NETWORK OPERATOR RESPONSIBILITIES

A: Introduction

This paper considers what makes up the role of the operators (as Highway Authorities) of the Major Road Network (MRN), be they a county or unitary authority, a combined authority or Highways England. It puts this role in the context of the framework put in place by the higher-level strategic authority, and explores the opportunities around highways operation that the network operators should be pursuing.

B: Network operator objectives

Delivering the fit-for-purpose MRN[1] is a joint responsibility of the network operators and the 'strategic clients' that set the requirements and make it possible. We have identified eleven outcomes that need to be aimed at, seven of which fall solely to the network operators.

- **Achieving efficient capacity utilisation**: in essence, ensuring the maximum throughput of people and goods. This has to recognise the trade-off between capacity and speed near saturation point, and for Tier 3 roads in particular is subject to the impact of local transport policies and relative priorities for different users. There will be two sub-objectives:
    - maximising the predictability of journey times; and
    - achieving the shortest journey time for individual users, subject to considerations of safety and environmental impact

- **Creating a sufficiently safe environment for users**: Supporting Document 8 addresses the balance between the three pillars of safety risk for road users: infrastructure, vehicles, and the behaviour of users themselves. While the network operator will naturally focus on the opportunities to improve the infrastructure, there will be important benefits from pursuing opportunities to intervene in the other two pillars where practical.

- **Maximising mitigation of adverse environmental, mobility and safety impacts on communities alongside**, and on the wider

[1] See chapter 5 of the main Study Report

environment. Chapter 5 of the main report considers noise and severance, and Supporting Document 5 expands on the challenges around air quality.

- **Sustaining the quality of the infrastructure and equipment**, through an appropriate asset management strategy. The network operator must be able to take full responsibility for the health of the highway asset, to ensure sustained service delivery at the minimum long-term cost to the taxpayer or user. Section D below considers how this can be done most efficiently, with particular reference to using new technologies.

- **Incorporating resilience** to minimise risk of journey time expectations not being met, both *proactively*: ensuring that alternative routings of adequate standard are always available, and planning ahead to be able to deal with foreseeable developments (such as seasonal peaks in traffic on roads to tourist areas); and *reactively*: activating those plans and ensuring they function satisfactorily, whenever required by infrastructure-, user-, or weather-related incidents. The definition of the MRN itself has sought to deliver greater resilience and as far as possible alternative routings should be provided within the MRN; but the key role that local highways authorities (LHAs) will play means that some non-MRN routings should be easily deliverable. Collaboration between highway authorities to deliver coherent alternative routes is therefore crucial, and is a central component of our Major Road Network proposition.

- **Creating a sufficiently pleasing environment** for the user and communities alongside: good quality roadside facilities, and well-designed and tidy roads and verges improve user satisfaction and should largely be in the control of the network operator[2]. Whilst a pleasing and stress-free road user experience is a legitimate goal in itself, it can also make a significant contribution to road safety.

One outcome category has to be the joint responsibility of the network operator and its strategic client:

- **Ensuring effective operation alongside the rest of the road network and the rail network.** At operator level, there must be a focus on minimising the effect, on users completing their journeys, of any discontinuities where they leave or join the MRN - junctions need to be

[2] see, for example, *Better not Bigger: why strategic roads need a green retrofit programme*, Campaign for Better Transport and the CPRE, September 2014

safe and easily navigable - or where they transfer to rail. The shift from a focus on the Strategic Road Network to the much more extensive MRN brings with it many more interfaces with the rest of the network, but each of these additions will fall under the responsibility of a single LHA. The LHA is in a strong position to ensure an integrated approach to deliver the best possible service for users. It falls to the client to ensure governance regimes for the two road networks are integrated, and that development of the road network takes full account of the capabilities of rail.

Four further outcome categories rest primarily with the client body:

- **Setting generally achievable target service levels** - see Supporting Document 6;

- **Managing user expectations,** given the constraint of how far investment to improve the network is practicable;

- **Managing capacity at the strategic level**, through network development or system-wide demand management measures, in order to maintain target service levels over the longer term despite forecast increases in demand, and consistent with targets for reducing CO_2 and other polluting emissions;

- **Ensuring provision of sufficient funding,** or perhaps in future creating funding mechanisms for use by the network operator.

We recognise that these outcomes are not unique to the MRN, as they apply equally to the SRN on its own, or to purely local road networks. But there will be different weightings attached to each outcome for the distinct networks, influenced most prominently by the different balance between 'movement' and 'place' across the different types of road.

B1: Responsibilities of the user

Whilst the focus throughout has been on the responsibilities of the network operator, there are requirements on the user too if the MRN is to perform as desired. Responsible driving is at the heart of this, and even with increasing automation of the driving function itself the user will still need to ensure his or her vehicle is capable of meeting the demands of the roads selected.

Ideally the user also needs to be satisfied that the network operation and the service experienced constitutes value for money. But with no direct user charge for road use, and the amount of public expenditure on roads not widely known or understood, this is not a judgment that users can be expected to make. It falls to the strategic client to demonstrate that available funds are being deployed by the network operator in the most appropriate and value for money way – ultimately to the benefit of the users and the communities affected – having regard to the demands of making the network fit for purpose and sustaining it over the longer term.

C: Efficient capacity utilisation

Supporting Document 6 sets out the theoretical background to determining the capacity of a road, and how the service it offers can be optimised in the real world.

The service level offered by the network operator will depend on the theoretical capacity of the road and the management measures the operator puts in place to realise that capacity. The network operator needs to maximise capacity utilisation to ensure that performance standards are generally met. In addition to day-to-day operational measures, this needs to embrace demand measures (non-pricing, such as information to users); small-scale infrastructure measures such as junction improvements; and potentially in future regulatory measures, such as requirements in the longer term for a minimum level of connectedness for vehicles permitted on the road.

D: Effective asset management

For all the need to focus on the service provided by the MRN, underlying it all must be infrastructure that is fit for purpose, able to underpin that service provision safely, reliably and cost-effectively. All highway authorities in England are required to follow best practice in asset management, pursuing Asset Management Plans founded on thorough knowledge of asset condition and

replacement cost. The Highways Maintenance Efficiency Programme (HMEP), led by DfT and endorsed by the UK Roads Liaison Group, issues Highway Infrastructure Asset Management Guidance[3], making a series of recommendations for best practice by LHAs.

Good asset management requires a focus on the whole life of the asset, setting intermediate service objectives from the infrastructure itself before working up a life-cycle plan to deliver those objectives. That approach should identify the optimal mix between maintenance - preventative and reactive - and improvement actions. Given current resource constraints facing LHAs in particular, the challenge centres on prioritising roads within the network, and, consistent with the Plan, how far repeated short-life repairs can maximise useful life of the asset. And given the wide variety of procurement modes used by different local highway authorities, all network operators need to judge for themselves what is the best balance of in-house versus contractor responsibility to achieve the best result and long term value for money, while responding to evolving and changing needs .

The most prominent indicators of asset condition relate to pavement condition, with road surface quality being the main focus of user concern, as noted in Supporting Document 4 - The Needs of Users, and a prominent issue in local politics. But the road asset is multi-faceted, and operator responsibility also embraces installed technology, geotechnical works, drainage and structures. These last three in particular are critical to the resilience of the road, with that vulnerability set to increase with long-term climate change. River bridges need the greatest commitment to ensuring continuity of service, given that alternative routings will usually entail lengthy diversion. Asset quality overall is essential to delivery of other aspects of fitness-for-purpose, including safety, and the acceptability of the road to the communities it runs through.

Supporting Document 1 - The Gulf between National and Local Roads Regimes, noted the complexity of the funding regime for LHAs; in part this results from the introduction of the incentive regime (taking up 15% of the maintenance block grant by 2018). This favours those LHAs scoring highest on self-assessment against efficiency principles set out in the HMEP - whose core purpose is to help LHAs build capacity and achieve more with less. The HMEP aims to provide the basis for a consistent approach by LHAs, but not all have yet signed up. Full adherence to the principles of the Programme would need to be a pre-condition of an LHA operating part of the MRN - in return for which the LHA will be less constrained by the annuality of the funding regime as currently structured.

There will be a need to develop guidance that is specific to the MRN, centred around its distinctive feature of heavy traffic flow. Best practice from Highways

[3] *Highway Infrastructure Asset Management Guidance*, HMEP, May 2013

England's Asset Management Strategy (not yet published) should be adopted wherever appropriate, recognising though that the MRN is less likely to be purpose-built, with a broader mix of structures and carriageway standards.

Innovation will be key to increased efficiency in maintenance management. The Highways Term Maintenance Association, the main industry body providing asset management services, has identified the following good practice in:

- preventative salt treatment. Thermal maps are produced to optimise salting routes and these are combined with electronic sensors at selected points across the network. These feed in real-time information on wind direction and speed, temperatures at and below the surface, salt content on the surface, air temperatures and humidity. This leads to a more uniform, effective and efficient treatment resulting in safer driving conditions and reduced costs;

- assessing network condition indicators using GIS systems, video surveys and laser scanning: improves understanding of e.g. skid resistance, deformation, edge deterioration, remaining pavement life, and allow better targeted and timely maintenance interventions;

- defect (potholes etc) identification and repair: this can be automated using data capture devices linked to GPS and back office IT systems that generate repair notices to provide more effective and efficient follow up action;

- road surfacing materials: Thin Surface Courses are bringing improved durability, resistance to deformation, noise and spray reduction when compared to traditional hot rolled asphalt;

- bridge replacement: use of off-site construction, with the new bridge being craned into position. Working in an offsite controlled environment has quality, worker safety, traffic disruption, and cost benefits; and

- roadworks: use of quick moveable barrier systems optimises traffic flow, e.g. tidal flow, and improve roadworker safety.

E: Additional network operator responsibilities

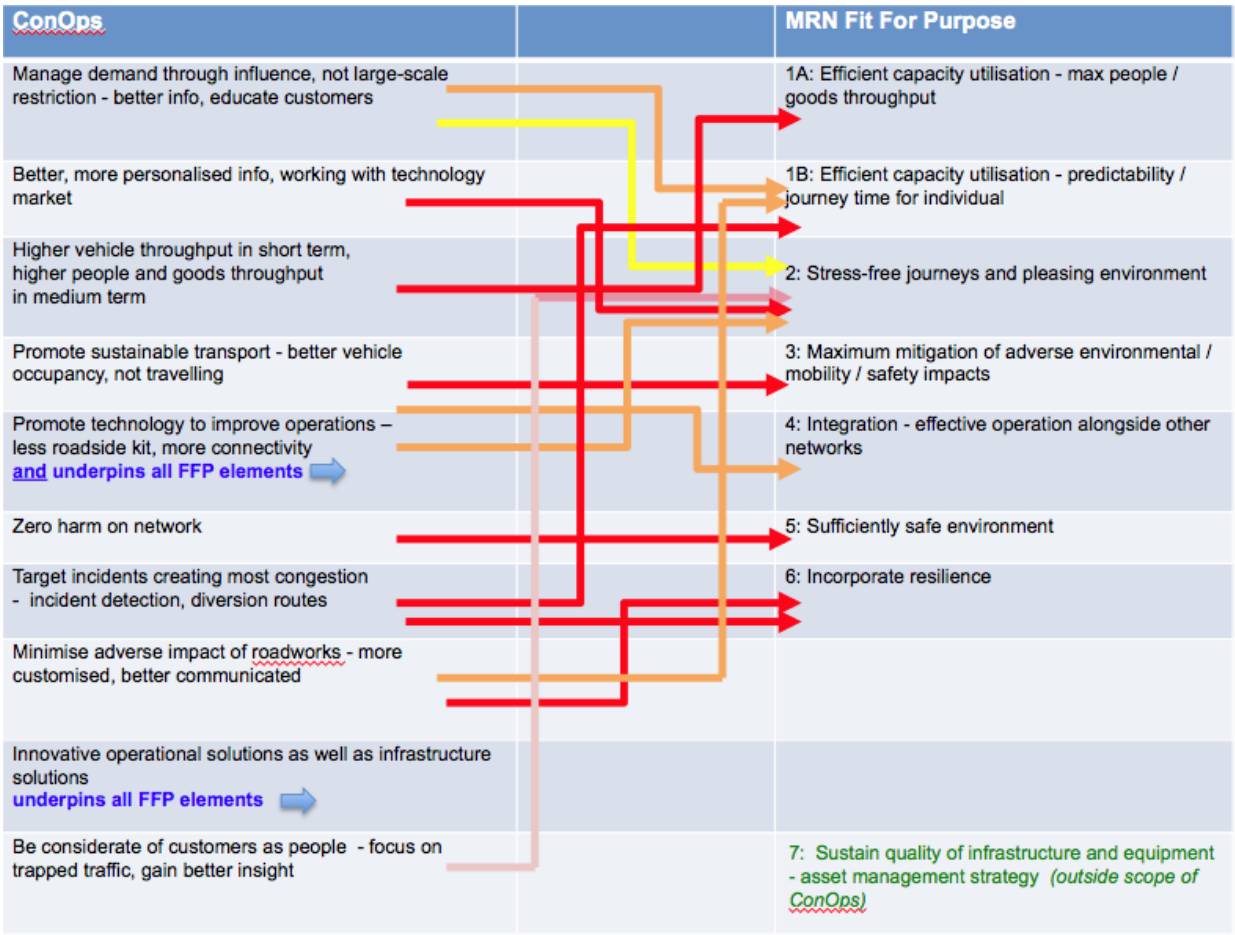
Other interventions are not directly tied to increasing capacity or enhancing safety, but instead are needed to meet user expectations around journey comfort and other aspects of the journey experience. This includes initiatives (including

some already now planned by Highways England) such as quieter road surfaces; overhauled traffic information channels; better cooperation with LHAs on traffic information and diversionary routes; and ensuring roadside facilities are more attuned to the needs of commercial drivers.

F: Codifying the responsibilities

Highways England's *Concept of Operations*[4] ('ConOps') for the Strategic Road Network gets closer to what a Fit for Purpose MRN entails than does the guidance for local roads.

The following two diagrams show how strongly (on a red / orange / yellow scale, where red is strongest) the seven network operator components of a fit-for-purpose MRN are covered by currently available frameworks for operating SRN and LHA roads



We note the following in respect of the SRN:

4 *Concept of Operations*, Highways England, July 2015

- The *Concept of Operations* maps well onto 6 out of 7 components of fitness that fall to the network operator

- Given its obvious focus on operations, not infrastructure, it misses out the 'asset management' element of fitness

- It goes beyond our approach in emphasising aspiration, and specific areas for improvement

- It has a strong focus on the users, and on making them well-informed to make the right choices

- It highlights the role of technology underpinning all; and prioritises innovative (and better value?) operational solutions over infrastructure solutions.

- There is a strong correlation to 'stress-free journeys' (but no reference to roadside facilities)

In respect of local roads, the closest overarching equivalent codification appears to be the *Well-Maintained Highways* Code of Practice[5], issued by the UK Roads Liaison Group. A major review of this Code is nearing completion, emphasising now a risk-based approach for local highway authorities, rather than prescriptive standards. But we note the following in assessing the correlation of the existing Code with our fitness for purpose framework (see diagram overleaf):

- *Well Maintained Highways* is conceptually very different – formal guidance to multiple delivery organisations, and more comprehensive

- Focus on effective stewardship – asset management and risk management, and integration with broader LA responsibilities.

- Nevertheless, customer service and serviceability form two of four pillars of its Performance Management Framework

- MRN fitness components are all within scope of *Well-Maintained Highways* – no obvious inconsistencies or gaps.

[5] *Well-Maintained Highways*, UK Roads Liaison Group, July 2005 (revision pending)

- <u>But</u>, this coverage does not appear sufficiently well developed to focus local authority MRN operator on providing effective service through continuous improvement.