

Issues, Causes, and Consequences of Wrong-Way Driving in Corpus Christi, Texas

Anita Sanchez

Doctoral Candidate, University of the Incarnate Word, San Antonio, USA, Ansanch3@uiwtx.edu

ABSTRACT: The Texas Department of Transportation (TxDOT) is responsible for supporting approximately 80,000 miles of road across the state (Texas Department of Transportation n.d.). In addition, TxDOT plays a key role in providing safe and dependable transportation results for the State of Texas. This includes sustaining a safe system approach throughout the State to keep Texas roads secure. Currently, the number one cause of accidents on Texas highways is excessive speed (Texas Department of Transportation 2023b). Regrettably, excessive speed is not the only shortcoming burdening Texas drivers. Wrong-way drivers on highways and other roads present a serious risk to all motorists. Collisions involving vehicles traveling the wrong way on divided highways are the most serious type of accident often resulting in fatalities (NTSB 2012). According to KRIS 6 News (2023a), 60,000 people travel across the Harbor Bridge in Corpus Christi every day. Eight people have died in wrong-way collisions on the southbound stretch of road between the Harbor Bridge and US Highway 181, connecting Portland and Corpus Christi, in the last eight years (KRIS 6 News 2023b). These fatalities prompted research into Harbor Bridge easy access exits. In Corpus Christi, Department of Public Safety (DPS) troopers and local police departments find averting wrong-way drivers commonplace. To detour wrong-way drivers, TxDOT has closed numerous off-ramps in the area indefinitely. This analysis report of freeway-related wrong-way collisions will explore problems, issues, and countermeasures TxDOT has encountered in Corpus Christi, Texas.

KEYWORDS: Texas, Department of Transportation, TxDOT, drivers, wrong way, Corpus Christi, Portland, accident, Harbor Bridge

Introduction

Wrong-way driving poses a serious threat to the public and the most common and fatal outcomes are head-on collisions and fatalities. The State of Texas leads the nation in wrong-way crash fatalities (Armbruster and Zuber 2021). High speed may be the number one cause of accidents, however, collisions involving vehicles traveling the opposite way on divided highways are the most serious type of accident, resulting in fatalities (NTSB 2012). Effective legislation and safety measures must be implemented to prevent wrong-way driving. State and local agencies must prioritize and determine what is most critical so that no more lives are lost.

Discussion

According to the National Transportation Safety Board (2012), wrong-way driving is vehicular movement on a roadway in a direction opposite the legal flow of traffic. This analysis only considers wrong-way driving on highways designed for high-speed traffic, including exit and entrance ramps. Research by Armbruster and Zuber (2021) shows that alcohol impairment, aging, and driving without a passenger are the three most significant contributing factors to wrong-way crashes. Studies conducted by Mia, Weissmann, Sharif, Billah, and Dessouky (2021) indicate that off ramps are a major contributing factor in wrong-way driving.

Drivers who are impaired by alcohol are more likely to cause wrong-way crashes (Automotive Fleet 2023). Research from the National Transportation Safety Board (2012) suggests that over half of wrong-way collisions involve alcohol. "Alcohol impairment is, by far, the single most significant factor in the majority of wrong-way driving crashes, which unfortunately has not changed since the NTSB issued its Wrong-Way Driving special investigation report in 2012," said NTSB Director of the Office of Highway Safety, Dr. Rob Molloy (Armbruster and Zuber 2021). In 2021, after years of research, the Iowa Department of

Transportation discovered that 60 percent of wrong-way driving was related to alcohol (Automotive Fleet 2023). In addition, vehicles traveling the wrong way on divided highways have a higher fatality rate than other crashes (NTSB 2012).

The safety of elderly drivers is also a major concern. Data indicates that drivers over the age of 70 are more at risk of wrong-way driving (Armbruster and Zuber 2021). Their ability to recognize danger may be hindered by health problems caused by diseases of the central nervous system. Furthermore, stiff joints and muscles may hinder quick reaction times. Thus, elderly drivers are responsible for approximately 15 percent of wrong-way crashes (Automotive Fleet 2023).

Armbruster and Zuber (2021) report that nearly 90 percent of wrong-way drivers are alone and suggest that the presence of a passenger may offer protection. It is more likely that passengers will inform the driver of their error, helping to prevent a serious incident from occurring. Data on fatal wrong-way driving increases steadily each year (Armbruster and Zuber 2021). The Texas Department of Transportation (n.d.) recorded 5,506 crashes involving wrong-way drivers on one-way roads between 2018 and 2022. In total, 362 of them resulted in fatalities (Texas Department of Transportation n.d.). "Wrong-way crashes on divided highways are often fatal as they are typically head-on collisions," said Dr. David Yang, executive director of the AAA Foundation for Traffic Safety (Armbruster and Zuber 2021). As of 2015, eight people have died on the southbound road between the Harbor Bridge and US Highway 181 that connects Portland and Corpus Christi (Clow and Hofmann 2023b). It is estimated that at least five of the fatalities were victims of wrong way, intoxicated drivers (Clow and Hofmann 2023a). Research gathered from these wrong-way crashes corresponds with research by Cooner, Ranft, and Cothron (n.d.) and indicates the following:

- The origin of these wrong-way incidents is the freeway exit ramp. In this instance, the driver travels in the opposite direction on an exit ramp onto the roadway.
- Wrong way drivers are more likely to be male.
- Accidents involve an impaired wrong-way driver.
- Crashes are more prevalent during the early morning hours following midnight (Cooner, Ranft, and Cothron n.d.).

In response to the fatalities caused by wrong-way drivers, KRIS 6 News began an investigation. It was discovered during this investigation that wrong-way drivers frequently traveled the Harbor Bridge and US 181 between Corpus Christi and Portland (Hofman 2023a). Approximately ten calls of wrong-way drivers traveling northbound are reported to the Portland Police Department (PPD) every year, according to Clow and Hofmann (2023a). These drivers enter the southbound lanes of the Harbor Bridge through exit ramps and travel north toward Portland (Clow and Hofman 2023a).

Utilizing news reports, police reports, and the Texas Department of Transportation Crash Records Information System (CRIS) database, 6 Investigates discovered that between 2015 and 2022, there were eleven crashes and eight deaths in the area between the Harbor Bridge and Portland. As a result, Texas Governor Greg Abbott requested a partnership with state and local agencies. The Corpus Christi Police Department, the Portland Police Department, the Texas Alcoholic Beverage Commission (TABC), and various city officials and lawmakers from Nueces and San Patricio counties along with TxDOT, and DPS started a collaboration to implement safety measures toward minimizing and eliminating wrong-way driving (Simon 2023a).

Countermeasures

In March 2023, TxDOT implemented countermeasures and safety approaches surrounding the Harbor Bridge area (Texas Department of Transportation 2023a). Closure of two southbound exit ramps at the foot of the Harbor Bridge include the Padre Street exit and the Power Street exit. The southbound Power Street exit ramp was reconfigured from a two-way road into a one-way, single

lane road (Texas Department of Transportation 2023a). Extra signs, striping, and reflective pavement markers were added in anticipation of deterring wrong-way drivers (Texas Department of Transportation 2023a; Simon 2023b). The pavement markings will instruct drivers to slow down. Similarly, TxDOT recommended replacing and updating existing *do not enter* and *wrong way* signs (Simon 2023b). Other safety improvements include additional message boards, rumble strips, and water-filled barrels that will obstruct wrong-way drivers from entering exit ramps (Texas Department of Transportation 2023b).

Together with the above safety strategies, DPS has increased patrols around the Harbor Bridge, including patrolling the roadway between Corpus Christi and Portland 24 hours a day, 7 days a week (Gibson 2023). After one year, DPS has issued over 12,000 citations and prevented numerous wrong-way drivers from approaching the Harbor Bridge and driving the wrong way (Texas Department of Public Safety: South Texas Region Facebook Page 2024). See Table 1.

Table 1. Harbor Bridge Statistics

Total Stops	35,000
Wrong-Way Drivers	18
Citations	12,838
Warnings	38,238
Speed Citations	3,371
Seatbelt Citations	489
DWI Arrests	329
Narcotics Arrests	453

Recommendations

Based on the results of the analysis of highway-related wrong-way drivers in the Corpus Christi area, the following recommended guidelines ensure that local and state authorities exceed the expectations of the public. Officials must keep abreast of all defective streetlights and old or out of order signage and make necessary repairs. It is suggested that outdated and damaged *do not enter* and *wrong way* signs be replaced with alternative signs with distinct designs and lighting (Cooner, Ranft, and Cothron n.d.). Development and expansion of the newly formed task force as a new branch of Texas road safety. The task force would operate independently from police departments, TxDOT and DPS. The implementation of checkpoints at problematic exit ramps between the hours of 12 to 4 a.m. would discourage impaired driving considering drivers would have to stop and communicate with law enforcement. The installation of detection systems or other detectors on exit ramps in future construction would contribute to ending wrong-way collisions (Cooner, Ranft, and Cothron n.d.). Finally, continued research to include Corpus Christi downtown venues and arenas and the overserving of alcohol would command attention and educate people with regard to the serving and the consumption of alcohol. The recommendations are twofold; they are designed to make Texas roads safer and to ensure that motorists are vigilant when driving.

Conclusion

Wrong-way driving accidents are rare; however, they are usually serious and fatal. Consequently, government agencies have closed numerous off-ramps in the Corpus Christi and Harbor Bridge area indefinitely. Fortunately, the countermeasures taken by TxDOT, DPS, and the surrounding police departments have shown promise in mitigating and lowering these incidents. Despite that, countermeasures along with engineering enhancements cannot take the place of a responsible, safe driver. The best countermeasure against any vehicle accident is to exercise good judgment when behind the wheel, including never drinking and driving, paying attention, and wearing a seatbelt.

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