

**EasyWay**

Annual Forum 2010



**Shortcut to the future.**  
Lisbon • November 16<sup>th</sup>-18<sup>th</sup>

# M4 Newport Variable Speed Limit

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## Objectives

- Reduce accidents
- Reduce congestion
- Improve flow
- Improve journey time reliability
- Improve safety



## Accidents:

### July 04 – June 07

- 211 Personal Injury Accidents (PIA)
- Highest two way accident rate J26 – J27 0.16PIA/mVkm
- National motorway average 0.09PIA/mVkm

### One way accident rates above average:

- Eastbound J27 – J26
- Westbound J24 – J25
- Westbound J25A – J27
- Eastbound J25A – J24



## Added constraints

- Little scope for further widening
- Brynglas tunnels
- Sub-standard road
- Concurrent schemes
- New M4???
- Budget (Capital & Revenue)



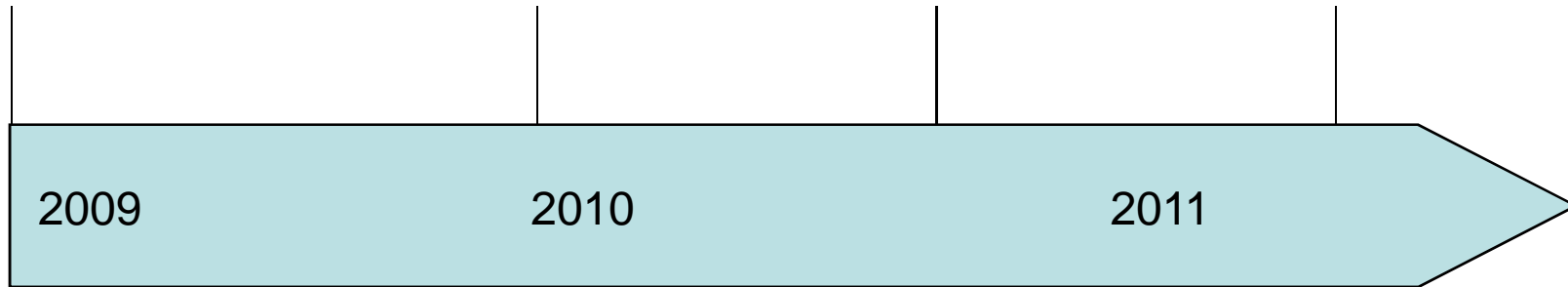
## Timeline

April 2009:  
Construction  
begins

**Summer 2010:  
Construction  
complete**

Winter 2010:  
Enforcement  
commissioned

**Winter 2011:  
Scheme  
completion**



Spring 2010:  
Technical  
configuration  
begins

**Oct 2010:  
Signals  
commissioned**

Summer 2011:  
Automation  
commissioned



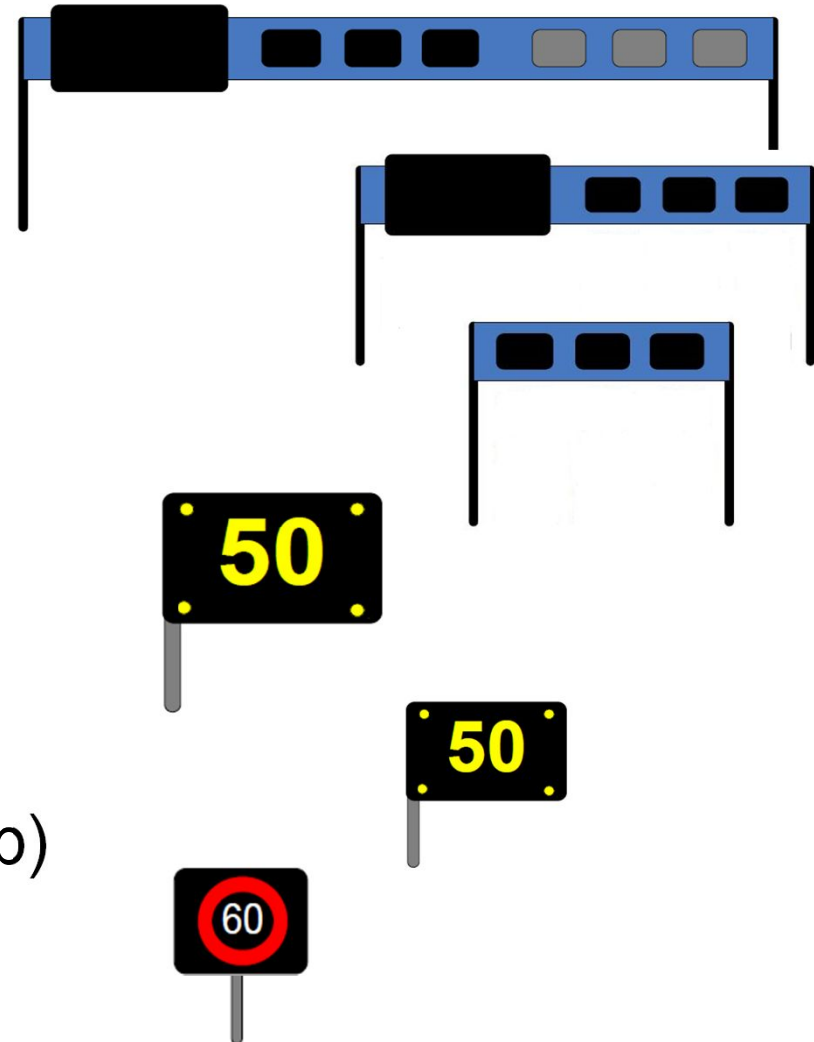
## **Solution: a 'design philosophy'**

- Adapt Controlled Motorway concept
- Use best practise and principles
- Tailor for a non-standard motorway
- Value engineered: 70% for 30%
- Re-use wherever possible
- Reduce capital cost
- Reduce revenue liability
- Provide future flexibility



## Equipment

- 5 super-span gantries (new)
- 3 gantries with MS4s
- 10 gantries (refurbished)
- 12 MS4s (8 new)
- 27 reduced size MS4s (24 wdp)
- 69 AMIs on 8 slips





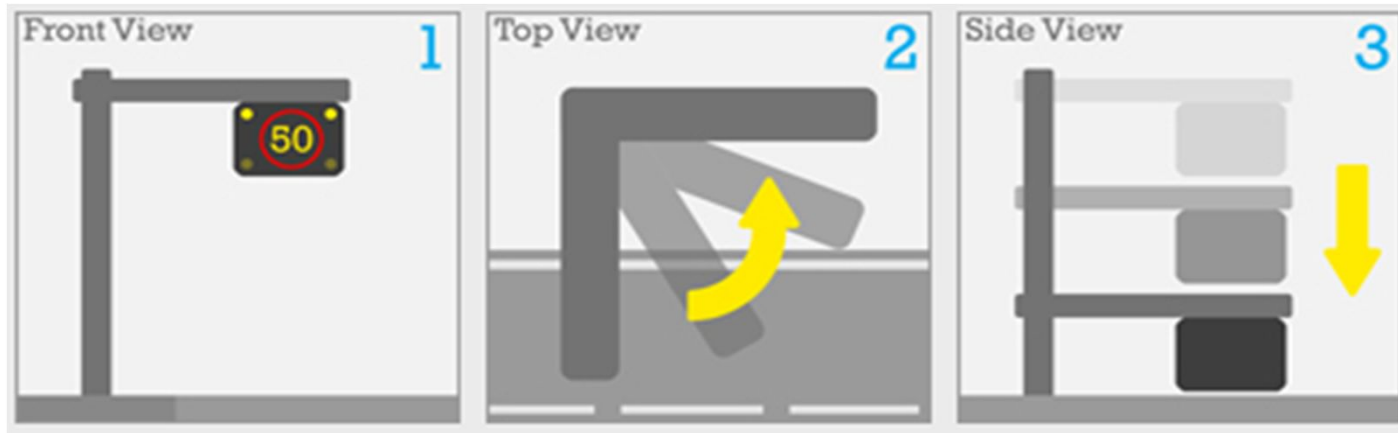
## Typical Unit Costs

- Wind Down (Crown) Posts = £40k/45k€
- Accessible Superspan = £120k/135k€
- Full size MS4 & post = £70k/80k€
- Reduced size MS4 only = £50k/57k€
- Refurbished gantry = £60k/68k€





## Innovation in partnership





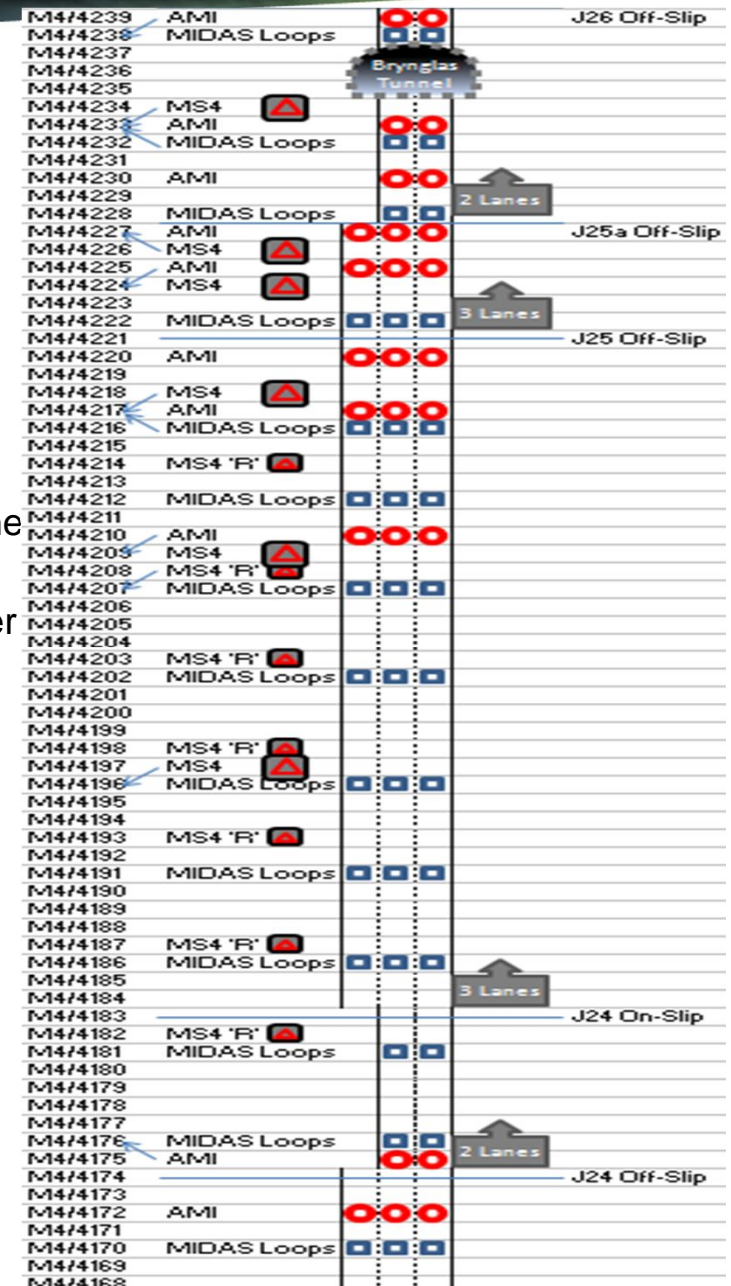
## Zones

### Issues:

- Current convention dictates that the speed limit can only change at gantries -
  - Risk that low speed limit would be applied to entire zone when only short length required
  - Drivers may allow their speed to drift upwards on longer zones
- Closely spaced gantries could lead to frequent speed limit changes

### Addressed by:

- Optimised automatic operation
- Repeaters – MS4s
- Grouping gantries in same zone





## Calibration



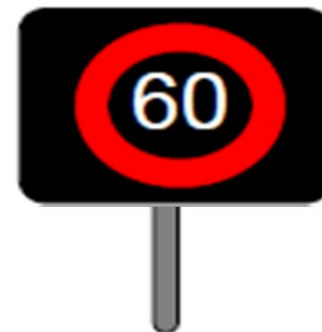
A PARAMICS traffic model has been produced to test and refine initial calibration settings.

The parameters will still need some degree of refinement after switch on of the system.



## Legality

- Point enforcement
- Statutory Instrument
- Initially fixed cameras in gantries
  - lack of compliance?
  - “bunching”?
- Future: trial average speed enforcement



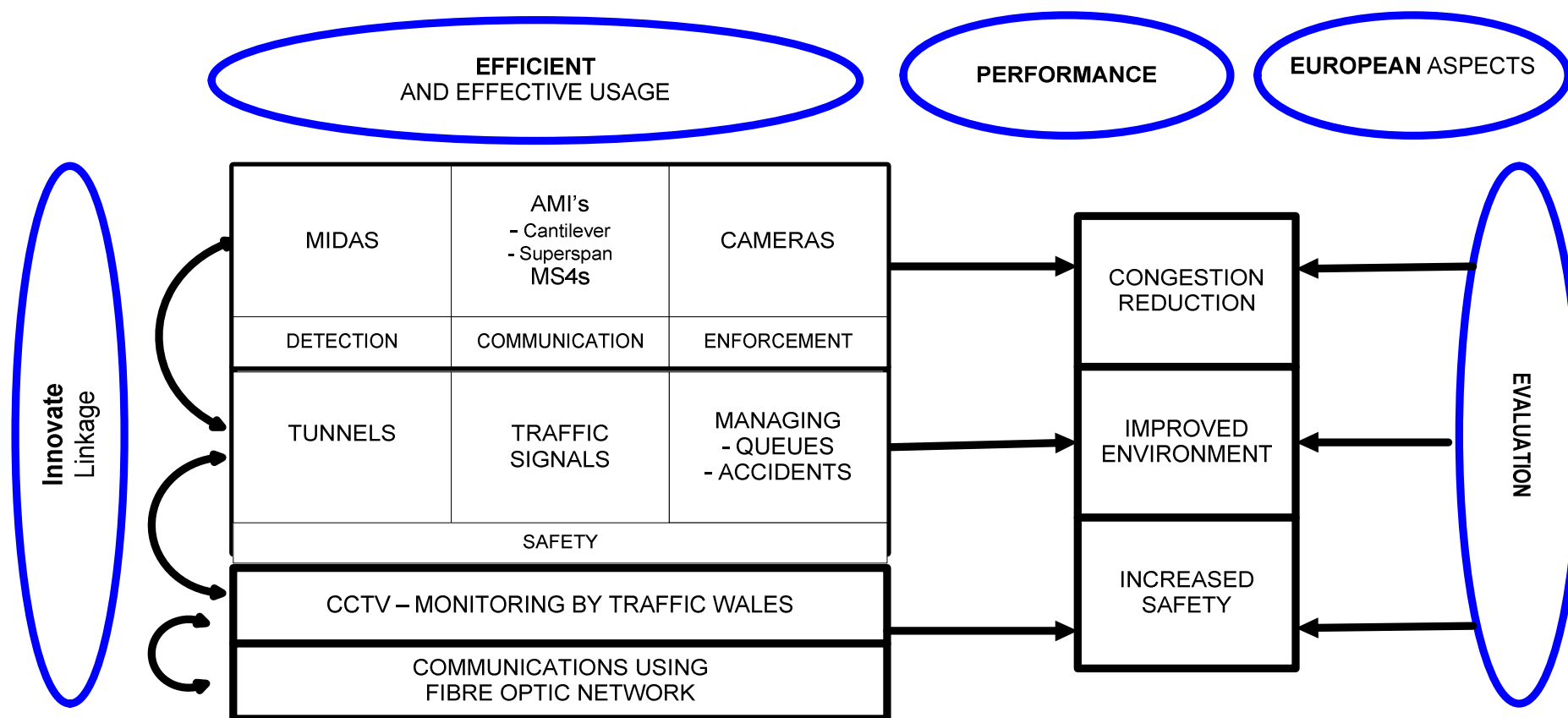


## Evaluation Strategy

Key Performance Indicator	Data Source	Monitoring Period Before / After
Journey times JT reliability Average delay per km (*EASYWAY)	ANPR	1 year
Number of accidents Number of casualties (*EASYWAY)	STATS 19 and Traffic-Wales data logs	3 years
Time spent in flow breakdown Number of shockwaves Average flows	MIDAS (speed and flow)	18 months
Speed limit compliance Driver behaviour (lane usage / headways)	MIDAS (vehicle-by-vehicle)	6 months
Emissions and noise (using emissions model)	MIDAS (speed and flow)	18 months
User acceptance	Questionnaires	



## Adding it up





## Project Lessons

- **Programme plan**
  - Counteract over-optimism on delivery timescales
  - Counteract risk aversion on innovation
  - Anticipation of delay: add contingency!
  - Phase milestones to invest and manage cost
- **Programme Structure**
  - Define roles and responsibilities early
  - Formalise communications channels

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**Thank You for Listening**

**Questions??**

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