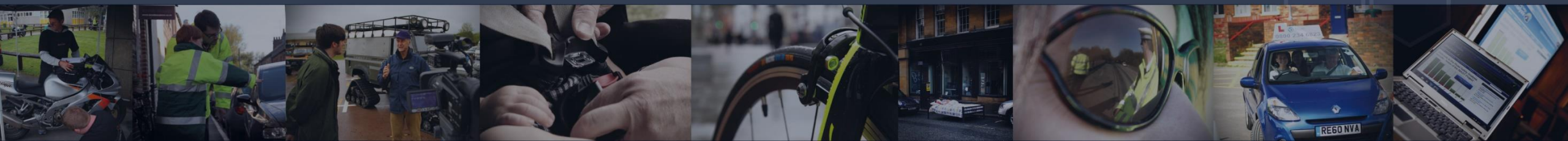
The Effectiveness of Average Speed Cameras

a report commissioned by the RAC Foundation

Richard Owen

Director

Road Safety Analysis | Agilysis



Background

- Road Safety Analysis
  - Not-for-profit company limited by guarantee registered in England
  - Independent specialists in collision and casualty analysis, evaluation, online analysis systems, intervention design, training and more
- Richard Owen
  - Former manager at Thames Valley Safer Roads Partnership
  - Specialist in spatial analysis, GIS, and project management
- Co-authors
  - Professor Richard Allsop - Emeritus Professor of Transport Studies at UCL
  - Dr George Ursachi – RSA Analyst

roadsafetyanalysis

roadsafetyanalysis

Transport for Greater Manchester

West Mercia POLICE

Road Safety GB

THE UNIVERSITY OF WARWICK

Department for Transport

THAMES VALLEY POLICE

AA

AXA

direct line

PACTS
PARLIAMENTARY ADVISORY COUNCIL FOR TRANSPORT SAFETY

MICHELIN

Suffolk County Council

Birmingham City Council

RAC Foundation

Road Safety SCOTLAND

Transport for London

The Effectiveness of Average Speed Cameras

RAC Foundation
Mobility • Safety • Economy • Environment

The Effectiveness of Average Speed Cameras in Great Britain

- History of speed cameras and previous analysis
- Objectives
- Collecting the data
- Problems
- Results
- Importance for those wanting to reduce collisions on roads

roadsafetyanalysis

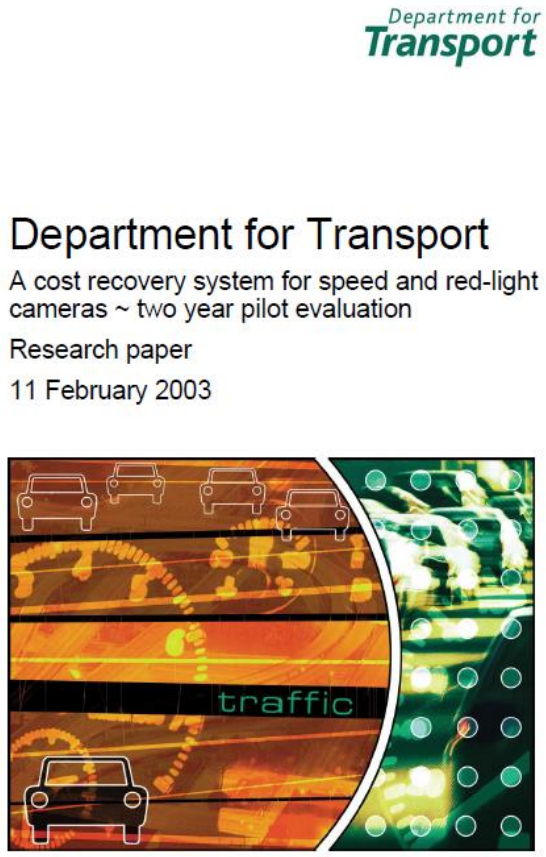
History of Speed Cameras in GB

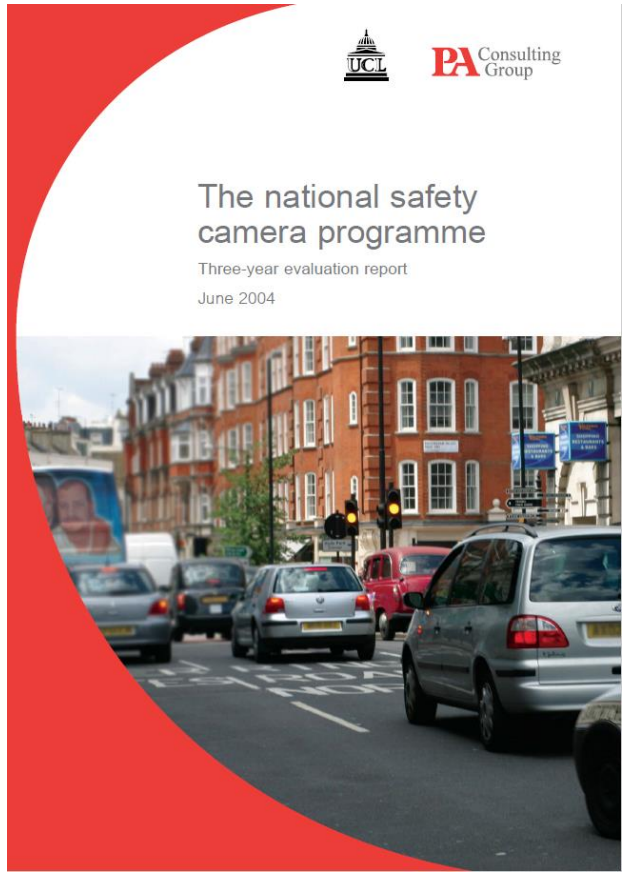
- 2000 – 2007 Focus on casualty reduction
- Government sets installation criteria
  - 4 Collisions (KSI) per km in 3 years
  - 8 Collisions (PIC) per km in 3 years
  - Speed as a ‘causation factor’
  - 85th Percentile speeds > 10% + 2mph e.g. 35mph in 30mph limit
  - 20% of drivers exceeding the speed limit

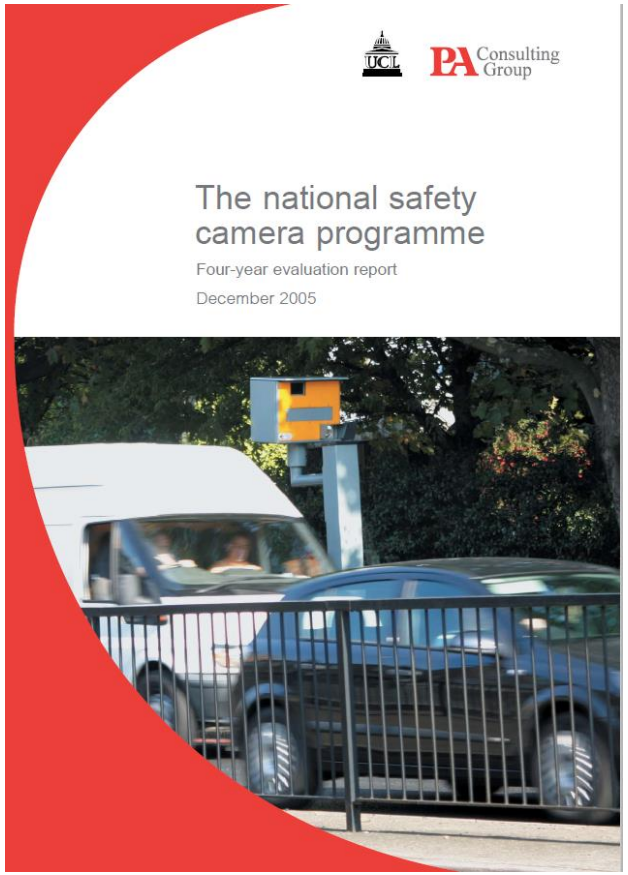
roadsafetyanalysis

Popularity

Evidence for Casualty Reduction

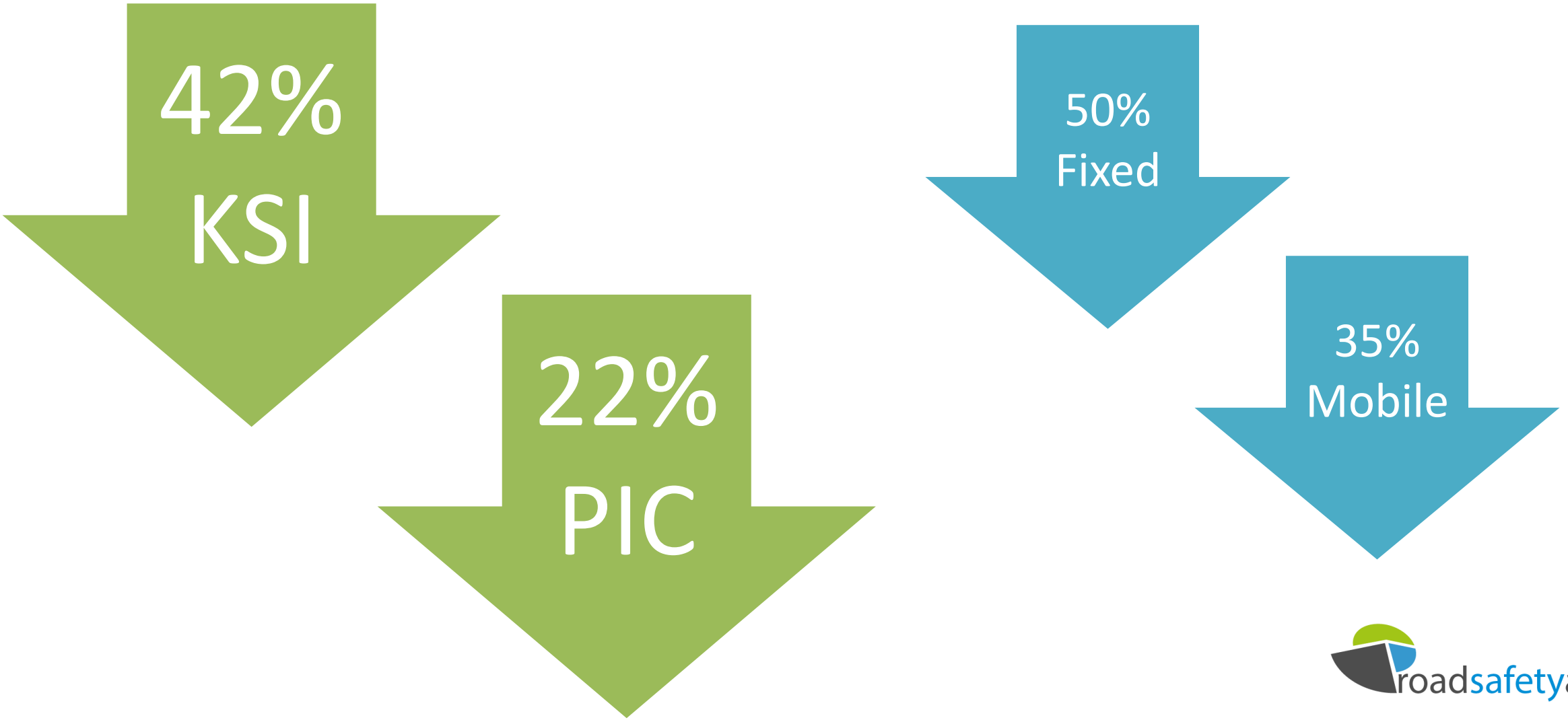






roadsafetyanalysis

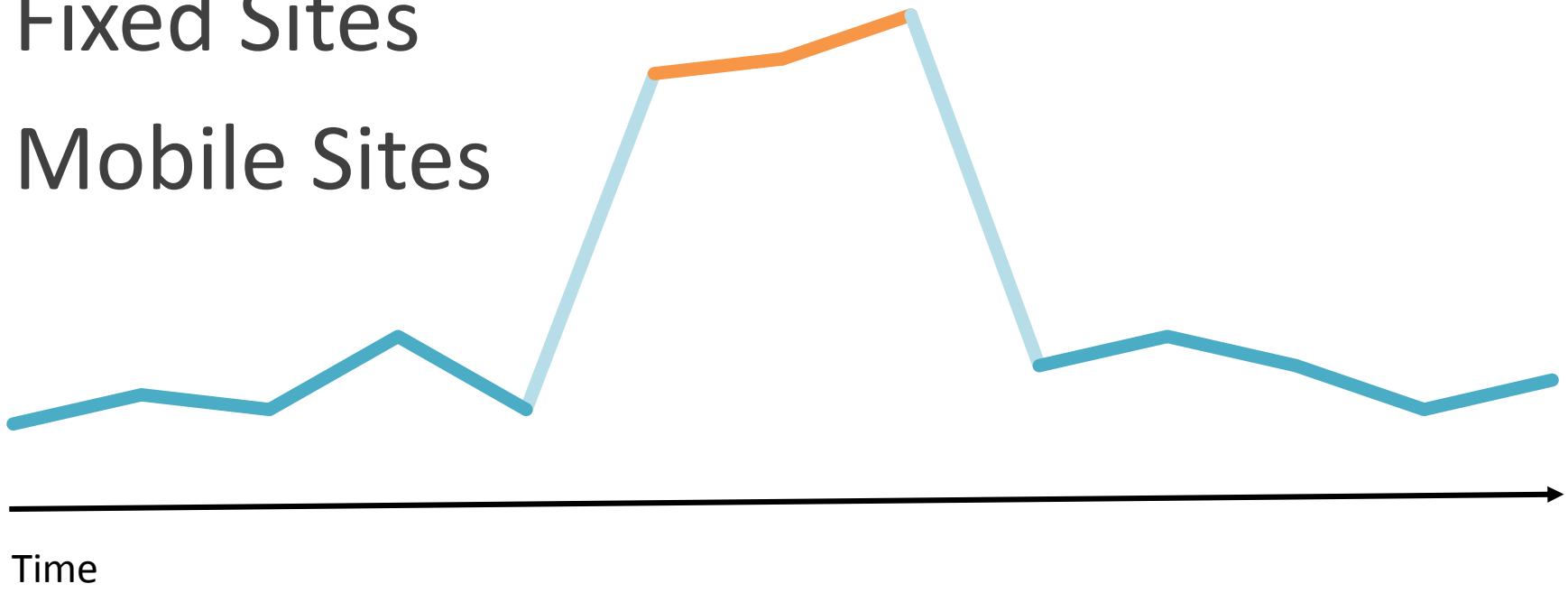
Evidence for Casualty Reduction



roadsafetyanalysis

Evidence for Casualty Reduction

- Regression to Mean
  - 36% at Fixed Sites
  - 43% at Mobile Sites



roadsafetyanalysis

RAC Foundation Objectives

1. To create a national database/inventory of ASC sites of various kinds in Great Britain
2. To establish a suitably large and appropriate control group of sites to enable an understanding of the difference in collision reduction between potential ASC sites with and without such enforcement
3. To establish levels of occurrence of collisions before and after ASC installation (with consideration given to site-selection period, pre-installation and post-installation periods)

roadsafetyanalysis

How we collected the data

- Support from manufacturers

JENOPTIK

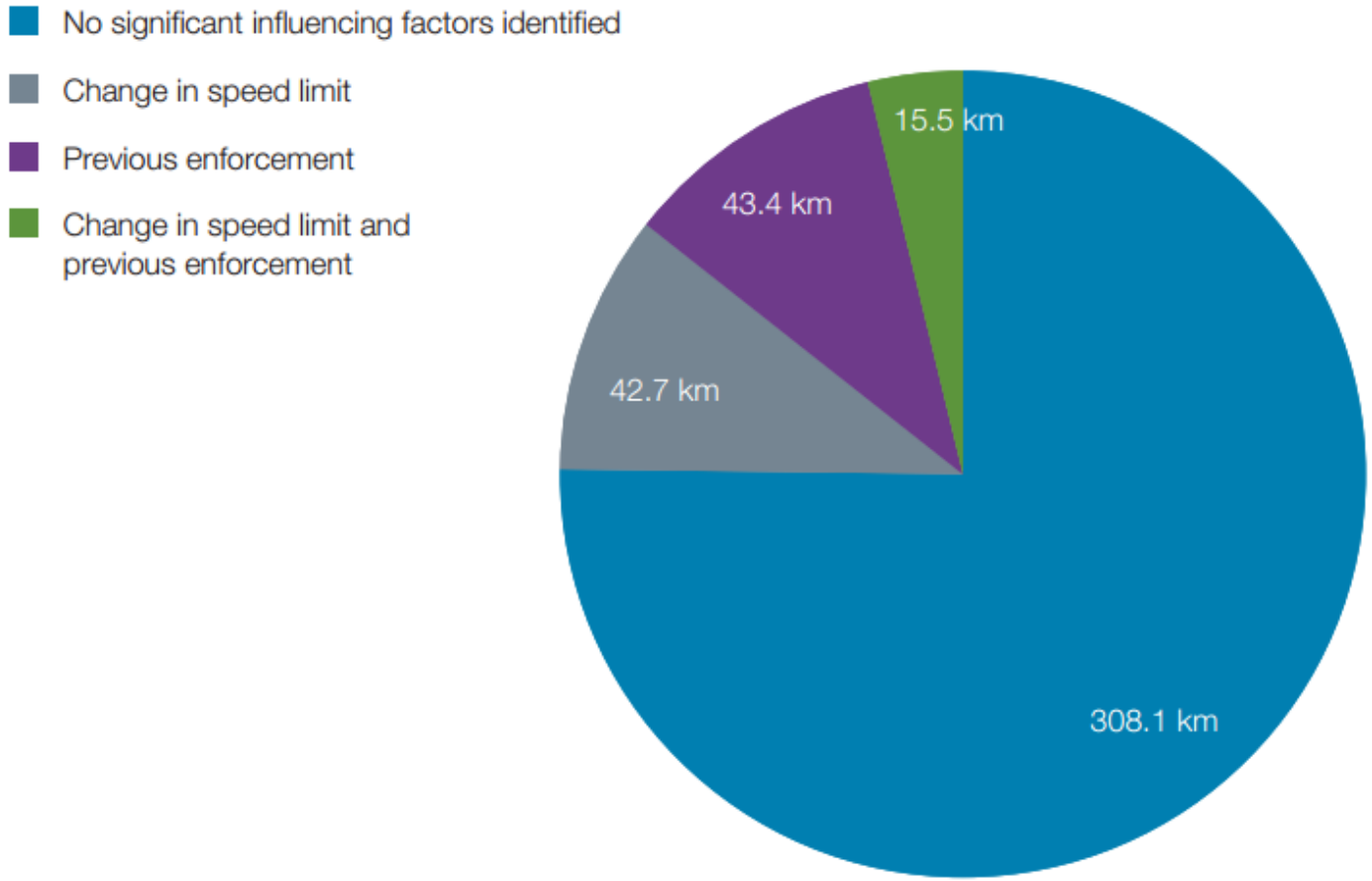
3M

- Support from authorities (Police, local authorities, camera partnerships)
  - Installation dates
  - Site selection periods
  - Prior enforcement
  - Other information
- Collision data independently sourced

roadsafetyanalysis

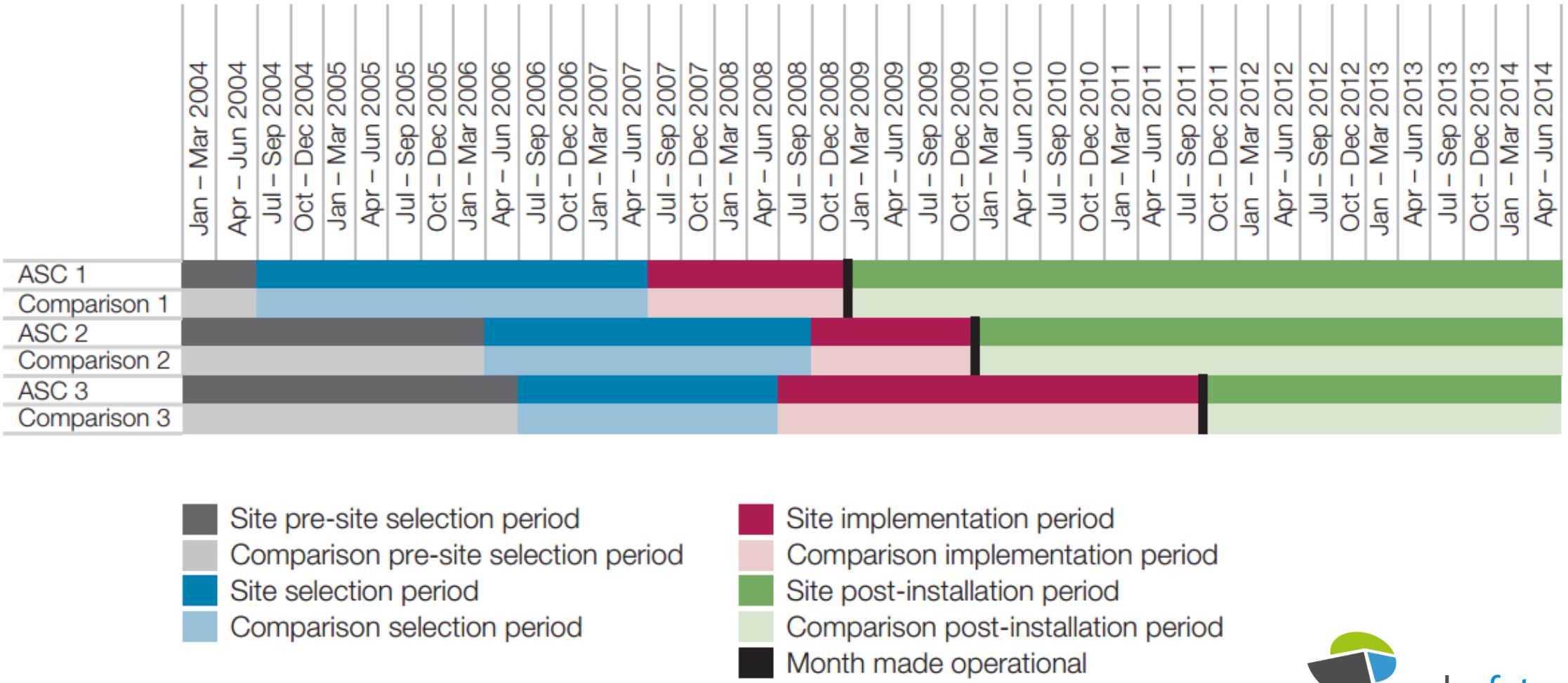
Analytical problems

- We need to know if some sites are not suitable for analysis
- Input from authorities was crucial here
- It is possible that other changes could have occurred but weren't recorded



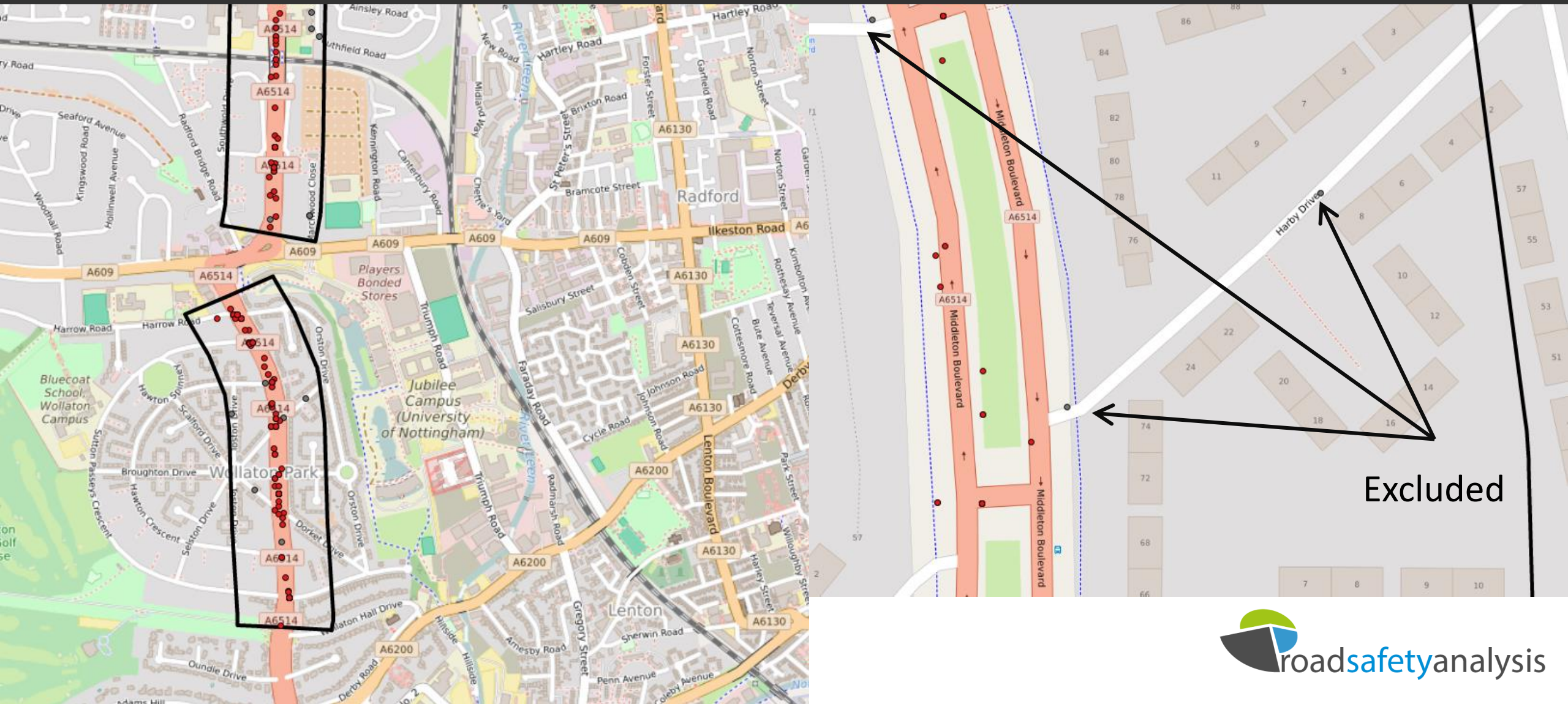
roadsafetyanalysis

Site Selection Periods



roadsafetyanalysis

Map sample



roadsafetyanalysis

Comparison sites

GB Collisions 2005 - 2015

29%

PIC

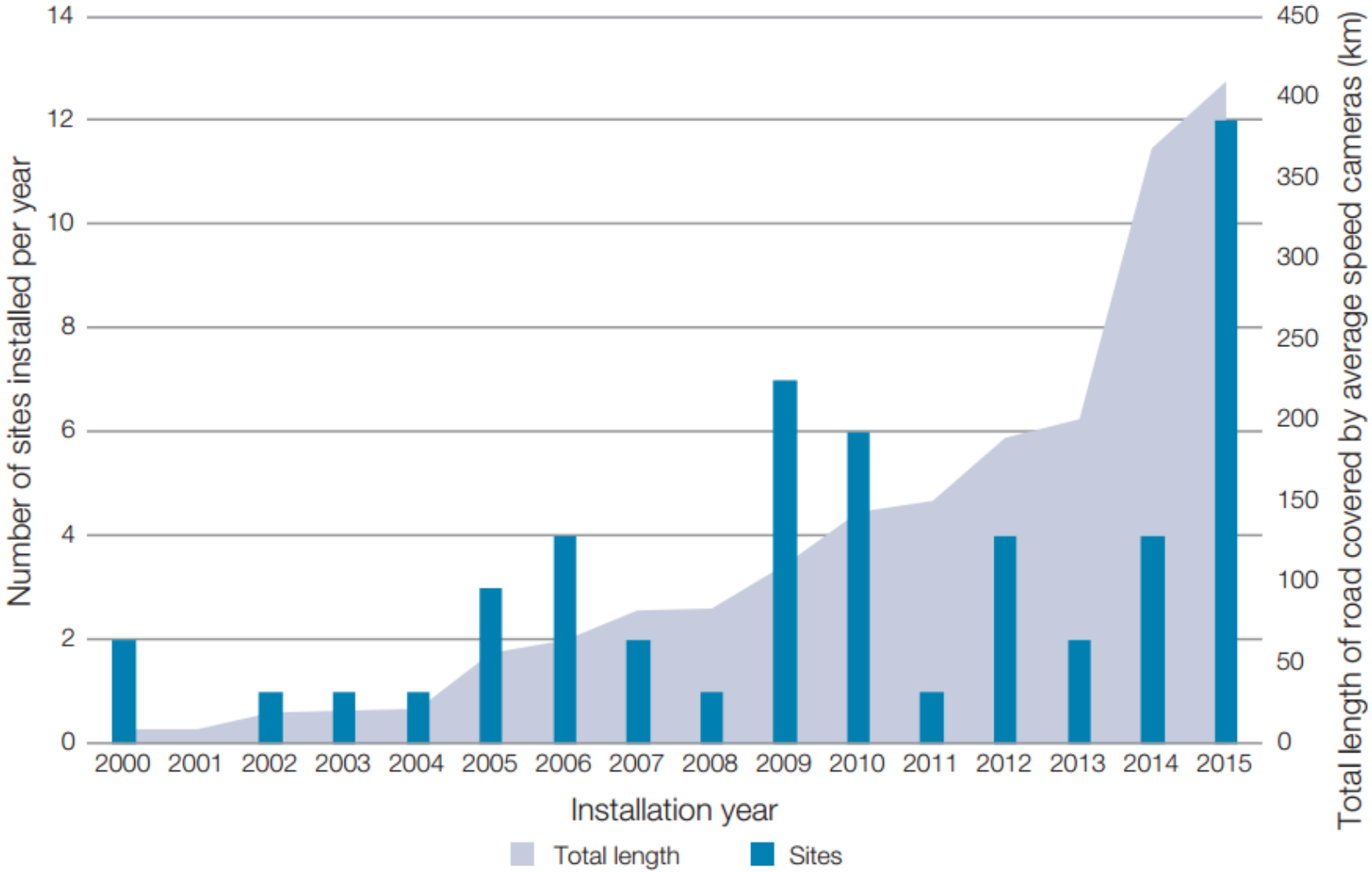
roadsafetyanalysis

Control sites

- Cameras considered but never installed
- 9 sections, 25km of roads

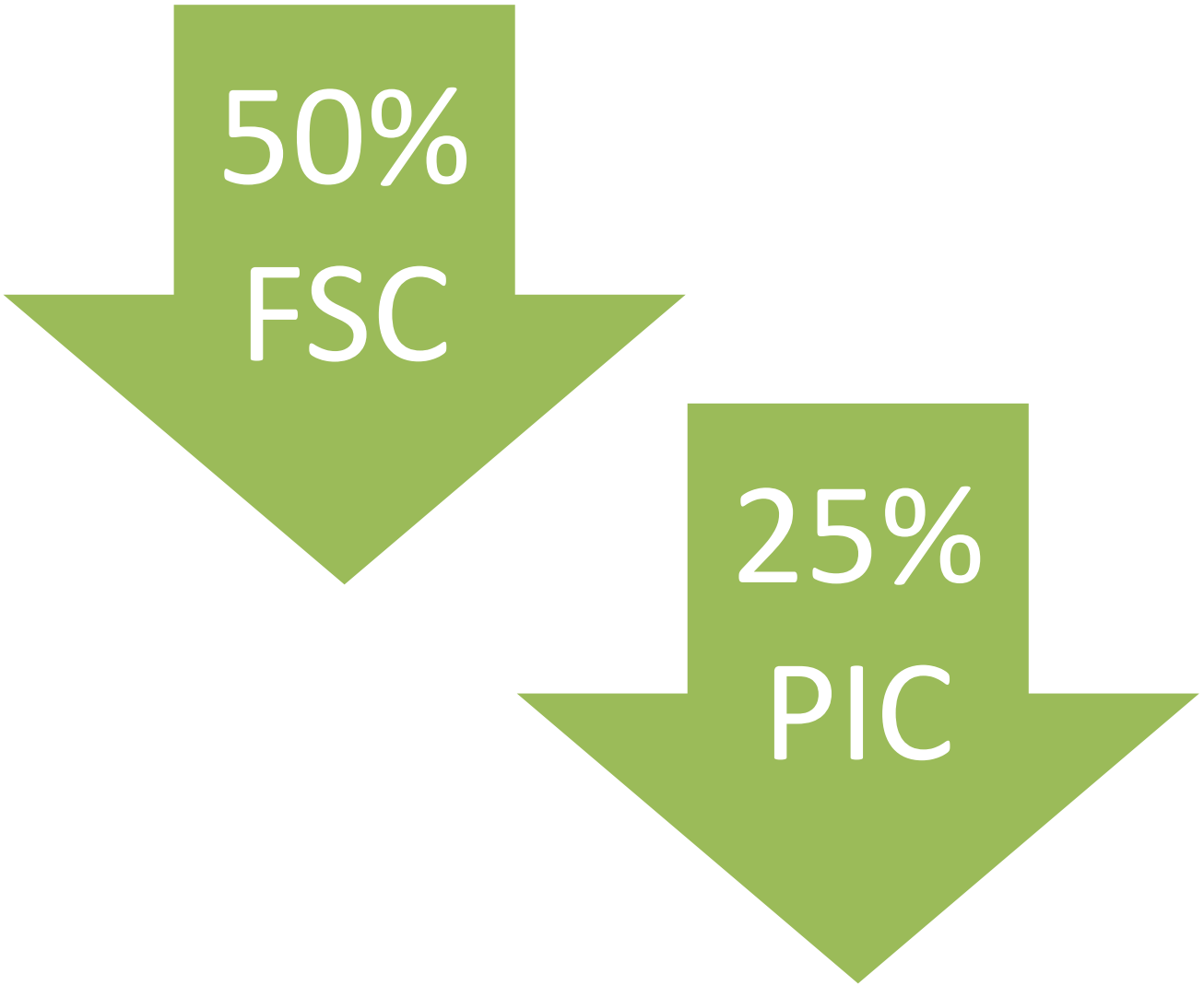
roadsafetyanalysis

Installation History



roadsafetyanalysis

Standard “3 Before vs 3 Recent” Analysis



- Approach adopted by most authorities
- Doesn’t take into account trend
- Doesn’t allow for Regression to Mean

roadsafetyanalysis

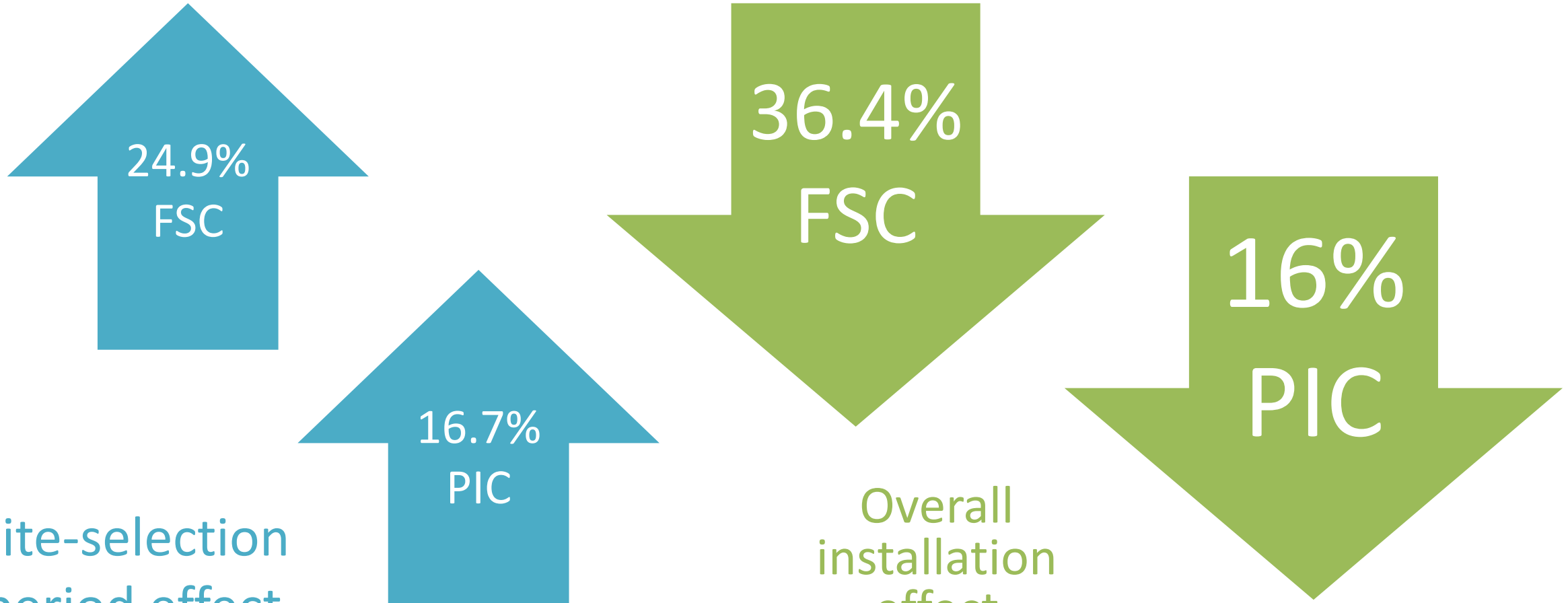
Generalised Linear Model

$$\ln\mu_{ny} = \ln P_{ny} + c_n + ub_{ny} + vc_{ny}$$

- Monthly data for each site in each period
- Takes into account collisions on other similar roads
- Estimates the effect of the SSP
- Estimates the effect of installation

roadsafetyanalysis

Results



roadsafetyanalysis

Results

- No difference in collision reduction rates at sites installed pre-April 2007 versus after
- No significant difference in effectiveness on low speed (20 – 40 mph) and high speed (50 – 70 mph) sites
- Candidate Sites – No significant change in collisions post-consideration

roadsafetyanalysis

What this means

1. The presence of Average Speed Cameras reduces the frequency of injury collisions, even when other mitigating factors are taken into account
2. When analysing the long-term impact of road safety interventions, consider the influence of general trend
3. If you select sites for treatment based on high collision rates, not all of the subsequent reductions can be attributed to the intervention

roadsafetyanalysis