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# Rail Safety: the case for an enhanced New Zealand regulator

October 2018

Consultation resource

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## BACKGROUND

1. This document sets out an indicative case justifying increased resourcing levels for the NZ Transport Agency (the Transport Agency) rail safety regulatory function. This would enable the Transport Agency to more effectively and proactively, with a focus on critical risk, deliver its designated functions under the Railways Act 2005 (the Act) to support and maintain a safe New Zealand Rail system.
2. The Transport Agency is the key rail safety regulator. This function is carried out through a rail safety regulatory function established within the Transport Agency. This function's main objective is to ensure NZ rail network operations are conducted safely for rail workers; rail users; and other persons accessing the rail corridor.
3. The rail safety function is currently funded entirely from third party fees and levies from rail licensees<sup>1</sup>. These fees and levies were set in 2008, and, due to economic pressures at that time within the rail sector, were implemented at a level below then known costs. The fees and levies have been unchanged since 2008, other than adjustments arising from Goods and Services Tax increases. As costs have risen each year since 2008, the safety function has suffered year on year deficits which has limited the Transport Agency's ability to invest at a level commensurate with the sector risk as this is identified. At the end of the 2016-17 financial year the Rail Licensing memorandum account, which deals with income and expenditure for the rail safety function, reported a cumulative deficit of around \$5m. This amount has now been written off by the Transport Agency Board, to assist with of the setting of new fees and levies.
4. Because of funding constraints, between the Act's introduction in 2005 and 2013, the rail safety regulatory function has tended to focus on routine, reactive elements of the Act - the licensing of rail participants and the on-going assessment of only those operations. The manner in which the licensing and assessment function was undertaken was a 'one size fits all' model that could not fully assess and prioritise risk in a structured or sustainable manner. In addition, the sole focus was only on those participants who were licensed - who made up only about 100 of the 400 estimated rail participants. Other necessary regulatory activities, compliance tools and techniques available through the Act (for example imposing conditions on a licence holder, under s. 28 of the Act), have been unable to be fully explored, developed or utilised. The effect of this is that the rail industry has tended to monitor itself and operated in a way that is more aligned with a self-regulated environment. This approach is inconsistent with regulatory best practice.
5. Following on from the findings of a number of independent reviews, completed in 2014, the Transport Agency committed to achieving a better resourcing level to fully unlock the Act's toolkit of safety specific functions to ensure the intended safety outcomes are achieved. This includes a change in strategic focus and a move to a proactive risk-based regulatory operating model. Whilst routine oversight of participants continues, safety gains are made through examining the rail system as a whole, effective monitoring of compliance and an evidence-based focus on addressing critical risks.
6. The proposal set out in this paper seeks approval for a new higher resourcing level to achieve more proactive rail safety regulation consistent with regulatory best practice, with the objective of delivering a safer rail system (measured by reductions in death and injuries and reductions in those events that are precursors to catastrophic accidents).

## Context

7. The Transport Agency's rail safety function is the critical safety regulatory role for the New Zealand rail system. The function is akin to that delivered in the maritime and civil aviation sectors, and is required due to the potential for a catastrophic accident on the rail network.
8. The Transport Agency has primary regulatory responsibility for safety oversight of the rail system. In this role the Transport Agency collaborates with WorkSafe, which is the health and safety regulator for all workplaces, and the Transport Accident Investigation Commission which has a statutory role in determining the cause of significant transport accidents other than those occurring on the road network. The Transport Agency and

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<sup>1</sup> Access providers and Rail Operators as specified in the Act, fees as out in the Railways Regulations 2008

Worksafe NZ co-operate in the area of inspections, improvement directions and, where necessary, prosecutions to ensure a safe railway environment<sup>2</sup>. Worksafe NZ's main interaction with rail is:

- 8.1. tunnel safety (via the High Hazard Unit), and
  - 8.2. prosecuting gross safety breaches.
9. A series of regulatory failures in New Zealand (for example, the Pike River Coal Mine tragedy and Weathertight home - leaky homes - crisis) led to reviews of a number of regulatory regimes, including the effectiveness of the Transport Agency rail safety regulatory function. The rail safety reviews<sup>3</sup> found that, in general, the Act represents 'good' if not 'best' practice, and in its current form does not prevent or limit the Transport Agency from carrying out its safety regulatory role.
10. The independent reviews were commissioned by the Transport Agency and assisted in highlighting safety regulation gaps. The reviews concluded that the Transport Agency's rail regulatory operational policies and practices were not best practice, in the context of 2014, and are unlikely to have improved substantially since then. The reviews found that the Transport Agency had historically taken a passive, advisory approach to rail safety. The regulatory approach was centred on licensing and process-driven assessments. Minimal intervention occurred and there was no strategic focus or sustained outcome monitoring.
11. This has resulted in the Transport Agency's regulatory role overly relying on other government partners (for example WorkSafe NZ) or the rail sector (for example KiwiRail) to drive their own approach to safety performance. Whilst the Act promotes the responsibility of rail organisations to manage their own risks (and this is described in the individual operator's approved safety case), it is still vital for the regulator to maintain an active presence to ensure they do so adequately and urgently act when they fail to do so.
12. The review reports became the catalyst for a multi-year improvement project including improved resourcing of the rail safety function. Of the reviews, the 2013 report by Australasian Transport Risk Solutions (ATRS) made 18 observations that included:
- 12.1. the rail safety regulator was seen as a "soft" regulator
  - 12.2. the outsourcing of a key regulatory function (safety assessments) meant the regulator lost some of its "feel" for the risk and safety level of the industry
  - 12.3. the safety assessment function, considered to be a key element of a regulator's duty, was not carried out with a broad enough skill base and overseen too casually
  - 12.4. the rail safety regulator did not monitor incidents to allow it to adopt a risk-based approach in directing its activities
13. The ATRS report commented:
- "...there is considerable room for improvement. This conclusion is based on the results of the international benchmarking analysis, feedback received from the stakeholders, and evidence found by the review team which suggests that the current administrative and support arrangements within NZTA for such a safety critical independent rail safety regulator function to be less than an acceptable standard."
14. The various reviews recommended a series of tactical changes, such as elevating the regulator in the Agency hierarchy, increasing regulatory staff numbers, and broadening the skill-base including a greater focus on analysis.
15. A number of the recommendations from the reviews have been put in place. However, due to continuing resourcing constraints, fundamental structural, resource and operational steps to fully address the weaknesses found by the reviews have not been able to be taken. This lack of progress means that the good work that the Transport Agency has started is not sustainable or manageable in the medium and long-term. This means

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<sup>2</sup> Framework for review and prioritisation of rail safety risks in New Zealand, pg 98

<sup>3</sup> ATRS - Independent Review Report into Rail Systems Team (2013); HMG report from Morningside accident; NZTA - continuous-improvement-in-rail-safety-regulation

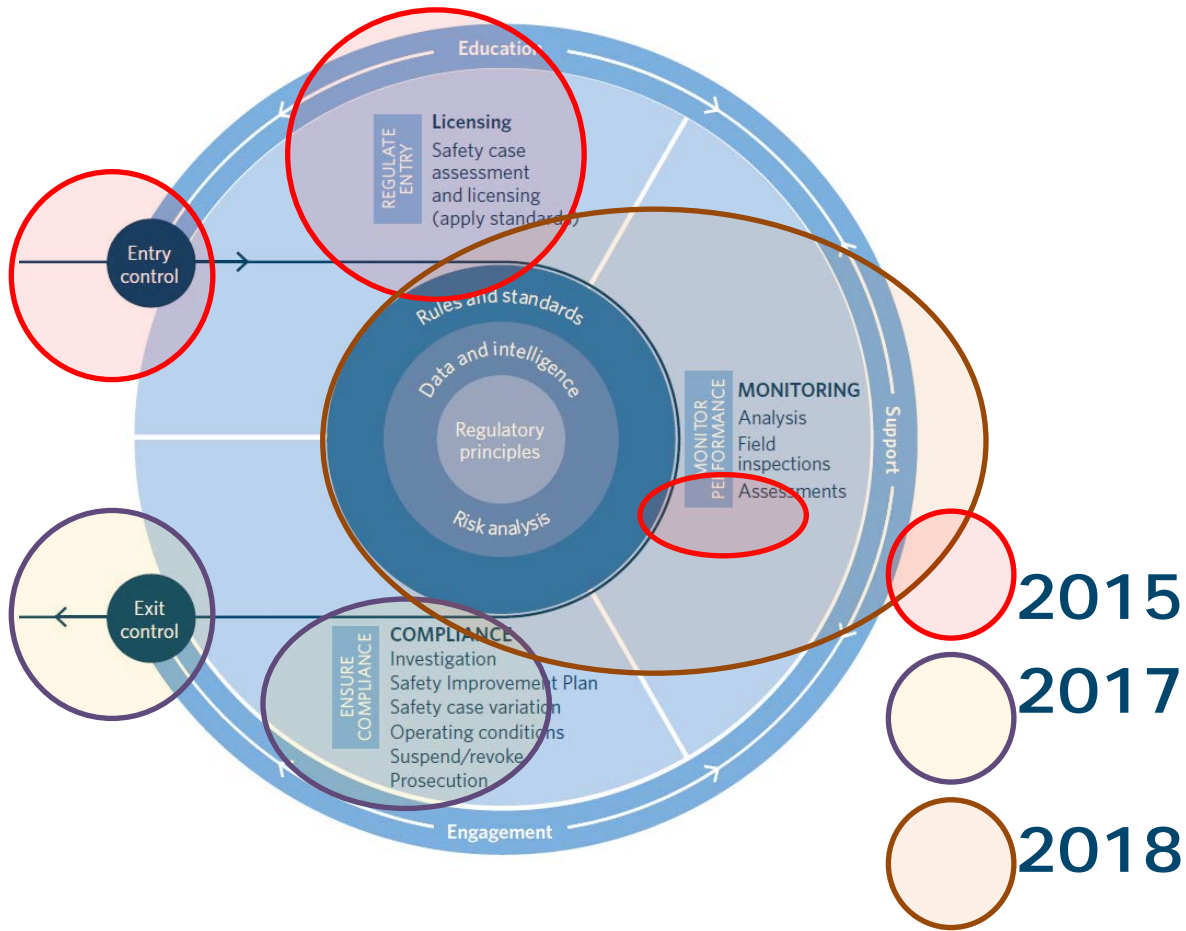
that assurance that risks associated with increased chances of a catastrophic accident in the rail network are effectively mitigated is, at present, inadequate.

16. The new resourcing levels proposed in this paper arise from a reappraisal of the then-existing regulatory resource level prompted by the reviews. The proposals should be revisited when the rail safety fees are next subject to a programmed review which should occur within the next five years (i.e. before the end of 2022).
17. The current review provides the Transport Agency with the opportunity to establish itself as a fit-for-purpose safety regulator. The objective is for a stronger safety regulator that is able to look at risks across the entire rail system, makes accountabilities clear, focuses on critical risks and intervenes where appropriate and at a level proximate to the risk.
18. The overall aim by the end of 2018 is to have secured a resourcing level that positions the Transport Agency as a rail safety regulator that will:
  - 18.1. provide safety leadership across the rail sector
  - 18.2. oversee the full rail sector, rather than just those who seek licences
  - 18.3. gather and properly analyse safety intelligence to make evidence-based decisions
  - 18.4. understand and proactively manage the critical risks in the rail environment,
  - 18.5. be responsive to rail participant behaviour and versatile in its use of the regulatory toolkit to ensure the optimal compliance outcome
  - 18.6. achieve meaningful and lasting safety improvements in the rail industry
19. To achieve these, the Transport Agency is committed to moving to an intelligence-led, risk-based operating model that is responsive to participant behaviour. This is consistent with expectations for all regulatory agencies, as specified in the 2017 "Government Expectations for Good Regulatory Practice". To deliver on this, robust frameworks will be applied, including critical risk management, analytics and intelligence, investigations and advanced interventions. However to deliver on these changes in any meaningful way will require the Transport Agency's rail safety function to be properly resourced.

## The case for investment

20. In its previous form, the Transport Agency's rail safety function was carried out by 10.5 full-time equivalent (FTE) staff. The response to the independent reviews increased the function to 15 FTE. To enable full development into a professional, responsive and risk based regulator, the key investment will be to build the rail safety function to 21 FTE. This is considered the minimum complement required to fully discharge the Transport Agency's safety regulatory role in the rail sector.
21. Diagram 1, which follows, shows the form and functions of an effective and fully functioning rail safety regulator. The diagram also shows how many are not currently able to be properly delivered by the Transport Agency and how they should be able to be as additional resources are provided.

**Diagram 1: Transport Agency Rail Safety function form and function development 2015 - 2018**



22. Table 1, below, illustrates how the provision of various desired functions will vary according to resourcing levels. Green means the function will be well provided for, while orange indicates the function should be provided but at a variable delivery level, red indicates that the function is unlikely to be delivered other than in a peripheral fashion.

**Table 1: Comparison between 2015, 2017 and 2018 resourcing - Key functions for component and desired staffing levels**

| Function (including key features)  | Initial resourcing (2015 level - 10.5 FTE) | Interim resourcing (2017 level - 15 FTE) | Desired resourcing (end 2018 - 21 FTE) |
|--|--|--|--|
| <b>Management and leadership</b> <ul style="list-style-type: none"> <li>Resource management</li> <li>Health &amp; Safety</li> <li>Agency partnerships and relationships</li> <li>Planning</li> <li>Strategy</li> </ul> | 2 FTE                                      | 3 FTE                                    | 3 FTE                                  |

|   |   |   |                                |
|---|---|---|--------------------------------|
| <p><b>Licensing &amp; Assessments</b></p> <ul style="list-style-type: none"> <li>• Licensing of rail participants</li> <li>• Approval of safety cases and safety case variations</li> <li>• Special Licensing Projects</li> <li>• Risk based assessment of licensed rail activities</li> <li>• Ordinary and Special Safety assessments</li> <li>• Field visits</li> <li>• Managing compliance</li> <li>• Education and outreach programmes</li> </ul> | <p>6 FTE</p>                                      | <p>6 FTE</p>  | <p>6 FTE</p>                   |
| <p><b>Systems Expertise</b></p> <ul style="list-style-type: none"> <li>• National operations oversight</li> <li>• Operations analysis and programming</li> <li>• NRSS/Rail system support</li> <li>• Communications</li> <li>• Reporting</li> <li>• Analysis and continuous improvement</li> </ul>  | <p>2.5 FTE</p>                                    | <p>4 FTE</p>  | <p>4 FTE</p>                   |
| <p><b>Risk and Intelligence</b></p> <ul style="list-style-type: none"> <li>• Data sourcing and management</li> <li>• Analysis and reporting</li> </ul> <p>Intelligence to business</p>  | <p>0 FTE</p>                                      | <p>0 FTE</p>  | <p>1 FTE</p>                   |
| <p><b>Cross-Unit Activities</b><br/>(e.g. Level Crossings)</p>  | <p>0 FTE</p>                                      | <p>0 FTE</p>  | <p>1 FTE</p>                   |
| <p><b>Large Capital Projects</b></p>  | <p>No ability to recover cost and no resource</p> | <p>No ability to recover cost resource being delivered from other functions</p> | <p>Ability to recover cost</p> |
| <p><b>Incident Response and Investigations</b></p> <ul style="list-style-type: none"> <li>• Incident/accident triage and response</li> <li>• Safety investigations</li> </ul>   | <p>0 FTE</p>                                      | <p>2 FTE</p>  | <p>3 FTE</p>                   |



|  |                 |               |               |
|--|-----------------|---------------|---------------|
| <ul style="list-style-type: none"> <li>• Special safety assessments</li> <li>• Operating framework</li> <li>• Managing Statutory interventions and recommendations (e.g. TAIC, Coroner)</li> </ul>   |                 |               |               |
| <p><b>Critical risk</b></p> <ul style="list-style-type: none"> <li>• Risk monitoring</li> <li>• National Priorities programme</li> <li>• Critical risk programmes, (in 2017 these are: Tunnels, worker safety, SPAD, Level crossings and Public-on-track)</li> </ul> | 0 FTE           | 0 FTE         | 3 FTE         |
| <b>Total</b>   | <b>10.5 FTE</b> | <b>15 FTE</b> | <b>21 FTE</b> |

23. To support the new resourcing levels an increase in the rail safety annual operating budget of \$1.7million per year is required. This increase is regarded as an investment in rail safety, and will allow for the desired 21 FTE target, including overheads and necessary supporting systems. This level of investment would see the Rail Safety function’s annual operating budget increase from \$1.8 million (2015/2016 actual) to \$3.54 million (from 2018/2019, predicted).

24. The increased resourcing will fulfil two major objectives:

- 24.1. to allow the function to be proactive and risk and intelligence led and able to identify areas of critical risk, and lead programmes of risk reduction and mitigation,
- 24.2. to fully fund the rail safety function.

## Beneficial outcomes – the strategic case

25. The outcomes in terms of improved rail safety are expected to emerge gradually and will not be immediately measurable. This is mainly because serious injuries and fatalities on the rail system (excluding level-crossing crashes or unauthorised persons on the track) are so infrequent that trends emerge only by looking at longer data series such as a 10-15 yr. rolling averages. The expected benefits will be fewer deaths and serious injuries and fewer incidents that are known precursors to catastrophic accidents. However, while outcomes may take time to be able to be well-measured, early reporting on activity and outputs indicative of greater safety assurance will be provided.

26. Assuming the value of statistical life (VOSL) for pricing the social cost of road crashes (\$4.14 million per fatality at June 2016 prices) can be applied to rail fatalities the proposed additional resourcing request (\$1.7 million per annum) has net benefits where at least 1 rail death is prevented every 3 years. It is considered that this is a valid outcome, and achievable.

## Risks and impacts

### *Risks and impacts of retaining current funding levels*

27. Maintaining the current structure/level of investment in the rail safety function (and assuming the Transport Agency is no longer prepared to cover deficits) means that only routine regulatory work could be expected to be undertaken (licensing, assessments and minimal incident/accident response). This is represented by the red circles (2015) in diagram 1. The opportunity cost of this approach is that wider, risk-based activities cannot occur (systems and incident investigations, intelligence regarding critical risk, and management of identified critical risk) all of which are related to avoiding a catastrophic accident occurring. Increased staffing in the rail safety team, from the 10.5 FTE initial complement towards the current 15 FTE (2017, purple circles in diagram 1), has created positive change in rail safety. This positive change is considered neither optimal, nor sustainable with the current levels of staffing. Focusing on new proactive, risk driven and strategic safety regulatory functions is where the largest gains in avoiding and mitigating critical risk to rail safety are to be found. Carrying out these functions without increased staffing would negatively impact other core activities. Essentially this would be creating a situation of the rail safety function being spread too thin, resulting in an inability to maintain or develop ongoing quality and assurance required to contribute appropriate to rail safety outcomes.
28. If further investment is not made in the rail safety team there may be a number of negative consequences. These will be due to an inability to further develop new regulatory activities that are a requirement of a responsive, risk-based regulator.
29. The Transport Agency must be able to operate in a way that delivers a sophisticated and influential programme of compliance, commensurate with a risk-based regulator and tailored to the diversity of the Rail sector. The rail safety function must, therefore, be resourced to operate at a strategic level to influence outcomes, and an operational level to test actual practice.
30. In summary, this means that without the additional resourcing requested preventable accidents may occur and we not have been able to every reasonable opportunity to avoid them.
31. The factors leading to this conclusion are outlined in Table 2.

**Table 2: *Probable consequences of accepting lower resourcing levels for Transport Agency's rail safety function***

| Function                    | Consequence if resources are not increased   |
|-----------------------------|--|
| Critical risk programmes    | Activity unable to be sustained due to staff only being able to carry out this work in downtime between core services. Also there will be no expert capability in the Transport Agency to add value to the safety solutions. This regulatory function risks ceasing altogether, leaving critical risk untreated, and the Transport Agency exposed in cases of high consequence events.   |
| Investigations              | This regulatory function will be severely limited to only superficially reacting to a small number of investigations without the skill set to determine the root cause or attribute culpability, and the ability to professionally deploy to injury/death events will be restricted (or not available).  |
| Intelligence and Monitoring | The rail safety regulatory function has access to vast amounts of data but it will therefore require a proactive capability to leverage the strategic view it provides. To undertake this requires a resource capacity outside of core services for the planning and implementation. In the current state, the Transport Agency is only able to undertake passive and reactive activities and emerging risk will be undetected until an accident or high consequence event occurs. Put simply the Transport Agency will not be focussed on where the next accident is coming from, and will not influence change in behaviour and practice that is required following a serious event. |
| Participant engagement      | Proactive engagement and communications are a critical tool in bringing about an environment of willing compliance. It is likely that the limited communications function currently undertaken will cease, and proactive stakeholder engagement will not be started. More licence holders will move to being unable or unwilling to comply, and the Transport Agency's current improving reputation will decline. In   |

|                               |   |
|-------------------------------|---|
|                               | <p>addition, the regulatory focus will turn from a system view of all participants who impact safety, to a narrow view of just those who are licensed.</p>  |
| <p>Programme coordination</p> | <p>Purposeful and deliberate engagement (outcomes focused) is necessary to ensure valuable resources are used to best effect (value for money). In the current state, core services will continue to be allocated at an individual and inconsistent level. Monitoring and scheduling of deadlines will not occur. Programme level management of critical risk programmes will not occur and therefore the highest risk and priority activities will miss out on resources and activity.</p> |

## Options and scalability

32. While it is recognised that, despite the risks noted above, it is possible to continue to resource the function to meet licensing and mandatory items and activities only, the Transport Agency considers that it has addressed this issue internally, by scaling the rail safety function at an interim level of 15 FTE (despite requiring deficit funding to do so), rather than the recommended long term option of 21 FTE. It is the Transport Agency’s view that 15 FTE does not provide sufficient coverage to meet the needs of a responsive risk-based regulator.
33. On this basis, there is little room to scale back resourcing requests without compromising the Transport Agency’s role as a rail safety regulator.