

Reference Document

R0049 Maintenance Assurance Plan (Track) 2014-2015 (BCV/JNP/SSL)

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MAYOR OF LONDON



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1 Purpose

- 1.1 This Maintenance Assurance Plan (MAP) describes the arrangements for the assurance of London Underground BCV/JNP/SSL maintained Track assets. This plan also references the ongoing maintenance delivery activities and includes the requirements for the verification activity plans (VAP).
- 1.2 This plan supports the London Underground Assurance Regime and demonstrates how, for the Track Assets, compliance is met with LU Cat 1 Standard S1538 – Assurance.
- 1.3 This plan describes the boundaries of the Track assets, delivery organisation, performance metrics, surveillance arrangements, and improvement activities. The Service Delivery Units (SDU's) will hold their own document to describe their maintenance regimes.

Notes on this document

This Maintenance Assurance Plan issued for 2014/15 is the first document to combine all three Service Delivery Units (BCV, JNP & SSL), and as such there may be differences in terminology, roles and descriptions primarily between BCV&SSL and JNP.

The asset management systems used in BCV&SSL is Ellipse and the equivalent in JNP is Maximo.

The equivalent term for the Track Manager with overall responsibility for line maintenance is "Track Infrastructure Manager" in the case of BCV& SSL and "Zonal Maintenance Manager" in the case of JNP.

The author should be consulted where the interpretation between SDU's in any part of this document is unclear.



2 Reference Information

2.1 ASSET SCOPE AND BOUNDARIES

2.1.1 Assets being maintained and Scope

2.1.1.1 The Track assets being maintained within the scope of this MAP comprise the permanent way system, defined as follows in LU Cat 1 Standard 1-154, Permanent Way System, Strategic Strategy and Interfaces:-

‘All railway tracks in passenger service, the adjoining depots and sidings mostly electrified, immediate timber and sleeper support and ballast, and all associated permanent way features between and including the operational fences but excluding earth structures, structures, electrical, signalling and communications installations’.

2.1.1.2 The permanent way system interfaces with the following assets as defined in LU Cat 1 Standard 1-154 Permanent Way Strategy and Interfaces:-

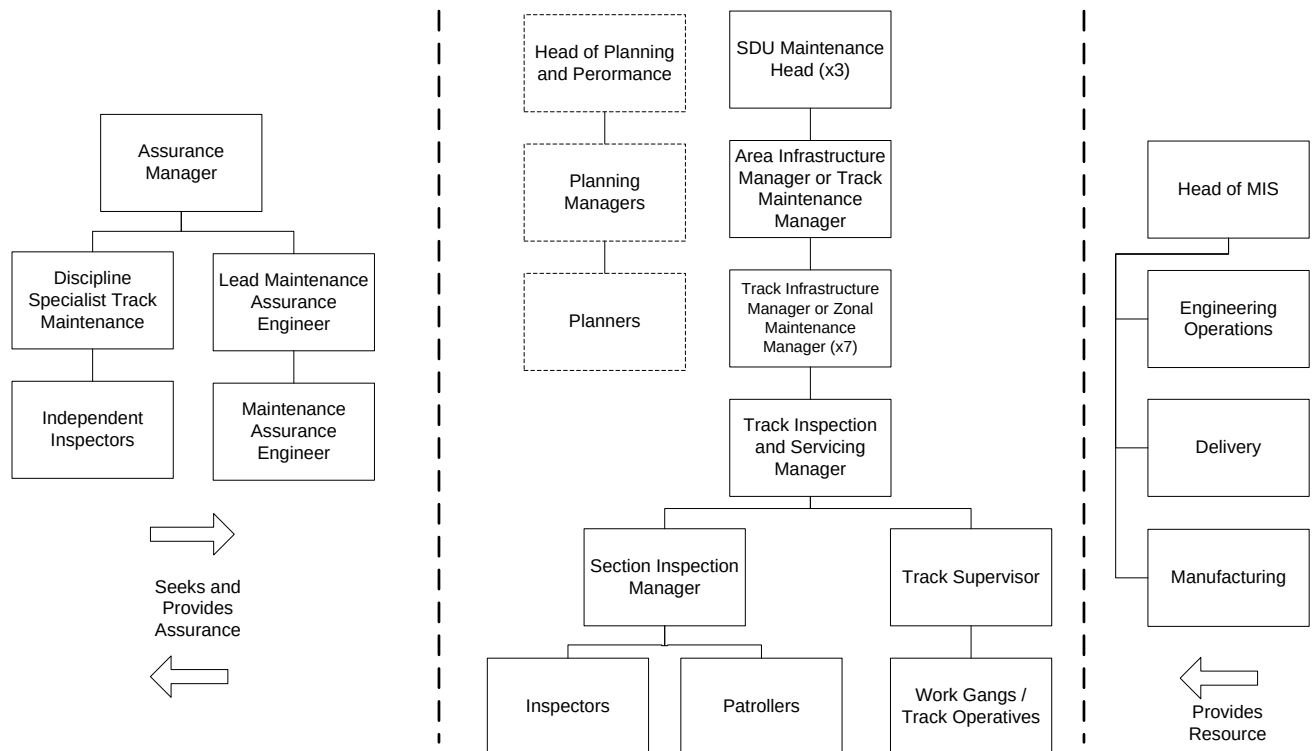
- Civils infrastructure
 - lineside clearances
 - level crossings
 - earthworks and formation
 - drainage
 - underbridges
- Signalling and control
 - signalling system interface
 - blockjointless track circuits
 - train detection
 - cable stiles
 - jointed track circuits
- Rolling stock
 - vehicle acceptance
 - wheel loading
 - false wheel flanges
 - friction management
 - route availability
- Power
 - conductor rail system

2.1.1.3 The Track Assets are catalogued in London Underground’s Asset Registers, Ellipse for BCV/SSL and Maximo for JNP. Inspections and Planned Maintenance Work are planned and prioritised by MSTs (Maintenance Scheduled Tasks). In addition to MSTs there is a list of Standard Jobs for Track. Any work order raised from the Ellipse/Maximo systems (both planned and corrective) will be referenced to a standard job. There are, however, some specialised alternative systems that have been approved for use outside of Ellipse/Maximo. Examples of these systems include databases to hold rail stressing records, an in house designed lubrication database and Stressroute™ Metro (a database to record running rail stress information).

2.1.1.4 The asset management for the Track assets is defined in the annual Asset Management Plan (AMP) which is produced by the Planning and Performance Directorate. All maintenance work described in the AMP is assured in accordance with this MAP.

2.1.2 Management Arrangements

2.1.2.1 The Track responsibilities within COO are discharged by the Head of Maintenance in respective SDU's as shown in figure 1. This function is split into seven core delivery units – SSL North; SSL South; Central; Bakerloo & Victoria; Jubilee; Northern and Piccadilly. Each unit is headed by a Track Infrastructure Manager or a Zonal Maintenance Manager which either reports to an Area Infrastructure Manager for BCV/SSL or the Track Maintenance Manager for JNP. In addition to the Infrastructure Units, the Maintenance Infrastructure Services (MIS) unit and the JNP track engineering unit provides additional resource to undertake defined Work Packages stipulated by the line organisations and specialist works such as lubricator maintenance and ultrasonic inspection. The COO Engineering department offers technical support to the SDU Maintenance Head's to assist in specifications, drawings, concessions and standards developments as requested by the COO maintenance organisation.





2.1.3 Handover from Projects to Maintenance

2.1.3.1 The arrangements for the handover / handback of Track assets between COO Assets and Projects, Line Upgrades or Maintenance Infrastructure Services are described in the Project Management Framework (PMF). In summary the PMF sets out:-

- the processes for ensuring that responsibilities for the various elements of inspection and maintenance of LU track infrastructure remain completely transparent before, during and after track renewals (project work) or any other heavy maintenance work, where such work takes place outside the scope of the line maintenance.
- the detailed requirements of information and formal documentation to be exchanged between Maintenance and Asset Renewal / the Project throughout the various stages of the track renewals / heavy maintenance project lifecycle.
- the arrangements to ensure the track is maintained for the safe passage of trains at all times.
- the scope which is applicable to all forms of track renewals project work undertaken by the Track Renewals Contractor and Track Delivery Unit (TDU), including but not limited to Ballasted Track, Deep Tube, Points & Crossings, Heavy Maintenance and Track Quality Improvement works.

2.1.3.2 Asset Changes within COO Assets BCV and SSL are managed in accordance with W0146 and for JNP in accordance with P308.

2.2 INSPECTION AND MAINTENANCE ACTIVITIES

2.2.1 Schedule of Inspection and Maintenance Activities

MST schedules in Ellipse/Maximo give an accurate schedule of activities. For reference the schedule is demonstrated as follows, although the asset management system shall be referred to for the most up to date information:

Maintenance or Inspection	What time of year	Frequency
Patrolling	All year	24 – 96 hrs, or up to 7 days (subject to assessment specified in standard)
Hot Weather Inspection (general track condition, ballast shoulders, etc)	Before 31st January	Once a year
Cold Weather Inspection	Cold weather	Once a year
General Purpose Inspection / PM3	All year	4, 6, 8 or 12 weeks depending on assessment.
Inspection with Patrolman	All year	Once every 2 months or in accordance with Concession CR06778 for JNP.
LWR & CWR Inspection	March and September	LWR twice per year, CWR once per year
Short Rail Inspection	Before 31st March	Once a year
Cab Ride Inspection	All year	Once a month
Off-track Inspection	All year	Fences – monthly Drains – 3 months
SIT Exceedence Sites Inspection	All year	As required (with other inspection)
Pre-tamping Inspection	All year	As required
TRV Inspection	All year	Every 8 weeks or 4 weeks for SSL South
Track Renewal Proposal Inspection	Any time of year	Once a year
Ultrasonic Inspection	All year	Variable according to annual programme



Maintenance or Inspection	What time of year	Frequency
Dynamic Clearance Inspection	Any time of year	2 yearly for tube 5 yearly for open
Paper Pick – Open Sections	All year	Once a week
Paper Pick – Tunnels	All year	Between 24&168 hrs (subject to location)
P & C Oiling / Cleaning	All year	Twice a month
Snow & De-icing	Cold weather	As required
Odd Year – F/plate Slacken – Even Year F/plate remove & inspect	March	Once every 2 years
LWR/CWR Tensioning	Temperature –10 >T> 21 degrees C	Prior to 31 st March, subject to site assessment
Weed Killing Train	Spring / Summer	Variable
PM4 – Points & Crossings Inspection	All year	4, 8 or 12 weekly
Greaser/Lubricator Inspection	All year	monthly open, 2 weeks tube & sub-surf
Lead Rail Inspection	All year	Once every 6 months
Planned General Inspection	All year	Once a month
Side Cut Rail	All year	As required (with other inspection)
Train Arrestor / Buffer Stop	All year	6, 12 or 24 months depending on type
Friction Monitoring	All year	As required (with other inspection)
Metal Picking	All year	Twice per week or additionally where required
Tunnel Cleaning	All year	Once per year
Cast Crossings	All year	Bainitic centre blocks 3 monthly, Manganese 6 monthly.
Switch inspection	All year	According to S1176

2.2.2 Fault Management

2.2.2.1 Unplanned maintenance could be the result of inspections or reported faults and the process for managing these faults and subsequent work is undertaken in accordance with London Underground's documented instructions listed in section 2.6.2. The Track Asset function of London Underground has implemented the following organisational arrangements with appropriate authority levels and accreditation to provide competent resources:-

- to inspect the track on a pre-planned basis or following external reports of a fault or defect
- to identify faults or defects against laid down track standards and determine priorities
- to record details of faults, even when rectified on site, within approved reporting systems
- to understand levels of authority in order to refer faults beyond the individuals competence
- to establish plans for rectification of faults or defects
- to repair faults or defects within the capability of individuals' Safety Critical Licences.

2.2.3 Organisational Requirements for Fault Management

- 2.2.3.1 Patrollers and inspection staff within the TIMs' and ZMMs' organisations are most likely to discover and deal with unplanned maintenance. In particular and exceptional circumstances, the Emergency Response Unit may be called by the Maintenance Control Centre to return assets to service when immediate action is necessary to minimise the delay to trains. For JNP the ERU are called as routine when faults are found during traffic hours. The operational arrangements governing the Emergency Response Unit are not part of this Maintenance Assurance Plan.
- 2.2.3.2 Patrollers and inspection staff are subject to formal competency standards and operate under tightly defined procedures. Site assessments of Safety Critical Staff are laid down in section 2.2.5 and the managers handbook for training. Additionally, Section Inspection Managers are required to walk the track with a patroller (once every two months for BCV/SSL and in accordance with concssion CR06778 for JNP) to observe technical and safety performance. Finally, managers and senior managers are required to walk the track and take cab-rides at intervals specified in the track management work instructions to check, among other things, the evidence of appropriate inspection and maintenance standards, including unplanned work
- 2.2.3.3 The Track Asset function is staffed during two principal shifts, nights and days, during which individuals are rostered who are deemed competent to deal with unplanned maintenance. Decision making outside these shifts is covered by formal on-call arrangements which include the availability of competent individuals to deal with unplanned maintenance and the escalation process.

2.2.4 Temporary Approved Non-Compliance and Concessions

- 2.2.4.1 Risk is not only assessed for routine operations but also for degraded states of operation. The temporary approved non-compliance (TANC) process is used in the event that non-compliance to Standards may arise for the following reasons:-
- The failure of a planned inspection (BCV and SSL only).
 - The partial completion of a planned inspection.
 - The inability to repair planned or corrective maintenance to the required quality standard.
 - The employment of non-standard track configurations in specific, degraded circumstances.
- 2.2.4.2 The standard TANC process is applied by trained and qualified TANC approved persons and verified as required. Mitigation measures are applied which may cause additional works orders (eg for supplementary inspections) to be raised in Ellipse/Maximo. The status of TANCs is monitored by the Track Manager through a BOXI/Maximo report to ensure adequate warning of expiry is picked up and managed pro-actively. The SDU Maintenance Head's review the status of TANC's at the weekly business review meeting.
- 2.2.4.3 For JNP a TANC Accountable Manager (TAM) is responsible for providing overall approval that the TANC has been correctly prepared and is required.

2.2.4.3 When a Track Asset has a condition cannot meet the minimum requirements of a specific Cat 1 Standard which is either foreseen, or would remain in place for a period of time which be considered to be in excess of what would be reasonable to TANC, a concession process is applied and followed using a rigorous review of the safety risk implications. Technical and Safety justification to demonstrate that the risk is deemed as low as reasonably practicable (ALARP) is documented in a concession request as follows:

1. Describe the fault, location, section of the track asset affected and associated risks.
2. Describe the current safety and / or environmental controls required by the standard.
3. Describe and assess the potential and residual safety and / or environmental risks due to the non-compliance.
4. Detail options considered for managing safety risk to ALARP, including any proposed mitigation.
5. Confirm the preferred option chosen and state how the identified mitigation (controls) will be managed.

When all the information is collated and evidenced, the SDU's (BCV/SSL/JNP) are consulted and the concession is formally submitted to the Professional Head of Track Engineering for review and approval, when approval has been granted the concession is then given a unique number and issued.

2.2.5 Licensing, Competence and Accreditation

2.2.5.1 It is essential that London Underground has, and retains, competent, experienced, and skilled people to undertake the requirements necessary to keep the Track assets in a safe and usable service. Guidance has been developed to document the competencies and skills required to undertake relevant job functions. All staff who perform maintenance and inspection activities shall be in the possession of the appropriate licence and only staff with the correct and valid competencies may undertake safety critical duties which for BCV/SSL is as listed below.

- Section Inspection Manager –GN-30090
- Track Inspector –GN-30086
- Track Supervisor –GN-365113
- TANC Approved Person (TAP) –F-10493
- Lubrication Staff –GN-30087
- Safety Critical Licences T001, 2, 3 & 4.
- TANC Authorised Manager (TAM) (JNP only)

2.2.5.2 Track Maintenance staff are required to be assessed as competent to hand back track assets as fit for traffic. Staff responsible for the handing back of Track assets are required by all SDU's to hold a Track Maintenance Safety Critical License (T001 Inspected Asset, T002 Repaired Asset & T003 Modified Asset). London Underground is currently consulting on a new competence assurance scheme that will replace the current system of licensing when it is implemented.