Land Transport Authority
We Keep Your World Moving

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IRSC 2025
Advancing Railway Safety through Innovations and Collaborations
Hong Kong, China 25th - 30th November 2025

Multi-pronged regulatory approach to railway safety in Singapore

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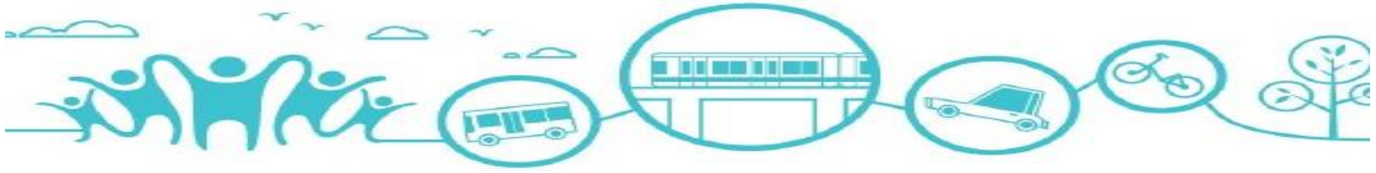
Land Transport Authority (LTA)

- LTA oversees the land transport in Singapore.
- For rail, LTA's roles include:
  - Plan, design and build the rail network.
  - Regulate the rail operators.

Vision	A people-centred land transport system



Mission	Connecting people and places, enhancing travel experience

Overview - Singapore's Rail Network

Rail Network Coverage

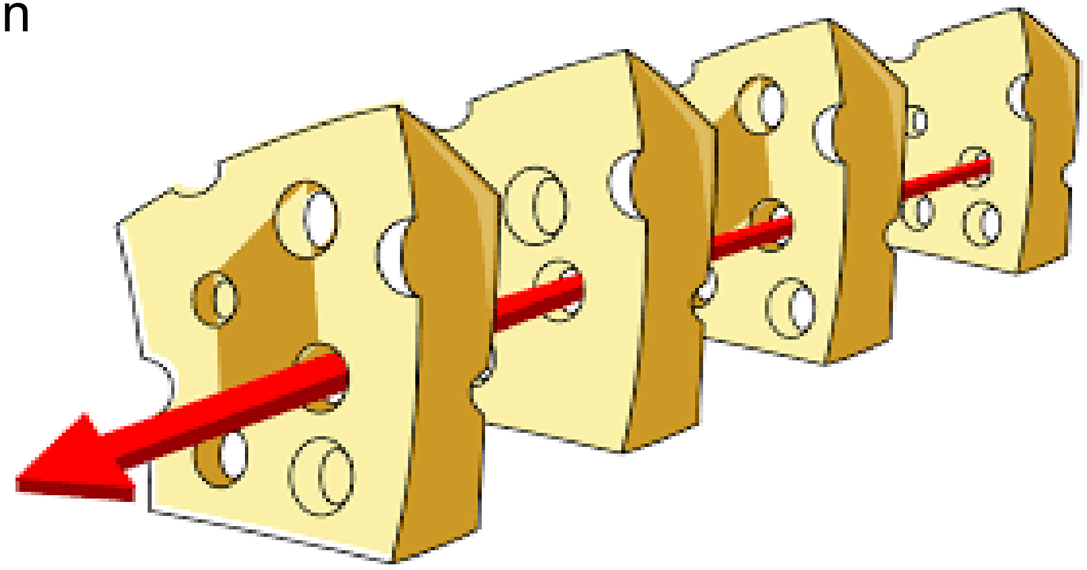
- Mass Rapid Transit (MRT): 170+ stations, 6 lines.
- Light Rapid Transit (LRT): 40+ stations, 2 lines.
- Ongoing expansions to increase rail coverage.

Rail Operators

- **SMRT**
  - North-South Line
  - East-West Line
  - Circle Line
  - Thomson-East Coast Line
  - Bukit Panjang LRT
- **SBST**
  - North-East Line
  - Downtown Line
  - Sengkang-Punggol LRT

Swiss Cheese Model

- Each layer of defense (“cheese slice”) can have weakness (“a hole in a cheese slice”).
- While there are layers of defense, incident can occur if the “holes” align.



Multi-Pronged Regulatory Approach

- Building a robust and comprehensive system.

- **“STAIRS”** approach.

  1) **S**haring of Best Practices / Lessons Learnt.
  2) **T**ripartite Workgroup.
  3) **A**udits and Inspections.
  4) **I**ncident Investigation.
  5) **R**ecognition and Reward.
  6) **S**trengthen safety.

1) Sharing of Best Practices / Lessons Learnt

Cross-sharing platforms for key stakeholders to get together, brainstorm and share practices / initiatives that could help our rail eco-system to be safer.

Safety Conversations

- Informal platform to facilitate exchange of operations and maintenance safety information, as well as to foster strong safety culture.
- Discussions will also include implementation of technology to address safety issues.
- Participants are split into groups, and are mixed between rail operators, for discussion.

2) Tripartite Arrangement

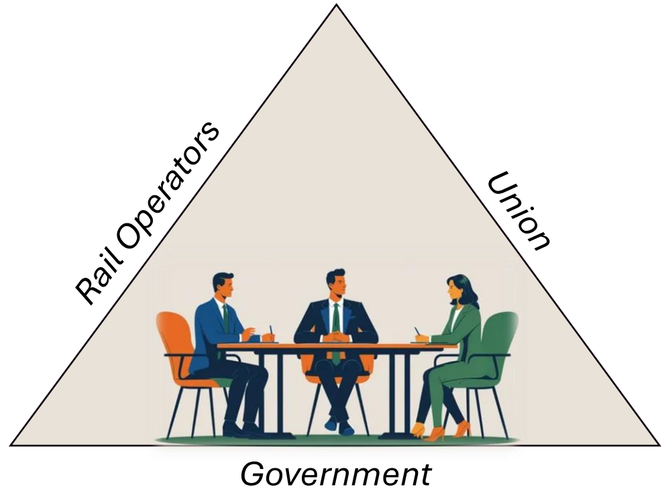
Tripartite efforts between government, union and rail operators are fundamental in instilling railway safety in Singapore.

Rail Industry Tripartite Discussions

- Co-chaired by LTA and National Transport Workers Union (NTWU), and representatives include rail operators.

- Platform for partners to engage in discussions on safety, with focus on incorporating workers' perspective through a ground-up approach.
  - Allows diversity of viewpoints, reflecting different profiles and job roles.

- Initiatives include:
  (a) Golden Rules for rail workers.
  (b) Measures to mitigate Signal Passed At Danger (SPAD) incidents.



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2a) Tripartite Initiative – Golden Rules For Rail Workers

- Every Worker Matters,
  Every Life Matters.
- We envision that every rail worker in our rail industry can:
  - Be responsible at Work and Behave safely.
  - Challenge unsafe behaviours and practices.

Golden Rules ("WORK SAFE")

W Work instructions and Standard Operating Procedures (SOPs) are to be followed, do not take short cuts.

O Observe strictly to conduct toolbox briefing prior to work commencement.

R Remember to always use Personal Protective Equipment (PPE) provided.

K Keep work within defined work zones.

S Seek clarifications and do not assume.

A Always ensure mandatory clearance checks.

F Firmly ensure that only certified competent person is allowed to carry out the Work.

E Ensure that all Electrical equipment, apparatus, and conductors are regarded as Live at all times.

2b) Tripartite Initiative – Measures to Mitigate Signal Passed At Danger (SPAD) Incidents

- SPAD incidents occur when manually driven trains do not stop before a signal in red aspect and move beyond the stop signal.
  - They are serious safety incidents given that they can potentially result in collisions and derailments and lead to serious injuries or fatalities.

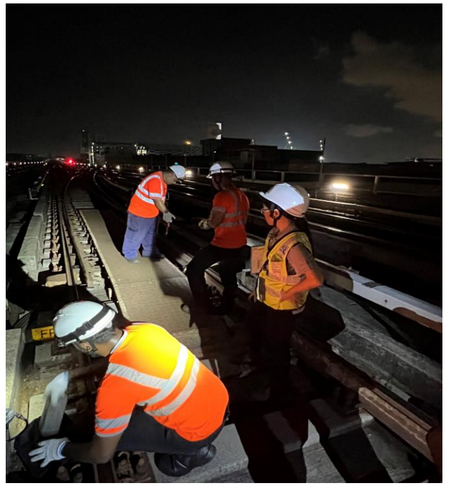
- Some measures include:
  - Team based training to improve coordination between train drivers and train service controllers.
  - Review to keep voice protocols and procedures concise and specific.

3) Audits and Inspections

Wide range of audits and inspections to cover different safety aspects.

- Examples:

SMS Audit	• **Organisation** compliance to Safety Management System (SMS).
Safety Inspection	• **Team and personal** responsibility as well as behavioral safety.
Station Inspection	• **Passenger safety** enhancement by identification of potential hazards at station.



4) Incident Investigation

Incidents may happen. What is important is the response to incidents, lessons learnt and the appropriate measures to mitigate recurrence.

Root Cause Analysis and Systematic Improvement

- Identify the root cause(s) of incidents and contributory factor(s).
- Identify corrective / preventive measures, and follow up on measures that they are implemented and documented.
- Evaluate the effectiveness of measures to address cause(s) and contributory factor(s).

5) Recognition and Reward

LTA recognises and rewards the operators for efforts in ensuring a safe and secure Public Transport Network.

Public Transport Safety and Security Awards (PTSSA)

- Held annually to recognise operators for efforts in ensuring safety and security across public transport network.
- Three types of awards relating to rail.
  - Recognise outstanding rail line in operational and workplace safety.
  - Recognise rail operators on their efforts and safety initiatives to promote safer working environment.
  - Recognise individual acts of vigilance.

6) Strengthen Safety

Continuous improvement is a necessary element of safety.

Facilitate continuous improvement

- Review of safety processes and measures are carried out, including identification of safety risks.
  - Circumstances can differ over time, e.g. new technology.
  - Good practice does not stand still: new good practices can emerge over time.
- Examples:
  - Limit Personal Mobility Aids (PMAs)' sizes makes it easier for PMAs to navigate on public transport.
    - Larger PMAs can compromise safety of other passengers (e.g. children and elderly).
  - Implement safety campaigns to promote safety.

Conclusion

- Safety is a continuous journey. It involves constant vigilance and improvement.
- Not to have the mindset of “status quo” or “good enough”.
- Ultimately, safety involves all stakeholders actively striving to create safer environment.

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