**Case Study**

**A-UK (England)**

**A285 (Chichester to Petworth)**

It is well known that different road features contribute to the likelihood and severity of crashes. Changing or upgrading these road features may reduce risk. This case study is one of a series carried out on roads in the UK to demonstrate a process of road assessment and crash reduction where Crash Risk Mapping can guide a selective Star Rating process.

**Network Wide Road Assessment**

Since 2002, the Road Safety Foundation in the UK has produced risk maps of motorways and trunk roads in Britain as part of the EuroRAP programme, later adding local authority A-roads to those mapped. These maps identify the risk of being involved in a fatal or serious crash per billion vehicle-kilometres travelled. Figure 1 shows a recent report from this series, including an illustration of the map that is produced each year. This case study shows how these maps may be used to guide crash countermeasures for different road users. The case study is extracted from a larger study in 2015 by the Road Safety Foundation.[1] Scene photographs and other information come from the report of the study visit from the RADAR[2] project prepared by UAMK, the latter as part of the capitalisation of that project foreseen in the SLAIN proposal (section 2.2). The road improvement project was carried out by West Sussex County Council.

**Detailed Road Assessment**

The 19km of the A285 between Chichester and Petworth was known to have a relatively high crash rate (Figure 2) compared with other similar roads. It was top of the list for persistently high risk roads in Britain. Between 2007-09 and 2010-12 the Risk Mapping results for the A285 between Chichester and Petworth showed the route unchanged. There were 39 fatal and serious crashes evenly distributed along the A285 between 2007-2012. They included vehicle occupants (50%), motorcyclists (40%), pedestrians (5%), and cyclists (5%). Star Ratings are given for the two majority road users: vehicle occupants and motorcyclists.

The Star Rating results in Figure 3 show the risk to individuals based on the road environment in the 2010-12 data period. Between 2010 and 2012 the majority Star Rating for both vehicle occupants and motorcyclists across the route was 2-star.

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Figure 1. British EuroRAP Results 2019
(Source: Road Safety Foundation)

Figure 2. Britain’s persistently higher risk roads (EuroRAP Risk mapping 2009-11 & 2012-14)
Countermeasures Proposed by the Model

A Safer Roads Investment Plan based on these results has been produced to identify what casualty reductions there could be and the economic savings it is reasonable to expect in the event of increased investment in this route. The Safer Roads Investment Plan (SRIP) has been derived for the route for a 20 year period and the results are shown in Figure 4.

Assessment of Star Rating After Potential Countermeasures Implemented

The countermeasures designed to save a high number of lives and generate significant economic savings are shoulder rumble strips and central hatching. Together these aim to reduce the number of run off and head on crashes. According to the SRIP, implementing these measures alone could achieve a reduction of 14 fatal and serious injuries over 20 years, diminishing by 15% the number of head on and run off fatal and serious injuries.

Investing £3m could result in a reduction of 45 fatalities and serious injuries over 20 years, producing a present value benefit worth £11m. The resulting Star Ratings based on the recommendations of the full SRIP are shown in Figure 5; 100% of vehicle occupant Star Ratings would achieve minimum 3-star.

The results of the revised countermeasure costs give an estimated Star Rating for motorcyclists (Figure 5). This Star Rating does not meet the minimum 3-star targets because of the difference between the vulnerability of vehicle occupants and motorcyclists.

Actual Implementation

There were several potential constraints to the implementation:

- environmental issues – the route passes through the South Downs National Park
- landownership and timescales – works had to be within the existing delineation of A285
- traffic management – diversion of traffic was not possible due to long alternative routes, extensive road closures thus not an option
- archaeology – this is an area of rich Roman and pre-historic record.
These constraints meant that it was not possible to implement the recommendations of the SRIP completely and as a result the road is unlikely to fully achieve the improved ratings shown in Figure 5. Ultimately, the upgrade scheme prepared for A285 under Safer Roads Fund had a relatively simple project objective and drew upon several of the elements of the iRAP Safer Roads Investment Plan – to ensure consistent lane width along the whole route, which is (due to its delineation and character) very popular with motorcyclists, who contribute significantly to road’s accident record. The works consisted of introducing a safety edge comprising of shoulder widening to provide a hard strip and a rumble edge lining along approximately 12 km of the route. There was substantial improvement to the delineation (signing and lining), some roadside hazard clearance and several minor intersection improvements. Co-funded by the UK Department for Transport’s Safer Road Fund and West Sussex County Council in 2017, the scheme cost £1.53m and was expected to save 13 fatal and serious casualties over 20 years, with a BCR of about 2.

Conclusions

The A285 had a poor crash record and was placed top of a list of High-risk roads in Britain. Vehicle occupants and motorcyclists were those most frequently injured. The iRAP Safer Roads Investment Plan showed that an increase the safety of the route could be expected with implementation of proposed countermeasures. Many, but not all, of these measures were implemented in a project jointly funded by the national and local government partners. The road will have to be reassessed to check its current iRAP Star Rating. The crash rate is being monitored and there will be an evaluation of the “after” crash rate when three complete years have passed since implementation.
The European Road Assessment Programme (EuroRAP) is an international not-for-profit association set up in 1999 and registered in Belgium that is dedicated to saving lives through safer roads. The programme aims to reduce death and serious injury through a programme of systematic improvement of risk, identifying the major shortcomings that can be addressed by practical road improvement measures. It forges partnerships between those responsible for a safe road system – civil society, motoring organisations, vehicle manufacturers and road authorities – and aims to ensure that safety is at the heart of strategic decisions on route improvements, crash protection and standards of route management.