

The Shocking Crash That Led One County to Reckon With the Dangers of E-Bikes

Unregulated e-bikes are a growing danger on American streets. In one Bay Area town, a terrible accident finally led to reform.

By David Darlington

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In September 2023, Amelia Stafford was 15 and beginning her sophomore year at Terra Linda High School in eastern Marin County, Calif. An honor student who loved reading, played the trumpet, did well at science and aspired to work for NASA, Amelia often rode her bike to school. Both of her parents — Monica, who works for the Golden Gate National Parks Conservancy, and Scot, an Emmy-winning composer and a founder of the Pollen Music Group — have histories as cyclists: He grew up riding to school in San Francisco, and she commuted to her job on her bicycle across the Golden Gate Bridge. “It was very important to me that my kids grow up learning how to ride bikes,” Scot says.

“I wanted them to get exercise,” Monica adds, so Amelia’s bike didn’t have a motor. In the wake of the pandemic, electric bicycles were proliferating. Many of Amelia’s classmates had gotten e-bikes — or faster machines now known as e-motos — for birthdays and holidays. On a warm Saturday night after a football game, a group of kids was playing around with one.

Coral Billisi, Amelia's best friend, recalls that Amelia got on the bike behind someone and rode up and down the street. She says it was such a short ride that wearing a helmet didn't occur to anyone. When the bike toppled over, "our immediate reaction was that we all started laughing — we just thought it was so funny," she says. "Like, Ha ha, they're so stupid, they can't even ride bikes."

Then they saw the blood on the pavement around Amelia's head.

Coral, who had taken a CPR course, called 911 and told the others not to touch Amelia. Then she ran to the Staffords' house and banged on the door.

Monica had gone to bed early. She ran barefoot from the house. When she reached her daughter, Amelia's eyes were open, but they had rolled back and blood was coming out of her ears. E.M.T.s arrived soon after and transported her to MarinHealth Medical Center, where a CT scan showed bleeding between the skull and the brain.

When doctors removed the right side of Amelia's skull, they found that the damage to blood vessels surrounding her brain was worse than normal for such injuries, and that the resulting blood clot was leading to compression on the brainstem. With considerable difficulty, Blake Taylor, the neurosurgeon who operated on her, stopped the bleeding. The surgery lasted almost until dawn, when Amelia was loaded into a helicopter for transfer to a hospital in Oakland.



Amelia Stafford at home in Marin County, Calif., She lost her sophomore year at Terra Linda High School to a 2023 crash on an e-moto. Balazs Gardi for The New York Times

As he watched the helicopter take off, John Maa, the chief trauma surgeon on call that night at MarinHealth, was distraught. He had been fearing a case like Amelia's for years. As the only trauma facility in Marin County — which sits on the opposite side of the Golden Gate Bridge from San Francisco and features some of the

region's most inviting open space, as well as an affluent and fitness-conscious population — MarinHealth has always seen a lot of injured bicyclists. But historically most of the injuries were minor: broken clavicles, wrists, ribs.

That changed in the summer of 2020, when Maa began noticing an increase in bicycle-related deaths. The first was a 72-year-old man who lost control of his bike on a downhill grade and crashed into a guardrail; he broke his ribs in 20 places, punctured a lung, fractured a leg, broke a wrist, suffered a concussion and, after several months of going back and forth between the hospital and rehab, died of a stroke. More fatalities followed, including a 62-year-old pedestrian who was struck by a bicycle on a multiuse path. “When I heard that, I thought: That’s really strange,” Maa says. “I can’t remember a case of a pedestrian killed by a pedal bicycle.”

But the pedestrian hadn’t been killed by a “pedal” bicycle. Like the case of the 72-year-old, an e-bike was involved — a device that Maa says he had never heard of till then. “But as we moved from the summer of 2020 into 2021 and 2022, and we kept hearing it reported through the hospital and the media — another e-bike accident, another fatality — at some point I was like, Wait a minute, there’s something seriously wrong here.”

At the time, the county public health department didn’t distinguish e-bike crashes from those involving conventional bicycles. But MarinHealth maintains a database of trauma cases, so Maa — a soft-spoken 57-year-old surgeon who in his off hours has also waged battles against the tobacco and soda industries — began talking with the medical director of trauma services, Edward Alfrey, who, it turned out, was compiling numbers on injuries associated with e-bikes.

As the pandemic continued, the number of e-bike accidents increased. “You would expect that,” Alfrey says, “because sales were skyrocketing.” Indeed, in 2022, over a million e-bikes were sold in the United States, up from 287,000 in 2019, according to the Light Electric Vehicle Association. But what really struck Alfrey and Maa was that e-bike injuries were far more serious than those sustained on conventional bikes. Maa says they were more like what’s seen in motorcycle

crashes. A pelvic fracture, for example, was uncommon on a pedal bicycle — only about 6 percent of conventional cycling injuries. For e-bike crashes, though, it was 25 percent.

The most alarming difference was the fatality rate. “On a pedal bike, the chance of dying from an injury is about three-tenths of 1 percent,” Alfrey says. On an e-bike, the data indicated, it was 11 percent.

These findings signaled what was unfolding around the country. During the same four-year period when nationwide sales quadrupled, e-bike injuries increased by a factor of 10, to 23,493 from 2,215, according to the National Electronic Injury Surveillance System. A study by the University of California, San Francisco, found that from 2017 to 2022, *head* injuries from e-bike accidents increased 49-fold.

As in Marin, casualties in other parts of the country included e-bike riders themselves and people they ran into. In 2023 in New York City, two pedestrians were killed by e-bikes, and 23 of 30 cycling fatalities were e-bike riders. In South Florida, a 66-year-old woman was killed by a 12-year-old boy on an e-bike, and a 54-year-old man riding a conventional bike died after being hit from behind by a 14-year-old on an e-moto. In Minnesota, a woman permanently lost her sense of taste and smell after being hit on a sidewalk by an e-bike. In San Diego County, the towns of Carlsbad and Encinitas announced public emergencies after a woman and a teenage boy were killed on e-bikes, and in Los Angeles, a 12-year-old girl died after crashing on the back of an e-bike.

By the time the helicopter carrying Amelia Stafford was banking away to the east, Maa was out of patience. “All of the serious injuries prior to that were in older patients,” he says. “This was a young person.”

After the aircraft was out of sight, he called Mary Sackett, a member of the Marin County Board of Supervisors. “The day that we were dreading has come,” he told Sackett. “One of your young constituents is very seriously injured, and her outcome is unknown. This has changed everything. You have to do something.’”



Unsettled by the severity of injuries from e-bike accidents, John Maa, a trauma surgeon at MarinHealth Medical Center, had already been talking to officials about the problem when he treated Stafford's injuries. Balazs Gardi for The New York Times

The argument for e-bikes is a compelling one: Because they're so easy and fun to ride, they inspire more people to bike instead of drive, with far-reaching environmental, economic and health-related benefits. A 2020 study of Portland, Ore., indicated that if one out of every seven automobile trips was instead made by

e-bike — according to the Department of Energy, half of all vehicle trips go less than three miles from home, a distance easily traversed by bikes — carbon emissions could drop by 12 percent. Bloomberg New Energy Finance calculates that e-bikes are already cutting worldwide demand for oil by a million barrels per day, or four times as much as all the world's electric cars. And because e-bikes cost only a fraction as much as automobiles, while also significantly reducing the costs associated with parking, fuel and maintenance, they are now seen by many as the key element of the micromobility movement, defined by low-speed, human- and electric-powered transportation.

But to achieve this kind of broad societal benefit, e-bikes are likely to need greater regulatory oversight. The government's effectively hands-off approach dates to the turn of the 21st century, when Lee Iacocca, the former Ford and Chrysler executive, founded E.V. Global Motors, whose flagship product, the E-Bike, may have coined the term. That product didn't succeed, but in 2002 it helped bring about H.R. 727, which provided for the regulation of "low-speed electric bicycles" under the Consumer Product Safety Act. It also set the maximum speed for such bikes at under 20 miles per hour — a rate that, while fast by conventional bicycling standards, crucially placed it under the purview of the Consumer Product Safety Commission rather than the National Highway Traffic Safety Administration, which would have subjected it to the same laws as motor vehicles. As a result, e-bike regulations are similar to those for conventional bicycles, meaning, among many other things, that operating one doesn't require a driver's license.

As e-bikes have become more sophisticated — lightweight lithium-ion batteries have replaced heavy, lead-acid ones, and computerized motors now provide variable levels of assistance — numerous efforts have been made to classify them. Forty-six states have adopted some version of a three-tiered system of e-bike categories that was established a decade ago by PeopleForBikes, a trade and advocacy organization based in Boulder, Colo. In Class 1, the bike's motor assists the rider up to a speed of 20 m.p.h., but only when a rider is pedaling. Class 2 has the same top speed but also has a hand-operated throttle, similar to a motorcycle's, that can be used in lieu of pedaling. Class 3 is like Class 1, but its maximum assisted

speed is 28 m.p.h. (The federal limit of 20 m.p.h. applies to the speed generated solely by a motor; speeds can exceed that in combination with human pedaling.) As a rule, Class 1 bikes are permitted wherever a conventional bicycle can go (including bike lanes and trails), while Classes 2 and 3 are restricted to streets and roads (in theory if not in practice).

“Class 1 is very similar to the definition of an electric bike in Europe,” says Matt Moore, the policy counsel at PeopleForBikes. “The other two types are generally not allowed there — they’re treated as mopeds,” which require a license, registration and insurance. E-bike motors in the European Union are usually limited to a maximum speed of 15.5 m.p.h. — a pace seldom exceeded by casual conventional cyclists.

E-bikes have now become so popular that old-fashioned, human-powered ones are tagged as “analog” or “acoustic” bikes. The extra boost of energy they provide feels like magic — a perpetual tailwind, a helpful nudge at your back. Without any training or education, however, people accustomed to analog bicycles can be unprepared for the power, acceleration and speed of e-bikes — not to mention their weight, which typically exceeds 50 pounds, or roughly twice that of conventional bikes. Hence the similarity to motorcycle injuries, thanks to increased momentum and the greater harm from impacts when they get out of control.



E-bike riders in Greenbrae, Calif. Under a 2002 federal law, the machines are regulated like regular bicycles, rather than as motor vehicles. Local laws around their use vary widely. Balazs Gardi for The New York Times

Since e-bikes were legally defined as distinct from motor vehicles in 2002, apparently only one additional federal law — allowing their use on federally funded trails that don't permit motor vehicles — has regulated them further. Individual cities and counties, however, have enacted a crazy quilt of local rules. Some states are now considering mandatory licensing, registration and insurance for e-bikes. When Nashville commissioned a public survey in 2022 on the issue of allowing e-bikes on the city's greenways, there were 2,700 responses. Class 1 pedal-assist e-bikes got 54 percent approval; Class 2 hand-throttle bikes got 40 percent. Universities including Yale, Fordham and some California state schools have

banned e-bikes from their campuses. Following the death of the 66-year-old woman in Florida, the village of Key Biscayne outlawed e-bikes altogether. After a deadly collision between an e-bike and a pedestrian, a Boston city councilman proposed legislation banning mopeds and e-bikes for food delivery.

Such a law would constitute the nuclear option in New York City, where food delivery represents ground zero in the e-bike explosion. During the pandemic, when services like DoorDash and Grubhub mushroomed in popularity, delivery workers embraced e-bikes to keep up with demand. At the same time, Citi Bike, New York's bike-share program, expanded the electric options in its rental fleet. The resulting swarm of fast machines — frequently driven in lawbreaking ways — gave rise to a grass-roots nonprofit group called the NYC E-Vehicle Safety Alliance. With more than 1,000 members (including 100 self-identified victims), its demands include the licensing of e-bikes — the goal of a proposed “Priscilla’s Law,” named for a 69-year-old educator who was killed by a rented e-bike that ran a red light — the confiscation of e-bikes that violate traffic laws and their prohibition from public parks.

Mayor Eric Adams has responded by imposing an e-bike speed limit of 15 m.p.h., but because so many delivery workers are immigrants, the issue has taken on sociopolitical overtones. Not wanting to criminalize or deprive the underprivileged of “good employment opportunities,” Ben Furnas, the executive director of the nonprofit bicycle-advocacy group Transportation Alternatives, recommends prohibiting the sale of Class 3 e-bikes. He adds that he would also like to see “much more regulation of the delivery-app ecosystem, so that it doesn’t pressure workers into breaking the rules to hit their targets” — a position shared by Zohran Mamdani, the mayor-elect.

In Marin, in response to the casualties there, the Marin Healthcare District board of directors passed a resolution in December 2022: “Requesting State and Local Governments to Study Further Measures to Safely Regulate Electric Bikes.” When that generated no response, Maa, who is not on the board, reached out to public officials, who surprised him, he says, by reporting that the county coroner had no

record of any e-bike deaths at all. This turned out to be a labeling issue: Maa might have known that a patient had died from e-bike injuries, but by the time that was recorded by the coroner, cause of death could be “accident.”

Marin officials needed hard numbers to effect a change in public policy. In part because of this difficulty with the data, the county seemed to be making little progress. But then, Maa says, Amelia Stafford crashed, and everything changed: “It was like a light switch.”



A replica of Stafford's skull, and the implant required after her surgeries, on her family's piano. Balazs Gardi for The New York Times

Following her surgery in September 2023, Amelia was placed in a medically induced coma. After a week, she was taken off the drugs, at which point her parents, Scot and Monica, expected her state to be “somewhere between stupor

and vegetative.” On the day her breathing tube was removed, they say they were told that, if she was going to be able to speak again, it might happen by that evening. They went out for a walk, leaving Scot’s brother by Amelia’s bedside.

“All of a sudden,” Scot remembers, “we got a text saying: ‘She’s talking. *A lot.*’”

Over the next several days, Amelia slowly regained some mobility. A bacterial infection in her brain resulted in two more high-risk surgeries, but by November, she was allowed to return home — wearing a helmet when not in bed — and in late February, her skull was restored with a replica of its missing fragment. Gradually her speech, vision, hearing and memory returned to near normal, along with her ability to read and write. Monica describes this outcome as “more amazing than we can express.”

Talking about her crash today, Amelia calls the term e-bike “a play on words.” If the machines were called motorbikes, she believes, they would be far less popular. “But the fact that it’s called an e-bike” — evoking such everyday stuff as email, e-books or (less salubriously) e-cigarettes — “makes it accessible.”

Her friend Coral concurs. “People don’t think about them as mini-motorcycles, which is really what they are,” she says. “People think of them as ‘bikes plus’ — just, like, a little extra. It’s really geared toward younger people who don’t have an understanding of the impacts.”

Bikes have always offered independence to kids — and liberated parents from ferrying them around — but the fun factor offered by e-bikes mixes dangerously with young people’s proclivity for play, made worse because they are often not old enough to drive and don’t know the rules of the road. The Marin chapter of Safe Routes to School, a national organization that encourages kids to walk and bicycle, has been teaching e-bike safety since 2022 (and Marin has also introduced an online E-Bikers Club to educate kids about rules and etiquette). But Matt Willis, a former public health director for Marin County, says he heard complaints that kids were “ignoring stop signs, weaving in and out of traffic, riding double and doing

wheelies down the middle of Sir Francis Drake Boulevard,” which is Marin’s main thoroughfare. There were, he adds, “reports of pedestrians being knocked over by e-bike ‘gangs.’”



“People don’t think about them as mini-motorcycles, which is really what they are,” says Coral Billisi, Stafford’s best friend. Balazs Gardi for The New York Times

Even some of the county's biggest e-bike boosters began to understand that something was out of order. One such person was Bob Mittelstaedt, a retired trial lawyer who bicycles several days a week on Marin's Mount Tamalpais, the reputed birthplace of mountain biking. Until a few years ago, he pedaled an analog bike, but as he approached his 70s, he felt increasingly "limited" — riding shorter and shorter distances over the same routes every day. Then a friend started regaling him with stories about how far he could ride on his e-bike. "So I took his for a test ride and never looked back," he says.

Mittelstaedt, now a lean and energetic 77, and some fellow senior cyclists formed a nonprofit organization called E-Bike Access to advocate electric mountain bikes on Mount Tam. Mittelstaedt says that many of the arguments against e-mountain bikes are the same ones originally used against conventional bicycles: that they cause erosion and scare wildlife and hikers. "But then they'll usually say: 'E-bikes are even worse. And even if you just allow the legitimate Class 1 ones, the next wave is going to be kids on their throttle devices.'"

By "throttle devices," he is referring to Class 2 machines, which have captured an estimated two-thirds of the e-bike market. According to PeopleForBikes, the rationale in 2015 for creating a class for bikes with throttles — which can eliminate even the modest exercise benefits of pedal assistance — was that many e-bikes already had them, and the trade organization didn't want to exclude those products and companies.

But to Mittelstaedt and others, it's inappropriate to consider these vehicles to be "bikes" at all. "The essence of bicycling is pedaling," Mittelstaedt says. "A machine propelled by a motorcycle throttle just shouldn't be considered a bicycle. It can go from zero to 20 faster than a regular bike without any exertion at all."

As a volunteer for Safe Routes to School, Mittelstaedt inventoried the classes and brands of bicycles and e-bikes at 12 local campuses in Marin County. He found that while a majority were conventional bikes, among electric devices those with throttles were by far the most popular — and that most of them had motors capable of going faster than 20 m.p.h.



“We all want to get kids out of cars and onto bikes,” says Bob Mittelstaedt, who works to encourage bicycle use by students in Marin. “The manufacturers took advantage of that.” Balazs Gardi for The New York Times

To conform with federal law, Class 2 e-bikes have “speed controllers” that keep users under the limit. But these can be circumvented by magnets, dongles, third-party apps, “tuning kits,” wire clippers or even software provided by the manufacturer — unlocking modifications popularly called “jailbreaking.” “You do it by pushing a button or two or entering a code on the display,” Mittelstaedt says. “It’s as easy as changing a setting on your iPhone.”

By most accounts, the company that led this movement was Super73, an Orange County-based “American lifestyle adventure brand” founded in 2016. With retro styling, a bench seat and formidable 4-inch-wide tires, its product looked like a mini-motorcycle, and it attracted endorsements from the likes of Will Smith, Paris Hilton and Madonna. “Others, like Sur-Ron,” a Chinese manufacturer, “were straight-up dirt bikes that don’t fit the regulations at all,” says Brett Thurber, an owner of a three-store Bay Area e-bike business called the New Wheel. “But kids were asking their parents to buy them because they look cool and go really fast.”

Some manufacturers — but not governments — have taken it upon themselves to call such machines “Class 4” e-bikes. Others refer to them as “out-of-class electric vehicles”; bicycle-advocacy groups, which want to avoid being associated with these machines, prefer “e-motos.” In any case, they aren’t bicycles, nor are they street legal without registration and a license, yet they still show up regularly on roads and bike paths. One online influencer called Sur Ronster, who also has a retail business called Ronster Rides, posts videos of bands of teenagers, dozens strong, outdoing one another’s daredevil feats at breakneck speed on city streets and highways.

“We all want to get kids out of cars and onto bikes,” Mittelstaedt says. “The manufacturers took advantage of that. If the limit is 20 miles an hour, kids will want to go 21; if the limit is 21, they’ll want to go 22. In the old days, when you had loud, gas-powered, smelly mopeds, everybody knew what they were.” Today, because the vehicles are electric and quiet, it’s hard for the police to detect when they’ve crossed the line separating e-bike from moped or motorcycle.

Some schools in Marin County now prohibit such e-motos from parking on school property. On a weekday afternoon last spring, Mittelstaedt toured a few campuses to see how any restrictions were working. “We’ll just pull in here, and you can see how effective the enforcement is,” he said, approaching Tamalpais High School in Mill Valley (where he coaches a mock-trial team). The school has cages for kids to lock their bikes during the day, but several Super73s were parked beside them. “Because these are banned, they’re not allowed inside the cage. So they just park

them outside the cage. Very effective.” A few blocks down the road, at a water-treatment plant adjacent to Mill Valley Middle School, several e-motos were locked to railings in the parking lot, with more at a nearby community center.

As the end of the school day approached, idling cars and S.U.V.s formed a line leading into the entrance of the middle school. “This is what we’re up against — cars clogging up traffic, waiting to pick up their kids,” Mittelstaedt said. “But it’s a false dichotomy to suggest that the choice is either an electric device or parents bringing them in to school. It could be a regular bicycle — or it could be a *legal* e-bike.”



Some schools in Marin County ban e-motos from school property; students just park their vehicles elsewhere. Balazs Gardi for The New York Times

When school was done, kids streamed out of the building. Some got on conventional bikes; others mounted electric devices and sped out onto the bike path where a pedestrian was struck and fatally injured by an e-bike in 2022. “You can see how they’re releasing their energy,” Mittelstaedt said. “They’re pent up all

day in school, you know, probably not really enjoying most of the topics; they can't wait to get out, and then they get on their bikes, popping wheelies, going 30 miles an hour. They're the big guns on campus now — it's just a great high for them."

At a third stop, Redwood High School in nearby Larkspur, several machines — Jasion, Lectric, Ride1Up — were locked to trees, poles and fences across from the school. Other e-motos — Movcan, Ridstar, Hovsco, Ariel Rider — were brazenly attached to bike racks in front of the administration office. "Ariel Rider is the fastest bike you see on these campuses," Mittelstaedt said. "They have advertised a top speed over 38 and a motor of 1,000 watts. This one has no class label, so it's illegal for anyone to ride." (A spokesman for Ariel Rider says that it no longer makes and sells such a model and that "all models are shipped with compliant speed settings," as well as the proper classification and safety labels.)

Amelia was on an e-moto when she crashed. Coincidentally, in the course of his volunteer work before her accident, Mittelstaedt made the acquaintance of Amelia's mother, who was working for a public service organization on Mount Tamalpais. At one point, the two of them staffed a mobile van that provided information about the mountain to visitors.

When Amelia's injury became public, Mittelstaedt regretted not having acted more quickly in his assessment of throttle bikes. "If I had been more forceful — if I had known more, if I had done the research on how dangerous these bikes are and said something to Monica at the time — maybe life would have turned out differently for Amelia."

After Amelia's crash, Marin County applied what Mary Sackett, who would go on to become president of the county board in January of this year, calls a "full-court press." She convened a meeting on e-bike safety with Maa; Alfrey; Willis; Damon Connolly, Marin's state assemblyman; and representatives from law enforcement, education and Safe Routes to School. Willis, who had been working with E.M.S. on a system to track e-bike accidents, finally began compiling numbers collected by ambulance crews, which soon showed that the rate of e-bike-related accidents was nine times higher for youths than for riders over age 20. (The rate for 10-to-15-

year-olds was five times greater than for any other group.) The county proceeded to issue a public health advisory recommending that riders not use e-bikes with throttles, and in January 2024 Connolly introduced California Assembly Bill 1778, to prohibit anyone younger than 16 from riding a Class 2 e-bike and to require anyone using those bikes to wear a helmet.

The proposed legislation had the potential to set national precedents. Amid the hodgepodge of e-bike laws established locally throughout the United States, most states have an age limit of 16 for Class 3, but none for Classes 1 or 2; in those states that have placed restrictions on these classes, the age varies from 14 to 16, but no laws at the time mandated limits specifically for Class 2.



Students near Redwood High School in Marin. “They can’t wait to get out,” Mittelstaedt says, “and then they get on their bikes, popping wheelies, going 30 miles an hour.” Balazs Gardi for The New York Times

The bill encountered resistance from bicycle advocates loath to stigmatize the machines or discourage people from getting out of cars. A group called Streets for All opposed the legislation, citing “an unfair marketplace for consumers who have invested in thousand-dollar e-bikes for their children”; “potential for selective and uneven enforcement”; “decreasing the number of cyclists on the road, thereby making those remaining less safe”; and “increasing teenagers’ (who are historically the worst driving demographic by age) reliance on cars and therefore worsening the already high rate of vehicle collisions in California.”

Neither the Marin County Bicycle Coalition nor the California Bicycle Coalition (CalBike) took a position on the bill, though CalBike’s policy director, Jared Sanchez, asked on the organization’s website: “In a state where 4,000 people die annually and many more are injured due to traffic violence, some California cities are freaking out because teenagers on e-bikes ... did a wheelie?”

Cycling-advocacy organizations generally subscribe to the view advanced by Ben Furnas of Transportation Alternatives. The focus, he says, should be “on the vehicles that are killing and maiming the most people: heavy cars and trucks.” Instead of increased regulation of e-bikes, the solution should be infrastructure that allows “safe places for everyone” — specifically, protected bicycle lanes wide enough for both slower and faster bikes. The most egregious examples of the latter — out-of-class e-motos — are what e-bike supporters argue should be the target for policing, not unmodified Class 2 bikes.

“For a hundred years, we just had cars and pedestrians,” says Asha Weinstein Agrawal, the lead author of a forthcoming paper on e-bike safety and policy options in California for the Mineta Transportation Institute at San Jose State University. “Motorcycles were regulated like cars, but Americans treat bicycles as toys.” In other words, bikes were an afterthought, not carefully integrated into the designs and rules of our roads — which Agrawal says is “much more of a problem now that we have electric bicycles on the road as well.” While she agrees that it would be good to get people to switch from gas vehicles to e-bikes, she says “it doesn’t make

sense to have an ever-growing number of different categories with separate rules.” She has found that most people don’t understand the three-class system. “Not surprisingly,” she adds, “people are unlikely to follow rules they don’t understand.”

The most consequential resistance to California Assembly Bill 1778 came from the State Assembly’s transportation committee, whose principal consultant concluded that Marin’s injury data wasn’t sufficiently persuasive to justify a statewide law. As a result, the bill was eventually amended to a voluntary four-year pilot program, only in Marin County, with a requirement to report enforcement data by Jan. 1, 2028. It still had to make its way through the State Senate, however — a challenge for which the star witness was Amelia Stafford.

In May 2024, John Maa, who had been following both Amelia’s progress and that of A.B. 1778, asked the Staffords if she could testify before the State Legislature. At first they said no, believing that Amelia had already been through a sufficient ordeal. “But when she heard about the opportunity, she surprised us,” Monica says. “She said she wanted to do it.”

On the Tuesday after Memorial Day, Amelia traveled to Sacramento with her family and her friend Coral. After thanking “five teams at five hospitals” for enabling her to be there, she told the Senate’s transportation committee that her accident showed how devastating a fall from a Class 2 e-bike can be.

“To a teenager,” she said, “these bikes seem like normal bikes. Twenty miles per hour doesn’t faze us. It doesn’t sound fast or dangerous. But the reality is far different.” Echoing the findings by Maa, Alfrey and other surgeons around the country, she testified that falls from e-bikes are more like violent falls from motorcycles. “Because of what I’ve learned,” she said, “I’m here to speak out to protect teenagers like me.”

The bill passed the Legislature in late August. On Sept. 27, days before the year’s deadline for enacting new laws, Gov. Gavin Newsom signed a bill that requires e-bike batteries to be certified by an accredited testing laboratory; the following day, he signed a bill resembling Marin’s, establishing a voluntary pilot program in San

Diego County but restricting e-bike ridership to age 12 or older for both Class 1 and Class 2 machines. Then, on Sept. 29, Newsom, who has a house in Marin, showed up at the Staffords' for an impromptu signing ceremony.



Stafford with her mother, Monica. Last year she testified before the California State Legislature in favor of a bill that imposed helmet and age rules on riders of Class 2 e-bikes. Balazs Gardi for The New York Times

“I saw two signature lines, and I thought one of them was for me,” Amelia says. “I reached for his pen, and he very politely took it away from me. It was one of the most humiliating things in my life.”

Amelia’s life would seem to warrant the opposite of embarrassment. After missing her sophomore year of high school, she returned in the fall of 2024 and is now a senior planning to go to college. She volunteers as a peer mentor at Kaiser Foundation Rehabilitation Center in Vallejo, Calif., and she and Coral started a First Responders Club at Terra Linda High School, teaching students how to react in an emergency. The seizures she has as a result of her injury, together with the rest of her experiences over the past two years, have altered her future plans. Instead of hoping to work for NASA, she now wants to study neuroscience.

Two more California laws now prohibit the sale of apps that modify e-bikes to increase their speed beyond the legal limit, as well as the sale of devices that enable such modification. As a result, Super73’s website now states that customers who downloaded the Super73 app after Jan. 1, 2025, would not be able to modify its bikes beyond the Class 2 mode in which they’re sold. But a customer-service representative for the company acknowledged by email that “the motor itself is capable of higher speeds in other configurations.”

The Marin law went into effect at varying points around the county this summer and, after grace periods, jurisdictions have begun enforcing it — but only after riders have been stopped for another infraction, like running a red light. The police are not supposed to stop anyone based on appearance (for example, their apparent age). Moreover, during a recent municipal meeting, one officer explained that when they try to pull juveniles over, the kids often flee, evading pursuing police cars via narrow trails and sidewalks. But he also noted that in one case, at least, the parents of a child who was injured while riding an e-moto were cited for allowing an unlicensed juvenile to operate a motorcycle.

In any case, the new law doesn’t seem to have diminished enthusiasm for what in some cases are illegal bikes. This September, at Redwood High School, where Mittelstaedt counted 31 e-motos in April 2024, he now counted 48.

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BAY AREA

Kids on superfast e-bikes are alarming California. One Bay Area school district is cracking down

By **Brooke Park**, Staff Writer

Nov 30, 2025




Gift Article





A teenager gives a friend a ride on a throttle-assisted e-bike near White Hill Middle School, in Fairfax, Calif., in April. School districts in California have begun banning versions of these bikes. Stephen Lam/S.F. Chronicle




Listen Now: Kids on super-fast e-bikes are plaguing California. One Bay Area school district is cracking down

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Menlo Park’s school district will soon begin enforcing [a sweeping ban on ultra-fast e-bikes](#), citing recent crashes and concerns that a more serious collision is inevitable, the latest move by authorities across California to address what they view as a growing safety hazard.

Starting this week, the [Menlo Park City School District](#) will ban students under 16 from bringing e-bikes capable of exceeding 20 miles per hour or operating without pedaling onto campus. The ban includes two classes of legal e-bikes as well as those that have been illegally modified to go faster.

Many law enforcement authorities say these modified electric motorcycles are masquerading as e-bikes, and are capable of blasting past the speed limit rating they were sold under.

“These kids are taking these bikes and hacking them,” Atherton police school resource officer [Dimitri Andruha](#) told the [school board on Oct.9](#). “They get rid of rev limiters, get rid of speed limiters. These kids are doing 50, 60 miles an hour.”

With [five schools](#) serving roughly 2,700 students through eighth grade, Menlo Park is likely the first district in the South Bay to enact such a ban after the measure unanimously cleared its school board earlier this month. The Portola Valley School District enacted a similar ban this month.



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Jed Scolnick, the school board’s vice president, expressed hope that in addition to Menlo Park, “Atherton, Los Alamitos and Portola Valley and all the schools will look at this policy.”

At Hillview — the district’s only middle school — officials said there have already been a “handful” of collisions involving e-bikes, cars and pedestrians during arrival and dismissal times. One September crash sent a [Menlo-Atherton High School teen](#) to the hospital with moderate injuries. Across Menlo Park and Atherton, police have recorded 10 crashes involving e-bikes in the past year. It wasn’t disclosed how many of these involved legal e-bikes vs. modified ones.

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“Accidents already happen, but it’s just a matter of time till a really bad one happens,” school board member Scott Saywell said. “And then everyone’s gonna be like, why did we not do something about it?”

The district's action follows new e-bike restrictions in Marin and San Diego counties. Across Marin County cities, towns and unincorporated areas, children under the age of 16 cannot ride class 2 e-bikes, which are throttle-assisted electric bicycles that do not require the user to pedal. Jurisdictions in San Diego County can ban kids under the age of 12 from riding class 1 e-bikes, which provide peddle-assisted power capped at 20 mph, as well as restrict class 2 models. At least [four San Diego cities](#) have implemented such bans.

The state already requires riders to be over the age of 16 to operate the third category, class 3, which has pedal assist, throttle, and a top speed of up to 28 mph — the top speed before a bike is considered a motor vehicle.

State laws passed in 2024 authorized the restrictions in Marin and San Diego counties on a pilot basis. Because the state has jurisdiction over vehicles on roadways, authorization must come from the state level. (Menlo Park's school district can act without state authorization because it is only a ban on the vehicles on campus, not on public roads.)

Marin County law enforcement can cite minors for riding class 2 e-bikes only if they're already writing another ticket, a restriction some critics say limits the rule's effectiveness but proponents say encourage education first.

Local leaders across a growing number of California communities are concerned about the dangers of e-bikes, including the modified e-motos. Bob Mittelstaedt, an e-bike advocate based in Marin County, said greater resources should be poured into cracking down on the modified electric motorcycles kids are whipping through neighborhoods on.

"For most of these, no hacking is required," he said. "It's simply taking the bike as you find it, and using the app that is provided by the manufacturer."

CalBike and 30 other bicycle and active transportation groups are also campaigning for a distinction between e-bikes and e-motorcycles.

"Most public concern about e-bikes is actually concern about electric motorcycles that are not e-bikes," the organizations said in a letter. "Many local 'e-bike' laws appear to be in response to an increase in the use of unlicensed motorcycles that can operate above 28 mph."

Operating an electric motorcycle requires a license from the state.

In an October survey of four Menlo Park and San Mateo area schools, Mittelstaedt said he saw 70 so-called e-bikes — but believes that 62 of them did not meet the legal definition. Instead, he said, they functioned as electric motorcycles because they lacked class labels, exceeded the 750-watt power limit or could surpass 20 mph on throttle alone, he told the school board.

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