

# SAFETY NEWS

Land Transport Authority  
We Keep Your World *Moving*

32<sup>nd</sup> Edition /  
ISSN 1793-1665  
Sep 2016

## FEATURED ARTICLES

- 02 Good Practices in Near Miss Reporting and Management
- 04 Thematic Exercise – Safe Lifting Operations
- 06 Lessons learnt from the 2015 Dengue Epidemic
- 08 Overview of Site Implementation Audit on Temporary Road Works
- 10 Escalator Safety in MRT Stations and Initiatives to Promote Awareness

Every near miss is a potential fatality; every near miss is a potential accident. Near Miss - See it? Report it!

Hey You!  
Get out of the  
lifting zone!

# 2

## Good Practices in Near Miss Reporting and Management

### INTRODUCTION

What is the cost of an accident? It could be any of the following or all of them:

- Loss of manpower and equipment
- Loss of productivity
- Damaged reputation
- Penalties or fines
- Lawsuits

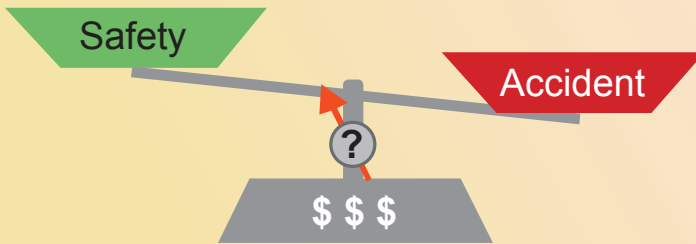


Figure 1: Cost of Safety versus Cost of Accident

While no company likes any accident, the importance of identifying the tell-tale signs before they happen are often overlooked. These signs are what the industry termed as Near Misses. For example, you were about to trip on a misplaced tool but you managed to grab hold of a handrail, thus avoiding a fall and escaping unhurt. Minutes later, this is forgotten until someone trips and falls over another misplaced tool and injure their back.

Management and staff need to understand that if Near Misses are not properly addressed, they have the potential of escalating into an accident and result in personal injury and / or property damage.

In order for Near Misses to be adequately and appropriately addressed, the root causes are to be collated and analysed in order to implement the right preventive measures.

In 1931, Herbert W Heinrich, in his book "Industrial Accident Prevention, A Scientific Approach", proposed the concept;

*"In a workplace, for every accident that causes a major injury, there are 29 accidents that cause minor injuries and 300 accidents that cause no injuries."*

This is subsequently known as the Typical Accident Pyramid or DuPont Model (Figure 2), where the ratio of 3000 Near Misses is an indicator of a potential fatality.

Therefore, it is necessary for the construction industry to give more attention to the importance of having good practices in Near Miss Reporting and Management.

### LTA NEAR MISS DEFINITION

Within LTA's reporting system, there are two classifications of Near Misses, namely the Near-Miss and Near-Miss (Category 'A').



Figure 2: Typical Accident Pyramid (DuPont Model)

Near Miss (as per OHSAS 18001) refers to an event that could have resulted in loss through personal injury, damage to assets or environmental harm.

Whilst Near Misses (Category 'A') are the unsafe acts (e.g. Walking under a suspended load) and / or the unsafe conditions (e.g. conducting lifting using damaged equipment), that could lead to serious injuries like amputations and fatality. The purpose is to identify and eliminate the root causes.



Unsafe condition ◦ Unsafe act ◦ Near miss ◦ Accident

Figure 3: Illustration of Events

Unsafe acts or unsafe conditions that fall under this classification are recorded into LTA SIMS (Safety Information Management System) as Near Misses (Category 'A') as seen in Figure 4.

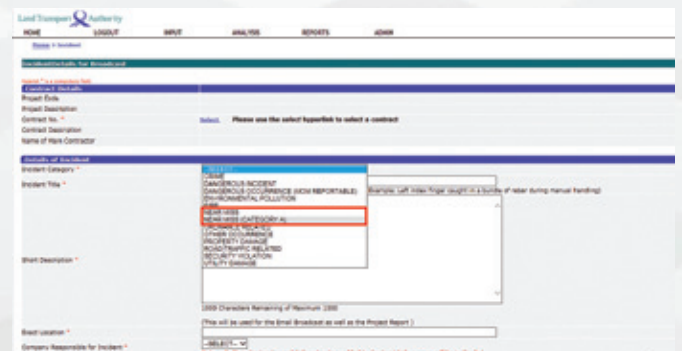


Figure 4: LTA Near Miss reporting via SIMS (Safety Information Management System)

# Good Practices in Near Miss Reporting and Management

3

## NEAR MISS REPORTING

Near miss reporting is an important tool that a company can use to improve their safety performance. This can be achieved by encouraging and instilling Near Miss reporting practices that are:

- Treated as non-punitive;
- Taken as an opportunity to identify and control potential incidents;
- Treated as a learning opportunity;
- Guided by clear reporting lines & methods spearheaded by the management.

Management has to define a clear set of safety objectives and care must be taken when setting safety performance targets. Reports of Near Misses must not be seen to be jeopardising the team's safety performance and taken as a leading indicator. It is a learning opportunity to close the gaps in the safety management system.

A complicated reporting system or a near miss feedback form that is difficult to understand can discourage reporting. Therefore, employee needs to be trained on how reporting can be done and be given a clear reporting line and easy to understand reporting system to encourage participation.

Management who are seen by their workforce to be committed to Near Miss reporting and who walk the talk will help to further promote the reporting culture within their company. It is essential to bear in mind that the workforce are the ones who are closest to the task at hand and it is they who will experience the greatest impact should an accident occur. Likewise, they will be the one who will gain the most when preventive measures are implemented.

When the workforce moves from having to be told to report a Near Miss incident towards having an increased awareness concerning the safety for others and for themselves, then a good Near Miss reporting culture will begin to develop. They will take the initiative to report and suggest solutions to the issues faced.

## MANAGING NEAR MISS REPORTS

Today, many companies have a Near Miss reporting managing system in place and the main difference between them lies in the action taken after the reports are received.

Would you be a company that choose to work from the bottom of the Accident Pyramid (Figure 2) or react to a serious incident that can cost you both time, money and reputation?

If employees do not see follow up actions by the company after reports are made, it will quickly dampen the motivation for reporting as it is seen as a waste of everyone's time. Thus, after sufficient Near Miss reports are collected, analysis of the trends, behaviours and root causes should be determined. The trends from the analysis will help to identify the weaknesses and gaps in the company's safety management system.

Subsequently, when both immediate causes and root causes are established, corrective and preventive actions are implemented to prevent a similar event from happening in the future. The actions applied have to be reviewed to decide if they were successful in eliminating the root causes. If not, the root cause has to be verified again. And the cycle repeats until the root cause has been determined and appropriate controls put in place.

This is similar to any quality cycle (Figure 5), where continuous improvement is essential to the effectiveness of the system.

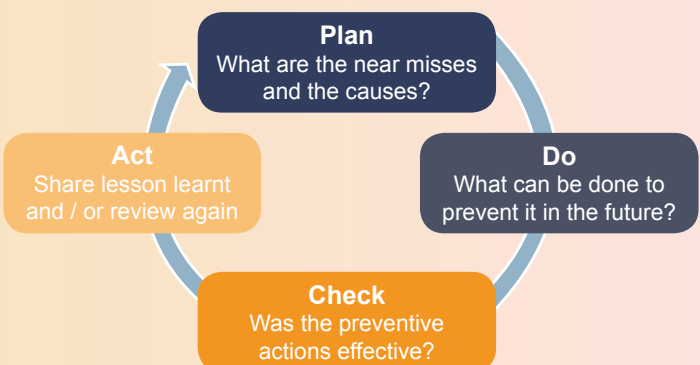


Figure 5: Near Miss Report Management Cycle

The lessons learnt from the event must be communicated to all employees. The objective is to create awareness towards safety and that the Near Miss reported by any personnel contributes to the improvement of the company's safety performances.

## CONCLUSION

As mentioned by Minister Mr. Tan Chuan-Jin at the launch of the National Workplace Safety and Health Campaign 2015, "Every Near Miss is a potential fatality; every Near Miss is a potential accident."

Near misses are the first alarm and precursor to a serious accident. Any potential incident can be curtailed at the initial stage with the participation of all employees on site and with the total commitment of management.

The company with a good Near Miss reporting and management system can reduce the chances of workplace incidents, prevent injuries, cut down lost time and avoid detrimental effect to a company's reputation.

YOU must be the one that looks ahead to what could happened rather than waiting for it to happen and you will be one step closer to the vision of Zero Accident.

**Melissa Li**  
Deputy Safety and Health Manager  
Safety Division

# 4

## Thematic Exercise – Safe Lifting Operations

### INTRODUCTION

With the intent of reviewing and improving the safety standards of lifting operations on LTA worksites, LTA's Safety Division embarked on a series of thematic exercises on lifting operations at the Thomson - East Coast Line (TEL) Project, beginning in March 2015. A total of 37 cranes and 14 rigs were inspected in this series of exercise. This article will showcase the key findings of the thematic exercise.

### BREAKDOWN OF FINDINGS

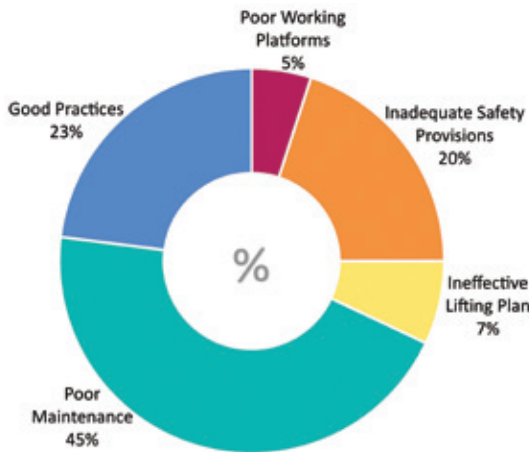


Figure 1: Pie chart summarising the findings of the thematic exercise

In summary, positive observations made up almost a quarter of the findings. This is a good indication that there were efforts made by the Contractors to maintain high levels of safe lifting operation.

At the same time, it was also recognised that there were areas to be improved especially with regards to the lack of maintenance and safety provisions which made up 45% and 20% of the findings respectively. This further emphasised the importance of having regular maintenance for lifting machines, with proper maintenance record for every machine.

All lifting equipment used in lifting operations must be in good working condition, tested and certified safe for use by an Authorised Examiner prior to any lifting operation and used within their rated safe working load.

### GOOD PRACTICES

Safety Division noted that Contractors had put in concerted efforts to comply with the legal as well as contractual requirements. In addition, it was also noted that some good practices implemented were beyond and above the said requirements.

Listed below are some noteworthy findings observed in this exercise:

- Pictorial safe work procedures were displayed at prominent locations (Figure 2). With language barrier remained as one of the key challenges in the construction industry, an effective way to communicate to the multinational workforce is via pictograms.
- Regular boom-down inspections by contractors involving both LTA and QP(S) personnel helped to ensure adequate coverage of load bearing components from hard to access areas on top of the boom. This is in addition to the regular inspections by the crane maintenance supervisor.
- There were sites that have conducted regular health checks which include taking blood pressure of crane operators. As the general health of operators could affect their ability to perform work safely, having a system of regular checks to monitor their health ensured that they were fit for work and in turn, contributed to a safer working environment.
- Use of digital Vernier Calliper during lifting gear inspection to check for any thinning in the cross-section diameter of wire ropes (Figure 3). In addition, some sites provided the use of portable range finder to determine the hoisting radius during lifting operation.



Figure 2: Pictorial safe work procedures to enhance communication



Figure 3: Safety Coordinator demonstrating the use of digital Vernier Calliper to check the diameter of wire rope

## AREAS FOR IMPROVEMENT

This section highlights the substandard findings that can be learnt so that proactive measures can be taken to avoid repeating similar standard.

### Poor Maintenance

Poor maintenance of various parts of the lifting machines and lifting gears made up almost half of the observations in this exercise. Some observations include:

- Use of modified or non-original parts (Figure 4). All bolts / pins or connecting fasteners used must be in accordance to manufacturer's design and be readily identifiable.
- Missing bolts and securing pins on connecting parts of crane / rig, which could lead to structural failure.
- Non-functioning audio and visual alarm. Additional warning alarm must fitted externally and be audible to nearby workers.
- Rusty or damaged wire ropes due to inadequate maintenance (Figure 5). Wire ropes must be properly maintained to prevent the ropes from failing during operation.



Figures 4: Non-original pin used to secure excavator bucket



Figure 5: Inadequate greasing leading to corrosion of wire ropes

### Inadequate Safety Provisions

The exercise also disclosed instances where safety provisions were inadequate. Some examples include:

- Bypass switch keys were not kept by the contractor's safety team to prevent unauthorised access to the switches (Figure 6).
- Inadequate or absence of barricade to demarcate crane lifting and slewing zone.



Figure 6: Key to the bypass switch inserted in the control panel

### Ineffective Lifting Plan

Instances of lapses were discovered during documentation checks, including inadequate planning prior to commencing work. This was illustrated in one of the lifting operation involving three lifting machines, where the lifting plan allowed overlapping of the crane operating zones. This posed risk of collision if there was no proper coordination. The safety team also discovered one of the daily crane pre-use checklist was pre-filled days beforehand by the crane operator. Such malpractice have defeated the purpose of having pre-use inspections. Crane pre-use inspections should be conducted before start of each lifting operation.

### Poor Working Platforms

During the early stages of construction work, site ground conditions tend to be soft. Therefore, it is critical to ensure that the ground condition is safe for the configuration of the crane during the entire course of lifting operations. Some of the findings include:

- Absence of hardcore before steel plates were laid.
- Lifting machine failed to keep a safe distance away from a slope.
- Provision of substandard hardcore material (Figure 7) and voids beneath steel plate (Figure 8).
- Weak / soft grounds due to wet weather.



Figure 7: Industrial debris used as hardcore material



Figure 8: Working platform not properly compacted resulting in voids beneath steel plate

## CONCLUSION

Safety Division acknowledges that continuous effort from various stakeholders is crucial to ensure lifting operations are done safely. Hence, all findings were shared with various stakeholders across several platforms with the intent to educate and prevent recurrence.

With the numerous benefits from the thematic exercise, Safety Division will continue to conduct similar exercises in future, focusing on relevant topics in order to achieve greater levels of safety on all LTA worksites.

**Aduka Bin Ali**  
Deputy Safety and Health Manager  
Safety Division

# 6

## Lessons learnt from the 2015 Dengue Epidemic

### INTRODUCTION

Towards the end of 2015, many parts of the world experienced slightly warmer than usual weather due to the El Nino phenomenon. This warmer condition supported faster breeding and maturation cycles for mosquitoes and also shortened the incubation period of the dengue virus. As a result, there was an unusual spike in the number of dengue cases and the biggest dengue cluster ever formed in the history of Singapore.

The biggest dengue cluster which was located in Tampines, had a total of 278 cases since its first reported case in November 2015. Majority of the infected were nearby residents, while 83 of them were foreign workers belonging to one of LTA Downtown Line 3 (DTL3) construction sites. With collective efforts to stem out mosquito breeding, the cluster was officially dissolved at the end of February this year.

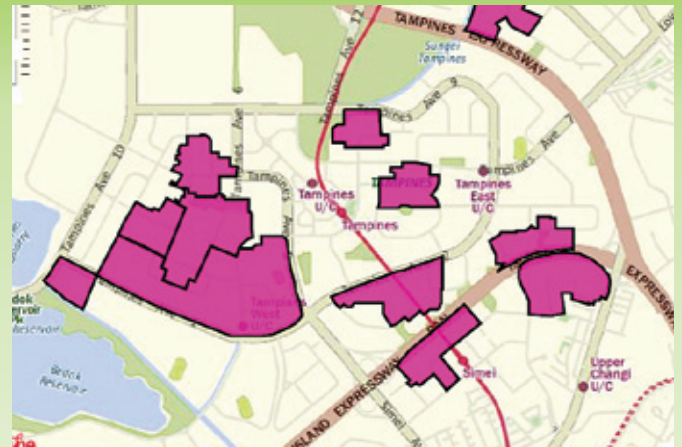


Figure 1: Dengue cluster map obtained from NEA on 15<sup>th</sup> Feb 2016

### LESSONS LEARNT

A review of the 83 cases that had happened in LTA sites was carried out to identify the gaps and learning points. The summary of the review is described below.

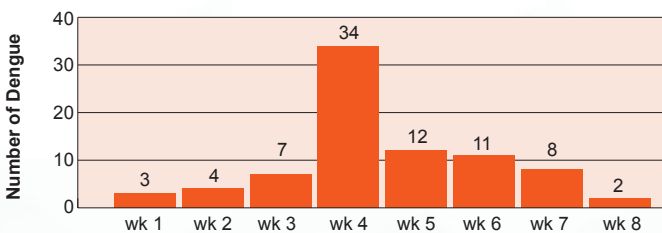


Figure 2: Number of dengue cases per week



Figure 3: Workers queuing up for temperature taking and application of mosquito repellents

#### Timely Implementation of LTA Dengue Contingency Plan

To protect workers against being bitten by mosquitoes carrying the dengue virus in the area, it was crucial for the timely implementation of the LTA Dengue Contingency Plan.

Formalised in 2013 and revised in 2014, the LTA Dengue Contingency Plan acts as a guide describing the control measures that shall be adopted by contractors to prevent LTA construction sites from being a source of dengue transmission. As indicated in the LTA Dengue Contingency Plan, control measures including temperature monitoring, isolation procedures, as well as the application of insect repellent, are crucial to prevent dengue from further transmission.

#### Key Areas to Ensure Effective Implementation of LTA Dengue Contingency Plan

To ensure effectiveness, strict enforcement of the dengue contingency plan is required, e.g. temperature taking and application of insect repellent. There were instances where some of the workers were reluctant to apply it and cited skin sensitivity to the repellent as a reason. Hence, contractors need to reiterate the message on the severity of dengue fever and enforce the strict monitoring regime to prevent dengue transmission. Where there is a dermatological condition, the contractor should source for suitable alternative repellents.

Besides ensuring strict enforcement, the frequency and also the method of applying mosquito repellent cannot be neglected. Spraying the repellent once a day is insufficient as it would be worn off due to perspiration or washing of hands. Based on consultation with NEA and MOH, workers are advised to apply the repellent thrice daily - before they enter the worksite, during their breaks, and just before they finish work. Furthermore, instead of just applying the repellent on palms and then onto the neck and face, the repellent should be applied to all exposed skin. For effectiveness, the mosquito repellent should contain the active ingredients either DEET, or Picaridin (for individuals who are intolerant to DEET). See Figure 4.



Figure 4: Examples of mosquito repellents with active ingredients that are available in Singapore

## Isolation of Suspected Workers

It is also crucial to establish isolation procedures for all workers suspected of contracting dengue fever (e.g. workers that reported sick and had high temperature). These workers should be isolated immediately from the workforce to a resting room that is well-ventilated.

Mosquito repellent should be applied to prevent transmission. A system for check-in and check-out must be implemented to ensure that the affected worker does not leave the room without permission. This is to be strictly followed to prevent transmission. Hence, where there is a possibility of virus contamination, isolation must be implemented strictly.

## Collation of Information

Besides implementing procedures to prevent dengue transmission, it is also critical to quickly collate information (e.g. date of fever onset, residential address, discharge date) on the reported dengue cases. This aids situation updating, source tracing and decision making which control further transmission. For an example, if an infected worker has been working in another LTA site, the management in both project sites must activate dengue contingency plans.

A standardised dengue case information form should be developed to include all key information required, for consistency.

## Search and Destroy Efforts

A regime of search and destroy inspections is only as effective, as the efforts undertaken to remove the potential mosquito breeding grounds. LTA implemented a dedicated vector inspection, jointly conducted with the contractor every afternoon to check conditions of the site. A site specific vector inspection checklist detailing the hot spots was used to document the findings, and these findings have to be closed within the day itself.

## Specific Site Challenges Encountered

Efforts are needed to combat dengue and measures are to be put in place. There are specific site challenges that need to be overcome at construction sites. Some of these are listed below:

- For hard to reach areas that require checking for larvae and oiling (e.g. intermediate level walers and struts) (Figure 5), proper access with safety provision has to be planned in advance and provided.



Figure 5: An intermediate level waler

- The storage of excess material within station box can create difficulty for workers to conduct vector inspection (Figure 6). Proper access should be provided to facilitate the removal of excess materials, and this will improve housekeeping standards.



Figure 6: Excess material within the station box

- Heavy rainfall can cause water stagnation on slab (Figure 7). Contractor should develop a plan in advance of these period. Sufficient resources (e.g. workers and equipment) should be allocated during periods of high rainfall.



Figure 7: Water stagnation on slab

## CONCLUSION

It is imperative to implement the LTA Dengue Contingency Plan timely and effectively to prevent dengue transmission. The learning points highlighted must be communicated and implemented across all of our sites.

Moving forward, an enhancement of the Dengue Contingency Plan incorporating these learning points will be launched. The plan will ensure that all contractors in LTA construction projects have a consistent and effective dengue management strategy. Together with our contractors, we need to continue to be vigilant in safeguarding the premises from dengue by eradicating all potential breeding grounds from the worksites.

**Lee Zi Xiong**  
Deputy Environmental Manager  
Safety Division

## OVERVIEW OF SITE IMPLEMENTATION AUDIT

### Introduction

Construction activities for road and rail projects would affect the carriageways when they are carried out in a built-up environment. To maintain the connectivity and ensure that both motorists and pedestrians are able to travel safely through the work zone, temporary roads with proper traffic control and management are implemented. The traffic consultant and contractor have the responsibility to ensure that the temporary roads are planned, designed and implemented in accordance with the stipulated requirements in the Code of Practice for Traffic Control at Work Zone.

### Roles & Responsibilities

A contractor is obligated to construct the temporary road in accordance with the approved traffic diversion plans. As a designer of the temporary traffic scheme, the traffic consultant is the key professional who shall conduct the site audit after the diversion scheme has been implemented. The consultant would check that the objectives of the inspection - to ensure road is safe to use, is fulfilled:

- The traffic scheme implemented on site is in accordance with the approved design;
- The installation of any traffic control devices, road furniture and safety protection systems for road users including workers are in accordance with standard details or manufacturers' specifications;
- The temporary road operates safely under all traffic, weather and lighting conditions.

Upon completion of the site implementation audit, the project team would review the work done by the traffic consultant to ensure it is properly carried out and hazards adequately closed.

### Methodology

The traffic consultant conducts the site implementation audit from a driver's perspective by driving through the stretch of temporary or diverted road and a pedestrian's experience by walking through during the day and night. An inspection checklist covering the key aspects in temporary road design was developed by LTA Safety Division to assist traffic consultant in their task:

- Alignment & Cross-section Details
- Junction & Intersection
- Traffic Signs & Lane Markings
- Safety of Pedestrian and Vulnerable Road Users
- Provision of Site Access
- Use of Delineation Device
- Use of Road Safety Barriers

At the end of the inspection, the traffic consultant shall declare the adequacy of the implemented traffic scheme. Should new hazards or non-compliances are identified, the traffic consultant will propose mitigating measures and contractor shall make the necessary rectification.

Safety Division will also assist to provide further recommendations to project teams, traffic consultants and contractors to enhance the scheme (where necessary).

## EXAMPLES OF FINDINGS DURING SITE IMPLEMENTATION AUDIT

From the site implementation audits which the traffic consultant and Safety Division have conducted on the temporary road works, some common safety issues that are frequently identified are shared in this article. All identified issues have been closed out.

### Insufficient sight visibility at junction and around road bend

The sight visibility of motorists is often found obstructed by the hoarding installed round the inner bend of the diverted road. Despite the commitment of providing half-height hoarding in the design stage, the view of motorists around the bend is still compromised by the parking of machinery, equipment or storage of materials within the clear zone designated for achieving the required sight distance.



Figure 1: Container placed within the line of sight around inner road bend

A demarcated object-free zone within the hoarded work area should be provided for the motorists to have adequate sight visibility around the road bend and at junction.



Figure 2: Clear view at the corner of the junction with acrylic panels

### Obsolete pavement marking

Due to the implementation of different diversion stages with different lane alignment and junction layout within a short duration, obsolete pavement markings are overlaid with new markings. The arrangement causes confusion to motorists travelling on the affected stretch of road. The use of black paint to cover obsolete markings should not be used as well as it similarly confuses driver under certain lighting conditions.



The use of removable / temporary pavement marking tape can be considered in the changing environment of pavement marking installation for road diversion works. The contractor shall follow the requirements and guidelines in the LTA Code of Practice for Traffic Control at Work Zone and manufacturer's specifications when using the temporary pavement marking tape.



Figure 3: Obsolete pavement markings overlapped with new pavement markings



Figure 4: Obsolete pavement markings have been milled off

### Pedestrian crossing point

Pedestrian crossing point at the signalised junction should be free of obstructions, for example lamp post and traffic light poles, so as to provide sufficient waiting area for the pedestrians and ensure that Barrier-Free Accessibility is provided for the prams and wheelchair users. Obstruction could lead to pedestrian taking risk by standing on the live carriageway and wheelchair users facing difficulty in using the crossing facility.



Figure 5a: Obstruction in the middle of crossing point



Figure 5b: Unobstructed crossing point provided

### Alignment across junction

Skewed lane alignment across the traffic junction has been observed in some projects as a result of site constraints. In order to mitigate the hazard, guideline has been provided to guide vehicles across the junction safely so that vehicles will not encroach into the adjacent lanes and cause side-swipe accident.



Figure 6: Guidelines provided across misaligned junction

As much as site condition allows, fundamentally, the hazard of junction misalignment should be designed out. The lanes across the junction are appropriately aligned in the subsequent stage of diversion as shown in Figure 7.



Figure 7: Improved alignment across the junction in subsequent stage of diversion

### Installation of safety barrier

The installation of concrete safety barrier along the diverted road should be done in accordance with the manufacturers' specifications and approved design. Site audit should focus on the common items such as the type of barrier, connection and anchorage details, placement of barrier etc. Deviation from the manufacturer's requirements could render the safety protection system ineffective in its intended function.



Figure 8a: Missing interlocking pin between the concrete barriers



Figure 8b: Interlocking pin installed between the concrete barriers



Figure 9a: Improper placement of concrete barriers on kerb



Figure 9b: Removal of concrete barrier on kerb after rectification

## CONCLUSION

Site implementation audit is beneficial and complements the efforts of traffic consultants and contractors in ensuring that completed temporary roads are safe for use for all road users. The lessons learnt from the site audit have indeed enhanced the experience and work quality of the designer and contractor in the implementation of temporary road works.

**Terence Lee Kian Boon**  
Assistant Road System Safety Manager  
Safety Division

## INTRODUCTION

Since 2010 to 2014, there had been an increase in the number of escalator related injuries in the Mass Rapid Transit (MRT) stations. During this period, new MRT lines, such as the Circle Line (CCL) and Downtown Line (DTL) were also opened in different phases. Thus, the increase in the number of escalator related injuries can be attributed to the general increase in ridership. In order to have an objective gauge of the injury statistics, the data obtained is normalised to every 1,000,000 ridership. From Table 1, it is observed that there was an increase in incident rate (number of escalator related injuries per 1 million ridership) from 2010 to 2014.

MRT ridership and escalator related injuries						
	2010	2011	2012	2013	2014	2015
Ridership on MRT (in million)	742	825	908	942	983	1,022
Total number of Escalator related injuries	58	66	113	126	148	148
Escalator related injuries per 1 million ridership	0.08	0.08	0.12	0.13	0.15	0.14

Table 1: Statistics on escalator incidents

Table 2 categorised the persons with injuries sustained from the use of escalators according to the different age groups. Statistics revealed that the Elderly contributed to a significant proportion of sustained injuries in relation to the total number of incidents.

Escalator related injuries according to different age groups						
	2010	2011	2012	2013	2014	2015
Total number of Escalator related injuries	58	66	113	126	148	148
Elderly, aged 60 & above (in %)	50	59	61	50	66	58
Adult, aged between 11 & 59 (in %)	47	39	32	48	34	39
Child, aged 10 & below (in %)	3	2	6	2	0	3

Table 2: Escalator related injuries - breakdown by age group

In view of the high number of escalator related injuries, 23 stations with frequent escalator related incidents (within the period of past 6 years) were identified as hotspots. And with the objective to address this issue, LTA has collaborated with the rail operators to roll out additional initiatives to educate the public, and to promote awareness of using the escalator safely in MRT stations. This article will highlight some of the initiatives implemented.

## INITIATIVES TO PROMOTE AWARENESS OF ESCALATOR SAFETY IN MRT STATIONS

### a) Escalator Safety Working Group

An Escalator Safety Working Group which consists of participants from LTA, SMRT, and SBST was formed in March 2015 to look at escalator safety across all MRT lines. The Working Group reviewed the trend of escalator incidents and the effectiveness of existing escalator safety awareness programmes.

The Working Group also serves as a platform for LTA to monitor escalator incident trend arising from the different operators. Any unfavourable trend spotted can be brought up for discussion. With a holistic approach on resolving escalator issues and improving safety, improvement measures will be thoroughly considered, and consensus from the different operators will be sought for implementation.

### b) Safety Awareness Posters

LTA has collaborated with SMRT and SBST to develop poster designs to educate and raise awareness among elderly commuters on the safe use of escalators. A poster as shown in Figure 1, has been on display since December 2015 at the entrances of 23 stations with frequent escalator incidents, and at concourse level near the escalators.



Figure 1: Poster on the safe use of escalators

### c) SMRT Escalator Speakers Trial

In an initiative by SMRT to promote the safe use of escalators, speakers were installed on escalators to play messages on the safe use of escalators to commuters (Figures 2 and 3). These speakers are currently installed only at selected stations - City Hall, Simei, Tanjong Pagar, Novena and Buona Vista. As this initiative is in its trial phase, these speakers are being currently assessed for their usefulness and effectiveness.



Figures 2 : Location of speaker device installed on escalators



Figures 3 : Close up photo of speaker device

### d) Escalator Safety Campaign

In 2015, SBST implemented its Escalator Safety Campaign at selected stations to promote the safe use of escalators. The campaign was held once every few months, where videos on escalator safety were played at train stations. Commuters can participate by answering a short quiz relating to the videos and selected winners stand a chance to walk away with attractive prizes.

### e) Speed Reduction Trial

In 2015, SMRT has also commenced the Speed Reduction Trial on escalators at Kent Ridge and Pioneer stations. During the trial, the operating speed of ingress escalators were reduced from 0.75m/s to 0.60m/s. The operational feasibility as well as the commuters' responses towards the speed reduction of these escalators are currently under assessment.

### f) Dual-Speed Escalator

To further enhance escalator safety, all new escalators (from Thomson - East Coast Line (TEL) onwards) are designed with dual speed control (with normal speed at 0.75m/s and reduced speed at 0.50m/s). This new design will also be implemented on refurbished escalators on the North-South Line (NSL) and East-West Line (EWL). This design will allow flexibility for escalators to operate at a lower speed during non-peak hours, when the elderly would frequently commute, making their travel journeys safer.

## CONCLUSION

In addition to the initiatives above to ensure commuters can travel safely, LTA and SMRT rail operators will continue to monitor and promote safety awareness for escalator usage.

**Loke Yin Yin**  
Deputy Manager  
Rail Regulation Division

**Cai Linfan**  
Principal Engineer  
Mechanical & Electrical Services Division

# EDITORIAL PAGE

## CONTRACTORS' SAFETY FORUM 2016

LTA hosted the "Contractors Safety Forum" on 31<sup>st</sup> May 2016 at the HSO Auditorium. The recent spate of accidents in the construction sector has called for a second Safety Forum this year to reinforce our commitment towards Zero Accident.



In the opening address delivered by LTA Chief Executive, Mr. Chew Men Leong, he urged contractors to tighten site supervision and take ownership to eradicate complacency from the workplace. He also reiterated the importance of near miss reporting and encouraged the Contractors' top management to set a good example to propagate the value of near miss reporting.

The Safety Forum served as a platform for all to come together, exchange information and acquire knowledge on safety-related issues. It is envisaged that such forums will go a long way, to assist our Contractors in maintaining a high-level of safety standards at their worksites.

The topics presented during the Safety Forum were:

- ❖ Key Inspection Findings for Construction by Ministry of Manpower (MOM)
- ❖ Lessons learnt from recent incidents:
  - A fatal accident at Contract C1687 by China Railway 11
  - A fatal accident at Contract T201 by Jurong Primewide
  - An amputation case at Contract T3003 by E.D. Zublin
  - Damage to SPPG Cable Tunnel at Contract T208 by Leighton – John Holland JV
- ❖ LTA Annual Safety Performance 2015 by LTA Safety Division



Mr. Chew Men Leong,  
Chief Executive,  
Land Transport Authority

Mr. Chow Yee Ming,  
Project Director,  
China Railway

Mr. Montri Thongpises,  
Project Director,  
ED Zublin

Mr. Thia Toh Men,  
Head (Construction Ops),  
Occupational Safety and Health  
Division, Ministry of Manpower

Mr. Lee Soon Eng,  
President,  
Jurong Primewide

Mr. Paul Corbett,  
Operation Manager,  
Leighton - John Holland JV

### Editorial Committee

**Advisor**  
Corporate Safety Committee

**Editors**  
Phoa Hock Lye, Patrick  
Liu Weng Keong, Ian  
Lee Yu Qi, Jocelyn

**Circulation Officer**  
Zhuo Shumei

**Contributing Writers**  
Melissa Li  
Aduka Bin Ali  
Lee Zi Xiong  
Terence Lee Kian Boon  
Lok Yin Yin  
Cai Linfan

### Contributions or feedback to:

Land Transport Authority  
Safety Division  
No. 1, Hampshire Road, Blk 5, Level 4, Singapore 219428  
Tel: (65) 6295 7392 Fax: (65) 6396 1188  
Email address: [ian\\_LIU@lta.gov.sg](mailto:ian_LIU@lta.gov.sg)

Safety News is also available online at  
<http://www.lta.gov.sg/content/ltaweb/en/industry-matters/safety-and-health-and-environment/construction-safety-and-environment/safetynews.html>

or scan

