

# Waterfall SCOI Implementation Report 39

Implementation of the NSW Government's response  
to the Final Report of the Special Commission of  
Inquiry into the Waterfall Rail Accident

April 2018 to March 2019



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The Hon. Andrew Constance MP  
Minister for Transport and Roads  
GPO Box 5341  
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Dear Minister,

I am pleased to provide the sixth annual implementation report on the NSW Government's response to the recommendations contained within the *Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident*.

This annual implementation report reflects progress on open recommendations during the period 1 April 2018 to 31 March 2019.

Recommendations that are open are reported publicly by the Office of the National Rail Safety Regulator (ONRSR). At the close of the reporting period, there were two open recommendations covering: automatic train protection and the digital train radio system.

Recommendations that have been closed subject to implementation of an approved program or plan are monitored as part of ONRSR's ongoing regulatory activities to ensure these are fully implemented.

Further information about the history and progress of the implementation of recommendations can be found on the ONRSR website. This information includes:

- > copies of previous regulatory implementation reports
- > the annual status report of all recommendations
- > the annual status report summarising the six recommendations that have been closed subject to the implementation of an approved program or plan.

Yours sincerely,

Sue McCarrey  
**Chief Executive**  
**National Rail Safety Regulator**

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## Executive Summary

### Progress Summary

For the reporting period, 1 April 2018 to 31 March 2019, the status of the 177 SCOI Final Report recommendations (including 127 recommendations and 50 sub-elements) was as follows:

| Status  | Number     |
|---|------------|
| open  | 2          |
| closed – subject to the implementation of an approved program or plan | 6          |
| closed – action verified  | 163        |
| closed – no longer applicable   | 1          |
| closed – recommendation rejected                                      | 5          |
| <b>Total</b>  | <b>177</b> |

The two open recommendations, relate to the implementation of automatic train protection and a digital train radio system.

#### Recommendation 32: Automatic Train Protection

TfNSW's introduction of ATP involves fitting electric passenger trains with equipment that supports European Train Control Systems (ETCS) Level 2 technology, and uses ETCS Level 1 Limited Supervision to reduce the infrastructure works required (e.g. signalling interlocking modifications). The implementation provides an accelerated safety benefit by enabling all of the Sydney electrified network to be fitted with ATP equipment in a shorter timescale. The result is an ATP system that prevents trains exceeding their maximum allowable speed; prevents trains speeding at high risk locations; and provides a modern train stop function at unprotected locations.

The implementation of an ETCS Level 2 system remains in TfNSW's future strategies for the electrified railway network.

As of 31 March 2019, the following progress has been achieved:

- > ATP enabled H-set trains carrying passengers between Cockle Creek and Newcastle
- > ATP prototype installation completed on A/C/K/T/V sets
- > ATP installation completed on H sets
- > ATP infrastructure commissioned between Cockle Creek and Newcastle

#### Recommendation 38: Digital Train Radio System

The fixed infrastructure to deliver the Digital Train Radio System has been completed, as has the fitting of the electric and diesel passenger fleets.

Work associated with upgrading existing radios on freight trains has commenced, with completion of this final stage now planned for 31 December 2019. Closure of this recommendation will occur after the completion of the final stage.

## 1 Introduction

On 10 March 2017, the Office of National Rail Safety Regulator (ONRSR) assumed responsibility for overseeing the implementation of the NSW Government's response to the recommendations contained within the *Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident (SCOI Final Report)* from the Independent Transport Safety Regulator of NSW (ITSR).

The overseeing role includes verifying that the SCOI Final Report's recommendations have been effectively implemented or that an approved plan is in place for implementation.

In 2013, the former Minister for Transport accepted ITSR's recommendation to change the frequency of public reporting from quarterly to annually given that the majority of recommendations were either closed or subject to an implementation plan. This SCOI Report 39 is the sixth annual report and covers the period from 1 April 2018 to 31 March 2019.

ONRSR will continue to provide the Minister with annual reports for tabling in the NSW Parliament, in relation to the SCOI Final Report. ONRSR's public reporting will continue until all recommendations are implemented, with reports being published on ONRSR's website.

For clarity, where actions are relevant to both ITSR and ONRSR, the generic term "**regulator**" has been used throughout this report, noting that the expectations of the regulator remain unchanged following the transition from ITSR to ONRSR.

## 2 Abbreviations

|              |  |
|--------------|--|
| <b>ARTC</b>  | Australian Rail Track Corporation                |
| <b>ATP</b>   | Automatic Train Protection                       |
| <b>DTRS</b>  | Digital Train Radio System                       |
| <b>ETCS</b>  | European Train Control System                    |
| <b>ITSR</b>  | Independent Transport Safety Regulator of NSW    |
| <b>NSW</b>   | New South Wales                                  |
| <b>ONRSR</b> | The Office of the National Rail Safety Regulator |
| <b>RISSB</b> | Rail Industry Safety and Standards Board         |
| <b>SCOI</b>  | Special Commission of Inquiry                    |
| <b>TfNSW</b> | Transport for New South Wales                    |

### 3 Progress Summary

For the reporting period, 1 April 2018 to 31 March 2019, the status of the 177 SCOI Final Report recommendations (including 127 recommendations and 50 sub-elements) was as follows:

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| open  | 2          |
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| <b>Total</b>  | <b>177</b> |

Information on the regulatory methodology and classification taxonomy used by ONRSR for the SCOI Final Report recommendations is included at Appendix A and B.

The two open recommendations, which are outlined in further detail in Appendix C, are as follows:

**Recommendation 32:** RailCorp should progressively implement, within a reasonable time, level 2 automatic train protection (ATP). ATP systems provide automatic enforcement (slowing/braking) of authority (speed/location) if a train is behaving in an unauthorised way. Implementation will involve significant infrastructure change and is the subject of a major project.

**Recommendation 38:** There must be compatibility of communications systems throughout the rail network. It is essential that all train drivers, train controllers, signallers, train guards and supervisors of trackside work gangs in NSW be able to communicate using the same technology.

### 4.1 Background

This recommendation requires the fitment of automatic train protection on the electrified railway network in NSW.

In March 2016, the regulator accepted TfNSW's "acceptable alternative response" proposal to introduce ETCS Level 1 Limited Supervision across the network, with additional protection at high risk locations.

The regulator's acceptance of TfNSW's proposal was based on a quantitative safety risk assessment report. The report assumed the following milestones for the ATP Project: ATP installation completed by December 2019; an early deployment scheme involving controlled trialling of ATP protection by November 2018; and first revenue service in March 2019.

TfNSW's ATP Project involves fitting electric passenger trains with equipment that supports European Train Control Systems (ETCS) Level 2 technology, and uses ETCS Level 1 Limited Supervision to reduce the infrastructure works required (e.g. signalling interlocking modifications). The implementation provides an accelerated safety benefit by enabling all of the Sydney electrified network to be fitted with ATP equipment in a shorter timescale. The result is an ATP system that prevents trains exceeding their maximum allowable speed; prevents trains speeding at high risk locations; and provides a modern train stop function at unprotected locations.

The implementation of an ETCS Level 2 system remains in TfNSW's future strategies for the electrified railway network, through the Digital Systems Project.

In addition to the current ATP Project, additional projects are delivering ATP functionality, namely the delivery of 24 new Waratah 2 trains, and the delivery of the New Intercity Fleet.

### 4.2 Scope

The scope of ATP implementation in NSW comprises:

- > ATP fitment to the electrified railway network, excluding stabling yards
- > ATP fitment to the NSW electrified train fleet, comprising: OSCAR (H-sets), Tangara (T-sets), Millennium (M-sets), V-sets (part fleet), C-sets, K-sets and Waratah (A-sets) and Waratah 2 (B-sets)
- > ATP fitment to new NSW electrified train fleet that are awaiting delivery into passenger service, comprising the New Intercity Fleet and the final B-sets.
- > provision of ATP controls to provide the cumulative equivalent level of safety as the original ATP strategy through the addition of controls to mitigate for those locations where the safety risk is deemed high, including:
  - turnouts
  - deficient overlaps
  - level crossings with interlocked signals
  - catchpoints protecting signals.
- > provision of ETCS on-board rolling stock equipment which will support a future ETCS Level 2 system, with a Digital Train Radio System interface.

### 4.3 Progress: previous summary (1 April 2017 to 31 March 2018)

This section provides a summary of ATP implementation in NSW as of the previous reporting period, ending 31 March 2018.

#### 4.3.1 Key Milestones

The key milestones reported as of 31 March 2018 were:

|                               |   |
|-------------------------------|---|
| <b>First Revenue Service</b>  | March 2019                                    |
| <b>ATP Project completion</b> | December 2020, <i>excluding T-set fitment</i> |
| <b>ATP Project completion</b> | May 2021, <i>including T-set fitment</i>      |

#### 4.3.2 Rolling stock

The key progress matters reported as of 31 March 2018 were:

- > ONRSR acceptance of TfNSW's safety arguments to exclude S-sets from ATP fitment due to their planned retirement from service
- > all H-sets fitted with ATP equipment, subject to an upgrade in the cab display equipment
- > decision made to include 10 V-sets for ATP installation, taking account of the introduction of new rolling stock by the New InterCity Fleet project
- > installation designs completed for A-sets, C-sets, K-sets and M-sets
- > prototype installation completed for M-sets.

#### 4.3.3 Trackside

The key progress matters reported as of 31 March 2018 were:

- > trackside site survey and concept design completed
- > the awarding of two detailed design and construct contracts for trackside installation
- > the awarding of the first data design contract for the associated signaling works
- > identification of the Cockle Creek to Wickham Interchange area for first revenue service.

### 4.4 Progress: reporting period (1 April 2018 to 31 March 2019)

#### 4.4.1 Summary

On 29 March 2019, the 05.23hrs Newcastle to Central service became the first passenger revenue train to operate with ATP activated in NSW. The H-set ran with ATP activated on the section of railway between Newcastle and Cockle Creek, with this section now permanently ATP enabled for H-set operations.

From ONRSR's perspective, this represented a significant positive step forward for railway safety in NSW. It was achieved with effective co-operation across the transport cluster between TfNSW, Sydney Trains and NSW Train Link.

Throughout the reporting period, ONRSR has met monthly with TfNSW and was briefed on progress on the ATP project. Additionally, ONRSR attended testing of an ATP H-set in the Gosford area in July 2018.

Given the focus on delivering the first passenger service, ONRSR recognised that the previously reported milestone of "early deployment" in November 2018 was no longer required, enabling the project to focus on the safety benefits of delivering passenger operations.

In the progress summaries below, the indicated “scheduled” dates are those agreed between the regulator and TfNSW when the alternative response of ATP Level 1 Limited Supervision was accepted in March 2016.

| <b>Key Milestone</b>            |  | <b>Scheduled Completion Date</b> | <b>Forecast Completion Date (as at 31 March 2019)</b> |
|---------------------------------|--|----------------------------------|---|
| <b>ETCS Level 2 Pilot Trial</b> | Level 2 Pilot Trial                                    | September 2015                   | complete  |
| <b>ATP Testing</b>              | System Integration Testing for first passenger service | December 2017                    | complete  |
| <b>ATP Full Deployment</b>      |  | December 2019                    | May 2021  |

#### 4.4.2 Rolling stock

The summary progress position as of 31 March 2019, is as follows:

| <b>Key Milestone</b>             |                     | <b>Scheduled Installation Completion Date</b> | <b>Forecast Installation Completion Date (as at 31 March 2019)</b> |
|----------------------------------|---------------------|---|--|
| <b>Rolling stock ATP Fitment</b> | H sets (OSCAR)      | June 2017                                     | complete   |
|                                  | V sets              | December 2017                                 | December 2019  |
|                                  | T sets (Tangara)    | June 2018                                     | May 2021   |
|                                  | M sets (Millennium) | July 2018                                     | May 2020   |
|                                  | C sets              | September 2018                                | January 2020   |
|                                  | K sets              | September 2018                                | December 2020  |
|                                  | A sets (Waratah)    | December 2019                                 | March 2020   |
|                                  | B Sets (Waratah 2)  | Note 1  | Complete for delivered sets  |

*Note 1: B-sets were procured out with the ATP Project and have been supplied with ETCS equipment installed*

During the reporting period, the following key progress was made in relation to rolling stock activities:

- A-sets** A contract has been awarded for the design and installation of the ATP system for this fleet and designs have been completed, with prototype installation completed in May 2018. Installation of the ATP equipment has commenced and scheduled for completion in January 2020.
- C/K-sets** Prototype installation and testing completed and the contract for fleet installation was awarded in December 2018.
- H-sets** With the fleet ATP fitted, upgrades are required to the driver screens and software. A plan for the upgrades is in place, with modifications commencing in March 2019.
- M-sets** Contract for ATP installation was awarded in December 2018.
- T-sets** ATP design is complete and a prototype has been fitted and tested. Installation of ATP equipment on T-sets will be carried out under the Tangara Technology Upgrade (TTU) program in order to minimise the time this rolling stock is out of service.
- V-sets** Prototype installation on V Set was completed in 2018 and a contract for ATP installation was awarded in December 2018.

#### 4.4.3 Trackside

The summary progress position as of 31 March 2019, is as follows:

| Key Milestone                |  | Scheduled Installation Completion Date | Forecast Installation Completion Date (as at 31 March 2019) |                |
|------------------------------|--|--|---|----------------|
| <b>Trackside ATP Fitment</b> | Early Deployment Scheme                  | November 2018                          | no longer required  |                |
|                              | First Revenue Service                    | March 2019                             | complete  |                |
|                              |  |  | A1  | July 2020      |
|                              |  |  | A2  | April 2020     |
|                              |  |  | A3  | September 2019 |
|                              |  |  | A4  | July 2020      |
|                              | Project Completion (Areas 1 to 9 fitted) | December 2019                          | A5  | July 2020      |
|                              |  |  | A6  | September 2020 |
|                              |  |  | A7  | September 2020 |
|                              |  |  | A8  | September 2020 |
|                              |  | A9                                     | December 2020   |                |

Trackside installation across the electrified railway network has been broken into nine discrete areas. During the reporting period, the following key progress was made in relation to trackside activities:

- > Design and construct contracts have been awarded for four areas. The remaining areas are planned to be delivered using a managing contractor model.
- > Data design contracts for all areas have been awarded, with design work commenced in four areas.

#### **4.4.4 Technical Development**

During the reporting period, the final on-board software application was delivered, based on the European Railway Agency specification, including TfNSW specific functions. New signalling control systems standards for ATP, to support network design, were also developed.

With respect to testing, system integration testing to validate the ATP design principles and functions was completed. Site acceptance tests were also completed, to validate the ATP implementation between Newcastle and Cockle Creek, prior to the first passenger service.

#### **4.4.5 Safety Assurance**

During the reporting period, successful completion of all safety assurance activities by TfNSW, Sydney Trains and NSW Trains Link enabled the introduction of an ATP into passenger service between Newcastle and Cockle Creek. This included:

- > completion of independent safety assessment activities
- > TfNSW configuration management approval for ATP-enabled H-sets to be in passenger operation between Newcastle and Cockle Creek.
- > Transport Network Assurance Committee approval for passenger operations using the above configurations
- > production of safety assurance reports by both Sydney Trains and NSW TrainLink demonstrating the safe operation and maintenance of ATP assets.

#### **4.4.6 Operational Integration**

During the reporting period, an operational readiness plan and a maintenance strategy were produced, and the training curriculum for ATP was developed.

Driver training commenced in February 2019, following approvals for the driver training curriculum, network maintainer training and H-set fleet maintainer training, using ATP training materials and associated training tools.

H-set operational readiness activities were also completed to support ATP passenger revenue services.

### 5.1 Background

This recommendation requires that all railway operational radios used on the railway network in NSW are interoperable, and that a national communications standard is developed.

The DTRS project was initiated to replace the life-expired Metronet radio system, whilst Rail Industry Safety and Standards Board (RISSB) led the development of a new national standard.

Existing GSM-R radios (ICE Radios) installed in freight, interstate passenger and regional trains, are being interfaced to DTRS to achieve improved interoperable communications for trains that also travel on the Australian Rail Track Corporation (ARTC) network. In the past this interoperability was achieved via the inter-operation of the train control centres.

Freight operators need to apply a software update to their current radio systems to meet the DTRS functionalities. This will enable all radios to have a minimum configuration enabling them to perform safety critical functions and fulfil the requirement for a single compatible communication system.

Currently freight trains communicate using the NTCS (3G) system when in the metropolitan network. An emergency call, when initiated by a freight train, will call Sydney Freight Liaison who relay the call to the relevant Sydney Trains signaller and also the ARTC Network Control Centre in Junee.

DTRS enhances interoperability by allowing freight trains to contact signallers directly and participate in group and emergency calls when in the metropolitan network and also the shared corridors. A DTRS emergency call includes the relevant Sydney Trains signaller as well as all other DTRS equipped trains in the cell coverage area. When DTRS is integrated into ICE radio, an emergency call will include the signaller for the area and all electric and diesel trains within the cell coverage area, with a setup time of less than 3 seconds. Additionally, DTRS enables communication between trains and network control in an emergency as well as enabling communication between staff for other railway operations on the railway network.

### 5.2 Scope

The DTRS fixed network supports the interconnection of on-train equipment including train radios for drivers and guards and provides capability for use of hand portable radios for supervisors of trackside work gangs and other users. It comprises:

- > a dual Core Network configured for specific Sydney Trains' operations
- > 266 trackside and tunnel base transponder systems that facilitate transmissions
- > a dispatch system for network control officers (signallers and train controllers)

The extent of work associated with on-train equipment includes:

- > fitment of DTRS radio equipment in cabs on the electric and diesel passenger fleet in NSW
- > installation of software update for DTRS functionality in cabs on freight locomotives using the electrified railway.

### 5.3 Progress: previous summary (1 April 2017 to 31 March 2018)

This section provides a summary of DTRS implementation in NSW as of the previous reporting period, ending 31 March 2018.

| Key Milestone                               | Status   | Date           |
|---|----------|----------------|
| Fixed network construction                  | complete | May 2016       |
| Cab radio installation – electric passenger | complete | December 2016  |
| Cab radio installation – diesel passenger   | complete | August 2017    |
| Cab radio installation – locomotives        | planned  | 1 January 2019 |
| National communications standard            | complete | December 2010  |

As of 31 March 2018, it was anticipated that an update to the Sydney Trains' network access agreement would be released requiring DTRS functionality as a condition of access to the metropolitan railway network for freight operators.

To facilitate the roll-out of DTRS fitment, a transition arrangement would be put in place allowing non-DTRS locomotives to access the network until the ending of a transition period on 1 January 2019. Thereafter, all trains entering the metropolitan rail network would require DTRS functionality.

### 5.4 Progress: reporting period (1 April 2018 to 31 March 2019)

During the reporting period, the transition date for the locomotive software upgrades was extended from 1 January 2019 to 31 December 2019 due to technical, operational and funding issues.

An engineering procedure managing the rollout of the software upgrades has been briefed to operators, and approval obtained for its implementation in January 2019. As part of the process, operators are required to provide TfNSW with rollout and implementation plans for their fleet upgrades.

From January 2020, operators who have still not upgraded may not be permitted to access the network and would need to apply for a concession which may place particular conditions on their movement through the metropolitan network.

The summary progress position as of 31 March 2019, is as follows:

| Milestone                              | Required | Achieved | Progress |
|--|----------|----------|----------|
| Implementation Plans for locomotives   | 875      | 856      | 98%      |
| Locomotives with DTRS software upgrade | 875      | 29       | 3%       |

## Appendix A: Regulatory methodology

This section outlines the processes the regulator has instituted to develop and monitor the implementation plan for the NSW Government's response to the SCOI Final Report.

### Implementation plan

The SCOI Final Report was reviewed by the regulator along with both the actions to implement each recommendation in line with the government's response, and the entity deemed responsible for delivering the action.

This formed the basis for the regulator determining whether the response put forward by an entity was appropriate to meet the recommendation and/or satisfy the safety objective of the recommendation. Responsible entities assigned indicative timeframes for each safety action and the regulator reviewed the appropriateness of each. Timeframes, to the greatest extent possible, were made realistic and achievable.

Details of the implementation plan for outstanding issues, and progress against it, may be found in Appendix C.

### Classification system for recommendations

To provide a view of progress against the implementation plan, the regulator has employed a classification system to indicate the relative status of each recommendation. The classification system taxonomy has been drawn from accepted international practice and is listed in Appendix B.

The process for assigning status to a recommendation is as follows, noting that Steps 1 to 3 are now completed:

| Step | Description  |
|------|--|
| 1    | The government's response to the SCOI Final Report determined which recommendations were accepted. The regulator articulated its expectations for all remaining recommendations.   |
| 2    | All accepted recommendations were assigned the status <b>open – await response</b> . These recommendations were then referred by the regulator to the relevant entity to prepare a response to the recommendation(s) and submit it back to the regulator.  |
| 3    | The regulator reviewed the response and determined whether it was acceptable or not.<br><br>If it was acceptable then the status of the recommendation was assigned either <b>open – acceptable response</b> or <b>open – acceptable alternative response</b> . A recommendation would be assigned an open – acceptable alternative response status when the intent of a recommendation will be met but will be implemented by alternative means.<br><br>If the response was not acceptable then the recommendation was assigned the status of open – response rejected by the regulator. In this case, the entity was informed of the decision and requested to re-submit a revised response taking into account the regulator's concerns. This process continued until the response to the recommendation was accepted by the regulator. |
| 4    | The regulator monitors progress of all accepted responses to ensure a company or agency is meeting agreed implementation timeframes. This is done through both desktop reviews of reports received by agencies and in-field inspections to verify progress claimed.  |

| Step | Description  |
|------|--|
| 5    | Once a company or agency has completed a required action it will submit to ONRSR a claim for closure of the recommendation. This application indicates that the company or agency believes it has completed the required action. The status of the recommendation is changed to <b>open – company claims closure</b> . |
| 6    | In most cases, ONRSR will verify closure through an in-field compliance inspection or audit. Once verification has taken place the recommendation status is changed to indicate it is <b>closed – action verified</b> .  |

Some recommendations may be verified by examination of documentation submitted by the entity that claims closure rather than through an in-field inspection. In these cases, recommendation status is indicated by **closed – action not verified**.

Some recommendations may be verified closed – subject to the implementation of an approved program or plan. In these cases, the regulator agrees to closure if the chief executive of the organisation has approved the program or plan and the regulator is of the view that it meets the government’s response to the recommendation. This categorisation is used generally when implementation may take place over a prolonged period of time and/or capital expenditure is involved.

This process will continue until all recommendations are closed.

## Appendix B: Classification system taxonomy

| Status |   | Definition   |
|--------|---|--|
| Open   | Await response  | This status is automatically assigned to an accepted recommendation. Affected parties will be asked to submit their response for implementing the recommendation to the regulator.   |
| Open   | Response received   | The regulator has received a response from an affected party and this response is under review by it. It has not yet been accepted by the regulator.   |
| Open   | Acceptable response   | The regulator agrees that the planned action, when completed, meets the recommendation.  |
| Open   | Acceptable alternative response                               | The regulator agrees that alternative action, when completed, satisfies the objective of the recommendation.   |
| Open   | Response rejected by the regulator                            | The regulator does not agree that the planned or alternate action meets the recommendation. The company or agency is advised of the rejection and requested to provide a revised response.   |
| Open   | Company claims closure  | The entity claims that the planned or alternate action has been completed. The action has not yet been verified by the regulator, who has not yet agreed that the item is closed.  |
| Closed | Recommendation rejected                                       | The regulator has determined through further analysis and review that the recommendation is not appropriate (i.e. will not achieve the desired safety outcomes) and has rejected the recommendation. It is therefore closed.   |
| Closed | No longer applicable  | The recommendation has been overtaken by events and action is no longer required. For example, a new technology has eliminated the reason for the recommendation, it has been superseded by other recommendations issued, or the operator affected has gone out of business. |
| Closed | Action verified   | Completion of the planned or alternate action has been verified by the regulator through a compliance inspection or audit.   |
| Closed | Action not verified   | The regulator accepts that the planned or alternate action has been completed following a review of documentation submitted. Field verification is not necessary.  |
| Closed | Subject to the implementation of the approved program or plan | A long term implementation plan has been approved. The regulator will monitor reported progress against the plan to ensure compliance with delivery schedule.  |

## Appendix C: Implementation plan

The following section provides information for recommendations that were closed in the last reporting period, or remain to be implemented.

Those recommendations closed in previous reporting periods do not appear: a complete list of all recommendations is available on ONRSR's website.

The government response and the regulator's expectation are the formal responses to the SCOI Final Report announced in February 2005.

### Recommendation 32

RailCorp should progressively implement, within a reasonable time, level 2 automatic train protection (ATP).

**Government response (February 2005)** Requires further detailed review. The government supports the implementation of additional train protection systems. Implementation of level 2 ATP as detailed in the recommendation would involve the replacement of all line-side signalling on the RailCorp network with on-train control systems. In addition every intra- and interstate train accessing the network would also need to be equipped with level 2 ATP technology.

RailCorp has already retained consultants to undertake evaluation and risk assessment regarding implementation of additional automatic train protection systems on the RailCorp network. RailCorp will work with the Australian Rail Track Corporation (ARTC) – which operates the interstate network – to develop, in conjunction with ITSR and interstate rail regulators, a national standard for an automatic train protection system.

RailCorp will also undertake a comprehensive review which will include a risk assessment, technical feasibility and cost benefit analysis of introducing level 1 ATP as well as level 2 ATP, as recommended by the Commission. Consistent with recommendation 34, any future options will need to be assessed by independent verification of acceptable risk.

**Regulator expectation** A detailed technical review of available options.

The ATP project was originally led by RailCorp until 1 July 2012, when responsibility for its delivery was transferred to TfNSW. The major outcome of the project is to be implementation of ATP including a trial of ETCS Level 2.

In March 2016, ITSR accepted TfNSW's proposal for the Advanced Train Control Migration System to be considered as an "acceptable alternative response" to the Special Commission of Inquiry's recommendation 32 for ATP.

Accordingly, ONRSR has deemed that the status of recommendation 32 continue to be classified as *open – acceptable alternative response*.

| Agency | Status | Regulator Assessment | Target Date |
|--------|--------|----------------------|-------------|
| ITSR   | Open   | Acceptable response  | 31 May 2021 |

### Recommendation 38

There must be compatibility of communications systems throughout the rail network. It is essential that all train drivers, train controllers, signallers, train guards and supervisors of trackside work gangs in New South Wales be able to communicate using the same technology.

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**Government response (February 2005)** Supported and being implemented. The National Standing Committee on Transport endorsed the Australasian Railway Association (ARA) working with operators and regulators, including RailCorp and ITSR, to develop a national approach on communications systems, which has agreed minimum functionality requirements for train radio systems.

RailCorp plans to implement a digital train radio system. An objective of this system is for it to be interoperable with existing analogue radio systems. Because of the technical complexities associated with achieving inter-operability, this has been a longer-term initiative and the first stage of its implementation will commence in 2005.

**Regulator expectation** ONRSR to ensure functionality and compatibility requirements are included in the national standard developed by the ARA.

The DTRS project was originally led by RailCorp until 1 July 2012, when responsibility for its delivery was transferred to TfNSW.

ONRSR expects TfNSW / ARTC radio functionality for next generation technology meets compatibility requirements.

All rail safety workers are currently able to communicate with each other but not using the same technology. Accordingly, ONRSR has deemed that the status of recommendation 38 continue to be classified as *open – acceptable response*.

As of 31 March 2018, it was anticipated that this recommendation would be closed during the 2018 / 19 reporting period.

As of 31 March 2019, completion of the DTRS rollout across freight and heritage operators was revised by TfNSW to occur by the end of 2019. Closure of the recommendation will occur after this milestone is met.

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| Agency | Status | Regulator Assessment | Target Date                   |
|--------|--------|----------------------|-------------------------------|
| ITSR   | Open   | Acceptable response  | 31 December 2019<br>(revised) |

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