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From Vision Zero Plans to Safer Streets: Evaluating Implementation Gaps Across Three Continents

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Abstract:
Vision Zero has become a widely adopted expression of the ethical proposition that no death or serious injury in road traffic is acceptable. Its diffusion, however, has often been faster than the institutional transformation required to realize that proposition. This article examines the implementation gap between Vision Zero commitments and street-level safety outcomes through comparative case studies of Delhi, New York City, and Helsinki. The cases represent contrasting traffic conditions, governance systems, fiscal capacities, and stages of Safe System institutionalization. The study develops an Implementation-to-Outcomes framework covering ethical commitment, speed management, safe street design, vulnerable-user protection, data and learning, institutional authority, investment, equity, and accountability. Delhi illustrates the difficulty of implementing a zero-fatality objective in a high-risk mixed-traffic environment where road ownership is fragmented, vulnerable users carry most of the fatality burden, and engineering, enforcement, and land-use decisions remain weakly integrated. New York demonstrates that sustained redesign, lower speeds, and automated enforcement can reduce deaths substantially, while also showing how incomplete network treatment, state-local authority conflicts, political resistance, and uneven neighborhood implementation limit progress. Helsinki demonstrates the cumulative value of low urban speeds, compact land use, high-quality transit, safer crossings, and continuous design improvement, while reminding planners that a year without a fatality is a milestone rather than permanent system completion. The comparison finds that Vision Zero succeeds when it changes routine capital programming, design standards, speed governance, and institutional incentives, rather than operating as a separate safety campaign. The article concludes with a staged implementation framework that links diagnosis, rapid risk reduction, network transformation, and independent outcome review.

Keywords: Vision Zero; Safe System; road safety; implementation; speed management; vulnerable road users; Delhi; New York City; Helsinki

1. Introduction

Road traffic injury is both a public-health crisis and a planning failure. Approximately 1.19 million people die in road crashes each year, and road injury remains the leading cause of death for children and young adults aged 5 to 29 (World Health Organization, 2023). More than half of global road deaths occur among pedestrians, cyclists, and motorcyclists, while the burden falls disproportionately on low- and middle-income countries. These outcomes are produced not only by individual error, but also by street geometry, operating speed, vehicle design, land-use patterns, institutional incentives, emergency care, and the allocation of public space.

Vision Zero reframes this problem through an ethical and systems-based premise. First adopted by the Swedish Parliament in 1997, it holds that deaths and serious injuries are unacceptable and that the road system must anticipate ordinary human mistakes (Belin et al., 2012; Federal Highway Administration, 2025; Vision Zero Network, n.d.). Responsibility is therefore shared by road users and by the institutions that design, regulate, build, operate, and maintain the system. The goal is not the elimination of every collision. It is the prevention of crash forces severe enough to kill or permanently injure people.

The global spread of Vision Zero has created an implementation paradox. Cities can adopt a target, prepare a high-injury map, conduct public campaigns, and establish an interagency task force without changing the routine decisions that generate risk. A plan may identify speed as the central determinant of injury severity while capital programs continue to widen roads, preserve high turning speeds, and defer pedestrian crossings. Agencies may report projects completed rather than population exposure reduced. Enforcement may expand without safeguards against discriminatory impacts. Vision Zero can consequently function either as a genuine Safe System transformation or as a policy label attached to conventional practice.

This article compares Delhi, New York City, and Helsinki. Delhi adopted a road-safety policy that expressed a zero-fatality objective and ambitious interim reductions, but it operates within a complex metropolitan system of mixed traffic, high pedestrian and motorcyclist exposure, multiple road-owning agencies, and uneven pedestrian infrastructure. New York launched Vision Zero in 2014 and has institutionalized lower speeds, automated enforcement, high-crash analysis, and hundreds of street redesigns. Helsinki represents a longer-term European pathway in which traffic safety is embedded in speed-limit policy, street design, transit, walking, cycling, and land-use planning.

The analysis asks four questions. What distinguishes a substantive Vision Zero program from a symbolic commitment? Which implementation gaps recur across different governance and mobility contexts? How do speed management, network design, data, authority, investment, and equity interact to shape results? Which performance measures can reveal whether cities are transforming systemic risk rather than merely delivering isolated projects? The central argument is that Vision Zero becomes operational only when the prevention of death and serious injury governs routine decisions about street space, speed, budgets, maintenance, and accountability.

2. From Ethical Commitment to Safe System Practice

Traditional road-safety practice often treats crashes as discrete events caused primarily by rule violations. It responds through education, enforcement, vehicle inspection, and treatment of locations with documented crash histories. These tools can be valuable, but the approach tends to place responsibility on users and to wait for harm before intervention. Safe System practice begins instead with the fragility of the human body and the predictability of error. It manages kinetic energy through safe speeds, separates incompatible movements, reduces conflict complexity, provides forgiving roadsides, and ensures rapid post-crash response (International Transport Forum, 2016; Johansson, 2009).

Speed is the organizing variable because it affects both crash likelihood and injury severity. A posted limit is effective only when street design, enforcement, vehicle technology, and social norms produce a compatible operating speed. Wide lanes, long crossing distances, permissive turns, and signal timing that rewards fast progression can contradict a nominally low limit. Self-enforcing streets use geometry to communicate and produce the intended speed, while automated enforcement can supplement design where legal authority and public legitimacy exist (National Association of City Transportation Officials, 2020).

Safe System implementation is also a network problem. Treating a small number of high-crash intersections can reduce local risk while leaving most dangerous corridors structurally unchanged. Conversely, citywide speed reduction can lower severity broadly even before full reconstruction. The strongest programs combine rapid, scalable treatments with a funded pathway to permanent redesign. They prioritize arterials, crossings, schools, transit access, and routes used by people who walk, cycle, or use motorcycles because these users lack the protective shell of a vehicle.

Governance determines whether this logic survives contact with ordinary planning. Street authority is frequently divided among municipal departments, police, state or national road agencies, transit operators, public-works bodies, and private utilities. Each organization may optimize a different outcome, including vehicle throughput, emergency response, parking, commerce, transit reliability, or enforcement. Vision Zero requires a common outcome framework and clear authority to resolve these conflicts. Research on Safe System adoption finds that operational ambiguity and low implementation depth remain common even where the language has been formally accepted (Fleisher et al., 2016; He et al., 2022; Nævestad et al., 2025; Schell et al., 2022).

Equity is integral rather than supplementary. Dangerous roads are often concentrated in lower-income districts, peripheral growth areas, historically marginalized communities, and locations with weak pedestrian infrastructure. At the same time, enforcement-led programs can impose fines, surveillance, and police contact unevenly. An equitable Vision Zero program directs design investment toward cumulative risk, measures affordability and accessibility, separates traffic safety from immigration or criminal enforcement, and gives affected communities influence over project selection and evaluation.

3. Comparative Method and Implementation-to-Outcomes Framework

The study uses a structured qualitative comparison of official plans, crash reports, program evaluations, agency publications, and peer-reviewed literature available through August 2026. Delhi, New York, and Helsinki were selected for maximum institutional contrast rather than statistical equivalence. Their populations, street networks, motorization levels, data systems, and jurisdictional arrangements differ substantially. The purpose is therefore analytical comparison of implementation mechanisms, not a league table of fatality rates.

The unit of analysis is the urban road-safety system. Table 1 defines nine dimensions through which policy is translated into outcomes: ethical commitment and targets; safe-speed management; safe street design; vulnerable-user protection; data and organizational learning; authority and coordination; sustained investment; equity and legitimacy; and outcome accountability. The framework distinguishes policy adoption from implementation capacity, implementation outputs from changes in exposure, and changes in exposure from final safety outcomes.

Causal attribution requires caution. Fatalities fluctuate annually, especially in smaller cities, and may be influenced by travel volume, vehicle technology, economic change, weather, reporting practice, and random variation. Before-and-after comparisons can also overstate program effects when treatments are selected because of unusually high recent crash counts (Auerbach et al., 2019). The case analysis therefore considers direction and durability of change, the breadth of institutional reform, and whether city claims are supported by plausible mechanisms.

Table 1. Vision Zero Implementation-to-Outcomes framework

Dimension	Implementation question	Illustrative evidence
Ethical mandate	Are deaths and serious injuries explicitly unacceptable?	Statutory target, interim milestones, named responsibility
Safe speeds	Do design and regulation produce survivable speeds?	Operating speed, 30 km/h zones, cameras, traffic calming
Safe design	Are conflicts removed or made forgiving?	Crossing distance, protected intersections, median refuge
Vulnerable users	Are people outside vehicles prioritized?	Walking, cycling, motorcycles, transit access, disability
Data and learning	Does evidence change routine practice?	Linked data, exposure, crash review, before-after evaluation
Authority	Can agencies resolve jurisdictional conflict?	Lead office, design review, road-owner agreements
Investment	Is implementation funded at network scale?	Multi-year budget, delivery rate, maintenance
Equity	Are risks and program burdens distributed fairly?	Neighborhood outcomes, fine burden, community power
Accountability	Are outcomes public and independently reviewed?	Deaths, serious injuries, speeds, deadlines, remedies

Source: Author's synthesis of cited research and policy documents.

4. Delhi: Ambitious Targets in a Fragmented Street System

Delhi's road-safety challenge is shaped by intense and heterogeneous use of limited street space. Pedestrians, cyclists, motorcycles, auto-rickshaws, buses, cars, freight vehicles, informal vendors, and curbside activities interact on roads that often combine metropolitan movement with neighborhood access. High-capacity arterials can function as barriers within dense urban districts, while missing footpaths, long crossing distances, service roads, flyovers, and weak nighttime visibility expose people outside motor vehicles to disproportionate risk.

The Delhi Road Safety Policy announced a zero-fatality aspiration and proposed substantial reductions from the 2018 baseline, with priority for pedestrians and cyclists. This language was important because it recognized preventability and vulnerable users. Yet target ambition exceeded implementation architecture. Delhi's roads are controlled by multiple bodies, including the Public Works Department, municipal corporations, national agencies, development authorities, and cantonment institutions. Traffic policing, road engineering, public transport, land development, and emergency response sit in different organizational systems. A zero-fatality goal without binding responsibility across these entities can become administratively diffuse.

Crash evidence confirms that vulnerability is concentrated. The Delhi Traffic Police's crash reporting identifies pedestrians and powered two-wheeler users as major components of the fatality burden and maps high-risk corridors and locations (Delhi Traffic Police, 2024). This pattern requires a design response centered on safe crossings, continuous footpaths, intersection geometry, bus-stop access, motorcycle speed, freight movement, and nighttime conditions. Awareness campaigns and episodic enforcement cannot compensate for a road environment that routinely requires people to cross fast, wide traffic streams without protection.

Implementation is often organized through the traditional four Es of engineering, enforcement, education, and emergency care. The limitation is not the categories themselves, but their separation. Engineering projects may be assessed for capacity rather than survivable speed. Enforcement can focus on visible violations while dangerous geometry persists. Pedestrian facilities may be installed as isolated elements without a continuous accessible network. Emergency care reduces consequences after a crash but does not remove upstream exposure. Safe System governance would evaluate every road project, maintenance contract, signal plan, and flyover proposal against fatal and serious-injury risk.

Data quality and institutional learning also remain critical. Police records are indispensable but can undercount nonfatal injuries, omit exposure, and classify road-user types inconsistently. Hospital data, ambulance response, street inventories, speed observations, transit boarding, walking volumes, and community reports should be linked through privacy-protective protocols. Risk mapping should identify not only where deaths occurred, but where high speeds, school access, informal activity, poor lighting, and missing crossings create foreseeable danger.

Delhi's implementation priority is not to reproduce a Northern European street template without adaptation. It is to translate Safe System principles into mixed-traffic conditions. Area-wide 30 kilometer-per-hour zones, raised table crossings, daylighted intersections, protected pedestrian refuge, continuous footpaths, safer bus access, motorcycle-sensitive design, and automated speed management can be standardized and deployed at scale. Tactical materials can reduce risk quickly, but permanent reconstruction and maintenance must follow. State-level funding and project approval should be conditioned on road-safety audits and post-opening performance.

The Delhi case reveals a gap between ethical target and governing capability. The city has policy language, crash evidence, technical expertise, and repeated road-safety initiatives. What remains insufficient is a single accountable delivery structure able to direct budgets, reconcile road owners, impose safe design standards, and report corridor-level outcomes. Without that structure, responsibility migrates among agencies while vulnerable users continue to absorb systemic risk (Mohan, 2002; Tiwari, 2016).

5. New York City: Measurable Progress and Incomplete Transformation

New York City launched Vision Zero in 2014 with an interagency action plan, borough pedestrian-safety plans, a high-crash analytical framework, expanded street redesign, public communication, and pursuit of state legislative authority. The program reduced the default citywide speed limit from 30 to 25 miles per hour, expanded automated speed enforcement, and concentrated treatments on priority corridors and intersections (City of New York, 2014). This combination linked an ethical goal to identifiable policy instruments.

The city's scale and institutional capacity enabled sustained delivery. Road diets, pedestrian islands, leading pedestrian intervals, protected bicycle lanes, turn calming, raised treatments, plazas, and school-safety projects altered thousands of locations. Automated cameras created broad speed-management coverage, while open data and annual reporting made safety a continuing public issue (New York City Department of Transportation, 2024). By the end of 2025, the city recorded 205 traffic deaths, the lowest annual total in records dating to 1910 and 31 percent below the 2013 pre-program baseline (New York

City Department of Transportation, 2026). These results indicate material progress rather than policy branding alone.

The same evidence shows why progress is not equivalent to completion. Two hundred and five deaths remain incompatible with the adopted objective. Fatality trends varied during the program, worsened during the pandemic period, and remained uneven across boroughs and travel modes. Arterial roads in the Bronx, Queens, and Brooklyn continued to combine high speeds, long crossings, truck traffic, and limited protection. The city has demonstrated that redesign works at treated locations, but the pace of permanent network transformation remains slower than the scale of exposure.

Authority is a persistent constraint. New York City controls most local streets but depends on New York State for important elements of camera authorization, speed-limit law, vehicle regulation, and certain roads. Local political resistance can delay bus lanes, bicycle lanes, daylighting, parking removal, and road diets even where safety evidence is strong. Vision Zero therefore competes with neighborhood demands for curb access, elected-official preferences, emergency-service concerns, and a capital process that can take years to produce permanent construction.

Equity presents a dual challenge. High-injury streets and traffic exposure are concentrated in many lower-income and predominantly Black and Latino neighborhoods, making investment distribution a central justice issue. At the same time, police-led enforcement has raised concerns about racial disparity and legitimacy. Automated enforcement reduces discretionary contact, but fines can still be regressive. Equitable implementation should prioritize physical redesign, calibrate penalties to avoid disproportionate hardship, publish neighborhood outcomes, and separate safety functions from unrelated policing.

Evaluation must also distinguish correlation from causation. New York's traffic deaths declined substantially after 2013, but economic conditions, travel patterns, vehicle technology, and broader trends also changed. Statistical analysis suggests that simple before-and-after comparisons can overestimate treatment effects, even while confirming meaningful program benefit (Auerbach et al., 2019). Strong evaluation therefore combines citywide trends with treated-control analysis, speed measurements, conflict data, exposure, and serious-injury outcomes.

New York's principal achievement is institutional durability. Vision Zero changed public vocabulary, speed policy, project selection, agency coordination, and the legitimacy of reallocating street space for safety. Its principal gap is incomplete saturation. The city possesses effective tools but has not applied them with sufficient speed and consistency across the full high-risk network. Future gains depend on converting successful project types into presumptive standards, simplifying delivery, and protecting evidence-based treatments from case-by-case political reversal.

6. Helsinki: Cumulative Safety Through Ordinary Planning

Helsinki's safety performance is often described through exceptional outcomes, including a twelve-month period from July 2024 to July 2025 without a traffic death. The more important lesson is that this milestone emerged from cumulative, ordinary planning rather than a single campaign. Over decades, the city lowered urban speeds, expanded high-quality transit, redesigned crossings and intersections, developed walking and cycling networks, and integrated safety into land-use and street planning. The result is a system in which lower exposure to high-energy conflicts is reinforced by multiple layers of protection.

The city's Traffic Safety Development Programme 2022 to 2026 places particular emphasis on children, young people, pedestrians, and cyclists. Helsinki has progressively extended 30 kilometer-per-hour limits in residential and central areas, used raised crossings and speed humps where appropriate, added automated enforcement, and designed new districts to avoid excessively wide and straight streets (City of Helsinki, 2022, 2026). These measures align posted limits with urban context and reduce the energy transferred when errors occur.

Land use and modal structure are part of the safety mechanism. Compact development, extensive public transport, and connected walking and cycling facilities reduce dependence on high-speed car travel and create political support for street environments oriented toward people. Safety is reinforced when school routes, tram access, cycling facilities, winter maintenance, and public-space design are planned together. This illustrates why Vision Zero cannot be confined to a traffic engineering unit.

Institutional continuity is equally important. National traffic-safety strategy, municipal design practice, police enforcement, public transport, and health systems operate within a relatively coherent policy environment. Data can be used to identify systemic risk even when fatal crashes are rare. The city can therefore shift from reactive treatment toward proactive assessment of speeds, conflicts, and vulnerable-user experience. This is a mature form of implementation in which safety is normalized within routine design decisions.

Helsinki is not without implementation challenges. Cycling infrastructure remains incomplete in places, new micromobility devices create conflict and injury concerns, winter conditions affect visibility and surface quality, and metropolitan travel crosses municipal boundaries. A small annual number of deaths can also produce statistical volatility. Zero deaths over a defined period should be understood as evidence that very low fatality risk is achievable, not as proof that every street or mode has become safe.

The Helsinki case demonstrates the value of policy layering. Speed limits, self-enforcing design, transit, street hierarchy, enforcement, and public expectations reinforce one another. Its transferability lies in the principles and sequencing, not in copying a specific street section. Cities with different traffic mixes can still institutionalize survivable speeds, prioritize vulnerable users, and make safety a binding criterion in land-use and capital decisions.

7. Comparative Findings: Where Implementation Breaks Down

The three cases reveal that Vision Zero implementation is best understood as a chain. Ethical commitment must be translated into authority, standards, funding, projects, network coverage, changes in exposure, and verified outcomes. Failure at any link weakens the whole program. Delhi's largest gaps occur between target and coordinated delivery. New York's gaps occur between proven tools and complete network application. Helsinki's challenge is to maintain and update a mature safety system as travel behavior, technology, and metropolitan conditions change.

First, safe speed must become a design and governance standard. Delhi's wide arterials, New York's residual high-speed corridors, and Helsinki's area-wide low-speed environments show the difference between posting a limit and producing a speed. Cities should define target operating speeds by context, use street geometry to achieve them, and require an explicit exception process when agencies seek higher speeds.

Second, projects must form a network. Isolated crossings and protected segments leave users exposed at untreated links. High-injury networks are useful for prioritization, but they should lead to corridor and area programs rather than a sequence of disconnected spot projects. Rapid treatments can create broad initial coverage while permanent capital reconstruction addresses drainage, accessibility, utilities, transit, and public realm.

Third, institutional fragmentation is a safety hazard. Multiple road owners in Delhi, state-local authority divisions in New York, and metropolitan boundaries around Helsinki all create seams where accountability can fail. A lead office needs authority over targets, design review, capital coordination, data, and public reporting. Partner agencies should retain technical roles but operate under shared outcome requirements.

Fourth, output reporting is inadequate. The number of cameras, redesigned intersections, citations, audits, or kilometers of bicycle lane describes activity, not safety. Cities should also report operating speeds, crossing delay, protected-network completeness, serious injuries, exposure-adjusted risk, demographic and geographic distribution, project delivery time, and the durability of installed treatments.

Fifth, equity changes both priorities and methods. A safety program should direct early investment toward communities with high fatality risk, weak pedestrian infrastructure, and limited political power. It should avoid using enforcement as a substitute for design and should assess whether fines, surveillance, construction disruption, or displacement create new burdens. Community knowledge should influence diagnosis and project design, but consultation cannot become a veto over evidence-based measures that protect life.

Finally, political durability matters. Vision Zero requires decisions that can be unpopular in the short term, including lower speeds, parking removal, reduced vehicle capacity, automated enforcement, and reallocation of road space. Durable programs establish statutory targets, transparent criteria, multi-year funding, professional design standards, and independent review so that individual projects do not depend entirely on changing political preferences.

8. A Staged Implementation Framework

The comparative evidence supports a four-stage approach. Stage one establishes the safety mandate and baseline. The jurisdiction adopts a target covering deaths and serious injuries, identifies responsible agencies, integrates police, hospital, roadway, exposure, and community data, and maps systemic risk. The mandate should specify interim outcomes, equity priorities, public reporting, and the authority to resolve conflicts among road owners.

Stage two delivers rapid risk reduction. Citywide or area-wide speed limits, automated enforcement with equity safeguards, daylighting, signal timing, temporary refuge islands, turn calming, school-zone treatments, and low-cost corridor redesign can reduce exposure within months rather than years. These measures should follow standardized designs and be evaluated quickly, with adjustment based on observed speed and user behavior.

Stage three transforms the network. Permanent capital programs rebuild high-risk corridors, complete pedestrian and cycling connections, provide universally accessible crossings, integrate transit priority, manage freight and curb activity, and align land development with safe street hierarchy. Utility, resurfacing, drainage, and transit projects should trigger safety upgrades so that Vision Zero becomes part of every capital cycle rather than a separate funding category.

Stage four verifies outcomes and renews policy. Independent evaluation compares treated and untreated locations, tests for regression to the mean, and reports deaths, serious injuries, speeds, exposure, and distribution. Fatal and serious crashes receive multidisciplinary reviews focused on system correction

rather than blame. The resulting lessons update design standards, project priorities, budgets, and legislation. Table 2 summarizes the stages and associated accountability tests.
The stages overlap in practice. Rapid treatments should continue while major construction advances, and outcome review should begin before projects are complete. The purpose of staging is to prevent a common failure mode in which years are spent refining plans while known risks remain untreated. It also prevents temporary materials from becoming permanent substitutes for accessible, durable, and maintainable infrastructure.

Table 2. Staged Safe System implementation and accountability

Stage	Priority actions	Accountability test
1. Mandate and baseline	Targets, authority, linked data, systemic risk map	Named owners and published interim outcomes
2. Rapid risk reduction	Safe speeds, signals, crossings, tactical corridors	Observed speed and exposure change within one year
3. Network transformation	Permanent corridors, accessibility, transit, land use	High-risk network coverage and delivery schedule
4. Outcome review	Deaths, serious injuries, equity, causal evaluation	Independent review and mandatory policy correction

Source: Author's synthesis of cited research and policy documents.

9. Policy Implications

National and state governments should make Safe System compliance a condition of urban transport funding. Road widening, grade separation, transit investment, and redevelopment should demonstrate how operating speed and vulnerable-user risk will be managed. Funding formulas should reward serious-injury reduction, network completion, and equitable access rather than vehicle throughput alone.
Municipalities should convert Vision Zero principles into binding design rules. Safe-speed criteria, maximum crossing distances, corner radii, daylighting, protected intersection treatments, accessibility, and transit-stop access should be presumptive requirements. Deviations should require written risk analysis and senior approval. This reverses the burden of proof so that safety does not need to be renegotiated project by project.
Capital delivery should be reorganized around repeatable corridor programs. Standard plans, on-call contracts, bundled procurement, and coordination with resurfacing can accelerate implementation. Maintenance deserves equal status because faded crossings, failed lighting, encroached footpaths, damaged separators, and snow or drainage problems can erase safety benefits after construction.
Data systems should combine fatality and serious-injury records with travel exposure, observed speed, hospital information, demographic patterns, disability access, and near-miss indicators. Public dashboards should explain data limitations and avoid ranking neighborhoods without context. Privacy, due process, and independent auditing are necessary when cameras, mobile data, or automated decision systems are used.
Finally, agencies should evaluate political and distributive risk alongside engineering risk. Delivery plans need strategies for businesses, freight operators, emergency services, transit users, schools, and residents affected by construction or curb changes. Engagement should improve design and

implementation, but the ethical premise that preventable death is unacceptable should remain non-negotiable.

10. Limitations and Research Agenda

This article relies on secondary evidence and compares cities with different definitions, reporting systems, travel volumes, and administrative boundaries. Fatalities are more consistently recorded than serious injuries, while exposure data for walking, cycling, motorcycles, and informal travel are uneven. A low absolute number of deaths in Helsinki increases annual volatility, while Delhi's scale and data limitations complicate comparison. The study therefore identifies mechanisms and implementation gaps rather than estimating a common causal effect.

Future research should develop longitudinal, exposure-adjusted comparisons of Vision Zero programs. Studies should distinguish the effects of speed-limit changes, automated enforcement, street redesign, vehicle technology, transit access, and macroeconomic conditions. Quasi-experimental methods can improve causal inference, but they should be combined with institutional analysis explaining why treatments were selected and whether they were maintained.

Serious injury requires better measurement. Hospital and police records should be linked through privacy-preserving systems, with consistent injury-severity definitions. Research should examine disability, recovery time, household economic effects, and perceived safety, not only fatalities. It should also assess motorcycles, freight vehicles, e-bikes, and micromobility because their risk profiles differ across the three regions.

Implementation research should examine how authority, budgets, procurement, maintenance, and political opposition affect delivery time and network coverage. Comparative work is especially needed in rapidly motorizing cities, where Safe System principles must be adapted to mixed traffic, informal activity, and limited pedestrian infrastructure without shifting responsibility back onto vulnerable users.

11. Conclusion

Vision Zero is most useful when it is treated as a governing discipline rather than an aspirational slogan. Delhi, New York, and Helsinki demonstrate different positions along the path from ethical commitment to institutionalized safety. Delhi shows that ambitious targets cannot overcome fragmented authority and hazardous street conditions without a delivery system that binds road owners and budgets. New York shows that lower speeds, automated enforcement, data, and redesign can produce historic safety gains, while incomplete network coverage and political resistance leave preventable deaths in place. Helsinki shows that exceptionally low fatality levels emerge from decades of coordinated speed management, street design, transit, land use, and organizational learning.

The comparison also clarifies that implementation gaps are not merely technical. They are embedded in decisions about whose time is prioritized, which neighborhoods receive investment, who bears enforcement burdens, and whether mobility benefits justify exposing people to lethal risk. A Safe System distributes responsibility upward to the institutions with the power to design and regulate the environment.

The practical standard is straightforward. Every transport and land-use decision should be tested against whether ordinary human error can lead to death or serious injury. Where the answer is yes, agencies should reduce speed, simplify conflicts, separate users, improve visibility, strengthen vehicles and post-crash response, or reconsider the project. Plans become safer streets only when that test shapes routine design, funding, maintenance, and accountability across the entire network.

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