NTSB | National Transportation Safety Board

2021–2022 NTSB
MOST WANTED LIST OF
TRANSPORTATION SAFETY IMPROVEMENTS

Aviation
Highway
Marine
Rail, Pipeline, and
Hazardous Materials

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The NTSB is the independent federal agency tasked by Congress with investigating highway, marine, rail, pipeline, and civil aviation accidents, determining their probable causes, and making safety recommendations aimed at preventing future accidents.

www.ntsb.gov/mwl

The NTSB's **Most Wanted List** (MWL) highlights transportation safety improvements needed now to prevent accidents, reduce injuries, and save lives. We use the list to focus our advocacy efforts during the current MWL cycle.

AVIATION

Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-Carrying Aviation Operations

Install Crash-Resistant Recorders and Establish Flight Data Monitoring Programs

HIGHWAY

Implement a Comprehensive Strategy to Eliminate Speeding-Related Crashes

Protect Vulnerable Road Users through a Safe System Approach

Prevent Alcohol- and Other Drug-Impaired Driving

Require Collision-Avoidance and Connected-Vehicle Technologies on all Vehicles

Eliminate Distracted Driving

MARINE

Improve Passenger and Fishing Vessel Safety

RAIL, PIPELINE, AND HAZARDOUS MATERIALS

Improve Pipeline Leak Detection and Mitigation

Improve Rail Worker Safety

Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-Carrying Aviation Operations

By establishing an effective safety management system (SMS) and creating a safety culture aimed at making safety a focus first and always, operators will improve aviation safety and reduce the risk of accidents.

An SMS should address four components: safety policy, safety risk management, safety assurance, and safety promotion. It can be scalable to the size and complexity of operations, yet too many operators either do not have one in place or have an ineffective one.

In 2015, the Federal Aviation Administration (FAA) required commercial airliners (Part 121) to develop a comprehensive SMS to improve safety for the flying public. Yet, the FAA has not required other revenue passenger-carrying operators to have one.

Although we have seen some voluntary adoption of SMS programs, a vast majority of operators continue operating without an SMS in place. It's time more got on board. The risk to the flying public is too great not to.

Install Crash-Resistant Recorders and Establish Flight Data Monitoring Programs

When planes crash, we want to know what happened. The good news is that there's technology available today that would give us the answers. The bad news is that the FAA has not mandated that aircraft operators install it [the tech], citing privacy, security, cost, and other concerns.

Commercial airliners are required to have only flight data recorders and cockpit voice recorders, commonly called "black boxes," but the NTSB has long called for cockpit image recorders, as well. Such video would have been extremely helpful in determining flight crew actions in recent crashes in Texas, Indonesia, and Ethiopia.

The NTSB believes other types of passenger-carrying commercial aircraft, such as charter planes and air tours, should be equipped with data, audio, and video recording devices. These operators should also have programs in place that analyze the data derived from these devices. Recorders and flight data management programs would not only help investigators solve accidents, but they would also help aircraft operators prevent crashes in the first place by allowing crew actions to be evaluated regularly.

Regardless of the recorder type, it must be able to survive a crash.

Implement a Comprehensive Strategy to Eliminate Speeding-Related Crashes

Speeding is typically defined as exceeding a speed limit, but it can also mean driving at the speed limit but too fast for road conditions. Between 2009 and 2018, speeding-related crashes resulted in nearly 100,000 fatalities—that's close to one-third of all traffic fatalities in the United States.

The true extent of the problem is likely underestimated because the reporting of speeding-related crashes is inconsistent. Speeding can result in loss of vehicle control, which increases both the likelihood of a crash and the severity of injuries sustained. Higher vehicle speeds lead to larger changes in velocity, which, in turn, lead to higher injury severity—that's just basic science.

Speed-limiters on large trucks, automated enforcement, expert speed analysis tools, and education campaigns are underused in our communities. These critical tools and strategies must be implemented to address this safety problem.

Protect Vulnerable Road Users Through a Safe System Approach

Our roadways were designed to move motor vehicles safely and efficiently. They often do not fully meet the needs of pedestrians, bicyclists, and motorcyclists—vulnerable road users (VRUs). As a result, we are seeing increasing dangers to this population and too many accidents involving vehicles and VRUs.

We must use a Safe System approach to better protect VRUs and ensure safe roads for all. A Safe System addresses all aspects of traffic safety: road users, vehicles, speeds, roads, and postcrash care. We must make better safety investments—from road treatments, vehicle design, and collision-avoidance systems to strong traffic safety laws and robust education efforts—to mitigate injury risks for all road users.

Unlike motor vehicles, VRUs lack an external structure to protect them when crashes occur, and they're more likely to suffer a serious injury or even death. Proven, effective countermeasures are being underused at the federal, state, and local levels to protect pedestrians, bicyclists, and motorcyclists. We have long been concerned with the threat to VRUs. In 2018 and 2019, we published three reports on the risks to this vulnerable population and issued more than 30 new recommendations focused on reducing VRU traffic deaths.

Prevent Alcohol- and Other Drug-Impaired Driving

Driving under the influence of alcohol and other drugs remains a leading cause of highway crashes. In 2019, one in four traffic fatalities resulted from crashes involving alcohol-impaired drivers, and many impaired-driving crashes involve drivers who both drink and use other drugs (legal, illicit, and over the counter). Complicating matters, each year, more states are passing laws allowing the use of recreational marijuana and marijuana for medicinal use.

Impaired driving is 100% preventable. We know a per se blood alcohol content (BAC) of .08 g/dl is too high. States need to lower per se BACs to .05%, an action only Utah has taken. Too many alcohol-impaired crashes have occurred involving drivers who had previously been convicted of drunk driving. All states need to implement laws requiring all drivers convicted of alcohol-impaired driving to use an interlock device, preventing future impaired driving.

We have investigated many crashes involving drug-impaired drivers, but the fact is we don't really know how extensive the drug-impaired driving problem is because, unlike for alcohol, no standardized drug-testing protocols exist. There is no established limit or threshold to determine other drug impairment. Additionally, evaluating the impact of other drugs on drivers is challenging because many drugs impair individuals differently than alcohol. Bottom line: we need to develop better drug-testing procedures and tests.

Require Collision-Avoidance and Connected-Vehicle Technologies on all Vehicles

A large percentage of highway crashes are caused by distracted or inattentive drivers. Collision-avoidance and connected-vehicle technologies can address the human error that can lead to crashes—saving thousands of lives on the nation's roads.

These technologies include forward-collision warning and automatic emergency braking, which can warn the driver of an upcoming hazard and act if the driver doesn't respond. Connected-vehicle technologies allow vehicles to relay important safety information to each other to avoid crashes.

Yet, most passenger vehicles and commercial vehicles (such as heavy-duty trucks and school buses) on the road today are not equipped—nor required to be equipped—with such life-saving technologies. And consumers are often unaware of the availability and capabilities of these technologies. The National Highway Traffic Safety Administration has not developed comprehensive performance standards for these technologies, nor does it effectively evaluate them and include this information in its vehicle safety ratings.

Additionally, we were alarmed by the recent regulatory decision by the Federal Communications Commission to substantially shrink the communication spectrum dedicated to connected-vehicle technology. If this decision is not reversed, safety progress could be hindered.

Eliminate Distracted Driving

Distraction occurs when drivers divert their attention away from the driving task. Crash data and research indicate personal electronic devices, such as cell phones and tablets, are one of the greatest contributors to driver distraction.

Hands-free is not risk free. Using a device hands-free does not reduce driver distraction; in fact, drivers are still distracted by the conversation—this is called "cognitive distraction."

Many drivers believe they can multitask and still operate a vehicle safely. But multitasking is a myth. Humans can only focus cognitive attention on one task at a time. That's why the driving task should be a driver's sole focus.

Distracted driving is widespread, killing thousands and injuring hundreds of thousands in the United States every year. States are making some progress addressing this public health problem, but no state has implemented our recommendation calling for a ban on the use of all personal electronic devices while driving except in case of emergency. Today, 24 states and the District of Columbia prohibit drivers of all ages from using handheld cell phones while driving. Forty-eight states and DC have an all-driver text messaging restriction. However, Missouri and Montana have yet to adopt an all-driver text messaging ban, and drivers in Nebraska and Ohio are only subject to secondary enforcement. Thirty-seven states and DC restrict the use of cell phones by novice drivers.
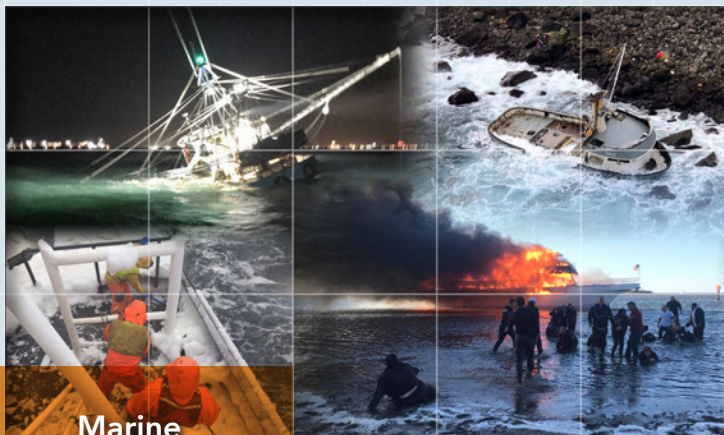
Improve Passenger and Fishing Vessel Safety

Passenger vessels range in size from small charter vessels, such as dive boats and amphibious passenger vessels (DUKW boats or "duck boats") to large cruise ships operating in international waters.

Fires pose a particular catastrophic threat to passenger vessels. Yet, crew training and safety regulations for these vessels vary. Passenger vessels should have safety management systems, voyage data recorders, adequate fire-detection and extinguishing systems, and enhanced emergency egress options. Crew training should include fire drills and firefighting techniques. Roving patrol requirements—and their implementation aboard small passenger vessels—must also be improved.

The **commercial fishing** industry, which remains largely uninspected, consistently tops the list of most deadly occupations, due, in large part, to challenging work environments, such as poor weather and rough waters. These conditions threaten vessel stability and integrity.

We need new standards to address—and periodically reassess—intact stability, subdivision, and watertight integrity in vessels up to 79 feet long. Fishing crews should be trained in stability and emergency response. Employees aboard these vessels should also be equipped with personal locator beacons to aid search-and-rescue efforts.

The Coast Guard should implement our recommendations to improve safety on passenger and fishing vessels.
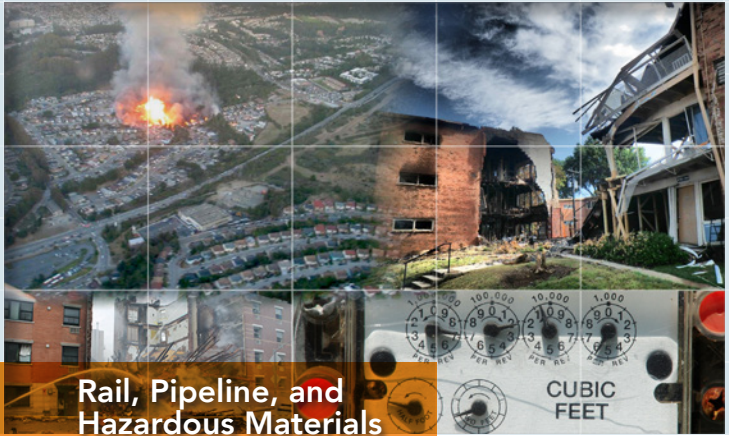
Improve Pipeline Leak Detection and Mitigation

All pipelines leak. Leak-detection and mitigation tools are essential and can make the difference between a minor incident and a deadly explosion. Pipeline systems equipped with leak-detection systems and automatic shutoff valves or remote-control valves can warn operators of an imminent accident and allow for quick mitigation.

The NTSB first identified the need for leak-detection and mitigation methods in natural gas transmission and distribution pipelines nearly 50 years ago, but the Pipeline and Hazardous Materials Safety Administration (PHMSA) has yet to require operators to use these life-saving measures, and many operators won't act without regulation.

Placing service regulators outside buildings is another mitigation tool. Yet many older homes and multifamily structures still have regulators inside, which can trap accumulating gas and lead to an explosion. Methane detection also helps mitigate consequences by alerting the public to natural gas leaks, thereby minimizing public exposure.

Every day we wait to enhance our mitigation systems is a day we put the public in danger.
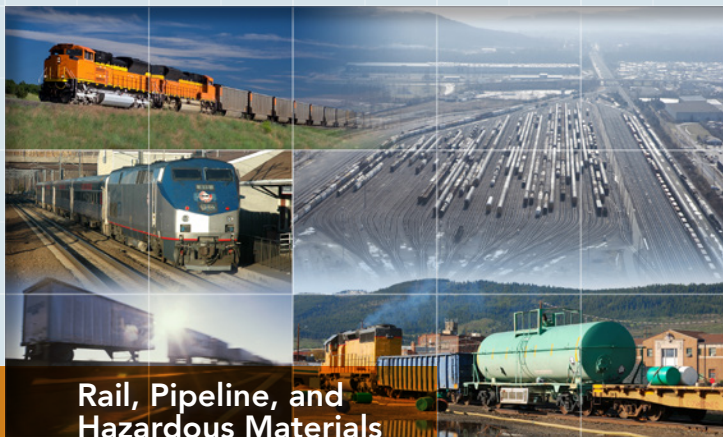
Improve Rail Worker Safety

Too many people working on or around railroad tracks, such as train crews, maintenance-of-way employees, and mechanical workers, are getting killed or injured in accidents involving train or equipment movement. Many of these workers were conducting routine maintenance or switching operations when they were struck.

Roadway workers—those who protect the track—are being killed in preventable accidents, such as those involving the use of train approach warning systems. These systems are vulnerable to human errors, such as miscalculating site distance and underestimating the time needed for workers to clear tracks. They lack safety redundancy and should not be used as the primary form of worker protection. Without proper warning, workers may not have enough time to react to an oncoming train.

The Federal Railroad Administration (FRA) and the Federal Transit Administration (FTA) need to require railroads to implement technology to provide safety redundancy.

Industry must also improve roadway worker training and scheduling practices and develop and routinely audit procedures for delivering job briefings. Watchmen/lookouts should also receive proper training and the required equipment. To prevent fatigue, railroads and transit agencies must develop work schedules and limitations based on science.

The FRA's Roadway Worker Protection Regulations, issued in 1997, are inadequate, and the FTA needs to establish specific regulations for roadway workers.

Improve Rail Worker Safety
– continued

Operations crews and mechanical workers have also been killed in preventable accidents because of inadequate separation between train crews and rail cars carrying hazardous materials. Although PHMSA requires buffer cars, the distance the agency established is too short and threatens safety. Railroads should be required to implement a minimum of five cars as a buffer between train crews and highly hazardous flammable materials.

PHMSA must issue a regulation on the appropriate separation distance for keeping train crews safe.

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Take action now to improve transportation safety!

The NTSB urges lawmakers, industry, advocacy and community organizations, and every American to learn more about what they can do to implement and champion the 2021–2022 MWL.

Adopting NTSB safety recommendations associated with these items will save lives.

To find out how to take action, and for a complete history of action or inaction on these recommendations, visit www.ntsb.gov/mwl.

For questions on the MWL, email SafetyAdvocacy@ntsb.gov.

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