

EXPRESS PARCEL SERVICE  
**FASTRACK**  
**+PLUS**  
**& CONTAINER +PLUS**



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## Introduction

This paper sets out some ideas in relation to how the freight operations of Iarnród Éireann could be transformed through implementation of a completely new “door-to-door” road / rail sustainable transportation system, built on the existing Fastrack, Roadliner and Container businesses, and dubbed “Fastrack Plus” for small loads, and “Container Plus” for larger loads.

This does not intend to be a professional, expert document, but the hope is it may stimulate interest, discussion and debate. The ideas herein are however based on existing proprietary technologies, and the intent has been to tie the technological developments together with business and marketing ideas, in a holistic, innovative manner.

## Background

Railfreight in Ireland has been in significant decline over the last ten years. The principal cause has been a missive from the current government that the railfreight sector of IE should operate without subsidy. In fact, it is impossible to operate railfreight at a profit under the current accounting system, which evaluates rail purely on direct receipts and completely ignores the indirect environmental and social benefits of the mode. These have in fact now been costed, and this topic is dealt with in some detail on page 9 below.

Changes to the accounting system and a re-casting of the subsidy as a *dividend* for savings the rail mode generates, would help railfreight enormously, but it is also critical to examine the urgent need to modernise the traditional rail supply chain, with its dependence on labour-intensive and costly transshipment.

The good news is that there is now a range of technologies available to overcome these problems, and this paper suggests ways in which such technologies could be integrated into IÉ’s existing railfreight businesses.

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Fastrack Plus & Minimodal Technology

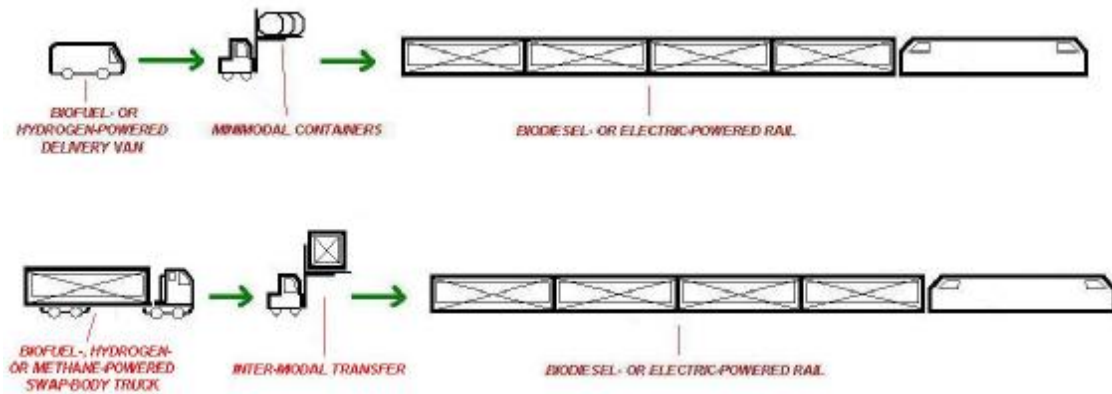
The Fastrack Plus concept centres on the Minimodal system of small stackable containers, which are extremely versatile. This was the winner of the UK Strategic Rail Authority Freight Innovations Award in 2001.

Minimodal dispenses with bulky freight handling equipment, freight yards and specialised rolling stock. Instead, simple flat wagons and flatbed trucks or vans can be used, loaded and unloaded at station platforms by forklift. The containers can be used singly or in groups, come in several versions to suit specialised loads, e.g. refrigerated goods, and can be accessed from the side or ends. Trains simply pull up at a platform on a loop off the main line and either unload one or more containers, or have the palletised contents unloaded instead. The system makes possible serious inroads into the market for small- to medium-sized goods transport and creates a sustainable, reliable, environmentally-friendly supply chain.



**Fig 1 – Montage showing aspects of the Minimodal system**

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**Fig 2 – Fastrack Plus and Container Plus models showing (upper), flexible, lightweight, sustainable and economical delivery and pick-up system using Minimodal containers and LGVs running on biofuel-powered hybrid engines (see text). For more intense routes, HGVs with swap-bodies containing greater numbers of Minimodal containers, may be appropriate (lower). The tractor units would run on biodiesel or biofuel, and preferably employ hybrid transmissions (see text). This model would also serve Container plus movements. Fastrack Plus and Container Plus are built upon the existing IÉ Fastrack, Roadliner and Container businesses and offer a door-to-door “Green Supply Chain”**

Bulk procurement of Minimodal hardware would bring costs down in comparison with small orders. That said, a trial order could be placed, servicing just one or two Fastrack Plus routes initially. The versatility and convenience of the format is a key driver in creating a very low- or zero-emission “Green Supply Chain”, which is discussed in further detail on page 8.

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### Inter-Modal Freight – “Container Plus”

Apart from innovations in the arena of smaller goods distribution by rail, the traditional mainstays of bulk and large goods traffic have also benefited from innovation.

A variety of techniques are now possible to reduce HGV movements;

- 1) Multi-modal wagons can take both ordinary ISO large containers as well as entire truck trailers
- 2) ISO-based Standard Demountable Units (SDUs) have been developed that take a wide variety of loads within an ISO frame, which can be lifted on and off trains like normal ISO containers, thus dramatically increasing the variety of loads that can be carried economically by rail



**Fig 3 – Two examples of Standard Demountable Units (SDUs) built within ISO frames and easily transferable onto flatbed lorries**



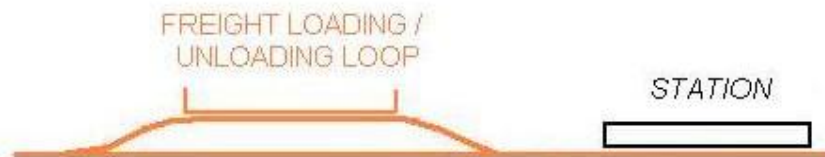
**Fig 4 – Compact low-cost Reachstacker, above; “Pocket Wagon” for 9ft 6in high ISO containers of multiple designs and truck trailers, below**

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Similarly, handling technologies have improved dramatically, with low-cost versatile Reachstacker machines replacing cumbersome and expensive yard cranes, as well as dispensing with the need for large areas of costly hard standing.

Furthermore, a new approach to train management could be used; Fig 10 below shows how most freight could be accommodated in a “basic” manner, requiring but a loop and a loading / unloading platform. The return on the investment in these minimal facilities would be significant, since the loading / unloading point would be multi-purpose, catering for Minimodal, inter-modal and bulk traffics, as discussed above. Such platforms would also readily accommodate timber loading / unloading – an important flow today.

Such freight points on the network would not necessarily have to be placed at stations; for instance there is scope for locating some near where major roads cross the routes. Indeed, this would reduce local congestion, as these freight points could often be located away from any settlements.



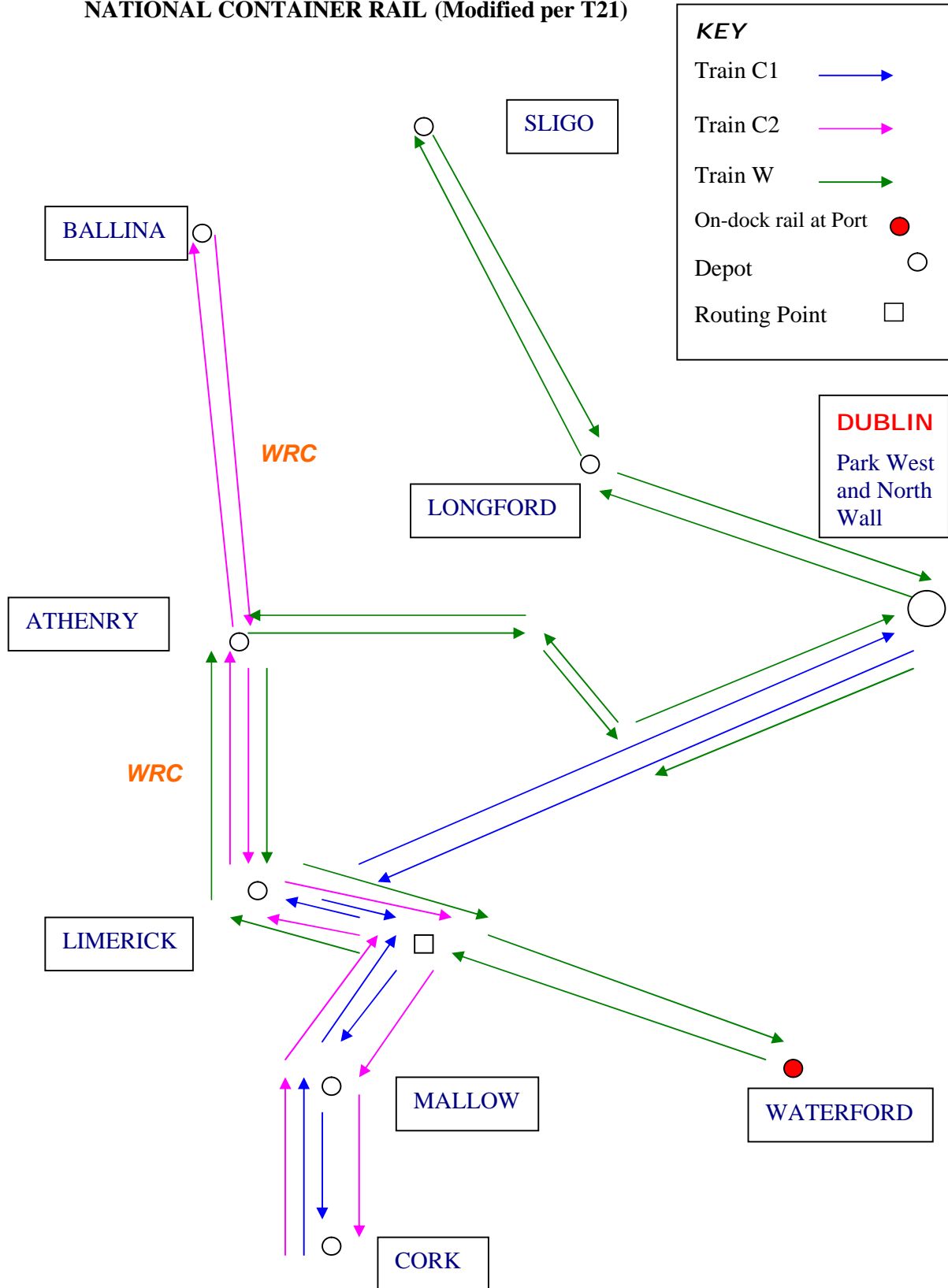
**Fig 5 – Strategically placed low-cost freight loops and loading / unloading platforms could readily be placed along lines. The loop ensures freight and passenger movements do not conflict, and the platforms could be multi-purpose, handling Minimodal, Inter-modal and Bulk traffics**

Operation

Both Fastrack and Container Plus could use carefully devised train paths that minimise rolling stock usage and turnaround whilst maximising destinations served, in an “asset sweating”-style operation. An excellent example is the National Container Rail system devised by transport expert James Nix and submitted to the Department of Transport in 2002 on behalf of Irish Railway News (IRN). This innovative proposal uses a twin-circuit trip layout, with one train originating in cork (Train C) and the other originating in Waterford (Train W). Between them, these trains would serve ten main depots in a 24-hour period, and share interchange and pick-up / drop-off points for maximum flexibility (Train C would leave containers for Train W’s route, and vice versa). Included here (please see next page), the proposal could be used for both Fastrack Plus and larger loads, and is slightly modified by the author to take account of the Athenry – Claremorris re-opening envisaged under Transport 21. High speeds and convenience would be vital, with express services run to fixed timetables at passenger train speeds.

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**NATIONAL CONTAINER RAIL (Modified per T21)**



**[©James Nix / IRN; reproduced by permission and modified for direct Athenry – Ballina connection reflecting WRC re-opening in Transport 21 plan]**

### Making it Work – Building Upon Existing Fastrack, Roadliner and Container Businesses

Fastrack Plus and Container Plus are not new businesses, but rather are suggested as developments of the existing IÉ Fastrack, Roadliner and Container businesses, and using the existing operating models and infrastructure. For example, Roadliner could carry out the “off-track” operations of both Fastrack Plus and Container Plus, i.e. in terms of deliveries to and pick-ups from the railhead.

Because the “Plus” brands are built on sustainable principles, a rolling programme of Roadliner vehicle upgrades could be included in the initiative, principally the upgrading of engines to very low- or zero-emission hybrid biofuel / electric powertrains. This is feasible in that the numbers of vehicles gives leverage in approaching a suitable engine manufacturer, even where such an engine type requires R&D. Essentially, more things become possible when the potential orders are big enough. There is also scope for carrying out vehicle conversion in-house.

Whatever method is best, the end intention would be for a fleet of swap-bodied HGVs, and light vans, capable of carrying Minimodal-type mini-containers and in the case of the HGVs, a wide variety of intermodal ISO SDUs. Critically, all vehicles in the fleet to be either very low- or zero-emitting.

The big selling point of both Fastrack Plus and Container Plus then emerges as the best and most sustainable aspects of road transfer coupled with the energy-efficient, reliable, safe and non-polluting rail mode. This forms the Green Supply Chain (GSC).

### Leveraging the Financial Benefits of The Green Supply Chain

A very low- or zero-emissions supply chain that is also convenient, reliable, safe and importantly – “door-to-door” – will be cheaper for the Customer over time. This is due to increasing road congestion costs, Kyoto fines, road tolling, new working regulations for long-distance truck drivers and increasing insurance premia as a consequence of climate change. And increasingly, businesses are seeing that the Green Supply Chain will save them money and enhance their bottom line. A Green Supply Chain is also ethical, because as well as moving goods more responsibly, it also significantly moderates many of the social and health problems brought about by road-building and untrammelled use of road transport.

### Branding – The “Plus” Ethos

The “Plus” ethos is all about sustainability, convenience, reliability, attractiveness and responsibility, as well as overcoming congestion and increasing speeds of delivery. These aspects would have to be highlighted in a big way to ensure successful take-up.

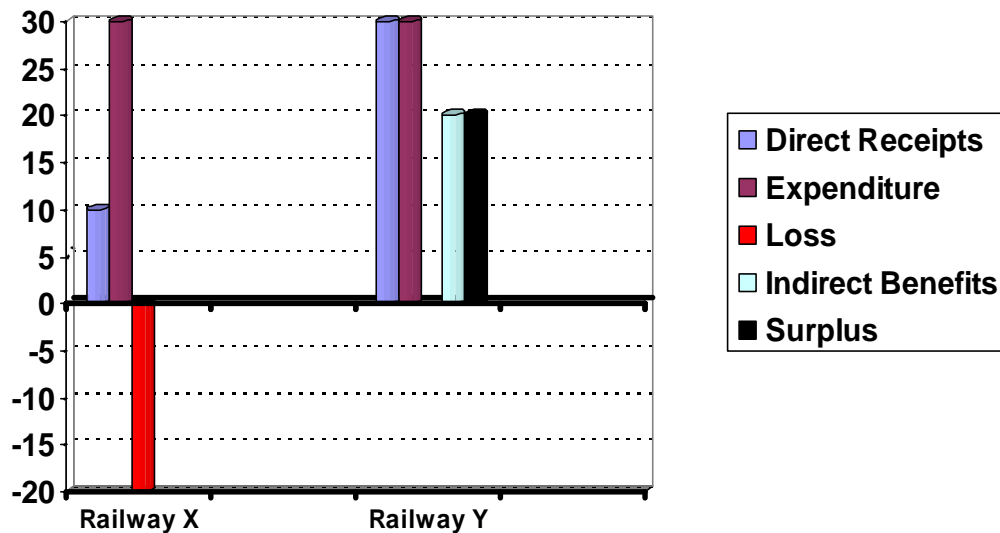
Reality Check – IÉ’s Operating Environment

IÉ Freight is required by government to be self-financing and to run at a profit. This is wrong, because the current accounting procedures evaluate rail income purely on direct receipts (i.e. charges to customers).

Using this system, rail will always appear to operate at a “loss” because the indirect benefits of the rail mode, (in both environmental and social terms) are never included in the calculations. This leads to unwarranted cutbacks.

Work carried out by the author in 2004 based upon data in the Strategic Rail Review suggested that IÉ is generating unadjusted environmental and social cost savings to Ireland’s economy and society of approx. € 900 million per annum. Offset against the 2003 government subsidy of € 406 million (including capital expenditure) this in effect was a greater than 200% return on investment that year. And, the “subsidy” is actually a *dividend* for the savings generated.

This completely new economic outlook on rail is revolutionary. It transforms an apparently loss-making concern into a healthy, dynamic one that is open to further investment. The example below provides a good illustration;



**Fig 6 – Railway X is a passenger-only network accounted for purely on operating income and expenditure. It uses out-of date rolling stock, segregated ticketing and awkward timetabling that does not respond to customer need. Therefore services are not well-patronised and receipts are low against expenditure. The network makes a heavy loss, subsidised by the state. Further rationalisation and closure are ever-present threats, as ways of dealing with these losses.**

Railway Y, on the other hand, runs services based on deep local knowledge of customer need, using modern rolling stock and new technology such as integrated “smartcard” ticketing. Passenger receipts are double those of Railway X, and the railway also carries freight using the most modern inter-modal and MiniModal techniques. Thus overall direct receipts are greatly increased. The indirect benefits of the rail mode are also accounted for, via government dividend, and operating expenditure is the same as for Railway X. In total, Railway Y makes a very significant surplus, permitting further investment and expansion.

**Summary**

- ü **Fastrack Plus and Container Plus are new concepts in door-to-door sustainable transportation, centred on Minimodal versatile mini-containers and new ISO containers, and optimising the road- rail chain**
- ü **“Off-rail” movements, i.e. delivery to, and pick-up from the railhead could be operated by Roadliner, using upgraded vans and HGV tractor units running on hybrid biofuel / electric engines**
- ü **Container Plus promotes the use of new ISO Standard Demountable Units (SDUs) on swap-body trailers when being hauled to / from the railhead**
- ü **Operations could be based on the National Container Rail model, with its twin-circuit trip layout, and trains could run to fixed timetables, importantly at passenger train speeds**
- ü **Heavy marketing of the “Plus” ethos, with an emphasis on road congestion avoidance and on speed, convenience and reliability of deliveries, as well as on the environmental benefits of the rail mode, would be vital for successful take-up**
- ü **The accounting basis for IÉ freight is wrong. Its indirect benefits must be accounted for, and a dividend should be paid by government in return for these significant environmental and social savings that railfreight generates (the same applies for passenger carryings in IÉ)**

Compiled by B. Guckian 17/8/2006

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