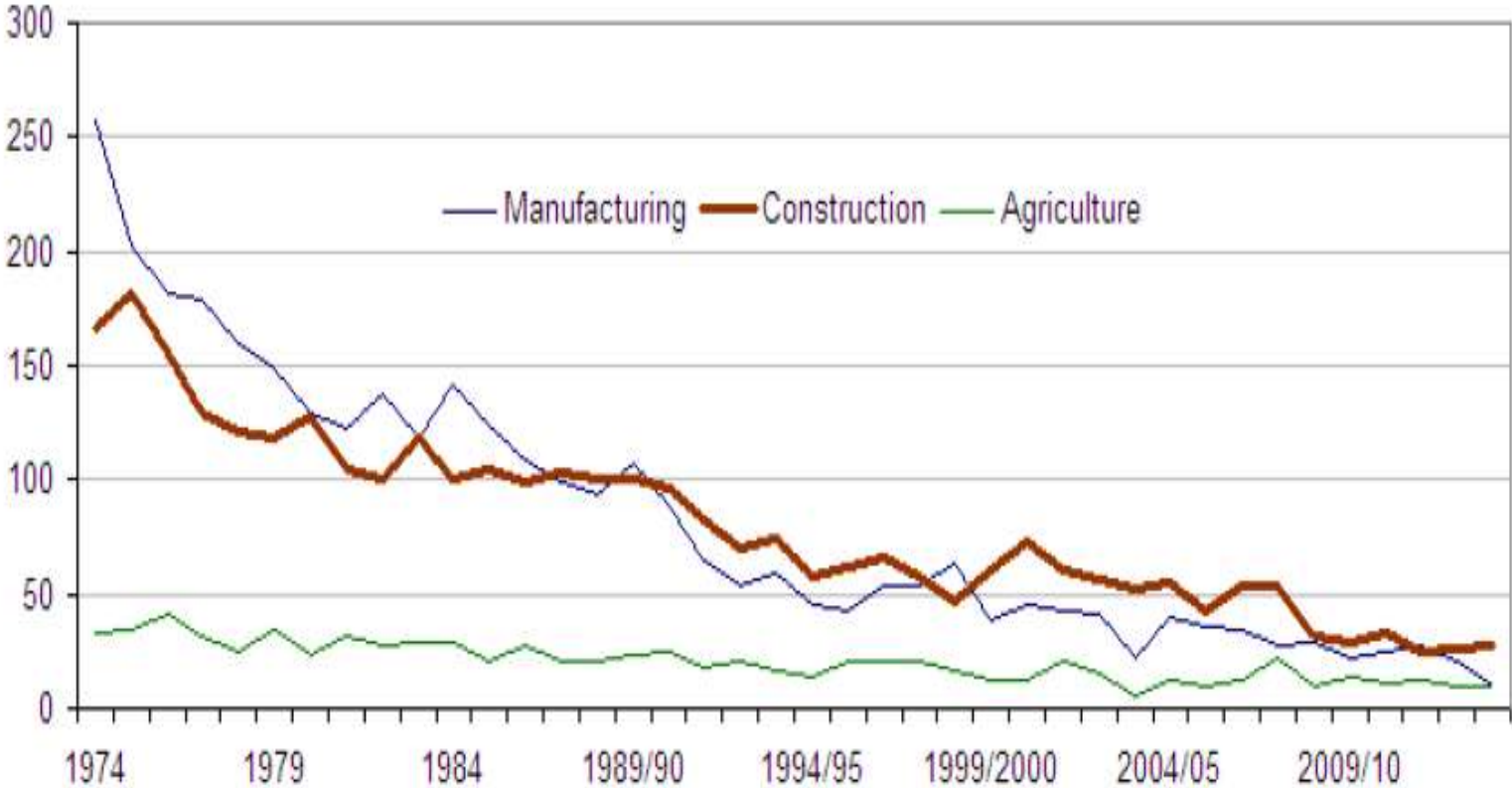


Highways Workshop Prague

10 March 2015

The UK H&S Journey

Figure 1 Numbers of fatal injuries to employees (RIDDOR) 1974 to 2013/14p





Injury-Free
Environment

Construction Design & Management

- Makes competent appointments
- Ensures CPP & welfare in place
- Allows time for work
- Provides information
- Retains H&S File

Client



- Advise & assist client
- Notify to HSE
- Co-ordinate H&S aspects of design
- Liaise and communicate
- Pre-construction info.
- Prepare / update H&S File

CDM
co-ordinator



- Eliminates hazards
- Provides information
- Informs client
- Co-ordinates & co-operates
- Provides information for H&S File

Designer



- Plan, manage & monitor
- Prepare CPP & site rules
- Communicate CPP
- Ensure welfare suitable
- Check competence
- Inform & consult with workforce
- Liaise with CDM Co-ordinator
- Secure the construction site

Principal
contractor



- Check duties
- Co-operate with PC (sub-letting)
- Plan, manage & monitor work
- Check competence & train
- Provide information
- Comply with CDM2007 Part 4
- Ensure adequate welfare
- Inform PC of accidents & CPP
- Provide info. for H&S File

Contractor



The Key Changes

Principal Designer

- Plan, manage, monitor and co-ordinate health and safety in the pre-construction phase of a project. This includes:
 - identifying, eliminating or controlling foreseeable risks
 - ensuring designers carry out their duties.
 - Prepare and provide relevant information to other duty holders.
 - Liaise with the principal contractor to help in the planning,
 - management, monitoring and co-ordination of the construction phase.



The Key Changes





- Government agency: part of Department of Transport
- Looks after the strategy road network: motorways and trunk roads
- Operates, maintains and improves network in England
- 4,300 miles / 6,900 km
- Work vital to the economy
- Traffic Officer Service



Assurance

- Independent audit of suppliers
- Audits to include compliance with CDM

Capability

- Understand H&S responsibilities
- HA staff competent in H&S

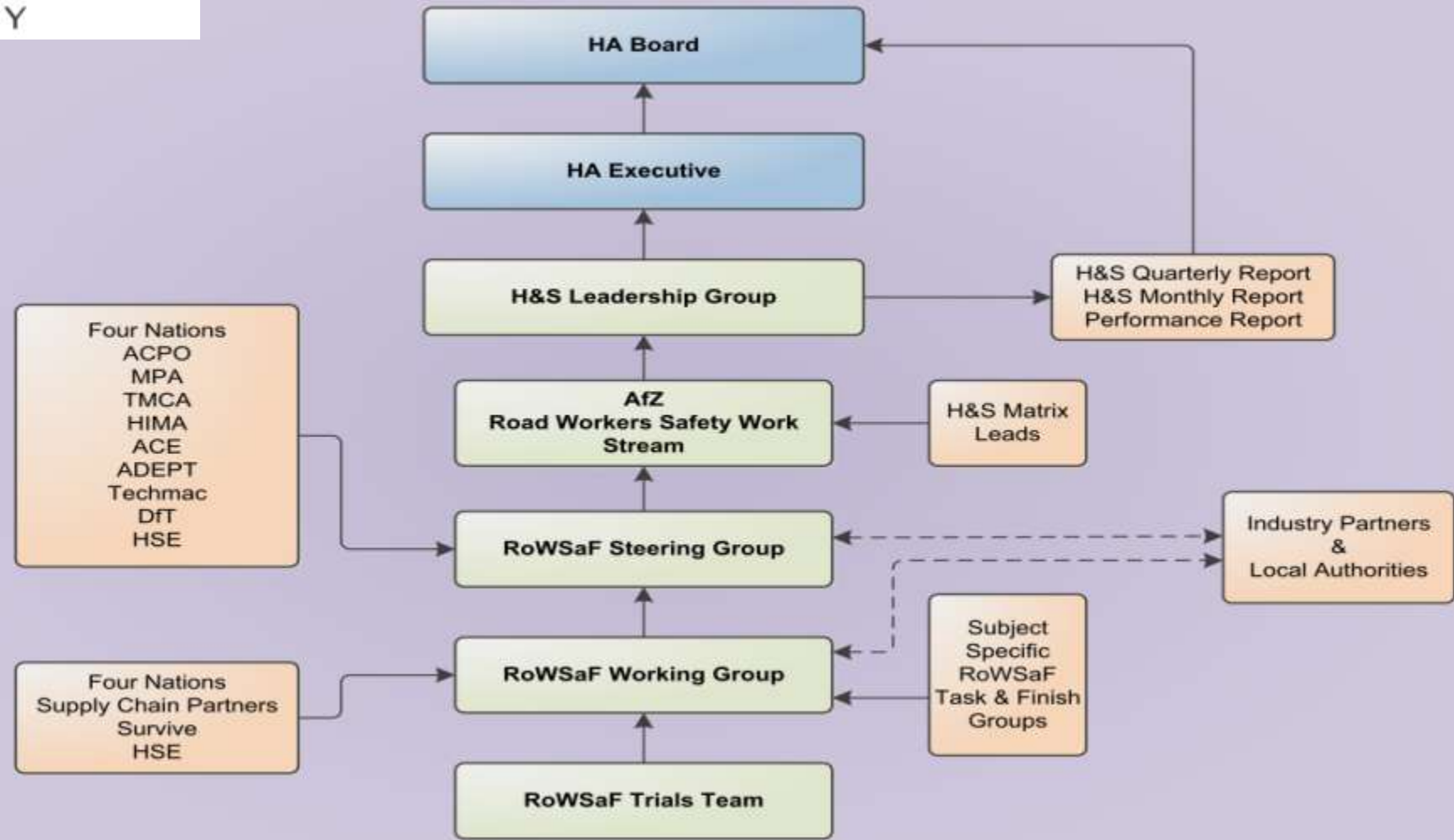


Leadership

- Management demonstrate commitment to strategy
- Communicate performance
- Site safety tours
- Suppliers drive improvements in site standards

Direction & guidance

- Report accidents to the HA
- Promote Occupational Health
- Share best practice
- Online toolkit



Traffic Signs Manual

Chapter 8: *Traffic Safety Measures and Signs for Road Works and Temporary Situations*

Part 1: Design

Part 2: Operations

Ownership:

- Department for Transport / HA
- Transport Scotland
- Welsh Assembly Government
- Department for Regional Development (N Ireland)

Designers of TTM

- Clients representative
- Principal Contractor
- Traffic management contractor
- Traffic Safety Control Officer (TSCO)
- Construction Manager / Agent
- Temporary barrier supplier
- Temporary works Co-ordinator (for sign off for hardened verges under engineering control)

M25 – Section 5

- 16.2 miles (25.5km)
- 13 Emergency Refuge Areas
- 13 Superspan Gantries
- 5 Single Span Gantries
- 33 MS3/MS4 Gantries
- 50 CCTV Cameras (include Infrared night vision technology)
- 32km Slipformed Slot Drain
- 24km Concrete Step Barrier
- 55,000t Blacktop – (included 12,000te of lifecycle replacement)
- 30,000m³ – Concrete Paving
- 200,000m³ of Bulk Excavation – (to construct environmental bunds)



2. Use of Crash Cushions on Temporary Restraint

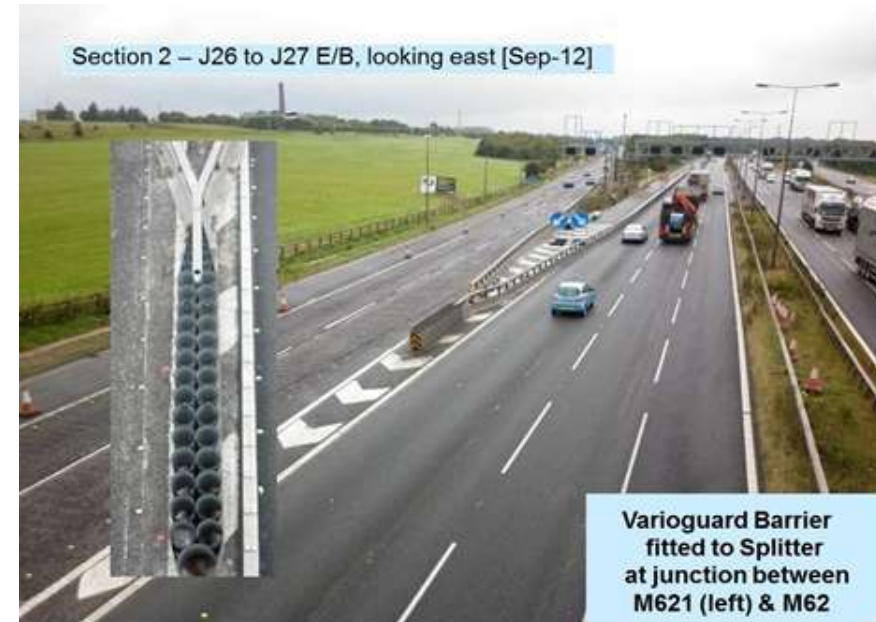
Crash Cushions to be used when traffic passes either side of barrier

Roadusers passing either side of Crash Cushion. Example shown

insert 2 Crash Cushion M62 J25 –J30 Smart

Motorways scheme at J27 / M621.

The splitter detail using Crash Cushion was required as gantry base was constructed just east of existing nosing.



Another example of splitter detail at works access point *insert 3*.

(b) works traffic passes (works side) and road user (live carriageway side)

In this situation Crash Cushion should be given high consideration. This would also apply

to works exit points this is even more important

as gap can be longer in length.

Insert 3 M1 J39 –J42 Smart Motorways - J40 entry Slip Road





Varioguard Metal Halide Lighting System



Implementing, Monitoring, Review and Recording



Temporary Traffic Management (TTM)



M1 Junction 19 Upgrade

Existing motorway junction
upgrade

Several new elevated
structures

£129m construction
contract

Completion - winter 2016

Client - Highways Agency



M1 Junction 19 Upgrade

Risks & Challenges

- Traffic management
- Project phasing
- Client relationship
- Brand and reputation
- A constrained site
- Many elevated structures
- Pace of



Work Smarter



Better defining customer requirements



Collaborative working in a digital environment



Leveraging total procurement spend, relationships and expertise



Adopting an industrialised approach



Improving production performance



Being innovative in our delivery

M1 Junction 19 Upgrade

Selected

Highlights

4D digital project phasing &

logistics

4D digital traffic

management

Mobile technology to improve

efficiency

A client exemplar

project for BIM



Mobile Working

Sharing the right information



Relevant

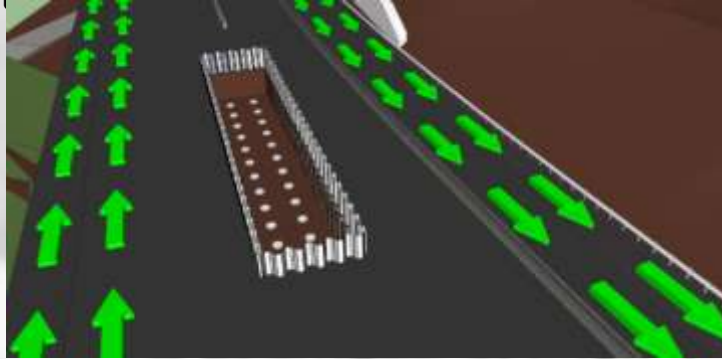
Useful

Efficient

Four Dimensional Working

Developing a plan for success

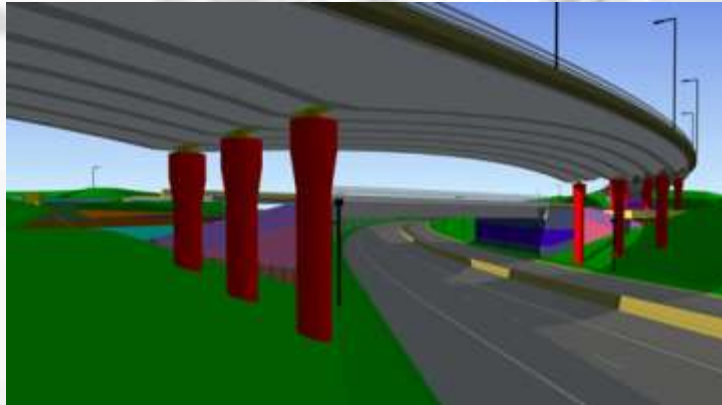
Traffic management and sequencing



Signage and sightlines



Managing high risk structures



Transparency with client





Confidence
Accuracy
One Skanska

Single set of
information

Site or office, everyone has the

M1 Junction 19 Upgrade

Summary value of BIM

Empowering our People

Mobile devices
allow staff to
spend more time on
site

Full access to a
4D digital model
of the project
improves
understanding

Working Smarter

Full 4D digital
modelling
simulated and
optimised the
project programme

Plant utilised
machine guidance
to improve
efficiency and
quality

Market Opportunities

This project is a
client
pathfinder, which
will lead to
future work

The delivery of
more relevant
client data could
lead to
additional
services



Pictured left to right :

- Paul Kendall - AECOM
- Julie Clay – Project Health & Safety Manager
- Duncan Thompson – Project Director
- Tony Yeomans - Jacobs
- Ivan Marriott – Highways Agency
- Mark Sutton – Construction Manager

Asset Support Contract

– Area 2



- Winter & Operational**
 - 1 Bamfurlong
 - 6 Edithmead
 - 8 Chelston
 - 13 Southfields
 - 10 Tormarton
 - 14 Wyle
- Winter Store**
 - 5 Clevedon
 - 7 Huntworth
 - 11 Stanton St Quinton
 - 12 Badbury
- Winter Only**
 - 2 Eastington
 - 3 Falfield
- NCC & Management**
 - 9 South West RCC
- Future Development**
 - 4 Almondsbury

Asset Support Contract – Area 2

- Contract 2014 to 2017
- Annual Schemes
turnover £ 30m
2013/14
- £60 million 2014/15
- 2015/16 £ 70m?
- 2016/17 £ 80m +++
- Schemes capped at £5
million max individual
- Network Information
- 1252 Structures
- 406km Motorway
- 298Km Trunk road

Resurfacing on Motorways



Resurfacing on Motorways



Resurfacing on Motorways



Resurfacing on A Roads



Resurfacing on A Roads









Impact Protection Vehicle (IPV)



Impact Protection Vehicle (IPV)



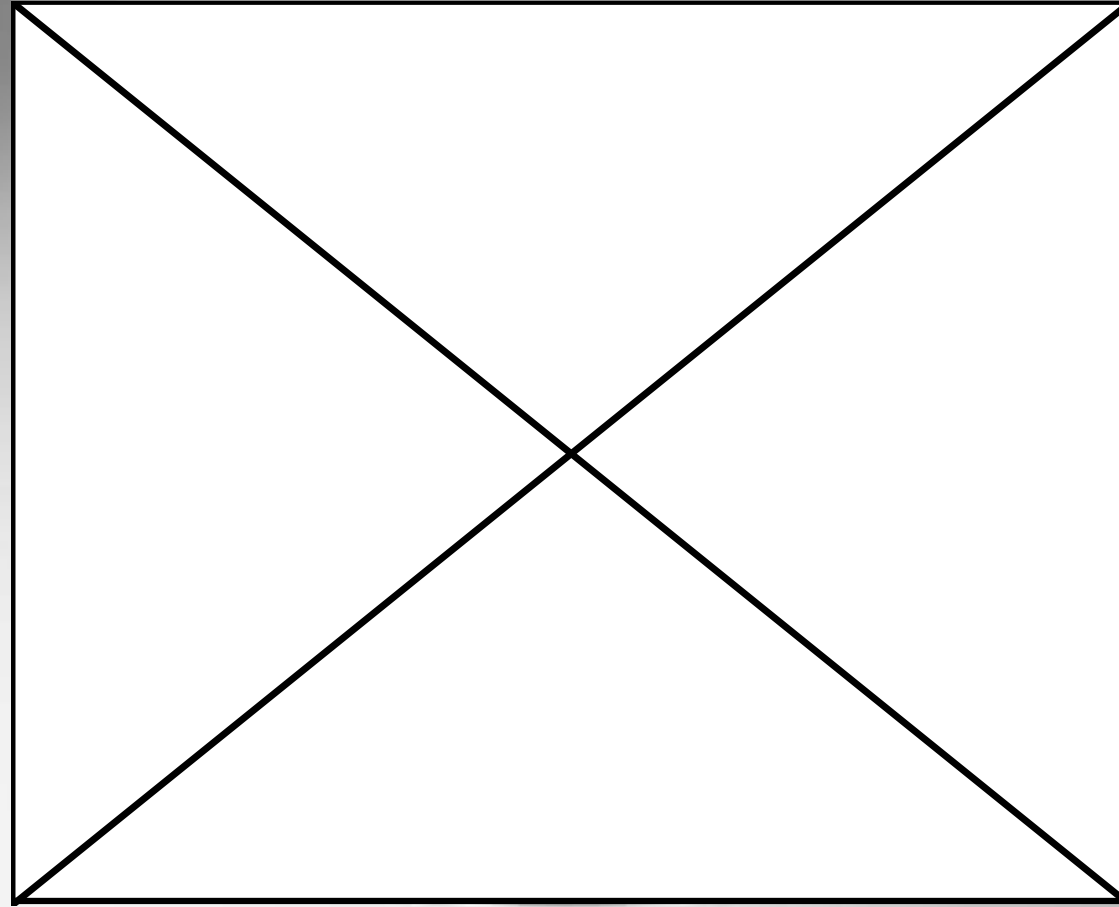
Impact Protection Vehicle (IPV)



Connect Plus

M25 Network

Our journey so far...



What Next?

We are only just getting started...



Smart Helmet

+



AUTODESK
BIM 360 FIELD

Mobile
construction
management tools

=

Operational
Excellence
Through
Digital
Engineering