Ford Motor Company
Crown Victoria Police Interceptors
Summary

1. **No design can eliminate all risk – each accident is unique. And among risks officers face, rear-end collisions with fires are rare.**

2. **The Crown Victoria Police Interceptor is a safe, reliable vehicle for police use.**

3. **Ford is industry leader in vehicle testing programs, exceeding federal regulations.**

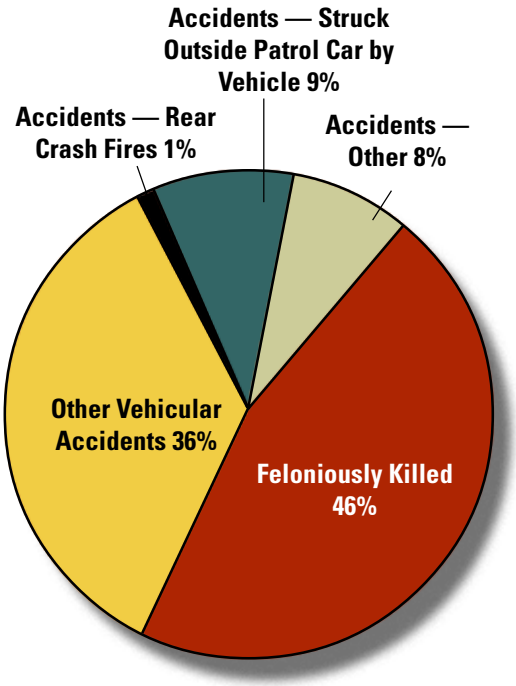
4. **Ford is committed to continuous improvement of the CVPI.**

5. **Ford works with police departments to meet their requirements.**

6. **Recommended vehicle modifications, requirements won't make vehicle safer.**

7. **Improving police safety is a combined effort.**

1. No design can eliminate all risk in high-speed, high-impact rear collisions that result in fires – each accident is unique. And these accidents are very rare among the many risks officers face in their daily jobs.



Cause of Officer Fatalities 1996-2000

Source: FBI; Reported CBPI incidents

- Police officers face many risks in their jobs. Among these risks, post-collision fires are very rare and unusual.
- In those rare instances where a post-collision fire occurs, they are due to the unique circumstances of each accident rather than any particular design attribute.
- The accidents involving Arizona law enforcement officers all involved extremely high-speed impacts, *well beyond the design intent of any vehicle manufactured by any company in the world:*
  - At about 2:20 a.m. Dec. 9, 1998, Officer Juan Cruz was sitting in his Crown Victoria Police Interceptor, which was being used as a "safety blocker" at an accident scene involving a vehicle fire when it was struck by a car driven by a drunk driver going 72 mph. Emergency lights from the accident scene were clearly visible from more than a mile away, and there were safety cones marking traffic lanes. The car slammed into Officer Cruz's vehicle, essentially pushing the entire rear end into the front seat. A parking brake cable bolt punctured the fuel tank. The drunken driver was sentenced to 11 years in prison.
  - On Dec. 18, 2000, Officer Floyd Fink had pulled over to the side of highway near an off ramp when a vehicle going 79-88 mph struck his CVPI. In this accident, the shock brackets and stabilizer bar brackets apparently punctured the fuel tank. The driver later told police he had been smoking marijuana and crystal meth for nearly a full day before the accident. He was sentenced to 18 years in prison.
  - At about 11:30 p.m. March 26, 2001, Officer Jason Schecterle was waiting to make a left-hand turn, his emergency overhead lights activated, when a taxi cab going 115 mph rammed into the back of his CVPI, hurling the two cars some distance down the road. The driver, an epileptic, apparently was having a seizure because he failed to take his anti-seizure medication that day. The driver was sentenced to 12 years in prison.
- No vehicle maker could reasonably anticipate or prevent the unique conditions surrounding these accidents, nor has any vehicle ever been designed to reliably withstand these kinds of impacts.

Officer Juan Cruz's CVPI

- It's important to realize that for every story of a post-collision fire, there are many more where the CVPI performs way beyond any reasonable expectations in high-impact incidents:

  - On April 3, 2002, Romulus (Mich.) Police Officer Daniel Czajkowski had stopped a semi/tractor-trailer for speeding. His CVPI was parked partially in the travel lane when it was slammed from behind by another tractor-trailer traveling at about 65 mph. The force of the impact compressed the entire left side of the car into a one-foot space behind the driver. Although the semi/tractor-trailer dumped its entire fuel load, the CVPI's tank remained intact.

Officer Daniel Czajkowski's CVPI

Examples of High-Speed, Rear-End Crown Victoria Accidents Where There Were No Fuel Leaks or Fires

Colorado — December 8, 2001

North Carolina — October 23,1999

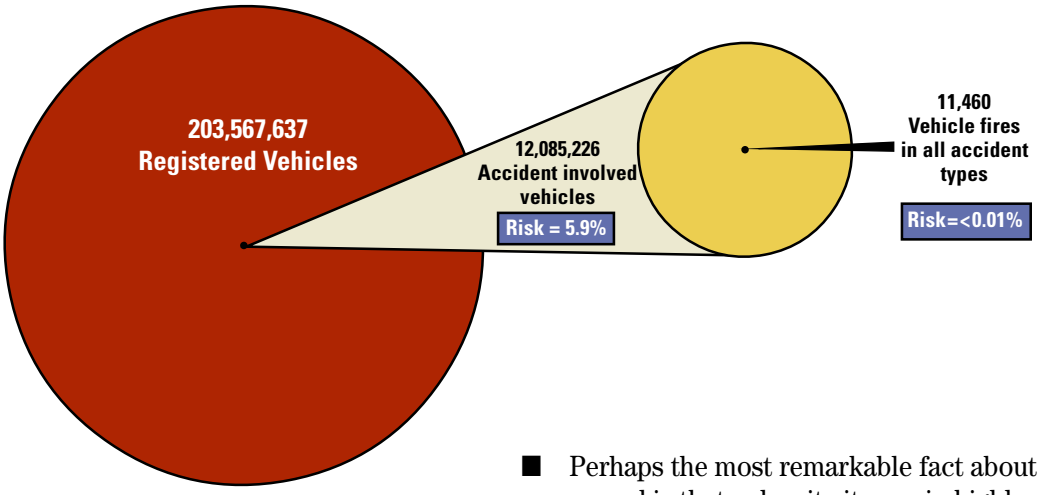
Top: Oklahoma — November 3, 2001

Center: Oklahoma — May 21, 2001

Bottom: Ohio — March 28, 2002

2. The Crown Victoria Police Interceptor has a proven track record as a safe, reliable vehicle for police use.

Source: GES (1997); Traffic Safety Facts, 1997, NHTSA



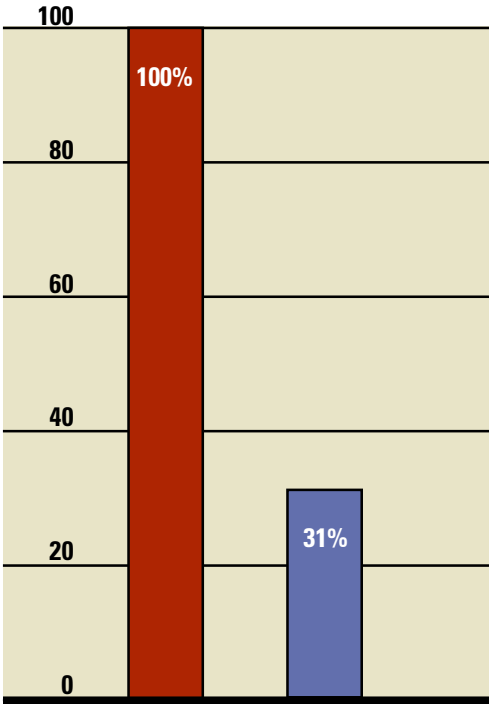
Fire Accident Frequency 1997

- Perhaps the most remarkable fact about the CVPI safety record is that – despite its use in highly risky police work – statistics show it has a comparable accident and fire record to other similar, mass-produced vehicles, most of which are used exclusively by civilians.
- Post-collision fires are extremely rare in *all* accidents, generally accounting for less than 0.01% of the 12 million accidents that occur on our nation's roads annually.
- Accident data show that the number of rear-collision fires involving the CVPI is comparable with other makes and models, including those with same or alternative fuel tank locations.
- In fact, in an Arizona lawsuit against Ford the plaintiff's expert agreed that accident statistics don't show a problem with the CVPI.
- Some critics claim that the location of the fuel tank in the CVPI makes it more dangerous than other vehicles, but the facts prove otherwise:
  - A direct comparison of the CVPI and the Ford Taurus, which has a different fuel tank placement and also is used in police work, showed comparable fire rates. The CVPI has an incident rate of 1 fire out of 1,000 rear-end collisions, while the Ford Taurus has 1.1 out of 1,000 collisions.
  - There are many vehicles with fuel tanks located toward the middle the vehicle that don't perform as well as the CVPI.

3. Ford is industry leader in vehicle testing; exceeding government regulations.

- Before selling our vehicles to the public, Ford crash tests 100% of its models at both 35 mph and 50 mph to confirm that our fuel systems meet the most rigorous standards in the industry. Less than a third of the industry models receive comparable tests.
  - During the development process, Ford conducts numerous front, side and rear crash tests on prototype vehicles to help design the fuel systems on its cars. Through the developmental testing process, we improve our designs until the final production model meets our industry-leading guidelines.
  - Ford ran 51 developmental tests on the CV between 1993 and 1997. The CVPI has the same fuel system and rear crash structure. Not once during those tests did the fuel tank sustain a puncture from the parking cable bolt, the shock bracket or the tab on the bottom of the sway bar bracket, which were involved in the Arizona accidents.
- In a crash test to NHTSA's proposed next-generation fuel system integrity standards, a 1996 CVPI met those future model requirements. Those requirements won't be in effect until the middle of this decade, putting the 1996 CVPI 10 years ahead of its time.
  - The new standards are the result of an eight-year study from 1992-2000 that included public comment and data from real world accidents. NHTSA proposed a change in the rear impact test standard, moving from a 30 mph to a 50 mph crash test.
  - The new standard is very similar to Ford's current testing, involving 50 mph crash tests. NHTSA said its study "concluded that striking a stationary vehicle at 50-55 mph with a moving deformable barrier (MDB) at a 70 percent overlap (width of vehicle engagement) would provide a reasonable crash simulation of real world rear impact fatal burn cases."

Source: Insurance Institute for Highway Safely (Dec.1992)



Ford v. Industry

Percentage of vehicles tested at 35 mph and 50 mph car-to-car.

- The CVPI has earned NHTSA's 5-Star crash rating for both passenger and driver safety in a frontal collision, the highest vehicle crashworthiness rating possible.
  - NHTSA does not provide Star ratings for rear-end collisions because they account for only about 5.8% of all fatal accidents, compared with 72% for front collisions.

Source: http://www.nhtsa.dot.gov/ncap.
Posted 02/07/2002

2001 Heavy Passenger Cars

Make & Model	Frontal Star Rating	Side Star Rating		
	Driver	Passenger	Front Seat	Rear Seat
2001 Acura RL 4-DR. w/SAB	★★★★	★★★★	*Not Tested*	*Not Tested*
2001 Audi A8 4-DR. w/SAB	★★★★★	★★★★★	*Not Tested*	*Not Tested*
2001 Buick LeSabre 4-DR. w/SAB	★★★★	★★★★★	★★★★	★★★★
2001 Buick Park Avenue 4-DR. w/SAB	★★★★	★★★★	★★★★	★★★★
2001 Cadillac Deville 4-DR. w/SAB	★★★	★★★★	★★★★	★★★★
2001 Chrysler 300M 4-DR. 4-DR.	★★★ *High Likelihood of Thigh Injury*	★★★★	*Not Tested*	*Not Tested*
2001 Chrysler LHS 4-DR.	★★★ *High Likelihood of Thigh Injury*	★★★★	★★★★	★★★
2001 Ford Crown Victoria 4-DR.	★★★★★	★★★★★	★★★★	★★★★
2001 Lincoln LS 4-DR. w/SAB	★★★★★	★★★★★	★★★★	★★★★★
2001 Lincoln Town Car 4-DR. w/SAB	★★★★★	★★★★★	★★★★	★★★★
2001 Mercury Grand Marquis 4-DR.	★★★★★	★★★★★	★★★★	★★★★
2001 Oldsmobile Aurora 4-DR. w/SAB	★★★★	★★★★	★★★	★★★★
2001 Pontiac Bonneville 4-DR. w/SAB	★★★★	★★★★★	★★★★	★★★★
2001 Volvo S80 4-DR. w/SAB	★★★★★	★★★★★	★★★★★	★★★★★

4. Ford continuously monitors the real-world performance of the CVPI in the field, and uses these analyses to constantly make improvements to the car.

- Even given our stringent crash test requirements and the excellent field performance of the CVPI in the high-risk environment of police work, Ford is always looking to improve the performance of the CVPI in even the most unusual circumstances.
- Ford works cooperatively with agencies on an ongoing basis to find ways to enhance the safety and performance of its vehicles. It was in this regard that Ford issued its Technical Service Bulletin (TSB) in 2001 – *shortly after we had our first opportunity to remove and examine the fuel tank and saw what had occurred in the Cruz accident.*
- Ford's decision to issue a TSB (and not a recall) was based on our investigation into the Arizona accidents that found that the unique dynamics of high-speed accidents can create a fuel tank leak never before seen in any other crash test or accident we have ever inspected. While we do not believe that this indicates a need for a recall, we wanted to communicate to police customers how they could help reduce even this remote risk. We have communicated this TSB to more than 18,000 police fleets across North America.
- Based upon its analyses of real-world performance, Ford continuously makes changes to improve the design and crashworthiness of the CVPI. (See Timeline)
  - For example, all sources (original equipment) of the fuel tank punctures in the Arizona accidents have been eliminated from 2003 and future models.

Crown Victoria Continuous Improvement

Ford has made numerous changes that have improved the crashworthiness of the Crown Victoria since the 1996 model year.

1998	Improved rear frame structure
	Location of parking brake cable from axle
	Increasing the thickness of the fuel tank steel rear panel
	Second generation air bag system
2001	Personal safety system with dual threshold and dual stage air bags with seat position and belt usage sensors and improved crash sensors
	Improved front seat belt system with pre-tensioners and load management
	Removing the tab on the bottom of the sway bar bracket
2003	A police interceptor trunk pack option (currently in production)
	New rear suspension moved the shock bracket outboard of the fuel tank
	Side air bags and improved side impact structure
	Standard ABS braking system with enhanced friction material
	Enhanced, performance-oriented front suspension system with redesigned springs and shocks to improve handling control
	New rack and pinion steering
	New hydroformed straight front rail design
	Revised headrest
	Center frame rails and stiffer body – for improved offset crash protection
	Front rail modification – for NCAP improvement
	Floor pan bracing – for improved side crash stiffening
	Revised #3 crossmember – for improved side crash stiffening
	Improved door beam attachments – for improved side crash performance
	Improved crush can – for improved front crash performance
	Upgraded roof rail

5. The Crown Victoria Police Interceptor is the preferred police vehicle because Ford works with police departments and meets their requirements.

- The CVPI has become the dominant police vehicle because of its features and its overall performance and safety record.
- When Ford designs the CVPI, we work with the police organizations.
  - Law enforcement organizations across North America judge our products by their performance against stringent test protocols.
  - The CVPI is tested independently by the Michigan State Police and the Los Angeles County Sheriff's Department and their evaluation of our performance is critical to the success of our product.
- Police agencies are in the best position to know how their cars are being used – and to provide specifications and performance requirements.
- Prior to September 1999, no police agency questioned the design or performance of the CVPI.
- No police agency's bid specifications ever required rear-end crash testing at 75 mph, "zero leakage," or elimination of risk of all post-collision fires – *and no manufacturer could deliver a vehicle to meet such specifications*, while fulfilling police requirements, such as speed maneuverability, comfort, rear-seat space, trunk space, and ground clearance.

The CVPI has the design features police want:

- **Rear-wheel drive**
- **V-8 engine**
- **Large back seat**
- **Spacious trunk**
- **Heavy duty frame suspension**
- **High-speed & capability**

6. Modifications, requirements suggested by Arizona Attorney General will not necessarily make CVPIs safer.

" The study concluded that striking a stationary vehicle at 50-55 mph with a moving deformable barrier (MDB) at a 70 percent overlap (width of vehicle engagement) would provide a reasonable crash simulation of real world rear impact fatal burn cases. "

Source: Docket No. NHTSA-00-8248

75 mph crash test

- Following an eight-year process in which it considered testing at a variety of speeds, *NHTSA did not adopt a proposal to test at speeds higher than 50 mph.*
  - Too many variables enter into the picture when approaching speeds of 75 mph. There are significant and unpredictable variations in the impact. For example, a minor difference in the inflation or deflation of the tires may lead to a completely different outcome in these high-speed tests.
  - Ford conducted two tests at 70+ mph that were designed to re-create the Cruz accident, and the parking brake bolt did not puncture the tank in either test.

Fuel tank shields

- While shields sound like a simple and inexpensive choice, their use involves complex engineering to avoid potential unwanted consequences that detract from durability and safety.
- Ford has extensive experience using gas tank shields and uses them when the safety advantages outweigh the potential risks associated with them.
- Ford crash testing showed that no shield was necessary for the CVPI.
  - In the two tests done to re-create the Cruz accident, the one using a fuel tank shield produced a leak greater than a crash test with no shield.

Bladders

- Bladders are untested and unproven on mass-produced vehicles such as the CVPI and do not represent state-of-the-art safety technology.
- In race cars they are used in completely different conditions, under constant maintenance. Their durability in day-to-day police work remains untested.
- In 2001, an after-market supplier began offering a retrofit bladder kit but that kit has never been crash tested. The supplier has referred to the kit as a "prototype."

- When Ford received the bladder kit, it was promptly recalled because of leaks.
- EPA emissions requirements specify that a fuel system last for 15 years and 150,000 miles. No bladder technology even approaches these national requirements.

Moving Fuel Tank

- There is no reason to move the fuel tank because it has proven to be safe in its location in the CVPI.
- NHTSA rejected a proposal to require manufacturers to place a vehicle's fuel tank forward of the rear axle because "such a requirement is unnecessary and would be design restrictive." Based on testing it concluded, "…that structural and component design is a more critical factor than fuel tank location in maintaining fuel system integrity."
- The proof of safety is in the CVPI's record – it is as safe or safer than most of its peers despite its exposure to high-speed rear impacts in police use.
- Placing the fuel tank behind the axle enables Ford to meet police specifications such as rear-wheel drive, large fuel tank, appropriate ground clearance, large rear seats and trunk space.
- The fuel tank is farther from the CVPI's bumper than it is in many smaller cars, thus giving it a higher margin of safety in most accidents.
- NHTSA tested 13 models to its new standard, seven of those models failed, including six that had mid-ship fuel tanks. The CVPI passes that test. In a crash test, a 1996 CVPI met that standard (even without the TSB changes).

Recall

- Ford's decision to issue a TSB (and not a recall) was based on our investigation into the Arizona accidents that found that the unique dynamics of high-speed accidents can create a fuel tank leak never before seen in any other crash test or accident we have ever inspected. While we do not believe that this indicates a need for a recall, we wanted to communicate to police customers how they could help reduce even this remote risk. We have communicated this TSB to more than 18,000 police fleets across North America.
- Again, no vehicle is fireproof and the existence of extremely rare accidents at high speeds does not indicate a safety-related defect or necessitate a recall.

"We believe that this test demonstrates that structural and component design is a more critical factor than fuel tank location in maintaining fuel system integrity."

Source: Docket No. NHTSA-00-8248

7. Other actions that can enhance police officers' safety, reduce accidents.

A truck with "blocker" attached to protect construction vehicles; such blockers, although designed for a single purpose, are certified only for collisions up to 62 mph.

- Ford continuously undertakes efforts to reduce the risk of fuel leaks and improve the safety of its vehicles. But Ford has learned that improving safety takes actions by a variety of groups to be successful. Reducing the potential for these collisions in the first place also is important.
- Police officers are more frequently exposed to the possibility of being rear-ended at high speeds because they often park to the side of highways for traffic stops and accidents, and cars are sometimes inappropriately occupied when used as in-road "blockers" for construction and accidents.
- Experiences in other states indicate there are actions beyond vehicle modifications that can be taken to protect the safety of police officers and the civilians they are assisting:
  - Investigate the effectiveness of different emergency vehicle lights in different atmospheric conditions to determine whether changing the lights on the light bars would enhance visibility and safety.
  - Investigate whether the color of highway markings increase or lessen a driver's depth perception and visibility of vehicles on the shoulder. For instance, contrasting color shoulders, yellow fog lines and rumble stripes, while common in other parts of the country, were not present at Officers Fink's and Cruz's accident scenes.
  - Mandate drivers vacate the lane adjacent to a stopped police car in multi-lane highways.
  - Consider special, heavy-duty "blocker" equipment to protect construction workers. Some states require police to remove their cars from these dangerous "blocking" situations as soon as the emergency is over. Note: "Blocker" trucks are only certified to 62 mph.

For more information:

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