
Purpose

The purpose of this procedure is to explain how Line Managers and workers responsible for rostering and scheduling will manage shift work arrangements and apply a risk management approach by using rostering principles to reduce the risk of fatigue.

Scope

This procedure forms part of the Fatigue Management Program and supports [SMS-08-OP-3129 Manage Fatigue Risks](#). This procedure applies to Sydney Trains workers who:

- manage shift work and extended hours arrangements
- implement master rosters for train drivers
- implement working hours arrangements for drivers of heavy vehicles.

Contractor organisations must demonstrate compliance with this procedure through their own safe systems of work.

Process flow

Process

8.3 Managing Shift Work and Rostering

8.3.1 Undertake training in rostering

8.3.2 Develop rosters using rostering principles
8.3.3 Monitor and evaluate rosters

Figure 1 Process flow for managing shift work and rostering

Procedure

8.3: Managing shift work and rostering

Sydney Trains operates 24 hours, 7 days a week, providing rail services to customers, maintaining rail infrastructure and responding to unforeseen events. This involves rostering workers to meet operational requirements using shift work and extended hours arrangements.

Shift work and extended work arrangements increase the risk of fatigue which increases the likelihood of human error, incidents and injuries because they require workers to be active when they would normally sleep and sleep when they would normally be active. Such arrangements disrupt the body's circadian rhythms and affects a person's ability to obtain sufficient restorative sleep.

Sleep obtained during the day is generally not as restorative as night time sleep because:

- day time sleep cycles are usually shorter than night time sleep cycles
- the body's circadian rhythms are programmed for being alert and active during daylight hours
- day time sleep is often disrupted owing to family/social commitments or other factors.

Rostering practices that take into account circadian rhythms and provide sufficient time for restorative sleep reduce the risk of fatigue and produce better health and safety outcomes. Effective rostering practices also help workers achieve work-life balance and to better manage non-work commitments, reducing non work-related fatigue.

8.3.1: Undertake training in rostering

Directors of workgroups engaged in shift work and extended hours arrangements are responsible for the following procedure.

Procedure

1. Make sure Line Managers, team leaders, workers responsible for rostering and scheduling, workers performing the work and incident investigators receive and complete appropriate fatigue management training (refer to Table 1 for the training outcomes and courses for each category of worker).
2. Identify training competency gaps and schedule training courses to be undertaken on the division's safety training plan in accordance with [SMS-11-SP-3011 Training and Competence](#).

Table 1 Fatigue management training outcomes by worker category

Category of worker	Training outcomes	Training course
Line Manager/Team Leader	<ul style="list-style-type: none"> • Explain fatigue – what it is, how it affects health and safety and the importance of sufficient restorative sleep • Identify the factors that contribute to fatigue • Apply risk management processes to fatigue • Implement rostering practices to reduce the risk of fatigue • Using FAID® to identify fatigue associated with roster patterns 	Personal fatigue management induction video SM12 Fatigue Management for Line Managers SM31E Apply fatigue management strategies
Rosterers and schedulers	<ul style="list-style-type: none"> • Explain fatigue – what it is, how it affects health and safety and the importance of sufficient restorative sleep • Identify the factors that contribute to fatigue • Implement rostering practices to reduce the risk of fatigue • Using Fatigue Assessment tool by InterDynamics (FAID®) to identify fatigue associated with roster patterns. Refer to SMS-08-OP-3129 Manage Fatigue Risks. 	Personal fatigue management induction video SM19 Fatigue management for Rosterers SM19E Rostering principles SM31E Apply fatigue management strategies
Workers (who undertake shift work or extended hours arrangements)	<ul style="list-style-type: none"> • Explain fatigue – what it is, how it affects health and safety and the importance of sufficient restorative sleep • Identify the factors that contribute to fatigue • Explain own responsibility to report to work fit-for-duty and own role in managing non-work causes of fatigue 	Personal fatigue management induction video SM31E Apply fatigue management strategies
Incident investigators	<ul style="list-style-type: none"> • Explain fatigue – what it is, how it affects health and safety and the importance of sufficient restorative sleep • Identify the factors that contribute to fatigue • Identify and assess fatigue-related causes when conducting incident investigations 	Personal fatigue management induction video SM31E Apply fatigue management strategies

8.3.2: Develop rosters using rostering principles

By applying the rostering principles in Table 2, which provide guidance on working hours arrangements, Line Managers can reduce the risk of fatigue of workers. Where there is departure from the rostering principles owing to operational requirements, Line Managers must demonstrate that they have implemented control measures as part of a risk management approach, including consulting with affected workers.



Note

The rostering principles are not intended to replace provisions relating to working hours in industrial agreements or legislation. The principles are intended to establish optimal work arrangements for managing fatigue within a risk management approach.

Line Managers are responsible for the following procedure when rostering workers engaged in shift work and extended hours arrangements.

Procedure

1. Develop rosters consistent with the rostering principles in Table 2 Rostering principles.
2. Apply FAID® tolerability limits to rosters in conjunction with the rostering principles. FAID® is a computerised tool that calculates the predicted fatigue associated with roster patterns. FAID® is only able to take account of hours of work, time of day that work is undertaken and breaks within and between shifts. It does not, and cannot, take account of other work and non-work causes of fatigue. Do not use FAID® alone to reduce the risk of fatigue.
3. Take appropriate action to reduce the risk of fatigue when roster changes are made (e.g. when covering unplanned absences or the need to work extra hours as a result of unforeseen circumstances).
4. Implement and document control measures, where FAID® is used, to manage the risk of fatigue from rosters with elevated FAID® scores that exceed tolerability limits.

Table 2 Rostering principles

Principle	Training outcomes
1. Acclimatisation	Workers new to shift work and those returning after an extended period of annual or sick leave should not be rostered on night work or an early morning start for their first shift.
	When on leave, human circadian rhythms quickly re-establish a pattern of sleeping at night and being active during the day. Returning to night or early morning starts may be difficult, a bit like 'Mondayitis'.
2. Shift length	The length of a shift should not exceed 12 hours including overtime, especially if it involves a night shift.
	Human performance declines significantly when people have been working for 12 hours or more, especially where work is done at night or in the early morning.
3. Total hours worked	Aim for no more than 48 hours per week including overtime, which can be averaged across the roster cycle.
	The risk of fatigue increases towards the end of a week/roster cycle. This is because a sleep debt has accumulated. Limiting the number of hours worked in a week or roster cycle, provides time off to recover and repay the sleep debt.
4. Limit night shifts and early morning starts	Aim for no more than: <ul style="list-style-type: none"> • four consecutive shifts where 12 hour shifts are worked • five consecutive shifts where 10 hour shifts are worked • six consecutive shifts where 8 hour shifts are worked.
	Working a series of night/early morning shifts disrupts circadian rhythms and leads to accumulation of a sleep debt.
5. Break during a shift	Schedule frequent breaks especially during a night shift or if the work involves sustained mental or physical activity, if local arrangements allow.
	Breaks during a shift provide workers with an opportunity to rehydrate and get a short rest. Breaks during a shift may be rostered or managed informally, depending on local arrangements and the nature of the work.
6. Break between shifts	Aim for at least 12 hours from the end of a shift and the start of the next shift.
	Industrial agreements may allow for less than 12 hours, however, to reduce the risk of fatigue, a minimum of 12 hours break is needed. Breaks between shifts need to allow enough time for recovery and sleep. Night shifts may need longer breaks between shifts. This is because workers will need to sleep during the day when it is difficult to get good quality sleep.
7. Breaks between cycles	Make sure there are adequate breaks between shift cycles. For example: <ul style="list-style-type: none"> • Two days off in a 7 day shift cycle • Four days off in a 14 day shift cycle • Eight days off in a 28 day shift cycle Days off should be a minimum of two consecutive days.
	Evidence indicates shift workers need at least two consecutive nights sleep per week to enable them to report to work feeling refreshed.
8. Shift cycles	Schedule consistent start times where possible, or if rotating rosters are used, shift start times should move in a forward rotation i.e. morning-afternoon-night.
	Consistent start times can help shift workers get into a routine. Where rotating rosters are used, there is evidence that a forward rotating roster allows shift workers to delay sleep and wake up later. This is easier to do than going to sleep earlier or waking up earlier.

8.3.2: (continued)



Specific Requirements for Rostering Train Drivers

Line Managers will perform the following procedure when rostering train drivers.

Procedure

1. Develop rosters that:
 - comply with the working hours provisions in the Rail Safety National Law, 2012 (NSW) (see 'Rostering workers driving single manning trains' below)
 - apply the rostering principles in Table 2, to the extent that rostering principles are consistent with legislative requirements.
2. Consider the following factors:
 - variations in working hours resulting from different or changing routes (for example, trackwork requiring a detour or slower track speed which may increase shift length)
 - effects of long distances and journey time and the impact these may have on alertness and fatigue levels, independent of shift length
 - shift swapping and its impact on implementing rosters that meet legislative requirements.

8.3.2: (continued)

Rostering workers driving single manning passenger trains

1. Line Managers responsible for rostering railway workers who drive passenger trains in a one-person operation are to make sure the following conditions of work are applied:
 - the maximum shift length to be worked is 10 hours for the driver of an intercity or country passenger train, or 9 hours for the driver of a suburban train
 - a break of at least 11 continuous hours between each shift worked by a railway worker where the worker ends a shift at the home depot
 - a break of at least 7 continuous hours between each shift worked by a railway worker where the worker ends a shift away from the home depot and the break is taken away from the home depot
 - a maximum number of 12 shifts are to be worked in any 14 day period.

Specific Requirements for Rostering Heavy Vehicle Drivers

Line Managers will perform the following procedure when rostering heavy vehicle drivers.

Procedure

1. Develop rosters that:
 - comply with the working hours provisions in the Road Transport (General) Regulation 2005 (NSW)
 - apply the rostering principles in Table 2, to the extent that rostering principles are consistent with legislative requirements.



Note

Further information about working hours and rest breaks for drivers of heavy vehicles is available from the NSW Roads and Maritime Services.

Exceptional Circumstances

There may be occasions when unforeseen events occur such as serious incidents, extreme weather conditions and/or equipment failure. Workers may need to work extended hours to reduce risks to the travelling public and/or manage service disruptions.

Procedure

1. Under these exceptional circumstances, Rosterers will provide Line Managers with details of the roster.
2. Line Managers may authorise workers to work according to rosters that depart from the rostering principles in Table 2.
3. Where this happens, Line Managers will be responsible for implementing control measures to minimise the risk of fatigue:
 - check that workers are fit-for-work at the beginning of the shift (e.g. Are You Ok, assess the amount of sleep obtained in the 24 to 48 hours prior to commencing the shift)
 - consult affected workers on the process for monitoring their fitness-for-work during the extended work period (e.g. buddy system, maintain contact via radio or phone)
 - take all reasonable steps to limit the extended work period
 - make sure that workers who have undertaken shift work or extended hours arrangements are provided sufficient time to obtain restorative sleep before their next shift starts and consider options to reduce fatigue risks associated with workers driving home.

8.3.3: Monitor and evaluate rosters

Persons responsible for rostering shift workers will perform the following procedure.

Procedure

1. Regularly review and evaluate planned and actual rosters against the rostering principles for their potential to lead to work related fatigue.
2. As part of the rostering process, manage fatigue risks that may arise from factors such as:
 - Overtime and shift swaps
 - Assessment of the effects of staffing levels
 - Emergency, abnormal, one-off or occasional circumstances
3. Apply FAID® tolerability limits, if used, to rosters to calculate the predicted fatigue levels associated with hours of work.
4. Where issues/risks are identified (e.g. ad-hoc shift swaps introducing blocks of night shifts, roster changes resulting in the rostering principles

being consistently exceeded, consistently elevated FAID® scores that breach tolerability limits), Line Managers will consult the worker(s) and use the rostering principles in Table 2 and [SMS-08-FM 4130 Fatigue Risk Profile](#) to manage fatigue risks (e.g. amend the roster).

5. Capture fatigue risk controls in fatigue risk profiles



Note

FAID® will be used in the context of a risk management approach described in [SMS-08-OP-3129 Manage Fatigue Risks](#). FAID® provides an indication of the level of fatigue based solely on the roster. It is unable to take into account other causes of fatigue.

References

[SMS-08-OP-3129 Manage Fatigue Risks](#)

[SMS-06-FM-4130 Fatigue Risk Profile](#)

Version Control

Version	Change from previous	Date	Comment
1.0	First release of Sydney Trains SMS	01/07/2013	Launch of Sydney Trains SMS documents
1.1	Include reference to fatigue risk management plans, other minor changes	14/09/2015	Updated following review
1.2	Update to custodian and approver title	31/01/2019	Update