

Vision Zero

From Case Study to Implementation

A Comparative Analysis of Sweden and New York City

Marta Perez Vidal-Ribas

Virginia Polytechnic Institute and State University

October 2025

The Road Safety Crisis

1M+

Annual traffic deaths worldwide

50M+

People injured annually

Traffic crashes are the leading cause of death for ages 5-29

Every death and injury is preventable

What is Vision Zero?



A proactive approach rejecting traffic deaths as inevitable, pushing for safer speeds, smarter street design, and stronger policies

Core Principles:

- Eliminate traffic fatalities and serious injuries
- Address systemic safety issues through design
- Recognize human error while designing forgiving systems
- Integrate engineering, enforcement, and education

Research Questions



Does Vision Zero achieve stronger results in some contexts than others?

- 1 How do Sweden and NYC differ in structuring, governing, and monitoring Vision Zero?
- 2 Which factors enabled or constrained success in each case?
- 3 Which practices can be adapted by other jurisdictions?

Research Methods

Comparative Case Study

Sweden (1970-2024): National implementation, originated Vision Zero in 1997

NYC (1990-2024): Municipal adoption in 2014, complex urban context

Analytical Framework

Quantitative: Interrupted Time Series (ITS) analysis to measure immediate and long-term effects of Vision Zero implementation

Data Sources Used

Sweden

VTI, STRADA, Trafikanalys,
National policy documents

NYC

NYC Open Data, DOT policy
documents, Vision Zero action plans

Governance Structures

Sweden

- National parliament mandate
- Multi-agency coordination
- Long-term strategic planning
- Comprehensive legal authority
- Consistent funding mechanisms

NYC

- Mayoral initiative
- DOT-led coordination
- Limited state authority
- Political cycle constraints
- Complex funding landscape

Key Difference: National vs. municipal authority shapes implementation

Implementation Strategies

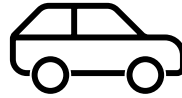
Strategies across jurisdictions were collected under the following codes to understand VZ implementation as a whole:

Safe Roads

Safe Speeds

Equity & Access

Innovation



Enforcement

Public Communication

Outcomes

Implementation

Each theme was then assessed for presence, intensity, and consistency

Results: Sweden

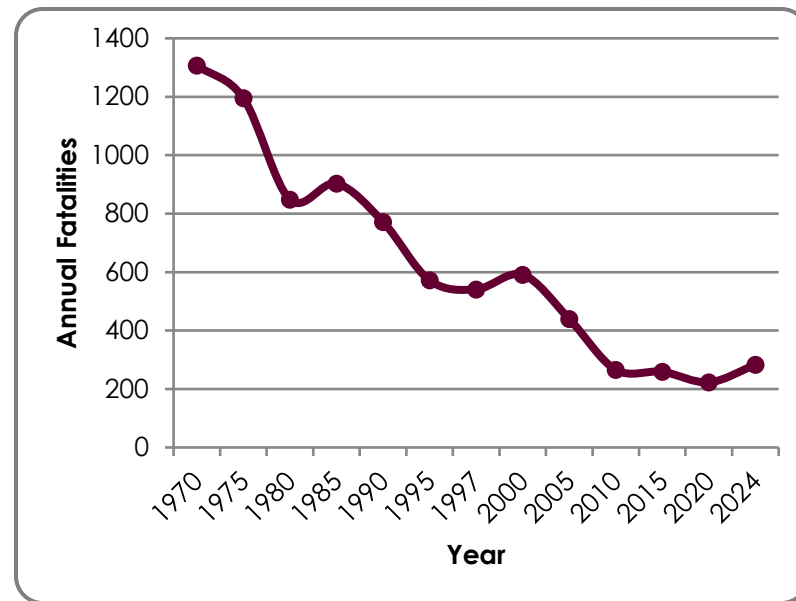
59.4%

Reduction in fatalities
(890 to 361 annual average)

Pedestrians: 70.6% reduction

Cyclists: 69.4% reduction

Motorists: 17.3% reduction



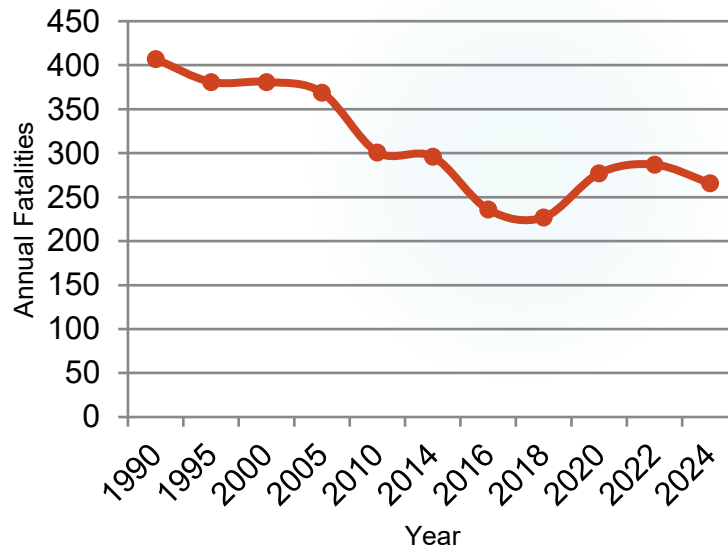
Results: New York City

23.3%

Reduction in fatalities

(343 to 264 annual average)

User type data was limited for NYC due to insufficient baseline period



Comparative Analysis

3.86

Fatalities
in
Sweden

per 100k population

3.13

Fatalities
in
NYC

per 100k population

Key Insights

- Both achieved statistically significant reductions
- Sweden showed 2.5x greater reduction than NYC
- Vulnerable road users better protected in Sweden

Statistical Findings

Interrupted Time Series Analysis

Both jurisdictions showed statistically significant immediate level changes and trend changes following Vision Zero implementation

Sweden

- $p < 0.0001$
- Cohen's d : -2.883 (large effect)
- Consistent trend improvement

NYC

- $p = 0.0005$
- Cohen's d : -1.650 (large effect)
- Immediate reduction observed

Key Takeaways

Transferable Practices

- Comprehensive data systems enable targeted interventions
- Multi-stakeholder coordination crucial for success
- Speed management central to fatality reduction

Context-Specific Factors

- Governance scale affects implementation authority
- Political cycles may impact long-term consistency
- Legal frameworks can enable or constrain action
- More data creates a stronger case

Implications & Next Steps

For Practitioners

- Consider governance scale when adapting strategies
- Prioritize vulnerable road user protection
- Invest in comprehensive data collection systems
- Build long-term political and institutional support

Future Research

Global practitioner survey to validate findings and identify additional implementation barriers across other diverse jurisdictions



Thank You

Questions?

Marta Perez Vidal-Ribas

Virginia Polytechnic Institute and State University