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Foreword

This is the first annual report of the Railway Safety Commission (RSC) prepared for the Minister of Transport pursuant on section 28(3) of the Railway Safety Act 2005 (the Act). It provides a background to our organisation and its functions and sets the context for future reporting.

In reporting on the performance of our functions, it is appropriate that we make reference to the safety performance of those railways that we regulate. It is gratifying that in 2006 these railways maintained their good safety records.

Available data indicates that larnród Éireann's continuing investment in assets and safety management systems is delivering significant safety benefits. The impact of the risk that the railway imports continues however to be of issue. While there were no passenger or employee fatalities or serious injuries in 2006, seven trespassers lost their lives. The number of rail bridges struck by road vehicles has increased 2½ times over the past ten years. This represents a significant proportion of overall railway risk and gives cause for concern.

LUAS safety performance has been very positive, reflecting the quality of planning, design and safety management by the Railway Procurement Agency (RPA) and operator Veolia. So far, there has been no fatality or serious injury attributable to the operation of the system. However, an increasing trend in tram/pedestrian incidents was recorded in 2006.

The year 2006 presented significant challenges for the RSC: managing the teething problems associated with establishing a new organisation; working with stakeholders to effect the systematic and cultural change required to effectively embed the new regulatory framework; coping with an increasing functional workload against a background of ongoing recruitment and resourcing difficulties. The fact that in 2006 we met all out statutory obligations and made substantive progress on all work fronts reflects the calibre and commitment of our team. It is therefore appropriate for me, in introducing this report, to express my thanks to them for their support and effort throughout the year.

In our Statement of Strategy, we recognise the rapidly changing industry environment that impacts on all stakeholders including ourselves. To effectively manage this change, we will continue to develop and adapt as an organisation so that we will maintain the best possible service to our customers.



John Delse

John Welsby Commissioner for Railway Safety

Railway Safety Commission

Mission statement

Our mission statement, as presented in our Statement of Strategy 2006-2008, is that;

"The Commission will assure, through education, guidance and balanced regulation, the safety of railway services and affected persons."

Background

The railway industry has always been subject to safety regulation. Prior to 2001, this was mainly achieved through legislation dating from the 19th century. Inspector's powers were limited to the approval of new railway infrastructure and the receipt of accident notifications, with accident investigation only being carried out at Ministerial direction.

The Transport (Railway Infrastructure) Act, 2001, under which the first two LUAS lines were constructed, provided a more comprehensive regulatory framework requiring safety approval of infrastructure, rolling-stock and operation prior to commissioning and public service. The safety validation process reflected the philosophy of vesting responsibility for determining how best to manage risk with the party directly responsible, in this case the RPA and latterly Veolia. As safety duty holders they were required to implement systems for the effective management of risk and to evidence these in a safety case submitted to the regulator for approval. The Act provides an updated and consolidated framework appropriate to the modern railway environment and is reflective of good regulatory practice. The Act regulates all public railways on the basis of a safety case regime and provides for stakeholder input through the creation of a Safety Advisory Council. It also vests responsibility for safety regulatory oversight in an independent body, the RSC, equipping it with the necessary functional powers to conduct its work effectively.

The establishment of the RSC also meets the requirement of the European Railway Safety Directive (2004/49/EC) that member states create national railway safety authorities. Under the Directive the causal investigation of railway accidents must be functionally separate from safety regulation. This is achieved through setting up an Accident Investigation Unit within the RSC with shared administration but independent staffing and reporting arrangements.

Structure

We are a small, professional organisation with a flat reporting structure. This structure encourages and facilitates free-flow of information and ideas, which promotes consultation and creative thinking. This complements our purpose of promoting excellence in railway safety. It also provides us with the flexibility we need to respond effectively to immediate and unpredictable work demands, and to accomplish the structured tasks within our business plan.

Our budget for the year 2006 was €1.7m. Based on mediumterm workload projections made in 2002, we have approval for nine full-time staff, of which seven are technical and two administrative. This includes the Commissioner and the Chief Investigator, who are appointed by the Minister for Transport.



Figure 1: Organisational Chart for the Railway Safety Commission

Functional Performance:

Introduction

There are four primary strands to the RSC's task, as embodied in our mission statement, of assuring the safety of railway services and affected persons. These are:

- safety approval
- safety auditing and monitoring
- safety enforcement
- investigation

Safety Approval:

Safety case:

The primary role of approval is to ensure that the collective rules, standards, procedures etc. that in aggregate comprise a railway undertakings safety management system, provide a robust and coherent framework for the safe delivery of railway services.

The Act introduced a safety case based regulatory framework. This requires a railway undertaking to prepare a safety case describing its operations and how, through implementation of its safety management system, these are provided safely. That safety case, along with the report of an approved independent assessor, was to be submitted to the RSC for approval by 31st October.

Veolia was already subject to such requirements and has an approved safety case since 2004 when service test and trial running commenced. For all other undertakings, including larnród Éireann, this was new territory. In 2006, our principal task was one of supporting railway undertakings in the development of their safety cases by providing non directive advice and guidance.

For heritage and other railways, of which there are currently eleven that the RSC regulates, this was particularly important. For the most part these operate on a non profitmaking basis and are reliant on voluntary help and support. The process of developing and documenting a safety management system, and of safety case preparation and independent assessment, places a heavy demand on their limited resources. Recognising this we have adopted a proportionate approach to our oversight, seeking a breadth and depth of safety validation reflective of the nature of railway operations and the attendant safety risks. In consultation with the heritage railways, and at RSC expense, a competent independent assessor was engaged, as provided for in the Act .



The two principal railway service providers, larnród Éireann and Veolia, submitted their safety cases by the due date. However, only three heritage railway met the statutory deadline with a further one submitting its safety case before the beginning of 2006. In the majority of instances this has no practical safety implications since their operations are seasonal and cease during the winter months. Our knowledge of those railways that remain in operation, gained from our regular inspection and monitoring of their safety performance, indicates no immediate reason for seeking their closure and we have not done so. Nonetheless, along with all other heritage railways, we expect them to be fully compliant with their statutory obligations by early 2007.

The statutory timeframe for the RSC's assessment of these safety cases extends into 2007 and this report does not therefore comment further on that process.

New works:

A key element of our approval work is assessing whether the infrastructure and rolling stock equipment that railway undertakings use to provide their services, is fit for purpose. This process applies to all new works and to material changes to existing works or their use.

The last few years have seen a significant rise in the rate of railway development works. This is set to increase further as projects under the Transport 21 programme come on stream. The RSC has little flexibility in planning its related works

approvals as this is driven by the external demands of construction project delivery timelines. To enable us to prepare for these demands, we try to engage undertakings at the earliest possible time in the project planning process. Nonetheless, this work is placing growing demands on the RSC and is currently absorbing a major part of our resources.

To ensure that the process is as smooth and effective as possible, we operate on a phased permissioning basis granting approvals at various key project milestones. For infrastructure works there are three stages, i.e., preliminary design, detailed design and permissioning prior to service or operation. In relation to rolling stock there are five stages, concept, preliminary design, detailed design, testing and commissioning and passenger service/operations.

During 2006 our approvals work involved twenty-six heavy rail and three light rail projects. Twenty-seven interim certificates of approval were issued and five projects fully signed off for operation. Assessment of four rolling-stock projects, three heavy rail and one light rail, was ongoing through the year. The Mark IV intercity carriages were accepted for entry into service in the first half of 2006. Though we are dealing with significantly more infrastructure projects than rolling stock the greater complexity of the latter, and attendant need for more detailed safety validation, means that the two strands of works absorb approximately the same amount of resources.





Our work in assessing the safety adequacy of some new works projects, particularly rolling stock, has been made more difficult by the unstructured way in which related documentation is being submitted. We are working with undertakings to address this situation and hope that in 2007 this task will be less resource demanding.

Safety Auditing and Monitoring

Our auditing and monitoring activities derive from four principal sources:

- Complaints and representations by, or on behalf of, passengers;
- Industry safety concerns, typically arising from accidents and incidents;
- The need to ensure that railway undertakings are implementing their approved safety cases;
- The need for ongoing assessment of the performance of all industry safety duty holders.

Complaints and Representations:

We see the public, passengers or otherwise, as our principal customer and at all times encourage their bringing railway safety concerns to our attention. Where these issues relate to service rather than safety, we direct the representation to the appropriate authority. Where the matter involves railway safety, we try, wherever possible, to deal with the matter directly. If we are unable to do so, we seek the necessary information from the duty holder that enables us to provide a full response.

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In 2006, we received thirty-nine direct or indirect public representations relating to a range of heavy and light rail infrastructural and operational matters. None of these gave immediate or specific cause for safety concern but all were logged and will be tracked to identify any recurrence or trends that might indicate a need for intervention in the future.

In this context, the issue that has prompted the greatest number of representations has been crowding on trains. In all cases, the concerns related primarily to service and comfort issues. There are, however, underlying safety impacts, principally relating to access and egress, that the RSC tracks on an ongoing basis and which were the subject of specific auditing in the previous and the current year.

Industry Concerns:

Accidents or incidents occurring on other railway systems may highlight equipment or operational deficiencies with potential safety implications in Ireland. No such concerns arose through our informal industry monitoring and networking. Arising from their investigation of a train derailment, our colleagues in the Railway Accident Investigation Branch of the UK Department for Transport issued a warning notice relating to the installation of a particular type of level crossing equipment. Such equipment is not, however, in use in Ireland.

Compliance Auditing:

In 2006, LUAS operator Veolia was the only railway undertaking with a current safety case. Veolia was subject to major compliance auditing by the RSC in 2005 and therefore not scheduled for further audit in 2006. For all other undertakings, the timelines set out in the Act for safety case submission and approval, meant that the subsequent auditing stage was not reached in 2006. We plan to implement a full programme of safety case compliance audits in 2007.

In December the RSC team conducted two themed audits. The condition of level crossings on the Sligo, Galway, Kilkenny and Rosslare lines was assessed, including warning signage, crossing equipment, road surface and markings, and sighting. Passenger safety aspects of all trains departing Heuston station, including crowding levels, were assessed over a full working day. In both instances the findings were generally positive, with only a small number of specific deficiencies being identified which are being followed up with larnród Éireann.

Assessment of Duty Holder Performance:

In 1998, the Government commissioned independent consultants to conduct a review of railway safety in Ireland. The review focused on the three principal duty holders, larnród Éireann, as the service provider, the Department of Transport as the 'owner' of regulatory legislation, and the Railway Inspectorate, now the RSC, as the safety regulator.

The consultants were also required to conduct two follow up reviews in which progress against the recommendations deriving from their original work was assessed. These were carried out in 2000 and 2001.

In 2005, the RSC commissioned a further review when it was considered that sufficient progress had been made in addressing systemic safety deficiencies identified in previous reviews. The report, published in July 2006, can be viewed on our web-site: www.rsc.ie. It indicates that action by the three organisations to progress the recommendations of the earlier reviews has yielded significant safety benefits in terms of reduced risk.





The review made recommendations to be actioned by each organisation. We are systematically tracking progress in the implementation of these recommendations, including those targeted at ourselves. The first such audit was conducted in October and focussed on the urgent and high priority recommendations that had been assigned a three month or lesser timescale for implementing or for work to commence. It found that while all those recommendations audited were being actioned, some had not been fully addressed and further work was required for their completion.

The RSC believes that this process adds value for all three stakeholders and we are committed to its continuing for the foreseeable future. We envisage commissioning a further independent review in 2008.

Safety Performance of Iarnród Éireann Network

The larnród Éireann network has 1919km of running line in service. The activity on the network has steadily increased over the past ten years, and this is reflected in the operating statistics shown in Appendix 1 of this report. These indicate that passenger journeys, passenger-km and freight train-km figures have all increased by 1/3 since the year 2000. Against this background, the safety performance of the

system has been tracked by displaying and analysing the number of accidents and incidents recorded for each year since 1996.

In brief, the annual fatality rate to persons other than trespassers has declined, and the majority of trespasser deaths appear to have occurred in suspicious circumstances. There is a moderate downward trend in the number of reported injuries to employees and third parties. There is a general decline in the number of train incidents and rolling stock incidents, although in both cases the number of reports have increased for the year 2006. The number of reported incidents affecting the permanent way and infrastructure shows a general increase, reflecting the high level of bridgestrike incidents in recent years.



Summary injury and incident statistics are shown in figure 2 below. Detailed analysis of accident and incident statistics is given in Appendices 2 & 3 of this report.











Figure 2: Summary injury and incident statistics for larnród Éireann, showing trends

Safety Performance of Dublin Light Rail Network

The Dublin Light Rail system (LUAS) came into operation in mid 2004. This system has enjoyed a good safety record, even though there was a lack of familiarity of citizens with light rail systems.

More than six million tram-km have been achieved without a fatal accident, although eighty-seven road traffic accidents and two collisions between trams have been recorded up to the end of 2006. Although the rate of road traffic accidents and the overall injury rate are declining, instances where pedestrians and cyclists come in contact with a moving tram are increasing.

In 2006, five of the recorded injuries were to pedestrians, four to passengers and one to a road vehicle driver. A tram driver was injured when a truck collided with his tram at Queen Street, derailing the vehicle. Another tram driver was injured when an object was thrown at the windscreen of his tram. Half of the twenty-one contact incidents with persons occurred when the tram was approaching or leaving a platform, and two involved bicycles.

Safety Performance of Heritage Railways 2006

The RSC received one report of a railway accident from heritage railways in 2006. This involved a train which was departing from the Ballyard station on the Tralee-Dingle railway when the locomotive struck the metal gate of the level crossing, which was not fully closed. The locomotive derailed as a result. The incident occurred at low speed and there were no reported injuries.

The available statistics for Dublin Light Rail are summarised in the table below:

| Year | 2004 | 2005 | 2006 |
|------------------------------|-----------|-----------|-----------|
| Months of operation | 6 | 12 | 12 |
| Km done | 1.000.000 | 2.500.000 | 2.661.000 |
| Road Traffic Accidents (RTA) | 17 | 36 | 24 |
| Contact of person with tram | 0 | 8 | 21 |
| Collision tram/tram | 1 | 1 | 0 |
| Derailment in depot | 1 | 4 | 0 |
| Derailment on mainline | 1 | 1 | 1 |
| Injury: | | | |
| - First Aid | 0 | 5 | 1 |
| - Medical Attention | 7 | 10 | 9 |
| - Hospital care | 2 | 2 | 2 |
| Total | 9 | 17 | 12 |
| Emergency Handle | - | 14 | 20 |



Safety Enforcement

The Act provides the RSC with powers of enforcement which may be used where necessary to ensure safety. These powers can be used to require railway undertakings to address non-compliances with their safety cases and other statutory obligations and to address any risks that might otherwise be identified.

In 2006 there was no situation where the RSC saw fit to take such action.

Investigation

To meet the requirements of Article 18 of the European Directive 2004/49/EC (Railway Safety Directive) the Act provides for the establishment of an Railway Incident Investigation Unit within the RSC with shared administration but functionally separate appointment and reporting arrangements. In the absence of a Chief Investigator having been recruited to head up the unit by the statutory deadline of 1st May, a temporary contractual arrangement was entered into with a suitably experienced and qualified person.

Investigation by the unit is causal, that is to say it seeks to identify the full facts of an incident and why it occurred with a view to preventing recurrence.

The Railway Safety Directive specifies, in loss and injury terms, a minimum threshold above which investigation is mandatory. No such incidents occurred in 2006 and no direct investigations were initiated by the Unit. Investigation of incidents of lesser impact is at the discretion of individual Member States and the RSC expects that when the Unit is fully resourced and operational it will investigate a number of such incidents annually.

The Act provides for RSC oversight of internal railway undertaking investigations. In 2006 the Temporary Chief Investigator requested the designation of an RSC inspector to monitor two larnród Éireann investigations into a shunting incident at Cork Kent station and a derailment at Island Bridge. Neither of these investigations has been concluded and it is not therefore possible to comment on them in this report.

It is envisaged that the post of Chief Investigator will be filled on a permanent basis early in 2007.

Under Ministerial direction an inquiry under the 1871 Railway Regulation Act was carried out into the derailment of a cement train on the Cahir Viaduct in 2003. The report of this inquiry was published in early 2006 and can be viewed on the RSC's web-site.



Safety development:

Safety investment programme

The railway safety investment programme stems from the need to address the significant deficiencies in the larnród Éireann railway system identified in the independent review conducted in 1998. 2006 was the eighth year of the programme. It is underpinned by a system model that combines condition assessment of assets, services and management to produce a structured framework for the assessment of safety risk and the apportionment of expenditure on its mitigation.

The model also enables the benefits of the investment to be tracked and indicates that the annual rate of safety risk reduction between 2003 and 2005 was approximately 10%. Indicators suggest that this very positive trend has continued throughout 2006.

Working groups

Like any duty holder, we focus our efforts on the areas of greatest safety risk. Recognising that the effective management of that risk typically requires the input of a

number of stakeholder organisations, we work to facilitate and coordinate that collective effort.

In this context the RSC chairs two working groups,

- The road/rail safety working group
- The railway emergency planning group

We recognise the collective commitment made by the participating organisations to the work of these groups and we wish to express our thanks for their continued support. See Appendix 4 for a list of group members.

The road/rail safety working group:

In safety risk terms railways are particularly vulnerable where they interface with roadways. On the larnród Éireann network there are more than two hundred and fifty public road level crossings and twelve hundred bridges over or under public roads. In addition to such crossings LUAS also runs on-street for 8 km sharing road space with other users.

The road/rail safety working group has ten participating organisations. It seeks to establish a coherent strategy for the collective management of this risk, and to identify the scope for specific actions that will improve safety levels. In

2006 the Group met three times focussing its attention primarily on bridge bashing, i.e., road vehicles striking railway bridges. A number of related mitigation actions were progressed in the year by relevant organisations including improved signage, new warning systems, management of abnormal loads and diversions routes, publicity campaigns and prosecution under the Act.

During the year the group reviewed its activities and updated its terms of reference emphasising its role as an advisor, coordinator and facilitator. Functional responsibility continues to reside in the various member organisations.

The railway emergency planning group:

This Group was originally established to coordinate the inputs of the various organisations with responsibilities relating to the transportation of dangerous good by rail. As the various safety procedures became embedded in respective organisations, and with the cessation of the bulk transport of such goods, the focus of the Group shifted to the wider issue of railway emergency planning.

Post 9/11 the national framework for the management of major emergencies has been strengthened including the impact on, and role of, the various transport modes. Like the other organisations involved in the Group, we are part of that wider framework.





larnród Éireann has recognised this increased focus on emergency planning in extending the remit of its safety division to include security. Railway undertakings will also have to implement appropriate risk management systems that we will assess as part of the safety case process.

In light of these developments we have been reviewing the activities of the Group during 2006. Completion of the safety case assessment process will provide us with a fuller picture of ongoing input/output needs and we expect to be in a position during 2007 to decide how best to take the Group forward.

Technical advice

Prior to RSC establishment, as the Railway Inspectorate division of the Department of Transport, we provided advice on railway matters to other departmental divisions within the limits of our competence. The RSC continues to provide this support where it does not compromise its independence.

In 2006, this work related primarily to technical aspects of implementing EU requirements on interoperability, i.e. the creation of a seamless railway network and an open market for railway products within the Community.

Guidance

In order to maintain its independence, the RSC does not prescribe how railways should be designed and operated. We do, however, provide guidance to railway undertakings and other stakeholders on the nature of their responsibilities and how these might be met most effectively. The provision of such guidance is essential to ensure that all parties, including the RSC, are able to meet their safety responsibilities effectively and to minimise the potential for adverse impact on other business activities.

We have previously published guidance on the preparation of safety cases and on the design of railway infrastructure and rolling-stock.

In 2006, we published 'Guidelines for the Safety Assessment of New Infrastructure Works & New Rolling Stock'. These outline the way in which the RSC wishes to implement its process of phased permissioning, indicating for railway undertakings how a submission for approval should be made and what it should contain. All of these guidelines can be viewed on our web-site.

The Act places a general duty of care on every person to have regard for their own safety and that of others while carrying out activities on or near the railway. This covers such wide ranging activities as travel, sports and recreation, planning,



development and construction, and farming. To help ensure that those involved understand their responsibilities and the potential of their activities to impact on railway safety we are working to produce related guidance which we expect to publish in 2007.

Throughout the year, we also prepared a number of internal procedural documents aimed at clarifying and standardising the way in which we conduct our work. Where these procedures deal with interactions with our customers, they were drafted in consultation with them. We will continue to develop further procedures as the need arises.

EU/ERA

The European Railway Agency (ERA), established in 2004, is the organisation charged with the practical implementation of EU railway policy. While the RSC continues to provide technical advice to the Department of Transport in support of its EU railway activities, our principal work lies in participating in various ERA structures and meeting related information and reporting requirements.

Currently we are represented on the three principal bodies provided for in the Railway Safety Directive:

- ERA administrative board
- Network of National Safety Authorities
- Network of National Investigation Bodies

These networks provide a mechanism for member state regulatory and investigatory bodies, sharing knowledge and experience and supporting the ERA in developing the structures through which a common EU railway safety framework will be established.

In further support of this work, the ERA has set up a number of stakeholder working groups on which regulatory and investigatory bodies are represented. They are working to a five year window driven by timelines in the Railway Safety Directive. Their work is critical since deliverables, in the form of methodologies and standards, will provide a safety benchmark for member state railways. Resource limitations preclude us from participating as fully in these groups as we would wish. We have prioritised our involvement and are currently represented on those working groups developing:

- Common safety indicators
- Common safety targets
- Methodologies for tracking the implementation of incident investigation recommendations.
- National Safety Rules

ERA is headquartered in Valenciennes in France but, to facilitate access, holds the majority of its meetings in Lille. In 2006 various members of our team attended a total of fifteen such meetings.

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International Railway Safety Conference 2006

The first International Railway Safety Conference was organised by East Japan Railways in 1991. In industry terms it is unique in that it is organised by safety professionals for safety professionals with the sole aim of adding safety value by sharing knowledge and experience. Delegates come from all industry sectors including operators, regulators, investigators, consultants, labour and passenger organisations.

Ireland has been an active participant since 1999 and is a member of the international core group that is responsible for policy, ongoing development and promotion. In 2006, the RSC led the organising committee which was representative of various industry organisations north and south of the border. The conference was held Dublin Castle over three







days, and thirty-three technical papers were presented to one hundred and ten delegates from twenty-four countries. The conference concluded with two days of technical visits in Dublin and Belfast.

Participation in the Conference is part of our ongoing continuous professional development activities and in hosting it we were also able, in a very active way, to promote railway safety. The technical visits also provided an opportunity to showcase the state of the art technologies and equipment being used on our heavy and light rail systems.

We are pleased to have had the opportunity to host the Conference and express our particular thanks to the Minister for Transport, Martin Cullen TD, for his support and to those who helped organise or otherwise sponsored the event.

Corporate Governance and Administration Introduction

Introduction

2006 was the first year of operation for the RSC. Many of the corporate governance and administration tasks were centred around the establishment of the agency as an independent body.

Corporate governance comprises the systems and procedures by which enterprises are directed and controlled. In this, the Commission is guided by the Code of Practice for the Governance of State bodies, as published by the Department of Finance.

Finance

The RSC is committed to maintaining full transparency and effective controls over our financial management. We have established a new accounting system with financial information management and expenditure review processes. Our funding is provided by the Department of Transport by a Grant-in-Aid. In 2006 this funding amounted to \in 1.7m. Our accounts for 2006 are subject to audit by the Comptroller and Auditor General. It is expected that this audit will be completed by mid 2007.

Human Resources and Staff Development

Recruitment:

The RSC has experienced considerable difficulties in recruiting inspectors. This reflects similar problems across all industry

sectors driven by a highly buoyant market for technical professionals. Competitions initiated in December 2005 to fill our two outstanding vacancies at Inspector and Chief Investigator level were unsuccessful.

Given that this was the second competition where the post of Chief Investigator remained unfilled, and that the Railway Safety Directive required that appointment to this position be made by 1st May 2006, it was re-advertised in August at a higher salary. A further Inspector competition was also run in parallel. It is anticipated that both a Chief Investigator and an Inspector will be appointed to the RSC in 2007.

Human Resource Requirements:

Our current approved cadre is based on a human resource study conducted by independent consultants in 2000. This anticipated the approach that would be taken to railway safety regulation, and resultant tasks that would accrue to the RSC, and the projected level of railway development to 2005. In the intervening period our workload has increased significantly, due primarily to:

- Regulatory and allied demands arising from the Act, the implementation of the Railway Safety Directive, and establishment of the ERA, being substantially higher than anticipated;
- The projected level of railway development work to 2015 being approximately an order of magnitude greater than for the period 2000-2005.

In June, we engaged independent consultants to quantify this increase in base workload. We also asked them to assess what further additional resources would be required to offset the impact of decentralisation, principally our distancing from the primary focus of our work and business in the greater Dublin area. They found that the RSC will need a substantial increase in staff both to meet its increased base workload and to compensate for the impact of decentralisation.

Further Action

As a precursor to formulating a strategy to address this resource shortfall, we needed to identify the factors responsible for our poor recruitment record. Given the urgency of the situation, we invited the authors of the human resource study carried out in 2000 to address relevant issues including the salary and organisation benchmarking contained in their original review. This work will be concluded in early 2007.

Transfer of Administrative Functions

Despite our best efforts, it was not possible to achieve our goal of full transfer of administrative functions from the Department of Transport during 2006. This is an undesirable situation, in terms of our independence and corporate governance, and in 2007 we will continue to work with the Department to resolve it.

Risk Management

The Commission has conducted a business risk assessment, identifying the key threats to the organisation's reputation and to our strategic, operational and financial interests. We have incorporated a risk management programme as an integral part of our business planning process. We will continue to strengthen existing risk management controls, and implement new controls as necessary.

Decentralisation

Under Government policy, the RSC is scheduled to relocate to Ballinasloe, Co. Galway. Having assessed the associated business impacts and risks, we have prepared an implementation plan which is designed to give effect to that policy without compromising our capacity to meet our statutory responsibilities and customer needs. The plan, which can be viewed on our web-site, scheduled two tasks for completion in 2006, i.e.:

- Filling of outstanding vacancies to meet current approved cadre;
- Reassessment of human resource needs against current and medium term projected workload including the impact of decentralisation.

It was also envisaged that, having successfully completed these tasks, discussions on resolution of any related industrial relations issues would commence.

Ongoing recruitment difficulties have meant the RSC was unsuccessful in recruiting any additional staff in 2006. A review of our human resource needs was, however, completed by independent consultants, indicating the need for a substantial increase in staffing. Since we were unable to complete both of these tasks, no discussion took place in relation to industrial relations aspects of decentralisation.

At the end of the year, we reviewed our implementation plan, taking into account the extent to which we had been able to progress tasks scheduled for 2006. The effect has been to extend the date for full implementation of the plan by approximately one year. The current revision of the plan can be viewed on our website: **www.rsc.ie**

Irish Language Commitment

The RSC is committed to implementing the relevant parts of the Official Languages Act 2003. Our signage and stationery are currently in both Irish and English.

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We currently produce our official documents, such as the Annual Report and the Statement of Strategy, in both languages. The Irish language capability of our staff is maintained so that any queries can be responded to in either English or Irish. We encourage and facilitate the on-going language training of our staff.

Freedom of Information

The RSC is committed to the maintenance and development of an open culture and a transparent environment, where information is freely available and experience and knowledge is shared. We are committed to fostering and developing these conditions, which we see as essential to the effective regulation of safety.

The former Railway Inspectorate division, our forerunner under the aegis of the Department of Transport, was subject to the Freedom of Information Act. It is expected that the Commission will be included among the organisations governed by this Act by mid 2007. In the meantime, we are committed to conforming to the principles of this Act.

Continuous Professional Development

The Commission is a knowledge intensive organisation, and our ability to achieve our goals and objectives is determined by the calibre of our staff. Continuous learning is a core organisational requirement, essential to our maintaining the capacity to meet our work demands in a constantly developing and evolving industry.

In this context, we foster an organisational culture which values our staff and seeks to develop their potential through continuous learning. While we aspire to investing in their knowledge and skills, which will in turn add value to our work, we did not achieve the desired level of CPD in 2006. The primary reason for this was our intense workload which limited the amount of time we could afford to CPD. We did, however, contribute papers to several conferences focusing on rail safety, both at a national and international level.

Customer Charter

The Customer Service charter was prepared in 2006 and is available on our website. This charter describes the level of service a customer can expect from the RSC. No customer service complaints were received in 2006. The Customer Service Action Plan will be available in mid 2007.

Website

In 2006 we launched our website, **www.rsc.ie**. It is our intention to make as much information as possible regarding the work of the RSC available to any interested parties through our website. The website is continually updated with reports and documents relating to rail safety.

Railway Safety Advisory Council

Under the terms of the Railway Safety Act 2005, the Minister of Transport will set up a Railway Safety Advisory Council to represent the various stakeholder organisations and groups. The Council will be an independent body and may make recommendations to the Minister or the RSC on various railway safety matters. The Commissioner may attend council meetings in an advisory capacity. The RSC will defray any expenses of the Council.

Looking Forward

Our primary focus in 2007 is to continue to meet our customer needs and demands. However, a number of key tasks must be progressed if we are to be able to do this effectively.

In our Statement of Strategy, we have identified three key challenges that are critical to the successful implementation of our business strategy. These challenges relate to achieving a global approach to imported railway risk, optimising the staff resource of the RSC, and facilitating the transition to a new regulatory regime.

A large proportion of the risk to the railway is imported. The generators of this risk may not always realise how their activities impact on railway safety, and they can be difficult to identify and target. To address this issue, we recognise the importance of continuing to develop a partnership approach with the industry and other stakeholder groups.

Balancing workload and resources is essential. While we can compensate for staffing shortfalls by engaging consultants, this approach is costly and does not give our organisation the benefit of the secondary knowledge and experience gained. Our growing workload and recruitment difficulties are critical issues which we will address early in 2007. The provisions of the Act represent a significant change from the previous regulatory framework. Considerable effort and co-operation will be needed to effect a smooth transition to a point where the new procedures are fully embedded and deliver a robust process of oversight. The various stakeholders need to clearly understand their particular responsibilities and how to demonstrate that they have been met. We will continue to work with them over the coming year to achieve this objective.

Appendix 1: Iarnród Éireann operating statistics 2000-2006 *

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------------------------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | | | | | | |
| Staff | 5,439 | 5,759 | 6,021 | 5,833 | 5,590 | 5,462 | 5,114 |
| | | | | | | | |
| Train-km passenger | 12,702,000 | 12,356,000 | 12,602,000 | 12,245,000 | 11,777,000 | 13,034,000 | 14,505,000 |
| Train-km freight | 2,730,000 | 4,133,000 | 2,895,000 | 2,705,000 | 3,350,000 | 4,953,000 | 3,737,000 |
| Train-km total | 15,432,000 | 16,489,000 | 15,497,000 | 14,950,000 | 15,217,000 | 17,987,000 | 18,242,000 |
| | | | | | | | |
| Locomotive-km diesel locos | 9,198,000 | 8.516.000 | 8,500,000 | 7.776.000 | 7.038.000 | 7.845.000 | 8.706.000 |
| passenger | .,, | -,, | -,, | -,, | | | -,, |
| Locomotive-km diesel locos | 2,730,000 | 4,133,000 | 2,895,000 | 2,705,000 | 3,350,000 | 4,953,000 | 3,737,000 |
| freight | , , | ,, | ,,. | , , | | , , | -, - , |
| Locomotive-km total diesel | 11,928,000 | 12,649,000 | 11,395,000 | 10,481,000 | 10,388,000 | 12,798,000 | 12,443,000 |
| locos | , , | , , | , , | , , | , , | , , | , , |
| Locomotive-km EMUs | 1,961,000 | 2,239,000 | 2,239,000 | 2,239,000 | 2,239,000 | 2,239,000 | 2,239,000 |
| Locomotive-km diesel railcars | 1,543,000 | 1,601,000 | 1,863,000 | 2,230,000 | 2,590,000 | 2,950,000 | 3,560,000 |
| Locomotive-km total railcars | 3,504,000 | 3,840,000 | 4,102,000 | 4,469,000 | 4,829,000 | 5,189,000 | 5,799,000 |
| | | | | | | | |
| Passenger journeys total | 31,721,000 | 34,206,000 | 35,370,000 | 35,558,000 | 34,550,000 | 37,653,000 | 43,350,000 |
| | | | | | | | |
| Passenger-km total 1 | ,389,138,088 | 1,515,303,000 | 1,628,410,000 | 1,600,615,000 | 1,581,698,000 | 1,781,400,000 | 1,872,067,000 |
| , | . , , , | | | | | | |
| | | | | | | | |
| Km of track in service | 1 9 1 9 | 1 9 1 9 | 1,919 | 1,919 | 1,919 | 1,919 | 1,919 |

(* source: larnród Éireann)

Appendix 2: Rail incidents and injuries notified by larnród Éireann to the Railway Safety Commission

| Pailway operations and maintenance: fatal injuries | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Kanway operations and maintenance. ratar injuries | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Fatal injury to person due to a train accident, not at level crossing | - | - | - | - | - | - | - | - | - | - | - |
| Fatal injury to passenger traveling on a train, other than in train accident | - | - | - | 3 | - | - | - | - | - | - | - |
| Fatal injury to passenger attempting to board or alight from train | 1 | 1 | - | - | 1 | - | 1 | - | - | - | - |
| Fatal injury due to railway accident at a level crossing | - | 1 | - | - | - | - | 1 | - | 1 | - | - |
| Fatal injury to employee at a level crossing due to train in motion | 1 | - | - | - | - | - | - | - | - | - | - |
| Fatal injury to employee due to train in motion (other than at a level crossing) | - | - | - | - | - | 1 | - | - | - | - | - |
| Fatal injury on railway or level crossing where trespass or suspicious death was indicated | 7 | 12 | 6 | 7 | 9 | 11 | 9 | 10 | 11 | 8 | 7 |
| | | | | | | | | | | | |
| Railway operations and maintenance: non-fatal injuries | 1004 | | | | | 2001 | 2002 | 2002 | 2004 | 2005 | 2006 |
| Injury to passenger due to a train accident not at level crossing | 1996 | | | | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| ······································ | 5 | | | | | 11 | 5 | - | - | 12 | - |
| Injury to passenger traveling on train, other than in a train accident | 56 | | | | | 60 | 54 | 66 | 70 | 73 | 41 |
| Injury to passenger attempting to board or alight from train | 48 | | | | | 65 | 43 | 69 | 65 | 48 | 55 |
| Injury to passenger in station or visitor to premises | 54 | | | | | 81 | 108 | 80 | 86 | 105 | 68 |
| Employee injury involving train movement or train accident | 10 | | | | | 10 | 5 | 12 | 8 | 4 | 15 |
| Employee injury while working on railway | 108 | | | | | 118 | 104 | 109 | 118 | 100 | 68 |
| Employee injury at level crossing | 2 | | | | | 3 | 1 | 2 | - | 1 | 2 |
| Person injured in railway accident at level crossing | 1 | | | | | 3 | 1 | - | - | - | - |
| Passenger injury in railway accident at level crossing | - | | | | | - | - | - | 1 | - | - |
| Level crossing user injured | 5 | | | | | 2 | 3 | - | 3 | 4 | - |
| Injury to other person | 12 | | | | | 2 | 4 | 6 | 6 | 3 | 5 |

| Train incidents | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Derailment of a passenger or goods train in service on running line | 5 | 4 | 5 | 1 | 1 | 1 | 1 | 4 | - | - | 2 |
| Other derailment on running line | 6 | - | 2 | 2 | 2 | 1 | - | 1 | - | 2 | 3 |
| Train collision with passenger or goods train in service on running line | 4 | 1 | - | - | - | 1 | - | 1 | - | - | 1 |
| Train collision with buffer-stop (passenger train on running line) | 1 | 1 | - | 2 | - | 2 | 1 | - | - | - | - |
| Other train/train collision on running line | - | 1 | - | 2 | - | - | - | 1 | - | - | - |
| Train collision with a motor vehicle at a level crossing | 5 | 4 | 3 | 6 | 3 | 2 | 4 | - | 2 | 2 | 1 |
| Train collision with attended gates at a level crossing | 4 | 6 | 2 | 4 | 5 | 4 | 3 | 2 | 3 | - | 2 |
| Train collision with a vehicle obstructing the line (not at a level crossing) | 1 | 2 | - | - | 3 | - | 2 | 2 | - | - | - |
| Train collision with animal(s) | 61 | 62 | 52 | 46 | 26 | 32 | 32 | 43 | 40 | 42 | 43 |
| Train collision with other obstacle on the line | 5 | 4 | 6 | 3 | 1 | 2 | 2 | 3 | 1 | - | 7 |
| Rolling stock incidents | | | | | | | | | | | |
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Fire or smoke on locomotives or other rolling stock | 5 | 3 | 3 | 6 | 6 | 7 | 11 | 8 | 9 | 4 | 13 |
| Train dividing in running | 6 | 3 | 8 | 5 | - | - | 2 | 1 | - | 3 | - |
| Rolling stock door incident | 3 | 2 | - | - | 2 | - | 4 | 3 | - | - | - |
| | | | | | | | | | | | |
| Permanent way & infrastructure incidents | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Rail on passenger line fractured from head to foot | 8 | 11 | 6 | 12 | 3 | 3 | 5 | 3 | 1 | 6 | 4 |
| Bridge under the railway struck by road vehicle | 73 | 79 | 88 | 100 | 106 | 79 | 99 | 137 | 123 | 203 | 194 |
| Bridge parapet over the railway struck by road vehicle | 11 | 7 | 9 | 9 | 13 | 3 | 4 | 6 | 13 | 12 | 23 |
| Main (running) signal passed at danger | 17 | 6 | 20 | 18 | 23 | 29 | 22 | 32 | 27 | 37 | 25 |



Appendix 3: Accident & Incident Statistics larnród Éireann Network 1996-2006

Introduction

The accident and incident statistics included here are for the purpose of indicating the general level of safety and the safety trends on the Irish railway network.

Railway Safety Commission Annual Report 2006

The statistics are based on information reported to the Railway Safety Commission (RSC) by Iarnród Éireann (IE) for the national heavy rail network in accordance with the RSC's reporting requirements. In general, the fatality and incident statistics are shown for the last eleven years of service. Differentiated data for injuries are shown for years 2001-2006, with comparison figures for 1996.

The following classifications are used:

- A train accident is a collision, derailment or fire involving a train in service;
- A train collision is a collision between trains, or between a train and a vehicle object or animal;
- A railway accident is a train accident or accident resulting from the movement of trains, such as a person being injured by a train;
- Passenger includes anyone boarding, alighting or traveling on a train;
- Railway staff includes all contractors working on the railway;
- Injuries to employees and contractors causing them to lose one whole day from their ordinary work are reportable;
- All third party injuries are reportable;
- Railway accident at a level crossing includes collisions with motor vehicles.

The numbers quoted should not be considered as a complete representation of all safety statistics on the railways in Ireland. Statistics in future reports may vary due to realignment of definitions to accord with European regulations.

Railway Operations and Maintenance: Fatalities and Injuries

This report refers to fatalities and injuries to persons as a result of railway operations and maintenance of the railway. It does not, for instance, address fatalities or injuries occurring in maintenance workshops other than those involving the movement of trains. Injuries to persons in railway stations are included.

For clarity, the fatalities indicated in the charts only those relating to rail vehicle movements. Other deaths on trains or premises or on the railway are not included.



Figure 3: fatal injuries: passengers or train accidents

Figure 3 indicates fatalities to passengers. These have been very infrequent in recent years. The last passenger fatality due to a train accident was in 1991. From 1996-2005 there were 3 instances of fatality where a passenger fell from a train in motion, and 3 instances of fatality where a person attempted to board a moving train.



Figure 4: Fatalities at level crossings or to employees

Figure 4 shows fatalities at level crossings, and fatalities to employees due to moving trains. The fatality rate at level crossings is quite low in comparison with other European Union countries. About one level crossing user is killed on Irish railways every 2 years.

The last fatality to an employee working the gates at a level crossing was 10 years ago. An employee died in 2001 while engaged in shunting of trains. Another employee also died in 2002 while felling trees beside the railway, although this accident was not due to the movement of trains.

Initiatives that should reduce risk of gate-keeper fatalities include line-side improvements; driver training efforts to reduce risk of signals passed at danger and gate-strikes; regulated hours of work for gate-keepers and the reduction in number of manned level crossings through use of remote monitoring and barrier automation. The risk to staff while shunting trains has been addressed through improved training, and reduction in the number of passenger vehicles in operation that require manually assisted coupling/uncoupling.



Figure 5: Fatalities due to trespass or in suspicious circumstances

Figure 5 indicates the rate of deaths on the railway due to trespass or in suspicious circumstances. Most of these cases occurred in suspicious circumstances. The general trend here has been upward, although there appears to have been some improvement since 2004.



Figure 6: Passenger injuries

Figure 6 indicates reported injuries to passengers and visitors: there was a significant drop in reported injuries of this type in 2006. Train accidents are rare and outcomes can vary in terms of injury: the injuries recorded since 1996 generally relate to low speed collisions in stations. Reported injuries to passengers traveling are shown, whether or not the injury was caused by the motion of the train. Injuries can also be due to hot liquids, illness or misbehaviour of others. Injuries while boarding or alighting are generally as a result of slip/trip hazards, the platform gap or to closing doors. The chance of injury to a traveling passenger is about the same as that to a passenger attempting to get on or off a train, i.e., about once every million passenger journeys. Injuries in stations and premises are generally due to slips and trips on the level, falls on stairs and escalators or misbehaviour.



Figure 7: Employee injuries, other than in workshops or at level crossing

Figure 7 indicates lost-time injuries to employees as a result of railway operations and maintenance of the railway. Employee injuries at level crossings are treated separately. Employee injuries occurring in maintenance workshops, other than those clearly involving moving trains, are excluded.

There has been a sharp drop in reported employee injuries since 2004. Less than 10% of employee injuries in 2006 involved trains in motion. Many employee injuries were attributable to slips and falls, working on trains at rest, getting on and off trains, track maintenance activity or misbehaviour of others (such as assault, discarded needles and attempts at self-harm).

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Figure 8: Injuries at level crossings

Figure 8 indicates reported injuries occurring at level crossings. Employee injuries were generally due either to handling of gates or to slipping on the crossing surface. The railway accidents were train collisions with attended gates or cars. User injuries were usually due to problems with the crossing surface or to dropping automated barriers.



Figure 9: Injuries to other persons

Figure 9 indicates injuries to other persons, generally attributable to trespass on the railway or to falls from a height onto the railway.

Incidents Involving Trains

Train incidents, as reported below, include incidents involving rail vehicles on running lines, but exclude incidents in sidings and storage yards. They include derailment of trains and engines, collisions between trains or engines, collisions with buffer stops, collisions at level crossings and collisions with obstacles on the line.





Figure 10: Derailments on running lines

Figure 10 indicates derailments of trains and engines on running lines, where a general downward trend is indicated. In 2006, two trains in service were derailed: one maliciously during an organized attempt to steal beer kegs from a goods train, and one where an empty cement train exiting Cork yard caused damage to the running line. Of the other derailments, one involved empty coaching stock being transferred between Heuston and Inchicore, and the other two involved a track maintenance tamping machine and a track inspection car.





Figure 11 indicates collisions between trains and engines on running lines, where a general downward trend is indicated. In 2006, there was one low-speed collision between trains, where the locomotive of a passenger train clipped a cement wagon fouling the running line at Limerick Junction. There were no injuries due to this incident and neither train was derailed or significantly damaged.

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Figure 12: Train collisions at level crossings

Figure 12 indicates collisions with motor vehicles or gates at level crossings on running lines, where a general downward trend is indicated. In 2006, an abandoned motor vehicle was struck at a user-worked crossing near Ballina, Co. Mayo. The level crossing gates at Ballybane on the Tralee line were struck by a railcar after the protecting signal in advance of the crossing was passed at danger: the crossing keeper abandoned the gates upon seeing the train approaching. The level crossing gates at Ballina station were struck by a locomotive which rolled away after the service brake pressure leaked off. The Driver was on board and was able to stop the locomotive using the parking brake. There were no injuries due to any of these incidents and in each case the train was not derailed or significantly damaged.





Figure 13 indicates collisions on running lines with motor vehicles not at level crossings, with animals on the line and with other obstacles. There are insufficient data on collisions with motor vehicles and obstacles to observe a trend. In the case of collisions with animals, a general downward trend was evident until 2000, mainly attributable to improvements to line-side fencing and level crossings. Animal strike frequency has been increasing since 2000. Wild deer have featured in the reports since 2003, and in 2006 11 wild deer strikes were recorded.



Figure 14: Incidents involving Rolling Stock

Figure 14 indicates incidents involving rolling stock, where a rising trend is indicated for fire and smoke incidents in rolling stock. In 2006, there were 13 reported incidents of which 9 were fires. Six of the fires and three of the smoke incidents involved the engines of railcars. Iarnród Éireann has advised the RSC that modifications have been made as a result in an effort to reduce the frequency of such incidents. The RSC is monitoring the situation.

Although 3 divides of trains in running were reported in 2005, no divides were reported for 2006. No incident where doors of a train opened in running has been reported since 2003.

Incidents Involving Railway Infrastructure

The incidents involving railway infrastructure reported below include broken rails on a passenger railway, strikes of bridges under and over the railway by road vehicles, and situations where railway running signals were passed at danger by trains.



Figure 15: Broken rails on Running Lines



Figure 15 indicates the number of broken rails on running lines on the passenger railway. Broken rails are defined as failures where the rail was fractured from head to foot. Fractured rails are failures where a large visible crack was displayed or a piece of the rail broke off. The number of broken and fractured rails has reduced dramatically in recent years, apparently due to old rails being removed from the passenger railway system. The track renewal campaign was accelerated after a passenger train derailed at a broken rail at Knockcroghery in 1997, injuring 16 passengers.

Between 1996 and 2000, over five times more fractured rails than broken rails were reported for passenger lines. Since 2000, by comparison, annual reports of fractured rails have dropped by a factor of sixteen and reports of broken rails have halved. Currently, most broken rails are due to defects in butt-welds joining the ends of rails together. For 2006, 4 broken rails and 3 fractured rails were reported on passenger lines, and 1 broken rail on a freight-only line. In addition, two buckled rails on running lines were reported for 2006.



Figure 16: Bridge strikes by road vehicles

Figure 16 indicates road traffic incidents where a bridge under or over the railway was struck by a vehicle. These incidents almost invariably involve a heavy vehicle. The number of reported bridge-strike incidents has increased by 2½ times over the past decade.

The great majority of incidents are due to a vehicle striking a railway bridge where the vehicle height exceeds the displayed under-clearance height. The concern is that the alignment of the railway could be disturbed by a serious bridge strike, leading to a risk of derailment. In 1975, a passenger train was derailed at Gorey as a result of damage by a road vehicle to a metal girder under-bridge carrying the railway track, killing five and injuring forty-three people. Although much work has been done to renew, strengthen and protect bridges at risk of being struck, the occasional serious bridge strike occurs. In 2006, 194 strikes of bridges under the railway were recorded by larnród Éireann, of which 12 were described as potentially serious, and 2 as serious.

In 2000, the most frequently struck railway bridge, at East Wall Road, was elevated and the road under it was restricted to light vehicles. Since 2000, the clearance heights of bridges under the railway have been reviewed and road signage renewed but the incident rate has climbed sharply. Through the Interdepartmental Road/Rail Interface working group, the RSC has worked with larnród Éireann and the Irish Road Haulage Association and the relevant authorities to identify means to address this matter. In addition, the Department of Transport proposes to set the maximum height of road vehicles at 4.65m.

Strikes of road bridge parapets by road vehicles have been relatively infrequent, but the rate is increasing and the risk to the railway can be high. In 1999, a heavy road vehicle ran through the parapet of a road bridge over the railway near Kildare station and landed on the railway, killing the driver. A train leaving the station was brought to a halt short of the obstruction.



In 2002, concrete slabs that fell from a truck crossing a bridge at Rathmore obstructed the railway and trains had to be stopped. In 2005, part of a wide load fell from a trailer crossing over a narrow bridge near Boyle and was narrowly missed by a passenger train. In 2006, 23 strikes of road bridges over the railway were recorded by larnród Éireann. Three of these cases resulted in the bridge parapet knocked down and, in one instance, a passenger train collided with the resulting debris near Templemore.



Figure 17: Signals Passed At Danger on Running Lines

Figure 17 indicates the number of railway running signals at danger (SPAD) passed by trains. A steady upward trend is indicated, with a doubling in the number of reports over the past ten years. The increasing trend may in part be due to increasing rail traffic and improved detection of infringements where the signaling system has been modernized. A decline in incidents is reported for 2006, which may be attributable to defensive driving and improved signal sighting and braking distances.

The pink trace line indicates the overall running SPAD rate, if strikes by trains of the barriers of attended gates and bufferstops protected by a stop signal are included.

Appendix 4: Interdepartmental Working Groups chaired by RSC

Members of the Road Rail Safety Working Group:

- Railway Safety Commission
- Iarnród Éireann
- Department of Environment and Local Government
- Garda Siochana
- Dublin City Council
- National Roads Authority
- Veolia
- Department of Transport
- Irish Road Haulage Association
- Limerick City Council

Members of the Emergency Planning Working Group:

- Railway Safety Commission
- Iarnród Éireann
- Department of Environment and Local Government
- Garda Siochana
- Veolia
- Railway Procurement Agency
- Department of Transport
- Department of Health
- Dublin Fire Brigade
- Ambulance Services
- Defence Forces