

DUNN BRIDGE

Site Number 010033

SCOTCH LINE ROAD (CONCESSION 6), WOODHOUSE

0.48 km W of 1/4 Line Road

Ontario Structure Inspection Manual - Inspection Form

Site Number:

| Inventory Data: | | | |
|--------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Structure Name | <input type="text" value="Dunn Bridge"/> | | |
| Main Hwy/Road # | <input type="text" value="CON 6 WOODHOUSE"/> | <input checked="" type="checkbox"/> On <input type="checkbox"/> Under | Crossing Type: <input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Navig. Water <input type="checkbox"/> Ped. <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-Navig. Water |
| Hwy/Road Name | <input type="text" value="SCOTCH LINE ROAD (CONCESSION 6), WOODHOUSE"/> | | |
| Structure Location | <input type="text" value="0.48km W of 1/4 Line Road"/> | | |
| Latitude | <input type="text" value="42d 51' 11'N"/> | Longitude | <input type="text" value="80d 10' 37' W"/> |
| Owner(s) | <input type="text" value="Norfolk County"/> | Heritage Designation: | <input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./not App. <input type="checkbox"/> List/not Design. <input type="checkbox"/> Design. & List <input type="checkbox"/> Design./not List |
| MTO Region | <input type="text" value="30"/> Southwestern | Road Class: | <input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local |
| MTO District | <input type="text" value="31"/> London / Stratford | Posted Speed | <input type="text" value="80"/> No. of Lanes <input type="text" value="2"/> |
| Old County | <input type="text" value="20"/> Norfolk | AADT | <input type="text" value="221"/> % Trucks <input type="text"/> |
| Geographic Twp. | <input type="text" value="215"/> Woodhouse | Inspection Route Sequence | <input type="text"/> |
| Structure Type | <input type="text" value="15"/> Rigid Frame, Vertical Legs | Interchange Number | <input type="text"/> |
| Total Deck Length | <input type="text" value="13.7"/> (m) | Interchange Structure Number | <input type="text"/> |
| Overall Str. Width | <input type="text" value="9.8"/> (m) | Min. Vertical Clearance | <input type="text" value="3"/> (m) |
| Total Deck Area | <input type="text" value="134.3"/> (m ²) | Special Route | <input type="checkbox"/> Truck <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> School <input type="checkbox"/> Bicycle |
| Roadway Width | <input type="text" value="8"/> (m) | Detour Length Around Bridge | <input type="text" value="10"/> (km) |
| Skew Angle | <input type="text" value="20"/> (Degrees) | Direction of Structure | <input type="text" value="East / West"/> |
| No. of Spans | <input type="text" value="1"/> | Fill on Structure | <input type="text" value="0"/> (m) |
| Span Length | <input type="text" value="12.2"/> (m) | | |

| Historical Data: | | | |
|------------------------------------------------------|-------------------------------------------|---------------------------|-------------------------------------------|
| Year Built | <input type="text" value="1978"/> | Year of Last Major Rehab. | <input type="text"/> |
| Last OSIM Inspection | <input type="text" value="May 28, 2014"/> | Last Evaluation | <input type="text"/> |
| Last Enhanced OSIM Inspection | <input type="text"/> | Current Load Limit | <input type="text" value="/ /"/> (tonnes) |
| Enhanced Access Equipment (ladder, boat, lift, etc.) | <input type="text"/> | Load Limit By-Law # | <input type="text"/> |
| Last Underwater Inspection | <input type="text"/> | By-Law Expiry Date | <input type="text"/> |
| Last Condition Survey | <input type="text"/> | | |
| Rehab History: | (Date/description) | | |
| | | | |

Ontario Structure Inspection Manual - Inspection Form

Site Number:

| Field Inspection Information: | | |
|-------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Date of Inspection: | July 20, 2016 | Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM |
| Inspector: | Ben Buchwald M.Eng., EIT, G. Douglas Vallee Ltd. | |
| Others in Party: | N/A | |
| Access Equipment Used: | Hammer, Binoculars, Measuring Tape, Camera, etc. | |
| Weather: | Sunny | |
| Temperature: | 16 °C | |

| Additional Investigation Required: | Priority | | |
|--------------------------------------------------------------------------------------------------|----------|----------|--------|
| | None | Normal | Urgent |
| Material Condition Survey | | | |
| <input checked="" type="checkbox"/> Detailed Deck Condition Survey: | | X | |
| <input checked="" type="checkbox"/> Non-destructive Delamination Survey of Asphalt-Covered Deck: | X | | |
| <input checked="" type="checkbox"/> Concrete Substructure Condition Survey: | X | | |
| <input checked="" type="checkbox"/> Detailed Coating Condition Survey: | X | | |
| <input checked="" type="checkbox"/> Detailed Timber Investigation | X | | |
| <input checked="" type="checkbox"/> Post-Tensioned Strand Investigation | X | | |
| Underwater Investigation: | X | | |
| Fatigue Investigation: | X | | |
| Seismic Investigation: | X | | |
| Structure Evaluation: | X | | |
| Monitoring | | | |
| <input checked="" type="checkbox"/> Monitoring of Deformations, Settlements and Movements: | X | | |
| <input checked="" type="checkbox"/> Monitoring Crack Widths: | X | | |
| Investigation Notes: | | | |

| Overall Structure Notes: | | | |
|--------------------------------|-------------------------------------------------|----------------------------------------|----------------------------------|
| Recommended Work on Structure: | <input type="checkbox"/> None | <input type="checkbox"/> Minor Rehab. | <input type="checkbox"/> Replace |
| | <input checked="" type="checkbox"/> Maintenance | <input type="checkbox"/> Major Rehab. | |
| Timing of Recommended Work: | <input type="checkbox"/> 1 to 5 years | <input type="checkbox"/> 6 to 10 years | |
| Overall Comments: | | | |
| Date of next Inspection: | July 20, 2018 | | |

Suspected Performance Deficiencies

- | | | |
|------------------------------------------------------------|-------------------------------------------------|-------------------------------------|
| 01 Load carrying capacity | 07 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 08 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 09 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 10 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 11 Deck drainage | 16 Other |

Maintenance Needs

- | | | |
|---------------------------------------------|----------------------------------------|-------------------------------------------------|
| 01 Lift and swing bridge maintenance | 07 Repair to structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges - maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (Loose concrete or ACR steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

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Element Data

| | | | | | | | | |
|------------------------------------------------|-------|----------------------------------|------|-----------------------------------|------|------------------------------------|--|-------|
| Element Group: | | 1600 Approaches | | | | Length: | | |
| Element Name: | | 1602 Approach Slabs (Approaches) | | | | Width: | | |
| Location: | | Top of Embankment | | | | Height: | | |
| Material: | | 2 Asphalt | | Count: | | 1 | | |
| Element Type: | | | | | | Total Quantity: | | 1 All |
| Environment: | | Moderate | | | | Limited Inspection: | | |
| Protection System: | | None | | | | Perform. Deficiencies | | |
| Condition | Units | Exc. | Good | Fair | Poor | | | |
| Data: | All | 0 | 0.9 | 0.1 | 0 | | | |
| Comments: | | | | | | | | |
| Cold patching and settlement on east approach. | | | | | | | | |
| Recommended Work: | | | | Rehab <input type="checkbox"/> | | Replace <input type="checkbox"/> | | |
| Timing: | | | | Urgent <input type="checkbox"/> | | < 1yr <input type="checkbox"/> | | |
| | | | | 1 - 5 yr <input type="checkbox"/> | | 6 - 10 yr <input type="checkbox"/> | | |
| Maintenance Needs: | | | | <input type="checkbox"/> | | Urgent <input type="checkbox"/> | | |
| | | | | <input type="checkbox"/> | | 1 year <input type="checkbox"/> | | |
| | | | | <input type="checkbox"/> | | 2 year <input type="checkbox"/> | | |

| | | | | | | | | |
|-----------------------------------------------------------------------------------------------|-------|---------------------------------|------|-----------------------------------|------|--------------------------------------------|--|------|
| Element Group: | | 400 Barriers | | | | Length: | | 14 |
| Element Name: | | 401 Barrier/Parapet Walls | | | | Width: | | |
| Location: | | North and South Sides | | | | Height: | | |
| Material: | | 4 Cast-in-place Concrete | | Count: | | 2 | | |
| Element Type: | | Parapet Wall with Two (2) Rails | | | | Total Quantity: | | 28 m |
| Environment: | | Severe | | | | Limited Inspection: | | |
| Protection System: | | | | | | Perform. Deficiencies | | |
| Condition | Units | Exc. | Good | Fair | Poor | | | |
| Data: | m | 0 | 26 | 0 | 2 | | | |
| Comments: | | | | | | | | |
| Cracking and spalling at parapet walls at joints. Cable hanging from north wall not attached. | | | | | | | | |
| Recommended Work: | | | | Rehab <input type="checkbox"/> | | Replace <input type="checkbox"/> | | |
| Timing: | | | | Urgent <input type="checkbox"/> | | < 1yr <input type="checkbox"/> | | |
| | | | | 1 - 5 yr <input type="checkbox"/> | | 6 - 10 yr <input type="checkbox"/> | | |
| Maintenance Needs: | | | | <input type="checkbox"/> | | Urgent <input type="checkbox"/> | | |
| | | | | <input type="checkbox"/> | | 1 year <input type="checkbox"/> | | |
| | | | | <input type="checkbox"/> | | 2 year <input checked="" type="checkbox"/> | | |

| | | | | | | | | |
|--------------------|-------|--------------------|------|-----------------------------------|------|------------------------------------|--|--------|
| Element Group: | | 100 Decks | | | | Length: | | |
| Element Name: | | 106 Drainage | | | | Width: | | |
| Location: | | Through Deck | | | | Height: | | |
| Material: | | 14 Steel | | Count: | | 1 | | |
| Element Type: | | | | | | Total Quantity: | | 1 Each |
| Environment: | | Severe | | | | Limited Inspection: | | |
| Protection System: | | Hot Dip Galvanized | | | | Perform. Deficiencies | | |
| Condition | Units | Exc. | Good | Fair | Poor | | | |
| Data: | Each | 0 | 1 | 0 | 0 | | | |
| Comments: | | | | | | | | |
| | | | | | | | | |
| Recommended Work: | | | | Rehab <input type="checkbox"/> | | Replace <input type="checkbox"/> | | |
| Timing: | | | | Urgent <input type="checkbox"/> | | < 1yr <input type="checkbox"/> | | |
| | | | | 1 - 5 yr <input type="checkbox"/> | | 6 - 10 yr <input type="checkbox"/> | | |
| Maintenance Needs: | | | | <input type="checkbox"/> | | Urgent <input type="checkbox"/> | | |
| | | | | <input type="checkbox"/> | | 1 year <input type="checkbox"/> | | |
| | | | | <input type="checkbox"/> | | 2 year <input type="checkbox"/> | | |

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Element Data

| | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------|---------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------|
| Element Group: | 100 Decks | | | | | Length: | 12.2 |
| Element Name: | 104 Soffit Thick slab | | | | | Width: | 9.8 |
| Location: | | | | | | Height: | |
| Material: | 4 Cast-in-place Concrete | | | | | Count: | 1 |
| Element Type: | | | | | | Total Quantity: | 119.6 sq.m |
| Environment: | Moderate | | | | | Limited Inspection: | |
| Protection System: | None | | | | | Perform. Deficiencies | |
| Condition Data: | Units sq.m | Exc. 0 | Good 117.6 | Fair 0 | Poor 2 | | |
| Comments: Includes: Both walls and underside of deck and wingwalls. Localized areas of deterioration with chlorides on southeast and southwest fascia. Crack on west soffit with visible chlorides. | | | | | | | |
| Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/> | | | | | Maintenance Needs: Repair of Bridge Concrete <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input checked="" type="checkbox"/> 2 year | | |

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------|---------------|-----------|-----------------------------------------------------------------------------------------------------------------------|-----------------------|------------|
| Element Group: | 100 Decks | | | | | Length: | 13.7 |
| Element Name: | 102 Deck Top | | | | | Width: | 9.8 |
| Location: | Outside of Deck | | | | | Height: | |
| Material: | 4 Cast-in-place Concrete | | | | | Count: | 1 |
| Element Type: | Cast-in-place Concrete on Supports. | | | | | Total Quantity: | 134.3 sq.m |
| Environment: | Moderate | | | | | Limited Inspection: | |
| Protection System: | None | | | | | Perform. Deficiencies | |
| Condition Data: | Units sq.m | Exc. 0 | Good 134.3 | Fair 0 | Poor 0 | | |
| Comments: North and south faces include curb. Minor localized impact damage on curb at southwest quadrant. | | | | | | | |
| Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/> | | | | | Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year | | |

| | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|-------------|-------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------|------------|
| Element Group: | 100 Decks | | | | | Length: | 13.7 |
| Element Name: | 101 Wearing Surface | | | | | Width: | 8 |
| Location: | Top of Deck | | | | | Height: | |
| Material: | 2 Asphalt | | | | | Count: | 1 |
| Element Type: | | | | | | Total Quantity: | 109.6 sq.m |
| Environment: | Severe | | | | | Limited Inspection: | |
| Protection System: | | | | | | Perform. Deficiencies | |
| Condition Data: | Units sq.m | Exc. 0 | Good 107 | Fair 2.6 | Poor 0 | | |
| Comments: Significant areas of patching on west end. | | | | | | | |
| Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/> | | | | | Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year | | |

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Element Data

| | | | | | | | | |
|--------------------|-------|----------------------------|------|-----------------------------------|------|------------------------------------|--|-------|
| Element Group: | | 1400 Embankments & Streams | | | | Length: | | |
| Element Name: | | 1401 Streams and Waterways | | | | Width: | | |
| Location: | | | | | | Height: | | |
| Material: | | | | | | Count: | | 1 |
| Element Type: | | | | | | Total Quantity: | | 1 All |
| Environment: | | | | | | Limited Inspection: | | |
| Protection System: | | Unknown | | | | Perform. Deficiencies | | |
| Condition Data: | Units | Exc. | Good | Fair | Poor | | | |
| | All | 0 | 1 | 0 | 0 | | | |
| Comments: | | | | | | | | |
| Recommended Work: | | | | Rehab <input type="checkbox"/> | | Replace <input type="checkbox"/> | | |
| Timing: | | | | Urgent <input type="checkbox"/> | | < 1yr <input type="checkbox"/> | | |
| | | | | 1 - 5 yr <input type="checkbox"/> | | 6 - 10 yr <input type="checkbox"/> | | |
| Maintenance Needs: | | | | Erosion Control at Bridges | | | | |
| | | | | Urgent <input type="checkbox"/> | | 1 year <input type="checkbox"/> | | |
| | | | | 2 year <input type="checkbox"/> | | | | |

| | | | | | | | | |
|------------------------------------------|-------|--------------------------------------|------|-----------------------------------|------|------------------------------------|--|----------|
| Element Group: | | 1300 Foundations | | | | Length: | | |
| Element Name: | | 1301 Foundation (below ground level) | | | | Width: | | |
| Location: | | | | | | Height: | | |
| Material: | | 4 Cast-in-place Concrete | | | | Count: | | 2 |
| Element Type: | | | | | | Total Quantity: | | 2 m |
| Environment: | | | | | | Limited Inspection: | | X |
| Protection System: | | Unknown | | | | Perform. Deficiencies | | |
| Condition Data: | Units | Exc. | Good | Fair | Poor | | | |
| | m | | | | | | | |
| Comments: | | | | | | | | |
| Limited inspection. Footing not visible. | | | | | | | | |
| Recommended Work: | | | | Rehab <input type="checkbox"/> | | Replace <input type="checkbox"/> | | |
| Timing: | | | | Urgent <input type="checkbox"/> | | < 1yr <input type="checkbox"/> | | |
| | | | | 1 - 5 yr <input type="checkbox"/> | | 6 - 10 yr <input type="checkbox"/> | | |
| Maintenance Needs: | | | | | | | | |
| | | | | Urgent <input type="checkbox"/> | | 1 year <input type="checkbox"/> | | |
| | | | | 2 year <input type="checkbox"/> | | | | |



Figure 1 East Approach



Figure 2 West Approach



Figure 3 North Profile



Figure 4 South Profile



Figure 5 Upstream



Figure 6 Downstream



Figure 7 East Abutment



Figure 8 West Abutment



Figure 9 Cracking and Deterioration at Southeast Fascia



Figure 10 Cracking and Deterioration at Southwest Fascia



Figure 11 Crack on Soffit with Chloride



Figure 12 Spalling at Barrier Joints



Figure 13 Patched Potholes in Wearing Surface



Figure 14 Spalling at Barrier Joints



Figure 15 Typical Approach Barrier Post



Figure 16 Structure Number and Date Stamp