How 3-star or better roads can cut death and trauma

For the first time the United Nations has included road deaths and injuries in its Sustainable Development Goals.

The SDG 3.6 target is to halve road deaths and injuries by 2020.

Improving the world's roads to a 3-star or better rating is a cost-effective contribution to efforts to meet the SDG 3.6 target.

But we need to ACT NOW!
What does ‘3-star or better’ really mean?

A star rating objectively measures the risk of death and serious injury on roads for pedestrians, cyclists, motorcyclists and vehicle occupants.

The more road users at a location, the more likely it will be cost-effective to raise the star rating to 3, 4 or 5-star.

Star ratings are raised by providing proven safety features like pedestrian crossings, safe intersection layouts, safety barriers and road markings.

These features are often inexpensive and efficiently installed during existing major projects or maintenance programmes.

If improvement costs are too high, reducing speeds can help deliver a 3-star or better outcome.

At any significant level of road use, a 3-star or better rating makes financial and economic sense.

On important trade routes, such as major motorways or pedestrian zones around public transport hubs or in urban Central Business Districts, 4 or 5-star standards are both viable and needed because so many people are exposed to any flaws.

Why do we need a 3-star or better world?

- A 1-star road is the least safe and a 5-star road is the safest.
- Each star rating improvement typically halves the cost of road crashes.
- Getting rid of 1 and 2-star roads and making high volume roads 3-star or better will save lives.
- Around 1.2 million people are killed in crashes on the world’s roads each year and up to 50,000,000 are injured.
- Road crashes are the leading cause of death for young people aged 15 – 29 years.
- The global economic cost of road deaths and serious injuries is estimated to be US$1.8 trillion or three per cent of global GDP.
- Action is needed to provide a safe system that includes safer speeds, safer roads, safer road users, safer vehicles and improved post-crash care.
- Maximising travel on 3-star or better roads provides the objective, evidence based metric to drive the improved safety performance of infrastructure.
- Safer roads provide an immediate and long-lasting intervention.

Is it affordable and is it value for money?

Yes it is!

- Each year the world spends more than US$500 billion on roads.
- Refocusing that budget towards measuring and raising safety performance will dramatically reduce deaths and serious injuries.
- Large scale programmes of road safety upgrades can deliver 30-50% efficiency savings and generate jobs in every corner of a country.
- More than $8 of benefits for each $1 invested and internal rates of return of 30%+ are common.
- Investing 0.1% of international GDP in safer roads for 10 years could save 40,000,000 deaths and serious injuries over 20 years.
- Impact investment pilot studies highlight how 3-star or better roads can be funded from savings to the health and insurance sectors in a win-win investment.
Crash costs are **halved** for each star rating improvement* 

<table>
<thead>
<tr>
<th>★★★★★</th>
<th>★★★★★</th>
<th>★★★★★</th>
<th>★★★★★</th>
<th>★★★★★</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crash Cost</td>
<td>$0.19</td>
<td>Crash Cost</td>
<td>$0.09</td>
<td>Crash Cost</td>
</tr>
</tbody>
</table>

* Based on the cost of people killed and serious injury crash costs per vehicle kilometer travelled.

**Where are we now?**

- **Pedestrians:** Only 26% of roads are 3-star or better for pedestrians.
- **Cyclists:** Only 24% of roads are 3-star or better for cyclists.
- **Motorcyclists:** Only 29% of roads are 3-star or better for motorcyclists.
- **Vehicles:** Only 44% of roads are 3-star or better for vehicle occupants.

**The policy opportunity**

- **Recommended policy goal for national and busy regional road networks:**
  
  ≥ 75% of travel on 3-star or better roads for all road users

- **Recommended design goal for new and upgraded roads:**
  - 4-star or better for relevant road users on high volume roads
  - 3-star or better for relevant road users on all road projects

**International Financial Institutions**

- **The Asian Development Bank (ADB)** recommends that roads carrying more than 50,000 vehicles a day should be minimum 4-star and roads through linear settlements should be 4-star for pedestrians.
- **The World Bank and GRSF** helped pilot test the star rating and investment planning tools and is working with governments in India to specify minimum 3-star targets in local loan projects.
- **The Millennium Challenge Corporation** is star rating designs in Moldova, Philippines and El Salvador to ensure minimum safety targets for all road users are being met.
- **The Caribbean Development Bank** is leading the way with safe system projects that incorporate star ratings into a holistic safe system partnership with government (e.g. Belize, Cayman Islands and Barbados).
What does success look like: National Governments and Highways Authorities

- Only 0.5% of the Netherlands national road network is still to achieve a 3-star standard.
- Sweden is aiming for 3-star or better on all national roads by 2025.
- Highways England has a goal for 90% of travel on 3-star or better roads by 2020.
- Malaysia has set a target of 75% of travel on 3-star or better high volume roads by 2020.
- The Midlands Highway in Australia will be upgraded to minimum 3-star standard and Queensland has a target for 85% of travel on 3-star or better by 2020.
- Toll-road operators are raising standards to 3 and 4-star levels to provide a safer journey for customers in Autopista Centrale in Chile and Wellington Gateway Partnership in New Zealand.

Business case for maximising travel on 3-star or better roads

<table>
<thead>
<tr>
<th>What could be achieved</th>
<th>Low Income</th>
<th>Lower-middle income</th>
<th>Upper-middle income</th>
<th>High Income</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve highest risk 10% of roads</td>
<td>108,000 km</td>
<td>610,000 km</td>
<td>992,000 km</td>
<td>1,546,000 km</td>
<td>3,255,000 km</td>
</tr>
<tr>
<td>Build viable countermeasures</td>
<td>$8 bn</td>
<td>$61 bn</td>
<td>$149 bn</td>
<td>$464 bn</td>
<td>$681 bn</td>
</tr>
<tr>
<td>Reduction in fatalities</td>
<td>384,000</td>
<td>1,483,000</td>
<td>1,528,000</td>
<td>283,000</td>
<td>3,678,000</td>
</tr>
<tr>
<td>Reduction in fatalities and serious injuries</td>
<td>4,224,000</td>
<td>16,313,000</td>
<td>16,808,000</td>
<td>3,113,000</td>
<td>40,458,000</td>
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<tr>
<td>Economic benefit</td>
<td>$83 bn</td>
<td>$663 bn</td>
<td>$2,766 bn</td>
<td>$2,202 bn</td>
<td>$5,715 bn</td>
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<tr>
<td>Benefit cost ratio</td>
<td>11</td>
<td>11</td>
<td>19</td>
<td>5</td>
<td>8</td>
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</tbody>
</table>


Who is iRAP?

- iRAP is a registered charity with the vision for a world free of high-risk roads
- Use of the iRAP protocols is free
- Government and civil society partners typically lead, deliver and fund their own programmes
- Independent Centres of Excellence and supplier networks are well established globally.

For more information about iRAP, please visit [www.irap.org](http://www.irap.org) | To support iRAP’s work globally please email donate@irap.org