Department of Transport and Main Roads

Ministerial Report

Camera Detected Offence Program (CDOP)

Seatbelt Demerit Review

Prepared by Pinnacle

for

The Department of Transport and Main Roads

and on behalf of

The Honourable Mark Bailey MP, Minister for Transport and Main Roads and Minister for Digital Services

19 December 2023

Ministerial Report – CDOP Seatbelt Demerit Review

1   Executive Summary

1.1   Double Demerit Seatbelt Offence Issue

A total of 51,888 Infringement Notices were issued for camera detected passenger seatbelt offences between 01 November 2021 and 31 August 2023. In all cases:

- The driver was correctly detected by a camera committing a passenger seatbelt traffic offence;
- A fine was correctly applied; and
- Demerits relating to this individual offence were correctly applied.

According to the legislation, the award of an additional 4 demerits for a repeat passenger seatbelt offence in the preceding 12 months is only applicable when the passenger is under the age of 16 years old. While this is correct for roadside detected offences where an officer can verify the age of the passenger, the adjudicator for camera-detected offences cannot make any determination of age.

On 30 August 2023, TMR LTSR policy team discovered an issue with the incorrect allocation of double demerits for repeat camera-detected passenger seatbelt offences. As of 07 November 2023, 2,808 drivers are confirmed as being adversely impacted by the incorrect award of double demerits for a repeat camera-detected passenger seatbelt offence.

As a result of this mistake 2,808 drivers were incorrectly given 4 additional demerits. This has adversely impacted:

- 1,142 drivers who had already been sanctioned;
- At the time of discovery, 886 drivers were subject to a sanction and TMR rectification activity has lifted any sanctions incorrectly applied; and
- A further 780 drivers have not been sanctioned when double demerits were applied.

The mistake was identified internally by TMR on 30 August 2023 and a permanent fix was applied on 01 September 2023.

TMR has taken immediate action to resolve adverse impacts to drivers and continues to verify that other drivers have not been impacted. Impacted driver histories have been corrected.

1.2   Independent Review

Pinnacle, a professional Australian IT services consultancy specialising in digital business assurance, was engaged by TMR to conduct an independent review covering the following:

- Understand project business requirements to update TRAILS when the CDOP was expanded to include mobile phones and seatbelts in November 2021;
- Assess whether documented project requirements were in accordance with legislation;
- Review project test coverage against project requirements (and specifications);
- Document the systems landscape, the project test documentation, the test process, the project test environments, and data; and review project delivery information.

Pinnacle conducted the independent review using their proven INsight methodology and is currently engaged to review the other camera-detected offences.

A full version of this independent review will be issued as a separate report.

1.3 Key Findings Summary

Cause (Ref Section 2.2 for further detail)

The issue was introduced when the road rules and driver regulations, in particular section 264A, for repeat passenger seatbelt offences were incorrectly transcribed into the MPST Project Business Requirements Specification (BRS) failing to notice that double-demerits points are only able to be applied in circumstances where the offence relates to a front-seat passengers under the age of 16. Adjudication of camera detected offences cannot make the distinction of age.

Once the requirement was incorrectly defined in the BRS, the MPST project implemented the mistake according to defined TMR project processes and procedures.

Contributing Factors (Ref Section 2.3 for further details)

The key contributing factors were:

- **Complexity**. Collectively, the legislation comprising the Traffic Regulation 1962, Transport Operations (Road Use Management) Act 1995, Transport Operations (Road Use Management Road Rules) Regulation 2021 and Transport Operations (Road Use Management – Driver Licensing) is complex with multiple dependencies and cross-references between these published documents.

- **Governance and traceability**. Lack of governance between LTSR policy team and MPST project missed the opportunity to sufficiently review the BRS against the regulations and potentially discover the issue.

- **Delivery pressure**. The MPST project raised risks and issues against the November 2021 implementation to the steering committee and executive stakeholders. Public announcements had been made and the November 2021 project go-live date was not deferred.

- **Change**. The 10-year statutory re-make of driver legislation was conducted in parallel with the development of the IT business specifications in the middle of 2021.

- **Technology**. TRAILS is a legacy COBOL application with 42 million lines of code and is core to the Registration and Licensing systems used by TMR. Changes to TRAILS are high-risk and explicit controls are in place to ensure changes do not adversely impact customers. To meet project time constraints, dispensation was obtained allowing for pre-approvals of established quarterly processes and procedures. This process deviation allowed changes to TRAILS to be completed within the timeframes.

While the review has observed additional weaknesses in MPST project delivery, recommendations relating to these opportunities for improvement are presented below.

TMR Management Actions (Ref Section 2.5 for further details)

TMR management have taken multiple parallel actions to:

- Analyse and rectify the issue to prevent reoccurrence;

- Contact impacted drivers; and

- Investigate if other infringements may have been incorrectly applied.

Recommendation Summary (Ref Section 3.1 for further details)

The 3 key recommendations are:

- Additional governance between LTSR policy team and MPST project including traceability of regulations to specifications and broadening the amount of peer reviews;

- Regulation simplification; and

- Introduction of a traceability model to demonstrate driver infringements are correctly applied whenever the IT systems are changed.

Accelerated Digital Business Assurance Services

- Audit & Assessment, Strategy & Advisory
- Project Delivery Services
- Automation Services
- Quality Engineering & Testing Services

Key Business Risks (Ref Section 2.6 for further details)

TMR accepts significant residual business risks may remain relating to demerits and double demerits for both camera-detected and roadside police traffic infringements. These business risks relate to:

- **Reputation**. Public statements relating to the integrity of traffic infringements will impact customer perception and confidence resulting in significant adverse impact to TMR, with a likely increase in workload for customer services dealing with an increase in customer queries and potentially the court system if the number of court-elected offences increases;

- **Litigation**. Errors in the application of road rules and driver regulations may result in legal action being taken against the Department by impacted drivers. As evidenced in other international jurisdictions when traffic offence mistakes are reported, the risk exists for litigation and taxpayer-funded costs being awarded against the Department, or a class action lawsuit;

- **Accuracy**. Historical and current accuracy within driver history records for other camera-detected and roadside infringements could result in similar issues arising in the future; and

- **Legacy IT**. Annual indexation, MPST, and ad-hoc changes to legislation require changes to be applied to complex, legacy IT applications including TRAILS. There is an increasing amount of technical debt, future digital business opportunities may be limited or constrained, and each release provides the opportunity for errors to be introduced.

Opportunities for Improvement (Ref Section 3.2 for further details)

In addition to the 3 recommendations above, Pinnacle has identified 26 suggestions for improvement grouped as follows:

- **Risk Mitigation**
    - Improve visibility of test coverage;
    - Improve quality assurance and testing controls;

- **Project Delivery**
    - Requirements management;
    - Future improvement plan;
    - Improved agility;
    - Expansion of User Acceptance to include LTSR policy team representation;

- **System Technology**
    - Application modernisation;

- **Value from People and Processes**
    - Knowledge retention;
    - Time and capacity improvement.

2 Independent Review Findings

2.1 Key Event Timeline

Date	Event
26 May 2021	BRS Part A – Warning Letter and Seatbelt Exemption deliverable approved
01 August 2021	Systems updated to issue warning letters to drivers caught by fixed roadside and mobile cameras for mobile phone and seatbelt offences. For a period of 3 months, the warning letters are issued to help drivers adjust their behaviour towards safer roads. No infringement notices, fines, or demerits are issued.
12 August 2021	BRS Part B – Mobile Phone and Seatbelt Infringement Notice deliverable approved
July-September 2021	TMR published the 10 Year Remake of the Road Rules and Driver Regulations
01 November 2021	Systems updated to stop issuing warning letters and to issue infringement notices and associated fines and demerits for fixed roadside and mobile camera for mobile phone and seatbelt offences.
24 March 2023	Systems updated to provide greater granularity of passenger seatbelt offences for not wearing a seatbelt and for incorrectly wearing a seatbelt.
30 August 2023	TMR discovers that under a specific set of conditions (i.e. a driver with a finalised seatbelt infringement in the preceding 12 months is caught with a repeat camera detected seatbelt offence involving a front-seat passenger) will correctly apply the demerits for the offence, but incorrectly apply a breach and double demerits. The breach and double demerits are only applicable when the passenger is under 16 years of age, which cannot be determined from a photograph by the adjudicator.
01 September 2023	TMR applies an emergency fix to permanently prevent the issue occurring to offences committed from this date.
01-07 September 2023	TMR undertakes initial analysis to understand the size of the issue and start to identify the impacted drivers. An initial count of 1,842 sanctioned drivers (i.e. those suspended or serving a good behaviour bond) used to inform ministerial announcement. TMR staff worked through the weekend to complete the analysis.
08 September 2023	The Minister makes a public announcement regarding 1,842 drivers initially identified as receiving incorrect demerits and sanctions.
08 September 2023	TMR applies a second phase of the fix to prevent all outstanding infringements, regardless of offence date, from receiving incorrect double demerits. TMR revises count of impacted drivers to 2,552 including impacted but as-yet unsanctioned drivers. TMR customer services begins to identify and contact impacted drivers.
11 September 2023	TMR engages Pinnacle to conduct an independent review.
12 September 2023	TMR revises count of impacted drivers to 2,806 to include infringements between 01 November 2020 to 31 December 2020 and infringements from 07 September 2023.
18 September 2023	TMR introduces weekly data sweeps with revised methodology and revises count of impacted drivers to 2,808. Count of impacted drivers remains stable at 2,808 through weekly data sweeps conducted during October and November 2023.
17 November 2023	TMR completes all driver history rectification activities.

Accelerated Digital Business Assurance Services

● Audit & Assessment, Strategy & Advisory   ● Project Delivery Services   ● Automation Services   ● Quality Engineering & Testing Services

2.2   Cause

Based on findings of this review, the issue was introduced when the road rules and driver regulations (section 264A) for subsequent passenger seatbelt offences for passengers under 16 years of age were incorrectly transcribed into the Business Requirements Specification (BRS) failing to notice that double demerits are only to be applied to front-seat passengers under the age of 16 and adjudication of camera detected offences cannot make the distinction of age. The reviews of the different versions of the BRS by business and IT stakeholders did not discover the mistake.

The parallel creation of parts of the BRS while road rules and regulations were being rewritten, resulted in isolated business reviews of different sections. There is no evidence a final review of the entire BRS baselined in August 2021 was conducted against the finalised regulations in August 2021 or re-review against the update regulations released in September 2021.

Once the review of the BRS was completed, and the mistake in the BRS lay undetected, it is unlikely it would have been detected by the MPST IT project members during development or testing. The lack of documented traceability between the BRS to the overarching rules and regulations further prevented the error from being identified later in the project delivery, testing, and acceptance processes.

The MPST project then implemented the IT changes specified in the BRS, including the incorrect specification for double demerits.

System testing was conducted against the requirements in the BRS including verification of the incorrect requirement in the BRS.

User acceptance testing, conducted by business representatives, was conducted against the approved user stories only. This reflected the entirety of the requested scope of the user acceptance testing from the project test lead to the business representatives. The business representatives created and executed business acceptance based on the incorrectly defined User Stories. There was no reason for the nominated business representatives to question whether the regulations were being correctly applied.

The LTSR policy team were not involved in business acceptance activities.

The incorrectly specified requirement was subsequently implemented within the September 2021 and October 2021 RnLS system releases with Infringement Notices being issued from 01 November 2021.

2.3   Contributing Factors

As outlined above, CDOP legislation is complex. During 2021, the legislation was being amended and reviewed in parallel with the creation of the BRS. CDOP legislation includes age-related offences when captured by camera. While there are considerations for privacy, there is no explicit statement in the Road Rules or Driver Regulations to exclude camera-detected offences where age is a factor.

Double demerits do apply to repeat driver-responsible passenger seatbelt offences for passengers under 16 years of age at roadside detection but cannot be applied for the same offence detected by camera because the adjudicator cannot make any determination of the age of the passenger. The difference whether double demerits should apply to this offence is therefore only determined by the mode of capture; roadside or camera-detected.

It has not been possible to map the various versions and dates of the regulations against the different versions and iterations of the parts of the BRS, but a clause exists specifically for double demerits applying only to passengers under the age of 16. Since this clause applies to both roadside and camera-detected offences the translation of this clause into the BRS did not recognise that an adjudicator is not able to make an assessment for age for camera detected offences.

Accelerated Digital Business Assurance Services

● Audit & Assessment, Strategy & Advisory   ● Project Delivery Services   ● Automation Services   ● Quality Engineering & Testing Services

It was originally expected the change could be implemented through existing Police systems, but TMR took action to implement the change internally through TRAILS due to risk concerns over the viability of the Police solution. This change of solution was factored into the release, but the target go-live date was not extended. This placed a time constraint and pressures on the project. This was raised to the steering committee, and it is noted the steering committee did not have the authority to change the go-live date.

The MPST project was planned and executed against a tight release schedule using established project delivery processes, confirmed by an independent Health Check. This included the development, testing, and release of the documented mistake relating to double demerits for the repeat offence for passenger seatbelt infringements.

LTSR policy business representatives, who are not users of the TRAILS application, were not involved during acceptance testing. The business representatives selected for acceptance testing were given specifications to test against created from the BRS with no references to the road rules and driver legislation. This was an opportunity to discover the issue, albeit very late in the project delivery life cycle.

During the 3-month amnesty period preceding the November 2021 infringements, TMR issued warning letters advising drivers their vehicle had been detected for a mobile phone or seatbelt offence. Since fines and demerits were not applied during this period, it was not possible to detect the mistake. Similarly, while the MPST adjudication team verified 100% of the infringement notices issued in the first few months after 01 November 2021, it would be difficult to detect the mistake because it takes time to accumulate, and process repeat offences.

Since implementation in November 2021, it appears that no drivers questioned or contested the application of double demerits, so the issue was not identified earlier through customer interaction with TMR Customer Services Branch. This driver behaviour to accept the infringement is attributable to:

- Public acceptance the camera evidence and associated fines and demerits are intrinsically correct; and
- The accepted process to contest the camera evidence is through the court-elected process.

2.4   TMR Resolution

Once the issue had been discovered internally on 30 August 2023, TMR was able to deploy a fix under proven emergency release processes within 48 hours on 01 September 2023. The fix consisted of 2 parts:

- End dating the passenger seatbelt offence codes to prevent those offences detected after 01 September 2023 from re-occurring; and
- Setting end dates for those offence codes to be earlier than the commencement date for repeat offences, so any unfinalised seatbelt offences within the preceding 12-months could not retrospectively trigger the incorrect addition of the breach double demerits.

TMR has confirmed any downstream business and customer impact of the fix is outside the scope of this review.

Accelerated Digital Business Assurance Services

● Audit & Assessment, Strategy & Advisory   ● Project Delivery Services   ● Automation Services   ● Quality Engineering & Testing Services

2.5 Summary of TMR Management Actions

Once TMR leadership were aware of the issue of awarding double-demerits for passenger seatbelt offences to repeat offenders, immediate action was taken to:

- Analyse the issue to understand how many drivers were impacted since the introduction of camera-detected seatbelt offences in November 2021;

- Apply IT system changes to prevent the issue from re-occurring;

- TMR has updated the publicly facing website to alert drivers to the issue, and to notify drivers to contact TMR if they have been impacted. The website change also informs drivers any sanction on their licence remains in place until they are contacted by TMR.

- TMR established a telephone hotline for impacted drivers.

- TMR Customer Services Branch has now contacted impacted drivers and will use the driver's history record to determine the extent of the individual impact to each driver.

- TMR has prioritised those sanctioned to ensure the earliest possible rectification for this group.

- TMR has updated and now issued corrected driver histories to all impacted customers.

- TMR conducted an internal review of other roadside and camera-detected offences. This activity:

  - Includes ongoing weekly data sweeps to ensure no additional drivers have been impacted to continue until all the driver histories have been corrected; and

  - Has identified further rare events where double-demerits are incorrectly not being applied for a further 39 offence codes relating to 3 roadside (i.e. not camera-detected) offences, specifically heavy vehicles such as B-triples and road trains. This is in the driver's favour and relates to a very small number of rare offences (e.g. when heavy vehicles have a lower speed limit than the street signed speed limit).

In parallel with internal analysis of the issue, TMR also engaged and independent external third-party, Pinnacle, to conduct an independent review. This engagement commenced on Monday 11 September 2023, one business day after the public announcement by the Minister for Transport. TMR has since expanded the scope for Pinnacle to include other camera detected offences.

2.6 Residual Business Risks

TMR should recognise the following business risks:

- Changes to camera detected road rules and regulations in the future could introduce similar issues. There is a heightened business risk when amending demerit regulations given the incorrect application of demerits can result in incorrect licensing sanctions;

- There are a relatively small number of business experts in these systems and much of the documented knowledge is spread across online Confluence and Jira silos. There is an even smaller number of permanent staff due to the reliance on contract resources, who in the current market are an additional risk for leaving at a critical project time;

- Current testing practices, schedules, and tools effectively limit test execution to a single, manually executed cycle for system testing and user acceptance testing, with very limited regression testing;

- The strategic roadmap for the evolution of the RnLS and legacy TRAILS core systems recognises the technical debt for 42 million lines of legacy code and the business risk for not changing and changing these legacy components. This would not be an easy or low-cost option.

Accelerated Digital Business Assurance Services

● Audit & Assessment, Strategy & Advisory   ● Project Delivery Services   ● Automation Services   ● Quality Engineering & Testing Services

3   Recommendations and Opportunities for Improvement

3.1   Summary of Recommendations and Improvement Opportunities relating to the Seatbelt Demerit Issue

Priority	Recommendation
P1	**REC001 – Improved Governance and Traceability of Regulations** The touch point between LTSR policy business stakeholders and MPST project translating the regulations into IT specification has been recognised as the cause of this issue. TMR needs to broaden peer reviews and define, implement, and enforce an improved governance framework and standards so that traceability of regulatory documentation through IT business specifications, and ultimately into mapped test cases. This governance framework for creating and amending fees and demerits should include specific focus on ensuring that cross referencing is rigorously and consistently applied, and that planned stakeholder reviews are completed. This will provide LTSR with greater visibility of the implementation of regulations into IT systems.
	Owner: MPST Project
	Target Date: 30 June 2024
P1	**REC002 – Simplification of Regulations** The road rules, driver regulation and policies have evolved over time. These regulations have been amended to the current versions over many iterations. While changes to regulations follow a 10-year re-write process, interim and ad-hoc changes are also applied. A suite of inter-related regulatory documents now exists with many cross-references to other documents in the suite. It can be difficult to interpret one clause in one document without recourse to another document. The 2021 re-write introduced an extra level of complexity when the numbering in one document was updated so that references had the same or similar numbering to cross-referenced documents. It is recommended that TMR undertake ongoing policy development with the aim of it informing legislative change that is accessible and avoids unnecessary complexity. This could include: ▪ developing decision tables to supplement/simplify the articulation of the rules and their conditions; ▪ reducing the level of ambiguity, complexity within the current documentation where possible; ▪ significantly reducing where possible, the need for document links cross referencing reference information and documentation within defined rules.
	Owner: LTSR
	Target Date: 30 June 2024
P1	**REC003 – Traceability Model** The expertise of the LTSR policy team should be leveraged to build a traceability model effectively defining LTSR Acceptance Criteria to verify future regulatory changes as implemented into TMR IT systems as part of future UAT activities. The traceability model should use decision tables so complex regulatory and business logic is easier to understand and review across different TMR business units. This would allow greater chance mistakes and discrepancies to be discovered. TMR has an opportunity to create a traceability model for every motoring offence within the road rules and driver regulation using the latest AI automation platforms to execute a defined baseline of the road rules and regulations against the wider RnLS and core TRAILS systems. This would ensure that LTSR acceptance criteria can be verified on-demand against any major or minor system release. This could be executed automatically by the AI automation platform in different environments and any deviations from the traceability model would be visible to all TMR stakeholders.
	Owner: LTSR
	Target Date: 30 June 2024

3.2   Summary of improvement opportunities related to the Seatbelt Issue:

This section presents a summary of 12 improvement opportunities:

- 11 priority one (P1)
- 1 priority two (P2).

Risk Mitigation – 4 Improvement Opportunities

Priority	Improvement Opportunity	
P1	**IMP001 – Test Design Specification and Test Coverage**	
	Create a formal mapping of the legislative offence rules into a centralised test management platform within the Test Design Specification. This allows tests to be created and tracked against the offence rules and conditions. This approach ensures TMR has closed all the gaps between IT change and planned legislation updates.	
	Owner:	ITB
P1	**IMP002 – Tactical Automation (System Testing)**	
	Create an automated test pack that uses no code, low maintenance for testing of systems and the offence code conditions. Ensure that extended coverage is available with the use of boundary and negative conditions and a representative production data set in the test environment. This allows existing TMR permanent and contract test resources to execute tests automatically without needing any technical skills.	
	Owner:	ITB
P1	**IMP003 – Strategic Automation (Business Rules, Regression, Integration, and Business Acceptance)**	
	Create and maintain an automated regression pack that uses a no code, low maintenance solution. This pack should include strategic RnLS and MPST systems and processes. It should be able to execute all the tests within hours and available to TMR project and BAU teams upon demand.	
	Owner:	ITB
P2	**IMP004 – Optimisation and Efficiency**	
	Investigate, define, and implement project optimisation, efficiency improvements. There are several areas where significant time, effort and budget savings can be made in accelerating quality outcomes within TMR project delivery. These include, but are not limited to: - Use of intelligent automation; - Rationalise the test environment stack (use Dev and representative integrated environment only); - Apply automation for production data creation, scaling, and obfuscation; and - Automate tests for (ST, SIT, E2E Business Processes, UAT, Non-Functional, Security and Performance). Run them all in a single cycle, and automated execution for defect retest and regression cycles.	
	Owner:	ITB

Value from People and Processes – 2 Improvement Opportunities

Priority	Improvement Opportunity	
P1	**IMP005 – Traceability of Legislation and IT Business Specifications**	
	Subject to feasibility, ensure all legislation and offence rules are logged within a centralised platform and that the Test Design Specification and test coverage is mapped against these ready for project testing.	
	Owner:	LTSR

Priority	Improvement Opportunity
P1	**IMP006 – Include LTSR Policy Representatives in UAT**
	Ensure that the relevant LTSR policy team is included, or is represented, within User Acceptance. Future steps can be taken to capture LTSR acceptance criteria.
	Owner: **LTSR**

Project Delivery – 6 Improvement Opportunities

Priority	Improvement Opportunity
P1	**IMP007 – Project Time Risks**
	Project teams at TMR must have the authority to raise concerns and challenge deadlines for high-risk projects, ensuring they can secure backing from the steering committee and top-level stakeholders. It is crucial that project timelines and schedules are clear and open to scrutiny throughout the delivery process to guarantee the successful execution of projects in alignment with TMR's established frameworks and methodologies.
	When these escalations have been made, as there were in the MPST program, ongoing management of the risks should be paramount to the steering committee members and suitable acceptance criteria and quality gates are in place and monitored whenever it is necessary for a project to seek exemption from established delivery governance and processes, and especially when pre-approvals are granted so that implementation timeframes can be achieved.
	Owner: **LTSR**
P1	**IMP008 – Requirements Management**
	There is a need to improve the Requirement Management traceability process within project delivery. In this instance all project requirements that use external document links directly to the target information. The use of Requirements traceability matrixes (RTM) and/or Compliance Traceability Matrix (CTM) should be mandatory on all projects, especially those driven by legislative change or where impacts, such as suspension action, could be applied to customers.
	Owner: **ITB**
P1	**IMP009 – Maturity Assessment**
	The INsight assessment that this report was created for focused upon a high level "Current AS IS" maturity position for Seatbelt Offences within MPST. This at a high level looked at the IT delivery process, teams and the consistency of the rule's documentation, and IT delivery process for the area of Seatbelt Offences.
	There is a need and value to TMR in conducting a scoped work package that will review the "AS IS" delivery maturity levels across the wider program. The engagement would work with internal teams to defined and document a clear and achievable vision of the improvements required to achieve a target "TO BE" delivery maturity level. To ensure that this improved delivery Target state is achieved, this work package would also require to set out a clear "How TO" Transformation Roadmap. It will be this work package that enables TMR to define and agree the improvements and transformation journey required.
	▪ Assessment of the current "AS IS" for the RnLS program;
	▪ Definition of a "TO BE" Target IT Delivery Maturity;
	▪ Definition of a "HOW TO" roadmap.
	In conducting this work package, it will be critical to align the TO BE target vision, and the HOW TO transformational journey to TMR's IT Strategy for 2024 and beyond. There is potential to include this improvement opportunity in the development of the new ICT strategic plan.
	Owner: **ITB**

Priority	Improvement Opportunity	
P1	**IMP010 – User Acceptance**	
	Consider the definition and implementation of a formal UAT solution addressing:	
	▪ UAT test coverage, being mapped to business users' acceptance criteria;	
	▪ Optimise/ minimise business user effort, improve visibility and traceability, whilst maximising test coverage using Automation, so that UAT tests can be run multiple times;	
	▪ Automated UAT tests can then be included as part of a formal structured regression pack.	
	Owner:	**ITB**
P1	**IMP011 – Test Design and Test Coverage**	
	Ensure that seatbelt policy rules along with its boundary and negative test conditions are included within the automated test packs. Ensure that these assets are maintained and kept in line with ongoing and future legislation changes.	
	Owner:	**ITB**
P1	**IMP012 – Test Automation Proof-of-Value**	
	With reference to other recommendations relating to efficiency and automation, it is recommended that TMR begins the tactical workstream through a pilot program for an automation service should be created with the MPST project systems scope. The scope of the service would be to create, maintain and execute automation tests "ON DEMAND". Using a service approach would improve delivery consistency, retain TMR system knowledge and mitigate against team retention issues.	
	Owner:	**ITB**

3.3   Summary of Improvement Opportunities relating to Other Observations

This section presents a summary of 14 additional improvement opportunities:

▪ 11 priority two (P2), and

▪ 3 priority three (P3).

Risk Mitigation – 3 Improvement Opportunities

Priority	Improvement Opportunity	
P2	**IMP013 – TMR Centralised Test Governance Team**	
	The MPST project should involve the ITB central test team in assurance and governance within project delivery. Simply reviewing plans and reports does not ensure that the right testing is being conducted. In an agile high volume change environment, these leaders and specialist need to have the capacity to play a more pro-active role in project delivery. This should include, provide guidance and support to the project teams, along with providing the enterprise tools, and maintain script assets for future reuse.	
	Owner:	**ITB**
P2	**IMP014 – Project Time Constraints**	
	The MPST project conducted formal IT project planning and scheduling resulting in a 2-year project to be delivered in 12-14 months. Consideration should be given to the achievability of project schedules. Deploying new technologies within challenging and potentially unattainable timelines will always introduce project delivery and quality outcome issues.	
	Owner:	**LTSR**

Priority	Improvement Opportunity	
P3	**IMP015 – Consistency of Delivery**	
	To improve quality and controls TMR should consider running all project and BAU changes through a single pipeline from development, into a representative integrated test environment and then into production. With the use of automation and formal regression packs this approach would help ensure that ALL IT changes are consistently delivered, using the optimal approach for improved coverage and delivery risk mitigation.	
	Owner:	**ITB**

Project Delivery – 4 Improvement Opportunities

Priority	Improvement Opportunity	
P2	**IMP016 – Improve MPST Project Agility**	
	Apply automation to the creation of project functional testing, integration, and end to end business process automation. Automation can be used to baseline TMR systems useability performance and support the automation of all TMR system technologies within their landscape. Test cycles can be varied in length and remove the dependency on needing 3-4 weeks duration to complete a single test cycle. This helps remove test execution from the project critical path and can provide the MPST project with schedule contingency within project system testing. Multiple concurrent automation execution streams can significantly provide the MPST project with flexibility and to scale throughput to many times the capacity of the current manual testing regime.	
	Owner:	**LTSR**
P2	**IMP017 – Identify Change Issues**	
	There are many technology and business change items associated with each MPST project release and dependencies exist across data, transactions, and systems. The objective of regression testing is to identify undesired outcomes resulting from one of these changes. It is recommended that TMR considers an Automated Regression Testing Service that can be enabled for Quarterly project releases, BAU testing, and ON DEMAND requirements with the objective to execute a full regression cycle within 1 business day.	
	Owner:	**LTSR**
P2	**IMP018 – Other Automation Opportunities (Test Environments, Test Data etc.)**	
	Look to apply automation for the creation and scaling of test data, environments, and other areas of the project delivery process to mitigate the risks of time constraints for critical path project activities, and potentially for continuous integration/continuous delivery (CI/CD) for the modern technology aspects of the MPST project scope.	
	Owner:	**ITB**
P3	**IMP019 – Delivery Efficiency**	
	Look to apply automation that uses no code solutions, these are low effort to create and maintain and offer lower cost of ownership and significantly higher returns on investment. The effort resources spend conducting test execution can be saved, or used to increase test coverage, or shorten delivery cycles.	
	Owner:	**ITB**

System Technology – 1 Improvement Opportunity

Priority	Improvement Opportunity
P2	**IMP020 – Application Modernisation**
	TMR recognises the increasing technical debt and technology risks associated with the business-critical TRAILS legacy application. TMR has previously attempted to replace the legacy TRAILS system but this has not been progressed due to a combination of significant business risk and costs. This ongoing and increasing technical debt and business risk cannot be resolved by inaction. TMR needs to investigate, define, and document a business case for the replacement of the old legacy TRAILS system. At present, this technology is holding TMR back in adopting new technologies and delivery practices. In conducting this work package, it will be critical to align the proposed technology solution with TMR's IT Strategy for 2024 and beyond.

Owner:	**ITB**

Value from People and Processes – 6 Improvement Opportunities

Priority	Improvement Opportunity
P2	**IMP021 – Increase Value from Service Providers**
	TMR established a panel of external providers within ITB in conjunction with the BAU test governance business unit. The TMR Test Manager believes little value is obtained though this arrangement and projects turn to the local contractor market for resources. The TMR Test Manager suggests that a single provider would achieve greater value than the current panel arrangement. The TMR Test Manger wishes to incentivise this service by having retention KPI's and metrics for service delivery.

Owner:	**ITB**

Priority	Improvement Opportunity
P2	**IMP022 – Test Strategy Framework**
	Implement an Enterprise-wide Test Strategy Framework for consistent delivery across the MPST project. Enable this within the Lifecycle and Test Management Platform so that all the teams have access to it. Configure the platform workflows so that the defined best practices are followed, and potentially other projects are consistently delivering quality outcomes.

Owner:	**ITB**

Priority	Improvement Opportunity
P2	**IMP023 – Lifecycle Management**
	TMR should consider the use a Lifecycle Management tool. This provides end to end traceability and management of requirements, epics, user stories, acceptance criteria, certification requirements against test coverage, automated script libraries, defect management, test execution, reporting, and dashboards. This has also been identified by the TMR Test Manager and is aligned to their analysis.

Owner:	**ITB**

Priority	Improvement Opportunity
P2	**IMP024 - Resourcing**
	The current TMR resourcing model relies on the use of local contractors to provide skills and capability, with flex scalability over and above the permanent TMR team. This model is inherently flawed, as acquired knowledge leaves TMR as soon as the project is finished, and the contractors return to market for their next role. TMR, as part of a formal knowledge acquisition and retention strategy, should select and utilise a local company to provide a Service. This local team will provide a core team, and flex upon demand which supports TMR with its capacity challenges. In addition, knowledge is then retained by both TMR permanent and service core teams. This service would provide the skills required to plug current TMR gaps in capacity and expertise, and the flex capacity supports and enables TMR to respond to its challenging project timelines.

Owner:	**ITB**

Accelerated Digital Business Assurance Services

● Audit & Assessment, Strategy & Advisory   ● Project Delivery Services   ● Automation Services   ● Quality Engineering & Testing Services

Priority	Improvement Opportunity
P2	**IMP025 – Current Test Automation Cannot Support TMR Technologies** Investigate, define, and implement a robust enterprise automation solution that can automate and test all the technologies across the TMR system landscape from legacy mainframe, client server to the newer web, APIs, and mobile apps. The automation platform needs to be able to run unmanned testing upon a 24/365 basis if required. Automation allows for the significant reduction of effort and time to conduct key project delivery activities. This solution can be used addresses the challenged and issue faced by TMR around items not being conducted, due to people capacity or a shortage of time available.
	Owner: ITB
P3	**IMP026 – Knowledge Retention** TMR should investigate, define, and implement a program that is focused upon proactive project delivery knowledge acquisition and retention. This could include: ▪ Share documentation repositories; ▪ Defining key project roles and standards as part of a formal standardised delivery models; ▪ Structured knowledge acquisition and knowledge share tools and processes; ▪ Cross training of project team members; ▪ Use of Service Providers to provide flex project team capability, over the use of contractors that leave with their knowledge at the end of the project; ▪ Centralised testing and training systems that retain the knowledge with asset, and "How we do it" information for project teams.
	Owner: ITB

END OF DOCUMENT