

2020 Vision –
Sustainable Travel and Transport:
Public Consultation Document

“If we continue our present travel patterns, traffic congestion will increase, there will be a resulting loss in economic competitiveness, our quality of life and the quality of the natural environment will decline. We will not be able to meet our international obligations to reduce greenhouse gas emissions. In short, our travel trends are not sustainable.”

Table of Contents

Executive summary.....	4
Short-term priorities (9 – 12 months)	4
Travel Plans.....	5
Town Planning	5
Other measures.....	5
Medium-term priorities (1 -5 years)	6
Long-term priorities.....	7
Introduction.....	8
Climate change	8
Insufficient exercise.....	8
1. What measures are required to better integrate land use and transport?	8
2. How can the existing commuting patterns be tackled through spatial, regional and land use planning?	8
Levelling the playing field for new car park construction.....	9
Land Value Taxation	10
A new assessment hierarchy with sustainability and carbon reduction at the pinnacle	11
Cap and Share	14
3. Does this issues document generally identify the key measures to be considered to better integrate spatial planning and transportation?	15
4. How can existing public transport / bus and rail services be improved for customers?	15
Integration.....	15
Information	16
Trans-national and inter-regional buses.....	16
Urban buses	16
Trains	18
Car sharing.....	19
5. In addition to the investment in Transport 21, what other measures are needed to improve and expand services?	19
6. How should these improved and expanded services be funded?	19
7. What further measures are needed to improve transport integration?.....	20
8. Does this issues document generally identify the key measures to be considered in promoting public transport?.....	20
9. What course of action should be taken to encourage more people to walk and cycle?	20
10. Does this issues document generally identify the key measures to be considered to encourage healthy travel options?.....	25
11. What are the steps needed to reduce the environmental impact of road freight?.....	25
12. What is the future of rail freight and how should it be supported?	25
13. Apart from action at international level, are there changes in current policy or additional national measures that can be taken to reduce the environmental impact of aviation and maritime transport?.....	30
Maritime	32
14. What should be done to encourage more flexible working arrangements to reduce commuting travel?	33

15.	Should measures which influence behaviour change be made mandatory and, if so, which measures and in what circumstances?.....	33
16.	Will new fiscal measures be necessary to move to more sustainable trends?....	34
17.	If so, what are the optimum measures?	34
18.	What regulatory measures might be necessary?.....	34
19.	Does the issues document generally identify the key measures to be considered in changing personal travel behaviour?.....	34
20.	What additional measures can be taken to promote fuel efficiency and alternative technologies?	34
21.	Does the issues document generally identify the key measures to be considered to promote fuel economy and alternative technologies?.....	35
22.	What changes are required to institutional structures at national, regional or local level to meet the sustainable travel challenge?	35
23.	How can sustainable travel be best delivered at an all-island level?.....	35
	Conclusion.....	36
24.	Given the target date of 2020 in this document, what do you consider to be the short, medium and long-term priorities?.....	36
25.	How ambitious should the targets be to achieve the vision set out in Chapter 2?.....	36
26.	Does the issues document generally identify the key measures to be considered for the effective delivery of sustainable travel and transport?	36
	Short-term priorities (9 – 12 months)	37
	Travel Plans.....	37
	Town Planning	38
	Other measures.....	38
	Medium-term priorities (1 -5 years)	38
	Long-term priorities.....	39
	Bibliography	41
	Appendix 1 – Sustainability checklist of the Carlow Kilkenny Energy Agency (given as an example of such a checklist)	42
	Appendix 2 - Extracts from <i>Construct Ireland</i> article by R. Douthwaite, Issue 9, Vol. 3, September – October 2007	48
	Energy costing	49
	End Notes.....	50

Executive summary

This document was compiled by a coalition of environment NGOs working under the auspices of the Environment (Ecological) NGOS Core Funding Secretariat.¹

The concept of transport as a discrete area of policy making is past. No more can new transport be framed or formed in isolation: since 24 January 2008 Ireland is under an EU obligation to reduce its greenhouse gas emissions 20% below 2005 levels by 2020. This 20% reduction will become legally binding by the end of the 2008. Subject to international agreements, there is likely to be provision for upward revision up to a 30% cut.

This requirement relates to what is known as the non-traded sector. The non-traded sector is composed of Ireland's emissions less the 116 installations that are covered by the EU's Emissions Trading Scheme. Transport and agriculture make up close to 70% of the non-traded sector. Even assuming agricultural emissions are cut in excess of 20%, transport emissions will still have to be cut by in or around 15% over a 12-year period. This requires a radical and rapid turnaround in a country in which emissions from transport have been rising at 5 - 7% in recent years.

The Department of Transport has issued a consultation document. In the view of the authors of this submission, the document conveys neither the scale of the challenge nor the urgency needed in response.

How should the government prioritise action? It is suggested that the government and all departments must embrace energy costing, whereby the energy saved by the project (the energy return) is measured against the energy consumed (the energy invested). The discipline of conducting how much carbon can be saved by a given measure must become the backbone of assessing sustainability.

Priority actions: A detailed programme of what is needed year-on-year is required. Given that 2008 and to a lesser extent 2009 will be 'lead in' years, we only have 10 years.

Short-term priorities (9 – 12 months)

Realign all transport policies so that less climate polluting forms of transport are always favoured and funded; most climate-polluting forms to be taxed. The first steps are to aid people explore alternative - and healthier - form of transport:

¹ EENGOCF is Ireland's legally constituted body composed of 28 non-governmental organisations working in the environmental sector. This document represents the views of the following Environmental NGOs: An Taisce, BirdWatch Ireland, Feasta, Friends of the Irish Environment, Friends of the Earth, Grian, Sustainable Ireland Co-operative and VOICE. Further details of all other ENGOS can be found at www.eengosec.ie.

Travel Plans

- Workplace Travel Plans (WTPs) can achieve a 10-15% switch from cars in favour of walking, cycling and public transport; the more one-to-one contact, and the better the information, the greater the shift.
- Workplace Travel Planning is already in place in Department of Transport; this should be extended across the civil service, with private sector urged to embrace WTPs. Walking or cycling on a daily commute, even some of the way, increases health. Walk and Cycle to School Programmes also achieve 10-15% switch to healthier modes; same should be introduced to all schools in Ireland.

Town Planning

- Within urban areas prioritise well-lit streets designed first and foremost for pedestrians and cyclists; in between urban areas, design first for public transport (buses and trains, in that order).
- Acknowledge that cycling research now shows cycle lane construction may be counterproductive: what's vital is cutting traffic speeds. (Cycle lane is attractive along uninterrupted stretches of road but at junctions it increases conflict (i.e. accidents); this is because placing cyclists up on a height away from traffic between junctions means motorists are more likely to forget about them when cycle lane ends at junctions, and cyclists are thrust suddenly back into traffic).
- The deficit in rates is going to leave local government up to €2 billion short by 2010. Chambers Ireland, NESC and a host of other bodies from government parties to non-governmental groups have come out in favour of Land Value Taxation (LVT) as a means of capturing some of the increased value that public investment confers upon land. The Department of Finance has identified critical research needed to fully scope the introduction of LVT.
- In Dublin and Cork buses are needed, not just bus lanes, while Limerick, Galway and other large urban centres still do not have any significant stretches of bus corridors. It must be acknowledged that local opposition in the Gateway cities is significant and the High-Occupancy Lanes must be considered: in these lanes vehicles with two or more people as well as buses and taxis would be allowed. We must note the enormous shortfall in public transport capacity nationally. Measured by examining the records for the number of vehicles taxed each year, the ratio between the increase in car capacity as compared to bus between from the year 2000 to 2006 is 3.5 to 1 (411,540 versus 115,910).

Other measures

- Minister for Transport, Noel Dempsey said of rail freight on 2 February 2008: "I also find it mystifying why more freight is not carried... If the committee [Joint Oireachtas Committee on Climate Change] holds meetings on the transport and travel action plan, this is an area that might be focused on with the company".

- The first step is to prevent CIE from scrapping engines used for rail freight: it takes 2 to 3 years to replace such equipment whereas refurbishment only takes 6 months.
- We advocate a survey of industry with a view to the provision of an all-island next-day rail-based container delivery service. A package linking 10 – 12 ‘inland ports’ (at major urban centres) and ports should be put to tender.

Medium-term priorities (1 -5 years)

- Raise fuel prices to roughly the levels prevailing in Northern Ireland but reduce the VAT take as oil continues to rise in order to provide cost certainty to the transport sector, at least for 6-month periods, (akin to a measure already in force in Portugal, and under consideration in Scotland).
- Increased taxation to be used to expand school walk and cycle programmes, workplace travel plans, video conferencing facilities, buses and trains.
- A Cap and Share system should be introduced with each person allocated an equal amount of carbon credits which they subsequently sell. These credits must be bought by companies in order to sell fuel, meaning that the price of fuel will go up by the cost of the credits. The key benefit is that those who walk, cycle and reduce their travel by combining journeys (so-called “trip-chaining”) will see a very tangible benefit, something absent from a carbon tax.
- Aviation is the most damaging way to travel due to the effect of releasing pollutants at high altitude, and the contention that aviation only accounts for 2% of global emissions is based on hopelessly outdated figures. Airports and flights are the most heavily subsidized form of transport in Ireland, and we need to find the means to wean ourselves off it.
- The government has been subsidising internal flights to the tune of €70 per flight (as compared with €7 for an inter-city rail journey or 42 cents for Bus Eireann journey). This Public Service Obligation scheme should be phased out when the next set of contracts ends in July 2011, to be replaced by high quality coach/rail services. Such services are likely to be more popular as they will serve key urban centres in Derry, Donegal, Sligo, Knock, Galway and Kerry, rather than simply airports, which by necessity are located away from population centres.
- A kerosene tax on domestic flights should be introduced from July 2011. This is already in force in Norway and the Netherlands. In Norway it is set at €0.07 a litre and revenue is the region of €60 – 70 million a year. Instead of losing over €20 million a year on internal flights the government should be gaining revenue in excess of €100 million, as well as helping achieve our environmental targets.
- The urgency and moral imperative to reduce carbon emissions and move away from an oil-reliant economy needs to be understood and implemented in the day-to-day actions of civil servants at all levels. It is great to see awareness growing within the civil service and this good work must continue.

- A prioritisation that can allow road projects to be finished ahead of time, while public transport falls far behind, must be reversed.

Long-term priorities

- It will be necessary to have detailed and imaginative contingency plans to allow for the ‘recycling’ of our national road system into a public transport system. The end result will be an Ireland free from reliance on the finite and politically unstable resource of oil.

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Introduction

Climate change

Ireland is one of the most carbon intensive nations in Europe. The average individual is responsible for 16.5 tonnes of carbon emissions a year. This compares to a European average of 11.5 tonnes.

This statistic reflects Ireland's low levels of public transport provision, walking and cycling. Of all transport modes, cycling produces the least greenhouse gas emissions, followed by walking, then bus and after that, rail.¹

Insufficient exercise

We have also become a sedentary population. The 2005 report of the National Taskforce on Obesity showed weight levels increasing “with alarming speed” in the last 20 years with 39% of Irish adults now overweight and 18% obese. The 2005 report also noted that an overweight or obese person is at an increased risk of developing type 2 diabetes, heart disease, respiratory problems, certain types of cancer and osteoarthritis. Studies have also shown that weight problems can have a serious impact on psychological health. Some 300,000 children are now overweight or obese and overweight children are more likely to be bullied, according to the report.

The taskforce made 93 recommendations, including that planning policies for transport, housing and amenity spaces should be revised to encourage increased levels of activity. Unfortunately, follow-up studies indicate that little progress is being made, and if anything, the situation is getting worse.²

With the growing levels of obesity the imperative now for the Department of Transport is the active modes – walking and cycling. This vision of a more active society must infuse all Government departments. The response to the questions posed in the consultation paper begins below.

1. What measures are required to better integrate land use and transport?
2. How can the existing commuting patterns be tackled through spatial, regional and land use planning?

These two questions are taken together.

Low-density, post Second World War, dispersed development discourages walking and cycling as well as compromising the viability of public transport.³ It takes a minimum of 35 homes per hectare – 14 homes to the acre – to sustain a bus service with 10 minute frequencies;⁴ few Irish urban areas use land this effectively. Falling

household occupancy must also be factored into the equation, either by higher density, or by measures to increase the average number of residents per home.

Under the 2000 Planning Act a local council can only grant planning permission where the proposal contributes to the “proper planning and sustainable development” of the area. The term ‘sustainable development’ is not defined in the legislation. This is a lacuna that must be addressed immediately.

We suggest that a sustainability matrix be required for all spatial planning decisions. Distance to key local services (schools, shops and workplaces) must be given high weighting.

It must become the responsibility of the Department of Transport to marshal these arguments and impress the need for urgent measures across the Government, and upon the Department of the Environment in particular. The sustainability matrix should be based on energy costing. We enclose an example of one such sustainability assessment matrix as an appendix and urge the Department of Transport to give it close scrutiny with a view to advising other departments on the need to amend our planning regime to take adequate account of such considerations.

Potential loss of carbon must be measured, where the result would entail the loss or diminution of wetlands, for example, and such reduction must weigh strongly against development. To date little attention has been paid to such loss.

The sustainability matrix is advised for planning applications falling under the threshold of proposals requiring an Environmental Impact Statement (EIS). However, it is noted that serious concerns have arisen in relation to the compilation of EIS documents, with some member groups suggesting they have become formulaic, or pat, with paragraphs of material used in one report also finding its way a subsequent report. A more rigorous formatting and assessment (scoring) matrix may need to be set out for these larger projects.

Key shortcomings continue to bedevil the environment impact assessment process. The relocation of spoil is a good example. It often ends up being put in wetland areas simply because the issue of its ultimate destination was neglected or ignored at EIA stage. It is not sufficient to confine the EIA process to on-site impacts only. The Departments of Environment and Transport must ensure greater vigilance by planning authorities in this regard.

Levelling the playing field for new car park construction

Out-of-town development, be it for retail or leisure purposes, causes a significant increase in car-borne traffic. The reasons are simple: such centres are rarely located on public transport routes and provide very substantial areas of surface parking, typically free of charge.

Even as this submission is being read and analysed by policy-makers hundreds of planning applications with copious allowance for out-of-town parking sit on the desks of Ireland’s 88 local councils with planning powers. While many excellent suggestions could be made to reshape parking provision, there’s a critical need for a solution that can be implemented in weeks and months, not some time in 2009 or 2010.

Free parking on greenfield land lures business out of town at the expense of our traditional commercial and leisure cores. Typically, town centres vigorously try to compete with out-of-town in terms of parking provision, but it is a battle no town centre can win. Ireland's town centres are suffering. And we have the adverse effects on our greenhouse gas emissions to boot.

Building surface parking at the edge of town costs a fraction - perhaps about one-tenth – of what it costs to deliver a space in the centre of an urban quarter (with associated environmental problems).⁵

The attempt to sway development back in favour of town centres, and logically extending towns, can only begin when the true economic and social costs are included in planning decisions. When the urban impacts are taken together with the increased carbon emissions, Ireland can no longer afford 'free parking' at edge of town locations.

The Department of the Environment may use sections 9 and 29 of the Planning Act to impose a capital contribution on the one hand and a planning condition on the other. The capital contribution per space should be calculated by subtracting the capital cost of providing spaces in the out-of-town location from their provision in town, inclusive of land values. The developer must show the calculations in his planning application.

Second, a new planning condition should require that all parking spaces are charged for at rates prevailing in the town centre. These two measures will go some way towards ensuring transport is priced so as to reflect its true cost.

Parking parity charging, as described above, will make sites near existing transport links more valuable. Such capital gains should be captured for the community through land value taxation. Parking taxes are in force in one form or another in a host of US and Australian cities. For a discussion of parking taxation two leading authors in the field might be consulted, namely Todd Litman and Donald Shoup.

Land Value Taxation

According to research undertaken by the National Economic and Social Council, a land value tax will encourage infill development, lead to the improved use of land, and combat dereliction.⁶

Calls for the introduction of a land value tax in Ireland have been strengthened by the fragile state of local government financing. Local councils will need additional revenue of up to €2 billion by 2010 simply to maintain service levels.⁷

As things stand commercial property only accounts for 8% of property in Ireland but makes up 25% of local government revenue, a point made by both the Chambers of Commerce of Ireland, and the Indecon report on local government financing. For those that have given local government financing serious scrutiny, the debate has developed beyond whether or not land value tax should be introduced and to focus on how extensively it should first be applied.

So, for example, the Chambers Ireland recommends that it apply to all property other than principal private homes of families. The Green Party's proposal is narrower in that state property used for social, educational and health purposes would also fall outside the tax net. The Danish system, frequently cited as the best working example in northern Europe, does in fact tax principal primary residences but allows for

deferment until homes are sold and also makes special provision for retired people on low incomes. Denmark has a national map (cadastre) showing values for all land in the state and upon which tax is levied at .6 to 2.4%.

The lack of data, in particular the absence of proper, accessible record of all land transactions, is a primary stumbling block to the introduction of land value taxation in Ireland. In fact the data is so bad it is impossible to assess at what level the rate should be set in order to make good the shortfall in local government financing.

In early 2007 the research office of the Green Party, having set out the parameters of its proposed tax, asked the Department of Finance to identify what rate would be needed to raise €1.2 billion a year. In response the Department said “it has not been possible to make a reliable calculation”, citing a lack of data across a range of areas including the “breakdown of the total number of houses/apartments between primary residences, second homes or rented properties”. The Department called for fieldwork to be carried out before it could provide reliable answers.

We urge the Department of Transport to impress upon colleagues across all departments the need to undertake the necessary data-gathering as signalled by the Department of Finance in April 2007. Future reform by Government together with oil price movement will make well-serviced land in urban areas comparatively more valuable. Taxpayers, via the State, will be contributing to this. They will be funding it in many instances and must at least part-recoup their contribution.

A new assessment hierarchy with sustainability and carbon reduction at the pinnacle

Since the inception of the State there has been no single process to decide what transport links are improved, and how. Road builders have focused on road, and rail builders on rail construction, with no regard to fundamental objectives.

The answer, as will become increasingly clear from this response, is not always to “build something”. There is what some might term the “non-infrastructure option”, but what is in effect a plan to promote low carbon modes – walking, cycling, public transport use - thereby meeting a whole host of objectives as well as reducing congestion.

The first step is to acknowledge that we have a piecemeal assessment process. For example, proposals to fund children walking and cycling to school have struggled for funding while large inter-urban sections of motorway are constructed without regard to their propensity to draw people away from the low-carbon modes. We need to commit greater funding to promote cycling and walking and this is what will curb dependence on cars.

Below we promote a National Transport Authority which has sustainability at the pinnacle of its mandate. In other words it takes sustainability – with its attendant needs of carbon reduction and better human health – as its core objective.

This ties in with current EU law under which Strategic Environmental Assessments are required for Plans or Programmes under the SEA Directive. All large-scale plans and programmes must be assessed under this framework. The Sustainability Assessment Matrix discussed above with a view to introduction under the Planning Act for individual projects brings the drive for sustainability to the lower level. With the establishment of the Dublin Transport Authority we can anticipate greater scrutiny

of all Local Area Plans, county development plans and city development plans from the perspective of carbon emissions from transport. However, the risk is that counties falling outside the Greater Dublin Area – Westmeath, Laois and Cavan for example - will persist with low density construction. The key message of the 2006 Census is: “the sprawl goes on”, and while we welcome the Dublin Transport Authority, it will need to be brought under the aegis of the National Transport Authority, the origin and functions of which we describe in the text box below.

Consolidation and re-direction to sustainability - a National Transport Authority

The National Transport Authority brings together the National Roads Authority, the infrastructure section of Irish Rail, the Railway Procurement Agency, the Irish Aviation Authority and Forfas into one organisation dedicated to the provision of sustainable transport in Ireland.

The National Roads Authority has, over time, proved to be an excellent delivery agency but as climate change research shows, it is now delivering something that harms life, not enhances it. This energy must be re-directed.

Irish Rail and the Railway Procurement Agency have not built up the same reputation for project delivery and many rail lines – e.g. Nenagh/Roscrea, Youghal to Cork – remain under-utilised or closed.

Working under the rubric of sustainable transport the new agency will have the scope and capacity to deliver low-carbon projects, and for the first time since the inception of the State, rail and road will be considered holistically as well as in the light of the climate protection imperative.

As well as infrastructure delivery, the NTA will have a four-pronged regulatory function. First, as the national body, it will work with the Dublin Transport Authority to make sure development accords with the National Spatial Strategy. Second, it will oversee the formation of all city and county development plans as well as local area plans outside the Dublin area. Third, it will compile the research and produce a template to allow *any* local council to tender for bus services, or for local councils to come together to the same end. Fourth, over time, the Department of Transport may delegate functions to the NTA, a good example being the operation and development of rail freight as envisaged in this document. Here it can draw on the expertise of its constituent parts, the Aviation Authority, which already has a regulatory function in the transport sector, and Forfas, which has significant research capacity.

The National Roads Authority was earmarked for decentralisation to Ballinasloe but progress on this move is slow (and such a relocation would be contrary to the National Spatial Strategy). The National Transport Authority should be based in Galway, perhaps in the Ceannt Station redevelopment, an optimum location for public transport accessibility.

To curb carbon emissions, and facilitate site visits and meetings, the city and county plans, as well as local area plans, proposed for all Munster counties, together with Laois, Kilkenny, Carlow and Wexford should be assessed from a Limerick office of the NTA.

Importantly, a National Transport Authority will enable competing proposals to be weighed against each other. Currently rival plans are promoted by different agencies, CIE and the Railway Procurement Agency for example, and there's no authority charged with vetting the proposals or indeed reverting to promoting agencies to instruct them to refine or combine their plans. (There's also no authority keeping track of recent research. In Appendix II the cost effectiveness of more modern form of rail surface transport is noted, a mode which may one day replace bus networks and which should be factored into planning bus networks today.)

While a highly unsatisfactory situation exists in relation to bus and rail networks, road-building faces no such drawbacks. The lion's share of funding goes to roads where it is dispersed under the auspices of a single authority without any holistic appraisal, little reference to environment, and no acknowledgment that more roads induce more traffic.

Referencing the UK's Standing Advisory Committee on Trunk Roads Assessment 1999, Banister notes that where road transport systems are heavily patronised "additions to that capacity will immediately be taken up by 'latent' demand with previous or even worse level of congestion being quickly re-established".⁸ An understanding of induced traffic is already widespread in the US and in the UK, and is factored into transport appraisal.

As well as having a sustainable transport hierarchy to follow, the newly established National Transport Authority, with its research base, will know that new roads will, over time, always induce traffic, increase congestion and generate more emissions. Also by considering transport holistically, the days of project splitting trans-county infrastructure projects will be discontinued.

To what does our attention turn? First and foremost we must embrace school travel programmes, workplace travel plans, measures to promote walking as well as cycling, along with reducing the demand to travel. While these are discussed in more detail under the question specifically directed at walking and cycling below, it is vital to

acknowledge that their contribution to sustainability means they lie at the top of the national transport hierarchy. Indeed they are not simply matters for the National Transport Authority; it will fall to the NTA to ensure all agencies and councils below it put sustainable modes first.

The NTA will also have a key role in planning, making sure new development plans and local area plans deliver sustainability. And, as our urban areas evolve, the planning system needs to promote the retro-fitting of existing buildings as much as possible, allowing key services to be more locally based. The consultation document rightly suggests that higher density land use is required to have proper transport systems, and that in Ireland the tactic of creating density first and trying to retro-fit transport has created enormous problems.

Where a greenfield corridor is earmarked for a new transport system it is best built before density to avoid costly retro-fitting. Curitiba in Brazil provides perhaps the best example of integrated transport and land use. Millions were saved by former Mayor Jaime Lerner deciding on the bus routes, and then only allowing development along those bus routes (and along feeder routes). The Curitiba bus system achieves an impressive capacity of 36,000 people per direction per hour. This can be compared to typical bus corridors in Dublin which carry about 8,000 people per direction per hour, the Luas with a maximum capacity of approximately 10,000 people per direction per hour, and the London underground, which has a theoretical maximum capacity of 50,000 people per direction per hour.

For Ireland the provision of frequent buses must be a priority. Possible conversion of bus networks at a later date to less energy intensive technology should not detract from their provision straight away. We note the Northern Ireland Executive is expected to endorse such a bus system for Belfast in the coming months, with future conversion possible.⁹ See further the section below titled “Urban buses” (and see also Q 3 and Appendix II).

The consultation document makes reference to the aim of the National Spatial Strategy to “redistribute economic activity from congested areas to areas experiencing economic and social stagnation”. However, “redistribution of economic activity” must take place in such a way so as to reduce carbon emissions.

Cap and Share

Under Cap and Share each person is allocated an equal amount of carbon credits which they then sell to fuel companies. The national pool of credits is reduced year-by-year, and the price of fuel and credits can be expected to increase over time. One NGO has outlined a scheme which commences with road transport fuels and is later extended to heating oil.¹⁰ Feasta see a national pool of credits being allocated equally among the population, with fuel companies then buying up these emission credits to entitle them to sell fuel. Banks, post offices and other financial institutions facilitate these transactions.

The chief advantage claimed for Cap and Share over carbon taxation is fairness. The permits compensate each recipient, at least in part, for higher bus fares and fuel costs; anyone using less motor fuel than the Irish average is better off. Another advantage is its capacity to work best where it is needed most. Were a blanket carbon tax of €20 a tonne to be introduced it is unlikely to impact much on the transport sector, meaning

that inaction would persist in the area where Ireland is most exposed. Feasta point to three reasons for first applying the system to transport fuel:

- Transport is responsible for 34% of Ireland's energy-related carbon emissions;
- Energy use in transport has grown at an average of 6.3% between 1990 and 2006, the fastest growth rate across all sectors;
- Ireland imports 99% of the fuel it uses in transport, raising major security of supply issues.

Cap and Share brings citizens into a participatory scheme, and a sense of shared endeavour could be created because the price movements of shares and fuel may act as a "universal signal". As the cap is steadily reduced (3% a year is suggested), the price paid to consumers will go up, and is likely to continue to do so. People who predominantly walk, cycle and use public transport will avoid ever higher direct fuel charges, while benefiting from this through higher share prices as compared with those who continue to use higher carbon modes.

The creation of an Irish Climate Protection Trust is advocated in order to administer the system. Incorporation of such a trust as an element of the National Transport Authority might be explored to help reduce administrative costs, share access to data, etc.

The 2008 study by AEA Energy & Environment, commissioned by Comhar¹¹ has taken the Cap and Share debate forward. While there are some decisions to be made – whether, for example, it is better to grant children half an adult share or to use the Children's Allowance system, or how to shape the scheme for the vulnerable or those in care - there are no insurmountable obstacles to the introduction of Cap and Share.

3. Does this issues document generally identify the key measures to be considered to better integrate spatial planning and transportation?

See the answers to the questions above. In terms of prioritisation, a strong and clearly defined sustainability assessment matrix is required immediately to flesh out the criterion of "proper planning and sustainable development", a rubric which all proposed developments must ultimately satisfy, and an example of same is included as an appendix.

4. How can existing public transport / bus and rail services be improved for customers?

Integration

The introduction of integrated tickets for all types of public transport will be a huge improvement. We note the current deadline is the end of 2009. We also note that this has shifted 8 times in about as many years and that integrated ticketing was first proposed in 1914 (Abercrombie's "Dublin of the Future: The New Town Plan"). Failure to make the end of 2009 would have disastrous consequences for credibility and public confidence.

Information

The first step is to improve existing websites. It is telling that a website run by volunteers, www.railusers.ie, provides better information on what trains accommodate bicycles than www.irishrail.ie.

In Germany, even tourism promotion websites in Germany tend to link directly to train and bus operators.¹² The first goal must be to ‘link up’ travel and transport operators so that the browser can go from one site to the next to access estimates of walk and cycle times from termini, as well as maps, prices and related information. Later a more ambitious goal should be attempted, namely to provide a single internet portal. This has been done by VBN, the public transport company of Bremen and Lower Saxony. Its website covers 34 transport companies in the north west of Germany, letting you know how to get between any two points using a variety of modes of transport, complete with graphic representations of your route, details of intermediate stops, and so on.¹³

Trans-national and inter-regional buses

Making bus travel much more attractive and efficient for travellers is vital. Longer distance buses need to be equipped with toilets, good leg-room, proper quality seats, work stations, food and drink and media stations. Such buses need to be upgraded to a level of comfort available from Europe’s the leading providers, a good example being German company Gullivers.¹⁴

Proper luggage facilities need to be fitted in and around bus stations (as well as rail stations, like in many EU countries). Ramps, luggage trolleys, electric escalators, and lifts can dramatically decrease travellers’ stress while hauling around bags, thus making public transport more attractive.

Night buses with proper reclining seats should be introduced for the longer journeys across the country, to encourage people to travel by land during the night (therefore in theory not losing time) instead of flying. Dedicating existing lanes to buses is much more sustainable than expanding roads to include another new lane.

Intercity buses should be better equipped to take bicycles on board and bus stations should have secure cycle and ride facilities.

In rural areas, the idea of bell-buses (buses which run on quiet routes to regular timetables, but only if someone has already phoned to request the service) should be employed, to improve the service yet cut running costs and emissions.

Urban buses

Newly-purchased buses for urban areas should ideally be powered by electricity, be designed to convert to electrical power, or be capable of running on reclaimed fats, oils, greases or biogas. We note the progress Galway and Cork have made in recycling fats, oils and greases for transport use, and the ancillary benefits for sanitary and rainwater run-off systems. All urban areas should be urged to follow the example.

EU biofuel targets should be met first and foremost by powering public vehicles with fats, oils and greases. Biofuels, and next generation biofuels, are discussed in greater detail in answer to the question on that topic below.

One of the more telling statistics is the ratio of new bus and car capacities in the six years after 2000. The publication titled Bulletin of Vehicle and Driver Statistics records the number of cars and buses on our roads.¹⁵ To this we can apply average occupancy figures, making the broad assumption that cars on average carry 1.2 people, small public service vehicles take 10 people and large buses take an average of 50. There is no Irish data to ground these assumptions – something badly needed - but these figures will suffice in the circumstances.

	Total no. of private cars	No. small public service vehicles	No. large public service vehicles
2000	1,319,250	13,637	6,957
2006	1,662,200	21,888	7,625
Difference 2000 to 2006	342,950	8,251	668
Assumed average occupancy per vehicle	1.2	10	50
Capacity Increase 2000 to 2006	411,540	82,510	33,400
Car compared to total bus, and ratio	411,540	115,910	
	[3.5]	[1]	

The table demonstrates that car capacity outpaced public transport capacity in the years 2000 to 2006 at the ratio of roughly 3.5 to 1. A great deal of this can be laid at the door of the Department of Transport and the Government which has maintained a 1932 regulatory regime in place.

To get around this impasse within the bus sector we suggest a ‘first refusal’ system for incumbent operators. The National Transport Authority and local councils together identify where additional capacity is warranted. The next step is to go to the marketplace and price this: what is the capital and annual cost of providing the increased bus capacity? The package is then presented to the incumbent company: if that company can supply the service at, or close to, the marketplace rate then it receives the service on a five-year concession. If not, it the package is put to marketplace. Frequent monitoring is vital to ensure commitments are met.

Lack of capacity is the primary issue affecting urban bus transport. On top of having three or four times too few buses, all the innovations of real time passenger information, and enabling buses to bring forward traffic light sequences, need to be introduced.

In Dublin the additional lane of the M50 should be allocated to buses as soon as there is a sufficient number to operate an orbital service. This orbital service should see the building of enclosed stations proximate to each intersection. By using the Dublin Port Tunnel this will provide the opportunity for many to walk or cycle to the stations at the intersections and travel onward from there.

Trains

The shortening of inter-city rail journey times is essential to encouraging more rail travel. Not alone are Ireland’s rail journeys much slower than the average European journeys but a wide range of rail trips in Ireland are slower than they were in 1978.¹⁶

Modernising luggage facilities as mentioned above for bus stations applies equally to train stations. Bike-carrying facilities on urban and inter-urban rail facilities are also essential. In a major step backwards, Irish Rail have significantly reduced its bike-carrying capacity on new inter-city trains. The new fleet is limited to two bicycles per train. This must be reversed in future procurement policy and two to four seats in existing stock must be removed to facilitate the carriage of bikes.

Proper rail ticket pricing is years overdue. A mid-morning train on a Tuesday should be cheaper than a Friday evening service. Greater discounts are needed for families and group purchases. The option to buy annual railcards must be offered: e.g. DB in Germany sells yearly railcards entitling the user to 25% or 50% off each rail ticket they buy.¹⁷

Car sharing

Car pools and car clubs should be facilitated to help them get started. A car club was already attempted in Dublin some years ago, but due to insurance difficulties, the scheme was terminated after only one year. The impediments stopping this scheme need to be researched properly and fully addressed to facilitate it.

We note that Brussels City Council has a scheme giving a ‘mobility package’ to those who get rid of their car. The package is flexible and can include a one year integrated public transport pass, one year’s access to a car club as well as bicycles. Brussels City Council has allocated spaces across the city to pick up and drop off car club vehicles. The cars can be rented on a short-term basis, anything from one hour to a few days.

Car-pool lanes should be introduced on dual-carriage ways and motorways (like in Los Angeles) so that at peak times only cars with 2 or more passengers are permitted to use these lanes.

A national lift sharing website should be set up modelled on successful German lift sharing services (e.g. www.mitfahrgelegenheit.de).

5. In addition to the investment in Transport 21, what other measures are needed to improve and expand services?

Transport 21, in mentioning budget allocations to improve bus services in a number of gateway cities, offers little real detail (for example, there are no commitments to provide the innovative steps mentioned above).

6. How should these improved and expanded services be funded?

Improved and expanded bus and rail services should be funded from higher taxes on the purchase and operation of higher-polluting vehicles.

In not having car-manufacturers, Ireland is uniquely positioned to implement a vehicular taxation system calibrated in accordance with carbon emissions. The vehicle registration system due to come into force on 1 July 2008 is a welcome step and can be calibrated over time to further discourage carbon-intensive vehicles.

A ‘pay as you drive’ system of annual taxation, if introduced, should be based not simply on distance travelled but also on how much carbon the vehicle emits.

Raising fuel prices to roughly the levels prevailing in Northern Ireland would provide significant revenue. Cost certainty can be provided to the transport sector by allowing VAT to fall as the price of a barrel of oil continues to rise above \$115 dollars, akin to the system in force in Portugal, and under consideration in Scotland. The Minister for Transport would not be allowed to adjust this 'regulator' more than once every 6 months. The increased taxation can be used to fund additional school walk and cycle programmes, workplace travel plans, video conferencing facilities, buses and trains.

The 2008 to 2011 tender period for the next set of regional flights ends in July 2011 and we are proposing their replacement with chauffeur style-coach services in 2011. We believe the direct coach services will actually be more popular as they will serve key urban centres from Derry, Donegal, Sligo, Knock and Galway to Kerry (discussed in more detail in the aviation section below). Under these proposals substantial capital sums will be released for overland transport.

7. What further measures are needed to improve transport integration?

See above, the response to Question 4 in particular.

8. Does this issues document generally identify the key measures to be considered in promoting public transport?

The document doesn't offer real guidance on ways to overcome the bus shortage, a lacuna addressed above. Also there should be an explicit acknowledgment that the latest research does show transport by coach/bus is more efficient in terms of carbon emissions than rail.¹⁸ Consequently, there should be more emphasis placed on increasing bus travel than rail travel.

9. What course of action should be taken to encourage more people to walk and cycle?

The percentage of people cycling to work has fallen three-fold over the last 20 years. No comprehensive studies have been done in Ireland to explain why. According to a 2008 report by the European Environment Agency a lack of safety – actual and perceived – is a chief reason.¹⁹ The same report cites a study Jacobsen showing that as the number of cyclists double, the accident risk falls by a third, and conversely, if cycling halves, the risk to cyclists increases by just over 50%.

Providing a cycle track – by which we mean an off-road path in an urban area onto which cyclists are directed - is frequently advocated as a means to encourage cycling. But more recent research by Franklin suggests that the priority is in fact to slow traffic speeds. The problem with cycle tracks running at the same level as the footpath is that, by taking cyclists temporarily away from traffic, cyclists are removed from the motorist's field of consideration in between junctions. Some motorists then forget about cyclists altogether, which can have tragic consequences when cyclists are directed down off 'footpaths' and re-introduced to main flows of traffic at junctions and roundabouts.

While Irish towns and cities enjoy a much more hospitable climate than Danish cities, Copenhagen sees more than one third of its residents cycling to work, compared to 1.9% in Ireland.

The aim should be to grow cycling levels in Irish urban areas to the levels now seen in Copenhagen. Under the Copenhagen Cycle Policy 2002 – 2012, the city aims to raise its 34% level to 40%.

The first step in Ireland is to maintain wavering cyclists and then identify potential additional cyclists. The opening of the Dublin Port Tunnel does appear to have increased cycling and this is welcome, showing that significantly reducing the volume of more dangerous vehicles makes a real difference. Dublin's November 2008 traffic survey is eagerly awaited to see if this trend persists.

There is a wide target audience for cycling. It encompasses children striving for independent mobility, college going students who would like to remain on their bikes but are not happy with conditions on our roads, young workers who want to keep fit, middle aged people who want to get back on their bikes and seniors who want a little more exercise.

All these cohort groups are thwarted by a similar set of downsides, some of which overlap. And the first step must be to reach out to these groups by tackling these drawbacks. According to Franklin, there is a hierarchy of provision to maintain and grow cycling:

- Traffic speed reduction is the single most important measure to boost cycling in urban areas. The primary emphasis must be on traffic law enforcement, particularly through widespread speed-cameras. Physical measures include changing the perceived “design speeds” of roads as well as the elimination of one-way streets, speed ramps, calming, etc.

- Can traffic be relocated and/or reduced, particularly HGVs? Measures include banning HGVs from local roads with mixed traffic, attracting through traffic on to inter-regional routes, and environmental road closures to discourage through traffic.

- With better junction treatment and traffic management, can roads safe for and permeable to cyclists be provided? Junction alterations include:

 - Modifying or removing roundabouts and dismantling related ‘gyratory’ systems that use one-way streets. Removing cycle-lanes from roundabouts.

 - Eliminating “free-flow” arrangements, particularly slip roads, dedicated-left turns, merges and diverges.

 - Modifying T-junctions to reduce entry curvature, excessive visibility and width of entering roads.

 - Traffic signals that respect cyclists: traffic control systems that recognise cyclists and give them equal or increased priority, eliminating or modifying left-turn-only lanes in general and left filters at traffic lights, advanced stop lines for cyclists at traffic signals, bypasses for cyclists at traffic signals, cyclist-specific traffic signals.

 - Modifying or removing dangerous and inappropriate cycle facilities, particularly non-signalised cycle-paths and inappropriately narrow (<2m) or positioned cycle-lanes (e.g. cycle-lanes inside left-turn-only lanes).

 - Permeability means the elimination of one-way street systems and making

remaining examples two-way for cyclists. Cyclists should be exempt from banned turns and access restrictions.

Engineered pinch-points and road narrowings should also be eliminated. And 'village gateway schemes' that appear to 'use' cyclists as mobile traffic calmers should be replaced with measures that take cyclists' safety into account.

- Ensure cyclists receive adequate space. Provide cyclists with more space, regulate overtaking behaviour, restrict on-street car parking, remove narrow cycle lanes (< 2m wide) or mark wide kerb lanes, and provide bus and cycle lanes of appropriate width.

Having considered, and where possible implemented all of the above, what wide hard shoulders, or wide cycle lanes, if any, are now necessary?

Awareness campaigns using a wide range of media (TV, internet, newspapers, radio, billboards etc) are unlikely to be successful, or as successful, unless workplace travel plans and walk and cycle to school programmes are already in place. Studies have shown the latter programmes to be effective²⁰ whereas there is no real way to assess cause-and-effect or value for money from media campaigns. The Department of Transport is to be commended for starting workplace travel planning, beginning with itself:

Department of Transport formulates a Workplace Travel Plan for employees

In late 2007 Minister Noel Dempsey launched a Department of Transport (DoT) "Workplace Travel Plan". The aim is to attract DoT staff away from cars and onto public transport, walking and cycling. Early signs are positive. There's a very enthusiastic team in the Department building awareness and promoting the alternative travel options amongst staff. The idea is that the DoT will use its experience with this plan to draw up a workplace travel plan template that can be used across all Government Departments.

Here is what the DoT is doing as part of its new plan to encourage staff to cycle more:

The Department has a new programme to improve cycling facilities (new bike stands, showering facilities, etc). The Department has purchased bicycles (12 by mid January 2008) for each office location, which are available to staff who wish to cycle

to meetings and also to try out a commute by bike. Support materials such as lights are also being made available.

There is a dedicated "Bike Contact" in each building who staff contact to book a bike. Anyone wishing to try a commute by bike receives advice and if they want it a "buddy" will be arranged to accompany the person on their first commute (give them advice on routes, etc).

A bicycle support users group has been set up to explore further initiatives such as cycle maintenance classes, discounts in cycle stores, the purchase of reflective gear for all cyclists.

It is also understood that consulting company Colin Buchanan submitted a report to the Department in late February 2008 advising on the formation of a new national cycle policy, the Minister's intention being to framework in place shortly thereafter.

Adapted from notes by Mike McKillen, Chair of Dublin Cycling Campaign

The European Commission provided 200 bikes for its staff, and between January and June 2007, the use of the bikes rose 30%, as compared to the same period in 2006. The bikes are used by workers to get to and from the Commission's offices and also for work-related trips within Brussels.

According to a study undertaken in Finland the cost of buying bikes for employees is recouped through reduced absenteeism. The study showed employees undertaking approximately 150 minutes of physical activity a week only go on 3 days sick leave a year, compared to eight days for those undertaking 50 minutes of physical activity a week.²¹

As well as persuasion at the individual level, money talks. While the civil service cycling allowance was increased, it was not raised enough, nor was it sufficiently publicised. We also need a policy statement from Government that all companies that grant fuel allowances for vehicles driven by employees must offer cycle allowances at a level equivalent to the fuel allowance on a per kilometre basis. Subsequently, this policy advice should be put in legislation, making it illegal to pay employees fuel bills without offering a per-kilometre allowance for cycling.

"It would be devastating to think Ireland is raising a generation of vehicle-dependent children" is how head of Green Schools Ireland, Pat Oliver, responds to statistics telling us that there are only half as many children walking or cycling to school as there was in the mid 1980s with double the amount being taken by car (see the An Taisce Green Schools travel submission document for further details on this initiative). For children and adults the design of our street and public arteries plays a vital role in travel choice.

Lars Gemzoe is co-author with Jan Gehl of *Public Spaces, Public Life* (1996):

Forty years ago, when the pedestrianisation process began, shopkeepers in central Copenhagen were unconvinced and apprehensive:

“We’re not Italians, we’re Danes. It will never work here”.

“Shops will die off if there are no more cars”.

“The climate over here is not suitable for mingling in the streets”.

These were just some of the objections they raised. “There was literally no culture of public space and public life; we used to sit at home...”, recalls Lars Gemzoe. However, since then, things have changed a lot in this city. When the first street was closed to traffic as an experiment, people found it interesting, and then came the next car free street. The shopkeepers that had expressed criticism soon realised it was working to their advantage, and people discovered that they liked to explore their city on foot. Because the city council made it gradually more difficult to drive and park, visitors had time to get used to the idea that it was too complicated to take the car, and took the bus or bicycle instead. And so the centre of Copenhagen underwent a dramatic change from a car-oriented to a people oriented place”.

Tracking progress is a trademark of noted urban designer, Jan Gehl. Early 1970s Copenhagen saw Gehl carry out a style of urban design that involved a process of measuring, making incremental improvements and then measuring again.²² The breakthrough was increased sales for shops along the pedestrian routes (see text box) the he introduced. And, in social terms, the results have been profound.

As can be seen, properly researched measures will encourage citizens to take to the streets again and enjoy outdoor urban life. A former mayor of Bogota, Enrique Penalosa, has put the social case for walkable communities most eloquently:

High quality pavements are the most basic element of respect for human dignity, and of consideration for society’s vulnerable members... Images of high rise apartment blocks and highways are frequently used to portray a city’s advance. In fact, in urban terms, a city is more civilised not when it has highways, but when a child on a tricycle is able to move about with ease and safety.

Because public transport is invariably reached on foot, good footpaths are vital to its use. Noting that trying to cross busy roads “even with pelican crossings, is extremely hard and stressful”, Whitelegg observed that “disincentives to walk and cycle create a powerful inducement to own and use a car, thus exacerbating the problem for others and adding to the pressure for yet more car ownership and use”. Irish pedestrian crossings have some of the most unfavourable waiting times for pedestrians in Europe. Frequently, there is a wait of 1 to 1.5 minutes and then only 8 seconds to cross as compared to continental cities such as Hanover and Copenhagen where the wait times are in or about 30 seconds with roughly the same amount of crossing time.²³

10. Does this issues document generally identify the key measures to be considered to encourage healthy travel options?

Please see the responses to the other questions. A further point is the need to improve air quality. To take Dublin as an example, in the only area assessed during the first quarter of 2008 (Rathmines) the limit for PM10 will be exceeded if the pattern during the first three months persists to the end of the year.²⁴

11. What are the steps needed to reduce the environmental impact of road freight?

Please see the responses to the other questions. The true costs of emissions from road freight must be recouped, something the consultation document does appear to acknowledge, but is unsure how to recover them. We suggest the measures outlined in this document.

12. What is the future of rail freight and how should it be supported?

Mayo TD Dara Calleary:

In a previous existence I had to deal with CIE freight regarding a major customer who was really put through the hoops by the CIE company when trying to get a freight connection to Ballina. The rates are way over the odds when compared with road transport and similar rail systems around the world. The CIE representatives more or less gave the impression that they did not want the business... The company had to do all the market research as CIE was extremely reluctant to get involved.

At a 2002 Oireachtas Joint Transport Committee meeting Róisín Shortall, a Dublin North West TD, put a question to CIE Chairman Dr John Lynch. Noting that tax breaks and grants were in place across Europe to encourage goods to move by rail she asked, “has CIE put any proposals to the Minister for Transport for a similar scheme to encourage that kind of switch?”, to which Mr Lynch replied “no”.

How does the level of rail freight in Ireland compare to other small European countries? Luxembourg, which is about the size of Munster, has double the *internal* rail freight of Ireland (1.9 million tonnes as compared to .97 million tonnes in 2006).

Austria, with about the same land area and double the population of Ireland, is carrying 12 times more *internal* freight traffic than CIE.

Statistics like those above give the lie to statements (albeit made with ever-decreasing frequency) by some CIE executives that Ireland is too small and that distances are too short. What matters most is the speed at which turnaround can be achieved at depots, thereby minimising the amount of time rail wagons spend stationary, all with the aim of using equipment intensively, perhaps even on a 24 hour basis. Stressed by rail campaigners since the late 1990s, this concept of ‘sweating’ costly equipment was alluded to by former Minister Seamus Brennan during his tenure as Minister for Transport.

A key problem – perhaps the chief problem – is that the Department lacks internal expertise on the subject. This is implicitly conceded in the consultation document itself, which contains no discussion of new ideas. For the past decade, as rail freight has plummeted, the Department has relied on CIE advice. Frequently, this has been misleading. For example the rail line from Limerick to the Port of Foynes is asserted by CIE to be held on a “care and maintenance” basis; sadly it receives little of either.

The 2003 Strategic Rail Review by Booz Allen Hamilton found that some 20% of CIE’s freight trains were either cancelled or late, as compared to 4% for a Scottish operator of a similar size, and that an operating performance even approaching these levels would not be acceptable to any modern logistics operator.

A central message of this submission is that CIE’s reluctance to operate freight trains is not, and cannot, be a barrier to the resurgence of rail freight in Ireland.

As well as the 2003 review mentioned above, two key reports have pointed to the potential of rail and the need for reform in Ireland. “Rail has the potential to greatly increase its share of port traffic” Arup Consulting found in 2000. A network of internal rail depots known as ‘dry ports’ are needed, according to the High Level Review of the State Commercial Ports, the findings of which were backed by Government in January 2005. And the same report also strongly argued for port mergers saying there were “too many commercial port companies, many of them operating in close proximity to each other”. Measured by volume, over 95% of Ireland’s overseas trade passes through its ports, which gives some idea why the Arup report (completed for CIE) and the High Level Review (completed for what is now the Department of Communications, Energy and Natural Resources) both contain important messages on rail freight and the need for its development.

Across Europe rail freight services are typically provided by companies specialising in freight. The UK market now has 9 rail freight operators although the vast majority of the goods are transported by 4 carriers. Rail freight in the UK has grown from approximately 13 bn tonne kilometres in 1994/5 to 22.1 in 2006/7, a 68% increase, with rail freight now constituting 12% of the market, up from 8.5% ten years ago.²⁵ Contrast this with the 32% fall in rail freight between 2005 and 2006 in Ireland – the largest decrease in the EU – and leaving rail freight with only 1% of the total market.²⁶

The decision for Ireland’s government centres on how much to commit to achieve resurgence. As above, we suggest an energy costing analysis, and we can offer the following information to aid that calculation.

In 2001 approximately 2.6 million tonnes were carried by rail in Ireland and we take it as a first objective to recover these rail freight levels. The average rail freight

journey is 198 km, (a figure taken from the Strategic Rail Review), meaning that the 2001 number of tonne km was 516 million (2.6 x 198). Carrying goods by rail results in the emission of 100 grammes of carbon less per tonne-km as compared to road transport (according to a 2003 report by the European Environment Agency). Transferring 516 million tonne km from road to rail therefore yields a carbon saving of 51,600 tonnes. If carbon is worth €35 a tonne this measure is immediately worth €1.8 million. Or, put another way, if we assume Ireland were to miss its 2020 targets, and the EU were to impose punitive fines on Ireland of €125 a tonne, the measure would be viewed in retrospect as carrying a 'saving' of €6.45 million a year or €64.5 m over the ten years from 2010 to 2020, assuming rail freight stayed at the level projected for 2010.

To pursue this project, one option is to publish a call for submissions for companies asking them to document the level of goods they could divert from road to rail. Under this proposal companies would also document their present-day road freight costs. The most remunerative flows can then be identified in a completely open and transparent fashion (up to a certain level, e.g. 516 million tonne/km) with the results published.

In calling for submissions from companies it is our view that Government must designate, in a first phase, 10 rail freight centres on the island of Ireland, with 2 of these in Northern Ireland.

While such depots might be located on the property of an existing rail freight user, or be an existing port, all companies in the region would be allowed access to pick up and drop off containerised produce.

Most goods can now be handled by in some form of 'container'; the unit itself may not look much like a traditional container at all but simply have the castings to enable it to be handled by container lifting equipment. (Examples include tank containers which carry chemicals and cement and are placed on top of standard container wagons.) We include notes on key locations below.

Galway's rail freight handling facilities may best be located at Athenry, where the east/west and north/south lines meet. This view is buttressed by the fact that the Galway's city-centre freight facilities are ear-marked for redevelopment. The same can be said of Limerick city centre, where the most suitable location for a new 'dry port' facility appears to be the Raheen / Mungret area where Irish Cement already have unloading facilities. This location would also offer strong potential to attract traffic from Shannon (in anticipation of the new tunnel opening) and with ready access to west Limerick, where Foynes Port caters primarily for bulk produce.

At Belview Port in Waterford trains can already be positioned at the dockside and be loaded and unloaded directly from ships, a feature known as on-dock rail. Belview Port should be the location of the rail-connected freight centre in the south east.

Rail connection at Dublin Port is poor but a new facility is proposed for Bremore, just north of Balbriggan. On-dock rail, must continue to feature strongly in the proposals for a new port at Bremore in North Dublin and be included in future planning submissions.

Ballina in the North West already has operational rail freight facilities and is well-positioned to serve the North West. In Northern Ireland the two proposed locations are Belfast and Derry, with the latter also serving the North Donegal catchment. In the midlands Portlaoise appears to be the best location. Indeed proposals to create a

road/rail distribution hub beside the train-care facility already located at Portlaoise were advanced but rebuffed by CIE. Aside from Cork, which is discussed below, the three other candidate locations for rail freight facilities are Clonmel, Rosslare and Tralee. A decision to include two of these can be made based on trade volumes after the receipt of proposals from interested parties. However, publication of the indicative list is vital to give focus to the project. An additional location or locations can be added in a subsequent phase.

Proposals are being advanced for a new container port near Ringaskiddy, remote from any rail line in Cork. The lack of on-dock rail came in for strong criticism at An Bord Pleanála's oral hearing into the project where it was pointed out that "no serious consideration has been given to the long-term provision of rail access as an alternative to a road only solution".²⁷

Waterford Port, located at Belview, was operating freight trains from Belview to Cork's North Esk rail depot up until the collapse of the Cahir viaduct in late 2003. The traffic did not return after the viaduct was re-built but the flow is indicative of the viability of inter-regional rail freight. A vital finding of the High Level Review must again be emphasised: Ireland has "too many commercial port companies, many of them operating in close proximity to each other". The same report called for mergers. Even if the ports at Shannon Foynes, Cork, Waterford and Rosslare were merged, the new entity – let us call it South and West Ports - would have little more than the 40% share of the nation market now held by Dublin Port.

If Ireland's existing infrastructure is used in a sustainable way there appears little case for new port locations along the south and west coasts, particularly ports unconnected to the rail network. Waterford Port currently has spare capacity and after Waterford's spare capacity is exhausted, the use of the Port of Rosslare can be considered. Rosslare Port has on-dock rail line but is chronically underused and does not handle container traffic.

A sustainable vision would see the growing use of Waterford Port up until the point it becomes capacity constrained, and then following port mergers, a joint venture between the proposed South and West Ports company, Irish Rail, the owner of Rosslare Europort, and the new rail freight operator, can be used to exploit the inherent advantages of Rosslare.

It goes without saying that the current situation where one semi-state port company is promoting the construction of a greenfield port, remote from the rail network, when another semi-state is only half-using a rail-connected port is grossly unsustainable.

A final point can be made in relation to the financing of our rail freight proposals (which are contained in summary form below), which relates to the financing of the provision of modern facilities at the 10 locations. Putting a cost on carbon of €35 a tonne yields a minimum of €18 million over a ten-year period. We further suggest that a more comprehensive energy costing appraisal would yield more impressive savings. Moreover, between 1994 and 2004 the cost of injuries and fatalities involving road freight vehicles in this country exceeded €5 billion. During that period a total of 1,036 fatalities and 13,618 injuries were recorded as a result of road freight accidents. No rail freight train casualties were recorded during the same period.

Locomotives need to be protected

Ireland has an unusual rail gauge, the technical word for the width between the rails of a train track. Here it's 1.6 metres whereas across Britain and continental Europe it is 1.435 metres. The upshot is that it takes a long time to order new locomotives.

Sadly, Irish Rail stands accused of destroying older locomotives which could be of use to a new entrant in the rail freight business.

Deutsch Bahn (German Railways) was heavily fined by the EU for disposing of assets that could be of use to other operators and Irish Rail is exposing Irish taxpayers to a similar liability.

What is left of the 1960s engine fleet should be 'warm stored'. Refurbishing one of these would cost about €500,000, which would take six months but extend engine life 10 to 15 years, whereas buying new and suitable freight locomotives will take up to three years to design, procure and deliver at a cost of about €2m euros each.

In conclusion, we recommend a nine-step process:

1. Retain access to a consultant with knowledge of the Irish rail system
2. Retain assets (see above text box)
3. Publish eleven candidate rail freight centres, with ten of these to be opened in the first phase based on the traffic figures indicated in the responses received.
4. The centres all capable of handling containerised goods are Athenry, Ballina, Belfast, Cork (North Esk), Derry, Limerick, Portlaoise, Waterford (Belview Port), and two of the following three, Clonmel, Rosslare, Tralee.
5. Place ads in the national press asking companies what traffics they would like to see go by rail between the selected locations.
6. It should be clear that submission to the Department of Transport does not guarantee that these goods will move by rail but that the most remunerative flows will be selected by industry carriers.
7. Summarise the replies and publish a call for tenders in the European journal. This call for tender allows the companies to select the cargo flows they see as efficient, the key criterion being to exceed the target figure (516 million tonne km).
8. The companies must indicate what capital sum and/or annual subvention – if any – they will require to exceed the carriage of 516 million tonne km on annually.
9. Select winning tender and grant the company a five-year operating licence.

13. Apart from action at international level, are there changes in current policy or additional national measures that can be taken to reduce the environmental impact of aviation and maritime transport?

The document fails to face up to the fact that aviation is the least sustainable form of transport, and yet this mode continues to be subsidised more heavily than rail or bus. Aviation policies outlined in this document include plans to invest €1.8 billion in Dublin airport and €6 million in regional airports. This document even admits that investment at Dublin airport is expressly earmarked to increase capacity. The proposed increase in capacity at Dublin airport will result in at least an extra 3.7Mt of CO₂ being released by the Irish transport sector.²⁸ This kind of increase will more than likely negate all the other attempts at reducing emissions mentioned in this document.

The government tenders public service obligation (PSO) contracts on services to six regional airports at a cost of €15 – 20 million in public subsidies each year. These services alone account for 0.24 million tonnes of carbon annually.²⁹

Current policy needs to take a radical change in course, and the first step is to publish clear information on comparative subsidies by taxpayers on the various forms of transport. The following paragraph is adapted from *Chaos at the Crossroads*:

A 2004 review by DKM consultants found subsidy levels per passenger on regional air fares ‘far higher than those available on other public transport modes’. For the 46 million passengers it carried in 2002, Bus Eireann received a subvention of €22.77 million, which equates to 47 cents a journey. Irish Rail carried 11.2 million passengers on its inter-urban routes in 2002, and if half the company’s €155 million subvention was attributable to inter-urban services – a figure DKM felt was a ‘reasonable guess’ – the subsidy per journey is €6.92. DKM then contrasted these figures with the 260,000 passengers carried on PSO regional air services at a 2002 subvention level of €18.54 million - a whopping €71 per journey. In short, each PSO flyer gets a subsidy 10 times the average rail passenger and 152 times a bus passenger.

The first step is to signal that the PSO subsidy system will be discontinued when the current tender expires in July 2011, to be replaced by high quality dedicated coach services from Dublin Airport.

In producing the final document it is important to realise that the structure and language of the consultation document underplays the contribution of aviation to Ireland’s growing transport emissions crisis, and the measures that will be necessary to reduce its impact.

Aviation is the fastest growing source of emissions worldwide, Irish people are the second highest consumers of aviation in Europe and own a number of private jets disproportionate to our population.

Anticipating the future inclusion of aviation in the EU Emissions Trading Scheme, the consultation document suggests that this “should not endanger the diversity of air services, which are now available in a liberalized commercial aviation market, or reduce access to air services”. This statement is wholly inconsistent with the primary aims of the document and needs to go.

Exceptional subsidies have allowed growth in aviation that would not otherwise be commercially viable. Reducing delay times for air traffic and all other measures

outlined in the document can only provide negligible CO₂ reductions when compared to the effects of the doubling in airport capacity which is planned.

The induced traffic phenomenon mentioned applies to airport expansion, just as it does to roads. The document outlines the planned 1.8 billion euro investment in Dublin Airport but fails to describe how this investment will double passenger numbers and at least double emissions from Dublin Airport by 2035, or outline any serious measure that could reduce these emissions.

Without action to curtail aviation, participation in the EU Emissions Trading Scheme will fail to deliver any reduction in emissions from this sector. Instead Irish taxpayers will fund continued climate pollution for the profit of the aviation industry, and at enormous cost to future generations. We believe that 'dealing' with aviation emissions in this way would be morally bankrupt.

First, all airport expansion should be placed under immediate review: with the price of oil soaring above \$115 dollars a barrel, and aviation to be included in emissions trading from 2011, a decline in passenger numbers looms, and serious value for money questions arise.

Second, the PSO scheme should be phased out from 2011. High quality coach services should be introduced in early 2011 in preparation for this. Direct coach services are likely to be more popular as they will serve key urban centres in Derry, Donegal, Sligo, Knock, Galway and Kerry, rather than simply airports, which by necessity are located away from population centres.

Third, a kerosene tax on domestic flights should be introduced from July 2011. This is already in force in Norway and the Netherlands. In Norway it is set at €0.07 a litre and revenue is the region of €60 – 70 million a year.³⁰

The situation regarding aviation and maritime emissions must be clarified. If they are not included in all calculations of Irish greenhouse gas emissions, including the National Carbon Budget, are they at least going to be calculated and the data published so that future generations will know the historical growth trends and be equipped to act?

In addition to these measures to reduce air travel, it is necessary to actively encourage the use of sustainable alternatives. Companies should be encouraged to grant additional days to those using sustainable travel options or those holidaying at home. It is clear that increased holidaying in Ireland creates greater revenue which could make up for labour lost through additional leave; further analysis is required to see if the former can compensate the latter.

Along with the cycling allowance measure outlined above, there is a need for tax measures rewarding companies that reimburse overland travel but not air travel.

Subsidisation of advanced video conferencing facilities, and/or their provision on a strategic basis, must be considered, particularly for companies that can prove year-on-year reductions in business air miles. A pre-requisite is broadband, again highlighting the cross-departmental nature of carbon suppression.

Finally, we in Ireland must support research into alternatives to kerosene use. We know travel by airship can take passengers from Ireland to most destinations in Europe overnight. New airships can average speeds of 130 kph, something a sail-rail combination cannot match.³¹

Maritime

The world's 50,000 merchant ships, which carry 90% of traded goods from oil, gas, coal, and grains to electronic goods, emit 800 million tonnes of carbon dioxide each year. That's about 5% of the world's total.

The most effective way to curb carbon emissions from vessels is to reduce speeds. This is already happening in order to cut fuel consumption.

Ships save by slowing down

In Hamburg, the Hapag-Lloyd shipping company has reacted to rising fuel prices by cutting the throttle on its 140 container ships travelling the world's oceans, ordering its captains to slow down.

In the second half of last year the company reduced the standard speed of its ships to 20 knots from 23.5 knots, and said it saved a "substantial amount" of fuel. The calculation used in shipping is complex: longer voyages mean extra operating costs, charter costs, interest costs and other monetary losses.

But Hapag-Lloyd press spokesman Klaus Heims says slowing down has still paid off handsomely for the world's fifth-largest container shipping line. "We've saved so much fuel that we added a ship to the route and still saved costs," he said.

"Why didn't we do this before?" Mr Heims says climate change was an additional motivating factor for the company. "It had the added effect of cutting carbon dioxide emissions immediately," he said.

"Before, ships would speed up to 25 knots from the standard 23.5 to make up if time was lost in crowded ports. We calculated that 5 knots slower saves up to 50% in fuel." Slowing down has not involved a decrease in capacity for the company.

For container ships carrying mainly consumer goods from Hamburg to ports in the Far East, the round trip at 20 knots now takes 63 days instead of 56, but to make up for this it added a vessel to the route to bring the total to nine.

Hapag-Lloyd board member Adolf Adrion told a news conference in London in January 2008 that speeds are now being cut further, to 16 knots from 20, for journeys across the Atlantic.

"It makes sense environmentally and economically," he said. The world's largest container shipping operator, Danish group AP Moller-Maersk, is also going slower to cut emissions, although Eivind Kolding, chief executive of the group's container arm, told

the January event this would mean a small delay to clients.

He says he believes that is a price customers are willing to pay for the sake of the environment. “We reduce speeds where it makes sense,” said Thomas Grondorf, Moller-Maersk spokesman in Copenhagen. “It entails careful planning and is only appropriate on certain routes.”

Not only are giant ocean-going vessels slowing down, the trend is also catching on among ferry services. Norway’s Color Line ferry between Oslo and Baltic destinations said in early January that it would add 30 minutes to the 20-hour trip from Oslo to Kiel. Color Line CEO Manfred Jansen has said the company will save 1.4 million litres of fuel per year by sailing slower.

Adapted from “Ships turn to sails, lower speeds to cut fuel use”, available on <http://www.abc.net.au/news/stories/2008/01/22/2143897.htm>

14. What should be done to encourage more flexible working arrangements to reduce commuting travel?

The civil service has the opportunity to provide a working model. It should undertake the pilot programmes, record its results, publish them and make recommendations to government.

15. Should measures which influence behaviour change be made mandatory and, if so, which measures and in what circumstances?

The cap and share system discussed above would be mandatory.

16. Will new fiscal measures be necessary to move to more sustainable trends?
17. If so, what are the optimum measures?
18. What regulatory measures might be necessary?
19. Does the issues document generally identify the key measures to be considered in changing personal travel behaviour?

See the responses to the previous questions. Fiscal and regulatory measures should favour economically disadvantaged sectors of society so that those who need to conform most to more sustainable trends are the most polluting sections of society.

It is for that reason that Cap and Share is to be preferred over, for example, a road pricing regime which is area specific (and therefore less equitable). Insofar as revenue from measures aimed at cutting carbon and/or reducing traffic is used on roads it should be strictly limited to road maintenance and for improvements aimed at walking, cycling and public transport, not to expand capacity for cars at other locations.

20. What additional measures can be taken to promote fuel efficiency and alternative technologies?

A great deal more research is needed on biofuels. We note with interest the work being undertaken by Carbolea, the research group for advanced biomass technologies and next generation biofuels at the University of Limerick.³²

Second generation biofuels using waste offers considerable promise. It should be prioritised in national R&D. Second generation lingo-cellulosic and pyrolysis processes also produces other useful co-products.³³ In the case of low temperature steam pyrolysis, a soil amendment biochar is produced which represents at least 30% of the carbon taken up by the plant feedstock. When applied to tillage, biochar also reduces nitrous oxide emissions considerably. Taken together, these technologies - if research results are replicated - will reduce GHG emissions to the atmosphere with the result being carbon negative.³⁴

Anaerobic digestion of organic, especially farm animal, waste is the most efficient conversion system of organics to energy. The resultant methane gas is capable of compression and can be used in vehicles that run regular trips or limited distances, such as farm machinery and public transport. The digestate and fibre is also a valuable soil conditioner and fertilizer that minimises GHG off-gassing to the atmosphere. The role of anaerobic digestion of slurry in protecting watercourses and groundwater from nitrates contamination should not be overlooked either.

A complex picture is emerging in the alternative technology sector; generalisations suggesting that biofuels are either good or bad are hopelessly simplistic. It is a question of spectrum, and it must be acknowledged that, in some countries enormous damage has already been done owing to a lack of adequate analysis (the destruction

of rainforests of Brazil and Indonesia to grow palm oil and other biofuel plants make certain biofuels the world's most carbon-intensive fuel).

Sophistication in policy making is called for. Full life cycle costing is vital, taking all movements into account, from the displaced crop, to seed production through to consumption. With the level of research available to us we can only venture a number of 'likelihoods' and stress the need for research. Biofuel is less likely to be sustainable if it displaces a crop rather than grassland; biofuel for vehicles is more likely to be sustainable if it is 'recovered' than if it is grown for its own end, and it is critical to always undertake an energy costing assessment (for example fuel from sugar cane gives energy return on investment much higher than many energy crops that could be grown in Europe even though it would be transported long distances to reach Europe).

21. Does the issues document generally identify the key measures to be considered to promote fuel economy and alternative technologies?

See above.

22. What changes are required to institutional structures at national, regional or local level to meet the sustainable travel challenge?

23. How can sustainable travel be best delivered at an all-island level?

These questions are fielded in our other responses. We note the overwhelming case for a National Transport Authority and the need for it to be an approachable organisation, committed to regular long-term public participation.

It should be a function of the National Transport Authority to provide consultation procedures for forums/committees at local council level (linking into the idea of Local Agenda 21) with representatives from all sectors from the community. These committees can then be consulted on a long-term basis to continuously feedback into local transport needs, aiding the work of local democracy helping to shape a tender for an urban bus service for example.

Conclusion

24. Given the target date of 2020 in this document, what do you consider to be the short, medium and long-term priorities?
25. How ambitious should the targets be to achieve the vision set out in Chapter 2?
26. Does the issues document generally identify the key measures to be considered for the effective delivery of sustainable travel and transport?

The above three questions are taken together and the answer also serves as the conclusion. It is impossible to effectively deliver a sustainable transport system, when the aim of a sustainable system has never been defined. Without targets it is impossible to assess whether a transport system has been effective in achieving its aims.

Though never stated in this document the aim of a sustainable transport system is to provide for the transport needs of this generation without compromising the needs of future generations.

The needs of future generations are being compromised right now, by current transport policy in Ireland. Reckless use of dwindling fossil fuels to build roads and airports that form a transport infrastructure reliant on those very finite resources is at the very least short-sighted. Climate change is the greatest threat that will face humanity in the coming centuries. Every tonne of carbon emitted now causes irreversible climate damage that will inflict suffering on many generations to come. The gravity of these issues demands that any policy document purporting to be sustainable would have these matters at its heart.

While the most important and pressing aims of sustainable transport policy seem to have eluded the authors of this document the prioritisation of competitiveness and economic growth over ‘externalities’ are frequently alluded to. Indeed the document makes more reference to economic growth (seven times) than to either peak oil (twice) or climate change (twice).

It claims that limitless economic growth and sustainable transport policy are “interlinked” when they are in fact incompatible. The idea that progress is equated with growth in production is hopelessly outdated because the ability of the biosphere to absorb pollution from production is falling and as is the quality of raw materials. Endless growth is not sustainable. Pursuing economic growth at all cost and at every turn will thwart all attempts at a sustainable system. As economist Professor Peadar Kirby outlined in his inaugural lecture in UL a steady state economy can continue to provide for the needs of the Irish people and also allow for the fulfilment of truly sustainable policies.³⁵

While this document centres on some aspects of making transport more efficient, sustainability issues still do not take centre stage. There is a lack of a real commitment to significantly reducing transport needs. This is particularly striking in

the case of aviation, which remains openly favoured and promoted (through airport expansion and subsidies), while being the fastest growing pollution producer worldwide. We must remember that the simplest answer is usually the most effective, and in this case, reducing our transport needs is of the utmost priority.

The fact that only just under half of the transport budget is dedicated to public transport (€16 billion), while the other €8 billion is solely dedicated to roads is outrageous as it blatantly indicates the disinterest in truly moving towards a more sustainable transport model for Ireland. Two thirds of the transport budget should be invested in public transport to take a significant first step towards sustainability.

No key measures are identified clearly enough or justified in comparison to less urgent measures. Language throughout the document is loose and indefinite, tying nothing down and open to countless reinterpretations as the situation arises. “The Government’s current aviation policy is to encourage as wide a range as possible of reliable, regular and competitive air services to and from Ireland, although regard should be had towards the sustainability of regional and international air services.” Wording such as this is doubly ambiguous; it is unclear whether the word sustainable refers to true ecological sustainability or to a continued operation of a polluting service. It is also unclear whether the regard mentioned in the second clause is claimed to be part of current government policy, desired as a future part of policy or just a general regard some unnamed people should have. The lack of clarity continues directly after this. The report states the objective to have airport sector operating on a “sustainable commercial basis”. If sustainability is meant in its true environmental sense this kind of statement is either an incorrect use of language or is deliberately ambiguous.

Proper targets with mid-term goals, and specific timeframes need to be set to make this document credible. We are obligated to cut emissions 20% by 2020 taking the base year as 2005. A detailed programme of what is needed year-on-year is required. Given that 2008 and to a lesser extent 2009 will be ‘lead in’ years, we only have 10 years.

Short-term priorities (9 – 12 months)

Realign all transport policies so that less climate polluting forms of transport are always favoured and funded; most climate-polluting forms to be taxed. The first steps are to aid people explore alternative - and healthier – form of transport:

Travel Plans

- Workplace Travel Plans (WTPs) can achieve a 10-15% switch from cars in favour of walking, cycling and public transport; the more one-to-one contact, and the better the information, the greater the shift.
- Workplace Travel Planning is already in place in Department of Transport; this should be extended across the civil service, with private sector urged to embrace WTPs. Walking or cycling on a daily commute, even some of the way, increases health. Walk and Cycle to School Programmes also achieve 10-15% switch to healthier modes; same should be introduced to all schools in Ireland.

Town Planning

- Within urban areas prioritise well-lit streets designed first and foremost for pedestrians and cyclists; in between urban areas, design first for public transport (buses and trains, in that order).
- Acknowledge that cycling research now shows cycle lane construction may be counterproductive: what's vital is cutting traffic speeds. (Cycle lane is attractive along uninterrupted stretches of road but at junctions it increases conflict (i.e. accidents); this is because placing cyclists up on a height away from traffic between junctions means motorists are more likely to forget about them when cycle lane ends at junctions, and cyclists are thrust suddenly back into traffic).
- The deficit in rates is going to leave local government up to €2 billion short by 2010. Chambers Ireland, NESC and a host of other bodies from government parties to non-governmental groups have come out in favour of Land Value Taxation (LVT) as a means of capturing some of the increased value that public investment confers upon land. The Department of Finance has identified critical research needed to fully scope the introduction of LVT.
- In Dublin and Cork buses are needed, not just bus lanes, while Limerick, Galway and other large urban centres still do not have any significant stretches of bus corridors. It must be acknowledged that local opposition in the Gateway cities is significant and the High-Occupancy Lanes must be considered: in these lanes vehicles with two or more people as well as buses and taxis would be allowed. We must note the enormous shortfall in public transport capacity nationally. Measured by examining the records for the number of vehicles taxed each year, the ratio between the increase in car capacity as compared to bus between from the year 2000 to 2006 is 3.5 to 1 (411,540 versus 115,910).

Other measures

- Minister for Transport, Noel Dempsey said of rail freight on 2 February 2008: "I also find it mystifying why more freight is not carried... If the committee [Joint Oireachtas Committee on Climate Change] holds meetings on the transport and travel action plan, this is an area that might be focused on with the company".
- The first step is to prevent CIE from scrapping engines used for rail freight: it takes 2 to 3 years to replace such equipment whereas refurbishment only takes 6 months.
- We advocate a survey of industry with a view to the provision of an all-island next-day rail-based container delivery service. A package linking 10 – 12 'inland ports' (at major urban centres) and ports should be put to tender.

Medium-term priorities (1 -5 years)

- Raise fuel prices to roughly the levels prevailing in Northern Ireland but reduce the VAT take as oil continues to rise in order to provide cost certainty to the transport sector, at least for 6-month periods, (akin to a measure already in force in Portugal, and under consideration in Scotland).

- Increased taxation to be used to expand school walk and cycle programmes, workplace travel plans, video conferencing facilities, buses and trains.
- A Cap and Share system should be introduced with each person allocated an equal amount of carbon credits which they subsequently sell. These credits must be bought by companies in order to sell fuel, meaning that the price of fuel will go up by the cost of the credits. The key benefit is that those who walk, cycle and reduce their travel by combining journeys (so-called “trip-chaining”) will see a very tangible benefit, something absent from a carbon tax.
- Aviation is the most damaging way to travel due to the effect of releasing pollutants at high altitude, and the contention that aviation only accounts for 2% of global emissions is based on hopelessly outdated figures. Airports and flights are the most heavily subsidized form of transport in Ireland, and we need to find the means to wean ourselves off it.
- The government has been subsidising internal flights to the tune of €70 per flight (as compared with €7 for an inter-city rail journey or 42 cents for Bus Eireann journey). This Public Service Obligation scheme should be phased out when the next set of contracts ends in July 2011, to be replaced by high quality coach/rail services. Such services are likely to be more popular as they will serve key urban centres in Derry, Donegal, Sligo, Knock, Galway and Kerry, rather than simply airports, which by necessity are located away from population centres.
- A kerosene tax on domestic flights should be introduced from July 2011. This is already in force in Norway and the Netherlands. In Norway it is set at €0.07 a litre and revenue is the region of €60 – 70 million a year. Instead of losing over €20 million a year on internal flights the government should be gaining revenue in excess of €100 million, as well as helping achieve our environmental targets.
- The urgency and moral imperative to reduce carbon emissions and move away from an oil-reliant economy needs to be understood and implemented in the day-to-day actions of civil servants at all levels. It is great to see awareness growing within the civil service and this good work must continue.
- A prioritisation that can allow road projects to be finished ahead of time, while public transport falls far behind must be reversed.

Long-term priorities

- It will be necessary to have detailed and imaginative contingency plans to allow for the ‘recycling’ of our national road system into a public transport system. The end result will be an Ireland free from reliance on the finite and politically unstable resource of oil.

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Appendix 1 – Sustainability checklist of the Carlow Kilkenny Energy Agency (given as an example of such a checklist)

SUSTAINABILITY CHECK LIST.

The following check list is based on a number of other checklists developed by several organisations and individuals. It could be used as a useful checklist for all planning applicants. The last section is the one that deals with expectations on CO₂ emissions.

As you will see the tables address different facets of the building development.

A LOCAL SUSTAINABLE DEVELOPMENT

A1	SITE INTEGRATION	√	Comment:
a.	Development strategy demonstrating links to community facilities (educational, social, health)		
b.	Development strategy demonstrating links to commercial facilities (shops, work,)		
c.	Development strategy demonstrating links to transport link (s)/ Mass transit, pedestrian, bicycle etc.		
d.	Development strategy demonstrating links to district energy sources (District heating scheme, combined heat & power)		
e.	Provision of Household / Garden / Sanitary waste management		
f.	Other positive ecological features (please specify)		
A2	LANDSCAPING & SHELTER	√	Comment:
a.	Use of site contours		
b.	Reduce site exposure via earth beaming, shelter planting, or wind barriers		
c.	Preservation of local flora.		
d.	Assessment of site liability to flooding		
e.	Site percolation test conducted		

A3	LOCAL ENERGY AUTONOMY	√	Comment:
<i>a.</i>	Energy from local sustainable resources (low / carbon neutral)		
<i>b.</i>	Site specific Combined Heat & Power (CHP)		
<i>c.</i>	Site specific district heating system		
<i>d.</i>	Site specific electricity auto generation (from low / carbon neutral resources)		
<i>e.</i>	Other renewable energy sources		

√ to indicate the item has been considered. Demonstration of consideration may be required.

Please attach separate notes if the comment space provided is not sufficient.

B. BUILDING FABRIC

B 1	DESIGN & ORIENTATION	√	Comment:
a.	Minimise surface area for heat loss (in proportion to volume)		
b.	Orientation and internal zoning to facilitate passive solar heat gain		
c.	Orientation to optimise day light		
d.	Thermal mass to facilitate passive solar thermal gains		
e.	Natural ventilation & cooling		
f.	Sunspaces and collector walls / floors		
g.	Design for spatial / functional adaptability		
h.	Design for accessibility		
i.			
B 2	BUILDING ELEMENTS	√	
a.	Building Regulation Compliance:- Demonstrate that the building energy & carbon emissions are in compliance with the current building regulations, Technical Guidance Document (TGD) Part L. The Domestic Energy Assessment Procedure is the primary method of demonstrating compliance.		
b.	Assessment of building fabric material procurement from local resources		
c.	Assessment of material toxicity and CFC – HCFC free.		
d.	Potential for material recycling.		
e.			

√ to indicate the item has been considered. Demonstration of consideration may be required.

Please attach separate notes if the comment space provided is not sufficient.

C. BUILDING SERVICES - THERMAL

C1	HEAT GENERATOR - PRIMARY	√	Comment:
a.	Assessment of compliance with TDG – Part L		
b.	Incorporation of Renewable Energy Technologies		

c.	Low emissions appliance with seasonal thermal efficiency over 75%		
d.			
C2	HEAT GENERATOR - SECONDARY	√	Comment:
a.	Assessment of compliance with TDG – Part L		
b.	Incorporation of Renewable Energy Technologies		
c.	Low emissions appliance with seasonal thermal efficiency over 75%		
d.			
C3	HEATING DISTRIBUTION and CONTROL	√	Comment:
a.	Assessment of compliance with TDG – Part L		
b.	Incorporation of Renewable Energy Technologies		
c.	Assessment of Time, Temperature and zone controls		
d.	Design for future integration of renewable energy technologies		
e.			

√ to indicate the item has been considered. Demonstration of consideration may be required.

Please attach separate notes if the comment space provided is not sufficient.

BUILDING SERVICES – CIVIL & SANITARY

D1	WASTE WATER (RAIN & RUN OFF)	√	Comment:
a.	Assessment of compliance with TDG – Part H		
b.	Assessment of rain water harvesting		
c.	Assessment of rain water utilisation / recycling		
d.			
D2	WASTE WATER (GREY)	√	Comment:
a.	Assessment of compliance with TDG – Part H		
b.	Assessment of minimisation of waste water		
c.	Assessment of grey water utilisation / recycling (detailed assessment required in the event of grey water being recycled for consumption)		

D3	FOUL WATER (SEWAGE)	√	Comment:
a.	Assessment of compliance with TDG – Part H		
b.	Assessment of minimisation of waste water		
c.			

√ to indicate the item has been considered. Demonstration of consideration may be required.

Please attach separate notes if the comment space provided is not sufficient.

E. EMISSIONS – CO₂, CLIMATE CHANGE STRATEGY

E1	CARBON DIOXIDE EMISSIONS RATING (CDER), FAVOURED	√	Comment: CKEA: *MPCER may be amended to EPC, CPC as per 2008 Part L
a.	Assessment of compliance with TDG – Part L, required.		
b.	Urban developments that demonstrate a Carbon dioxide Emissions Rating (CDER) 20% below the MPCDER* are favoured		
c.	Suburban developments that demonstrate a Carbon dioxide Emissions Rating (CDER) 30% below the MPCDER are favoured		
d.	Rural developments that demonstrate a Carbon dioxide Emissions Rating (CDER) 40% below the MPCDER are favoured		

√ to indicate the item has been considered. Demonstration of consideration may be required.

Please attach separate notes if the comment space provided is not sufficient.

F. EXEMPTION FROM PLANNING FOR MICRO RENEWABLES

The Department of Environment, Heritage and Local Government has published amendments to the Exempted Development Provisions of the Planning & Development Regulations 2001, in respect of micro-renewables for domestic use. The exemptions are a welcome guide to the inclusion of renewable energy technologies, and will greatly assist building proposes and planners alike. The exemptions will apply to:-

- Solar thermal panels, up to 12 m² (with conditions)

- Solar PV panels up to 12 m² (with conditions)
- Heat Pumps, various types (with conditions)
- Small Wind turbines & masts (with conditions)
- Biomass boilers & storage facilities (with conditions)

Further details can be obtained from your local energy agency or the Departments website www.environ.ie

N.B. Exemption from planning does NOT excuse you from the proper design and installation of micro renewable equipment, and in particular from very strict technical requirements for the installation of electrical micro generation equipment.

- A competent person should accurately size the micro renewable installation, contributing to the thermal or electrical requirements of the building.
- A competent person should install the micro renewable equipment, storage equipment and controls. Connections to the buildings electrical system must comply with the latest standards of the Electro Technical Council of Ireland (ECTI).
- Where such micro electricity generation equipment may be connected to the Electricity Supply Grid (directly or indirectly), connections to and from the building electrical system must comply with the latest standards of the Electro Technical Council of Ireland, and comply with the interface protection settings of the G10 standard (Annex A of EN50438).
- A license (permission) will be required to export electricity to the public grid, even if you are exporting it free of charge.
- Failure to comply with the technical regulations outlined above could endanger the life of electrical repair persons, and may expose you to sever financial penalty.

The following table illustrates the type of micro generation technologies available, their cost and appropriate use in various settings.

Energy Source	Renewable Energy Technology	Energy Output	Ranking*			Conditions	Grant available Typical %
			Urban	Suburban	Rural		
Biomass	Wood Chip / Pellet Boiler	Thermal	2	4	5	Available fuel	€2,200 / unit
	Wood Chip / Pellet Stove-boiler	Thermal	3	5	5	Available fuel	€1,800 / unit
	Wood Chip / Pellet Stove	Thermal	5	5	5	Available fuel	€1,100 / unit
Geothermal	Heat Pump - horizontal coil	Thermal	1	3	5	Available area for ground loop; ground conditions	€4,300 / unit
	Heat Pump - vertical coil	Thermal	3	3	5	Economics of bore hole & heat source	€6,500 / unit
	Heat Pump - water source	Thermal	1	1	3	Planning restrictions on water use	€1,300 / unit
	Heat Pump - air source	Thermal	5	5	5	Noise levels	€4,000 / unit
Solar	Thermal Flat Plate	Thermal	3	4	5	Location; Orientation; S,SW,SE. Pitch 35-45 deg. Size	€300 / m ²
	Thermal Evacuated Tube	Thermal	3	4	5	Location; Orientation; S,SW,SE. Pitch 35-45 deg. Size	€300 / m ²
	Photo Voltaic	Electricity	3	4	5	Location; Orientation; S,SW,SE. Pitch 35-45 deg. Size	€0 / m ²
Water	Hydro turbine	Electricity	1	1	5	Planning restrictions on water use	€0 / m ²
Wind	Wind turbine	Electricity	1	2	5	Location; Height; Blade Dia; Noise	€0 / m ²

Ranking refers to the potential for installation; 1 = very unlikely, 3 = possible, 5 = very likely.

APPENDIX 2 - Extracts from *Construct Ireland* **article by R. Douthwaite, Issue 9, Vol. 3, September – October 2007**

www.constructireland.ie/articles/policy/the-lay-of-the-land-2.html

Recent developments in urban transport

What might be much more appropriate for a low-energy, low-carbon future is the construction of a network of light, self-powered trams, such as those made by Parry People Movers in England. The big difference between a light tram system and the LUAS is that the LUAS is powered by externally-generated alternating-current electricity which means not only that a network of overhead cables has to be installed but that every street through which the trams are to pass have to be dug up and all pipes and wires running under them re-routed? Remember the protests from the hotels along Harcourt Street when the LUAS Green Line was being built? The wires and pipes have to be moved not because it won't be possible to dig up the street again once the tramlines are there (It will – I've watched it being done in Vienna) but because the alternating current might induce dangerous currents to run through them. The re-routing adds hugely to the cost.

Light trams, on the other hand, can either generate their own electricity or, in the case of some versions of the Parry People Mover tram, take it on board at every stop. (The power these trams take on at stops is used to give their onboard flywheels a boost so that they are spinning fast enough to get the vehicle on to the next stop). According to Jimmy Skinner, who runs the Sustainable Transport Company in London and is a shareholder in Parry, one option for Dublin would be to power light trams initially with compressed natural gas and to replace this with methane produced by bio-digesting the city's organic waste when that became available. He points out that several cities including Stockholm and Lille already use methane from biodigesters to run their public transport and that a July 2006 report from the National Society for Clean Air in Britain estimated that if the 30 million dry tonnes of agricultural manure and food wastes generated in the UK each year were turned into methane, it would deliver the energy equivalent of 6.3 million tonnes of oil, enough to meet around 16% of the country's total transport fuel demand.

The compressed methane would be burned in a conventional petrol engine which would be set up like that in a hybrid car, so that it either accelerated the flywheel or powered the wheels directly. Whenever the brakes were applied, the energy from the movement of the tram would be stored in the flywheel to be used, in combination with the gas engine, whenever the tram was accelerating or going up an incline. Used this way, a two-litre engine can power a fifty-passenger vehicle and the energy equivalent of a gallon of petrol can carry 50 passengers 15 miles. A bus would only manage half the distance on the same amount of energy and a conventional heavy railcar two miles.

Skinner claims that trams are inherently more energy efficient than buses. “Trams running on steel wheels on steel rails are at least three times more energy efficient than buses running on rubber wheels on tarmac” he says. Trams also last longer, thanks to the lower stresses imposed on them and the smooth running on rails. They normally have a life of over 30 years compared with up to 13 years for a bus. And, since trams are not diesel powered, they do not release the tiny particles which are so damaging to people's lungs.

Despite these advantages, he despairs of getting Dublin to adopt light trams “now that they are accustomed to spending huge sums on conventional trams” He prefers to concentrate on “places like Cork or Galway where they would not want to spend that sort of money.” The cost differences are substantial, with light trams costing about a sixth of their conventional LUAS-type equivalent.

Energy costing

Using monetary costs to compare projects can be very misleading. A recent report showed that 23% of the cost of a typical new road in Ireland was down to the cost of the land, the highest figure in Europe. But it was only money. No real resources were involved. As a result, if government planners just compare the cost of projects in money terms they are likely to come up with the wrong answers. It's the cost in terms of the resources that are actually used they should be comparing, not the amount of money that gets shuffled about.

Now that the world's production of “conventional” oil has probably peaked and fossil energy use has to be restricted for climate reasons, if an infrastructural project doesn't save enough energy to give a good return on the energy used in its construction, it should not be built unless there is some serious environmental or social justification for doing so. How would the Dublin Port Tunnel stack up in those terms? How long will it be before the fuel saved because the vehicles going through it are not causing so much congestion in the city itself is equal to the amount used in its construction?

Most projects in the pipeline were developed under business-as-usual, the-economy-will-continue-to-grow assumptions. They are completely inappropriate for the new circumstances as they embody too much energy to give a good return in energy terms. Almost every road project would fail to clear the Energy Return on Energy Invested (EROEI) hurdle as the savings the planners promise are in terms of people's time rather than energy use.

End Notes

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¹⁴ <http://www.gullivers.de/english/>

¹⁵ See <http://www.environ.ie/en/Publications/StatisticsandRegularPublications/>.

¹⁶ Ashmore, “Train journey times getting slower” *Sunday Tribune* 6 October 2002

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¹⁸ See Timoney, “A Future for Motoring” paper to Institution of Engineers conference, 2003 and CE Delft, “To shift or not to shift, that is the question – the environmental performance of the principal modes of freight and passenger transport in the policy-making context”, March 2003

¹⁹ http://reports.eea.europa.eu/eea_report_2008_1/en

²⁰ An Taisce Green Schools Travel, “Green-Schools Travel Pilot Programme 2005 – 07 Final Report” September 2007 and sources cited therein.

²¹ http://reports.eea.europa.eu/eea_report_2008_1/en

²² The Copenhagen Post of 6 March 2007, available in English on <http://www.denmark.dk/en/servicemenu/News/FocusOn/Archives2007/RecognisingHisSpacesBetweenSpaces.htm>

²³ Nix, Sustainable transport in the Greater Dublin Area, Masters thesis to the Faculty of Business, Dublin Institute of Technology, 2003.

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- ²⁵ See <http://www.railreg.go.uk/> National Rail Trends 2006-7 chart. See also “Successes and Lessons of the Rail Liberalisation in the UK”, November 2007, a report sponsored by the Rail Freight Group in association with ATOC, Network Rail and RIA, available via www.rfg.org.uk. The four companies are EWS, Freightliner, DRS and First GBRF.
- ²⁶ See <http://epp.eurostat.ec.europa.eu/>
- ²⁷ O’Riordan, “Rival ports under threat by terminal development” *Irish Examiner* 15 April 2008.
- ²⁸ Based on calculations by economist Matt Harley, UPROAR Press Release 12 February 2007.
- ²⁹ This figure has been calculated by Feasta (www.feasta.org).
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- ³¹ See further <http://www.monbiot.com/archives/2008/05/06/travelling-light/>.
- ³² See www.carbolea.ul.ie.
- ³³ See <http://www.carbolea.ul.ie/downloads.html>
- ³⁴ <http://www.css.cornell.edu/faculty/lehmann/publications.htm#confabstracts>.
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