

Solutions to Operation Stack: Freight Fluidity for the UK's Gateway to Europe

1 Executive Summary

- 1.1 International freight serves our national life and its scale is a direct barometer of national growth. With nearly 4 million HGV movements passing through Kent between Britain and mainland Europe last year, an average of 10,000 per day, any interruption to international freight fluidity quickly becomes a national problem but with the cost, both in economic and business terms, borne locally. After the Operation Stack event in January 2015, Kent County Council formed a multi-agency Task Force with public and private sector partners including Highways England, Kent Police, Eurotunnel, Port of Dover, ferry companies P&O and DFDS Seaways, the Freight Transport Association (FTA), the Road Haulage Association (RHA), freight logistics operator Europa Worldwide Logistics, lorry park operator Motis, and the district/borough councils of Ashford, Dover and Shepway, to identify how the impact could be better mitigated; and have identified (and started to deliver) potential solutions. However, funding and specific actions are required to fully implement the potential solutions and the Task Force calls on Government to play its part in delivering the solutions that are so vital for the UK's economic prosperity. Over 20 days of disruption from seven Operation Stack events in June and July 2015 is entirely unacceptable. There is an urgent need to act now.
- 1.2 Kent is the UK's Gateway to Europe, yet the benefits of international freight transport are hindered by interruption to freight fluidity during times of disruption at the Channel ports (Port of Dover and Eurotunnel). Freight movements between the UK and mainland Europe are forecast to increase dramatically, reflecting the economic recovery. The disruption to international freight fluidity needs a solution which results in the motorway network remaining open. Operation Stack is the tactical response to freight vehicles queuing on the motorway when the Port of Dover and/or Eurotunnel are temporarily closed or have reduced capacity, most likely due to bad weather, operational problems, industrial action, and recently, escalating security problems due to illegal migrant activity in Calais. Queuing freight vehicles along sections of the M20 motorway, which is closed to all other traffic, results in severe disruption across the County. The widespread traffic disruption not only prevents international freight fluidity with direct costs to business and national economies, but also affects local accessibility and business productivity; and undermines the perception of Kent as a place to do business and to visit. Driver welfare is also a key concern.
- 1.3 We can no longer ignore this problem. **While we will not be able to eliminate totally the root cause of many of the instances of Operation Stack, it must be a last not a first resort, and its impact minimised by making the operation itself more efficient. Where root causes can be addressed, such as the current security issues resulting from the illegal migrant activity, we welcome transnational action but more needs to be done to facilitate secure and fluid movement of traffic through Kent and the Channel ports.**
- 1.4 The multi-agency Task Force has together identified potential solutions needed to alleviate and reduce the impacts of Operation Stack. The partner agencies are already implementing (and funding)

those measures that are within our remit, for example, the Dover Traffic Assessment Project (TAP) and construction of additional HGV holding spaces at Eurotunnel and the Port of Dover. However, this does not deliver the package of potential measures identified as a full solution. Not all partners agree with all measures, most notably Eurotunnel is not supportive of off-highway lorry parks. However, the full range of potential measures is (in no order of priority):

In the short term:

- On-highway measures:
 - Better use of and more variable message signing (VMS), giving road users the accurate information that they need to make decisions about their journey
 - Updated communications strategy to facilitate:
 - Improved flow of information between partners once the Kent Resilience Forum (KRF) Media Cell¹ is activated
 - Improved use of joint messaging across the partnership
 - Clear signposting to up-to-date information
 - Better web content (including pre-prepared content that can be used at short notice) and more effective sign posting to content on partner sites
 - More extensive use of social media as a means of communicating live information
 - Use of traffic technology to automate freight vehicle flows within Operation Stack
- Off-highway measures:
 - Extra holding capacity at Port of Dover and Eurotunnel (currently under construction)

In the medium term:

- Off-highway measures:
 - Provision of increased lorry holding capacity adjacent to Stop 24 (M20 J11) as the only viable location for delivery in the short term. This option has the full support in principle of the Planning Authority, the private sector and landowner. This will enable an immediate response when Operation Stack is called while potential on-highway solutions can be put in place. Other HGV holding areas across the county will be investigated (use of off-highway lorry parks is not supported by Eurotunnel)
 - Network of lorry parks in Kent and across the country for phased approach to HGV holding (use of off-highway lorry parks is not supported by Eurotunnel)
 - Use of Intelligent Transport Solutions (ITS) to manage a 'virtual' Operation Stack queue
- On-highway measures:
 - Smart Motorway Implementation on the M20 (c. £130-195m) with possible:
 - 2 way contraflow on the M20 London-bound carriageway; and/or
 - Additional lane on M20 coast-bound carriageway to queue HGVs (c. £100m)

¹ Kent Resilience Forum (KRF) Media Cell consists of Kent Police, Highways England, Department for Transport, Kent County Council, Port of Dover, Eurotunnel, Road Haulage Association, Freight Transport Association, Dover District Council and Shepway District Council

- 1.5 Together we call on Government to act now to address those aspects that remain necessary to alleviating and reducing the impacts of Operation Stack.
 - 1.6 Specifically, we ask Government to:
 - Provide gap funding to enable delivery of the package of measures that provides a full solution. The partners call on Government to allocate funding to deliver solutions to the problems caused by Operation Stack.
 - 1.7 We call on Government to play its part and act to ensure international freight fluidity which is so vital for the UK's economic prosperity.
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Matthew Balfour, Chair of the European Gateway Strategic Delivery Group

31 July 2015

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2 Introduction

- 2.1 The Channel ports of Dover and Eurotunnel are the UK's gateway to mainland Europe and therefore a vital part of the UK's transport network. In 2014 almost 2.4 million cars and over 2.4 million freight vehicles passed through the Port of Dover²; and almost 2.6 million cars and over 1.4 million freight vehicles through Eurotunnel³. The total of almost 4 million freight vehicles is equivalent to 8 million TEU (Twenty foot Equivalent Units) which equates to a **tonne of cargo every second of every day** or 65 miles of trucks each way every day. In terms of average daily flows, over 6,500 Heavy Goods Vehicles (HGVs) pass through the Port of Dover and almost 4,000 per day through the Channel Tunnel. Therefore over **10,000 freight vehicles per day** pass through Kent on the Trans-European Network (TEN-T) to get to the Channel ports.
- 2.2 As the UK's Gateway to Europe, closure or reduction in capacity of the Channel ports results in severe disruption, not only to cross Channel traffic, but also to all traffic across Kent as Operation Stack is implemented on the M20 (Operation Stack is the tactical response to freight vehicles queuing on the motorway). Sections of the motorway are closed in order to hold queuing port-bound freight vehicles.
- 2.3 Recognising the significant impacts on the UK economy, key agencies have come together to address this national issue and ensure fluidity of freight movement through Kent, the UK's Gateway to Europe. The partners are:

Ashford Borough Council
DFDS Seaways
Dover District Council
Europa Worldwide Logistics (freight logistics operator)
Eurotunnel
Freight Transport Association (FTA)
Highways England
Kent County Council (KCC)
Kent Police
Motis (lorry park operator)
P&O Ferries
Port of Dover
Road Haulage Association (RHA)
Shepway District Council

3 Growth in freight movements through the UK's Gateway to Europe

- 3.1 Population and economic growth in the UK is expected to result in increasing goods movements in the future. Trends in freight transport, in particular road haulage, are closely aligned with Gross

² Port of Dover website accessed 29/04/2015 <http://www.doverport.co.uk/about/performance/>

³ Eurotunnel website accessed 29/04/2015 <http://www.eurotunnelgroup.com/uk/eurotunnel-group/operations/traffic-figures/>

Domestic Product (GDP). As a result, the economic recovery will continue to generate more demand for goods movements between the UK and mainland Europe⁴.

- 3.2 The latest Department for Transport (DfT) Road Traffic Forecasts (March 2015)⁵ using the National Transport Model predict a 22% increase in HGVs between 2010 and 2040⁶ across the UK's road network. Under a scenario of high GDP growth and low oil prices however, **HGV traffic could increase by much as 58% over this thirty year period.** Overall traffic growth on the Strategic Road Network is forecast to increase by between 29% and 60% depending on the growth scenario⁷. Across Kent's part of the Strategic Road Network, freight vehicles account for up to 41% of the traffic⁸. In Kent, freight traffic is concentrated on two strategic routes (M20/A20 and M2/A2) with the principal route to the Channel ports being the M20/A20 as part of the TEN-T Trans-European road network. Over the last 20 years, the number of goods vehicles travelling from Great Britain to mainland Europe has increased by 83%⁹.
- 3.3 The Port of Dover and the Channel Tunnel are nationally important facilities. As the shortest crossing point between the UK and mainland Europe, the Dover Strait ports (Dover, Channel Tunnel and Ramsgate) account for 69% of all goods vehicles or 89% of all powered goods vehicles that travel between the UK and mainland Europe¹⁰. This generates substantial HGV traffic movements through Kent. Approaches around Dover on the Strategic Road Network suffer from 'moderate' and 'regular' congestion, which by 2040 is forecast to increase to 'regular' or 'severe' congestion in peak periods even with the investment from Highways England's Roads Investment Strategy (RIS)¹¹.
- 3.4 **HGV movements through the Port of Dover in 2014 hit a record 2.4 million¹². This is an average of 6,593 per day.** In 2014 there were 36 days when the port handled over 9,000 vehicles in a day. This number is expected to increase with plans for improvements to the Port of Dover's Eastern Docks

⁴ Department for Transport (2011) Road Transport Forecasts 2011 <http://assets.dft.gov.uk/publications/road-transport-forecasts-2011/road-transport-forecasts-2011-results.pdf>

⁵ Department for Transport (2015) Road Traffic Forecasts 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

⁶ Central forecast scenario

⁷ Department for Transport (2015) Road Traffic Forecasts 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

⁸ Highways Agency (2014) Kent Corridors to M25 Route Strategy Evidence Report https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/364209/Kent_Corridors_to_M25_Evidence_Report.pdf

⁹ Department for Transport (2015) Statistical Release: Road goods vehicles travelling to mainland Europe: October to December 2014 (quarter 4) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/404778/roro-2014-04.pdf

¹⁰ Department for Transport (2015) Statistical Release: Road goods vehicles travelling to mainland Europe: October to December 2014 (quarter 4) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/404778/roro-2014-04.pdf

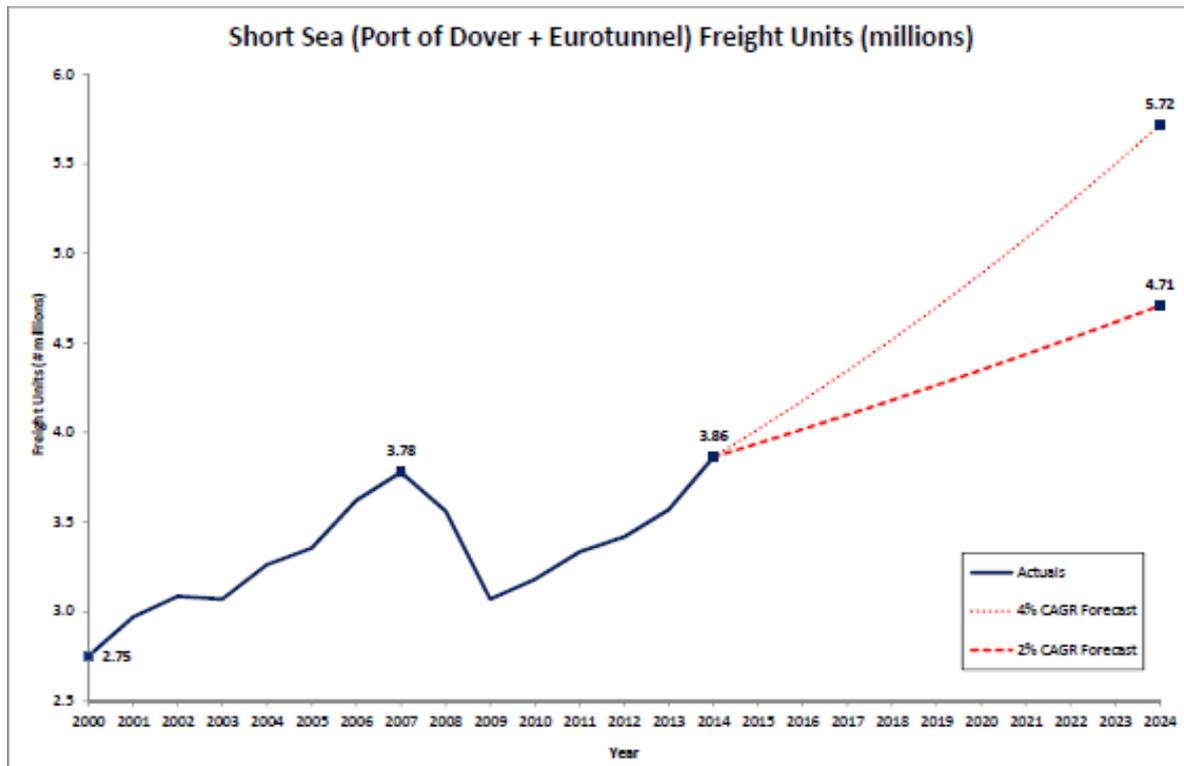
¹¹ Department for Transport (2015) Road Traffic Forecasts 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

¹² Port of Dover website accessed 29/04/2015 <http://www.doverport.co.uk/about/performance/>

and the Western Docks Revival which will enhance the capacity of the Port. The Port of Dover¹³ has a planning assumption for the market (Dover Strait ports) based on a long-run Compound Annual Growth Rate (CAGR) of between 2% and 4% (over the period 2000 – 2014 CAGR was 2.5%), although the market is currently growing much faster and in the short term this trend is expected to continue. Therefore **within the next decade there could be between 7,900 and 9,200 HGVs on average per day at the Port of Dover**. At peaks times there will be a significant number of days when the port handles in excess of 11,000 HGVs per day.

- 3.5 Significant growth in freight movements is also expected though the Channel Tunnel. Eurotunnel already handles significant HGV movements as 1,440,214 trucks used the Channel Tunnel shuttle service in 2014¹⁴, the equivalent of **3,957 per day**. **Future growth of 30% is predicted for Eurotunnel for the next 5 years between 2015 and 2020 and between 20-25% growth between 2020 and 2025, equivalent to 6,400 HGVs per day by 2025**. There are plans to increase the frequency of shuttle services to cope with this additional future demand.
- 3.6 **The current daily demand at both the Port of Dover and the Channel Tunnel is over 10,000 HGVs and this is forecast to increase to between 14,000 and 16,000 per day in the next decade**. These are average figures and in peak periods these flows could be even higher. The forecast aligns with the **Port of Dover¹⁵ forecast that over the longer term horizon the cross-channel market is expected to be somewhere in the order of 4.7 - 5.7million freight vehicles by 2024** (Figure 1).

Figure 1 Port of Dover Forecasts for Short Sea (Port of Dover and Eurotunnel) Freight Units



¹³ Godden, T. Port of Dover – email correspondence with Ratcliffe, J. Kent County Council 12/05/2015

¹⁴ Eurotunnel website accessed 29/04/2015 <http://www.eurotunnelgroup.com/uk/eurotunnel-group/operations/traffic-figures/>

¹⁵ Godden, T. Port of Dover – email correspondence with Ratcliffe, J. Kent County Council 12/05/2015

- 3.7 There is the potential for rail freight to absorb some of this growth and EU policy on rail freight is aimed at opening up the market to more competition and integrating rail freight infrastructure. A report for the European Parliament highlights why shippers prefer road to rail and provides recommendations for a strategy to incentivise the use of rail¹⁶. All three of the principal rail freight routes through Kent (HS1, Swanley-Maidstone-Ashford and Redhill-Tonbridge-Ashford) underperform in terms of the volume of freight carried. HS1 has a loading gauge which is unique in the UK, but gradients limit the size of freight trains that are able to use this route. The other two principal rail freight routes through Kent have a loading gauge that also imposes limits on the type of freight that can be transported. Delivery of the Network Rail Kent Gauge Study would be invaluable in taking rail freight options forward and Government should ensure that this is completed as soon as possible. However, **substantial investment in the rail network is needed before significant modal shift from road to rail could occur**, including the need for strategic rail to road freight interchanges across the UK and mainland Europe for onward distribution by road.
- 3.8 The composition of international hauliers transporting goods between the UK and mainland Europe has changed dramatically in the last decade. According to the latest DfT statistical release¹⁷ UK registered hauliers made up the largest group (23%) in 2004 travelling from Great Britain to mainland Europe, which has fallen to second place by 2014 (16% of total vehicles). Polish registered vehicles are now the largest group (19%) making cross Channel trips in 2014, having increased from just 3% of vehicles a decade earlier. Dutch, German, French, Spanish, Belgian and Italian vehicles travelling between the UK and mainland Europe have all declined while Romanian, Hungarian and Czech Republic registered vehicles now make up a greater proportion of vehicles than they did 10 years ago. These statistics show that freight movement through Kent, is in its very nature international, and when there is disruption to fluidity it is a trans-European issue.

4 Problems at the UK's Gateway to Europe

- 4.1 **As an island nation, the channel crossings of the Port of Dover and the Channel Tunnel are essential, along with the connecting motorways and trunk roads to the UK's gateway to Europe and vital to the UK's supply chain.** Interruption to freight fluidity on the Channel crossings and sheer volume of traffic results in disruption which is manifested in two separate but inter-related ways:
- 1) Queuing on the A20 in and around Dover when demand exceeds the capacity of the Port of Dover to process and hold freight vehicles prior to embarkation.
 - 2) Queuing on the M20 as a result of temporary closure or reduced capacity of the Channel Ports (Eurotunnel and/or the Port of Dover).

¹⁶ EU Director General for Internal Policies, Policy Department B: Structural and Cohesion Policies 0 Transport and Tourism (2015) 'Freight on Road: Why EU Shippers Prefer Truck to Train'
http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540338/IPOL_STU%282015%29540338_EN.pdf

¹⁷ Department for Transport (2015) Statistical Release: Road goods vehicles travelling to mainland Europe: October to December 2014 (quarter 4)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/404778/roro-2014-04.pdf

- 4.2 In the case of 1), the regular occurrence of HGVs queuing on the A20 on approach to the Port of Dover, due to the number of arriving vehicles exceeding the capacity of the port to process them at certain times, results in large numbers of queuing freight vehicles on the main arterial road through Dover. This causes congestion problems for non-port traffic and exacerbates the problem of severance that the A20 causes between the harbour and the town centre. Poor air quality results as well as a loss of business for local traders and negative impacts on the tourism industry. The introduction of border exit checks in April 2015 has affected the fluidity of traffic flow through the port.
- 4.3 Interruption to the fluidity of international freight movement due to the reason outlined in 2), results in the implementation of Operation Stack. The parking of freight vehicles along sections of the M20 motorway, which is then closed to all other traffic, results in severe traffic disruption within the County. The wide spread traffic disruption not only prevents international freight fluidity but also affects local accessibility and business productivity; and hinders the perception of Kent as a place to do business.
- 4.4 Up until the Operation Stack events in July 2015, there are three phases of Operation Stack (illustrated in Figure 2):
- Phase 1 closes coast-bound traffic between Junctions 11 (Hythe) and 12 (Cheriton), providing capacity for 424 HGVs to park;
 - Phase 2 closes coast-bound traffic between Junctions 8 (Maidstone /Hollingbourne) and 9 (Ashford), providing capacity for an additional 2,340 HGVs to park; and,
 - Phase 3 closes London-bound traffic between Junctions 8 and 9, providing further capacity for HGVs to park. This phase was first used in July 2015.
- 4.5 The Operation Stack events in July 2015 required the implementation of a Phase 4 between Junction 9 (Ashford) and 11 (Hythe) coast-bound and the design of a Phase 5 between junction 11 and 9 on the London-bound carriageway as a contingency which was not implemented. A length of motorway of approximately 23 miles between Junction 8 and 11 (36 miles with inclusion of the section of London-bound carriageway) was used to hold up to 7,000 HGVs taking up to 36 hours to move through the system. As result, Kent Police devised a new phasing for Operation Stack organised into stages:
- **Stage 1** = J8 to J9 coast-bound. Short term activity, i.e. wildcat strikes or weather not lasting more than a few hours and where threat/risk and freight numbers are low. (1,050 each queue – capacity 2,100)
 - **Stage 2** = J8 to J11 coast-bound. Longer term activity and/or where freight predications are high. (adds 750 to each queue – capacity is 3,600) (could move towards J12 when the tunnel works are completed).
 - **Stage 3** = J9 to J8 London-bound. Escalation/Long term problems (1,050 each queue – capacity now 5,700)

- **Stage 4** = J11 to J8 London-bound. Increase of capacity by moving Stage 3 further coast bound. (adds further 750 to each queue – capacity now 7,200).

Figure 2 Phases of Operation Stack (pre-July 2015)

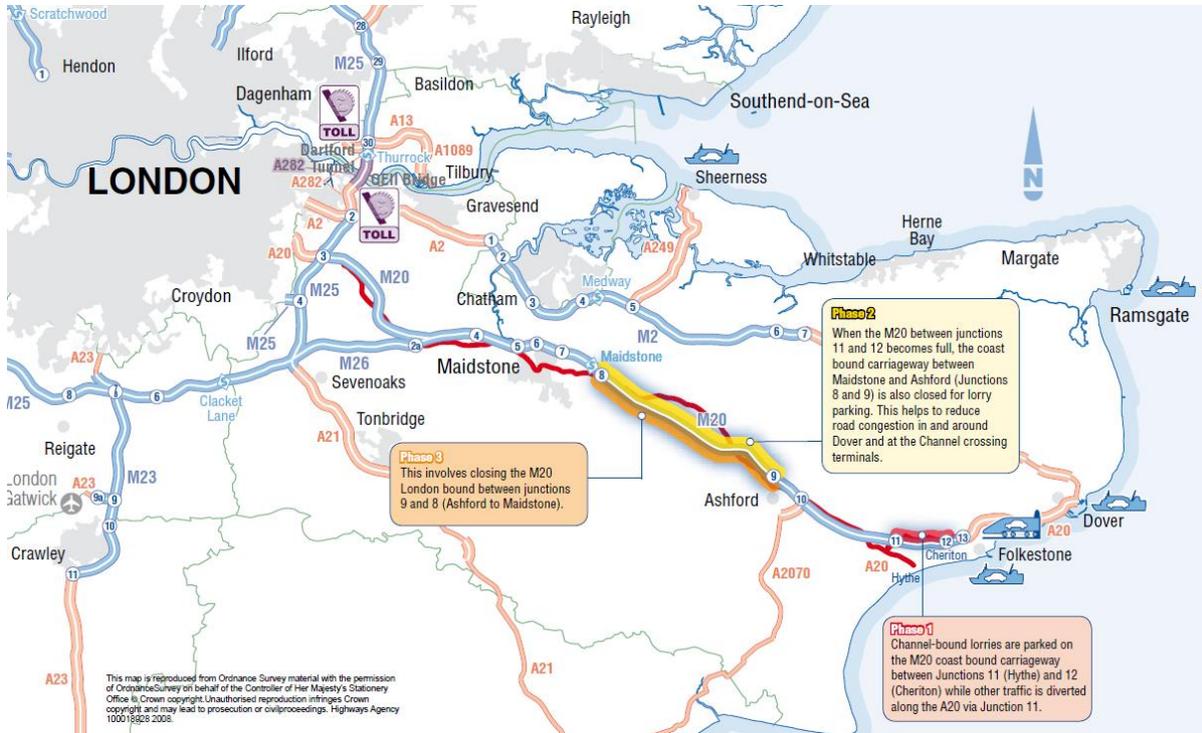


Figure 3 Photo of Operation Stack Stage 1



4.6 Phase 2 of Operation Stack had been implemented 48 times between 1997 and January 2015 with an average duration of 5-6 days a year. Operation Stack (shown in Figure 3) can often occur

spontaneously and at short notice. As a result, the number of occurrences of Operation Stack in the future cannot be predicted.

- 4.7 As part of the changing freight industry, operating practices have also changed substantially with the logistics management centres for each company often instructing drivers to get into the queue for the ports, and hence make the Operation Stack queue longer, rather than wait at service stations across the country as was often previously the case. This is also due to foreign trucks returning empty to mainland Europe and therefore making a “dash to the coast” to minimise non-productive time.
- 4.8 Phase 2 of Operation Stack was implemented between 21st and 24th January 2015 due to power problems at Eurotunnel and a fire in the tunnel, combined with a reduction in capacity at the port of Dover with several ships out of service for annual maintenance. This caused massive disruption across Kent with traffic queued as far back as Junction 4 of the M20 to the west of Maidstone. This meant that not only was the M20 closed between Junctions 8 and 9 but from Junction 4 to 8 all lanes were at a standstill with vehicles taking four or more hours to get off the motorway.
- 4.9 The Operation Stack events in late June and early July brought Kent to a standstill as it was implemented seven times in five weeks; totalling over 20 days of disruption with up to 36 miles of motorway (both carriageways) used to queue up to 7,000 HGVs. Operation Stack was implemented on 23rd – 24th June (2 days), 29th June – 3rd July (3 days), 4 July (1 day), 7th – 11th July (4 days), 15th – 19th July (4 days), 22nd – 26th July (5 days) and 27th July – to date. This totals nine Operation Stack events so far this year (also on 15th January and 21st – 24th January). The June and July events were initially the result of industrial action by ferry workers at the Port of Calais which was then exacerbated by migrants trying to board slow moving trucks and trespassing in the Channel Tunnel. This resulted in seven deaths and several serious injuries. Technical problems with the tunnel and reduced ferry services alongside the ongoing security problems due to illegal migrant activity meant that Operation Stack was in place for prolonged periods of time.
- 4.10 During the implementation of Operation Stack, non-HGV traffic movements are diverted from the M20 onto Kent County Council’s road network via the A20. This results in large volumes of non-freight traffic on the A20 which is predominantly single carriageway between Maidstone and Ashford. Consultants MVA (2009)¹⁸ estimated that 320,000 vehicle km are transferred onto the diversion routes during Operation Stack. These additional traffic movements on the local road network result in severe congestion, delays and unreliable journey times to business and non-business trips across East Kent, with negative environmental, social and economic impacts. The M2/A2 is also a diversionary route for the strategic road network.
- 4.11 This lack of resilience in Kent’s transport network is of concern given the national strategic importance of the Channel corridor as the UK’s Gateway to Europe and the Country’s dependence on the Dover Strait ports for trade. Improved resilience in the Strategic Road Network through the enhancement of the alternative A2/M2 route would also provide a better diversionary route during times of disruption. Dualling of sections of the A2 on approach to Dover and around Lydden is needed as well as junction enhancements with the M2 at Junction 7 Brenley Corner. The creation of

¹⁸ MVA (2009) Economic Impact Assessment of Operation Stack

a new Lower Thames Crossing to the east of Gravesend would provide a new strategic route via the M2/A2 from the Channel ports to the Midlands and the North. Further resilience could be provided through the use of alternative ports if other cross-channel routes could be operated commercially.

5 National and local impacts

- 5.1 The UK economy is dependent on trade with the EU; therefore any interruption to international freight fluidity through the UK's Gateway to Europe compromises the UK's economic growth. For the haulage contractor it has been estimated that it costs £1 per minute in lost revenue whilst the vehicle is held beyond the normal legal down time¹⁹. Therefore the estimated cost to the wider haulage industry delayed due to port disruption (£60 per hour, taking 36 hours to work through the Stack queue equates to £2,160 per vehicle, and at its peak with 7,000 HGVs in the queue) is **£15,120,000 per peak stack event**.
- 5.2 The cost of the delay on goods delivery and company reputation, the opportunity cost of the HGV not being able to take on other work as well as the driver's time and any potential penalty as a result of missing just-in-time delivery slots, rapidly accumulates cost for the freight industry when Operation Stack is enacted. The costs to the UK and European economies are significant from each instance of Operation Stack.
- 5.3 The road freight industry generated £22.9 billion in 2013 and contributed £9.4 billion to the UK economy, employing 285,000 HGV drivers across 38,858 enterprises²⁰. Of the UK's trading partners, seven of the top ten countries that the UK imports from, and 6 of the top 10 markets that the UK exports to, were from mainland Europe in 2013²¹; therefore road freight is essential for trading with our near European neighbours. The road freight industry is vital to the UK economy and yet every time Operation Stack is enacted, the impacts to this sector and hence the national economy are considerable. The value of trade through the Port of Dover was estimated at around £90 billion in 2013, which added to the Channel Tunnel and current values would suggest that **the total value of trade through the Channel ports is close to £200 billion p.a.**
- 5.4 In terms of the costs of managing Operation Stack, **Kent Police** has been leading Operation Stack for in excess of 13 years, despite it not being a Police role to manage congestion, public safety is a concern and the operation is declared an emergency under the Civil Contingencies Act 2004.
- 5.5 A number of tactics are employed dependant on the situation from slip road closures to rolling roads. At present, the four stages of Operation Stack have the following capacity and resource requirements: -

¹⁹ Hardy, R. (2015) Operation Stack: Treat the effect or the cause?

²⁰ Department for Transport (2015) Statistical Release: Road freight economic, environmental and safety statistics https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/405225/road-freight-economic-environmental-and-safety-statistics-2013.pdf

²¹ The Freight Transport Association (FTA) in association with PwC UK (2014) The Logistics Report 2014 <http://www.pwc.co.uk/transport-logistics/assets/lr14-report-web-060514.pdf>

Stage	Detail	Capacity	Resourcing	Cost
Stage 1	Closure of the M20 junctions 8-9 Coast Bound	2,100 Lorries	1 Insp, 1 PS 21 PCs	= £906 = £15,047
Stage 2	Closure of the M20 junctions 8-11 Coast Bound	1,500 Lorries	1 PS 12 PCs	= £906 = £8,598
Stage 3	Closure of the M20 junctions 9-8 London Bound	2,100 Lorries	1 Insp, 1 PS 19 PCs	= £906 = £13,614
Stage 4	Closure of the M20 junctions 11 – 8 London Bound	1,500 Lorries	1 PS 12 PCs	= £906 = £8,598

Costs are for a 24 hour period; costs detailed reflect overtime only (Inspectors do not receive overtime); the total capacity is 7,200 if all stages were to be placed on.

5.6 Operation Stack comes at significant cost to the Force. In the period 2010-2013 it cost Kent Police £140,000 and deprives the county of roads policing resources for the duration of the operation. Essentially, every time Operation Stack is implemented, all roads policing resources and others are diverted to Stack duties and other patrols are moved out of towns in order to take responsibility for the policing of the motorway network. Between 23rd June and 6th July, with two Operation Stack events totalling 5 days, costs to public agencies included²²:

- Kent Police £330,000 (plus £11,500 immigration costs)
- Kent Fire and Rescue £26,300
- Kent County Council £41,710
- Highways England £65,923
- NHS England £16,800
- East Kent Hospitals University Foundation Trust £29,200

Total cost £521,433

5.7 Driver welfare is also a serious concern with drivers stuck in their cabs for many hours without their own heating and cooling systems, food and water, and toilet and washing facilities; therefore emergency temporary welfare facilities are provided by Kent County Council at a cost to the taxpayer. Throughout the week of 29th June, 7,100 meals were provided along with over 40,000 litres of bottled water. There is also a cost to the clean-up of litter and waste left by drivers, which is borne by Highways England and KCC. These problems are not contained to the motorway as drivers attempt to find alternative routes to the ports and take statutory breaks in lay-bys and road verges across the county.

5.8 Operation Stack not only has significant impact on the national economy, it also causes direct consequences for the Kent economy through the loss of productivity. Operation Stack itself creates a negative image of Kent, deterring inward investment by the private sector. Kent's Business Advisory Board states the impact of Operation Stack on their businesses is substantially negative and overall the perception is that Kent is "not open for business", a result of the national publicity Operation Stack receives with significant negative implications for the Kent economy. The perception is that East Kent is the most severely affected and this is where inward investment is

²² Operation Fennel Briefing Paper, Kent Police, 9 July 2015 v0.6 OFFICIAL SENSITIVE

required the most in order to help tackle high unemployment rates and lower Gross Value Added (GVA) relative to the wider South East region²³.

5.9 Traffic disruption causes the loss of employee hours, delays to business deliveries and local service provider cancellations²⁴. It causes considerable journey time delays and journey time unreliability. It also impacts on the tourism industry both within Kent and delays to tourist traffic between the UK and France. In a survey conducted by Visit Kent of 95 businesses, 82% said they had been impacted by Operation Stack and 37% had definitely lost business. Tourism is worth £3.4bn to the Kent economy and supports over 65,000 jobs. There is also a direct cost to Kent businesses that cannot carry out their daily work due to difficulties accessing the business itself or its customers. This is particularly so for businesses located on or close to the A20 diversion route.

5.10 Estimated costs to the Kent economy from the disruption due to Operation Stack²⁵:

- Around £980,000 per day from delays to journey times (based on an analysis of travel-to-work flows), equivalent to £4,900,000 over a five day period.
- Costs to the tourism industry caused by a reduction in visitor numbers estimated at a daily cost of around £285,000, equivalent to £1,425,000 over a five day period (costs to the industry could be greater, if potential visitors are discouraged based on negative perceptions of the county).
- Costs to the road haulage industry, directly caused by delays to freight movements by the reduced cross-Channel services, rather than the operation (i.e. freight would still be delayed even if there was a different holding solution). Given that most of the freight held on the operation does not originate in Kent, the cost mostly accrues elsewhere. However, it is estimated that there is a £180,000 cost to the Kent-based industry, equivalent to £900,000 over a five day period.

This yields a total daily cost to the Kent economy of £1,445,000, equivalent to £7,225,000 over a five-day period.

5.11 During Operation Stack conditions, the stop/start shunting movement of vehicles along the M20 results in a higher level of emissions than normal traffic conditions²⁶. This increase in emissions from queuing HGVs on the M20 during Operation Stack is of particular concern due to the proximity of the M20 to the Kent Downs's AONB. Part of the M20 is situated within the AONB whilst other sections of the motorway run in close proximity to it. Parking of HGVs on the M20 affects the amenity value and visual impact of the area²⁷. In addition, the diversion of other non-port traffic onto the local road network also causes increased emissions along other routes in the County. As a result, communities

²³ Office of National Statistics (2014). Regional Labour Market: JSA01- Claimant County for local and unitary authorities. June 2014
<http://www.ons.gov.uk/ons/datasets-and-tables/index.html?pageSize=50&sortBy=none&sortDirection=none&newquery=unemployment+2014+essex&content-type=Reference+table&content-type=Dataset>

²⁴ MVA (2009) Economic Impact Assessment of Operation Stack

²⁵ Operation Fennel Briefing Paper, Kent Police, 9 July 2015 v0.6 OFFICIAL SENSITIVE

²⁶ MVA (2009) Economic Impact Assessment of Operation Stack

²⁷ MVA (2009) Economic Impact Assessment of Operation Stack

along the diverted routes suffer from poorer air quality and increased levels of noise pollution as the environment and quality of life are diminished.

5.12 Operation Stack has impacted on residents and road users across many parts of the east of the county. This has been identified from information received from local communities and parish councils, as well as complaints received by Kent Police from frustrated road users.

Communities more significantly affected are:

- The Residents of Dover –Traffic disruption and vehicle nuisance, also impacting on local businesses. In particular residents of Aycliffe in Dover reporting traffic disruption and vehicle nuisance (horns sounding and blocking Aycliffe roundabout) and littering including human waste.
- Normal road users using the M20 & A20 including Maidstone, Ashford and Folkestone.
- Communities where the M20 diversion has been in place, affecting many village communities and businesses.
- M2/A2 road users making alternative arrangements to reach Dover, including lorries trying to avoid Operation Stack queuing.

6 Local solutions

6.1 The Task Force, recognising that real, deliverable solutions are needed, has together worked on addressing the immediate issue of freight traffic queuing in Dover.

6.2 **Dover Traffic Assessment Project (TAP)** has been designed and delivered by Highways England, Kent Police and the Port of Dover to prevent queuing freight vehicles spilling out of the port and causing congestion through Dover. Port bound freight vehicles are now held at the Western Heights roundabout on the A20 outside of the town by temporary traffic signals operated by the Port of Dover when the processing capacity of the port is exceeded by the rate of arriving goods vehicles. Traffic is sorted by signage on the A20 on the approach to Dover with port traffic directed to the inside lane to join the queue and other traffic passing on the outside lane with a 40mph speed restriction enforced by average speed cameras. Highways England is assessing whether TAP can be implemented in the longer term with smart style messaging and traffic management. The result is that queueing freight traffic has been removed from within the town, reducing congestion and improving air quality, thus allowing improved access to Dover for residents, business and tourism. Dover District Council urges that these temporary arrangements are made permanent. Dover TAP is an example of local stakeholders working together to address a local problem.

6.3 Dover TAP can hold approximately 500 HGVs on the A20. However, if the queue exceeds the length of the A20 from the Western Heights roundabout to the Roundhill Tunnel (just east of Folkestone and Junction 13 of the M20) then implementation of Operation Stack Stage 1 (Junctions 8 to 9) would be considered. Dover TAP will not be used at the same time as Operation Stack, which is

considered as an emergency response to public safety and the issues associated with freight vehicles queuing on the Strategic Road Network.

7 National solutions

7.1 In order to limit the economic impact of the current arrangements for Operation Stack the M20 must remain open in times of interruption to international freight fluidity. Potential solutions should meet the following objectives:

- Avoids the need for the implementation of Operation Stack in its current form unless as a last resort
- Maintains maximum free-flow of traffic through Eurotunnel, the Port of Dover, the Strategic Road Network (SRN) and the Local Road Network (LRN)
- Prioritises free-flow on most critical parts of SRN/LRN e.g. to hospitals and other key services
- Adheres to environmental legislation
- Achieves Value for Money (VfM) for taxpayers

7.2 The Task Force has investigated a number of potential options including:

- On-highway measures:
 - Better use of variable message signing (VMS)
 - Use of traffic technology to automate freight vehicle flows within Operation Stack
 - Live traffic lanes on the M20 coast-bound carriageway
 - 2 way contraflow on the M20 London-bound carriageway
 - Smart Motorway implementation on the M20
 - Additional lane on M20 coast-bound carriageway to queue HGVs
 - Relocation of Operation Stack to an alternative motorway location, e.g. M20 J1-3 or M26
- Off Highway measures:
 - Extra holding capacity at Eurotunnel and the Port of Dover
 - Provision of increased lorry holding capacity adjacent to Stop 24 (M20 J11) (other HGV holding areas across the county will be investigated)
 - Network of lorry parks in Kent and across the country for phased approach to HGV holding
 - Use of Intelligent Transport Solutions (ITS) to manage a 'virtual' Operation Stack queue
 - Updated communications approach, facilitating more effective delivery of information to the public and freight operators. Communications focussed on minimising disruption, and to include information about estimated length of delays both at the ports and the queue within Operation Stack
 - The waiver of fees at service areas to encourage drivers to park there whilst the disruption is taking place

Appendix A details options investigated by Highways England.

- 7.3 Costs are still being estimated for the on-highway solutions that are being developed by Highways England along with the safety implications of the options.
- 7.4 Cost estimates based on similar schemes put the average cost of an extra lane on the motorway at around £7.5 million per mile, meaning that approximately £100 million is needed for an additional lane to queue HGVs on the M20 between J8-9 coast-bound, excluding the cost of any land, assuming that no Compulsory Purchase Order (CPO) is required and there are no retaining structures, embankments and bridges. A 'Smart Motorway J8-9' using the hard shoulder for queuing and possible contraflow on the opposing carriageway, with a cost in the range of £10-15 million per mile, would require around £130-195 million investment.
- 7.5 An off-highway solution of an Operation Stack Holding Area on land adjacent to Stop24 is estimated at around £8 million (excluding land). However, with a capacity for parking only around 1,000 HGVs this would only provide a buffer for a few hours of HGV traffic before other solutions would also be needed. Other HGV holding areas across the county will be investigated in order to provide extra holding capacity. Eurotunnel do not support this option.
- 7.6 A combination of on and off-highway measures are likely to be needed to accommodate the numbers of HGVs (7,000) that were experienced in the recent Operation Stack events to accommodate the average daily flows of around 10,000 HGVs; and the forecast increase to an average of up to 16,000 per day over the next decade.
- 7.7 The Task Force has assessed the options and concluded that in order to mitigate the impact of Operation Stack a phased approach should be pursued as follows:

Pre-Stack:

1. Utilise extra holding capacity (currently under construction) at the Port of Dover and Eurotunnel
2. Use VMS to give accurate information about delays to inform driver choices and therefore reduce the numbers of HGVs travelling to Kent (and joining a queue)
3. Use of ITS technology to manage a 'virtual' queue at locations outside of Kent and across a network of lorry parks (longer term – if technology and driver compliance is possible) (use of off-highway lorry parks is not supported by Eurotunnel)
4. Use of Dover TAP (to manage disruption at the Port of Dover) – keeps A20 open

During Stack:

5. Use a secondary TAP to J11 of M20 to deal with Port of Dover and/or Eurotunnel (linking TAP to Operation Stack) – keeps M20 open
6. Direct HGVs to Operation Stack Holding Area at M20 J11 – land adjacent to Stop24 – keeps M20 open (other HGV holding areas across the county will be investigated) (use of off-highway lorry parks is not supported by Eurotunnel)
7. Smart Motorway M20 J8-9 to queue HGVs on the hard shoulder, possible additional lanes for HGV queuing with lanes closed for safety buffer and/or contraflow on opposing carriageway – keeps M20 open
8. Possible extension of Smart Motorway if further capacity is required – keeps M20 open

Post-Stack:

9. Efficient return to normal conditions on the M20

- 7.8 However, delivery of these potential solutions to a national problem requires Government help and support.
- 7.9 The Task Force partners are fully committed to playing their part to build resilience into the system and to minimise the extent of the disruption caused when there is an interruption to the movement of international freight. The following actions are already being delivered:
- Highways England, Kent Police and Port of Dover are working closely on the trial and assessment of the Dover TAP initiative
 - Highways England and Kent Police have reviewed how the existing system of closure of M20 J8-9 can be managed more efficiently to minimise the impact of Stack in the very short term until more effective measures are identified and implemented
 - Highways England have investigated potential on-highway options that could be implemented to manage Operation Stack traffic
 - Eurotunnel is currently constructing a holding area capable of catering for an additional 300 HGVs within their site. This will provide a buffer of approximately two and a half hours of traffic flow through the Channel Tunnel
 - Port of Dover is currently implementing a traffic management initiative that will provide additional holding area for 220 HGVs within their site
 - Kent County Council are working closely with the private sector to explore options of bringing forward both additional overnight lorry parking as well as overflow provision that could cater for Operation Stack traffic
 - Kent County Council has commissioned work to better understand how HGV movements can be better managed through use of Intelligent Transport Systems (ITS) when Operation Stack is in place
 - RHA and FTA are working with their members and their European counterparts to improve information around options when international freight movement is disrupted and convey how the logistics operations can better respond to such disruption

8 Conclusion – Government action to deliver a solution to Operation Stack

- 8.1 International freight movements have grown significantly since the recession and are forecast to continue to grow and at accelerated rates. Government assistance and financial support is needed to deliver the solutions to ensure the fluidity of international freight movements for the benefit of the UK economy.
- 8.2 The current arrangement of queuing HGVs on the M20 with Operation Stack and the closure of the motorway to all other traffic is unacceptable due to the disruption that it causes and its social, environmental and economic costs. Operation Stack in its current form must be a last not first resort.
- 8.3 A multi-agency task group consisting of Kent County Council, Highways England, Kent Police, Eurotunnel, Port of Dover, ferry companies P&O and DFDS Seaways, the Freight Transport Association, the Road Haulage Association, freight logistics operator Europa Worldwide Logistics,

lorry park operator Motis, and the district/borough councils of Ashford, Dover and Shepway, have all come together to address this issue.

- 8.4 The multi-agency Task Force has together identified potential solutions needed to alleviate and reduce the impacts of Operation Stack. Not all partners agree with all measures, most notably Eurotunnel is not supportive of off-highway lorry parks. However, the full range of potential measures is (in no order of priority):

In the short term:

- On-highway measures:
 - Better use of and more variable message signing (VMS), giving road users the accurate information that they need to make decisions about their journey
 - Updated communications strategy to facilitate:
 - Improved flow of information between partners once the Kent Resilience Forum (KRF) Media Cell²⁸ is activated
 - Improved use of joint messaging across the partnership
 - Clear signposting to up-to-date information
 - Better web content (including pre-prepared content that can be used at short notice) and more effective sign posting to content on partner sites
 - More extensive use of social media as a means of communicating live information
 - Use of traffic technology to automate freight vehicle flows within Operation Stack
- Off-highway measures:
 - Extra holding capacity at Port of Dover and Eurotunnel (currently under construction)

In the medium term:

- Off-highway measures:
 - Provision of increased lorry holding capacity adjacent to Stop 24 (M20 J11) as the only viable location for delivery in the short term. This option has the full support in principle of the Planning Authority, the private sector and landowner. This will enable an immediate response when Operation Stack is called while potential on-highway solutions can be put in place. Other HGV holding areas across the county will be investigated (use of off-highway lorry parks is not supported by Eurotunnel)
 - Network of lorry parks in Kent and across the country for phased approach to HGV holding (use of off-highway lorry parks is not supported by Eurotunnel)
 - Use of Intelligent Transport Solutions (ITS) to manage a 'virtual' Operation Stack queue
- On-highway measures:
 - Smart Motorway Implementation on the M20 (c. £130-195m) with possible:
 - 2 way contraflow on the M20 London-bound carriageway; and/or
 - Additional lane on M20 coast-bound carriageway to queue HGVs (c. £100m)

²⁸ Kent Resilience Forum (KRF) Media Cell consists of Kent Police, Highways England, Department for Transport, Kent County Council, Port of Dover, Eurotunnel, Road Haulage Association, Freight Transport Association, Dover District Council and Shepway District Council

- 8.5 The partner agencies are already implementing (and funding) those measures that are within our remit, for example, the Dover Traffic Assessment Project (TAP) and construction of additional HGV holding spaces at Eurotunnel and the Port of Dover. However, this does not deliver the package of potential measures identified as a full solution. Together, we therefore call on Government to act now to address those aspects that remain necessary to alleviating and reducing the impacts of Operation Stack.
- 8.6 Specifically, we ask Government to:
- Provide gap funding to enable delivery of the package of measures that provides a full solution. The partners call on Government to allocate funding to deliver solutions to the problems caused by Operation Stack.
- 8.7 We call on Government to play its part and act to ensure international freight fluidity which is so vital for the UK's economic prosperity.

Matthew Balfour, Chair of the European Gateway Strategic Delivery Group

31 July 2015

APPENDIX A: Highways England – On-highway options assessment

On-highway and technology interventions

Option	Commitment	Recommendation
<p>Option 1: Immediate actions to improve freight traffic flows through the existing Operation Stack phases.</p>	<p>Currently being met from internal Highways England resource.</p>	<p>Outcome: This work will continue.</p> <p>Work is already in progress through the Tactical and Co-ordinating Group lead by Kent Police.</p>
<p>Option 2: Ensure the effective use of strategic messaging and the use of variable message signing on the strategic road network.</p>	<p>Currently being met from internal Highways England resource.</p> <p>Additional funding resource may be needed if a more detailed study is required.</p>	<p>Outcome: This work will continue.</p> <p>Highways England keeps the effectiveness of its variable message signing strategy for Operation Stack under constant review.</p> <p>Work will be undertaken to identify any limitations in the current system, such as limitations in sign locations or capacity for messages, so that these can be considered for resolution. This may require a funded study.</p>

Option	Commitment	Recommendation
<p>Option 3: Investigate use of traffic technology to automate freight vehicle flows within Operation Stack, reducing the need for human resource on the road.</p>	<p>Highways England will seek funding for a Traffic Management and Technology feasibility study to investigate how systems, such as those being used at the Dartford Crossing and on the A20 near Dover, could be used to better manage freight traffic flows within Operation Stack.</p>	<p>Outcome: Highways England will seek funding for a Traffic Management and Technology feasibility study for Options 3, 4 and 5.</p> <p>Automated traffic management would be an intermediate step, to better manage traffic flows while the possibility of full smart motorway is progressed.</p>
<p>Option 4: Investigate feasibility of opening live traffic lane/lanes on the M20, so that non-freight traffic could run alongside queuing freight traffic within Operation Stack:</p> <p>Option 4.1: With no extra lane-width capacity.</p> <p>Option 4.2: As part of the creation of smart motorway.</p> <p>Option 4.3: With creation of a new adjacent parking strip, or 'smart lane' alongside M20 carriageway.</p>	<p>Highways England will request funding for a feasibility study to investigate this use of the carriageway.</p>	<p>Outcome: Highways England will seek funding for a Traffic Management and Technology feasibility study to cover Options 3, 4 and 5.</p> <p>The option of running live traffic alongside parked Operation Stack traffic on a standard carriageway, without additional lane-width capacity to reduce the risk of collisions, is less likely to be progressed, but we will review the feasibility of this option.</p> <p>A smart motorway layout with additional lane capacity might allow for mixed traffic use, subject to safety considerations being addressed. Smart motorway is investigated at Option 7, and a parking strip or smart lane at Option 8.</p>

Option	Commitment	Recommendation
<p>Option 5: Contraflow or tidal flow of two-way traffic on M20 London-bound carriageway, whilst Operation Stack is maintained on the coast-bound carriageway.</p>	<p>Highways England will request funding for a feasibility study to investigate this use of the carriageway.</p>	<p>Outcome: Highways England will seek funding for a Traffic Management and Technology feasibility study to cover Options 3, 4 and 5.</p>
<p>Option 6: Adaptation of the hard shoulder to increase capacity of M20 carriageways, without technology.</p>		<p>Outcome: To not progress traffic use of hard shoulders, unless as part of a smart motorway solution.</p> <p>Hard shoulder use would be best controlled by signalling technology, and therefore the safest and most effective way to do this would be through adaptation to smart motorway.</p>
<p>Option 7: Smart motorway for M20 Jct 8 –9 and 9-11a</p>	<p>Highways England will investigate development of a smart motorway scheme for M20 Jct 8-9 and M20 Jct 9-11a.</p> <p>Investigation would include feasibility study to consider whether smart motorway technology could be adapted to allow for safe two-way traffic operation (contraflow or tidal flow), or to allow queuing and moving traffic on the same carriageway.</p>	<p>Outcome: That will be further investigated.</p> <p>It is recommended that work is undertaken to assess the feasibility of smart motorway on the M20, particularly between junctions 8 – 9 (the section most frequently used by Operation Stack), and also for the M20 from junction 9-11a, since this could benefit traffic flows both during Operation Stack and during normal traffic conditions.</p>

Option	Commitment	Recommendation
<p>Option 8: Construction of an additional parking strip or 'smart' lane on alongside M20 carriageway in order to queue HGVs with separation from mainline traffic.</p>	<p>Highways England will request funding for a feasibility study to investigate this use of the carriageway.</p>	<p>Outcome: Highways England will seek funding for a feasibility study into this option.</p> <p>The length and continuity of an additional lane would depend on designing the lane around existing motorway structures and availability of land, so option is recommended for further investigation to establish its feasibility.</p> <p>Smart motorway technology would assist with managing traffic flows onto and off an additional lane.</p>
<p>Option 9: Relocation of Operation Stack freight to another section of the strategic road network.</p>	<p>Not to be assessed yet, but to be kept under review.</p>	<p>Outcome: Keep under review.</p> <p>If the option of relocation of Operation Stack to another part of the strategic road network is to be considered, then the impacts, benefits and dis-benefits need to be carefully considered.</p>
<p>Option 10: Improvements to the M2/A2 corridor for non-Stack traffic.</p>		<p>Outcome: Highways England will pursue this option through further investigation.</p>