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How do we know Smart Motorways are safe?

NW CIHT Young Professionals Committee

Monday 27th November 2017

Welcome – today's speaker

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John-Paul Doherty

Technical Authority for Operational Safety of Highways

Atkins Transportation

Manchester

9 Years of experience managing the operational safety of Smart Motorways.

Todays topic

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“How do we know Smart Motorways are safe?”

An AA survey carried out in 2016 of more than 20,000 motorists found that 79 percent believed the loss of hard shoulders has made motorways less safe.

What is a smart motorway?

Controlled Motorway

Variable Mandatory Speed Limits (VMSL);

- Controlled Motorway
- Queue Protection
- Manual signal setting

No change to layout or removal of hardshoulder

What is a smart motorway?

Dynamic Hardshoulder running

VMSL

Dynamic use of the hard shoulder with opening and closing of the hard shoulder for congestion management.

Driver information provided through portal gantries positioned at a nominal spacing of 800m, capable of providing above lane specific signaling and supporting information (VMS).

Emergency Refuge Areas (ERAs) at nominal 800m spacing.

Overhead direction signs mounted on gantries and cantilevers.

What is a smart motorway?

All Lane Running

VMSL

Permanent conversion of the hard shoulder into a running lane, including through junction running.

Driver information provided through:

- Portal gantries positioned near the start of each link, capable of providing above lane specific signalling and supporting information (VMS); and
- Single VMS at a maximum spacing of 1500m capable of providing the same types of information but using pictograms, wickets etc.

Safe Havens at up to 2500m intervals.

Cantilever/post mounted signs. Portal gantry mounted direction signs only used to aid clarity in immediate vicinity of junctions or where complexity of road layout indicates that overhead direction signs provide greater clarity.

Todays topic

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“How do we know Smart Motorways are safe?”

1. How do we define ‘safe’ and how can we prove it?
2. What risk work has been done to demonstrate safety?
3. What post opening evidence is there?
4. Can we make smart motorways safer?

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What does ‘safe’ mean?

Acceptability

How safe do we want the road to be?

- UK roads are amongst the safest in the world.
- Motorways are safer than dual carriageways and single carriageways on the SRN.
  - KSI rate 9% higher on 3 lane APTR.
- The hardshoulder gives a false sense of safety:
  - Average 30 Killed or seriously injured.
  - 8% of all fatalities on motorway.
- Smart Motorway schemes are aimed at reducing congestion.
- Principles of ALARP apply to workers.

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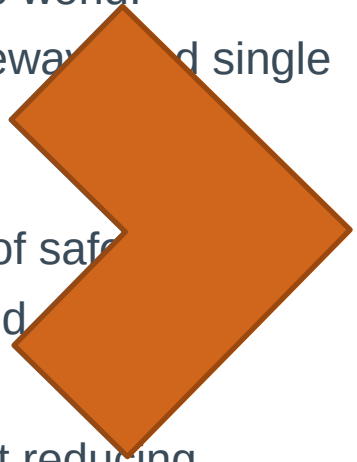

Target maintaining existing safety performance

‘Traditional’ scheme safety

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Designed to proven standards

Departures from Standard

Easily understood by the driver

Maintainable using existing procedures

Consistent across the U.K.

Drive to conditions.

Traffic Officers present to assist road users

Limited reliance on technology

CDM.

Subject to Road Safety Audit

Existing performance data

Smart Motorway safety

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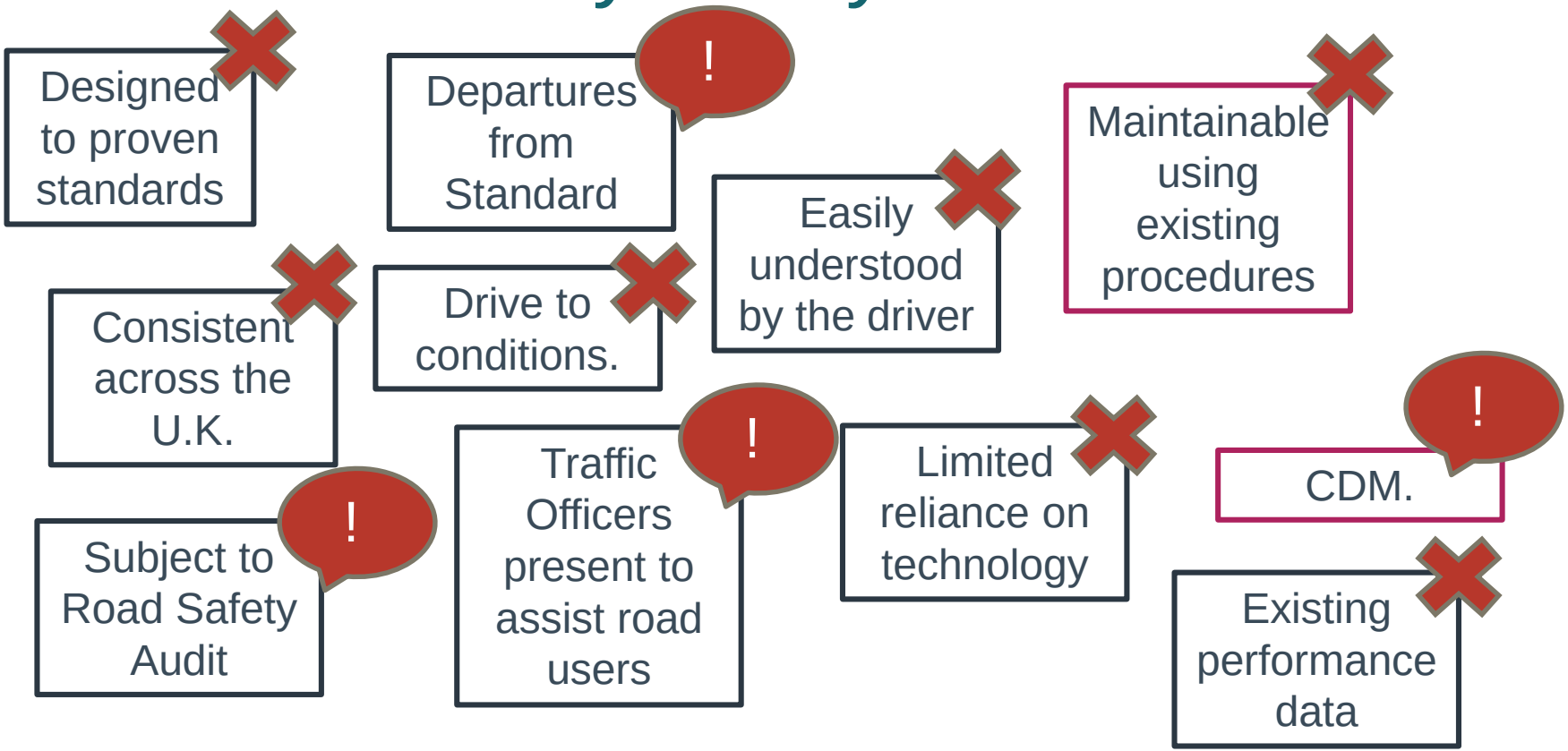

Safety Objectives – Road Users

- The average number of FWI casualties per year is no worse than the safety baseline
- The rate of FWIs per billion vehicle miles per annum is no worse than the safety baseline
- For each link, no population (e.g. car drivers, pedestrians, HGV drivers and motorcyclists) is disproportionately adversely affected in terms of safety and risk to each population remains tolerable.

Safety Objectives – Road Workers

- There is no numerical objective or target for road worker accidents on SM-ALR schemes and the risk must be managed in accordance with the so far as is reasonably practicable (SFAIRP) principle.

Demonstrating the meeting of the safety objectives

Project Safety Risk Management

A new approach to managing risk

Process sits alongside and supports other processes.
Mirrors process in rail industry.

Project Safety Risk Management

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A new approach to managing risk

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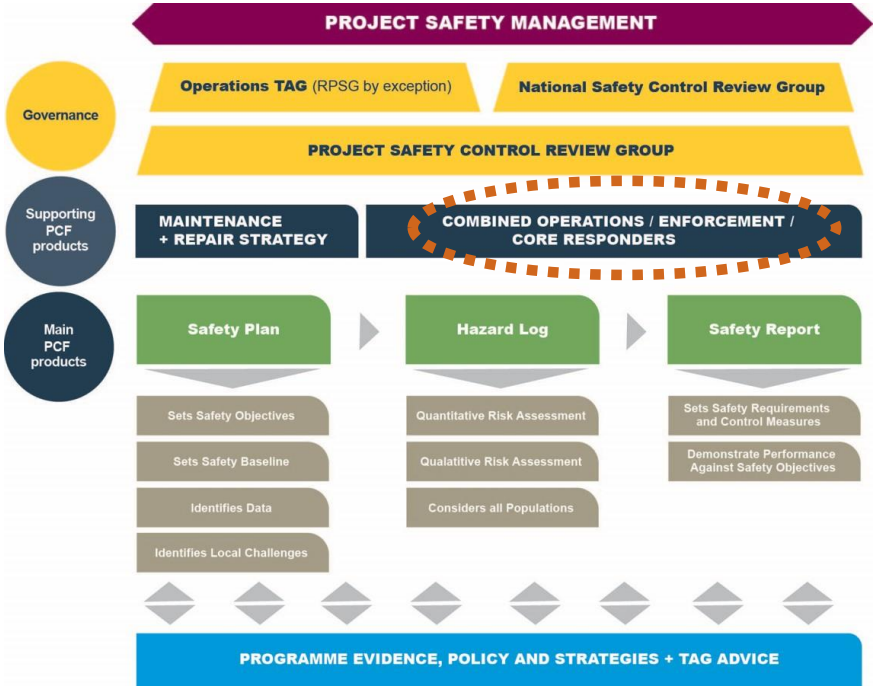
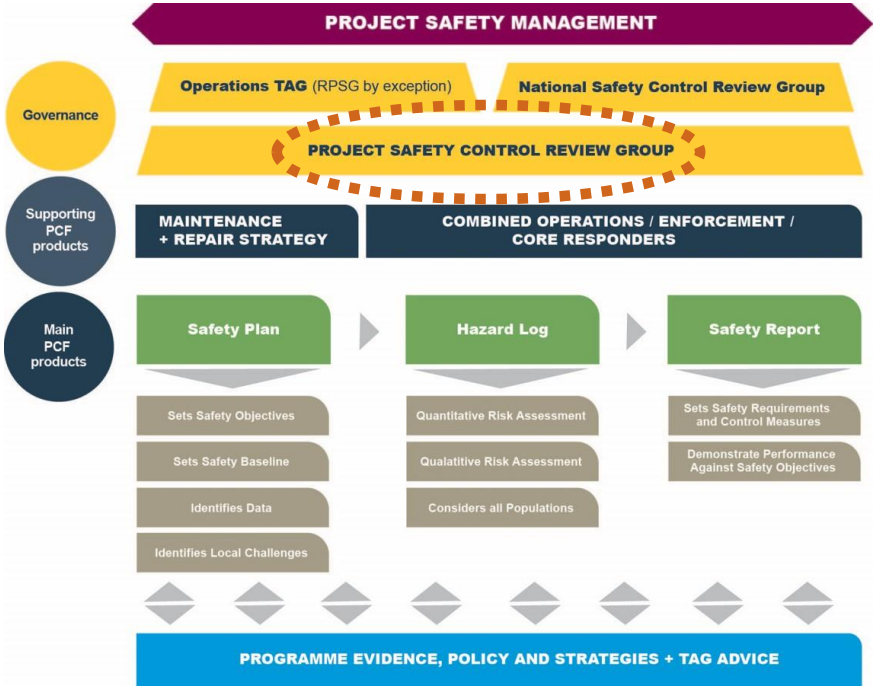
A new approach to managing risk



Project Safety Risk Management

A new approach to managing risk



- Core membership.
- ‘Endorse’ Type A & B Issues.
- Escalate Type C Issues.
- Approve Safety PCF Products.
- Verification role.
- Has scheme met its safety objective?

Project Safety Risk Management

A new approach to managing risk

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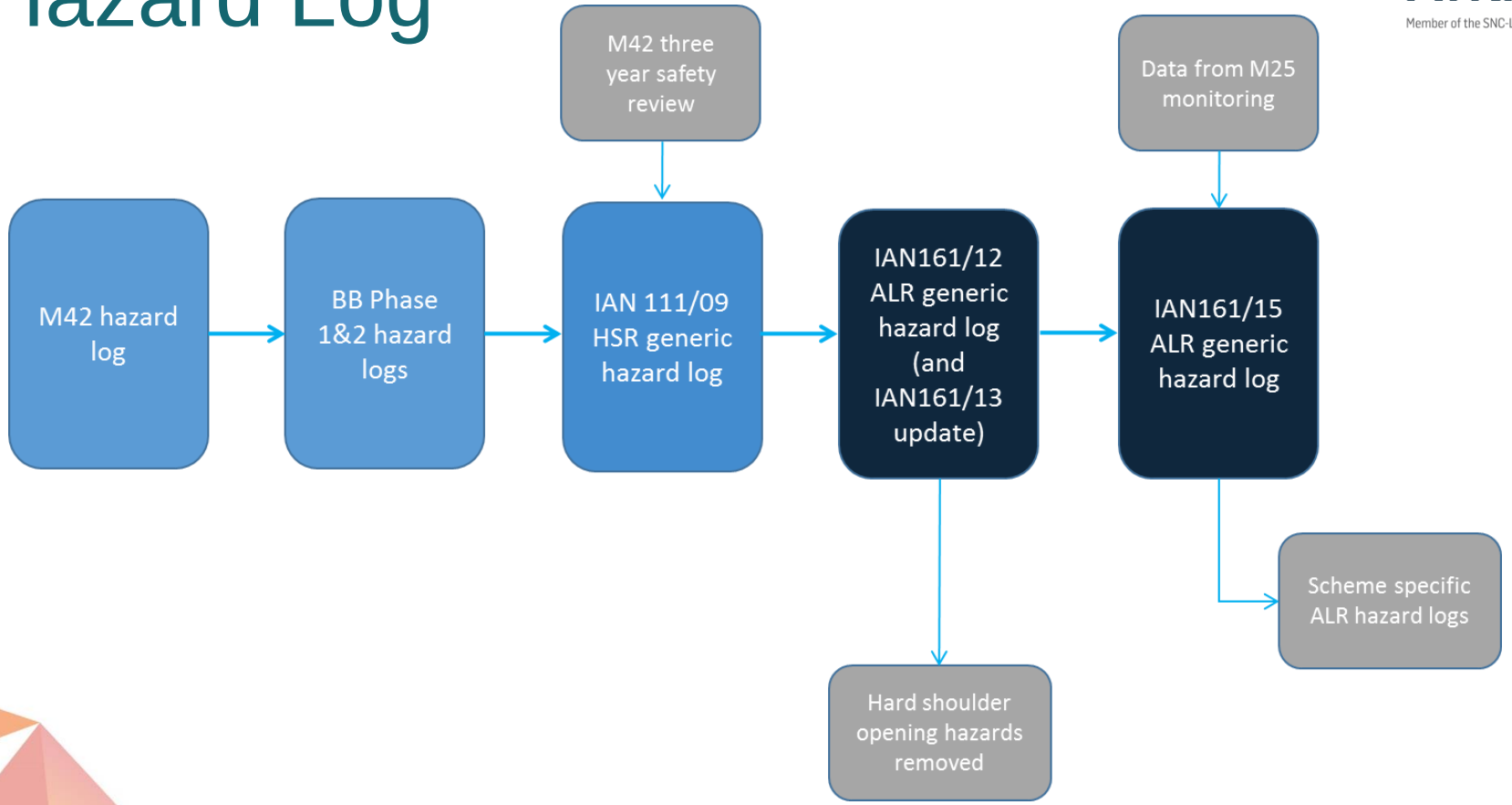
Hazard Log


M42 three year safety review
Data from M25 monitoring
M42 hazard log
BB Phase 1&2 hazard logs
IAN 111/09 HSR generic hazard log
IAN161/12 ALR generic hazard log (and IAN161/13 update)
IAN161/15 ALR generic hazard log
Scheme specific ALR hazard logs
Hard shoulder opening hazards removed

Hazard Log content

- List of 100 hazards, each with ‘before’ and ‘after’ risk assessment.
- Individual assessments for key hazards (mainly before score)
- List of assumptions.
- Risk assessment methodology.
- Summary of results.
- Graphic results for all users overall, traffic officers, pedestrians.

Hazard Log – States and hazards

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An Event (E) is a hazard which occurs momentarily, e.g. a vehicle carries out a high-risk lane change. Usually it is not meaningful to talk of how long such a hazard exists for. It is more relevant to understand how often this event occurs

A State (S) hazard is one which is present for a period of time e.g. vehicle stopped on hard shoulder – the longer it is present, the greater the risk. Such hazards will have a measurable duration and can persist for long periods. Therefore it is important to understand how long the state exists (as well as how often it occurs)

Hazard Log – Scoring

Risk scores for both Event and State hazards consist of three parameters

Each parameter is ranked and given a score

The scores for the three parameters are then added together to give an overall Risk Score:

- Parameters vary depending on whether the hazard is an event or a state
- It is not possible to do direct risk comparisons of event and state hazards

The overall risk can range from:

- Minimum score of E00 / S00
- Maximum score of E12 / S12

A difference of 1 in the overall risk scores implies a 10 times difference in risk e.g. an E08 hazard has a 10 times higher risk than an E07

Hazard Log – Scoring

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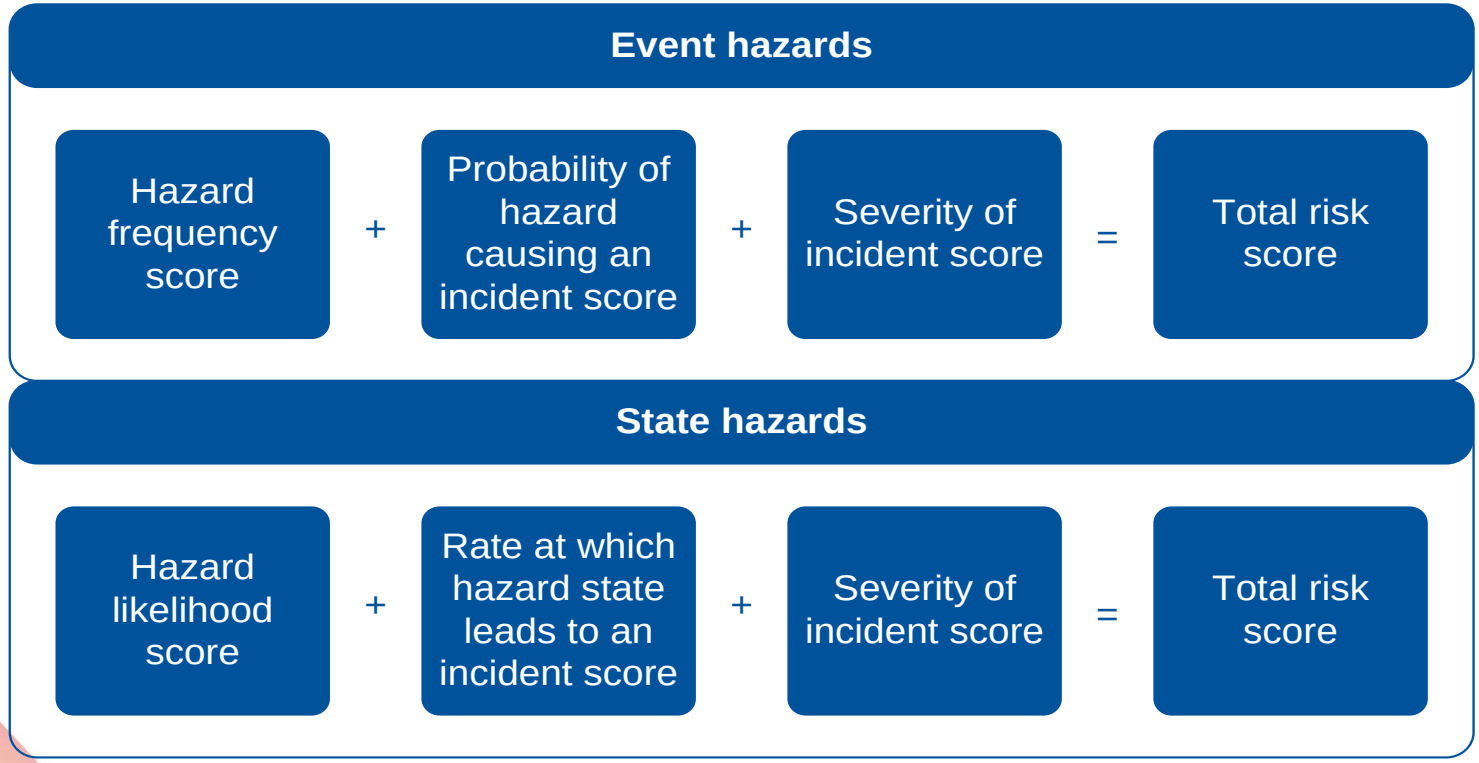

Hazard Log – Frequency Event

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Frequency Classification	Nominal Value: Occurrences/year/mile	Index Value
Very frequent	1000	6.0
	316	5.5
Frequent	100	5.0
	31.6	4.5
Probable	10	4.0
	3.16	3.5
Occasional	1	3.0
	0.316	2.5
Remote	0.1	2.0
	0.0316	1.5
Improbable	0.01	1.0
	0.00316	0.5
Incredible	0.001	0.0

Hazard Log – Frequency State

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Likelihood Classification	Interpretation	Index Value
Very frequent	At least 1 occurrence present at any one time per Motorway mile.	6.0
	Present 115 days per year per Motorway mile	5.5
Frequent	Present 36.5 days per year per Motorway mile	5.0
	Present 11.5 days per year per Motorway mile	4.5
Probable	Present 3.65 days per year per Motorway mile	4.0
	Present 1.15 days per year per Motorway mile	3.5
Occasional	Present 9 hours per year per Motorway mile	3.0
	Present 3 hours per year per Motorway mile	2.5
Remote	Present 50 minutes per year per Motorway mile	2.0
	Present 15 minutes per year per Motorway mile	1.5
Improbable	Present 5 minutes per year per Motorway mile	1.0
	Present 90 seconds per year per Motorway mile	0.5
Incredible	Present 30 seconds per year per Motorway mile	0.0

Hazard Log – Probability

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Probability that an Event / State causes collisions			
Classification	**Events**	Value	**States**
	If this hazard occurs then:		This hazard, if present, will:
Certain	A collision is certain	4	Definitely causes a collision
Probable	A collision is probable	3	Frequently causes a collision
Occasional	A collision will occasionally happen	2	Occasionally causes a collision
Remote	There is a remote chance of a collision	1	Infrequently causes a collision
Improbable	A collision is improbable	0	Rarely causes a collision

Hazard Log – Severity

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Severity Classification	Interpretation	Index Value	Person outside of vehicle	Stationary Vehicle	Motorcycle	Car	Large Vehicle (LHV, HGV, Bus)
Severe	The proportion of collisions that are fatal is expected to be higher than average by at least a factor of 10	2.0	Involved	Involved	Involved	Speed differential approx 60 mph	Speed differential approx 50 mph
Higher than average	The proportion of fatal collisions is expected to be higher than average by a factor between 3 and 10	1.5	No involvement	No involvement	No involvement	Speed differential approx 50 mph	Speed differential approx 40 mph
Average	The distribution of collisions (i.e. ratio of damage-only to fatal) is expected to be similar to the highway average	**1.0**	No involvement	No involvement	No involvement	Speed differential approx 40 mph	Speed differential approx 30 mph
Lower than average	The proportion of fatal collisions is expected to be lower than average by a factor between 3 and 10	0.5	No involvement	No involvement	No involvement	Speed differential approx 30 mph	Speed differential approx 20 mph
Minor	The proportion of collisions that are fatal is expected to be lower than average by at least a factor of 10	0.0	No involvement	No involvement	No involvement	Speed differential < 20 mph	Speed differential < 10 mph

Variance from ‘before’ to ‘after’

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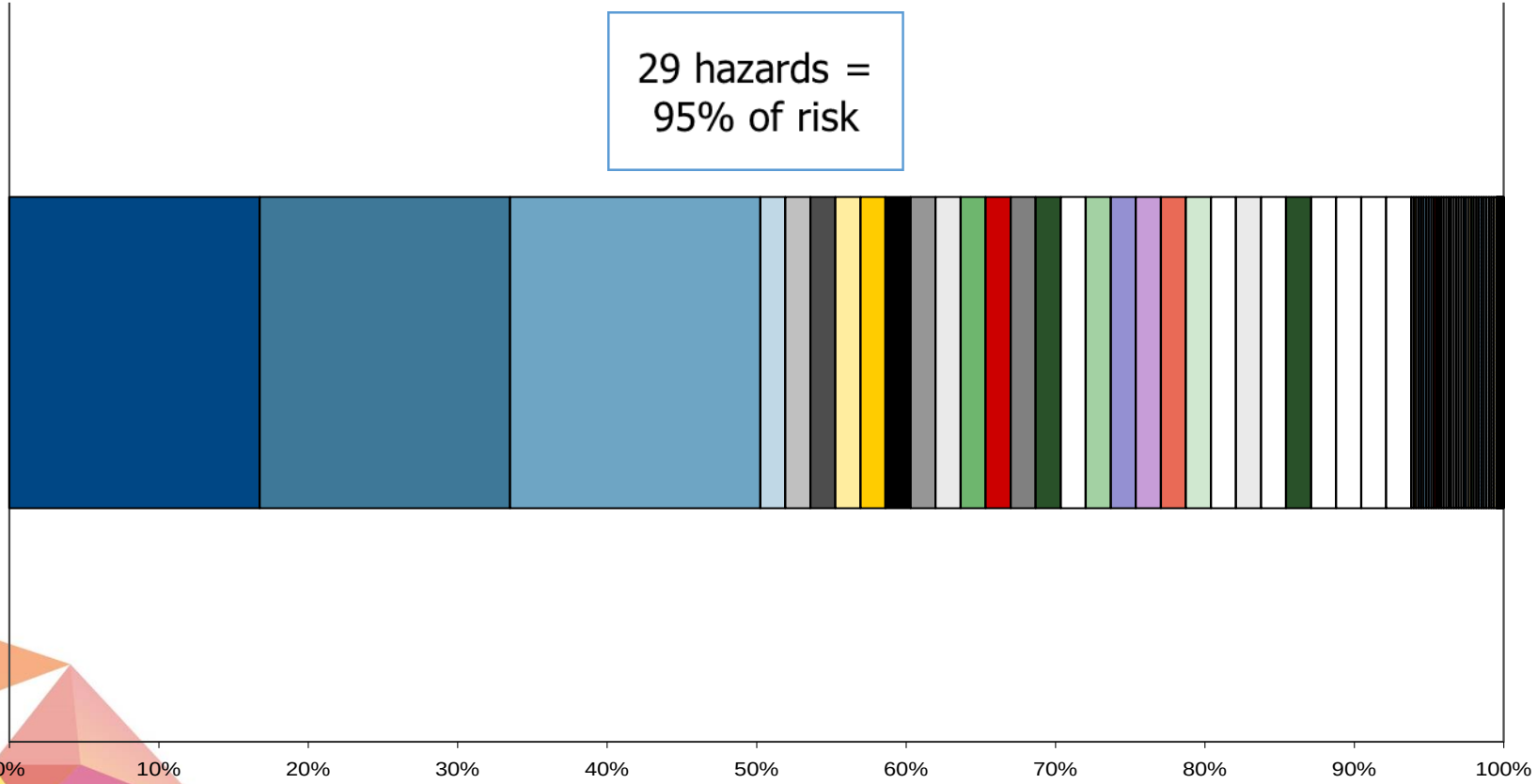
Increase in risk

No change

Decrease in risk

After scoring values	
Value	**% (+/-)**
+0.5	216% increase in risk (tripling of risk)
+0.4	150% increase in risk
+0.3	100% increase in risk (doubling of risk)
+0.2	60% increase in risk
+0.1	25% increase in risk
0.0	No change in risk
-0.1	20% decrease in risk
-0.2	35% decrease in risk
-0.3	50% decrease in risk (risk halved)
-0.4	60% decrease in risk
-0.5	70% decrease in risk

Generic Hazard Log Results



High Scoring Hazards

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ID	Title	Type	D3M Score (Before)	ALR Score (After)	Justification
H138	Driver Fatigued - unable to perceive hazards effectively	Event	9.00	9.00	No change. No benefit from ALR especially off peak when signs and signals are off.
H37	Individual vehicle is driven too fast	State	9.00	8.76	Considerable benefit from the controlled environment during the peak but also benefit off-peak (compliance with national speed limit).
H67	Pedestrian in running lane - live traffic	Event	8.50	8.50	Benefit from the controlled environment. However more instances due to increase in live lane breakdowns
H135	Vehicle Stops in Running Lane - Off Peak (Event)	Event	7.81	8.31	An increase in risk is anticipated reflecting a substantial increase in the frequency of vehicles stopping in a running lane
H76	Rapid change of general vehicle speed	Event	8.50	8.26	Considerable benefit from the controlled environment during the peak
H91	Tail gating	State	8.50	8.20	Considerable benefit from the controlled environment during the peak
H149	Vehicle drifts off carriageway (i.e. leaving the carriageway as a result of Road Environment)	Event	8.00	8.08	Traffic travelling closer to the edge of the carriageway, but better controlled environment during peak. Shallower angle of impact if near side barrier is hit from lane 1. Typically lower speed in lane 1.
H11	Driver ignores closed lane(s) signals that are protecting an incident	Event	8.00	8.00	More robust and more frequent signalling: controlled environment perception for motorists; but more live lane breakdowns and monitoring of first ALR schemes shows lack of driver compliance with Red X signals
H113	Vehicle exits ERA	Event	0.00	8.00	ALR introduced hazard

High Scoring Hazards

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ID	Title	Type	D3M Score (Before)	ALR Score (After)	Justification
H113	Vehicle exits ERA	Event	0.00	8.00	ALR introduced hazard
H89	Sudden weaving at exit point	Event	8.00	7.98	Some benefit from controlled environment
H112	Vehicle enters main carriageway unsafely	Event	8.00	7.94	Some benefit from controlled environment based upon optimum provision as outlined through an overrun assessment
H54	Motorcycles filter through traffic	Event	8.00	7.90	Benefit from controlled environment. Smoother traffic travelling at higher speeds - less need to filter through
H120	Vehicle rejoins running lane from hardshoulder/verge	Event	8.00	7.90	Non-emergency stops are effectively eliminated and most remaining stops will be in refuge areas
H121	Vehicle reversing along exit slip	Event	8.00	7.90	Some benefit from controlled environment
H13	Driver loses control of vehicle	Event	8.00	7.90	Some benefit from controlled environment
H103	Unsafe lane changing (mid link)	Event	8.00	7.88	Some benefit from controlled environment
H52	Maintenance workers setting up and taking down work site	State	7.86	7.86	Although there is benefit from the controlled environment (setting of signals during set-up and taking-down), the number of times TM is used is expected to increase
H154	Vehicle stopped on hard shoulder (D3M) or verge (ALR)	State	8.00	6.50	Effectively eliminated. Non emergency stops are reduced and most remaining stops will be in refuge areas.

H135 - Vehicle Stops in Running Lane

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Off Peak (Event)

- 216% increase in risk.
- MIDAS Queue Protection not effective in the off-peak.
- Mitigated by:
- CCTV
- Controlled Environment
- ERAs (and other safe havens)

H135 - Vehicle Stops in Running Lane

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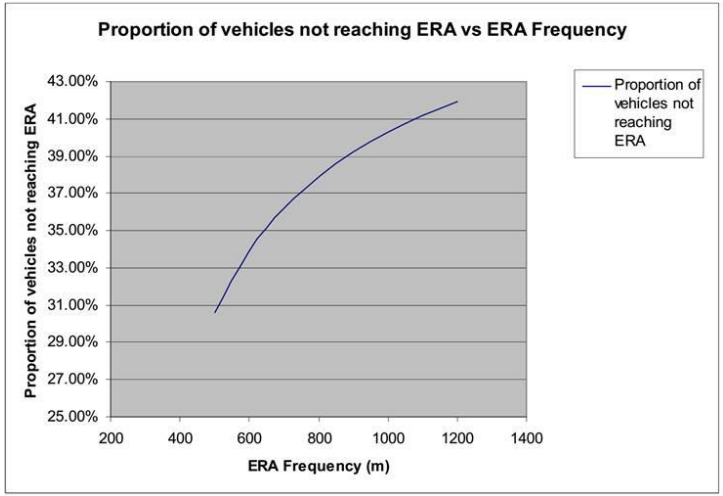
Off Peak (Event)

- ‘Safe Haven model’ (Oscar Faber - 2001) assumes 50% of breakdowns unable to continue.
- The other 50% can be split into two equal groups:
- Vehicles that can continue under power for a considerable distance.
- Vehicles that can only coast for a modest distance.
- As spacing increases the ability coast to an ERA becomes less significant.



Generic Hazard Log Results

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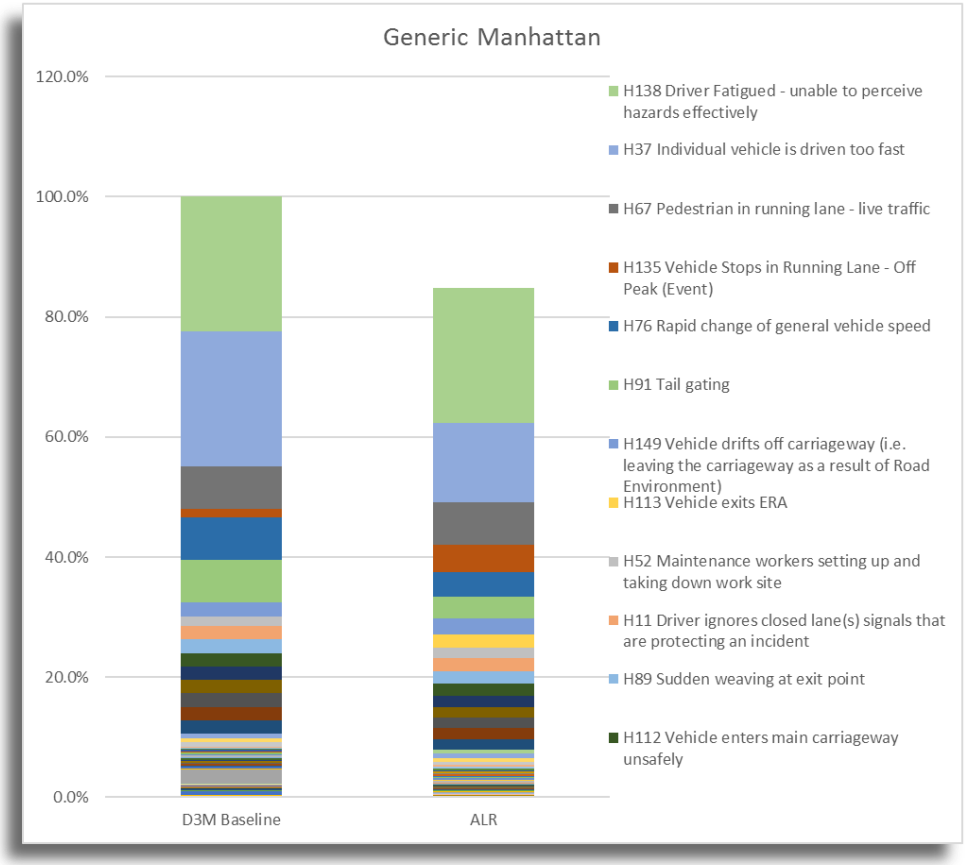

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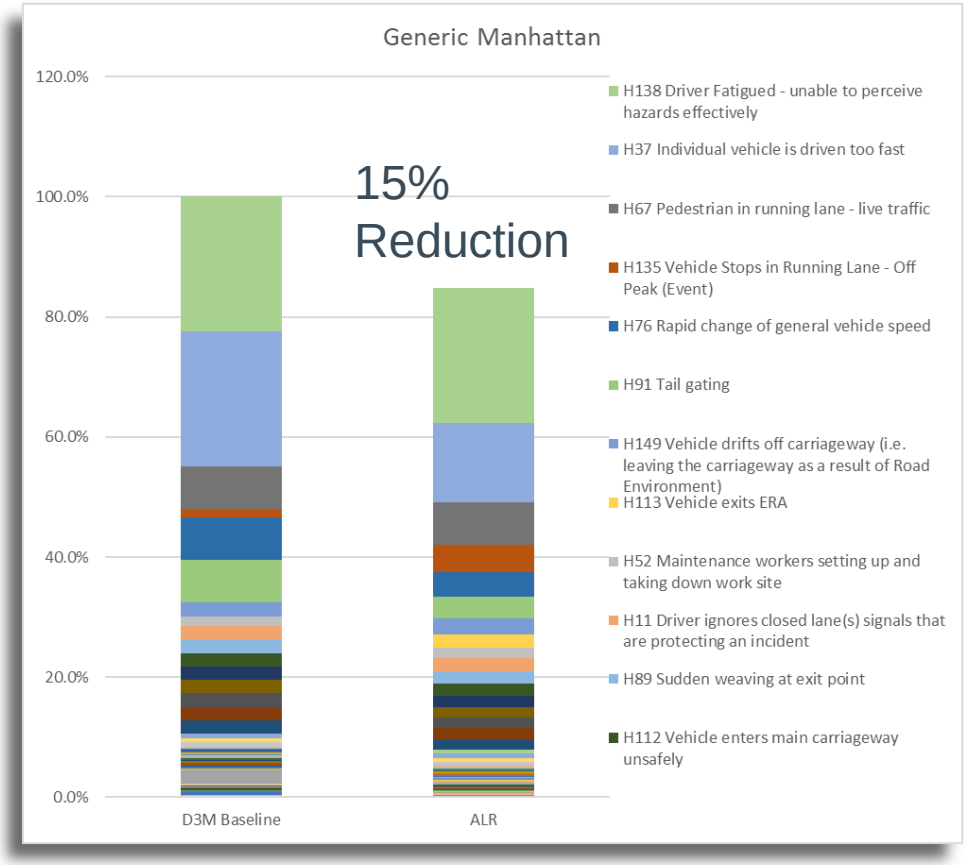

Hazard Log - Summary

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Hazard Log Does	Hazard Log is/does not
• **Help prioritise hazards to enable projects to focus on highest risk hazards**	• A crystal ball
• Provide ‘before’ and ‘after’ comparison	• A collision and casualty prediction tool
• Consider different populations	• Provide a precise accurate quantitative result
• Support construction of a qualitative argument for the safety of a scheme	• Designed to analyse specific locations or single issues
	• Look at hazards during the construction period

Smart Motorway Outcomes

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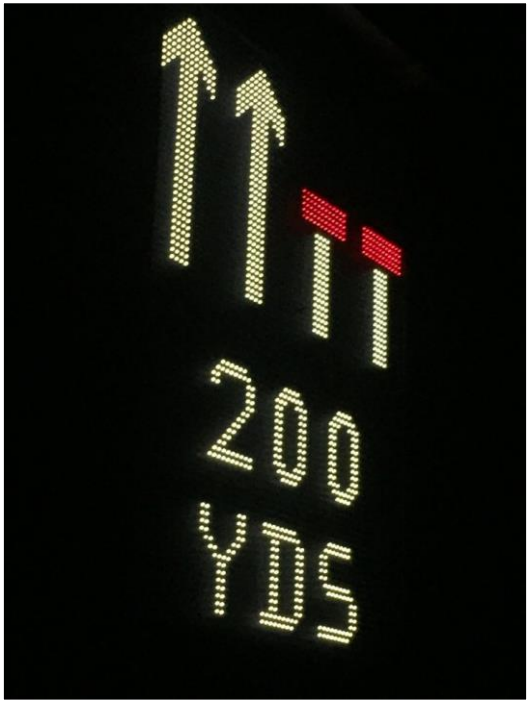
Infrastructure

- Remotely Operated Temporary Traffic Management Signs.
- Fixed Access to gantries.
- Off-Network Access.
- Rigid Concrete Barrier
- Radar based MIDAS detection.



Smart Motorway Outcomes

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Process

A clear and cost-effective process for the management of safety on projects

Set realistic safety targets and enable measurement against Highways England objectives

Improved consistency in the management of safety on projects

Promote an auditable trail of decision-making within the safety management process that will be robust and defensible

Helps to identify areas where additional risk reduction can be obtained

Smart Motorway Outcomes

IAN 191/16

"Provides a framework for safety governance on all Highways England activities"

- Links directly with GD04/12 Safety Risk Assessment on the SRN.
- Applies to all administrative and technical aspects of the design, construction, operation and maintenance of the SRN.
- Relies on the service providers procedures or practice to fulfil the requirements.
- Main requirements are:
  - Part 1 – Safety Management System (SMS) Selection
  - Part 2 – Implementation of SMS

Smart Motorway Outcomes

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Type A

- **Example** - Simple junction improvement.
- **Summary** - Very common projects and tend to be generic.
- **Approval** – PM/Highways England PM.
- **Consulted** – Specialist in the relevant field and Ops Safety Lead.
- **Atkins Examples** - M62 J30-32 Technology Scheme, Smart Motorway SVD Trial and M62 J26 Junction Improvement

Type B

- **Example** - Smart Motorway Scheme.
- **Summary** - Less common projects and have some unique challenges.
- **Approval** – Project Safety Control Review Group and National Safety Control Review Group if appropriate.
- **Consulted -** PSCRG and Ops Safety Lead.
- **Atkins Examples -** M1 J19-16 SM-ALR and the M25 J30/A13 Congestion Relieving Corridor Scheme.

Type C

- **Example** - Introduction of the Traffic Officer Service
- **Summary** - Bespoke or unique projects.
- **Approval** - National Safety Control Review Group.
- **Consulted -** Professional Ops Safety Advisors.
- **Atkins Examples -** Dartford free flow link

Smart Motorway Outcomes

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GD04/12 - Standard for Safety Risk Assessment on the Strategic Road Network

Safety risk framework

- Populations
- Risk tolerance
- Principles

Decision making framework

- 10 step process


DESIGN MANUAL FOR ROADS AND BRIDGES

THE HIGHWAYS AGENCY

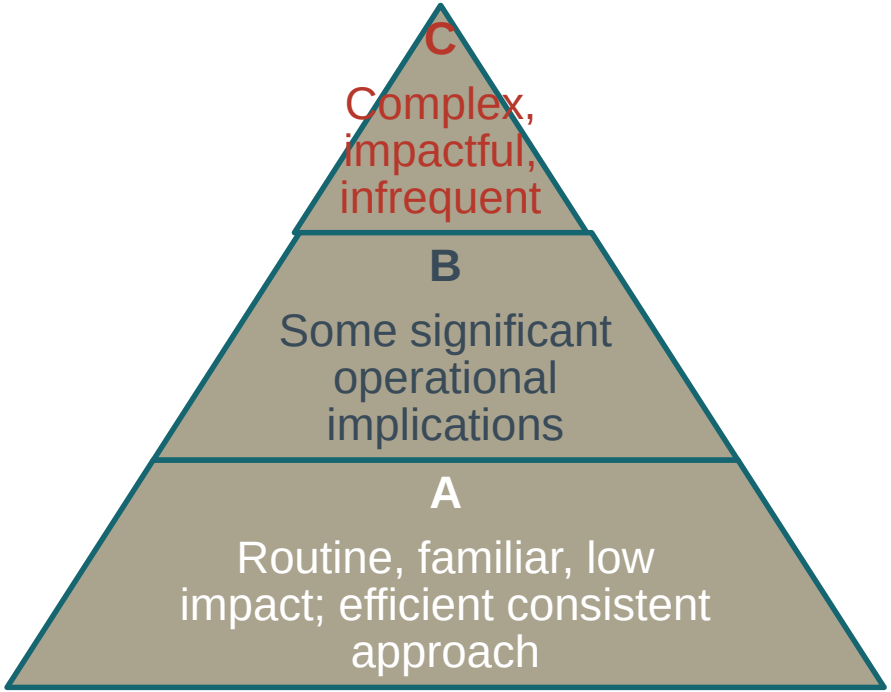
GD 04/12
Volume 0, Section 2,
Part 3

Standard for Safety Risk Assessment on the Strategic Road Network

Summary:

Smart Motorway Outcomes

GD04/12 Decision Types



Appropriate assessment, evaluation and management

- Size of decision impact?
- Cost implications?
- Decision lifetime?
- Level of safety risk / uncertainty?
- Level of policy or stakeholder interest?

The emerging evidence

The M25 J23-27 (Section 5)

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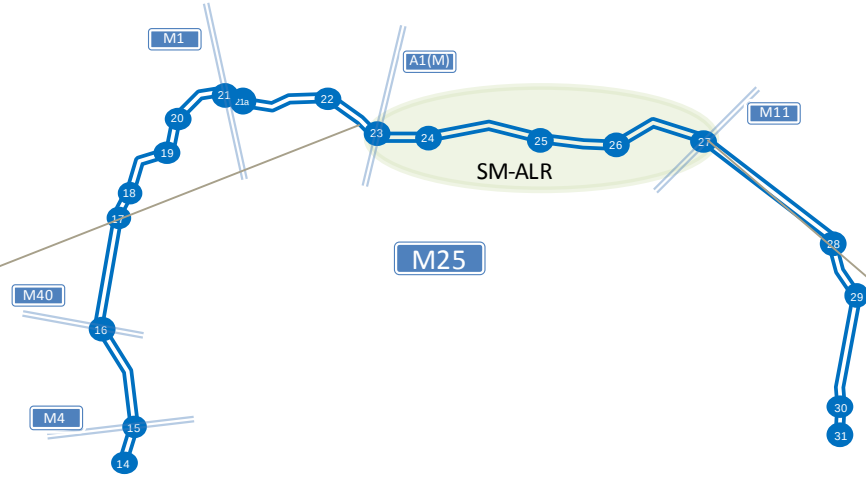
M25 J23-J27		
Flows	J23-6: Significant (10%) flow increase achieved and capacity for more growth In particular 17% J24-25 CW. All higher than national trends.	
Average journey time	JTs returned close to pre-scheme levels but have been worse if scheme not built. CW 3% increase overall, ACW 0.5% decrease.	
Journey time reliability	Slight improvement day-to-day on both carriageways	
Safety	No significant change after taking into account background trends. Scheme has met its safety objectives.	

The scheme


M1
A1(M)
M11
SM-ALR
M25
M40
M4
14
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21a
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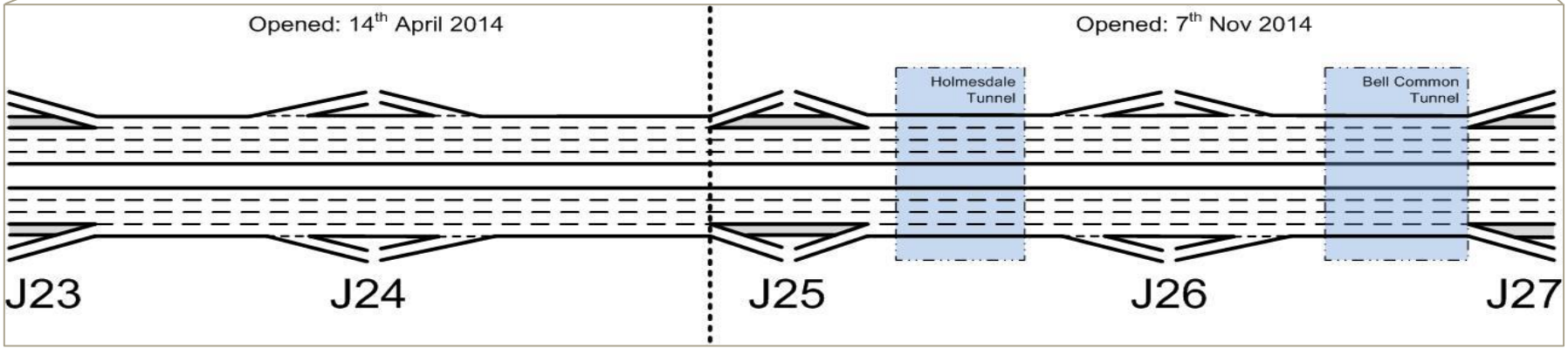
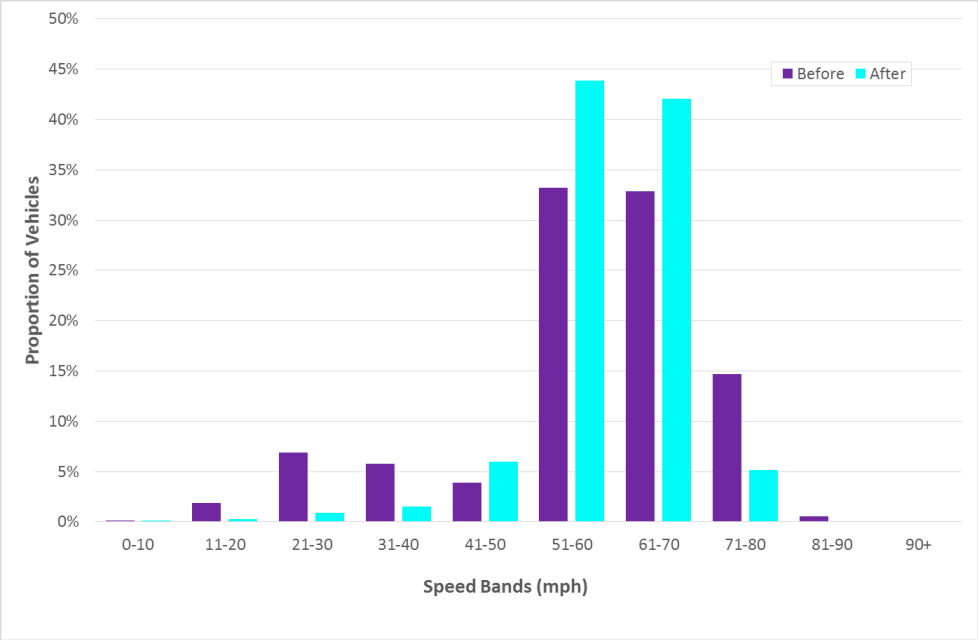

Opened: 14th April 2014
Opened: 7th Nov 2014
Holmesdale Tunnel
Bell Common Tunnel
J23
J24
J25
J26
J27

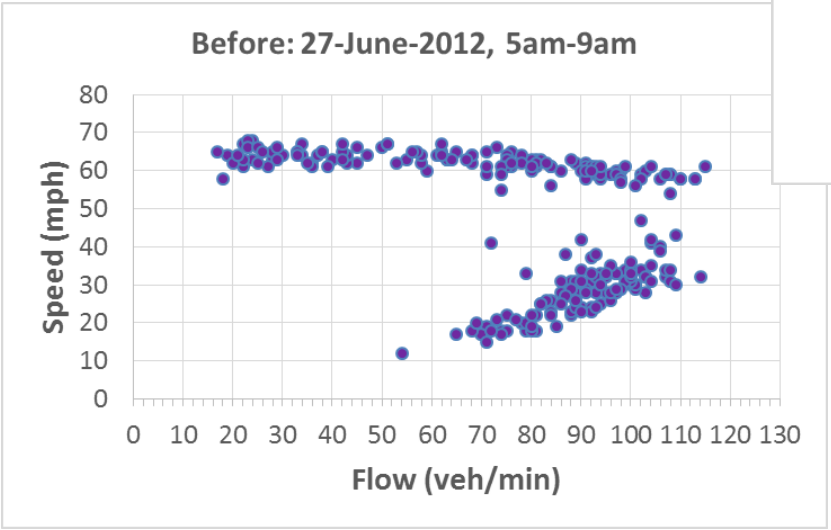
Speeds

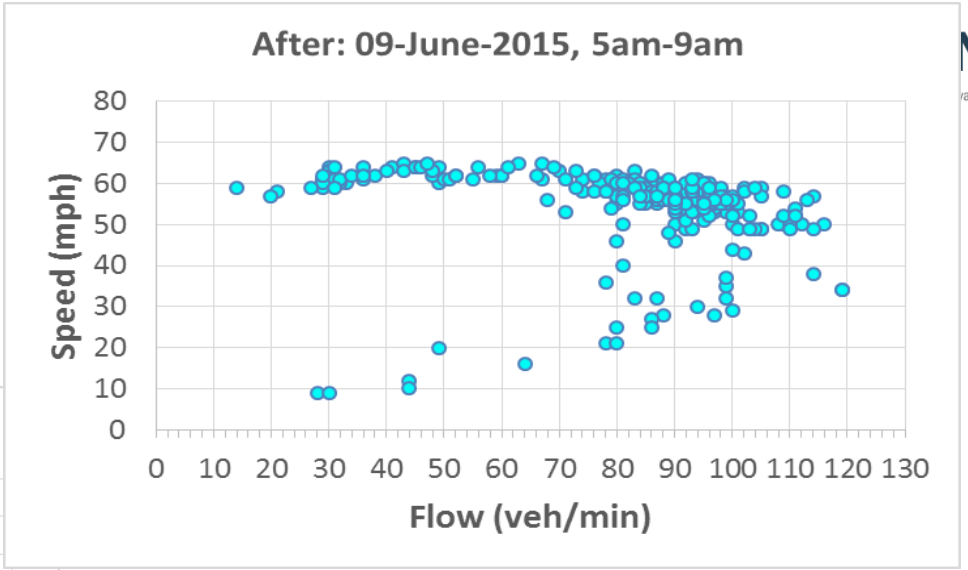
Speeds distribution
Before and Yr2 After



Speeds

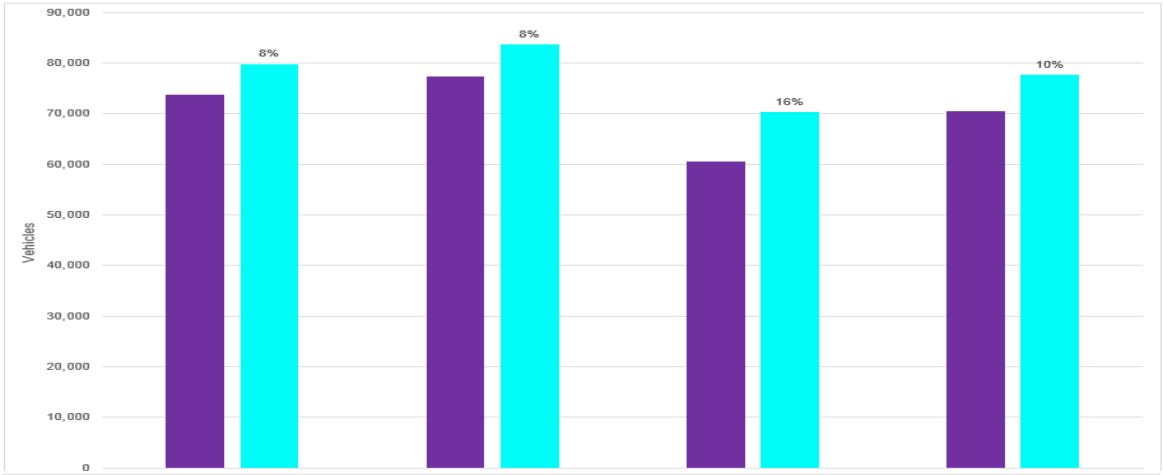
Speed flow curves Before and Yr2 After



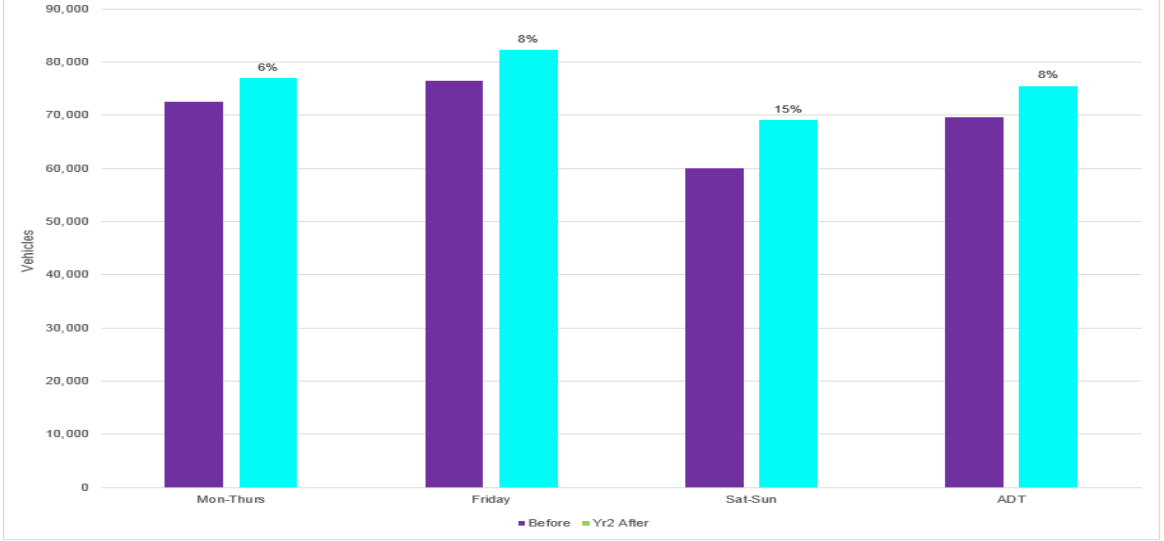


Flow

Average daily traffic by day type J23-J24 clockwise



Average daily traffic by day type J23-J24 anticlockwise



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highways england

Journey Time

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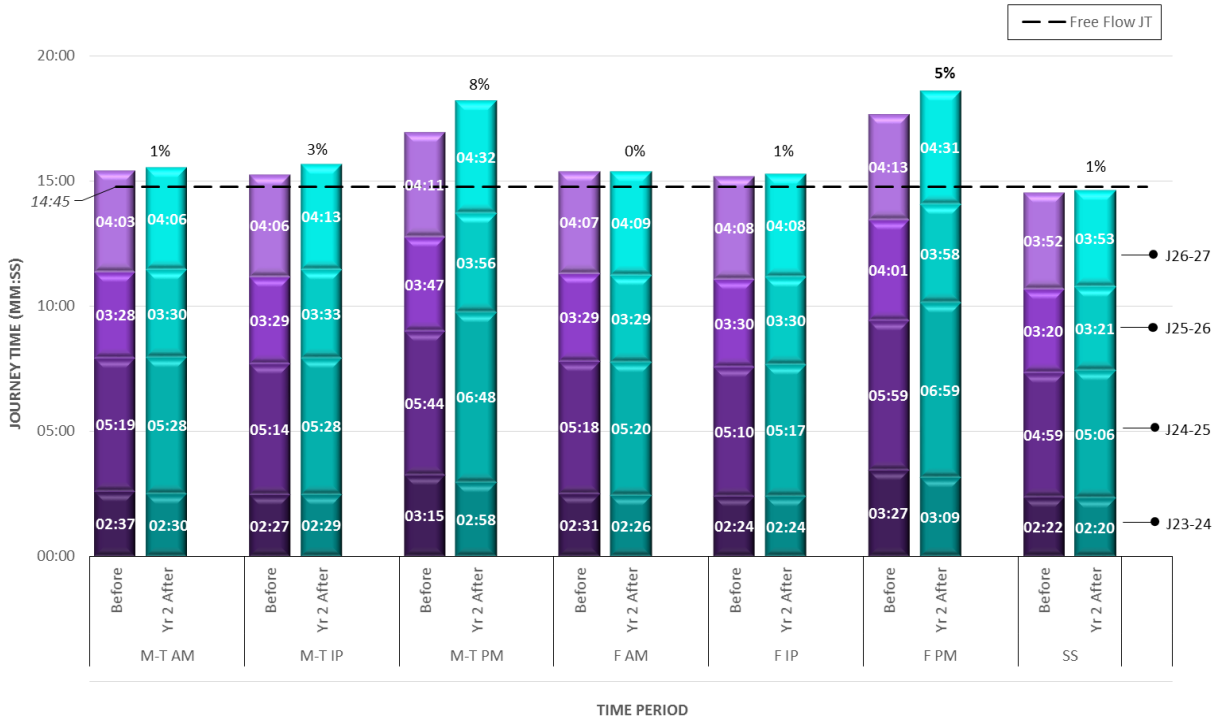
Clockwise journey time comparison



Journey Time

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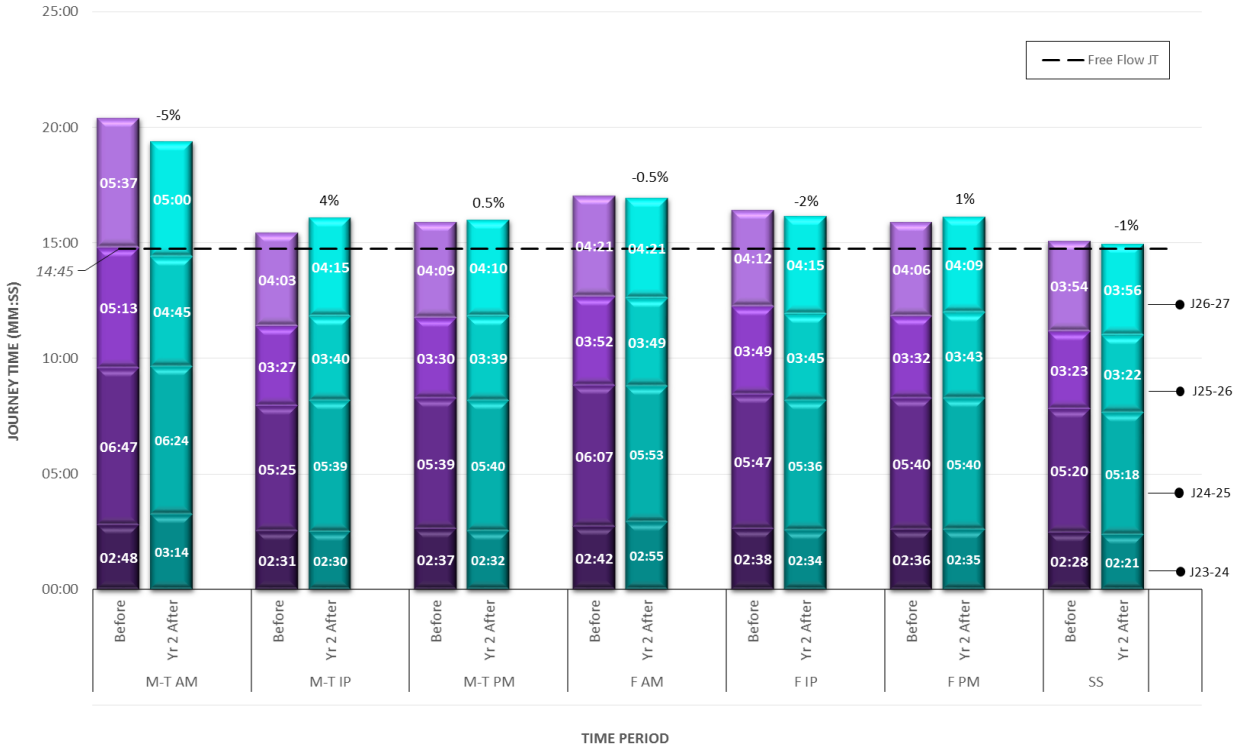
Anticlockwise journey time comparison



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Safety

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Number of collisions by severity and collision rates

Period		Fatal	Serious	*Fatal & serious*	Slight	Total
Before	Year 1	1	11	12	85	97
	Year 2	2	11	13	88	101
	Year 3	1	5	6	87	93
	Total	4	27	31	260	291
	Collision rate (collisions per hmvm) (22.6 hmvm)	0.177	1.194	1.371	11.500	12.871
	Collision rate (collisions per mvkm) (3,641 mvkm)	0.001	0.007	0.009	0.071	0.080
After*	Year 1	2	3	5	55	60
	Year 2	1	9	10	93	103
	Total	3	12	15	148	163
	Collision rate (collisions per hmvm) (14.2 hmvm)	0.212	0.847	1.059	10.444	11.502
	Collision rate (collisions per mvkm) (2,281 mvkm)	0.001	0.005	0.007	0.065	0.071

*Due to staged opening this is based on 24 months of data for J23 to J25 and 18 months of data for J25 to J27. Total values cannot be compared between Before and After periods, but rates can be compared.

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Safety

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Number of collisions and collision rates following national trends

Period	Number of collisions	Collision rate (collisions per hmvm)	Collision rate (collisions per mvkm)
Annual average Before period	97.00	12.87	0.080
Counter factual Before period	92.52	11.41	0.071
After*	163	11.50	0.071
Annual average After period	93.14		

*Due to staged opening this is based on 24 months of data for J23 to J25 and 18 months of data for J25 to J27. Total values cannot be compared between Before and After periods, but rates can be compared.

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Number of casualties and FWI rate

Period	Severity			Total	FWI	FWI rate per hmvm	FWI rate per bvkm
	Fatal	Serious	Slight				
Before (36 months) (22.6 hmvm, 3.64 bvkm)	4	36	401	441	11.61	0.51	3.19
After* (14.2 hmvm, 2.28 bvkm)	3	16	233	252	6.93	0.49	3.04

*Due to staged opening this is based on 24 months of data for J23 to J25 and 18 months of data for J25 to J27. Total values cannot be compared between Before and After periods, but rates can be compared.

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Total KSI and KSI rate

Period	Total KSI	KSI rate per hmvm	KSI rate per bvkm
Before (36 months) (22.6 hmvm, 3.64 bvkm)	40	1.77	10.99
After* (14.2 hmvm, 2.28 bvkm)	19	1.34	8.33

*Due to staged opening this is based on 24 months of data for J23 to J25 and 18 months of data for J25 to J27. Total values cannot be compared between Before and After periods, but rates can be compared.

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Hazards

Red X: average compliance 96% of total flow

		Detector/Signal Location	MS4 Message	Minutely Flow During Lane Closure L1	L2	L3	L4
		M25/5413B		7	21	30	32
	MS4	5413B	NR				
		M25/5419B		0	12	11	10
	MS4 & AMIs	5419B	LANE CLOSED FOR INCIDENT ACCESS	*X*	(40)	(40)	(40)
		M25/5424B		1	24	29	32
		M25/5429B		2	21	30	28
		M25/5432B		1	22	28	29
Direction of travel ↑	MS4	5432B	DO NOT USE CLOSED LANES xIII (40)				
		M25/5437B		2	21	25	28
		M25/5441B		1	20	27	27
		M25/5445B		2	23	24	28
	MS4	5445B	DO NOT USE CLOSED LANES xIII (40)				
		M25/5449B		2	21	25	26
		M25/5453B		1	21	28	28
	MS4	5453B	Congestion stay in lane /III (50)				
		M25/5458B		3	21	24	28
	J25 Merge	M25/5464B		2	14	15	15

5381B	Signal
M25/5381B	Detector site
L1	Lane 1
L2	Lane 2
L3	Lane 3
L4	Lane 4
(60)	60mph VMSL
(50)	50mph VMSL
(40)	40mph VMSL
LDR	Lane Divert Right Arrow
X	Red X on gantry indicating closed lane
xIII	Wickets on MS4 Sign showing lane 1 closure
xxII	Wickets on MS4 Sign showing lane 1 and lane 2 closure
/III	Wickets on MS4 Sign showing lane divert right
NR	National Speed Limit

Example lane closure event

No injury to traffic officer as a result of Red-x non-compliance.

ERA Misuse?

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Summary of ERA activity

Activity	Number	Percentage of all stops
Emergency Refuge Telephone (ERT) used	4	3%
Highways England Traffic Officer attended	8	7%
Non-emergency (e.g. drove off without exiting vehicle, comfort break etc.)	97	82%
Genuine reason (e.g. problem with vehicle)	22	18%

Vehicle types using ERAs

Vehicle type	Number of ERA stops	Percentage of total	Non-emergency	Genuine emergency
Car	52	44%	75%	25%
Van	30	25%	83%	17%
HGV	32	27%	91%	9%
LGV	5	4%	80%	20%
Total	119		82%	18%

No collisions related to vehicles exiting an ERA.

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2 Year Evaluation

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Other findings

The fatal collisions were:

- A stowaway incident where a pedestrian climbed out from underneath a vehicle and was run over.
- A suspected suicide attempt where a car pulled out from the nearside verge (actually a very short length of hard shoulder) into the path of an HGV in lane 1 causing the HGV to swerve and collide with another HGV causing a crossover and ultimately the fatality of an HGV occupant on the opposite carriageway.
- A slow moving / stationary vehicle in lane 1 was struck by another vehicle.

No collisions involving road workers were recorded.

Evidence

Summary

- The two years of post opening results from the M25 Section 2 and Section 5 schemes show:
- They are meeting their road user safety objectives.
- The reduction in collisions is not statistically significant.
- M25 Year 3 and Year 1 evaluation expected on a number of other scheme very soon!
- Post Opening Operational Monitoring indicates issue with Red-x non-compliance.

Can we make Smart Motorways Safer?

Transport Select Committee

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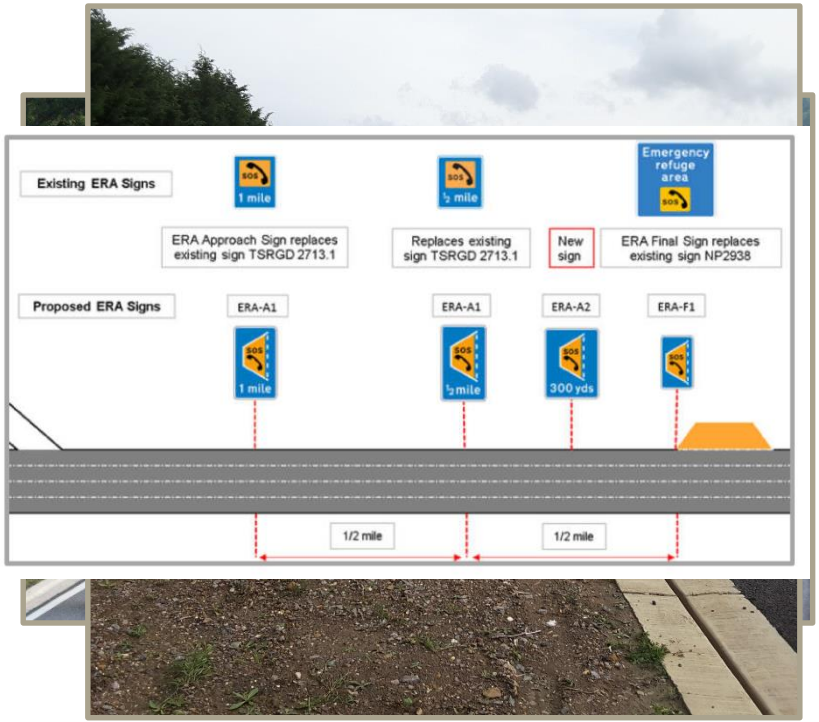
Review of “All Lane Running”

- Accepted the use of Smart Motorways as an alternative to widening. However:
  - DfT wrong to present ALR as the next step or logical extension.
  - Risks arising from permanent conversion an unacceptable price to pay.
  - ERAs too far apart and too small.
  - Red-x non-compliance too high.
  - Redouble efforts to increase public awareness.
- Recommended reverting to M42 style Smart Motorway.

Improving ERAs

Mitigating Hazard 135

- M3 and M1 J19-16 schemes first to have orange ERAs.
- Additional and enhanced advance traffic signs.
- Rebranded as ‘Emergency Areas’
- Spacing to be reduced from 2500m guidance.
- Retrospective changes.
- Will misuse increase?



Stationary Vehicle Detection

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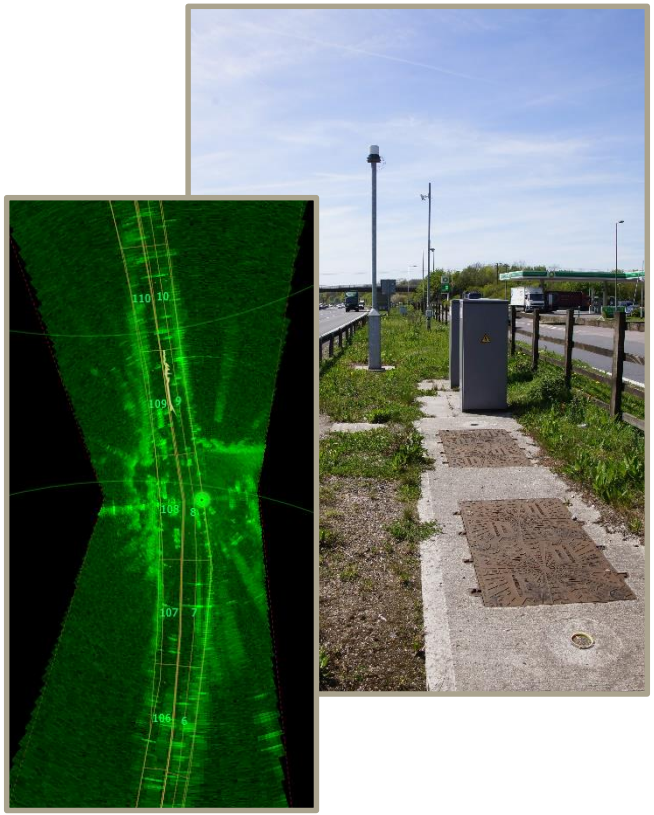
Mitigating Hazard 135

- MIDAS Queue Protection not effective in the off-peak.
- Trials of SVD completed on M62 J25-30 and M25 LUS Section 2.
- All key performance requirement targets met or exceeded: coverage, detection rate, false detection frequency, detection time.
- Significant reduction in time to notify RCC of stopped vehicle using SVD system.
- HE commitment to proceed with roll out of SVD on all ALR schemes.



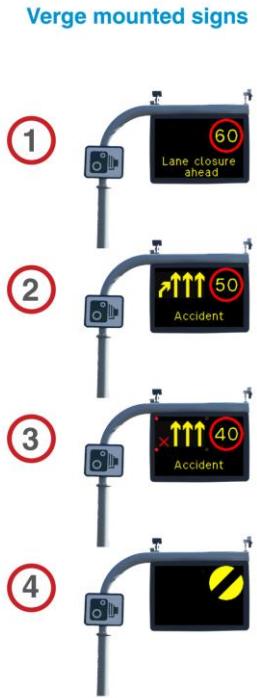
Enforcement and Education

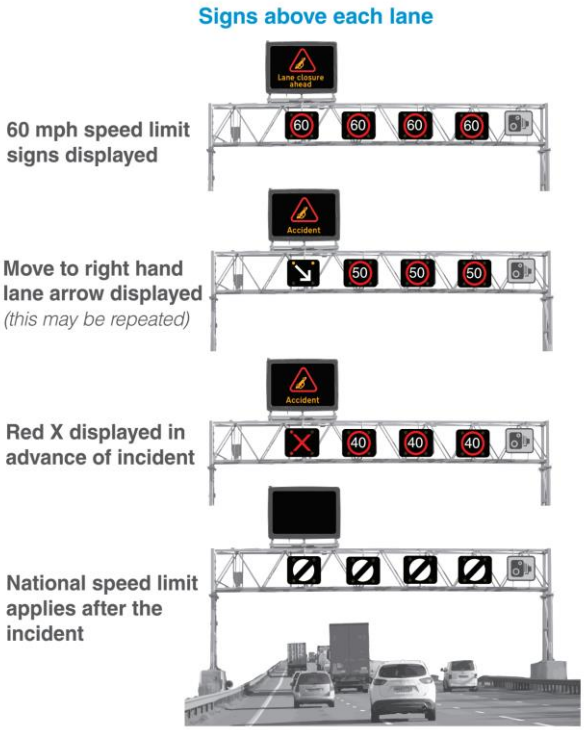
- Some police forces enforcing Red-x non-compliance.
- Camera based enforcement expected in 2018.

https://youtu.be/_C5oDYA6hkY

- Know your smart motorways:

https://www.gov.uk/guidance/how-to-drive-on-a-smart-motorway





Thank you – Questions?

If you'd like to find out more visit:
www.atkinsglobal.com