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ECONOMIC CONSULTANTS

Report to Department of the Marine and Natural Resources

Task Force on Transport and Logistics

in Connection with Ports

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Executive Summary

The role of ports in the economy is no longer restricted to their physical location on the water's edge. Modern supply chain systems mean that ports operate as one link in the logistics chain between producers and, ultimately, customers. Any inefficiency in performing this role results in a weakening of the supply chain and has serious negative effects for the competitiveness of the economy.

Increased traffic congestion has been a feature of Ireland's economic boom. Long term under-investment in the past, the unparalleled growth in demand for transport during Ireland's economic expansion and the inevitable problems as new solutions are implemented, have all contributed to the situation. However, although there is often serious congestion close to ports, there is actually little evidence of serious congestion within the ports. The focus, therefore, is on the efficient flows of goods on the landside to and from ports.

Recognising this, the Task Force has pursued its Terms of Reference as relating to the impact of port traffic on the wider traffic system. This means that the Group's deliberations covered areas such as the modal split of traffic, the impact of port and non-port traffic congestion on the hinterland of ports, operational management issues within ports and the governance of transport in Ireland.

Ports are of essential importance to Ireland's peripheral and island economy. However, the Task Force is of the view that ports and maritime freight transport, have been treated in the past as a poor relation within the governance structures for the country's transport system. This situation risks causing a fall in confidence in the strategy and in the systems that are in place to find solutions.

The Group recognises that it is not possible to find all the answers in the timeframe available to it. This report represents its views and recommendations in relation to those matters of most importance. In many cases, these will require further study.

The Task Force supports the overall vision of the DTO and agrees with the ultimate goals, but has certain reservations in relation to the way in which certain aspects of the strategy is being implemented. For some transport users, alternative patterns of road usage are not an option. The freight transport industry is facing serious costs while the strategy is being implemented, but perceives that insufficient attention is being paid to their needs.

Clearly, improvements in infrastructure are needed. In the short term also, measures are required to deal with specific instances of deterioration in the implementation phase. New infrastructure and the existing facilities must be used more efficiently if capacity is to be maximised. Initiatives to develop a more fully integrated approach to traffic management have been developed, and need to be strengthened. A longer time horizon is required for planning and investment, and Ireland needs to be able to move from a transport system that simply tries to cope with the demands that are placed on it to one that makes the transport industry a source of wealth creation in its own right.

The Task Force has agreed the following recommendations.

Transport Planning and Port Governance

1. A new Department of Transport with full cabinet representation should be created with full responsibility for the development and implementation of policy across all transport modes and with particular emphasis on the development of integrated transport systems in line with the EU.

2. The role of ports in developing the efficiency of the whole supply chain and in stimulating balanced regional development needs to be highlighted and prioritised. In the case of Dublin, the Task Force favours the early commencement of the DTO's freight distribution study with a view to devising an enhanced traffic management strategy for freight distribution generally in the Greater Dublin Region.

3. Port projects should be given priority in planning processes where it can be shown that there will be positive net benefits to the economy.

4. The current model for port governance may result in excess competition between ports when an alternative model could provide benefits. The Task Force welcomes the planned review of the current regional structure for port governance and operations to identify how the ports network as a whole may best function in the context of the development of the all-Ireland economy.

5. An examination of the adequacy of the existing regulatory environment for ports and its enforcement should precede any consideration of regional amalgamation.

6. This review should also examine the potential role of a statutory office holder to adjudicate in cases of disputes in ports.

7. Initiatives should be promoted to overcome the perception that the interests of local communities and of port users are inadequately represented in decision making by Port Boards.

8. The new Department of Transport should put in place the necessary structures to mediate the conflicting objectives of port stakeholders and to facilitate the expression of views by port users.

9. The proposed Strategic Land Use and Transportation Authority should be implemented as a matter of urgency.

10. A long-term strategic approach is required that sets objectives for the development of the port sector over the next 20 to 50 years.

11. Irish transport policy needs to set a long-term objective that Ireland will have a transport system and international linkages that are a basis for the development of transport related industries, with Ireland acting as a gateway to Europe.

Short-term Issues and Recommendations Specific to Dublin

12. A one-way system in the area of the port and the reinstatement of the Newcomen Road rail bridge should be considered as a matter of priority.

13. Urgent attention should be given in the DTO study to initiatives to overcome the impact on freight flows of displaced traffic as a result of construction of the Port Tunnel. Dublin Port should be consulted in this undertaking.

14. The potential benefits from developing dedicated freight ways in no-car lanes should be examined in the DTO freight study.

15. As a matter of policy, tolls on the Port Tunnel should be set at a level that ensures that adequate priority is given to HGVs that are accessing the port, rather than at a level that creates a target level of total revenue. This should be monitored on an on-going basis and, should it be seen to be an inadequate mechanism in its operation, the feasibility of implementing a no-car lane in the Port Tunnel should be examined.

16. The option of extending the Dublin Port Tunnel to the south side of the river should be examined in the context of the conclusions of the NRA study of the Eastern by-pass.

17. The Task Force welcomes the feasibility study by the NRA for the building of the Dublin Outer Orbital Route (DOOR) as well as the expansion of the M50 and advocates that the DOOR should be progressed as quickly as possible.

18. While recognising that difficulties are inevitable during the implementation period, an enhanced sequencing of the implementation of DTO initiatives is required.

19. Specific reference to the impact of DTO measures on the flow of goods should be included in all programmes with an assessment of the scale of the impact.

20. An area in the vicinity of Dublin Port should be identified as the basis for an Integrated Area Framework Plan with respect to Transport.

21. As a key stakeholder, a representative of Dublin Port should be appointed to the DTO Steering Committee.

Traffic Management and Infrastructure

22. Traffic regulations should be enforced more strictly and a discrete traffic corps should be formed with the sole function of enforcing regulations.

23. Due recognition of the delays that the implementation on new traffic management initiatives can cause is required and complementary measures undertaken for traffic that does not have a choice with regard to the route travelled or the time of the journey.

24. Demand for 24-hour operation of the major trading ports should be stimulated by the state ports in conjunction with corresponding and complementary initiatives by industry.

25. Incentives to address freight transport during peak congestion periods, such as discounted tolls for freight traffic in off-peak hours, should be examined.

26. Local authorities should identify and state their preferred route of connection between ports, major transport nodes and primary routes.

27. The planned upgrading of the N28 between Cork and Ringaskiddy and the N69 between Limerick and Foynes, including a bypass of Foynes village, should be progressed as a matter of priority.

28. The provision of a new northern access route to Drogheda Port should be re-examined.

29. Traffic management agencies should, within the context of integrated traffic management strategies, develop specific spatial policies on the flow of goods.

30. Investment in port services in non-congested areas should be examined to identify overall benefits to the economy.

31. While noting the role of private finance in the NDP and welcoming the commitment to the development of integrated tolling, tolls should develop as a means to supplement, rather than to supplant, the public provision of infrastructure.

32. Performance indicators should be developed to monitor the efficiency of transport in the vicinity and hinterland of the ports.

33. Careful consideration should be given to the recommendations of the Oscar Faber report on the potential uses of road pricing in traffic management.

34. This Task Force has examined the role of the ports in traffic congestion and recommends that a similar examination should be undertaken in other sectors, for example, the impact of altering school starting times or other initiatives on congestion.

Rail and Other Modes

35. On the basis of the outcome of the upcoming review of rail transport in Ireland, recently announced by the Minister for Public Enterprise, a clear up-to-date statement of rail freight policy should be formulated along with a programme of action to achieve the objectives contained in this statement.

36. Direct access to the rail infrastructure by private operators in the business of freight transport should be examined in the review.

37. The feasibility of developing a multi-product oil pipeline from Dublin Port to a remote location should be examined.

38. Research should be undertaken to identify which operations might best be carried on in locations that are remote from the port from the point of view of their traffic impacts.

39. The development of inland container handling facilities and inland dry ports should be examined to identify the potential benefits.

40. The potential economic benefits of a cross-bay ferry for Dublin, which studies have shown to be technically feasible, should be evaluated.

41. Ways to promote the development and adoption of information technology, such as real-time information systems and integrated systems to link ships, drivers, ports and customs, should be examined.

Policy Development

42. Freight transport should be identified as a sector of primary national interest.

43. The agencies charged with decisions in relation to traffic management should become more inclusive of business interests to ensure that their views are adequately represented.

44. The absence of an effective forum to champion the interests of freight operators is undesirable. It would be advisable for stakeholders to come together to form a single, cohesive representative entity to contribute to rational planning and to remove current perceptions of inadequate consultation.

45. The new Department of Transport should be charged with producing an action plan for the implementation of these recommendations.

1. Background and Context

1.1 Statement of the Problem

The extraordinarily strong and largely unexpected growth of the Irish economy over the past decade has brought many benefits to Ireland but has also posed a number of challenges for the future. The impact of two of these challenges on the operation of economic activity is central to the subject matter of this report.

The first challenge arises from the fact that growth has not taken place against a static economic background. The Irish economy is not merely a larger version of what existed previously. Instead, there is a new industrial structure in which the sources of competitiveness that previously operated have been replaced. Most noticeably, Ireland has moved from being a relatively low cost, resource based economy – relying principally on agricultural resources and an inexpensive, plentiful supply of labour – towards becoming a high value added economy where intangible assets and the efficient use of these assets are the core resources driving economic success. Crucially, this change has happened in a period in which the demands of international competitiveness have become ever more important. This has favoured Irish economic development but means that efficiency and competitiveness are ever more crucial determinants of performance.

The second challenge arises from the much higher level of economic activity that has placed huge demands on our infrastructure. Importantly, this new activity also creates the resources that can potentially be accessed to meet this challenge. The main requirement then is to ensure that resources are used and managed in the most productive way.

The most immediate objective is to ensure that lack of capacity in infrastructure does not adversely affect the competitiveness of the economy. The ability of the economy to handle the flow of goods in an efficient manner is central to performance. However, the overall flow is only as good as the weakest link in the supply chain. As a result, efficiency at the point of greatest congestion is vital. When the importance of imports and exports to Ireland's economic performance is recognised, it is clear that efficiency at Ireland's sea ports, which account for 99% of the volume of goods traded, is an essential component in the overall system.

For a number of reasons, often historical, many ports are located within, or in proximity to, the busy and often congested centres of towns. Their design and modes of operation are often determined by precedent and with reference to the technologies and cost factors of earlier times. Within these consequently outdated designs, attempts at modern cargo handling and compliance with the logistics demands of modern business, in addition to vastly expanded volumes of trade, have met with difficulties and higher then necessary costs. This adversely affects the competitive operation of the ports in question and their customers. Furthermore, ownership structures have determined that congestion on the land-side of ports is not an unusual occurrence that arises at least partially as a result of the fact that ports are traditionally more concerned with access on the seaward side. In addition, regular proximity to

town centres means that the subsequent difficulties have imposed indirect costs through congestion and environmental degradation on the wider economy**.** In many cases, ports have responded by moving downstream. In ports such as Bristol and London, this catalyst for this move was the growth of containerised transport. However, a key requirement for the success of any such move is that the required infrastructure is developed.

The impact on the wider economy is an important point. The creation of wealth is only one part of the story. The ability of citizens to enjoy that wealth is fundamental to improving the standard of living. In a modern economy, the ability to travel without undue cost – in terms of time spent and ease of access to transport as well as direct monetary cost – is an important part in determining the overall standard of living. As a result, efficient traffic flows in the hinterlands of ports are at least as important as the efficient internal operation of the ports. For this reason, the focus of the Task Force has been on traffic management in the hinterland of the port, and the interaction of port related with non-port related traffic. However, the Task Force has endeavoured to maintain an emphasis on improving the passage of freight. This means that the recommendations of the Task Force, while prioritising the importance of ensuring that current congestion does not undermine Ireland's long run economic potential, also attempt to address the wider issues of traffic management in a system that is experiencing serious under capacity.

1.2 Task Force Terms of Reference

In establishing the Task Force, the Minister provided it with the Terms of Reference that instructed it to examine:

- The prospects for increasing the volume of port traffic which is transported by rail and the transfer of port generated freight traffic from road to rail including the development of rail head facilities at existing ports and establish realistic targets to be achieved.
- Prospects for transporting freight by night / off peak across all transport modes.
- Opportunities for traffic diversion including
  - by rail,
  - by pipeline (including relocation of oil tank farms),
  - to other less congested ports outside Dublin.

The Group was also instructed to seek to:

- Identify imaginative proposals to reduce congestion and make port access/egress more efficient
- Identify cost effective options for the movement of traffic through Dublin.
- Identify opportunities for the transfer of non-essential activities to outside the ports.

In addition to these specific tasks, the Terms of Reference allowed the Group the freedom to advise the Minister on any aspects of transport logistics in connection with ports that they feel merits comment. In undertaking this work, the Group was instructed to take into account various reports and international experience and to consult widely. The Minister also requested that the group report to him urgently on

the matters raised. A list of persons appointed to the Task Force is contained in Appendix 1.

1.3 Procedures

The Task Force met 10 times between February and November 2001 under the chairmanship of Dr. John Mangan of the Irish Management Institute. In addition to the deliberations of members at these meetings, the work of the Task Force can be identified under 5 headings:

(i) Review of relevant earlier reports and studies. These included, *inter alia*,
- *Assessment of Irish Commercial Seaport Capacity* (Baxter Eadie, 1998 and 2000)
- *Assessment of Intermodal and Port Access Requirements* (Arup Engineering, 2000)
- *Ireland: National Development Plan 2000-2006*
- *A Strategy for the Successful Development of the Irish Road Haulage Industry* (Department of Public Enterprise, 1999)
- *National Spatial Strategy: Indications for the Way Ahead* (Department of the Environment and Local Government, 2001)
- *Access Dublin (Transport Umbrella Group, 1999)*
- *The Way Forward* (Review Group on Irish Rail, 2001)
- *Platform for Change* (Dublin Transportation Office, 2001)

This is clearly a selective list of some of the more important sources of information and previous research. A full listing of references and relevant material is contained in Appendix 2.

(ii) Examination of submissions from individuals and organisations. The Group undertook further consultation with many of those who entered submissions and with other relevant interests. A full list of submissions received is contained in Appendix 3.

(iii) Study visits to a number of important trading ports. These included the ports of Belfast, Cork, Drogheda, Dublin and Waterford. A delegation also visited the Port of Rotterdam.

(iv) Presentations from 8 ports and 9 other organisations in addition to presentations by members of the Task Force on their areas of expertise. A full list of those who made presentations to the Task Force is contained in Appendix 4.

(v) Research undertaken and commissioned by the Task Force. This included:
- An origin destination survey of freight movements to and from Ireland's trading ports (See §5.1 for details)
- A traffic count at Dublin Port (See §5.2 for details)
- Seminar with Manufacturers and Port Users (See §5.3 for details)

- Paper on International Experience from Dr. Richard Gray, Plymouth University

As a result of this activity, three interacting factors have determined the form of this report. These are the information that the Task Force has accessed and collected, the expert views of its members, and the need to reconcile conflicting opinions while ensuring that the conclusions that are reached are valid and that the recommendations that are put forwards are feasible.

It is important to note that, given the Task Force's mandate to report as a matter of urgency, it was not possible to undertake extensive analysis of many of the issues raised during the course of its deliberations. The Task Force endorses the very significant contributions that will accrue from transport investment strategies under the National Development Plan, but believes that additional measures could provide benefits. As a result, in its deliberations it has sought to highlight where the efficiency of the maritime freight transport chain could be enhanced going forward. Consequently, the Task Force has sought to identify the issues of most significance to the maritime transport chain and subsequently outline where change and/or specific, further analysis would be of benefit. The deliberations included, *inter alia*, the impact of logistics developments, competition between ports, the governance of ports, ferry service schedules and traffic counts.

2. Transport, Congestion and the Policy Response

2.1 Congestion in Ports' Vicinities

Dublin

While there are deficiencies in infrastructure in many parts of the country, and while many ports are experiencing access difficulties, it is immediately clear that the problems being experienced in Dublin are both qualitatively and quantitatively different from other parts of the country. The difficulties being experienced by port traffic are inextricably linked to the wider problems of congestion in the city. Furthermore, some of the measures that are being implemented under the DTO strategy to address the traffic problem, while beneficial in the long run, may cause difficulties in the short run during implementation of the strategy. This is not a criticism of the strategy or the operation of the DTO: it is not unusual for systems under change to experience a situation that problems become worse during the period of implementation of the change programme. The problem in Dublin is also made worse by the fact that the implementation of the strategy has coincided with a period of expansive growth in demand for road space. Indeed, it is likely, even if Dublin had created an efficient modern system of traffic management prior to the mid-1990s, that major changes would have been required to accommodate the expansion that has occurred. In summary, the problems would have been considerably worse but for the adoption of a more cohesive approach to planning under the DTO, and its forerunners, and for the measures that have been implemented.

The impact of this growth in vehicle usage can be seen from the data in Table 2.1. It shows the increase in journey times on key radial routes into the city centre.

Table 2.1: Peak Hour Journey Times to City Centre (O'Connell Bridge)

Origin	Distance (Km.)	Journey Time (minutes) 1991	1997	% increase in times (1991-97)
Malahide	13	32.7	52.7	61
Swords	12	33.5	60.9	82
Clonee	12	20.3	43.0	112
Lucan	14	30.7	60.5	97
Tallaght	11.5	41.3	50.7	23
Dundrum	10.5	34.6	47.8	38
Loughlinstown	13	38.0	59.3	56

Source: DTO

The overall increase in journey time in this period is estimated to have been 62%. In addition to this increase in journey times, what was once a 1-hour peak in the morning has now grown to a 2-hour peak.

The DTO have developed a model of times on routes in Dublin. This was originally calibrated in 1997 and is regularly updated. This model was used to develop projections for journey times to Dublin Port on the main freight routes. Estimates for three routes on the Northside and three on the Southside were made for travel to and from the port between 8 and 9.00 am.

The six routes are:

A Malahide-Fairview-East Wall Road (12.8 Km.)
B M1-Drumcondra-East Wall Road (11.0 Km.)
C N3-North Circular Road (12.8 Km.)
D N7-Rathcoole-Quays or South Circular (19.0 Km.)
E Lucan-Quays (16.0 Km.)
F N11-Cabinteely-East Link (13.2 Km.)

The times and speeds for each route in both directions are given in Table 2.2. These estimates should be considered to be averages and on any given day, actual experience may differ.

Table 2.2: Morning Peak Travel Times on Main Freight Routes in Dublin

	Inward Direction		Outward (Against the traffic)	
	Speed (Km/hr)	Time (mins.)	Speed (Km/hr)	Time (mins.)
Route A (Coast)	14	55	34	23
Route B (M1)	18	37	29	23
Route C (N3)	15	51	26	30
Route D (N7)	14	81	26	44
Route E (N4)	11	87	23	42
Route F (N11)	19	60	26	44

Source: DTO

The Lucan road stands out as particularly difficult. This road also feeds most directly onto the Quays. However, the speeds for the M1 and N11 are likely to be adversely affected currently and in the future due to construction work on the Port Tunnel and at Wyattville, respectively.

Other Ports

In contrast to Dublin, Cork has experienced the benefit of strategic planning within longer timeframes as encapsulated within the Cork Land Use and Transportation Study (LUTS), undertaken in the late 1970s, the 1996 County Development Plan and the recently completed Cork Strategic Plan 2001-2020. Partly as a result, congestion in the city is not nearly as serious as in Dublin, with viable alternative routes often available. The main route between Cork and Ringaskiddy, the N28, has undergone some improvement but the infrastructure remains inadequate for the transit of large vehicles at certain points and some of the development that was identified in the 1996 plan has not been delivered within the original timeframe that was outlined. In addition, considerable residential development to the south of the city in the Carrigaline area has increased commuter traffic on this route.

The expansion of the Belview facility in Waterford has allowed the port to move away from the congestion. In effect, the main activity of the port has moved away from the narrowest and most congested points in the local infrastructure. However, access for traffic from the western side of the river remains difficult, although this will be resolved by new infrastructure in the area. Special planning measures and the creation of an SDZ in the vicinity of port lands have helped to facilitate this move. In itself, shifting the port does not necessarily remove the source of congestion, but it

does provide freight transport operators with flexibility regarding their preferred route.

Congestion in the vicinity of Galway Port is largely a function of the overall design of the city and the path of development that has occurred in recent years. The city is effectively encroaching on the area that was once the preserve of the port and access has become more difficult as the core city centre has expanded and become more crowded. There are some similarities with Dun Laoghaire where the Harbour is very close to new residential and leisure amenities. Dun Laoghaire is an important port for RoRo and passenger travel and although there are some improvements in the hinterland on routes leading to the M50, the road infrastructure in the immediate vicinity of the Harbour is a constraint on its commercial use and development.

The Shannon Ports have benefited from the growth of Foynes. Access in the immediate vicinity of the port at Foynes is better than was the case at Limerick Docks and pressure for alternative uses of the property are less intense. However, there are problems in the hinterland due to the lack of a bypass on the N69 around the village of Foynes. The situation is set to improve as a contract was awarded last month for the construction of the Foynes Harbour Access Road, which will improve access to Foynes Harbour. This is causing considerable delay in accessing the port at peak times as well as increasing traffic in the village. East-West linkages in the North Cork area that are part of the route to Rosslare from the South West are also inadequate.

The main activity of Drogheda Port has shifted down river to the new Tom Roes Point facility, but access remains through the town along the old quays. Apart from other infrastructural deficiencies, further expansion of the port is effectively constrained by the lack of a northern road link. The roads on the south side will be in place as development proceeds, but it appears that most commercial port activity is likely to remain on the northern side of the river. In addition, the fact that most port traffic continues to pass through the town means that Drogheda will find it difficult to develop its potentially valuable town centre and fully exploit its position close to 3 exits on the new M1.

The study of intermodal and port access requirements that was undertaken by the Department of the Marine and Natural Resources in 2000 identified a number of specific projects that need to be progressed. Some of these are in advanced stages of planning and the measures identified in the NDP and by the NRA will provide considerable new infrastructure.

Ports in Northern Ireland

Belfast is the main port in Northern Ireland and the second largest on the island. Like Dublin, much of the port is on reclaimed land, but in contrast to Dublin there is a large area available for future development. The main business end of the port has moved a considerable distance from the city and is well served by the road infrastructure. The port has 6 main road entrances and it is estimated that up to 90% of the freight traffic accessing the port does so directly from the motorway network without accessing any city streets. The port has considerable property close to the Fort William M2 exit and has plans for the development of a major logistics park

close to this site. This site is close to the port and has good access to the city and the motorway network. It is served by the M2 and M5 to the north, by the M3 to the South East and is linked to the M1 via the Westlink. The latter is without doubt the weakest element of the road infrastructure accessing the port but while delays occur they are relatively minor.

The move of the Port of Londonderry to Lisahally has improved access on both the land and water sides, although there may still be delays for traffic that must travel through Derry City to the south. Road access to Larne is good although there may be some congestion at peak times. There is also spare capacity in the vicinity of Warrenpoint although congestion can occur further afield at Newry.

There are a number of important differences in strategic planning between the two parts of the island that are particularly obvious when Belfast and Dublin are compared. In the North, road infrastructure that was well in excess of current and medium term requirements was put in place in previous decades. The result is that capacity has always been sufficient, apart from peak hour delays on the Westlink. This has had the knock-on effect that ports in the North are planned around the available road capacity and have potentially important advantages as a result. This was important factor that contributed to Belfast, along with other ports in the north, dominating the development of RoRo traffic up to the 1990s. Such was this dominance the in the mid-1980s up to 90% of RoRo traffic from the Republic travelled through Northern ports. This situation was reversed in the 1990s for a number of reasons, not least of which is the inadequate infrastructure linking the two regions. The possibility that traffic could revert to these routes in the future underlines the importance of enhancing the competitiveness of the port sector in the Republic.

A further important point is that planning has resulted in land being available for development when required. This is important in Belfast where reclaimed land was left idle until required by the port. The ability to develop this as required was aided by the distance from residential areas and by agreements with other interests in advance of development. The availability of large areas for nature reserves was an important contributing factor leading to agreement.

2.2 The Costs of Congestion

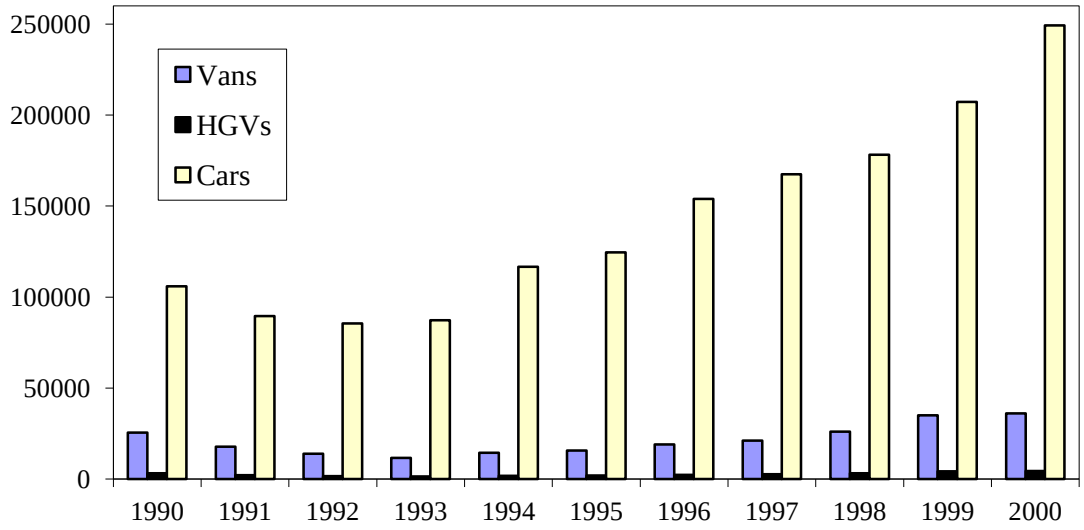
Congestion has direct economic costs that are measurable. These arise from the loss of activity due to the inefficiency of the system (due to a weakening of the ability to compete internationally and waste of resources in the production of non-traded products or services), losses as a result of running costs, losses due to uncertainty and unreliability in timing and losses due to the need for a greater number of vehicles to achieve any given task. Together, these come under the heading of reduced competitiveness and are discussed further in Appendix 5. The DTO estimates that traffic congestion in Dublin is costing in excess of £0.5 billion per annum for the cost of time spent in traffic queues alone. Dublin Chamber of Commerce have estimated that traffic delays in the vicinity of Dublin Port cost the economy £30 million for every 15 minutes delay. However, while these figures provide indicative estimates of the cost, they relate to only one aspect of the problem.

There is a second class of economic costs that are not easily measured but that impact directly on our standard of living. These arise as a result of the distortions that congestion imposes. In other words, transport users that are experiencing congestion alter their actions as a result of the congestion, either to avoid it or because they have spent time siting in traffic that could be spent in other pursuits. Morgenroth (2000) in describing the not unrelated costs of long distance commuting, states that it has a social cost in that individuals spend time travelling which they could spend doing other things. Furthermore, individuals have a more stressful and longer day due to long distance commuting which is likely to have a negative impact both in terms of their work and social life. These costs are not necessarily reflected in lower economic growth or efficiency. However, the impact is effectively to reduce the standard of living of people who must travel or use the transport infrastructure. The size of these costs are not so much related to the distance of the commute as to the length of time it takes. Thus, increased congestion that increases the time required leads directly to these costs. This is equally applicable to travel for purposes other than commuting. In some cases it may be possible for the person experiencing these costs to pass them on in the form of higher prices. However, this does not eliminate the cost which is then likely to be met in terms of lower economic performance and/or a reduced standard of living. In addition, congestion imposes costs on the environment due to increased levels of pollution and noise.

A third source of costs that is also difficult to quantify arises from the safety aspects of congestion. While difficult to quantify, the economic costs of road deaths are very high. An estimate is provided by a National Safety Council report from 1999 which produces a figure of £785,000 per road death. On the basis of the available information, and the assumption that the targets stated were feasible, this research estimated that the potential benefits of the Government's road safety strategy, as outlined in *The Road to Safety* in 1998, were many times the projected costs of implementing the strategy. Finding direct causal links between congestion and falling safety levels is difficult, but the overwhelming judgement of international research is that improved roads lead to fewer fatal accidents. Indeed, the inclusion of these benefits provides an important element of the net benefits of investment in motorways. There is considerable evidence of the difficulties that are caused by different types of road traffic competing for insufficient road space. This ranges from road rage to fatality. In Dublin, the most obvious examples of this have been where cyclists have been involved in accidents with goods vehicles on narrow streets.

It would be wrong to conclude from this that the problem has been caused wholly, or even primarily, by an increase in the number of HGVs transporting goods. Statistics from the CSO indicate that the number of HGVs that have been registered in the past 10 years account for only 6% of total car lengths registered. The ratio of freight to passenger vehicles is illustrated in Figure 2.1. If it is assumed that each HGV equates to 4 car lengths and that utilisation rates are similar, this could be interpreted as meaning that HGVs occupy just 6% of space on Irish roads. The problem is that this usage tends to be concentrated when in urban areas with HGVs competing with other road users on congested streets. In practice, utilisation rates for HGVs are higher than for private cars and the larger engines and greater weights mean that environmental impact is greater. This is particularly serious if regulations regarding weight limits and hours of operation are not strictly enforced.

Figure 2.1: New Vehicle Registrations 1990-2000



The overall conclusion therefore is that congestion imposes costs on the welfare of Irish residents that are well in excess of the most visible economic costs. Congestion not only threatens future economic growth but also undermines our ability to translate wealth creation into higher standards of living. The problem has many sources and only a properly integrated approach can hope to reduce its impact. In many cases, historical and economic factors have determined that congestion is most intense where the flow of goods is concentrated, ie in the vicinity of ports.

2.3 The Policy Response

Transport policy in relation to roads has undergone a major reform over the past 15 years. The key elements of this are a major programme of investment in roads, traffic management initiatives in urban areas to alter travel habits, a greater emphasis on public transport and more emphasis on the interaction and interdependency of planning in transport and other areas of spatial planning. The means of implementation has also been changed with the emergence of specialist new agencies – such as the NRA and DTO – a greater emphasis on the attainment of aims through long-term strategic programmes, and new methods of funding and delivery. The latter has generally involved a greater role for private involvement that complements the long-term move towards deregulation in transport sectors where public service organisations continue to play a major role.

The National Development Plan 2000-2006 provides the framework for the development of transport in Ireland into the medium term. The plan is seen as particularly important, not only because of the substantial developments that are envisaged, but because there is also a perception that it provides a once-off opportunity to address weakness in the economy. This perception may not be fully accurate, but there is little doubt that a failure to substantially address infrastructural weaknesses within this timeframe will have serious consequences for the future potential trend growth rate of the economy.

Over £6 billion is allocated under the plan for the development of the road infrastructure. The main projects include the upgrading of the main inter-urban routes to motorway or high quality dual-carriageway standard. This will cut travel times between the major centres of population, but these measures are also targeted at specific requirements. The Dublin C-Route and Dublin Port Tunnel are probably of most interest to the Task Force, but other improvements will target specific problems on routes that are heavily used by freight transport operators.

Within Dublin, the approach to solving traffic congestion emphasis the need for an integrated approach under the DTO. While the main targets of the DTO strategy have been related to commuter traffic when implemented the strategy will also directly benefit port and freight traffic. These emphasise the improvement of public transport – including Quality Bus Corridors (QBCs), DART and suburban rail, LUAS, Park and Ride facilities – improvements to primary roads in the area, particularly the M50, traffic management initiatives and cycling. The strategy is therefore acting to manage simultaneously both the demand and supply of transport services.

The impact of these changes on congestion has been difficult to identify clearly for a number of reasons:

- There was a prolonged period of catch-up that will not expire until a large part of the current NDP is implemented
- Demand for transport, particularly road space, has grown very rapidly
- The implementation phase means that additional demands are made on road space as restrictions are also in place. This will be ongoing
- Part of the strategy is to alter travel habits: this is done through making new modes available and making inertia costly. If change is resisted it can appear that the situation is dis-improving. However, altering the balance between the use of public and private transport is an integral part of the strategy, particularly in Dublin. An important element of the strategy is the development of a demand management policy designed, *inter alia*, to encourage modal shift in favour of public transport.

Many of the allocations made under the NDP to other sectors, in particular the roads sector, will have direct benefits for freight movement and port access. This is true also in relation to the DTO strategy. The programme of improvement works planned for the national road network, particularly the improvement of the major inter-urban network to motorway/high quality dual carriageway will dramatically improve journey times and reduce journey time variance, directly benefiting the freight and port sector. Improvements in the Dublin area, specifically improvements to the M50 and the construction of the Dublin Port Tunnel, which is well underway, will have significant benefits for the operation of Dublin Port.

The Task Force supports the overall vision of the DTO and agrees with the ultimate goals, but has certain reservations in relation to the strategy. It is somewhat concerned that, in its publication *A Platform for Change*, the DTO recommends that HGVs are to be banned from certain areas of the city, but does not identify alternative routes. The fact is that the freight transport sector recognises the difficulties that are caused by attempting to use inappropriate routes, but is presented with no viable alternatives. The 'simultaneously manage supply and demand' approach that governs most parts of the strategy is noticeably weak in relation to freight movement. This

may ultimately be addressed and for this reason the Task Force has an open mind on the feasibility of the strategy, but it believes that some re-assessment of the sequencing of implementation of the DTO strategy is required. The Task Force agrees with the DTO that short-term measures are required during the construction of the tunnel and the Task Force would support the DTO in the identification and implementation of these measures.

The Department of Public Enterprise has also published a strategy for the development of the Road Haulage industry and has followed this up by a Programme of Action for the implementation of recommendations.

The strategy has 6 key pillars:

- Regulatory and legislative changes
- Enhanced support services for the industry
- Initiatives to improve operational performance
- Measures to address time and delivery challenges
- Pricing
- Initiatives to help the sector achieve its potential.

The initial report identified that non-compliance with a number of regulations, particularly in relation to weight restrictions, was widespread. A number of points in the programme of action are designed to tackle this. Among the elements of the strategy, initiatives to help the sector meet time and delivery challenges are most relevant to the Task Force. These include:

- Promotion of IT
- Reviews of traffic management regulations and improved liaison with local authorities
- Increased co-operation between companies
- Better enforcement of legislation and regulation
- Improved training

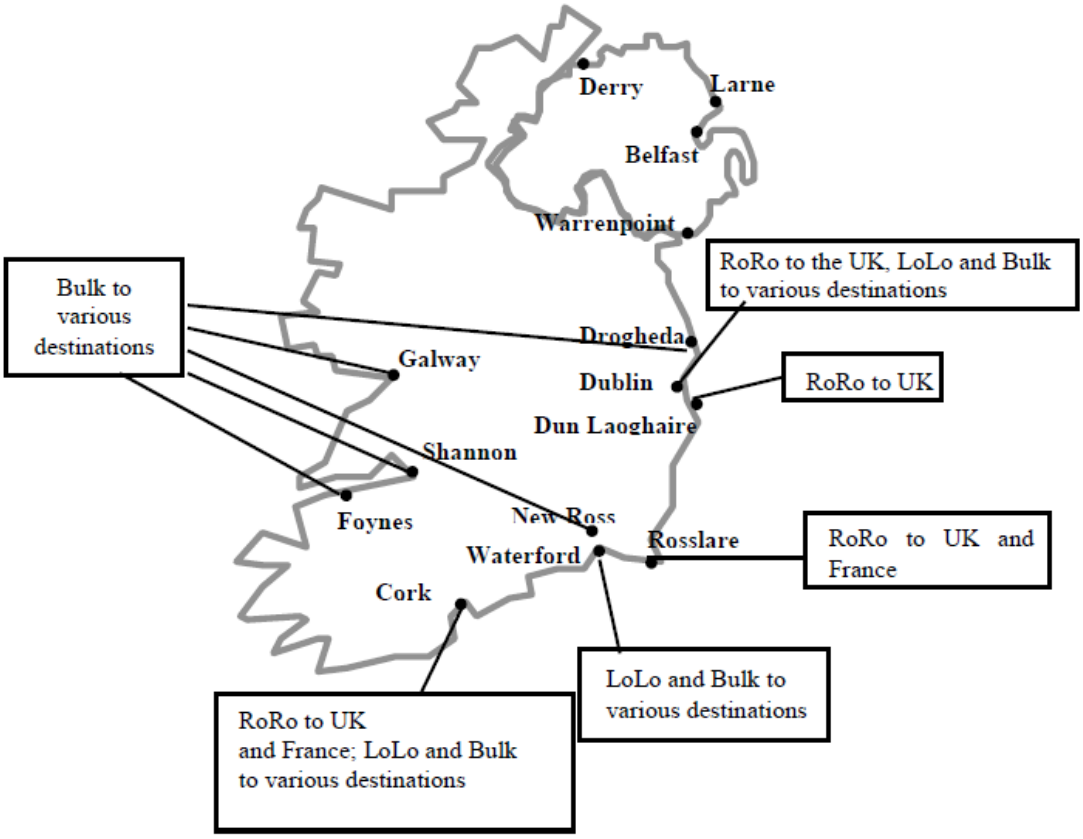
While the Task Force is very supportive of the stance taken by the Department in this strategy and is in favour of the measures that are envisaged, they are viewed as only one part in the overall requirements of the freight industry in Ireland. Most specifically, they do not sufficiently address institutional weaknesses in the way in which policy in relation to transport is devised and is implemented. Irish transport policy has reacted to the difficulties in the sector but its implementation is still in the phase of catch-up with the demands that are placed on the system. However, there are problems related to the level of co-ordination in decision making. Ireland is unusual in not having a single Department of Transport and it is the opinion of the Task Force that this situation must be addressed as soon as possible. The problems in transport are not going to be solved by incremental changes or modifications to existing institutions or policy stances. More fundamental change is required if Ireland is to lay the foundations of a transport system that reflects its level of economic activity and meets the requirements of a modern economy.

3. The Irish Sea Port Sector

3.1 The Policymaking Environment for the Irish Port Sector

All of Ireland's major trading ports, with the exception of Greenore, are in state ownership. The Department of the Marine and Natural Resources is the regulatory, development and governing authority for the ports with an overall goal to ensure the availability of efficient and competitive sea transport and port services. These functions are carried out as overseeing/monitoring under the Harbours Acts 1946 - 1996 in the case of 16 harbour authorities, and as corporate governance under the Harbours Acts 1996 – 2000 in the case of 8 port companies. These port companies include all the main trading ports. Figure 3.1 shows the main trading ports on the island.

Figure 3.1: Major Ports in Ireland



Ireland's ports underwent considerable change in the 1990s as a result of two developments. First, the 1996 Harbour Act placed the operations of the main trading ports under the control of commercial companies. The corporatised ports, arranged by volume of goods handled, are Dublin, Shannon Estuary, Cork, Waterford, New Ross, Drogheda, Galway and Dun Laoghaire. Rosslare remains in the ownership of CIE. This process took place in 1997 for 7 of these companies and in 1999 for Waterford. Initially, Shannon and Foynes were handled separately, but they have been incorporated into a single company since 2000. Three further ports – Bantry,

Dundalk and Wicklow – have been identified as having potential for incorporation as commercial companies, but have not been corporatised yet.

The second major factor has been the dramatic increase in the volume and value of Ireland's international trade. Indeed, the sector has benefited greatly from very buoyant trading conditions and investment in enabling the changes that have taken place. This growth is dealt with in the next section.

Current progress in upgrading infrastructure and its management is discussed in Section 2.3. However, despite these improvements, there remain serious instances of under-investment and instances of insufficient policy integration in some parts of the system. For example, the total allocation of £43 million to the port sector for capital investment under the National Development Plan 2000-2006 is difficult to reconcile with the important role of the ports and the obvious difficulties in this part of the system when compared to the overall allocation to transport infrastructure. In addition, due to a failure to see freight transport as a value added activity, there has been a tendency for policy to implement initiatives in areas such as deregulation in a reactive manner. International evidence indicates a close relationship between deregulation and private sector innovation in the development of intermodal and other efficiency creating forms of operation. An example of this from the US is discussed in Appendix 6. The prospect is that future deregulation is likely in Europe, although the EU does not envisage unbridled liberalisation, preferring a controlled model of regulation that balances market forces with the protection of the public interest.

The EU's recent White Paper *European Transport Policy for 2010: time to decide* provides indications of the outline of transport policy over the next decade and is a good summary of the major issues that are facing EU governments in this period. It emphasises the role of rail in European freight transport and the need to ensure that intermodal capacity is adequate. Attention is to be focussed on the areas of greatest delay, the bottlenecks, rather than on the overall capacity of the system. Users and user requirements are to be placed at the heart of transport planning, with the need to reduce the number of road deaths being given particular attention. In planning, greater emphasis is to be placed on reducing the total social costs of transport solutions, not just promoting the most commercially viable solution that is preferred by the market. However, attention must not deviate from the need to provide Europe with competitive transport and to develop linkages with global transport systems. The White Paper also emphasises the linkages that exist between transport planning and other elements of spatial and economic planning.

The need to balance social costs and economic efficiency is a major theme of the report. This means that there is a major role for policy and planning. In summary, the report foresees a quite interventionist European transport policy, and one that goes beyond the need to provide adequate capacity for transport users in terms of infrastructure. The emphasis is clearly shifting from providing capacity to managing transport in the most socially optimal manner. Against this background, it is can be seen that Irish transport policy, which is moving in both directions, needs to take two steps simultaneously: to oversee the upgrading of infrastructure – to a position which

the EU paper takes for granted in much of Europe – and to progress the management and usage of infrastructure along the lines that are outlined in the White Paper[1].

3.2 The Economic Role of Ports

Even among the many economic successes of recent years, Ireland's trade performance has been outstanding. Table 3.1 shows the remarkable growth in exports and imports. In 2000, exports were worth just over £65 billion and imports almost £44 billion. After allowance for price increases, total trade was almost 3½ times as great in 2000 as in 1990. Although growth has begun to slow, this figure is likely to be surpassed in 2001. This volume measure should not be confused with weight or bulk, both of which are rising much more slowly. It is calculated by deflating the value of trade by an appropriate index. The difference with changes in physical volume is an indication of the 'lightening' of Ireland's exports, a reflection of the changing structure of the Irish economy and the global economy in general.

The UK remains the most important trading partner at just over 31% of imports and 21% of exports, but its role is diminishing as trade flows move towards the EU and US companies produce an increasingly important part of Irish output. It is likely that the Euro will further strengthen this long term trend away from the UK, although the use of the land-bridge routes to the continent will mean that this trade structure is not reflected in the importance of the transport routes chosen. The remainder of the EU accounted for about 23% of imports and 40% of exports. The US is the next largest trading partner accounting for about 17% of imports and exports last year.

Table 3.1: Ireland's Trade Flows

	Exports		Imports	
	£ million	Volume 1990=100	£ million	Volume 1990=100
1985	9,743	65.2	9,428	72.3
1990	14,337	100.0	12,469	100.0
1995	27,825	184.0	20,619	146.3
2000	65,881	399.5	43,861	283.7

Source: CSO *Trade Statistics*

Measured by volume, 99% of overseas trade passes through the ports. The weight of goods handled increased by almost 60% in the 1990s. This growth appears to be set to continue and it is estimated that traffic through the ports will increase by 50% up to 2007. As a result, the performance of the ports in handling Ireland's international trade is of the utmost importance. Details of traffic by port in 2000 are contained in Table 3.2. The total weight of goods handled in Irish ports in that year was 45.3 million tonnes, an increase of 5.5% over 1999. Roll-on/roll-off and lift-on/lift-off traffic services have been growing fastest at 9.5% and 8.8% respectively. Together, Dublin, Shannon/Foynes and Cork account for the bulk of trade through the ports.

[1] Of course, there is no such thing a single transport design to suit all of Europe. In Ireland, total distances and densities vary considerably from those that are relevant on the continent and the most efficient modes of transport, both commercially and socially, may vary as a result.

Roll-on/roll-off traffic is concentrated in Rosslare, Dublin, Dun Laoghaire and Cork, while lift-on/lift-off traffic is concentrated in Dublin, Cork, Waterford and Drogheda.

Table 3.2: Goods Handled Classified by Port and Region of Trade, 2000

Tonnes 000s	UK	Other EU	Non-EU	Other Trade	Total
Goods Received					
Dublin	7186	2114	455	953	10708
Shannon Estuary	967	1121	171	6395	8654
Cork	590	1259	3218	990	6057
Waterford	407	649	288	0	1344
New Ross	386	355	159	28	928
Rosslare	822	225	0	0	1047
Drogheda	215	575	0	13	803
Galway	137	56	8	507	708
Dun Laoghaire	143	0	0	0	143
Bantry	66	138	0	7	211
Total	10919	6492	4299	8893	30603
Other Ports	246	597	118	114	1076
Total State	11165	7089	4417	9007	31679
Goods Forwarded					
Dublin	3599	1443	40	100	5182
Shannon Estuary	334	738	481	74	1627
Cork	765	1202	364	1345	3676
Waterford	77	474	48	0	599
New Ross	0	156	37	0	193
Rosslare	731	134	0	0	865
Drogheda	0	211	0	0	211
Galway	0	16	0	3	19
Dun Laoghaire	82	0	0	0	82
Bantry	561	52	0	374	987
Total	6149	4426	970	1896	13441
Other Ports	29	47	8	69	153
Total State	6178	4473	978	1965	13594

Note: 'Other Trade' includes Coastal trade and overseas trade with other areas not identified.
Source: CSO *Statistics of Port Traffic, 2000*

In total, the 8 corporatised ports, plus Rosslare and Bantry, accounted for 96.6% of the total weight of goods received and 98.8% of goods forwarded in 2000. These ports vary considerably in size, and it is clear from Table 3.2 that some of the ports are relatively small in terms of their overall impact on Ireland's trade. However, while this role in facilitating trade is the primary contribution of the ports to Ireland's economy – particularly given the central role played by the growth of international trade in Ireland's economic revival over the past decade – these figures do not fully capture the total economic contribution of the ports.

Ports have important impacts in facilitating economic activity in their hinterlands and, as a result, research has attempted to identify and quantify these knock-on effects. The methodology that has generally been employed in this research – Input-Output analysis – includes direct, indirect and induced effects. The use of this methodology requires some comment as its conclusions, while valid in their own right, are liable to

mis-interpretation. This is discussed in Appendix 7. Recognising the provisos contained therein, this research gives an indication of the value of activity that is associated with the ports.

The Port of Cork is Ireland's second largest port. The direct value of all activities in the port in 1999, including expenditure on locally produced goods and services, amounted to £117.26 million and 886 full-time equivalent (FTE) jobs. The total contribution of all activities when the indirect and induced effects are included was estimated at £224.05 million and 3,580 FTEs.

A similar exercise for the Port of Londonderry identified £17.3 million of direct expenditure in 1998. The total impact was estimated at £28.9 million when knock-on effects are included. In this research, regional multipliers were used so this could be identified as a contribution to the local economy of the North West. Although direct employment in the port is only 25 FTEs, it was estimated that the total economic impact of the port supports 1,248 jobs in the regional economy.

The Dublin Chambers of Commerce report on Dublin Port estimated the direct and indirect impact of the port at £66 million supporting 1,400 FTEs. Given the enormous difference in scale of these two latter ports, it is clear that this approach to estimating the economic impact requires careful interpretation.

Modern economic analysis recognises that these estimates, while correct in identifying that the value of a port to a region is greater than the value of the trade that is actually carried on within the confines of the port, may not fully capture the true economic impact of the port. This approach begins with the fact that ports have always played an important role as the focal points around which towns and cities have developed. The precise factors that give rise to the particular competitive advantage of cities over more dispersed settlement patterns – especially when it is recognised that input costs in cities are often higher then in rural areas – are only beginning to be understood. However, it is now recognised that important external economies arise as a result of the close interaction of large groups of traders. An important prerequisite is that the formation of these clusters must be stimulated, and ports have proven to be among the most important and successful ways of providing this stimulus. As a result, while static measures such as in the previous paragraphs, provide some indication of the economic role of the ports, the true economic contribution of efficient ports to their hinterland remains to be discovered.

3.3 Forecasts of Future Growth

The ports have handled the increase in trade but there are indications that some constraints are being approached. Research commissioned by the Department of the Marine and Natural Resources examined capacity, capacity utilisation and future trends in Irish ports (Baxter Eadie, 2000). The study showed that some ports will simultaneously experience shortfalls and surplus in different operations in 2007. In general, it indicates that there will be extensive surplus capacity in bulk handling – with shortfalls in Dublin and Cork – and smaller surpluses in general goods capacity. A major shortfall in unit load capacity in Dublin is forecast. Clearly there is a restructuring issue here.

The Baxter Eadie study also provided projections of future trade growth and port development. These were based on statistical models that were fitted to each type of cargo for inwards and outwards traffic. These give a relation between growth rates for Irish GNP and each cargo category, after adjusting for the specific factors. The resulting projected development of each type of traffic between 1999 and 2007 is shown in Table 3.3. The recent upheavals in the world economy mean that the precise annual growth rates on which these estimates were formed have been revised. In summary, forecasts from the *Medium Term Review 2001-07* indicate that growth in the years 1999 and 2000 was higher than expected but that it is likely to slow more sharply that previously expected in 2002. Despite these headline changes, the forecast long term growth rate, in the region of 5% p.a. to 2005, 4% p.a. to 2010 and at the EU average of 3% thereafter, remains valid. As a result, the overall Baxter Eadie conclusions are in line with the best medium to long term forecasts for the Irish economy.

Table 3.3: Projected Growth of Traffic, by Type of Cargo (%)

Ro-Ro	Lo-Lo	Bulk liquid	Bulk solid	General	Total
80.6	67.7	54.4	38.9	65.2	56.7

The main uncertainties affecting the above trend projections are those which may affect the development of the Irish economy. As such, they should be treated as best estimates. However, even when sensitivity analysis is applied that results in a considerably lower rate of growth, the case still remains that traffic through the ports will continue to increase at a rapid pace for the foreseeable future.

4. The Impact of Contemporary Developments in Logistics on Freight Transport

4.1 The Growing Importance of Logistics Systems

Recent decades have seen a near revolution in the distribution of goods. The discipline of logistics[2], and with it the concept of the end-to-end supply chain[3], has emerged and now assumes board room responsibility in many large organisations (see Figure 4.1). Where previously the activities relevant to the distribution of goods (transport, warehousing, procurement, etc.) were regarded as separate and distinct, firms began to see the benefits that could arise from taking an integrated approach. The following list indicates some of the areas of recent development, a number of which are explored in succeeding sections.

- Integration - adoption of a supply chain view
- Lean (cost efficient), agile (responsive) and leagile (cost efficient and responsive) supply chain strategies
- Concentration of production, stock and suppliers
- Pan-European distribution with centralised distribution centres
- Use of third party service providers (3PL) and value added distribution
- Integrating 3PLs under a single integrator: fourth party logistics (4PL)
- The emergence of J4U (just-for-you) distribution
- Deregulation, telematics and other technologies improving transport efficiency
- Internalisation of transport externalities, leading to increased transport costs
- Consumer-pull replacing the original paradigm of producer-push in manufacturing and service delivery
- Mass customisation of products - applying the principle of postponement and producing vanilla stock
- Manufacturing site location moving towards networks of decentralised plants in large, sophisticated regional markets focused on product customisation to meet unique customer wants
- The growth of information based products – the virtual market-space
- Increasing trend towards recycling of products and packaging: reverse logistics
- Organisational rightsizing and focusing on core competences; outsourcing and the growth of the virtual organisation
- Changes in purchasing patterns – home shopping, use of the internet, etc.
- Changes in buyer - supplier relations from adversarial to partnership

[2] There are many definitions of logistics which include, for example, the 'time related positioning of resources'. Perhaps more correctly we can state that logistics involves 'getting the right product, in the right quantity, with the right quality, to the right customer in the right place, at the right time and for the right cost'.

[3] The 'supply chain' is a much wider, inter-company, boundary-spanning concept, than is the case with logistics. Christopher (1998) describes the supply chain as the network of organisations that are involved through upstream (supplier end of the supply chain) and downstream (customer end of the supply chain) linkages in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer.

- Tiering of suppliers and evolution of modular consortia where first tier suppliers deliver and assemble whole modules on the customer's production line
- Design-for-manufacture (DFM) and pursuit of low defect levels facilitating globalisation of supply chains
- Time compression and the reduction of non-value adding time in manufacturing

The growth of the Irish economy is based, in part, on reducing the delays and inconvenience caused by our geographical position to the main European markets. A key requirement is to have a fast and efficient route using the shortest and quickest method to the major centre of population. These trends are clearly illustrated by developments in two sectors of particular importance in Ireland: food and the IT sector. Both are very focused on reducing time windows and driving out delays. Tesco define this as Lean-thinking and claim that: 'Lean thinking aims to identify and remove waste from the supply chain, to ensure product flow has no detours, back-flow or scrap, and to continually improve the supply chain to aim for perfection.' Food moving into and out of Ireland now travels from production to end retail unit with greater frequency and less handling than a few years. Typically 10 years ago a trailer load of beef moving from Ireland to the UK carried 20 tonnes of hanging or boxed beef going to a processing unit. Today 75% of beef moving from Ireland is pre-packed going direct to a retail store for sale within 24 hours. The full trailer load is now around 7 tonnes of beef resulting in more trailers to move the same quantity of product.

4.2 Supply Chain Efficiency and Ports

The term 'supply chain' first appeared in the early 1980s and is now used widely in business. Many manufacturing and trading companies are now part of a supply chain where trading or vertical relationships are co-ordinated at different stages. This is in contrast to the traditional method of trading 'at arm's length' on open markets. The supply chain approach seeks to achieve multiple objectives such as maintaining a high level of customer service, while at the same time minimising inventory within the supply chain. These developments are particularly important in Ireland given the movement of trade towards sectors where fast moving consumer goods, such as PCs, are important. The transfer at a port between sea and land is often a weak link in this sequence because of the many actors or organisations participating in the transfer and because of the traditional boundary or barrier between sea and land often maintained for national defence or control of trade (e.g. to ensure payment of import duties).

The traditional image of a port stressed its role in performing the specialist task of transferring freight from land-based to water-based modes of transport. While this is clearly the primary function it hides the deeper truth that shows ports as a cog in a much larger system. This system – the supply chain – is increasingly driven not by the needs of the port but by the demand of end users. This has important implications for the way in which ports can contribute to wealth creation.

The freight transport industry has tended in the past to be reactive to the demands of its customers, the shippers, and it is common to speak of the demand for freight

transport being 'derived demand' (i.e. demand for transport is derived from the supply of goods to be carried). Whilst this is indubitably correct, it is a limited perspective implying a degree of separation of transport from other business activities. The more modern approach is to perceive freight transport as an integral part of a wider logistical system or supply chain.

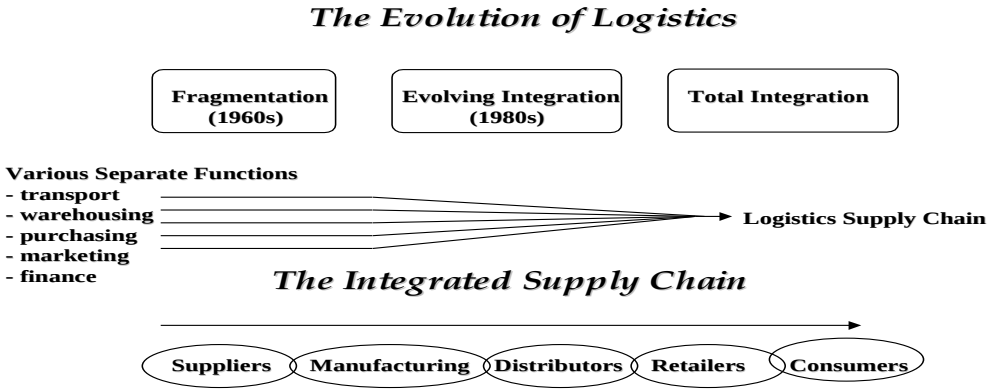


Figure 4.1: The Evolution of Logistics and the Supply Chain

The assumptions of the derived demand and logistics approaches are also relevant to a port in its role as part of a transport system. This is highlighted by two contrasting quotations from recent publications. The reactive role of a port is summarised by McConville (1999)

> Port owners and operators see developments in shipping as externally determined factors, and over which they have little control, but to which they must react.

In contrast, Notteboom, (2001) identifies the proactive role of a port as an integrated part of a logistics chain

> A seaport is a logistics and industrial node in the global transport system with a strong maritime character and in which the functional and spatial clustering of activities takes place, activities that are directly or indirectly linked to seamless transportation and transformation processes within logistics chains.

In reality, decisions about a port's future are unlikely to be entirely reactive or proactive and a skilful port strategy may need to include organisational, technological and infrastructure developments that retain a degree of flexibility of operation. Nevertheless, increasingly ports must adopt a strategy where they identify themselves as part of a wider transport and logistics system.

Not only has the advent of supply chain management created new trading relationships between suppliers and purchasers of goods, but it has also changed the relationship between transport and production. Large-scale outsourcing on a global basis has created industrial networks in which international transport needs to be fully integrated. Increasingly the market power of ports is based on the provision of innovative logistics-related facilities with both shippers and ship-owners demanding new types of services. Thus, for some ports, income is generated through the

development of new specialised systems. They may offer capital-intensive transfer systems serving a limited number of customers, or they may provide specialised warehousing or value-added logistics services. In many cases it may be no longer sufficient for measures of port productivity to be related merely to maritime transport, but instead should measure the entire logistics process.

An outcome of this development has been the expansion of the port zone to include freight corridors associated with the inland part of the transport chain. In this context, port activities may be categorised into two broad areas:

- Port-specific activities essential to the operation of the port and located within the 'internal' port zone, and
- Port-related activities that are essential in the logistics chain but do not need to take place within the port zone itself.

Thus in several European ports (e.g. Rotterdam, Hamburg, Marseilles) various 'port' services are provided by companies situated in the hinterland. This development has become possible through advanced information and communications technology. Consequently, in an Irish context, efficient transport in the ports' hinterlands is an important concern if the primary role of port policy – to provide Ireland with an efficient and competitive transport service – is to be met.

Intermodalism

Efficiency is paramount in a supply chain and it is most vulnerable where freight must move between different modes of transport. Many freight transport movements, particularly those moving internationally, make use of more than one transport mode on their route from the consignor's premises to the consignee's premises. Generally, intermodal transport refers to when a consignment remains in a single unit mode device, such as a container, and is transferred from one mode to another, or stays in a single vehicle such as a roll-on roll-off truck-trailer combination. Intermodal transport has many advantages proved by the success of container and roll-on roll-of transport. However, a distinction should be made between the growth of containerisation and intermodalism. Whereas containerisation was essentially a technological development, intermodalism should be seen as a systems or organisational development. An important consequence of the advance of the intermodal concept, is that internationally the focus for gaining efficiencies in international transit has shifted from the maritime side of port activity to the inland part of the total transport system. That is where most intermodal developments have taken place in the form of new types of rail rolling stock, inland intermodal freight centres, and improved port land-side operations. The problem for Ireland is that there is little evidence that any progress is being made in this direction.

Of course the growth to date of intermodal transport usage should not be exaggerated and much transport continues to be 'unimodal' or has only limited intermodal features, and is probably better called 'multimodal'. This applies both in terms of technology and organisational structures. Internationally, obstacles to the growth of a full intermodal system have been identified to include:

- Inadequate infrastructure and capacity
- Inappropriate investments and capital shortages
- Inadequate information channels
- Weak modal interactions

- Inadequate planning by governments at all levels and by business corporations
- Absence of government regulations and influence in key areas
- Inability to change existing business practices
- Congestion
- Standardisation issues

All of these are likely to be important in Ireland. However, the need for intermodal flexibility is likely to increase in the future as a result of a number of developments that support the growth of intermodalism. These include the growing awareness of the environment, congestion of road transport, the development of international logistics operating companies and centralisation of stocks in distribution centres. The competitiveness of Ireland's freight transport system in the future will be greatly influenced by its ability to react to these trends.

The Arup study of Port Access and Intermodal Requirements in Ireland's ports for the Department of the Marine and Natural Resources in 2000 identified considerable deficiencies in terms of the infrastructure that is required. It identified a role for an efficient rail freight operation in the development of intermodal capability, but concluded that investment in rail capacity should be preceded by a comprehensive review of rail freight. This conclusion was backed up by the conclusion of the rail review group this year and the proposed review process is expected to be undertaken in the near future.

4.3 Information Technology

The extensive technological advances associated with land-side transport can be broadly divided into information and communications technology (ICT) and specific transport technology developments, although the two classes of technological advance may go hand-in-hand.

In most countries road freight transport is a more fragmented industry than rail or water. This is reflected in its development of ICT, which tends to be unevenly developed. In many case it lags behind other modes, but a number of integrator companies are well ahead. However, only a small number of national road transport sectors, such as Holland and Singapore, have highly developed ICT systems. Progress has been made in satellite tracking and communication systems allowing much more efficient use of vehicle fleets and also providing the transit visibility required by many shippers. These systems are more developed for full-load consignments, although advances are taking place in ICT systems for less-than-full-load (also called consolidated or groupage) consignments. Many shippers require time-definite delivery from such shipments, a process that is best developed in air freight transport. Both the EU and the USA are developing information technology for road freight efficiency through intelligent transport system (ITS) programmes.

Electronic data interchange (EDI) is the term used for the exchange of structured data between the computer systems of trading partners and others, and seeks to eliminate the need for preparing paper documents. The documents that can be transferred via EDI include purchase orders, invoices, packing lists, shipping instructions, shipment status, proof of delivery and many other documents in standard forms or message

format. Electronic data interchange is not exclusive to international transport, but is a key component of many inter-organisational business systems.

Box 4.1: Integrated Port Information Systems in Singapore

Singapore has long-established major electronic systems-related to logistics and shipping. Portnet dates back to 1984 and has been improved over the years. It is used by shipping lines, freight forwarders, shippers and government agencies, and offers the following services: on-line booking, billing, links to other systems and government agencies, scheduling for hauliers, communications between various parties in the logistic channel including freight forwarders, hauliers, shippers and shipping links, and cargo clearance. TradeNet claims to be the first nation-wide EDI system for trade administration in the world starting in 1989. Its objective is to streamline the trading documentation process, eliminate multiple forms and, among other benefits, speed up customs clearance by providing a link with foreign traders. Marinet was set up in 1999 and is an offshoot of Portnet. Its main functions are to provide a declaration of a vessel's arrival and departure, a declaration of dangerous goods and a statement of bunker operation.

Advances in intermodal transport are to a large extent based on new technologies for each transport mode associated with intermodalism. Despite common features, different modes have developed differently. The findings of the WORKFRET study in Appendix 8 provide a detailed listing of such technologies and the underlying trends that are causing them to be developed.

Participants at the manufacturers' seminar that was organised by the Task Force confirmed the perception that there has been a very slow uptake in IT in the Irish transport sector**.** This reflects the emphasis that was placed on IT in the *Access Dublin* Report. Similar systems already exist in air transport and are required in the port sector to improve efficiency. Some large freight carriers have made progress in developing their systems but this approach provides a private competitive advantage rather than a general social gain. While everybody was convinced of the potential benefits, there are considerable first mover disadvantages. Not only might first movers risk opting for non-integrated or soon to be defunct systems, but the benefits, as with all networks, increase disproportionately with the number of users. This means that there is a role for an overarching body to stimulate the development and uptake of IT systems.

In Ireland, the publicly funded National Institute of Transport and Logistics have made progress in developing a national IT system for freight transport. This involves 3 stages:

- Creation of a central information warehouse with links that will allow tracking and monitoring in the supply chain
- Development of IT in forwarding and documentation and the automation of terminals and operations
- Integration across the supply chain

While the success of this project would enhance the efficiency of the transport sector it requires widespread co-operation to enable co-ordination. As a result, some additional incentives to stimulate uptake will be required. The Task Force commends the NITL for this welcome and beneficial initiative and recommends that it be fully supported as a national IT system for freight transport can only be of major benefit to the maritime transport chain.

4.4 3PL and 4PL Services

The growth of Third Party Logistics (3PL) has been an important phenomenon in the Irish economic boom and has played a key role in supporting the development of Ireland as an overseas manufacturing location of choice. 3PLs are logistics service providers (LSPs) who provide logistics services (transport, warehousing, value-add distribution, etc.) to clients. The 3PL sector in Ireland is somewhat fragmented with different companies at varying levels of development. Indeed Mangan and Hannigan (2000) observed that the 3PL sector in Ireland comprises a few best-in-class LSPs ('1st world LSPs)'which are capable of partnering sophisticated and demanding client companies and very many other poorly developed LSPs (what they referred to as '3rd world LSPs). Now the advent of Fourth Party Logistics (4PL) brings a serious new challenge to 3PLs.

Third Party Logistics means that the logistics activities in a supply chain are carried out by an entity that *does not own* the products, whether they are goods or services, being managed. However, with each player, including 3PLs, in the supply chain focusing on its own core competencies, and outsourcing the non-core activities, the supply chain is becoming increasingly fragmented; with more activities outsourced, there are necessarily more companies in the supply chain. For these companies to bring about a vibrant and competitive supply chain, they need to co-ordinate their activities. In a word, they need integration. This is where some have advocated Fourth Party Logistics (4PL) as the solution[4]. A 4PL provider is defined as a supply chain integrator that assembles and manages the resources, capabilities and technology of its own organisation with those of complementary service providers to deliver a comprehensive supply chain solution. The proponents of 4PL argue that neither shippers nor 3PL providers are in a position to make supply chain management decisions on their own. An entity that has visibility of, and therefore the responsibility for, all parts of the supply chain addresses this deficiency and a number of 4PL are now trading successfully.

The rationale of these 4PL proponents is that 3PLs lack the strategic expertise and technology to manage the entire supply chain and to integrate all supply chain processes. As experts in warehousing, transportation or other operational activities, 3PLs are able to achieve once off cost savings. On the other hand, 4PLs are able to achieve more than these one time savings with their ability to manage all activities in the supply chain. In addition, the rationale goes, a 3PL is unlikely to offer the best combination of technology, warehousing and transportation. On the other hand, a 4PL is in a position to find the "best of breed" provider in each of these areas

[4] See O'Grady *Third Party Service Providers* in Mangan and Hannigan (2000)

4.5 Green Supply Chains

Developing an environmental management system is a constructive way to integrate corporate objectives into the operational activities of the firm. An effective environmental management system is one where its processes are integrated fully into all aspects of the supply chain. Hence the notion of the green supply chain is becoming popular among many multinational firms in order to meet their diverse environmental responsibilities in various countries. To this end, Total Quality Environmental Management (TQEM) has been developed as a response to the need to develop a green supply chain. Before a firm attempts to green its supply chain, the initial environmental focus begins with attempts to reduce waste and emissions. The development of this approach is an attempt to deal with the sustainability issue at an industry and firm level. Reducing these diffuse emissions has received considerable attention from industry in recent years.

In developing a green supply chain the firm should work with suppliers who are willing to improve their environmental performance. The firm, through a partnership approach, attempts to influence suppliers' environmental performance. This may include encouraging suppliers to use less harmful components in their end products, deal with waste arising on site in a proper manner, and make alterations to their operations to reduce environment damage. In addition, the firm should examine its own environmental performance and co-ordinate any changes in operations with its suppliers to reduce environmental damage.

The basis for supplier process improvements is trust between the firm and the suppliers. This may not be forthcoming among all suppliers and therefore some firms use the enacted government legislation as a trigger to encourage supplier process improvements. A related key issue is the public perception of the firm since this determines the ultimate pay-off.

These concepts remain underdeveloped in Ireland, but they are being explored internationally as sources of competitive advantage in the future. The link with overcoming congestion may not be immediately obvious, but it is provided by the importance of deepening competitiveness and developing new sources of competitive advantage. The Irish transport system will need to be in a position to respond if competitiveness is not to be further undermined. In particular, Irish ports will need to be prepared for these changes and in a position to accommodate larger ferries, larger 'short sea' container vessels and larger containers on landside access routes.

5. Findings of Research undertaken by the Task Force

5.1 Survey of Freight Flows from Irish Ports

To inform its deliberations, the Task Force undertook a survey of the flow of freight to and from the major ports. This survey was designed to uncover the geographical travel of freight to and from the major ports. A copy of the questionnaire is contained in Appendix 9a. The quality of the replies varied considerably with some ports being in a position to provide detailed information while others did not have relevant information available.

Findings

Detailed results for each port in the survey are provided in Appendix 9b. The overall distribution of port traffic is shown in Table 5.1. It should be noted that the figures for total tonnage in this table are not directly comparable with those that are used elsewhere in this study. The survey was not an audit of all goods that were handled by the ports, but only those that gave rise to road travel. In Cork, for example, large quantities of oil at Whitegate and urea at Marino Point are handled by the port but are not transported to or from the port by road or rail. As a result, these tonnages are not included in these data.

Table 5.1: Distribution of Port Traffic in the Survey

	Goods Received		Goods Forwarded	
	Tonnes (000s)	Loads	Tonnes (000s)	Loads
Cork	3,000	111,416	1,270	47,118
Drogheda	1,016	50,300	275	16,450
Dundalk	240	9,120	17	685
Dublin	13,580	598,250	7,310	371,000
Foynes				
Galway	709	17,800*	16	800
New Ross	929	37,000	193	7,700
Wicklow	150	7,500	0	0

*assumes the same rate of loads per ton in Galway as in New Ross

The data show:

- The importance of Dublin in total freight flows
- The relative importance of goods received over goods forwarded in terms of the amount of traffic generated.
- The large amount of traffic that is generated by oil
- The very small amount of port traffic that occurs in the period 10 pm to 7 am
- The high proportion of traffic through Dublin – both bulk and unit – that originates from, or is destined for, areas outside Dublin City and County.

Goods received account for almost 65% of loads generated in these ports. This is a reflection of the development of the Irish economy so that exports tend to be concentrated in more higher value sectors than imports.

The distribution of loads from Dublin indicates the importance of critical mass such as has been achieved in Dublin. About 80% of loads through Cork stay within 100 miles but only 10% of containers and 20% of bulk loads stay within 20 miles of the port. Most other ports show a similar distribution indicating the local importance of their trading activities. For Dublin, however, 53% travelled outside Dublin and a further 21% went outside Leinster. About 51% of goods forwarded originated within Dublin. Particularly notable is the number of oil and bulk loads that come into Dublin for transport to areas outside of Dublin. If this traffic were diverted or handled through another mode up to 75,000 loads per year out of the port would be eliminated. This equals about 240 loads per day with a 6 day working week.

5.2 Dublin Port Traffic Count

While the terms of reference for the Task Force indicate that the interaction of all transport modes in all areas of the country with the port sector are of interest, the situation in relation to on-street transport in Dublin has tended to dominate the Group's discussions. This is not surprising given that the situation in Dublin and its hinterland, as the primary engine of the country's economy, is a cause for national concern. Although the Group is aware that individual transport modes do not operate in isolation, and that ports have an important role in stimulating balanced regional development, the Task Force has concluded that a single prescription that is relevant for the whole country would be insufficient to address the problems in Dublin. As a result, particular measures are required and, to inform deliberations, a survey of traffic at Dublin Port was undertaken.

The survey was carried out from 10 am on Wednesday 25th to 10 am on Friday 27th July 2001. Table 5.2 shows the total number vehicles entering and leaving the port in this 48-hour period. Just under 42% of HGVs leaving the port stayed within the M50. The data indicate that the number of vehicles leaving the port was considerably greater than the number that entered the port in this period. This was mostly accounted for by HGVs. The explanation is most likely related to the fact that the survey period included Friday morning when many loads arrive to meet deadlines but excluded Friday evening when many leave the country.

Table 5.2: Total Vehicles Entering and Leaving the Port

	Passenger	Light Commercial	HGV	Total
Entering	5402	1088	3292	9782
Leaving	5748	1135	5789	12672
Traffic	11150	2223	9081	22454

The time profile of this traffic is indicated by Figures 5.1 to 5.3. It is clear that this traffic is highly peaked and is almost fully accounted for in the period 5 am to mid-night. This a key reason why the comprehensive traffic management strategy **that is being developed** is required.

Passenger vehicles account for just under 50% of vehicles. The profiles for HGVs and passenger traffic are different. While HGVs reach a plateau during the day, passenger

cars are peaked at morning, midday and evening rush hours. The peaks on both types of vehicles are of similar scale.

Figure 5.1: Total Vehicles Entering & Leaving the Port

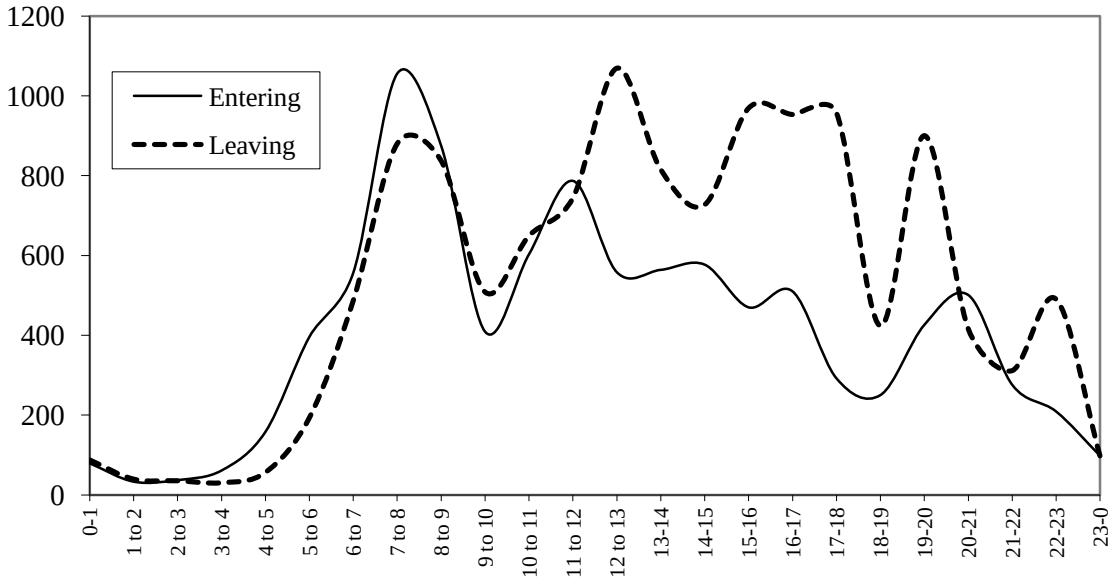


Figure 5.2: Time Profile of HGV Traffic

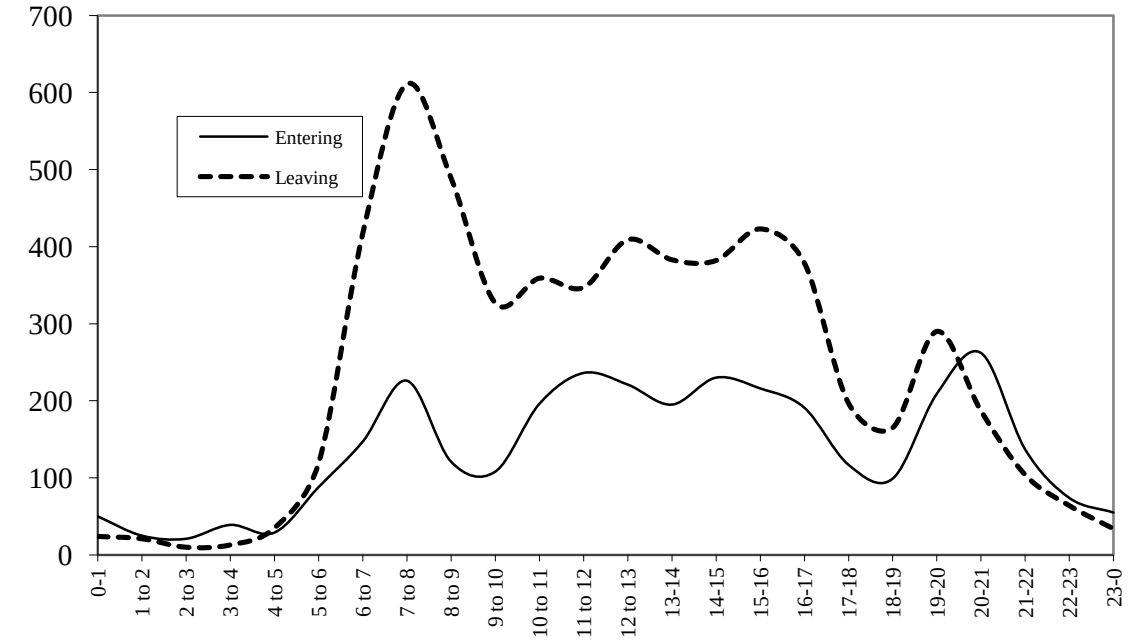
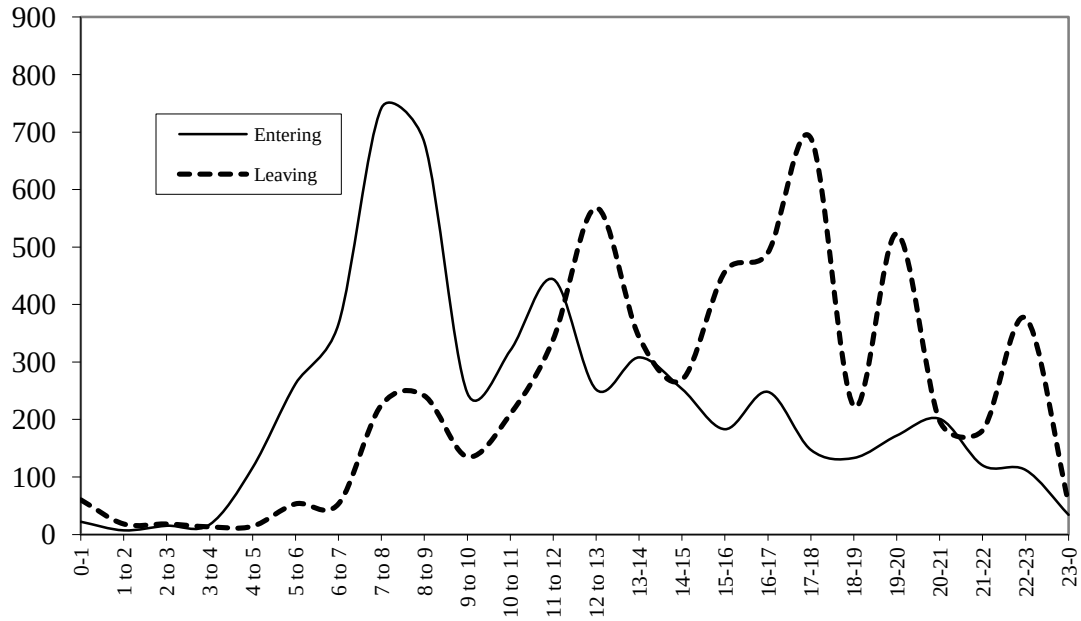


Figure 5.3: Time Profile of Passenger Traffic



This passenger car profile suggests that it may be worth examining public transport for commuters travelling to work in the port as a means to relieve the number of vehicles accessing the port in peak periods.

5.3 Seminar with Manufacturing Companies and Port Operators

At an early stage of the Task Force's deliberations it was determined that lines of communications and the flow of information between manufacturing companies and port operators – in particular, ferry companies – were unclear and haphazard. In such circumstances, the distinct possibility arises that decisions are made and operations carried out on the basis of incomplete information regarding new developments and requirements. This is likely to be an effective barrier to dynamic change in the sector.

To acquire more information, on the views of manufacturing companies in particular, and to initiate a first step in opening up better communication, the Task Force organised a seminar for invited representatives of manufacturing companies, transport and logistics service providers and port operators[5]. This provided a structured forum within which representatives of manufacturing firms that are engaged in international trade and transport companies could meet to discuss topics of direct interest to the Task Force. The discussion centred on four areas of relevance:

- What problems have manufacturers encountered?
- What opportunities exist to relieve these problems?
- What can be done to make these changes happen?
- What are the main long term trends in the transport sector?

[5] The seminar was hosted by the Irish Management Institute and was facilitated by Dr. Brian Fynes, Director of the Transport Policy Research Institute at the Graduate School of Business, University College Dublin

The discussions were structured so that they concentrated on the opportunities for solutions other than the provision of more infrastructure – although it was agreed that this is necessary – and on what industry and operators can do, as distinct from identifying what the government should do. The issues that were raised are presented here without judgement by the Task Force.

Main Problems Identified by Participants

- The timing of ferry arrivals is a problem. Change will have to be demand driven but most manufacturing remains 9 to 5. Restrictions on what changes can be made will remain important and in some ports restrictions at the other end will limit the options for change. Restrictive practices in container services are also effectively restricting the time periods within which containers can move. There is a lot of inflexibility within Dublin Port.
- The planning system is central to the problems. The time period is too long in Dublin, Cork is better – and there are too many obstacles. A 'national interest' law is required.
- Toll roads in Dublin are operating to make delays worse. A key part of the problem is that there are no alternatives. Toll roads only work when they provide an alternative to a slower route. People are then willing to pay for the faster route[6].
- The ports are not adequately represented at policy making level. In general there is a lack of policy coherence in relation to transport and a poor understanding of the needs of the private sector.
- Information systems are inadequate and out-dated
- Linkages between ferries and manufacturers are poor and information does not flow freely. Companies do not always appreciate that delays can occur due to the unpredictability of the sea.
- Access to rail freight is very restricted and the commercial viability is unproven. Rail needs to be subsidised if it is to be commercially attractive.
- Signage for alternative routes is very poor.
- Congestion at one point impacts right along the supply chain and causes further losses.

Opportunities Seen

- Commercial vehicles could use QBCs in off-peak periods. However, 'commercial' would have to be defined very carefully. Not only would this speed the flow at these times but it would also provide an incentive to move freight at off-peak times.
- There is a general under-utilisation of down time in the ports. LoLo could be co-ordinated to move in these times.
- Public service type operations – such as bin collection – should be at night-time only.
- A container/distribution depot should be developed outside Dublin and customs clearance could be done at this point. Rail linkage should be provided between the port head and this yard.

[6] Policy in relation to Public Private Projects and the use of tolling will be to ensure that a toll free route remains available, so that road users have a choice.

- Centralised distribution systems are being developed by retailers and some are accepting 24 hour delivery. If this is seen to provide a competitive edge then solutions will begin to appear more widely.
- The allowable weight of bulk containers should be increased to 44 tonnes.
- Alternatives to Dublin must be developed on the East coast and the necessary funding for access from the seaward and land sides provided.
- Pipelines offer viable alternatives for some products and should be developed.

Making Change Happen

- Greater communication between people and companies in the transport sector and between the sector and other public and private interests is essential. Creation of an appropriate forum and a coherent voice are prerequisites for this.
- Following definition of the problem and identification of the solutions, the Government should commission studies to identify how movement and change in the direction of these solutions can be achieved. These incentives would be less costly than bearing the cost of an ongoing problems.
- Pilot projects should be planned and stimulated in certain sectors to illustrate the benefits of off-peak scheduling. First-mover costs are a big disincentive and co-ordinated change would remove this disincentive.
- A global trans-shipment port should be developed on the west coast with sea borne feeder services into Dublin.
- Port rationalisation and amalgamation should be undertaken.
- Traffic regulations should be enforced more strictly and an independent traffic corps should be formed. Operation Freeflow attitude must be put into practice at peak times throughout the year.
- Stricter regulation of toll roads should be introduced to avoid the creation of a private monopoly[7].

Long Term Trends

- The transport industry must recognise that increasingly tight restrictions will force change to happen and must invest now so as to be able to meet this challenge in the future.
- Information technology will be a key driver of competitiveness in this industry. The social benefits of this mean that government incentives should be provided.
- Although some improvement in infrastructure management and utilisation is possible, the need for a continuing upgrading of Ireland's infrastructure will persist in the long term. Road transport will remain central to freight movement in Ireland.

This seminar provided a very useful exercise for those involved and there was a strong feeling that a similar forum is required on an ongoing basis to facilitate the

[7] While both the West Link and the East Link are currently operated by National Toll Roads, at least a further 11 PPP schemes in the roads area are being procured under the National Development Plan. It should be pointed out that when the schemes are in place, they will be operated by various consortia under the conditions laid down by the National Roads Authority in the particular PPP contract.

transfer of information between operators and the identification of issues of common interest. This final point is important since there is a widespread perception that the interests of the transport industry, including the ports, do not make a sufficient impact on the transport policymaking process. However, a prerequisite to the creation of a more cohesive lobby is clearly the creation of structures to enhance co-operation and to provide a single cohesive voice.

Many of the issues that were raised at the seminar had already been discussed by the Task Force although some additional clarity was acquired. One important conclusion to emerge was that, in addition to the benefits that would arise from initiatives as captured in the recommendations of the Task Force, operators and manufacturers are faced with the need to change. New and innovative ways of operating can pay dividends and will become competitive essentials. This means that there are opportunities for some parts of the transport industry to reduce the costs that are being experienced from congestion and, in the process of doing so, reduce the overall level of congestion. Where these are identified there is a role for government to incentivise the change.

5.4 Research on International Experience

As part of its examination of best practice, the Task Force commissioned a paper from Dr. Richard Gray of Plymouth University on international experience with transport and logistics systems in connection with ports. This paper provided many valuable insights and examples of the problems that have been encountered and the solutions that have been implemented and has been used to inform the content of the Task Force's report at many points.

A number of important themes emerge from the paper. The role of government was examined, particularly in relation to regulation. While experience with privatisation varied and lessons are unlikely to be applicable in a general sense, liberalisation in transport systems commonly had a positive effect through stimulating innovation and improving efficiencies. This was obvious in both the ports and their hinterlands. Partnerships between ports and the private sector are commonly used internationally and productivity measurements have indicted the extent to which improvements can be achieved. A number of examples were provided of how the interface between sea and land based modes is managed internationally. It is clear that overcoming intermodal bottlenecks is a key area for gaining efficiencies. However, difficulties with regulation and standardisation failures are common and much work needs to be done. The technology that is used in transport systems has changed greatly and examples contained in the report suggest that Ireland has a degree of catching up to be achieved in this respect. Internationally, infrastructure in developed countries is at a higher stage of development. This increases capacity, but many types of infrastructure are developed to allow movement to more efficient systems of operation. The use of inland logistics centres and dry ports is one example that might be applicable to Ireland. However, much greater examination of the opportunities and requirements for development along these lines is required.

Translating International Experience to the Irish Context

Following his examination of the various ways in which transport problems in the vicinity of ports were being dealt with, Dr. Gray provided a checklist that could be used to identify where Ireland is experiencing problems and the nature of possible solutions. The list is provided in full in Appendix 10, although it is recognised that some of the issues raised are more relevant that others and some of the possible avenues of development may not be appropriate given Ireland's scale and geographical position. However, the relevance of this typology comes from the fact that it provides an indication of the targets that Ireland needs to meet if it is to compete in its freight handling capability. However, it is impossible not to conclude that the answer to very many of the questions is that Ireland has not yet reached the target. This is particularly the case when Ireland is compared to world leading locations such as Holland, Hong Kong and Singapore.

6. Addressing Congestion

6.1 From Congestion to Efficiency

The cost of travelling in the cities and their hinterlands has been increasing. The discussion in Appendix 11 indicates that providing a solution is a long-term process and that simple reactive solutions to the problem of congestion will not work. The costs of congestion are paid through time wasted and uncertainty and will fall only through improvements in the frequency, timeliness and reliability of transport modes. Currently, parts of the transport system operate just below a level of intolerable congestion. In this situation, long-term growth is curtailed by the need to avoid crossing into a situation where the congestion becomes intolerable. This has serious implications for the competitiveness of the country irrespective of where the cost falls.

There is no limit to the length of time that this situation can continue. Furthermore, it is likely that initial implementation of a strategy to tackle the problem could typically make matters worse in the short term. As a result, some balancing initiatives will be required at this stage. The incomplete or inappropriate implementation of a strategic response would also be costly. However, if the correct actions are taken then the situation will eventually improve. Eventually, a competitive transport infrastructure will emerge and the users of this infrastructure can build on it to develop successful industries. But this is not a sufficient aim for policy. The final stage is where transport infrastructure becomes a competitive advantage of the country promoting it as a base for transport industries. (See Figure A10.1).

This is a particularly important objective for Ireland going forward. The industrial policies of the past were based on a favourable tax regime for FDI and a ready supply of relatively inexpensive labour. Both of these are going to be much less important factors in the future. Specialisation in activities such as transport provides a strategy for development as Ireland moves up the value chain in the future. In summary, there are three stages in the development of the transport system:

- Stage 1 where the system is inadequate or is barely coping and is reducing the wealth creating capacity of the economy
- Stage 2 where an efficient system facilitates the development of new industries and contributes to their competitiveness and
- Stage 3 where the transport system means that the economy is a leader in the delivery of transport and logistics solutions giving rise to an important wealth creating sector in its own right.

6.2 The Role and Economics of Rail Freight

The Terms of Reference given to the Task Force identified the potential opportunity for increased usage of rail freight to reduce congestion as a subject for examination. The analysis presented earlier, in particular in relation to the development of inter-modal transport and its role in competitiveness in the future, adds further relevance to this topic. However, the work of the Task Force is being undertaken in the context of

a major review of rail freight and, consequently, future decisions on the development of this mode will need to take account of the outcome of that review.

It is clearly the case that rail transit of freight in Ireland is very under-developed and investment in this mode has been low for many years. The share of freight carried is well below the EU average, although direct comparisons of this measure without contextualisation do not lead to firm conclusions in relation to performance. Four Irish ports – Cork, Drogheda, Dublin and Waterford – are rail connected, although only Dublin and Waterford actively operate the rail connections. There are 18 depots organised in 5 districts. Rolling stock amounts to 1,177 wagons and supporting equipment. Units from 20 to 45 feet can be accommodated, although there are height restrictions, and newer unit formats are now handled. In addition there are a number of other restricting factors, such as the rail gauge, the lack of heavy industry with rail connections, short distances and a high cost base. The emphasis in recent years has also been placed on prioritising passenger transport, particularly urban and commuter travel.

One of the major issues that arises in the discussion of rail freight is that the mode is expensive and relatively inflexible over short distances. Estimates of this distance have varied but new modes of operation and the development of inter-modal infrastructures have meant that they have been declining. There are some opportunities to reduce the cost differences between road and rail transport. Providing direct rail access to the port head is an important opportunity. It is estimated that if freight could be loaded directly between the ship and the rail wagon then rail would be in a position to compete with 25% of all sea freight into Ireland. However, it remains the case that for most transport in Ireland, the distances involved will continue to mean that rail transport is not commercially competitive compared to road transport. This is irrespective of the efficiency of the system that is available.

Rail freight usage has a much higher percentage in continental Europe, although this has declined partly as a result of the prioritisation of passenger rail over rail freight. This is partly a result of greater distance but is also a result of public investment in rail infrastructure and operations ie subsidies. The EU's White Paper on Transport Policy also identifies an important role for rail freight transport. This is based on the important differences in the external or social costs of rail when compared to road transport.

While the costs and benefit of rail from a commercial viewpoint are fairly directly related to the distance the freight is transported, the situation with regards to social costs and benefits is more complex. Clearly, the efficiency of operations is relevant as this involves the use of scarce resources. However, there are clear reasons to believe that the social benefits of rail may be higher, on a tonne Km. basis, over short distances. This arises because short distance movements will typically involve transportation in urban areas. Movement to rail in urban areas has two main benefits. First, there is a greater saving of emissions' costs per unit of emissions since urban areas are typically less capable of absorbing emissions – as a result of a starting point of relative saturation – than is the case in rural areas. Thus, the benefits of any reduction is greater. Second, movement to rail in urban areas will have congestion benefits that are probably not available in less densely populated regions and this has a greater impact on a greater number of people. In other words, the benefits of

removing vehicles from the road in a congested area is much higher than the benefit, if any, of removing them from a road that already has spare capacity. It is clear from this that a socio-economic evaluation of rail freight, while recognising the commercial realities of relative cost, may arrive at a quite different answer regarding the relative benefits of the two modes. However, the only viable methodology for evaluation from a policy decision viewpoint is to adopt the socio-economic approach.

Estimating the precise social costs and benefits of rail is a difficult task and is outside the scope of this study. Earlier studies have found that the energy consumption per tonne Km. of road transport is 3 to 5 times that of rail with the ration falling for larger vehicles. Operational and infrastructure provision emissions and noise are also considerably lower for rail. Clearly however, many of the benefits of rail are external while the effective internal costs are higher.

Rail freight in Ireland is not directly subsidised on a per unit basis. A subsidy is agreed in advance for the social services that are provided by the passenger side of the business. When Iarnrod Eireann incurs losses in the operation of its freight services, these are covered from within the total funds of the organisation. It is projected that rail will carry 3 million tonnes this year giving rise to 510 million tonne Km. at a loss of £6.7 million. Total expenditure will amount to £52 million. Therefore the break-even subsidy that is required is 1.3p per tonne Km. ie a 13% subsidy. However, this is for operating expenses only and capital expenditure and replacement would be additional.

The current situation where the effective subsidy given to rail is not assessed in advance but is merely the residual of expenses over income is clearly inadequate in a number of important respects. Where a subsidy is provided to any business the correct value of the subsidy must be the value of the social benefits that arise from the activity. There are two parts to this. The first is the standard calculation of economic costs and benefits, in excess of those that accrue to private operators, to identify the net benefits if any from using rail. These can then be expressed in a manageable manner, for example, as a value per unit of transport. The optimal subsidy is then equal to this value. The second calculation is more difficult and subject to assumptions. It arises as a result of the dynamic effects of developing a new, or previously under-utilised, mode of transport that stimulates change in the transport system thereby leading to future benefits. This is akin to the state providing a particular environment for business to maximise the productivity of the economy. The benefits are not different from the benefits that should be included in the first part of the calculation but require a number of additional assumptions regarding what is required to initiate these benefits. In the current context, examples of this would be where the development of a competitive rail freight system might give rise to new ways of operating, for example the growth of dry ports or intermodal transport, or might open new opportunities for the sector that give rise to economic benefits that were otherwise unavailable. Clearly, estimation of these benefits requires in-depth study and speculation of the outcome of such a study in the Irish context would be inopportune.

EU policy places a high priority on the development of rail and rail freight. Supplier subsidies are one means through which this can be promoted. Demand incentives – for example, tax breaks for firms that change from road to rail – are also potentially

important although clearly this requires that the necessary infrastructure is in place[8]. In the longer run, spatial planning and industrial policy for the regions may also have important roles to play. Whatever the apparent benefits of rail transport in terms of providing an alternative to road transport may be, the decision on whether it requires development in Ireland must be predicated on the outcome of such as study.

Clearly, while there is a need to take due account of the particular conditions that operate in Ireland, it is clear that the option of rail transport of freight cannot be dismissed on the basis of its commercial non-feasibility as there may be good reasons for the state to intervene to make rail commercially feasible. This idea is spelt out in the *Strategic Planning Guidelines for the Greater Dublin Area* (Brady Shipman Martin *et al*, 1999) while concludes that:

> Options based on public transport, which will require high initial investment to secure the necessary infrastructure, may appear to be more expensive than those options based on private transport, where investment is more fragmented. However, such assessment must also take account of social and environmental costs and benefits. (p.57)

This statement is of major importance in indicating the nature of the decision making that is required. Above all it means that decision-making that is driven by commercial viability or by short term considerations runs the risk of providing unsound outcomes. It is essential that all costs and benefits are clearly identified. When this is done the case for modes of transport that provide social as distinct from private benefits becomes much stronger. This is no less true for freight transport than for passenger transit. Taken to its conclusion, this means that there is no *a priori* case against the public subsidy of privately operated freight transport systems where such subsidies can be shown to be necessary to achieve a particular mode of operation. In effect, this means that no conclusive case can be made, just because freight transport is uneconomical – it is more accurate to state that it is not commercially feasible – over short distances, that it does not have an important role to play in providing a solution to the problem of goods vehicles competing with passenger vehicles and pedestrians for congested city centre road space. Of course, in advance of the application of any subsidies it is essential to ensure that the correct structures are in place that will lead to the use of that subsidy for the purposes that are required rather than to facilitate inefficiency. Thus, the identification of a compelling economic case for a subsidy is insufficient to lead to a recommendation that it should be paid. A wider analysis and examination of the operation of the rail system and its interaction with other modes is also essential.

The report of the Review Group that was established in the Department of Public Enterprise – *Iarnrod Eireann: the Way Forward* – concluded that if the current freight service is retained, it should be set up as a separate business unit and cost centre within the Iarnrod Eireann Group. Furthermore, freight operations should not deflect from passenger services in any significant way, infrastructure requirements should not affect the Group overall strategy, a transparent financial model must be developed and improved industrial relations must be formed. The Group concluded that a special and thorough study of rail freight in Ireland should be commissioned as a matter of

[8] It would be a major mistake to incentivise firms to use rail if this incentive limited the firm's competitiveness in any manner additional to the extra cost of using rail.

urgency. As a result of this, the Task Force, while identifying a number of the core issue relevant to the operation of freight transport recognises that it is not appropriate to pre-empt the outcome of this review and must reserve its recommendation in relation to the development and future role of rail freight in Ireland.

This discussion indicates that there is very little that can be stated with certainty at the moment in relation to the role of rail in the transport of Irish freight. It is clear that rail will not be a commercially feasible option for most freight although certain developments could increase the percentage that is competitive. An examination of rail freight's economic feasibility, which takes wider social costs and benefits into account, might provide a basis for a subsidy to increase this proportion further. What can be said is that rail freight in Ireland would require a subsidy equivalent to that which is given in other European countries if it is to compete with road transport. Indeed, given the shorter distances applicable in Ireland, this may be a minimum requirement. However, such a conclusion would require a much greater amount of research than has been undertaken by the Task Force. The Task Force welcomes the upcoming Review and stresses the importance of taking these issues into account in that review.

6.3 Options for Development

A number of development proposals have arisen in the course of the deliberations of the Task Force. The Task Force is not in a position to provide final recommendations in relation to the feasibility of the proposals and the ideas are presented for descriptive rather than prescriptive purposes. In each case, a process of evaluation would be required and the sequence of development would also be important. Therefore, the Task Force stresses that it views these opportunities as parts of a strategy for the overall development of the freight handling system.

Inland 'Dry Ports'

Although many logistics activities benefit from taking place close to a seaport, they do not need to take place within the port itself. Warehouse usage for the IT and retail sectors is changing from a storage usage to cross-docking transit requirement. It is convenient to have these centres in a Port location to consolidate locally supplied goods with imported goods at the nearest point to the docks. However this will increase traffic substantially. The vehicles that are used will be travelling "one way loaded" when the focus on reducing port usage should be a drive to have "two-way loaded vehicles" where possible. Moving port storage/cross docking facilities off site should help to ensure that vehicles using the port are filled in both directions and not using the port as a parking location. This is happening with Tesco, for example, who are building their consolidation centre close to the M50.

The corridor or connection between the port and the inland logistics centre is critical and may be costly. Nevertheless, given the generally lower cost of inland property and the expense of developing a port, the combined cost of an inland centre and its connection may prove cheaper. Furthermore, the inland traffic management may prove simpler than for a congested port. The success of an inland logistics centre or dry port depends greatly on an effective shuttle service between the seaport and the

dry port, and supportive regulatory arrangements. The extent of this type of development is sometimes called the 'logistics platform' of a port. To develop an effective platform will require collaboration between the port and the relevant government authority, since the establishment of such corridors will normally fall within public sector responsibility. An inland terminal may serve more than one port under a port networking strategy. This is particularly relevant where individual ports have no scope for expansion or where diseconomies of scale are evident.

These dry ports have proven to be important elements in the intermodal integration of the most efficient freight transport systems. The evidence from other European countries is that railways may also have a key role to play in facilitating this development. It is recommended that careful consideration should be given to the opportunities for the development of the Irish freight transport system through a system of 'dry ports' and extensive rail connections along these lines. The development of these dry ports on a regional basis can also contribute greatly to the strengthening of regional development policy as is being developed in the National Spatial Strategy by effectively providing a similar level of shipping services to the West and the Midlands as are available in the East. Furthermore, they would facilitate the movement of freight by rail at night.

Road Pricing

The issue of direct payment for road usage has received considerable attention in Ireland in recent years. This has centred around the policy statement, as contained in the NDP, that private finance will be used to part finance the roads programme. However, this is not road pricing. PPP envisages partnerships between public sector organisations and private sector investors and businesses for the purposes of designing, financing, construction and/or operating infrastructure projects normally provided through traditional procurement mechanisms by the State. Under the National Development Plan, the National Roads Authority has been set the task of realising an investment of at least £1 billion in the national roads sector through the PPP mechanism. Private sector investment in the national roads programme will be repaid through tolling. Tolling is not a road pricing mechanism.

This is clearly a major departure from established practice where the instances of private financing have been limited. Precise policy statements have set out the policy position on this issue, but there has been considerable and inconclusive public debate on the issue. There are concerns should this debate delay the roads programme, but there is a further issue in that this debate, being centred on the revenue generating aspect of road pricing, has tended to dominate a wider debate on the use of road pricing in transport infrastructure management.

The primary aim of road pricing is to assist in traffic management. AS such, it is applicable to either new or existing infrastructure. In traffic management, as in other areas where intervention is required, economic theory generally tends to favour quasi-market solutions, ie letting the buyers decide between differently priced alternatives, over regulation or imposed solutions. The latter has dominated the approach of the DTO in Dublin, but the conclusions of a report to the Department of the Environment and Local Government in 2001, the *Oscar Faber* report, identifies the potential role of road pricing to alter travel demand patterns. To be fully effective, road pricing

requires that alternatives are available – otherwise the revenue would be the only benefit and may be fully offset by the cost of implementing the system or delays during collection. Preferably these alternatives should involve public transport and in the Dublin context this is a requirement given that there really are no non-congested routes onto which traffic could divert. As a result, road pricing is seen as an option for the future, but the Task Force believes that the conclusions of the report are sufficient to justify examination of the use of the concept in Dublin.

In the short-term, there are also some opportunities for the application of these concepts. The clearest is the use of preferential tolls in Dublin to encourage freight transport during off-peak hours. In time, this should be considered for extension to the remainder of the road network where benefits from doing so can be identified.

Fuel Pipelines

The transport of fuel is a major contributor to road traffic in the hinterlands of a number of ports. The survey results in Section 5.1 identify the quantities that are involved. However, alternatives are available and are widely used on many countries. They reduce transport demand and free up land in ports through the relocation of storage facilities. Pipelines for the transport of fuel have also proven to be a safe and relatively inexpensive means to transport fuel.

Planning permission has already been granted for an aviation fuel pipeline to Dublin Airport. This is being undertaken by the private sector and is commercially feasible. The use of a similar pipeline for the transport of other fuels is less obviously commercial, but may be marginally so. Indeed, an opportunity to reduce construction costs may be missed by not putting both in place at the one time thereby availing of economies of scale. The different commercial situation arises due to the fact that airline fuels need no further transport once the depot at the airport is reached whereas other fuels would still require final delivery.

The Task Force has ascertained that the main reason for the decision by the private operators to go ahead with the airline fuel pipe rather than a multi-fuel pipe is because of the difficulty of getting planning permission for construction. Airline fuel is a Grade-2 fuel – meaning that it is about as dangerous as the transport of sewage underground – but most petroleum products will be Grade-1. The Task Force is not in a position to pronounce definitively on the safety aspects of this mode of transport and, in the absence of research, is not able to provide a conclusive statement of the relative socio-economic costs and benefits of the mode. However, the evidence is such to suggest that there is the potential for benefits and that further examination of these should take place. There would definitely be benefits from less road transport and the safety benefits are probably positive. In addition, the integrated nature of the proposals being discussed in this section means that a fuel pipeline would have positive effects in making the construction and operation of an inland port, that incorporated oil storage, more attractive. These aspects mean that the option is worthy of closer examination.

Dublin Bay Ferry

A recent report undertaken for Dublin Port Company and Dun Laoghaire Harbour Company concluded that there were no technical reasons why a cross-bay ferry could not be developed for Dublin. However, in line with other transport services in the Dublin region – DART, Dublin Bus – the service would require a subsidy to be commercially feasible. This option provides an opportunity to deliver tangible and immediate benefits to commuters, but the extent of these benefits have not been quantified. In keeping with the principle to which the Task Force adheres, that transport policy should promote projects that can be shown to have a positive socio-economic impact, a study to evaluate these benefits should be undertaken. This evaluation of the ferry should take place in the context of other proposals for investment in public transport in Dublin, with a view to facilitating the identification of the level of subsidy that is justified. If this is adequate to address the commercial deficiency then the necessary steps should be undertaken to initiate this service.

Role of the Private Sector

The potential role of the private sector emerged at many times in the deliberations of the Task Force. In general this took two forms: criticism that regulations were preventing the introduction of efficient procedures by allowing private operators access to specific types of infrastructure and identification of opportunities for the public and private sectors to work together to create new facilities. The intuitive attractiveness of such arrangements are clear. The public sector stands to gain from accessing funds and expertise, while the private sector stands to gain access to infrastructure without the need to go through a potentially expensive process of privatisation.

There is no demand for privatisation of the ports and moves in that direction are not envisaged. However, private involvement in the operation of publicly owned infrastructure and organisations offers many opportunities. Indeed, the ports have been among the first public entities to engage in such, for example, the East Link and East Point Business Park. However, the Task Force believes that many such opportunities exist and that many more will emerge as private involvement in operations in the ports is promoted. For this reason, as distinct from the efficiencies that may also be present, the Task Force recommends a much greater effort such be made to involve the private sector in port operations. This can take the form of PPPs, but other models of joint venture are also available.

Planning Procedures and the National Interest

Many of the solutions that have been implemented internationally required major investment in infrastructure and, consequently, underwent rigorous planning processes. The Task Force has noted that the Irish planning system as it applies to road infrastructure in particular has proven in the past to be an obstacle to the timely development of infrastructure. In such circumstances, the outcome may be one in which the costs of non-action and delay are greater than the costs that would be experienced if the investment proceeded. Importantly, there may be a situation where the benefits of projects being delayed could be concentrated while the costs are spread extensively, although, clearly, they are borne disproportionately by those individuals

that do not have flexibility with regard to their use of the transport system. The outcome is sub-optimal in the absence of intervention where this occurs.

It is important that the costs and benefits that are experienced by the wider community – as distinct from that part of the community where a proposal impacts intensively – are given expression in a single cohesive entity. Efficient freight transport has been identified in the Netherlands as an activity of national importance. Thus, the timely provision and effective management of the required infrastructure is determined to be in the national interest. What this means is that an entity is created – let's call it the national interest – where the extensive net benefits of a proposed development are now manifest intensively. The planning process is not bypassed, but the effect is that an accurate evaluation of all the costs and benefits of any proposed development can now be undertaken.

The Task Force welcomes initiatives that have been brought forward in Ireland and progress has been made towards addressing the problem of excess delays in Ireland. The Planning and Development Act, 2000 together with measures being taken by the NRA have reduced the time typically required from planning to project commencement. In accordance with the Act, the functions of the Minister for the Environment and Local Government in relation to the approval of motorway schemes, confirmation of Compulsory Purchase Orders and approval of Environmental Impact Statements in respect of road projects have transferred to An Bord Pleanála. In addition, the Act established time limits within which the various elements of the statutory approval process are to be completed. The Act also amended provisions regarding applications to the High Court for judicial reviews of decisions concerning CPOs, Motorway Schemes and Environmental Impact Assessments so as to impose an additional requirement that the Court must be satisfied that the applicant has a substantial interest in the matter before granting leave to appeal.

The overall streamlining effect is also being assisted by the Act's new procedures dealing with the making of variations to local authority development plans. These changes, combined with measures being taken internally by the NRA, will have the effect of reducing the time typically required from initial planning to project commencement from more than 5 years previously to less than 3.5 years. It is possible that the Special Development Zones (SDZs) that were introduced to Ireland under the Planning and Development Act (2000) could assist. However, these are geographically defined areas, whereas resolving congestion requires an approach that handles a system as its subject. This is clearly an issue requiring in-depth legal examination and the Task Force does not believe that it is in a position to provide a definitive statement regarding the most appropriate legal mechanism. In relation to rail infrastructure the Department of Public Enterprise is preparing legislation which, on the lines of the light rail legislation, will introduce a streamlined inquiry process for all rail projects. Therefore, there is already, or will shortly be, Irish legislation enabling the procedural aspects of infrastructure projects to be handled quickly and smoothly.

7. Key Findings and Principles for Reporting

7.1 Key Findings

Three very significant concerns have shaped and impacted the deliberations of the Task Force. The first is that Ireland's transport system is inadequate for the needs of a modern economy. Currently, this is manifest in terms of congestion resulting in direct costs, lower living standards and threats to the safety of road users. Efficiency and competitiveness are becoming ever more important and current developments in transport and logistics reflect these facts. Ireland is not yet in a position to operate competitively in this new environment and risks falling further behind in the future. This is the danger of continuing with a situation where congestion is contained only by the intolerable costs that greater use of the transport infrastructure would imply. Insufficient overall levels of funding in the past have contributed to this outcome and the ability to manage improved financial and infrastructural resources efficiently is important going forward. The Task Force has concluded that fundamental changes in the institutions of policymaking are required. The possibility that a solution to the problem will be found through incremental changes is remote.

The second concern is the view of the Task Force that transport strategy needs to directly address the problems that are faced by the freight transport sector in Ireland today. It is acknowledged that improvements in commuter transport along the lines that are being pursued should eventually free up space for freight. Furthermore, long term under-investment in public transport is being addressed. However, the focus of public debate is quite narrow with freight transport often being considered to be a nuisance. There is a danger that an outcome will be produced that emphasises the objective of minimising the impact of freight transport on commuters, but that does not adequately include the need for a transport system that supports the efficient and competitive flow of goods. It is, of course, correct and important that attention is being paid to developing new and innovative travel options for commuters, such as quality bus corridors (QBCs), cycle lanes and other public passenger transport measures. However, it is also essential that this attention is reflected in the debate on freight transport.

The third concern is the low priority attached to integrated freight transport. The importance of integrated public transport is becoming recognised (e.g. integrating bus, DART and suburban rail networks), yet there is little attention focused on integrated freight transport. Hence we have a situation where road networks evolve often independently of developments in ports and where intermodal sea and rail transport is under threat because of the uncertainty surrounding rail freight in Ireland. In contrast, other European countries offer incentives to promote integrated transport. Ireland is also out of line with EU policy that stresses the importance of integration between transport modes. Instead of sectors acting in their own interests only (e.g. commuters fighting for better public transport, industry calling for more and better freight transport) we need to form a view of the whole and how the constituent parts interact and are interdependent for the benefit of the wider, national interest.

7.2 Guiding Principles

Feasibility and Practical Application

The overall guiding principle for the recommendations that are put forward is that they must be workable. The current system is one that achieves the aims of some groups and interests, but does this through means other than the delivery of an efficient system that contributes to the overall efficiency of the economy and the standard of living of residents. This is not to say that improvements have not been made in many areas in recent years as a result of the availability of much increased levels of funding. The Task Force aims to indicate ways in which some of the existing difficulties can be overcome and the long term potential of the country's important strategic position can be realised. This means that different types of initiative ranging from short term crisis management to longer term development investments and change programmes are required. Thus, while practical implementation is a priority, the complexity of the package of recommendations should not be underestimated.

Promotion of Sustainable Development

The initiatives that are implemented must be compatible with sustainable development. The principle of sustainability should never be equated with the rejection of change or the underpinning of inertia. To paraphrase, the definition of sustainable development that is most commonly accepted is to undertake development in a manner that improves that standard of living of the current generation without undermining the ability of future generations to a standard of living that is at least as good as currently, and that preserves the ability of future generations to further improve their welfare. It is clear, and generally accepted, that this definition is not a basis on which an absolute argument against the pursuit of economic growth can be pursued. However, transport in Ireland, as it currently operates, is unsustainable as it clearly is undermining not only current standards of living but also the ability of future generations to continue to improve on the existing situation. Thus, achieving sustainability demands changes.

These changes can be broadly placed in two categories: changes in the infrastructure and changes in the ways in which the infrastructure is used and managed. The efficient use of resources is central to sustainable development: inefficiency not only reduces current welfare but clearly reduces the resources that are available for future generations for any given standard of living in the present. As a result of these arguments, the groups sees a need for important changes in the way in which existing infrastructure is used as being important. Clearly, new infrastructure is required to accommodate growth, overcome deficiencies and, primarily, to facilitate changes that have occurred in the structure and location of economic activity and in the way in which it is carried out. In the opinion of the Group, this alignment of the pursuit of sustainable development with efficiency makes sustainability a key requirement for any initiatives. A similar analysis can be applied to the systems – bureaucracies, pressure groups, users, etc. – that lead to transport policy, as to the decisions for investment in infrastructure. Are they efficient? In other words, do they produce a positive net benefit that is at least as great as any other possible development or means of organising the transport sector?

The Importance of Intangible Resources: Infrastructure Management

Simply providing more money and using more resources in transport cannot solve the problems that are being experienced. Certainly, more resources and improvements in infrastructure are needed as a result of the extraordinary growth in demand for transport services that has taken place in recent years. But the application of greater resources to an inefficient system merely increases the losses and risks, therein multiplying the inefficiency in the absence of meaningful controls. Transport in Ireland requires a considerable upgrading in the 'soft' infrastructure of the system as well as the 'hard' physical infrastructure. This is a multi-dimensional issue and is captured by the idea that modern methods of management and governance are required.

The Fundamental Requirement for Competitiveness

The transport system must be developed so that it underpins Ireland's competitiveness. The country's position as a small, peripheral trading nation, and its recent emergence in the role of an entrepôt port, means that this should go without saying, even before any recognition of the contribution that the freedom and ability to travel in Ireland makes to welfare. However, research consistently indicates that transport is singularly exceptional as a part of the productive economy in which Ireland remains far behind other developed and emerging countries. Furthermore, the aim of policy must be to move to a situation where Ireland's transport system is an important source of competitive advantage, rather than the subject of crisis management that is largely concerned with mediating the division and transfer of resources between competing groups, as is the case at present. The development of a single fuel, rather than a multi-fuel, pipeline is an example of this.

Correct Identification of Costs and Benefits

To achieve efficiency and contribute to welfare it is essential that the overall balance of costs and benefits to the wider economy and society must take preference over narrow and local interests. Commercial evaluation of investment decisions don not always provide an outcome that is in the interests of the wider community and economy. The instances of this are numerous and difficult to capture in terms of general statements. However, a clear requirement is the recognition that the transport system and the port sector in particular is a public good where decisions must be made in terms of the public interest rather than any smaller sub-division of society.

It is vital that policy initiatives must attempt to ensure that the costs and benefits of road transport are properly assigned. The absence of a working price mechanism makes this very difficult to achieve overall. However, initiatives can be proofed to ensure that the sectors of the economy that gain from intervention pay for these gains, while those that lose are compensated.

There are many instances of this type of problem in the transport sector. The greatest example is the excess demand for road space since each user does not bear the cost of their presence on the road in relation to their need to use the road. For example, a commuter may have alternatives such as using a more flexible schedule or public transport but does not do so because of the convenience of private transport. The costs borne by delays are relatively minor or else the commuter would change.

However, many road users do so at particular times out of necessity. Port users and those engaged in the transport of goods often fall into this category. In this case, the costs of switching may be very high with the loss of business providing the limit. The costs of congestion may be very high for these road users but they continue to bear these costs. The correct assignment of costs would recognise that the flexible user is imposing social costs much greater than the private costs that are perceived..

The need to ensure that costs are properly assigned also has an important application in terms of understanding the parameters of the Group's terms of reference. These specify transport and logistics in connection with ports. It is clear however, that this does not limit the set of those that might gain from improvements to those who use the ports. In fact, the potential gains can be spread across all users of transport and others such as local residents. Thus, it is in the interests of the wider community, not just those engaged in transport in the ports, to ensure that initiatives are introduced.

7.3 Conclusions and Recommendations

Traffic problems in the vicinity of the ports are just part of a wider issue regarding the development and operation of all aspects of the transport system in Ireland. While the sector can take some actions, the solution to the problem requires that all transport related initiatives are properly integrated. While there has been movement in the direction of greater integration under the NDP, scope for enhanced co-operation of policy across government departments and agencies continues to exist. Ireland is unusual in having the transport function spread across a number of departments. Given the core importance of transport to the economic performance of the country and to the standard of living of residents, this structure, which is more the product of evolution than rational modern design, is incapable of guaranteeing an optimal outcome.

Decisions regarding the formation of Government Departments and the assignation of departmental responsibilities are matters for the Government. However, reform of transport policy and the transport system in Ireland requires the creation of a Department of Transport with full cabinet representation to promote integrated decision making. The Task Force recommends the creation of a Department of Transport with comprehensive responsibility for the development and implementation of policy across all transport modes and with particular emphasis on the development of integrated transport systems. This Department should focus on three C's: communication, co-operation and coordination across all areas of transport. Indeed the Task Force wishes to underline that this is a pivotal recommendation that has the capacity to create an ongoing dynamic for reform.

Within the new policy making structure, the Task Force recommends that the role and profile of Irish ports in creating a modern efficient national transport system must be given a much higher priority than at present. Only by emphasising the important role of ports in the supply chain can the true impact of congestion at port terminals across the whole supply chain be appreciated. In this respect, the Task Force favours the early commencement of the DTO's freight distribution study with a view to devising an enhanced traffic management strategy for freight distribution generally in the Greater Dublin Region.

In addition, the role of ports in stimulating balanced regional development needs to be highlighted. The traditional image of ports emphasised, almost exclusively, their purpose as a means for the modal transfer of freight from land based to water based transport. Modern business requires that the role of ports in developing the efficiency of the whole supply chain must be prioritised.

Some deficiencies exist in the structure of port governance in Ireland and it is recommended that the opportunity to overcome these through a new regional structure for port governance and operations should be examined. This would retain the commercial mandate of the port companies but would facilitate rationalisation in line with the requirements of an efficient transport system. The current model for port governance may result in excess competition between ports when an alternative model could provide benefits. The Task Force welcomes the planned review of the current regional structure for port governance and operations to identify how the ports network as a whole may best function in the context of the development of the all-Ireland economy.

The KPMG report on the amalgamation of Shannon/Foynes pointed out the potential benefits of amalgamation through efficiency gains in the ports and better access to investment funds. In addition to a number of smaller ports, there are essentially 4 regional areas:

- the West incorporating the ports of Galway and Shannon/Foynes
- Cork and its hinterland
- The South East incorporating Waterford, New Ross and Rosslare
- The East incorporating Dublin, Drogheda and Dun Laoghaire

(The Task Force is aware of talks between Cork and Waterford on the possibility of closer integration, but does not wish to comment on the possible outcomes of these discussions).

Unless strategic planning and governance systems reflect this optimal regionalisation, it is unlikely that the Ports will structure their operations in a manner that delivers the most efficient transport system. Of these new arrangements, the development of an Eastern Regional Port Company is a priority in the short to medium term. However, it is recognised that amalgamation could undermine competition in regions and, in consequence, the Task Force is of the opinion that an examination of the adequacy of the existing regulatory environment for ports and its enforcement should precede any consideration of regional amalgamation. This review should also examine the potential role of a statutory office holder to adjudicate in cases of disputes in ports.

It is recommended that port policy should set the resolution of traffic congestion as a key objective of the development of the sector. This is a multi-dimensional problem that will require the inclusion of traffic impact considerations in the operations and planning of the ports to ensure that traffic impact in minimised. It is recommended that the proposed Strategic Land Use and Transportation Authority should be implemented as a matter of urgency.

New infrastructure will help to ease current problems as it comes into use and the Group supports fully the building of the Port Tunnel and the Eastern Relief Route in Dublin. The inter-dependence of these two developments should be stressed so as to

avoid a network that concentrates rather than removes congestion bottlenecks. The Task Force also welcomes the planned DTO Freight Strategy and Demand Management Study to be undertaken shortly. It is acknowledged that this will address the absence of a freight study to inform the work of the DTO.

Traffic congestion in the area of Dublin Port is a major issue that requires a targeted response, as well as measures in the DTO strategy. To facilitate this, an area in the vicinity of Dublin Port should be identified as the basis for an Integrated Area Framework Plan with respect to Transport. However, with due recognition of the fact that the problem of traffic congestion requires the implementation of long term policies, the current situation in Dublin demands that measures should be taken to relieve the severest obstacles to the movement of freight in the short term. Achieving a freer flow of traffic in the vicinity of Dublin Port needs to be given immediate priority, particularly in the light of the imminent disruption that will occur during the construction of the Port Tunnel. Urgent attention should be given in the DTO study of freight transport to initiatives to overcome the impact on freight flows of displaced traffic as a result of construction of the Port Tunnel. Dublin Port should be consulted in this undertaking. The potential benefits from developing dedicated freight ways in no-car lanes should also be examined in the DTO freight study.

As a matter of policy, tolls on the Port Tunnel should be set at a level that ensures that adequate priority is given to HGVs that are accessing the port, rather than at a level that creates a target level of total revenue. This should be monitored on an on-going basis and, should it be seen to be an inadequate mechanism in its operation, the feasibility of implementing a no-car lane in the Port Tunnel should be examined.

A one-way system in the area of the port and the reinstatement of the Newcomen Road rail bridge should be considered as a matter of priority. The rail level crossing at Alexandra Road also causes disruption whenever it is being used. Other opportunities to improve the flow of freight – such as the adoption of no-car lanes at certain strategically important locations at certain times, the introduction of dedicated freight ways, and the development of IT based real time traffic information systems should be examined. The potential of multi-occupancy car lanes and the development of Park and Ride facilities is also overdue. It should also be realised that the provision of alternative services may not be sufficient given the inertia that appears to exist in relation to changing the car-related habits of commuters. Initiatives such as incentives for car pooling or tax relief for expenditure on commuter tickets should be introduced. Consultation with relevant stakeholders should take place as a part of this examination.

The option of extending the Dublin Port Tunnel to the south side of the river should be examined in the context of the conclusions of the NRA study of the Eastern by-pass. There are potentially important economies of scale to be achieved from extending the tunnel directly after the development of the infrastructure on the northern side of the port is complete. The machinery will already be in place as will the necessary organisational requirements. It is forecast that 120,000 containerised loads will be handled on the south side next year giving rise to 240,000 truck movements. In addition, the movement of 1 million tonnes of cement, along with loads to Irish Glass Bottles will give rise to at least 100,000 movements per annum. When transport related to the power station and other industries on the south side of

the port are included it is clear that truck movements in this area will exceed 350,000 per annum. A feasibility study for an Eastern By-Pass of Dublin has been completed on behalf of the NRA. The Study indicated that the project is feasible on economic, engineering and environmental grounds and has cleared the way for initial planning and design work to commence.

Consideration of the building of an outer link road, as proposed in the DTO's *Platform for Change*, should be progressed as quickly as possible, to compliment the proposed expansion of the M50 to meet transport requirements in the medium to long term. A feasibility study for the Dublin Outer Orbital Route (DOOR) has been completed on behalf of the NRA and planning work on the expansion of the M50 to 3+3 lanes including major junction improvements, is well underway. However, the Group does not view the provision of more infrastructure as a panacea for the problem of traffic congestion.

It is recommended that transport policy and development policy in the port sector should work to ensure, within the parameters of economic feasibility, that freight carriers have access to port services at other selected ports that are on a par with those available at Dublin port. The impact of this would be of some, limited, use in reducing traffic in Dublin, but would have a major effect on regional development. For example, Drogheda Port has potential but lacks the necessary investment in road, rail and port infrastructure. From a road haulage perspective it is close enough to Dublin to provide a realistic option since traffic moving south to Dublin can link to the M50 and the main distribution areas as quickly as from Dublin port. Drogheda could also draw the majority of traffic travelling from counties North of Dublin. However, in addition to access, the Port also needs to be dredged to 8 metres. There is, of course, no reason why Dublin Port should be precluded from driving this process through development of its business interests. Investment in port services in non-congested areas should be examined to identify overall benefits to the economy rather than just in terms of regional objectives.

There has been much discussion regarding the operation of the planning process in the development of new infrastructure and recent modifications and innovations have been designed to speed up the process while preserving its core values. The Task Force recommends and that port projects should given priority in the planning process where is can be shown that there will be positive benefits to the economy.

Better management of infrastructure also improves efficiency. The necessary incentives are required to ensure that Dublin and other ports operate as 24-hour ports. It is insufficient to assume that facilitating 24-hour operation will bring this about as a supply side approach is insufficient. First-mover costs and uncertainty are important obstacles to this although there have been some successful moves in this direction, for example, in the transport of new cars. Demand for 24-hour operation of the major trading ports should be stimulated by the state ports in conjunction with corresponding and complementary initiatives by industry. The potential role of financial incentives in achieving this should be examined. Incentives such as discounted tolls for freight traffic in off-peak hours should be examined in this respect.

The option of a cross-bay ferry for Dublin has been given considerable credence by the findings of a recent report which indicated that there are no technical reasons why such a service could not be developed. However, in line with other transport services in the Dublin region – DART, Dublin Bus – the service would require a subsidy to be commercially feasible. This option provides an opportunity to deliver tangible and immediate benefits to commuters. It is recommended that the potential economic benefits of introducing a cross-bay ferry should be evaluated, in the context of other proposals for investment in public transport in Dublin, to facilitate identification of the level of subsidy that is justified.

The Task Force observes that there is a lack of public consensus on the use of tolls to facilitate the involvement of private finance in road construction and is concerned that this could delay new infrastructure. An integrated transport system should also contain fully integrated and automated tolling across the whole system so that payment mechanisms and methods work at geographically remote points. In addition, greater efforts are required to ensure that the delays that have been associated with toll payment locations are reduced in future developments. Recent pilot projects and current plans indicate that this is feasible. While noting the role of private finance in the NDP and welcoming the commitment to the development of integrated tolling, the Task Force recommends that tolls should develop as a means to supplement, rather than to supplant, the public provision of infrastructure Public funding through the taxation system should continue to be the preferred approach to financing infrastructure with tolls representing an option for additional provision in some instances.

It is recommended that the feasibility of developing a multi-product oil pipeline from Dublin Port to a remote location should be examined. The likely model for the implementation of such a project would involve key stakeholders in the management of construction and operation with the public sector guaranteeing the commercial viability of the project up to the point where the cost approaches the social benefits of the investment. In addition to the potential social and environmental benefits of this pipeline, the Task Force is satisfied that the net safety aspect is positive. Modern urban areas already employ large underground pipelines for the transport of many toxic and dangerous substances. It has also been observed that the availability of new oil storage facilities would open opportunities for the entry of new oil industry operators to the Irish market. Final judgement on this proposal requires a comprehensive Socio-economic Cost Benefit Analysis to assess its feasibility. The Task Force stresses that, provided a net benefit is identified and that technical obstacles are overcome, failure to implement this proposal following this examination would represent the favouring of narrow local interests over benefits to the community.

Information technology has a much enhanced role to play in the transport sector as outlined in the TUG report *Access Dublin*. This would include real-time information systems and integrated systems to link ships, drivers, ports and customs. It is recommended that the feasibility of introducing incentives to research and promote the uptake of new technologies should be examined. The availability of physical infrastructure remains a key requirement, but efficient use of this infrastructure and overall competitiveness depend on new technologies. A virtuous spiral emerges that by enabling more efficient use of existing infrastructure, technology reduces the need

for new physical infrastructure and increases the returns from investment. This has the further impact that, as growth demands larger facilities, the higher returns make the investment viable.

In many modern economies, it has been found that rail freight transport has an important role to play but that this cannot be achieved without the correct structures of policymaking, control, operation and regulation. In light of this, the Group supports the call by the Review Group (*The Way Forward*) for a review of rail freight in Ireland and welcomes the recent announcement by the Minister for Public Enterprise on this matter. On the basis of the outcome of this review, it is recommended that a clear up-to-date statement of rail freight policy should be formulated along with a programme of action to achieve the objectives contained in this statement. A strategy for the integration of transport modes, in particular, the inter-modal transfer of freight between water, rail and road-based transport should be examined in formulating this policy. While the issue of ownership of the railways is a matter for decision by the Government, direct access to the rail infrastructure by private operators in the business of freight transport should also be examined.

The Group notes the current £500 million programme of investment in mainline rail and supports efforts to increase the number of passengers using this mode of transport. In this context, the Group stresses the importance of allocating costs correctly. This needs to be examined in a comprehensive manner. Should the results of a CBA study of public investment in rail – that includes evaluation of the externalities, the environmental impacts and the effect on congestion of rail – conclude that a subsidy to rail is in order, then it would be quite legitimate to argue that taxes on road usage should be used to subsidise rail transport – as is done internationally – to the extent that rail transport imposes lower social costs on the community. However, to protect operational efficiency, this should not be introduced in the absence of whatever institutional and operational reforms are identified by the Review Group.

The importance of efficiency across the whole supply chain means that, for the transport of certain cargoes – such as LoLo – the importance to logistics providers of having a location on the seafront has become less important. Many operations are best carried out at points that are remote from the congested seafront. This has led to the development of inland cargo reception and distribution facilities or dry ports in many countries. These dry ports have proven to be important elements in the intermodal integration of the most efficient freight transport systems. The evidence from other European countries is that railways may also have a key role to play in facilitating this development. It is recommended that careful consideration should be given to the opportunities for the development of the Irish freight transport system through a system of 'dry ports' and extensive rail connections along these lines. The development of these dry ports on a regional basis can also contribute greatly to the strengthening of regional development policy as is being developed in the National Spatial Strategy by effectively providing a similar level of shipping services to the West and the Midlands as are available in the East. Furthermore, they would facilitate the movement of freight by rail at night. It is recommended that the possibility of utilising the considerable surplus land banks in public ownership should be examined for this purpose.

The use of unit load modes to distribute freight gives rise to the need to transport and store empty containers. Furthermore, the imbalance in volume between Ireland's imports and exports means that a considerable number of empty containers must also be moved to abroad. The particular path of development in Ireland's ports has resulted in a container movement structure that is heavily concentrated in the vicinity of the ports. Altering this structure would help to relieve congestion in these areas. Inland container handling facilities have been used in many countries to achieve this, often involving initial transfer by rail from the port head and further distribution either by rail or road. The evidence from these operations suggests that this requires that the port heads are rail connected so that unloading directly onto rail carriages is possible to ensure commercial feasibility. The potential to develop facilities to handle empty containers on publicly owned land that is rail connected should be examined. There are a number of important factors such as infrastructural deficiencies and uncertainties concerning commercial viability in relation to the opportunity for developing a system such as this in Ireland and considerable research would be required. The Task Force recommends, in the context of the conclusions of the review of rail freight, that the extent to which opportunities for the use of inland ports to reduce congestion in the vicinity of ports should be examined to identify the extent to which this option has potential in Ireland.

The Task Force recommends that, while recognising that Ireland's position as an island nation remains an important factor in determining the optimal ownership and operating structure of the ports, much greater effort is required to promote the involvement of the private sector. This has two major aspects:

- PPPs to leverage private sector investment. This is not a straightforward arrangement such as private road construction and tolling. Rather it will require complex developments, often with initial public sector investment to leverage private financing. Operations could then be joint ventures. A good example would be the public provision of access to the port in return for private financing of port facilities.
- Innovative operational arrangements to enhance efficiency and competitiveness. A clear distinction needs to be drawn between the ownership of infrastructure and the management of operations. There is no compelling reason why both should be carried out by the same organisation, nor is there a compelling argument in favour of privatisation.

Traffic in the vicinity of ports and entering ports is determined to a considerable extent by the nature of the operations that are carried out in the ports, although it should be noted that most of the traffic on the East Wall Road in Dublin is unconnected with the port. It is recommended that greater consideration should be given to the traffic impact of operations when deciding which operations are pursued in the port. Furthermore, the impact on traffic of removing certain activities that currently exist should be included in calculations of the returns from funding initiatives – including the buy-out of leases – to encourage these activities to move elsewhere. For example, the storage of fuel and containers in Dublin Port along with other activities are examples of where the particular usage of port lands – while possibly optimal from a the point of view of leaseholders – leads to social costs in terms of traffic congestion. This situation has arisen for a number of reasons, often historical and connected with leasing arrangements, but will not be altered unless the necessary institutional and funding arrangements and assurances are in place. It can

be assumed that there are similar issues in many ports and not only in Dublin. This is a complex issue that requires that the wider impact on the economy is given adequate recognition in the decisions that determine the internal activities of ports. The Task Force recommends that research should be undertaken to identify initiatives that would bring about a move in this direction.

The Group recognises that implementation of the DTO strategy is still at an interim stage. However, it notes that its implementation to date has imposed costs in the short term for traffic that does not have a choice with regard to the route travelled or the time of the journey. Although reduced congestion benefits all road users, traffic management initiatives need to distinguish between the impact on private commuter cars and the impact on commercial transport, including private cars on business. The response of each in the face of changed circumstances may be quite different. The possibility that a different sequencing of the implementation of the DTO strategy could help alleviate these costs should be examined.

Outside Dublin, The planned upgrading of the N28 between Cork and Ringaskiddy and the N69 between Limerick and Foynes, including a bypass of Foynes village, should be progressed as a matter of priority. The provision of a new northern access route to Drogheda Port should also be re-examined. In general, investment in port services in non-congested areas should be examined to identify overall benefits to the economy.

It is recommended that Traffic management agencies should state specific spatial policies on the flow of goods. DTO measures to date have placed the main emphasis on improving the flow passenger transport. Weaknesses remain, for example, the lack of real-time information, integrated ticketing and the inability of non-CIE buses to use CIE bus-stops, which are impediments to the growth of the usage of public transport. However, it is recognised that that lower congestion will, in the final analysis, benefit commercial traffic. The planned freight study that is proposed under the DTO's *Platform for Change* is also welcome. It is recommended that, in future, specific reference to the impact of DTO measures on the flow of goods should be included in all programmes with an assessment of the scale of the impact.

Road pricing is an option that requires careful consideration as an alternative to regulation to achieve desirable results in traffic management. The mechanisms are available for road pricing in Dublin, although the political debate on the issue has not concluded. It is recommended that the conclusions of the Oscar Faber report, *A Study of Road Pricing in Dublin*, should receive careful consideration with a view to identifying how the system can be implemented in Dublin, but that this must be done with recognition of the fact that, where lanes and routes are identified for charging, alternatives must be available for users for the full benefits to accrue. Providing the driver with the decision regarding which route or mode to use is preferable to rigid direction. The Group notes that the proposal in the DTO's *Platform for Change* for a comprehensive demand management study is a valuable step in this regard.

Traffic volumes are to a very large extent demand driven. Therefore, altering factors that give rise to a particular structure of demand will alter traffic in terms of peaks and concentration. This means that all sectors of the economy have a potential contribution to make through examining the impact of their particular modes of

operation on traffic congestion. The Task Force has examined the role of the ports in determining traffic flows and recommends that a similar examination should be undertaken in all sectors. For example, school starting times could be altered to avoid coinciding with existing commuter peaks and goods receiving and delivery schedules could be altered to off-peak times. Complementary initiatives such as schemes to encourage walking to school are to be welcomed. Failure to implement initiatives along these lines would mean that demand for road space at peak times will continue to grow in line with the provision of additional infrastructure making utilisation more unevenly distributed. In this respect, the projection that, as Ireland moves towards average EU car ownership levels, the number of cars is set to double by 2016 with most growth in the next 8 years, make initiatives more vital.

It is recommended that traffic regulations should be enforced more strictly and a discrete traffic corps should be formed with the sole function of implementing these regulations.

The agencies that are charged with decisions in relation to traffic management should become more inclusive of business interests to ensure that their views are adequately represented. As an important stakeholder, a representative of Dublin Port should be appointed to the DTO Steering Committee. Initiatives should also be promoted to overcome the perception that the interests of local communities and of port users are inadequately represented in decision making by Port Boards.

Initiatives should be promoted to overcome the perception that the interests of local communities and of port users are inadequately represented in decision making by Port Boards. The new Department of Transport should also put in place the necessary structures to mediate the conflicting objectives of port stakeholders and to facilitate the expression of views by port users.

The absence of an effective forum to champion the interests of freight operators is undesirable. It would be advisable for stakeholders to come together to form a single, cohesive representative entity to contribute to rational planning and to remove current perceptions of inadequate consultation.

The Task Force recommends that local authorities should state their preferred route of connection between ports, major transport nodes and primary routes. In doing so, adequate consideration must be given to the commercial feasibility of the chosen option to avoid a situation where socially desirable solutions are identified but are not used by private operators due to excessively high costs. The Group recognises that the identification of particular routes as freight transport routes could raise opposition. However, it does not accept that this is a justifiable reason to omit an element of planning. It is recommended that traffic management agencies should, within the context of integrated traffic management strategies, develop specific spatial policies on the flow of goods.

It is recommended that performance indicators should be developed to monitor the efficiency of transport in the vicinity and hinterland of the ports. Examples would be:

- Access time and time spent in the port
- Off-peak ratios
- Flexibility indicators

- Constraints within the planning horizon

These could also be developed to capture the contribution of ports to regional development. While port companies cannot be held responsible for the performance of indicators of activity that are beyond their control, a monitoring function on this basis would provide an indication of the performance of the transport system. Currently there is an over-emphasis on the growth and returns of individual ports rather than this wider definition of the ports' contribution to achieving an efficient transport system.

A long-term strategic approach is required that sets objectives for the development of the port sector and the transport system for efficient operation over the next 20 to 50 years. Strategies with time horizons that fall within the life of the NDP are too short and lead to an emphasis on overcoming current problems rather than the development of an efficient system for the future. In addition, it should not be assumed that current constraints – for example, insufficient finance, resistance to change and institutional deficiencies – will be important in their current form in the future. Thus, it is recommended that the planning process throughout the transport sector must emphasise the long term objectives and how these can be achieved, rather than what can be achieved within current constraints. Only by adopting this approach can there be an open mind in relation to questions on the structure of the port network, the location of ports and other transport infrastructure and the core roles of the public and private sectors.

Freight transport should be identified as a sector of primary national interest and the agencies charged with decisions in relation to traffic management should become more inclusive of business interests to ensure that their views are adequately represented. Port projects should be given priority in planning processes where it can be shown that there will be positive net benefits to the economy.

It is recommended that Irish transport policy should set a long-term objective that Ireland will have a transport system and international linkages that are not only competitive for the needs of industries located in Ireland, but is also the basis for the development of transport related industries, with Ireland acting as a gateway to Europe for high value cargoes. In the short to medium term, targets should be adopted. Considerable research is required to identify what would constitute appropriate targets, but they could include:

- Ireland would move to well within agreed indicators of tolerable congestion levels in transport infrastructure. The Group recognises that steps have been taken by the DTO to move in this direction.
- The potential for the railways to contribute to the efficient movement of freight would be comprehensively examined and, on the basis of this examination, initiatives undertaken as a priority to implement the recommendations of this study.
- Options, including a pipeline, would be examined and recommendations implemented to reduce substantially the storage of oil in Dublin port and the number of oil tankers leaving the port.
- Alternative options would be such that the freight industry would voluntarily agree to running no HGVs along the Quays or entering Central Dublin except for access to these areas.

Following this definition of the problem and identification of the solutions, studies will be required to identify how movement and change in the direction of the recommendations of this report can be achieved. Provided an approach is adopted that emphasises the importance of including the full range of social costs and benefits in the decision making process, any incentives will be less costly than the cost of allowing the current problems to continue. It is recommended that the new Department of Transport should be charged with undertaking this as part of producing an action plan for the implementation of these recommendations.

Report of Task Force on Transport and Logistics

in Connection with Ports

Appendices

For discussion at meeting on 20th November 2001

Contents

Appendix 1: Membership of the Task Force

The members of the Task Force appointed by the Minister for the Marine and Natural Resources were:

Dr. John Mangan, Irish Management Institute (Chairman)

Ms. Mary Gallagher, Stena Line

Mr. Tim O'Sullivan, Dublin Corporation

Mr. Enda Connellan, Dublin Port

Mr. Stephen Aherne, Iarnród Eireann

Mr. Derek Sloan, Norfolkline

Mr. Reg McCabe, IBEC

Mr. Jerry Kiersey, Transport Umbrella Group

Mr. Jack Nash, SIPTU

Ms. Noelle Canton, Irish Ship Agents Association

Mr. Sean Geary, Irish Ports Association

Mr. Barry Foley, Reefercare Ltd., Dublin, Cork & Belfast

Mr. Sean Lanigan, ex-Bell Lines Ltd.

Mr. Edward O'Connell, O'Connell Transport

Mr. Eddie Breen, Waterford Corporation

Mr. John Nolan, Dublin Port Stevedores Ltd.

Mr. Liam Daly, Department of Public Enterprise

Mr. Peter McEvoy, Department of the Environment and Local Government

Mr. David Glynn, Dept. of the Marine & Natural Resources

Dr. Kevin Hannigan, KHSK Economic Consultants, acted as Facilitator to the Task Force.

Mr. Tom O'Brien and Mr. Thomas Murphy of the Department of the Marine & Natural Resources provided administrative assistance.

Appendix 2: List of References and Material Accessed

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Appendix 3: Submissions Received

The following list of individuals and organisations made submissions to the Task Force.

Dublin Chamber of Commerce

Marino Residents Association

Sean D. Dublin Bay – Rockall Loftus

ABX Logistics

National Roads Association

Drogheda Port Company

Booz Allen & Hamilton Ltd.

Department of Arts, Heritage, Gaeltacht and the Islands

New Ross Port Company

F. Moore, Lucan

Irish Exporters Association

Sean Haughey, T.D.

Transport Umbrella Group (TUG)

BDO Simpson Xavier

South Dublin Chamber of Commerce

Patrick O'Neill (Snr.), Rathfarnham

Londonderry Port

Statoil Ltd.

Irish Road Haulage Association

Joe Jones, Former Deputy Chief Executive Dublin Port

Dominic Walsh, Raheny

Fingleton-White Civil Engineering

Dublin City Centre Business Association

Appendix 4: List of Organisations and Groups who made Presentations

Iarnród Eireann

Irish Ports Association

South Dublin Chambers of Commerce

Dublin Bay Watch

Ove Arup Consulting Engineers

National Spatial Strategy Unit, Dept. of the Environment and Local Government

National Roads Authority

Dublin Transportation Office

National Institute for Transport and Logistics

The Ports of Cork, Dublin, Drogheda, Waterford, Belfast, Larne, Warrenpoint and Londonderry made presentations.

Individual members of the Task Force also made presentations at the request of the Chairman on matters relevant to their areas of expertise.

Appendix 5: Measuring Competitiveness

Competitiveness is difficult to measure and, indeed, the concept may not have a meaningful application in an absolute sense. However, there has been progress in recent years in providing indicators of changes in competitiveness based on a wide array of variables. Research from a range of sources all point to similar conclusions. The Irish economy gained competitiveness in the late 1990s – indicating that the loss of a low cost basis is not a fundamental issue for competitiveness – but the transport system is an increasingly important drain on competitiveness. Reports from international organisations provide tables on competitive performance (WEF, 2000 and IMD, 2001). These place Ireland respectively as the 5th and 7th most competitive economy among those that are surveyed. However, the WEF report ranks Ireland 36th for infrastructure out of 59 economies and 42nd for railways. It rates transport as an important competitive disadvantage of the Irish economy. The IMD report ranks Ireland 15th out of 49 for infrastructure, well below its performance in relation to the efficiency of government and the business environment overall. The National Competitiveness Council Report (Forfas, 2000) concentrates on Ireland and finds, similarly, that the transport system is a serious constraint on efficiency. It states that *the capacity and quality of transport systems in Ireland now fall well short of the level appropriate to that of a dynamic, advanced, EU economy*. Finally, IMI (2001) concentrates on the issues that determine competitiveness as viewed by the major multinationals (MNCs) that operate in Ireland. This survey shows consistently that while the MNCs rate efficient air and sea transport as an important determinant of competitiveness, they also rate Ireland's performance in this respect as poor.

Appendix 6: Deregulation and Intermodal Transport

The deregulation of surface modes of transport in the US followed the first transport deregulating legislation, the Air Cargo Deregulation Act 1977. The Motor Carrier Act 1980 removed various operating restrictions on motor carriers (road hauliers), and the Staggers Act 1980 partially deregulated the US railroad industry. Both Acts removed restrictions on activities that assist intermodal transport, such as offering through rates. In international sea transport, the Shipping Act 1984 also permitted through rates for ocean carriers, and the Ocean Shipping Reform Act 1998 took the liberalisation process a stage further, in particular enabling private contracts between shippers and ocean carriers.

In the early 1980s the Interstate Commerce Commission (subsequently the Surface Transportation Board) exempted all rail and road intermodal services from Federal economic controls, enabling carriers to experiment with different types of intermodal services. This opened the doors to new forms of collaboration between transport operators. An early example was the co-operation between an ocean carrier (American President Line) and a railway (Santa Fe Railroad - now Burlington Northern Santa Fe) in the mid-1980s, leading to the development of double-stack (i.e. two container-high) train services. This enabled the railway companies to transport many more containers with a small increase in motive power and operating costs.

The strategy encouraging intermodal transport in the USA took a further step forward with the passing of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. This Act was intended to develop a national intermodal system, which was both economically efficient and environmentally sound. This was to be achieved through improved intermodal connectivity, reliability and flexibility (both freight and passenger) with a $155 billion provision over six years. ISTEA established the Office of Intermodalism to assist the US Department of Transportation in intermodal programmes and projects, seeking to establish public/private partnerships for infrastructure planning and associated activities to develop a more intermodal transport system nationally. Various US cities (e.g. Chicago, New York, Los Angeles) or metropolitan planning organisations (MPOs) made links with the private sector in an attempt to relate infrastructure planning and investment more closely to private sector investments and freight mobility needs in line with the requirements of ISTEA. This has led to such projects as Los Angeles' and Long Beach's Alemeda Corridor. As a further development the Transportation Equity Act of 1998 enabled programmes to connect the National Highway system to major intermodal terminals over a six-year period with a $217 billion budget for surface transport and intermodal projects.

Appendix 7: A Note on the Use of Input-Output Analysis

Input-Output analysis has been commonly used to estimate the total impact of ports, and other identified locations of economic activity, on the economy. The methodology is based on the fact that an extra unit of activity in a port – for example, an extra 1,000 tonnes of cargo handled or an extra £1 million of revenue – will lead to further activity outside the port as the incomes and the demand that are generated lead to further activity. A ripple effect ensues with the result that the total impact of the additional unit of activity is likely to be greater than the value of the original unit. The impact becomes less intensive at each successive iteration as demand 'leaks' out of the system through taxes, imports or savings, eventually disappearing.

The first potential problem with using this methodology to identify the total impact of a port is that the methodology is obviously based on marginal values. It relates to the impact of an *additional* unit of activity. Simply applying the value that is found to total values, ie multiplying the impact of the additional unit by the total number of units of activity already being carried out, assumes that marginal and average values are equivalent. This is not necessarily the case, but the assumption that this is not generally a major problem has led to the widespread use of this procedure.

A much more serious problem lies with the interpretation of the results. The problem is that if every business undertook a similar exercise it is clear that the total value of economic activity that would be identified would be many times the actual value of the economy. Strictly speaking, the most theoretically accurate interpretation of the value given when the total impact of the port is identified is the value of economic activity that would be destroyed if the port ceased operation and the activities were not transferred elsewhere. In other words, the whole operation of the port becomes marginal. In practise this is meaningless.

An alternative interpretation is that this is the value of economic activity that is in some sense associated with the port. The term most commonly used is that the port *supports* this level of activity or value. This is legitimate provided it is realised that the port is not *responsible* for the existence of this activity. In other words, it should not be stated that the total value only exists because of the port or that it originated from the existence of the port.

It may also be inaccurate to say that the economic value of the port is associated with the region in which it is located. Input-Output tables are derived nationally and the regional values would definitely be lower. The figure for the total value of the port must be applied to the economy in total. Furthermore, when resources are scarce, the identification of large values for 'supported' activity through the port may actually provide an argument against stimulating further growth as this activity may draw in resources from other less integrated, but potentially more valuable, activities. This is what is meant by 'overheating', usually with respect to changes in public expenditure.

Appendix 8: Findings of the WORKFRET Study

For road transport

- The underlying trends are integrated transport chains; IT-maturity; customer information; environmental issues; ergonomics; retraining; and learning organisations.
- Technologies associated with information and communication for road transport are as follows:
- RDS/TMC (Radio Data System - Traffic Message Channel); electronic data interchange; radio frequency; identification technology; integrated circuit card or smart card; route planning systems; Geographic information systems(GIS); Global positioning Systems; on board (GPS) computers.
- Technical equipment associated with road transport are new types of road vehicles.

In the case of waterborne transport or shipping

- intermodal transport, pollution control, increase in safety, minimisation of crew on board, increase in vessel speed, increase in vessel size and capacity, minimisation of waiting in port and of access time in port.
- Information and communication technologies associated with *shipping* are electronic data interchange (EDI); integrated bridge system; global maritime distress and safety system (GMDSS); global positioning system (GPS); mobile communications; and electronic chart display and information system (ECDIS).
- Information and communication technologies associated with *ports* are vessel traffic services, and tracking and tracing systems.
- *Ship-based* technologies are inland container ships; sea-river vessels; high-speed vessels; self-loading and unloading ships; 6th generation container ships; FastShip concept; open hatch vessels; and reefer containers.
- Technologies associated with *transhipment* are Barge-Express; sailing container terminal; roller-barge; multiple box units; and air-lift container system (Alicon).
- Transhipment technologies associated with ports are automated guided vehicles (AGV); automated stacking cranes (ASC); and robotic container handling.(RCH).

With rail transport

- The underlying trends are privatisation; re-mountable and trailer road/rail units, containerisation, transfer technology, freight handling, conveyance systems, transport management and global production systems.
- New *container and transfer technologies* include double floor containers, railway car with container lift, pivot systems for containers, high-performance terminal for HGV and trains, computer navigated loading machines, and rolling train transfers or installation for containers.
- New *warehouse* technologies are associated with warehouse management, navigation assistants and automated guided vehicles.
- New *railway freight car* technologies are associated with inland speed and trailer-train technologies.

– New technologies associated with *transport management* are cargo identification, cargo tracking, intermodal management systems, fleet management, flexible railway management.

Appendix 9a: Origin-Destination Survey of Freight Flows: Questionnaire

Part A: Goods Received

Section 1: Destination within 20 miles

1. What volume in tonnes of the goods received by your port had a final destination **within 20 miles** of the port?

- _____

2. How many unit loads were involved?

- _____

3. What percentage of total loads leaving the port was this?

- _____

4. What percentage of these loads were accounted for by oil?

- _____

5. What percentage of these loads were accounted for by other bulk goods?

- _____

6. What percentage of total loads left the port between 7 am and 10 pm daily?

- _____

7. What percentage of total loads travelled by rail?

- _____

Section 2: Destination between 20 and 100 miles from port

8. What volume in tonnes of the goods received by your port had a final destination **between 20 and 100 miles** from the port?

- _____

9. How many unit loads were involved?

- _____

10. What percentage of total loads leaving the port was this?

- _____

11. What percentage of these loads were accounted for by oil?

- _____

12. What percentage of these loads were accounted for by other bulk goods?

- _____

13. What percentage of total loads travelled between 7 am and 10 pm daily?

- _____

14. What percentage of total loads travelled by rail?

- _____

Section 3: Destination more than 100 miles from the port

15. What volume in tonnes of the goods received by your port had a final destination **more than 100 miles** from the port?

- _____

16. How many unit loads were involved?

- _____

17. What percentage of total loads leaving the port was this?

- _____

18. What percentage of these loads were accounted for by oil?

- _____

19. What percentage of these loads were accounted for by other bulk goods?

- _____

20. What percentage of total loads travelled between 7 am and 10 pm daily?

- _____

21. What percentage of total loads travelled by rail?

- _____

Part B: Goods Forwarded

Section 4: Goods despatched within 20 miles of port

22. What volume in tonnes of the goods forwarded by your port originated (were despatched) **within 20 miles** of the port?

- _____

23. How many unit loads were involved?

- _____

24. What percentage of total loads entering the port was this?

- _____

25. What percentage of these loads were accounted for by bulk goods?

- _____

26. What percentage of total loads entered the port between 7 am and 10 pm daily?

- _____

27. What percentage of total loads arrived by rail?

- _____

Section 5: Goods despatched between 20 and 100 miles from port

28. What volume in tonnes of the goods forwarded by your port originated (were despatched) **within 20 and 100 miles** from the port?

- _____

29. How many unit loads were involved?

- _____

30. What percentage of total loads entering the port was this?

- _____

31. What percentage of these loads were accounted for by bulk goods?

- _____

32. What percentage of total loads travelled between 7 am and 10 pm daily?

- _____

33. What percentage of total loads arrived by rail?

- _____

Section 6: Goods despatched more then 100 miles from port

34. What volume in tonnes of the goods forwarded by your port originated (were despatched) **more than 100 miles** from the port?

- _____

35. How many unit loads were involved?

- _____

36. What percentage of total loads leaving the port was this?

- _____

37. What percentage of these loads were accounted for by other bulk goods?

- _____

38. What percentage of total loads travelled between 7 am and 10 pm daily?

- _____

39. What percentage of total loads travelled by rail?

- _____

Appendix 9b: Results of Origin-Destination Survey of Freight Flows

The goods handled were made up as shown in Table A7.

Table A9.1: Classification of Goods (percentage of loads)

	Oil	Other Bulk	Other
Cork	19	34	47
Drogheda	17	21	62
Dundalk	20	45	35
Dublin	19	8	73
Galway	97	3	0
New Ross	50	50	0
Wicklow	0	93	7

Cork

A total of 1.2 million tonnes of dry bulk goods were received in the Port of Cork resulting in 44,665 loads. In addition there were 30,607 loads of oil from the Whitegate refinery. Bulk goods travelling to destinations within 20 miles of the port amounted to 8,925 loads (20% of bulk loads). Loads travelling more than 20 miles accounted for 57% with an additional 23% going over 100 miles. For LoLo, 10% of containers are delivered within 20 miles of the port with a further 75% staying within

199 miles. All these loads leave the port between 7 am and 10 pm. None of these goods leave the port by rail.

Total bulk goods forwarded by the Port of Cork amounted to 9,407 loads. Urea from Marino point accounted for 38% of total tonnage but did not give rise to any road transport. All the remaining bulk goods originated within 100 miles of the port. Of the 37,711 containers that were forwarded, 54% originated within 20 miles of the port and a further 36% within 100 miles.

Drogheda

In total, 1,016,000 tonnes were received by Drogheda port for distribution in Ireland. This amounted to 50,300 individual loads leaving the port, which does not have a working rail connection. 33% of these loads had a destination within 20 miles of the port and a further 54% were going 100 miles or less. Irrespective of destination, 85% of loads leave the port between 7 am and 10 pm. Oil accounted for 26% of near destination loads and 16% of loads travelling 20 to 100 miles. Bulk goods account for 54% of loads travelling less than 20 miles to their destination but only 5% of goods travelling 20 to 100 miles. Neither bulk goods nor oil are transported more than 100 miles.

A total of 275,000 tonnes was forwarded onwards by the port. This amounted to 16,450 individual loads. The location of origin had a very similar pattern to destination flows with 32% originating within 20 miles and a further 54% originating within 20 to 100 miles. Again, 85% of this traffic takes place between 7 am and 10 pm. Bulk goods account for 80% of goods that originate within 20 miles but only 10% of loads from 20 to 100 miles.

The total tonnage received in Drogheda was 3.7 times the weight forwarded and the number of loads was just over 3 times as great. Bulk goods are more important among exports. Within this however, the structure of trade is remarkably similar in terms of origin/destination and timing. It is likely that these features reflect the structure of the local economy where old style heavy industry dominates. As such, Drogheda would appear to be a port that has a local niche role but is poorly developed in terms of its wider integration with the economy.

Dundalk

The data from Dundalk Port are based on the returns of 5 freight operators in the Port. A total of 240,000 tonnes of goods were received at Dundalk giving 9,120 loads leaving the port. All of these travelled between the hours of 7 am and 10 pm. Oil accounted for 1,780 (20%) of these loads and other bulk goods for 4,124 (45%). Virtually all goods stay within 100 miles of the port with only 420 loads (4.6%, mostly bulk grains) going beyond this range. 2,466 loads (27%) stayed within 20 miles with the remaining 6,234 (68.4%) having a destination 20 to 100 miles from the port.

Goods forwarded by Dundalk amounted to 17,000 tonnes, all of which originated within 100 miles of the port, but only 12% within 20 miles. This gave rise to 685

loads, just 7.5% of the total for goods received. All were bulk goods, apart from the 85 loads that originated within 20 miles.

Goods received account for virtually all the trade through Dundalk with bulk products serving the local economy dominating. Clearly the role of Dundalk Port is local only, although the importance of the port to the industrial base of the town is not clear with only 85 loads of exports originating within the town.

Dublin

The data for origin/destination flows for Dublin Port were compiled for Dublin City & County, Leinster Outside Dublin and Outside Leinster. As such, the areas are not the same as for other ports (<20 miles, 20-100 miles and >100 miles) but are reasonably comparable.

A total of 13.58 million tonnes of goods were received in Dublin Port. This translated into 598,250 loads. Oil accounted for 114,600 (19%) of these loads. In fact, the proportion of total loads accounted for by oil did not vary much between destinations in Dublin, elsewhere in Leinster and beyond. Oil travelling to destinations outside of Dublin accounted for just under 55,000 loads (9.1% of all loads). Bulk goods accounted for just over 50,000 loads (8.4%). Again, this did not vary much according to the distance to the final destination with bulk goods travelling to destinations outside of Dublin amounting to 24,000 loads (4% of all loads). In total, 53% of loads were destined for Dublin City and County with 21% going to other areas in Leinster and 26% travelling on to areas outside Leinster. 90% of loads leave the port between 7 am and 10 pm. No goods travelling to destinations within Leinster leave the port by rail. About 4% of goods travelling to other destinations, about 1% of the overall total, leave by rail.

Total goods forwarded by Dublin Port were 7.31 million tonnes, amounting to 371,000 loads. The overall origin breakdown is similar to goods received, with just over 51% of loads originating in Dublin and a further 24% coming from other areas of Leinster. However, the type of good handled is affected by the distance to its origin with only 1% of loads originating in Dublin being bulk, compared to 15% of loads from other areas of Leinster. Bulk goods from outside Leinster are not forwarded. Again 90% of loads arrive in the period 7 am to 10 pm. 1% of goods from outside Leinster arrive by rail.

As in other ports, the number of loads generated by imported goods greatly exceeds that arising from exports. The proportion of goods moving to and from distant areas is much higher in the case of Dublin than in other ports. This reflects the role of Dublin as a hub with a greater choice of routes and services than other ports. Essentially, Dublin has achieved a critical mass that is required by freight transporters, a situation that is not evident in most other ports. The content of goods received into the port is not affected by their final destination. Oil and bulk for the Dublin region has an approximately equal impact. Similarly, bulk goods from Leinster outside of Dublin amount to over 13,000 loads in a year.

Galway

Total freight received through Galway Port in 2000 was 709,000 tonnes. All this had a final destination within 100 miles of the port. On average, 255 loads left the port each day by road, all within the hours of 7 am to 10 pm. About 58% of loads stayed within 20 miles of the port. Oil, including bitumen, accounted for the vast majority of freight making up 97% of the total. Bulk goods made us the remainder. The port forwarded only 16,000 tonnes in 2000 in 800 loads. All these originated within 20 miles of the port and all were bulk cargo.

Galway plays a role as a regional port but is effectively an oil terminal. Removal of oil from the current location in the city would eliminate all but a small number of port traffic movements.

New Ross

New Ross Port received 929,000 tonnes in 2000 generating 37,000 loads leaving the port. About 20% of this traffic had a destination within 20 miles of the port and was composed of 41% oil and 59% other bulk freight. All this traffic left the port during 7 am to 10 pm. A further 70% of loads travelled 20 to 100 miles from the port to its destination. This was made up of 53% oil and 47% other bulk. A small proportion (5%) left the port during night hours. The final 10% of loads travelled over 100 miles and was composed of 41% oil and 59% other bulk. Again, 5% travelled at night. Goods forwarded amounted to 193,000 tonnes of bulk freight in 7,700 loads in 2000. Just over 90% of this freight originated over 20 miles but less than 100 miles from the port.

New Ross has a considerable bulk freight business. A high proportion of the freight handled travels over 20 miles to and from the port. This would imply a considerable impact from traffic movements.

Wicklow

Wicklow Port received just under 150,000 tonnes in freight in about 7,500 loads. Bulk goods accounted for the majority of this but about 7% was accounted for by other freight for delivery within 20 miles of the port. All this travelled during the day and the port is not rail connected. The destination of this freight is different from most other regional ports with only 18% of loads staying within 20 miles and 30% (2,250 loads) travelling for 100 or more after arrival. No freight forwarding was recorded in the reply to the questionnaire. The high proportion (82%) of loads leaving the port that travel more than 20 miles onwards to their destination suggests that it is likely that some Dublin traffic is using Wicklow. However, this is small in terms of the overall picture.

Appendix 10: Assessing the Development of Ireland's Transport System

Role of government

Is there a national ports or intermodal inland transport development strategy?
What is the status of privatisation of transport?
What is the status of deregulation of transport?
What measures exist to encourage integrated transport?
What is the government's role in the financing of transport assets?

Port ownership, management and development

To what extent should the port authority act as a 'facilitator':

- By monitoring new public/private initiatives without restricting open competition?
- By helping the trade facilitation process?
- By spearheading initiatives leading to greater trade integration?

How are port-city relations dealt with?
How does the port conduct relations with the sea shipping industry in the context of:

- Concentration of ownership in liner shipping?
- Shipping lines expanding their range of operations to include all stages of door-to-door transport including terminal operations and inland transport?
- Relative costs of sea, port and inland transport?
- New types of service networks by shipping lines (e.g. transhipment ports, hub ports, feeder ports)?

Has the port investigated port networking (e.g. market segmentation or co-ordination of functions with other ports)?
What productivity measurements does the port use for physical indicators, factor productivity indicators, and economic and financial indicators?
To what extent do productivity measurements exist for land-side connections as well as those concerned with sea access?
To what extent can the port make better use of existing capacity rather than subsidise new transport infrastructure?
Has the port authority considered the use of international terminal operators?

Transport developments

Are there good inland transport connections both locally and for long-haul corridors?
Is there the opportunity for novel combinations of transport operators?
To what extent will carriers of different modes co-operate?
How can road connections be improved (e.g. new roads, heavier lorries)?
Is more rail investment needed (e.g. more efficient operations, port railheads, a better rail network, better regulating provision for rail freight)?
How would the high capital investment and probably low returns on transport investment be treated?
What is the impact of introducing on-dock rail transfer:

On local hauliers?
On restrictions on road vehicle size?
On terminal costs?
On terminal productivity?
On terminal storage space?
On terminal working space?
On capital costs of facilities?
On rail links through urban areas?
On in-terminal congestion ?

Does the port have potential for a rail-based hub and spoke or shuttle system?

Intermodal developments

Is legislation in place to support intermodal transport?
Are all modes (including rail) sufficiently liberalised and able to form intermodal links?
Can the government offer innovative forms of financing to encourage intermodal developments (including public-private partnerships)?
Is there scope for new types of intermodal or combined transport operators to work effectively?
Is port terminal equipment suitable for international intermodal standards that may change in the future? How flexible is the port to changing or specialised demands?
Apart from technology, is the port *process* (the legal, commercial and management framework) conducive to intermodal transport?
Can the port collaborate, not just with other seaports, but also with other logistics centres including airports (the 'trade port' concept)?
For intermodal developments, does the port have the necessary

Infrastructure and capacity?
Access to capital and investment funds?
Information channels?
Interaction between transport modes?
Planning and co-ordination between government (at all appropriate levels) and business?

Are hinterland depots available if required (e.g. for container storage)?
Are intermodal developments related to environmental awareness and legislation?
Will intermodal developments necessarily reduce road congestion?
Are intermodal developments in line with global business developments?

Are freight-only rail lines viable?
Should new industrial sites be required to offer intermodal facilities and links?

Information and communications technological advances

Are the information systems suitable for integrated transport chains?
Are ICT systems of the highest standard?
Are ICT systems in line with supranational systems or proposals (e.g. by EU)?

Logistics and supply chain developments

To what extent is the port strategy (for organisation, technology, infrastructure) flexible enough for changing supply chain requirements?
Does the port provide innovative facilities for supply chains: e.g. capital-intensive transfer systems, specialised warehousing or value-added logistics services?
Should the port zone be expanded to include freight corridors for port-related activities essential in the logistics chain?
Should the port be associated with one or more inland logistics centres or dry ports? If yes, can the port be connected to them with effective shuttle services?
To what extent does the port need to collaborate with relevant government authorities to provide such a 'logistics platform'?
Is the scope of responsibility of both the port authority and relevant government authorities wide enough for logistics developments that may need to include other ports (sea, air and inland)?
Can the port establish free port or distripark facilities?
Can the port encourage tenants to offer value-added services?

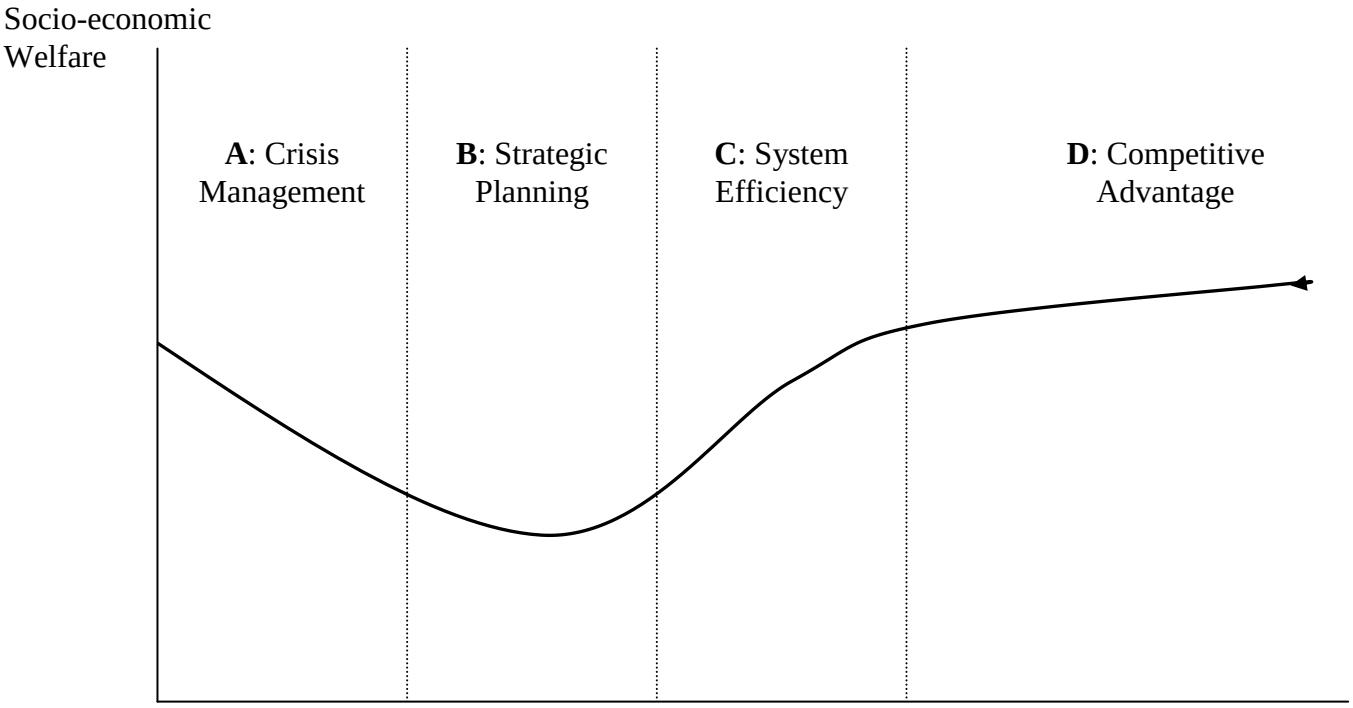
Appendix 11: Economic Analysis of Traffic Congestion

At one level the problem of traffic congestion can be viewed as a simple disequilibrium: the demand for road space at the prevailing 'price' exceeds the cost. If travel had a single 'price' the solution would be provided by increasing the monetary cost of accessing road transport thereby curtailing demand and, possibly, increasing supply. However, since road space is not priced in the sense that it is not directly paid for this does not happen without intervention. Clearly, however, the cost of travelling in the cities and their hinterlands has been increasing. The problem is that, unlike in the case of a price mechanism where an increase in price merely transfers money to the supplier – there is a zero sum – the cost increases arising from inefficiencies, as is the case with transport in Ireland, is paid in terms of time and uncertainty. The transport user loses, but nobody gains. An important implication of this is that, within reasonable limits, where a price is paid for transport, this price is not the key determinant of competitiveness. Rather, frequency, timeliness and reliability are key since any deviation from expectations or requirements implies high costs to both the direct users and to the wider transport system.

The current outcome is one where the transport system operates just below a level of intolerable congestion. In this situation, long-term growth is curtailed by the need to avoid crossing into a situation where the congestion becomes intolerable. This has serious implications for the competitiveness of the country irrespective of where the cost falls. However, when the cost falls to a considerable extent on a part of the economy that is so vital for the performance of the Irish economy as is the movement of goods, then the importance of the cost is magnified. In other words, extra costs that occur in the import and export of goods from Ireland are not an equilibrating mechanism that will bring about a situation where the supply and demand for road space is eventually equalled to the benefit of the country. Instead, they are a cost that is levelled on the whole economy, thereby reducing economic welfare but doing little to solve the problems that led to these costs. What must be derived is a means of bearing and distributing the costs that excess demand implies and that eventually reduces these costs through working to remove this excess demand. This is the essential difference between the direction that is adopted by the Task Force and the current situation where the only control on the growth of excess demand is provided by the spiralling costs of inefficiency.

Time is an important element in the considerations. It is the view of the Task Force that measures are required to enable the economy to continue to operate in the short term but that in the longer term there are major opportunities for the transport system to contribute directly to Irish economic performance. Figure 5.1 below aims to capture this view. The dark line represents the impact of transport operations – and therein transport policy – on socio-economic welfare: where it is falling then it can be concluded that deficiencies in the transport system are reducing welfare. Where it is rising the situation is increasing welfare.

Figure A11.1: Stages of Development from Crisis to Competitiveness



Ireland has been stuck in a phase of crisis management for many years. There is no limit to the length of time that the country could spend in this stage and it is possible that the downward slope could be accelerating. It is unlikely that the first implementation of measures based on a strategic plan to change this would cause an improvement in the short term and it is likely that they would further reduce welfare, like the way that roadworks, while in the long term of benefit to road users, often increase journey times in the short term. Thus, early attempts to tackle the problem could typically make matters worse in the short term – the J-curve effect shown in stage B of Figure 5.1. Some balancing initiatives will be required at this stage. There is a further important point here also in that the incomplete or inappropriate implementation of a strategic response would cause welfare to continue to fall. However, if the correct actions are taken then the situation should begin to improve beyond some stage. The successful implementation of the National Development Plan holds the potential to move Ireland's primary road infrastructure through stage B. However, it is not clear that this will be the situation in the ports.

At stage C, the country has a competitive transport infrastructure and the users of this infrastructure can build on it to develop successful industries. In this way, the transport infrastructure enables a successful economy. But this is not a sufficient aim for policy as eventually the benefits would even off as other constraints emerge. The final stage is one where the benefits can continue to accumulate in the long term. At this stage, the transport infrastructure becomes a competitive advantage of the country promoting it as a base for transport industries. The key point is that these benefits can continue to build in the long term as the country emerges as a leader in the industry of providing transport services.