

# Maintenance

## Master Specification

## M4 Inspections

### Document Information

KNet Number:	14294018
Document Version:	3
Document Date:	July 2022

DEPARTMENT FOR  
INFRASTRUCTURE  
AND TRANSPORT



Government of South Australia

Department for Infrastructure  
and Transport

## Document Amendment Record

Version	Change Description	Date
1	Clean Copy for Contract	25/06/2020
2	Transition update	13/01/2021
3	Audit Calculations & Maintenance Codes	July 2022

## Document Management

This document is the Property of the Department for Infrastructure and Transport and contains information that is confidential to the Department. It must not be copied or reproduced in any way without the written consent of the Department. This is a controlled document and it will be updated and reissued as approved changes are made.

## Contents

Contents	3
M4 Inspections	4
1 General	4
2 Loop Inspections (ILP)	5
3 Network Inspections (INT)	6
4 Joint Network Audit	6
5 Asset Inspection (IAT)	7
6 Appendix 1 – Unsealed Road Condition Report	8
7 Appendix 2 – Level 1 Structural Inspection	9

---

## M4 Inspections

### 1 General

- 1.1 The Contractor must undertake the following inspections across the Network:
  - a) Loop Inspections;
  - b) Network Inspections;
  - c) Asset Inspections; and
  - d) Works by Others Inspections.
- 1.2 Inspections and their type shall be clearly identified in the Contractor's Program of Work, vide M6 Clause 2 "Programs of Work". Joint Inspections, whereby the Superintendent accompanies the Contractor during the course of the inspection, shall be undertaken when directed by the Superintendent.
- 1.3 Inspections shall be undertaken at a frequency to ensure that:
  - a) the network is safe;
  - b) structural deterioration of the asset elements can be prevented; and
  - c) Response Times can be achieved.
- 1.4 The interval between inspections shall not exceed the period in Table M4 1-1.
- 1.5 Notwithstanding the inspection intervals shown in Table M4 1-1, the first Asset Inspection of all asset types shall occur within the first year of the Maintenance Period.
- 1.6 Defects identified during inspections shall be recorded on the Maintenance and Activity Defects Register (MADR).
- 1.7 For the purpose of Table M4 1-1 Unsealed Roads includes sealed roads through townships.

Table M4 1-1 Inspection Intervals

Inspection Type	Maximum Time Between Inspections	Inspection Deliverables
Initial and Completion Inspections	During each Mobilisation Period and again prior to completion of the contract	Refer M5
Road Loop Inspections (sealed road only)	Fortnightly or more frequently where the Contractor has identified that the incidence of safety related Defects is significant and has been directed to increase the frequency by the Superintendent.	Refer M4 Clause 2
Shared Path Loop Inspections	Monthly	Refer M4 Clause 2
Sealed Road Network Inspections (entire network)	Monthly	Refer M4 Clause 3
Unsealed Road Network Inspections (entire network)	Primary and Secondary Roads - 3 Monthly Minor Roads and Township Roads – 6 Monthly Access Roads – Annually	Refer M4 Clause 3.1
Sealed Road Joint Network Audit (minimum of 10% of network length)	Quarterly	Refer M4 Clause 4
Unsealed Roads Joint Network Audit	Random – in conjunction with Network Inspections	Refer M4 Clause 4
Asset Inspections: Signs and delineators	1. Night Audit; Two Years 2. Asset Condition Audit; Two Years	Refer M4 Clause 5.1
Asset Inspections: Electrical assets - civil components	Five years	Refer M4 Clause 5.3
Asset Inspections: Bridges and Structures (Level 1 Inspection)	Two years	Refer M4 Clause 5.2
Asset Inspections: Safety Barrier System	Two years	Refer M4 Clause 5.3
Asset Inspections: Wire Rope	Two years	Refer M4 Clause 5.3
Asset Inspections: Drainage Elements (including floodways and culverts)	Once during the Verification Period and once during the Transition Out Period in conjunction with cleaning	Refer M5 Clause 6.4
Asset Inspections: Gantries and Over Head Signs	Annual	Refer M4 Clause 5.3
Asset Inspections: Stock Grids	Two years	Refer M4 Clause 5.3
Asset Inspections: Road and Rail Interfaces	Annual	Refer M6 Clause 6
Asset Inspections: Works by Others	1 month prior to the expiry of the third party defects liability period assigned to the works by others	Refer M2 Clause 7
Asset Inspections: Following an event likely to have had a detrimental effect on the asset, (e.g. storms, flood, bushfires)	Immediately after the event	Refer M4 Clause 5.3

1.8 The Contractor's inspection vehicles must be fitted with appropriate safety equipment for conducting network inspections, in accordance with AS 1742.3.

## 2 Loop Inspections (ILP)

2.1 Road Loop Inspections shall be undertaken to ensure that the performance standards within Routine Maintenance are met and Compulsory Intervention Levels are not exceeded.

- 2.2 As part of the Loop Inspections the following Activities / Defects are to be verified, recorded and rectified as encountered during the Loop Inspection in accordance with the Maintenance Activity Standards:
- a) repair to potholes;
  - b) replaced or made legible missing or damaged regulatory and warning signs and delineators;
  - c) removal of debris from the carriageway including pavement sweeping on road pavement and pedestrian crossings, Shared Paths, and walkways;
  - d) repair (or make safe) damaged safety barriers, wire rope safety barriers, and fences;
  - e) road user amenity sites maintained;
  - f) litter collected and graffiti removed; and
  - g) accident damage repaired (or made safe).
- 2.3 The Contractor shall maintain documentary evidence, verifying loop inspections and record the nature and location of repairs undertaken. This information shall be submitted to the Superintendent within one working day of request.
- 2.4 Loop inspections are RMS activities.

### 3 Network Inspections (INT)

- 3.1 Network Inspections shall be undertaken to identify Defects reaching Intervention Level and record them on the MADR.
- 3.2 The Contractor shall inspect all asset elements for defects at or above the Intervention Level and shall stop and measure Defects where observed.
- 3.3 Any Defects reaching the Compulsory Intervention Level (CIL) shall be rectified as per M2 Clause 2 "Routine Maintenance".
- 3.4 Network inspections are RMS activities.

### Unsealed Roads - Additional Requirements

- 3.5 Unsealed road network inspections shall also include:
- a) photographs of defects identified;
  - b) identification of locations recommended for batter grading;
  - c) locations where water ponds on the road surface;
  - d) Identification of locations scheduled for dry grading where wet maintenance is recommended in lieu; and
  - e) Details and locations of abandoned vehicles.
- 3.6 Network inspections shall include an assessment that identifies which sections of road require grading or other maintenance. This information is required by the Principal to develop the forward works programs.
- 3.7 Network Inspections shall include a condition rating system as per Appendix 1 – Unsealed Road Condition Report.
- 3.8 The Network Inspection results must be submitted monthly with the MADR (Refer M19 Cl. 4).

### 4 Joint Network Audit

- 4.1 The Contractor and the Superintendent shall jointly undertake an audit of 10% of the road network length and 5% of traffic signal sites and ITS assets where included in the Contract scope, to be

randomly selected by the Superintendent, quarterly. The audit may be undertaken either during the day or at night or a combination of both every quarter.

- 4.2 The audit will represent the entire network area and will be used to verify the accuracy of the MDR, vide M2 Clause 1 "Routine Maintenance" and the accuracy of the Asset Register.
- 4.3 Accuracy of the MDR shall be calculated by the following formula (excluding Loop Activities):

$$A_{\text{MDR}} = \frac{n_{\text{MDR}}}{n_{\text{MDR}} + n_{\text{audit}}} \times 100\%$$

Where:

$A_{\text{MDR}}$  = Accuracy of the MDR

$n_{\text{MDR}}$  = Total Number of Defects currently on the MDR

$n_{\text{audit}}$  = Number of new or updated defects found during audit

- 4.4 The Contractor shall supply an updated MADR with the results of the Joint Network Audit to the Superintendent within Monthly Report (M6 "Data, Reporting and Governance" Clause 8).
- 4.5 Joint Network Audits are a CRMS activity.

## 5 Asset Inspection (IAT)

- 5.1 Asset Inspections shall be undertaken to determine the structural integrity and / or the performance of the Assets.
- 5.2 The Contractor shall ensure that personnel undertaking any visual inspections of gantries including overhead signs, bridges, culverts, stock grids, floodways or safety barrier / pedestrian fencing associated or connected to bridges, shall have undertaken ARRB's "Level One Bridge Inspection" course (<https://www.arrb.com.au>) or an interstate equivalent.
- 5.3 When undertaking the "Level One Bridge Asset Inspection", the form provided in Appendix 2 – Level 1 Structural Inspection must be completed for each Asset.

### Signs and Delineators

- 5.4 All Asset Inspections of static signs and delineators shall be undertaken at night to check reflectivity. Asset Inspections of electronic signs shall be undertaken during the day in order to check sign illuminance during daylight hours.

### Bridges

- 5.5 The Level One Bridge Inspection shall include all asset types located on the bridge e.g. drainage, safety barriers etc.

### All other road corridor assets

- 5.6 The Contractor shall undertake Asset Condition Inspections in accordance with the frequencies in Table M4 1-1 and shall submit the updated Asset Register in accordance with the frequencies in M6 Clause 5. The civil component of any electrical assets within the Contract scope (e.g. light poles, traffic signal poles, bases, mountings) are included in these road corridor assets.
- 5.7 Asset Inspections are a CRMS activity.

## 6 Appendix 1 – Unsealed Road Condition Report

Rating	Description 1	Description 2	Further guidance on condition
1	Very Good	Freshly Sheeted / Formed	Good shape, free drain with consistent carriageway crossfalls, no loose materials, excellent rideability sound compacted well graded shoulders, free draining side drains at appropriate level to ensure drainage away from subgrade and pavement, cut off drains unimpeded.
2	Good	Comfortable ride	No appreciable corrugations or other condition that would slow speed or make the journey uncomfortable, good rideability. Could include freshly graded if the surface is loose. Acceptable pavement and shoulder shape, free draining, minor shape inconsistencies are acceptable, side drains clear and free draining.
3	Average	Trafficable	Some corrugations or occasional bulldust hole, road passable for all traffic albeit may be some discomfort or speed reduction needed, some sections of oversize and loose surface material may be evident, pavement shape may be inconsistent in sections with some variation to crossfall, some pavement irregularities may impede surface drainage.
4	Poor	Reduced speed or very rough ride	Severe corrugations or frequent bulldust holes, consistently large sections of ravelling loose pavement materials, sections of oversize material evident on travel lanes, trafficked wheel wear paths evident and hazardous, poor shape, road may be flat or inverted, with eroded sections of sheeting evident, poor drainage and potential for significant areas of ponded water, poor vertical alignment below adjoining natural surface, road may not be passable for some traffic, significant speed reduction or very rough ride.
5	Very Poor	Unserviceable	Road closed or traffic speed severely restricted due to defects.



# 7 Appendix 2 – Level 1 Structural Inspection



Level 1 structures  
inspection.XLS

---