

INTERNAL AUDIT REPORT

HSE & Technical

Management of Fatigue in Tram
Operations Limited - TOL (IA 17 780)

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Transport for London

15 September 2017

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Audit information

Fieldwork started	13 06 2017
Fieldwork completed	15 06 2017
Auditor	Peter Buzzard
Audit Manager	Mike Shirbon

INTRODUCTION AND BACKGROUND

London Trams is the name given to the tramway linking Croydon town centre with Wimbledon, Beckenham Junction, Elmers End and New Addington. London Trams has been owned by Transport for London (TfL) since July 2008.

Tram Operations Limited (TOL), part of FirstGroup plc, is responsible for operating the trams. TOL is based at Therapia Lane Croydon and employs 151 tram drivers as follows:

- 98 main roster drivers;
- 20 drivers based permanently on the early roster;
- 16 drivers based permanently on the late roster; and
- 17 drivers made up of support staff that are certified to drive trams. These drivers are required to complete one driving roster every 28 days.

TOL carried out an audit of its Fatigue Risk Management System (FRMS) in May 2017. The audit was supplemented by completing the FRMS checklist in Appendix F of the ORR guidance – Managing Rail Staff Fatigue. We have highlighted in this audit report where TOL's own audit has identified similar findings to this one.

Objective

This audit was requested to provide assurance on the effectiveness of TOL's fatigue management arrangements.

Scope

This audit focused on the control environment in relation to the following key risk areas:

- Governance.
- Education and Training.
- Fatigue Risk Assessment.
- Fatigue Reporting.
- Physical Environment.
- Audit and Review.

The audit also considered TOL's Fatigue Risk Management System (FRMS) with respect to the Office of Rail and Road (ORR) guidance – Managing Rail Staff Fatigue.

The guidance is aimed at companies and individuals who have responsibility for managing fatigue in railway staff, including those who have control of safety critical work under regulation 25 of the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS). The guidance gives '*advice on good practice in managing fatigue associated with work in the rail industry*'; it is intended to provide '*practical advice on what responsible employers should already be doing*'.

EXECUTIVE SUMMARY

All the scope areas were examined during the audit.

This audit provides assurance against TOL's own standards and identifies areas for potential improvement based on ORR guidance.

Areas of Effective Control

We identified the following areas of effective control with regard to TOL's own FRMS:

- TOL's standards and limits on working hours have been effectively communicated;
- Variances in hours worked including overtime, exceedances and shift exchanges are being managed in compliance with TOL's standards and limits;
- Employee consultation has taken place on roster changes; and
- When booking on, drivers are checked by Control Room staff for signs of fatigue, including effects from prescription and over the counter medications.

Opportunities for Improvement

The following findings are areas for potential improvement of TOL's FRMS with respect to the ORR guidance on Managing Rail Staff Fatigue, which states:

'Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law'.

Several of these findings align with work already underway following TOL's own audit of their FRMS and TOL's completion of the FRMS checklist in Appendix F of the ORR guidance:

- Updating the FRMS to detail the roles and responsibilities for those employees involved in managing fatigue and the requirement to review the FRMS when the effectiveness of the arrangements is in doubt;
 - Formalising the process for determining when to carry out a fatigue risk analysis;
 - The consideration of ORR's Good Practice Guidelines – Fatigue Factors, and industry good practice, in addition to applying the HSE Fatigue Risk Index Tool to the roster design;
 - The consideration of ORR's Good Practice Guidelines – Fatigue Factors, in addition to numerical limits, in the management of changes to drivers' hours of work, including shift exchanges;
 - Reviewing fatigue awareness training for managers and supervisors to ensure it includes factors that increase fatigue and how to recognise fatigue in others;
 - Analysing, communicating and trending data available from monitoring for fatigue implications and for reviewing the effectiveness of the FRMS;
 - Documenting the procedures for managing fatigue by the Control Room and supervisors e.g. driver booking on, approving overtime, exceedances, shift exchanges and approving medications:
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- Reviewing Working Time Regulations and industry good practice to determine if late shift workers, particularly those on permanent late shifts, should be classified as night shift workers; and
- Formalising the arrangements for including within the FRMS the design of the cab and driving environment, and its associated impact on fatigue risk.

DETAILED FINDINGS

1.0 Governance

1.1 Ownership and Control of Fatigue Management Arrangements

Regulation 25 of ROGS Regulations 2006 - states that *“every controller of safety critical work shall have in place arrangements to ensure, so far as is reasonably practicable, that a safety critical worker under his management, supervision or control does not carry out safety critical work in circumstances where he is so fatigued or where he would be liable to become so fatigued that his health or safety or the health or safety of other persons on a transport system could be significantly affected.”*

SM0003 – Safety Critical Employees – Management of Fatigue - details TOL’s Fatigue Risk Management System. SM0003 is available via TOL’s electronic document control system (XDMS). It is not formally communicated. QP0005 – Document Control - Clause 4.1.3 – states that, as a minimum, documents shall be reviewed every two years. SM0003 was last reviewed in June 2014. SM0003 does not clearly detail the roles and responsibilities for those employees involved in managing fatigue (**Management Action 01**).

Recommendation 6 from TOL’s audit of their FRMS identified that a full review of TOL’s fatigue management arrangements is required. A draft copy of the revised SM0003 was evidenced as detailing roles and responsibilities for those employees involved in managing fatigue (**See Management Action 01**).

SM0003 Clause 2 – details TOL’s fatigue management policy. The policy was evidenced as including Senior Management commitment, allocation of adequate resources and collaboration. This is in accordance with the ORR’s guidance – Managing Rail Staff Fatigue - Section 5.13.

1.2 Fatigue Preventative and Protective Measures

ORR’s guidance – Managing Rail Staff Fatigue - Section 6.53 - states that controllers of safety critical work should be aware of factors affecting the onset of fatigue and reduce these as far as is reasonably practicable.

TOL’s fatigue control measures are based on TOL’s standards and limits on working hours, breaks, shift exchanges and exceedances (referred to as breaches by TOL). These are recorded in SM0003. Recommendation 1 from TOL’s audit of their FRMS identified that those responsible for making shift exchanges should consider fatigue implications in addition to checking compliance with TOL’s standards and limits. ORR’s Good Practice Guidelines – Fatigue Factors, states that fatigue factors, in addition to numerical limits, should be considered in the management of changes to driver’s hours of work, including shift exchanges (**Management Action 04**).

TOL’s standards and limits are communicated as follows:

- Lesson Plan TLP 0005 – Drivers’ Hours - this lesson plan is delivered as part of the driver’s basic training.
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- ALO 0030 – New Employee Induction Checklist – delivered as part of employee induction including TOL’s working hours standards and limits in relation to safety critical work.
- Briefing dated 19 May 2017 - reminding drivers of the requirement to be fit for duty when they sign on to work and their responsibilities in relation to fatigue.
- Briefing – Safety Critical Work, Fatigue – dated 8 December 2016 - evidenced as being distributed with the drivers’ pay slips. This briefing had also been delivered on a one to one basis by the Operations Manager to approximately 66% of the drivers to date.

1.3 Joint Management / Staff Consultation Arrangements

ORR’s guidance – Managing Rail Staff Fatigue - Section 6.68 – states that controllers of safety critical work should consult with safety critical workers and their safety representatives on the arrangements needed to manage fatigue and when standards and limits are to be changed.

SM0003 Section 5 – states that TOL will consult with employee representatives when new roster patterns are introduced. An e-mail dated 12 February 2016 was evidenced confirming that ASLEF had been consulted, and their suggestions incorporated, on the latest rosters.

1.4 Monitoring Effectiveness of Control Measures

ORR’s guidance – Managing Rail Staff Fatigue – states that controllers of safety critical work should monitor the arrangements for managing fatigue to assess how effectively they are controlling the risks arising from fatigue. This includes actual hours worked, exceedances and overtime levels. Trends from monitoring should be used to improve the FRMS.

TOL’s allocation team are responsible for allocating drivers to rosters and reviewing compliance to the standards and limits of actual hours worked. The allocation team were able to evidence that the following data is recorded:

- Hours Worked - are recorded on TOL’s Driver Allocation System (DAS). Individual driver’s time sheets are also retained as a hard copy record of what is entered into DAS.
 - Overtime - is recorded on the overtime sheet which is populated by the Control Room for each shift. This is primarily used for payment purposes.
 - Exceedances – DAS automatically flags any exceedances to TOL’s standards and limits. Exceedances are also recorded on the variations sheet which is populated by the Control Room. The Control Room log book is used to record any exceedances and is countersigned by the authoriser. Unexplained exceedances in DAS were evidenced as being escalated to the management team for review.
 - Shift variations – the planned shifts worked by each driver (early or late) are shown on the roster.
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- Shift exchanges - are shown on the variations sheet as MX or DX depending on whether the shift exchange was requested by the employee or the Company.
- Absence - is recorded on DAS along with the reason. Absence monitoring is also completed by Human Resources for the purposes of employee support.

Recommendation 7 from TOL's audit of their FRMS identified that an assessment of staff that regularly work overtime should be made to determine if other control measures should be implemented to safeguard against fatigue. TOL should also consider analysing other data available from monitoring for fatigue implications. This analysis should also be used to review and update the FRMS (**Management Action 06**).

Compliance to TOL's working hours standards and limits is measured as a Key Performance Indicator (KPI). This is reported to the Management Safety Meeting. A review is carried out of randomly selected time sheets for compliance to TOL's standards and limits (see section 3.5 of this report).

2.0 Education and Training

2.1 Basic Fatigue Awareness

ORR's guidance – Managing Rail Staff Fatigue - Section 5.65 - states that all staff should have a basic awareness of how to recognise fatigue in themselves or others.

TOL's fatigue awareness training for drivers is included in the drivers' Passenger Service Assessment (PAX) training. This is based on adherence to TOL's standards and limits on working hours and shift patterns. The Operations Director, Operations Manager, Duty Managers (x5) and Control Room Staff (x15) are all trained as drivers and as such receive the basic fatigue awareness training which was evidenced as including:

- Lesson Plan TLP 0005 – Drivers' Hours – including TOL's standards and limits on working hours, breaks, shift patterns and rest periods.
- DVD "The 21st Century Professional Driver" - is also shown to the drivers.
- TFM 0011 - Safety Responsibility Statement - including drivers not being fatigued when reporting for duty and reporting if they become fatigued during duty. This statement is signed by each driver.

Training Records are held on XDMS. The records were evidenced as confirming that all those available to drive have passed the Passenger Service Assessment (PAX) training.

Formal refresher training is not in place. Refreshment of the fatigue management arrangements is provided by briefings given to remind drivers of the fatigue management arrangements and their responsibilities (as evidenced in section 1.2 of this report).

2.2 Fatigue Training for Management and Supervisors

ORR's guidance – Managing Rail Staff Fatigue - Section 5.39 – states that where people have responsibilities for managing fatigue, there should be adequate competence management arrangements in place to ensure that they acquire and retain the appropriate fatigue knowledge and skills. This will be particularly important for supervisors and managers of staff carrying out safety critical work, and staff who devise and amend rosters. ORR's guidance – Managing Rail Staff Fatigue - Section 5.65 – also states that basic awareness of how to recognise fatigue in others is especially important for staff responsible for carrying out fitness for duty checks and for those responsible for ensuring staff remain fit for duty throughout their shifts.

Recommendations 1 and 2 from TOL's audit of their own FRMS identified that not all employees have sufficient knowledge of the factors that increase fatigue (specifically those carrying out briefings and checking compliance when shifts are exchanged). TOL should review their fatigue awareness training for managers and supervisors to ensure it includes factors that increase fatigue and how to recognise fatigue in others (**Management Action 05**).

2.3 Training in Roster Design

ORR's guidance – Managing Rail Staff Fatigue - Section 6.17 – states that it is vital that staff who devise working patterns receive training in roster design and the implications for fatigue. It could not be evidenced that TOL's roster designer had received training in minimising fatigue in roster design (**See Management Action 05**).

3.0 Fatigue Risk Assessment and Managing the Risks

ORR's guidance – Managing Rail Staff Fatigue - Stage 2 – states that controllers of safety critical work should identify, set and adhere to appropriate standards for working hours and working patterns, observing any relevant working time limits that apply. The standards and limits set should take into account recognised national industry good practice guidance applying to railways and other guided transport systems.

3.1 Standards and Limits

TOL's standards and limits for working hours were evidenced as considering:

- ORR's guidance – Managing Rail Staff Fatigue Section 6.20 – detailing the criteria to which numerical limits should be applied.
- Limiting overtime with respect to not exceeding the maximum permitted hours without authorisation.

3.2 Controlling Variances and Exceedances

ORR's guidance – Managing Rail Staff Fatigue - Section 5.44 – states that the FRMS should outline in particular the organisational arrangements for controlling overtime, shift exchange, travel time and on-call duties.

Potential fatigue due to variances, shift exchanges and overtime is controlled with respect to TOL's standards and limits. The Control Room staff are not trained in recognising other fatigue causal factors or fatigue in others (**See Management Action 05**). The process by which the Controllers (located within the Control Room) manage variances and exceedances is not documented. This is being reviewed as part of TOL's full review of their FRMS (**Management Action 07**). The duty Control Room Manager was interviewed to evidence that the controls relating to TOL's standards and limits are understood and actioned as follows:

- Overtime is checked to be within TOL's standards and limits and recorded on the overtime sheet. Any variances leading to the need for overtime are recorded on the variance sheet.
- Exceedances are authorised by a supervisor or relevant line manager, recorded in the logbook and countersigned by the authoriser. The last exceedance was evidenced in the Control Room logbook as occurring on 26 July 2016 at 18:51. A secondary check for any exceedances is made by the allocations team, see section 1.4 of this report.
- Shift exchanges are checked to be within TOL's standards and limits and recorded on the variations sheet as MX or DX depending on whether it was requested by the employee or the Company respectively.

3.3 Provision of Breaks

ORR's guidance – Managing Rail Staff Fatigue - Section 6.57 – states that controllers of safety critical work should make arrangements for workers to take breaks during periods of duty.

Drivers' breaks are set within the timetabling. This was evidenced on the Duty Cards which detail the timetabling, and associated rest periods, for the routes driven within the roster. Where breaks do not take place at the designated time, or are reduced in length, the Control Room will make mutually agreed adjustments to accommodate additional break time elsewhere in the shift. This is not documented. Section 10 of TOL's audit of their FRMS recommends that guidelines on driver breaks are devised and agreed (**See Management Action 07**). SM0003 Clause 10 – Provision of Breaks – details the length and frequency of breaks. The number of occurrences where this clause is not met is not monitored or analysed (**See Management Action 06**).

3.4 Roster Design

ORR's guidance – Managing Rail Staff Fatigue - Appendix A – states that working patterns should be designed to incorporate good fatigue management principles and recommends that an assessment is carried out on the proposed pattern using a fatigue assessment tool. TOL's base rosters established in 2016 were evidenced as being analysed using the HSE Fatigue and Risk Index tool. Section 8 of TOL's audit of their own FRMS identified that rosters are assessed using the HSE Fatigue Index but no formal risk assessment of the roster had been carried out for factors that exacerbate fatigue. ORR's Good practice guidelines – Fatigue Factors, and industry good

practice, should be considered in addition to applying the HSE Fatigue Risk Index Tool to the roster design (**Management Action 03**).

3.5 Time Sheet Review

SM0003 - Clause 13 – states that time sheets will be randomly selected to review for compliance to the standards and limits on a periodic basis. This is carried out by the HR Manager and communicated by e-mail, including the details of which drivers were checked. An e-mail dated 22 May 2017 was evidenced as confirming that the time sheets for eight drivers, four controllers and one duty manager had been checked as complying for period 13 2016/17. The 2017/18 Inspections and Tours report - was also evidenced to confirm that this information is communicated to TOL's Safety Management Review Group on a periodic basis.

3.6 Managing the Fatigue Risk of Actual Hours Worked

The recording of actual hours worked, and the controlling of variances and exceedances, is detailed in sections 1.4 and 3.2 of this report. The actual hours worked are controlled with respect to TOL's standards and limits, other fatigue factors are not considered. A sample of actual hours worked, including variances, is not evaluated using a fatigue risk tool (**Management Action 02**).

3.7 Consideration of Travelling Time in Fatigue Management

ORR's guidance – Managing Rail Staff Fatigue - Section 8.7 – states that fatigue management systems should include arrangements for assessing and controlling risks from travel time.

Driver travel time is considered in the recruitment process by recruiting drivers who live within a 1 hour commute of the depot. This ensures that if a maximum allowable 12 hour shift is worked, combined with 2 hours travelling to and from work, a 10 hour rest period is achieved.

Drivers are required to notify TOL of any changes of address, this requirement is included in ALO 0030 – New Employee Induction Checklist. The nature and duration of changes to a driver's travel time is not fatigue risk assessed (**See Management Action 02**).

3.8 Managing Changes to Employees Circumstances

ORR's guidance – Managing Rail Staff Fatigue - Section 6.77 – states that safety critical workers should be made aware of the procedures to be followed if they consider that there are circumstances, such as significant life events or medical conditions, which may cause them to either be or become so fatigued that health and safety could be significantly affected.

SM0021 – Driver Monitoring – includes details of domestic circumstances. This procedure is applied to drivers at set intervals during their first year of employment. All drivers, including those rostered once a month, are then monitored annually. This process is also implemented following behaviour or performance issues.

Reporting changes to employee circumstances, with the exception of home address, is not included in ALO 0030 – New Employee Induction Checklist, or TFM 0011 - Safety Responsibility Statement. There is no documented process for drivers to report changes in circumstances (**See Management Action 07**) or for those changes to be fatigue risk assessed (**See Management Action 02**).

3.9 Managing the Risk of Fatigue when booking on and off Shifts

ORR's guidance – Managing Rail Staff Fatigue - Sections 5.64 and 5.65 – state that companies should have fitness for duty checking arrangements to ensure that staff reporting for safety critical work are not suffering, or likely to suffer during their shift, from fatigue. This checking should be carried out face to face by staff with awareness in recognising fatigue.

The requirement for employees not to book on if fatigued is included in the driver induction and Lesson Plan 5 of their training. This requirement was also included in the briefing – Safety Critical Work, Fatigue – dated 8 December 2016, see section 1.2 of this report.

Drivers sign on at the Control Room where the controllers monitor their fitness for work including fatigue. The controllers are not trained in recognising the symptoms of fatigue (**See Management Action 05**).

Control Room staff were interviewed to determine what they would do if a driver appeared unfit for work. It was stated that they would firstly speak to the driver, and if deemed unfit to work they would be signed off as sick, sent home and their roster re-assigned. This process, including review of the reasons for fatigue, how to manage the individual, escalation (if necessary) and ensuring the safety of the individual in returning home is not documented (**See Management Action 07**).

3.10 The use of Fatigue Risk Assessment Tools

ORR's guidance – Managing Rail Staff Fatigue - Section 5.32 – states that the FRMS should outline how fatigue risk assessments are to be carried out, who should carry them out, and under what circumstances they should be completed, for instance before changes in working patterns, after incidents or reports of concerns about fatigue.

TOL has no formal process for determining when a fatigue risk analysis should be carried out. For example FOM 003 – Unauthorised SPAS Event Report - was evidenced as confirming if the working limits had been exceeded but does not consider any other fatigue risk factors. (**See Management Action 02**).

Drivers on late shifts are allocated to tram preparation duties for the later part of their shift. For this reason TOL does not consider drivers working late shifts, either permanently or on rotation, should be considered as night workers and therefore subject to fatigue risk assessment. For comparison purposes LU considers any driver completing 3 rostered hours between 11pm and 6am on a regular basis to be classified as night workers. Working Time Regulations and industry good practice should be reviewed to determine if

late shift workers, particularly those on permanent late shifts, should be classified as night shift workers (**Management Action 08**).

3.11 Fatigue Related Medical Fitness for Work

ORR's guidance – Managing Rail Staff Fatigue - Section 6.6 – states that Regulation 24(1) (a) of ROGS requires controllers of safety critical work to ensure that people carrying out such work have been assessed as fit for that work, and Regulation 24(1) (d) requires them to have in place arrangements for monitoring the ongoing fitness of such staff. These fitness assessments and monitoring arrangements should take potential risks from fatigue into account.

SM0008 – Fitness Standards (Safety Critical Work) - Clause 3.2 - defines the frequency at which in-service medicals, following the initial medical, are carried out. SM0008 - Appendix A – Medical Standards – details minimum medical fitness requirements for drivers including checks for alerted levels of consciousness and that those drivers with sleep apnea are deemed unfit for duty until treatment is successful. Medicals are completed by Maitland Medical Services.

Late shift drivers, particularly permanent late shift drivers, are not considered by TOL as night shift workers and therefore not subject to a medical appropriate for night shift workers (**See Management Action 08**).

ALO0030 – New Employee Induction Checklist – includes reporting the use of prescription and over the counter medicines to the company. Control Room staff were interviewed to determine what they would do if a driver reports they are taking medication. It was stated that the medication is checked against a permitted medications list issued by Maitland Medical Services. If the medication is not on the permitted list the driver is either told not to take the medication or stood down. If a driver is stood down Maitland Medical Services are e-mailed with details of the medication to determine if the driver is fit for duty. The procedure for reporting medications, and the subsequent actions, is not documented (**See Management Action 07**).

4.0 Fatigue Reporting

4.1 Process for Staff to Report Fatigue Related Issues

ORR's guidance – Managing Rail Staff Fatigue - Sections 5.38 and 5.75 – states that there should be open, easy-to-use channels of communication for reporting any concerns and that a non-punitive reporting system is essential to encourage staff to report fatigue.

TOL employees can report concerns using FirstGroup's confidential reporting system (managed by Ethics Point) or CIRAS. It was evidenced that this is publicised on notice boards around the site. The HR Manager is TOL's nominated champion in CIRAS.

Confidential reports have been received twice on First Group's system and twice on CIRAS. It was evidenced that only one of these reports, received via CIRAS in 2014, referred to fatigue. This related to fatigue caused by shift rotations and included a response by TOL.

TOL's completion of the FRMS checklist in Appendix F of the ORR guidance recognised that employees use more informal routes to report fatigue issues, for example talking to their manager. The procedure for recording and managing these reports is not documented (**See Management Action 07**).

5.0 Physical Environment

TOL advised that TfL provide the rolling stock and as such they consider the design of the cab, and its associated impact on fatigue risk, to be TfL's responsibility in the first instance. HSE document HSG48 - Reducing Error and Influencing Behaviour - refers to the combined effect of the individual, organisation and the job. There is a risk that in considering these factors in isolation, the collective impact on fatigue may not be identified. The arrangements for including the design of the cab, and its associated impact on fatigue risk, within the FRMS should be formalised (**Management Action 09**).

6.0 Audit and Review

ORR's guidance – Managing Rail Staff Fatigue - Section 5.84 – states that the FRMS should be a self-correcting process which periodically audits and reviews the effectiveness of the organisation's existing fatigue policy. The review should include the fatigue related organising, planning, implementing, and measuring processes.

TOL carried out an audit of their FRMS in May 2017. This was supplemented by completing the FRMS checklist in Appendix F of the ORR guidance – Managing Rail Staff Fatigue. Where this audit's findings concur with those from TOL's audit this is highlighted in this report.

QP 0005 – Document Control - Clause 4.1.3 - states that TOL documentation shall be reviewed every 2 years or earlier if part of an incident investigation. The last recorded review of SM0003 was in June 2014. SM0003 does not include a statement to undertake a review of the FRMS when the effectiveness of the arrangements is in doubt (**See Management Action 01**).

TOL Integrated Audit Schedule 2017 - was evidenced as including an audit of TOL's Safety Management System. Items to be covered in this audit are based on TOL's Risk Profile and discussions with the Head of Safety. This was evidenced as including compliance to ROGS.

APPENDIX 1: MANAGEMENT ACTIONS

Ref.	Description	Report Paragraph	Management Action	Owner / Date
01	SM 0003 – Safety Critical Employees – Management of Fatigue - does not clearly detail the roles and responsibilities for those employees involved in managing fatigue, or include a statement to undertake a review of the FRMS when the effectiveness of the arrangements is in doubt.	1.1 6.0	These requirements should be included in the revised SM 0003 being developed as part of TOL’s full review of its Fatigue Risk Management System.	Sarah Branwhite 15 December 2017
02	TOL has no formal process for determining when a fatigue risk analysis should be carried out including: <ul style="list-style-type: none"> • Post Incident. • Sampling actual hours worked. • Risk assessing changes to travel time. • Risk assessing changes to driver’s circumstances. 	3.6 3.7 3.8 3.10	TOL’s FRMS should outline how fatigue risk assessments are to be carried out, who should carry them out, and under what circumstances they should be completed.	Sarah Branwhite 15 December 2017
03	ORR’s Good practice guidelines – Fatigue Factors, and industry good practice, are not considered in addition to applying the HSE Fatigue Risk Index Tool to the roster design.	3.4	ORR’s Good practice guidelines – Fatigue Factors, and industry good practice - should be considered in the roster design.	Sarah Branwhite 15 December 2017
04	TOL’s fatigue control measures set limits on working hours, breaks, shift exchanges and exceedances. ORR’s Good practice guidelines – Fatigue Factors, in addition to numerical limits, are not considered in the management of changes to driver’s hours of work, including	1.2	ORR’s Good practice guidelines – Fatigue Factors, in addition to numerical limits, should be considered in the management of changes to driver’s hours of work, including shift exchanges.	Sarah Branwhite 15 December 2017

	shift exchanges.			
05	<p>TOL's fatigue awareness training does not include:</p> <ul style="list-style-type: none"> • Personal assessment of fatigue risk. • Training for management and supervision on the factors that increase fatigue. • Training for Control Room staff in recognising fatigue in drivers when booking on. • Training in minimising fatigue in the roster design. 	<p>2.2 2.3 3.2 3.9</p>	<p>TOL's training should be reviewed to ensure that drivers are competent in recognising fatigue risk in themselves, and that those responsible for authorising overtime, exceedances and shift exchanges are competent in recognising fatigue risk in others.</p> <p>Training should be provided in minimising fatigue in the roster design.</p>	<p>Sarah Branwhite 15 December 2017</p>
06	<p>Data available from monitoring, for example overtime and exceedances, is not analysed, communicated, trended or used to review and update the FRMS.</p> <p>The number of occasions where breaks are moved or not taken is not monitored.</p>	<p>1.4 3.3</p>	<p>The process to ensure data from monitoring, and other sources, is used to review and update the FRMS should be considered.</p>	<p>Sarah Branwhite 15 December 2017</p>
07	<p>The following procedures are not formally documented:</p> <ul style="list-style-type: none"> • The Control Room's management of variances, exceedances and changes to breaks. • Reporting driver's changes in circumstances. • The process when drivers are deemed unfit for work due to fatigue. • The procedure for reporting medications, and the subsequent actions. <p>The procedure for recording and managing</p>	<p>3.2 3.3 3.8 3.9 3.11 4.1</p>	<p>TOL's FRMS should be reviewed to ensure that the processes for managing and reporting fatigue are documented. The procedure for reporting medications, and the subsequent actions should be documented.</p>	<p>Sarah Branwhite 15 December 2017</p>

	fatigue reporting by staff.			
08	For fatigue risk assessment, and medical fitness for work purposes, TOL does not consider late shift workers, particularly those on permanent late shifts, to be night workers.	3.10 3.11	Working Time Regulations and industry good practice should be considered to determine if late shift workers, particularly those on permanent late shifts, should be classified as night shift workers.	Sarah Branwhite 15 December 2017
09	TOL does not fatigue risk assess the driving environment as they consider the design of the cab, and its associated impact on fatigue risk, to be TfL's responsibility.	5.0	The arrangements for including the design of the cab, and its associated impact on fatigue risk, within the FRMS should be formalised.	Sarah Branwhite 15 December 2017

APPENDIX 2: DISTRIBUTION LIST

This report was sent to Rory O'Neill, Director London Trams and copied to:

Jonathan Fox	Director of London Rail
Leon Daniels	Managing Director, Surface Transport
Jonathan Morris	Head of Commercial Disputes Resolution
Howard Carter	General Counsel
Clive Walker	Director Internal Audit
Robert Kemp	Senior Audit Manager
Jill Collis	Director of Health, Safety & Environment
Gareth Powell	Director of Strategy & Contracted Services