

Four 'Es' - Road Safety Engineering



27th November 2018

Dr Suzy Charman, Executive Director, Road Safety Foundation

International Context



- Road Safety Performance Indicators
- UNRSC Pillar 2 Working Group: Activities for Managing Existing Roads
 - Identify worst 10% of sites/sections every year and develop targeted programmes
 - Undertake proactive Road Safety Inspections at least every 5 years
 - Undertake maintenance inspections at least every year
- UNRSC Pillar 2 Working Group: Activities for Managing Safety of New Roads
 - Road Safety Impact Assessment
 - Road Safety Audit
 - Monitoring

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Road Safety Performance Indicators



- *You cannot manage what you do not measure*
- Highways England commitment for 90% travel on 3 star or above roads by 2020
- PACTs SPI report
 - MRN and strategically important/higher volume local authority roads


UN Global Road Safety Performance Targets

TARGET **3** | 2030



Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.

TARGET **4** | 2030



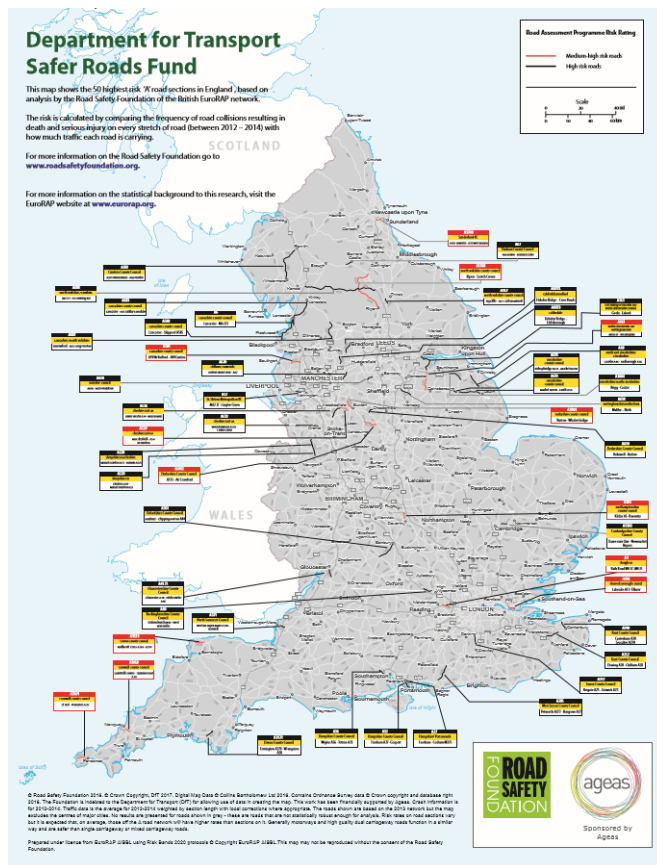
Target 4: By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.

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DfT's Safer Roads Fund



- £100 million committed to treat England's 50 highest risk local A road sections – 700km
- Roads selected on the basis of Risk Mapping
- A non competitive fund
- Submissions in April and September 2017
- Ministerial Statement announcement in June 2018
- Aims:
 - Reduce trauma on top 50 highest risk A roads
 - Introduce new approaches to risk management

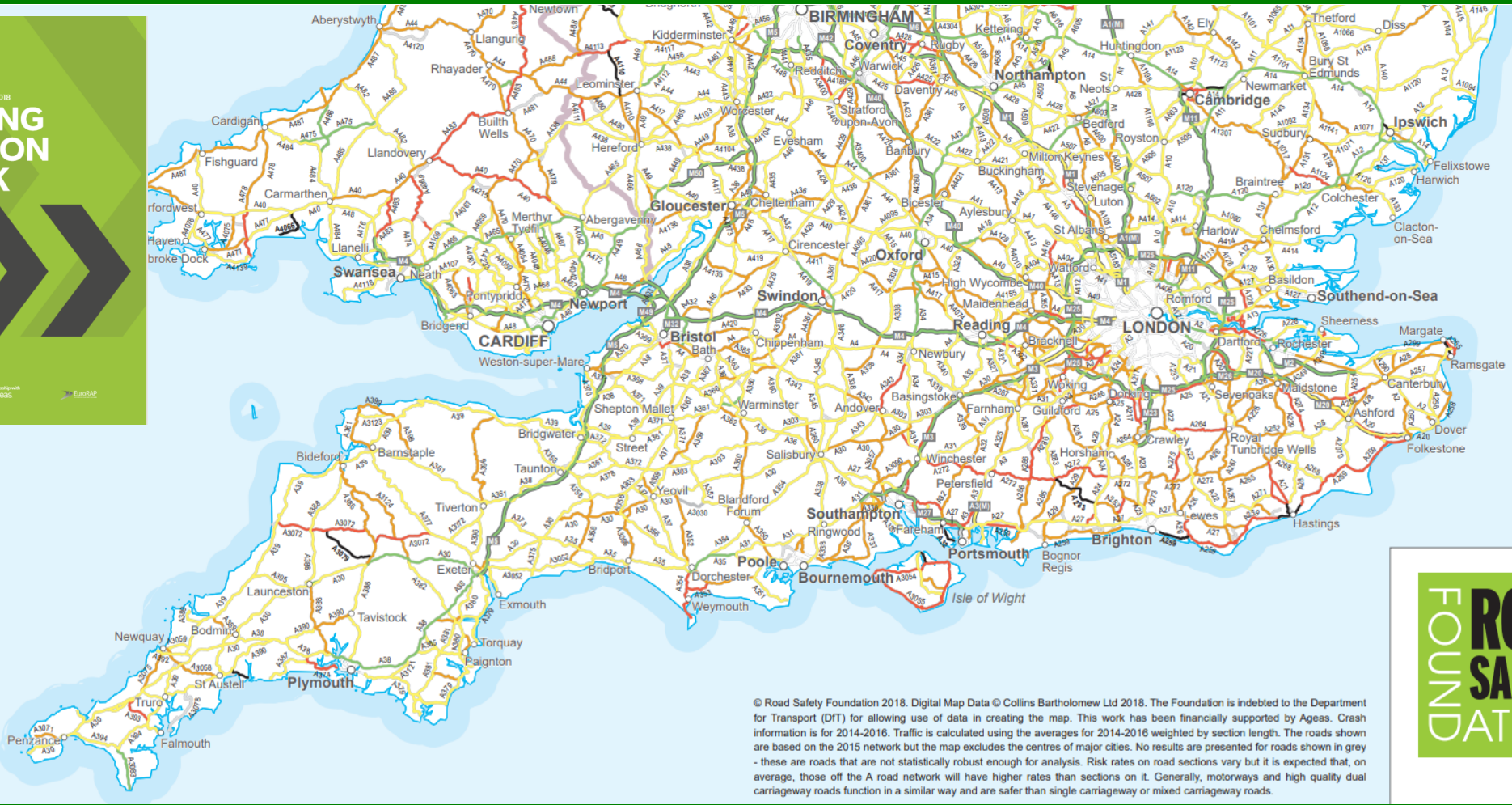
Risk Mapping and Performance Tracking



BRITISH EURORAP RESULTS 2018

GETTING BACK ON TRACK

ROAD SAFETY FOUNDATION
in partnership with
ageas



© Road Safety Foundation 2018. Digital Map Data © Collins Bartholomew Ltd 2018. The Foundation is indebted to the Department for Transport (DfT) for allowing use of data in creating the map. This work has been financially supported by Ageas. Crash information is for 2014-2016. Traffic is calculated using the averages for 2014-2016 weighted by section length. The roads shown are based on the 2015 network but the map excludes the centres of major cities. No results are presented for roads shown in grey - these are roads that are not statistically robust enough for analysis. Risk rates on road sections vary but it is expected that, on average, those off the A road network will have higher rates than sections on it. Generally, motorways and high quality dual carriageway roads function in a similar way and are safer than single carriageway or mixed carriageway roads.

Sponsored by



Road Safety Engineering – Latest Thinking

New Practitioner Tools



Road Safety Foundation EuroRAP UK 2014 - 2016 Select a route to reveal detailed results

Road Filter: All Roads SRN Local

JM394 Route Information

A255, Kent

11.2 km

Fatal and Serious Collisions **17** 2014-2016

Change in FSC **42%** 2011-2013 to 2014-2016

Average Annual Daily Flow

Last update: a few seconds ago

Contains OS data © Crown Copyright and database right ...

FSC Risk Rate 2014-2016

113 per billion vehicle KM

FSC Density 2014-2016

1.5 Per KM

Collisions

Last update: a few seconds ago

Proactive Risk Management Approach - iRAP



The iRAP Centres of Excellence:



Australian Road Research Board



MRI Global



TRL



MIROS



IMT



RIOH



SWOV



LabTrans



KOTI

Survey and coding

Testing undermeasures generate BCRs



Star Ratings and Crash Costs

Crash costs are **halved** for each star rating improvement*



Crash Cost
\$0.19



Crash Cost
\$0.09



Crash Cost
\$0.03



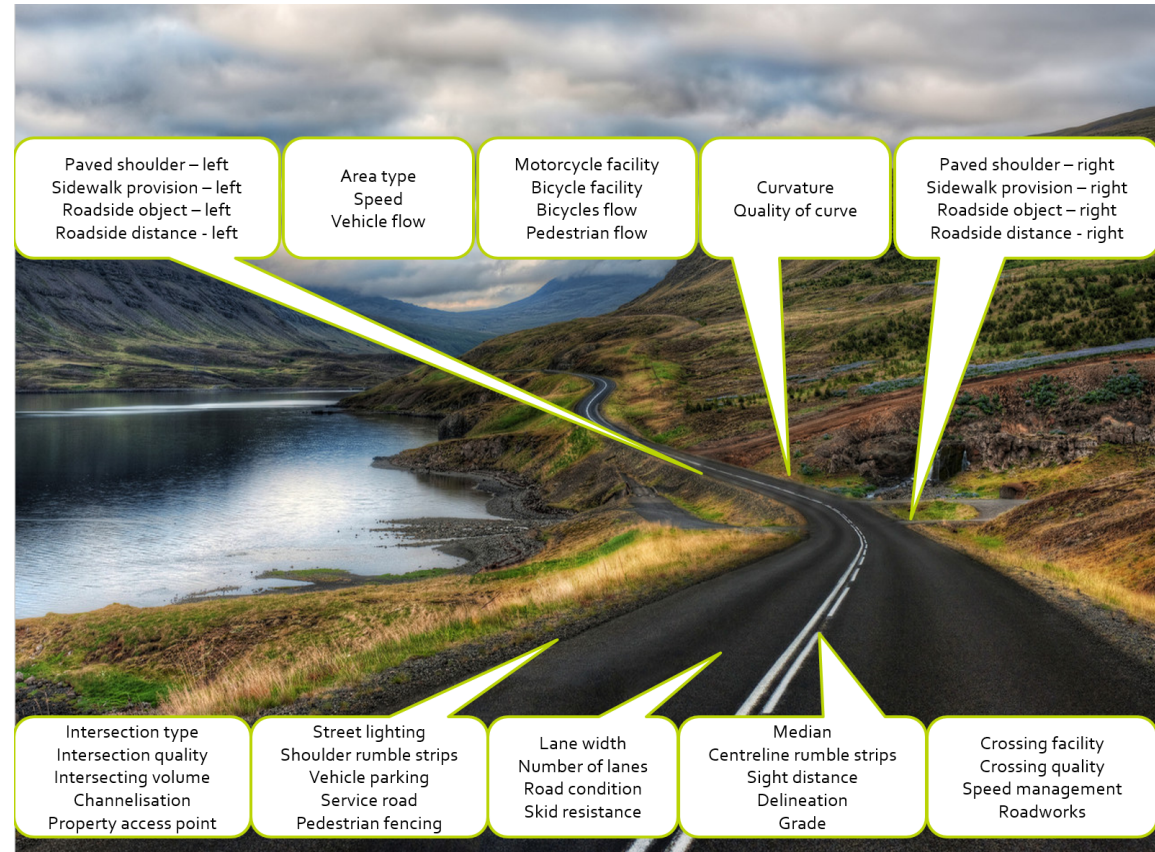
Crash Cost
\$0.02



Crash Cost
\$0.01

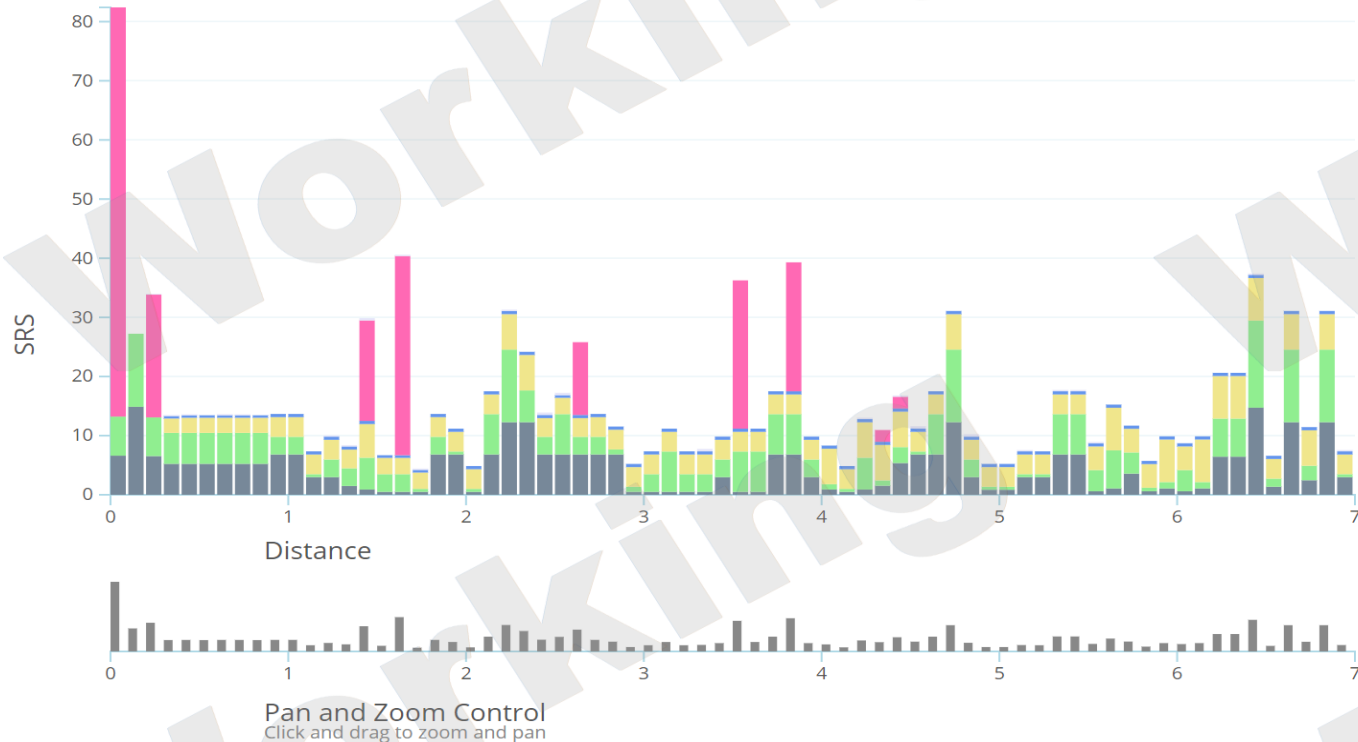
* Based on the cost of people killed and serious injury crash costs per vehicle kilometer travelled.

Survey and Coding



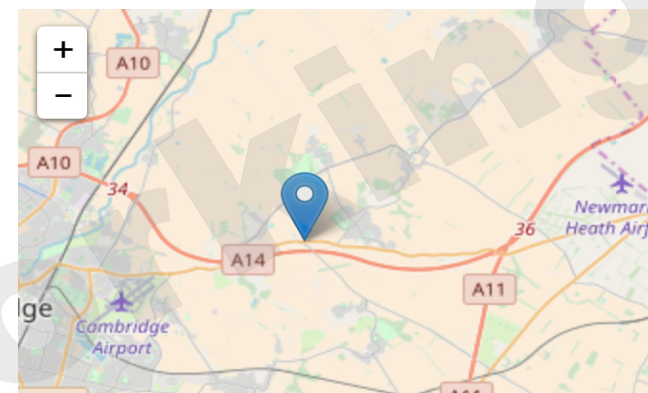


Understanding and Reviewing Risk



Disable high contrast

Distance	1.8
Vehicle Occupant Star Rating	2
Vehicle Occupant SRS	13.667196
Vehicle Occupant SRS Run-Off LOC Driver-Side	6.818112
Vehicle Occupant SRS Run-Off LOC Passenger-Side	2.982924
Vehicle Occupant SRS Head-On LOC	3.33216
Vehicle Occupant SRS Head-On Overtaking	0.534
Vehicle Occupant SRS Intersection	0
Vehicle Occupant SRS Property Access	0





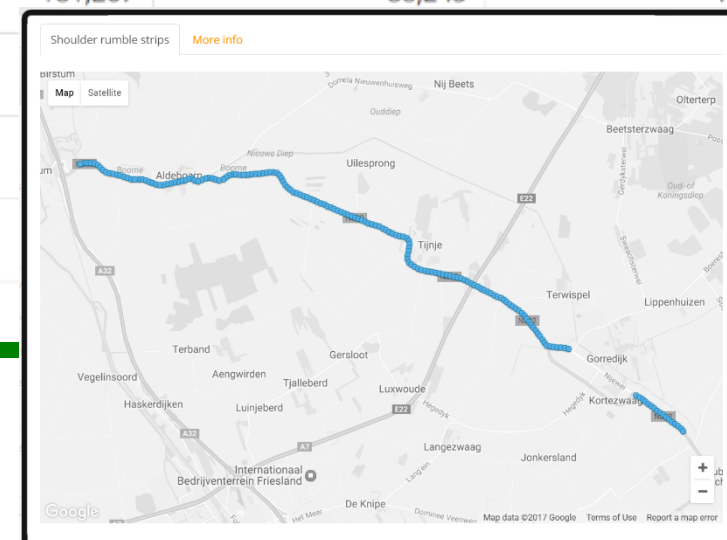
'Proactive' Route-Based Treatments

Safer Roads Investment Plan ?

Currency: € EUR - Analysis Period: 20 years

Total FSIs Saved	Total PV of Safety Benefits	Estimated Cost	Cost per FSI saved	Program BCR
35	11,413,953	6,258,017	176,414	2

Countermeasure	Length / Sites	FSIs saved	PV of safety benefit	Estimated Cost	Cost per FSI saved	Program BCR
Shoulder rumble strips	17.20 km	4	1,336,797	204,641	49,256	7
Improve Delineation	9.60 km	2	660,939	181,267	88,245	4
Protected turn lane (unsignalised 3 leg)	4 sites	6	2,040,064			
Central hatching	1.60 km	0	39,453			
Pedestrian fencing	0.70 km	0	18,513			
Centreline rumble strip / flexi-post	0.10 km	0	3,904			



Safer Roads Fund Treatments



Safer Roads Fund treatments



150 miles
of improved speed limits,
enforcement and traffic calming



10 miles
of new or improved
footpaths



90 miles
of cleared or protected
roadsides



300
improved bends



20 miles
of new or improved
cycle facilities



90 miles
of improved visibility
and signing



80 miles
of improved medians
(hatching / wide centrelines)



290 miles
of improved roadside shoulders



135
new or improved
pedestrian crossings



70 miles
of improved
road surfaces

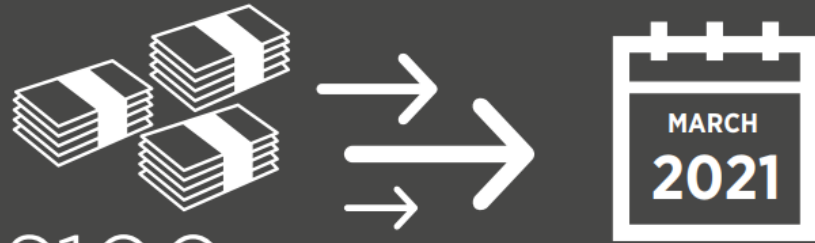


225
improved junctions



A Compelling Business Case

Safer Roads Fund investment



£100 m

Capital investment of nearly £100 million to be spent between now and March 2021



Around 1,450 lives and serious injuries estimated to be saved in the next 20 years



£550 m

Value of prevention of injuries (20 years)



Economic cost (20 years) (including maintenance and operation) £125 m



4.4

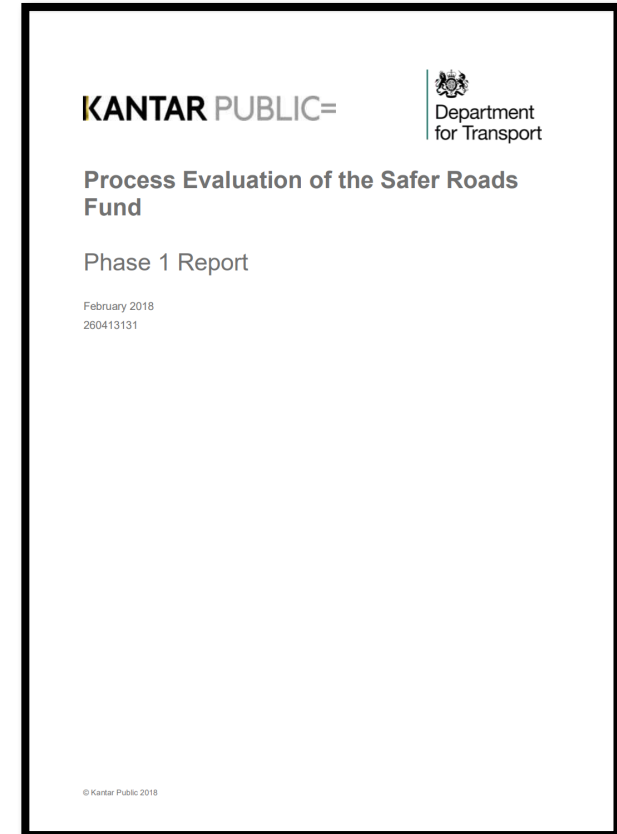
Portfolio Benefit Cost Ratio



Independent Evaluation

- Safer Roads Fund generally well received
- Road Safety Engineering support
- Proactive iRAP approach embraced by most

- Issues:
 - Selection of priority routes
 - Additional functionality in iRAP tools
 - Future use of proactive approaches



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Highways England Programme



- Star Rating surveys in 2010 and 2015, plans for 2020
 - Modelling impact of planned investments – RIS 1 and RIS 2
 - Using iRAP data to inform remedial treatment and model impact of road safety engineering schemes
 - Major R&D initiative
-
- What about the MRN?

International Context

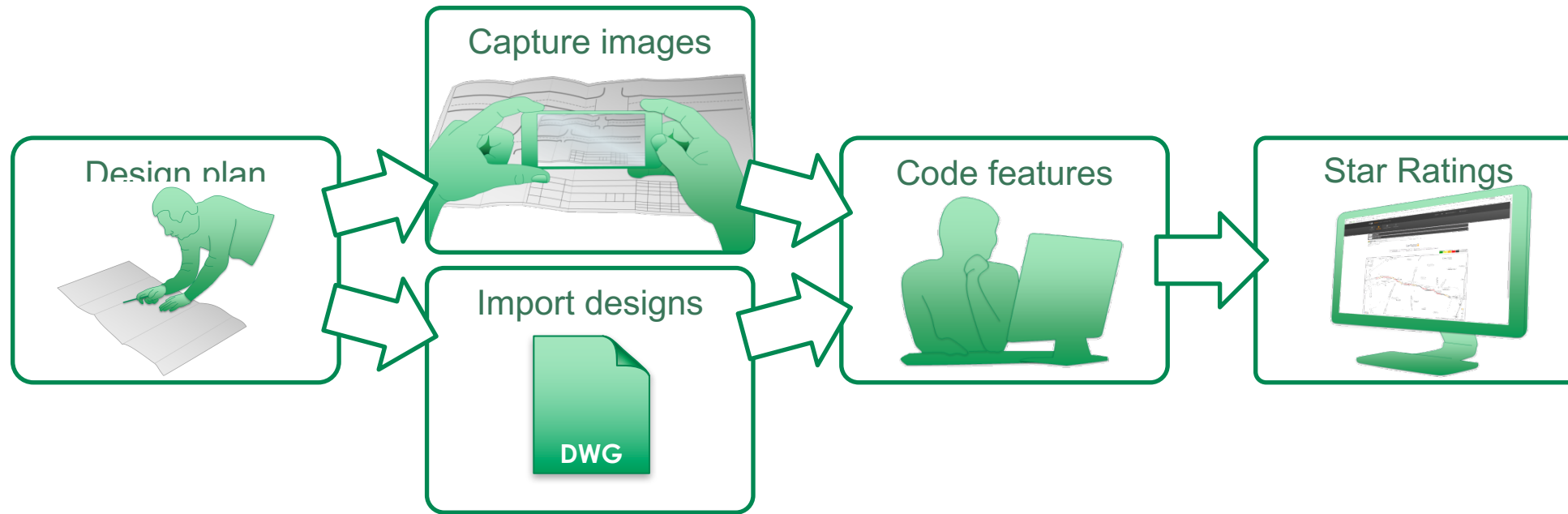


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Star Rating Designs

- To be launched soon
- First project – Lower Thames Crossing



Partners



Star Rating Designs



Road Safety Engineering – Latest Thinking



Thank you for listening

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