

Maintenance

Master Specification

M19 Maintenance Activity and Defects Register Data Requirements

Document Information

KNet Number: 15590873

Document Version: 2

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	Initial revision	June 2020
2	Format updated & review of data requirements	July 2022

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M19 Maintenance Activity and Defects Register Data Requirements

1 General

- 1.1 This Part sets out the minimum requirements for the collection and provision of Maintenance Defect and Activity Register (MADR) data. The is to ensure that all data is provided in a consistent format that can be entered into the Asset Management Information System to enable the performance of Asset Management functions in line with ISO 55001.
- 1.2 Defect, Activity and any other Works data shall be provided to the Principal as specified in the relevant maintenance specification. If not specified, it shall be on a quarterly basis. The data shall include all Defects and Activities opened or closed since last supplied. A total annual summary shall be provided at the end of the financial year.
- 1.3 Maintenance Defects, Activities, and Works data is used by the Principal to:
 - a) Identify defect hot spots and use this information to influence programs;
 - b) Undertake additional pavement condition analysis, to allow defect hotspots or maintenance to influence the periodic and projects capital work programs' selection processes;
 - c) Enable analysis works to set the Level of Service (LOS) for assets;
 - d) Ensure that the specified LOS are being met for all assets;
 - e) Assess the effects of Defects, Activities, and Works on the LOS for road classification;
 - f) Undertake assessments for continual improvement works; and
 - g) Analyse and make decisions on the interaction between RMS, SMS, and ARWP.

2 Data Attribution

Asset Condition and Defects

- 2.1 Data attributes related to maintenance works, condition, or defects on assets will be provided in a form of Maintenance and Activity Defect Register (MADR). Data interchange files will be in CSV (comma separated). The unique identifier of each asset is required to connect assets to the MADR information.

Geographic Location

- 2.2 Location data must be provided using geographic coordinates (i.e. longitude and latitude) in decimal degrees. Accuracy is to be to 5 decimal places. Latitude must be shown as a negative number.
- 2.3 Geographic coordinates in the WGS84 Datum must be used for exchange of asset location.

Maintenance Activity and Defects Register

- 2.4 All Defects, Activities, or Works must be captured as point location data where the point location is located approximately at the centre of the item.

Pavement Marking and Grading

- 2.5 All activities or works must be captured as start point location and end point location data, located at the start and end of the section of works.

Road Number

- 2.6 Road numbers must be in accordance with the state roads Common Road Referencing System (CRRS), consisting of five (5) numbers.

Carriageway Code

- 2.7 Sealed roads have either 1 or 2 carriageways.
- 2.8 Roads with a median are considered to be divided and have 2 carriageways. A left (L) and a Right (R).
- 2.9 Roads without a median are undivided and have only 1 carriageway and are undivided (U).
- 2.10 All Roads have an implied direction from the zero point, or start of Road Running Distance (RRD), towards increasing RRD. Left and Right are assigned as looking towards the higher RRD.
- 2.11 Carriageway codes shall be used in accordance with Table M19 2-1.

Table M19 2-1 Carriageway and Lane Codes

Carriageway Code	Definition
L	Carriageway to the Left looking towards increasing RRD
R	Carriageway to Right looking towards increasing RRD
U	Undivided Road, Single Carriageway, no median separation

- 2.12 Further guidance on the correct usage of carriageway codes is provided in Figure M19 2-1 and Figure M19 2-2.

Unsealed Roads Grading Activities

- 2.13 Unsealed Roads roadway formation width shall be provided in accordance with Table M19 2-2.

Table M19 2-2 Carriageway and Lane Codes - Grading

Grading Code	Definition
O	Overdesigned Unsealed Road Formation (> 10 m)
P	Primary Unsealed Road Formation (9-10 m)
S	Secondary Unsealed Road Formation (8-9 m)
M	Minor Unsealed Road Formation (6-8 m)
A	Access Unsealed Road Formation (4-6 m)
I	Inadequate Unsealed Road Formation (< 4 m)

Lane Code

- 2.14 Lane IDs must be specified in the direction of the increasing Road Running Distance (RRD).
- 2.15 L1 denotes the lane ID closest to the left of centreline or median, looking in the increasing RRD direction and working outwards to the edge of the road, L2, L3 etc.
- 2.16 R1 denotes the lane ID closest to the right of centreline or median and works outwards to the edge of the road R2, R3 etc.
- 2.17 The codes L1, L2, L3 etc or R1, R2, R3 etc increasing in numerical order must be used.
- 2.18 For activities which occur outside the travelled lane, the designation of L, R or M shall apply for works undertaken on the left, right, or the median of the road.
- 2.19 For the unsealed network, the designation of U can be used for locations that extend for the complete formation of the road.
- 2.20 Only the data format shown above shall be used as lane codes.
- 2.21 Further guidance on the correct usage of lane codes is provided in Figure M19 2-1 and Figure M19 2-2.

Figure M19 2-1 Carriageway Codes and Lane Codes – Undivided Road

Undivided Road: Only one carriageway exists and there is no painted or other median.
 Carriageway code is U for Undivided.

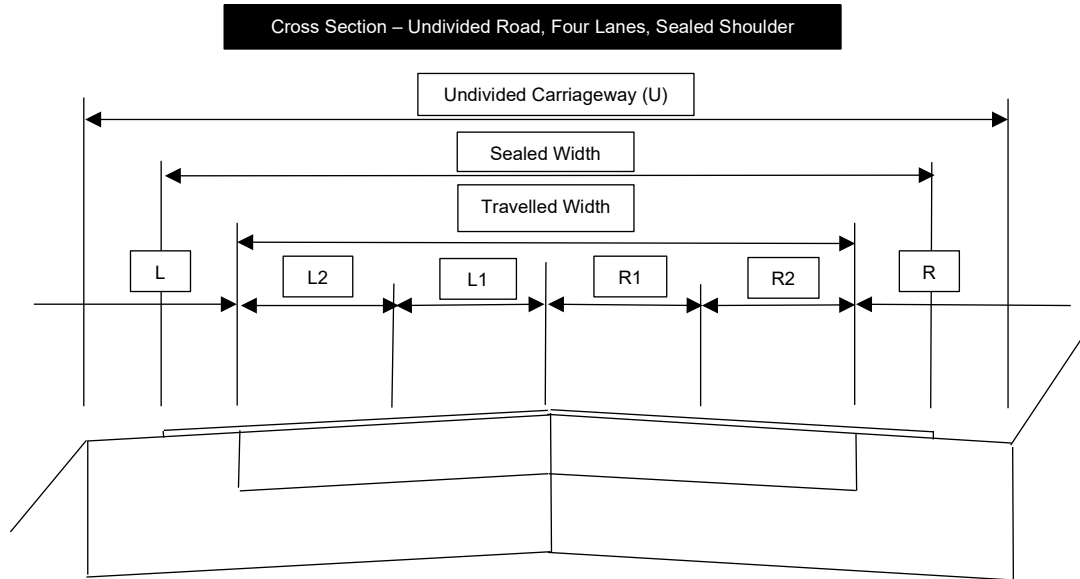
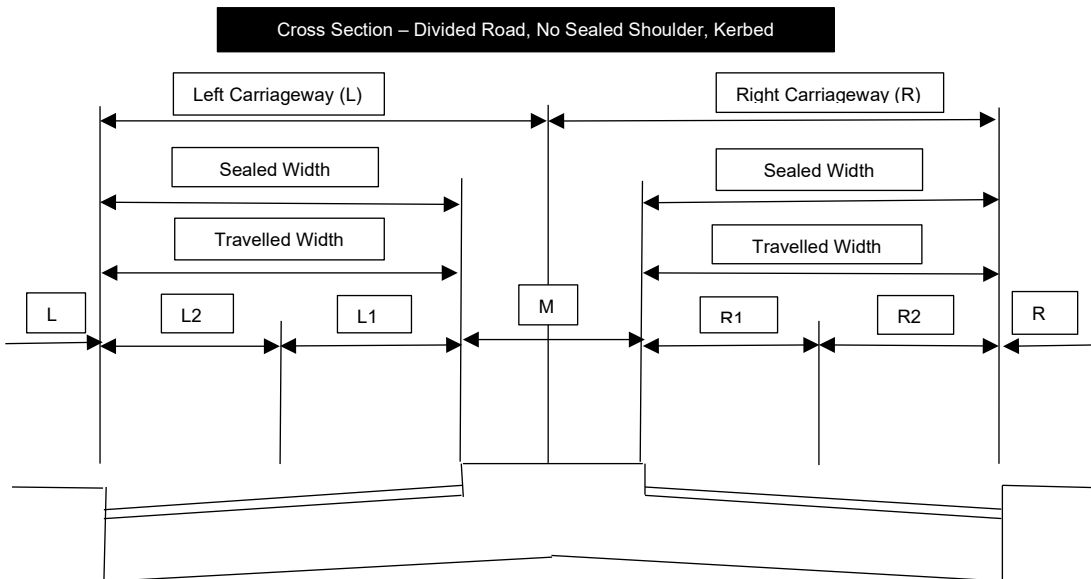


Figure M19 2-2 Carriageway Codes and Lane Codes – Divided Road

Divided Road: Two carriageways divided by a median strip (painted or concrete etc.)
 Carriageway code is L for the Left carriageway and R for the Right carriageway



Maintenance / Activity Codes

2.22 Codes must be entered exactly as shown as bracketed () in **Contract Documents** or within the relevant Maintenance Master specifications.

Unique Identifiers

2.23 The Contractor must assign a unique identifier for all Maintenance Activities / Defects. The Contractor’s identifier must begin with the contract number “YYCNNN-xxxxx”.

Dept Asset ID (MADR)

- 2.24 Works undertaken on assets that are identified within M18 (such as signs, safety barriers etc.) must also include the Department's Asset ID for that Asset.
- 2.25 If a defect affects multiple assets at the same location (e.g. signs with parent and child assets) the primary identified asset shall be used within the Dept Asset ID. Multiple defects do not need to be created against each asset at the same location.

Dept Unique ID (Pavement Marking)

- 2.26 Schedule, Job Numbers, and Lot numbers are a unique combination of codes to identify each section of pavement marking to be undertaken. These numbers are provided by DIT through the pavement marking program and shall remain consistent until the works are complete.
- 2.27 All activity data provided to DIT as per Clause 2.24 including programmed, commenced, and completed works shall include these unique identifiers.

Quantity and Units

- 2.28 The size and units attributes are used together to define and clarify the number of, or size of, the Activity, Defect, or Works undertaken.
- 2.29 The units of measure used for each activity must be in the format shown in M2 Appendix 1 "Maintenance / Activity Codes".
- 2.30 Where activities are not identified within Part M2 Appendix 1 "Maintenance / Activity Codes"; these shall be recorded as quantity "1" and units "item".
- 2.31 If, for a particular task, these units do not describe the magnitude of the task, further description should be added to the comments field described in Clause 2.43 and 2.44 "Comments" below.

CIL

- 2.32 CIL is the date which the defect is escalated from Intervention level to Compulsory or Critical Intervention level or the date that the defect is discovered to have already reached Compulsory or Critical Intervention Level.
- 2.33 The CIL shall be recorded as a Date as per Clause 2.36.

Cost

- 2.34 All Works undertaken to Assets which are not Routine Maintenance activities must include their actual and final costs.
- 2.35 Cost must be entered in standard dollar format.

Dates

- 2.36 All Date fields shall be entered as "yyyy-mm-dd hh:mm:ss".

Date Entered

- 2.37 The date entered is the date and time at which the Defect, Activity, or Works were identified or reported for the first time. This date must not be changed.
- 2.38 For many routine maintenance activities, this may be the same as the completed date if the works are undertaken on the same day.

Start Date

- 2.39 The start date is the date the works began for a road section.

Date Closed

- 2.40 The date closed is the date and time at which the Defect, Activity, or Works were repaired, undertaken, or removed so that they no longer exist.
- 2.41 If these items have been removed due to works by others, the date closed must be entered into the system as early as possible to ensure accuracy of the database.
- 2.42 The date the pavement marking or grading section is completely finished. This includes all dividing lines, edge lines, barrier lines, turning lines, transverse markings, symbols, pavement bars, kerbing, etc for pavement marking.

Comments

- 2.43 The comments field must be used where the scope, magnitude, or complexity of the activity or works cannot be defined simply within the data fields provided above.
- 2.44 The data entered in this field is not restricted.

Asset Inspections / Reports

- 2.45 For any IAS, ARWP, or MCWP undertaken the associated report shall be provided and the document name entered into the comments field of the maintenance defect register.

3 Empty Fields

- 3.1 The only allowable empty field "blank" are:

Maintenance Activity and Defect

- a) Dept Unique ID – has not been provided:
 - i) Routine Maintenance Activity - the cost field is blank.
 - ii) Defect has not reached CIL level – CIL is blank.
 - iii) Defect is still open therefore date closed is blank.
 - iv) Specific Maintenance Activity is open – Cost field is blank.
 - v) Department's Asset ID is empty if not required to be linked to an asset as per Master Specification Part M18.
 - vi) For electrical assets, the Carriageway Code and Lane Code.

Pavement Marking and Grading

- b) Date Closed – works are still being undertaken.
- c) Cost – works are still being undertaken.
- d) Condition Rating – Pavement Marking Activity is blank.

4 Data Formats

Maintenance Activity and Defects Register (MADR)

Attribute	Format	Example
Maintainer Unique ID	Alpha Numeric(30)	YYCNNN-xxxxxxxxxxx
Date Entered	Date Time	yyyy-mm-dd hh:mm:ss
Longitude	Numeric(12,5)	138.25463
Latitude	Numeric(12,5)	-34.34758
Road No	Numeric(5)	6203
C/way Code	Domain	As per table, fixed selection
Lane Code	Domain	As per table, fixed selection
Activity Code	Coded	As per tables 2.6, fixed selection
CIL	Date	yyyy-mm-dd hh:mm:ss
Quantity	Numeric(10,2)	2053.51
Units	Coded	As per table, fixed selection
Cost	Numeric(10,2)	166.25
Date Started	Date Time	yyyy-mm-dd hh:mm:ss
Date Closed	Date Time	yyyy-mm-dd hh:mm:ss
Comments	Alpha Numeric(2000)	The data entered in this field is not restricted
Dept Asset ID	Alpha Numeric(20)	SI-nnnnnn

Lane codes	
Domain	Description
L	Left Verge / Side of the road
L6	Left Travelled Lane 6
L5	Left Travelled Lane 5
L4	Left Travelled Lane 4
L3	Left Travelled Lane 3
L2	Left Travelled Lane 2
L1	Left Travelled Lane 1
M	Median / Turning lane
R1	Right Travelled Lane 1
R2	Right Travelled Lane 2
R3	Right Travelled Lane 3
R4	Right Travelled Lane 4
R5	Right Travelled Lane 5
R6	Right Travelled Lane 6
R	Right Verge / Side of the road
U	No Lane Designation

C/Way Codes	
Domain	Description
U	Undivided
L	Left
R	Right

Units codes	
Domain	
Item	
m	
m ²	
Items / 20 m ²	
Items / km	

Pavement Marking and Grading (MADR)

Attribute	Format	Example
Maintainer Unique ID	Alpha Numeric(30)	YYCNNN-xxxxxxxxxxx
Dept Unique ID	Alpha Numeric(30)	21-27NRA32-200
Date Entered	Date Time	yyyy-mm-dd hh:mm:ss
Start Longitude	Numeric(12,5)	138.25463
Start Latitude	Numeric(12,5)	-34.34758
Finish Longitude	Numeric(12,5)	138.25463
Finish Latitude	Numeric(12,5)	-34.34758
Road No	Numeric(5)	6203
C/way Code	Domain	As per table, fixed selection
Lane Code	Domain	As per table, fixed selection
Activity Code	Coded	As per tables 2.6 , fixed selection
Quantity	Numeric(10,2)	2053.51
Units	Coded	As per table, fixed selection
Cost	Numeric(10,2)	166.25
Date Started	Date Time	yyyy-mm-dd hh:mm:ss
Date Closed	Date Time	yyyy-mm-dd hh:mm:ss
Comments	Alpha Numeric(2000)	The data entered in this field is not restricted
Condition Rating	1, 2, 3, 4 or 5 Fixed Selection	2

C/Way codes	
Domain	Description
U	Undivided
L	Left
R	Right
O	Overdesigned (> 10 m)
P	Primary (9-10 m)
S	Secondary (8-9 m)
M	Minor (6-8 m)
A	Access (4-6 m)
I	Inadequate (< 4m)

Lane Codes	
Domain	Description
U	No Lane Designation

Units codes	
Domain	
	km
	Item

5 Appendix 1 – Examples

Table M19 5-1 Maintenance Activity and Defects Register (MADR)

Maintainer Unique ID	Dept Unique ID	Date Entered	Longitude	Latitude	Road No	C/way Code	Lane Code	Activity Code	CIL	Quantity	Units	Cost	Date Started	Date Closed	Comments	Dept Asset ID
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	R	L1	RPN		15	m ²		2021-02-01 09-00-00	2021-03-30 09-00-00		
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	L	R2	RPP		1	item		2021-02-01 09-00-00	2021-03-30 09-00-00		
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	U	R	RSR		200	m		2021-02-01 09-00-00			
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	U	L	RFR	2021-03-30 09-00-00	1	item		2021-02-01 09-00-00	2021-03-30 09-00-00		SI-xxxx
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	R	L1	RPJ		100	m ²	55000	2021-02-01 09-00-00	2021-03-30 09-00-00		
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	L	R2	RDO	2021-03-30 09-00-00	1	item		2021-02-01 09-00-00			DR-xxx
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	01000	U	R	RSR	2021-03-30 09-00-00	500	m	234000	2021-02-01 09-00-00	2021-03-30 09-00-00		

Table M19 5-2 Pavement Marking and Grading (MADR)

Maintainer Unique ID	Dept Unique ID	Date Entered	Start Longitude	Start Latitude	End Longitude	End Latitude	Road No	C/way Code	Lane Code	Activity Code	Quantity	Units	Cost	Date Started	Date Closed	Comments	Condition Rating
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	xxx.xxxx	-xx.xxxx	01000	P	U	UGW	15	km	100000	2021-02-01 09-00-00	2021-03-30 09-00-00		2
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	xxx.xxxx	-xx.xxxx	01000	U	U	PLL	120	km	55000	2021-02-01 09-00-00	2021-03-30 09-00-00		
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	xxx.xxxx	-xx.xxxx	01000	S	U	UGD	200	km					5
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	xxx.xxxx	-xx.xxxx	01000	U	U	PLN	10	km	20000	2021-02-01 09-00-00	2021-03-30 09-00-00		
YYCNNN-xxxxxx		2021-02-01 09-00-00	xxx.xxxx	-xx.xxxx	xxx.xxxx	-xx.xxxx	01000	M	U	UGW	5	km		2021-02-01 09-00-00			3