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TRAFFIC MANAGEMENT

Enhanced Mobile Carriageway Closure

Industry introduction

Background and approval terms

Firstly, Its not a Rolling Block!
Its a Mobile Carriageway Closure

Police, Fire and Traffic Officers have powers in law to use their vehicle and uniform to stop and direct traffic on the UK highways.

- Which is why the term TSCO is changing to TSS
- Its important that TTM vehicles use a highway maintenance livery not Battenburg

As contractors when we have road space, we are able to display lawfully sized and approved traffic signs to temporarily suspend traffic movements to create sterile traffic free areas

- Enhanced Mobile Carriageway Closure
- Stop/ Go on Stop/Stop
- Traffic signals on All red.

What can we use it for?

Currently accepted technique for

- 2 lane carriageways
- 3 lane carriageways
- 4 lane carriageways
- Includes all
  - With hard shoulders
  - Without hard shoulders
  - ALR
  - DHSR

With and without hard shoulders
Includes ALR and DHSR sections

- @ September 2022 over 1700 EMCC performed with only 6 incursions that were mitigated by warning system each time

National Highways Roads

- Installation / removal of
  - Tapers
  - Exit slip road details
  - Entry Slip road details
  - Changeovers install / switch / removal
  - Offside or nearside signs

Maintenance

- Offside sign placement and removal
- Debris within a coned length
- Slow moving recovery or low loader leaving a works access
- Maintenance defect within coned length

Trial parameters used and confirmed

Should decelerate traffic from normal speed

- The trial found that traffic queue safety was significantly improved when the 3.5t van decelerated steadily from 70mph to 10-15mph therefore a requirement of the approval is that the vehicle is capable of achieving 70mph.

That a single vehicle can successfully sign 4 lanes of traffic and that

- The trial found that traffic is very compliant when used with setting out road works sign
- Traffic kept a safe distance
- Compliance with the sterile area is high

That the incursion warning system was effective at controlling residual risk and was essential control and part of the use of EMCC

- We don't need signals manually set revert to '2 call'

That the vehicle does not need impact protection

- The EMCC vehicle is not permitted to plan to stop traffic and therefore impact protection is not required as it will not be operable above 15mph.
- It is permitted to have up to 9 minutes of sterile time, in the trial the TM crews refined their method to generally need 3 – 5 minutes
- It was found that not bringing traffic to a stop aided customer satisfaction and at least halved the return to free flow traffic conditions time.

Whats needed to do it?

Need to get a 70mph vehicle fitted with

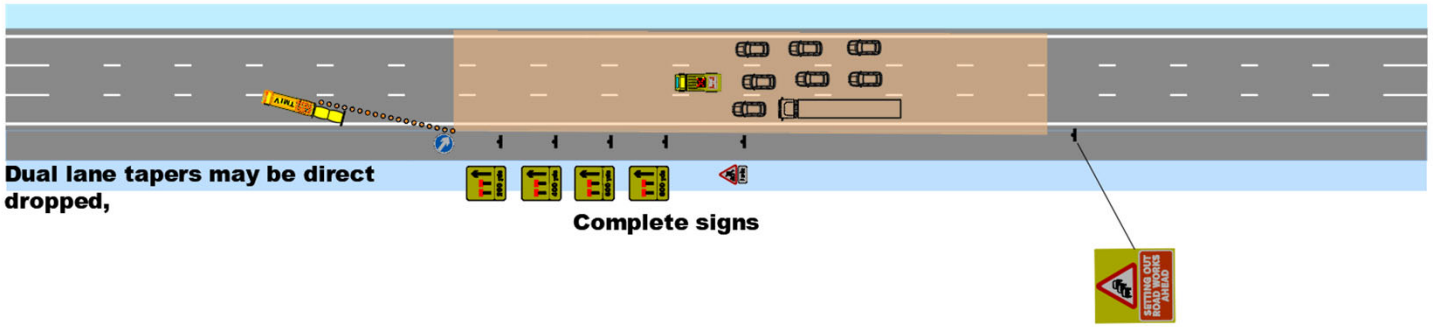
- Set up the cameras and radios to specification
- Purchase approved sign arrangement & equipment
- Use on National Highways roads
  - We can support an approval on other LHA roads
- Fit incursion warning system
- Train staff
  - Training available using LANTRA Technical award

Best fitted to Welfare vehicle

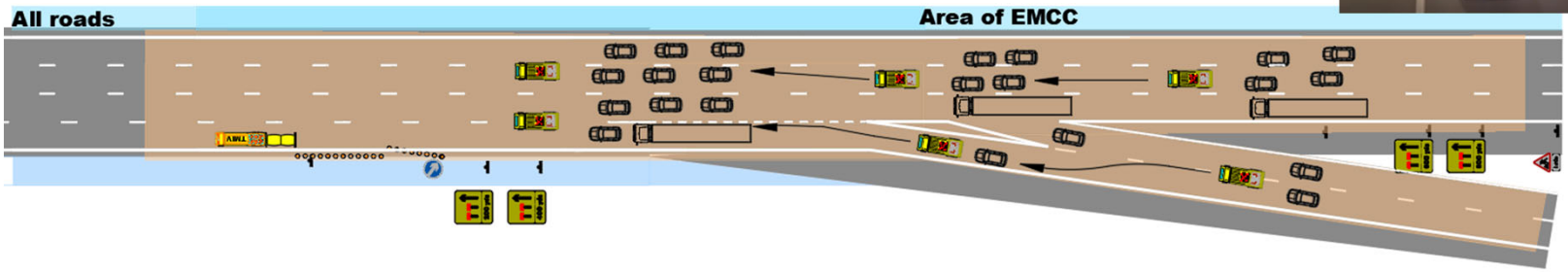
- Streamlines sign
- Makes use of a vehicle not in use during install
- Provides welfare to all TTM crew on all sites
  - No hedges or Macy D's in RAMS
  - Helps clients comply with CDM and Home Safe and Well
    - (And Happy without a Happy meal!)

Vehicle Use – 2 / 3 lanes

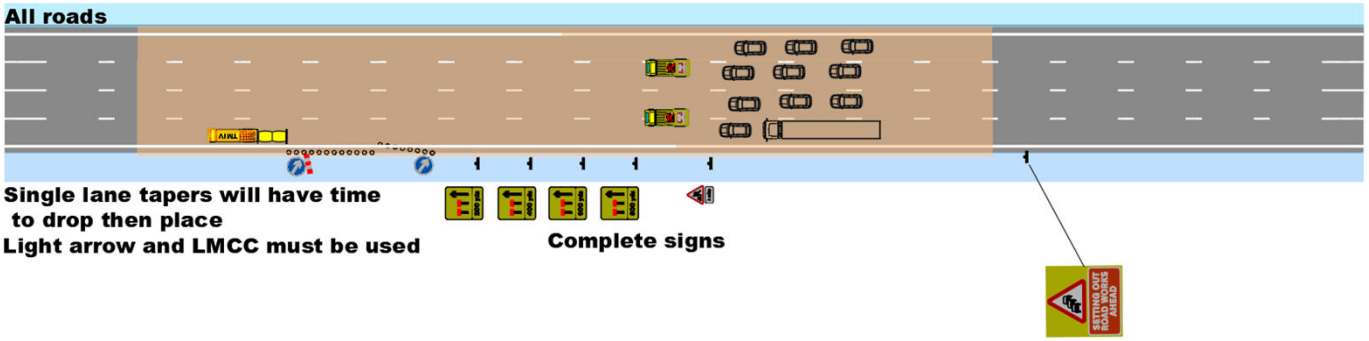
All roads



Dual carriageway no hardshoulder and slip road 2 / 3 4 lanes



Vehicle Use – 4 lanes

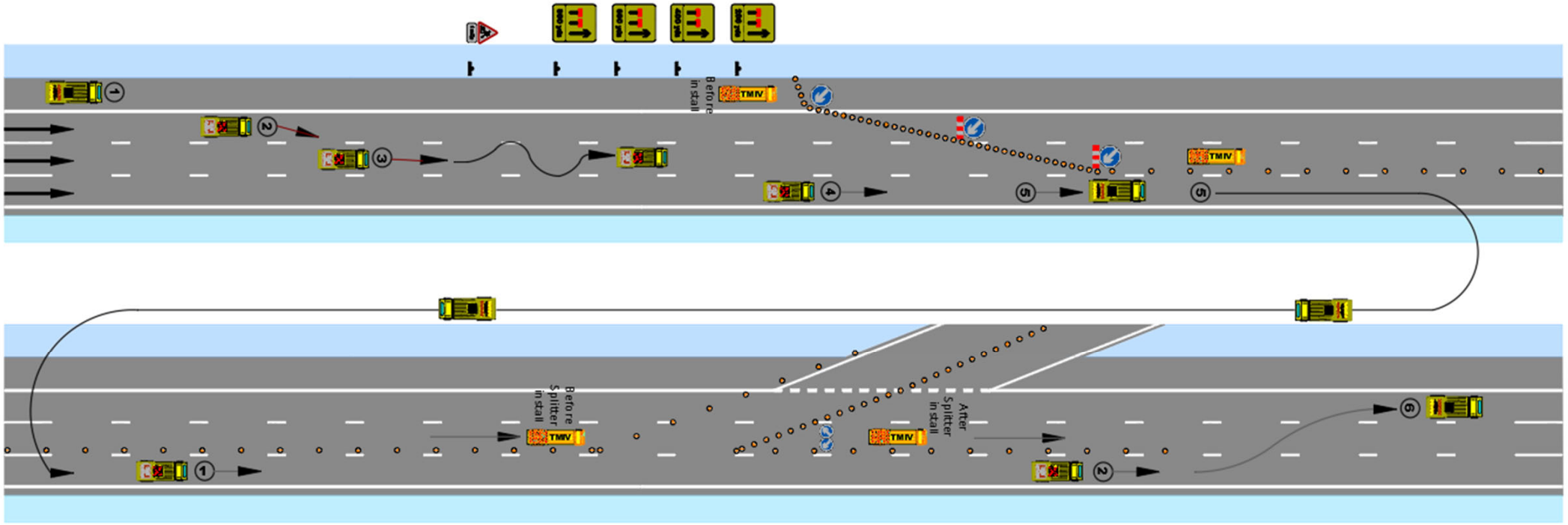


Use of 1 vehicle was proven but 2 should be used during roll out until familiarity and confidence build

Number of lanes	Number of vans
2	1
3	1
4	1 or 2
5	2

Once taper installed van available for other work

Splitter and total closure installs, other sites etc.



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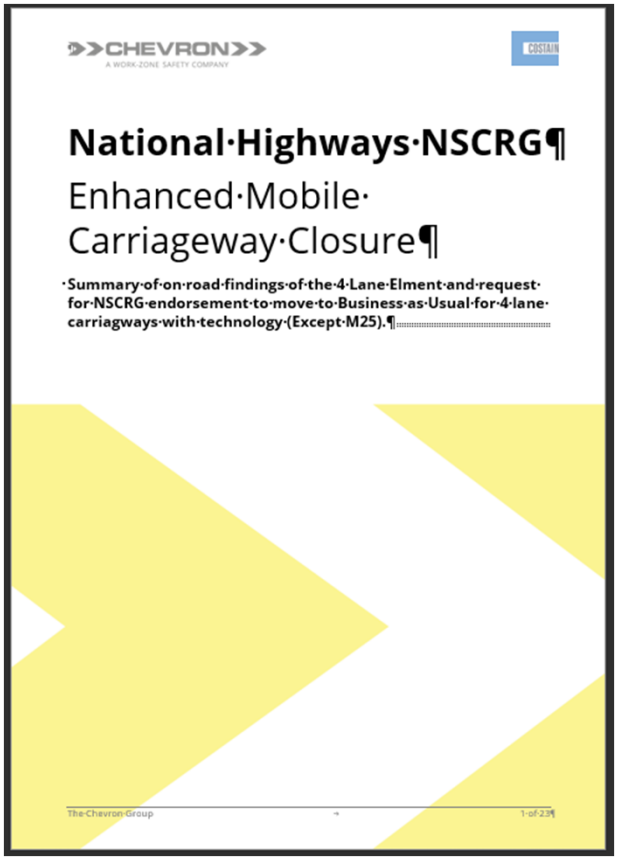
Explanation on approval process

Enhanced Mobile Carriageway Closure

September 2022 – NSCRG accepted our 4 lane Now accepted TTM technique - no longer a trial



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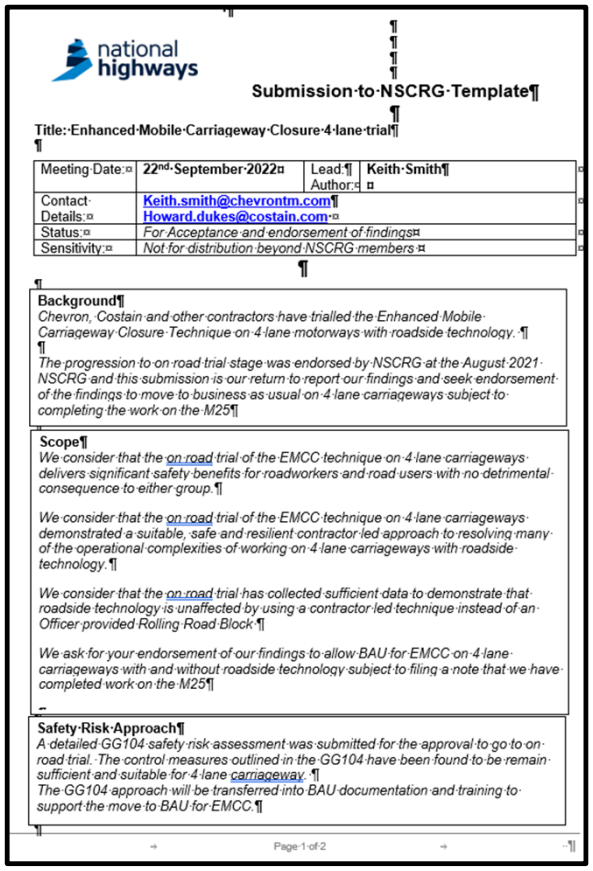
National·Highways·NSCRG¶

Enhanced·Mobile· Carriageway·Closure¶

·Summary·of·on·road·findings·of·the·4·Lane·Elment·and·request· for·NSCRG·endorsement·to·move·to·Business·as·Usual·for·4·lane· carriagways·with·technology·(Except·M25).¶

The·Chevron·Group → 1·of·2¶



national highways

Submission·to·NSCRG·Template¶

Title:·Enhanced·Mobile·Carriageway·Closure·4·lane·trial¶

Meeting·Date:¤	22nd·September·2022¤	Lead·Author:¤	Keith·Smith¶
Contact·Details:¤	Keith.smith@chevrontm.com¶ Howard.dukes@costain.com¤		
Status:¤	*For·Acceptance·and·endorsement·of·findings¤*		
Sensitivity:¤	*Not·for·distribution·beyond·NSCRG·members·¤*		

Background¶

Chevron, ·Costain·and·other·contractors·have·trialled·the·Enhanced·Mobile· Carriageway·Closure·Technique·on·4·lane·motorways·with·roadside·technology. ·¶

The·progression·to·on·road·trial·stage·was·endorsed·by·NSCRG·at·the·August·2021· NSCRG·and·this·submission·is·our·return·to·report·our·findings·and·seek·endorsement· of·the·findings·to·move·to·business·as·usual·on·4·lane·carriageways·subject·to· completing·the·work·on·the·M25¶

Scope¶

We·consider·that·the·on·road·trial·of·the·EMCC·technique·on·4·lane·carriageways· delivers·significant·safety·benefits·for·roadworkers·and·road·users·with·no·detrimental· consequence·to·either·group.¶

We·consider·that·the·on·road·trial·of·the·EMCC·technique·on·4·lane·carriageways· demonstrated·a·suitable, safe·and·resilient·contractor·led·approach·to·resolving·many· of·the·operational·complexities·of·working·on·4·lane·carriageways·with·roadside· technology.¶

We·consider·that·the·on·road·trial·has·collected·sufficient·data·to·demonstrate·that· roadside·technology·is·unaffected·by·using·a·contractor·led·technique·instead·of·an· Officer·provided·Rolling·Road·Block.¶

We·ask·for·your·endorsement·of·our·findings·to·allow·BAU·for·EMCC·on·4·lane· carriageways·with·and·without·roadside·technology·subject·to·filing·a·note·that·we·have· completed·work·on·the·M25¶

Safety·Risk·Approach¶

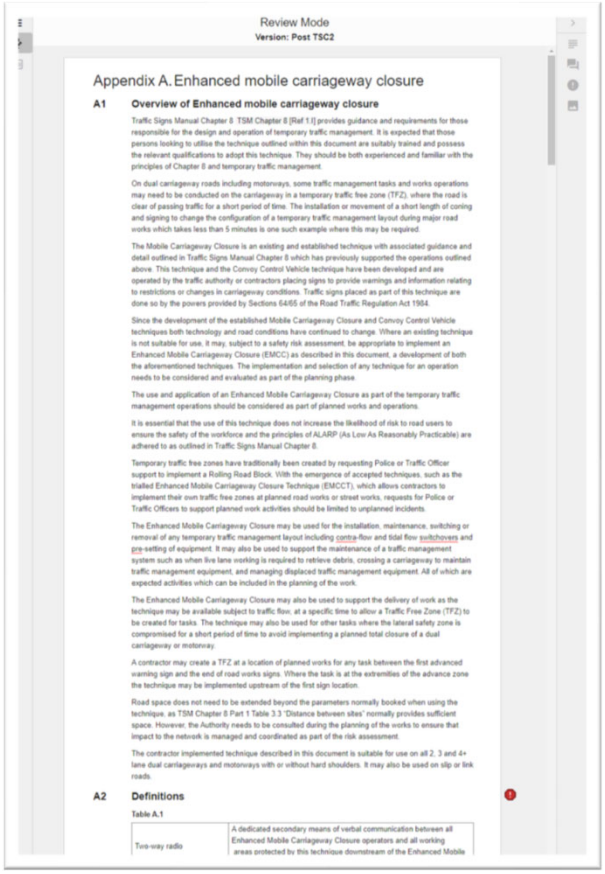
A·detailed·GG104·safety·risk·assessment·was·submitted·for·the·approval·to·go·to·on· road·trial. ·The·control·measures·outlined·in·the·GG104·have·been·found·to·be·remain· sufficient·and·suitable·for·4·lane·carriageway. ·¶
The·GG104·approach·will·be·transferred·into·BAU·documentation·and·training·to· support·the·move·to·BAU·for·EMCC.¶

→ Page·1·of·2 →

September**– 3.18 Decision:** advised that NSCRG accept that suitable and sufficient safety risk assessment work has been undertaken to support the rollout of EMCCT as a business as usual activity on four lane carriageways with and without roadside technology,

How the EMCCT is shared with the wider industry, providing guidance on methodology and key parameters, is a commendation rather than a requirement

Standard to operate to being processed


Review Mode
Version: Post TSC2

Appendix A. Enhanced mobile carriageway closure

A1 Overview of Enhanced mobile carriageway closure

Traffic Signs Manual Chapter 8 TSM Chapter 8 [Ref 1.I] provides guidance and requirements for those responsible for the design and operation of temporary traffic management. It is expected that those persons looking to utilise the technique outlined within this document are suitably trained and possess the relevant qualifications to adopt this technique. They should be both experienced and familiar with the principles of Chapter 8 and temporary traffic management.

On dual carriageway roads including motorways, some traffic management tasks and works operations may need to be conducted on the carriageway in a temporary traffic free zone (TFZ), where the road is clear of passing traffic for a short period of time. The installation or movement of a short length of coning and signing to change the configuration of a temporary traffic management layout during major road works which takes less than 5 minutes is one such example where this may be required.

The Mobile Carriageway Closure is an existing and established technique with associated guidance and detail outlined in Traffic Signs Manual Chapter 8 which has previously supported the operations outlined above. This technique and the Convoy Control Vehicle technique have been developed and are operated by the traffic authority or contractors placing signs to provide warnings and information relating to restrictions or changes in carriageway conditions. Traffic signs placed as part of this technique are done so by the powers provided by Sections 64/65 of the Road Traffic Regulation Act 1984.

Since the development of the established Mobile Carriageway Closure and Convoy Control Vehicle techniques both technology and road conditions have continued to change. Where an existing technique is not suitable for use, it may, subject to a safety risk assessment, be appropriate to implement an Enhanced Mobile Carriageway Closure (EMCC) as described in this document, a development of both the aforementioned techniques. The implementation and selection of any technique for an operation needs to be considered and evaluated as part of the planning phase.

The use and application of an Enhanced Mobile Carriageway Closure as part of the temporary traffic management operations should be considered as part of planned works and operations.

It is essential that the use of this technique does not increase the likelihood of risk to road users to ensure the safety of the workforce and the principles of ALARP (As Low As Reasonably Practicable) are adhered to as outlined in Traffic Signs Manual Chapter 8.

Temporary traffic free zones have traditionally been created by requesting Police or Traffic Officer support to implement a Rolling Road Block. With the emergence of accepted techniques, such as the trialled Enhanced Mobile Carriageway Closure Technique (EMCCT), which allows contractors to implement their own traffic free zones at planned road works or street works, requests for Police or Traffic Officers to support planned work activities should be limited to unplanned incidents.

The Enhanced Mobile Carriageway Closure may be used for the installation, maintenance, switching or removal of any temporary traffic management layout including contra-flow and tidal flow switchovers and pre-setting of equipment. It may also be used to support the maintenance of a traffic management system such as when live lane working is required to retrieve debris, crossing a carriageway to maintain traffic management equipment, and managing displaced traffic management equipment. All of which are expected activities which can be included in the planning of the work.

The Enhanced Mobile Carriageway Closure may also be used to support the delivery of work as the technique may be available subject to traffic flow, at a specific time to allow a Traffic Free Zone (TFZ) to be created for tasks. The technique may also be used for other tasks where the lateral safety zone is compromised for a short period of time to avoid implementing a planned total closure of a dual carriageway or motorway.

A contractor may create a TFZ at a location of planned works for any task between the first advanced warning sign and the end of road works signs. Where the task is at the extremities of the advance zone the technique may be implemented upstream of the first sign location.

Road space does not need to be extended beyond the parameters normally booked when using the technique, as TSM Chapter 8 Part 1 Table 3.3 "Distance between sites" normally provides sufficient space. However, the Authority needs to be consulted during the planning of the works to ensure that impact to the network is managed and coordinated as part of the risk assessment.

The contractor implemented technique described in this document is suitable for use on all 2, 3 and 4+ lane dual carriageways and motorways with or without hard shoulders. It may also be used on slip or link roads.

A2 Definitions

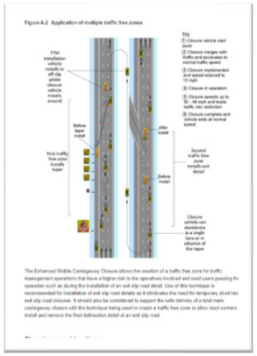
Table A.1

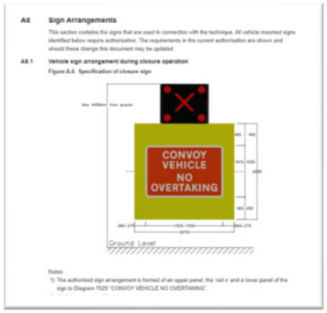
Two-way radio	A dedicated secondary means of verbal communication between all Enhanced Mobile Carriageway Closure operators and all working areas protected by this technique downstream of the Enhanced Mobile

Based on

- Trial safety case accepted by NSCRG
- Vehicle parameters
- Findings from trial development
- Due early 2023

Reference for all organisations to develop operations and remain within safety case boundaries





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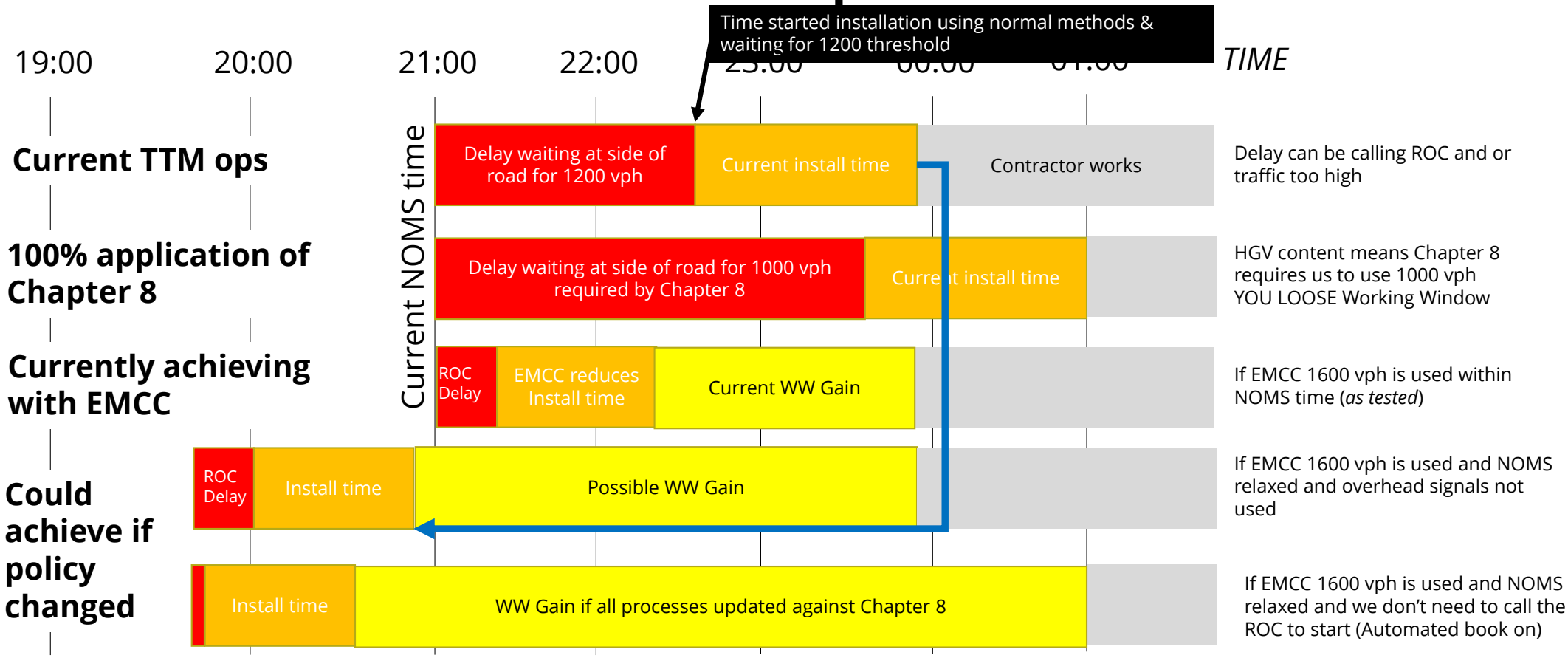
EMCC and Working Windows

Certainty of start time

Learning from trial

Potential from current EMCC test period



EMCC count to use for planning Install

Table A.3 Maximum traffic capacity values per lane remaining open after installation of the system

Road type	HGV Percentage					
	5%	10%	15%	20%	25%	30%
2+ lane All-purpose dual carriageway	1620	1560	1490	1430	1370	1310
2+ lane motorway	1800	1730	1660	1590	1520	1470
2 + lane suburban dual carriageways	1620	1560	1490	1430	1370	1310

- Values validated by EMCC trial
- Supported by other area development work located by the trial
- Standard En-route for publication – completing due process
- Working Windows tool needs to include HGV content for existing techniques and EMCC – Engagement on going with WW tool team

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EMCC and Carbon Net Zero

Keeping traffic on the same road

Learning from trial

Sample carbon saving from not closing a motorway

Closing the M6 northbound at Lymm for 1 night

- Diverts 11115 vehicles per night
  - 50% cars / small vans
  - 30% other goods vehicles
  - 20% HGV
- Distance
  - 9 Kilometres on M6 @ National Speed Limit
  - 14 kilometres on local roads at 20 – 40 mph

Vehicle	NSL (tonnes/km)	Local road (tonnes/km)
Car	2.36×10^5	3.29×10^4
Medium goods	5.26×10^4	7.10×10^4
Large goods	7.89×10^4	1.03×10^3

Route	Tonnes emitted
On motorway	43.4
Diverted	91.0
Saving per carriageway closed per night by using EMCC	**47.6**

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