

The Economics of Road Safety Interventions



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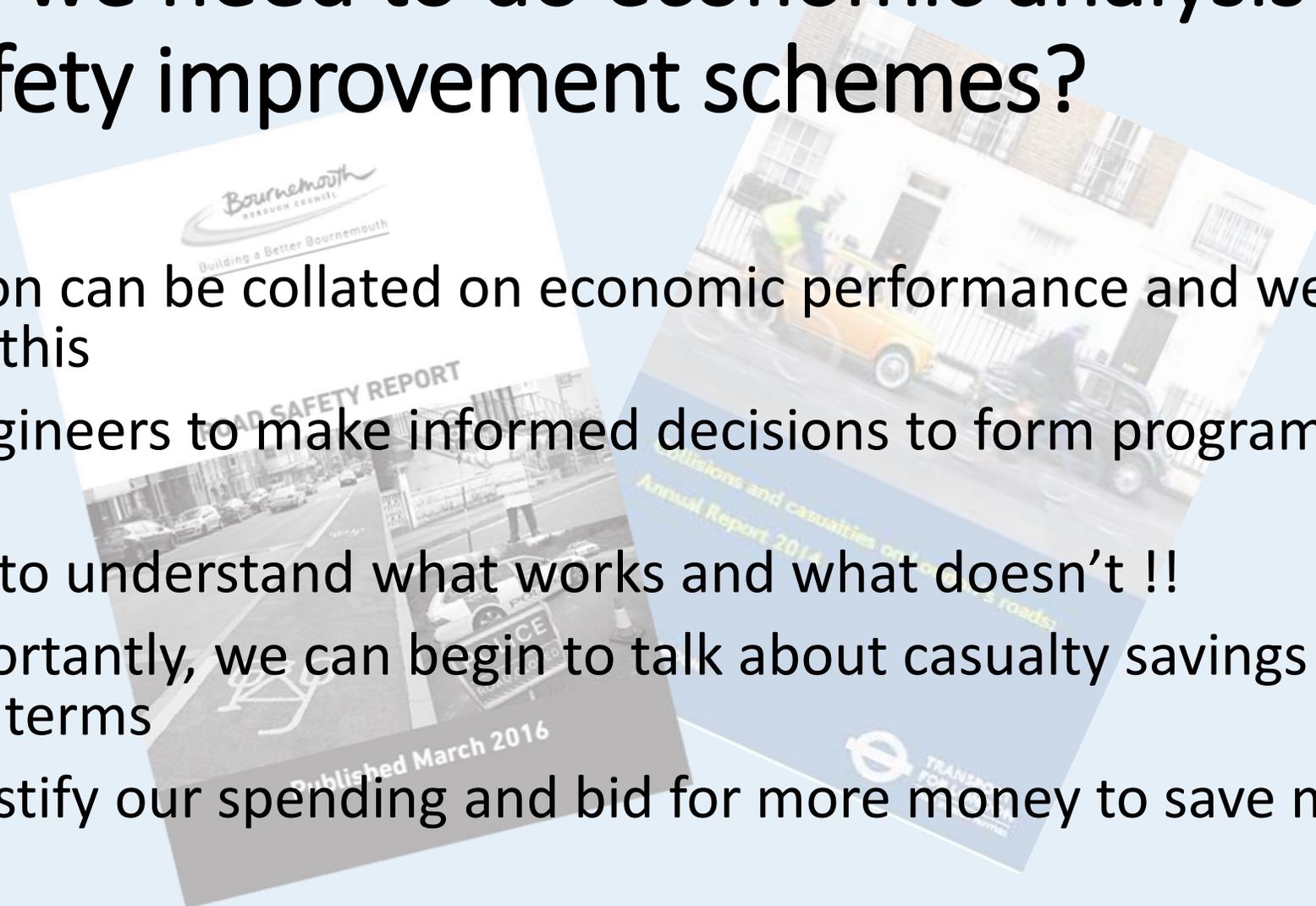
The Scale of the Problem

- Nearly 1.3 million people die in road crashes each year, on average 3,287 deaths a day.
- That costs economies USD \$518 billion globally
- Equates to 1-2% GDP on average
- Over 90% of all road fatalities occur in low and middle-income countries, which have less than half of the world's vehicles



Why do we need to do economic analysis of road safety improvement schemes?

- Information can be collated on economic performance and we can report on this
- Allows engineers to make informed decisions to form programmes of work
- We begin to understand what works and what doesn't !!
- Most importantly, we can begin to talk about casualty savings in monetary terms
- We can justify our spending and bid for more money to save more money!

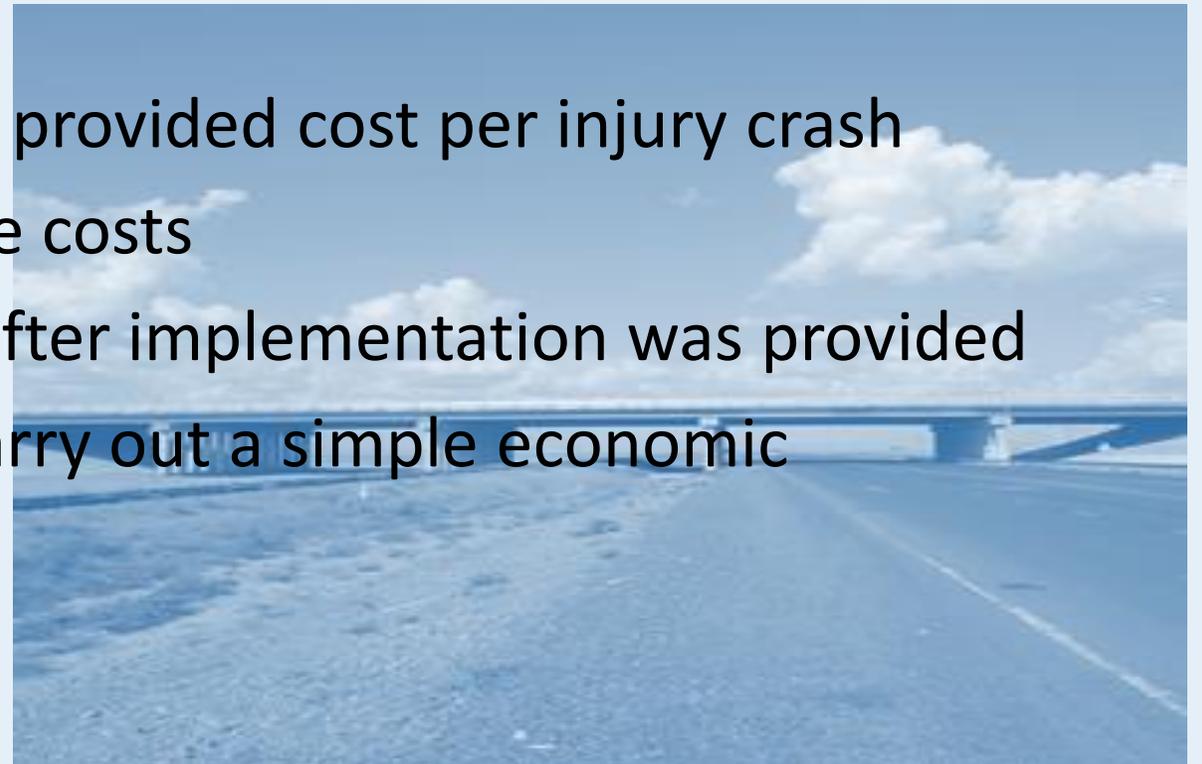


How do we calculate economic savings of road safety schemes?

- We need crash data – before and after scheme completion
- We need to know the scheme costs
- We need to know the cost of an injury crash – average
- In UK around £80,000 average cost - 2014 figures

Case Study from Kazakhstan

- Rehabilitation scheme Cat I Highway
- Improvements included surface improvements and most importantly **adding central median barrier**
- ADB Economics Report Kazakhstan provided cost per injury crash
- We were provided with the scheme costs
- Crash data for 3 years before and after implementation was provided
- We have all the data we need to carry out a simple economic appraisal of the scheme



The types of collisions/crashes before the scheme was implemented

- Excessive speed was a major factor
- Cross over type crashes!
- These involve high impact speeds
- Always high severity



Calculating the First Year Rate of Return

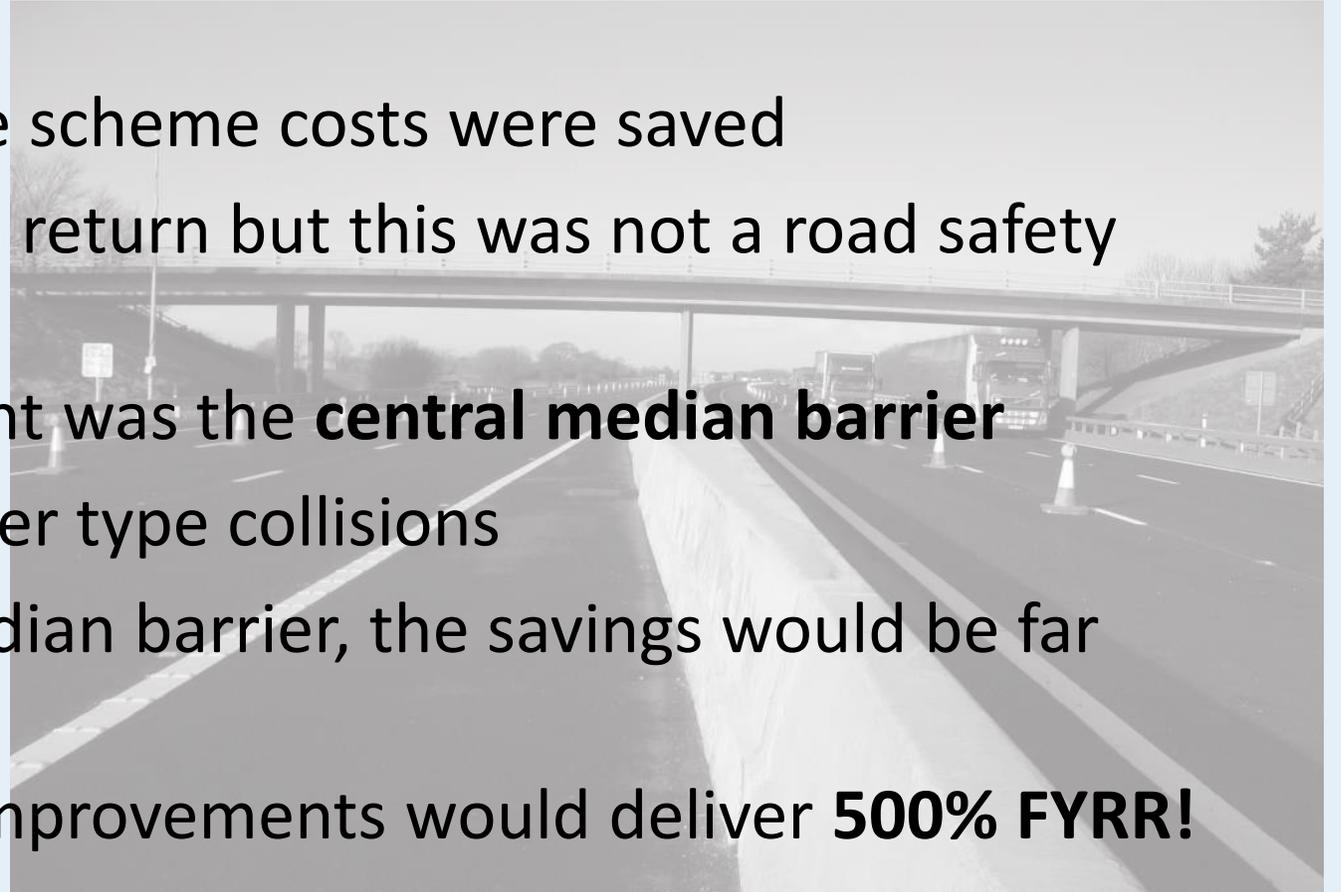
**Cost of Injury Accidents x Accident
Saving in 1st Year**

x 100%

Construction Costs

The results of the Economic Appraisal

- In the **First Year 10%** of the scheme costs were saved
- This might not seem a high return but this was not a road safety improvement scheme
- The key safety improvement was the **central median barrier**
- Large reduction in cross over type collisions
- For implementing only median barrier, the savings would be far greater
- In UK this type of barrier improvements would deliver **500% FYRR!**



How can we use these statistics?

- We can identify what provides the best crash savings and return on our investment – increases our knowledge
- We can also identify schemes that have not performed
- We can produce reports to demonstrate the overall savings
- This can increase budgets for future road safety programmes

Example of FYRR Report

Project no.	Location	No. collisions	No. casualties	Project proposal	Estimated project cost	FYRR
1	Charminster Road, Alma Road Junction	18	18	Change phasing of the traffic signals	£4,000	1578
2	Bear Cross Roundabout	15	21	Narrow lane on roundabout. Lining and signing improvements	£5,000	1263
3	Alma Road, Waterloo Road Junction	8	8	Cut back hedge to improve visibility	£2,000	789
4	St Michael's Roundabout	15	17	Lining and signing improvements	£10,000	631
5	Lansdowne Road, Cavendish Road, Beechey Road Junction	12	14	Install a central island to prevent traffic movements	£10,000	631
6	Merge onto Wessex Way (Eastbound) from Richmond Hill Roundabout	11	17	Move hatching from left to right on the slip road	£5,000	631

THANK YOU FOR LISTENING

