Comparison of Zero Deaths Initiatives Vision Zero, Towards Zero Deaths, and Road to Zero

Item	Vision Zero	Toward Zero Deaths	Road to Zero
Author	Vision Zero Network (non-profit), originally established in Sweden	Committee includes AASHTO & AAMVA (state entity steering committee)	National Safety Council (federal government-funded)
Website	https://visionzeronetwork.org/ Cited as (VZ Network, 2022)	https://www.towardzerodeaths.org/ Cited as (TZD Steering Committee, n.d.)	https://www.nsc.org/road-safety/get-involved/road-to-zero Cited as (National Safety Council, 2022)
Literature	Vision, Strategies, Action: Guidelines for an Effective Vision Zero Action Plan Cited as (VZ Network, 2017a) Maying from Vision to Action: Fundamental	Toward Zero Deaths National Strategy Cited as (TZD Steeting Committee, 2014)	The Road to Zero: A Vision for Achieving Zero Roadway Deaths by 2050 Cited as (Ecola, Popper, Silberglitt, & Fraade-Blanar, 2018)
	Moving from Vision to Action: Fundamental Principles, Policies & Practices to Advance Vision Zero in the U.S. Cited as (VZ Network, 2017b)	Road Map for Implementing the TZD National Strategy on Highway Safety Cited as (TZD Steering Committee, 2019)	
Manual Revision Date	Revised 2022	Revised 2014	Revised 2018

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Summary Statement	The Vision Zero Network is a collaborative, nonprofit campaign helping communities set and reach the goal of Vision Zero — eliminating traffic fatalities and severe injuries among all road users — while increasing safe, healthy, equitable mobility. "Each year, more than 42,000 people — the population of a small city — are needlessly killed on American streets and thousands more are injured. We call this suffering traffic "accidents" — but, in reality, we have the power to prevent traffic collisions. "For too long, we've considered traffic deaths and severe injuries to be inevitable side effects of modern life. While often referred to as "accidents," the reality is that we can prevent these tragedies by taking a proactive, preventative approach that prioritizes traffic safety as a public health issue." (VZ Network, 2022)	"Toward Zero Deaths (TZD) is a national strategy on highway safety to advocate for eliminating serious injuries and deaths on our nation's roadways, conceptualized by safety practitioners, researchers, advocates, and others from a variety of disciplines. The strategy calls for all stakeholders to champion the idea that one death on our nation's roadways is too many, and we must all work together to bring the annual number of roadway deaths down to zero." (TZD Steering Committee, n.d.)	 "The Coalition, in a report written by the RAND Corporation, a nonprofit, nonpartisan research institution, identified three main initiatives to reduce roadway fatalities: Double down on what works through proven, evidence-based strategies Advance life-saving technology in vehicles and infrastructure Prioritize safety by adopting a safe systems approach and creating a positive safety culture "In the short term, the report stresses enforcing and strengthening current traffic safety laws, providing new resources for traffic safety researchers and practitioners, and supporting those who design and build roads and vehicles." (National Safety Council, 2022)
Activity	Still active; up to date on recent safety "trends" for bicyclists and pedestrians; ties in well with SS4A	No updates recently; no address of more current safety issues and practices	Active on social media; up to date on safety trends, SS4A
Thesis		Traffic deaths are preventable through prioritizing proven safety strategic	es.
Foci	Safety culture, design, enforcement, and technological innovation		
Primary focus	Design	Culture	Technology
	Combat system failure "Lead with roadway design that prioritizes safety."	Improve driver behavior	Research-based technological advancement of safety tools, technologies, and strategies as countermeasures

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	(VZ Network, 2017b, p. 16)		
Jurisdictional focus	Local, municipal, or occasionally county	State	Multijurisdictional
Major planning document	Vision Zero Action Plan	State Strategic Highway Safety Plan (SHSP)	Both VZ and TZD strategies, by proxy
Report notes	The action plan manual describes the steps to creating a vision zero plan, including, goal setting, getting commitment from officials, employing Complete Streets and context-appropriate speeds, identifying a high-injury network (HIN), and planning proactively and systemically. Each actionable strategy has a section for applying an equity lens.	The national strategy describes the key goal areas to reduce fatalities and serious injuries, including safer drivers and passengers, safer vulnerable users, safer vehicles, safer infrastructure, enhanced EMS, and improved safety management. Each section identifies strategies and countermeasures that can contribute to a safer system. The strategy seems to avoid design countermeasures that could slow motor vehicle traffic or otherwise impede drivers. Strategies include, for example, wide shoulders and medians for high-speed road and protected left turns to reduce conflicts between vehicles. Technology advancements aim to make the network more efficient and, by extension, safer.	The document outlines a detailed foresight of the US in 2050 when the goal of zero roadway fatalities will be achieved. It underscores that we are subject to bad safety policy that must change in the short term, and it establishes a long-term set of strategies to be implemented across federal, state, and local governments, as well as law enforcement, automakers, and the insurance industry.

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Safe System Approach	Actively references the Safe System Approach (SSA) as a major part of the strategy. The purposes and goals of the road design strategies include implementation of Complete Streets, investment in capital safety treatments, and speed management. The SSA corroborates the effectiveness of implementing safety-oriented roadway design on the high-injury network and otherwise making the operation of the network less susceptible to catastrophic outcomes due to human errors.	Not mentioned in the report, but the six key areas are similar to the 5 components of the SSA at a high level. In terms of the key safety areas in the national strategy, many of the areas have direct analogs to the SSA; however, the countermeasures identified within the safety areas differ greatly from those identified by USDOT as proven safety countermeasures.	Actively referenced and tied to Vision Zero strategies. The Safe System Approach is consequential to the realization of the RTZ 2050 vision. The system itself must be safe enough that when inevitable human errors occur, they are not fatal nor do they lead to serious injury. "A wide variety of groups involved with traffic safety committed to implementing evidence based safety measures and began adopting a "Safe System" approach in the first decades of the 21st century. This turned the traditional thinking about safety on its head—instead of seeing humans as the offenders, responsible for most crashes because of their bad habits, planners and engineers began thinking that the system itself needs to be safe." (Ecola, Popper, Silberglitt, & Fraade-Blanar, 2018, p. x)
Planning style		injuries includes both proactive and reactive processes. Reactive processes are targeted for intervention. Proactive planning includes anticipating safety is	
Strategy components	 The four categories of action items are: Prioritize roadway design Focus on speed management Utilize impactful education strategies Ensure equitable enforcement 	The six key areas are: Safer Drivers and Passengers Safer Vulnerable Users Safer Vehicles Safer Infrastructure Inhanced EMS Improved Safety Management	Action items are non-specific in terms of defining countermeasures independently; however, the report identifies the importance of implementing Vision Zero and Toward Zero Deaths at their respective jurisdictional levels. The RTZ report outlines important multijurisdictional sharing of responsibilities. All levels of government, plus enforcement, automaking, and insurance stakeholders, play several important roles in the continuing conversation and actions relating to reducing roadway fatalities and serious injuries (FSIs).

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Vulnerable roadway users	Vulnerable roadway users include mode-specific and demographic groups. The strategies repeatedly focus on bicyclists and pedestrians as roadway users at higher risk of death or serious injury in the event of a crash, and lower speed differentials should be an action item that protects them in mixed traffic. Additionally, Vision Zero identifies Safe Routes to School programs as useful and in need of further implementation and expansion for vulnerable demographics, including children, seniors, and persons with disabilities. "Cities should consider and plan transportation systems that make slower, safe speeds the norm to protect the most vulnerable road users, especially in areas with historic patterns of fatalities and serious injuries, which will, in turn, mean that all road users are safer." (VZ Network, 2017a, p. 10) "Elected officials and other leaders must courageously support designs that prioritize safety, even when resistance arises due to nonsafety concerns. Where physical separation is not possible between automobiles and vulnerable road users, such as people walking and bicycling, the speed differential should be lowered to such a degree that serious injuries are not likely from crashes." (VZ Network, 2017b, p. 22)	Vulnerable roadway users include any road users who are more susceptible to severe injury or death when involved in a traffic crash due to the lack of physical protection around them, such as that provided by a motor vehicle to its occupants. This includes pedestrians, bicyclists, and motorcyclists. Additionally, the document identifies individuals whose work takes place on the roadway as vulnerable, including construction and maintenance workers, emergency medical and incident responders, and law enforcement personnel. Some design strategies suggest roadway/infrastructure improvements that reduce factors contributing to crashes involving pedestrians and bicyclists. Primarily, much of the safety actions regarding safety of pedestrians and bicyclists are enforcement and outreach based, including enacting and enforcing helmet laws and awareness campaigns about pedestrian visibility and impaired walking. "Successfully protecting vulnerable road users relies on a combination of improving infrastructure and planning, enacting and enforcing legislation, and targeting education programs to specific road user audiences. These initiatives may require that road users behave in a certain way or use protective equipment, which can generate controversies related to personal freedoms, privacy, and the ability to enforce laws." (TZD Steeting Committee, 2014, p. 23)	The report identifies the Vision Zero Network as a coalition of cities adopting a Safe System Approach to decision-making, which addresses the needs of vulnerable and high-risk road users who may have been overlooked by conventional safety efforts. RTZ also identifies a responsibility of auto manufacturers and technology developers to address vulnerable road users in safety research and design.

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Speeding	Speed is recognized as the most fundamental contributing factor in crash severity, and that transportation should be designed for speeds that do not lead to fatalities. There are three primary speed control levers, all of which should be applied: • Roadway designs that discourage speeding • Safe legal speed limits • Effective communication and enforcement of speed limits	Speeding is a major contributing factor in the occurrence and severity of crashes, including the likelihood of a fatality. The national strategy discusses the impact of lane width, proximity to roadside objects, and geometry as indicators to drivers of an appropriate speed, but the strategy falls short of using these behavioral implications to the advantage of safety. Rather, it focuses on targeted enforcement along corridors susceptible to speeding, along with automated speed enforcement, without commensurate geometric alterations to roadway design. "Strategies must involve roadway design and treatments, vehicle design, and efforts to change driver attitudes and behavior. In addition to speed limit signs, visual cues on appropriate travel speeds can be provided by the design of the roadway—for example, the width of lanes, the proximity of roadside objects to the road, on-street parking, sharpness of curves, and lengths of straight sections are all cues that help drivers select a speed." (TZD Steeting Committee, 2014, p. 14) "Locations where speeding is common are suitable for targeted speed enforcement, where officers focus on that particular issue in combination with public awareness campaigns. Increased fines are a potential strategy, as well. Because automated enforcement technologies provide sustained enforcement of a specific traffic law (speeding, red light running, toll violations) without the need for dedicated officers or compromising officer safety at the roadside, they can be an alternative option for jurisdictions looking for effective and efficient ways to address a significant concern." (TZD Steeting Committee, 2014, p. 15)	Road to Zero identifies speed reduction as a major contributor to their vision of reducing pedestrian and cyclist deaths. It envisions insurance companies incentivizing the use of automated vehicles (which are assumed to adhere to road laws), especially by high-risk drivers. In their idyllic future, driver safety culture has led citizens in 2050 to expect drivers to comply with speed limits.

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Equity	Prioritizes equity and engagement across all aspects of the planning process and in the suitability of action items. Equity is not only a desired outcome of the framework but also an integral feature of every component of its planning and implementation. The success of a Vision Zero Action Plan hinges on equity.	TZD national strategy does not mention equity in any specific or broad terms as a goal or consideration. Implementation guidance suggests using crash and other data to identify key demographic groups and potential outlier groups who need better outreach to hear the TZD message. This suggestion identifies ethnic and senior populations, the private sector, and neighborhood groups.	RTZ report does not mention equity directly, but the Coalition's social media presence makes numerous statements about equity, including messaging that the most vulnerable racial demographics bear the greatest burden of traffic violence and are overrepresented in fatality and serious injury data.
Design & Engineering	Lead with roadway design that prioritizes safety; Manage speed to safe levels. "Modern traffic safety efforts have taken an approach that incorporates the fundamental "E's" of Engineering, Education, Enforcement and Evaluation. While still useful (particularly as the E's of Equity and Engagement are added), this framework obscures several important realities. "First, it is important to note that not all E's are created equal. The action of physically designing (or re-designing) roadways to encourage safe behavior is paramount. This requires planning for a safe network for all modes of transportation, where design choices match intended behavior and context, and the most physically vulnerable users — people walking and biking — have contiguous, safe, and convenient infrastructure." (VZ Network, 2017b, p. 22)	Various infrastructure strategies are identified in the TZD national strategy. Many of them are vague in their wording, plus law enforcement strategies outnumber and outrank them. Some design strategies include: Implement infrastructure/roadway improvements to reduce factors contributing to crashes with bicyclists Implement infrastructure/roadway improvements to reduce factors contributing to crashes with pedestrians Implement infrastructure/roadway improvements to support speed management to reduce risk of pedestrian fatalities Improve work zone design and operations to reduce the risk of work zone fatalities Improve signing, markings, and lighting to increase driver awareness of intersections Install shoulder and centerline rumble strips/stripes to reduce risk of lane departure crashes Install median barrier systems, crash cushions, and guardrail end treatments to minimize the risk of lane-departure fatalities. Improve signal timing by adding protective left-turn phases, improving clearance intervals, and coordinating signals Redesign intersections, including constructing restricted crossing Uturn intersections, roundabouts or removing skews List adapted from (TZD Steeting Committee, 2014, pp. 28, 43)	The report outlines the variation in priorities across the United States. In urban centers, it writes about low-cost, high-impact countermeasures that gave Vision Zero plans the credentials to address more aggressive measures to further the power to save lives. In cities: "The degree of infrastructure changes varied much more between cities, with some cities installing roundabouts at intersections that had been deemed more dangerous and making four-way intersections narrower, so that pedestrians wouldn't have to traverse six or eight lanes. Both of these slowed traffic and reduced crash severity." (Ecola, Popper, Silberglitt, & Fraade-Blanar, 2018, p. 34) In rural areas, the focus is less on vulnerable road users and more on making rural roads safer: "Intersections along high-speed, divided highways were retrofitted with "J-turns" to prevent severe angle and frontal crashes. Instead of crossing or turning left onto a four-lane divided highway, with wide medians and multiple lanes of high-speed traffic, J-turns require a right turn followed by a U-turn, and have been proven to be safer than turning left directly." (Ecola, Popper, Silberglitt, & Fraade-Blanar, 2018, p. 35)

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Safety Culture	Safety work transcends simply influencing individual behavior. There is a spectrum of prevention that ties into a safety culture that impacts, governmental, organizational, educational, and individual norms. "Vision Zero calls for a shift in attention from the traditional, primarily educational approach aimed at influencing individual behavior to an "upstream" approach that shapes policies, systems and the built environment key factors that most affect people's behavioral choices. "This does not mean that individuals are not responsible for their own behavior, nor that efforts to influence individuals directly are not worthwhile. Instead, it shifts the focus to higherlevel systems and policies and those who control them because this has greater impact than trying to influence billions of individual choices. "Policies and designs should encourage the desired behaviors by making them intuitive, rational, and easy to follow." (VZ Network, 2017b, p. 13)	TZD places the most stock in its first key safety area: Safer Drivers and Passengers. Essentially, the strategy identifies driver error and unsafe practices, including speeding, traveling unrestrained, and driving while impaired, as the most frequent contributing factor to crashes. "Of all the risky behaviors that drivers and vehicle passengers demonstrate, the three most prevalent are traveling unrestrained, alcohol-impaired driving, and speeding—each of which consistently accounts for approximately 30 percent of total fatalities (see Table 1). Other significant driver safety issues are related to age, specifically younger or novice drivers and older drivers. The use of technological devices while driving has become a prominent concern in recent years as well." (TZD Steeting Committee, 2014, p. 12) The national strategy outlines key strategies for improving driver safety. The following is an abbreviated list of relevant strategies, excluding numerous enforcement-related strategies which are located one cell down: Implement ignition interlock systems Improve driver education by standardizing materials and laws nationally Implement teenage driver-oriented technologies that adjust stereo volume, increase seatbelt warning signals and react to signs of distraction Implement public education campaigns and enforcement of safe driving practices in proximity of commercial vehicles—with an emphasis on targeting teen drivers Improve older driver licensing policies and screening of older drivers Implement Medical Advisory Boards that independently review older driver capabilities List adapted from (TZD Steeting Committee, 2014, p. 21)	The RTZ report identifies a growing safety culture as an important facet of a successful zero deaths initiative. Such a culture will foster safe behaviors such as driving sober and within the speed limit, and it will create a strong market for advanced safety technologies, including automated vehicles. As time progresses and people become accustomed to the benefits of advanced safety on the roads and in technological advances, the RTZ report suggests that people will become less tolerant of risky behavior and more supportive of the changes necessary to implement the Safe System Approach.

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Enforcement	It is important to enforce safe speed limits. The strategy has an intensive focus on equity and ties it into a subject matter that is often polarizing. As a caution against racial profiling, which has been identified as a major concern during officer-initiated traffic stops, Vision Zero advocates appropriate automated speed enforcement. Granted, any automated speed enforcement program must be developed with input and buy-in from the most marginalized and vulnerable people in the community. "Automated speed enforcement is a well-tested and proven strategy to encourage safe speeds. Cities such as Washington D.C., Chicago, NYC and many others across the world have effectively discouraged speeding via the use of safety cameras. A particularly timely benefit is that this technology can lessen the degree of police officer discretion required in making traffic stops, important at a time when concerns about equitable law enforcement is at a particularly high and troubling level. "There are important considerations in utilizing automated speed enforcement technology, mostly around privacy and equity (for instance, fines present a disproportionate impact on low-income populations). These are valid concerns and can and should be addressed in any safety camera program, but the value of automated enforcement in protecting lives is high enough that it should be integrated into Vision Zero strategies." (VZ Network, 2017b, p. 23)	The national strategy outlines key strategies which apply enforcement to new and existing laws. Enforcement is a major aspect of the many of the key safety areas of the national strategy. They include: Enact and enforce primary seat belt laws Implement high-visibility restraint enforcement, including nighttime and child restraint use Enact targeted enforcement for speeding-related offenses Enact legislation and implement automated traffic enforcement—including pervasive automated speed enforcement and applications for school and work zones Implement rigorous aggressive driving and speeding-related enforcement programs Enact legislation and implement high-visibility sobriety checkpoints Implement appropriate penalties and DWI/DUI courts Enact legislation and develop detection and enforcement methods to handle drug impairment, including prescription drugs Enact and enforce legislation to address distracted driving—including texting bans Implement technologies to prohibit or limit cell phones and electronic devices while vehicle is in motion Enact and enforce traffic laws applicable to motor vehicle operators and vulnerable users that improve pedestrian and bicyclist safety Enact and enforce bicycle helmet laws that apply to cyclists of all ages Implement pedestrian awareness programs targeting pedestrian visibility and impaired walking Enact and enforce motorcycle helmet legislation for all ages and riders Implement targeted enforcement and public education programs to reduce the risk of motorcyclist fatalities (specifically speeding and impaired riding) Adapted from (TZD Steeting Committee, 2014, pp. 21, 28)	In the process of reducing roadway fatalities and serious injuries, the RTZ framework identifies the need for enacting and providing adequate resources for the enforcement of strong traffic safety laws. In fact, RTZ identifies law enforcement and the judicial system as a key responsible party on the road to zero. Their responsibilities include enhancement of existing and new safety laws and participation with local leaders in supporting state-led Toward Zero Deaths strategies and local Vision Zero strategies. Additionally, it is important for law enforcement to standardize crash reporting and data sharing protocols across jurisdictions and levels of government. Road to Zero is very research and technology-based in its approach to a zero-deaths goal. As such, it is a priority of the coalition to have access to robust, standardized, and reliable crash incident data.

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Technology & Innovation	Maximize technology advances, but don't overlook low-tech solutions. Autonomous vehicles and other technological innovations may reduce the number of fatalities and serious injuries on roads due to human error, but they are still a remarkably long way away from ubiquity. "While much of the oversight and policy-setting will likely come from the state and federal levels, local policymakers should also voice their commitment to safety first in all such technical innovations. Non-motorists have benefited least from the past few decades of safety technology advances, and must be better prioritized if we are serious about Vision Zero. "And, in the rush to embrace new technology, we should not overlook lower-technology solutions. For instance, large vehicles — utility trucks, buses, and freight/logistics vehicles — are disproportionately responsible for traffic fatalities, particularly involving vulnerable users in multimodal, urban areas. Treatments like side guards, cameras and mirrors on large vehicles and trucks, especially in urban areas, can reduce the consequences of crashes and are standard equipment in many parts of the world." (VZ Network, 2017b, p. 25)	Many of the strategies surrounding safer vehicles and safer roads include the implementation of new technologies on the roadway network and within vehicles to reduce the risk of crashes. Mentioned technologies include: • Electronic stability control (ESC) – a monitoring device for a vehicle's wheels and brakes which can help prevent lane departure, rollover crashes, and large truck jackknife crashes • Emergency brake assist instruments – a system which applies additional brake pressure when the driver appears to attempt an emergency stop • Advanced airbag systems • Collision warning systems • Vehicle-to-vehicle and vehicle-to-infrastructure communications • Technologies that warn drivers of potential conflicts and/or assist them in choosing appropriate gaps in traffic at intersections • Improved alcohol and drug detection technology Adapted from (TZD Steeting Committee, 2014, p. 37)	Technology and innovation are the major focus area of the Road to Zero report. The entire narrative of the report centers around a future version of the United States where technology and innovation have led to changes in vehicles, roadway design, and safety culture, and such changes have eliminated roadway fatalities and serious injuries. On rural roads, safety technology has, by 2050, advanced to prevent the most dangerous rural crashes, such as head-on collisions and roadway departures. Technologies include autonomous vehicles and driverassist instruments. Emergency service response technology has advanced to reduce the response time and fatality likelihood for crashes, even in more remote rural areas. Such technology includes improvements in trauma care, increased emergency response, enhanced connectivity for faster crash notification, improved injury prediction, and more application of helicopter emergency response. In urban areas, vehicle automation is a critical facet of the transportation system as well. Nearly all vehicles, including motorcycles, are expected to have some level of it. Vehicle-to-vehicle communication and technology identifying vulnerable road users all contribute to reduced fatalities and serious injuries. Other technological advancements help make roadway design and engineering safer, including anti-skidding surfaces. Better data reporting has also fortified the safety of currently recommended measures, including physical separation of directions of traffic on high-speed corridors and the elimination of road-edge drop-offs.

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