A VISION FOR ZERO: SAFE AND SUSTAINABLE CITIES

An approach to traffic safety to eliminate traffic death and serious injury
Road traffic mortality rate, 2013*

Mortality rate (per 100,000 population)

- <10.0
- 10.0–19.9
- 20.0–24.9
- ≥25.0
- Data not available
- Not applicable

* WHO Member States with a population of less than 50,000 in 2015 who did not participate in the survey for the Global status report on road safety 2015 were not included in the analysis.

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Data Source: World Health Organization
Map production: Information Evidence and Research (IER)
World Health Organization
AT GREATEST RISK: PEOPLE WALKING, BICYCLING AND RIDING MOTORCYCLES

ACCRA
32% Pedestrian, Cyclist and Motorcyclist Fatalities
68% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

ADDIS ABABA
19% Pedestrian, Cyclist and Motorcyclist Fatalities
81% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

BANDUNG
29% Pedestrian, Cyclist and Motorcyclist Fatalities
71% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

BOGOTÁ
14% Pedestrian, Cyclist and Motorcyclist Fatalities
86% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

FORTALEZA
11% Pedestrian, Cyclist and Motorcyclist Fatalities
89% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

MUMBAI
9% Pedestrian, Cyclist and Motorcyclist Fatalities
91% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

SÃO PAULO
17% Pedestrian, Cyclist and Motorcyclist Fatalities
83% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

SHANGHAI
20% Pedestrian, Cyclist and Motorcyclist Fatalities
80% All other Traffic Fatalities (includes 4 wheelers, mass transit etc)

Source: WRI Research, Data collected by WRI
SAFE SYSTEM: MOST RAPID REDUCTIONS AND THE LOWEST FATALITY RATES
PRINCIPLES OF A SAFE SYSTEM

1. HUMANS MAKE ERRORS
2. HUMANS ARE VULNERABLE TO INJURY
3. RESPONSIBILITY IS SHARED
4. NO DEATH OR SERIOUS INJURIES
5. PROACTIVE VS REACTIVE
SAFE SYSTEM INTERVENTION AREAS

- 01: Creating green, compact & accessible cities
- 02: Inclusive mobility
- 03: Economic vitality
- 04: Education & capacity building
- 05: Vehicle design & technology
- 06: Sustainable mobility

Sub-areas:
- Reducing travel time & increasing fuel efficiency
- Improving air quality & health
- Access to more jobs & opportunities
- Post-crash emergency response & care

Photo: WRI Graphics 2017

World Resources Institute
Higher Vehicle Speeds Increase Likelihood of Pedestrians/Cyclists Dying in Collisions

10% likelihood of pedestrian/cyclist fatality

30% likelihood of pedestrian/cyclist fatality

85% likelihood of pedestrian/cyclist fatality

Source: Cities Safer by Design (2015)
wri.org/publication/cities-safer-design

WORLD RESOURCES INSTITUTE
Higher Vehicle Speeds Require Longer Stopping Times

<table>
<thead>
<tr>
<th>Speed (km/h)</th>
<th>Reaction Distance</th>
<th>Braking Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>8+ 6</td>
<td>14m</td>
</tr>
<tr>
<td>40</td>
<td>14+ 12</td>
<td>26m</td>
</tr>
<tr>
<td>50</td>
<td>21+ 21</td>
<td>42m</td>
</tr>
<tr>
<td>60</td>
<td>29+ 33</td>
<td>62m</td>
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<tr>
<td>70</td>
<td>38+ 48</td>
<td>86m</td>
</tr>
<tr>
<td>80</td>
<td>48+ 67</td>
<td>155m</td>
</tr>
</tbody>
</table>

Note: Above distances are typical distances. The total stopping distance also depends on the thinking distance, road surface, weather conditions and age/condition of the vehicle.

Source: Cities Safer by Design (2015) wri.org/publication/cities-safer-design
SAFE DESIGN FOR ALL ROAD USERS

Urban design that reduces the need for vehicle travel and fosters safer vehicle speeds

Traffic calming measures that reduce vehicle speeds or allow safer crossings

Arterial corridors that ensure safer conditions for all road users

A network of connected and specially designed bicycling

Safe pedestrian facilities and access to public spaces

Safe access to mass transport corridors, stations, and stops
SPEED MANAGEMENT FOR A SAFE SYSTEM

RURAL ROADS

- RURAL ROADS: 70 km/h
- 2 - LANE ROADS: 80 - 90 km/h (Milled rumble strips)
- 2 + 1 ROADS: 100 km/h
- MOTORWAYS: 110 km/h
- HIGH STANDARD MOTORWAYS AND LOW TRAFFIC FLOW: 120 km/h

URBAN ROADS

- RISK OF HEAD ON CRASH: 70 ≤ km/h
- RISK OF CRASH AT INTERSECTIONS: 50 ≤ km/h
- RISK OF CRASH WITH OBSTACLES: 60 ≤ km/h
- RISK OF CRASH WITH VULNERABLE ROAD USERS: 30 ≤ km/h

Source: VTI (Swedish National Road and Transport Research Institute)
SAFE SYSTEMS IN THE WORLD
SHARED MOBILITY PRINCIPLES FOR LIVABLE CITIES

Rational

• The rise of shared and autonomous travel powered by new technologies presents an unprecedented opportunity to transform cities to be more sustainable, equitable, and just.

• Cities are the primary guardians of the public good; they need to be clear about their goals

Ten Principles

1. Plan our cities and their mobility together
2. Prioritize people over vehicles
3. Support the shared and efficient use of vehicles, lanes, curbs, and land.
4. Engage with stakeholders
5. Promote equity
6. Lead the transition towards a zero-emission future and renewable energy
7. Support fair user fees across all modes
8. Aim for public benefits via open data
9. Work towards integration and seamless connectivity
10. Support that autonomous vehicles (avs) in dense urban areas should be operated only in shared fleets

Robin Chase, Founder of Zip-Car
SUSTAINABLE & SAFE
A Vision and Framework For Zero Road Deaths Through Safe Systems

BEN WELLIE, ANNA GRAY SHARPN, CLAUDIA ADRIAZZA STEIL, SOWAMES JOB, AMIT BHATT, PAUL ALVESG, MARTA GELHEIRO, AND TOLOGA HAMOGLU

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