



## Getting more from less: low-cost, high-value transport solutions

**Mark Brown**

December 2010

# Contents

<b>1 Introduction</b>	<b>1</b>
<b>2 Funding options</b>	<b>2</b>
Low-cost public funding programmes	3
Local-area road user charging	3
Private-sector funding	3
European funding	4
<b>3 Travel demand management</b>	<b>5</b>
Supporting the local community	5
Evidence of smart results	6
Key guiding policy	8
<b>4 Network management</b>	<b>9</b>
Economic management	9
Behavioural management	10
Technological management	12
<b>5 Public transport</b>	<b>13</b>
Minimising the effect of reduced bus subsidy	13
How the Local Transport Act can help	13
Maximising the scope of low-cost alternatives	14
<b>6 Cycling and walking</b>	<b>16</b>
Profiting from active travel	16
Good practice	16
Government strategy and guidance	19
<b>7 Integrated land use and transport planning</b>	<b>20</b>
Maximising opportunities	20
Good practice on the ground	20
<b>Working with Halcrow</b>	<b>24</b>

# 1. Introduction

Those responsible for transport planning within local authorities face a time of financial uncertainty and sustained pressure to provide high-quality transport services.

With cuts expected in some capital and revenue programmes and long-standing priority schemes held up following October's public spending review, the next steps might not be clear. Part of the challenge is to achieve already established transport strategies but also to frame future priorities in line with Local Transport Plan 3 (LTP3), while understanding the practicalities of the government's Big Society policy idea.

Transport plays a key role in stimulating economic growth, so it's the responsibility of transport professionals to instil confidence in their local economy at this critical time by taking decisive action and preparing for every funding eventuality.

Transport users and providers may be fearful for the future of their services, but harsh budget cuts don't have to lead to an across-the-board reduction in provision. Imaginative strategies can minimise the impact

on the travelling public and empower local communities.

This paper puts forward a number of low-cost, high-value transport and travel measures for English local authorities, focusing on those that can be implemented quickly. These are not necessarily new ideas but they put provide a range of value-for-money and innovative options based on current best practice.

Crucially, these options will assist authorities in finding ways to reduce the demand for travel and reduce the pressure on existing networks. These measures are also designed to support the local economy while meeting climate change, accessibility and equality goals.

The following topic areas are covered:

- funding options
- travel demand management
- network management
- public transport
- cycling and walking
- integrated land use and transport planning

A number of case-study projects are also included.



## 2. Funding options

Despite the public spending squeeze, there are various sources of funding available for financing transport projects, large and small. The government has signalled that it is keen to encourage additional private investment in transport. Public-sector funding will be focused on those projects that demonstrate the greatest economic benefit for which private-sector capital is not available.

Levels of government funding to 2015 were spelt out in the Spending Review 2010 in October. The Department for Transport (DfT) budget will be cut by 15 per cent in real terms, with revenue funds hit harder than capital funds. Local transport projects, in particular, will suffer from the 28 per cent cut to local authority revenue budgets – around 40 per cent in real terms.

While uncertainty remains regarding specific future sources and levels of transport funding at the local level, authorities should welcome some elements of the recent spending review, in particular:

- four transport funds to replace the existing 26 different grants
- the end of ring-fencing of revenue grants
- increased flexibility and local autonomy in developing what's best locally
- levels of capital spending remaining largely the same (in cash terms)



The new Local Sustainable Transport Fund, available to councils in England outside of London, will provide for packages of transport measures that support economic growth while reducing carbon emissions; further details are expected from the DfT at the end of 2010. Measures eligible for funding may include encouraging walking and cycling, better public transport, improved traffic management schemes and improving the integration between travel modes and end-to-end journey experiences.

The National Infrastructure Plan sets the scene for future transport investment: reducing delivery costs, maximising private-sector investment and focusing on economic growth.

The plan outlines the Regional Growth Fund along with the proposal to enable local authorities to undertake tax incremental financing, both of which are new funding sources.

The plan also identifies a new hierarchy for infrastructure investment, prioritising the maintenance and smarter use of assets, something that local authorities need to acknowledge when determining their transport spending.

The local growth white paper sets out how the local enterprise partnerships will support local authorities in making investment decisions.

### **Low-cost public funding programmes**

The 2006 Eddington Transport Study, which reviewed transport's role in sustaining UK productivity and competitiveness, highlighted that small-scale interventions such as walking and cycling schemes and road junction improvements, are often the most cost-beneficial solutions.

A range of government funding programmes for low-cost local transport measures, aimed at local authorities and private operators, are being replaced by the Local Sustainable Transport Fund.

Other sources of funding for active travel initiatives or schemes, including grants, include:

- Big Lottery Fund
- NHS Primary Care Trusts
- Sport England
- Sustrans

### **Local-area road user charging**

London's congestion charge has been in place since 2003 and has provided a source of funding for public transport improvements across the capital. The first scheme in the UK, albeit much smaller, was introduced in an area of Durham city centre in 2002.

In spite of the potentially significant level of return from a charging scheme, local authorities are generally unwilling to implement such schemes due to local public opinion, as seen most recently in Edinburgh and Manchester.



The exception is in Nottingham, where the city council is due to implement a workplace parking levy (WPL) in 2012. This was initiated due to city-centre congestion which is forecast to get worse due to the predicted population growth in and around the city.

Nottingham's WPL only applies to employers that provide more than ten liable parking spaces within the City of Nottingham's administrative boundary. Around 70 to 80 per cent

of employers in Nottingham won't pay a WPL charge, but they will have to obtain an annual licence for the maximum number of liable spaces used over the course of the year.

Charging will begin in April 2012; employers will be licensed, at no charge, from October 2011. Workplace parking for emergency services and NHS frontline services will be exempt.

The funds raised will be invested in public transport improvements in and around the city centre.

### **Private-sector funding**

Private-sector funding has mainly supported large-scale transport projects via the Private Finance Initiative. Until recently there has been relatively little private-sector involvement in funding low-cost local transport measures. A notable exception, however, is Barclays' recent sponsorship of Transport for London's cycle hire scheme.

In addition to private-developer contributions to infrastructure and sustainable travel improvements (including those obtained through Section 106 Agreements), small-scale funding opportunities may be available from local bus or rail operators, perhaps to support the

cost of rail station cycle parking or public transport marketing material, for example. The local chamber of commerce or business improvement district may also be able to provide support, for example running an area travel plan network or providing pedestrian wayfinding.

- research programmes where money is awarded to help fund research and development and to fund pilot projects

*Read a case study of a successful funding project in Worcestershire on our website at [halcrow.com](http://halcrow.com).*

### **European funding**

Lastly, a range of European funding programmes is available for transport projects. These can be grouped into two kinds of funding opportunity:

- project-specific grants from the European Regional Development Fund, loans from the European Investment Bank and participation in the CIVITAS Initiative

### 3. Travel demand management

Travelling in *smarter* ways has reached the top of the transport planning agenda. This term refers to forms of travel or types of initiatives that reduce the negative effects of travel on road congestion, carbon emissions, the environment or public health. It embraces many of the factors that influence travel choices and how to inform people about alternatives to their usual method of travel, through travel planning and local area campaigns.

Travel demand management measures involve relatively little, if any, capital investment and are characterised by relatively low operating costs. They seek to reduce the need to make a journey or suggest ways to undertake the journey using a more sustainable travel option. As such, they address problems by management of demand, without expanding capacity on the road system. They therefore support directly the UK government commitments of prioritising low-carbon projects and supporting sustainable travel initiatives, including joint working between public transport operators and local authorities.

Travel demand management measures have extended well beyond travel plans. Tried-and-tested

tools range from promotion of a particular travel mode to area-wide individualised advice and marketing. To maximise the success of travel demand management measures it is important that they are part of a wide-ranging package incorporating infrastructure and information, marketing or promotion. The following are examples of the types of tools that can be used:

- cycling and walking campaigns and publicity
- local behavioural change campaigns
- area-wide travel plans and networks
- personalised travel planning
- car club promotion
- promotion of smart working, such as home working and video conferencing

#### Supporting the local community

The positive outcomes of reducing the need to travel and switching to more sustainable modes are numerous and wide ranging, and include:

- more efficient use of the local road network by maintaining the limited road space for essential trips
- reducing carbon emissions
- improving air quality



- opportunities for improved urban realm and public spaces through road space reallocation
- better social inclusion – sustainable travel options are available to all
- reduced land and maintenance costs to employers from smaller car parks
- lowered business trip costs for employers resulting from smarter working

A switch to active travel modes – walking and cycling – can also lead to better morale and well-being and increased productivity through improved physical health and lower levels of absenteeism.

Managing demand rather than expanding capacity has the further significant benefit of reducing the cost of operating the highway

network without compromising social or economic development. A recent report<sup>1</sup> by Professor Phil Goodwin at the University of West of England states that the highest value for money from transport schemes is attributable to lower-cost schemes, such as those involving cycling, safety and smarter travel choices. He suggests that better value for money would be achieved by diverting spending on new roads to these lower-cost schemes.

By encouraging smarter working practices, local authorities can help the local business community reduce costs. Transport for London estimates that by using pool bicycles to replace journeys by taxi or public transport, organisations can save approximately £25 per month per bicycle.<sup>2</sup>

The average annual cost of maintaining a parking space is £400, rising to £2,000 or more in London.<sup>3</sup> This is on top of construction costs of £1,000-£3,000 per space for surface-level parking and much higher costs for multi-storey parking. Businesses can make significant cost savings by recognising the high opportunity costs associated with car parking space and reducing on-site parking. If a company is successful

in converting ten car commuters into cyclists, the outlay for replacing two car parking spaces with sheltered cycle parking for ten bicycles would be offset by the maintenance savings in less than one year, (based on the surface car park costs above).

There is also plenty of evidence<sup>4</sup> to suggest that businesses and workplaces with travel plans benefit from higher productivity, lower absenteeism and improved levels of staff retention, as a result of the improved physical fitness created by reduced dependency on cars, improved travel options and more flexible working arrangements, such as flexitime and home working.

#### **Evidence of smart results**

The results from the three national sustainable travel demonstration towns of Darlington, Peterborough and Worcester show what can be achieved by an intensive programme of smarter choices measures. At a cost of around £10 per person per year (including capital and revenue expenditure), the four to five-year programmes focused on personal travel planning accompanied by a mixture of public transport marketing and travel awareness campaigns promoting walking and cycling. Headline outcomes included

averages across the three towns of:<sup>5</sup>

- bus trips per person up 10 to 22 per cent, compared with a national fall of 0.5 per cent in medium-sized towns
- cycle trips per person up 26 to 30 per cent compared with a national fall in medium-sized towns
- walking trips per person up by 10 to 13 per cent, compared with a national decline in similar-sized towns

On conservative assumptions the implied benefit-cost ratio of the achieved outcome in the three towns, allowing only for congestion effects, is in the order of 4.5:1. By including environmental, consumer-benefit and health effects, the congestion-only figure could broadly double on the basis of recent DfT modelling.

The programme was successful not only in reducing carbon emissions and improving levels of health and equality of opportunity, but also in supporting local economic growth. Reduced car driver mileage of an average of 5 to 7 per cent is likely to have reduced congestion and improved journey reliability. School and workplace travel interventions targeted those benefits at peak-time

<sup>1</sup> Goodwin, P. (2010). *Improving value for money in the context of transport expenditure cuts: feasibility study (draft document)*. University of the West of England

<sup>2</sup> Pearce, H. and Sutherland, C. (2007). *Pool Bikes for Business: A Practical Guide to Setting up a Workplace Bike Pool*. Transport For London

<sup>3</sup> Department for Transport. (2008). *The Essential Guide to Travel Planning*. London: HMSO

<sup>4</sup> Hurdle, D. (2008). *Travel Plan Benefits for Employers: Making the Human Resources Link, A Guide and Research Report*. National Business Travel Network

<sup>5</sup> Sloman, L. et al. (2010). *The Effects of Smarter Choice Programmes in the Sustainable Travel Towns: Summary Report*. Department for Transport

trips. Such programmes are a way of enabling growth in employment or housing, without creating unacceptable levels of congestion.

The Highways Agency, as part of its programme to influence travel behaviour, has been implementing area travel plan schemes at traffic-generating employment centres near to congested stretches of the strategic road network. Work undertaken in 2008 to estimate the economic benefit of the schemes identified significant benefits to all network users.<sup>6</sup> These resulted from a reduced number of trips and associated time savings emanating from employees switching from single-occupancy-vehicle trips or the adoption of more flexible working practices by businesses. Benefit-to-cost ratios of up to 13:1 over five years were estimated for a programme costing no more than

£100,000 at each location. The need to make expensive road capacity improvements was also reduced; a modest improvement, like a new slip road at a roundabout, generally costs well over £100,000.

Some transport operators or providers, including Transport for London, recognise the benefits of adopting measures and schemes to reduce existing and future demand for already overcrowded public transport services. London bus operators make the standard assumption of an approximate £220,000 operating costs per annum per bus, so increasing service frequencies is expensive. Even limited capacity upgrades to the underground network cost millions of pounds. Transport for London has focused during recent years on providing incentives for businesses to develop travel plans

and on improving local and strategic cycling and walking networks. The business case for the Smarter Travel Richmond behavioural change and social marketing programme (see case study below) set out a benefit-to-cost ratio of approximately 2:1.<sup>7</sup>

While the outcomes are significantly higher for comprehensive smarter choices programmes, and even more so where 'soft' campaigns or marketing programmes are supported with 'hard' infrastructure or service-level improvements, there are still measurable benefits to be gained from the implementation of single initiatives, such as marketing of cycling and promotion of workplace travel plans. Local businesses looking for savings in a difficult economic climate are likely to be open to advice and assistance with business and other travel costs.

<sup>6</sup> Emmerson, P. and Gibson, H. (2008). *Economic Appraisal of the Highways Agency ITB Travel Plans – 2008*. Highways Agency

<sup>7</sup> Transport for London. (2008). *Smarter Travel Richmond: Draft Business Case*. Unpublished internal document, Transport for London

### Smarter Travel Richmond

Smarter Travel Richmond is an integrated travel behavioural change and social marketing programme taking place over two and a half years. It is being delivered in partnership by Transport for London and the London Borough of Richmond upon Thames, which has among the highest levels of transport-related carbon dioxide emissions across London.

The programme seeks to enable greater choice for residents and businesses from a full range of travel options and to increase levels of cycling, walking and public transport in the borough by 5 per cent. Work streams focus on school travel planning, workplace travel planning, destination travel planning, and marketing and promotions.

Halcrow recently supported the Smarter Travel Richmond workplace travel planning team towards meeting the target of 20,000 employees covered by an active travel plan, by autumn 2011. We engaged with a number of businesses to obtain their initial commitment to develop a plan and then support them through the

stages of developing a travel plan. Smarter Travel Richmond offers a number of incentives to sign up to the scheme, including free travel advice, marketing materials, travel passes and cycle stands, match funding for improvements, and smarter driving lessons for employees.



### Key guiding policy

A number of up-to-date resources – with best practice examples – are available from the government to guide local authorities on the range of travel-demand management tools available. These include the following:

- Active Travel Strategy, Department for Transport / Department for Health, 2010
- The Effects of Smarter Choice Programmes in the Sustainable Travel Towns, Department for Transport, 2010
- Delivering Sustainable Low Carbon Travel: An Essential Guide for Local Authorities, Department for Transport, 2009
- Making Smarter Choices, Institute of Highways and Transportation, 2009
- Good Practice Guidelines: Delivering Travel Plans through the Planning Process, Department for Transport, 2009
- Essential Guide to Travel Planning, Department for Transport, 2008

## 4. Network management

Network management refers to a package of measures that aim to increase the capacity of a road network, improve its performance or reduce negative impact, such as accident risk. Network management measures do not involve significant infrastructure development and as a rule involve substantially less capital investment than on-line or off-line construction measures, such as road widening, junction improvement or building a bypass.

Network management measures include:

- economic management, such as road pricing
- behavioural management, such as variable speed control
- technological management, such as traffic signals, signage and hard shoulder running

### **Economic management**

Road pricing has long been viewed as a means to improve the economic efficiency of national and urban highway networks. The economic case for road pricing has been developed over the past 50 years and the essential argument remains unchallenged, that is, pricing of a scarce resource (road space) at the point of consumption is the most efficient means of allocating that resource among competing users.

A number of road pricing and congestion charging schemes have been implemented in recent years, including programmes in London, Singapore, Stockholm and Oslo. UK cities, including Manchester and Edinburgh, have considered congestion charging but have not proceeded with their plans. Toll roads are increasingly common, generally as a means of raising finance to fund construction and maintenance, but also as a way to manage traffic in congested corridors, for example urban highways in and around Sydney. The experience gained from congestion charging and road pricing schemes shows that they increase the economic efficiency of networks by reducing congestion, increasing traffic speeds and increasing the attractiveness and performance of public transport. They can also produce a significant financial return; London recorded net revenues of £123 million in 2006/7.<sup>8</sup>

In spite of growing evidence of economic and financial benefits, urban congestion charging schemes are relatively rare, and no major state has yet introduced a comprehensive national programme of road pricing. Various reasons are cited, including lack of appropriate technology, high set-up costs and, perhaps of greatest significance, hostile public opinion. The latter is exemplified by

over 1.7 million people who signed a Downing Street petition in 2007 opposing the introduction of road pricing in the UK.

The difficult economic climate since 2008 may provide a strong incentive for governments and local authorities to reconsider the case for road pricing at a national, regional or city level. Most Western economies are recovering from the effects of a major economic recession and are facing mounting levels of public debt as a result of recent steps to salvage their financial institutions and stimulate growth through increased short-term public spending. The next few years will see a growing need to restore public finances and address spiralling levels of national debt. At the same time, governments will be keen to avoid major cuts in public services at the risk of prolonging a recession and increasing unemployment.

London's congestion charge scheme (designed by Halcrow) is a good example of how the pragmatic application of the economics of pricing, including a number of concessions to the theoretical approach, can generate significant economic benefits. The flat daily cordon charge of £8 (increasing to £10 from January 2011) is applied to all eligible vehicles and is designed to ensure that the system delivers

<sup>8</sup> Transport for London. (2008). *TfL Congestion Charge Impacts Monitoring, 6th Report*. Transport for London

an economic return. The benefit-to-cost ratio was 1.7:1 in 2007, with a net present value of £298 million.<sup>9</sup> There have also been tangible improvements in London's transport system: average traffic speeds initially increased by 2.5km per hour and buses attracted 29,000 new passengers, due in part to more reliable and faster services. The scheme also generates net financial revenues of over £120 million a year.

The scheme was initially designed to improve the flow of traffic in the capital and generate a net economic return. Subsequent changes further environmental goals by persuading more people to use less-polluting modes of transport. It provides clear evidence that road pricing can both stimulate wider economic benefits and generate a financial profit, the surplus being used to fund a variety of transport improvements across the city.

The ability of road pricing to raise money in such a way sets it aside from most other sources of public revenue. Achieving these dual, 'win-win', economic and financial goals requires that key design criteria are optimised:

- Ideally, the price paid by users should be as close as possible to the social cost imposed by each trip.

- The cost of operating and administering road pricing systems can be prohibitively expensive so revenue collection should be as efficient as possible.
- One of the notable features of the London programme was the management of public and stakeholder opinion before, during and after the introduction of the scheme.

If road pricing is to be justified on financial grounds, it must generate sufficient additional funds, net of set-up and operating costs. While the political and technical challenges posed by congestion charging are not to be underestimated, the economic and financial returns are potentially very great. Raising large amounts of revenue while addressing a traffic congestion problem could prove too much of a temptation for authorities to ignore.

Parking policy is another important part of economic management for local authorities. Various measures can be combined to provide very effective controls on the number of car trips by location or time of day. The most basic policy of restricting the number of spaces available to vehicles is supplemented by pricing strategies to favour short-term over commuter parking or to make the relative cost of local public transport more attractive. Controlled parking

zones are often used in areas where there is a large demand for parking spaces from residents, shoppers or commuters. Park-and-ride schemes have been successful in many UK cities, including Cambridge, Oxford and York, where free or low-cost parking is provided on the outskirts of the city accompanied by frequent, express bus services into the city centre.

### **Behavioural management**

Enforcement is a much under-utilised approach to traffic management. In addition to being a highly effective means of influencing driver behaviour, it offers excellent value for money and requires significantly less capital investment – often none at all – compared with many other measures.

Government agencies are seeking new ways of achieving their goals of developing efficient, safe and sustainable transport systems. They are particularly keen to develop cheaper ways of achieving these goals which do not involve large capital investment or high operating expenditure. Enhanced enforcement measures are one such tool.

An economic approach to designing an effective enforcement regime seeks to optimise the investment to minimise the social damage caused by driver offences. The theory

<sup>9</sup> *Ibid.*

behind such an approach is well developed in academic circles and several projects have explored how it can be applied in areas such as parking, traffic management, vehicle standards and driver and vehicle licensing.

A wide range of enforcement tools are open to agencies. Cameras are increasingly used to enforce speed, traffic-signal and congestion-charge regimes. Driver and vehicle databases can be used alongside other tools to track both drivers and

vehicles. Wheel clamping, vehicle impoundment and even vehicle destruction provide the opportunity to escalate penalties for serious or persistent parking and licensing infringements. Fixed penalties can also provide an efficient response to an increasing number of less-serious misdemeanours.

Enforcement measures carry costs which must be matched by economic and financial benefits from a reduced number of offences. These may include improved traffic

flow, perhaps due to less-variable vehicle speeds, fewer accidents, reduced pavement damage, and increased vehicle licence income. The optimal level of enforcement is that which matches the benefits from improved compliance with the costs of generating those benefits.

With a growing need to generate increased value for money from all areas of traffic management, enforcement is a key tool for improving compliance without major investment.

### **The economics of enforcement activities**<sup>10</sup>

The UK's Department for Transport (DfT) spends over £100 million per year on enforcing laws concerning driver and vehicle licensing, operating standards, vehicle component and type approval, and driving standards. The revenue raised, including license fees and fines, exceeds £140 million annually. But the social cost resulting from offences under these laws is estimated at over £500 million a year, largely as a result of accidents involving sub-standard vehicles or unqualified drivers. This represents one of the largest law enforcement operations in the country and one of the most important influences

on road safety and accident reduction.

DfT's Driver and Vehicle Operations (DVO) group is responsible for the administration and enforcement of these laws. It commissioned Halcrow to undertake research into the costs and benefits of 21 of its main enforcement activities. The research focuses on how the application of rigorous economic principles could prioritise investment in enforcement activities. Economic principles, which underpin most appraisal methods, are widely accepted as an efficient and effective way to allocate both public and private-sector resources. It follows that economics present a

means to optimise investment in enforcement resources in order to maximise scheme outputs. The ultimate aim was to develop and test a methodology that provides a firm basis for focusing investment to produce the greatest economic returns.

The economic framework developed incorporates the social cost of both enforcement and the damage resulting from offences, such as accident costs, increased vehicle emissions and delays (due to broken down vehicles). Those who commit some traffic offences are more than three times as likely to have committed other criminal

<sup>10</sup> Brown et al. (2008). *The Costs and Benefits of the Department for Transport's Enforcement Activities*. Presented at the European Transport Conference meeting, 6-8 October, Leiden

offences, so wider aspects like these were also considered. The framework includes a behavioural model for forecasting levels of offending, based on perceived levels of the certainty and severity of sanctions. This draws upon deterrence theory from the criminal justice system on which literature has been steadily accumulating for the past 40 years.

Case studies were prepared involving all 21 of the enforcement activities examined. In each case, the costs and benefits of existing levels of compliance were calculated along with the

cost-effectiveness ratio of current enforcement activities. Where sufficient data was available, models were developed to assess the economic impact of varying the level of enforcement. The change forecast for the level of offending provided the economic and financial rationale for increasing or decreasing the level of enforcement in each area.

Much of the required data for this type of analysis already exists, enabling the widespread use of enforcement economics in optimising investment in this area. One of the key implications from the research is that penalties for many of the

offences studied are well below the optimal level to be a real deterrent.

Focusing enforcement resources on particular activities and increasing levels of enforcement in some cases could bring about significant reductions in the number of accidents, as well as wider social and economic benefits. Furthermore, increased levels of enforcement were shown to be both more effective and more efficient in reducing accidents than investment in capital programmes.

### **Technological management**

Many local and central governments are looking at innovative ways of solving a variety of transport problems to improve the quality of life within their towns, cities and regions. The focus has shifted from the needs of private car users, where the basis of traffic management is simply maximising traffic flow, to a more balanced approach based on the needs of all road users, including pedestrians, cyclists and public transport. Intelligent transport systems, including the

implementation of urban traffic management and control and congestion charging, are increasingly being considered. However, their best use invariably comes from a keen understanding of their potential and a coherent strategy consistent with overall local transport policy to ensure that the main objectives are fulfilled.

## 5. Public transport

UK local authorities have a wide range of powers or duties that involve planning for or making use of public transport. However, the involvement of local authorities does not stop at the strategy level or with sponsoring major schemes. Many authorities are major funders of transport services through service subsidy agreements or consumers of transport services in their own right, for example:

- education authorities – home-to-school transport for eligible pupils
- social services authorities – transport to and from day centres, health centres and hospitals
- transport to leisure services and facilities
- special-needs transport for areas of low demand, socially excluded groups and members of the community with special needs

While not involving the levels of expenditure of major schemes like transport interchanges or light rail, these areas of responsibility involve very high levels of annually recurring expenditure. Regular reviews of transport eligibility, procurement procedures and expenditure profiles can improve service quality and secure greater value for money. Areas for scrutiny include supported local bus service networks, bus operating cost models, in-house

and contracted-out services and departmental-wide reviews.

### **Minimising the effect of reduced bus subsidy**

Recent work with a number of authorities has reviewed subsidy commitments to identify cost savings. From experience, where authorities and the elected officials whom they advise work together, it is possible to prioritise services to ensure any cuts don't affect those in most need. Application of financial criteria alongside accessibility indicators can ensure cost savings do not adversely affect the most socially excluded areas.

Where loss of some services is inevitable, a range of innovative lower-cost alternatives provide a viable solution to ensuring essential accessibility for those with limited travel options is not lost.

Seeking out efficiencies in the supply chain can ensure a greater proportion of the total cost borne by the public purse is invested in putting buses on the road. Moreover, where other assets are owned, operated or tendered by local authorities, such as community transport operations or welfare fleets, they may be put to greater use in plugging the gaps that result from wider subsidy withdrawal.

A typical recent project was a review of Blackburn Borough Council's transport-related expenditure, including the way it discharges its social services and education transport responsibilities, its support for special needs dial-a-ride services and general support for socially necessary bus services. The target of the study was to reduce the cost of transport services. The recommendations, under consideration by the authority, included taking advantage of new legislation allowing the not-for-profit sector to become more involved in the delivery of socially necessary transport services. Other recommendations address the scope for increased use of competitive tendering for the provision of services provided in-house.

### **How the Local Transport Act can help**

The Local Transport Act 2008 offers a wealth of largely untapped opportunities for local authorities to deliver services more cost effectively.

One way is through private-hire operators using their vehicles for registered bus services. In areas that are remote or have low demand this can provide a cost-effective alternative to a conventional subsidised bus service.

The act also allows non-profit-making organisations to employ and pay drivers on locally registered bus services which they also run. This could greatly expand on the usual pool of volunteers, potentially allowing community transport to fill the gap in areas not served by the commercial network.

The act also opens up the possibility for longer subsidy contracts of up to eight years which could spur contractors to invest in vehicle quality and broaden the pool of tenders for contracts.

A range of bespoke schemes made possible under the act were identified by Halcrow during recent regional Delivering a Sustainable Transport System (DaSTS) studies. Although DaSTS may not be taken forward,

the types of low-cost alternative they have identified will be particularly attractive to local authorities looking to meet economic and sustainability targets in a tough financial environment.

#### **Maximising the scope of low-cost alternatives**

Vulnerable people – including those with learning difficulties, minor mobility impairments and elderly people unfamiliar with independent travel – often rely on expensive, dedicated transport services. Travel training and buddying schemes can help these vulnerable people to use mainstream transport services with more confidence.

Reviews into good practice in travel training and developing and appraising schemes for authorities

in Greater Manchester, the West Midlands, Surrey and Devon, have shown how such initiatives can provide savings. Halcrow has established that training approximately 30 people to use mainstream public transport equates to typical savings of over £200,000 in some instances.

Although there will clearly always be a need for welfare transport provision, there is considerable scope to hone budgets while also empowering many vulnerable people to use mainstream transport and enjoy the social benefits this can bring.

#### **Assessing the performance of transport tenders**

APTT-PMF (Assessing the Performance of Transport Tenders – Performance Management Framework) is a spreadsheet-based technique used to assess the performance of bus services – mostly subsidised services, but also commercial services where data are available. The assessment criteria can cover the characteristics of the areas served

or the financial cost or revenue performance of a service, or any combination of these factors.

The framework enables users to apply different weightings to factors so they can rapidly test more than one scenario. In the past, the technique has been used to allocate financial resources to best address rural transport issues or transport to

areas of social exclusion. Current applications are more focused on achieving overall value for money. The outputs of APTT-PMF are in the form of high-quality, high-clarity graphics.

### **Keeping bus operating costs under control**

A good bus operating cost model should identify and highlight a wide range of change scenarios, including:

- the overall cost profile of an operation
- the impact of changes in the cost of key components such as labour or fuel
- the relationship between fixed and semi-fixed elements of costs, such as overheads relating to premises
- the cost impact on the overall operation of varying degrees of fleet increase or decrease

It should be readily applicable to most types of fleet operation in value-for-money-focused exercises, like assessing the costs of local authority in-house transport operations.

Good-quality graphical outputs make it easier to see and compare the effect of changes in the costs of individual components in the overall cost profile.

## 6. Cycling and walking

According to the National Travel Survey<sup>11</sup>, most personal journeys made are short – an average of only seven miles. Around one-third of trips are less than two miles and two-thirds are less than five miles, and yet they are mostly made by motorised transport (41 per cent and 63 per cent respectively), usually private car. Only one in four trips overall is made on foot and 1 per cent by bicycle.

The challenge for local authorities is to encourage more of these journeys to be made on foot or by bicycle; the short length of many local trips is significant as it offers a good deal of scope for conversion.

Research commissioned by Cycling England demonstrates that cycling interventions have excellent benefit-cost ratios, typically 3:1 or more.<sup>12</sup> It showed that investment in cycling can more than pay for itself, with over half the return in health benefits typically.

The past few years has witnessed a cycling boom in a number of cities and towns across the UK. In ten years, the distance travelled by bicycle has increased by nearly 20 per cent. In London, levels have grown dramatically with a doubling in levels of cycling since 2000.

The Mayor of London's *Cycling Revolution* strategy<sup>13</sup> sets out a

number of initiatives to further double the level of cycling in the city by 2025, including a 6,000-bicycle hire scheme, launched in July 2010. Outside of London, 17 cycling towns and England's first cycling city, Bristol, are seeing renewed interest in cycling resulting from local packages of infrastructure improvement, better information and promotional measures. Meanwhile, much-improved public spaces, streetscapes and urban design throughout the UK are encouraging significantly increased pedestrian activity.

### Profiting from active travel

The benefits of increased levels of walking and cycling to users and society as a whole are numerous, and include the following:

- reliable journey times
- quickest way to travel short distances
- free or cheap travel
- improved health, fitness and wellbeing
- more spending locally and support for the local economy
- independence for children and teenagers
- greater support for local community bonding and safer neighbourhoods

For local authorities, switching more short journeys from motorised travel

modes to cycling or walking releases highway capacity for others and facilitates more reliable bus journeys. In addition to the wider societal financial gains accruing from the benefits listed above, infrastructure and other measures associated with cycling and walking, such as marketing and cycle training, are at relatively low cost.

### Good practice

The Corporation of London has recently approved in-principle plans for a fitness club, incorporating secure cycle parking, showers, lockers and bicycle servicing, on 33 underutilised car park spaces in the London Wall car park.<sup>14</sup> The private developer hopes it will attract corporate as well as individual memberships since it is providing a cost-effective alternative to those employers who want to offer these facilities to employees. This is one of three sites in London planned for 2011, each offering up to 1,000 cycle parking spaces.

In Cambridge, an electric bike pool scheme for use by employers in the Cambridge Travel Plan Plus project areas has recently been launched in business parks on the northern edge of the city. The bikes can be used for trips to meetings, undertaking local errands and for people to experience cycling to work for the first time.

<sup>11</sup> Department for Transport. (2010). *National Travel Survey 2009*. London: HMSO

<sup>12</sup> Cycling England. (2010). *Cycling England Mid-Term Review 2008/9-2010/11*. Cycling England

<sup>13</sup> Transport for London. (2010). *Cycling Revolution London*. Transport for London

<sup>14</sup> (2010, 6 August). Developer launches membership clubs for commuter cyclists. *Local Transport Today*, Issue 551

### Active travel audits and master plans

Existing and proposed active travel infrastructure can be assessed by applying a methodology with key parameters.

For the Highlands and Islands Strategic Transport Partnership (HITRANS), these were:

- a study of demographics, travel-to-work patterns, public transport information and traffic accident data
- analysis of main-trip generators or attractors
- consultation with the local authority and other interested parties
- on-site audits
- application of a prioritisation filter

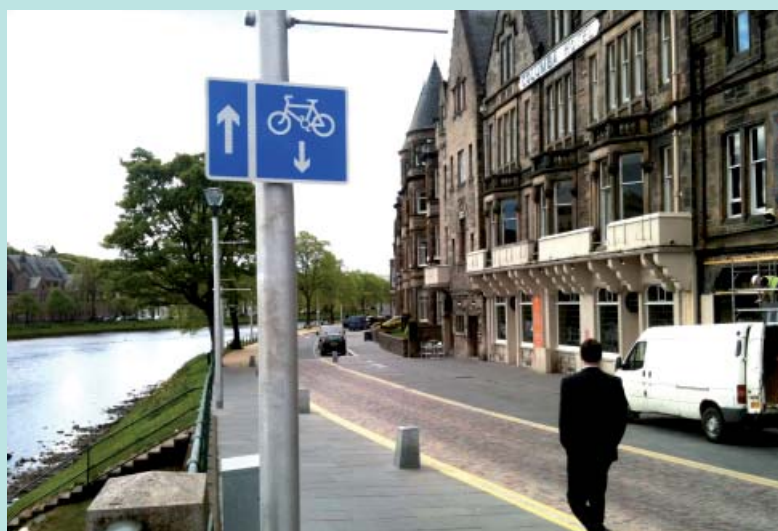
The prioritisation filter is an analysis tool to identify those corridors where there is the greatest potential for modal shift. The filter encompasses information from the desktop study, such as demographic data, trip generators and attractors, planning proposals and the results of stakeholder consultation. The filter also compares a route's ease of implementation compared to its potential usage.

For HITRANS, on-site audits for walking were carried out using the Transport Research Laboratory Pedestrian Environment Review System (PERS), as well as a Institution of Highways and Transportation cycle audit. Both systems audit the condition of existing facilities to identify where proposed measures will provide best value.

The resulting prioritised action plan identifies areas and schemes where there is the greatest potential to achieve modal shift or where there is the greatest need for infrastructure

for pedestrians and cyclists. In addition, an active travel master plan provides a core network for pedestrians and cyclists with direct, safe, attractive and coherent links between destinations.

Extra value can be added by producing maps detailing the active travel networks and making them available to local people and visitors. Making this kind of literature readily available is a low-cost, high-value investment; it can reach a wide audience and map sales could even create a revenue stream.



### Cycling city and towns programme

In 2005, Cycling England was established by the DfT to increase the number of short urban trips taken by bicycle. Six cycling demonstration towns with a population of around 100,000 were identified, supplemented in 2009 by 11 further cycling towns.

The range of initiatives varies by town and includes new cycling infrastructure, journey-time cycle signage, cycle training for schools and businesses, and improved local cycle maps and information.



The results after three years in the original demonstration towns (Aylesbury, Brighton and Hove,

Darlington, Derby, Exeter and Lancaster with Morecambe) are impressive. Cycling increased on average by 27 per cent across the towns; for each £1 spent, the increase in cycling levels has generated benefits valued at around £3.<sup>15</sup>

Halcrow is assisting City of York Council with a number of schemes in support of the city's cycling town programme.

### Cycling by Design

The Scottish Government has set a target for 10 per cent of all trips to be by bicycle by 2020, the equivalent of approximately one third of all trips under 5km.<sup>16</sup>

Most attitudinal studies indicate that the most significant barrier to daily cycling is concerns over traffic speed and volume, inadequate routes and facilities and the perceived lack of road safety. The Scottish Government has recognised, therefore, that urban development and transport projects should take account of the needs of potential users, including children and novices.

Halcrow has recently finished advising Transport Scotland on the national cycle design guide *Cycling by Design*. The guidance includes advice on understanding the needs of different user groups, cycle lane options, off-carriageway facilities and shared cycle-pedestrian routes, cycle parking and integration with public transport. Those working on trunk-road projects in Scotland are already required to follow the guidance. The guidance is also referred to by most local authorities in Scotland working on local road infrastructure projects and new developments.



<sup>15</sup> *Ibid.* 13

<sup>16</sup> The Scottish Government. (2010). *Cycling Action Plan for Scotland*. Edinburgh: The Scottish Government

### **Government strategy and guidance**

Current guidance raises the profile of cycling and walking and supports their consideration in planning activities. Local authorities are encouraged to incorporate cycling in their local transport plan and are required to include target figures for levels of cycling. There is a growing interest in and commitment to delivering support for cycling and there are many good examples, including schemes in partnership with local bodies like the NHS.

The following documents set out guidance and highlight best practice:

- Active Travel Strategy, Department for Transport / Department for Health, 2010
- Delivering Sustainable Low Carbon Travel: An Essential Guide for Local Authorities, Department for Transport, 2009
- A Sustainable Future for Cycling, Department for Transport, 2008

*The Cycling Action Plan for Scotland* sets out how the Government aims to make 10 per cent of all journeys by bike by 2020, expanding cycle routes across the country and enhancing delivery of cycle training in schools.

## 7. Integrated land use and transport planning

The relative location of homes, workplaces and services can have a significant impact on travel patterns. Developments that support sustainable travel behaviour require a strategic location and the right form of development.

The elimination of regional spatial strategies may provide local authorities with more opportunities to make their developments better suited to local needs, more integrated so that the need to travel is reduced.

Government plans to grant local areas with greater financial freedom to create more sustainable neighbourhoods. For example, the New Homes Bonus, designed to reward local authorities and communities that contribute to social housing targets, provides additional financing to improve the design of new developments.

### **Maximising opportunities**

Urban planning has the potential to shape travel destinations and activities, creating a positive

influence when the form and location of development is approached strategically. The benefits of integrated land use and transport planning generally increase over time as changes to travel patterns become entrenched.

The choice of location for journey destinations, such as schools, business districts and shopping centre, accounts for variations in travel distances of about 10 to 20 per cent, although some studies place this figure higher.<sup>17</sup> Local authorities can help to reduce travel distances by taking an integrated approach to factors such as location, density, jobs-housing balance, accessibility, mix of use and street layout when allocating land use and planning urban areas.

Data from the National Travel Survey (NTS) shows there is a broadly inverse relationship between density and travel, where increased density is associated with reduced travel distance, particularly by car. Similarly there is a (broadly) inverse relationship between settlement size

and travel, with increased average distance travelled as settlement size decreases. The largest differential in Great Britain is between inner London (an average of around 4,500 miles a year per person) and rural areas (an average of around 10,000 miles a year per person). The longest distances travelled in non-rural areas are found in the smaller urban areas, particularly those with a population of less than 25,000.

The NTS also shows that, on the whole, average annual travel distances reduce when public transport accessibility increases over the 70 per cent threshold. Areas with very good levels of accessibility (over 80 per cent) have lower levels of car use and a higher proportion of public transport usage, walking and cycling.

### **Good practice on the ground**

A selection of case studies follows, commencing with a web resource launched recently by Halcrow and the Commission for Integrated Transport.

<sup>17</sup> Halcrow Group Ltd. (2009). *Land Use and Transport: Settlement Patterns and the Demand for Travel*. Commission for Integrated Transport

### Planning for Sustainable Travel

The recently published Planning for Sustainable Travel website ([www.plan4sustainabletravel.org](http://www.plan4sustainabletravel.org)) and summary practitioner guide – prepared for the Commission for Integrated Transport – provide examples of integrated land use and transport planning in the UK. The case studies represent a broad range of UK planning experience, with particular emphasis on locations with scope for a significant change in urban structure and, as a result, how people travel.

The guide explains the broad challenges involved in using spatial planning to achieve sustainable travel, with a focus on strategic issues and solutions. A number of key themes are developed, ranging in scale from regional to local: settlement size, strategic development location, strategic transport network, density, jobs-housing balance, accessibility, land-use mix, neighbourhood design and street layout, traffic demand management, and parking.

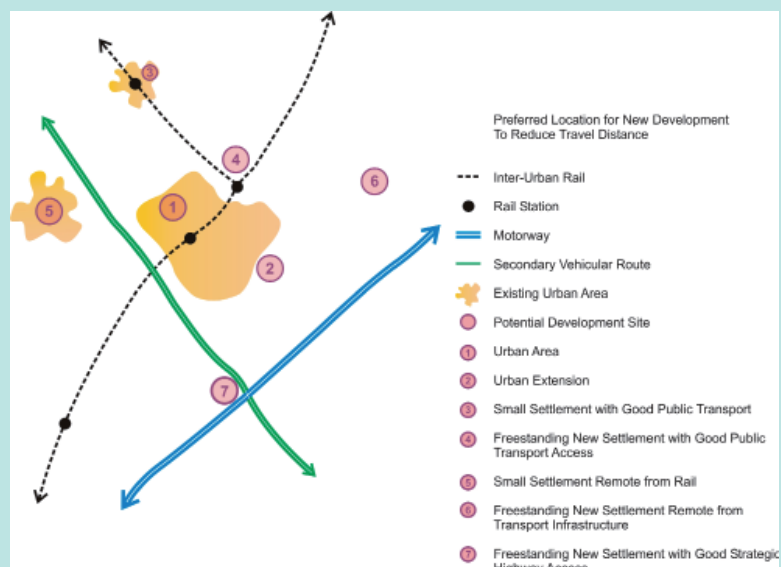
For example, the development strategy for the Longbridge site in Birmingham is to build a major mixed-use development, including a new town centre and a regional transport interchange with 1,000 park-and-ride spaces, which will

create at least 10,000 jobs. The case study emphasises the importance of considering strategic development location (in this case a brownfield site), density, jobs-housing balance and a mix of land uses in achieving sustainable travel goals.

Strategic development location is presented as a key theme in integrated land use and transport planning. To promote sustainable travel, the aim should be to locate a development where journey generation is likely to be reduced because of good public transport accessibility and short trip distances to existing or new centres. Development locations which may

encourage long-distance journeys by car should be avoided, such as sites at or near to junctions on motorways and dual carriageways.

At a more micro level, the practitioner guide takes on board Manual for Streets (Department for Transport, 2007) principles by emphasising that streets should be places where people want to live and spend time, and not just transport corridors. By encouraging practitioners to plan street design intelligently and proactively the impact of vehicles on residential streets can be reduced and the needs of pedestrians, cyclists and public transport users promoted.



### **Cowley Road project**

The Cowley Road project, one of a series of DfT road safety demonstration projects, aimed to improve road safety and bus service reliability, as well as build on the special character of a busy mixed-priority route.

Cowley Road is a high-frequency bus route and a key route for emergency-service vehicles, so traditional forms of vertical deflection-style traffic-calming measures were inappropriate.

Speed reduction was achieved through a combination of measures, identified in partnership with the bus operators and emergency services, including narrowing carriageways, removing the centre line, and introducing coloured cycle lanes and

horizontal deflections. An inclusive design process resulted in strong community support. Within three years there was a 30% increase in the number of cyclists using road, 10% fewer cars, and a 36 reduction in the number of casualties with a corresponding 50% reduction in KSIs.<sup>18</sup>

Halcrow was commissioned by Oxfordshire County Council and DfT to work with community organisation East Oxford Action to design and consult on the scheme.



<sup>18</sup>WSP. (2008). *Mixed Priority Routes Road Safety Demonstration Projects: Summary Scheme Report*. Department for Transport

### Westfield London

This mixed-use development in west London comprises over 250 retail stores, 40 restaurants and leisure facilities. When it opened it was the largest urban shopping village in western Europe.

Comprehensive transport assessment and travel plan work was undertaken, including TRANSYT and VISSIM modelling of the surrounding road network, and preparation of transport assessments and cycling and parking strategies as part of planning applications for various parts of the scheme.

The development includes a new railway station, bus station and bus-to-rail interchange facility, as well as a redeveloped underground station. The cycling strategy identified on and off-road routes and improvements to the surrounding highway network, expanding the existing cycle network. It also included recommendations on the quantity, location and form of cycle parking provision.

The transport assessment included a significant and detailed travel plan for the site, to encourage the use of alternative modes of travel for staff and visitors. The comprehensive travel plan was underpinned by a balanced car park charging regime and a decision not to provide staff car parking spaces.

The scheme was a challenging project with significant transport obstacles to negotiate, but the site opened without undue incident. The Section 106 provision was vindicated by the results of a survey

which showed that almost 80 per cent of visitors to the centre arrived by public transport, bicycle or on foot. The highway network operation was monitored over the site's first Christmas period. Again, the significant assessment and modelling work and resultant design implemented for the highway network were proved correct for the predicted traffic flows.

Halcrow led the transport planning and highway engineering inputs for many years on this project.



### **Working with Halcrow**

Halcrow offers numerous services to help local authorities make the most of their transport budgets, and broad experience of meeting transport planning challenges around the world.

The tools we employ include our funding toolkit, which we use to help secure funding for transport improvements, our smarter choices toolkit, to make better use of transport networks through a wide range of low-cost measures, and our integrated transport appraisal simulator decision support tool.

For more information on how we have helped local authorities,

including example projects, visit our website at [halcrow.com](http://halcrow.com) or contact

#### **Funding:**

Andrew Price  
tel: 020 3479 8531  
email: [pricean@halcrow.com](mailto:pricean@halcrow.com)

#### **Travel demand management:**

Paul Holloway  
tel: 020 3479 8570  
email: [hollowayp@halcrow.com](mailto:hollowayp@halcrow.com)

#### **Network management:**

Andrew Price  
tel: 020 3479 8531  
email: [pricean@halcrow.com](mailto:pricean@halcrow.com)

#### **Public transport:**

Roger Childs  
tel: 01332 222 620  
email: [childsrj@halcrow.com](mailto:childsrj@halcrow.com)

#### **Cycling and walking:**

Jon Plant  
tel: 0141 404 2240  
email: [plantj@halcrow.com](mailto:plantj@halcrow.com)

#### **Integrated land use and transport planning, transport research:**

Robin Hickman  
tel: 020 3479 8566  
email: [hickmanro@halcrow.com](mailto:hickmanro@halcrow.com)

Planning, design and management services for infrastructure development worldwide