



# DRIVING SAFELY

*is Everyone's Mission*

**NASA Vehicle Safety**



When you think of damage mishaps at NASA, areas such as **aviation, construction** and **maintenance** probably come to mind. But the fact is, the leading types of damage mishaps on Agency property are **transportation mishaps—drivers running into things**. As a NASA employee and licensed driver, you can do something about reducing these mishaps.





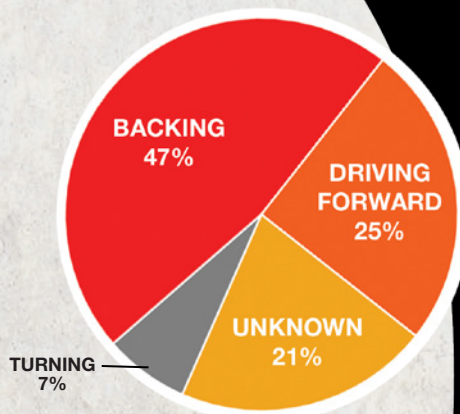
# What On EARTH Were They Doing?

## DRIVER ACTIVITIES DURING NASA MISHAPS

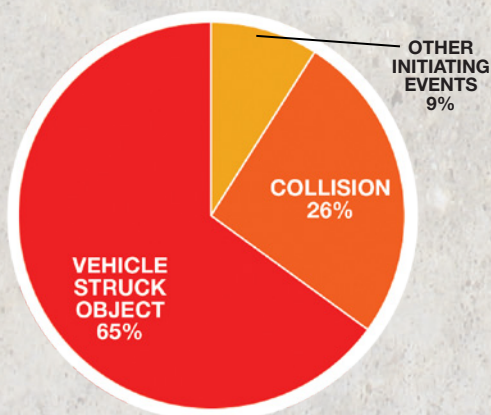
Accidents involving motor vehicles accounted for nearly 40 percent of all damage mishaps at NASA locations between 2009 and 2011. Most were minor accidents caused by vehicles backing up and hitting another vehicle or a stationary object. But there have been fatalities and serious injuries on or near NASA sites, including a fatality in July 2012.

While traffic deaths at the Agency are rare, transportation mishaps are not. Because the number of damage mishaps is so high, this study looked at all of NASA's 475 transportation incidents (mishaps and close calls) from 2009 to 2011. The majority of those incidents fell into two categories: vehicle-to-vehicle collisions and vehicles running into stationary objects.

Transportation Incidents by Vehicle Collisions (2009-2011)

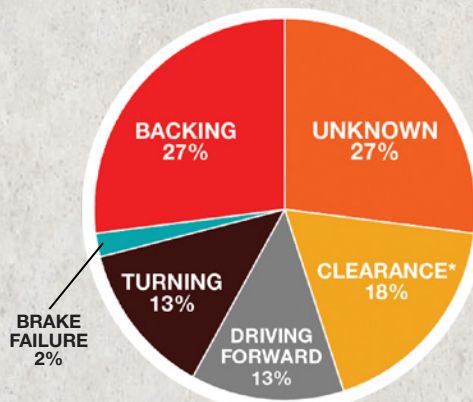


Transportation Damage Mishaps by Detailed Initiating Event (2009-2011)



Of all the transportation incidents at NASA between 2009 and 2011, 91 percent involved vehicles hitting other vehicles or stationary objects.

Transportation Incidents by Struck Objects (2009-2011)



\*Clearance on the right side, left side and above.



An illustration showing a grey car and a red car colliding. A large yellow starburst is at the point of impact. The cars are on a black road with yellow dashed lines.

## SKILLS FOR BACKING ARE OFTEN LACKING

Nearly half of all collisions and more than one quarter of all struck-object incidents were caused by vehicles that were backing up. In both categories, backing accidents led all other transportation incidents at NASA.

An illustration of a red car hitting a grey tree. A large yellow starburst is at the point of impact. The car is on a black road with yellow dashed lines.

## DRIVING FORWARD, CLEARING AND TURNING, OH MY!

Not only do NASA drivers have trouble backing up, they also have problems driving forward. The second most frequent cause of vehicle incidents at NASA involved driving forward. Next were clearance incidents (side and overhead), followed by turning.

An illustration of a red car hitting a pedestrian. A large yellow starburst is at the point of impact. The car is on a black road with yellow dashed lines.

## A STEP IN THE WRONG DIRECTION

Not all transportation incidents at NASA involve vehicles hitting other vehicles or objects. Pedestrians are also at risk. There have been many close calls involving pedestrians on NASA sites. For the majority of the incidents reported, the drivers were exceeding the posted speed limit and/or not paying attention. Of course, in some cases, it was the pedestrians who weren't paying attention.

An illustration of a red car hitting a stop sign. A large yellow starburst is at the point of impact. The car is on a black road with yellow dashed lines.

## SERIOUS MISHAPS HAPPEN

In 2012, a NASA employee was in what appeared to be a minor accident in an Agency parking lot. After the employee's vehicle struck a stop sign supported by a concrete pole, the driver had to be hospitalized with a neck fracture. Even seemingly minor accidents can result in serious injuries.



# LOCATION, LOCATION, LOCATION!

## WHERE DRIVERS WERE AT THE TIME OF THE INCIDENTS

While many of the locations of NASA's transportation incidents were not specifically recorded, a significant number occurred in parking lots and at gates. Everyone who works at a NASA Center or facility passes through its gates and parks in its lots. Although those places seem unlikely for accidents, they were the locations reported most often by the drivers involved in damage incidents at NASA.



## GATE-CRASHERS MAKE AN IMPACT

The second-leading location for vehicle incidents was at NASA gates. In a 2009 incident, an employee driving a government-owned truck misjudged oncoming traffic and ran into a gate. There were no injuries, but the damages to the truck and gate were costly.

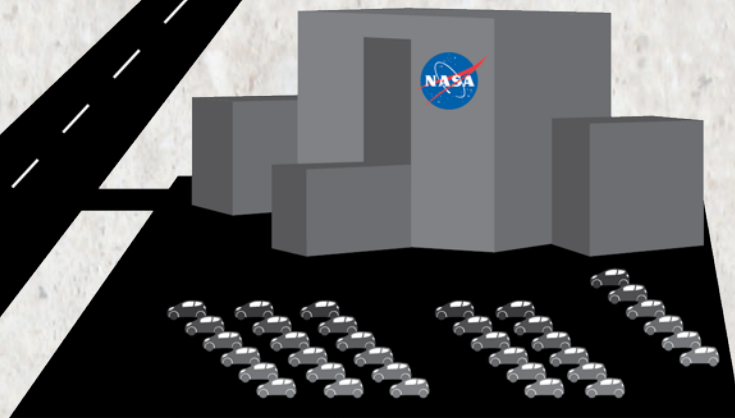
**14%** of *Struck Object Incidents* at NASA happened at Gates (2009-2011)

**7%** of *Vehicle Collisions* at NASA happened at Gates (2009-2011)



# LOCALE-SPECIFIC DANGERS

NASA sites range from compact campuses with lots of buildings, vehicles and pedestrians to wide open spaces where wild animals roam the roads. NASA also has vehicles (tour buses, forklifts) and equipment (construction cranes, transport trailers) that are commonly encountered within the Agency's gates. Because the conditions vary so much, drivers must pay attention to the particular dangers of their locations.



## LOTS OF MISHAPS IN PARKING LOTS

Because vehicle speeds are much slower in parking lots, many drivers don't think about the greater potential for accidents. Although few injuries occur in parking lots, damages and the cost of repairs can be troublesome and expensive.

**29%** of *Vehicle Collisions* at NASA occurred in Parking Lots (2009-2011)

**11%** of *Struck Object Incidents* at NASA occurred in Parking Lots (2009-2011)



# DRIVEN TO DISTRACTION

Based on the types of accidents and the reasons that were reported, the causes for mishaps on NASA property are similar to the causes of accidents outside the gates. Weather and mechanical problems can be factors. More often, it is something the driver did or didn't do that led to the accident.

Statistics show that one of the principal causes of fatal and serious-injury crashes on U.S. roads is *distracted driving*. Because of the nature of the transportation incidents that occur at NASA, distracted driving is a major concern. Any distraction inside a motor vehicle endangers the safety of the driver, passengers and those outside the vehicle.

## The National Highway Traffic Safety Administration Lists Three Types Of Distracted Driving:

1. **Visual**—taking your eyes off the road
2. **Manual**—taking your hands off the wheel
3. **Cognitive**—taking your mind off your driving



## Typical Driving Distractions

The Virginia Tech Transportation Institute (VTTI) conducted a study to review the relative risk estimates for crash and near-crash inattention events. The results showed increased crash risk (number of times more likely to crash) for the following behaviors:

### TEXTING WHILE DRIVING

#### REACHING FOR A MOVING OBJECT

9x

#### DIALING A CELLPHONE

6x

#### DRIVING DROWSY

4x

#### TALKING ON A CELLPHONE

4x

#### LOOKING AT EXTERNAL OBJECT

3.7x

#### READING

3.4x

#### APPLYING MAKEUP

3x



# BE ALERT... Mishaps Hurt

What happens at NASA doesn't necessarily stay at NASA. Those who are distracted drivers on Agency property are probably just as easily distracted when on public roads. Whether you are backing up in a NASA parking lot or commuting to and from work, *pay attention*.

## Think Ahead...Before Backing Up

One of every four vehicle accidents in the U.S. is the result of poor backing up procedures. Because backing incidents are the leading type of transportation incident at NASA, it is important to think about what you are doing when you put your car into reverse. Here are a few best practices to remember:

1. Park conveniently.
2. Do a walk-around.
3. Use a spotter.
4. Know your blind spots.
5. Clear your windows.
6. Turn around and look.
7. Back up slowly.



**23x**

## No Texting While Driving—It's the Law for Federal Employees

On September 30, 2009, President Obama signed an Executive Order directing Federal employees to not engage in text messaging: 1. While driving government-owned vehicles; 2. When using electronic equipment supplied by the government while driving; and 3. While driving privately owned vehicles when they are on official government business. The order also encourages Federal contractors and others doing business with the government to adopt and enforce their own policies banning texting while driving on the job.







# Beyond the NASA Gate...

NASA wants you to be safe wherever you are traveling and in whatever type of vehicle you use. Safe-driving practices should be followed while you're on NASA property, on your daily commute and on your own time.

If all NASA employees drive safely, there will be fewer transportation incidents, along with the physical, emotional and financial costs. Probably the most important safety tip to follow is to stay focused. Don't let distractions make you a traffic statistic...or a NASA transportation mishap.

**DRIVING SAFELY IS *EVERYONE'S* MISSION** 🚗

## RESOURCES FOR MORE INFORMATION ON TRANSPORTATION SAFETY:

### NASA Safety Center

Case of Interest: <i>The Killer in your Pocket: Distracted Driving</i>	<a href="https://nsc.nasa.gov/Articles/CasesOfInterest/">nsc.nasa.gov/Articles/CasesOfInterest/</a>
Case of Interest: <i>Low Speed, High Impact: GEM Carts</i>	<a href="https://nsc.nasa.gov/Articles/CasesOfInterest/">nsc.nasa.gov/Articles/CasesOfInterest/</a>
NASA Transportation Safety Video	<a href="https://nsc.nasa.gov/Videos/">nsc.nasa.gov/Videos/</a>

### U.S. Government

Federal Highway Administration/Department of Transportation	<a href="https://fhwa.dot.gov">fhwa.dot.gov</a>
National Highway Traffic Safety Administration	<a href="https://nhtsa.gov">nhtsa.gov</a>
National Transportation Safety Board	<a href="https://ntsb.gov">ntsb.gov</a>
Official U.S. Government Website for Distracted Driving	<a href="https://Distraction.gov">Distraction.gov</a>

### Safety Organizations

American Automobile Association/Foundation for Traffic Safety	<a href="https://aaafoundation.org">aaafoundation.org</a>
Insurance Institute for Highway Safety	<a href="https://iihs.org">iihs.org</a>
National Safety Council	<a href="https://nsc.org">nsc.org</a>
Network of Employers for Traffic Safety	<a href="https://trafficsafety.org">trafficsafety.org</a>

### University (Study Cited)

VTTI Naturalistic Driving Studies (2009)	<a href="https://vtnews.vt.edu/articles/2009/07/2009-571.html">vtnews.vt.edu/articles/2009/07/2009-571.html</a>
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