

Briefing for the incoming Government 2011

PLANBETTER

TRANSPORT FOR A BETTER FUTURE: POLICIES THAT CAN CHANGE IRELAND

PlanBetter is a joint initiative of environmental organisations
An Taisce, Friends of the Earth, Friends of the Irish
Environment, and FEASTA.

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Preface

With the economic downturn and the need to meet emissions targets, government transport policy requires a renewed emphasis on affordability and environmental sustainability.

The idea of building a way out of the transport problem is obsolete. There are more economic, workable solutions that better maintain our health and environment.

Better alternatives are needed to help encourage a greater shift away from private car travel to more sustainable modes. A general change of focus towards investment in **public transport modes such as bus, coach and rail, but also cycle and pedestrian travel** is necessary.

We have seen significant investment on approximately a dozen motorways over the last decade. While limited and localised road enhancements are required across Ireland, there is no justification for more long-distance motorways. Sound policy can retain the benefits of the new roads built in the Celtic Tiger period for many years to come.

Higher oil prices are inevitable. There is already sustained upward pressure on oil prices, with a barrel of Brent crude trading at \$80 - \$120 over the last few months, and this pressure is expected to remain over coming years with limited respite anticipated.

We are on a course that will see the oil price levels of 2008 exceeded. While all of society will be affected, the poorest will lose the most mobility as the price of travel rises. Research in the US indicates that road traffic will drop 41 per cent by 2030 as transport fuel consumes an ever rising share of disposable income (for more see www.peakoiltaskforce.net and www.postcarbon.org).

We now have a choice: to base future transport policy on what happened yesterday, or on what is expected to occur in the future. Will we align investment in transport and so hedge against oil price rise?

Major infrastructural projects have an extremely limited role to play. Whether road or rail, mega-projects involving large-scale construction will be useless unless they provide a solution that is low-cost, readily applicable and easy to replicate.

The emphasis on the period to 2020 has shifted to maintenance, connectivity and accessibility to public transport – although many in policy-making have yet to acknowledge this.

Part 1 - The priority: achieving better investment

Project Appraisal

A great many projects need re-appraisal in light of new financial realities.

Current practice leaves promoters of projects to make decisions regarding the parameters of appraisal, risking the subordination of value-for-money to the readily understand-able desire of promoters to advance those very same schemes which are responsible for their own employment.

Setting up a proper system to ensure projects receive the best advice is essential to defend the fiscal position of the State.

In the text box apposite we have proposed the use of

Public Investment Commissioners proposed for Ireland

Australia's Productivity Commission gives independent advice to Government, operating at arm's length from other state agencies. The government largely sets the Commissions' work programme but the recommendations are based on its own analysis and judgments.

The Commission reports formally through their equivalent of the Minister for Finance (the Treasurer) and its reports are presented to parliament. However, they are written for the wider community, reflecting the Commission's brief to promote public understanding of policy issues with a view to improving Australia's living standards.

The Commission's "advice to government, and the information on which it is based, are all open to public scrutiny [and] its processes provide for extensive public input through hearings, workshops and other consultative forums, and through the release of draft reports and preliminary findings".

Members of the commission are not appointed by Government but by the Governor General (who also appoints judges). The equivalent in our case would be the President. This gives commissioners a quasi-judicial status that minimises political interference.

The Commission also monitors the performance of government trading enterprises - i.e. equivalent to our ESB and CIE. Cost-benefit analysis is central to the Commission's appraisals but "environmental, regional and social dimensions ... are also carefully considered, informed by public consultation and the Commission's own research capability".

The reform proposal for Ireland is mindful of what happens in the UK but draws most from Australia. It is proposed that Commissioners in Ireland are charged with the cost-benefit, environmental, regional and social appraisal of all projects involving the investment of public monies.

As Ireland is much smaller than either Australia or the UK:

- Commissioners would be seconded to the Public Investment Commission,*
- Appointments would be based on previous expertise in project scrutiny and appraisal. Examples of organisations Commissioners may be seconded from include the ESRI, CILT, the National Treasury Management Agency and An Bord Pleanála (ABP),*
- Projects involving the investment of over €30m of public money would be sent to the Public Investment Commission in advance of consideration by ABP, while projects less than €30m but greater than €5m would go to the Commission after ABP,*
- The Commission will adopt best international practice in its appraisal methodology and keep it updated,*
- The Public Investment Commission will send its reports to Dáil members and publish them at the same time.*

Public Investment Commissioners.

This concept operates both in Australia (with its *Productivity Commission*) and in the UK (with *Treasury Spending Teams*) scrutinising projects to obtain value for money. In an important difference to Ireland, those involved in project appraisal have no interest in the progression of projects.

Please see the text box for an outline of how the Commission would interact with the planning system, as well as how it would be comprised and report.

Allowing for optimism bias

This is a well-researched consistent behaviour of infrastructure design teams to under-estimate costs and over-estimate the benefits of projects. Many nations, including the UK and US, make provision for optimism bias on top of standard risk analysis.

However, the NRA or RPA do not allow for optimism bias, and the consequences of this are evident with penalty payments – on top of tolls – now payable on the M3 and Limerick Tunnel as the traffic levels projected by the NRA have failed to materialise. In penalty payments made to the toll road operator over coming years, taxpayers could end up footing a €57m bill for optimism bias on the M3 alone.

Replace ‘lump-sum’ tolling with multi-point tolls

Tolling in Ireland is not working. There is systemic toll evasion everywhere it exists - at Drogheda, Fermoy, Limerick, Urlingford, Waterford, along the M7, the M50 and concerning Dublin’s East Link bridge. Every hour sees traffic travel back down roads and streets that were supposed to be relieved, causing accident blackspots and undermining the function of road construction schemes.

The toll at Drogheda is implicated in the loss of 12 lives at Slane as trucks have diverted off the M1.

It is sometimes argued that we should scrap all tolls, place an extra few cents on the price of fuel, and make repayments for new motorways from the extra revenue. The counter-argument here is that a great many motorists confine their movements to a relatively small geographic area, rarely using motorways - or indeed any national routes, and it is the construction of these larger roads that accounts for the massive loans that lie behind tolling. Therefore, is there a way to secure revenue from those that use newly-constructed roads and other national roads, while at the same time stopping high levels of toll avoidance?

An alternative to the current approach is multi-point tolling. Here, small charges of between 10 and 40 cents are levied as vehicles pass under the bridges of motorways, dual carriageways and selected other national routes rather than collecting a much larger sum at one given point (which a great many motorists then avoid). How would it work in practice?

On the M50, for example, 10 to 40 cents is charged for travelling under each bridge, replacing the single charge now levied at the River Liffey. A similar solution can be adopted right throughout the network. There is no technological barrier here. Electronic tolling is already operational at selected toll locations. The simplest way to convert it into a nationwide system is to make an electronic card a mandatory item fitted to each vehicle, something that could be assisted through the National Car Test system, under which vehicles are checked annually or bi-annually.

Traffic on such routes as the M1, M3 and M7 will increase. Turning to contracts currently on place on tolled roads, it then falls to the government to negotiate with toll road operators to change the revenue system regarding arrangements entered into during the Celtic Tiger period (many of which are already subject to legal dispute).

There are other advantages too. Long-distance rail travel is encouraged, because if there are 80 bridges between Cork and Dublin, and the average charge per car at each bridge is 20 cents, the rail fare begins to compete with the total road fare of €16. Because no hefty single charge is imposed along the route, it's just not worth it to dodge off at any particular intersection to avoid paying.

For drivers that don't use national routes, the point should be made that fuel price will climb up in coming years, over and above global oil supply factors, as carbon tax increases are implemented.

Both Fine Gael and Labour see the carbon tax rising from €15 a tonne to €25 per tonne, and while Labour don't place a timeline on this, Fine Gael envisage it happening by 2014. In fleshing out the IMF agreement the 2007 – 2011 government foresaw the carbon tax going to €30 per tonne by 2014.

Counting the cost of additional carbon dioxide

Cars are designed to use the least fuel when travelling at 80kph (55mph) and also cause the lowest level of pollution at this speed. Therefore, by encouraging journey speeds higher than this – and by prompting more journeys by car – motorways occasion increased pollution, including emissions of carbon dioxide.

In December 2010 the NRA began to apply revised costs for carbon dioxide emissions. This change came after pressure from environmental organisations, and some 18 months after the Department of Finance laid down a new 'shadow cost' for carbon emissions.

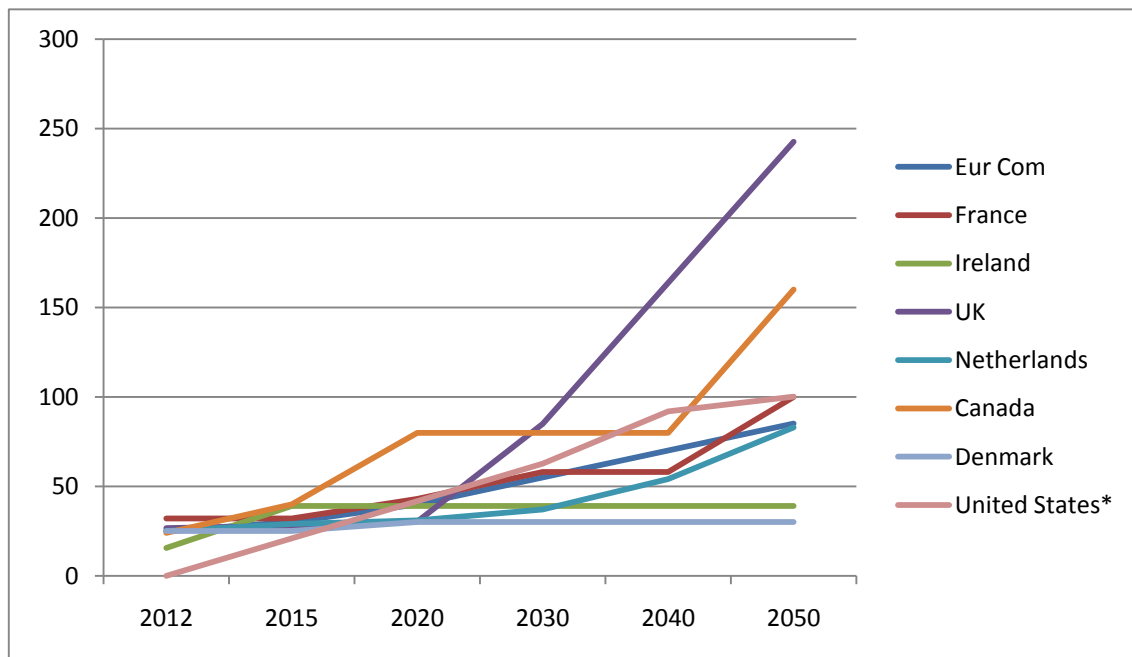
This shadow cost – which the Department of Finance set at €39 per tonne for the period 2012 to 2050 – is to be factored into cost-benefit appraisals in weighing up investment options. Essentially, it forces the NRA to acknowledge that using a high-carbon travel mode is more costly.

For the years up until 2020, the cost selected by the Department is broadly consistent with the level recommended by the EU. From 2020, however, the rate of €39 per tonne lies significantly below the advised EU rate, and by 2040 Ireland's level lies at just over half the EU-recommended level, which by that date, is €70 per tonne (see graph below).

However, the Department of Finance has stated it will update/revise its figures over time, and therefore values can be brought into line with the EU recommended level.

For as long as the cost of carbon dioxide is left too low for the period after 2020, Ireland will continue to over-invest in carbon-intensive projects, and under-invest in carbon reduction. It is important that the carbon cost be revised upward without delay.

Ireland's shadow carbon price to 2050 in context (all values €)



We also note that we have not yet seen how the 2009 Departmental guidelines are being applied in practice, and so it is too early to comment on their implementation. Key questions include: how are road construction emissions counted, for example? Is induced traffic considered, and if so, to what extent?

Proper Road Design

Road design needs to embrace best international practice. The NRA has unduly confined its menu of interventions so as to exclude options available in every other European country – and this has been done in favour of building motorways.

Prior to 2007, in line with the UK, a number of road layouts were available with the presence of the mid-range options such as wide single carriageways and 2+1 roads. In the 2007 revision, the wide single was dropped and the 2+1 fell from favour with

"Type 2 Dual Carriageway [being] the preferred road type". No literature was published to justify this decision.

No attempt was made to ascertain whether any shortcomings with mid-sized roads could be redressed with education or public awareness campaigns. Instead, at the height of the boom, mid-range roads were simply eliminated from the set of options to be considered by road design engineers. With no mid-sized options available, the resulting gap saw planned routes with only modest levels of traffic constructed as expensive 4-lane roads.

Re-introduction of road types for mid-range traffic flows is warranted in the absence of peer-reviewed literature pointing to the contrary. The introduction of a sparse 2+1 road layout, as in Sweden, and the reintroduction of the wide single lane carriageway and 2+1 for new builds and will provide for more cost-effective solutions.

Ireland's road design parameters are out of line with the rest of Europe. Irish estimates of how much traffic a road can handle are roughly half that of other European countries. The proposed Oilgate to Rosslare (N11/N25) scheme is based not only on rapid traffic growth but the idea that at 11,600 vehicles on a single carriageway (i.e. a road with one lane in each direction) has reached its maximum capacity. Yet a similar road in Northern Ireland can accommodate 21,500 vehicles under the design parameters used all across the UK.

Upward revision of maximum capacities would naturally lead to the cancellation of many projects and serious consideration of cost-effective road layouts designs for many others. To leave unchanged the notion that a road in Ireland can only take around half the traffic of our European neighbours is to continue to justify otherwise untenable projects at the cost of billions of euro.

Some inter-urban routes warrant two different road types along their length. The NRA seeks to justify the building of 4 lane roads throughout a route - disregarding traffic levels - on the basis of "consistency of driver experience". Yet the UK manual used by the NRA, the DMRB, states that "sustaining a particular carriageway standard along an entire route is not normally acceptable if this is at the expense of foregone economic or environmental benefits".

Between 2001 and 2009 the motorway system expanded 430% and we can now boast 2.5 times more kilometres of motorway per head of population than our nearest neighbours in Britain. The NRA now faces new challenges to provide a high quality service that fits our future needs.

An independent expert review of the design criteria applied by the NRA, such as provided by the 2007 Nichols Report, Review of Highways Agency's Major Roads Programme, in the UK should be considered. This review produced fundamental changes to minimise costs and maximise value in UK Highways Agency practice. Also

in train is the merger of the NRA with the RPA, as recommended by the McCarthy Report, and the review can inform this.

Accurate Traffic Measurement

More traffic counters are needed to see where investment is warranted. Both the NRA and the CSO publish traffic flow volumes. Both agencies have limited data with which to work with when providing robust, meaningful indications of present national traffic. Modest investment in additional counters would allow for better data.

Traffic forecasts must be continually updated and recognise oil price rises in the longer term. Until February 2011 Ireland's traffic model dated to 2002 and predicted traffic growth of 2-3% year on year.

Analysis of the NRA's own traffic counters shows that traffic fell by 7% over the two years to July 2010. The CSO Road Freight Transport Survey 2009 showed a 40% fall in road freight carried from the previous year, falling back to levels last seen before 1999.

In contrast, the UK re-runs its traffic model annually with predictions continually refined to increase accuracy. UK data shows small falls in road traffic over the last 3 years while its forecasts (from the 2009 model) predict a modest 0.5% annual growth in road traffic with an acceptance that further falls in traffic could occur. Oil price rises are implicit in the UK acknowledgment that traffic may fall.

February 2011 saw the NRA revise its traffic growth forecast downward. A figure of just over 1 per cent is now used, but this is still too high when oil price rise is properly taken into account.

Using scarce funding fairly

Vast amounts of money are being wasted within Regional Road Design Offices designing schemes based on Celtic Tiger specifications. Design teams continue to work towards planning permission and land acquisition using out-dated criteria to specify their size.

For example, in Wexford the Rosslare-Oilgate road scheme is a four-lane new road proposal to supplement a relatively new and safe existing bypass of Wexford town. The automated traffic counts on the present road show that the artificially reduced 'maximum' capacity would not be met for decades.

Such schemes can no longer be justified on the rationale of completing a road with a given specification simply because a given distance from Dublin has already been built as four-lane road, nor on the grounds of it being a European Route. In Wales,

from the ferry port at Fishguard, motorists take a standard single carriageway lane until near Swansea (E30 Route). If there is no compunction on the UK to construct expensive 4-lane highways on all its Euro Routes, from where does the case stem in Ireland?

Government must move quickly to rationalise Regional Road Design Offices (RRDO). Staff must be re-trained to work on sustainable transport projects. If further waste is to be avoided a programme for **re-training staff to deliver sustainable transport** and their reassignment to local councils needs to be put in place immediately.

Access and equity

Inequity in transport infrastructure is increasing. More appropriate road construction would allow a more even distribution of good roads across Ireland. Again, a good example is the proposal from Oilgate to Rosslare to parallel the existing high quality 2-lane bypass (built in part with European funding) with dual carriageway.

The route is already well served, and holding out the hope that a high cost scheme - which could only be continued at a very slow pace for funding reasons - will leave some counties waiting for years for road upgrades. Rolls Royce schemes, serving very few counties, are no substitute for a coherent approach.

Part 2 – Adopt the simple low cost solutions quickly

Remove accident blackspots first

Removing accident blackspots saves more lives than building motorways. Future spending on transport infrastructure must better address the unacceptable international safety rating of our total stock of roads, particularly the secondary roads that we use every day.

The weak link in terms of road safety is the existing non-motorway road stock. The latest European Road Assessment Programme (EuroRAP) report on Irish roads scored approximately 50% of non-motorway Irish roads at the lowest “1 Star” safety rating. This compares with our nearest neighbours in Britain of approximately 2% “1 Star” roads and Northern Ireland of approximately 5%.

Investing in the existing network is what’s most important

The NRA knows this but it was not until mid-January 2011 that this was communicated to policy-makers. Referring to what he called the “unimproved road network”, Mr Fred Barry, the CEO of the NRA, told the Dáil Transport Committee on 12 January 2011 that “many of our national roads do not come close to meeting current design and construction standards [and are] not up to standards”.

He also confirmed that “many older roads were never properly designed in the first place”.

Importantly, “significant deficiencies on long sections on many roads” doesn’t mean that “roads that are not so busy need upgrading to motorway or even dual carriageway standards, but all roads need good lines of sight and reasonable alignment to be safe”.

While four lane roads with median barriers do have the best levels of safety this comes at a very high economic cost. In fact the benefit to cost ratio in terms of safety of motorways is poor and significantly below 1 (0.15-0.35), conferring less benefit than cost.

In other words, tackling accident blackspots save the most lives per euro spent.

To continue to focus on high cost four-lane road investment considering the deteriorating state of our non-motorway road network and continued emphasis on major four-lane road construction on the grounds of safety is wrong and an acute example of the mis-allocation of funds.

The **Low Cost Safety Improvement Works Programme** has only ever received meagre funding, with annual budgets less than the cost of constructing a single kilometre of motorway. These schemes, which eliminate accident blackspots, show an average annual rate of return of 502%, and produce exceptional results in terms of lives saved and economic return. It is these targeted high-yield projects that need to be undertaken to a greater extent in the coming years.

Travel planning: School & Workplace Travel

Managing Demand

Managing demand can be a cost-effective alternative to providing greater physical capacity for travel (such as more roads, bus and train services etc). It can also deliver better environmental outcomes, improved public health and stronger communities.

Travel Demand Management (TDM) is the application of strategies and policies to reduce travel demand (specifically single-occupant private vehicles), or to redistribute this demand in space or over time.

As the UK Government concluded in its 2004 White Paper, *The Future of Transport: A Network for 2030*, “we cannot simply build our way out of the problems we face. It would be environmentally irresponsible – and would not work. So we must make our existing transport networks work more efficiently”.

In short, resource pressures – a stable climate also being a resource – point us to reduce the demand to travel in single-occupant private vehicles. This reduction would be taken up by increases in public transport, walking, cycling and contact using the internet – all of which use less energy and demand less space. TDM can also redistribute demand over time, thereby reducing congestion, and over space, (redirecting through traffic away from town centres using charges, for example).

School Travel Programme

Ireland is an international leader with its **School Travel Programme**. Not alone has the rapid growth in travel to school by car been arrested, reductions in car use in excess of 25% are now being recorded (see text box).

The critical issue for Ireland's school travel programme is that funding is year-to-year. The 25 Education Officers working on the programme nationally are funded only to December 2011.

Perhaps the most effective step a new Minister for Transport can take is to pledge multi-annual funding to the school travel programme. Given the results being achieved it is difficult to imagine a measure that delivers sustainability in transport at lower cost.

The Education Officers employed on the programme undertake some or all of the following:

- Working with schools and communities to address perceptions, fears and practical difficulties in overcoming reliance on the car and actively promoting sustainable school travel.
- Provide a toolkit of practical measures including educational resources and materials to promote walking, cycling, encouraging bus use, car sharing, Park n' Stride initiatives, as well as providing funding for safe cycle training and cycle parking.
- Working in partnership with relevant stakeholders to make the route to school safer to walk or cycle and creating a pupil-centred environment at the front of schools.

While the State provides funds to the programme, primary 'ownership' is with parents and local communities rather than central government – the essence of sustainability.

Workplace Travel Planning

Many people make journeys by car for which a

The Green-Schools Travel Programme

The Green-Schools Travel Programme, run by An Taisce, is a runaway success but it needs a long-term financial pledge.

More than 650 schools with some 152,000 pupils are participating in the Green-Schools Travel programme.

As it has been rolled out, the programme has proved much more successful compared to its initial pilot phase. The pilot studies pointed to a 16% decrease in car use in favour of more sustainable modes. Data from 2008 to 2010 shows a 27% reduction in private car use and corresponding increase in walking, cycling and public transport – more than 10% higher than the initial expectation.

Primary schools are the principal participants, making up around 80% while 20% are secondary schools.

A range of initiatives are employed to spur the shift away from cars, and on to more active and sustainable ways of getting to school, including:

- Awareness raising campaigns
- Educational workshops/seminars
- Walk on Wednesdays,
- Park and stride, and
- Cycle to school days.

Green-Schools Travel Education Officers make an average of 4.5 visits to each participating school over the course of the year, with ongoing support in between visits.

The annual budget for the Green Schools travel programme is €2m.

reasonable alternative (public transport, walking or cycling) already exists, of which they are unaware. Proposals for travel planning were outlined by the Department of Transport in its 2009 policy document Smarter Travel but little or nothing appears to have been done to implement this low-cost programme.

In effect **Workplace Travel Planning** is personalised journey planning facilitated by or organised within the workplace. Such schemes should assign ownership and responsibility to an individual within each business or organisation to act as an **in-house transport co-ordinator** to seize opportunities for change.

Flexible working hours (flexitime) can encourage travel at less congested times. Flexible hours can also facilitate lift sharing, cycling and public transport use. From a business perspective, the ultimate aim is to increase efficiency through reduced congestion.

Depending on its location, size, profitability and commitment to corporate responsibility, a firm will be able to include in its workplace travel plan, staggered or flexible working hours, car pooling, walking and cycling facilities, and pooled company cars.

Many organisations introduce Workplace Travel Plans of their own volition, for example, to tackle parking shortages, improve accessibility, enhance corporate image, solve staff recruitment and retention problems, comply with planning regulations, or in the case of some public sector organisations, comply with government directives.

Companies can achieve savings, for example, company cars replaced by pool vehicles, or by reducing the cost of travel through the use of telecommunications.

Re-trained personnel from Regional Road Design Offices (see above) could be deployed to work with businesses and organisations on workplace travel planning.

Advanced Quality Bus Corridor (A-QBC)

Financial resources are scarce. Yet a great many high-cost transport projects have remained on the drawing board after the boom. Even leaving aside the issue of whether these projects offer value for money today, it now appears unlikely that the finance required for their construction can be secured at rates that are repayable. Hence, alternatives must be advanced, contingencies assessed, and new plans put in place.

Advanced Quality Bus Corridor (A-QBC), better known internationally as **Bus Rapid Transit (BRT)**, involves major enhancements to traditional bus lane. It provides a more frequent, more dependable and more comfortable journey for passengers than is delivered today on Quality Bus Corridors.

The function of A-QBC is to provide the passenger with a quality of service equivalent to that of rail services but with lower construction and operating costs.

To provide a faster journey time, road space is allocated to give priority to buses, often via a combination of busways or guideways and through the use of dedicated lanes.

Feeder bus services can link residential areas into the network, highlighting that A-QBC is flexible; for example, a bus may make several stops within a residential area before joining the dedicated busway and making a faster journey into the city centre.

The technology is proven. It has already been delivered in French cities such as Nantes and Rouen (see photos below). Bringing the French approach to Ireland, A-QBC would see:

- buses running at frequencies of 3 to 5 minutes during the working day,
- bus priority at junctions,
- off-board ticketing to reduce waiting times,
- flush-floor boarding at stations,
- comprehensive shelters (that protect passengers from the elements),
- 'real time' passenger information counting down to when the next bus will arrive, and
- the name of the next stop displayed inside vehicles (as a help to passengers unfamiliar with the route).

Advanced QBCs are cost-efficient to build. For example, Line 4 in Nantes cost approximately €7.5 million per kilometre. This is a quarter of the cost of Luas and around one 50th of the cost of Metro North per kilometre.

The government needs to save money by suspending work on Metro North and Metro West until such time as these projects are subject to cost appraisal by a party other than their promoter (see above), and with knowledge of the wider fiscal picture for Ireland, factoring in how higher interest rates completely alter the complexion of projects that entail the borrowing of billions.

There are critical advantages to completing a nationwide programme of Advanced QBCs. First, job creation is spread widely across the State, rather than being concentrated along one corridor in one city. Street works for Advanced QBC provide jobs for consultants and contractors who are typically locally-based, thereby avoiding the flight of money abroad. Second, risk is lower, in that the State is investing in a series of projects in cities and towns right across Ireland, not putting all its eggs in one basket.

Regional cities will become more attractive places to live and work, improving their competitiveness at the lowest possible cost.

In Dublin, Metro North is intended mainly to serve Swords, with just 20% of projected patronage attributable to Dublin Airport. Matthew Harley has put forward an alternative. The Dublin Port Tunnel, which already serves Swords and Dublin Airport via the M1, is underused just with 16,000 vehicles per day passing through it, well below capacity.

An Advanced QBC service could be provided at a fraction of the capital cost of Metro. In fact so low is the cost of Advanced QBC that a comprehensive network can be put in place right across north Dublin and still not come close to the total outlay projected for Metro North.

Under the alternative strategy, three proposed A-QBC lines would be delivered, the first linking the city centre via the Dublin Port Tunnel and M1 to the Airport and Swords; the second linking the city centre via Glasnevin, DCU and Ballymun to the Airport and Swords, and the third, connecting the city centre via Drumcondra, Whitehall and Santry to the Airport and Swords (see www.aris.ie for further details).

A-QBC is much more viable in economic, social and environmental terms than higher cost projects which must of necessity be reconsidered. A-QBC meets Ireland's needs at this time.

Those who have advocated for Metro North over the past three years have been unable to show how the project could compete with buses using the Dublin Port Tunnel. In truth, what happened in the Celtic Tiger era was that a more expensive option was settled upon first, ignoring the need for proper step-by-step

consideration of solutions. While not unique to transport planning during the boom, this prejudicial approach now has to be unwound.

Mode	Capacity	Cost
	Passengers per hour per direction	€m per km.
Metro North 2016	10,000	200
Metro North 2030	20,000	200
Luas, Red and Green	4,000	33
High Quality BRT, Rouen	4,500	6,4
Dublin's QBC's	2,000 to 8,000	Approximately 3

Source: James Leahy, *An Taisce / Dublin City Business Association (2009)*

The following photos, taken in the northern French city of Nantes, indicate the recent advances in modern bus technology.



Two vehicles cross at Porte de Vertou terminus in Nantes, at the southern end of Line 4.



The Nantes system uses comprehensive bus shelter 20 – 25m in length and real time passenger information at all stations.

Rural public transport

Public transport is a key component to mobility in rural areas. **Rural buses** are vitally important for three main reasons:

- They are essential to combat social exclusion. Some 11.4% of Ireland's rural households have no car. Many even in car-owning households do not have access to a car, or are too young or too old to drive. Buses enable non-drivers to access jobs, shops, education, training and services, all of which are increasingly centralised, threatening rural viability.
- Buses bring in visitors and tourists, ensuring the countryside is visited by a wide range of people and income groups, including people without cars or access to car rental.
- Rural buses are important for the economy. Many small businesses are family-run indigenous enterprises which need good public transport for employees.

Current rural transport providers include the **Rural Transport Programme (RTP)** which was launched in February 2007, developed from the Rural Transport Initiative (RTI). Its 2009 budget was €13 million.

For funding reasons no new community groups have gained access to the scheme since the pilot initiative of 37 groups. The RTP is encouraging existing groups to increase their geographical coverage and frequency of services.

The current programme is very limited in scope, and given its cost cannot be extended to all rural areas. Moreover, the RTP has also resulted in the withdrawal of many commercial services, as documented by the Coach Tourism and Transport Council, the representative organisation for privately-owned bus companies. The net result here is that services once provided at no cost to the State are lost to be replaced by subsidised routes.

Simple steps can be taken easily. Smaller buses use less fuel and thereby cut operational costs. To take one example, the Castletownbere to Kenmare service is operated with a 58-seater bus which is inappropriate given the patronage on the route and the condition of the road.

Second, all **Rural Transport Planning** should be moved to the Department of Transport.

Looking at the wider issue, there is a case for a new model for rural transport. The principle of equal access should govern reform, where similar areas have access to similar services provided on foot of State subvention. It is simple not good enough to provide services in 37 areas and omit all others.

Generally, in rural transport costs are high because the number of passengers tends to be few compared to the distances travelled.

Dial-a-lift services run by volunteers or volunteer-supported organisations may provide an option which can be deployed on a wider and fairer basis.

One such example is the bus-share initiative run by West Cork Rural Transport (see <http://ruraltransport.ie/vi/WebsitePages.pdf>). Here a mini-coach is available to an approved licenced volunteer willing to collect it for use outside of office hours. The bus is made available, fuelled, taxed and insured at no charge to volunteer organisations. While contributions are welcomed towards these running costs, they are not demanded.

Capital investment can also be used very effectively to aid mobility in rural areas. Currently, the National Transport Authority is working on a lift-sharing programme which will ultimately assist people who wish to make similar journeys – a weekly trip to town from a rural area, for example – to divide fuel costs between them. City and county councils also need to encourage a move in this direction, perhaps by issuing reduced-price parking to those that car-share. Also, public transport where services

are less frequent, as is usually the case in rural areas, a text-back service giving the time of the next bus is particularly useful.

As fuel prices rise, the need for a more widely available rural transport service will become all the more acute, and so Government action will be required shortly after taking office.

Cycling

To boost cycling it's critical that national and local government intervene consistent with the well-established Hierarchy-of-Provision. Based on more than two decades of experience across the UK and Ireland, the hierarchy of provision is outlined in the National Cycle Policy Framework, published by the Department of Transport in 2009. A sequence of interventions is vital to achieve cost-effective results, in the following order:

- Enforce the laws and reduce traffic speed,
- Reduce traffic volume, particularly HGVs,
- Redesign poorly-configured junctions, and better manage traffic,
- Increase road space for cyclists (with wider inside lanes for example), and finally,
- Examine dedicating hard shoulders to cyclists or installing cycle lanes or cycle paths where there is the opportunity to do so.

To some, especially non-cyclists or occasional cyclists, the hierarchy comes as a surprise because as the sequence of measure shows, slower speeds, fewer HGVs and better-designed junctions are needed to boost cycling more than the provision of cycle lanes.

In Ireland and UK cyclists and motorised traffic share space. This is different to the situation in Denmark and the Netherlands, and so experiences from continental Europe are not readily applicable; in other words, lessons from countries where cycle and motor traffic have been functionally separated to a greater or lesser extent, but increasingly since so the 1930s, cannot be grafted on to Irish streets and roads.

The really vital steps which need to be taken first centre on enforcing existing laws (such as dangerous overtaking) and altering facilities which were intended to assist cyclists, but in practice make the situation worse.

Enforcement of existing traffic regulations must become a greater priority. Core areas include the prevention of:

- Speeding
- Dangerous overtaking, i.e. ensuring that motorists pass cyclists leaving adequate space (1.5m recommended) and overtake at a safe speed
- Illegal parking, particularly blocking cyclists (and also pedestrians)

Cyclists that ignore traffic regulations, and particularly those that discommode pedestrians or cycle recklessly, should be fined.

Cyclists are best separated from pedestrians, which argues *against* cycle paths on the same level as, and adjacent to, footpaths. Where cyclists and pedestrians do mix e.g. at (non-signalised) crossings, cyclists should give way to pedestrians.

Making roads and streets less hazardous is vital. Many junctions without traffic signals such as roundabouts, or other gyratory systems and slip-roads need to be modified or removed. Very narrow cycle lanes (less than 1.5m) need to be removed, as do cycle lanes on roundabouts, and cycle lanes positioned inside left-turn-only lanes

Advanced Stop Lines (ASLs) in front of traffic lights (with minimum length of 4.5m to avoid the blind spot of HGVs) should be introduced to give refuge and priority to cyclists.

One-way systems should be reduced or eliminated. In particular multi-lane one-way systems should be made two-way for cyclists where appropriate.

Integration with public transport needs more attention. For lanes to be shared by bikes and buses, one of two configurations should be adopted. Ideally, a lane 4.5m wide, which allows safe overtaking of cyclists by buses, and along which a 1.5m cycle lane is sometimes marked out for cyclists.

Where space is constricted, a much narrower lane - 3m - with cyclists encouraged to command the whole lane, with frequent on-road signs indicating that the cyclist should command the lane by occupying the centre of it. Such narrow bus lanes are appropriate only in urban areas with speed limits of 50kph or less – and often the only possible solution in Irish cities.

Secure cycle parking at rail and bus stations is a prior step before promoting the integrated use of cycling and public transport.

Although progress has been made, further improvements are needed to support the taking of bicycles on some rail routes. Better facilities are needed for taking bicycles on buses, particularly on long-distance routes not served by trains.

As the literature shows, **the more cyclists there are, the safer they are:** in short, there is safety in numbers. As part of travel planning, both for schools and workplaces, cycle training is a very cost effective and beneficial component.

The hierarchy of provision assumes three vital factors: first, well maintained roads, second, ongoing progress in reducing emissions from road vehicles and, third, driver education.

In Ireland, cyclists can no longer assume a good road surface. Potholes are not being patched in many areas and the lives of cyclists are being endangered, far above and beyond the risks to motorists posed by poor surfaces.

There are also doubts that emissions from vehicles will continue to decrease, not simply because many public transport operators do not have the money to upgrade their fleets, but also because there are now higher concentrations of larger diesel vehicles on the roads, and the pollutants emitted by larger diesel cars and SUVs are implicated in the respiratory conditions some cyclists suffer.

In terms of driver education, progress on the part of the Road Safety Authority to revise driver tuition to highlight the need for greater consideration of cyclists has long been promised – but is painstakingly slow in coming. There may be insufficient appreciation of the important implications considerate driving has for cycling. Enthusiasm for cycling would rise if more drivers overtook cyclists at slower speeds and improved passing distances.

National Bike Share Scheme

Assuming a successful appraisal of benefits and costs, the successful Dublin **Bikes Share Scheme** should be extended not only in Dublin, but also to Cork, Limerick, Galway, Waterford and Ireland's 16 largest towns.

Completed in 2010 by Dr Adrian Davis, a study for UK policy-makers showed that interventions to boost cycling and walking returned a benefit to cost ratio of 19:1. This dwarfs road and rail projects which struggle to exceed a ratio of 1.5: 1. However, each proposal must be assessed on its merits and we do not wish to prejudice the study of individual projects.

What is clear is that the level of capital investment needed for cycling and walking is extraordinarily low compared to other public transport projects. It is best funded directly by the Exchequer and companies or premises at which cycle stands are located, rather than highly controversial deals struck between councils and advertisers.

Investment in walking and cycling creates more jobs per euro spent, something confirmed by the Department of Finance, which states that “small-scale works are more labour intensive”.

With the recession, Irish people are more cost-conscious than ever. A bike-sharing scheme that offers the first half an hour free provides an extremely attractive option to avoid petrol or diesel costs, and parking fees.

A shift to cycling and walking is needed for health reasons. Ireland has troublingly high levels of obesity, particularly among children (see further

<http://www.thehealthwell.info/communityprofiles/area/area.php?theme=Obesity#>

And so it is vital that the Department of Finance factors monetary values for the health-related changes inherent in all proposals - be they for walking, cycling, other public transport, or road schemes. Any cost-benefit appraisal that ignores human health is deficient.

For those less mobile and for families, consideration should be given to the provision of three or four-wheel cycles as part of new or expanded schemes.

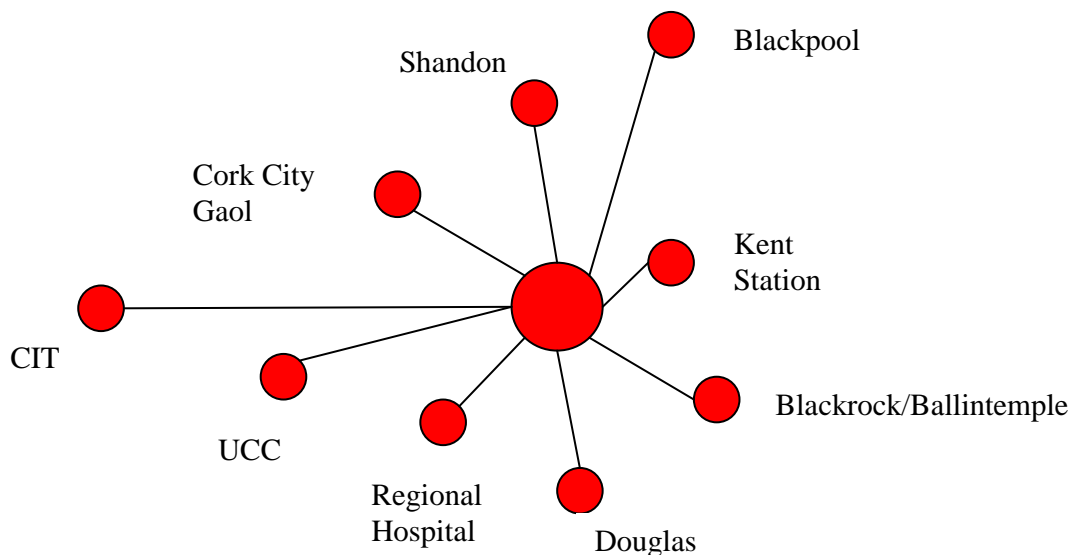
Of all sectors, carbon emissions from transport grew most in the ten years to 2010.

Good cycling and walking investment meets a range of objectives, leading to healthier citizens, lower public health bills and a more sustainable environment and society.

While cycling is mentioned in the capital budget estimates issued in July 2010, there is not a single specific measure listed with funding allocated. A cycling strategy was published in 2009 but few if any measures from that strategy are being financed under current budget plans.

PlanBetter proposes that bike sharing and electric car sharing stations can be combined at the same site, creating sustainable transport nodes in cities and towns. Below is an illustration of possible locations for bike/electric car sharing stations in Cork, and proposed locations are subsequently listed for Limerick and Galway.

Cork



In Limerick share points could be located at:

1. Limerick Regional Hospital
2. Limerick University Campus
3. Limerick Institute of Technology

4. City Centre (Potato Market)
5. Train station
6. College of Art & Design
7. Castletroy/Monaleen
8. Ennis Road/Caherdavin
9. Raheen
10. Corbally

In Galway:

1. NUI Galway
2. Galway IT
3. Galway Regional Hospital
4. Eyre Square/Train Station
5. Spanish Arch
6. Headford Road
7. Salthill
8. Corrib Village
9. Newcastle
10. Renmore

Electric Car Sharing

Electric cars are no magic fix – even though they are sometimes portrayed by their promoters in this fashion. The reality is that the materials used to make electric vehicles are finite, and greater pollution is caused in their manufacture compared to producing a conventional car. Also, electricity – even renewable power – used to recharge electric cars takes energy that might in future be needed for storage heaters, as well as rechargeable washing machines and cooking appliances which are likely to be developed in coming years.

That rechargeable cars have been come on the market faster than rechargeable washing machines doesn't reflect resource allocation based on our most critical needs, but rather the premium currently placed on vehicular mobility in wealthier societies.

At the moment there is a subsidy in Ireland of up to €5,000 to buy electric vehicles. Instead of subsidies that benefit individual buyers, PlanBetter proposes a nationwide car share scheme using electric cars that operates along similar lines to Dublin Bikes. Three different vehicles would be available at each collection station, akin to what's happening with electric cars in Paris and, to a lesser extent, London (see www.betterplace.com and www.bbc.co.uk/programmes/p00dr4np).

PlanBetter envisages 20 to 30 such stations in Dublin, 6 or 7 in Cork, 5 each in Limerick and Galway and 1-5 in other areas depending on demand and population.

There are a number of reasons to invest in a nationwide share scheme rather than continue a programme of subsidies. Making electric cars uses up valuable resources. The material used to make the batteries for electric cars - lithium - is hard to extract, and is only found in useable quantities in two or three South American countries. We don't know for how many years it will last, and we risk replacing oil reliance with dependence on lithium.

Mining lithium pollutes local water courses as vast salt plains across Chile and Bolivia are being dug up in its extraction. If we're to draw a parallel with Ireland, it would be a little bit like churning up the Burren in county Clare – even though these are special areas which should be conserved. At least with a share scheme, the bike or the car is used by more people for more time over the course of the day – there's a better return on, and a more sparing use of, resources in other words.

We're not too sure when batteries in electric cars will need to be replaced. All we know is that batteries lose power over time. It could be 7 years, it could be 10 years – it could be longer: the point is that a share car scheme is much better positioned to replace batteries after they degrade.

An individual consumer would be looking at substantial cost to replace a battery for each electric car – around €10,000. A share scheme, on the other hand, could have a sinking fund with money put aside each year.

There is also a clear equity issue. Richer households are the only ones that can afford electric cars – that's households with annual incomes of more than €150,000, according to the research.

Is it right to hand out a subsidy of up to €5,000 to households that are already earning €150,000? Under a system of subsidies, poorer homes reduce travel costs for wealthy people. On the other hand, a share scheme will remove fears people have regarding electric cars, which will then be bought without subsidies.

Car-sharing is already well established in Ireland through GoCar, a company with 3 bases in Cork city and 5 in Dublin, and with plans to expand further. It is a question of delivering car-sharing on a far wider basis.

Dublin Bikes started off with 450 hire bicycles and assumed that little more than 3 regular users would sign up per bike. More than 100 people have signed up per bike available, with the total number of annual memberships now around 47,000. Electric car sharing could have the same success, and without the more invidious downsides of the subsidised car scheme now in force.

Rail

Ireland's rail network needs €100m a year just to arrest further loss in business to the motorway network. Rail patronage on the Dublin/Belfast line has fallen 20% since the completion of motorway between the two cities. Patronage on other services where rail competes with motorway – the routes linking Dublin to Galway, Limerick, Cork and Waterford – is only being maintained by selling a higher share of reduced-price tickets.

As pointed out in the mid-term review of Transport 21 completed for the Chartered Institute of Logistics and Transport, government has to decide between three options for the future of the railways:

- invest and make journey times more competitive,
- increase subsidies to loss-making services in decline, or
- close key routes.

The third option – closure – would be extraordinarily short-sighted in light of the price direction of oil. Increasing the subsidy for rail is not just expensive but also fails to tackle the problem, and only postpones a choice between investment and closure, the first and the third options.

Already, the Irish Rail subsidy – at approx €170 million annually – dwarfs the subventions to Dublin Bus and Bus Eireann, the other two companies in the CIE group, which stand at €82m and €45m respectively (2009 figures). There is significant scope to lower costs and raise revenues on the rail network, and we outline some suggestions (see penal and below).

Improving the rail service with low-cost and no-cost reforms

Irish Rail has made considerable strides over the past decade and we welcome recent innovations, including, for example, the facility to reserve space for bicycles over the internet. However, the scope for simple low-cost or no-cost improvement is substantial.

- Irish Rail has recently introduced automatic ticket validation at given stations but it is unclear if this has yielded savings. A review is needed to ensure there is both cost and service efficiency in work practices and staffing levels after investment in new technology.

- Irish Rail can improve its preparedness for severe weather. Rail offers great advantages in severe weather – it is a time to win, and hold, new customers. Yet on Christmas Eve 2010 toilets on intercity trains remained frozen and out of use - even though this was the third spell of severely cold weather that year. At Thurles station, where courtesy stops were made on Cork/Dublin/Limerick services, many toilets were not functioning either because anti-freeze was not used or because piping is insufficiently lagged.

- On trains without refreshment services, it is typically impossible to get a drink of water. This could be easily remedied by providing a small machine to dispense bottles of water on board, making trains more attractive and hospitable, particularly on warm summer days.

- Irish Rail's internet booking system can be improved. For example, the online system can alert customers to the location of the quiet carriage, allowing the user to book a seat there. Commencing on the Dublin/Cork service the quiet carriage can be more strictly enforced.

- By displaying seat prices in a clearer fashion on the Irish Rail website, off-peak trains can be better filled. One idea is to introduce a facility for prospective passengers to list trains for any given day in order of price. Currently, price information is only available by clicking on a euro sign displayed on the far right of the screen, something that must be done for each train in turn.

The need for a five-year programme for rail investment is clear. To scope value for money, Irish Rail must be asked to produce three plans: the first will outline what €100m of annual investment will deliver; the second will be based on a €125m investment programme, and the third €150m.

An outline business case needs to be compiled for each, distinguishing between maintenance and enhancement works, and detailing what improvement —if any — will be made to journey speeds at given investment levels.

It should be noted that over the last 12 – 14 years an average of €100 million has been invested annually on the rail network. While some bends have been removed from certain lines, by and large, this money has not increased speeds; rather, it has financed maintenance so the railways could ‘stay in the game’.

Better interchange and scheduling must be integrated into the **rail investment proposals** described above. Patronage can be boosted by improved interchange, particularly when it is combined with higher speeds.

The rail line between Galway and Waterford runs via Limerick, intersecting the Dublin–Cork route at Limerick Junction, thereby offering scope for a wider set of journey possibilities by capitalising on interchange. If four trains from each of the endpoints – i.e. Dublin, Cork, Galway and Waterford - met at Limerick Junction at the same time, then journeys from Cork to Limerick, Galway to Cork, and vice versa, become not just feasible but attractive by rail. It is a measure which requires very little investment in real terms.

Partnership with local organisations can boost patronage on lines and at stations which are underused. The Nenagh/Roscrea line, the Ballina to Manulla branch and Clonmel / Waterford as well as the recently-opened stations in Dublin such as Adamstown, Clongriffin and Phoenix Park would benefit from such an approach.

Fuel-efficient driving

Tyre quality and suitability on all vehicles can have a significant effect on fuel efficiency. National standards for fuel-efficient tyres should be adopted to apply minimum efficiency criteria.

California plans a public awareness campaign to promote best practice and is implementing a regulation to ensure that tyres are properly inflated when vehicles are serviced. Consumer information requirements for replacing tyres will also be introduced.

As a first step, an awareness campaign regarding tyre pressure and condition could easily be introduced in Ireland, drawing attention to the savings of properly inflated and minimum standard tyres. Tyres 0.5 bar below their recommended pressure

increase wear and fuel consumption by 2 – 3% (see further http://www.seai.ie/Power_of_One/Getting_Around/Motoring_Tips/).

Maintaining the right tyre pressure is just one aspect of fuel-efficient driving, which needs to be much better promoted. As SEAI note, “driving at high speed - over 80kph and especially over 100 kph - uses more fuel”. Cutting out rapid acceleration and sudden braking can yield fuel savings of up to 10%.

Efficient driving needs to be particularly targeted at freight operators who transport goods around the country. A case study of Collins Coach Hire, a fleet of touring coaches approved to Fáilte Ireland standards, yielded savings of 27% on diesel costs by addressing idling, sharp increases and decreases in speed, as well as other driving practices.

If gains like this can be replicated across both freight (HGVs, trucks and vans) as well as passenger vehicles (coaches and buses), large cost savings can be achieved, improving Ireland’s competitiveness and cutting our greenhouse gas emissions from transport at the same time.

Part 3 – Three simple solutions from California

PAYD – Pay As You Drive insurance

California has introduced innovative Pay As You Drive (PAYD) insurance that rewards drivers for driving less. This would be a simple scheme to adopt as it already exists in a certain form with vintage car insurance in Ireland where mileage limits are built into low-cost insurance policies.

The insurance would band mileage in 800 km (500 mile) pricing intervals, allowing motorists making even small changes in their driving habits to benefit.

In California, the insurance company State Farm is offering an initial 5% discount for the first policy term to insured drivers who agree to self-report their odometer readings at the beginning and end of each policy period, or who agree to allow State Farm access to their mileage data automatically.

The following year’s insurance premium will be calculated on the basis of the previous year’s mileage, and would be recalculated each year, consistently generating savings for drivers. Those who agree to plug in a small telematic device into their car, which will automatically record the distance travelled, will get extra savings of up to 10% under the scheme.

Not only would it encourage Irish people to drive less, it would also allow them to benefit financially from it and make them more aware of the cost of driving. Currently, with insurance based on time rather than distance, there is no incentive to drive less.

Currently people who participate in a verified mileage programme with the California Auto Club see average savings of \$67 a year.

Ship electrification at ports

Ireland is overwhelmingly dependant on shipping for trade. With a focus on exports, the savings that could be generated by adopting a ship electrification programme at Irish ports, like that in operation in California, are substantial.

This programme would fit very well with current strategies to find ways to use electricity from excess wind power and displace fossil fuel use. Up to now policy has mainly been focussed on electric vehicles, but with relatively little infrastructure investment, ships in the main Irish ports could be running on electricity from wind farms while berthed and idling, instead of relying on diesel.

It would also have the added benefit of reducing costs for those operating ships in and out of Irish ports, as electricity generated from the grid will be cheaper than the marine diesel used by ship engines.

It will also make the Irish grid more efficient by finding sources for excess electrical power in high winds, rather than having to implement the costly process of wind curtailment where generators are compensated for not using their power.

Saving costs for truck deliveries

California has introduced a Heavy Duty Vehicles GHG Emission Reduction initiative which sees trucks retrofitted to increase their aerodynamic profile. Within metropolitan areas the initiative also encourages delivery companies to use hybrid electric vehicles.

In Ireland the retrofitting of trucks to improve fuel efficiency is likely to be very attractive to transporters, as it will reduce their cost base, insulating them from rising oil prices.

The thinking behind encouraging delivery companies to part-rely on hybrid fleets is that most deliveries are over a short distance, and are “stop and go”, with journey distances within the range of electric batteries. Loading and unloading yields considerable “idle time” when truck batteries could be re-charged.

Exclusions

A series of measures is required to deliver sustainable transport. A number of areas were not discussed for reasons of space.

Introducing real democracy and greater accountability into the institutional arrangements used to deliver transport is one of the most important, and this will be the subject of a separate paper. Biofuels were also not discussed: what emerges most clearly on this topic is the near absence of widely-published data on the pollutants released in the combustion of certain biofuels, again an issue that needs to be revisited. Parking charges and rail freight are covered in separate papers available from PlanBetter. Land-use planning has also not been covered here (but again, a 2010 paper to the Irish Planning Institute is available in this regard).

Summary/conclusion

The press release issued with the publication of this document summarises the measures and steps proposed here.

What this paper has done is offer key ideas that can be implemented to improve transport at low cost, and quickly. It is now a question of delivery.

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