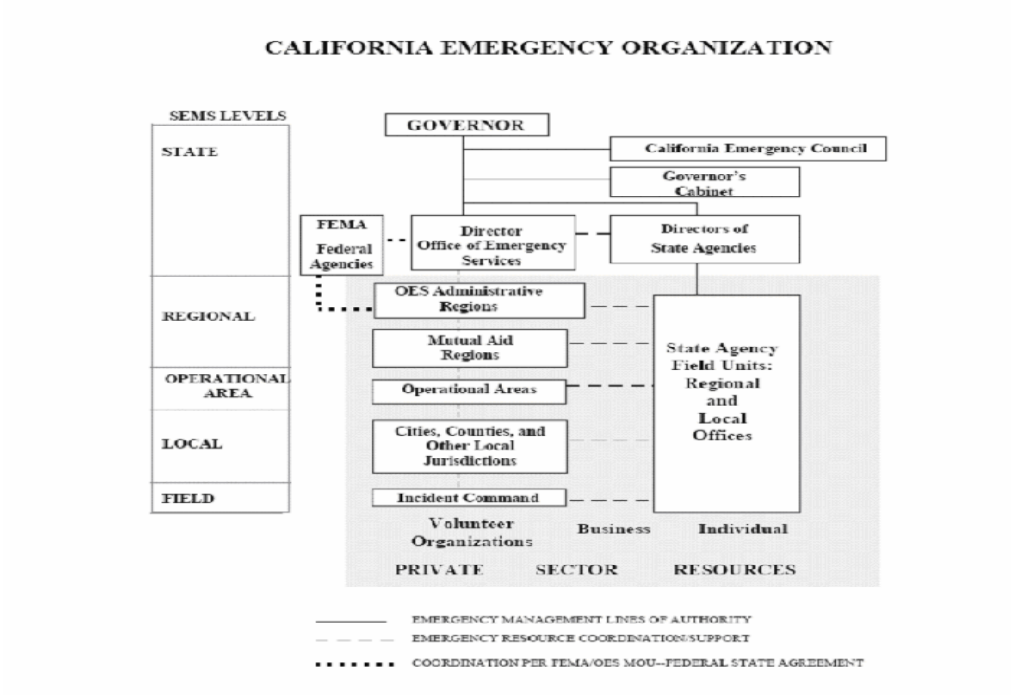
494. *See id.* at 1.

495. *See id.*

496. *See id.*

497. *See id.*

498. *See id.* at 4.



This graphic illustrates California's Emergency Response Hierarchy.[499]

One of the critical breakdowns in the aftermath of Hurricane Katrina involved the inability to get aid at the right time and the right place.[500] The California plan enables resource requests for response and recovery to originate even at the lowest level and then be forwarded up the chain of command until filled.[501]

To avoid a collapse of law and order, the plan lists seven elements for government executives and legislatures to address:

(1) succession to essential positions required in emergency management;

(2) pre-delegation of emergency authorities to key officials;

(3) emergency action steps provided in emergency plans and emergency action plans;

(4) emergency operations centers;

(5) alternate emergency operations centers;

499. This graph is a copy of that found in the State of California Emergency Plan. *See id.* at 7.

500. *Katrina: Gov't Failure, Private Fraud*, CBSNEWS.COM, Feb. 14, 2006, http://www.cbsnews.com/stories/2006/02/13/katrina/main1308008.shtml.

501. *See* CAL. GOVERNOR'S OFFICE OF EMERGENCY SERVS., *supra* note 493, at 6.

(6) safeguarding vital records; and

(7) protection of government/industrial resources, facilities, and personnel.[502]

Requests for Federal assistance are sent to FEMA's regional operations centers unless other more specific procedures are pre-approved in contingency plans.[503]

Disasters often result in a pressing need for assistance and funding. The Public Assistance Applicant Packet for State Agencies, Local Government, and Special Districts provides a flowchart titled "Public Assistance Overview."[504] This chart illustrates the procedures to follow, from major disaster declaration to final inspection and payment of retained funds.[505]

SUMMARY OF LOCAL JURISDICTION RESPONSIBILITIES		
PREPAREDNESS	RESPONSE/RECOVERY-MUTUAL AID	HAZARD MITIGATION*
• Identify all hazards that may pose a major threat to the jurisdiction • Develop and maintain up-to-date emergency plans consistent with the State Emergency Plan and the California Master Mutual Aid Agreement • Develop maps of jurisdiction showing areas subject to disasters • Develop plans for meeting all conditions which could constitute a local emergency •Develop standard forms for use in requesting the Governor to proclaim a State of Emergency	• Provide State OES with estimates of the severity and extent of damage resulting from a disaster, including dollar values of both public and private damage sustained as well as estimates of resource costs required to alleviate the situation • Dispatch situation reports to the operational area coordinator and OES mutual aid region as the emergency situation develops and changes • Identify multipurpose staging areas for support of recovery activities • Maintain liaison with the OES mutual aid region and neighboring jurisdictions • Request assistance from neighboring jurisdictions and the operational area • Respond to emergency regulations issued by the Governor • Respond to mutual aid requests • Use resources received from neighboring jurisdictions and from State, federal, and private agencies	• Obtain concurrence for the findings and recommendations of the joint survey, then follow up on those to ensure that timely and adequate local and State hazard mitigation actions are taken • Provide technical assistance to eligible applicants for accomplishing State-approved hazard mitigation actions • Arrange for State inspection to verify compliance with approved hazard mitigation measures • Accomplish hazard mitigation planning in accordance with Federal/State agreement • Submit a final report of compliance with State and local hazard mitigation requirements to the FEMA Regional Director for review and acceptance * in coordination with the Governor's Authorized Representative

The chart above outlines local government duties during an emergency.[506]

502. *See id.* at 14.
503. *See id.* at 20.
504. *See id.*
505. *See id.* at 48.
506. This chart is a reproduction of that found in the State of California Emergency Plan. *Id.*

In the immediate aftermath, the Army Corps of Engineers is to deploy specialists and establish a Disaster Field Office as an on-site extension of the regional Emergency Operations Center.[507] This logistical headquarters coordinates with FEMA representatives and other relief agencies.[508]

Contingency Real Estate Support Teams deploy, which include experts in realty, leasing, appraising and administrative funding, along with the deployment of planning and response teams, all within two days of the disaster.[509] These units provide support for disaster victims and local municipalities.[510] The planning and response teams may stay at the area for up to three months and specialize in tasks such as debris removal.[511] Additionally, specialized engineers are sent to the area to evaluate recovery and stabilization efforts (depending on the disaster).[512] For landslides, hydrologic engineers as well as geological specialists will likely be called upon to assess the damage and prospects for repair.[513]

According to California's OES, several elements should be included in local emergency plans.[514] Summarized or cited federal law in the plans should include the Federal Civil Defense Act[515] and Robert T. Stafford Disaster Relief and Emergency Assistance Act.[516] Additionally, both state laws and references should be included in a local emergency plan.[517] The local emergency plans are to be deployed when disasters strike.

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507. Hughes, *supra* note 457.

508. *See id.*

509. *See id.*

510. *See id.*

511. *See id.*

512. *See id.*

513. Telephone Interview with Ken Topping, *supra* note 211.

514. *See* CAL. GOVERNOR'S OFFICE OF EMERGENCY SERVS., *supra* note 493.

515. Federal Civil Defense Act of 1950, ch. 1228, 64 Stat. 1245 (1951) (codified as amended in scattered sections of 50 U.S.C.).

516. Disaster Relief Act of 1974, Pub. L. No. 93-288, 88 Stat. 143 (codified as amended in scattered sections of 42 U.S.C.).

517. Examples of state laws that should be included are:

–California Emergency Services Act, Chapter 7 of Division 1 of Title 2 of the Government Code;
–California Code of Regulations Title 19, Chapter 2, Subchapter 3, §2620 et seq.;
–Standardized Emergency Management System (SEMS) Regulations, Chapter 1 of Division 2 of Title 21 of the California Code of Regulations (CCR); and
–California Government Code § 8607(a).
–Also cited in this section should be the local emergency services ordinances and resolutions, including ordinances, resolutions, or Memorandum of Understanding (MOU) that establish the Operational Area.

Delegating emergency authority is found in federal guidelines. These should include at least the *Federal Response Plan* and:

–Debris Removal Guidelines for State and Local Officials (FEMA DAP-15);
–A Guide to Federal Aid and Disasters (DAP-19);
–Digest of Federal Disaster Assistance (DAP-21); and others.

VI. A PROPOSAL FOR THE FUTURE: FEDERAL LANDSLIDE INSURANCE PROGRAM

Landslides are often uncovered by insurance policies.[518] Without insurance, victims that lose their homes in landslides are faced with a total loss. Even those who can afford earthquake insurance and choose to purchase it may not be endorsed for landslide damage.[519]

The high likelihood of a landslide causes escalation in the price of insurance, and insurance companies may even refuse to provide coverage for homes in areas where the landslide risk is the greatest. La Conchita residents have received warnings posted on their doors that they live in a geological hazardous area. Similarly, Laguna Beach homebuyers can search disclosures to discover if a property they are buying is in a landslide prone area. Insurance companies are also privy to this information, and they research the likelihood of claim-warranting events. Insurers are very good at collecting premiums and loath to distribute claims. One of the best ways to avoid claims is to not insure property owners in high risk areas. To prevent the insurance industry from ostracizing entire populations of homeowners, the government must intervene.

The National Flood Insurance Plan (NFIP) requires local government to create a floodplain management ordinance that can evaluate the needs of the community.[520] The NFIP gives rate reductions for certain mitigation measures.[521] Qualifying for the reduced rates can be accomplished by following FEMA's Community Rating System (CRS).[522] The CRS created a scoring system that includes "public information, mapping and regulatory activities, flood damage reduction, and flood preparedness."[523] Once a

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State references should include:
–California Constitution;
–*State Emergency Plan*;
–*California Hazardous Materials Incident Contingency Plan*;
–*California Oil Spill Contingency Plan*;
–Standardized Emergency Management System (SEMS) Regulations (CCR §2400 et seq.); and
–Standardized Emergency Management System (SEMS) Guidelines; and others as appropriate. This could also include local jurisdiction SOPs and agreements.

Section 8638 of the California Government Code grants up to three appointed standby officers for each governing body. Identifying the position title of these officers for each governing body should be included in the emergency plan. *See* CAL. GOVERNOR'S OFFICE OF EMERGENCY SERVS., *supra* note 493, at 82.

518. *See* discussion *supra* Part III.H.

519. *See* discussion *supra* Part III.I.

520. *See* SCHWAB ET AL., *supra* note 418, at 119.

521. *See id.*

522. *See id.*

523. *Id.*

community satisfactorily enacts some of these measures, it can qualify for reductions of five percent from market insurance rates.[524] To dangle a carrot, Congress passed the Flood Mitigation Assistance Program to assist communities with FEMA grants in the development of efficient mitigation projects.[525] By reducing flood losses, communities not only save money on insurance rates, but also save on disaster recovery expenses.[526] Furthermore, immeasurable goodwill is created when a family knows that a city's outlet or levee system helped save their home.

Credits are earned by participating in up to eighteen actions, divided into four groups: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness.[527] Open space requirements, purchasing or exchanging development rights in prone areas, and disaster management training and planning can also earn credits.[528] Of all the preventive steps, planning is emphasized the most.[529]

Planning for the CRS is divided into seven procedures.[530] First, officials should identify the problem. For landslides, this should include incorporating technologically advanced methodologies such as the Ladwein mapping system or the USGS system. Second, an inventory of landslide-prone buildings and infrastructure should be compiled.[531] Development trends, plans and forecasts should be used to compile the data, as well as an account of all mitigation measures already in place. Third, a comprehensive list of all the mitigation measures that could prevent landslide damage should be reviewed[532] This includes the land use controls of grading ordinances and abatement districts. Fourth, the municipal officials should prepare a list of agencies that will coordinate landslide mitigation or recovery efforts.[533] Fifth, an emergency plan should be implemented that includes a budget for planned costs of this program and mitigation measures.[534] Sixth, CRS recommends a community network of local

524. *See id.*

525. *See* National Flood Insurance Reform Act of 1994, Pub. L. No. 103-325, 108 Stat. 2255 (codified as amended at 42 U.S.C. §§ 4001-4129 (2000)).

526. Over two-thirds of the communities in the NFIP policy base are active in the CRS. National Flood Insurance Program: Frequently Asked Questions, *available at* http://www.fema.gov/txt/rebuild/floodplain_management_faq.txt (last visited Nov. 27, 2006).

527. *See id.* at 119.

528. *See id.* at 122.

529. *See id.*

530. *See id.*

531. *See id.*

532. *See id.*

533. *See id.*

534. *See id.* As for all of these items, the specific needs and mitigation requirements of a landslide zone may vary.

representatives to coordinate with government officials on the impact to the community.[535] Finally, as with the floodplain CRS, the plan needs to be adopted by official passage through the local government.[536]

By enacting a Federal Landslide Insurance Program (FLIP),[537] homeowners in landslide prone areas should be able to afford and acquire landslide insurance coverage. Additionally, as part of the win-win equation, communities would have the incentive to promote mitigation measures in order to reduce their insurance rates. Not only would these mitigation efforts earn them points in the national program to reduce rates, but it would also help protect against landslide damage.

Depending on the cost of the mitigation programs and the savings acquired through the CRS, the credits could end up paying for the mitigation costs in their entirety. For example, if grading an unstable hillside cost $5 million and implementing the CRS plan cost another $1 million, but the savings from insurance premiums equaled $3 million, then the mitigation measures would pay for themselves in two years. By the third year, the community would be profiting and saving itself tsuris[538] at the same time. This program could be especially useful to towns like La Conchita, where the homeowners could not afford landslide insurance rates, and the local government would otherwise be unable or unwilling to pay for the mitigation costs on their own.

Another benefit would be to avoid a political battle over the rebuilding of uninsured, destroyed homes. Recently, I engaged in a discussion with a good friend regarding this issue and Hurricane Katrina. He contended that individuals should have had insurance, and if they could not get it, then they should not have been living in a flood-prone area. My contention was that people could have been living in these flood zones for years, and insurers could have refused to offer them a policy, at any price, after years of living in the same home. Because the government was at least partially at fault, it should bear the burden of an equivalent amount of the cost. My friend vehemently disagreed; he surmised that if you cannot get insurance and you want to have the ability to replace your house if it is destroyed, then you should move to a location where insurance is available. Putting

535. *See id.*

536. *See id*.

537. A different, less flippant, acronym may be preferred.

538. "Tsuris" is Yiddish for "emotional pain and unnecessary stress." An analogy to this cost saving model would be the depreciation tax deduction on capital assets. When one purchases a capital asset, it can be depreciated by a certain percentage of the basis (purchase price or fair market value) every year. In doing so, the capital asset helps pay for itself because some of the taxes from profits gained from the new asset will be offset by the depreciation.

aside both the economic challenges of moving and the socio-economic issues involved, the point is clear: many people in America do not want to pay for those who "choose" to live in disaster-prone areas.

This problem also exists with a landslide insurance program. Wealthy homeowners often like to build in landslide susceptible areas where the factor of safety can edge tantalizingly close to 1.0 (recall that this would lead to a landslide). It seems patently unfair for the rest of the population to subsidize their housing location of choice. To address this problem, the program could include a two-step clause to tighten the financial leash of such homeowners. Step one would eliminate any post-landslide moratorium on mortgage payments. Doing so would force homeowners who build in landslide-susceptible areas to continue paying their mortgages even if their houses are lost. Step two would impose a rule eliminating financing on new purchases in designated landslide-prone areas. This would eliminate the potential for a heavily leveraged individual to simply walk away from a destroyed property, thereby burdening the rest of us with the remaining mortgage payments.[539]

Other problems exist as well. Wealthy landslide-zone owners may resist being grouped together with those in communities like La Conchita. Furthermore, landslide-prone areas differ dramatically in their probability to cause danger. Even with the CRS, several communities could end up subsidizing the most precarious developments. As with any broad system, beneficial mitigation factors can vary widely, yet granting the same credit for each action would give them equally favorable treatment.

Solving these problems is not easy. With accurate landslide mapping, one could create a system incorporating the likelihood of a landslide event and its destructive potential. Using a sliding scale of mathematically adjusted premiums and coverage could also remedy some shortcomings of the program. However, because this program would be expensive to initiate, and municipalities rarely engage in mitigation projects, a national landslide insurance program is unlikely to take root. Furthermore, wealthy homeowners who already have insurance and the support of their local government would resist any program that would cause them to subsidize insuring less affluent communities.

539. Economically, this is an indirect cost; however, the tax loss taken by the bank for the lost mortgage would decrease tax revenues, thus affecting us all.

VII. CONCLUSION

Landslides and concomitant land use controls directly affect California communities in many ways. Part II illustrated how landslides occur, and what measures can be taken to reduce the probability of damage to homes. Part III compared the 2005 California landslides in La Conchita and Laguna Beach. While Laguna Beach repairs and moves forward, La Conchita is stagnant and growing restless. Part IV discussed various land use controls that government can implement to help prevent and mitigate landslide damage. In Part V, the American network of disaster recovery and relief was examined. As the debacle following Hurricane Katrina continues to plague survivors and haunt political officials who dropped the ball, it is especially important to make sure the mistakes of the past are not repeated. The final portion of the paper, Part VI, offers a Federal Landslide Insurance Program proposal to remedy the absence of available landslide insurance while concurrently promoting mitigation measures. Although there is likely no quick fix, it is imperative that California lead the way toward a solution. After all, the California coastline is melting into the Pacific, and if we are not careful, we will be going along for the ride.