Risk Assessment

Risk assessment type:	Customer/User	**Business:**	London Underground
Title:	Normal Operations	**Directorate:**	Network Operations
Risk assessment number:	1	**Business unit:**	Northern Line
Date:	29/08/2018	**Department (optional):**	Northern Line Operation
Location(s):	Northern Line Operation	**Section (optional):**	
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Contributors:	Frances Brann	**Date for next review:**	Jan-20

This risk assessment is to be used in conjunction with:

Number:		Title:	

Document history:

No:	Date:	Change, including reason:
1	29/0818	New CRA template
2		
3		

Ref	Generic hazard category			Describe the specific hazard(s)	Who/what could be harmed?	How could they be harmed?	What are you already doing to control the risk?	Risk rating?	How confident are you that the controls are effective?	Reason for confidence rating	What further actions are necessary?	Action by who?	Action by when?	Date completed
							*** Order the risks so that the **Top 5 Risks** show first ***							
1	Trapping, including entrapment and entanglement			PTI - Caught in the train door	Customer	Minor bruising injury from being stuck and/or held by the doors Major injury - breaking bones and head injuries or fatality if dragged by the train	1. Crash barriers provide a physical barrier to stop / deter customers 2. On train announcements (visual and audio) to warn customers to mind the gap / take care when boarding / alighting 3. OPO equipment - monitored by train operator to identify customers boarding / alighting, see if customers are caught in doors 4. Rule Book 8 - Managing the platform train interface details role of station staff, service control and train operators 5. Staff training on platform train interface procedures outlined in Rule Book 8 to ensure awareness 6. Communication & briefing with staff to ensure an awareness of station specific risks 7. Door chimes to warn customers to stand clear 8. Customer communciations e.g. on train posters, sharks teeth on doors to warn customers to stand clear 9. Sensors on train doors to detect obstuctions and prevent trains moving 10. Passenger Emergency Alarm to alert train operator in the event of an incident	High	71-80%	Controls are effective but customer behaviour is difficult to predict ignoring door chimes and trying to board at the last minute. Incidents are monitored at the PTI group.	None			

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2	Collision or struck by vehicle, including rolling stock, plant or road	PTI - Struck by a moving train due to standing too close to the edge, leaning over, accessing track to retrieve something, anti-social behaviour, trespass or deliberate act	Customer	Minor injury - bruising from being clipped by a moving train Major injury - breaking bones and head injuries or fatality if stuck by the train	1. Crash barriers & platform end barriers provide a physical barrier to stop / deter customers 2. Rule Book 8 - Managing the platform train interface details role of station staff, service control and train operators 3. Staff training on platform train interface procedures outlined in Rule Book 8 to ensure awareness 4. Communication & briefing with staff to ensure an awareness of station specific risks 5. Radio - to alert Service Control in the event of an incident for assistance to be provided 6. Customer communcations e.g. samaritan advice 7. Passenger Emergency Alarm to alert train operator in the event of an incident/Emergency Plungers	Medium	71-80&	Controls are effective but customer behaviour is difficult to predict or control.	None			
3	Slips, trips and falls (same level, stairs, uneven surface, from furniture), excluding falls from height	PTI - Fall into the gap between the train and the platform and falls boarding/alighting, including scheduled detrainments	Customer	Minor injury - bruising/cuts/ grazes from falling in the gap or onto train/platform Major injury - breaking bones and head injuries or fatality if in the gap and the train moves or is moving	1. Crash barriers provide a physical barrier to stop / deter customers 2. On train announcements (visual and audio) to warn customers to mind the gap / take care when boarding / alighting 3. OPO equipment - monitored by train operator to minitor the PTI befoire departure, identify customers boarding / alighting, see if any incidents are occurring 4. Rule Book 8 - Managing the platform train interface details role of station staff, service control and train operators 5. Staff training on platform train interface procedures outlined in Rule Book 8 to ensure awareness 6. Communication & briefing with staff to ensure an awareness of station specific risks 7. Radio - to alert Service Control in the event of an incident for assistance to be provided 8. Door chimes to warn customers to stand clear 9. Customer communciations e.g. posters on trains, sharks teeth to warn customers to stand clear 10. Sensors on train doors to detect obstuctions and prevent trains moving 11. Passenger Emergency Alarm to alert train operator in the event of an incident/Emergency Plungers	Medium	71-80%	Controls are effective but customer behaviour is difficult to predict or control.	None			
4	Contact with something - something hits the person or person unintentionally hits something (excluding being struck by vehicles and contact with electricity)	PTI - Hit a stationary train whilst boarding	Customer	Minor injury - bruising from hitting the train if rushing or uncoordinated. Major injury - broken bone, head injury	1. Crash barriers provide a physical barrier to stop customers 2. On train announcements (visual and audio) to warn customers to mind the gap / take care when boarding / alighting 3. OPO equipment - monitored by train operator to minitor the PTI befoire departure, identify customers boarding / alighting, see if any incidents are occurring 4. Rule Book 8 - Managing the platform train interface details role of station staff, service control and train operators 5. Staff training on platform train interface procedures outlined in Rule Book 8 to ensure awareness 6. Commmunication & briefing with staff to ensure an awareness of station specific risks 7. Door chimes to warn customers to stand clear 8. Customer communciations e.g. posters on trains, sharks teeth to warn customers to stand clear 9. Sensors on train doors to detect obstuctions and prevent trains moving 10. Passenger Emergency Alarm to alert train operator in the event of an incident	Low	81-90%	Controls are effective and very few incidents of this nature	None			

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5	Contact with something - something hits the person or person unintentionally hits something (excluding being struck by vehicles and contact with electricity)	Struck by falling item from a structural or rolling stock failure	Customer	Minor - bruising/sprain to Major - breaking of bones, head injuries. Fatality - head injury	1. Inspections to identify, report and rectify asset related hazards 2. Maintenance to ensure assets remain in good repair 3. On train announcements to communicate with customers in the event of an incident occuring 4. Radio - to alert Service Control in the event of an incident for assistance to be provided 5. Rule Book 7 - Train incidents and safety equipment outline rules to be applied in the event of a train incident 6. Training - train operators trained to operate trains 7. Training - train operators trained on Rule Book 7 to ensure awareness 8. Passenger Emergency Alarm to alert train operator in the event of an incident	Low	81-90%	Controls are effective and fleet well maintained	None			
6	Slips, trips and falls (same level, stairs, uneven surface, from furniture), excluding falls from height	Slips/Trips and Falls on train or inter-connecting doors	Customer	Minor - bruising/sprain to Major - breaking of bones, head injuries.	1. Cleaning spillages / litter to avoid slip / trip hazards 2. Inspections to identify, report and rectify asset related slip / trip hazards 3. Maintenance to ensure assets remain in good repair 4. lighting to ensure visibility of assets 5. On train handrails for customers to hold on to 6. asset design e.g. anti slip flooring to reduce slips / trips 7. On train announcements to warn customers when trains are ready to depart 8. Posters to warn customers to hold the handrails 9. Signage on interconnecting doors warning customers of the hazards of use 10. Seating on trains 11. Door chimes to warn customers train doors are closing in preparation for departure 12. Radio - to alert Service Control in the event of an incident for assistance to be provided	Medium	71-80%	Controls are effective but elderley or mobility impaired customers are more vulnerable due to sharp acceleration.				
7	In a vehicle (rolling stock and rail plant) and involved in a collision or derailment	Derailment or collision with another train / buffer, e.g. due to equipment failure such as signal / points failure, broken rail, etc.	Customer	Minor - bruising/sprain to Major - breaking of bones, head injuries. Fatality - head injury	1. Inspections to identify, report and rectify asset related hazards 2. Maintenance to ensure assets remain in good repair 3. Rolling stock design to minimise impact of collision / derailment, speed control 4. Track design to reduce potential for collision / derailment 5. On train announcements to communicate with customers in the event of an incident occuring 6. Radio - to alert Service Control in the event of an incident for assistance to be provided 7. Rule Book 7 - Train incidents and safety equipment outline rules to be applied in the event of a train incident 8. Training - train operators trained to operate trains 9. Training - train operators trained on Rule Book 7 to ensure awareness 10. Passenger Emergency Alarm to alert train operator in the event of an incident	Low	91-100%	Controls effective and no incidents involving customers	None			
8	Contact with electricity (low voltage)	Contact with Low Voltage	Customer	Shock/Trauma, Major Injury or Fatality	1. Asset design - isolation, earthing 2. Maintenance to ensure assets remain in good repair 3. Inspections to identify, report and rectify asset related hazards	Low	91-100%	Controls are effective. Fleet well maintained and known incidents of this nature	None			

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9	Contact with electricity (high voltage) (can this be combined with low...)	Contact with High Voltage - Contact with live rails through self detrainment onto track	Customer	Shock/Trauma, Major Injury or Fatality	1. PEDs, crash barriers provide a physical barrier to stop / deter customers 2. On train announcements (visual and audio) to warn customers to mind the gap / take care when boarding / alighting 3. OPO equipment - monitored by train operator to identify customers boarding / alighting, see if customers are caught in doors 4. Rule Book 8 - Managing the platform train interface details role of station staff, service control and train operators 5. Staff training on platform train interface procedures outlined in Rule Book 8 6. Communication & briefing with staff to ensure an awareness of station specific risks 7. Radio - to alert Service Control in the event of an incident for assistance to be provided 8. Door chimes to warn customers to stand clear 9. Customer communcations e.g. posters, sharks teeth to warn customers to stand clear 10. Sensors on train doors to detect obstuctions and prevent trains moving 11. Passenger Emergency Alarm to alert train operator in the event of an incident	Low	81-90%	Controls are effective but customer behavious can be difficult to predict or control	None			
10	Exposure to substances hazardous to health, including smoke, fumes, dust and particulates or liquids	Exposure to contaminated body fluids, sharps, viruses, dust, smoke, chemicals.	Customer	Smoke/dust/fumes inhalation/ingestion/absorption - minor/major/fatality	1. Cleaning to prevent dust build up, hazardous substances are removed from public areas to prevent customer contact etc 2. Inspections to identify, report and rectify related hazards to reduce customer exposure 3. Maintenance to ensure assets remain in a good state of repair 4. On train announcements to advise customers of actions to be taken in the event of an incident occurring 5. Rule Book 7 - Train incidents and safety equipment outline rules to be applied in the event of a train incident 6. Staff trained on Rule Book 7 to ensure awareness of action to be taken 7. Passenger Emergency Alarm to alert train operator in the event of an incident 8. Radio - to alert Service Control in the event of an incident for assistance to be provided	Low	81/90%	Controls are effective and no incidents of this nature to date	None			
11	Violence - verbal or physical (including theft)	Verbal/physical violence, threats, abuse from other customers or witnessing traumatic event	Customer	stress trauma minor/major injury	1. Inspections - staff deter anti social behaviour 2. Lighting on trains to deter anti social behaviour 3. CCTV on trains to deter anti social behaviour 4. On train announcements to warn of pickpockets etc 5. BTP visible on the Network to deter anti social behaviour 6. Passenger Emergency Alarm to alert train operator in the event of an incident	Medium	71-80%	Controls are effective but cannot always control customer behaviour which can be unpredictable considering how busy the line is.	None			

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12	Exposure to fire, exposion, hot sparks or arcing	Electrical fault / Ignition of materials / substances, Ignition of personal possession/equipment portable appliances mobile devices Track Fires & build up of rubbish or debris	Customer	Smoke inhalation, minor/major injuries, fatality	1. Fire detection and suppression systems to alert of smoke / fire 2. Rule Book 7 - Train incidents and safety equipment outline rules to be applied in the event of a train incident 3. Training on Rule Book 7 to ensure staff aware of role in dealing with suspect packages / behaviour etc 4. Emergency lighting / tunnel lighting to ensure visibility for an evacuation if no power supply 5. Fire compliant materials to prevent spread of fire 6. Line emergency plans for managing incidents to ensure correct action taken 7. staff familiarisation to ensure awareness of emergency evacuation arrangements 8. Bylaws for customers to inform what materials can be brought onto the network 9. Procedures in place for hot working to reduce the potential for fire 10. storage licences to ensure an knowledge of products stored and quantity 11. Inspections to identify, report and rectify asset related hazards 12. Maintenance to ensure assets remain in good repair 13. Cleaning to prevent build up of combustible materials 14. Passenger Emergency Alarm to alert train operator in the event of an incident	Low	81-90%	Controls are effective and no incidents of this nature to date	None			
13	Exposure to extreme hot or cold, such as weather, surfaces or equipment	Exposure to hot / cold temperatures on train	Customer	Minor injury, shock/panic, heat stroke stress & trapping trauma or major injury if within vulnerable group	1. Weather plans in place to ensure assets maintained appropriately and that this is taken into consideration in the event of an incident 2. Customer communications e.g carry water to prevent persons ill on trains 3. On train announcements e.g. carry water to prevent persons ill on trains 4. attendance of the emergency services to assist persons ill on trains if necessary 5. Passenger Emergency Alarm to alert train operator in the event of an incident 6. Heating / air conditioning on trains to control temperature	Low	91-100%	Controls are effective	None			
14	Act of terrorism	Injury to person/Damage to property. Physical Injury psychological damage and stress/trauma	Customer	Minor injury or trauma, or major injury/trauma/multiple casualties and loss of life.	1. Security Guidance to staff on actions to be taken in the event of a security incident 2. Staff training and briefing on action to be taken in the event of a security incident to ensure awareness of these 3. Fire detection and suppression systems to alert of smoke / fire 4. Inspections - staff deter anti social behaviour 5. CCTV on trains to deter anti social behaviour 6. Line emergency plans for managing incidents to ensure correct action taken 7. staff familiarisation to ensure awareness of emergency evacuation arrangements 8. on train annouecments to give instructions to customers in the event of an incident 9. BTP visible on the Network to deter anti social behaviour 10. Passenger Emergency Alarm to alert train operator in the event of an incident	Low	71-80%	Contrls are effective but security threat is still severe	None			