COMMITTEE FOR REGIONAL DEVELOPMENT

INQUIRY INTO SUSTAINABLE TRANSPORT

SUBMISSION BY:
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About The Wright Group

Wrightbus was established in 1946 and is the only major bus manufacturer on the island of Ireland. It is the second largest bus manufacturer in the UK. Having pioneered low floor buses, Wrightbus has continued to innovate and is a market leader in both BRT (Bus Rapid Transit) and hybrid buses. Current production is approximately 900 vehicles per annum and while the majority are destined for the UK and Ireland there are customers as far afield as Hong Kong, Singapore and Las Vegas.

Introduction

The Wright Group welcomes the decision by the Committee for Regional Development to hold an Inquiry into Sustainable Transport.

The Committee has created a rare opportunity to focus on visions, principles and future direction. We are delighted to be in a position to make a contribution and have focused our attention on those areas where Wrights can offer specialised knowledge and expertise – chiefly buses, Bus Rapid Transit (BRT) and hybrid vehicles.

Committee Terms of Reference

a. To explore and clarify the social, environmental and economic aspects of sustainable transport.

b. To identify the policies, attitudes and technologies likely to underpin a move to a more sustainable transport in Northern Ireland.

c. To make recommendations arising out of the above investigation, and report to the Assembly.

What is meant by "sustainable transport"?

There are many definitions of sustainable transport and two have been selected for inclusion in this paper. A rigorous definition has come from the European Union Council of Ministers of Transport, who defined a sustainable transport system as one that:

- Allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.

- Is affordable, operates fairly and efficiently, offers a choice of transport mode, and supports a competitive economy, as well as balanced regional development.

- Limits emissions and waste within the planets ability to absorb them, uses renewable resources at or below their rate of generation, and uses non-renewable resources at or below the rates of development of renewable

substitutes, while minimising their impact on the use of land and the generation of noise.

A rather more populist definition derives from the Brundtland Report from the World Commission on Environment Development:-

- A transport system which meets the needs of the present without compromising the ability of future generations to meet their own needs.

Whatever the preferred definition, it is clear that current transport trends cannot continue without adverse long term consequences.

ToR1
To explore and clarify the social, environmental and economic aspects of sustainable transport

Social Aspects

Growth in all forms of transport has been very substantial in recent years. There are many reasons. As an increasingly affluent society we value greater personal mobility and there is more opportunity for both local and global leisure travel than ever before. As we live longer we enjoy travelling more, as evidenced by the popularity of the "bus pass".

Greater mobility provides improved access to jobs, education, shops and other services. That transport is still relatively affordable means people are often prepared to travel further to access these facilities or to exercise choice.

Many changes in the way we live have also contributed to the increase in personal travel. In recent decades we have witnessed the decline of the traditional family home, and the growth in the proportion of people going out to work. Many former residents of the inner city have decamped to the suburbs almost invariably generating extra travel. Major suburbs have become car owning communities whereas previously when living in the city the same people would have been able to walk to work etc.

While the ability to travel is generally recognised as a good thing, there are downsides. Most notably the deaths and personal injuries on our roads. In this context advocates for public transport will point out the very much greater safety record of all forms of public transport as compared with the private car. You are

ten times more likely to be involved in an accident travelling by car than by public transport.

All types of transport, to a greater or lesser degree, create pollution which can be injurious to health. Air pollution from harmful vehicle emissions is widely recognised as contributing to respiratory and cardiovascular disease. Some pollutants are recognised carcinogens. Less well recognised is the effect of noise with the steady increase in ambient sound levels going far beyond causing annoyance and leading to disturbed sleep, hearing impairment and hypertension.

The World Health Organisation has recognised that good health is more than the absence of physical health burdens. It has highlighted the importance of social interaction to human wellbeing and clearly transport can facilitate wider social interaction. However there are many in society for whom the greater mobility conferred by private car is simply not available. That includes the young, many elderly persons and those who do not drive either for health reasons or issues of affordability. For them a good public transport alternative becomes a necessity rather than an option. Good public transport helps bring people together, providing better social inclusion regardless of class or wealth.

Environmental Aspects

One of two widely acknowledged environmental concerns is the excessive use of finite resources, chiefly petroleum. Some 95% of transport energy comes from this source. In global terms the use of alternatives such as gas, biofuels and electric vehicles remains minimal.

Biofuels, once regarded as a hope for the future are now regarded with much more caution. Their growth risks displacing agriculture which could lead to food shortages and/or further deforestation with consequent loss of biodiversity and eco systems.

Apart from use as a fuel, energy is also used in the manufacture of vehicles and is embodied in transport infrastructure such as roads and bridges etc.

Around the world the energy demand for transport has increased fivefold since the 1950s Overall, transport systems are said to account for nearly 25% of the world's energy consumption and this figure rises to 30% in the EU. Transport accounts for 19% of all greenhouse gas emissions in the world, and 74% of all emissions from transport are from road transport.

The second well publicised concern, if not universally acknowledged, is the environmental impact of global warming and climate change which derives from

vehicle emissions. Greenhouse gas emissions from transport are rising faster than from any other sector.

Other “green” concerns include the preservation of wildlife habitats, and the hydrological impacts of new road developments and increasing water run-off from more extensive hard surfaces.

Economic Aspects

The inexorable rise in car ownership is matched only by the increase in the number of lorries on the road. All these lead to traffic congestion which imposes economic costs by wasting peoples time, incurring extra vehicle costs and slowing the delivery of goods and services. The direct cost of congestion is estimated at 2% of GDP.

Urban space is a precious commodity and public transport uses it more efficiently than a car dominant society. Public transport alleviates congestion and can help make our towns and cities more pleasant places to live and work.

In addition to personal transport there are two other major trends influencing the growth in transportation.

First there is the importing by developed countries of finished goods produced in low cost countries. Even when local manufacturing has been retained, manufacturers often source materials, components, sub-assemblies etc on a global basis to reduce overall manufacturing costs.

Secondly, there is the increasing sophisticated palate of a more affluent society. Food, which used to be substantially homegrown, is now imported from all corners of the globe at all seasons of the year. Because the cost of production is usually lower, the addition of transport costs does not make it unaffordable. Similarly, consumption of wine from neighbouring countries such as France and Germany is being rapidly overtaken by the consumption of wines from “New World” countries.

These trends show no sign of diminishing.

There is an important economic argument on the public transport versus car debate which is often overlooked. Improving public transport creates local employment. There are no car factories in Northern Ireland. However, the Wrightbus factory in Ballymena employs some 900 people directly, and many more indirectly.

Social, Environmental and Economic Aspects of Sustainable Transport

In summary, Transport makes a very positive contribution to society in many different ways.

The increase in both personal transport, and commercial transport over longer distances, looks set to continue.

Steps can be taken to alleviate some of the adverse consequences of transport, e.g. promotion of road safety, noise reduction measures, air pollution controls etc. However, the over-riding fact is that as things are at present, the continuing growth in transport is not sustainable in the long term. More specifically, we continue to exhaust finite resources and exacerbate global warming.

Clearly, although there has been some progress, current trends still point away from sustainability.

ToR No2
To identify the policies, attitudes and technologies likely to underpin a move to more sustainable transport in Northern Ireland

Policies

It must be recognised from the outset that old policies to "predict and provide" offer no solution to the current dilemma. Nevertheless, there is difficulty introducing new policies which are seen as limiting freedoms or using a pricing mechanism (aka stealth taxes). Witness the very strong public rejection of congestion charging in Edinburgh and Manchester, despite the general view that it was a success in London. Most politicians want to get re-elected and are naturally very sensitive to what will or will not be acceptable to the general public.

The increase in personal mobility has more than offset the improved fuel performance of the private car. Yet personal mobility is something we all treasure and will not lightly give up. Pricing could have some effect, but the

swingeing increases that would be necessary may be as politically unacceptable as they would be socially divisive.

The most realistic opportunity to reduce emissions from cars is to offer a very attractive public transport system as an alternative. To be successful this needs to be high quality and affordable. On average public transport consumes 3.4 times less energy per passenger kilometre than cars, and this ratio is even more favourable in the rush hour

Policies in Northern Ireland should be supportive of public transport systems to make to make them an affordable and attractive alternative to the private car. For example, land use planning can increase urban population densities so that it becomes more economic to provide good public transport. Conversely the containment of urban sprawl will reduce the need for car transport.

Adequate funding is essential for good public transport. In ridership terms the government has seen a good return on its investment in new trains, and the new buses on the Metro services. More investment is overdue for the rural bus network. From time to time the level of funding for public transport in Northern Ireland should be benchmarked with the UK, Ireland and the rest of Europe

Public transport will not be the ideal solution for every individual for every journey, but it could curtail the steady increase in the number of two and three car families.

Attitudes

Many people have based their lifestyle around the private car and this will not be easily changed. However there is a new generation which is very aware of the depletion of the ozone layer and global warming, with its potentially disastrous consequences for much of our planet.

Many of these people are for the first time open to changing the habits of a lifetime.

Bus Technologies

In the developing and enhancing a public transport network Quality Bus Corridors (QBC), Bus Rapid Transit (BRT), trolleybus, hybrid buses, light rail and heavy rail should all be viewed as possible contenders.

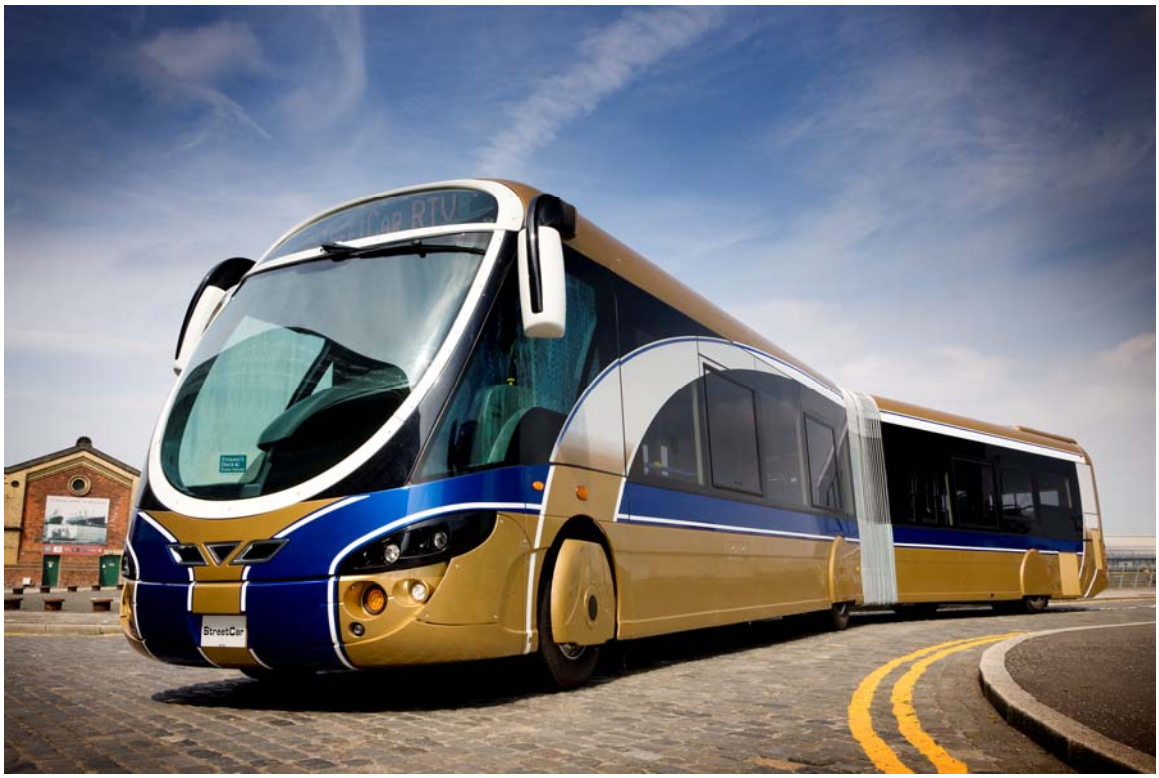
The public transport network should be planned using a system-based approach (treatment of the passengers' whole journey). Passenger demand, system objectives and funding should inform the decision making process.

Where passenger demand is lower than necessary to justify light rail, Bus Rapid Transit systems are particularly worthy of consideration for moving large numbers of people. These can be supported by high quality bus networks feeding the core network.

Bus Rapid Transit (BRT)

BRT is a rubber tyred transit service that can provide passengers with a comparable journey experience to Light Rail provided it is afforded similar segregation from traffic, high quality infrastructure and customer focussed delivery.

BRT vehicles have the additional advantage that they are not confined to rails. After enjoying segregation from traffic in town/city centres they can continue on ordinary roads.



BRT StreetCar before delivery to Las Vegas

The study in Belfast by KPMG and Atkins compared the cost of Light Rail and BRT schemes, summarised as follows :

	Capital cost £m	Annual Operating Costs £m
Bus Rapid Transport	147	1.44
Light Rail	590	6.78

The result of this study has important implications for other cities.

Following the success of LUAS in Dublin, other cities will want to upgrade their public transport network. For cities such as Lisburn, Newry and Londonderry Bus Rapid Transit can provide an attractive and more affordable alternative.

The two solutions, BRT and Light Rail are not mutually exclusive. If route patronage develops strongly with BRT, conversion to light rail is possible at a later date.

Bus Rapid Transit is now a globally recognised transportation mode with successful projects operating Latin America, North America, Europe and Africa.

BRT, in various forms and to varying degrees, has been proven to both reduce congestion through modal shift and aid regeneration.

Cost of a BRT system is about 25% of a corresponding LRT system although this can vary according to location.

BRT allows nurture and expansion of schemes. Because of the flexibility of rubber wheeled vehicles, schemes can be introduced and readily expanded in phases.

The elements required for successful BRT:

Physical and Abstract measures

Physical	Abstract
* Vehicles	* Image
* Infrastructure	* Presence
* Priorities	* Step change

Introduce and Enforce

- Bus priority
- Segregation
- Traffic light priority
- Bus stop clearways

Overt and Covert implementation

Overt	Covert
* Busways	* Automatic Vehicle Location
* Guidance	* Queue relocation
* Lanes	* Street parking restrictions
* Gates	

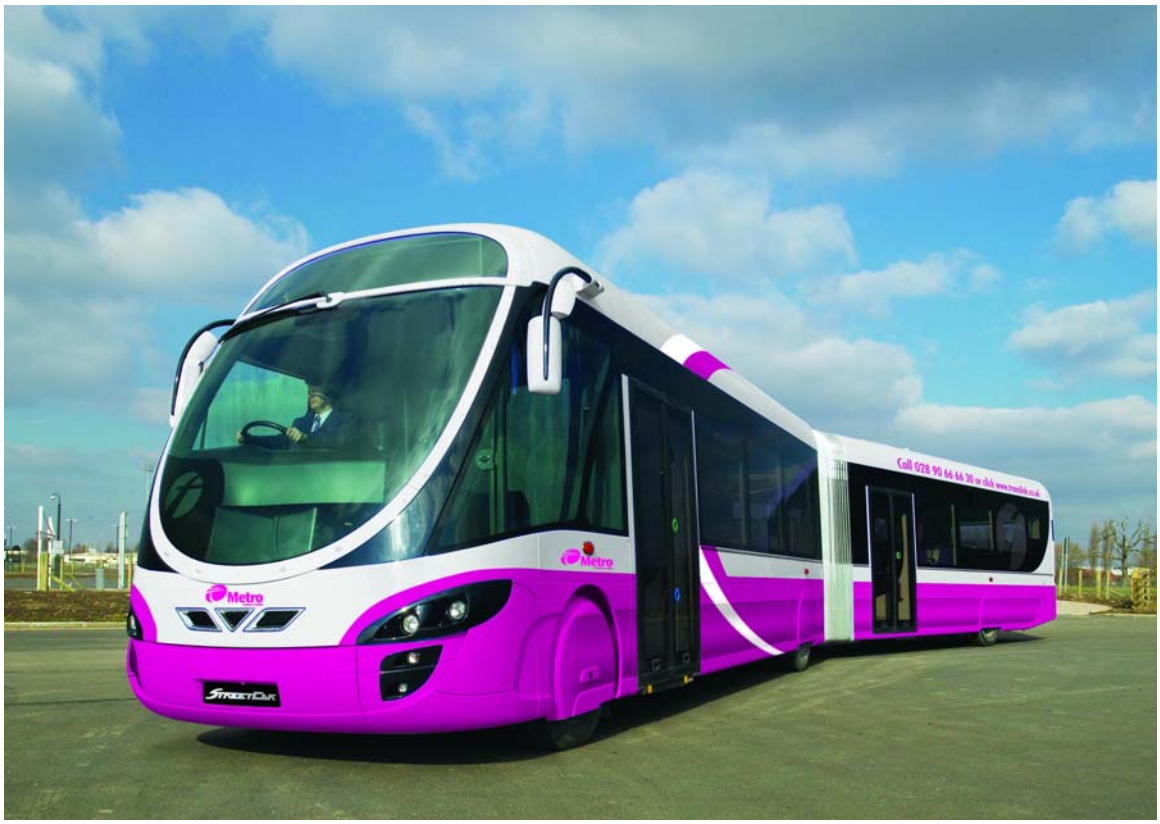


Image of a possible Metro Bus Rapid Transit low emission vehicle for high quality express public transport

Hybrid Buses

While a conventional city bus relies on a large diesel engine to provide power, a hybrid system couples a much smaller car engine with electric motors and an advanced battery pack. Regenerative braking (energy captured during the braking process) acts as a supplementary power source for the vehicle.

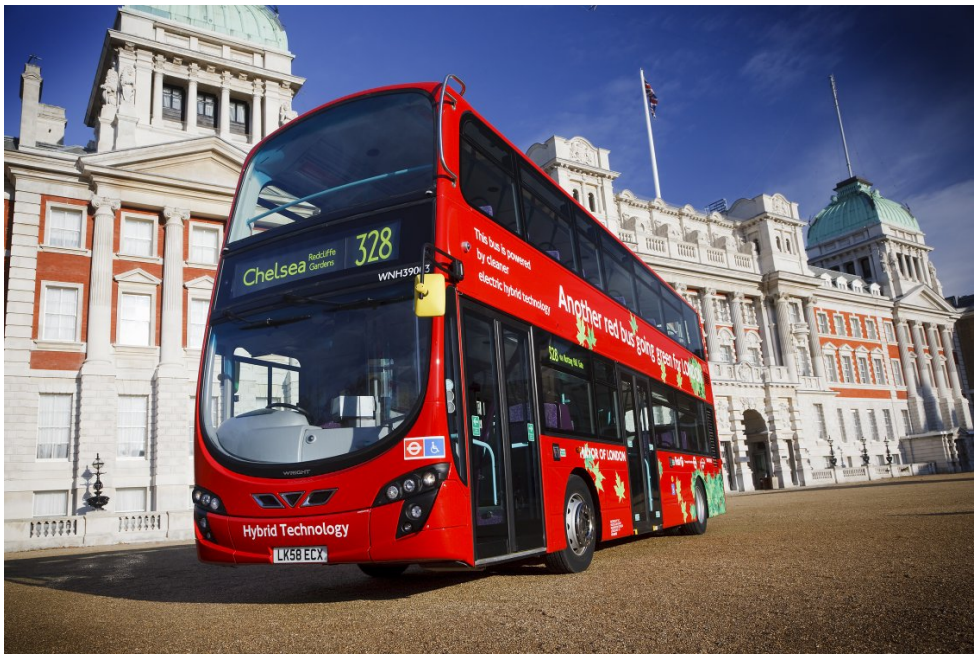
Power to drive the bus therefore derives from electrical energy produced by the very efficient small diesel engine as well as energy captured when the vehicle brakes. This has the positive effect of improving fuel savings, and more importantly reducing emissions.

First Dublin Bus hybrid electric double deck vehicle

The environmental benefits from hybrid electric technology are remarkable:

Pollutant	Percentage Reduction
Hydro carbons (HC)	76.5%
Carbon Monoxide (CO)	97.6%
Carbon dioxide (CO2)	31.0%
Nitrous Oxide (NOX)	12.0%
Fuel Consumption	34%
Noise	50%

Results are from "Transport for London" trial using Wrightbus hybrid double decker compared with the best conventional diesel bus.



Wrightbus Gemini HEV (Hybrid Electric Vehicle) in London

The electric driveline ensures quiet acceleration and lower noise levels, while providing a smoother and comfortable travel experience for passengers. The environmental benefits means those living in towns and cities will enjoy a less polluted atmosphere. Some health professionals suggest important health benefits with less pollutant induced illness, such as childhood asthma.

In London there are already small fleets of hybrid buses with different operators as they gain experience of operating this new technology. There is a commitment to have several hundred hybrid buses operational before the London Olympics in 2012. Dublin took delivery of its first hybrid double decker from Wrightbus in 2008.

BUS TECHNOLOGIES: SUMMARY

1. Bus Rapid Transit can improve the image and experience of public transport, proving an attractive alternative to the private car.

2. BRT can provide an affordable step change in public transport for Belfast and possibly other cities in Northern Ireland. Increasing ridership on a BRT system can help reduce traffic congestion.

3. BRT can provide a natural evolution of existing and successful QBC's, with high capacity vehicles further boosting ridership with minimal additional infrastructure investment.

4. Hybrid electric buses (whether single deck, double deck or BRT) can dramatically reduce fuel consumption and provide major environmental improvements entirely consistent with a vision for sustainable transport

5. Even limited innovation, whether through the introduction of hybrid vehicles or a single BRT scheme, has the potential to uplift the image and perception of the public transport network.

CONCLUSIONS:

TO ACHIEVE SUSTAINABILITY IN TRANSPORT WILL REQUIRE THE EARLY INTRODUCTION OF CLEANER TECHNOLOGIES SUCH AS HYBRID ELECTRIC BUSES.

THIS WILL NOT BY ITSELF BE SUFFICIENT TO OFFSET THE EFFECTS OF THE STILL GROWING DEMAND FOR TRANSPORT. POLICIES WILL BE NEEDED TO ACTIVELY INFLUENCE INDIVIDUAL TRAVEL BEHAVIOURS AND FURTHER ENCOURAGE THE USE OF PUBLIC TRANSPORT.

PUBLIC TRANSPORT MUST ITSELF BE MADE MORE ATTRACTIVE THROUGH INNOVATIVE PROJECTS SUCH AS BUS RAPID TRANSIT.

APPENDIX:

Wrightbus Brochure (Electronic version)

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