

Transport Planning Society

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Response to Commons Transport Select Committee Consultation on All-lane (motorway) Running

The Transport Planning Society is an independent institutional body in the UK, established to facilitate, develop and promote best practice in transport planning and to provide a focus for dialogue between practitioners and others interested in the field. It is supported by four long established professional institutions – ICE, CIHT, CILT and RTPI - all of whom have an interest in transport planning as well as their own core activities.

The Transport Planning Society administers its own Professional Development Scheme for transport planners, leading to award of the Transport Planning Professional (TPP) qualification which is the only professional qualification uniquely aimed at transport planners. The Society has over 1200 individual members and 30 corporate member providers of transport planning services in the UK and elsewhere. Many of our members are active in highway planning and management, including extensive experience of motorways with or within the former Highways Agency and now Highways England.

Although our individual members may have views on a range of detailed issues, as a Society we would like to respond on the more strategic aspects of all-lane running, including its effects on the surrounding transport network. Our response has been drafted by the Policy Group within the Transport Planning Society Board, all of whom were elected by the membership as a whole. The Policy Group is in constant dialogue with other members of the Society and the views expressed here may be taken as representative of those held generally by our membership.

Summary of response

- (1) We are concerned that converting the hard shoulder to an extra running lane will encourage peak contraction (ie a shorter peak period but higher flows at its core) and additional motorway trips, eventually resulting in peak period traffic operating conditions being no better than before
- (2) We are concerned about the effects of higher peak period motorway flows leaving the network and causing congestion on the connecting road system
- (3) The loss of hard shoulder will complicate many transient maintenance and inspection tasks
- (4) Almost all incidents will need to be dealt with in a running lane rather than on a hard shoulder. Access by emergency and recovery vehicles will be obstructed by queuing traffic and traffic management (cones, signing) will be needed to protect those involved
- (5) Loss of hard shoulders will also make future motorway upgrades much more difficult
- (6) Future policy on all-lane running or motorway widening should not simply be designed to accommodate forecast flows. It should also contain strategies to encourage use of more sustainable modes and spatial planning designed to reduce extra demand on our motorways
- (7) We recommend installation of fixed, repeater signs at 1 mile intervals reminding drivers that there is no hard shoulder.
- (8) Use of, and compliance with, electronic signing relating to lane closures will be crucial. Signing will need 100% credibility
- (9) Driver training and testing should specifically include all-lane running motorways

We will be happy to provide any further information requested or to engage further with the Committee on the subject.

Our response follows.

The impact of all-lane running on the safety of motorway users

All-lane running is accompanied (at least to date) by enhanced motorway signing and control systems, including extended use of speed cameras. The evidence to date seems to be that accident rates on controlled or all-lane running motorways are lower than on traditional motorways, but we believe this to be more due to the enhanced signing and control systems rather than the conversion of the hard shoulder to a running lane *per se*. That said, there is a high correlation between incident rates and traffic congestion so to the extent that the additional running lane reduces congested traffic congestions, that should lead to reduced incident rates and enhanced safety.

The effectiveness of all-lane running in managing capacity and congestion on the Strategic Road Network

While the additional running lane will increase motorway capacity, we are concerned about the wider effects of this on both the motorway concerned and the connecting road network.

Our first concern relates to the whether any improvement in motorway operating conditions will be sustained in the long-term. If motorway capacity is increased, experience shows that motorists will react in three ways :

- there could be a contraction of the peak period with less “peak spreading” and higher flows during the core part of the peak. This could result, in time, in peak period operating conditions becoming as unstable and congested as before, although there should be an improvement on the shoulders of the peak and at other times when the existing motorway is busy but not congested
- if journey times on the motorway are reduced, that could result in drivers diverting onto the motorway from the local road network, again tending to negate the benefits of the additional lane in improving motorway operating conditions
- drivers may take advantage of the additional capacity to change destination (where flexibility exists) or make more or longer trips. All these behaviours serve to increase peak period flows

Secondly, if we can expect the additional running lane to attract higher flows during peak periods, then we have concerns about the discharge of the additional traffic back onto the connecting road network, unless there is spare capacity there or complementary capacity enhancements are made. The latter are unlikely on local authority roads, given current levels of capital funding. Given this situation, our specific concerns are :

- if exit capacity at any given junction is less than the higher flow now requiring to use it, there will be tailbacks onto the motorway
- if the higher flows do succeed in being accommodated at motorway exits, they may cause problems downstream on the connecting road network

For example, the current conversion of the northbound M3 to all-lane running between junctions 4a and 2 will inevitably result in higher peak period flows attempting to leave the M3 to join the M25. This will lead either to tailbacks on the M3 as traffic queues to enter the exit sliproads at J2 or, if that is not a problem, will lead to higher flows on an already congested section of the M25, in both directions.

The impact on motorway maintenance

The hardshoulder has traditionally been a most useful and relatively safe stopping place for maintenance vehicles undertaking transient maintenance or inspection tasks on the hardshoulder or verges. Tasks of this nature will now require a full closure of lane 1 with full traffic management (eg cones, temporary signs etc.).

While, in theory, the new signing can be used to close the nearside lane without traffic management, this is likely to be relied on in emergency situations only. It is unlikely to be seen as a safe way of protecting a vehicle parked in lane 1 for planned maintenance activity. While the closure of the nearside lane under full traffic management can be done at times when the remaining lanes will have sufficient capacity for the prevailing traffic flow, setting up the traffic management will incur greater costs than a simple vehicle stop on the hard shoulder and will introduce its own risks for the workforce involved.

Incident rates, the management of incidents, vehicle recovery, and the provision of refuge areas where all-lane running is used

Where a hardshoulder is present, it often acts on its own as a temporary refuge for vehicles involved in an incident, emergency service vehicles present, and recovery vehicles when they arrive. The refuges specified for all-lane running may be too distant from the scene of an incident to be accessible by the vehicles involved and even if they are accessible, they may not be large enough for the number of vehicles commonly involved in attending an incident.

Again, while the new signing may be used to good effect to divert passing traffic into other lanes in the first instance, we believe there will be an increasing need for full traffic management to protect those dealing with the incident. This will incur additional costs, including the need to resource a “rapid response” team to attend the location.

Where traffic is queued upstream of an incident in all available lanes, the absence of a hard shoulder will increase the time needed by emergency vehicles to reach the scene of the incident, with a whole range of implications. In practice, emergency vehicles will squeeze through between two lanes of traffic as drivers edge to one side, but it is a slow process.

It will be necessary to clear disabled vehicles more rapidly than if they can be temporarily stored on the hard shoulder so the whole recovery operation will need to be speeded up and recovery vehicles brought to the scene more quickly than has always the case historically.

While, in theory, the new signing upstream of an incident could be used to move traffic out of a particular lane and free it up for use by the emergency services and recovery vehicles, in practice it will take time for the incident to be identified and confirmed, and the lane closure (to non-emergency traffic) implemented. Traffic flowing at full motorway capacity and blocked by an incident will form a queue in each lane extending back at a rate of about 1km every 5 min. In such circumstances, all lanes would be blocked very quickly over a considerable distance.

How policy on all-lane running should evolve, whether application of the policy should be expanded, and whether the policy is sustainable

Given all the issues raised above, at best we see all-lane running on motorways as a short-term measure designed to relieve congestion hotspots until a more long-term, sustainable transport policy for the area (possible involving other modes) can be developed. It should not be seen a long-term cure because (as already stated) :

- traffic flow levels are likely to increase in time during the core parts of the peak, negating some of the operating and travel time benefits introduced by all-lane running
- there may be unintended consequences for the operation of motorway exits and the connecting road system

In addition, the space within motorway edges offered by hardshoulders has proved invaluable in managing traffic during major upgrade works to the road, allowing different parts of the motorway cross-section to be closed at different times while still maintaining comparable capacity to what existed before. The temporary loss of hardshoulder during such works has been mitigated by strict speed limits through the works and an enhanced, highly responsive, vehicle recovery service.

If all the space between motorway edges is used as running lanes, this flexibility will be lost.

When major upgrade works are next needed, there will inevitably be a loss of running lanes and that will cause significant diversion of peak period traffic (which by then will have grown to take advantage of the additional lane) to other routes. Without prior upgrades of the diversionary routes, widespread congestion can be expected on the surrounding road network.

The implications of the policy for future motorway widening schemes

From a wider transport planning perspective, this is a complex issue. Motorway widening is (probably, depending on location) a more expensive option while raising the same concerns about increases in peak period traffic flow and difficulties at the interfaces with the connecting road system. However, motorway widening and retention of hardshoulders would obviate the concerns raised about incident management and traffic diversion during future upgrade works.

Motorway widening with loss of hardshoulders at particular pinchpoints only (eg beneath bridges) has already been implemented in the past (eg on the M4, M25) and this seems to have been done without introducing without any significant traffic operating problems. This approach minimizes the need to rebuild bridges (both over and under other roads) and is a relatively cost-effective approach to motorway widening.

However, while DfT traffic forecasts show forecast traffic growth of 29 – 60% on the Strategic Road Network from 2010 – 40, we are concerned about implementing a policy to simply increase motorway capacity to accommodate this without full consideration of other means of managing the issue. Unless promised technological breakthroughs come to fruition and acceptability, increasing traffic flows may have significant implications for climate change, local air quality and environmental nuisance.

There are signs that our population is becoming more receptive to using other means of travel. For example, car ownership and use is falling amongst young people in our larger cities; owning a car is no longer seen as a general social aspiration but needed only where satisfactory alternatives do not exist; the health benefits of cycling and walking are becoming more widely appreciated; rail is the fastest growing mode of travel. Social media and web-based companies are exploring and encouraging new ways to travel through such means as car clubs (ie using cars for essential purposes only rather than because it is always available) and shared taxis (eg Uber).

Even improvements at a local level could tip the balance between driving and using other modes for long distance travel. For example, improved access to railway stations (at both ends of the journey) by walking, cycling or bus can make rail travel more attractive, easier and cheaper (for example, without the need to pay for station parking).

On another topic, new landuse developments generate new demands for travel. Where such developments are carefully located so that they are accessible by sustainable transport modes (walking, cycling or public transport, with facilities possibly being provided in conjunction with the new development) or close to where those using the development live, the resulting demand for car travel and use of motorways will be minimized. Where this is not the case, pressure on local motorways will be maximized.

We believe that there is considerable scope to further influence people's travel choices and through good spatial planning, to ensure that new developments are located so as to minimise increased demand for our motorways. We believe that a considered strategy to achieve both must form part of any policy to increase the capacity of our motorway network.

The extent to which road users understand and comply with signs where all-lane running is in operation, and the changes that are needed in driver education and behaviour.

We have no evidence to offer on the extent of compliance although we do consider the signing to have been well considered. However, all-lane running with associated electronic signing is effectively a new type of road. The absence of a hardshoulder gives it a different "feel" from a standard motorway and requires some different driver behaviours.

We emphasise the need for :

- all drivers to understand that even though an extra lane is available, they should drive in the leftmost available lane at all times
- drivers to be made to understand the vital safety importance of obeying "lane closed" signs and "move to another lane" arrows, even where there is no obvious visible reason for doing so. Obeying these signs is as important as stopping at a red traffic signal.
- the use of electronic signing to be closely monitored to ensure that it is used in a correct and timely manner at all times. VMS signing on motorways currently has a low level of credibility with, for example, signs being left on long after they are needed. The new, safety critical signs must have 100% credibility if they are to be effective
- if a sign has failed or is out of use for any other reason, there must be some failsafe indication of this. For example, if one VMS instructing a move out of lane 1 is followed by a blank sign due to sign failure, drivers might reasonably assume that the instruction has been cancelled, with potentially hazardous consequences

We recommend that fixed repeater signs confirming that there is no hard shoulder be installed at regular intervals, perhaps every mile. Present arrangements rely on a single fixed

sign at the start of an all-lane running section advising that there is no hard shoulder for, say, 8 miles. Repeater signs would remind drivers that they are still on a motorway but one that is different to the norm.

We also consider that electronic signs be positioned so that there is always one visible to a driver, even if perhaps too far away to read details of the message. This will emphasise the controlled nature of the road and should prevent drivers relaxing and forgetting that they are on an all-lane running section.

Finally, we note the recent proposal to allow learner drivers to use motorways. All-lane running motorways introduce a new complexity to motorway driving and it is essential that they are included in driver training and testing.