This case study shows how Star Rating maps, Safer Roads Investment Plans (SRIPS) and tools within the iRAP software platform ViDA maps may be used to guide site selection for 2+1 roads with a median barrier.

This is a new case study drawn from data from the SENSOr project and as part of capitalisation of that project foreseen in the SLAIN proposal (section 2.2). The SENSoR project was funded by the South East Europe Transnational Cooperation Programme, co-funded by the European Union, and used iRAP protocols. The project was launched in September 2012 and completed in November 2014.

Hungary was one of 14 countries involved in a project that included more than 27,000km of Crash Risk Mapping using fatal and serious crash data and Star Rating of about 19,000km. KTI (Institute for Transport Sciences Non-Profit Ltd and AF-CityPlan) were involved in the part of the project in Hungary. The report of the study was prepared by AF-CityPlan with support from the Road Safety Foundation.

Figure 1 shows the national Star Rating map for Hungary.

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Network-Wide Road Assessment

Using the Safer Roads Investment Plan (SRIP) for the whole of the Hungarian network enables identification of 2+1 with median barrier as an economically justified countermeasure over 303km (Figure 2).

Local intelligence drew attention to National Road 4 which stretches from Budapest to the Ukraine border. The road section under particular consideration was from south west of Debrecen to north east of Nyírtura (Figure 3). Analysis showed the potential for implementation at two particular stretches of road – these were highlighted in the SRIP specific to that road shown (Figure 4). 21km of road were found where the 2+1 would be economically justified (see Figure 5). Figures 6 and 7 show mages of the route at those locations.

Local engineers then decide whether these roads as identified may be amenable to conversion to the 2+1 configuration based upon crash history and local need and priorities. As described in other case studies in this series, the suitability of the road for a 2+1 configuration with a wire rope median could then be assessed on the basis of such factors as:

- statistical data on frontal crashes: sections of concentration of frontal accident
- traffic flow
- functional and technical characteristics of the roads
- the average Speed of vehicles
- the viability of the proposed actions and the expected social benefit.

![Figure 2: Excerpt of Safer Roads Investment Plan for Major Roads in Hungary (unrounded data and local currency)](image2)

![Figure 3: Star Rating Map Road 4 south west of Debrecen to Ukraine border](image3)

![Figure 4: Excerpt of Safer Roads Investment Plan for Road 4 south west of Debrecen to Ukraine border (unrounded data and local currency)](image4)
This case study has shown how Star Rating maps, Safer Roads Investment Plans (SRIPs) and tools within the iRAP software platform ViDA maps may be used to guide site selection for 2+1 roads with a median barrier. Engineers may then inspect the location and decide whether, probably with due consideration to road-widening, it is possible and a priority to implement the measures at these locations.