

2.52 Storm Water and Bridge Maintenance

POLICY TITLE: STORMWATER AND BRIDGE MAINTENANCE

FILE REF: SC67

EXPIRY DATE: JULY 2027

OBJECTIVES

- i) To clearly designate for information of the Council and public, the maintenance of Council's storm water and bridge assets.
- ii) To facilitate management of Council's road system by indicating priorities and preferences with a view to the limited funds available for storm water and bridge maintenance being expended in the most equitable and effective manner.

The general objectives of inspections include:

- To check the general serviceability of the structure for obvious signs of defects which might affect the immediate safety of road users
- To identify maintenance items that require immediate action and/or to schedule routine maintenance for completion at a later date.
- Identify and prioritise maintenance needs including monitoring, maintenance and/or repair or further investigation
- Assess the effectiveness of past maintenance treatments
- Model and forecast changes in condition (deterioration modelling) and residual life
- Estimate future requirements for maintenance budgets.

POLICY STATEMENT

That the Shire's storm water and bridge assets be classified on the following priority basis, which is hereby adopted as policy:

1. STORMWATER ASSETS

Storm water assets are to be inspected and cleared of debris immediately following large storm events.

1.1. Storm Water Assets – Urban

- Asset inspections of drainage structures to be yearly
- Cleaning of kerbed roads to be monthly
- Cleaning of unkerbed road gutters to be yearly
- Maintenance of open storm water drains to be yearly
- Storm water culverts to be maintained yearly
- Cleaning of gross pollutant traps (GPT's) to be six-monthly

1.2. Storm Water Assets – Rural

- Asset inspections to occur at time of maintenance grade for unsealed roads
- Asset inspections to be at time of maintenance shoulder grades for local, sealed roads
- Asset inspections to be yearly for sealed, regional roads
- Maintenance of open table drains to occur at the time of maintenance grades
- Storm water culverts to be maintained bi-annually

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2. BRIDGE ASSETS

The following section outlines the basic procedures that would be employed to inspect bridge structures and provides additional information on establishing a typical inspection process.

The bridge inspection regime includes four levels of inspections:

Level	Inspection description	Frequency
1	Level 1 inspections are drive-by inspections which identify obvious safety issues on a bridge.	Generally, in accordance with the road maintenance inspection regime (minimum of once every six months).
2	Level 2 inspections are condition rating inspections that are carried out in accordance with the Bridge Inspection Procedure by trained Bridge Inspectors.	Normally a 2-year interval.
3	Level 3 inspections are structural engineering inspections carried out by an experienced structural engineer with a trained Bridge Inspector.	The need for a Level 3 inspection is identified by: <ul style="list-style-type: none"> (i) A level 2 inspection, (ii) A Level 4 inspection indicating strength issues, or (iii) Performance of similar class of bridges/bridge elements. (iv) Incident on the bridge impacting structural capacity (v) Post natural disaster such as heavy floods, earthquake, etc.
4	Level 4 inspections involve load assessment due to proposed changes in legal loading, new vehicle types, or the need to confirm the structural capacity of a bridge carried out by an experienced structural engineer.	As requested for changes in legal loads or new vehicles.

2.1. Bridge maintenance

The primary objective of maintenance activities should be preventative in order to avoid the need for member replacement or other major repairs.

2.2. Types of maintenance tasks

Maintenance tasks are split into routine maintenance procedures (clearing deck drainage scuppers) and repair or replacement of items as identified in the inspection process:

- Routine maintenance are the periodic tasks that are required to keep the asset/component in a satisfactory condition, including cleaning deck drainage scuppers.
- Repair or replacement to the asset/component when the condition has reached an unsatisfactory level, including replacing elastomeric bearings, and replacing deck seals.

3. BRIDGE OPERATION AND MAINTENANCE STRATEGY

The table on the following page lists the major components of a bridge and the asset maintenance tasks associated with them.

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Bridge element or component	Design life	Planned access	Inspection cycle	Inspection activities	Maintenance cycle	Maintenance activities
Internal precast concrete module <ul style="list-style-type: none"> Concrete deck wearing surface Webs Top flanges (top surface underside). 	100 years	<ul style="list-style-type: none"> Standard inspection of upper surfaces from bridge deck Access to ensure inspected from within 3m of all visually available surfaces of the component. 	2-year interval	Level 2	As determined from inspection results	Superstructure designed to be maintenance free during design life. Where damage occurs, repair the deteriorated areas as required.
External precast concrete module <ul style="list-style-type: none"> Webs End cross girders Top flanges (top surface and underside) Kerb. 	100 years	Inspect with the internal precast concrete module			As determined from inspection results	Superstructure designed to be maintenance free during design life. Where damage occurs, repair the deteriorated areas as required.
Low performance level steel traffic barrier <ul style="list-style-type: none"> Posts Rails Expansion joints Connections. 	25 years	Inspection from bridge deck	2-year interval	Level 2	As determined from inspection results	Touch up protective coating. Check bolts and tighten bolts to the torque provided on the drawings.
Insitu concrete closure strip	100 years	Inspect with the internal precast concrete module			As determined from inspection results	Superstructure designed to be maintenance free during design life. Where damage occurs, repair the deteriorated areas as required.
Piled foundations	100 years	Inspection for cracks and spalling (above ground only)	2-year interval	Level 2	N/A	Substructure is designed to be maintenance free during project life

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Bridge element or component	Design life	Planned access	Inspection cycle	Inspection activities	Maintenance cycle	Maintenance activities
Precast reinforced concrete abutment sill beam and wall panel <ul style="list-style-type: none"> • Lateral restraint blocks • Curtain wall • Wing wall returns • Kerb. 	100 years	Access to ensure inspected from within 3m of all visually available surfaces of the component.	2-year interval	Level 2	As determined from inspection results	Substructure is designed to be maintenance free during project life. Where damage occurs, repair the deteriorated areas as required.
Precast reinforced concrete pier headstock <ul style="list-style-type: none"> • Lateral restraint blocks 	100 years	Access to ensure inspected from within 3m of all visually available surfaces of the component.	2-year interval	Substructure is designed to be maintenance free during project life. Where damage occurs, repair the deteriorated areas as required.	N/A	N/A
Laminated elastomeric bearing	100 years	Access to ensure inspected from within 3m of all visually available surfaces of the component.	2-year interval	Level 2	As determined from inspection results	Remove debris from the bearings
Shear key plinth	100 years	Access to ensure inspected from within 3m of all visually available surfaces of the component.	2-year interval and after significant flood events	Level 2	As determined from inspection results	Shear key is designed to be maintenance free during project life. Where damage occurs, repair the deteriorated areas as required.
Module holding down bracket	40 years	Access to ensure inspected from within 3m of all visually available surfaces of the component.	2-year interval and after significant flood events	Level 2	As determined from inspection results	<ul style="list-style-type: none"> • Touch up protective coating • Replacement of missing nuts • Tightening of bolts.
Sealant deck joint	25 years	Inspection from bridge deck.	2-year interval	Level 2	As determined from inspection results	Remove debris from the joints

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Bridge element or component	Design life	Planned access	Inspection cycle	Inspection activities	Maintenance cycle	Maintenance activities
Thrie beam <ul style="list-style-type: none"> Transition connection 	25 years	Inspection from bridge deck.	2-year interval	Level 2	As determined from inspection results	<ul style="list-style-type: none"> Touch up protective coating Check bolts and tighten bolts to the torque provided on the drawings.
Deck running surface/sprayed seal (if applicable)	10 years	Inspection from bridge deck	Inspected as part of road maintenance inspection regime and 2-yearly bridge inspection	Level 1 and 2	As determined from inspection results	Where damage occurs, repair the deteriorated areas as required.
Scuppers	100 years	Inspection from bridge deck	Inspected as part of road maintenance inspection regime and 2-yearly bridge inspection	Level 1 and 2	Annually	Remove debris from the scuppers

4. REFERENCES

The following publications are referenced in this guide:

- IPWEA (NSW) (2009) BRIDGEguide Bridge Inspection and Management Manual.
- Roads and Maritime Services (2011) Bridge inventory, inspection and condition rating - Policy
- NSW Work Health and Safety Act and Regulation 2011 and the Safe design of structures Code of Practice.

*Adopted by Council 15 July 2024
Refer Minute No. 129/24*

*Adopted by Council 19 July 2021
Refer Minute No. 126/21*