Thames Valley Multi Modal Study

Executive Summary

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Executive Summary

INTRODUCTION

The Thames Valley has seen extensive growth in population and jobs so that travel demands have far exceeded the capacity of the existing transport network. Our study has demonstrated a clear need for significant investment in a strategy that would deliver:

- **Improved public transport:**
  - Phased improvements in rail frequencies and service levels on existing lines through the study area;
  - Increased capacity at rail pinch-points, including Reading station;
  - New and improved access to Heathrow by rail by providing new links from Staines to the south and Great Western Main Line (GWML) to the north;
  - Enhanced public transport services, including new express bus/coach services connecting urban areas;
  - New or improved inter-urban bus interchanges;
  - Demand responsive transport on lower demand routes; and
  - Improved public transport timetables, marketing and publicity.
- **Travel management measures:**
  - More intensive development and application of travel plans;
  - Initiatives brought about through the Local Transport Plan (LTP) process;
  - Better integration between land use and transport planning; and
  - Road user charging, subject to further work on feasibility.
- **Improved management of road space (across the study area):**
  - Local improvements at road congestion 'hot-spots';
  - Wider use of technology, such as Intelligent Transport Systems (ITS); and
  - Priority measures for buses, high occupancy vehicles and freight.

At a total estimated investment cost of £1.1bn – comprising broadly £630m for rail, £200m for bus/mass transit, and £300m for roads – the strategy is forecast to:

- reduce accidents;
- improve air quality;
- improve journey time reliability;
- improve access to key destinations;
- encourage consistency in transport and land use planning across the study area; and
- support sustainable growth in the Thames Valley economy.

The strategy is a package of mutually-reinforcing planning and transport interventions that need to be implemented in their entirety if the full benefits are to be realised. Given the current constraints and uncertainties relating to funding, organisational structures and other issues, we recommend that the delivery of the strategy is taken forward by a joint implementation team with effective mechanisms for co-ordination. There is also a gap in

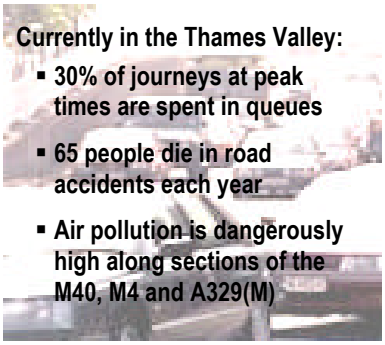
revenue funding for enhanced public transport services which will not be met by current funding arrangements.

The public transport improvements are central to the strategy. Rail improvements in particular are crucial and greater commitment is needed to enhancing the rail system in the Thames Valley, and in particular, to upgrading Reading Station.

Our analyses have shown that the application of road user charging would be effective in influencing travel patterns and encouraging motorists to use improved public transport. However, further work is required to address the technical system issues, means of enforcement and hypothecation of revenues.

BACKGROUND

Thriving local businesses and an influx of new companies have made the Thames Valley into one of the most important contributors to the south east regional economy. Clusters of hi-tech industries, green spaces, proximity to central London and Heathrow Airport have placed the area amongst the top ranking areas for investment in Europe.



But this economic success has led to transport problems. As more people move into the Thames Valley to live and commute into the area to work, the road network is becoming increasingly congested and there is overcrowding on train services, especially at peak times.

Congestion is affecting business efficiency and threatens to deter future investment into the area. The consequences of heavy traffic and car dependency are having a detrimental impact on the quality of people's lives; journey times are getting longer and less reliable, accidents are increasing, and pollution is affecting people's health and the environment.

The Government Office for the South East commissioned Atkins Planning Consultants (and sub-consultants Roger Tym & Partners and MDS Transmodal) to undertake the Thames Valley Multi Modal Study (TVMMS) in July 2001. TVMMS is one of several studies outlined in the transport White Paper *A New Deal for Transport: Better for Everyone* that aim to find multi modal solutions in areas with severe traffic problems.

The overall aim of the study was to:

> *"to identify transport problems and opportunities within the study area and to develop an integrated transportation strategy to address these"*

The work has been carried out in compliance with the Department of Transport's *Guidance on Methodology for Multi Modal Studies* (GOMMMS).

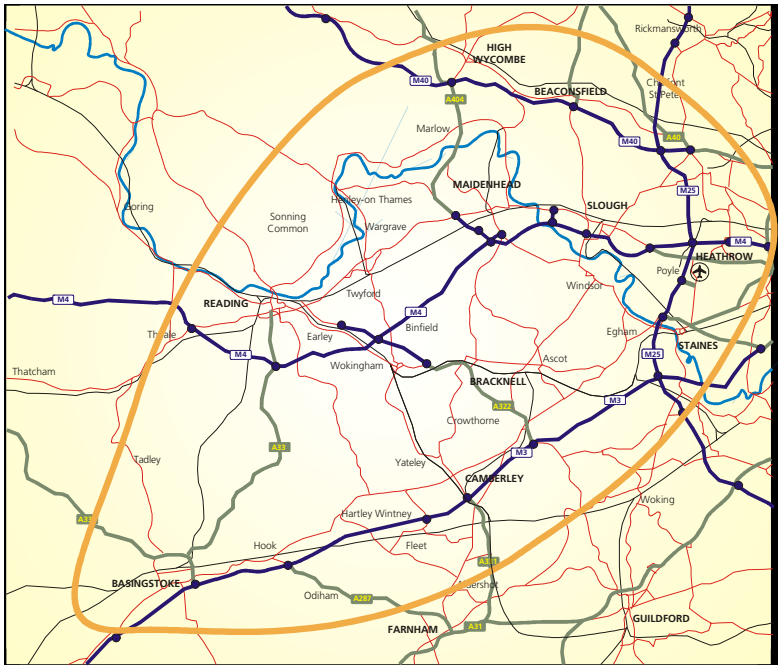
There has been consistency with other studies that impact on the Thames Valley, namely:

- **ORBIT** – covering the M25 corridor; and
- **SWARMMS** – covering the area between London and the South West and South Wales.

The TVMMS recommendations present a strategy for the Thames Valley for 2016 and a framework for policy interventions and transport investment for the period beyond 2016 to 2031. The strategy fits with the draft Regional Transport Strategy for the South East, published for consultation in Autumn 2002, such that the policies and aspirations are mutually supportive.

THE STUDY AREA

Figure 1 – Thames Valley Multi-Modal Study: Study Area



The study considered transport and land-use issues in an area covering parts of Berkshire and its environs, as shown in Figure 1.

The area is characterised by a mix of land uses (including Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty and Green Belt) that influence current transport conditions and the sorts of planning and transport choices that can be made.

TRANSPORT PROBLEMS

Data analysis and consultation have revealed the Thames Valley to have complex transport problems, ranging from strategic issues such as the distribution of population and jobs to more local issues such as the operation of local bus services.

There are high levels of car ownership and use amongst those who live and/or work in the Thames Valley, and during the morning and evening workday peaks, traffic volumes equal or exceed the available road capacity. This results in queuing and **unreliable journey times** for private vehicle users, and also for freight and public transport operators.

Long and unreliable journey times bring considerable inefficiencies to the local economy. This affects most businesses to some degree, but has particular implications for those moving freight and operating road-based public transport in the area and results in increased costs for good and services.

Traffic congestion on the trunk and local highway networks is impacting on business efficiency, access to Heathrow and the environment. The latter two were amongst the main reasons why companies moved into the Thames Valley and continued deterioration is likely to affect location choice in the future.

In the morning peak nearly 30% of average journey times are currently spent in **queues**. Without intervention, congestion will intensify on already-congested roads and spread across more of the network. There is concern that traffic is diverting on to unsuitable rural and local roads to avoid recurrent or incident-related congestion on primary routes.

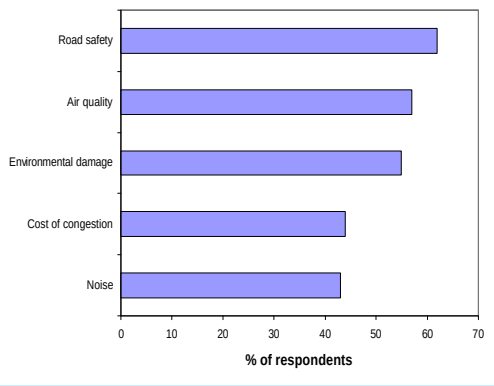
The magnitude of traffic demand has adverse impacts on the environment and people's quality of life. For example, exhaust emissions are the main cause of air pollution in the Thames Valley and seven authorities have declared **Air Quality** Management Areas (AQMA) alongside the M25, M3, M4, A329, A4, A40 and A315.

The Thames Valley is one of the least deprived areas of the country. However, there are rural parts which have particularly **poor public transport provision** and urban pockets with low levels of car ownership (notably parts of Reading and Slough where more than 25% of households do not have a car).

Public transport is often a poor alternative to the car – trains are overcrowded at peak times and perceived to be unreliable and expensive. Local buses generally offer a poor quality of service. There are limited opportunities for inter-changing between modes and disparate movements between centres mean that many destinations cannot be easily or cost-effectively served by public transport.

Key Concerns

Concerns about safety dominated the findings of the questionnaire survey in the first newsletter. 62% of respondents said that safety was the most serious outcome of the transport problems in the Thames Valley.



Consequently those who do not have access to a car are often unable to access essential facilities and services. They have heightened safety and personal security concerns which compound the effects of **social exclusion**.

There is uncertainty over the scale and distribution of future economic and demographic changes, but if current trends continue peak hour car trips are likely to rise by 23% and public transport trips are likely to increase by 40% by 2016 giving rise to more widespread congestion and overcrowding.

Average delays to road users are forecast to increase by more than 180% by 2031 unless improvements beyond those already committed are implemented. There will be a 45% increase in **carbon dioxide**[1], more **communities will be severed** by traffic flows, and more people will be annoyed by transport-related **noise**.

UNDERLYING CAUSES

Economic Growth

Much of the increase in congestion has resulted from the burgeoning growth in the Thames Valley economy. The number of jobs rose by 23% between 1991 and 1998, faster than in the South East (16%) and the country as a whole (9%). Proximity to London and Heathrow, the availability of strategic transport links and clusters of high value service (HVS) sector companies have been important drivers of growth.

[1] CO_2 is the main greenhouse gas associated with global warming

Hi-tech companies have attracted specialist staff from a wide catchment area who commute long distances by car, often to out-of-town business park locations. Labour shortages[2] and below-average unemployment rates are also forcing companies from all employment sectors to recruit staff from outside the Thames Valley.

Household Growth

In addition to the growth in jobs, there has been an increase in the resident population and an associated rise in the number of households. The total number of households in the Thames Valley has increased by 14% through the 90s, compared to 11% in the South East and 9% across the country.

But housing supply has failed to keep pace with demand for housing. Property prices are high and many employees cannot afford to move into the Thames Valley to reduce their commuting journey. There is also an acute shortage of 'affordable' housing which impacts on the potential for meeting the shortage of transport sector staff such as bus drivers.

Locational Factors

A tendency towards low density, single land use developments has meant that people have to travel further between home, work and social/leisure opportunities and they have become dependent on their car because there are few alternative travel options.

Green Belt and other environmental designations have constrained further development, including the potential for extending existing settlements to provide housing closer to jobs.

POLICY OBJECTIVES

Transport improvements are an important end in themselves, but our work is predicated on the strong links between transport and wider economic, environmental and social policy.

The development of the strategy aimed to deliver the Government's over-arching objectives for transport:

- Environment – reduce the direct and indirect impacts of transport including noise, atmospheric pollution, etc.
- Safety – reduce loss of life, injuries and damage.
- Economy – improve economic efficiency (journey times, operating costs and fares).
- Accessibility – improve the ease of reaching different locations by different modes.
- Integration – improve co-ordination between transport modes and between transport, and land use and other policy areas.

Within this broad context, we have also focused on sub-objectives that relate to the aspirations of the regional and local planning policies, our steering group and those who participated in the consultation exercises.

[2] All Thames Valley districts display unemployment rates equivalent to or below the 2% 'frictional rate of unemployment' which is the natural state of a buoyant economy necessary to facilitate job turnover.

THE RECOMMENDED STRATEGY

The study has considered various strategy options through a combination of technical analyses and consultation. We have concluded that the best way forward is to pursue a mix of interventions that combine to increase the effectiveness of the individual elements.

We believe that in order to provide the accessibility levels necessary to maintain a thriving economy, high quality environment and an inclusive society, the strategy must contain travel demand management, public transport enhancements and localised highway improvements.

The strategy components have been developed to a level that would allow assessment of the main impacts and consideration of deliverability issues. However, many of the schemes will be subject to further design and development work in a more local context and will be required to pass through the usual statutory procedures.

Demand Management

Land use planning has an important role to play in reducing the need to travel and encouraging modal shift through the location, type and density of development.

Continuing existing trends of dispersed and single use development could lead to a 50% increase in car traffic by 2031. However, strict adherence to the principles set out in the Government's Planning Policy Guidance and the Regional Planning Guidance for the South East can reduce this growth by nearly a quarter.

LAND USE PLANNING

Our strategy advocates policies to:

- concentrate development activity at hubs located in existing town centre locations;
- develop hubs as part of wider town centre redevelopment and/or regeneration;
- promote hubs as part of mixed land use development and as an opportunity to bring forward brownfield sites;
- focus high density employment uses within a certain radius of transport nodes; and
- focus high density residential development with no or limited parking allocation in close proximity to any interchange.

More immediate impacts on travel patterns can be achieved through initiatives targeted at changing travel behaviour relating to existing and well-established land uses.

TRAVEL PLAN INITIATIVES

All staff working for businesses and public sector organisations with over 100 on-site employees – about 50% of the Thames Valley workforce - are within the scope of travel plans.

Initiatives could reduce commuter trips by 8 to 10% by 2016.

Travel plans include a range of measures tailored to the needs of individual companies and other institutions (such as hospitals and schools) to promote more efficient travel choices. The Thames Valley already has good examples of travel plans that have led to modal shift. Given the type and structure of companies in the Thames Valley, there is great potential for more flexible working, teleworking and video-conferencing.

Public Transport

Interactions between the centres of population and employment within the Thames Valley and commuting flows into and out of the area generate a complex pattern of movements that are difficult to accommodate by conventional public transport.

We believe that the best approach to improving the provision of public transport is through an integrated, multi-modal **hub and spoke** system (Figure 2 overleaf). Lower capacity access modes (including car, cycle, bus and demand responsive transport) will serve convenient interchanges that channel demand into key corridors. Integrated timetabling, ticketing, fares and information systems will be important in improving the attractiveness of the system and encouraging usage.

Existing **rail** services need to be improved with a combination of higher service frequencies, capacity enhancements, new track, more stations and changes in service patterns. These will optimise stopping and through passenger and freight services, and create new and enhanced travel opportunities by rail.

Corridors that cannot be well-served by rail can benefit from:

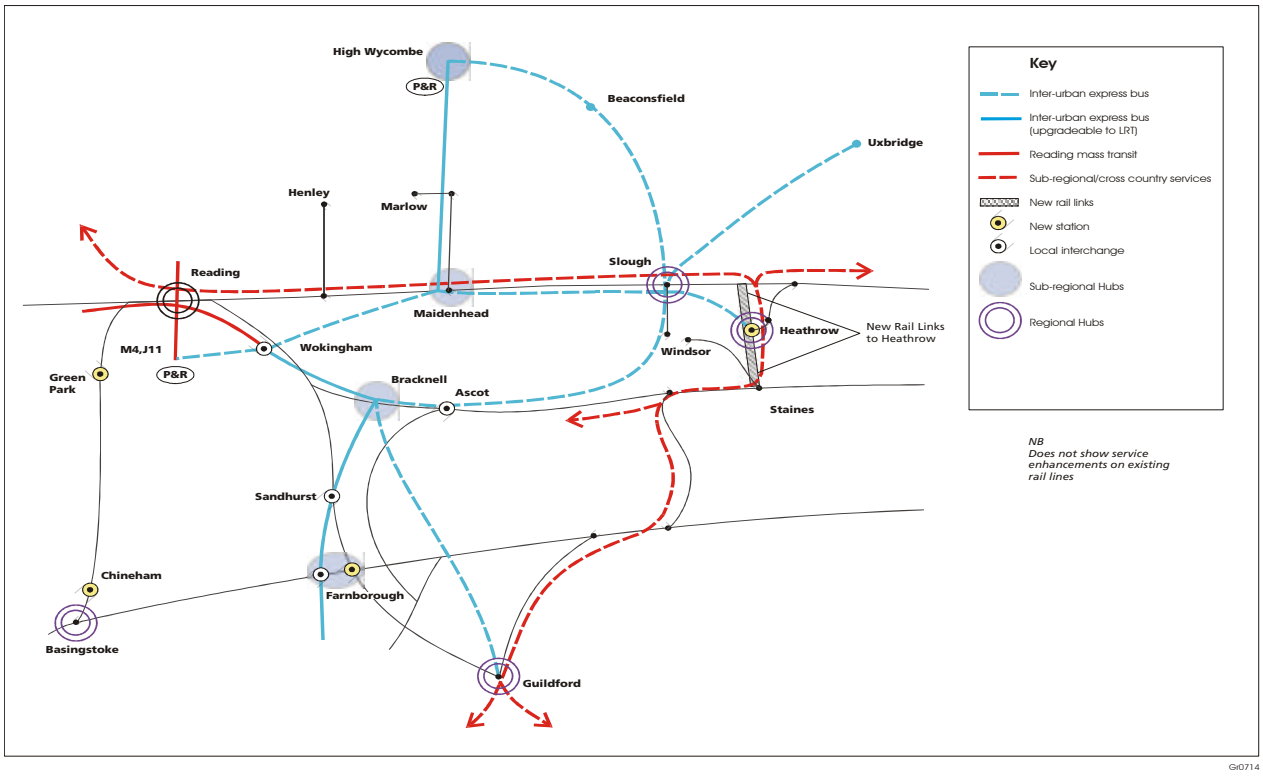
- improvements in **inter-urban bus services** through higher frequencies and more routes;
- **mass transit** (where feasible from an engineering, financial and economic perspective);
- **demand responsive transport** services, for example, in areas where there are lower levels of demand.

PUBLIC TRANSPORT

Our strategy contains plans for:

- **An integrated, multi modal 'hub-and-spoke' system** with eight major hub sites
- **Phased rail improvements**, comprising
  - Phase 1 (pre 2012) - Frequency enhancements on existing GWML and 'Windsor Line' services.
  - Phase 2 (post 2012) - Upgrade of Reading station, further GWML frequency enhancements and cross-Reading services.
  - Phase 3 (post 2012)- New stations at: Farnborough, Green Park, Chineham and other locations to support sustainable new development
- **New rail links** between Staines-Heathrow and GWML-Heathrow
- **New Inter-urban bus services between hubs**, including:
  Guildford – Bracknell – Maidenhead – High Wycombe
  Reading – Maidenhead - High Wycombe
  Reading – Maidenhead – Slough – Heathrow
- **Enhanced urban/local services** including mass transit/quality corridors on high demand routes in Reading and the Blackwater Valley
- **Demand responsive transport**
- **Improved public transport timetables, marketing and publicity** including real time information using internet and mobile communication.

Figure 2 – Thames Valley Public Transport Strategy



Road User Charging

Motorway tolling, cordon charging, distance/time/congestion-based levies and private non-residential parking charges are all mechanisms for enabling the full costs of car use (pollution, congestion and accidents) to be directly linked to car use.

Our strategy includes an option of introducing some form of area-wide charging which would be consistent with the recommendations of the ORBIT study. Such systems are currently unproven in terms of technology and public acceptability, but they have the potential to encourage motorists to reconsider how they travel and reinforce the effectiveness of the demand management and public transport elements.

ROAD USER CHARGING

Charging has not been included as a 'core' strategy element, but an area-wide levy equivalent to 6.5p/km is shown to encourage significant congestion relief.

Road Improvements

Even with demand management and a shift to public transport, there will still be high levels of car use in 2016 and parts of the network will continue to be congested.

New and widened roads have been considered as a means of providing more road capacity to ease congestion and accommodate increasing demand for car use. However, these are severely constrained by existing environmental designations and the need to protect the high quality environment. Little support was apparent for new road construction in our consultation, apart from local schemes designed to address specific 'hot-spots'.

Localised highway improvements will assist in managing traffic conditions and, whilst it is not within the scope of the study to look at improvements on every part of the network, we believe that junction improvements can help alleviate bottlenecks without creating new strategic routes through the Thames Valley.

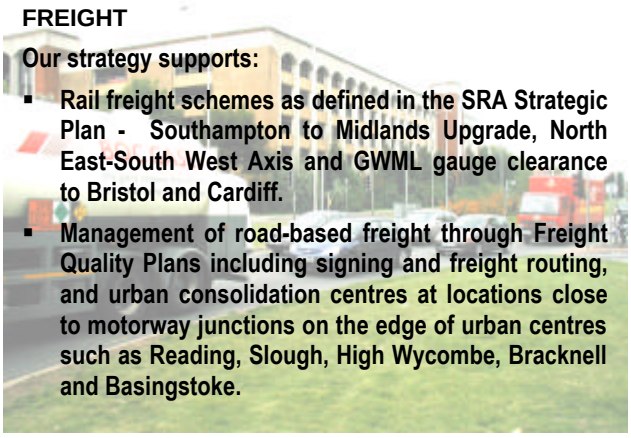
BETTER MANAGEMENT OF ROAD SPACE

Our strategy includes:

- **Traffic management** with measures such as incident detection, electronic traffic signs to manage incidents, more CCTV coverage and variable speed limits
- **Facilities for priority users** (public transport, freight and high occupancy vehicles) including priority access arrangements at motorway junctions, junction layout improvements and lane discipline controls
- **Public transport priority measures** to support inter-urban bus enhancements
- **Localised highway improvements on corridors under 'stress' (figure 3)** including:
  - A322 and A3095 south of Bracknell
  - A329/A329(M) corridors between Bracknell and Reading
  - A329 through Reading
  - A404 between the M4 and High Wycombe
  - A4 through the study area
- **Traffic and traveller information** using variable message signs.

Traffic management measures should also be used to give priority to public transport, high occupancy vehicles and freight to provide greater reliability.

There is a relatively dissipated pattern of **freight** activity throughout the Thames Valley, though there is a particular clustering of air freight activity in the vicinity of Heathrow. Approximately 90% of tonnes lifted are currently transported by road. Our analysis suggests that up to 2.0 million tonnes - less than 4% of goods currently moved by road - could be attracted to rail and derive a cost benefit. However, it is unlikely that all this traffic would actually shift to rail, given the quality of service, just-in-time requirements, handling and other logistical considerations.



FREIGHT

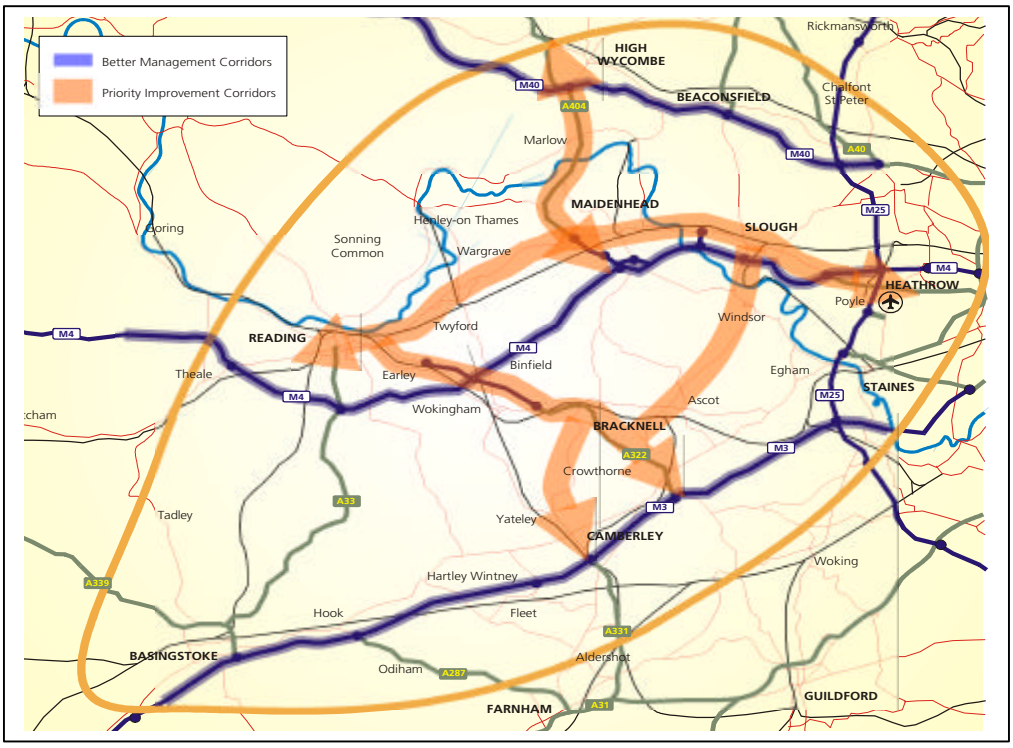
Our strategy supports:

- **Rail freight schemes as defined in the SRA Strategic Plan - Southampton to Midlands Upgrade, North East-South West Axis and GWML gauge clearance to Bristol and Cardiff.**
- **Management of road-based freight through Freight Quality Plans including signing and freight routing, and urban consolidation centres at locations close to motorway junctions on the edge of urban centres such as Reading, Slough, High Wycombe, Bracknell and Basingstoke.**

The Thames Valley is characterised by hi-tech industries and provides a particularly promising context for the implementation of innovative **information technology systems** building upon initiatives already being implemented across the Thames Valley area. New technology can help to inform travel choices and improve incident management by

increasing the amount and timeliness of information available to travellers. Smart cards offer a convenient mechanism for paying for public transport, car parking, etc. Variable message signs and CCTV can assist incident management and enforce priority lanes.

Figure 3 - Priority Corridors



STRATEGY IMPACTS

The strategy with road user charging reduces the amount of road traffic by nearly 20% and the amount of delay by over 35% in 2016. This means that traffic would be similar to today's levels. Without road user charging, traffic levels fall by only 8% and delay by 25%.

The appraisal of the strategy outcomes against the Government's over-arching objectives and our Thames Valley sub-objectives shows that in 2016 the strategy:

- reduces car mode share from 93% to 90%; and
- increases public transport mode share from 7% to 10%, and increases public transport mode share for trips to Heathrow from 33% to at least 40%.

Some other impacts of the strategy are shown in Table 1 overleaf.

Table 1 – Appraisal Summary

Objective		Outcome
Safety	✓	annual savings of 3-6 fatal, 39-57 serious and 505-783 slight casualties
	✓	security improvements through public transport initiatives
Environment	✓	2-8% improvement in transport emissions of PM10 and nitrogen oxides and reductions in all the Air Quality Management Areas
	✓	4-8% reduction in carbon dioxide
	×	adverse impact on the landscape of new rail links to Heathrow
Economy	✓	at least a fourfold economic return on the investment costs.
	✓	improvement in reliability by reducing the proportion of roads 'at' or 'above' stress levels by between 19-68%
	✓	fall in level of congestion on routes used by heavy goods traffic
	✓	benefits to sustainable development of the local economy through significantly improved access to Heathrow, and wider range of journey to work options, through public transport enhancements.
	✓	substantial reductions in journey times to Heathrow with at least 17% more resident population within 60 minutes by public transport and 48% by car
Accessibility	✓	15-20% improvement in public transport journey times on key corridors. 10-20% improvements in car journey times.
	✓	new stations, hubs and mass transit services provide another transport option for 36,000 people living within 250m (ie 2% of the study area population)
Integration	✓	consistency with land use and other regional/national polices.
	✓	encourages consistency and co-ordination across administrative boundaries.

STRATEGY, COSTS AND AFFORDABILITY

The overall capital cost of the strategy is estimated to be in the order of £1,150m, as shown in Table 2 overleaf. The major elements of cost relate to the up-grade of Reading station and the new rail links to Heathrow.

The majority of the funding will need to be provided by the Government and will require funds in addition to those currently provided through the Ten Year Plan and Local Transport Plan settlements.

We anticipate that it would be possible to attract significant levels of investment from the private sector, including contributions captured through the development planning process to help fund enhancements to the hub and spoke integrated public transport network and road improvements at motorway junctions.

In the longer term, the revenue from road user charging will enable enhancement in public transport operations and further investment in new infrastructure.

Table 2 – Scheme Costs (£million, 2001 prices)

Element	Capital Costs	Operating Costs (per annum)
Rail	632.0	114.1
Mass transit & bus	203.5	17.1
Highway	305.1	10.0
Other	10.0	10.0
Total	**1150.6**	**151.2**

RECOMMENDATIONS FOR DELIVERING THE STRATEGY

The strategy relies on a high degree of co-ordination between authorities to ensure effective and consistent delivery of the elements across the Thames Valley. The delivery agencies will need to agree how best to achieve this co-ordination by setting up a **joint implementation team**.

Demand Management

Land use planning policies will require co-ordination at a sub-regional or regional level with the public transport hub and spoke proposals adopted by spatial development plans as soon as possible.

Implementation and enforcement of effective **travel plans** will require dedicated staff to co-ordinate initiatives at an area-wide level and will require strong 'buy-in' from the private sector. We recommend that regional travel co-ordinators are appointed and that the Thames Valley seeks to lead in establishing high and consistent standards as part of a formal accreditation process being considered nationally by DfT.

Public Transport

There are considerable uncertainties over how limited **rail** capacity might be allocated in the future, given competing demands, the re-franchising process and capacity utilisation work that is being undertaken by the SRA. As a minimum, our strategy requires that existing levels of service in the Thames Valley should be safeguarded, and our recommendations incorporated into the SRA's Strategic Plan at its next review so that the necessary funds can be committed.

Some **bus** elements of the strategy can be achieved in the short to medium term within the current legislative framework, whilst others will only be possible in the longer term after changes are made in the way the bus and coach industry is organised and funded.

It is imperative that the infrastructure associated with the recommended **quality public transport corridors**, including bus priority measures and marketing and publicity initiatives, is in place or programmed before the inter-urban bus services commence in 2006. These services will require an operating subsidy, at least in the early years of operation.

Without changes to the regulatory environment, it is likely that a Quality Contract will be the only practical way of introducing the scheme in its entirety. We believe that this will be most effective as a single agreement that covers the whole of the area, but we stress that revenue funding in addition to that currently available to the Thames Valley authorities will be needed.

Demand responsive transport will also require revenue support, but there may be potential for re-routing existing funding sources such as the Rural Bus Grant and Challenge Funds.

Mass transit proposals for the Reading area and the Blackwater Valley require the local authority promoters to undertake more detailed feasibility studies to establish the full financial, commercial and transport case for these schemes and the most appropriate technologies.

Road User Charging

The delivery of **area-wide road user charging** will require primary legislation and strong commitment at the central and local government level. It is highly unlikely that charging will be publicly and politically acceptable if it is confined to the Thames Valley and there is an important role for SEERA in ensuring consistency with the wider area proposals recommended by ORBIT.

Feasibility work is required to address the technical system issues, means of enforcement and hypothecation of revenues.

The major public transport elements of the strategy must be in place, or at least programmed for delivery, prior to the introduction of charging in 2011.

Road Improvements

The measures recommended for improving and prioritising traffic operations on the trunk road network need to be progressed by the Highways Agency. Improvements on other roads need to be progressed through the Local Transport Plan process.

The traffic management measures need to be implemented early within the strategy timeframe, as these will be critical in addressing current congestion problems, in advance of the implementation of the new infrastructure.

A **new Thames crossing** could deliver traffic relief, severance and other benefits in the proximity of the existing bridges that would be consistent with the overall aims of the strategy. However, there are likely to be significant traffic and environment impacts on both sides of the river adjacent to the new crossing.

A new Thames crossing would have a significant impact on traffic in Sonning

We recommend that the case for the bridge be considered further as part of a package for the Reading urban area which considers the scope for re-allocating existing north-south capacity across the river to support public transport and traffic management to minimise localised impacts.

The transfer of **freight** from road to rail will be dependent on the SRA implementing the Strategic Freight Plan. Better management of road-based freight will need to be pursued through Quality Partnerships between the local authorities and freight operators.

Implementation Plan

Table 3 shows an implementation plan for the strategy that takes account of potential funding requirements and sources, planning and implementation lead times, and – importantly – practical constraints on transport providers.

Table 3 – Implementation Plan

Strategy scheme/measure	Recommendation/action	Lead Promoting/ Implementation bodies	Implementation timescale
Joint implementation	Set up a mechanism and team to over-see and co-ordinate implementation of strategy	Local, regional and central government bodies with delivery agencies	2003 – 2005
Phased rail enhancements	Implement enhanced local rail services	SRA and TOCs in consultation with joint implementation team	2003-2012 for pre GWML up-grade, 2012 for post-upgrade
	Earliest possible inclusion of redevelopment of Reading station in the SRA's Strategic Plan.	SRA	Further investigation commencing in 2003, with a view to implementation by 2012
	Further work to review Paddington capacity issues in the light of the requirements emerging from TVMMS and SWARMMS	SRA	Further investigation commencing in 2003, with a view to implementation by 2012
	Earliest possible inclusion of new rail links to Heathrow in the SRA's Strategic Plan.	SRA	Further investigation commencing in 2003, with a view to implementation by 2012
New inter-urban bus services between hubs	Further development work, with particular regard to operational structure, and the development of the key corridors.	Joint implementation team, with local authorities and bus operators	2003 – 2005, commencing implementation in 2006
Enhanced urban/local services (including Reading and Blackwater Valley)	Further feasibility work on the Reading and Blackwater Valley schemes	Local authorities	On-going from 2003, implementation 2009-2012
	Pursue Initiatives through the LTP process and (QBPs) to provide greater bus priority and enhanced local services	Local authorities, and bus operators through joint implementation mechanisms	2003 onwards
Travel plan initiatives	Establish co-ordinated area-wide approach to travel demand management.	Joint implementation team, in consultation with local authorities	2004 onwards
Local Transport Plans	Pursue initiatives through the LTP process to encourage modal shift to walking, cycling and public transport	Local authorities	2003 onwards
Land use planning	Development of planning policies based upon hub and spoke transport enhancements	Local and regional planning authorities	2003 onwards
Road user charging	Undertake further work into the technical feasibility and public acceptability.	Central Government (DfT), SEERA	For implementation by 2011
Road Traffic flow management through design and technology	Implementation of measures in advance of, and alongside, other key elements of the Thames Valley strategy	HA and local authorities, through joint implementation mechanism	2004 onwards
Facilities for priority users: public transport, freight, high occupancy vehicles	Identification and appraisal of schemes through the LTP and RMS processes	HA, local authorities, through joint implementation mechanism	2004 onwards
Freight from road to rail	Implementation of SRA's Strategic Freight Plan	SRA	2003 onwards
	Further work to identify potential Thames Valley freight transfer facilities.	Local authorities, SRA and freight operators through the joint implementation mechanism	2004 onwards
Management of road-based freight	Further development of FQPs and freight routing strategies	Local authorities with freight operators, through the joint implementation mechanism	2003 onwards

THE LONGER TERM

The recommended strategy represents a series of mutually-reinforcing and complementary transport and land use interventions. It is important that the strategy is delivered in its entirety if it is to be effective and if it is to provide a platform for further improvements in the Thames Valley.

There are inevitably some uncertainties that will have a bearing on longer term investment decisions. These include:

- **Uncertainty over Road User Charging**

Road user charging is crucially important to our strategy, but political and technological issues mean that it is unlikely to be implemented within the next 10 years.

In the chance that it will not be possible to introduce charging in 2011, we have assessed the case for major road building to address traffic congestion, and concluded that this should not be part of the strategy. Of course alternatives cannot be dismissed in their entirety; the ineffective delivery of the strategy itself and different patterns of development and economic growth could improve the case for road building in the longer-term.

The benefits of motorway widening (in terms of reduced delay, economic efficiency and accident savings) are relatively modest, if road user charging is in place. But there are also disbenefits including increases in noise and air pollution. Without charging, the economic case for widening improves, but the negative impacts increase.

- **Further investment in public transport**

The strategy has not specified the level of public transport service provision needed for the longer term as this will depend on future growth in patronage. There may be a case for higher capacity mass transit corridors, particularly in the context of road user charging and land use strategies that are geared specifically towards optimising public transport use. Potential corridors include High Wycombe – Bourne End – Maidenhead and Blackwater Valley – Reading.

- **Integrating Transport and Land-use planning**

Planning policies that comply with Regional Planning Guidance (RPG) have less impact on travel demand compared to a continuation of the sort of policies that have given rise to the development and transport patterns seen today. The implementation of a land use policy in accordance with RPG has a crucial role to play in addressing the transport problems in the Thames Valley. In addition, the transport strategy itself can influence land use development, not least by encouraging the concentration of mixed use and high density development in and around public transport hub locations. Whilst this has considerable potential for further reducing car dependency and trip lengths in the future, the development capacity of the hubs is constrained and, in the longer term, will require a radical set of land-use decisions.

Overall the recommended transport strategy provides a robust case for addressing transport problems and the underlying causes in the Thames Valley over the next 15 years. The strategy, importantly, establishes a platform on which to continue to sustain the economic and environmental well-being of the area in the longer term.