Case Study
A-Greece
TEN-T road sections

The information detailed in this Case Study has been provided by RSI ‘Panos Mylonas’. Material in this case study is derived from the SENSoR study and as part of capitalisation of that project foreseen in the SLAIN proposal (section 2.2).

This case study focuses on sections of the TEN-T road network in Greece selected as a priority for analysis.

The Greek part of the TEN-T road network is shown in Figure 1.

Assessment of Crash Data

Road crash data are analyzed for the years 2008-2010, covering the risk rate calculation period. The Crash Risk Mapping and Star Rating methodologies only consider fatal and serious injury crashes in calculating the Crash Risk Rate and Star Rating Score, which in the Greek case studies is concentrated on fatal crashes only.

Thus, the overall number of fatal crashes recorded for the examined network was more than 600, although many other serious crashes occurred during the same period (2008-2010).

Figure 1. Greek TEN-T road network

1 http://sensorproject.militos.org/ Lead partner Make Roads Safe Hellas
2 Regulation 1315/2013/EU
Network-Wide Road Assessment

A combination of Crash Risk Rate (the Crash Risk Mapping) results and Star Rating Score data has been used to consider whether the Crash Risk Mapping has identified dangerous road sections worthy of further study and improvement.

Approximately 4,500 km are assessed, separated in more than 80 road sections. Traffic and crash data were gathered for each section and were allocated to the road network under investigation.

The individual risk, expressed as fatal crashes per billion vehicle kilometre travelled over the three-year period, along the Greek TEN-T network is shown in Figure 2.

Based on the individual risk distribution along the investigated road network, Figure 3 shows the share of road length (%) allocated at each of the five risk rate bands.

In Figure 3 nearly 17% of the investigated road network is rated as high risk, whilst more than one-third (35.8%) of the network falls into the medium-high risk band. The share of roads rated as medium risk is 23.8%, while the corresponding share falling into the low-medium risk band is 22%. Furthermore, a negligible part of the network (1.4%) is rated as low risk. The average rate of fatal crashes on the network under investigation is 13.6 per billion vehicle kilometre travelled over the three-year period.

Note that sections of the network that have not been surveyed within the framework for the purposes of the Star Rating process (next chapter) are excluded from the current analysis.
Detailed Road Assessment

Focusing on this network, Star Rating was implemented in 2014, as a supplementary part of the analysis. Through the Star Rating, the infrastructure safety standard for each road user (vehicle occupant, motorcyclist and pedestrian) is estimated. The Star Rating for each road user along the investigated network is demonstrated in Figures 4-6 and Table 3.
As it may be seen from Table 1, about half (50.3%) of the road network is scoring lower than the minimum acceptable Star Rating (3-star) whilst nearly 45.7% of the network is scoring 3-star. A negligible part (4%) of the network is scoring better than 3-star.

As far as the motorcyclists are concerned, it is deduced that 71% of the network falls into the lowest Star Rating band (1-stars), about one-fourth (24.9%) of the network under investigation is scoring 2-star whilst the share of roads scoring equal to or better than 3-star is negligible (4.1%).

Pedestrians’ results are limited to places where there was pedestrian activity and more than half of the inspected network was not rated for pedestrians because the roads are dual-carriageway, rural highways. Nevertheless, it is evident that where there was activity the ratings for vulnerable road users were poor, especially those for pedestrian safety.

As may be seen from the tables above, the investigated network shows high risk according to Star Rating protocols for all road users, with the major part of the network scoring lower than 3 Stars.

<table>
<thead>
<tr>
<th>Star Ratings</th>
<th>Length (km)</th>
<th>Percent</th>
<th>Length (km)</th>
<th>Percent</th>
<th>Length (km)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Star</td>
<td>11.30</td>
<td>2.04%</td>
<td>5.40</td>
<td>0.12%</td>
<td>0.40</td>
<td>0.01%</td>
</tr>
<tr>
<td>4 Star</td>
<td>144.60</td>
<td>2.67%</td>
<td>5.20</td>
<td>0.12%</td>
<td>1.00</td>
<td>0.02%</td>
</tr>
<tr>
<td>3 Star</td>
<td>2,050.40</td>
<td>45.60%</td>
<td>174.55</td>
<td>3.88%</td>
<td>24.50</td>
<td>0.55%</td>
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<tr>
<td>2 Star</td>
<td>679.75</td>
<td>15.14%</td>
<td>1,115.80</td>
<td>24.80%</td>
<td>191.30</td>
<td>4.20%</td>
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<tr>
<td>1 Star</td>
<td>1,530.80</td>
<td>35.50%</td>
<td>3,188.80</td>
<td>71.05%</td>
<td>1,855.10</td>
<td>35.75%</td>
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<tr>
<td>Not applicable</td>
<td>0.10</td>
<td>0.00%</td>
<td>0.10</td>
<td>0.00%</td>
<td>2,889.40</td>
<td>58.69%</td>
</tr>
<tr>
<td>Totals</td>
<td>4,690.90</td>
<td>100.00%</td>
<td>4,690.90</td>
<td>100.00%</td>
<td>4,690.90</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 1. Star rating table

Conclusions

Crash Risk Mapping shows a medium-high to high risk rate for about the half (52.8%) of the road network under investigation and a low to medium risk rate for the rest of the network. Likewise, Star Rating Score shows predominantly either 1- or 2- or 3-star infrastructure safety provision according to Star Rating protocols for vehicle occupants, motorcyclists and pedestrians.

The sections of this network that score least well for different road users could be analysed in more detail if required by using a risk worm to assess risk every 100m. Analysis of what can be done to improve the network may be conducted using the Safer Roads Investment Plan (SRIP) available within IRAP’s ViDA software platform.