



Highways Agency

Vision 2030

Freight : A Discussion Paper



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Draft / Final	Version 1	Version 2	Version 3	Final
Remarks	DRAFT			
Date	April 01			
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Freight - A Discussion Paper

"We have a world class freight distribution industry, which plays a vital role in supporting competitiveness and growth in every sector of the UK economy. I want to make sure we stay ahead of the competition. We can only do that by responding to the challenges of the next millennium"

The Rt Hon Dr John Reid

Minister of State, Department of the Environment, Transport and the Regions

SUSTAINABLE DISTRIBUTION STRATEGY DOCUMENT

“Sustainable Distribution: A Strategy” published by DETR on 2nd March 1999 sets out the Government’s policy for the movement of freight during the first decade of the new millennium. This discussion paper looks ahead two decades further and attempts to foresee what the imperatives will be then. It suggests further proposals to continue the process of “increasing efficient delivery whilst protecting our communities from intrusion and maximising the benefits of rail and water transport”¹.

What are we about?

The responsibility of the Highways Agency goes beyond the operation and maintenance of the Trunk Road Network as currently defined. It has to make sure that it is prepared to meet the demands that the future may expect of it. The HA, and its predecessors, has enjoyed a reputation for being in the forefront of new developments in the fields of materials and operational systems and continues, in collaboration with partners in the UK, Europe and elsewhere, to carry out a substantial program of research and development. This exercise seeks to go further by looking over the horizon to attempt to foresee the type of infrastructure, systems and operational regimes that will be needed in the Year 2030.

Drivers for change

What can we predict for 30 years time? The following criteria are unlikely to change;

- There will be a continuous increase in demand for the movement of freight;
- Businesses and individuals will increasingly value the ability of the freight industry to deliver goods at predictable times;
- There will be sustained pressure to reduce the environmental impact of transport systems.

What will the world be like in 2030? It can reasonably be expected that trends that are already apparent are likely to result in the following influences on the freight industry:

- ***Shopping*** - a vastly improved on-line service will provide a virtual reality home shopping experience that will rival the trip to the mall. Although this is likely to reduce the number of home-to-shop trips in personal vehicles it will enable goods to be purchased directly from

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anywhere in the world. Delivery of goods is likely to grow into an even bigger and more competitive business.

→ **Routine Office Work** - there will be more choices. Most companies will be able to decide whether they want to bring all their staff together on every working day. It will be possible to provide an acceptable level of remote supervision of those working at home or at “village” work centres. Vastly improved Video Conferencing will mean that people can routinely participate in important meetings from their home. If commuting becomes too difficult there will be an option to opt out. Why should people continue to endure “rush-hour” travel conditions unnecessarily? But if people congregate less for work the distribution of business equipment, consumables and hard products to and from a widely dispersed workforce will be a complex task.

→ **Manufacturing** - the internalisation of manufacturing is likely to be further developed. Continued expansion and integration of the European Union (and other similar relationships that may develop) will enable work to be relocated to those places where the appropriate skills are most economically available and efficient transport arrangements exist for the supply of materials and distribution of products. A region’s prosperity will, more than ever, depend on the efficiency and capacity of its transport links.

Imperatives

There will be continued pressures to increase operational safety and reduce environmental impacts. The requirement for efficient and reliable movement of freight will continue to rise linked to a gradual increase in public awareness of their dependence on the freight industry to support their communities and maintain their quality of life. This will be particularly important for the UK, which is situated on the edge of Europe, comparatively far from its markets. We are at a natural disadvantage compared to countries like Germany, which sit at the centre of gravity of Europe’s markets and at the hub of its transportation systems. The UK will have a big incentive to be at the forefront of innovative freight transportation systems and to make the necessary investment in research and development to be ahead of the field.

¹ Forward by the Deputy Prime Minister to Sustainable Distribution: A Strategy - March 1999

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What will be required?

The Country's freight transport system will need to accommodate the following:

- The fast, predictable and reliable delivery of raw materials for manufacturing;
- The fast, predictable and reliable movement of components between assembly centres;
- The fast, predictable and reliable distribution of bulk goods;
- The delivery of products to end users on predictable dates at predictable times.
- A drive to make road freight transport at least as safe as rail freight;
- A continuous drive to reduce emissions from vehicles and overall power consumption;
- A continuous drive to reduce emissions noise transportation systems;
- A need to minimise the visual intrusion of transportation links whilst maintaining an acceptable environment for drivers and other travellers.

How can this be done?

- Move to a controlled environment in which the safety, environmental impacts and operational efficiency of the network is optimised by the progressive limitation of choices by drivers once their vehicle is on the strategic road network. This would ultimately involve booking a path in advance.
- Equip vehicles and the fixed infrastructure to facilitate the transfer of control of vehicles from the driver to an infrastructure linked control system.
- Undertake infrastructure maintenance operations with the minimum of "down time" by adopting modular construction amenable to replacement of sections during short possessions.

As a first stage in the provision of these facilities it is planned that the movement of freight should take place via ***Dedicated Long Distance Freight Lanes (DLDFLs)***. Two DLDFLs could be provided in the centre of the motorway cross-sections. The existing lanes being moved over onto the hard shoulder. This will of course require the elimination of the need for hard shoulders and the clearance of all street furniture and other obstructions from the median.

The following pages describe a Vision for the provision of Dedicated Long Distance Freight Lanes by the Year 2030.

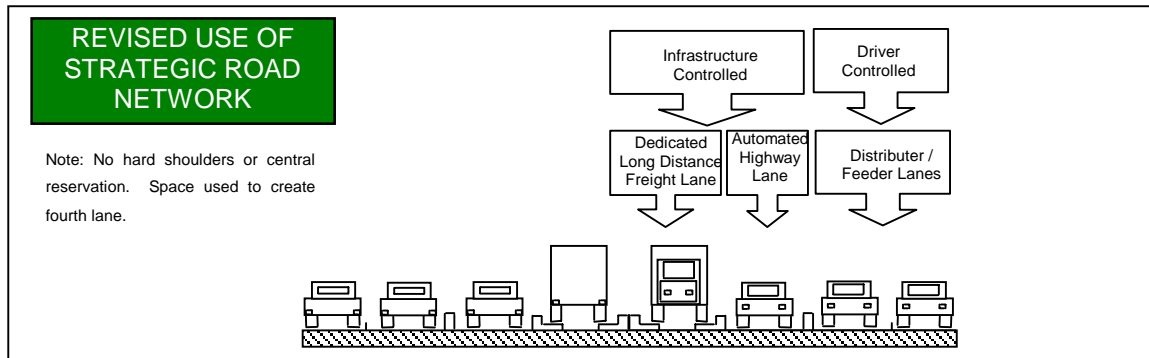
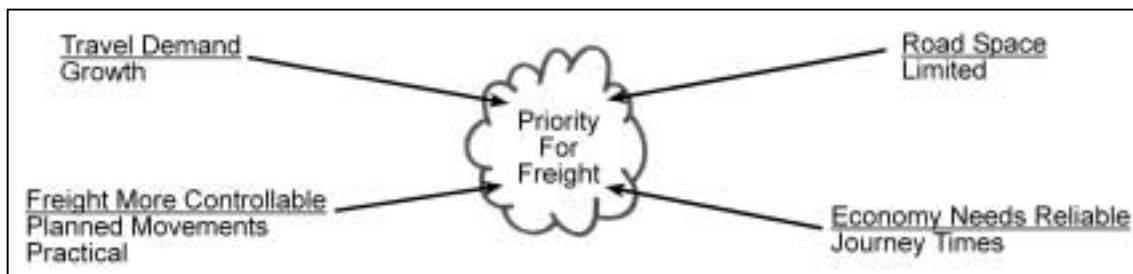
DEDICATED LONG DISTANCE FREIGHT LANES

THE VISION

The provision of **Dedicated Long Distance Freight Lanes (DLDFL)** with access through **Freight Villages** for inter-regional freight movements.

WHY?

- Quotation from Bill Clinton "It's the economy, stupid!" - We can't afford to improve our quality of life without a healthy economy.
- The economy depends on reliable deliveries of goods with predictable journey times.
- The market rules - you can't buck the market in the world economy and survive.
- Strategic Roads are the most versatile medium for the inland movement of most freight.
- Transfer of freight to rail may slow the growth of demand for road freight movements but will not stop that growth.
- With the predicted growth in traffic the first call on available space on the Strategic Road Network will need to be given to freight.
- Freight movements are amenable to planning. Movements can be time-tabled.
- Integration - to be more versatile, railways need to become more like roads - to be safer, more predictable and more efficient roads need to become more like railways.



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HOW WOULD IT WORK?

Vehicles

Vehicles to be used on a DLDFL in 2030 would need to be:

- Quiet, efficient and well maintained;
- Have sufficient power/weight ratio to maintain ambient speed;
- Equipped to be controllable by the infrastructure on DLDFLs;
- Able to be driven by an operator on other roads.

Vehicles on DLDFLs would have:

- Improved operating efficiency - fuel savings and emissions reductions as a result of close following (slip streaming), constant speeds (regulation of power to weight ratios will ensure all vehicles can maintain speed on gradients) and reduced braking;

Vehicles on DLDFLs would have to be limited to:

- Suitably equipped HGVs;
- Suitably equipped coaches - "Bus Waves" could be provided at designated times.

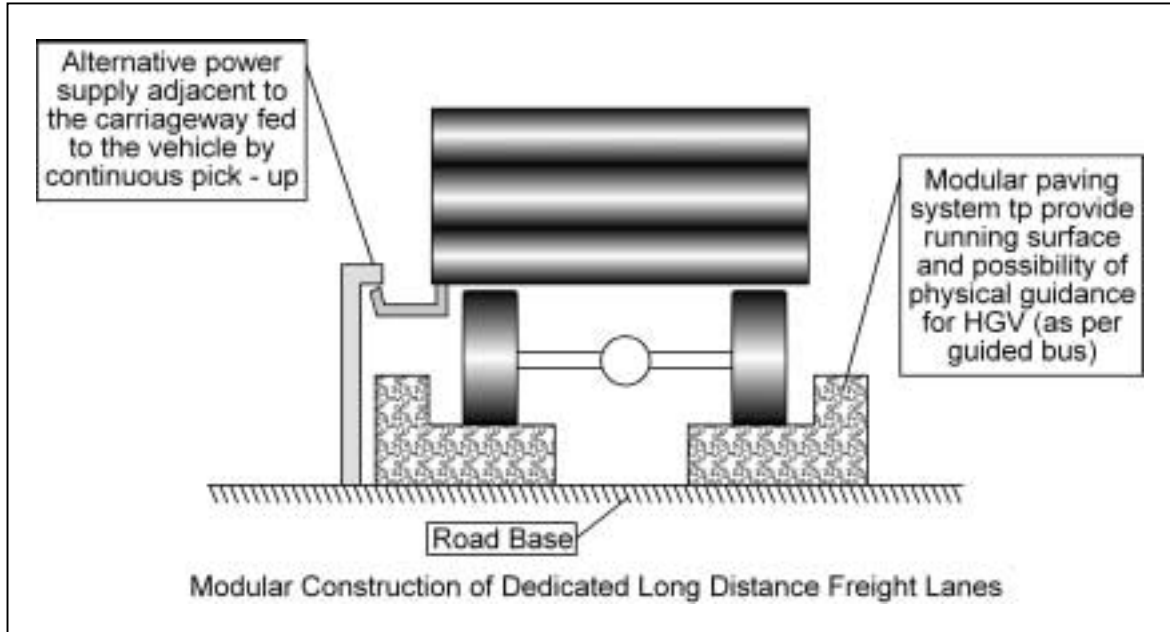
Strategic Roads (Motorways)

The Strategic (Motorway) Network in 2030 with DLDFVs could have the following features:

- No Hard Shoulders - they would not be necessary because:
 - crashes will be rare as control system will reduce opportunities for driver choice and error - systems will not allow lane changing except to enter and leave motorway and will control speed and head-ways;
 - better standard of vehicles, rigorous maintenance regimes and high penalties for breakdowns.
- Space for DLDFLs in the centre of the cross-section found by moving other lanes onto hard shoulder space (see cross-section);
- Dedicated entry slips to DLDFLs from Freight Villages only;
- Physical boundaries between DLDFLs and other lanes;

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- Power pick-up for optional use of electric traction on DLDFLs;
- Modular construction to allow sections of DLDFL roadway to be replaced/maintained during very short closures (hours not days) - see below.



Freight Villages

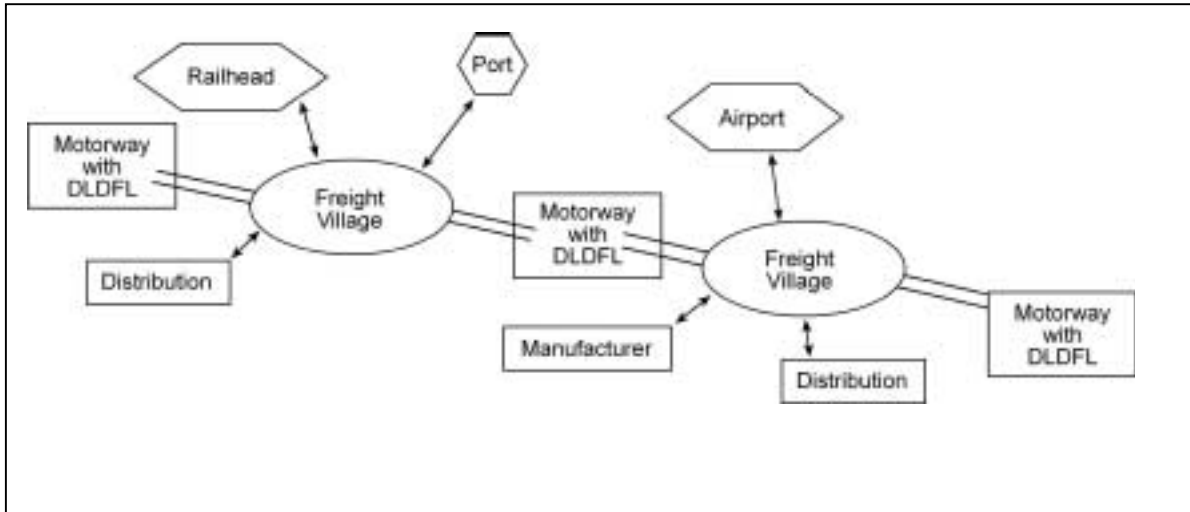
The primary purpose of Freight Villages would be to:

- Allow HGVs to be fed onto the DLDFLs in a controlled manner / Allow HGVs to refuel and wait for booked path
- Provide facilities for checks on the suitability of vehicles to use the DLDFLs and local roads;
- Provide facilities for drivers - sleeping, eating, washrooms etc.;

They would be located:

- Adjacent to the Strategic Road Network;
- Adjacent to rail freight transfer facilities, ports and airports;
- Convenient to major centres of economic activity;
- In areas suitable for the development of warehousing, freight distribution centres, wholesale markets and regional hubs for long distance coach routes;

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Access to Freight Villages will be;

- Via dedicated slips to and from DLDFLs for inter-regional HGVs;
- Via all-purpose motorway lanes and local principle roads for access to regional distribution;
- By dedicated links from Ports, Airports and Railheads - these could be provided by advanced freight handling conveyor systems.

Freight Villages could also:

- Be developed into regional distribution centres;
- Be equipped with advanced freight handling facilities;
- Allow the possibility of freight operators using either their own equipment or specialist companies to haul trailers between freight villages;
- Allow the size of vehicles to be limited for onward distribution within towns and villages;
- Bring improvements to the predictability of business and home deliveries;
- Bring improved links to small businesses - wholesale markets will be fed from distribution villages.

Operations

The following operational features could be developed:

- Bookable HGV paths between Freight Villages;
- Clearing house to minimise empty lorry movements;
- Full monitoring of DLDFLs so that any failures can be dealt with quickly;

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- Elimination of breakdowns through compulsory high maintenance standards for vehicles which use DLDFLs and very high penalty charges levied for dealing with breakdowns;
- Charging for paths on the DLDFLs.

It is expected that a general system of charging for the use of the Strategic Road Network will be in place by 2030. This can be used to prevent HGVs from using the adjacent all-purpose motorway lanes for inter-regional journeys.

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NEXT STEPS

Discuss Vision with:

- DETR interest: freight, vehicles, tolling;
- Freight operators (RHA, FTA etc);
- Vehicle manufacturers and developers of technology;
- EU and other road agencies;
- Operators of other transport systems (rail, air water etc.);
- Academia and think tanks.

Develop programme of supporting research to:

- Develop a prediction of freight movement patterns in 2030;
- Establish the current state-of-the art in international thinking;
- Develop dedicated lane vehicle control technology;
- Develop the hard infrastructure components.

Supporting research projects that could be started immediately are listed in Annex B.

Note: This Vision for Dedicated Long Distance Freight Lanes was developed at a two day workshop organised by HA TSS and held in Mid Wales in 21 - 23 Feb 1999. Those who attended the 2030 Vision Workshop are listed in Annex C.

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Annex A – Policy Linkages

Linkages between the relevant “Actions” promoted by the DETR publication “Sustainable Distribution: A Strategy” and proposals described in the Discussion Paper (*in italics*).

“To promote integration within the freight transport industry and with our planning and road policies we shall:-

- Ensure the management and development of trunk roads takes place within the context of our integrated transport policy and land use planning policies - siting of Freight Villages - *making better use of existing Motorway corridors.*
- Improve road maintenance, making it the Government’s first priority - *development of modular road tracks DLDFVs.*
- Improve the integration of the road network with major transport interchanges so as to promote greater use of rail and water transport for freight - *Freight Village concept.*

“To promote integration of the freight distribution infrastructure we shall:-

- propose a national policy framework for major freight interchanges - *Freight Village concept.*

“To improve our understanding of the distribution industry we shall:-

- commission research into issues in freight transport and distribution - *consultation proposals.*

“To improve safety in the industry we shall:-

- encourage best practice within the for driver training, vehicle maintenance and site operations - *concepts of motorway fit vehicle and motorway fit driver.*
- Encourage better provision of roadside rest facilities for lorry drivers - *included in Freight Village concept.*

“To promote the sustainable distribution of goods in urban areas we shall:-

- carry out research into the potential for freight consolidation system to improve urban distribution - *Freight Village concept will facilitate freight consolidation.*

“To help meet the Government’s objectives for air quality we shall:-

- encourage the use of cleaner, alternative fuels through changes to fuel duty rates and grants from the “Powershift” programme - *DLDFLs could be equipped with electrical supply conductors.*

“To help meet the Government’s target for CO2 reductions we shall:-

- Prepare a guide on computerised vehicle routeing and scheduling systems - *essential for operation of DLDFLs.*

Annex B – Early Start Projects

Vehicle Control Technology - Projects to develop the technology for the control of vehicles by the infrastructure are dealt with in a separate proposal and not included here.

Total Monitoring of the Trunk Road Network - the development of an economic system to provide total day and night, all weather surveillance of the operational network with systems to detect incidents, equipment failures and anti-social driving. **Purpose:** to enable the network to be actively managed and to eliminate anti-social driving. **Timescale:** within 10 years (to be implemented in the second TCC concession).

The “Motorway Fit” Vehicle - introduction of the concept of the “Motorway Fit Vehicle” which has to meet a statutory specification for equipment and maintenance in order to gain access to the motorway system. **Purposes:** to facilitate integration of vehicle and road; to eliminate breakdowns; and, to eliminate vehicles that are unable to maintain ambient speed. **Timescale:** within ten years.

The safe, quiet tyre:- develop the ideal tyre for the “Motorway Fit Vehicle”. It will need to be safe from blow-out and punctures and designed to complement road surfaces to reduce noise and spray. **Purposes:** Enable Hard Shoulders to be removed; reduce noise, reduce spray. **Timescale:** within 10 years.

The Motorway Fit Driver - introduction of a permission to use the motorway network which could be revoked following anti-social driving behaviour. **Purpose:** to improve safety; to help eliminate the need for the hard shoulder. **Timescale:** within 10 years.

The Single Span Motorway Bridge - develop a bridge that will take normal road/rail traffic across normal motorway cross-sections (35m-45m allowing for skews) without the need for a central support and with no increase in structural depth. **Purpose:** to win space in the median for DLDFLs. **Timescale:** within 10 years.

Lighting from the Verge - develop an efficient and environmentally friendly lighting system than can be located on the verge. **Purpose:** to free the median. **Timescale:** within 10 years.

The Modular Road Track for DLDFLs - develop a track that can be used by vehicles that are also able to run on ordinary roads and which can be maintained/replaced in small sections during short possessions of a few hours. **Purpose:** to enable DLDFVs to be introduced, operated and maintained with the maximum of safety and efficiency. **Timescale:** within 10 years.

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Annex C

2030 Vision Workshop

The Coach House, Plas Glensevin

Sunday 21 Feb to Tuesday 23 Feb 1999

PARTICIPANTS

Kris Beuret	Social Research Associates
Peter Borrough	HA TSS
Ian Cameron	JMP Consultants
Richard Eastman	HA TSS
Granville Fisher	Southampton University
Mima Garland	HA TSE
Martin Hancock	Travel West midlands
Alan Hobbs	HA TSS
John Miles	Ankerbold International
Barry Moore	HA TSS
Terry Sullivan	HA TSS
Chris Harle	Minerva Training – Facilitator
Simon Hubbard	WSP Transportation (Consultants) – Reporter