



VEHICLE INCIDENT PREVENTION AND MITIGATION SECURITY GUIDE OVERVIEW



OVERVIEW

The **Vehicle Incident Prevention and Mitigation Security Guide** supports the critical infrastructure community to enhance security, prevent potential incidents, and protect patrons and employees against vehicle threats, both hostile and non-malicious. With a focus on scalability and adaptability for organizations of all types and sizes, the Guide offers strategies informed by experts from various sectors.

ABOUT THE GUIDE

The Guide addresses the threat environment of hostile actors who can cause substantial harm to critical infrastructure and, as a consequence, are a threat to pedestrians in the surrounding area. These attacks may come in the form of vehicle ramming or vehicle-borne improvised explosive devices (VBIEDs). Vehicle attacks are versatile, easy to execute, and challenging to predict. Unintentional collisions into pedestrians near infrastructure are also very common, occurring as many as 100 or more times per day. The Guide's considerations for prevention and mitigation also help to protect against harm from these incidents, drawing upon expert resources to offer comprehensive recommended threat mitigation best practices.

The Guide features several case studies, including analysis of the circumstances behind studied incidents and lessons for takeaway. The Guide also explores the potential threat posed by emerging technologies such as autonomous vehicles, which could expand the arsenal of tactics available to malicious actors for targeted attacks. An additional value add is the Guide's description of different types of barriers and an explanatory table of crash and penetration ratings standards.



CASE STUDIES

Since 2016, when a terrorist killed 86 people in a truck ramming in Nice, France, vehicle attacks have continued. The United States has not been immune, with two more hostile ramming incidents occurring in the fall of 2017. More recent additional cases include:

- **New York, New York** - In October 2017, an Islamic State-affiliated actor drove a rented pick-up truck onto a Lower Manhattan bicycle path, striking pedestrians and cyclists. The incident killed eight people and injured nearly a dozen.
- **National Harbor, Maryland** - In March 2019, an Islamic State-inspired man stole a rental van, planning to target pedestrians at the National Harbor shopping and entertainment venue near Washington, D.C. The van's owner reported it stolen and described the individual who had followed him prior to the theft. Police intercepted the vehicle and the would-be rammer prior to his attack.
- **Nashville, Tennessee** - In December 2020, a man detonated a homemade bomb packed inside a recreational vehicle (RV) next to a communications transmission facility in the downtown area. The RV was equipped with a sound system that played gunshots and provided a countdown to the explosion. The bomb killed the perpetrator, injured eight other people, damaged 40 nearby buildings, and disrupted communications in five states.
- **Liverpool, United Kingdom** - In November 2021, a man with unknown motives died when he detonated a self-built bomb in the taxi where he was a passenger as the vehicle pulled up in front of a maternity hospital. The taxi driver was severely injured.
- **Waukesha, Wisconsin** - In November 2021, a criminal fleeing a domestic incident drove through temporary barricades and into a Christmas parade route. Ignoring police attempts to stop the vehicle, the driver continued down the parade route, swerving into pedestrians. Ultimately, five people died and 62 suffered injuries.

*These case studies and all other statistics noted in this resource are highlighted and referenced in the full [Vehicle Incident Prevention and Mitigation Guide](#).

APPROACH

The Guide follows a framework of *Plan*, *Prevent*, and *Protect*, emphasizing risk assessment, emergency planning, physical barriers, and active protection measures. Stakeholders can use the Guide to find further detail and information on these key themes and security recommendations:

Risk Assessment: Conducting comprehensive evaluations for vehicle threats.	Threat Environment: Examining data and case studies on vehicle ramming and VBIED incidents in the United States and abroad.
Emergency Planning: Establishing and exercising plans for incident response.	Collaboration: Engaging with security professionals for guidance, training, and familiarization with industry standards.
Funding: Developing strategies to secure resources for security measures.	Traffic Management: Implementing proper barriers and procedures to separate pedestrian and vehicle traffic.
Crowd Management and Personnel Training: Training security teams in crowd management and threat identification.	Reporting: Encouraging vigilance and reporting of suspicious behaviors and vehicle activities.
Layered Security: Implementing a multi-faceted approach to security within facilities and venues.	Active and Passive Measures: Deploying appropriate tools and barriers based on vulnerability and risk assessments.
Scalability: Adapting protection strategies based on budget and resource availability.	

Organizations should proactively plan, prevent, and protect against vehicle threats. The Guide offers essential options for consideration, detailed security strategies, and accessible first steps for non-security personnel. Finally, the Guide includes a comprehensive list of complementary resources for organizations seeking to further enhance their vehicle threat mitigation profile.

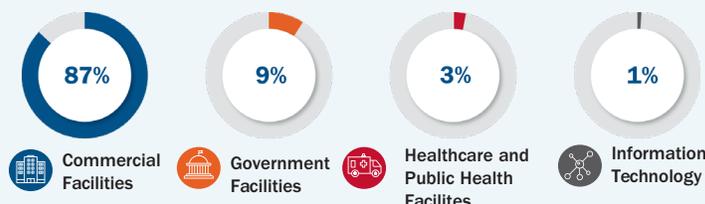
CISA's [Vehicle Ramming Mitigation](#) web presence provides various resources, including the [Vehicle Ramming Self-Assessment Tool](#), for stakeholders to evaluate their security posture and consider incident mitigation options to implement.



For more information or to seek additional help, contact CISA at cisa.isd.ospvehiclerammingmitigation@cisa.dhs.gov.

DATA AT A GLANCE

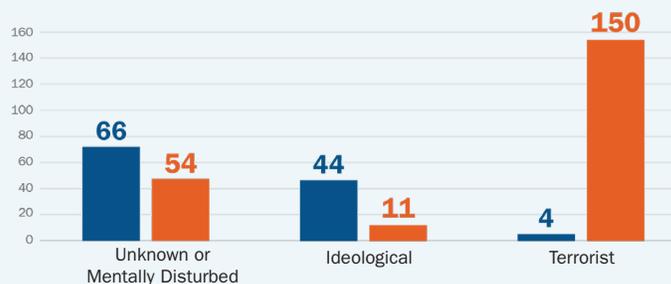
Most Targeted Infrastructure in the United States for Vehicle Rammings



The **most common U.S. perpetrator motivations** fall under the category of **Unknown/Mentally Disturbed**, followed by **Ideological**.



Analysis of Hostile Vehicle Incident Perpetrator Motivations



CISA categorized hostile vehicle incident perpetrator motivations in Europe and the United States by Unknown/Mentally Disturbed, Ideological, or Terrorist, assigned according to official government or other authoritative reporting.

Intentional (Targeted) VBIED in United States

Since 2000, the United States has seen three incidents that qualified as VBIED or VBIED attempts.

- 2004 Maui Airport, HI**
 A man set a vehicle alight with flammable liquid and drove it into the United Airlines open-air ticket counter. (*unknown/mentally disturbed motive*)
- 2010 Times Square, NYC**
 A T-shirt vendor noticed and reported a running SUV; the vehicle contained a homemade bomb with 250 lbs. of fertilizer, 120 firecrackers, and 60 lbs. of propane. (*terrorist motive*)
- 2020 Nashville, TN**
 A suicidal perpetrator detonated an explosive-packed recreational vehicle in front of the AT&T building downtown; the blast killed the perpetrator, injured three people, and damaged downtown buildings. (*ideological motive*)

Data displayed in these graphics derive from independent analysis conducted by the Mineta Transportation Institute and the Storefront Safety Council. For a more detailed look at methodology, please see the Vehicle Incident Prevention and Mitigation Security Guide.