IMPROVING URBAN MOBILITY WITHOUT NEW INFRASTRUCTURE

REPORT OF THE ROUND TABLE HELD ON 19 MARCH 2013

17 April 2013

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EXECUTIVE SUMMARY

Invited director-level players from transport and business gathered in London on the afternoon of 19th March to discuss "Improving urban mobility without new infrastructure". They were drawn from a wide range of organisations from the railway and automotive worlds, transport operating companies, transport user interests, contractors, central and local government, land use and development specialists, IT, telecoms, energy suppliers and academia. The event was facilitated by the Transport KTN with active support from Network Rail.

The Transport KTN has identified future mobility as a key issue across the transport sector and over the last two years it has been helping to break down the existing sector silos to enable collaboration and innovation within this important space. This round table is part of a Transport KTN programme of work to harness collective thinking and drive solutions which benefit the UK economy, both in terms of national needs and global opportunities.

The Round Table addressed the specific challenge: "What should we be doing now to pave the way for improved future urban mobility in 10 to 20 years time without relying on the traditional solution of more infrastructure and without expecting more public sector investment?"

The Round Table demonstrated that:

- Addressing the challenge has merit and is timely.
- There is a good consistent view, across a very diverse range of organisations, of the key issues.
- There is an appetite for collaboration.
- A number of potential action areas can be identified.
- There is scope for radical thinking and not just for the application of time-worn approaches.

The Round Table identified that there is work to be done at three levels:

- The enablers of urban mobility - the levers that can be pulled to influence mobility.
- Decision-making quality.
- Urban mobility governance and collaboration.

Key specific conclusions from the Round Table are:

- Any enlightened approach to urban mobility needs to recognise that the development and maintenance of infrastructure and that land use, urban form and spatial planning remain fundamental cornerstones of urban mobility and should not be overlooked in the search for novel solutions.
- Traveller behavioural change will be important and we need to understand more about user needs and preferences to be able to make properly informed decisions to influence behaviours. The appropriate balance between mobility which meets user wishes and mobility which the user has to accept is not yet clear.
- Work needs doing on the exploitation of data, on business models and, on an ongoing basis, on future technologies.
- A broad view is required of the quality of decision-making needed to inform future mobility. In particular there are merits in a systems approach, in capturing and using the best international experience, in considering synergies with adjacent sectors and in adopting a policy framework to give a stable long-term perspective for decision-making.
- A particular challenge is the governance that will be required to provide joined-up thinking and to drive forward an approach to urban mobility which respects and encourages both public and private sectors to play their part effectively.
- A collaborative approach to urban mobility development will be of considerable value.

The report concludes with a provisional view of next steps. These fall under three headings:

- Research activity into user needs, drivers and behaviours to address the current knowledge gap.

- Knowledge transfer and exchange activity to stimulate the identification of, and promote the wider uptake of, best practice.
- Activity involving both knowledge transfer and exchange and collaborative (open) innovation to address a number of the principal challenges of urban mobility.

There is likely to be merit in establishing a multi-modal multi-interest leadership group to provide supervision of and guidance to an urban mobility activity plan. If established at an early stage, this could provide early momentum to the agenda.

1 THE ROUND TABLE

1.1 The Round Table in context

Invited director-level players from transport and business gathered in London on the afternoon of 19th March to discuss "Improving urban mobility without new infrastructure". They were drawn from a wide range of organisations from the railway and automotive worlds, transport operating companies, transport user interests, contractors, central and local government, land use and development specialists, IT, telecoms, energy suppliers and academia. The event was facilitated by the Transport KTN with active support from Network Rail.

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The Round Table aimed to test the extent to which such a broad cross-section of people have a consistent view of key issues in urban mobility, to gauge the likely appetite for ongoing collaborative activity to address those issues, and to identify what key focus areas might usefully be.

This note summarises the Round Table and the conclusions emerging from it. It makes suggestions for the next steps.

1.2 The Challenge addressed by the Round Table

The population of the UK is set to grow by about 10 million over the next 20 years. Most, if not all, of this growth will be in urban areas.

At the same time mobility, the ease of movement and access enabling people and businesses to undertake their activities, has to improve. The international competitiveness of the UK's national and regional economies depends increasingly on it; efficient connectivity encourages business investment and the generation of wealth. Personal well-being, both economic and social, and personal aspirations depend increasingly on the connected society.

We can no longer rely simply on investment in transport infrastructure – such investment will not keep pace with this growth and this need for mobility. Indeed, the majority of major transport infrastructure investment over that period is likely to be between cities, not within them. Additionally, not only is government cash for capital investment in short supply and likely to remain so for some considerable time, but the future availability of low-cost energy is at best uncertain.

So what should we be doing now to pave the way for improved future urban mobility in 10 to 20 years time without relying on the traditional solution of more infrastructure and without expecting more public sector investment?

1.3 How the Round Table was run

Following an introduction from Neil Ridley, Director of the Transport KTN, during which he drew attention to the huge (and often unforeseen) changes in policy, business models, technology, social aspiration and professional practice affecting the delivery of transport over the last 25 years, a keynote address was given by Professor Rod Smith, Chief Scientific Advisor to the Department for Transport. Rod also looked back - to the Buchanan report of 50 years ago, which presumed the car as the basis of urban mobility but which also recognised, for the first time, its threats to the urban

environment. He drew our attention to the diverse range of perspectives required if urban transport is to be addressed in a coherent way (road space allocation, transport modes, technology, urban form, regulation, etc) and to the successful resolution of intractable challenges successfully resolved in the past (for example the 2.5 million pounds of horse manure produced per day in New York in the 1890s!). Above all he urged us to think not in terms of a "solution" but in terms of a judicious range of policies needing to be patiently applied.

After Rod's address, each attendee outlined the key urban mobility issues from his/her perspective. This quickly enabled a picture of the mobility landscape to be built up and common themes to be identified. Professor George Hazel of MRC McLean Hazel rounded off this series of personal perspectives with a talk which challenged us to take a radically fresh view of how we think about urban mobility. An increasing societal desire for personalised services, coupled with the insight into personal attributes, desires and behaviours enabled by modern IT, means that it is both feasible and sensible to think in terms of mobility as a user-focused service. Targeting the seamless mobility that users regard as valuable, modern retailing principles can inform the design of incentivised mobility "products", enabling new revenue streams to be unlocked and meaning that urban policy objectives can in principle be achieved through commercial means rather than depending on traditional public sector funding. This groundbreaking approach to mobility is already being deployed outside the UK in Melbourne and Vancouver.

The final session of the afternoon took the form of parallel short breakout sessions which scoped in a little more detail the work required to make progress with four of the commonly agreed issues.

2 KEY ISSUES EMERGING

2.1 Overview

As expected, a very wide range of issues emerged from the discussion. However, it was pleasing that there was a good deal of agreement around what those issues are.

The commonly raised issues have been sorted in this note into three categories:

- **Enablers of urban mobility.** Enablers are in effect the levers that can be pulled to influence mobility. There is a wide range of such enablers – for example improved exploitation of data, land use policy and procurement models. Each may be an important (perhaps essential) enabler but none alone is sufficient to deliver urban mobility.
- **Decision-making quality.** Addressing the right enablers is clearly important, but so is the quality of investment decision-making. A number of suggestions were offered on how decision-making could be improved to ensure a sound balance of investment across the various enablers.
- **Urban mobility governance and collaboration.** Decision-making needs a governance framework. This emerged as a significant theme from the Round Table. To what extent should the future development of mobility be controlled and to what extent can it be left to the market to meet user needs? And how can an appropriate balance between these perspectives be maintained?

2.2 Enablers of urban mobility

Infrastructure. While the general thrust of the Challenge was accepted, there were a number of detailed objections to the "without new infrastructure" element of the Challenge. Transport network capacity headroom and resilience remain issues and congestion cannot, of course, simply be ignored while measures for the long term are put in place. Judicious investment in new infrastructure will inevitably be required, albeit as part of a perhaps more rounded set of investments than has sometimes historically been the case.

There is an opportunity to take a fresh look at design and operating standards and methods to significantly reduce the cost of capacity improvement projects, moving away from the current approach which normally complies to the maximum level to avoid comeuppance later. A recent rail example (the recently completed Paisley Canal electrification) was completed at half the cost of conventional electrification and is delivering strong performance and capacity benefits.

There was also a view that infrastructure maintenance is often seen as a poor relation to new investments ("new is cool and old is cold") and could contribute more effectively to mobility, not least through more effective contracting and procurement arrangements.

Land use, urban form and spatial planning. The spatial layout of cities is critical to city function and it is important that planning for transport and mobility is not considered independently of urban form and spatial planning – both have long time horizons and long-term consequences. The London Plan, for example, sets out a fully integrated economic, environmental, transport and social framework for the development of London. A key purpose of cities is to enable high levels of accessibility and connectivity and success in this respect is reflected in activity levels and land values. Mobility is closely associated with urban density since it is easier to maintain and to operate mass transit solutions economically in high density environments - UK cities in general do not have the densities seen in London.

While the shape and form of cities is necessarily to a significant degree set for the long term ("hamstrung by history") there mains plenty of scope for "joined-up thinking" to promote the most

appropriate evolution of cities. Among professionals, there is also scope for the more effective promotion of integrated land use and transport thinking and practice both through the adoption of a widely adopted overarching modelling framework and through improved mutual understanding between land use and transport planners.

Behavioural change (the focus of one of the breakout sessions). This emerged as an important theme. It was widely accepted that some measure of behavioural change is essential for future mobility. Travel management during the Olympics was cited more than once as an example of what can be achieved (in that case through a centrally managed approach) - permanent changes in practice, among both individuals and employers, have resulted from the initiatives introduced during the Olympics and there remains the opportunity to learn more from the Olympics experience. It was also widely accepted that behavioural change needs be enabled by looking at travel from the user's perspective. A portfolio approach to mobility, in which users uses different solutions (eg public transport, car club, etc) for different purposes is attractive and needs to be enabled by characteristics such as accessibility, seamlessness, ease of use and ready availability of up-to-date information.

However, understanding of how best to achieve behavioural change is currently far from clear. There is no current consensus on whether financial incentives, price and loyalty arrangements can secure what is needed or whether coercion, penalties and regulation will also be required to overcome inherent reluctance to change behaviours and to satisfy policy imperatives such as climate change and energy availability. What is the appropriate balance between mobility which meets user wishes and mobility which the user has to accept?

There is therefore a need to better understand underlying user needs and drivers. What do people want transport for? What is the true demand for travel? How do young people's needs differ from those of established travellers? What is the significance of trends such as the single person lifestyle, the 24/7 society and changing personal priorities? What value do people put on different aspects of travel? How might the evolution of major travel generators such as the NHS influence the needs of individuals? Research is needed in this whole area of user needs and behaviours and this needs to involve engagement with both individual users and corporate generators of travel. The increasing availability of smartphone and other data potentially presents new opportunities for such research. It was felt that a cross-modal competition might form one vehicle for conducting such research.

Exploiting data (the focus of one of the breakout sessions). There would be value in creating a framework that allows data owners to connect with those who can exploit the data to create and extract value for all in the chain. This would be multimodal and would have two overriding functions – to broker access to data which stakeholders already have and to augment existing data with data from new sources (eg smartphones) which is not yet readily accessible. The value in such an arrangement would be both to increase understanding (aggregated geographic data can, for example, give considerable insight into the dynamics of cities) and to create the opportunity for improved interventions, which may be commercial in nature.

There are a number of challenges in moving to such an arrangement. For example: the fact that data has value will make some owners reluctant to release it and may indicate the need for appropriate incentives; and protocols will be required for access to and the permitted use of data. It was felt that government would need to be involved in the development of the framework (perhaps involving the Open Data Institute). The Transport and Future Cities Catapults might provide appropriate vehicles for the R&D needed to develop the framework.

Business models (the focus of one of the breakout sessions). While some aspects of future mobility, especially those relying on service delivery initiated by the private sector, do imply new business models, it was felt that there remains considerable mileage in existing models, although there is good scope for improvement. Addressable pitfalls with existing procurement practice include: short-termism, with franchise horizons not long enough to maximise innovative investment; a failure to reward productive relationships; siloed budgets conspiring against an integrated view of mobility; contractual outcomes not well aligned to policy objectives; and investment appraisal metrics

thwarting innovative approaches. However, there remains considerable potential for innovation within existing procurement rules. There are now, for example, asset management contractual arrangements which incentivise the supplier to modernise the asset and which are financially beneficial for both procurer and supplier – such thinking could be more widely transferred to mobility services. A key need here is perceived to be making available and transferring best practice knowledge and guidance to those who might benefit from it.

In looking at future business models and procurement approaches, designed in particular to reduce dependence on government money, a number of suggestions emerged. Enabling entrepreneurial innovation will require the public sector to be somewhat more tolerant of, and encouraging towards, the risk taken by innovators. There may be value in an increased role for government in enabling investment rather than acting as an investor, perhaps by pump-priming new types of business model – new centres of excellence in procurement being developed by Infrastructure UK may provide an opportunity for developing mobility business models. It will be important to expect not only incremental improvement in business models, but also possible step changes in practice.

One factor of importance is not so much a business model issue as creating a climate for innovative investment – clear leadership of a city, including a clear vision and ambition for the city, is seen as important in attracting new high quality investment.

Technology. Technology is both a feature of the changing world influencing the environment within which urban mobility operates and is also a key enabler of enhanced mobility. Of the enablers already introduced, user behavioural change and data exploitation in particular rely on the potential afforded by new technologies. To some extent technology may substitute for mobility and this (for example in teleworking) is likely to be a feature of the digital city. In thinking ahead to the achievement of future mobility, we should not assume that current technology is all that will be required or available. Horizon-scanning, future-proofing and looking for technology transfers from other domains are important ongoing activities.

2.3 Decision-making quality

Systems thinking. A number of attendees were keen to stress the importance of systems thinking in dealing with the development of mobility. The breadth and interrelated nature of perspectives flushed out by the Round Table is indicative of the merits of a systems approach. A systems approach would necessarily be mode-neutral and would be open to the evolutionary nature of mobility needs and opportunities. A systems approach would reinforce the desire for and merits of open, flexible and non-proprietary approaches to business and information architectures.

Capturing world best practice. The UK is not alone in dealing with mobility challenges. There is a good deal of learning especially, at present, in Europe and organisations such as UITP potentially can act as a fund of knowledge. Before long, the rapidly growing cities in the East may equally provide knowledge which the UK could usefully capitalise on. At present there appears to be a degree of reluctance in the UK to capitalise on this worldwide best practice, and there is probably merit in capturing relevant experience and making it more readily available to UK decision-makers.

Cross-sector working. Transport and mobility do not in isolation from other activities. Two examples of other domains important to thinking about mobility emerged in discussion, but there are doubtless more. The energy sector is dealing with similar challenges to those of mobility (capacity, future requirements, etc) and indeed a number of these challenges are common. An effort should be made to coordinate thinking and activity where it is mutually beneficial to do so, for example in the sphere of electric mobility.

Though parallels between transport and other national infrastructures are often made, its interrelationship with retailing is not. However, it is clear that retailing practice addresses the same

constituency as mobility (everyone), is evolving rapidly under it own steam, is strongly influencing individual behaviours and potentially provides new opportunities (and threats) for effective mobility.

These two example indicate the need for mobility decision-making to be alert to wider trends and constraints.

Climate change and policy framework. The very low profile of climate change in the discussion was perhaps surprising, though it probably reflects the more immediate economic and social concerns of the times. However, in the context of a long-term view climate change is likely to be of considerable significance. This suggests the desirability of a policy framework within which mobility thinking is conducted and which ensures a sufficiently stable long-term view of what is important to underpin investment decision-making. This framework should include not only climate change, but other mega-trends such as life expectancy and health provision.

2.4 Urban mobility governance and collaboration

Urban mobility governance. To what extent should the future development of mobility be controlled and to what extent can it be left to the market to meet user needs? There is no straightforward answer to this question and there is tension between the extremes. On the side of control: socio-economic policies, goals and plans, whether national or city-wide, need to be set centrally; internationally "good" urban transport tends to be managed centrally; a systems approach to mobility, any data management framework and any improved procurement will all require a good deal of direction; government is likely to be a key enabler of future mobility On the side of market-driven mobility: the ongoing lack of government funding points towards greater commercial freedom; the likely application of retail principles in future mobility will require a less directed approach to mobility; data exploitation agreements will be commercial in nature; export potential points to a business-friendly approach.

It is not yet clear from the perspective of individual users whether a market approach relying on price, financial incentives and loyalty will be sufficient to achieve behavioural change or whether a more coercive, penal and regulatory approach is needed – underlying this dilemma is the tension between mobility as a right and mobility as a privilege.

What is clear, however, is that neither government alone not business alone can create the future mobility landscape – a cooperative approach is required both to support joined-up thinking and to being together government and business perspectives. The shape of this governance is not yet clear but it needs to be strong enough to handle devolution from the centre and to ensure policy goals can be met (and not overrun, for example, by a retail approach to transport which thwarts those goals), it needs to be swift enough to operate in a rapidly evolving environment and to support business expectations, and it needs to work in an already complex and fragmented institutional framework.

Collaboration (the focus of one of the breakout sessions). Whatever form governance of urban mobility might take, a collaborative approach to its development will be beneficial and indeed will add value without relying on specific governance enhancements. To achieve the goals and objectives of urban mobility, organisations will need to collaborate intermodally, outside the transport sector, outside the UK and with customers. There is likely merit in establishing and agreeing a few key principles for collaboration, including value propositions, together with best practice guidance (probably based on BS11000).

Cities themselves have an important part to play in promoting collaboration, by developing clear policies, vision and mission, by aggregating across fragmented local authority boundaries and by incentivising collaboration. A potential way forward is to work with a small number of cities or city regions in scoping their mobility issues and identifying how a collaborative approach might be deployed to address their mobility challenges.

3 NEXT STEPS

3.1 Summary

An initial half-day Round Table can only go so far in mapping out the way ahead, however august the attendees. Nonetheless, very useful insights were obtained which give clear pointers to sensible principles for the next steps next steps.

Three types of activity can be distilled from the issues summarised above in Section 2:

- Research activity into user needs, drivers and behaviours to address the current knowledge gap. This is a complex and relatively long term area of activity.
- Knowledge transfer and exchange activity to stimulate the identification of, and promote the wider uptake of, best practice. There may be the opportunity for one or two quick wins in this area.
- Activity involving both knowledge transfer and exchange and collaborative (open) innovation to address a number of the principal challenges of urban mobility. The early development of a collaborative senior community could provide the right climate for a number of specific activities.

These three types of activity are discussed in turn below.

Any programme of activity needs to be delivered with due regard to other activities that have common interests. For example, there may be synergies with TSB's Transport and Future Cities Catapults, the Future cities Demonstrator and with the TSB Internet of Things Ecosystems Demonstrators, a number of which have a transport focus. However, it will be important to ensure that Urban Mobility forward work is truly problem-focused and not just about in-principle solutions.

Our intention is to convene a second Round Table event in late June or early July 2013 to develop the forward programme in more detail.

3.2 Research into user needs, drivers and behaviours

This would need to cover:

- Passenger users, from the perspective of both individual travellers and the major generators of personal travel (eg NHS).
- Business users with requirements for freight services.

Expected and possible changes in needs, drivers and behaviours in response social, economic and technology drivers form an important dimension.

An early action in this activity would be to scope and plan what is required to be done. This should include:

- Capturing existing knowledge.
- Understanding ongoing research activities (eg ongoing TSB engagement with freight generators).
- Building relationships with users, including existing user representative bodies (eg Passenger Focus).

Once a research programme is planned and under implementation, it is potentially best guided by the collaborative senior community (see 3.4 below).

3.3 Knowledge transfer and exchange supporting best practice

The potential for a number of freestanding knowledge transfer and exchange activities arose from the Round Table. These include (perhaps in the following priority order):

- capture and promotion of international best practice in urban mobility including, for example, from UITP and from the UK Olympics. This could perhaps involve the development of a convenient knowledge depository and an associated community of practitioners.
- Development of improved integration between spatial and transport planning, including best modelling practice and enhanced professional cross-discipline collaboration. There would probably be some synergies with the Future Cities agenda.
- Contracting and procurement - best practice and innovation within existing procurement models.
- technology horizon scanning and the cross-domain transfer of technology application.

One or more of these activities might form the basis of early action (quick wins). With the appropriate level of support and backing from other stakeholders, this is something that the Transport KTN could take a lead on.

For any of these activities, the likely starting point would be an open invitation to an introductory event to help shape a community and to assist the detailed specification of the information support needs of that community.

3.4 Collaborative (open) innovation

A number of key focus areas emerged from the Round Table which would benefit not only from knowledge transfer and exchange but also from a collaborative approach to innovation. These include (perhaps in the following priority order):

- Future business models to support new ways of delivering mobility, including the use of techniques established in the retail world.
- Exploring the relative merits of preference-driven approaches to satisfying user needs and of more coercive, penal and perhaps regulatory approaches.
- The development of collaboration principles and guidance.
- Development of a framework for data sharing to assist the development of urban mobility, perhaps in conjunction with the Open Data Institute.
- The practicalities of applying a systems approach to urban mobility, including the nmerits of appropriate data and business architectures.
- Working with other infrastructures including, for example the energy sector.

All of these would probably benefit from a clear policy framework and it might well be sensible for input to this to be developed in a collaborative way.

There is likely to be merit in developing these areas of focus with a number of cities or city regions who are keen to be proactive in developing advanced mobility solutions. These are likely to be cities showing strong leadership. The way in which cities are engaged could take several forms including collaborative workshops and pilot projects.

It is important to develop this activity in a coherent way and to ensure maximum acceptability to all parties of the emerging mobility agenda. To this end, there is likely merit in establishing a multi-modal multi-interest leadership group to provide supervision of and guidance to the activity plan. If established at an early stage, this could provide early momentum to the urban mobility agenda.

We should not assume that the issues emerging from this Round Table are the only ones that need to be addressed. The leadership group should also ensure that:

- Activities are problem-focused, taking different perspective into account.
- Issues such as freight and the regional implications of urban transport are not overlooked.