INDEPENDENT TRANSPORT SAFETY REGULATOR

Implementation of the NSW Government's response

to the Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident

Reporting period: April 2015 – March 2016

REPORT 36

ITSR

Safe transport for NSW

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2 August 2016

The Hon. Andrew Constance
Minister for Transport and Infrastructure
Level 16
52 Martin Place
Sydney NSW 2000

Dear Minister

I am pleased to provide the third annual report on 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*.

This report reflects implementation progress from 1 April 2015 to 31 March 2016.

At the close of this period, there are two open recommendations. The Independent Transport Safety Regulator (ITSR) reports publicly on open recommendations.

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

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

- copies of previous ITSR quarterly reports
- a document containing all 177 recommendations
- a summary of the 6 recommendations that have been closed subject to the implementation of an approved program or plan.

Yours sincerely

PAUL HARRIS
Chief Executive

ITSR
Safe transport for NSW

Introduction

The Independent Transport Safety Regulator (ITSR) is responsible 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*.

This role includes verifying that recommendations have been effectively implemented or that an approved program or plan is in place for implementation. Up to April 2013, ITSR produced quarterly public reports on the progress of open recommendations (Report numbers 1 to 33).

Following the publication of the 33rd quarterly report in April 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 a long term implementation plan. This report is ITSR's third annual report covering the period from 1 April 2015 to 31 March 2016 (Report number 36).

ITSR will provide the Minister with subsequent reports on an annual basis for the same reporting period (i.e. 1 April to 31 March) for tabling in Parliament. These will detail the status of the two remaining recommendations and public reporting will continue until completion of their implementation. All reports are published on ITSR's website.

To enable ITSR to keep abreast of progress on the two open recommendations, ITSR also requires updates on a four monthly basis from Transport for NSW. These assist in the formulation of these annual reports.

Summary of progress

At the end of the reporting period for 1 April 2015 to 31 March 2016, the status of the 177 recommendations (including 127 recommendations and 50 sub-elements) was as follows:

- 2 remain open
- 6 are closed subject to the implementation of an approved program or plan
- 163 are closed and verified as fully implemented
- 1 is closed because it is no longer applicable
- 5 are rejected by the government and these were closed.

The methodology and taxonomy for the classification system used for the Waterfall recommendations are in Appendix 1 and 2 respectively.

The two open recommendations, which are outlined in further detail in Appendix 3, are:

- 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.

  During the reporting period ITSR accepted TfNSW's proposal for the Advanced Train Control Migration System (AMS) to be considered as an *"acceptable alternative response"* to the Special Commission of Inquiry's recommendation for ATP.

ITSR's acceptance of TfNSW's proposed alternate response was based on the quantitative risk assessment report; the AMS strategy being completed by December 2019 and the inclusion of an "Early Deployment Scheme" which will deliver in the Berowra to Newcastle area, controlled trialling of AMS protection for passenger trains in October 2018. This will be in preparation for the scheduled milestone of March 2019. The implementation of an ETCS Level 2 system remains in TfNSW's future strategies for the electrified rail network.

On 22 March 2016, the NSW Government approved TfNSW's Business Case to proceed with its AMS scope of works comprising:

- AMS fitment to 100% of the electrified network (excluding stabling yards).
- AMS fitment to Sydney Trains' electrified fleet: OSCAR, Tangara, Millennium, V sets (excluding some that will be replaced by New Intercity Fleet within the project's timeframe), C sets, K sets, S sets and Waratahs.
- Extend AMS 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 risk is high (turnouts, deficient overlaps, level crossings with interlocked signals and catchpoints protecting signals).
- Provide ETCS Level 2 compliant onboard equipment which supports the interface between the Digital Train Radio System and a future ETCS Level 2 system.

- 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.

The target implementation date of 31 March 2016 for completion of the DTRS project which includes completion of the DTRS fixed network and fit out of the train cabs (on all Sydney Trains and NSW Trains) has been delayed until 31 December 2016.

TfNSW has advised ITSR that by Q3, 2016 (instead of December 2015), Sydney Trains' older passenger train fleets will be fitted with DTRS radios. Installation of DTRS radios on the Waratah (A sets) and Millennium (M sets) passenger train fleets operated by Sydney Trains will be completed by 31 December 2016 (instead of 31 March 2016). Therefore, the revised target completion date for the DTRS project is 31 December 2016.

The delay in the implementation of this project is primarily due to issues with the audio quality of the DTRS, the identification of a number of blackspots and insufficient regression and negative testing which resulted in the performance of the DTRS system being unreliable.

TfNSW and Sydney Trains have since rectified these issues. At the end of March 2016, TfNSW and Sydney Trains advised that the required safety assurance documentation (including the results of the negative and regression testing) had been completed. This information will be provided to the Office of the National Rail Safety Regulator (ONRSR) to demonstrate that the DTRS system is safe to operate.

Sydney Trains and TfNSW expect to operate dual fitted DTRS equipped Tangara trains into passenger service within the initial operating sector in April 2016[1].

[1] In April 2016, Sydney Trains introduced the first dual fitted DTRS/MetroNet equipped train into passenger service between Bondi Junction, Waterfall and Cronulla.

Progress on recommendations

Recommendation 32

Alternate Strategy – Advanced Train Control Migration System (AMS)

Background

In December 2014, TfNSW's Transport Executive Committee approved an alternate strategy known as the "Advanced Train Control Migration System" (AMS) to proceed under the previous funding arrangements of stage 1 of the original ATP strategy.

The alternate strategy, AMS, involves fitting all suburban trains with equipment that supports ETCS Level 2 systems, but reducing the infrastructure works required (e.g. signalling interlocking modifications). 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.

The AMS strategy will provide an accelerated safety benefit by enabling 80% of the electrified network to be covered instead of 40% as proposed in the original ATP strategy. Coverage of the electrified fleet will also be expanded to include Millennium, V sets, C sets, and K sets, in addition to the OSCAR and Tangara fleets, and an ETCS Level 2 Pilot Trial between Arncliffe and Hurstville.

Status

During the reporting period ITSR accepted TfNSW's proposal for the Advanced Train Control Migration System (AMS) to be considered as an *"acceptable alternative response"* to the Special Commission of Inquiry's recommendation for ATP.

In terms of the scope and functionality defined in TfNSW's Quantitative Risk Assessment Report (QRA), ITSR considered that the safety arguments presented adequately demonstrated that TfNSW is managing safety risk so far as is reasonably practicable with the adoption of AMS on the train fleets and infrastructure defined in the report. The implementation of an ETCS Level 2 system remains in TfNSW's future strategies for the electrified rail network.

ITSR's acceptance of TfNSW's proposed alternate response was based on the AMS strategy being completed by December 2019 and the inclusion of an "Early Deployment Scheme" which will deliver in the Berowra to Newcastle area, controlled trialling of AMS protection for passenger trains in October 2018. This will be in preparation for the scheduled milestone of March 2019.

TfNSW also provided ITSR with the following key milestones and timeframes for the implementation of its AMS strategy:

Rollingstock AMS Fitment	
Key Milestones	**Installation Completion Date**
OSCAR (H Sets)	June 2017
V Sets	December 2017
Tangaras (T Sets)	June 2018
Millenniums (M Sets)	July 2018
C Sets	September 2018
K Sets	September 2018
S Sets	July 2019
Waratahs (A Sets)	December 2019
Trackside AMS Fitment	
Key Milestones	**Installation and Commissioning Date**
AMS Early Deployment Scheme	October 2018
AMS First Revenue Service	March 2019
Project Completion – 100% AMS (Areas 1 to 9)	December 2019

On the basis of TfNSW's QRA report and subject to the delivery of the AMS strategy in accordance with above timeframes, ITSR accepted the AMS strategy as satisfying the intent of the Special Commission of Inquiry's recommendation for ATP as an *"acceptable alternative response".*

ETCS Level 2 Pilot Trial

TfNSW advised that the necessary engineering approvals required to commission the ETCS Level 2 Pilot between Arncliffe and Hurstville were achieved. In July 2015, TfNSW completed the installation and commissioning of the Smartlock 400T signalling at the Sydnenham Control Centre and as planned, the trackside and onboard equipment in September 2015. Over a five week period, systems and scenario testing was conducted. Information obtained from this process will be used to inform future projects.

The ETCS Level 2 Pilot Trial involved:

- Type approval and installation of SmartLock 400T interlocking control system signalling between Arncliffe and Oatley.
- Radio Block Centre installation for the interface between the trackside and onboard systems.
- Trackside installation of ETCS Level 2 equipment between Arncliffe and Hurstville.
- Onboard installation and interface testing of the Global System for Mobile communications – Railways (GSM-R) antennas into ATP prototype trains, and
- Train data radios (being installed as a result of the Digital Train Radio System Project).

At the end of 2015, the ETCS Level 2 Pilot Trial was successfully completed.

Onboard and Trackside Fitment

The availability of rolling stock for ETCS fitment has been aligned with Sydney Trains' maintenance and life-extension requirements; and the 2018 train timetable. An independent assessment of Sydney Trains' fleet availability was conducted to guide the alignment of TfNSW's onboard ETCS fitment activities. Where possible, trains will be fitted with AMS equipment in conjunction with Sydney Trains' existing refurbishment programs.

In July 2015, the ETCS installation contract for the OSCAR train fleet was awarded and is scheduled to be completed by June 2017. The ETCS installation contract for the Tangara train fleet was also awarded in July 2015. Installation of AMS equipment on the Tangara train fleet will be carried out under the Tangara Technology Upgrade (TTU) program in order to minimise the time this rolling stock is out of service. TfNSW expects that the installation will be completed in June 2018.

TfNSW advised that the AMS trackside site survey/concept design tenders are being assessed and anticipates that the contract will be awarded in late April 2016.

On 22 March 2016, the NSW Government approved TfNSW's Business Case to proceed with its AMS scope of works comprising:

- AMS fitment to 100% of the electrified network (excluding stabling yards).
- AMS fitment to Sydney Trains' electrified fleet: OSCAR, Tangara, Millennium, V sets (excluding some that will be replaced by New Intercity Fleet within the projects timeframe), C sets, K sets, S sets and Waratahs.
- Extend AMS 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 risk is high:
  - Turnouts,
  - Deficient overlaps,
  - Level crossings with interlocked signals, and
  - Catchpoints protecting signals.
- Provide ETCS Level 2 compliant onboard equipment which supports the interface between the Digital Train Radio System and a future ETCS Level 2 system.

The overall completion date for the delivery of TfNSW's AMS project is December 2019.

Recommendation 38

Background

This recommendation requires implementation of TfNSW's new digital train radio system (DTRS) and the development of a national communications standard by the Rail Industry Safety and Standards Board (RISSB).

The DTRS currently being designed will enhance communication between trains and network control in an emergency as well as enable communication between other staff for rail operations on the Sydney Trains' network.

It should be noted that all rail safety workers are currently able to communicate with each other but not using the same technology.

The Australasian Railway Association, in consultation with operators and rail safety regulators, developed a national approach on communications systems. This was to ensure that agreed functionality and compatibility requirements were included in the national railway communications standard developed by RISSB. In December 2010, RISSB published the *Railway Communications Standard – AS7660* for implementation.

Status

The target implementation date of 31 March 2016 for completion of the DTRS project which includes completion of the DTRS fixed network and fit out of the train cabs (on all Sydney Trains and NSW Trains) has been delayed until 31 December 2016.

TfNSW has advised that, Sydney Trains' older passenger train fleets will be fitted with DTRS radios by Q3 2016, instead of December 2015. Installation of DTRS radios on the Waratah (A sets) and Millennium (M sets) passenger train fleets operated by Sydney Trains will be completed by 31 December 2016 (instead of 31 March 2016).

Therefore, the revised target completion date for the DTRS project is 31 December 2016.

Delayed implementation

In October 2015, ONRSR approved a variation to Sydney Trains' accreditation to enable the operation of DTRS fitted Tangara trains into passenger service between Bondi Junction, Waterfall and Cronulla. Tangara trains operating in this area will be fitted with dual radios (i.e. a DTRS radio in addition to the existing analogue MetroNet radio). During the transition period these trains will be able to switch between the DTRS and MetroNet radio systems.

TfNSW and Sydney Trains had expected this to occur in November 2015, however, following issues with the audio quality of the DTRS and the identification of a number of blackspots throughout the initial operating sector, implementation was delayed.

In February 2016, after investigating further reports that the radio reception on the test trains was still deficient at a number of locations, Sydney Trains suspended the introduction of DTRS on its Tangara fleet until TfNSW and its contractor had rectified these issues.

The ONRSR met with Sydney Trains, TfNSW and its contractor to gain a better understanding of these deficiencies and the proposed testing and rectification plans to address these failures and blackspots. It was identified that there had been insufficient regression and negative testing which resulted in the performance of the DTRS system being unreliable. To address these issues, TfNSW agreed to undertake further regression testing and analysis to ensure sufficient coverage of the tests; and the reliability and performance of the DTRS system.

At the end of March 2016, Sydney Trains and TfNSW advised these issues had been rectified and that the required safety assurance documentation (including the results of the testing and analysis) had been completed. This information will be provided to ONRSR to demonstrate that the DTRS system is safe to operate.

Sydney Trains and TfNSW expect to operate dual-fitted DTRS equipped Tangara trains into passenger service between Bondi Junction, Cronulla and Waterfall in April 2016.

Fixed network, community consultation and siteconstruction

The fixed network comprises a total of 266 DTRS sites, consisting of 216 base transceiver station sites, 28 outdoor tunnel sites, 21 tunnel sites and one repeater site. Construction of all 266 DTRS sites was completed in October 2015 ready for commissioning and optimisation of the network. The radio frequency optimisation and audit was also completed during this time.

The fixed network for the Bondi Junction, Waterfall and Cronulla sector was completed and successfully passed the radio frequency audit in April 2015. The dispatcher terminal fit outs at all signal boxes was completed during March 2016 (except the Parramatta Road box which awaiting power and data connection by Sydney Trains).

TfNSW anticipates that the radio frequency audit for remainder of the fixed network will be completed by Q2, 2016.

Installation of cab radios

The installation of dual fitted radios in all of the 225 cabs in the Tangara fleet (i.e. a DTRS radio in addition to the existing analogue MetroNet radio) was completed in March 2015. This will enable Tangara trains in the initial operating sector (Bondi Junction, Waterfall and Cronulla) to be able to switch between the DTRS and MetroNet radio systems as required during the transition period.

As at 31 March 2016, preliminary on-train fit out work involving the external antennas for the cab radios and other pre fit work to train cabs in readiness for final fitment of the DTRS radios has been completed on all of the OSCAR train cabs. All of the V sets, C sets, K sets and S sets train cabs have also been completed.

For the OSCAR train fleet, V, C, K and S set trains, only a DTRS radio will be installed and this will occur once the fixed network and all of the first-of-type testing has been completed. This is scheduled for Q3, 2016. The installation of DTRS radios on the remaining Waratah and Millennium train fleets will be completed by 31 December 2016.

Design

The completion of all detailed designs for the fixed network, on-train installations and systems was met in June 2014, with the design process is now in the 'As Built' stage. As at 31 March 2016, 'As Built' drawings have been submitted for 73 out of the 266 sites to the Sydney Trains' Plan Room with drawings for the remaining sites submitted for review.

Installation designs have been completed for the Tangara and OSCAR train fleets as well as the V sets, C sets, K sets and S sets. Installation designs for the remaining train fleets; the Waratah and Millennium fleets are in progress and on track to be completed by May 2016.

'As Built' drawings for the Tangara train fleet have been accepted. The drawings for all of the remaining train fleets will be submitted after the first-of-type testing has been completed which is anticipated to occur in Q3, 2016.

Appendix 1

Methodology

This section outlines the processes ITSR has instituted to develop and monitor the implementation plan for the NSW Government's response to the *Final Report of the Special Commission of Inquiry into the Waterfall Rail Accident* (SCOI final report).

Implementation plan

ITSR has reviewed the SCOI final report and determined action required to implement each recommendation in line with the government's response and which company or agency has responsibility for that action. These expectations then formed the basis for determining whether the response put forward by a company or agency is appropriate to meet the recommendation and/or satisfy the safety objective of the recommendation. Responsible agencies have assigned indicative timeframes for each safety action and ITSR will review the appropriateness of each. Timeframes agreed with responsible companies or agencies have, to the greatest extent possible, been made realistic and achievable. Details of the implementation plan for outstanding issues and progress against it may be found in Appendix 3.

Classification system for recommendations

In order to provide a graduated view of progress against the implementation plan, ITSR has developed a classification system to indicate the relative status of each recommendation. The taxonomy for the classification system has been drawn from accepted international practice and is listed in Appendix 2.

The process for assigning status to a recommendation is as follows:

Step 1 The government's response to the SCOI final report determined which recommendations were accepted. ITSR has articulated its expectations in regards to all remaining recommendations.

Step 2 All accepted recommendations are assigned the status *open – await response*. These recommendations are then referred by ITSR to the relevant company or agency to prepare a response to the recommendation(s) and submit it to ITSR.

Step 3 ITSR reviews the response and determines whether it is acceptable or not. If it is acceptable then the status of the recommendation is assigned either *open – acceptable response* or *open – acceptable alternative response*. 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. If the response is not acceptable then the recommendation is assigned the status of *open – response rejected by ITSR*. In this case, the company or agency is informed of the decision and requested to re-submit a revised response taking into account ITSR's concerns. This process continues until the response to the recommendation is accepted by ITSR.

Step 4 ITSR 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 5 Once a company or agency has completed a required action it will submit to ITSR 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 *open – company claims closure*.

Step 6 In most cases, ITSR 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 *closed – action verified*.

Notes:

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

2 Some recommendations may be verified *closed – subject to the implementation of an approved program or plan*. In these cases, ITSR agrees to closure if the chief executive of the organisation has approved the program or plan and ITSR 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 2

Taxonomy for classification system

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 ITSR.
Open	Response received	ITSR has received a response from an affected party and this response is under review by ITSR. It has not yet been accepted by ITSR.
Open	Acceptable response	ITSR agrees that the planned action, when completed, meets the recommendation.
Open	Acceptable alternative response	ITSR agrees that alternative action, when completed, satisfies the objective of the recommendation.
Open	Response rejected by ITSR	ITSR 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 company or agency claims that the planned or alternate action has been completed. The action has not yet been verified by ITSR. ITSR has not yet agreed that the item is closed.
Closed	Recommendation rejected	ITSR 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 ITSR through a compliance inspection or audit.
Closed	Action not verified	ITSR 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. ITSR will monitor reported progress against the plan to ensure compliance with delivery schedule.

Appendix 3

Implementation plan: outstanding recommendations

The following section provides information only for recommendations that were closed in the last quarter or remain to be implemented. Those recommendations closed in previous quarters do not appear. A complete list of all recommendations is available on ITSR's website.

The government response and ITSR expectation sections of this table 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).

Agency	Status	ITSR assessment	Target date
RailCorp	Open	Acceptable alternative response	*31/12/2019

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 inter-state 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.

ITSR expectation

A detailed technical review of available options.

This project was originally led by RailCorp until June 2012. On 1 July 2012, responsibility for the delivery of the ATP program was transferred to Transport for NSW (TfNSW).

The major outcome of the project is to be implementation of ATP including a trial of level 2 ETCS.

In March 2016, ITSR accepted TfNSW's proposal for the Advanced Train Control Migration System (AMS) to be considered as an *"acceptable alternative response"* to the Special Commission of Inquiry's recommendation 32 for ATP. Accordingly, ITSR has deemed that the status of recommendation 32 to be classified as *open – acceptable alternative response*.

** This is an indicative timeframe which has been agreed to by the agency responsible and ITSR.*
+ This indicates a slippage with a revised date.
 # This indicates closure – subject to the implementation of an approved program or plan.

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.

Agency	Status	ITSR assessment	Target date
ITSR	Open	Acceptable response	+31/12/2016

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.

ITSR expectation

ITSR to ensure functionality and compatibility requirements are included in the national standard developed by the ARA.

This project was originally led by RailCorp until June 2012. On 1 July 2012, responsibility for the delivery of the DTRS project was transferred to Transport for NSW (TfNSW).

ITSR to ensure 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, ITSR has deemed that the status of recommendation 38 continue to be classified as *open – acceptable response.*

** This is an indicative timeframe which has been agreed to by the agency responsible and ITSR.*
+ This indicates a slippage with a revised date.
 # This indicates closure – subject to the implementation of an approved program or plan.