An aerial photograph of a mountain valley. The top of the image shows a large, rugged mountain peak covered in snow, with steep, rocky slopes descending into a valley. The valley floor is a mix of green forest and brownish-grey areas, possibly alluvial fans or floodplains. At the bottom of the valley, a small town or village is visible, with buildings and roads. The overall scene is dramatic and highlights the potential for flooding in such areas.

Alluvial Amnesia:

How Officials Imperil Communities
by Downplaying Flood Risks



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SUMMARY

This report reveals how two recently opened public schools in Rancho Cucamonga were built in a floodplain despite warnings from state emergency managers that flood evacuation plans were not in place and that the entire area was potentially subject to flooding. Local officials ignored this unusual alert from the Governor's Office of Emergency Services.

For at least four years, flood experts and government engineers have fought a behind-the-scenes war over allegations that at least 20,000 homes in Rancho Cucamonga and nearby Ontario may be hit by a devastating flood despite a concrete dam-and-channel project completed in the early 1980s by the U.S. Army Corps of Engineers.

Opinion is divided between government officials who say there is no problem, and private-sector water experts, homeowners and activists who say there is. With the release of this report the Center allows members of the public to become more informed on this issue and prod their representatives in government. Among its recommendations, the Center suggests specific changes in state laws and local procedures as they relate to flood safety and disclosure. The recommendations section appears at the end of *Alluvial Amnesia: How Officials Imperil Communities by Downplaying Flood Risks*.

The Center for Governmental Studies has reviewed numerous aspects of this issue and divided its report among chapter headings, which are summarized as follows:

- **The Modern Day Mulholland.** (Page 1) is an anecdotal glimpse into the history of floods in Southern California, notably the St. Francis Dam disaster that tarnished the reputation of its builder William Mulholland after it collapsed in 1928. This section describes the influence individual engineers can wield when backed by powerful agencies and the risks inherent in flood controls.
- **Alluvial Primer** (Page 6) describes alluvial floods as unique to streams that emerge from mountain canyons as opposed to floods occurring in river valleys. Alluvial floods tend to contain as much solid material (rocks, logs, mud) as water and as such have enormous destructive power, peculiar physical qualities and hard-to-predict return rates.
- **Deer Creek** (Page 7) describes the watershed at the center of a decade-old controversy. Deer Creek is one of several seasonal streams that empty the southern slopes of the San Gabriel Mountains, a steep range formed by an east-west kink in the San Andreas Fault.
- **What Experts Say About Deer Creek** (Page 9) catalogues criticism of the U.S. Army Corps of Engineers regarding its flood control project on Deer Creek.

- **What the Corps Says** (Page 11) includes not only the official responses of the agency to the controversy but also interviews with retired Corps employees who played roles in design and construction.
- **Where the Issue Stands Today** (Page 14) describes the most current stance of the government agencies involved with the controversy on Deer Creek and how the agencies are now tending toward inaction rather than further investigation or independent verification.
- **Origins of Development: the ‘Model Colony’** (Page 18) takes the reader back to the 1880s and traces settlement in the Inland Empire in the decades before federal flood control projects were built.
- **Floods and Funding** (Page 21) recounts how Members of Congress triumphed, after decades of failure, in securing the appropriation of federal funds for flood control projects in the Inland Empire.
- **Voters Reject Locally Financed Flood Control** (Page 23) describes how, in two consecutive elections, local ballot measures intended to finance greater flood protection were defeated by voters despite heavy rains in those years which resulted in fatalities, damage and lawsuits.
- **Controversy Emerges** (Page 24) introduces a residential subdivision and a federal-built levee near Deer Creek that was breached by the developer with full permission from authorities. The controversy led nearby homeowners to embark in 1997 on a continuing legal and political battle against federal, state, county and city governments. The homeowners claim the partial removal of the levee increases their exposure to floods.
- **Negative Skew** (Page 25) deconstructs for the layman the questionable engineering assumptions used by the U.S. Army Corps of Engineers in its refutation of charges of flood danger on Deer Creek.
- **The Man Who Made a Flood Disappear** (Page 26) describes how an academic exercise by a federal employee wiped away the official record of a deadly 1969 flood, and how his work with the U.S. Geological Survey may have affected the work of engineers struggling to agree on whether it is safe to live near Deer Creek.
- **The Perfect Storm** (Page 29) discusses weather patterns in the Inland Empire and San Gabriel Mountains, and how precipitation assumptions used by the U.S. Army Corps of Engineers may have underestimated the intensity of Inland Empire storms.

- **‘A Slumbering Volcano’** (Page 30) reproduces official history on previous floods in the Inland Empire and how residents were unaware or failed to understand flood risks until it was too late.
- **California Looks the Other Way** (Page 32) critiques the conflicting actions taken by state agencies in response to the controversy over Deer Creek.
- **Uninterested Locals** (Page 35) describes how most residents and officials closest to Deer Creek appear unconcerned over the potential for devastating future floods.
- **Affordable Views with Blinds Drawn Over History** (Page 37) characterizes the lax regulatory atmosphere of the Inland Empire and the developers’ newfound tendency to build residential developments in areas of historic flooding (on “alluvial fans” below mountain canyons).
- **Against the Flow** (Page 39) tells the story of the interrupted career of a Los Angeles County engineer who issued public criticism of the U.S. Army Corps of Engineers regarding Deer Creek.
- **The Corps Takes Offense** (Page 40) characterizes the agency’s response to increasingly pointed attacks on its credibility regarding the Deer Creek controversy.
- **Safety Set Aside** (Page 42) reports on the actions and behind-the-scenes discussions at the California’s Department of Water Resources, which was asked by U.S. Senators Feinstein and Boxer to conduct a safety investigation into flood control on Deer Creek.
- **Schools That Could Not Be Stopped** (Page 42) uncovers how official protocol was suspended to garner state approval for two recently built school campuses near Deer Creek.
- **Less Than Brockovich** (Page 44) recounts the efforts of two women to bring greater accountability and transparency to the government agencies struggling to bring closure to the Deer Creek controversy.

SUMMARY OF RECOMMENDATIONS

Recommendation #1: (Page 45) Create “alluvial districts,” local quasi-government entities designed to inform homeowners of flood risks as well as advise the floodplain land-use decisions of cities and counties.

Recommendation # 2: (Page 46) Expand the “sphere of influence” concept that local governments use to gain influence over land use decisions made by other local governments. The “sphere of influence” should also apply to public safety questions. Pass a state law requiring local governments to provide formal notification to affected jurisdictions and accept public comment when a proposed land use may expose other jurisdictions to flood risk.

Recommendation # 3: (Page 47) Convene the National Academy of Sciences in western San Bernardino County to study the Deer Creek project, debris flows, basin design and best practices for flood containment.

Recommendation #4: (Page 48) Increase public disclosure for school construction by requiring that school districts to locally maintain current files on each project for public view.

Recommendation #5: (Page 48) Use local design groups when designing flood control projects rather than relying exclusively on a single agency such as the U.S. Army Corps of Engineers.

ALLUVIAL AMNESIA: How Officials Imperil Communities by Downplaying Flood Risks

The Modern-Day Mulholland

In 1928 William Mulholland, the famed Los Angeles Department of Water & Power engineer, testified in a coroner's inquest that he had inspected and pronounced safe a leaking dam the very day before its collapse would trigger what would become the worst human-caused disaster in California history. Mulholland was being questioned under oath by a district attorney seeking a scapegoat for the hundreds of deaths that resulted when St. Francis Dam gave way and sent 12 billion gallons of water surging down the Santa Clara Valley on March 12, 1928.

In his own defense Mulholland argued that the visible leaks were inconsequential. He was technically correct but at the same time dissembling. New dams do leak clear water, but not the "brown" water that reveals, as it did at St. Francis, that rushing water was eating away at the foundation of the dam.

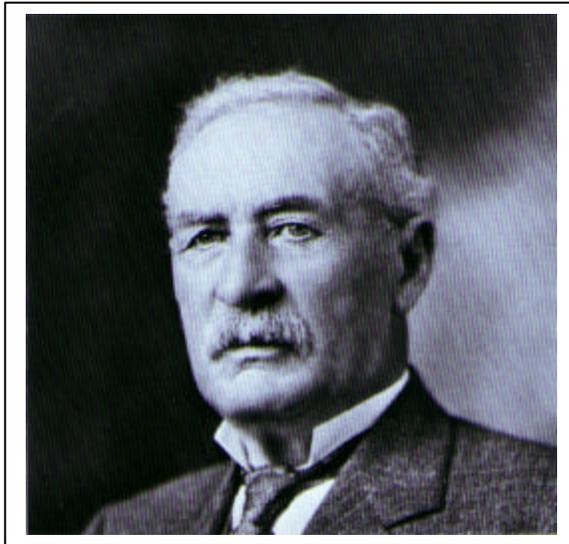


Figure 1 William Mulholland taught himself the engineering skills he would later use to direct construction of the Los Angeles aqueduct.

The citizen jury assembled for the inquest ultimately held Mulholland and the Los Angeles Department of Water and Power responsible for the disaster but no criminal charges were ever pursued.¹ The old engineer's legacy was tarnished. Mulholland Reservoir was renamed Hollywood Reservoir and disguised by landscaping. The former site of St. Francis Dam and its flood path, too, have been born again as San Francisquito Canyon. Geologists studying the scene 60 years later surmised that St. Francis dam failed because one side was built upon an ancient landslide—a critical flaw Mulholland had no way of recognizing, given methods at the time.

Still, the story of Mulholland and the St. Francis Dam should give people pause today. Even in modern times, flooding can occur that forces engineers to question their

¹ Cowan, Geoffrey. "The Man Who Brought the Water," *Los Angeles Times*, July 25, 1993.

computations and expectations. The science of recording, predicting and preventing floods requires mastery of complex mathematics, but an engineer's job is far from formulaic. Flood control projects never completely eliminate the risk of floods. Mother Nature still reigns supreme and defends her title regularly.

Instead, the goal in designing flood control projects is to "manage the risk" as effectively as possible. This means that government will either try to protect its citizens from flooding and if it can not do that, it will prohibit them from developing property in the danger zone, compel them to buy flood insurance or condemn their property altogether. The flip side of managing the risk is that the government minimizes, not eliminates, risks. It designs its flood control projects knowing that a larger-than expected flood could overrun the system and endanger safety. Some floods are so large the conditions triggering them only occur approximately every 125, 500 or 1,000 years. The government has learned that people do not want to foot the cost of building titanic, visually unappealing structures to guard against these super floods, even if it were possible.

Flood victims, of course, don't often see this distinction, but engineers must boil down society's amorphous stance on floods into actual blueprints. This takes years, and it mostly happens behind the closed doors of the responsible agency. Designing dams, channels, levees and flood debris basins is a balancing act-using a combination of scientific methods to predict the intensity and frequency of floods, modifying the size of the projects depending on the level of safety required and the amount of money available, satisfying environmental and other regulations, appeasing community representatives and contracting with local businesses for the construction work.

*Underneath
the homes are
the stacked
bones of
1,000 floods*

For all the obstacles, flood control projects are bona fide catalysts for economic growth. Just as the Mulholland-designed Los Angeles Aqueduct enabled settlement and agriculture on arid land, flood control projects can allow flood-prone land to become home and school sites for the next wave of suburban immigration. Yet the visible signs of earlier floods are often hard to detect or erased by new developments, and passersby can be forgiven if they fail to notice flood control efforts.

Not far from where Deer Creek, on the eastern end of the San Gabriel Mountains, enters the valley floor, flood control channels snake through gated communities with names like Haven View and Rancho Cucamonga V. Stucco fences and attractive shrubbery hide the concrete ditches designed to channel floodwaters. A low wall of sandbags on the northern periphery of one development might be mistaken as just another gardening project. A mile downstream on Deer Creek, in older single-family neighborhoods, the city has built extra-high curbs to use the streets as flood control channels. The families living there include many first-time homebuyers with big mortgages but no mandated flood insurance.

Underneath the homes are the stacked bones of 1,000 floods. Future deluges, however, must rain down upon a built-up landscape of sod, steel and pavement. The concrete channels of flood control projects coupled with development whisk away precipitation that otherwise naturally percolates into the ground. The shakeup in the natural cycle causes diminished water quality, depleted aquifers and eradicated wildlife habitat: Velocity is another major drawback; while flowing water encounters little resistance on pavement, roughhewn open land can disrupt and slow running water. A full-grown man can step out of his car into four inches of water flowing down a street and be swept a dozen miles away to his death.

And sometimes dams like St. Francis collapse. This report, 75 years after Mulholland's nadir, investigates a little known Southern California flood control controversy as an illustration of how distaste for accountability and public debate within every level of government has resulted in extraordinary decisions that reputable experts say threaten public safety.

Consulting engineers, including those who represent the State of California and Los Angeles World Airports, have voiced unanswered concerns about the Army Corps of Engineers' flood control project on Deer Creek. Private sector engineers who have studied the project say it is dangerously undersized to the point of threatening 20,000 homes, two schools and a college campus and nearly one hundred thousand people in western San Bernardino County east of Los Angeles. Most at risk may be a half-dozen subdivisions in Rancho Cucamonga built in the last two decades along the western shore of Deer Creek. Also clearly threatened are the middle-income homes and apartments that line Deer Creek for miles. However, experts warn that nobody can predict with total accuracy the path of a rampaging flood.

The critics' main target is Joseph Evelyn, Professional Engineer, a 32-year civilian employee of the Army Corps in its Los Angeles District. He does not share many similarities with Mulholland, the larger-than-life Irishman who taught himself how to be an engineer and then paved the way for modern Los Angeles. But like Mulholland, Evelyn is a powerful engineer backed by a powerful agency, the Army Corps of Engineers. Evelyn's initial connection to the controversial flood control project on Deer Creek was in 1970 as a young engineer repackaging and coordinating the field work of other colleagues. (The project was completed by 1983.) Over the decades Evelyn advanced to become chief of hydrology and hydrologic engineering for the Los Angeles District of the Army Corps of Engineers. In 1997 Evelyn became the Corps spokesman on Deer Creek matters.

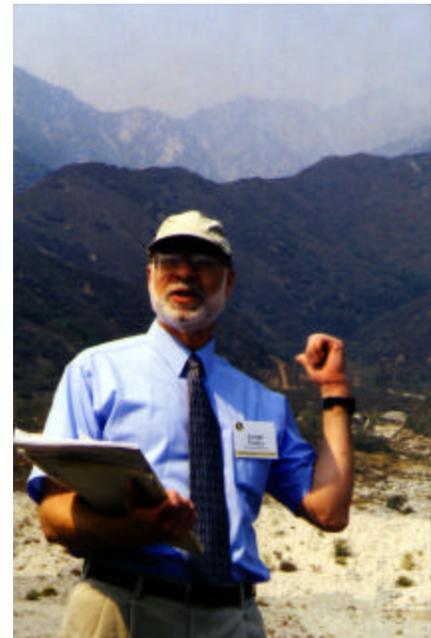


Figure 2 Joseph Evelyn, Chief of Hydrology and Hydrologic Engineering, Army Corps of Engineers, Los Angeles District. Behind Evelyn is Deer Creek debris basin and the flanks of Cucamonga Peak.

For Mulholland, failure at St. Francis became a dark footnote to a storied career. If Evelyn and his colleagues have made wrong decisions about the Corps' flood control project on Deer Creek, they too may win an unfortunate place in history as another public agency deemed responsible for preventable deaths.

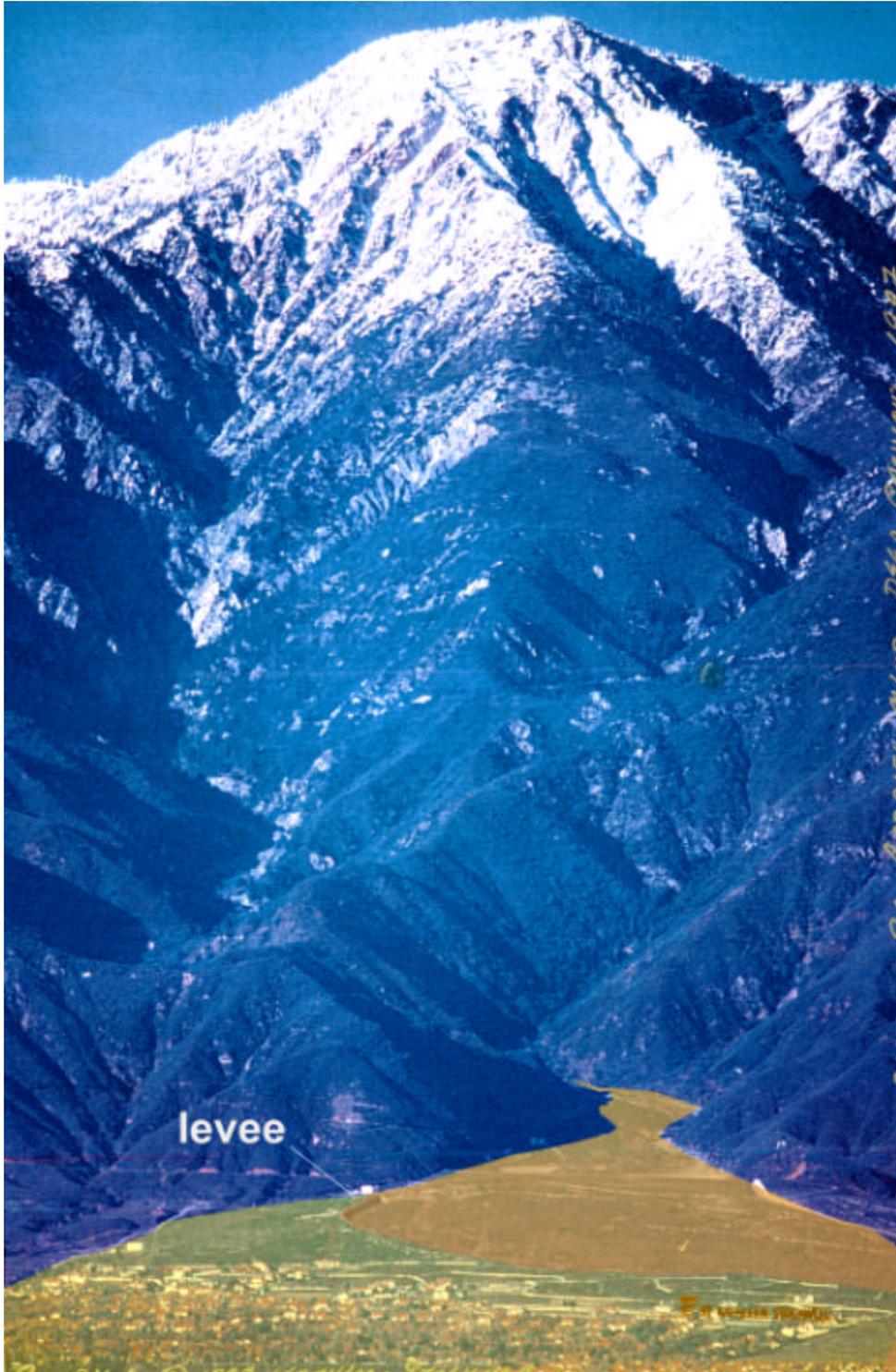


Figure 4 Deer Creek and the alluvial plain leading from the mouth of Deer Canyon. The levee pictured in the photo was credited with protecting lives and property in the 1969 floods. The U.S. Army Corps of Engineers supported its removal, arguing that it was superfluous. The levee was breached in 2001.

Alluvial Primer

Floods near mountain canyons act differently than those in river valleys. The potent mix that bursts out of canyons into the flatlands below contains water but also boulders, logs, dirt and sand, collectively called debris. The rounded-off rocks and other “sediment” in streams and the mouths of canyons below the San Gabriel Mountains indicate past flooding but really show only the tip of the iceberg. The geographical features that result from this sort of flooding are called “alluvial fans.” Miles-wide, alluvial fans appear to rise cone-shaped hundreds of feet from the valley floor. In reality they accumulate from the bottom up. People mistake them for foothills but the alluvial fans actually represent the accumulated flood debris of eons. They are scattered all over the American West and beyond. As water expert Art Bruington has written, “the alluvial cone feature so evident at the foot of every canyon emanating from the San Gabriel and San Bernardino mountains, including Deer Canyon, is startling proof that massive fire-flood sequences have happened in the past, and there is no reason to expect that they will not continue to occur in the future.”

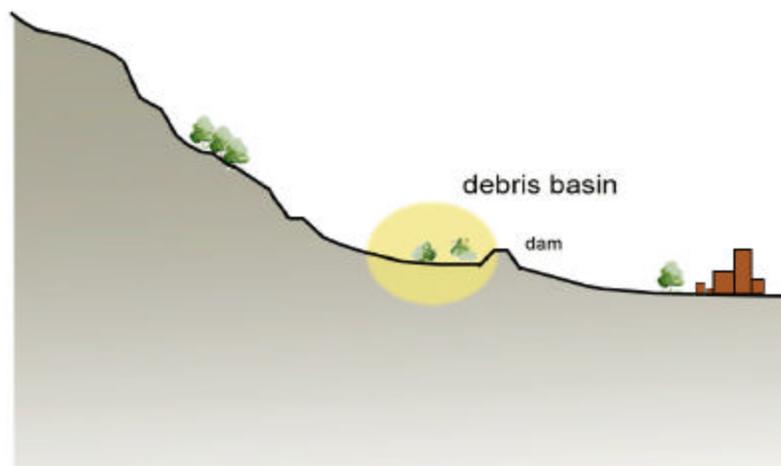


Figure 5 Anatomy of a debris basin, section view.

There are only two ways for society to deal with flooding on or below alluvial fans. The first method is time-tested: simply stay away and build in a safer place. Society’s manmade solution is called a debris basin. Such basins are large excavated areas dug out of the mouths of canyons and braced by a low dam. As floodwaters and debris pour out of a canyon during a flood, the basin is designed to catch and store debris while allowing the water to escape down a flood channel, usually lined with concrete to prevent erosion. Without a basin in place, the tumbling boulders and other debris from a flood could blast houses off their foundations, rip away bridges, destroy streets and kill people.

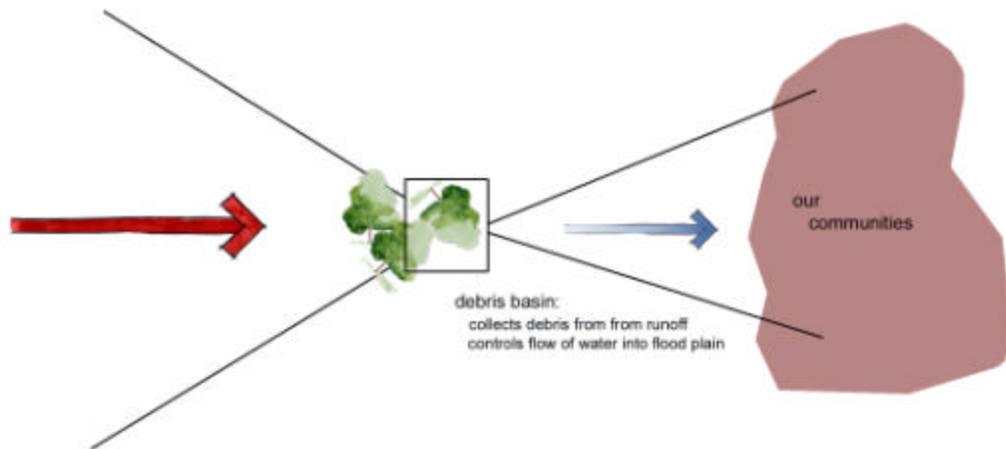


Figure 6 The flow of debris, plan view. The debris basin is designed to trap rocks, logs and mud but allow water to escape in concrete-lined flood control channels. According to engineer John Cassidy, the Deer Creek debris basin and channel system are solidly built, just too small.

The proclivity in the San Gabriel Mountains for torrential rainfall, seismically shattered rock and forest fires makes Deer Creek and other nearby streams likely candidates for major flooding. But the real danger, according to critics, is that the Army Corps of Engineers debris basin and reinforced concrete channel on Deer Creek offer the illusion of safety when, they say, little exists.

Deer Creek

The most controversial Army Corps of Engineers project in Southern California, according to the *Washington Post*,² is on little known Deer Creek above the city of Rancho Cucamonga in western San Bernardino County. A trickle most of the year, Deer Creek rages when weather systems blow in from the Pacific. The rocky San Gabriel Mountains, rising more than a vertical mile above Rancho Cucamonga but only four miles away, literally rip holes in storm clouds, sending rushing waters over seismically unstable and sometimes wildfire-scorched earth. Records from the 19th century note

² Corps Controversial Projects, see <http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentId=A38241-2000Sep8¬Found=true>

several large floods in the area, the largest of them in 1862. The last great flood was in the winter of 1969, when two storms a month apart caused 11 deaths.³

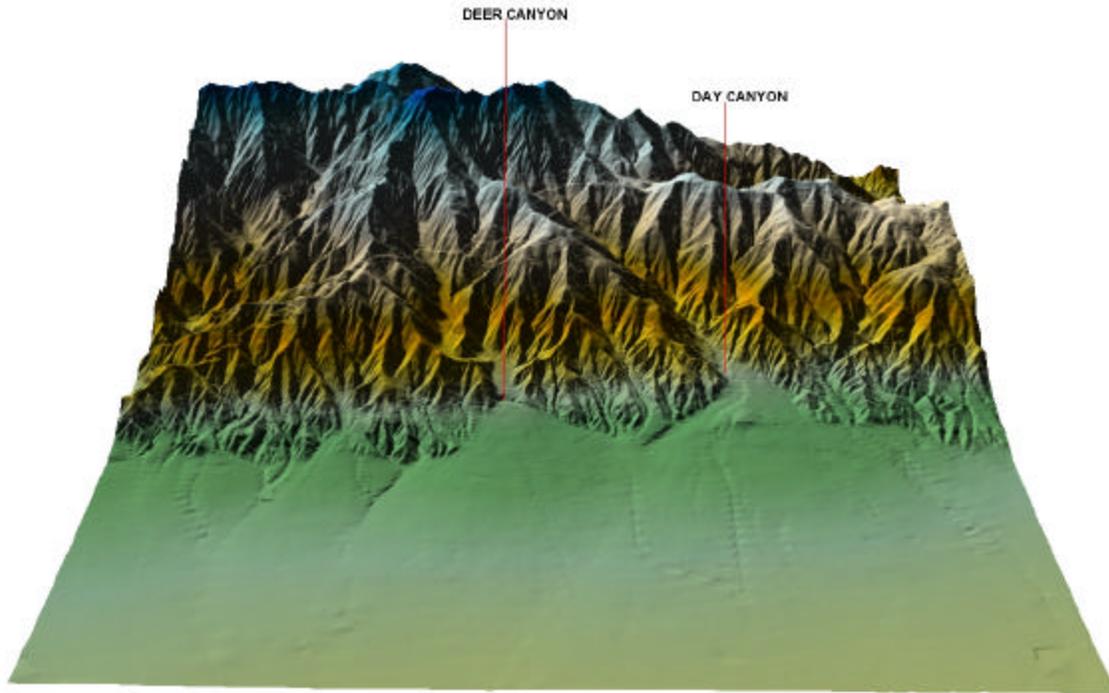


Figure 9 The hills above Rancho Cucamonga rise steeply from less than 2,000 feet above sea level to almost 9,000 feet.

The Deer Creek debris basin and concrete channel are among flood control projects the Corps designed in the comparatively drier decades that followed. From the mouth of Deer Canyon, where the Army Corps of Engineers debris basin was constructed, the boxy concrete walls of Deer Creek leading away from the basin resemble a long waterslide into Rancho Cucamonga a few miles below. Like other parts of the San Gabriel Valley, orderly streets and housing developments have replaced rows of citrus trees. During a September 25, 2002, special field trip to the Deer Creek debris basin, several dozen members of a task force assembled by Governor Gray Davis to study floodplain management pondered a question one official offered up: Would I buy a home down there? There was no consensus.

The controversy at Deer Creek has traction outside select members of the local community, their experts and the clutch of officials who visited Deer Creek on September 25, 2002. Former Los Angeles County District Attorney Robert Philibosian, who as a private attorney has represented parties in the dispute, said, “The combination of the

³ The 1969 floods also introduced officials to the dangers of multiple storm events. Workers were unable to clear away debris from a January flood when a second, smaller flood occurred about a month later. Floodwaters combined with debris from two floods caused widespread destruction of property.

scientific and engineering evidence with the concerns expressed by public agencies such as (Ontario airport owner) Los Angeles World Airports make a strong case that requires a detailed investigation and public response by federal agencies.”

What Experts Say About Flood Safety at Deer Creek

Douglas Hamilton, an environmental engineer with the consulting firm Exponent Failure Analysis who was retained by a local homeowner, said this of his first visit to Deer Creek debris basin: “I stood on the spillway and looked up and I knew within five seconds there was a huge problem.”⁴ Hamilton said his extensive research on Deer Creek has only confirmed his gut reaction from his initial visit.

Professional Engineer John Cassidy, a consultant to Ontario airport owner Los Angeles World Airports (LAWA), has warned repeatedly that the Deer Creek debris basin and the channel emptying it are both too small. Cassidy has worked for the Army Engineers and helped design dams around the world for engineering giant Bechtel. He was hired to study flood control on Deer Creek because it flows underneath Ontario’s runways a dozen miles below Deer Creek debris basin. The airport agency is concerned that a lack of flood protection may threaten Ontario International Airport, which the agency hopes to expand to relieve pressure on Los Angeles International Airport. “The (flood control) structures themselves are well designed and well built,” he said. “They just don’t have the level of protection that the Corps said would be provided.”⁵

After reading Cassidy’s report, Robert Johnson, Los Angeles World Airports deputy executive director, criticized the Army Engineers for dragging their feet on mounting concerns over safety. In a May 10, 2002, letter to state Resources Secretary Mary Nichols, whose agency oversees the Department of Water Resources, he wrote, “The agency responsible for the initial design [the Corps] is apparently the same agency continuing to lead the rebuttal of a growing body of contrary opinion. We believe that [the state’s investigation] was limited and greatly hampered by the tactics of the Corps and the U.S. Geological Survey. LAWA is not interested in escalating this matter further at the state level but we simply cannot ignore our obligation to protect [Ontario airport] and its tenants.”

Water experts have crossed swords with the Corps over the Deer Creek controversy, sometimes at peril to their careers. “I blew the whistle and I was fired,”⁶ said Massoud Rezakhani, a hydrology expert who re-examined flood zone hazard mapping below Deer Creek debris basin in 2000 for a firm under contract to the Federal Emergency

⁴ Interview with Douglas Hamilton, September 17, 2002.

⁵ Interview with John Cassidy, September 20, 2002.

⁶ Interview with Massoud Rezakhani, September 26, 2002.

Management Agency (FEMA).⁷ “One thing no one’s addressing on Deer Creek is safety and health. This is more than that. This is an unsafe dam.” Rezakhani now is a consulting technical engineer for the Governor’s Floodplain Management Task Force.

*‘One thing no one’s addressing on Deer Creek is safety and health. This is more than that. This is an unsafe dam.’
-Massoud Rezakhani*

In June 2000 the Governor’s Office of Emergency Services (OES) warned against providing state funds for the Los Osos high school project near Deer Creek because it lacked a proper flood evacuation plan. “The lack of dam failure inundation maps...is a substantial impediment to a full and considered evaluation of the schools in question...[P]rudence would dictate further action by the Department of Education in approving these schools **be suspended** until dam failure inundation maps are available and the reported discrepancies in the capacity of the Deer Creek basin are resolved,” Director Dallas Jones wrote in a letter to

Superintendent of Public Instruction Delaine Eastin.⁸ The agency’s concerns were never fully addressed or even alluded to in the schools’ official project approval documents. Classes began for the first time at Los Osos on September 3, 2002. The school district makes no mention of flooding concerns on its Web site.

Dan James, a senior civil engineer for Rancho Cucamonga, balked at a private developer’s plan in the mid-1990s to build a debris basin to protect two parcels of less than an acre each at a cul-de-sac directly below the mouth of a canyon adjoining Deer Creek. The developer was using a new version of Army Engineers methodology developed inside the Corps’ Los Angeles District for predicting the severity of future floods. But for James, the method was untested and “didn’t sit right,” he said. His recommendation for a larger margin of safety derailed the entire project.

“I believe using (the Corps method) would place an extreme burden on the City of Rancho Cucamonga,” James wrote in a March 16, 1995 letter. “The method’s founding agency and our County’s flood control district have not designed a facility utilizing (the applicable Corps method). Until one of these agencies is willing to put their...stamp on a design, the City is not willing to approve.”

Public officials such as Los Angeles World Airports deputy executive director Johnson have been vocal in repeated calls for a study from an independent nationwide scientific body, the National Academy of Sciences (NAS). Engineers not associated with the

⁷ Homeowners living below Deer Creek debris basin had asked FEMA to investigate the new potential for flooding if an existing levee was torn down. The agency responded eventually by hiring Michael Baker Corp. to investigate the matter. When Baker’s employee, Rezakhani, told the homeowners his firm would criticize the Army Engineers’ flood control design methods, he was terminated within days. Rezakhani has sued for wrongful termination. FEMA later refused to change the flood zone maps. The unfavorable diagnosis Rezakhani allegedly “leaked”—a criticism of the Army Corps’ local flood prediction methods—never became part of the public record.

⁸ Emphasis added. From Jones’s letter to Eastin, dated June 6, 2000.

Corps, including a water expert with the California Department of Water Resources, have mentioned convening the National Academy of Sciences, but for a wider purpose: they want the scientific community to scrutinize how the Corps predicts floods in the American southwest.

Finally, Robert Kirby, a former Corps hydrologic engineer who contributed to the design of the Deer Creek project, has testified that in the 1960s “little was known of debris production,” and the engineering community later realized it had failed to incorporate an extra measure of protection to handle multiple storms, such as the two floods a month apart in 1969 that swamped western San Bernardino County and killed 11. Kirby said officials used the best scientific methods available when designing Deer Creek’s debris basin but the project that resulted was still too small. “I strongly believe that these inadequacies need to be addressed immediately, and all future construction halted until viable solutions are identified and implemented.”⁹

What the Corps Says

Joseph Evelyn and other defenders say the project has operated flawlessly since it was completed in 1983 and is ostensibly safe. (No significant storm has occurred in the area in the past 20 years.) Responding to his critics, Evelyn praises their engineering skill and competence but ultimately dismisses them as “individuals who are reflecting the wishes of their clients.”¹⁰ Asked if residents living below Deer Creek debris basin should feel safe, he says they should, but adds the engineer’s caveat that “safe is relative here.”

Joseph Evelyn is well aware of the dangers. Before he purchased his house in La Canada-Flintridge, he did his own analysis of the L.A. County debris basin protecting the prospective home site. Of the San Gabriel Mountains, he says, “you have mountains that are highly erodable, a landscape subject to wildfires and this year is a perfect example ... an impermeable barrier [of burned soil] that increases runoff and leads to mass wasting [erosion] and movement of materials, very steep slopes, high intensity rainfall, the flow of air from the west hitting those mountains...”

Such terrain might be a reason for extra caution. Yet, say his critics, Evelyn has been irrationally optimistic. They argue he has underestimated the effects of wildfire, trivialized the historical record of flooding and shaped his technical data to achieve “safe” numbers. Confronted with their criticisms, Evelyn doesn’t flinch, nor does he attempt to prove his detractors wrong. Evelyn’s conclusions, backed by the Army Corps of Engineers and unchallenged by other federal or state agencies, have swayed the debate over Deer Creek so far.

⁹ Declaration of Robert G. Kirby, taken at Rancho Cucamonga, CA on April 24, 2000.

¹⁰ Interview with Joseph Evelyn, Friday, Sept. 13, 2002, Los Angeles, CA.

In late 2000 California Senators Dianne Feinstein and Barbara Boxer asked the Army Corps of Engineers to collaborate with engineers from the state and two others hired by Los Angeles World Airports and the Rancho Cucamonga homeowner Malissa Hathaway McKeith. Their charge was to determine if the Deer Creek project had the amount of flood protection the Corps said it did. What happened instead was a recitation of earlier internal reviews issued by the Corps on Deer Creek.

Each contributing engineer submitted separate, divergent findings. Generally, they all agreed that the Deer Creek project was too small in comparison to the projected severity of a serious flood. The degree of shortfall remains in dispute. The Corps says the shortfall is negligible. John Cassidy, representing Los Angeles World Airports, says the shortfall is so great that even minor floods could overrun the project.¹¹

The other engineers couldn't find much common ground with Evelyn. They were not well versed in the methods he employed and he refused to incorporate more widely known methods, such as those used by Los Angeles County or even those used by the Army Corps of Engineers outside the Los Angeles District. In other areas of Evelyn's flooding estimates he included no safety factor or margin for error.

Evelyn's computations assume, for example, a "fire factor" of 3, an estimate that ignores the presence of wildfire on the hillsides above Deer Creek, according to Exponent consultant Douglas Hamilton, hired by Rancho Cucamonga homeowner Malissa Hathaway McKeith. The "fire factor" is essentially a numeric value assigned to signify how much fire-related debris (burned wood, ash and vegetation) may enter a particular stream during a flood. The "fire factor" ranges from a low of 3 which corresponds to an unburned watershed with mature vegetation, to a high of 6 which corresponds to a watershed that burned just one year ago. Hamilton says a fire factor of 3 is analogous to saying fire never visits Deer Creek.¹²

Pressed on this point, Evelyn dismisses Hamilton's criticism. He concedes that "if the watershed burned yesterday, you would get a huge number" on the size of an expected flood, larger than what Evelyn himself has estimated. But Evelyn has assumed that a flood on Deer Creek isn't likely to be influenced by fires at all. Evelyn explained this point to the Center while standing atop Deer Creek debris basin on Sept. 22, 2002. As he spoke the air around him was filled with flakes of soot from the 37,000-acre Williams forest fire advancing eastward, just a few miles away.

¹¹ In John Cassidy's letter to Los Angeles World Airports, dated April 13, 2001, he concludes, "I believe that the Deer Creek Debris Basin is definitely too small to contain the volume of debris that would be carried into the basin by a 100-year flood. Its storage capacity may be as little as 25% of the 292 acre-feet of debris that the Corps of Engineers estimates would be produced by runoff from a severe storm."

¹² According to Douglas Hamilton, "the way the Corps justifies using (a fire factor of 3) is to say that, statistically, a watershed burns every 20 years. After a fire, it takes 10 years for the burned vegetation to mature and stabilize the watershed. Therefore the 'average' condition for Deer Creek is the unburned condition which scores a 3 in the Corps' debris method."

Hamilton says it is “reckless” to make no provision for fires on the hillsides above Deer Creek. “It undercuts the historical justification for debris basins,” he says. “When the City and County of Los Angeles embarked on the debris basin concept in the 1930s, the biggest debris problems were associated with moderate rain storms after fires. I recall reading an old article in the Transactions of the American Society of Civil Engineers where a popular viewpoint back then was that fires were the main cause of (debris-filled flood) flows. The author’s suggestion was to forget about debris basins and spend the money on putting fire hydrants all throughout the San Gabriel Mountains. Of course this didn’t go anywhere, but there has always been recognition that you are most vulnerable to debris hazards during the first four-to-five years after a fire and debris basins should be designed to handle this situation to a reasonable degree.”¹³

In another Center interview with Joseph Evelyn, the engineer said he had come up with ways to construct better flood control on Deer Creek. The Corps could increase the capacity of the project by doing additional excavation, he said. However, he said that the improvements would be costly, require extensive studies and perhaps would be challenged in court on environmental grounds. The obstacles against upgrading seem so great that he had not bothered approaching San Bernardino County officials with any kind of detailed plan, he said.

The clout wielded by the Army Corps of Engineers within the panoply of government agencies is nearly unmatched.

The clout wielded by the Army Corps of Engineers within the panoply of government agencies is nearly unmatched. Scientists, economists, environmentalists, celebrities, members of Congress and even U.S. presidents have failed in efforts to reform, direct or downsize the Corps. The conventional wisdom dogging the Corps, especially following a series of scathing *Washington Post* articles published in 2000, is that they are willing to interpret facts selectively in order to justify large new public works projects. Deer Creek, however, is quite the opposite.

In defending inaction on Deer Creek over the past five years, despite an expanding chorus of criticism, the Army Corps of Engineers has offered conflicting data, frustrated the efforts of California’s U.S. senators and stonewalled a politically connected homeowner—apparently all to avoid a situation whereby the Corps might have to enlarge the project. The response is contrary to expectation. In the same region, the Corps has responded to the needs of south Los Angeles County communities by raising the walls of the lower Los Angeles River. And the Corps’ \$1.3 billion Santa Ana River project will reduce flood danger for Orange County homes and businesses. But on Deer Creek, the responsible local governments (led by San Bernardino County) are not clamoring for more flood control. Instead they are deferential to the Corps’ position or silent altogether.

¹³ Hamilton, Douglas. From an Oct. 15, 2002 email to the Center for Governmental Studies.

Sometimes it is hard to tell the exact nature of the Corps' position. Regarding the capacity of the Deer Creek debris basin, for example, the Corps has in official documents estimated capacity variously. Separate documents lodged in congressional archives from 1965 list an expected capacity for Deer Creek debris basin as both 300 and 380 acre-feet. The Corps itself says the basin was supposed to be 310 acre-feet in capacity. But notably, as greater outside scrutiny was brought to bear, the Corps' estimates have more closely resembled those made by critics. Some 162 acre-feet, an estimate derived from the "Corps' own data," was the capacity reported by the *Los Angeles Times* in its May 20, 2001 article on Deer Creek. And most recently, the Corps has told the State of California the debris basin can handle 172 acre-feet.

Exhibit 1, pictured below, shows Deer Creek debris basin. The colored areas correspond to the estimated debris capacity and deposition pattern reported in June of this year by the Corps, by Exponent Failure Analysis and by consulting Los Angeles World Airports engineer John Cassidy.

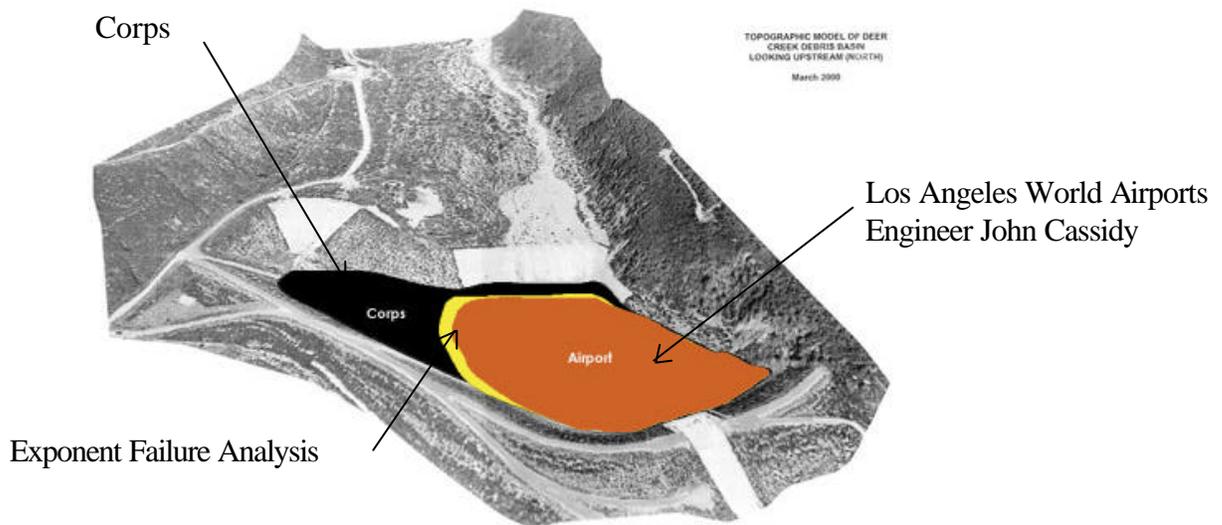


Figure 10 is a photograph of Deer Creek debris basin. Shaded areas depict engineers' estimates of debris capacity for the basin. The Corps disagrees with the estimates of John Cassidy and Exponent's Douglas Hamilton, who say existing rock formations leave telltale signs proving that flood debris will flow only into the eastern side of the basin, diminishing capacity and increasing the chances of a devastating flood event.

Where the Issue Stands Today

Each public agency involved today is waiting for another entity to act. Evelyn, conceding that the debris basin may be slightly undersized, said it is up to the local communities if they want additional protection. "If the community (Rancho Cucamonga) or (San

Bernardino) county want to expand the basin, we can work with them.” Evelyn said. “From a practical standpoint, they have a very high level of protection already.”¹⁴

No single agency or government entity is completely responsible for Deer Creek, as illustrated by the jurisdictional map pictured below. The Corps is waiting for the local governments to demand more flood protection. At the San Bernardino County Flood Control District, however, chief engineer Ken Miller told the Center he felt it was up to the Corps to make the first move. And in the state’s report on Deer Creek, California Secretary for Resources Mary Nichols asks Senators Boxer and Feinstein to take the lead. The senators had asked the state to take the lead after FEMA declined the role.

¹⁴ Interview with Joseph Evelyn, July 2002.

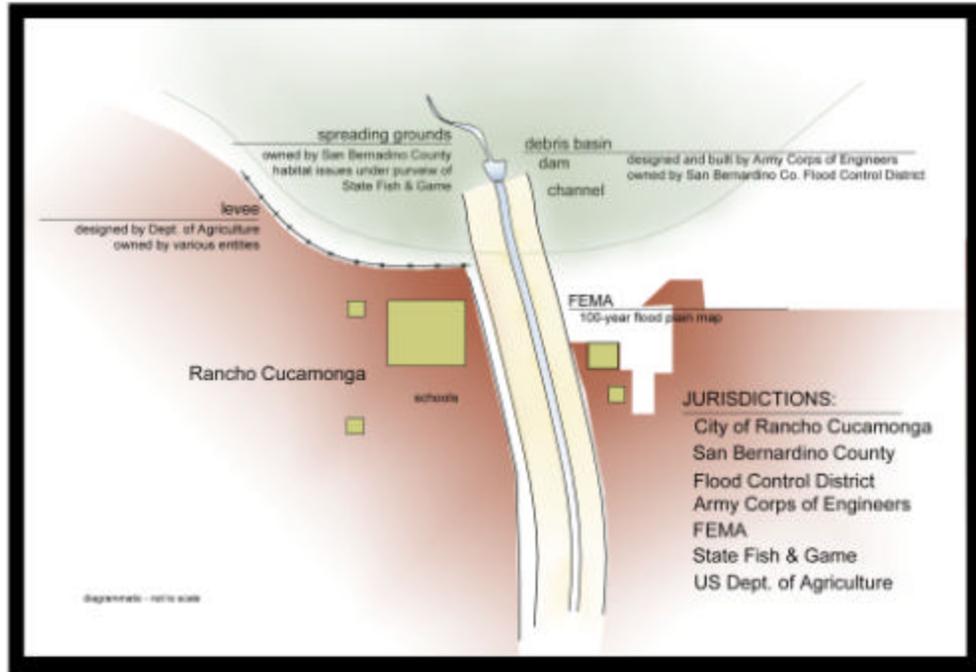


Figure 11 Deer Creek and the political jurisdictions governing it. Education facilities represented by light-colored boxes.

By contrast, Los Angeles County investigated the performance of its debris basins after flooding in 1969 and 1978 overwhelmed some of them. There was no widespread damage at the time, but county engineers nevertheless embarked upon a multi-decade project to identify debris basin problems and upgrade them where necessary. Some 65 debris basins have been tagged for further study, and of those, the county has completed 21 upgrades.

By now, responsibility for Deer Creek's failings is so diffuse that only a public outcry could move the debate. Congress could appropriate the funds necessary for a National Academy of Sciences review of Deer Creek and other debris basins. Getting the bill past pro-Corps members of Congress, however, is considered even more difficult than swaying local governments. While California's U.S. senators appear to speak with one mind regarding Deer Creek, Representative Joe Baca (D-San Bernardino) has chosen to remain silent. Boxer and Feinstein will not be able to appropriate money for a NAS study of Deer Creek when the member of Congress who represents the Deer Creek area is not supportive.

In the last 10 years, due in part to population growth, the area surrounding Deer Creek has had its member of Congress changed twice by the redistricting that occurs following each diennial Census. At the end of this year the area will come under new representation yet again—this time drawn once again into Representative David Dreier's district. The Republican Dreier was reelected in November.

Representative Baca received a huge stack of Deer Creek-related documents, courtesy of homeowner-activist Malissa Hathaway McKeith, on the day after he entered office in 1999 following a special election. But ultimately Baca decided the entire issue "was not his expertise," according to his chief of staff, Michael Townsend.¹⁵ Baca serves on the House Agriculture Committee and the House Science Committee, where he is a member of the Subcommittee on Environment, Technology and Standards and the Subcommittee on Research.

¹⁵ Telephone interview with Michael Townsend, October 18, 2002.

Origins of Development: the 'Model Colony'



Figure 12 Circa 1890 photo, looking northeast from present-day Upland, shows sparse development. Courtesy of Ontario City Library.

George Chaffey could see the future in 1882 as he gazed from a hilltop over present-day Upland, Rancho Cucamonga and Ontario, which were then nearly devoid of white settlers, “He is dreaming a dream which shall come true. He sees lying at his feet a colony settled by prosperous people, exacting a generous living from a soil thought by generations of Spanish proprietors to be unsuitable for settlement.”¹⁶ He and his brother William were recent arrivals from Ontario, Canada, intent on developing land and water infrastructure. The San Bernardino Valley seemed like the perfect place for the brothers, described by a biographer in 1928 as “idealists, engineers and mathematicians of the highest order.”¹⁷ The Chaffey brothers envisioned their cosmopolitan city as being anchored by alcohol-free living, a well-endowed agricultural college, tree-lined boulevards (Euclid Avenue was named after George’s favorite mathematician) and ample water for irrigation.

¹⁶ J.A. Alexander, *Life of George Chaffey*, Melbourne: Macmillan Co. Ltd., 1928

¹⁷ *Ibid.*

The Chaffeys' penchant for clean living drew many settlers and their town, named Ontario after their Canadian homeland, gained notoriety as a "model colony" when a scale model was unveiled at the World's Fair in St. Louis in 1904. But the proximity of a red-light district in Chino meant sin was always within reach. Flooding was another problem. Stately Euclid Avenue, lined with grevilles robusta (drought-resistant trees from Australia) and plied by a mule-drawn trolley, was being paved in 1911 when floodwaters swept down the street and destroyed the work.

Over the next 60 years persistent flooding would bedevil development in Ontario and elsewhere in the sparsely populated area known as the West End (modern-day Ontario, Upland and Rancho Cucamonga). Local residents displayed a keen interest in taming the seasonal flows, dating back to the dawn of the 20th Century and marked in 1937 by Upland engineer R.V. Ward's "vast survey for flood control throughout San Bernardino county, which may warrant WPA funds," according to the *Ontario Record*.¹⁸ The few flood control projects local landowners could finance consisted of dirt levees and rudimentary fencing..



Figure 13 The great flood of 1938, pictured here, is considered the biggest flood of the 20th Century in the region. The 1969 floods, however, caused significantly more damage because of a surge in development since 1938. Photo courtesy Ontario City Library.

¹⁸ *Ontario Record*, June 23, 1937.

Residents may have wanted flood control, but paying for it would prove to be a constant stumbling block. Following the devastating 1938 flood, the U.S. Army Corps of Engineers proposed a flood control project on the site of the modern-day San Antonio Dam. But 1,599 West End residents, according to a local newspaper, signed a petition in opposition to the project “on the grounds that it is too expensive, that local taxpayers ultimately [sic] probably will have to foot the \$75,000 annual maintenance, that the project’s concrete channel constitute a grave menace to replenishment of the valley’s underground storage basin....and that the dam itself, built on a fault, would constitute a grave flood menace.”¹⁹



Figure 14 Citrus trees were more numerous than residents in this circa 1947 view. Deer Creek alluvial fan is at top right. Photo courtesy Ontario City Library.

¹⁹ “1,599 Sign Petitions for Change in Flood Curb Plan,” 1939 article courtesy Ontario City Library.

Floods and Funding

As the decades passed flooding problems continued throughout the West End. Local interests wanted something manmade and permanent to augment local water percolation areas—“spreading grounds”—to soak up floodwaters and crude levees to channel runoff. The Army Corps of Engineers performed surveys of the area in 1937, 1946 and 1956, but following each examination, flood control projects were seen as too costly for the rural West End. Finally, after a 1960 survey, Congress in 1968 authorized but provided no funding for the Corps’ Cucamonga Creek Project, which included Deer Creek.

John Foley, now the director of the Moulton Niguel Water District, was the Los Angeles District Engineer for the Corps from 1973 through 1976, shortly before work began

‘It was not one of those projects that you send back to Washington and have it be accepted at face value.’

-John Foley

on Deer Creek. The Cucamonga Creek project almost did not happen, he said, because “there was reticence on the part of my superiors [who questioned] the value of building a benefit to serve a pure development scheme only.”²⁰

Despite the project’s authorization it would be another seven years before Congress saw fit to appropriate funds. As strange as it sounds, the arcane sociopolitical science of redistricting may have been the mother of the Cucamonga Creek project. Prior to the 1974 elections the congressional districts in California were redrawn to reflect changes in population. Redistricting, seen widely as a tool of the majority party to consolidate its power, resulted in the elimination of the district that Imperial Valley Republican Victor Veysey had represented for two terms. Veysey moved north to try to recapture his seat but lost to West Covina Mayor Jim Lloyd, a Democrat. Lloyd was an aerospace man who served on the House Armed Services Committee. Local newspapers credited Lloyd with securing more than \$100 million for the Cucamonga Creek project over his six years in office. Yet it was his vanquished opponent Veysey who was in a better position to pull strings for the project.

In the waning days of the Ford Administration, Veysey was appointed to a newly created position as the top civilian at the U.S. Army Corps of Engineers in Washington, D.C., where he served until shortly after Jimmy Carter’s ascent to the presidency. Veysey’s post, the Assistant Secretary of the Army for Civil Works, was created by Congress in 1970 as a way to bring a degree of civilian leadership and environmental sensitivity to the Corps. As a CalTech- and Stanford-trained engineer, Veysey seemed like a natural fit. He was also in position to promote certain unfunded water projects, such as the Cucamonga Creek project, above other proposed water projects. “Veysey was very helpful in getting

²⁰ Interview with John Foley, October 30, 2002.

funds for the project,” said Haden Helm, a retired Corps engineer who was a project planner on the Cucamonga Creek project.²¹

Even as the Corps’ multi-year Cucamonga Creek project was under construction, local officials saw the need for much more extensive flood control. In 1977 a San Bernardino County Flood Control District official estimated at \$330 million the cost of supplementary flood control channels and storm drains in the West End. “We don’t have enough money to do the real work,” district chief Art Sidler told the *Daily Report* newspaper. “That’s why we’ve sought federal funds.” The article also noted that the federal government was unwilling to fund flood control projects on Deer and Day creeks because, as Sidler said, “although serious flooding can occur in that area, there isn’t much development surrounding it that can be destroyed. The federal government found it was not economically justified to grant money.”²²

Following passage of Proposition 13 in 1978, which permanently reduced property taxes, local governments saw their budgets slashed drastically. The San Bernardino Flood Control District was lambasted in a grand jury report for overstaffing and later saw its budget cut by more than half. Then, in early 1980, President Jimmy Carter ordered a freeze on funding for all current and future Army Corps of Engineers projects. Carter’s strategy was in line with his “hit list” of 19 Army Corps projects he considered too wasteful to build. But ultimately the president allowed more funding for the Cucamonga project, and Congress went along.

Also in 1980, the San Bernardino County Board of Supervisors unilaterally passed an assessment to finance \$15 million for storm drains and supplementary flood control channels.²³ The board unanimously repealed the assessment, however, after angry residents stormed a board meeting with tax bills in hand.

President Ronald Reagan entered office in 1981 promising a wave of budget cuts that prompted San Bernardino County officials to travel to Washington to plead their case. County Supervisor Robert Townsend voiced concerns that the Army Corps of Engineers was considering asking for a separate congressional authorization for flood control on Deer Creek and the adjoining Day Creek watersheds. Townsend “noted [that] corps officials tried to do that before. While the Deer Creek leg has been part of the overall plans since about 1976 and has not faced a similar challenge in recent years, Townsend said the concern is still ‘valid.’”²⁴ Separate authorization could have meant years of funding delays or outright rejection of federal funds. Proponents for flood control at Deer Creek would have to jostle for position with countless other new projects. A project

²¹ Interview with Haden Helm, October 30, 2002.

²² Ziegler, Peggy. “Flood control cost...\$330 million needed to guard tri-communities,” *Daily Report* July 15, 1977.

²³ This was permissible under the law even following enactment of Proposition 13, which capped property tax rates. For example, if a community receives a “benefit” such as a streetlight, the government can assess property owners to pay for the cost, installation and repair of the streetlight.

²⁴ Green, Don. “Reagan cutbacks: County hopes federal flood control funds hold,” the *Daily Report*, March 3, 1981.

already authorized by Congress can receive federal appropriations years after the fact. Seeking new authorization might have been the kiss of death for development on Deer Creek.

With the Deer Creek leg of the project in jeopardy, and unable to pay for its mandated share of the Cucamonga Project costs, the county met with prominent area developers in May 1981 to discuss ways of raising a \$5.9 million shortfall. Failure might jeopardize \$36 million in remaining federal funds earmarked for the project, the group was told. Joseph DiIorio, a partner in Rancho Cucamonga Land Co., said the private sector would likely not contribute unless residents were taxed. Ralph Lewis, who formed the committee, added “don’t look to Lewis Homes for any large chunk.”²⁵ But according to an August 4, 1981 article in *The Daily Report*, developers with holdings along Deer Creek pledged \$1.9 million in loans to the county so it could meet its deposit deadline with the Army Corps of Engineers. The county was able to meet its end of the bargain, barely. (The San Bernardino County Flood Control District did not release any information regarding the funding plan but denied that private landowners were involved in any way.)²⁶

David Dreier’s defeat of Congressman Lloyd in the 1980 elections coincided with Reagan’s rise to the presidency. Dreier, at 28 years old, was the emerging face of the Republican Party while Reagan was its beloved leader. One of the results was that while many Corps projects were cut back, Reagan’s proposed budget for 1982 specifically included funds to begin work on Deer Creek. The entire Cucamonga Project including Deer Creek was completed in 1983, more than 40 years after the Corps began its surveys of the area. The anticipated cost of roughly \$63 million (in 1973 dollars) had swelled to \$140 million by the time the project was functional.

Voters Reject Locally Financed Flood Control

The Cucamonga Project was seen as only one component of flood control in western San Bernardino County. County supervisors tried to raise flood control funds via ballot measures in 1982 and again in 1983. Both measures failed to attract even a simple majority, much less the 2/3 approval Proposition 13 requires in order to pass tax increases. The 1982 version received support from only 42.1 percent of voters in a Congressional election year (turnout was 67.2 percent).

Measure W, the 1983 version, stood perhaps the best chance at passage. Among those endorsing the measure were the unanimous city councils and mayors of Upland, Ontario and recently incorporated Rancho Cucamonga, the two county supervisors who represented the area, all three chambers of commerce, the Montclair-Ontario school

²⁵ Green, Don. “Builders, officials try to save threatened project,” *The Daily Report*, May 28, 1981.

²⁶ October 25, 2002 email from Ken Miller, chief engineer, San Bernardino County Flood Control District.

board, all four of the community newspapers and even the local mobile home owners association. Evidence of flood danger was especially fresh since the deaths of at least three people following heavy rains in the winter of 1983. Water rushed down north-south streets and swamped confused motorists like Ruth Brady, who drowned after her vehicle fell into raging floodwaters along Hellman Avenue at Foothill Boulevard. Her body was discovered in the wreckage of a railroad crossing a half-mile downstream, but rescuers saved her husband.

Measure W anticipated that a normal family would pay \$3.25 per month over the 10-year life of the so-called “benefit assessment.” Larger landowners like the Southern Pacific Railroad complained that their burden was disproportionate, and other critics faulted the county for not including Ontario airport in the assessment district.²⁷ Whatever their reasons, voters stood firm: no new taxes. Only 14.6 percent of registered voters actually voted. The margin of defeat was 54.2 percent.

Controversy Emerges

The Cucamonga Project touched off a building boom, clearing the way for extensive development in western San Bernardino County in the 1980s, which grew fast enough to warrant its own member of Congress after the 1990 Census. Water was the reason for the boom: not water for drinking, but protection from floods.

Development continued unabated near Deer Creek until 1997, when a developer sought to tear down part of a Depression-era earthen levee constructed by the U.S. Department of Agriculture and later improved by other federal agencies. The Corps of Engineers submitted letters to the city supporting the development. The Corps’ spokesman, Joseph Evelyn, testified on behalf of the developer to the Rancho Cucamonga City Council that the levee was not needed because the Deer Creek debris basin and channel would sufficiently protect the hundreds of homes newly exposed to the mountains through the breach in the levee. He recently maintained this position in federal litigation filed by Defenders of Wildlife and the National Wildlife Federation against Secretary Ann Veneman of the U.S. Department of Agriculture for allowing the levee’s destruction.

A formidable collection of citizens has challenged Evelyn and the Corps regarding his testimony. But this loose knit group—which came to include California Senators Boxer and Feinstein, respected flood experts, national environmental groups and Ontario airport owner Los Angeles World Airports—could not stop the city of Rancho Cucamonga from allowing the partial destruction of the levee in 2001. And it has thus far been rebuffed in its quest for an independent study by the National Academy of Sciences on whether the flood control projects on Deer Creek are truly safe. In the meantime, scores of new homes and two new schools have been built in the floodplain, supported by official

²⁷ The airport, owned by the City of Los Angeles, is like other government lands in that it is exempt from taxes.

approval documents making scant or no mention of the newly realized potential for flooding danger.

Negative Skew

At dispute is whether people living in the vicinity of Deer Creek are unduly at risk. Engineers translate such a question into equations comparing how much debris and water they expect will be spat out of Deer Creek's watershed versus how much capacity they think exists to store debris and channel runoff. Selecting the most appropriate method is of high importance. One criticism made against the Corps is for its use of "negative skew" when it reviewed flood risk on Deer Creek recently.

If an equation were a tree, skew would be the wind bending the tree. Plotted on a graph, a positively skewed equation will curve upward while negative skew curves it downward. Skew can alter how far an equation will rise on its vertical axis. For the question at hand, the vertical axis signifies a flood's highest stage measured in how many cubic feet of floodwater passes a given point—usually a stream gage—in a second. Floods like the 1969 and 1938 events score high on the vertical axis while dry years score very low.

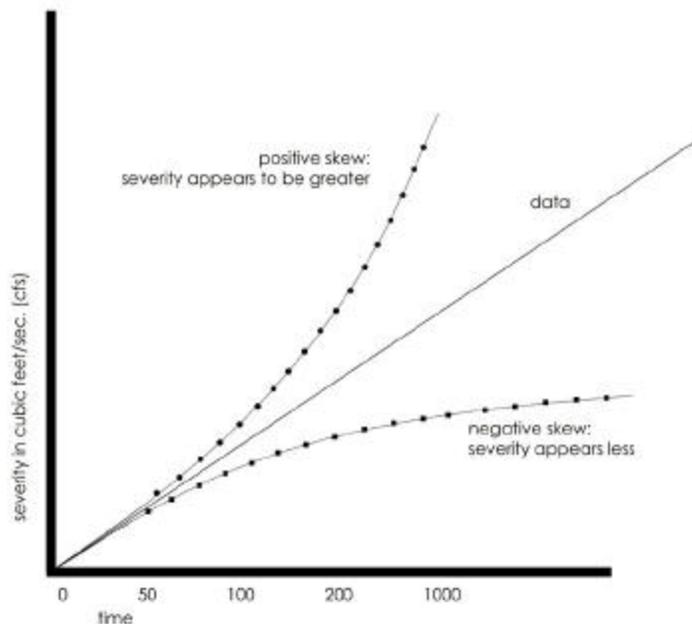


Figure 15 Positive and negative skew.

The U.S. Geological Survey (USGS), which measures and catalogues floods, used positive skew to express how large flood events like 1969 were possible in western San Bernardino County. The USGS could not account for the 1969 flood using its standard

methods; it had to skew the equation positively so it would agree with the historical record.

The Army Corps of Engineers has done the opposite. For his Deer Creek estimates the Corps' Joseph Evelyn skewed the equation *negatively*, away from the historical record. The result was lower values on the Corps' y-axis. Essentially the Corps equation predicted smaller floods and failed to account for large floods that had already happened. Additionally, the smaller floods predicted by the Corps using negative skew suggest that future floods will be contained within the present debris basin and channel. Without negative skew, even the Corps equation would predict floods too large for the existing flood control project on Deer Creek.

Even for a powerful federal agency like the Army Corps of Engineers, it is hard to deny history. As the task force on Deer Creek began its work in the spring of 2001, other engineers questioned Evelyn about his use of negative skew. Engineers with the state Department of Water Resources, apparently leery of relying on the Corps, began an independent inquiry. That effort, however, ended inconclusively after engineers on the task force were shocked to discover that the USGS was planning to “discredit,” or expunge from flood records permanently, the 1969 flood as it was measured near Deer Creek. In one swift move, the Corps' negatively skewed equation seemed more in tune with the historical record.

The Man Who Made a Flood Disappear

In June of 2001 Joseph Evelyn was able to take advantage of controversial research by a man named Robert Meyer, a longtime employee of the USGS. Meyer is critical of hydrologists in his own agency for their work in measuring the 1969 floods in Southern California including western San Bernardino County.²⁸ Ultimately, Meyer's work bolstered the tack taken by Joseph Evelyn—that floods like the 1969 event were overestimated and that the reality was less severe than the record.

Meyer, a surface water expert for the USGS, argues that existing records were flawed enough to be useless. He says it's simply too hard to measure floodwaters when the waters carry large debris—just like it's easier to gauge the volume of a can of soda than an iced-down fountain soda. In an interview, Meyer said the eradication of 1969 flood

²⁸ Meyer said he invalidated the high watermark, or “peak flow” reading, from the Day Creek gage data from the 1969 flood because it didn't fit a mathematical equation he had devised that plotted all California “peak” flood flows on a single graph. The flow from Day Creek—the watershed next to Deer Creek—stuck out because it was so much higher than what Meyer expected from his equation. The Day Creek gage is important because Deer Creek has for several decades been “ungaged,” meaning there is no installation on site to measure flows. A primitive stream gage installed on Deer Creek was deemed unreliable in the early 1960s and removed. Many of the early gages were designed for irrigation purposes, not to measure storms. When historical records are not available, engineers often study flooding patterns on a nearby, similar watershed and apply their findings to the watershed under scrutiny.

records resulted from more than a decade of his own research. “What is the concern about throwing away a measurement that’s no good?” he asked during an August, 2002 interview.

‘What is the concern about throwing away a measurement that’s no good?’

-Robert Meyer, USGS

Whether water, debris or some mixture thereof, something hugely destructive came out of the mountains in the winter of 1969. Meyer’s actions have rankled surviving USGS scientists, who by now are retired or are veterans in their field. “We had surface water specialists in 1969 that were every bit as smart as surface water specialists in 2001,” said John Singer, a retiree from the USGS who helped with aerial mapping on Deer Creek

in 1969. “I’m totally amazed that someone would have the nerve to totally discredit that data. To say [the data is] not possible is unscientific, unfounded and reeks of something other than what the USGS is known for.”²⁹

For Singer and other water experts who have studied the issue, the furor arises less from Meyer’s criticisms of the USGS’s data-collecting methods back in 1969—which water experts partly concede—but rather from Meyer’s decision to replace 1969 flood data with nothing indicating that the century’s most devastating flood occurred during that season.

‘To say [the data is] not possible is unscientific, unfounded and reeks of something other than what the USGS is known for.’

-John Singer

The weight of Meyer’s action became clearer when the Department of Water Resources-led task force on Deer Creek attempted to determine if the project’s concretized rectangular channel was big enough. In mid-2001 the state and Corps concluded the channel was of sufficient size, and Joseph Evelyn went further, saying the channel could handle debris as well as water. The other contributing engineers, Douglas Hamilton and John Cassidy, submitted findings showing the channel was likely to become clogged with debris and send floodwaters outside the channel walls. The operative difference was that the state and the Corps did not substantially incorporate the deadly 1969 floods in their measurements whereas Hamilton and Cassidy did.

In an August 2002 interview, the Center was told that the U.S. Geological Survey has reopened review of Meyer’s work. The USGS is also weighing new regulations that would make it harder to invalidate flood records. Its recent actions were spurred because of the Deer Creek controversy, according to the USGS’s Menlo Park-based surface water specialist, Mike Nolan. “We’re trying to shine as much light on this as possible,” he

²⁹ From a telephone interview with John Singer conducted on July 11, 2002.

said.³⁰ But according to a September 30, 2002, memorandum, FEMA officials continued to reinforce Meyer's argument, not question it.

This led engineer Douglas Hamilton, in a written response dated October 26, 2002, to assert that "this USGS precedent [of removing potentially faulty flood records], followed to its logical end, would result in virtually all of the Southern California flood peaks from the two largest recorded flood seasons (1938 and 1969) being cross-examined and ultimately removed from the record due to the presence of debris flows. Ironically, the very process that makes large flood events in Southern California so hazardous has caused these floods to be banned from the historical record. Of course I, along with many other floodplain policymakers, protest this action."

In obtained emails, Meyer appears unconcerned by the criticism. A year after Meyer's work invalidated 1969 flood records, William Kirby of the USGS asked in an email about whether it was prudent to eliminate flood data from 1969 without finding some way to "alert the conscientious analyst that something noteworthy had happened" that year, namely, a deadly flood.³¹ Meyer's emailed response was that he could discern "no useful information" from the available record. Although it took Meyer years to amass the evidence he used to invalidate 1969 flood data, he does not feel the USGS needs to acknowledge the historical record by making revised estimates of the 1969 flood on its own. "Perhaps the agencies in the area should pay for us to make estimates of some kind," Meyer wrote in a January 2002 email to his U.S. Geological Survey colleague, Mike Nolan.

Invalidating flood records is very rare; there are only a few such instances, although the USGS has records of thousands of floods. Joseph Evelyn used 1969 flooding data in the Army Corps' November 1999 report on Deer Creek in a veiled manner.³² By adopting a negative skew, the statistics effectively ignore the 1969 flood event. Two years later, when Robert Meyer rendered the 1969 flood as an unreliable record, Evelyn had a justification for marginalizing the 1969 flow.

³⁰ From an August 6, 2002 telephone conversation with Mike Nolan.

³¹ May 6, 2002 email titled "re:regression decisions – and Day Creek" from Robert Meyer to William Kirby, et al.

³² The November 1999 report unveiled a new estimate for how much debris was expected to come out of Deer Creek during a 100-year flood. The amount, 292 acre feet of debris, was considered less than the stated capacity of Deer Creek debris basin until several months later, when an investigation by Exponent's Doug Hamilton concluded that the usable capacity of the basin was smaller than the amount the Corps had originally maintained was the capacity, 310 acre feet. The Corps now says Deer Creek debris basin holds 172 acre feet but only 188 acre-feet is expected in a 100-year flood. Although Joseph Evelyn can correctly say that he used 1969 data in his computations for the Department of Water Resources technical review committee, he effectively ignored the occurrence of both the 1969 and 1938 flood events by imposing a negative skew on the statistics.

The Perfect Storm

When trying to predict the severity and frequency of future floods, hydrologic engineers take into account a number of variables: the size of the watershed delivering precipitation to the stream, the steepness of the terrain, the incidence of fires that can dump burned vegetation into streams, the historical record of floods in the area and other factors. Engineers use these data to write equations that relate the incidence of the variables to the ultimate size of a flood. In theory the equations can be tested by applying them to recorded flood events in history. Then it can be seen whether an equation “fits” the data and can be used accurately for predictions.

But when no data exist, engineers must use data from somewhere else and apply it to the watershed under examination. Deer Creek had a stream gage until the 1960s when it was deemed unreliable. Around this time the Army Corps of Engineers began to plan schematics for flood control on Deer Creek. Without reliable information on Deer Creek, the Corps decided to study a storm from another watershed and then apply the data.

According to Joseph Evelyn, the Corps used 1943 flooding data from a storm in Sierra Madre (a city a few miles east of Pasadena) as a way to predict the expected severity and frequency of storms at Deer Creek. The problem with using a project storm from Sierra Madre, according to engineers Hamilton and Cassidy, is that the topography of the San Gabriel Mountains is significantly more mountainous at its eastern terminus than the centrally located Sierra Madre. The northernmost neighborhoods in Rancho Cucamonga are 6,000 feet below and four miles away from the nearest large mountain, 8,891-foot Cucamonga Peak. In Sierra Madre the rise is much more gradual. See Figure 16 below.

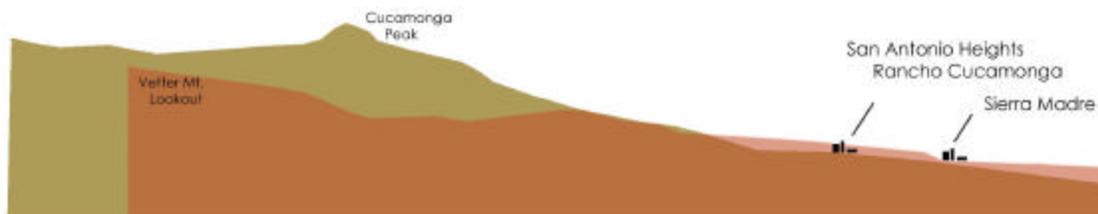


Figure 16 Comparison of Sierra Madre and Rancho Cucamonga slopes: Rancho Cucamonga is steeper

The dispute is larger than Deer Creek. Joseph Evelyn said the Sierra Madre storm figures were used in the design of the entire Cucamonga Project. No engineer is making the assertion that there are fundamental flaws with every debris basin designed by the Corps in Southern California. But if the Corps ever concluded that its design was deficient at Deer Creek, questions will surely arise about the other basins in the Cucamonga Project, if not elsewhere in the nation. FEMA has mapped 134 alluvial floodplains in Southern California, and more are sure to be identified as they become urbanized.

The Los Angeles District of the Army Corps of Engineers has over the decades improved upon its design of flood control projects in Southern California and used it as a model for projects in other Sun Belt states. The complex flood prediction equations the Corps uses in the Los Angeles District are designed specifically for southwestern topography: steep, crumbling mountains that burn often and are pelted seasonally by storms. By all accounts, the San Gabriel Mountains are an especially extreme example—worthy perhaps of positive skew. Instead Evelyn reversed the trend of measured, historical flood data by choosing a negative skew coefficient.

Skepticism of the Corps flood prediction methods in the Los Angeles District has mounted partly because the district's methods are not well known outside its downtown Los Angeles high-rise headquarters. Consulting engineers who have criticized the Deer Creek project say that the methods they themselves use—the federally sanctioned and scientifically reviewed methods they employ as project designers, consultants or expert witnesses—were rejected by the Corps' Evelyn in favor of his in-house method.³³ This stance is contrary to the Corps' own how-to guide on handling "Disagreements Among Experts:"

Disagreements among experts or agencies about the existence of a threat, its severity or the appropriate reaction [are] confusing. From the perspective of the lay person, they are being asked to make a decision that can't be decided by the experts. Minimizing these kinds of problems requires ensuring that the experts are working with **the same basic information and using the same assumptions.**³⁴

'A Slumbering Volcano'

The records of the San Bernardino County Flood Control District, obtained through the National Archives, describe how the whims of nature can disguise the dangers of living near the outlets of mountain streams, on miles-wide cone-shaped mounds of ancient sediment known as alluvial fans. After 1969 the District considered Cucamonga Creek, the more populated watershed just west of Deer Creek, to be a "slumbering volcano" that "lies quiet and dormant over great periods of time, lulling its co-habitants into a state of false security. Then suddenly, with little if any warning, it strikes with a vengeance, including great property damage and even death. And so it was in the floods of 1914, 1927, 1938, 1943 and 1969."³⁵ The passage goes on:

Large floods had occurred in the valley during both the winters of 1965 and 1966, resulting in a Presidential disaster proclamation for the County. However, in both instances, Cucamonga Creek was docile....[T]he people

³³ The Los Angeles District Method for the Prediction of Debris Yield

³⁴ Emphasis added. Page 13, *Explaining Flood Risk*, Davis, CA: U.S. Army Corps of Engineers, 1990.

³⁵ From Page 8 of the San Bernardino County Flood Control district historical records obtained at the National Archives and Records Administration Pacific Region (Laguna Niguel, CA).

of the alluvial fan, as might be expected, were led into a state of lethargy. Then, in January and again in quick succession in February, 1969, the creek struck with a vengeance and fury never before equaled in recorded history.³⁶

³⁶ From Page 21 of the San Bernardino County Flood Control district historical records obtained at the National Archives and Records Administration Pacific Region (Laguna Niguel, CA).



Figure 17 The Great Flood of 1969. Photograph courtesy Ontario City Library.

California Looks the Other Way

Officials representing the State of California wasted an opportunity to use the Deer Creek controversy to launch a wide-ranging debate on debris basins and flood safety. Resources Secretary Mary Nichols has maintained that the state's only jurisdiction is through the Division of Dam Safety inside the Department of Water Resources. In essence Nichols argues that the state's legal power only extends to whether the dam bracing Deer Creek debris basin has structural integrity—not whether the basin is big enough.

In reality the state can hardly conclude its interests end at the dam. The recently constructed Los Osos High School situated near to Deer Creek, for example, is eligible for \$24 million in state reimbursement funds. Freeway bridges designed by Caltrans, including those on the Foothill (210) Freeway extension project, might be undermined by floodwaters. The California Department of Fish and Game oversees habitat issues on Deer Creek's depleted spreading grounds.

The state has failed to coordinate or direct the efforts of even its own departments. Just months after one agency, the Governor's Office of Emergency Services (OES), advised the state to stop funding the Los Osos school project, another agency, the California

Department of Education (CDE), was seeking a way to allow the school to be built without OES approval. CDE facilities official Duwayne Brooks attended a high-level meeting on Jan. 11, 2001 held at Senator Dianne Feinstein's San Francisco offices. At the meeting federal, state and local officials joined technical consultants in a preliminary discussion on how best to study safety aspects on Deer Creek. The state Department of Water Resources, overseen by Resources Secretary Mary Nichols, was to lead a 60-day task force on Deer Creek.

According to a January 12, 2001, email he wrote to the elected director of CDE, Superintendent of Public Instruction Delaine Eastin, Brooks wrote that he "confirmed with Mary Nichols... that it seemed reasonable for (the California Department of Education) to approve the proposed (Los Osos) school site because the preponderance of current evidence shows that there is little if any danger posed by the dam, and if there were subsequently found to be any danger it would be resolved to ensure the safety of the citizens of Rancho Cucamonga."

The task force on Deer Creek spent 16 months studying the issues, but records show that the Department of Education acted sooner to issue the official approval documents necessary for the Los Osos project to become eligible for state reimbursement. The date on the first approval document—May 31, 2001—was a full year before the task force completed its work. In other words, the Department of Education allowed students to attend Los Osos while officials in other state departments were trying to determine if *anyone* was safe near Deer Creek. The Center learned of these facts only when a Public Records Act request filed with the Department of Education provided emails referring to the conversation.

In an October 2, 2002, interview Secretary Nichols said she did not remember making the statements Brooks attributed to her in his January 12, 2001 email to the Superintendent of Public Instruction, Delaine Eastin. She says she barely remembers having a private conversation with Brooks and "if he thought that my statement... was a basis for making a decision, he was operating under an erroneous assumption."

Interviewed by telephone on November 20, 2002, Brooks said the Center has mischaracterized the January 12, 2001, email regarding Secretary Nichols. Asked to address the disconnect, Brooks maintains that "it was the opinion of all the people in attendance that it was to be determined safe or it was to be made safe." Brooks was also asked to reconcile the outstanding warning from the Office of Emergency Services regarding the lack of flood evacuation plans and concerns over general flood safety. He said, "The fact that OES didn't have an evacuation plan didn't have any impact on the safety of the site." Superintendent

'The fact that OES didn't have an evacuation plan didn't have any impact on the safety [at Los Osos High School.]'

-Duwayne Brooks

Eastin has not returned requests for comment. The Chaffey Joint Union High School District, which built Los Osos, also has not responded to requests for an interview. The OES, somehow completely out of the loop, was not even informed that the Los Osos project had been approved over its objection. Meantime, the first-ever semester at Los Osos continues. Without the use of Los Osos's new classrooms, officials would have to relocate more than 2,400 students.

By now the public has largely forgotten the winter of 1981, when floodwaters washed away Mitchell Elementary School in northeast San Bernardino, another campus within a few miles of streams emerging from steep hillsides. The grassy patch where the school and homes once stood is now called Twin Creeks Flood Control Basin.

In May 2002 the Resources Agency disregarded the suggestion of the state's water policy expert, Tim Ramirez, to recommend convening the National Academy of Sciences on the Corps' methods for debris basins. Ramirez's statement was deleted from the state Department of Water Resource's final report on Deer Creek (the one requested by Senators Feinstein and Boxer) but appeared in an internal email from May 6, 2002. Drafts written from May 7 on state only that the state has "no objection" to outside review by the National Academy of Sciences. (NAS)

Ultimately in June 2002, the Department of Water Resources concluded, without plainly saying so, that debris from Deer Canyon was likely to fill the debris basin and channel past its capacity. They didn't bother to predict what might happen next. And the state has not made any substantive demands on the Corps to fix the problem. Questioned about why she decided not to invite NAS study of the matter, Secretary Nichols said "their results are extremely dependent on the exact question you ask them and who is on the panel."³⁷

In reality the state's task force on Deer Creek suffered from at least the appearance of bias. As a precursor to its formation, Rancho Cucamonga homeowner Malissa Hathaway McKeith (whose consultant Douglas Hamilton was part of the task force) had to promise not to use draft findings of the task force as a basis for litigation against a developer who aims to build new homes near Deer Creek. The state also failed to respond when the Army Corps of Engineers refused to collaborate with other participants on a common hydrological method for sizing up expected future flood flows and comparing them to flood control project capacity. At the behest of Senators Boxer and Feinstein, the state coordinated the task force. But the Army Corps of Engineers dictated the outcome. That is presaged in the charter drafted to guide the task force. In the charter there is no mention of ascertaining a possible flooding threat to communities near Deer Creek. Instead the charter spells out which technical statistics should be sought and then concludes with legalistic language stipulating that participation in the task force should not be seen as an admission that safety is compromised at Deer Creek. In the end the statistics the task force published were nearly useless. The task force had no unified stance. The degree of

³⁷ Oct. 2, 2002 interview with Mary Nichols, via telephone.

flooding danger on Deer Creek depended upon the source of the information—exactly the sort of confusion the task force was meant to clear up.

In an interview with Mary Nichols on June 7, 2002, several weeks before she signed a letter to Senators Feinstein and Boxer prefacing the Department of Water Resources final report on Deer Creek, Nichols was asked whether Los Osos students were safe from flooding danger. In response she underscored the need for more classrooms all around California and suggested that finding suitable land with absolutely no safety concerns was not always possible. As an example, she mentioned the infamous Belmont Learning Center in downtown Los Angeles, a project built atop an old oil field seeping methane and hydrogen sulfide. After unprecedented debate and study, officials believe the environmental problems will be solved and Belmont Learning Center will someday house thousands of students. Members of the public could follow Belmont's progress through the newspapers. With Los Osos the media coverage dwindled after the Department of Education approved the site in mid-2001 and resurfaced only to show students entering its doors. The reasons why Los Osos was deemed a fit site for school kids have never been publicized.

The state Resources Agency, after it perhaps unwittingly allowed construction of a school in a flood plain, declined to invite the National Academy of Sciences to make an independent assessment of the Corps' design methods. By stating its official position on the NAS study as "no objection," the state in effect chose not to serve as a "local interest," *i.e.*, a city, county or state government. The Corps of Engineers has already agreed to fund its portion of an NAS study, but only if a "local interest" stepped forward and funded a fraction of the total cost, expected to be less than \$1 million.

Uninterested Locals

Local homeowner Malissa Hathaway McKeith attempted to finance the local cost of the NAS study herself but she was turned away by the Corps, who said the request must come from a government entity. There were two other possible "local interests" which could have triggered action by the NAS. However, the city of Rancho Cucamonga and San Bernardino County officials have consistently declined to take action.

Deer Creek debris basin lies outside Rancho Cucamonga city limits, and this fact allows the city to decline comment or to spend money on the issue. Obtained documents show, as mentioned before, that as early as 1993 the city had misgivings about the Corps' debris basin design methods, at least for smaller watersheds. A few years later, however, the Rancho Cucamonga City Council was willing to allow the breaching of a levee and dismissed opponents by referring them to the Corps.

The San Bernardino County Flood Control District is the owner and operator of the Deer Creek debris basin. Although it has done its own research on Deer Creek, agency

engineers deferred to the Corps during the state-led task force on Deer Creek, which concluded this June.

The San Bernardino County flood agency has much to lose if flood control at Deer Creek is deemed substandard. The agency repeatedly tried to convert public land located near Deer Creek for private development—even land that the Corps said should be set aside for groundwater recharge. After it could find no willing developers or private buyers, it sold land situated near Deer Creek to Chaffey Joint Union High School District, which built and opened the Los Osos high school on it over the concerns expressed by the Governor's Office of Emergency Services. The agency's development of open space intended for groundwater recharge areas has drawn a federal lawsuit from environmental advocacy groups, which are asking the U.S. to reassert authority over its former property and stop further development. The lawsuit is pending before a federal district court judge in Washington, D.C.³⁸

Local and state representatives who represent districts surrounding Deer Creek decline to acknowledge serious concerns over flood safety. Several of these officials may be deterred by their own success in wooing new development. Rancho Cucamonga's moderately priced housing developments are attractive to first-time homebuyers, but the entire area would suffer economically if the responsible agencies changed their stance on Deer Creek. The Corps' certification of 100-year flood protection³⁹ releases property owners from the costly mandated flood insurance payments others must pay, as did other communities along the Los Angeles River until a recent Corps project fortified the river levees. Bonded debt (such as bonds sold to finance construction of schools, homes, etc.) also becomes more costly to repay when the level of risk rises.

Dire public safety predictions aren't much of a campaign platform in pro-growth Rancho Cucamonga. Not surprisingly, the issue has not surfaced in the months leading up to local elections in November 2002.

The Center received little or no reply to repeated requests for interviews with Rancho Cucamonga Councilmember (and Republican Assemblymember-elect) Robert Dutton; San Bernardino County Supervisor Jon Mikels; Paul Biane, a Rancho Cucamonga Councilmember who recently defeated Mikels for his seat; Republican state Senator Jim Brulte; or Chaffey Union High School District facilities executive Susan Sundell.

These public officials may simply be reading the public's low level of interest in flooding issues. Over a three-year period, two homeowners associations and environmental groups filed seven lawsuits against Rancho Cucamonga and a developer trying to breach the Deer Creek levee to accommodate more development. (One lawsuit remains pending in federal court.) Lauren Development home sites, owned by Newport Beach developer Robert Cristiano, are situated uphill from an existing gated community and partially

³⁸ Case number 1:01CV01201 EGS.

³⁹ A 100-year flood is a major event expected to occur only once in a 100-year period, and thus has a 1 percent chance of occurring in any one year.

within an area originally controlled by the federal government for the provision of flood control, the aforementioned earthen levee built in the 1930s. Residents already living beneath this proposed Lauren development may rightly have worried that the viewsheds and real estate values of their own homes would decline if another development were to be built between them and the mountains. Worries about floods, however, were not a priority. In fact, both associations were sued for misuse of membership dues, with plaintiffs alleging that the constant legal battles were sapping funds meant for landscaping and gardening.



Figure 18 The levee below Deer Canyon. Lauren Development is planning to construct 40 homes in the area.

Affordable Views with Blinds Drawn Over History

The Deer Creek controversy simmers in a fast-growing county with a reputation tarnished by successive waves of corruption investigations, indictments that led to guilty pleas from officials and businessmen and most recently, allegations that an elected county supervisor assaulted the county administrative officer. San Bernardino County hasn't quite shed its "Cowboy County" image, according to a newspaper reporter with experience in the region.

The state's inaction and reluctance to stir a wider debate affects not only Rancho Cucamonga and its environs but also any community that has allowed or is considering development on alluvial fans. In areas like western San Bernardino County, alluvial fans are the only "desirable" and affordable lands left for development. This puts great

pressure on local authorities to clear away obstacles against development rather than slow or discourage it in any way.

Former Bechtel engineer John Cassidy has said that assessing and assuring flood protection in areas near mountain canyons is vital, considering developers' taste for homes built on alluvial fans, "because for the most part construction can be accomplished quickly and cheaply."⁴⁰ Alluvial fans are essentially ancient piles of sediment and usually have a uniform slope. For contractors, Cassidy said, "there is a minimum of excavations to be done, simply enough for the home foundations and the roadways. Alluvial fans, being on a grade of (roughly 4 percent) provide for great 'view homes' since the downhill home cannot generally hurt views from above it."

'An alluvial fan is a flood plain, but because it is dry and gravelly or rocky most people can't identify with it as such. Floods in the desert and on a hill at that?'

-John Cassidy

Homeowners rarely are told or understand that it took eons of flooding to build up enough sediment to create what an average person might call a hill. There are no laws requiring disclosure of flooding risks unless the parcel of land for sale lies inside an "inundation" zone as determined by the appropriate agency. In this case San Bernardino County has no inundation maps on file with the state and thus has no requirement to inform residents of flooding risks. "Everyone identifies with floods when they are alongside a river where you can always see water flowing and the flood plain is there," Cassidy said. "However, it is difficult to get people to realize the threat even if they are on the flood plain. An alluvial fan is a flood plain, but because it is dry and gravelly or rocky most people can't identify with it as such. Floods in the desert and on a hill at that?"⁴¹

⁴⁰ From the August 27, 2002 email from John Cassidy to the Center.

⁴¹ Cassidy's view was exemplified, albeit in reverse, by engineer Richard Massaro, during a 1995 meeting in Rancho Cucamonga over the design of a debris basin the city said a developer must build to protect a planned housing development. Told the basin needed to be larger than existing Corps' standards, Massaro considered that a plot to halt the development. "Huge areas of land are set aside which can become ugly scars on the landscape and large breeding grounds for disease-carrying insects such as mosquitos," Massaro wrote. "Worse yet, good developments in the hands of honest, hard-working citizens is being set aside to accomplish a function in a most inefficient manner."

Against the Flow

Michael Bohlander, a high-ranking sedimentation expert from Los Angeles County, suffered a career setback after taking a position contrary to the Corps on Deer Creek. Bohlander was an 18-year veteran with the county Department of Public Works and headed its sedimentation unit when Exponent's Doug Hamilton asked him to do a peer review of his work on Deer Creek.

Ironically, Bohlander was at the time a part of an elite team of L.A. county engineers who kick-started a massive upgrade program for more than half of the county's 115 debris basins. Southern California floods in 1969 and 1978 caused failure at several of the county-designed debris basins, leading to widespread flooding. Engineers learned that in steeper areas the debris spewed out during heavy rainfall periods was turning the basins into more of a speed bump than a catchment device. LA county engineers did a thorough analysis and decided to embark on a decades-long improvement project, all without impetus from elected officials. Costs—including condemnation of homes, additional excavation and raising of walls and fences—are expected to run into the tens of millions of dollars over a period of many years. The project will be financed through property tax revenues from local Los Angeles County residents.

Over the years, engineers from around the nation (as well as Taiwan, China, Japan and Spain) occasionally sought out Bohlander for advice on L.A. County's design of debris basins, and he wrote official responses under the official letterhead of the county Department of Public Works. He was known as an expert in the science of debris flow.

Then came Bohlander's May 1, 2000, letter concluding that, based on his review of Hamilton's figures, the debris basin at Deer Creek was undersized and created a public safety risk. This brought Los Angeles County into conflict with the San Bernardino County Flood Control District, which owns and maintains the flood control facilities on Deer Creek, and with the Army Corps of Engineers, who designed the project and transferred ownership to the county upon completion.

Days after the letter was sent, Bohlander said he was told he was to be disciplined, according to a recent interview. Asked to sign a letter of reprimand, he said he refused because the letter made simple misstatements of fact. His superiors didn't express any opinion on his technical opinions. Rather it was whom the opinions criticized—the Los Angeles District of the Army Corps.

“Mr. Bohlander's comments are in no way a reflection on how the Los Angeles County Department of Public Works views the design standards of the Corps of Engineers,” Deputy Director Gary Hartley concluded in the May 17, 2000, letter to the San Bernardino County Flood Control District.

Bohlander maintains that his critique was hardly a declaration of war but was treated as such. “If I had been chief of San Bernardino County flood control, I would have said ‘big

deal’ and forgotten about it,” Bohlander said. “L.A. County has a specific flood control standard and that’s how we measure things. If you want that standard, move there.”⁴²

Bohlander left the county’s employ in 2001. Deer Creek “was the catalyst for me to leave the County of Los Angeles,” he said. “It was the wake-up call for me to take a look at my life and the way my work was going in the department.”⁴³

The Corps Takes Offense

The commissioning of an independent study of Deer Creek, led by concerned homeowner Malissa Hathaway McKeith, endowed the controversy with credibility past what ordinary NIMBY (Not-In-My-Backyard) activists can do. The environmental consulting firm Exponent Inc. performed an independent analysis of the debris and floodwater capacity at Deer Creek. In March of 2000, a nonprofit group McKeith originally formed for Deer Creek-related issues bought a full-page ad in the *Washington Post* and the political insider periodical *Roll Call* that took the Army Corps to task for alleged deficiencies at Deer Creek.⁴⁴

⁴² From an August 19, 2002 telephone interview with Michael Bohlander.

⁴³ Ibid.

⁴⁴ Cucamongans United for Reasonable Expansion, a 501(c)(3) nonprofit, purchased the ad in the *Washington Post*. The group has since expanded its scope and been renamed Citizens United for Resources and the Environment, Inc.

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**GENERAL JOE BALLARD IS
BLOCKING A SAFETY STUDY ON
THIS DANGEROUS SITUATION –
WHY IS THE ARMY CORPS
ENDANGERING OUR
CHILDREN?**



Debris Flow Boulders at Banyan Elementary School

**ALL AMERICANS PAY WHEN
FLOODING OCCURS! Please join
with us in requesting Congressional
Hearings into the Army Corps' cover-
up of their mistakes on Deer Creek.**

Senator Feinstein & Senator Boxer have repeatedly requested the Army Corps of Engineers do a safety study of the Deer Creek Dam and Debris Basin Project in Rancho Cucamonga, California. General Joe Ballard has refused and the Corps has lobbied FEMA not to conduct the safety study. Six schools and thousands of homes could be destroyed by debris flow & flooding if Deer Creek Debris Basin fails.

**Californians United for Reasonable Expansion (CURE), Inc.
(213) 300 - 3550**

Exponent's study received attention in the local press. The Corps tried to refute Exponent but in the process conceded that Deer Creek debris basin cannot handle the amount of debris expected in the Corps' own estimates. In November 2000 the civilian leader of the Corps, Assistant Secretary of the Army for Civil Works Joseph Westphal, wrote a letter stating that Deer Creek debris basin does not "provide the level of protection originally

authorized by Congress” and offered that the Corps will do further studies if a “local interest” would agree to fund a portion of the cost, estimated at \$250,000.

Later that month, Senators Feinstein and Boxer asked the state, through Resources Secretary Mary Nichols, to investigate the situation and if it found outstanding safety issues, to consider acting as the “local interest” required for a National Academy of Science study. Nichols herself wrote a letter to the Corps in November 2000 advocating McKeith’s position. Unlike her June 2002 letter, in which Secretary Nichols demands no substantive directives, her November 2000 letter stressed the need to bring closure to public safety concerns.

Safety Set Aside

The Department of Water Resources formed a “technical review committee,” reflecting the expertise of the department’s scientists and engineers. The charter for the task force warned that participation in the committee was not a signal that a “flood protection deficiency currently exists” at Deer Creek.

Two months later, the state’s dam safety expert, Steve Verigin, told the engineers and interested parties that it was already clear “a consensus will not be reached among the present attendees.” The committee simply decided to report all of the findings from the various engineers.

One reason, according to Exponent engineer Doug Hamilton, was the feeling that “no matter what we say or do, the Corps just kind of dismisses ” the work of Hamilton and others outside the federal government as information driven by agendas. Further, the Corps’ Joseph Evelyn maintains that streamflow records from the USGS are the only non-Corps-originated data he would use without reservation. The flip side to this “Catch 22” is USGS’s Robert Meyer, who says none of the USGS stream gages on alluvial fans are trustworthy and it is derisory to think such things can be estimated. Doug Hamilton and the other engineers didn’t know whom to believe.

Schools That Could Not Be Stopped

The Center believes a significant reason for the state’s paralysis on safety concerns at Deer Creek was the \$48 million Los Osos high school project in northern Rancho Cucamonga and another recently constructed school, Banyan Elementary, located several miles below Deer Creek debris basin but within sight of its flood channel. Rather than acting from an overabundance of caution, officials gave primary importance to the desire not to delay any further the new schools, which are to alleviate overcrowding in neighboring campuses. They succeeded—more than 2,400 students entered classes at Los Osos for the first time this fall. Nearby Banyan Elementary opened last year. Also located

along Deer Creek is Chaffey College, which was spared during the 1969 floods because of the earthen levee—later cleaved in 1999 to make room for more home sites.

To this day, Los Osos lacks a document that every other state-funded school construction project must possess before it opens its doors. That document is an approval from the Governor’s Office of Emergency Services (OES) signifying that appropriate disaster and evacuation plans are in place and are feasible. OES has twice rejected as incomplete plans that were submitted by local flood control officials. One of them was a hand-drawn map. It should be noted that the San Bernardino County Flood Control District, the agency responsible for submitting inundation maps, also used to own the land upon which Los Osos was built.

It is important not to ignore the construction-friendly political climate in the Inland Empire. Western San Bernardino County is teeming with recent arrivals. It would be quite a change in philosophy for local officials to admit publicly their concerns about flood safety while at the same time approving new housing and schools.

Documents show that Los Osos passed environmental reviews without proper inundation maps because the California Department of Education (CDE) acted on what it says was the advice of Resources Secretary Nichols. Asked if it was normal for CDE to set aside environmental concerns based on a verbal promise, CDE facilities official Jim Bush said the agency assumed the Deer Creek task force would come to a conclusion within 60 days of the January 11, 2002 meeting in Feinstein’s office. After more than 100 days passed without such a conclusion, officials decided to approve the school project nonetheless. The Los Osos approval documents issued to the Chaffey Joint Union High School District make no mention of flooding or any other environmental concern at Los Osos.

Records from the California Debt Advisory Commission show that Chaffey Joint Union High School District did not particularly need the state’s money to build Los Osos. In April 2002 the district authorized the sale of bonds worth tens of millions of dollars. Voters had approved the bonds in years previous; it is common for districts to “save up” bond authorizations until circumstances call for an infusion of cash. Without detailed knowledge of the school district’s spending priorities, which has not been forthcoming, it is impossible to know if paying the entire cost of the Los Osos project has unduly strained the district’s budget or rearranged funding priorities. The district hopes to receive \$24 million from the state to cover half the cost of building Los Osos.⁴⁵

⁴⁵ For reasons beyond the control of local officials, state school construction money for the past year has been largely appropriated for the urgent needs of the second-largest district in the nation, the Los Angeles Unified School District. Los Osos was eligible but failed to qualify for \$24 million in state reimbursement. The district can receive reimbursement for Los Osos in upcoming funding rounds at the State Allocation Board.

The Chaffey Joint Union High School District has already had a controversy surrounding construction of Los Osos High School. District officials in mid-2000 were threatened with a lawsuit by the U.S. Fish and Wildlife Service, which alleged that endangered species habitat for the California gnatcatcher, up to 388 acres, was illegally destroyed during pre-construction preparation of the school site. In a settlement agreement, the district agreed to buy up habitat elsewhere for permanent conservation.

Less Than Brockovich

In real life, the activist Erin Brockovich overcame elitism in the legal arena to hold a water polluter accountable. In the movie version, actress Julia Roberts made it look easier than it really was. In Rancho Cucamonga, however, Malissa Hathaway McKeith and her family have as yet been unable to prevent the potential consequences of a flood on Deer Creek. McKeith's Alta Loma home is stuffed with dozens of boxes of documents on Deer Creek, the result of scores of records requests and independent research. McKeith and her mother joke darkly that the documents will prove most useful if people get killed by a flood on Deer Creek and their families want to sue someone.

McKeith is like a broken record on Deer Creek. While she has managed to sustain her quest for a Deer Creek safety study over the last five years by paying for expensive water experts, lawyers and lobbyists to pressure higher-up state and federal officials, at home she is often dismissed as another gadfly raving about the sky falling.

In 1997 the McKeiths petitioned the Corps and FEMA to get involved after it became clear that local officials were going to allow a developer to bulldoze a portion of the earthen levee that had provided flood protection to the city for decades. The federal agencies refused, thus allowing local officials to keep McKeith at bay by casting her as a “not-in-my-backyard” litigation hound who didn't want any more development above her house.

Though the levee was ultimately graded in 2001, the McKeiths continued to fight. And though FEMA failed to challenge the Corps as McKeith wanted, the participation of Senators Boxer and Feinstein proved to be crucial in getting the state—through Secretary Mary Nichols of the Resources Agency—to agree to coordinate a task force on Deer Creek.

The task force, its members and its goals began to take shape during a multi-agency meeting held in Senator Feinstein's San Francisco offices on January 11, 2001. One of the attendees was a brigadier general, Peter Madsen, from the Corps. According to several people present that day, Gen. Madsen appeared furious at the meeting and demanded that McKeith apologize for the *Washington Post* ad slamming the Corps. “Nothing's gonna happen until she does that,” Madsen reportedly growled. McKeith, participating via teleconference from Washington D.C., remained silent. Her consultant

from Exponent, Doug Hamilton, broke the silence in the room by assuring the assembled officials and engineers that the group could keep its focus on technical issues.

The Corps ire was such that aides from the two senators asked McKeith to apologize to help move the process along. One of them even drafted an apology for her, “The (Washington Post and Roll Call) ads succeeded in profoundly pissing off everyone who matters at the Corps, and I think probably poisoned an already tainted well,” wrote a senior advisor to Boxer, John Hess. “This is not an ‘I-told-you-so’ message, but I think feelings are that strong over at the Corps. Given the intensity of Madsen’s comments to me, Malissa, I can imagine the impression he must have made on (California Resources Secretary) Mary Nichols.”⁴⁶

The aides persisted until McKeith’s lawyers at the time, Latham & Watkins, outlined four years of wrongdoings. There was no more talk of an apology after that, and none was proffered. Says McKeith, “the lesson I learned was to spend your money on publicists and politicians. The ad was the most effective money I spent.”

⁴⁶ From an email from John Hess to Malissa Hathaway McKeith dated 29 November 2000.

RECOMMENDATIONS

The story of Deer Creek is more than the account of a single project. It reveals how crucial decisions about the course of development in risky areas of California are made in virtual secrecy by public officials, elected and appointed and by developers helped by government actions. This is a failure of process, a revelation of the absence of protection for homebuyers and for students in schools in potentially dangerous areas.

Without an open process there is no accountability. As a result, Southern California experiences endless cycles of disaster, followed by politicians and journalists scrambling to find out what went wrong. The purpose of this report is to reveal a stilted, secretive process that led to this potential danger and to propose ways where these important decisions can be opened to public view and debate in the future—before tragedy strikes again.

The issue extends far beyond Deer Creek. As Mary Nichols, the state's resources secretary, told the Center, the problems of Deer Creek apply to all areas of the state where development is occurring on alluvial fans. These areas are found not only at the foot of the San Gabriel Mountains, but in San Diego County, and the Sierra foothills. As part of a larger water bill passed last year in Sacramento, the state established a Floodplain Management Task Force that is to report back to the Governor by the end of 2002. According to its Web site, "The focus of the Task Force is to examine specific issues related to State and local floodplain management, including actions that could substantially reduce potential flood damages and to make recommendations for more effective statewide floodplain management policies."

The task force has met four times this year but only once in Southern California. Its lone representative from Southern California, Susan Lien, is the appointee of the Southern California Association of Governments. She has offered the Center what she feels are appropriate recommendations for alluvial floodplain management. Lien's brief comments are listed in full below:

"As a San Bernardino City Councilwoman who is serving on the current Floodplain Management Task Force, I cannot forget the devastation of alluvial flooding that destroyed homes in my city during the 1980 Harrison Canyon debris flood. It is incumbent upon this task force to recommend policies and procedures that will guide local land-use decisions on alluvial fans. I believe that the report to the Governor should:

- Recommend criteria and mapping standards on alluvial fans that cities, counties and regulatory agencies should use to identify the most reasonable maximum flow that urban areas will face,
- Recommend that general plans and local land-use decisions consider more frequent flood events, not just 100-year floodplain maps, and the cumulative impact of individual debris basins in alluvial fan corridors,

- Recommend that the Governor’s Office on Planning and Research incorporate these methods for evaluating safety issues on alluvial fans in the next update on general plan guidelines,
- Recommend that oversight by a specific state agency should be identified to assist local government and developers with evaluating risk,
- Recommend legislation that will require property owners on alluvial fans to be informed of safety issues, and
- Recommend that (California Environmental Quality Act) guidelines be updated with language specific to alluvial fans.”

The failure, the Center’s study has found, is with a process that encourages important decisions to be made without debate of experts and public scrutiny. In such a closed process, the actions of individual officials take on undue importance. The Center is critical of some justifications made by Joseph Evelyn of the U.S. Army Corps of Engineers. But if it weren’t Evelyn, it would have been another engineer. He happened to have the job at the time.

What is needed is a reform of the process to set higher safety standards; to provide a mechanism for regional decision making on what is clearly a regional issue and to make safety concerns available to all. A Rancho Cucamonga parent should not have to fly to Sacramento, as the Center did, to uncover the controversy over the safety of Los Osos High School.

The goal is not to stop development, but to make it sustainable, to assure California’s inevitable growth will take place in communities that can grow without huge public expenditures for fire and flood protection that, in the end, fail to protect from the huge natural disasters endemic to California.

Earthquakes, for example, are part of the lives of Californians living in seismic high-risk areas. Danger is always there. But legislation, public discussion, countless news stories (including a recent report⁴⁷ of an unpublished list of California schools especially vulnerable to earthquakes), massive campaigns urging safety measures and the memories of past disasters have created a climate where risk is partially reduced—and everyone is aware of the danger and steps that can be taken to mitigate it.

This process should be applied to development that is taking place in areas that were once considered too remote for residential communities or were too difficult or uneconomical for the construction techniques available a few decades ago.

The Center recognizes the difficulty of enacting such legislation. Sacramento, as the historian Carey McWilliams wrote, is “one of the great commodity markets in America

⁴⁷ Finnie, Chuck. “Quake study of schools shelved; Davis holds up report on vulnerable sites.” *San Francisco Chronicle*, 13 November 2002.

where an astonishing variety of interests bid for favor and preference.’⁴⁸ The construction of homes, businesses, warehouses, factories, roads and schools are among the most important of these commodities. The power of lobbyists and campaign contributors associated with them is great, whether they be developers, union leaders, local merchants and political leaders or local school board members determined to build a high school. But the effort will, for the first time, force a debate on building sustainable communities on risky ground. And, it will take place in the appropriate arena—the state capitol, requiring action from both the executive and legislative branches.

Recommendation #1: Form Alluvial Districts.

From streetlights to mosquito abatement, it is common practice in government to form special assessment districts so that the residents who enjoy the benefit of the service are also the ones paying for it. The Center sees a need, in areas that abut flood-prone mountain canyons, for a publicly funded entity with a clear role of advising local governments on flood risks. When the Center speaks to residents who live near Deer Creek, they invariably want to know if their homes are in danger. It is a hard question to answer because the available scientific data concentrates on the Deer Creek flood control project itself and not where floodwaters might go in the event of a failure. More so than ideological divisions over taxes or the size and scope of government, members of the public are most concerned with their individual safety. They may not want to know every scientific detail, but they definitely want to know the risks they face personally, and then make a decision based on reliable information.

The prevailing view among the uninitiated is that flood control provides protection from floods, not “a level of protection” that could be exceeded at some point in the future. What the Center seeks is independently verified information about alluvial fans and flood risks that members of the public can access easily. That’s easier said than done. The busy world may not want to pay to hear about another threat to their homes, but they certainly will want answers in the case of a damaging flood.

Alluvial fans are a permanent feature of the landscape. The Center proposes creation of “Alluvial Districts” as a way for local communities to identify specific flood risks relating to individual alluvial fans and provide informed counsel to cities and counties as they make land-use decisions in alluvial areas. The state and federal governments should contribute toward start-up costs for the districts but local communities—through annual assessments on the owners of property located on the alluvial fan—should support the continued operational needs of the district.

The first problem is the stickiest: who is on the alluvial fan and who is not? Drawing maps of alluvial fans is the first step toward the full disclosure of flooding risk. Since the precise boundary of the fan may seem capricious to individual homeowners right on the boundary, the Center postulates that all property owners living within 1000 feet of an

⁴⁸ McWilliams, Carey. *California: The Great Exception*. 1950. Berkeley: University of California Press, 1995. P. 208

alluvial fan be informed that their property lies near an area of historic flooding. Those living on the fan (ie., in an area where it can be proved that historic flooding has occurred) should pay an annual assessment to the Alluvial District.

Mapping such an area might prove the most contentious step and thus requires intervention from a federal agency with proven experience in mapping: the Federal Emergency Management Agency. FEMA already maps floodplains but sometimes defers to other agencies as to the general dimensions. When creating alluvial fan maps, FEMA should set aside the question of flood control and concentrate on mapping the historic regime of flooding on a particular fan. As a primary benefit, the maps would simply inform interested parties of where past floods have gone, regardless of flood control projects. FEMA should begin with fans near populated areas or other areas undergoing requests for development. Near populated areas, local governments should fund a portion of the risk assessment with help from the state and federal governments. In unpopulated areas the developer should pay all or most of the cost.

The assessments for an Alluvial District could be weighted depending on the distance from the mouth of the alluvial fan or the body of water. Though the precise formula is unclear, the danger increases the closer one gets to the mountains and the assessment should reflect that.

It is necessary to separate the authority over land use from the authority that assesses flood risks. Local governments that depend on growth for fiscal solvency are more likely to gamble that floods will not come into play—it may seem like a faraway risk compared to the upfront demands of budget finance. The development community often is complicit, framing land use decisions as a duel between the “common folks” developers claim to serve and the rights-by-proxy of small animals or native plants (usually litigated by powerful homeowners or environmental groups.)

An Alluvial District, led by an elected or appointed board of directors, would be responsible for determining risk and disseminating flood safety information. The district could issue nonbinding resolutions on land use questions within their boundaries. Most importantly the districts would act as a permanent public forum devoted to the unique challenges of alluvial fans.

Recommendation #2: Expand the “Sphere of Influence” Concept to Include Flood Risks.

Local governments should take an interest in and a responsibility for land uses that may affect other jurisdictions. The “sphere of influence” concept has appeared mostly in courtrooms during land use controversies such as when a local government feels its quality of life is unduly threatened by a proposed major development just outside its borders. The northern Los Angeles County city of Santa Clarita, for example, fears additional traffic and other effects from the thousands of homes proposed on Newhall Ranch land just over the border in Ventura County. One might assume that Rancho

Cucamonga wants its voice heard on Deer Creek-related issues, since the stream flows directly through the city. But the stream itself flows on a sliver of county-owned land once owned by the Army Corps of Engineers. The Corps project on Deer Creek arguably cemented Rancho Cucamonga's future; the city was incorporated at roughly the same time, 1981, during which the Corps was drawing up bids for the final stages of construction work.

Rancho Cucamonga has disengaged itself from the project that ensured its survival. The city didn't bother submitting its own findings on flood safety during the task force led by the state Department of Water Resources. And yet Rancho Cucamongans will be among the first to suffer if the flood control on Deer Creek fails.

The government entities at the lowest levels in California prize their control over local land use and public safety. At least two entities—the City of Rancho Cucamonga and the County of San Bernardino—are relying on an embattled federal agency, the U.S. Army Corps of Engineers, for reliable facts on flood safety. The officials who have been most active in lobbying on behalf of public safety are Senators Barbara Boxer and Dianne Feinstein, not local city council members, county supervisors or local members of Congress. The city and county prefer not to hear the alarms sounded by local residents, who have had to pay consultants to conduct research since their city and county will not. The Army Corps of Engineers has no preeminence over flooding issues in Southern California. The Los Angeles County Department of Public Works, for example, oversees 115 debris basins and houses one of the most extensive repositories of flooding information in the nation.

Local government must account for all foreseeable risks that threaten its borders, not just quality-of-life issues that may or may not accompany the next super store. The Center recommends passage of a state law requiring cities and counties to conduct formal notification and comment periods when a proposed land use has the potential to affect flood safety in other jurisdictions (other cities, school buildings, etc.). Each affected jurisdiction should be notified in writing of the proposed land use and allowed a period of 60 days in which to submit comments. The Southern California Association of Governments should also receive formal notification and the opportunity to comment from a regional perspective.

Recommendation #3: Convene the National Academies of Science to bring closure to the Deer Creek controversy.

The local cost involved with bringing the NAS to Deer Creek is estimated at a quarter million dollars (the Corps would make up the difference in the total cost, pegged at roughly \$1 million). The State of California already spent at least that much in its 16-month task force. The Army Corps of Engineer has a standing offer to pay most of the cost of bringing the NAS to Deer Creek, but only if the state, Rancho Cucamonga or San Bernardino County agree to be a "local interest." The Center urges these three entities to sponsor a NAS study on debris flows in Southern California, despite the potential "bad

news” that may follow. As the region strains to grow, there is more and more pressure to develop lands on alluvial fans. Scattershot decisions on important issues such as these may lead to even more devastating losses if the detractors on Deer Creek are even close to accurate.

Recommendation #4: Increase the disclosure standard for school construction

Center staff flew to Sacramento several times to unearth details on the Los Osos High School project. The state Office of Public School Construction (OPSC) was unable to provide any details on the Deer Creek flooding controversy. The OPSC, which releases to local school districts state funds that are administered to individual school projects by the State Allocation Board, was unaware of any controversy. Documents from the agency showed only that Los Osos was eligible for state funds. It took another Public Records Act request and a Sacramento visit to another agency, the Department of Education, to gain a clearer sense of how the Los Osos project surmounted the obstacles against it. Parents seeking similar information about school construction projects should not have to retrace the Center’s steps. Vital information on prospective school sites needs to be as close to the public as a public library or a Web site. The Center suggests passage of a state law requiring individual school construction projects to have an on-site repository of documents that can be made available to administrators, teachers, other school employees and finally, to parent-teacher associations. The information needs to reach the grassroots levels, not simply executives.

Recommendation #5: When designing debris basins or other alluvial fan flood control projects, create and use a collaborative “local design group” consisting of members from different governmental and non-governmental entities to help ensure that a project has a measure of local buy-in and technical accountability.

Under current practices local politicians ask the Army Corps of Engineers to survey for and build flood control projects in their communities. Local governments take over ownership and maintenance of the structures when they are built. There is no single constant authority on Deer Creek and thus nobody is really in charge.

Currently the U.S. Army Corps of Engineers designs projects in seclusion from independent scrutiny or public oversight. Local engineers—those employed by cities, counties, or private citizens—possess institutional knowledge and expertise that the Corps can only hope to replicate on their own. Welcoming non-technical viewpoints, especially from environmental organizations, business groups and others, would foster an atmosphere of collaboration rather than continued litigation.

THE FOOTHILLS PROJECT

This is the first in a series of studies into widespread residential development in the San Gabriel Mountain foothills, from Glendale eastward to Rancho Cucamonga in San Bernardino County.

These studies, collectively called the Foothills Project, will examine:

- Safety, disclosure of risks and environmental impacts in areas where residences, schools and commercial developments adjoin the mountain range;
- Cost to taxpayers for financing the extensive fire and flood control facilities in the foothills of one of the world's steepest mountain ranges, an urban wildland interface subject to periodic fire and floods; and
- Governance in 16 cities and in Los Angeles and San Bernardino counties. We will examine how campaign contributors, local political alliances and the need for new housing and commercial development, influence these decisions.

ORGANIZATION OF THE REPORT

We intend to release our report in stages, and then combine the sections into one complete volume. The report will cover:

1. Floodplain development. The Army Corps of Engineers and other public agencies have allowed construction of schools, homes and businesses in a floodplain surrounding a flood control project that consulting engineers representing homeowners and other public agencies warn is dangerously undersized. This section illustrates the safety and governance aspects of the Foothills Project.
2. Tracking local costs of fighting fires in Southern California. Local health services face budget cuts while countywide taxpayers (and California property insurance ratepayers) pay the skyrocketing costs of protecting homes in the San Gabriel foothills and similar areas. This, in effect, is a subsidy for those who choose to live in the foothills. Meantime, resource managers are hamstrung by regulation and costs and see disaster ahead as development further encroaches upon wild lands.
3. Glendora, “Variance City.” A study of this small city shows how local politics and campaign contributions—demonstrated by a large number of variances given to San Gabriel Mountain foothill developments—results in weak zoning laws and decisions that influence areas far beyond the city boundaries.
4. How a state insurance program designed to help property owners hurt by urban unrest has been turned into a program permitting insurance of homes and businesses in expensive but dangerous hillside developments.

5. Governance. An examination of how the many levels of government, financial pressures that began with Proposition 13 and agency rivalries contribute to isolationist planning and dangerous conditions along the foothills.

THE CENTER FOR GOVERNMENTAL STUDIES

The Center for Governmental Studies (CGS), a nonprofit, nonpartisan Los Angeles-based organization, was established in 1983. The Center is best known for its studies on campaign finance and its efforts in writing new laws on the subject, including Los Angeles' public financing and ethics ordinances and creation of the city ethics commission. The Center has also done studies and conceived of legislation in other public policy areas. CGS was responsible for three statewide blue ribbon commissions, the California Commission on Campaign Financing, the California Citizens Budget Commission and the California Citizens Commission on Higher Education. The Center was a major force in creation of the California Channel, the statewide public affairs television network, and it operates Connect LA, an online resource center providing low income communities with information about employment, health, child care, housing and government services.

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Alluvial Amnesia:
How Officials Imperil Communities by Downplaying Flood Risks
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