

# MAJOR BRIDGE INSPECTION FORMS



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## Inspection Form Types

- Each form has a unique identification or form ID
- 9 different inspection report forms for bridges with a single span type
- 1 report for sign bridges
- Custom forms can be generated to suit the number & type of spans

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## Standard Bridge Inspection Form

Form ID	Span Description	Span Types
TT	Timber Bridges	TT, UT, UX
PCS	Standard Precast Bridges	HH, GC, VH, PG, GR, PE, PPS, VS, SM, SMC, SC, SCC
CUL1	Single Culvert	RS, SP, FP, MP, WP, TP, CP, BP, AP, XP, RPA, RPO, RPP, RPE, MPL
CULM	Multiple Culverts	Same as CUL1 in any combination
CULE	Culvert extended with a different material or size	RPX, APX, CPX, MPX

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## Major Bridge Inspection Forms

Form ID	Span Description	Span Types
TH	Trough Truss Bridges	TH
PT	Pony Truss Bridges	PT
DT	Deck Truss Bridges	DT
SG	Steel Girder Bridges	RB, RG, WG, FR
PSR	Regular Prestressed Girder Bridges	RD, FC, VF, PM, VM, PB, DBT, PO, PO, LF, FM, RM, PJ
CON	All Cast-In-Place Concrete Concrete Tee Girders Bridges Concrete Flat Slab Bridges	CA, CB, CF, CV, CX, CC CT CS
SS	Other Trusses and Arches	SS
SIGN	Sign Structures	Z

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## Common Major Bridge Form Sections

- Bridge Site Inventory
- Bridge Inspection Details
  - Name, Date, Arrive/Depart times
- Approach Road
- Posting Information
  - Vertical clearance
  - Posted loading
  - Utilities

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## Common Major Bridge Form Sections

- Channel
- Grade Separation
- Structural Condition Rating
- Sufficiency Rating
- Special Comments for Next Inspection
- ERY
- Next Inspection Date and Inspection Cycle

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## Unique Major Bridge Form Sections

- Superstructure
- Substructure
- Maintenance Recommendations



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## Superstructure Section

- Common Elements
  - Special Features
  - Deck Rideability
  - Bridge Rail
  - Sidewalk
  - Span Alignment Problems
  - General Rating

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## Wearing Surface

Wearing Surface (Material Type : ) (Thickness (mm) : )	<input type="checkbox"/>	SG, DT, CON, and SS forms
Wearing Surface/Deck Top (Material Type : ) (Thickness (mm) : ) (Planks Width (mm) : )	<input type="checkbox"/>	PT, and TH forms
Wearing Surface (Material Type : ) (Thickness (mm) : ) Lateral Connection Problem (Y/N)	<input type="checkbox"/>	PSR forms

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## Deck Top

Deck Top	<input type="checkbox"/>	SG, DT, PSR and CON forms only
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• PT, TH and SS have no Deck Top Element

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## Deck Joints

Deck Joints Temperature (deg.C) (Expansion Type : ) (Fixed Type : ) Gap Size (mm)      Gap Location	<input type="checkbox"/>	SG, DT, PSR and SS forms
Deck Joints Temperature (deg.C) (Expansion Type : ) (Fixed Type : ) Gap Size (mm)      Gap Location	<input type="checkbox"/>	PT, TH and CON forms

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## Deck Drainage

Deck Drainage Drains Clogged (Y/N)	<input type="checkbox"/>	SG, DT, PSR, CON and SS forms only
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PT, TH form - No Drainage Element

## Curbs/ Medians / Wheel / Guards

Curb/Median Scaling (Percent Area)	<input type="checkbox"/>	SG, DT, PSR, CON and SS forms
Curbs/Wheel Guards (Type : ) (Height (mm) : ) (Width (mm) : )	<input type="checkbox"/>	PT and TH forms

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### Truss Members

Pony and Through Trusses (PT & TH)

Weld Load Damage (Y/N)					TH only
High Load Damage (Y/N)					
Top Chord					
Diagonal Posts					
Heavy Bracings					TH only
Proprietary Members					
Plating					TH only
Connections					
Floor Beams					
Bottom Chord					
(No. of Stringers - )					
Stringer Detail Rodings					
Lat	(# Count)				
Row					
Stringers					
(Type - )					
(Width (mm) - )					
(Depth (mm) - )					
(Spacing (mm) - )					

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### Deck Truss, Other Trusses & Arches (SS)

Top Chord			
Diagonals			
Verticals			
Connections			
Floor Beams			
Bottom Chord			
Stringers			

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### Girders/ Beams

Girders					PSR only
Cracking (Y/N)					
Spalling (Percent Area)					
Girder/Beam					SG only
Cover Plate					
Flange					
Web					
Stiffeners					
Splice					
Weld					
Girders					CON and SS

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### Diaphragm / Cross Frames

Diaphragm/Cross Frame				SG, DT, PSR, CON, SS none on PT, TH
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### Paint

Paint Condition				SG, DT, PT, TH, SS others none
(Colour Description : )				
(Colour Code : )				

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### Bearings

Bearings			
Temperature (Des. C)			
Expansion Type			
Fixed Type			
Coating Adequate (Y/N)			
Functioning (Y/N)			

Not on PT and TH

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### Deck Underside

Deck Underside			
Stains (Percent Area)			

SG, PSR, and CON forms

Deck Underside			
Stains (Percent Area)			
Show Slots Filled			

DT, TH and SS forms

Sub Deck/ Deck Underside			
Material Type			
Plank Thickness (mm)			
Plank Width (mm)			
Defects (Percent Area)			

PT and TH forms

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### Substructure - Abutments

Abutments			
Reinforced Backfill Piles (Y/N)			
Estimated Backfill Pile Spacing (m)			
Total Number of Caps			
Bearing Spacing/Caps/Concrete Deck Range			
N (count)	1 (count)	2 (count)	3 (count)
Lead			
Notes			
Bearing Spacing/Caps/Concrete			
Type			
Depth (mm)			
Width (mm)			
Backfill Thickness			
Clearance Height (m)			
Notes			
Total Number of Bearing Piles			
Pile Deck Range			
N (count)	1 (count)	2 (count)	3 (count)
Lead			
Notes			
Piles			
Paint Coating			
Abutment Stability			
Spout Emission			

PT, TH and SS only

PT, TH and SS only

PT and TH only

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### Substructure - Piers

Piers/Piers			
Type			
Total Number of Caps			
Bearing Spacing/Caps/Concrete Deck/Bearing			
N (count)	1 (count)	2 (count)	3 (count)
Lead			
Notes			
Bearing Spacing/Caps/Concrete			
Type			
Total Number of Piles			
Piles Deck Range			
N (count)	1 (count)	2 (count)	3 (count)
Lead			
Notes			
Reinforced Backfill			
Grouted Height (m)			
Bearing Spacing/Bearing			
Notes			
Paint Coating			
Colour Description			
Colour Code			
Pile Stability			
Spout			
Emission (m)			

Not on CON

PT, TH and SS only

PT, TH and SS only

Not on CON

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## Form Review

- Inventory items
  - Shaded fields on form (TIMS)
  - Verify/revise data on form
- Element Ratings
  - fill all blank fields
  - use N or X if necessary
- Data on LH Side of Form or Explanation of Condition
  - Verify & check off if visible
  - Carry over if not visible

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## Reason for Inspection

- Safety
- Maintenance
- Management

## Rating Considerations

- Condition
- Functionality

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## Maintenance Recommendations (Table 11.1)

LEVEL INSPECTION	CORE TIMBER CAPS/CORBELS
CONCRETE DECK INSPECTION	REPAIR/REPLACE TIMBER CAPS
CONCRETE CURBER INSPECTION	REPAIR/ADJUSTMENT SCOUR/EROSION
VERTICAL CLEARANCE MEASUREMENT	PLACE ADDITIONAL RIP RAFF
CHLORIDE TESTS	REMOVE EXCESS SALINATION
COPPER SULPHATE ELECTRODE TESTING	INSTALL CATHODIC PROTECTION
TRAIT INSPECTION	INSTALL CONCRETE COLLAR/CUTOFF
STEEL CULVERT BARRIL MEASUREMENT	INSTALL STRUTS
SPECIAL STRUCTURE MENTION	INSTALL CONCRETE COLLAR/CUTOFF
ULTRASONIC TRUSS INSPECTION	REPAIR SEAMS
SCOUR SURVEY INSPECTION	OBTAIN CORROSION ANALYSIS DATA
REPAIR/REPLACE BRIDGE/RAIL	REPAIR/REPLACE SIGNING
GALVANIZED PAINT BRIDGE/RAIL	PATCH/REPAIR ACCESS PLATFORM
RETROFIT BRIDGE/RAIL	ACQUIE PAINT FEDERAL BEARING AREA
SEAL CURBS	OTHER ACTION
PATCH DECK	REPAIR/REPLACE TIMBER CORBELS
SEAL DECK	REPAIR/REPLACE TIMBER PILES
CHURNAY DECK	LONG POLE BRIDGE
REPAIR/REPLACE DECK JOINTS	REPLACE MEMBERS
REPLACE STRIP DECK	STRONGTIES MEMBERS
REPLACE SUB DECK	REPAIR MEMBERS
RESET PAINT BEARINGS	INSTALL BOLTS
REPAIR SUPERSTRUCTURE	REPAIR BEARINGS
STRONGTIES/REPLACE MEMBERS	CRACK REPAIR/TREATMENT
WASHING	PATCH CURBS/PARAPETS
REPLACE BOLTS	REPAIR BRUITS
SHOULDER REPAIRS	REPLACE CULVERT

Table 11.1 - Maintenance work types

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## Maintenance Priority

Rating	Maintenance Priority
5	No maintenance required
4	Low priority Recommended is not required if made – not likely before next inspection
3	Medium priority Before next inspection (6 mo. To 3 years)
2	High priority Monitor until work is done (within 6 months)
1	Immediate action

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## Road Classification

- Indicates current desirable standard (Refer to Table 4.2)

Current Departmental standards are:

Highway Type	Road Classification			
Local Roads (graveled)	RUL 207G-60 RUL 210G-90	RUL 208G-60 RUL 210G-100	RUL 208G-90	RUL 209G-90
Local Roads (Paved)	RUL 208-100	RUL 208-110		
Secondary Highways	RCU 208-110	RCU 209-110	RCU 210-110	

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## Road Classification (cont'd)

- Indicates current desirable standard (Refer to Table 4.2)

Current Departmental standards are:

Highway Type	Road Classification			
Primary Highways (undivided)	RAU 209-110 RAU 213.4-120	RAU 210-110	RAU 211.8-110	RAU 213.4-110
Primary Highways (divided)	RAD 412.4-120 RFD 820.8-110	RFD 412.4-130 RFD-1024.5-110	RAD 616.6-130	RFD 616.6-130

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## Major Bridges – Concrete (Table 11.3)

Type	Life Expectancy		
	Low	Ave	high
Prestressed Girder**	45	55*	70*
Precast Girder**	30	35	50
Cast-in-Place**	40	50	60

- Use maximum of 50 years for timber sub-structure
- Add 5 years if overlaid with concrete
- Add 5 years if strengthened or laterally stressed

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## Major Bridges – Steel (Table 11.3)

Type	Life Expectancy		
	Low	Ave	High
Ridge Frame	60	70	80
Welded Girder	60	70	80
Deck Truss	60	70	80
Rolled Beams	50	60*	80*
Riveted Plate Girder	40	50	70*
Through Truss	40	50	70*
Pony Truss	40	50	70*
Bailey and Other Types	30	40	50

- Use maximum of 50 years for timber substructure

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## Estimated Remaining Life

### Major Bridges

#### • Considerations

- Traffic characteristics
  - volume, amount of truck traffic, log haul
- Salt usage
  - road surfacing, traffic, climatic conditions
- Deck drainage, leakage
- Decay favorable conditions
- Design or rated load capacity

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