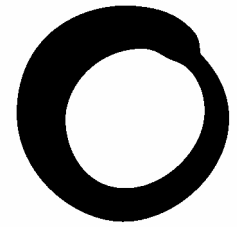


August 2003



**Friends of
the Earth**
Northern Ireland

Briefing

M1/Westlink 'Freight First' proposal

Improving freight journey times without facilitating the growth in car traffic

Introduction

Friends of the Earth is alarmed by the proposed expansion of the M1 and Westlink in Belfast. The scheme advanced by Roads Service is thought to be essential for the economy of the region, given the long delays currently experienced by freight traffic using the ports. The additional road capacity provided by the project would, however, be available equally to all vehicle and journey types, merely accommodating the enormous unmet demand for travel on the route generally, without favouring freight vehicles in particular. Release of this 'suppressed demand', coupled with the 3% average annual increase in traffic volumes across the region, mean that the road will jam up again within a few years of completion. Currently the cost of the project is estimated to be £100m, this funding being obtained via a Public Private Partnership. Friends of the Earth has devised a low-cost alternative to the Roads Service scheme which is described in this briefing. The scheme, entitled Freight First, would see a reallocation of space on the existing road to give priority to freight and public transport vehicles over the private car. Freight First also proposes the introduction of priority signalling at two junctions, allowing lorries and buses a head start on cars.

Friends of the Earth inspires solutions to environmental problems, which make life better for people.

Friends of the Earth is:

- dedicated to protecting the environment and promoting a sustainable future for Northern Ireland
- the UK and Ireland's most influential environmental campaigning organisation
- the most extensive environmental network in the world, with over 60 national organisations across five continents
- a unique network of campaigning local groups working in over 200 communities throughout the UK and Ireland
- dependent upon individuals for over 90 per cent of its income.

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M1/Westlink Freight First proposal

This paper is adapted from Friends of the Earth's proof of evidence to the M1/Westlink public inquiry held in November/December 2002. Further information about the progress of the campaign against the expansion of the M1/Westlink is available at <http://www.foe.co.uk/ni>

Objective

To design a low-cost alternative to the Roads Service M1/Westlink scheme, to ease the movement of freight traffic without facilitating the growth in car traffic and, further, to provide an alternative for car commuters.

Roads Service proposed scheme

M1

- Widening the M1 motorway to dual three lanes between Black's Road and Broadway junction. (Between Black's Road and Stockman's Lane the motorway will be widened by up to 2m on each side, and between Stockman's Lane and Broadway roundabout the motorway will be widened by about 5m on its east side only. This work will generally be contained within the existing motorway boundary fences.)
- Replacing the existing nine span motorway bridges at Stockman's Lane roundabout with two new single span bridges and an embankment.
- Upgrading the parapets and infilling the lightwell of Finaghy Road North motorway bridge.
- Widening the circulating carriageway of Stockman's Lane roundabout to three lanes and installation of partial signal control with pedestrian crossing facilities.

Westlink

- Widening the A12 Westlink to a dual three-lane road, from Broadway junction to north of Grosvenor Road. (Westlink will generally be widened on its western side.)
- Grade separating Broadway junction by full underpass taking Westlink under the existing Broadway roundabout, including four new slip roads to provide access on both the northern and southern sides of the junction.
- Grade separating Grosvenor Road junction by partial underpass, where Westlink is lowered by three metres and Grosvenor Road is raised by four metres, including two new slip roads connecting Westlink to Grosvenor Road on the southern side of the new junction. (Access to and from Westlink on the north side of Grosvenor Road will be prohibited.)
- Provision of a segregated inbound busway on the eastern side and running parallel with Westlink, between Broadway junction and Roden Street.
- Upgrading the existing pedestrian footway to a shared footway/cycleway on the western side of Westlink from Broadway junction to Grosvenor Road.
- Removal of the existing Westlink pedestrian underpass on the north side of the Grosvenor road junction and replacement with a continuous footway on the north side of Grosvenor Road.

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- Modifications to the Roden Street/Mulhouse Road/Westlink junction to close Roden Street and allow only left in and left out traffic movements at Mulhouse Road.
- Replacing Roden Street footbridge (approximately 21m south of its present location.)

The case against the Roads Service proposed scheme

The Roads Service proposed scheme is an expensive and disruptive stop-gap measure. It will cause up to three years of additional congestion and air pollution during construction, and cost in the region of £100m. Within ten years of completion, it is estimated that congestion will have returned to its present level.

The current proposals are based on the assumption that extra road capacity eases traffic congestion. Whilst this may be true for a short period, it is not so in the long term. In 1994 the UK Government's Standing Advisory Committee on Trunk Road Assessment (SACTRA) concluded that:

"Far from reducing traffic congestion, the construction of roads simply generates more traffic. The Committee recommended that motorway widening schemes in urban areas should be subject to particularly stringent appraisal in this regard."

SACTRA also concludes that expenditure on infrastructure should be subject to a value for money test. Friends of the Earth believes that the Roads Service proposal represents poor value for money, buying just ten years of relative ease of traffic movement before congestion returns to its present level. Two further Friends of the Earth objections remain: the lack of a full multi-modal study on the route, together with increased noise and air pollution.

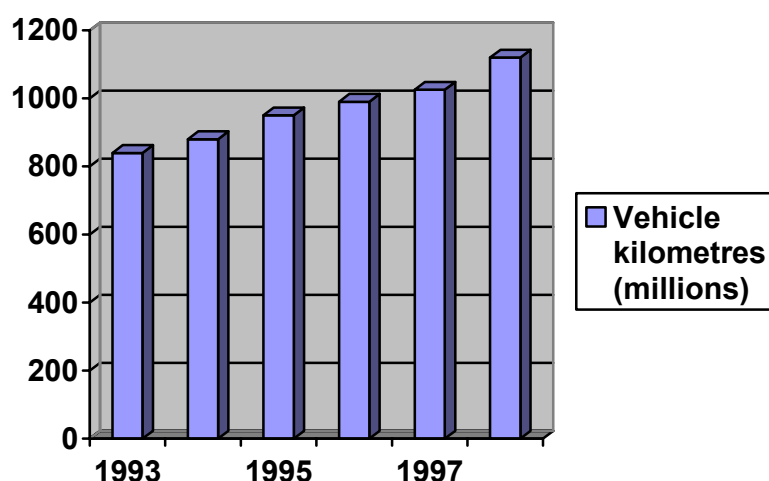
Freight traffic

The Department for Regional Development estimate that of the 65,000 vehicles that use the Westlink daily, 22 per cent, some 15,000 are commercial vehicles. The peak use period is estimated to be 8-9am northbound, a period of high congestion on the M1/Westlink route.

Free and rapid movement of freight traffic along the M1 and Westlink is essential if the Port of Belfast is to compete with other ports in Northern Ireland and the Republic of Ireland. The Port of Belfast is the busiest in Ireland, handling 332,000 freight vehicles and 111,000 containers in 2001. The trend since 1997 is broadly flat for passenger and cargo traffic. There is, however, a clear upward trend in dry bulk and break bulk cargoes but it is not clear how much extra road traffic this equates to. The Port of Belfast expects that roll-on/roll-off traffic will increase from 2002 onwards with the opening of the new Twelve Quays river ferry terminal at Liverpool.

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Port of Belfast - trade and shipping statistics					
	2001	2000	1999	1998	1997
Passengers (thousands)					
Passengers	1840	1964	2002	1783	1856
Passenger cars	394	433	454	400	413
Unit load (thousands)					
Freight vehicles	332	350	337	330	310
Containers	111	122	119	117	109
Bulk cargo (thousand tonnes)					
Liquid bulk	3126	3015	3094	3312	3280
Dry bulk	3786	3415	3256	2879	3079
Break bulk	382	333	261	251	267
Shipping					
Gross tonnage (thousand tonnes)	80089	82695	82571	74937	78656
Number of arrivals	8307	8654	9022	8896	8778



Vehicle kilometres of travel for HGVs 1993-1998 - Regional Transportation Strategy 2002-2012

Freight vehicle-kilometres in Northern Ireland showed a steady increase over 5 years (1993-1998) of approximately 35%. "It is expected that this growth in freight travel will continue, even if the freight tonnage were not to increase. This would be in line with Great Britain where recent surveys have shown a stabilisation in freight tonnage whilst 'tonne-kilometres moved' has continued to grow. This growth is the result of current practice for longer average freight journey lengths" - Regional Transportation Strategy.

Thus the number of kilometres travelled by freight vehicles in Northern Ireland is expected to increase in accordance with recent trends, and the Port of Belfast hopes to maintain and increase the number of freight vehicles using the port, in the face of stiff competition with

M1/Westlink Freight First proposal

other ports. Overall, the freight traffic choosing to use the M1/Westlink is expected to increase somewhat and, in view of its strategic nature, efficient freight priority measures represent a pragmatic solution.

With regard to freight priority strategies, the Freight Transport Association has said, "The Highways Agency's prime objective has been changed to that of making best use of existing roads rather than the construction of new ones. FTA welcomes the Government's commitment to the maintenance of the existing network. One of the methods for optimising road capacity identified in the White Paper is giving priority to essential vehicles, including goods vehicles. This may range from the shared use of bus lanes in towns to the designation of particular lanes on congested motorways. FTA welcomes this innovative use of scarce road capacity and is working with the Highways Agency to implement practical solutions at sites where this would be most beneficial."

Belfast City Council in its Transport Policy 2001 stated that, "Goods-vehicle-only lanes [are] to be piloted on appropriate roads on the highway network."

The Chairman's Statement in the Port of Belfast annual report 2001: "I very much welcome the upgrading plans announced by the Minister following the Westlink public inquiry but am mindful that the scheme is likely to take a considerable time to complete. We therefore are continuing to press for an interim solution focusing on prioritising freight traffic on this strategic route."

Friends of the Earth's proposal

From practical inspection and research, it is concluded that the most severe through-traffic congestion spots along the route are between the Broadway and Grosvenor Road roundabouts (worst experienced at morning and afternoon peak times) and are due in part to:

- A growing volume of non-strategic (commuter) traffic;
- The under-utilised northbound bus-lane, and the right-turn and the traffic lights at Roden Street;
- The cross and right-turning traffic at Broadway and Grosvenor Road causing through-traffic to be delayed.
- Inconsistent lane design along the route between Black's Rd and York Street: sometimes two lanes and sometimes three lanes.

Main proposals

Friends of the Earth's alternative proposal is summarised as follows:

- Re-mark the carriageways to accommodate three conventional lanes of traffic in each direction between Broadway and Grosvenor Road. This section is currently marked out as three lanes, northbound and southbound, but with one northbound lane currently limited to buses as far as Roden Street, and under-utilised from this point to Grosvenor Road. No overall widening of the carriageway is necessary, but some remodelling of the central reservation would be required at the Roden Street junction.

M1/Westlink Freight First proposal

- Designate a clearly marked (consider a coloured surface) HGV and bus priority lane between Broadway and Grosvenor Road on the outside lane, closest to the central reservation in both directions. This will supersede the existing bus lane between Broadway and Roden Street northbound. The lane could accommodate the 22% of traffic units that are estimated as commercial vehicles, and bus traffic, allowing for some extra growth. This traffic will be free to use other lanes and exits. Hourly timing of priorities and vehicle types can be varied as experience is gained and traffic flow changes.
- Introduce priority signals on Broadway roundabout to allow freight vehicles and buses travelling north to switch between the M1 priority lane and the Westlink priority lane, since the former would be on the hard shoulder and the latter would be next to the central reservation.
- Later, consider allowing priority to smaller commercial vehicles and high occupancy vehicles (HOVs) with two or more people, depending on capacity. *“An HOV system could give a 10% reduction in vehicle miles in the corridor”* - from Napier University Report by Professor Austin Smyth, October 2000. A Highways Agency study on the M62 between Liverpool and Hull estimates that HOVs comprise 12-18% of the traffic volume.
- Introduce priority signals for the HGV and bus lane wherever three lanes of traffic merge into two, such as to allow freight and bus traffic to get ahead of other traffic and up to cruising speeds. This is the case northbound at the Grosvenor Road roundabout. It is perhaps not an issue southbound at the Broadway roundabout at the start of the M1, as there exists a 200m merge zone, from three lanes to two plus a hard shoulder.
- Abandon the plan to provide three lanes south of Broadway and north of Grosvenor Rd in favour of priority measures for freight and bus traffic.
- Abandon the costly road-widening at any point on the route between Black’s Road and York Street in favour of re-marking, re-modelling of central reservations and chevroned areas, re-allocation of existing road space including hard shoulders, and intelligent lane management. Permit freight to use the M1 bus-lane between Stockman’s Lane and Broadway.
- Abandon the plan to provide a costly underpass or flyover (grade separation) at Broadway and Grosvenor Road.
- Abandon the plan to close the Roden Street junction and construct a costly segregated busway extension from Broadway to Roden Street. Continue to use this junction with optimised signal-timing. (Alternatively, prohibit right turns at Roden Street junction, instead permitting buses incoming from the M1 to right turn at Broadway and follow the Donegall Road and Roden Street to connect with the existing bus-way to Europa (with appropriate bus priority on Donegall Road); or buses may exit at Stockman’s Lane or Divis St, where slip-roads exist and continue to the city centre, with appropriate bus priority measures.)
- Conserve the existing cycle/foot path on the western side between Broadway and Grosvenor Road.

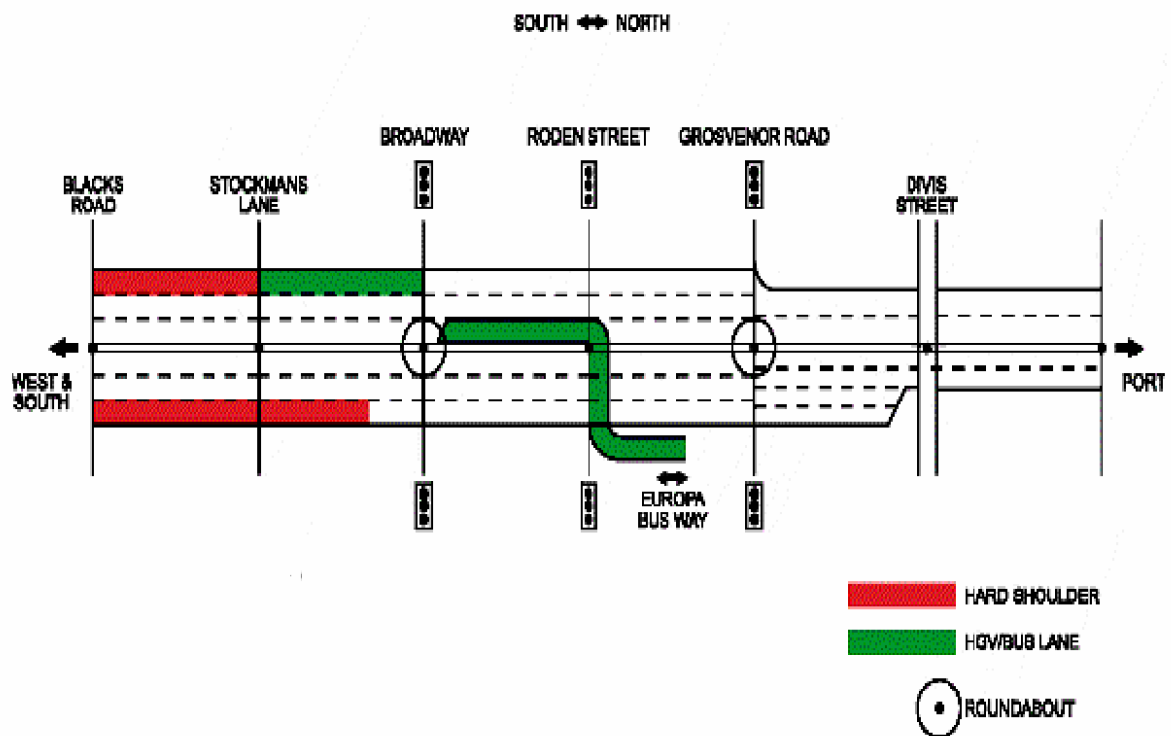
M1/Westlink Freight First proposal

Other measures

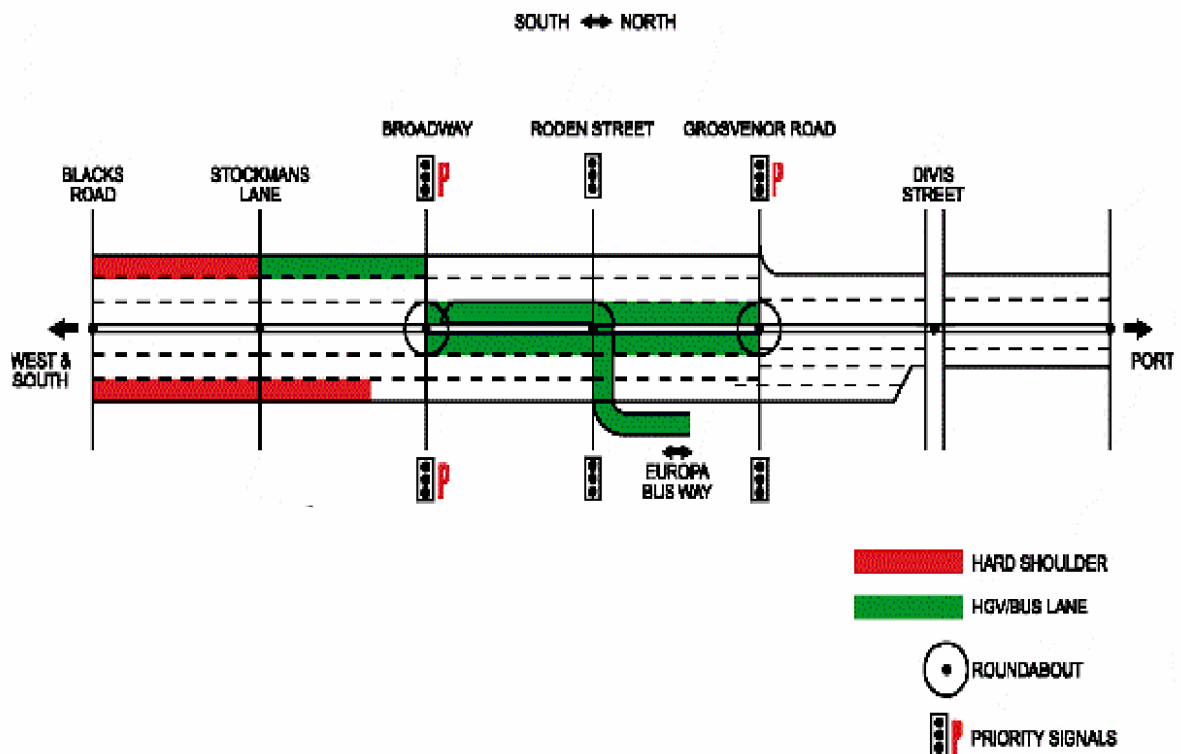
Further considerations to improve flow of strategic through-traffic:

- Re-model Grosvenor Road roundabout southbound so as to allow three lanes of through traffic, taking into consideration a possible contiguous priority lane.
- Optimise signalling at Broadway, Grosvenor Road and Roden Street such as to favour the flow of through-traffic.
- Optimise slip-road signalling (ramp metering) at Black's Road, Stockman's Lane, Divis Street and Clifton Street such as to favour the flow of through-traffic.
- Give consideration to further freight and bus priority measures on M1/Westlink between Black's Road and York Street.
- Review speed limit signals between Black's Road and York Street with a view to avoiding congestion
- As an alternative for car commuters, consider increasing the number of Quality Bus Corridors and Park and Ride bus services (and re-visiting the original Park and Ride proposal for Dunmurry), serving several stops in the city centre, in conjunction with city centre car parking controls. *"Experience in a number of European cities and in California has shown that restrictions on parking are the most effective of all policies in reducing car use."* (from Transport 2000)

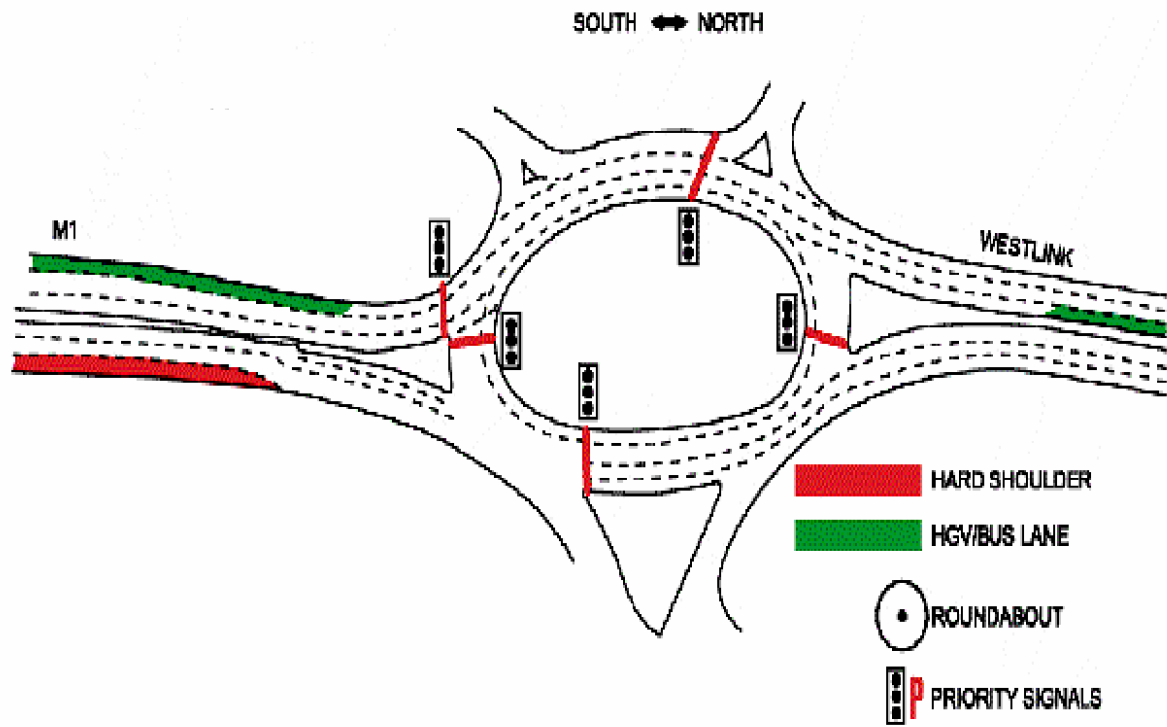
M1/Westlink existing



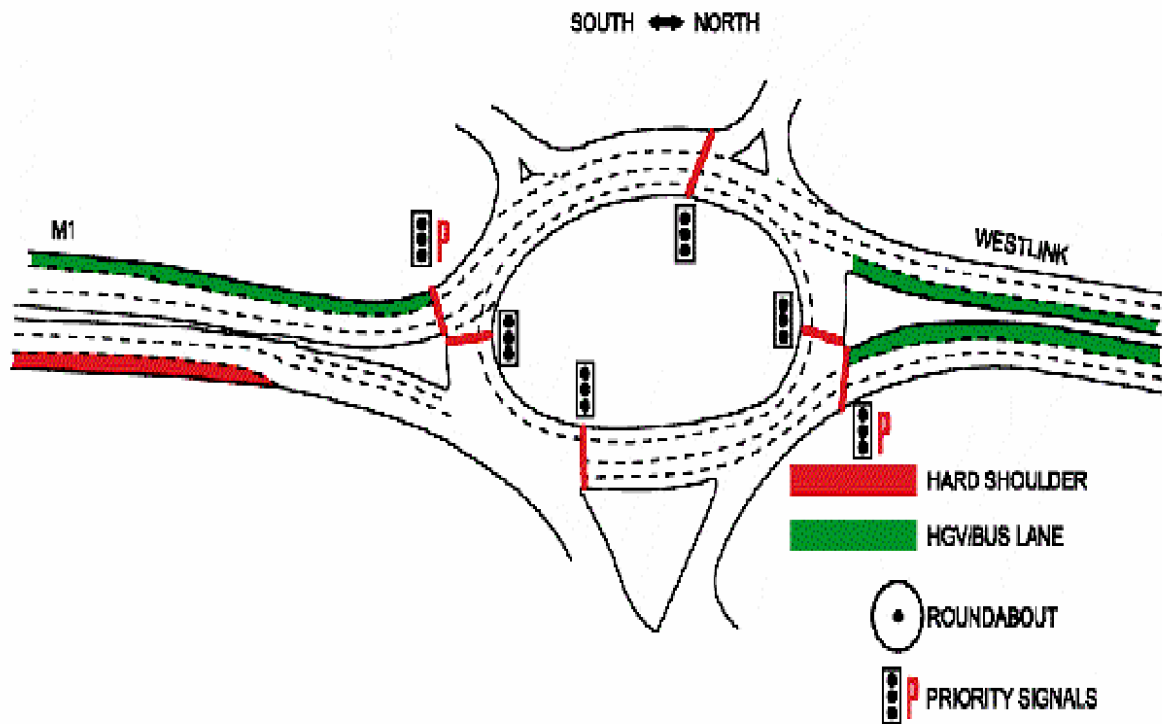
M1/Westlink proposed



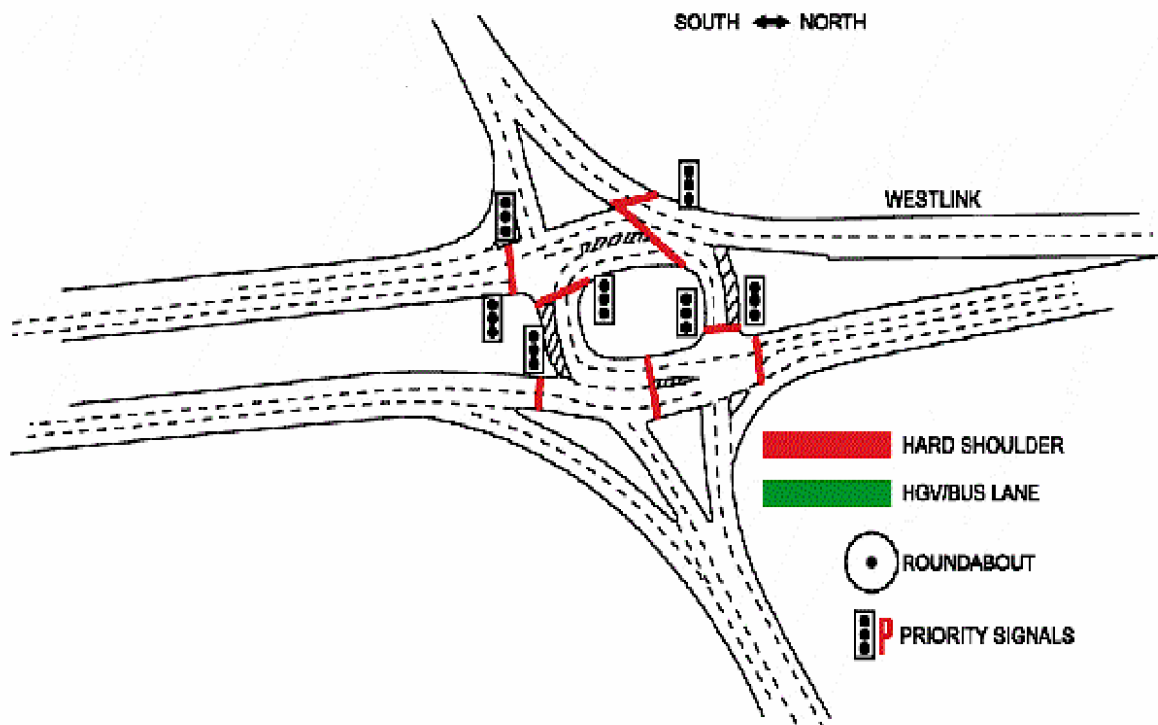
Broadway existing



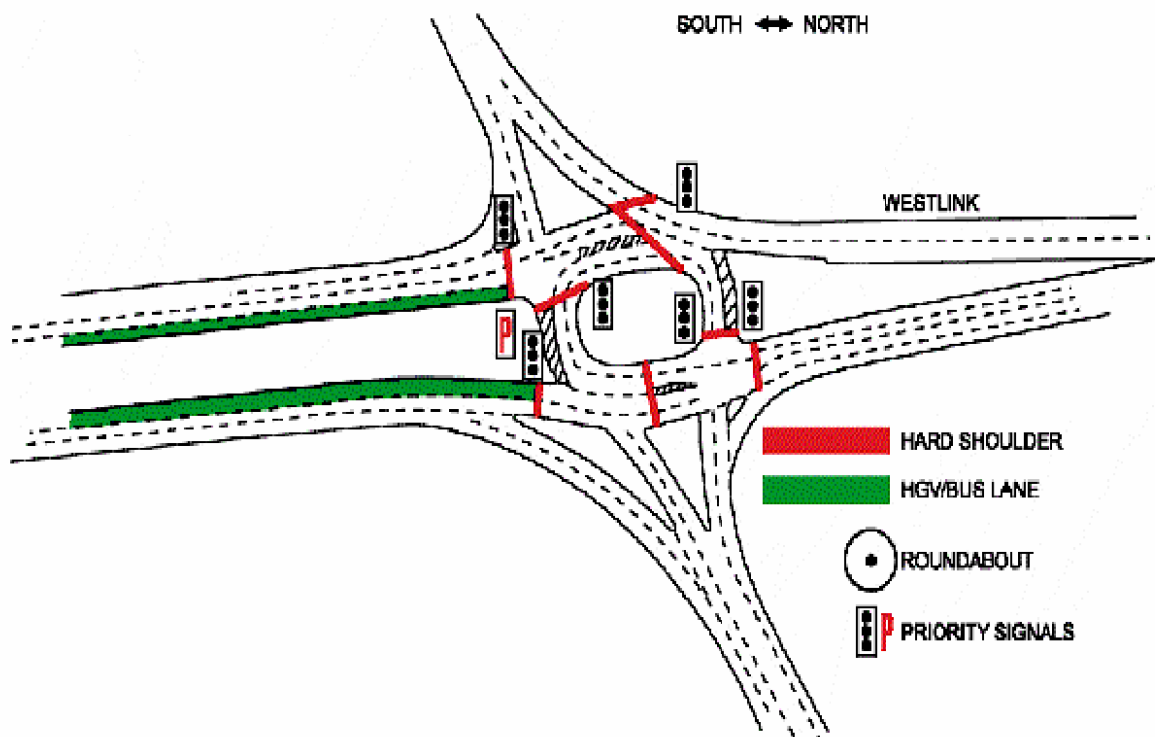
Broadway proposed



Grosvenor Road existing



Grosvenor Road proposed



Likely effects of our proposal

Our proposal has not been modelled, however it seems reasonable to assume that freight vehicles would enjoy improved journey times and experience less congestion because they represent only 22% of vehicles but would be allocated 33% of available road space, and because they are being given priority at traffic lights.

It is important that the freight priority measures be coupled with more frequent public transport services on the corridor and city centre car parking restrictions if cars are not to experience increased levels of congestion and longer journey times.

Review of good practice and precedent

M62 Liverpool to Hull

“It is likely that in the first instance the lanes would be reserved for heavy goods vehicles. After monitoring the operation of the lanes, consideration could be given to allowing buses, coaches and other goods vehicles to use the lanes” - Highways Agency website, M62 improvements

Wandsworth

“The introduction of ‘No Car’ or ‘High Occupancy Vehicle’ (HOV) lanes represents a clear example of road space management. The first ever ‘No Car Lane’ on the London Strategic Road Network was introduced earlier this year on the Nine Elms Lane Red Route in Battersea. The north bound lane is on the approach to the Vauxhall Cross intersection and can be used by buses, goods vehicles (over 3.5 tonnes), taxis and cyclists. The lane was developed as the low number of buses using the road did not justify a traditional bus lane.” - Memorandum by the Traffic Director for London

Trafford

“The problems caused by congestion to the haulage industry were also discussed in depth. Trafford Borough Council has volunteered to pilot a ‘No Car Lanes’ trial, where freight traffic will be permitted to use existing bus lanes. The aim is to make better use of the road space without impeding the bus services.” - Road Haulage Association

Southampton

“The provision of a ‘no car’ lane from the southern end of the M271 to give priority access to Dock Gates 10 and 20 and the City Centre, to support both freight and public transport, will also be investigated.” - Local Transport Plan 2001/2 to 2005/6 Southampton Council. (Note: not implemented due to technical restrictions.)

Designated lorry routes

- Strategic lorry route - Redbridge Road, Millbrook Road, Mountbatten Way, West Quay Road, Town Quay, Queens Terrace, Platform Road (A33).
- Local lorry route (from the north) - Bassett Avenue, The Avenue, Dorset Street, Kingsway, Marsh Lane, Bernard Street, Threefield Lane, Terminus Terrace (A33).

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- Local lorry route (from the north) - Stoneham Way, Thomas Lewis Way (A335).
- Local lorry route (from the east) - Bursledon Road, Bitterne Road, Northam Road (A3024).

Other 'no car' priority schemes

Examples also exist at Newcastle, Exeter, Maidstone and Muswell Hill.

Note: All of the above are 'no car' lanes but we do not know of any no car lanes with priority signals.

Ramp metering on slip roads

M62 Liverpool to Hull

To be applied in 6 locations.

"The aim of traffic light control on entry slip roads is to enable merges with the main motorway to operate more efficiently."

"Queue by-passes for certain types of vehicles, for example high occupancy vehicles, buses or lorries could be introduced in certain circumstances as part of the proposals."

"Traffic lights at entry slip roads (otherwise known as ramp metering) have been applied extensively elsewhere and operational control and enforcement techniques have been rigorously tested."

(Highways Agency website - M62 improvements)

High Occupancy Vehicle (HOV) lanes

Leeds: *"The best example of an HOV lane is in Leeds on Stanningley Road. According to the EU's ICARO initiative, this cut the journey time for cars using the lane (which is 1.5km long) by 3.5 minutes."*

(Friends of the Earth)

M62 Liverpool to Hull: to be applied in 4 locations.

"A single HOV lane is suggested in lane 4, closest to the central reserve, on the most congested sections of the route."

(Highways Agency website - M62 improvements)

Use of hard shoulders as priority lanes

This was pioneered in Belfast when the M1 hard shoulder northbound between Stockman's Lane and Broadway was designated as a bus lane.

"Motorway hard shoulders could be brought into regular use as truck lanes to provide extra capacity on Britain's most congested routes." - Construction News, August 2001

Analysis of good practice and precedent

It is concluded that it is possible:

- to have a combined bus and lorry lane ('no car' lane)
- to have priority lanes in a dual carriageway situation
- for priority lanes to be run directly into signal-controlled junctions (and for signals to give priority to traffic in particular lanes)
- for a priority lane to be an outside lane, as illustrated by the existing bus lane on the Westlink
- to adapt hard shoulders as priority lanes
- to derive significant benefits from ramp metering, priority lanes and HOV lanes.

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Implementation of High Occupancy Vehicle lanes on M62 (Highways Agency)

Implementation of ramp-metering on slip roads on M62 (Highways Agency)

Hard shoulder plan to allay congestion (Construction News/Highways Agency 2001)

Review of Engineering Guidance - Lane width specifications (Highways Agency 1993)

Acknowledgements

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