

El Rob the great defender of rationality

Chris S-A

November 7, 2006

History of Modernism

### **SUVS: How Detroit Fleeced the General Public**

If you've been in America in the past 15 years, you've seen them. Sporty, youthful, and tough looking, SUVs are some of the most popular vehicle choices at the moment. But why is that? Are they really all they are cracked up to be? Are they really safer for their occupants? In the 1950s, the station wagon was king. Essentially a large car with extra seats, the wagon provided room for the family, and at the time, decent safety, handling, braking, and acceleration. Then in the early 1980s, Chrysler released the minivan, which all but replaced the station wagon as the standard family vehicle. Eventually, the stigma of the station wagon soon transferred to the minivan, labeling all minivan drivers as suburban married folks, soccer moms, and generally boring. However, in the late 80s to early 90s there became another choice. The SUV. It certainly looked more exciting than a minivan, with its high chassis, large, knobby tires, rugged, aggressive bodywork, and outdoorsy image. Many SUVs offered larger engines, which offered better acceleration than a minivan, and they were designed to travel offroad, and tow large capacities, which is also exciting. Minivans can not offroad very well, nor can they tow large capacities, so clearly the choice for an exciting customer was the SUV. It was also taller, bigger, and heavier, which must mean it's safer too, thought the public (For years, American automakers had been trying to push back the fuel mileage regulations mandated by the government, claiming that making vehicles meet the standards would make them less safe in an accident, which is simply untrue). But is this true? Are SUVs safer than minivans or passenger cars? Or have you been fleeced by Detroit?

SUVs were really only offered by the big three (Chrysler, Ford, Chevy), due to a 25% markup on all imported trucks and utility vehicles, called the “Chicken Tax”. This made European and Japanese competition non-existent in the SUV segment. This lack of competition caused another problem later on, which was caused by the American auto unions pressuring Washington into separating the safety and emissions standards. Unions and company representatives pressured bureaucrats by telling them that forcing Chevrolet, Ford, and Chrysler to meet these standards with not only their cars, but also their trucks/SUVs would cause them to cut jobs. The last thing any Washington official wants is to be responsible for lost jobs, because they will not be reelected. Thus, the safety and pollution standards were soon “lax” for SUVs and trucks, while cars still had to adhere to them.

Again, this was another huge advantage for Detroit. They could use large, powerful engines that were originally designed over 30 years ago, without consequence. These rather archaic designs provided the public with impressive power, yet were not very efficient, barely passed emissions and received rather horrid mpg (miles per gallon). To make matters worse, there was a loophole in the CAFÉ (Corporate Average Fuel Economy) regulations that allowed the big three to build SUVs just over 8,500lbs, and they would no longer be required to meet ANY safety or emissions standards (Café). The Hummer H2 and Ford Excursion are a few that come to mind; neither were ever required to be crash-tested and neither affect Ford or GM’s average MPG rating. For the record, the H2 receives 9 mpg in mixed city driving, worse than a 1968 Charger R/T (consumer reports). In summary, it’s quite apparent that the entire legal system behind SUVs is pretty screwed up. Ignoring that, what about the safety?

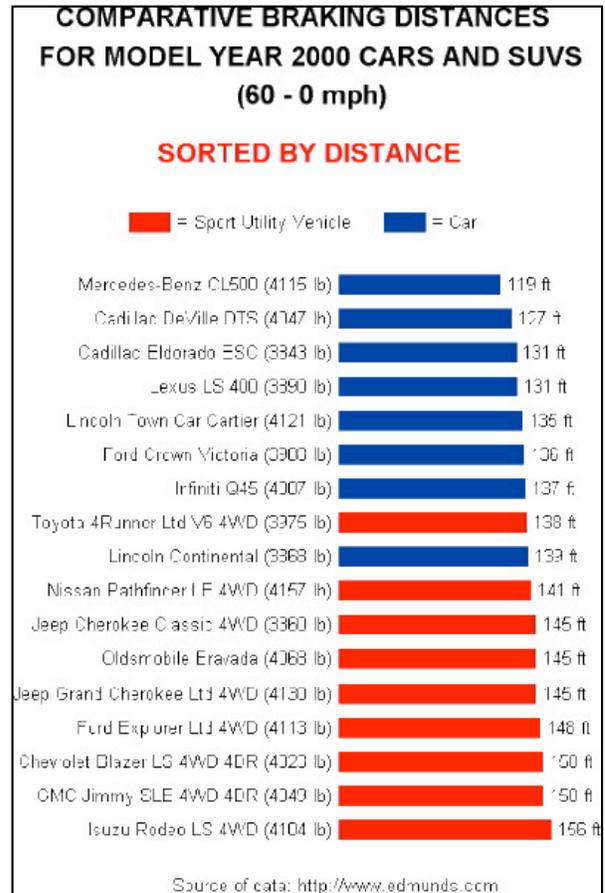
The majority of SUV drivers claim that they’re safer in an SUV, but unfortunately, they’re completely and totally wrong. They are not safer. In fact, it’s generally the opposite. How could that possibly be? The same features that make SUVs good at driving off the road are exactly what make them so dangerous on the road. First, the SUV frame itself is usually very stiff, and heavily reinforced. It’s designed like this not only to support the increased weight of the large vehicle, but also to withstand

the abuse of shocks, jolts, and stresses caused by driving off-road. This heavy-duty frame also lacks crumple zones, or areas designed to deform and compress in an accident, dispersing vast amounts of energy, and slowing down the occupants a bit more gradually. Instead, this stiff frame doesn't crumple, and the shocks and jolts of even a minor accident are transferred directly into the passenger compartment. A car doesn't do this. The average car is designed to sacrifice itself to save its occupants, by crumpling as much as possible, excluding the passenger compartment. SUVs are not designed like this; they're designed to withstand impacts without crumpling. This makes them more hazardous than cars.

A close friend of mine drives a luxury SUV, and was rear-ended by a Pontiac grand am traveling about 10-15mph. The grand am was totaled, but the luxury SUV was barely damaged. However, all was not so well for the occupants. The woman driving the grand am was shaken up, but healthy, while my friend driving the SUV was not so lucky. The sharp jolt of energy during the impact gave him severe whiplash, and he's still doing physical therapy to this day because of neck pains. Had he been driving a car, things would probably have turned out differently: both vehicles would have absorbed the energy by crumpling, and both drivers would have been relatively unharmed.

“For example, if the driver of a 2002 Cadillac Escalade—one of the largest SUVs on the market—crashed into an unyielding surface at thirty-five miles an hour, he would have a 16% chance of sustaining a life-threatening head injury and a 20% chance of receiving a life-threatening chest injury.<sup>71</sup> That same driver in a Ford Windstar—a large minivan with a similar seating capacity to the Escalade—would have only a 2% chance of a life-threatening head injury, and only a 4% chance of a life-threatening chest injury.<sup>72</sup> Thus, the driver of the Escalade would be five to eight times more likely to die when hitting a fixed object at a moderate speed than the driver of the minivan.”(Case, 9)

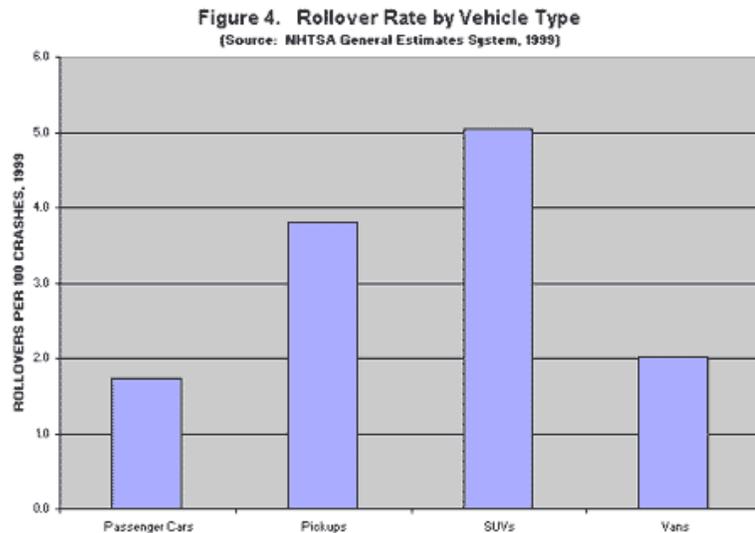
Another way SUVs are inferior to cars are general performance specifications. Generally, SUVs are slower than the average car, and offer inferior braking and handling (see Image 1). Some of this is due to the increased mass of the SUV, but it's also the suspension design in general. Most auto manufacturers try to convince the public that they make the toughest, most capable vehicles off the road. They do this, because if an editor claims that the new Maybatsu Monstrosity is the most capable off-road vehicle, the majority of the public will try to buy that one. What is puzzling about this phenomenon is that less than 5% of all SUVs ever go off the road (suv.org), which means 95% of them never leave the pavement.



**Image 1**

Despite this, manufacturers often design SUVs that have suspensions with massive wheel travel, and throw on knobby tires with tall sidewalls. Why? Because having a suspension that can climb over anything, knobby tires for increased traction in loose surfaces, and tall sidewalls that protect the rim and conform to rocks and ruts are all positive attributes while off-roading. Unfortunately, the very same designs that excel off the road are detrimental on the road. The knobby tires, while good in sand, mud, and dirt, reduce the contact patch of the vehicle on smooth, hard surfaces such as asphalt and concrete. This means less traction, reduced braking, acceleration and handling abilities, and more road noise. Large suspension travel and tall sidewalls equates to poor handling, response, braking and acceleration due to massive weight transferring between sides and ends of the vehicle. This ultra compliant suspension, along with a high center of gravity, also means SUVs are much more likely to roll over.

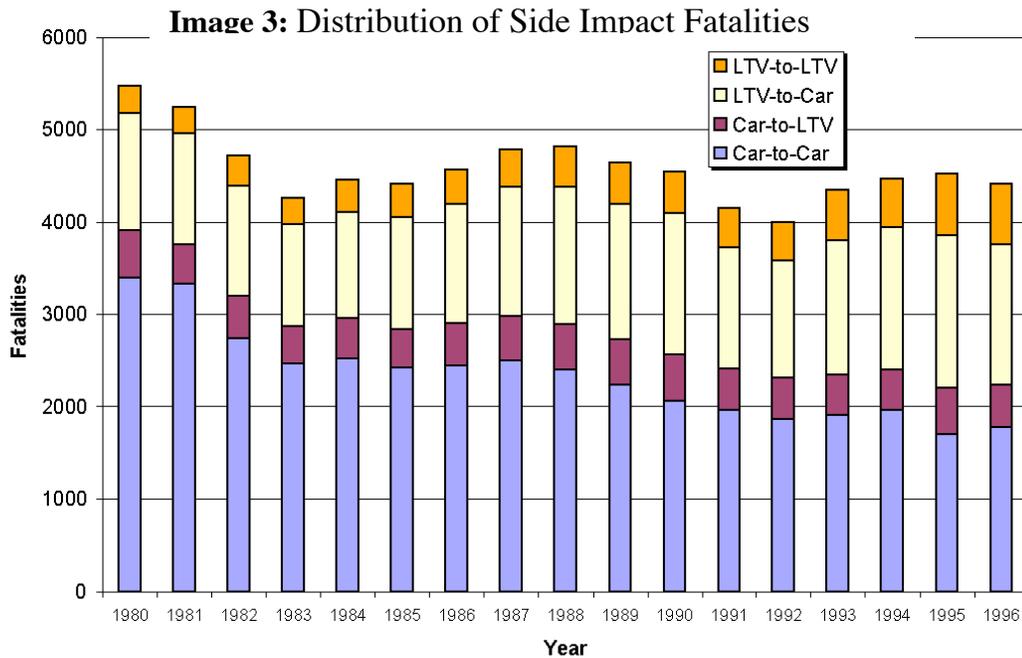
Rollovers are by far the biggest danger of driving an SUV (see Image 2). “In 2002, statistics showed that nearly 11,000 people died in rollover accidents, with 61% of SUV rollovers accounting for the fatalities. The number of people killed in SUV rollovers has increased by 14% in the last year” (suvrollovernews.com). The primary reason that rollovers are so deadly is that almost all SUVs suffer from very weak roofs.



**Image 2**

“Federal Motor Vehicle Safety Standard (FMVSS) No. 216, Roof Crush Resistance, establishes a minimum requirement for roof strength to "reduce deaths and injuries due to the crushing of the roof into the occupant compartment in rollover crashes." This is a quasi-static test in which a rigid plate is pushed into the roof at a slow rate. The roof must be strong enough to prevent the plate from moving 5 inches when pushed at a force equal to 1\_ times the weight of the vehicle. The test went into effect in 1973 and remained essentially unchanged until a proposal to modify it in 2005” (Insurance Institute for Highway Safety, Rollover and Roof Crush).

Unfortunately, that method of testing is extremely outdated, as during an actual rollover, it’s very unlikely that the roof of a vehicle would receive a ‘slow and even’ impact. Most of the time, the vehicle lands on a corner of the roof, which then collapses. Roof intrusion is the number one killer in SUVs, as



it intrudes directly into the passenger compartment in the most important area: The head and torso. The Safety Analysis and Forensic Engineering (SAFE) group conducted a test in 2003 that dropped various vehicles on their roofs to better simulate a real world rollover. The vehicles were suspended upside down, and then lowered until one of their front A-pillars was in contact with the ground. The load was then released, allowing the full weight of the vehicle to land on the roof, simulating a much more realistic crash. While all vehicles had roofs that collapsed to some degree, the SUVs were by far the worst. In the small 2-door hatchback group, the roof intruded about 17cm into the passenger compartment. The roofs on the large and midsize SUVs intruded 20.3cm and 26.4cm respectively (Inverted Drop Testing, 2).

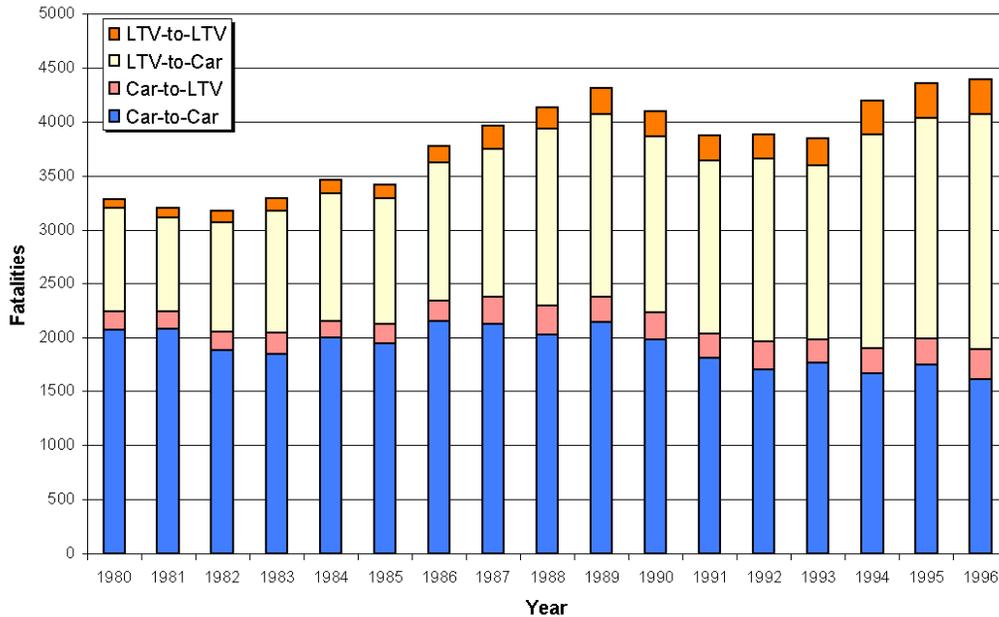
According to the Insurance Institute for Highway Safety, passenger car deaths have risen 2% since 1975, whereas SUV deaths have skyrocketed over 1000%. But wait, surely this can be explained by the increased number of SUVs on the road since 1975, right? Wrong.

“In 1998, there were 130 million passenger cars registered in the USA, and 16 million SUVs. According to the National Highway Traffic Safety Administration, there were 119,000 car rollovers and 36,000 SUV rollovers that year. That means that for every 100,000 vehicles, 91 cars rolled over -- and 225 SUVs, a figure almost three times as high. When it

comes to deaths, the disparity is even greater; for every 100,000 vehicles there are 3.4 deaths in car rollovers, but 10.1 in SUV rollovers (a figure over three times as high). As to the rarity of rollover accidents, once again we must look at NHTSA figures. For the 130 million cars, there were 29,000 fatal accidents in 1998 -- a death rate of 22 per 100,000 vehicles. For the 16 million SUVs, there were 4,500 fatalities, which means a death rate of 28 per 100,000” (Murray).

It is quite apparent from any data that SUVs are simply not as safe as the passenger cars they are replacing. However, perhaps SUV owners are aware of all this information, and choose that having the ‘macho look’ of off-road ability is more important to them than their own safety. However, have these owners considered the safety of the rest of the population? Federal information shows that although light trucks and SUVs account for roughly one third of registered vehicles, they also account for the majority of fatalities in vehicle to vehicle accidents. Of the 5,259 deaths caused when SUVs and light trucks crashed into cars in 1996, 81% of the deaths were occupants in the car (see images 3 & 4). In multiple vehicle crashes, the occupants of the car are four times more likely to be killed than the occupants of the SUV. In a side impact collision with an SUV, car occupants are 27 times more likely to die (SUV Safety Concerns). Another problem with most SUVs is the bumper height. During a crash with a passenger car, the SUV’s tall bumper may ride up and over the bumper of a passenger vehicle, negating the safety built into that of a car. While raising car bumpers would be an easy solution, the problem is that cars are regulated to have bumpers at a certain height, but SUVs are allowed to have them much higher. In a side-impact collision, the bumper of a large SUV can be so high that it will completely miss the door of a passenger car, leaving only the side windows to protect the passenger car’s occupants from the 4,000+ lb offroad vehicle about to crash into it. Also, pedestrian safety comes to mind. The taller the bumper, the more likely a vehicle-pedestrian accident will result in pushing the pedestrian down and under the vehicle, greatly reducing the chances of the pedestrian to survive.

**Image 4: Distribution of Frontal-Frontal Impact Fatalities**



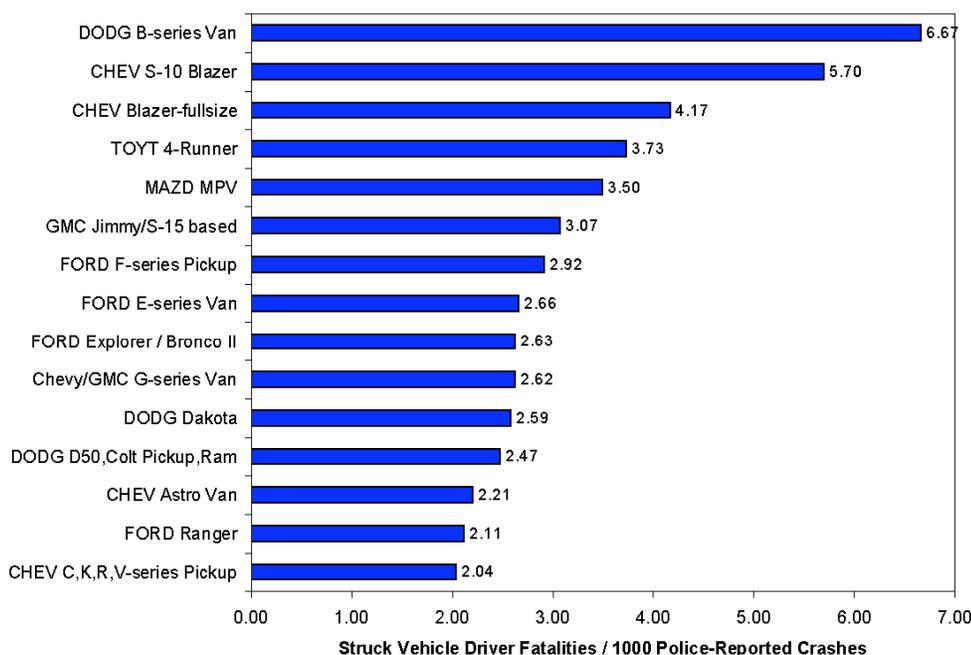
This safety concern is not only limited to crashes, but also to headlight levels. Large SUVs have headlights mounted 36 to 39 inches above the ground - the same height as the side mirror on a small car. The glare from SUVs' headlights can appear to other drivers as bright as high beams. Glare can be 10 to 20 times worse than recommended levels when headlights are at the height of a driver's eyes or side mirror, according to a study by the Society of Automotive Engineers (Bradsher, NYT). Also, the large size of most SUVs make them difficult to see around, and because of the height of the vehicles themselves, the windshield and rear window are also very high. This creates a problem for drivers behind the SUV, as unless you're in an equally tall vehicle, you cannot see in front of them. Even if most SUV owners are aware of the safety concerns to themselves, do they ever consider that they risk the safety of others? The lack of forward visibility reduces the speed of drivers following behind them, and increases the following distance. Both of these actions spurn a perpetual slowdown in every car behind them, eventually causing the entire transit system to operate slower. If more vehicles could see ahead of them, traffic could move faster, with less driver frustration.

Anywhere you look, it turns out that SUVs are not nearly as safe as passenger cars in accidents, mostly because of the design of the SUV itself. However, there's another factor to consider, the type of

person who buys an SUV in the first place. According to research conducted by the nation’s leading automakers, SUV buyers tend to be

“Insecure and vain. They are frequently nervous about their marriages and uncomfortable about parenthood. They often lack confidence in their driving skills. Above all, they are apt to be self-centered and self-absorbed, with little interest in their neighbors and communities. They are more restless, more sybaritic, and less social than most Americans are. They tend to like fine restaurants a lot more than off-road driving, seldom go to church and have limited interest in doing volunteer work to help others”(Bradsher, 287).

Chrysler's market research director, David Bostwick notes something else, "If you have a sport utility, you can have the smoked windows, put the children in the back and pretend you're still single" (Bradsher, 362). Even more alarming, the U.S. National Highway Traffic Safety Administration researched aggressive driving and related fatalities on our roadways. What they found was that the top twenty vehicles associated with road rage or aggressive driving fatalities were ALL SUVs or light trucks (see image 5).



**Image 5:**  
**Aggressivity**  
**Ranking: Top 15**  
**Vehicles**

Finally, another concern about SUVs lies in the ecological impact they put on our planet. Often getting about half the mpg of a comparable passenger car, they also have looser emissions standards, allowing them to spew out a lot more harmful emissions. Comparing vehicles is easy, thanks to the website provided by the government at [www.fueleconomy.com](http://www.fueleconomy.com), and the stats for almost every vehicle sold are available on this website. The most efficient cars sold today receive a fairly incredible 35-51 mpg, while the most efficient SUVs receive only 15-25mpg. In terms of the least efficient vehicles available, for passenger cars it's the Lamborghini Murcielago (9-14mpg) and for SUVs and light trucks it is the Jeep Grand Cherokee 4wd, equipped with a V8 (12-15mpg). While the Lamborghini has a lower mpg, it is also less of a problem. Ask yourself, how often do you see a Lamborghini Murcielago on the street? Now do the same for the Jeep Grand Cherokee. The Lamborghini is extremely expensive, in limited production, and rarely driven. It is in no way becoming a replacement for the 'standard family' vehicle. The Jeep, however, is. Many people use Jeep Grand Cherokees as minivan/station wagon replacements. How can a vehicle this wasteful become so popular? That's a good question.

Blatant over-consumption also increases our dependency on foreign oil. Currently, more than half the oil America uses is imported. This dependence on other countries will only rise, unless we start doing a better job with conservation, and choosing vehicles that actually suite our lifestyles. With big oil companies obviously not popular with the educated public, it is rather strange that some of the most educated, most intelligent people in America are all driving vehicles that support the very same big oil companies these people claim to be against. During the upcoming election season, one can be very surprised as the number of SUVs driving around with bumper stickers supporting democratic or third party candidates. Also worth noting, almost all of them will be spotted with only one person behind the wheel, and the rest of the vehicle empty.

Clearly something has to be done. From every rational standpoint SUVs are inferior to the average automobile; safety, performance, economy, environmental concerns, and crash compatibility are

all compromised for nothing more than a styling statement. Even more frightening is the inevitable period when these massive SUVs will depreciate to the point of being affordable to teenagers and people with lower incomes. Lacking the money to properly maintain these vehicles, their braking and handling performance will become even worse, yet they'll still possess the same aspects that make them deadly to everyone else on the road. When will auto-manufacturers change their product? Probably when the general public smartens up, and becomes more aware of the problems created by choosing vehicles designed for off-road use as daily transportation. As of right now, SUVs continue to be extremely popular, with manufacturers unveiling newer models every quarter.

So what is the solution? Manufacturers only care about one thing: money. Regardless of public safety, environmental effects, or the lives of its own customers, manufacturers will continue to produce whatever keeps selling. Perhaps it would be possible to get Washington to regulate more standards on the safety and emissions of SUVs, but this would limit the choices for people who actually needed such vehicles. The best way to change what they produce is simply voting with your wallet. Once the general public quits believing the lies that Detroit has trained them to believe, it is only then that we will start to see real changes. The myths surrounding these vehicles are exactly that: myths. Myths perpetuated by the advertising and marketing agencies that produce these vehicles. Myths meant to make you believe some of the worst vehicles for the environment are something you should buy if you actually care for it. Myths meant to make you feel safe while driving an SUV, even though statistics and testing shows exactly the opposite. And most importantly, the myth that so many people **need** SUVs considering almost none of them ever leave the pavement.

## Works Cited

Bradsher, Keith. High and Mighty. New York: PublicAffairs, 2002.

Bradsher, Keith. New York Times, "Larger Vehicles are Hampering Visibility," November 22, 1998

Café Overview <<http://www.nhtsa.dot.gov/Cars/rules/CAFE/overview.htm>> November 21st, 2006

Case, Kevin. Tanks in the Streets: SUVs, Design Defects, and Ultrahazardous Strict Liability. TN: Hampton Press, 2006.

Forrest, Stephen M. EVALUATING 'REAL WORLD' ROOF STRENGTH THROUGH INVERTED DROP TESTING. <<http://www.tulane.edu/~sbc2003/pdfdocs/0143.PDF>>

GENERAL SUV ROLLOVER INFORMATION <<http://suvrollovernews.com/html/general.html>> November 21st, 2006

Looking Back: 50 years of Auto Testing, Design and Performance  
<<http://www.consumerreports.org/cro/cars/new-cars/looking-back-50-years-of-auto-testing-403/design-performance/index.htm>>

Mencimer, Stephanie. Sitting high and mighty  
<<http://www.newsreview.com/chico/Content?oid=oid%3A25060>> November 21st, 2006

Murray, Iain. Armored Cars or Deathmobiles?  
<<http://web.archive.org/web/20041123085224/http://www.stats.org/record.jsp?type=oped&ID=43>> November 7, 2006

Q&A's: Rollover and Roof Crush, <<http://www.iihs.org/research/qanda/rollover.html>> November 21st, 2006

SUV Environmental Concerns, <<http://www.suv.org/environ.html>> November 21st, 2006

SUV Safety Concerns <<http://www.suv.org/safety.html>> November 21st, 2006

**Images:**

Image 1

[http://www.net-monster.com/blather\\_suvs\\_part1.html](http://www.net-monster.com/blather_suvs_part1.html)

Image 2

<http://www.suvrollovernews.com/images/figure4.gif>

Images 3, 4, 5

<http://www-nrd.nhtsa.dot.gov/departments/nrd-11/aggressivity/980908/980908.html>

**Videos:**

<http://www.youtube.com/watch?v=41mfCAJ6KJc>

[http://www.youtube.com/watch?v=MUoz9\\_XtEI0](http://www.youtube.com/watch?v=MUoz9_XtEI0)

