TURNING AROUND AMERICA’S TRAFFIC CRISIS 
ONE ROUNDBOUB AT A TIME: WHY MORE ROUNDBOUDS MEANS SAFER ROADS AND FEWER AUTOMOBILE DEATHS

INTRODUCTION

Henry Ford’s early twentieth-century breakthroughs in automotive mass production merged the United States into the fast lane toward motor vehicles becoming a dominant mode of personal travel.¹ Today, for an hour a day, ninety percent of Americans over the age of sixteen will buckle into motorized, multi-ton projectiles and propel themselves along a vast infrastructure of roads designed and regulated primarily for expediency of travel, not safety.² And while America’s obsession with personal locomotion may be a realization of Henry Ford and other industrialists’ highest hopes for a modern society, the magnitude of the harm occasioned to America by automobile crashes is certainly far beyond the scope of their imaginations. Traffic crashes are one of the top three causes of unintentional injury death for Americans of all ages.³ Nearly 40,000 Americans will die in car accidents this year, and an estimated 2.74 million Americans were injured in car accidents in 2019.⁴ Equally as horrible, more than 50,000 pedestrians were struck and killed between 2010 and 2019 simply by

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walking near or crossing roadways. Additionally, traffic fatalities cost Americans around $384 billion per year. Furthermore, “[w]hen quality of life valuations are considered, the total value of societal harm from traffic crashes in the United States in 2010 was an estimated $836 billion.” Adjusted for the environmental effects of driving, such as pollution from emissions, the annual death toll caused by driving in the United States rises from roughly 40,000 to nearly 100,000 lives. And less obvious but more insidious is the disproportionate effect of the current traffic crisis, both in terms of crashes and adverse environmental impact, on people of color and other underrepresented communities throughout America.9

The American traffic crisis must be met with drastic changes to address the harms caused by vehicle collisions and emissions. However, any radical revision to the vehicular transportation system would have to overcome the entrenched legal, political, and economic incentives that reinforce the promotion of expediency over safety.10 Even in the face of skyrocketing risks created by confounding behavioral factors like intoxicated driving and speeding, or structural and legal risks such as widening highways, road design favoring speed, and weak traffic law enforcement, American society refers to car crashes as “accidents” and often views their occurrence

8. Bronin & Shill, supra note 2, at 1 n.1; see also Fabio Caiazzo, Akshay Ashok, Ian A. Waitz, Steve H.L. Yim & Steven R.H. Barrett, Air Pollution and Early Deaths in the United States. Part I: Quantifying the Impact of Major Sectors in 2005, 79 ATMOSPHERIC ENV’T 198, 198 (2013) (“The largest contributors for both pollutant-related mortalities are road transportation, causing ~53,000 [related deaths].”).
9. Bronin & Shill, supra note 2, at 8 (“As has been documented extensively, the lives taken by car crashes are far likelier to be African American, Latino, Indigenous, low income, or belong to people with disabilities than the general population. Even after adjusting for differences in walking rates, African American pedestrians face two-thirds more danger than their white counterparts and Native American pedestrians twice as much. Transportation-related emissions disproportionately affect the health of those same groups.” (footnotes omitted)). U.S. Transportation Secretary Pete Buttigieg was quoted stating: “There is racism physically built into some of our highways.” Corinne Grimapol, Biden Administration Seeks to Address the Interstate Highway System’s Racist Past, ENG’G NEWS-RECORD (Apr. 15, 2021), https://www.enr.com/articles/51593-biden-administration-seeks-to-address-the-interstate-highway-systems-racist-past [https://perma.cc/ILJ5-MMTR]; see also DANGEROUS BY DESIGN, supra note 5, at 26–28.
10. See generally Shill, supra note 6, at 498 (highlighting the legal and policy drivers that shape multiple arenas of law toward favoring and relying on unsafe vehicular travel).
12. See supra note 2 and accompanying text.
as an unavoidable cost of living in an advanced society. The structural risks faced by drivers are further compounded by the increasing average size and performance of consumer vehicles. But the severity of the public health crisis presented by increasingly dangerous driving behavior, high-risk driving regulations, bigger and faster cars, and inherently dangerous infrastructure is becoming more of an urgent issue at the highest levels of government. Adjusting infrastructure design and reshaping traffic policy to incentivize and promote safety is America’s best chance at ameliorating the traffic death crisis. The recent passage of the Infrastructure and Investment Jobs Act, designed, among other purposes, “to authorize funds for Federal-aid highways, highway safety programs, and transit programs,” has provided substantial funding to tackle the toughest of America’s traffic issues.

Although traffic law is the “body of law with which ordinary Americans interact most frequently,” the substance of vehicle and traffic regulation...
has largely escaped critical analysis.”

19. See Shill, supra note 6, at 505 (“Cloaked in mundanity and a surface neutrality, the substance of vehicle and traffic regulation has largely escaped critical analysis.”).


21. See, e.g., Hope Yen, US Road Deaths Rise at Record Pace as Risky Driving Persists, AP News (Feb. 1, 2022, 12:08 PM) https://apnews.com/article/coronavirus-pandemic-business-health-transportation-pete-buttigieg-a16719e38d72f68e338030103e924cf0 [https://perma.cc/ENW4-5354] (highlighting that roughly 31,720 people died in car crashes during the first nine months of 2021, which was 12% higher than the same period in 2020 and represents the highest percentage increase over a nine-month period since the National Highway Traffic Safety Administration (NHTSA) began recording traffic fatality statistics).


I. BACKGROUND

Among the toughest of America’s traffic issues are the risks faced by drivers traveling through intersections. Fairly described as ubiquitous and inherently dangerous, intersections are “where two or more roads cross each other and activities such as turning left, crossing over, and turning right have the potential for conflicts resulting in crashes.” Americans experience this danger in serious ways: twenty-four percent of all fatalities and roughly forty-eight percent of injuries caused by automobile crashes between 2010 and 2019 occurred at intersections. Moreover, nearly all crashes at intersections have causes attributable to drivers. One of the most prevalent pre-crash events reviewed by the National Highway Traffic Safety Administration (NHTSA) was turning left. To combat these risks, this Note proposes roundabouts as the dominant form of intersection traffic control in America.


25. NHTSA Fatality and Injury Reporting Tool, NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., https://cdan.dot.gov/query (select crashes; select all motor crashes within “fatality and/or injury;” select 2010 through 2019 for timeframe; select build your own report; place crash date (years) in the row section and intersection in the column section; click submit).

26. NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., supra note 24, at 5 fig.6. Crashes with causes attributable to drivers are important for this Note because I am arguing that, by eliminating many of the variables that lead to drivers causing crashes, roundabouts can ultimately promote safer driving.

27. Id. at 3 fig.1.
A. What Is a Roundabout?

The modern roundabout is a circular intersection that directs the flow of traffic around a raised circular median in a counterclockwise direction. While often confused with earlier iterations of traffic control devices such as traffic circles and rotaries, roundabouts are functionally distinct from their predecessors and consequently provide material advantages in safety and efficiency. Chief among the differences between roundabouts and traffic circles is roundabouts’ ability to operate without traffic signals and their requirement that incoming traffic yield to those vehicles already traveling in the roundabout. In contrast, traffic circles often contain traffic signals and operate by giving entering vehicles the right of way; these key operational differences create large disparities in safety and efficiency.

Vehicles approach roundabouts just as they would a normal signalized intersection; however, to make a right turn, cars enter the roundabout and exit at the first exit.

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28. INS. INST. FOR HIGHWAY SAFETY, supra note 23. As defined by statute in New York, a roundabout is “a circular intersection which is characterized by a circulatory roadway with counterclockwise movement, channelized approaches, low speeds, and yield control of entering traffic. A roundabout encompasses the area bounded by the outermost curb line or, if there is no curb, the edge of the pavement, and includes crosswalks on any entering or exiting roadway.” N.Y. VEH. & TRAF. LAW § 140-d (LexisNexis 2012). Roundabouts operate in the opposite direction in countries whose driving laws require driving on the left side of the road. See Robert L. Reid, Modern Roundabouts Boost Traffic Efficiency and Safety, AM. SOC. OF CIV. ENG’G CIV. ENG’G SOURCE (Mar. 3, 2021), https://www.asce.org/publications-and-news/civil-engineering-source/civil-engineering-magazine/issues/magazine-issue/article/2021/03/modern-roundabouts-boost-traffic-safety-and-efficiency [https://perma.cc/7QQU-V78F].


A car turns left by entering the roundabout, continuing around the island, and exiting into what is most often the third exit—roundabouts with unique traffic patterns may have more or fewer than the standard four exits.

32. Id.
To continue straight, a car will enter the roundabout, pass the right turn exit, and continue forward on what is most often the second exit from the roundabout.  

**Figure 3: Continuing Straight at a Standard Roundabout**

![Diagram of a roundabout with directions for straight through]

**Straight through**

Although both traffic circles and roundabouts can be designed to accommodate multiple lanes of traffic, traffic circles are often designed to accommodate lane changing or weaving within the circle while roundabouts are designed to allow cars to travel through the intersection in one lane.

Structurally, roundabouts are typically smaller than traffic circles and require drivers to enter the circle facing the island instead of at a shallower angle. The tighter turn radius created by the direct entry angle and smaller island requires drivers to enter and travel through roundabouts at much lower speeds than they would in traffic circles. Additionally, roundabouts handle

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34. INS. INST. FOR HIGHWAY SAFETY, *supra* note 23.
37. PERSAUD ET AL., *supra* note 29, at 2; see also Leif Ourston & Joe G. Bared, *Roundabouts: A Direct Way to Safer Highways*, PUB. RD5., Autumn 1995, https://highways.dot.gov/public-roads/autumn-1995/roundabouts-direct-way-safer-highways [https://perma.cc/X8BE-3MU] (explaining that the entry angle of roundabouts “is contrary to an intersection where many drivers are encouraged by a green or yellow light to accelerate to get across the intersection quickly and to ‘beat the red light’ and contrary to old traffic circles where tangent approaches also encourage, or at least allow, high-speed entries”).

crossing pedestrian traffic differently than most traffic circles by disallowing pedestrians from crossing through the center island and instead placing crosswalks at least one car length before the entry point of the roundabout.  

**B. History**

Today’s roundabouts were not the first device to direct the flow of traffic at an intersection in a circular motion around a central object. Rather, the first device of its kind, known as a gyratory or rotary, came when William Phelps Eno—who is often referred to as “the father of traffic control”—suggested in 1903 that traffic in New York City’s Columbus Circle should circulate in one direction around an object, most often an illuminated “trestle, metal post or stone column.” Eno deployed such posts at the centers of intersections—they were commonly referred to as “silent cop[s]” or “dummy policeman”—to serve as the center points around which traffic circulated. But, because drivers often ran into these, iron discs five feet in diameter were installed, and the first rotary traffic control devices were born. Interestingly—and purportedly without taking influence from Eno’s invention three years prior—in 1906, the architect for the city of Paris, Eugene Henard, proposed the installation of “gyratory” traffic control devices at intersections around the city. His proposals required the width of each circle roadway to be “equal to one-quarter of the combined widths of the converging roads, regardless of the size of the central island.” In contrast to Eno’s preference for a smaller roundabout, Henard ardently supported a larger island diameter of roughly twenty-six feet. 

In the decades that followed, the popularity of gyratory traffic control devices increased dramatically. With the explosion came a desire to increase the capacity of circulating traffic devices, a goal accomplished in part through the installation of larger circles. In one instance in the early twentieth century, the state of New Jersey constructed dozens of large traffic circles following a recommendation of the Highway Commission that

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40. Kenneth Todd, A History of Roundabouts in The United States and France, 42 TRANS. Q. 599, 600 (1988). These center pieces were sometimes called “safeties” and were shaped similarly to concrete flower vases. Id.
41. Id.
42. Id. See also Nat’l Coop. Highway Rsch. Program, supra note 23, at 9 (discussing the iron discs used as center pieces in gyratory traffic control devices at the time).
43. Id. Interestingly, because of the closeness of the installation and the similarity of their ideas, a debate came to be regarding who was the actual inventor of the gyratory; however, it appears that “each arrived at the concept of the gyratory traffic movement independently.” Id.
44. Todd, supra note 40, at 614.
45. Id.
46. Id. at 601–02.
“automatically controlled traffic signals be ordered off the New Jersey state highways for causing obstruction.” The enthusiasm for gyratory intersection traffic control was not shared by everyone, particularly due to increased congestion stemming from the lack of consistent or effective priority rules directing traffic flow at the entry points to traffic circles. This confusion eventually informed a distaste for traffic circles that all but stopped any momentum for their broad adoption in the United States.

In the early stages of their existence, roundabout right-of-way rules were inconsequential due to low traffic volumes, but as traffic volumes increased with the rise in popularity of automobiles, so too did the importance of right-of-way rules governing the use of roundabouts. An overview of the evolution of these rules is helpful to understand the history of roundabouts and what led to their rise in popularity because, until the roundabout rules were codified statutorily, there was little recognition of any superior system of traffic flow regulation by courts or legislative bodies.

A handful of jurisdictions enacted right-of-way rules in the early twentieth century that gave vehicles traveling north or southbound through intersections, not just roundabouts, priority over vehicles traveling east or westbound. In 1913, Wisconsin adopted a rule granting incoming vehicles priority over vehicles traveling east or westbound. This type of rule, also referred to as “nearside priority,” originated in France. To accommodate increasing traffic volumes while also maintaining use of the nearside priority rule,

47. Id. at 602. It is also worth noting that around the same time, the Supreme Court of Minnesota considered the “‘gyratory movement of traffic’ . . . as the most intelligent solution . . . .” State v. Larrabee, 115 N.W. 948, 949 (Minn. 1908).

48. NAT’L COOP. HIGHWAY RSCH. PROGRAM, supra note 23, at 9; Todd, supra note 40, at 603. One noteworthy objection, but perhaps less pertinent to this discussion, was the fear from police officers in large metropolitan areas utilizing rotary traffic control devices at the time that they would lose their jobs directing traffic if implementation became more widespread. Perhaps comically, police in New York City struggled to direct congested traffic around a traffic circle on its opening day only to see the congestion resolve itself after they “went away in disgust.” Todd, supra note 40, at 603. Other noteworthy objections and impediments to earlier widespread adoption of traffic circles were a popular municipal obsession at the time with installing traffic control signals, the free advice traffic signal salespeople gave to towns who did not possess budgets sufficient to employ the consultants required to design a suitable traffic circle, and streetcars, mostly because of the congestion that running their tracks through circles would cause. Id.

49. NAT’L COOP. HIGHWAY RSCH. PROGRAM, supra note 23, at 9. A similar decline in popularity of traffic circles occurred in France due to “the large sizes of the circles, the desire to maintain relatively high speeds, and the priority to the right becoming [a] major impediment[] to safety and high capacity.” Id.

50. NAT’L COOP. HIGHWAY RSCH. PROGRAM, supra note 23, at 9.

51. See Todd, supra note 40, at 606.

52. Id. Inconveniently, some midwestern jurisdictions enacted functionally opposite rules that granted priority to east and westbound traffic. Id. at 606–07.

53. NAT’L COOP. HIGHWAY RSCH. PROGRAM, supra note 23, at 9.

54. Todd, supra note 40, at 617.
traffic circles grew larger to allow for more “storage distance” for flowing traffic.\textsuperscript{55} This accommodation inevitably failed, and the nearside priority rule was an impediment to broad traffic circle adoption in the early twentieth century because yielding to entry causes slowdowns and congestion, even in low traffic areas.\textsuperscript{56} The nearside priority rule was also unconducive to optimal traffic flow because it “cause[d] vehicles to interlock and paralyze[d] all movement.”\textsuperscript{57} The nearside priority was at times compared to a law requiring passengers to board a bus before letting departing passengers exit.\textsuperscript{58}

Conversely, the offside priority rule, also referred to as the “priority-to-the-circle” rule,\textsuperscript{59} is analogous to a rule letting “people get off the bus before others get on, a feat routinely performed without the help of police officers, traffic lights or computers.”\textsuperscript{60} And while it may seem obvious today that the offside rule would be most effective, it must be understood that the yield sign was completely foreign to American traffic control until the 1950s and that there were fears that requiring entering vehicles to yield might result in rear-end collisions due to deceleration of entering traffic.\textsuperscript{61}

While inefficient traffic control rules hampered the popularity of the traffic circle in the United States and France, drivers in the U.K. were far more receptive to a different gyratory traffic device: the roundabout. The term “roundabout” was coined in the U.K. in the early twentieth century.\textsuperscript{62} As previously mentioned, roundabouts require incoming traffic to yield to traffic already within the circle.\textsuperscript{63} U.K. law requires motorists to exercise due care at all times when driving.\textsuperscript{64} This due care requirement informed the use and eventual adoption in 1966 of the offside priority rule for roundabouts.\textsuperscript{65} The success of these newly minted roundabouts in the U.K.

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  \item \textsuperscript{55} \textit{NAT’L COOP. HIGHWAY RSCH. PROGRAM}, supra note 23, at 9.
  \item \textsuperscript{56} Todd, supra note 40, at 615. For example, a traffic circle in France operating under the nearside priority rule was said to become so congested during peak traffic hours that “sometimes no vehicles could enter or leave for several hours.” \textit{Id.} at 616.
  \item \textsuperscript{57} \textit{Id.} at 607.
  \item \textsuperscript{58} \textit{Id.} at 620.
  \item \textsuperscript{59} \textit{NAT’L COOP. HIGHWAY RSCH. PROGRAM}, supra note 23, at 11.
  \item \textsuperscript{60} Todd, supra note 40, at 620.
  \item \textsuperscript{61} \textit{See id.} at 609. Some commentators even ventured so far as to say that “the American driver lacks the skill to yield the right-of-way to vehicles on the left.” \textit{Id.} at 612.
  \item \textsuperscript{62} \textit{NAT’L COOP. HIGHWAY RSCH. PROGRAM}, supra note 23, at 9.
  \item \textsuperscript{63} Many states today have codified the offside priority rule in their traffic regulations. \textit{See}, e.g., \textit{ALASKA ADMIN. CODE} tit. 13, § 02.120(d) (2022) (“A driver entering a roundabout must yield to a vehicle on the circulating roadway in the roundabout.”).
  \item \textsuperscript{65} \textit{NAT’L COOP. HIGHWAY RSCH. PROGRAM}, supra note 23, at 10–11. These requirements have to some extent been codified as a driving regulation in the form of what is now referred to as “due care
\end{itemize}
created excitement elsewhere and led to the “export” of roundabouts to Australia, France, and other European countries. As of 2016, there were roughly 30,000 roundabouts in France.67

As mentioned previously, the use of inefficient traffic rules in the mid-twentieth century led to a stewing American skepticism of roundabouts and traffic circles.68 But in the 1970s, a small group of traffic engineers successfully set in motion a movement promoting the increased implementation of roundabouts in the United States.69

C. Roundabouts in America Today

The deficiencies of the first types of traffic circles used in the early twentieth century likely caused the slow adoption and reluctant implementation of roundabouts in the United States.70 Multiple studies indicate that most people initially oppose substituting more traditional forms of intersection control with a roundabout.71 Among other grievances, residents typically display an “irrational opposition” to roundabouts and a general misunderstanding of the safety and efficiency benefits they provide.72 This opposition is almost certainly a result of a lack of exposure

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66. Todd, supra note 40, at 611–12.
67. Id. at 4.
or experience with roundabouts. Some believe the dearth of roundabouts in America is a function of the United States possessing a “more aggressive, confrontational culture” as compared to countries with higher levels of roundabout adoption, like the U.K. or France, known for cultures that emphasize “virtues of compromise and cooperation.”

It would be unfair to label the United States’ opposition as a full-fledged phobia of roundabouts, though. In fact, the opposite may be true: according to a database compiled by traffic engineering firm Kittelson & Associates, there are currently around 8,800 operational roundabouts in the United States, and this number is increasing. Some states are hosts to an incredibly high number of roundabouts: Florida has approximately 1,400 roundabouts; California has over 750 roundabouts; Texas has almost 700 roundabouts; Indiana, North Carolina, and Washington each have between 600 and 650 roundabouts; and Colorado and Wisconsin each have approximately 500 roundabouts. Carmel, Indiana, has the most roundabouts of any city in America and even celebrates National Roundabouts Week with a week-long series of festivities recognizing “the many positive results of [the] network of roundabouts, most importantly

like Florida (1,283 roundabouts) and virtually disappear in others like the Roundabout Bermuda Triangle of Wyoming/South Dakota/North Dakota (not even 50 among the three).” See John Metcalfe, Why Does America Hate Roundabouts?, BLOOMBERG (Mar. 10, 2016, 8:58 AM), https://www.bloomberg.com/news/articles/2016-03-10/mapping-america-s-resistance-to-traffic-roundabouts [https://perma.cc/5EFB-R8V8].

73. Id.

74. Id. The idea that “compromise and cooperation” contribute to less public opposition to roundabouts aligns well with the theory underlying the offside priority rule discussed earlier in this Note.

75. Roundabouts Database, KITTELSON & ASSOC., INC., https://roundabouts.kittelson.com/ [https://www.kittelson.com/ideas/how-many-roundabouts-are-in-the-united-states/]. The creator of the database, Kittelson’s Lee Rodegerdts, has worked on identifying roundabout installations throughout the world for his database since 1997. As quoted on the Kittelson & Associates website, “[t]he database has become the definitive inventory of roundabouts for the U.S., but it also has broad coverage of Canada and is now poised to become a worldwide resource.” Katie Taylor & Lee Rodegerdts, How Many Roundabouts Are in the United States?, KITTELSON & ASSOC., INC., https://www.kittelson.com/ideas/how-many-roundabouts-are-in-the-united-states/ (last visited Jan. 26, 2023). Notably, Rodegerdts was a key member of the Kittelson & Associates-directed team responsible for the creation of Roundabouts: An Informational Guide, which was a valuable resource in the research and analysis for this paper. See generally LEE RODEGERDTS ET AL., ROUNDABOUTS: AN INFORMATIONAL GUIDE (2d ed. 2010).

Additionally, some experts posit that the number of roundabouts in the United States is higher, but these estimates utilize a relaxed interpretation of the definition of a roundabout such as one defining a roundabout as “contiguous loop with consistent one-way traffic . . . that controls the traffic flow from converging roads.” Metcalfe, supra note 72 (describing geospatial designer Damien Saunder’s analysis of the current state of roundabouts).


their safety.” Thanks to initiatives undertaken by the city’s climate-conscious mayor, residents of the Indianapolis suburb have benefitted from dramatic reductions in crashes resulting in injuries. The safety benefits of the roundabout craze in Carmel were most significant following the installation of double-teardrop roundabouts at historically high-risk intersections, typically those servicing roads running over a branch taking on traffic exiting from a highway.

The double-teardrop roundabouts “were installed at crossing points with higher-speed roads at intersections that had more injury crashes in the period before the conversion than other converted intersections. These intersections also may have benefited more from the speed reductions associated with roundabouts.”

The benefits attendant to roundabout installation and community adoption are gaining increasing popularity at both federal and state levels. For example, Congress recently amended the Federal Highway Safety Program’s (FHSP’s) list of fundable road improvements to include roundabouts. Additionally, “some jurisdictions, such as the New York State Department of Transportation and the City of Bend, Oregon, have

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79. Id.


81. Id. The double-teardrop roundabouts “were installed at crossing points with higher-speed roads at intersections that had more injury crashes in the period before the conversion than other converted intersections. These intersections also may have benefited more from the speed reductions associated with roundabouts.” Id.

implemented a ‘roundabouts first’ policy. These policies require that a roundabout be analyzed and, if feasible, should be the preferred option.""}

Cities like Carmel, Indiana, and Bend, Oregon, have taken it upon themselves to improve road safety through extensive local roundabout installation and education efforts. States like Wisconsin and Maryland, cognizant of the tremendous safety benefits of roundabouts, have adopted statewide roundabout-first policies. Federal-level recognition of these safety benefits brought with it the inclusion of roundabouts as projects now fundable under the FHSP. Combined with the aforementioned local-, state-, and federal-level undertakings, initiatives such as Vision Zero and current Secretary of Transportation Pete Buttigieg’s National Roadway Safety Strategy have primed the United States to move toward a safer driving future.

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85. See infra note 110 and accompanying text.

86. Vision Zero is a nationwide initiative focused on eliminating traffic deaths. See What is Vision Zero?, VISION ZERO NETWORK, https://visionzeronetwork.org/about/what-is-vision-zero/ [https://perma.cc/BS7J-7C3X] (last visited Jan. 23, 2023). Vision Zero’s strategies for eliminating traffic fatalities include:

- “Building and sustaining leadership, collaboration, and accountability – especially among a diverse group of stakeholders to include transportation professionals, policymakers, public health officials, police, and community members;
- Collecting, analyzing, and using data to understand trends and potential disproportionate impacts of traffic deaths on certain populations;
- Prioritizing equity and community engagement;
- Managing speed to safe levels; and
- Setting a timeline to achieve zero traffic deaths and serious injuries, which brings urgency and accountability, and ensuring transparency on progress and challenges.”

Id. Vision Zero was “[f]irst implemented in Sweden in the 1990s.” Id.

II. ANALYSIS

A. Why Roundabouts Are Better

In terms of true ease of maneuvering, roundabouts eliminate nearly all conflict imposed on drivers at intersections regulated by stoplights because the:

One-way operation, yield-at-entry, and the reduced number of conflict points make the decision process for drivers easier. The entering driver, after looking out for pedestrians only has to look to the left for an acceptable gap to enter into the flow. Weaving only occurs in multiple-lane roundabouts, where it is simplified by the low speeds.\(^8\)

Drivers travelling through intersections face myriad risks, such as each lane of oncoming traffic having multiple choices of direction, speed, or exit angle, and reducing the opportunity for travel-path conflicts to arise from such risks correspondingly reduces the risks faced by drivers in an intersection.

Therefore, taking away the opportunity for drivers to attempt unsafe and unprotected turns—as well as eliminating any ability to speed through intersections—creates roadways that are conducive to safe driving.\(^9\)

B. Cost

In addition to drastically reducing both the occurrence and severity of injury crashes, roundabouts also reduce the financial repercussions of car collisions: “[a] calculation of costs at the five Maryland roundabouts showed that the average cost per crash decreased from $120,000 before the roundabout to $84,000 after the roundabout, a reduction of 30 percent in crash severity.”\(^0\) The costs of traffic crashes alone total nearly $400 billion per year.\(^1\) Broad implementation of roundabouts throughout the country could introduce a substantial reduction in these outlays, resulting in a return of capital to the pockets of drivers, federal and state highway systems, and municipalities. In particular, a reduction in the costs of traffic crashes would

\(^1\) See Shill, supra note 6, at 501–02.
stand to significantly benefit minority communities whose populations are disproportionately affected by the costs of traffic crashes.\footnote{See Bronin & Shill, supra note 2, at 8. For example: “Designing roads for slower speeds that are self-enforcing also reduces the need to rely on law enforcement, which can pose disproportionate financial and legal burdens on lower-income people.” DANGEROUS BY DESIGN, supra note 5, at 12. Transporation Secretary Pete Buttigieg has begun an initiative focused on increasing racial equity in roads with $1 billion in funding. Hope Yen, Buttigieg Launches $1B Pilot to Build Racial Equity in Roads, U.S. NEWS WORLD REP. (June 30, 2022), https://apnews.com/article/race-and-ethnicity-racial-injustice-transportation-pete-buttigieg-48e09f253781c89359d875f19fc70f9d [https://perma.cc/C9FQ-MGVT].}

C. Efficiency

The introduction of roundabouts substantially improves the efficiency of the operation of intersections, thereby improving traffic flow and reducing the adverse impact of vehicular travel on the environment. When replacing stop signs, roundabouts can reduce vehicle delays by thirteen to twenty-three percent and vehicle stoppage by fourteen to thirty-seven percent.\footnote{Retting et al., Public Opinion, supra note 71, at 32.} A 2005 study found that the use of roundabouts at intersections in place of traffic signals could reduce vehicular delays by sixty-two to seventy-four percent.\footnote{Bergh et al., supra note 23, at 7.} As previously discussed, less idling and less frequent stopping and starting substantially lessens emissions by reducing fuel consumption.\footnote{See id. at 8. Installing roundabouts in place of other traffic signals resulted in a “62% to 67% reduction in total crashes and an 85% to 87% reduction in injury crashes” in one study. See Isebrands & Hallmark, supra note 23, at 3.} Furthermore, emissions at roundabouts are lessened even further because they encourage less acceleration and force drivers to maintain low, steady speeds while traveling through the roundabout.\footnote{See supra note 23 and accompanying text.} Because “200,000 early deaths occur in the U.S. each year due to U.S. combustion emissions,”\footnote{Caiazzo et al., supra note 8, at 198.} a reduction in the adverse climate impact created by combustion emissions would stand to save lives. Notably, a reduction in vehicle carbon emissions, whose impact is disproportionately felt by communities of color, would stand to reduce and improve the “racism physically built into some of our highways.”\footnote{Grinapol, supra note 9.} In terms of improving our traffic safety and the environmental impact of driving in America, “[m]odern roundabouts are the most sustainable and resilient intersections around.”\footnote{Buckley, supra note 77 (quoting Ken Sides, chairman of the roundabout committee at the Institute of Transportation Engineers).}
D. Pedestrians & Cyclists

The traffic crisis impacts pedestrians in an alarming way, with pedestrian fatalities increasing at a staggering rate over the last decade. These impacts, as have been described throughout this paper, also fall disproportionately on racial minorities and “aggravate racial injustice” in America. Beyond the protection of drivers at large created by the improvement to intersection designs resulting from roundabout installation, roundabouts offer substantial improvements in protection to both pedestrians and bicyclists, thereby also serving to ameliorate where possible the pressures of the traffic crisis on racial and underrepresented minorities.

Put simply, there is less opportunity for conflict between traveling vehicles and pedestrians and bicyclists in a properly designed roundabout than in nearly any other format of a signalized intersection at the same location. As is demonstrated in Figure 5, roundabouts typically set pedestrian crossings off from the roundabout by at least a car length. Roundabouts also commonly have a storage space in the medians that separate traffic exiting and entering the roundabout. After crossing one side of the road, pedestrians can wait in this storage area until it is safe to proceed across the other side. This feature simplifies crossing and improves safety for pedestrians because they only need to look one way, at one direction of oncoming traffic at a time when crossing the road.

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101. Id. at 201–02.

102. See Persaud et al., supra note 29, at 2–3 (concluding pedestrian crashes were reduced by approximately thirty to forty percent and bicycle crashes were reduced by approximately ten to twenty percent). The adverse impacts of the current state of the traffic system against communities of color are prominent and outsized with respect to pedestrians. See also Bronin & Shill, supra note 2, at 8 (“Even after adjusting for differences in walking rates, African American pedestrians face two-thirds more danger than their white counterparts and Native American pedestrians twice as much.”).
As a practical matter, any reduction in potential pedestrian-vehicle conflict is a net-positive outcome. However, the safety benefits of roundabouts for pedestrians are also particularly prescient today due to the dramatic increase in both the popularity and size of large personal vehicles such as trucks and SUVs. The growing fleet of trucks and SUVs means that pedestrians are more than three times as likely to be killed in a crash with an SUV or truck than they are by any other kind of personal vehicle. Thankfully, roundabouts can reduce injury crashes with pedestrians substantially, thereby combatting the outsize risk of death the growing population of large consumer vehicles presents to pedestrians.

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103. Rodegerdts et al., supra note 75, at 5-11, 5-12.
105. Dangerous by Design, supra note 5, at 10 (“The size of larger vehicles has also increased dramatically over the past several decades: pickup trucks in particular are nearly 1,256 pounds (32 percent) heavier than they were in 1990.”).
108. See Shill, supra note 6, at 556–68.
III. PROPOSAL

Roundabouts are a valuable and proven tool for improving traffic safety and flow. This Note proposes that, at the federal, state, and local levels, elected representatives, government officials, and relevant rulemaking bodies should promote the installation of roundabouts at new and existing intersections. Such promotion could and should come through regulations, codified policies, design recommendations, and increased funding.

A. Federal-Level Initiatives

Although the 2021 Infrastructure Investment and Jobs Act (IIJA) added language to include roundabouts as a safety mechanism fundable with federal dollars109 under the Federal Highway Safety Act, which requires states to possess and operate a “[s]tate highway safety program” in order to receive federal funding for highway maintenance and operation,110 little else exists federally to promote the consideration of roundabouts. The absence of any mention of utilizing roundabouts to promote safety at intersections from the National Roadway Safety Strategy (NRSS) written by the Department of Transportation (DOT) is disappointing but does not rule out a policy-driven increase in the installation of roundabouts in America.111

The NRSS highlights a handful of key departmental foci seeking to create safer roads, including amending the Manual on Uniform Traffic Control Devices (MUTCD) and aiming to support the “planning, design and implementation of safer roads and streets in all communities using all available and applicable Federal funding resources.”112 Each of these foci presents an opportunity to drive the much-needed proliferation of roundabouts at intersections throughout the country.

In the recently passed IIJA, a “total of $660 billion—or 76% of the entire law—either gets delivered directly to states and localities via formula funding or to specific federal agencies for predetermined activities such as research or product monitoring.”113 “The law commits most of this formula spending to the transportation sector, where funds primarily flow to state highway programs and transit agencies.”114 Funds devoted specifically to


112. Id. at 20.

113. Tomer et al., supra note 17.

114. Id.
safety total between roughly $11 and $18.1 billion.115 Typically, federal money for state-funded highway safety improvements under the FHSP is not allowed to fund more than ninety percent of a project’s total construction cost.116 However, the recently enacted IIJA increased this amount to 100% for specific safety improvement projects,117 including specific allocations for installation of at least 155 roundabouts throughout the country.118 The increased funding potential for safety improvements, operating in tandem with a DOT strategy that more aggressively encourages a roundabout-first policy at the federal level, would certainly promote and achieve material increases in safety for American drivers.

At the federal level, it may be difficult to directly impose meaningful burdens on states that would motivate an increase in the installation of roundabouts, mostly because the Tenth Amendment to the Constitution reserves “to the States respectively” those powers which are not granted to the federal government.119 Even so, as has been previously discussed, the federal government can play a valuable role in the broad adoption of roundabouts in place of other intersection control devices through its funding power. The IIJA’s inclusion of roundabouts as an approved safety device within the FHSP is a prime example.120 Additionally, through the DOT, which was created in 1966 to help provide “safe, efficient, and convenient transportation” through the “coordinated, effective administration of the transportation programs of the Federal Government,”121 the federal government can condition federal funding for

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117. Id. § 120(c)(1). It is worth noting that the drafters of the legislation incorrectly included “traffic circles” in the list of safety projects while concurrently noting that traffic circles are also known as roundabouts. For the many reasons previously discussed, roundabouts are the desired gyratory traffic control mechanism, not traffic circles.


119. U.S. CONST. amend. X.


state roadway and intersection improvements through its various safety initiatives, such as the current administration’s NHSP.\textsuperscript{122}

B. \textit{State and Local-Level Initiatives and Implementation}

The goal of achieving widespread roundabout adoption in the United States is not solely conditioned on a federal directive to do so by the DOT or some combination of federal legislation and regulation. States themselves possess dominion over the construction and maintenance of their public, intrastate roadways and can consequently serve as the sole impetus for roundabout installation.\textsuperscript{123} As such, with or without a federal imperative to do so, states should aim to enact policies directing—and, at a minimum, encouraging—the installation of roundabouts at existing and newly constructed intersections. This can be accomplished through enabling legislation,\textsuperscript{124} state-level highway safety programs requiring consideration of roundabouts for any newly constructed intersections, or state transportation department guidelines favoring roundabouts when renovating existing intersections. Even in the absence of federal- or state-level policies, municipalities can still proactively achieve enhanced roadway safety through roundabout installation on their own. One needs to look no further than locales like Carmel, Indiana, or Bend, Oregon to see that this can be done.

State-level initiatives provide the strongest and most promising opportunity for widespread roundabout installation. State-level policies favoring roundabout installation are “directly correlated to the number of roundabouts in a state, on a per capita, per [vehicle mile traveled], and per roadway mile basis.”\textsuperscript{125} Those states without roundabout-first policies should endeavor to follow the lead of states like Maryland, Wisconsin, and New York who “each have state policies that require the analysis of roundabouts at all intersection projects where state or federal funding will be used.”\textsuperscript{126} Such policies can be promulgated via a state-level statutory regime or through guidance and policies provided by state transportation

\textsuperscript{122} See Infrastructure Investment and Jobs Act § 11111; see also NATIONAL ROADWAY SAFETY STRATEGY, supra note 15 (discussing various ways in which federal funds will be used at the state level to address traffic issues).

\textsuperscript{123} See 39 AM JUR, 2d Highways, Streets, and Bridges § 51 (2022).

\textsuperscript{124} See id. § 89 (discussing ways in which states are empowered to “alter or change highways [and] streets”).

\textsuperscript{125} See Pochowski, supra note 84, at 71. Appendix A of this article provides a comprehensive overview of each state’s roundabout policy and source. Id. at 76–78.

\textsuperscript{126} Id. at 22. States could also implement a liability regime similar to New York’s that imposes fault upon the state for damages caused by accidents at intersections where a roundabout, if installed, would have prevented the crash, which incentivizes the state to avoid liability by favoring roundabouts where feasible. See id.
departments. Additionally, states should ensure that roundabouts are fairly evaluated at all intersection construction sites by conditioning permits and licenses upon a showing by the constructing locality that a roundabout was fairly considered as a primary option to control the flow of traffic. Furthermore, state-level support can come through the issuance of guidance on best practices for roundabout installation.127

CONCLUSION

In addressing the unnecessary risks to life and limb that Americans face on roadways and at intersections throughout the country, we can make meaningful progress toward eliminating traffic fatalities and leave in the rearview the notion that traffic injuries and fatalities are an unavoidable externality of mobile, modern life. To be sure, widespread roundabout adoption cannot singlehandedly solve America’s traffic fatality crisis. Additional interventions addressing speeding, vehicle design, distracted driving, and the deeply entrenched legal and political regimes that have led to this moment in America’s traffic history are also of dire importance. But a first step toward the goal of eliminating traffic fatalities can and should be the promotion of roundabouts at intersections nationwide. The safety, environmental, and societal benefits of these simple but powerful traffic control devices are undeniable. Roundabouts can unquestionably help America turn around its traffic crisis, one intersection at a time.

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