12 December 2013

HERITAGE IMPACT ASSESSMENT

Water Street Bridge, Wellington Street Bridge and Emily Street Underpass
Part of Lots 16 and 17, Concession 17
Geographic Township of Blanshard
Town of St. Marys
Perth County, Ontario

Submitted to:
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REPORT

Report Number: 13-1136-0013-R01

Distribution:

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Executive Summary

B.M. Ross and Associates Ltd. (B. M. Ross) was retained by the Town of St. Marys to evaluate the future of three structures as a component of an Environmental Assessment. B. M. Ross retained Golder Associates (Golder) to undertake a Heritage Impact Assessment (HIA) to determine whether two structures on this study – Water Street and Wellington Street Bridges over Trout Creek – represent built heritage resources or a cultural heritage landscape of significant cultural value or interest. These two bridges connect the commercial centre of St. Marys on the south side of the creek with residential development on the north side. The Emily Street underpass was also assessed because any changes to the Water Street Bridge could result in upgrading Emily Street and the underpass.

This report makes the following recommendations:

The **Water Street Bridge** should be maintained and open to vehicular traffic by means of sympathetic rehabilitation or restricted to pedestrian traffic. Retention of the truss structure will result in the least impact to the heritage attributes and the character of the bridge and adjacent landscape. In addition, retention of the Water Street Bridge will obviate the need to widen the Emily Street underpass.

The **Water Street Bridge** should be considered for designation under Part IV of the Ontario Heritage Act so that it will have protection under the St Marys Official Plan Policy 5.3.10 “Bridge Improvements.”

If the **Wellington Street Bridge** is to be replaced, the new bridge should contribute to the existing character of the Trout Creek and the Town of St. Marys. The bridge should be consistent with the character with respect to materials, scale, massing, and design of the adjacent Water Street and Church Street bridges.

If the **Emily Street Underpass** is to be widened the design of the new structure should minimize changes to the existing character of the former rail earthworks and bridge span.

Deposit Copies

Copies of this report should be deposited with the:

St. Marys Museum and Archives
177 Church Street South
St. Marys, Ontario
N4X 1B6

St. Marys Public Library
15 Church Street North
St. Marys, Ontario
N4X 1B4

Stratford-Perth Archives
24 St. Andrew Street
Stratford, Ontario
N5A 1A3

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Acknowledgements

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1.0 STUDY PURPOSE AND METHOD

1.1 Study Purpose

B.M. Ross and Associates Ltd. (B. M. Ross) was retained by the Town of St. Marys to evaluate the future of three structures as a component of an Environmental Assessment. B. M. Ross retained Golder Associates (Golder) to undertake a Heritage Impact Assessment (HIA) to determine whether two structures on this study – Water Street and Wellington Street Bridges over Trout Creek – represent built heritage resources or a cultural heritage landscape of significant cultural value or interest. These two bridges connect the commercial centre of St Marys on the south side of the creek with residential development on the north side. The Emily Street underpass was also assessed because any changes to the Water Street Bridge could result in upgrading Emily Street and the underpass.

1.2 Study Method

1.2.1 Method

This Heritage Impact Assessment was prepared according to the guidelines set out in the MTCS *Ontario Heritage Toolkit*.

An overview history of the three structures was prepared to evaluate the cultural significance of the bridges. A field assessment of the bridges was undertaken in June 2013 to identify and photograph potential heritage features of the property.

The significance of the structures and potential impacts of the proposed rehabilitation on identified heritage features were evaluated. Mitigation options and recommendations were prepared based on anticipated impacts of these features. The bridges were evaluated according to the *Ontario Regulation 9/06* made under the *Ontario Heritage Act*.

1.2.2 Metric Measurements

Between 1971 and 1984 Canada adopted the metric system. All structural dimensions in this text are given in Imperial units. In general the use of Imperial rather than metric is preferred for describing historic structures. Engineered structures were built to standard Imperial dimensions and distinctive patterns within such structures can be obscured by converting the original Imperial into metric units. Unless there are historical issues (i.e. contract specifications), all distances and other common measurements are given in metric units.

REFERENCE

PLAN BASED ON CANMAP STREETFILES V.2008.

NOTES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT

HERITAGE IMPACT ASSESSMENT
WATER STREET, WELLINGTON STREET,
AND EMILY STREET BRIDGES
TOWN OF ST. MARYS, ONTARIO

TITLE

STUDY AREA MAP

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0013		FILE No.	1311360013-R01001
			SCALE	AS SHOWN
CADD	LMK	Nov. 29/13	REV.	0
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FIGURE 1

Drawing file: 1311360013-R01001.dwg Nov 29, 2013 - 11:39am

REFERENCE

2010 ORTHOGRAPHIC PHOTOGRAPH BY FIRST BASE SOLUTIONS.

NOTES

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ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT

HERITAGE IMPACT ASSESSMENT
WATER STREET, WELLINGTON STREET,
AND EMILY STREET BRIDGES
TOWN OF ST. MARYS, ONTARIO

TITLE

SITE PLAN

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0013		FILE No.	1311360013-R01001
			SCALE	AS SHOWN REV. 0
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FIGURE 2

Drawing file: 1311360013-R01001.dwg Nov 29, 2013 - 11:40am

REFERENCE

H. Belden & Co. *Illustrated Historical Atlas of the County of Perth, Ontario*. Toronto: 1879.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT

HERITAGE IMPACT ASSESSMENT
WATER STREET, WELLINGTON STREET,
AND EMILY STREET BRIDGES
TOWN OF ST. MARYS, ONTARIO

TITLE

STUDY AREA, 1880

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0013		FILE No.	1311360013-R01001
			SCALE	N.T.S. REV. 0
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FIGURE 3

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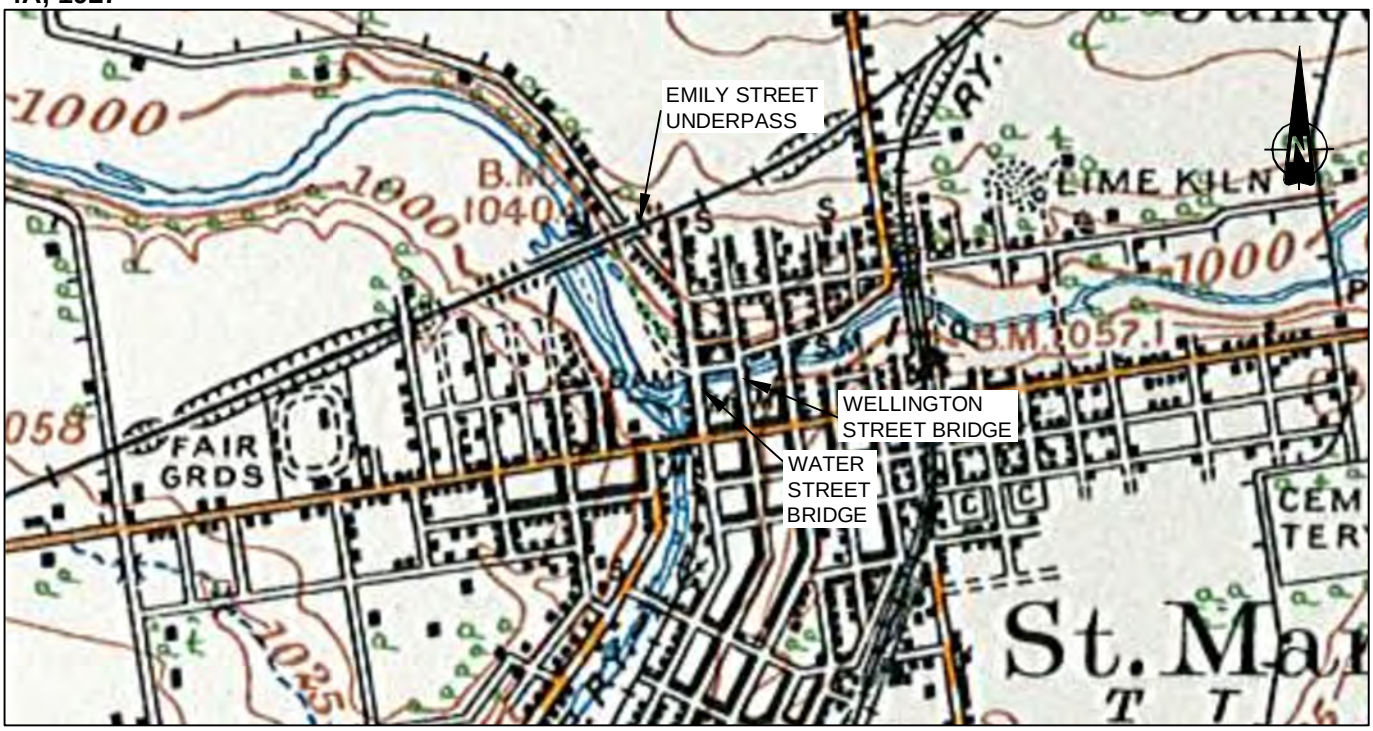
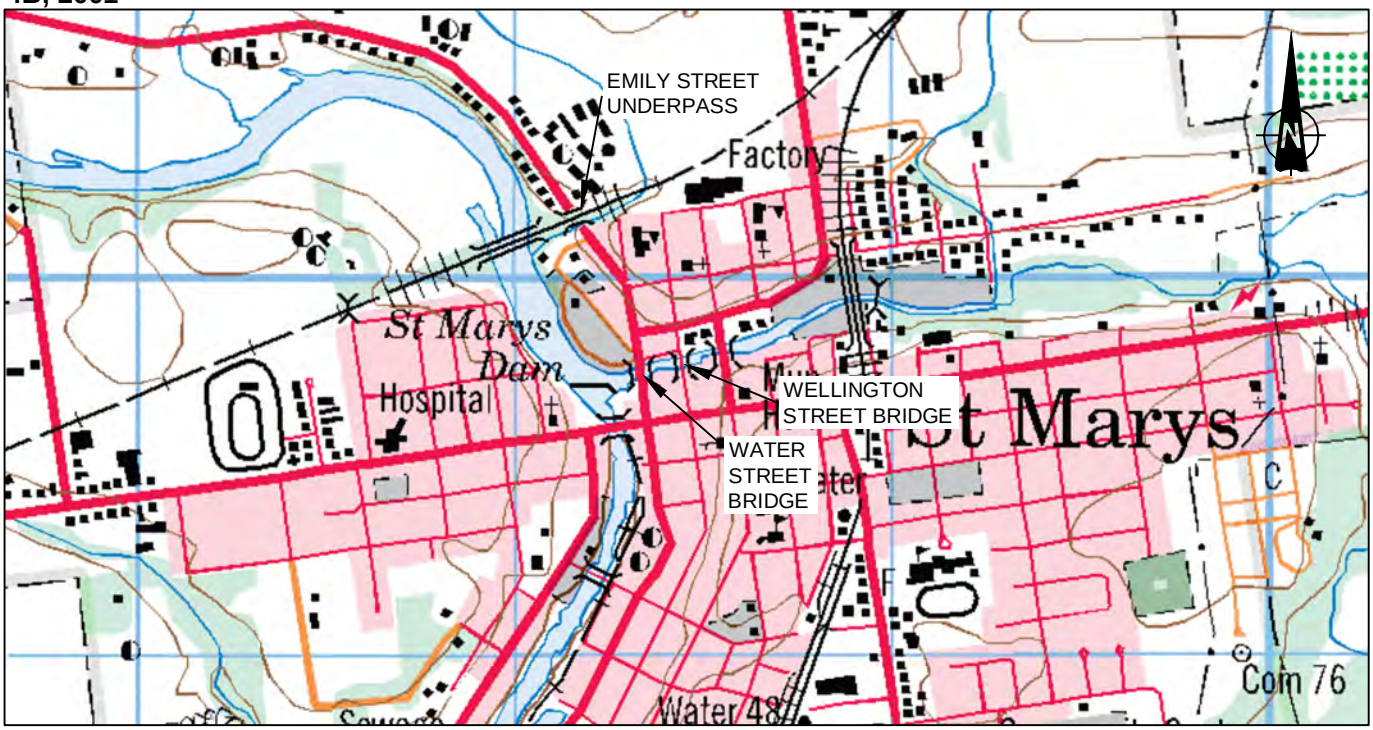
4A, 1927



4B, 2001



REFERENCE

DRAWING BASED ON:

A. DEPARTMENT OF NATIONAL DEFENCE GEOGRAPHICAL SECTION, GENERAL STAFF 40 P/6; ST. MARYS, ONTARIO; 1:63,630, 1927.

B. CANADIAN CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA; 40 P/6; ST. MARYS, ONTARIO, 2001.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.
ALL LOCATIONS ARE APPROXIMATE ONLY.
ROAD AND FEATURE NAMES REFLECT THOSE USED AT THE TIME.

PROJECT: HERITAGE IMPACT ASSESSMENT
WATER STREET, WELLINGTON STREET,
AND EMILY STREET BRIDGES
TOWN OF ST. MARYS, ONTARIO

TITLE: **TOPOGRAPHIC MAPS**

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0013		FILE No.	1311360013-R01001
			SCALE N.T.S.	REV. 0
CADD	LMK	Nov. 29/13		
CHECK				

FIGURE 4

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2.0 BACKGROUND HISTORY

2.1 Natural Environment

The Water Street and Wellington Street Bridges cross Trout Creek just before it enters the Thames River in the Town of St. Marys. Trout Creek follows a circuitous route south and west from its source near Stratford and runs through the middle of St. Marys where it meets the Thames River. Trout Creek is a part of the Upper Thames River watershed.[1] The creek is located in a much deeper and narrower valley than is possible for the creek to cut.

Both the Thames River and Trout Creek were used for water power. As early as 1842 a milldam was erected near the mouth of the Trout Creek. This, in turn flooded the small creek valley and created the need for bridges long enough to span the width of the creek. By the 1860s, 10 mills lined the banks of the Thames River and the Trout Creek. [2] Although the Trout Creek dam has been removed, a dam across the Thames River just below the junction of the two waterways continues to flood the mouth of the creek.

As a result of its location in the flood plain at the mouth of the Trout Creek and the Thames River, St. Marys has experienced significant flooding in its history. Historically, severe flooding on Trout Creek has caused substantial damage to buildings, bridges, dams and mills. Over time, efforts to minimize damage have included the removal of buildings and the installation of a flood wall along Trout Creek. The Upper Thames River Conservation Authority built the Wildwood Dam in 1965 on the Trout Creek upstream from St. Marys in order to control flow in the spring and supplement flow in the drier summer months. The construction of the Wildwood Dam was the most significant engineering work on Trout Creek.[3]

The glacial till in St. Marys is not as deep as other areas and as a result a large outcropping of limestone bedrock has been more easily accessible in the area. This in turn resulted in the availability of limestone that was widely used for building construction. By the 1870s dozens of stone buildings were erected in St. Marys, built mostly of local limestone. By the 1890s improved methods of infrastructure development allowed the great deposits of stone to be mechanically crushed and utilized for road construction throughout St. Marys and Perth County. In the 20th century the outcropping available in the till became a raw material for large cement works.[4]

[1] "Trout Creek," Historic St. Marys Plaque, 2012.

[2] L.W. Wilson and L.R. Pfaff, *Early St. Marys*, 1; Johnston, William, *History of Perth County from 1825 to* 1902, 419.

[3] Lyman John Chapman and Donald F. Putnam, *The Physiography of Southern Ontario*, 133-143.

[4] Chapman and Putnam, *The Physiography of Southern Ontario*, 133-143; Wilson and Pfaff, *Early St. Marys*, 1; Johnston, William, *History of Perth County from 1825 to* 1902, 419.

2.2 Historical Context

St. Marys lies within the Huron Tract acquired by the Canada Company in 1827. A year later a road was surveyed by John MacDonald between Perth County and Goderich. By 1839 Blanshard Township was surveyed by Canada Company surveyors in preparation for settlement.

In 1841 the Canada Company sold 337 acres to James and Thomas Ingersoll on what would become the downtown core of St. Marys. A condition of the sale was that the Ingersolls were to build and operate a grist mill and saw mill. The original mills were built on the corner of Queen Street and Water Street close to the modern location of the Water Street Bridge.[5]

South of the Water and Wellington Street Bridges is the downtown core of St. Marys. Queen Street serves as the town's main street, and commercial district. The urban streets in the immediate downtown core were laid out in a grid road pattern. The commercial area of downtown has changed little in St. Marys' history.[6]

The GTR was completed in the 1850s to connect Montreal and Toronto with the American mid-west at Chicago. By 1859 the railway line was completed as far as Sarnia and a branch constructed from St. Marys to London. The GTR became a part of the Canadian National Railway (CNR) in 1923. With the decline in rail traffic between St. Marys and Sarnia, this track – which includes the Emily Street Underpass – was abandoned in 1998, and is now part of a walking trail owned by the town. The former branch to London still operates.

The early administrative history of St. Marys is varied. Originally a part of Blanshard Township, the town separated in 1855 by a special Act of Parliament.[7] In 1864 St. Marys was incorporated as a town, and by 1865 it had withdrawn from Perth County. A recent restructuring of Perth County in 1998 included St. Marys within its boundaries.

2.3 Bridge History

2.3.1 Early Development of Trout Creek Bridges

By the 1850s several bridges crossed Trout Creek in St. Marys. In addition to the Water Street and Wellington Street Bridges that are the subject of this HIA, a third bridge at Church Street was built in close proximity. The two-span, stone Church Street Bridge that exists today was built in 1884 and appears to have been the first substantial structure across the creek (Plates 1-2).

[5] Robert C. Lee, *The Canada Company and the Huron Tract, 1826-1835: Personalities, Profits and Politics* (Toronto: Natural Heritage Books, 2004), 70; *Illustrated Historical Atlas: The County of Perth including Stratford and St. Marys* (Stratford: Cumming Publishers, 1982), 14, 115; W.G. Dean and G.J. Matthews, *Economic Atlas of Ontario* (Toronto: University of Toronto Press, 1969) 98; L.W. Wilson and L.R. Pfaff, *Early St. Marys: A History in Old Photographs from Its Founding to 1914* (Erin: Boston Mills Press, 1995), 1.

[6] *Heritage Conservation District Plan: Town of St. Marys,* (2012), 2.3.

[7] Johnston, Hugh J.M. *History of Perth County to 1967* (Stratford: B-H Press, 1967) 77.

The date of the first Water Street Bridge was not determined. The first bridge at Water Street was a wooden truss bridge. Severe flooding caused the washing away and erosion of the bridges. Public opinion was often concerned with the state of the crossings as indicated in newspaper reports. Bridge rehabilitation and replacement became a concern between from the 1870s and by the 1890s a new metal truss bridge was to be constructed at Water Street.[8]

The date of the first Wellington Street Bridge over Trout Creek was not determined; however, by the 1840s a wooden truss bridge crossed the Trout Creek at Wellington Street. An 1864 letter to the editor of the *St Marys Argus* expressed the concern of a citizen of St. Marys regarding the condition of the existing structure. In 1870, a public meeting reported in the *St Marys Argus* indicated the need to replace several bridges over the Trout Creek that had washed out as a result of seasonal flooding.[9]

The piers of the current Wellington Street Bridge were in use when the first concrete bridge was open to vehicular traffic in 1912.[10]

The concrete bridge opened in 1912 as a two-span, concrete girder bridge supported by concrete abutments with diagonal wing walls on each bank of the creek and a concrete pier. The middle and end posts on the bridge are attached to the abutment and pier supports. The original design of the posts had decorative panels with lamp-post lighting above. The railings, wing walls, and balustrades were highly decorative. Sidewalks were located on each side of the road deck.

Plate 1: St Marys 1919 showing Water, Wellington and Church Street bridges over Trout Creek and the Emily Street underpass in the upper left corner (St. Marys Museum, 1594pc).

[8] "The Water Street Steel Bridge," *St. Marys Journal*, March 24, 1898; "Public Meeting Last Night, *St. Marys Argus*, August 26, 1870.

[9] "Trout Creek," Historic St. Marys Plaque, 2012; "Letter to the Editor," *St. Marys Argus,* May 5, 1864 ; "Public Meeting Last Night, *St. Marys Argus*, August 26, 1870.

[10] "Trout Creek," Historic St. Marys Plaque, 2012.

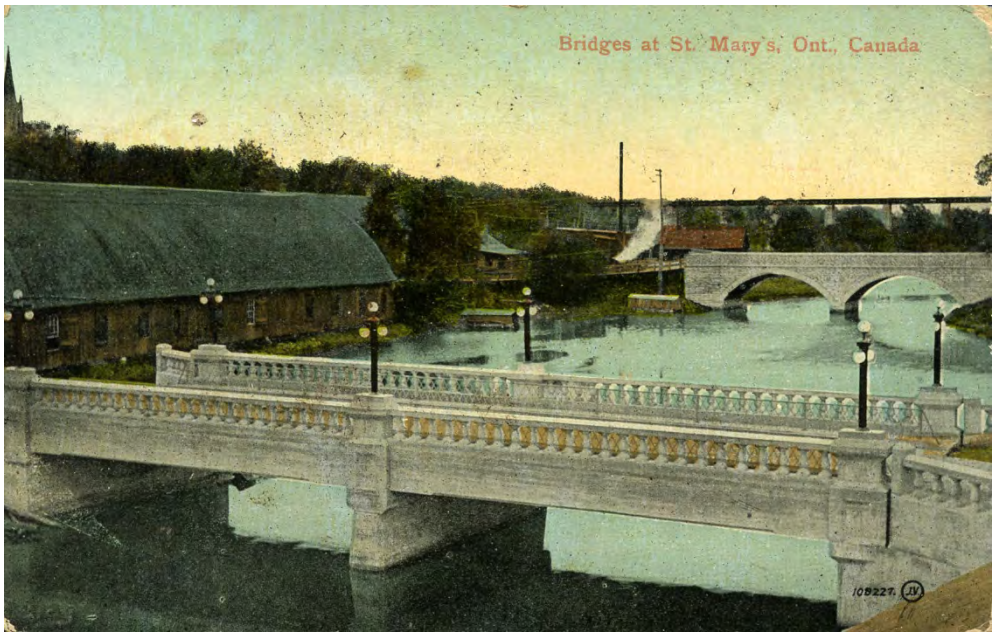

Plate 2: Bridge landscape, mid-20th century, showing previous decorative Wellington Street Bridge and Church Street Bridge in background (St. Marys Museum, 0008pc-OA).

2.3.2 Water Street Bridge

The existing Water Street Bridge was opened to vehicular traffic in 1898.[11] It is a single-span, steel, Pratt-truss bridge with a span of 95 feet and a 14 foot road deck. The Pratt truss bridge was widely used in Ontario in the late 19th/early 20th century for short span bridges up to 250 feet in length.[12] In common with the building practices of the era, the abutments were built and installed by one company and the bridge structure by another firm (Plate 3).

The limestone abutments to support the bridge were designed by local architect Joseph Humphries, and built by local stone mason John Elliot. Both Humphries and Elliot were responsible for a large number of buildings and structures in St. Marys.[13]

[11] The Water Street Steel Bridge."

[12] T. Allan Comp and Donald Jackson, "Bridge Truss Types: A Guide to Dating and Identifying," in *American Association for State and Local History*, 1977.

[13] "Water Street Bridge," Historic St. Marys Plaque, 2010; Larry Pfaff, *Historic St. Marys*, 64; Robert G. Hill, "Humphris, Joseph A." *Biographical Dictionary of Architects in Canada, 1800-1950*, www.dictionaryofarchitectsincanada.org (accessed June 2013).

The steel trusses were fabricated in Stratford and erected on-site by the Stratford Bridge Company. The Stratford Bridge Company was founded in 1870. The company's history was typical of several small bridge companies located in southwestern Ontario at the turn of the century. The trusses were assembled by means of pin connections which permitted easier field assembly than by means of rivets. [14]

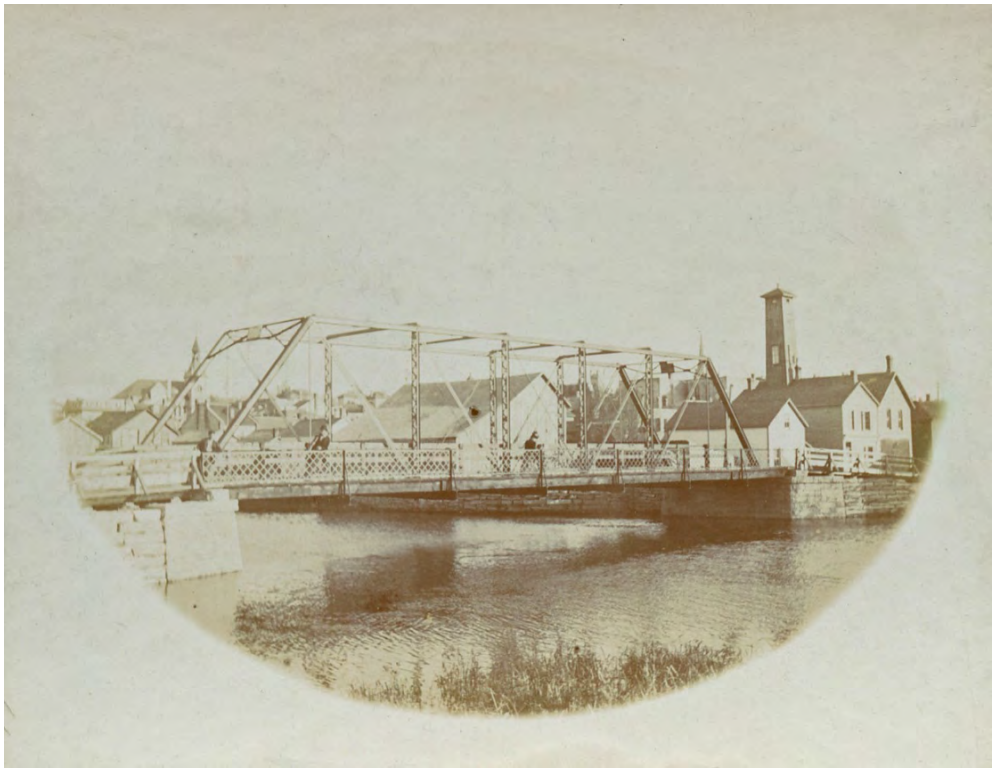

Plate 3: Water Street Bridge, (late 1890s), showing walkway and metal trellis railings and number of buildings located in the floodplain (St. Marys Museum and Archives, 0936ph).

2.3.3 Wellington Street Bridge

The piers of the current Wellington Street Bridge were in use when the first concrete bridge was open to vehicular traffic in 1912. [15]

The concrete bridge opened in 1912 as a two-span, concrete girder bridge supported by concrete abutments with diagonal wing walls on each bank of the creek and a concrete pier. The middle and end posts on the bridge are attached to the abutment and pier supports.

[14] "Water Street Bridge," Historic St. Marys Plaque, 2010; Startford-Perth Archives.

[15] "Trout Creek," Historic St. Marys Plaque, 2012.

The original design of the posts had decorative panels with lamp-post lighting above. The railings, wing walls, and balustrades were highly decorative. Sidewalks were located on each side of the road deck (Plates 4).

The bridge was rebuilt in 1971 as a two-span, concrete, box-girder bridge that utilized the original piers and abutments (Plates 5-6). The design of concrete box-beams, or box-girder bridges had been developed by the 1930s but only became popular in Ontario in the 1960s. One of the attributes of a box girder is that long spans could be constructed. However, the Wellington Street Bridge utilized short spans of only 42 feet between the abutments and centre pier.

Plate 4: Wellington Street Bridge 1912 Construction showing decorative balustrades, wing walls and panels (St Marys Museum, 1705ph).

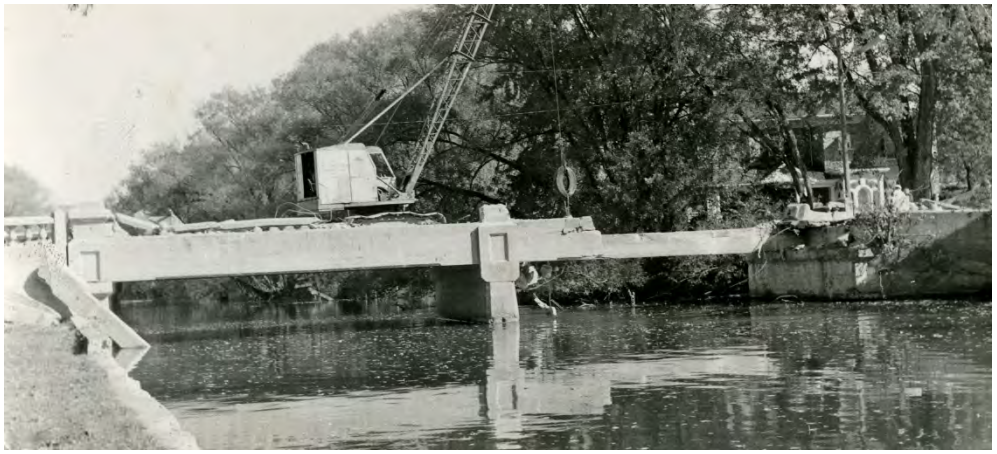

Plate 5: Demolition of decorative 1912 deck for replacement in 1971 (St. Marys Museum, 1113ph).

Plate 6 Wellington Street Bridge, west side showing the concrete centre pier of the 1912 bridge.

2.3.4 Emily Street Underpass

The section of railway that included the first bridge, or underpass, at Emily Street was completed in 1859. The contract for this section was awarded to George Weir and Donald Robinson and advertisements for stonemasons, labourers, and quarrymen appeared in local newspapers in 1857. The bridge was an iron, plate-girder structure sitting on pitch-faced stone abutments and wing walls (Plate 7).

The Emily Street underpass was required as part of the earthworks that carried the railway from the top of bank of the Thames River valley to the river abutments. Emily Street was a relatively narrow road and therefore only a short span was required.

The current Emily Street underpass was built in 1905 is a riveted, steel plate-girder structure. It was constructed at the same time as the main bridge over the Thames River was rebuilt. These bridge improvements were part of a major upgrading of the entire Grand Trunk system at the turn of the century.

The abutments, wing walls and ballast walls of the Emily Street structure are constructed of cast-in-place concrete. The shoring, or wooden framework that was in place for casting the concrete, is visually evident on the concrete.

At the very bottom of the abutment/wing walls, a remnant of the previous stone construction is still visible. It could not be determined if the original stone walls had been encased in the concrete or that entirely new abutments were built. The underpass is very typical, standard railway design.

After the CNR abandoned the railway line in 1998 the line was converted into a recreational trail including the Emily Street crossing (Plate 8).

Plate 7: Emily Street Underpass 1905, showing stone abutments, wing walls, and iron plate girder (St. Marys Museum, reesor041).

Plate 8: Emily Street Underpass, 1989, showing one of the last trains to cross the bridge (St. Marys Museum and Archives).

3.0 BRIDGE DESCRIPTIONS

3.1 Water Street Bridge

3.1.1 Overview

The Water Street Bridge is a single-span, steel Pratt truss structure. The bridge has a span of 95 feet and a deck width of 14 feet with a sidewalk projected off the side of the west truss (Plates 9-17).

3.1.2 Abutments

The abutments are constructed of pitch-faced, squared limestone. The north bank of Trout Creek is bordered by large armour stone that sit immediately adjacent to the abutments. On the south bank, the abutment borders gabion baskets, filled with rubble stone.

3.1.3 Approaches

There is a slight raise in grade at each approach to the bridge. Due to the history of flooding that took place on the Trout Creek the abutments were raised above flood levels. The Wellington Street Bridge, approximately 100 metres upstream, is also raised above the flood plain.

3.1.4 Truss

The two main trusses are composed of five full panels and two half panels at the end posts. The top chords are constructed of two channel beams separated with riveted plates. The vertical posts are constructed of riveted lattice beams. The bottom chords are assembled from heavy steel bars with eyes to take the pin connections. The diagonals are small bars with loops at each end to take pin connections. Diagonal rods and turn-buckles keep the bridge in tension. The trusses are assembled with pin connections that linked the top and bottom chords to the vertical posts and diagonals.

3.1.5 Deck

The deck is supported from cross beams suspended between the two trusses from the pin connections at the bottom cord. The cross beams support steel I-beam stringers that run the length of the bridge. A paved, timber deck is laid on the stringers. A pedestrian walkway is cantilevered from the west truss, by extending the cross beams.

The deck railings are metal posts and rails that run the entire span of the bridge and terminate at the diagonal end posts. The design of the railing system seems to indicate that they were not on the original design.

The walkway railing is made up of posts, welded to the cross beams below. The welded connections suggest 20th century repairs. Metal lattice panels are riveted to the posts.

3.1.6 Cultural Landscape

Water Street is a two-lane road that connects a residential area of St. Marys to its downtown core on Queen Street. The approach to the bridge has been raised above the rest of the grade of the street to keep the bridge above potential flood levels.

South of the Water Street Bridge is the downtown core of St. Marys. The bridge sits immediately adjacent to two parking lots on the south side. On the north bank of the bridge is a recreational pathway and a park. Approximately 100 metres upstream of the bridge is the Wellington Street Bridge, and beyond that another 100 metres is the Church Street Bridge. Collectively, the three bridges that cross the Trout Creek contribute to the urban landscape. The three bridges form a cluster of bridges related to each other and each a part of the historic character of the commercial area of St. Marys. The Water Street Bridge is particularly evident because the trusses rise high above the road and are more visually prominent than the Wellington Street Bridge.

Plate 9: Water Street Bridge, east side, looking west and showing the gabion baskets along the south bank. The Thames River is barely visible in the distance.

Plate 10: Water Street Bridge, west side, looking north and showing walkway.

Plate 11: Structural pin connection between top chord, diagonals and inclined end post.

Plate 12: North end abutment, showing pitch-faced squared limestone

Plate 13: Substructure showing paved timber deck, bottom chord, cross bream, and structural pin connection

Plate 14: Walkway resting on crossbeams and posts welded to cross beams

Plate 15: Deck railings in foreground, lattice pedestrian railing in background and wood deck with asphalt paving.

Plate 16: Water Street approach to bridge showing raise in grade up to bridge abutments

Plate 17: Water Street Bridge (1937 looking north from Queen Street, showing flood levels and raised grade (St. Marys Museum and Archives)

3.2 Wellington Street Bridge

3.2.1 Overview

The Wellington Street Bridge is a two-span, concrete, box-girder structure with a span of 77 feet and a deck width of 40 feet. The centre pier and part of the abutments are original to the 1912 construction. The rest of the original structure was replaced in 1971 with box girder spans and a new deck with aluminum rail barriers (Plates 18-24).

3.2.2 Abutments/Wing Walls

The concrete abutments include part of the original structure and are built into the embankments of Trout Creek. The north abutment is built into large armour stone that lines the banks of the creek. On the south side of the Trout Creek, the abutment is protected by gabion baskets filled with rubble stone. The wing walls on the north side of the bridge return a couple of metres into the earthworks.

3.2.3 Approaches

There is a slight raise in grade at each approach to the bridge. Due to the history of flooding that took place on the Trout Creek Bridge abutments were built above flood levels. The Water Street Bridge, approximately 100 metres downstream is also raised above flood level.

3.2.4 Pier

The concrete centre pier is original to the 1912 construction. Along with the abutments, the centre pier appears to have been rehabilitated to accommodate the box-beam spans. The nose of the pier has suffered damage due to floating debris and ice flow.

3.2.5 Deck

The two lane deck is slightly narrower than the road approaches. The deck is cast-in-place concrete and sits on four large box girders, or box beams, resting on the abutments and centre pier. Sidewalks are located on both sides of the bridge.

The railings are composed of cast aluminum posts and extruded aluminum rails. The 15 posts on each side of the deck are bolted to the concrete of the curb and walkway of the deck. The three railings sit within the cast aluminum posts.

3.2.6 Cultural Landscape

Wellington Street is a two-lane road that connects the residential area on the north side of St. Marys to the downtown core on Queen Street. The approach to the bridge has been raised above the rest of the grade of the street to keep the bridge above potential flood levels.

The north abutment of the bridge is adjacent to a landscaped pathway that borders Trout Creek. Adjacent to the south side of the bridge are a commercial auto-repair shop and a residential structure. There are two parking lots on the south side, and a recreational pathway and park on the north bank of the bridge. Approximately 100 metres upstream of the bridge is the Church Street Bridge, and 100 metres downstream is the Water Street Bridge. The cluster of bridges are in close proximity to each other and each a part of the greater cultural landscape of the Town of St. Marys.

Plate 18: Wellington Street Bridge, east side

Plate 19: Original 1912 pier supporting 1971 concrete box girders, deck replacement

Plate 20: Wellington Street approach showing slight raise in grade

Plate 21: Original pier from 1912 construction as part of 1971 deck replacement

Plate 22: Abutment and wing walls showing original 1912 abutment and 1971 additions.

Plate 23: Railings showing cast posts and extruded aluminium rails

Plate 24: Current bridge landscape showing Wellington Street Bridge and Water Street Bridge in background

3.3 Emily Street Underpass

3.3.1 Overview

The Emily Street underpass is a short-span steel riveted plate-girder structure. It is a standard short-span railway underpass. The bridge has a span of 21 feet and a deck width of 13 feet. The bridge is located on top of a tall earth embankment that crosses over Emily Street (Plates 25-27).

3.3.2 Abutments/Wing Walls

The abutments are a composite abutment and wing wall combination and are constructed of cast-in-place concrete and built into the steep grade embankments on either side of Emily Street. The wooden shoring from its construction is visually evident on the face of the concrete.

3.3.3 Deck

The deck retains the heavy bridge timbers resting on the top flanges of the girder spans. Originally the track would have been fastened directly to the timbers. Today the bridge timbers are covered with a walkway deck of dimensional lumber to create a walkway for pedestrian traffic.

The railings are modern steel barrier railings installed on the bridge for its recreational walking trail usage. The railing are bolted to the large timber cross beams. They were installed when opening as a walking trail in 1998.

3.3.4 Cultural Landscape

Emily Street is a narrow two-lane road extending north from Water Street to Road 133 north of St. Marys. The road serves as an arterial road from Perth County to St. Marys. At the underpass, the street is a residential area. Both sides of the bridge are bordered by steep earthworks to raise the bridge above the road. Adjacent to the earthworks on each side are residential properties.

The underpass is part of a 3.2 kilometre recreational walking trail owned by the Town of St. Marys. The steep earthworks raise the bridge well above vehicular traffic on Emily Street. The earthworks are covered with heavy foliage that surrounds the walking trail. Approximately 50 metres to the west is the much longer Sarnia Bridge across the Thames River. These two former rail bridges and the earthworks create a distinctive former railway landscape.

Plate 25: Emily Street Underpass, showing steel plate girder span, abutment, wing walls, earth embankment and deck.

Plate 26: Emily Street looking south, showing modern railings and timber for walking trail with residential properties in background.

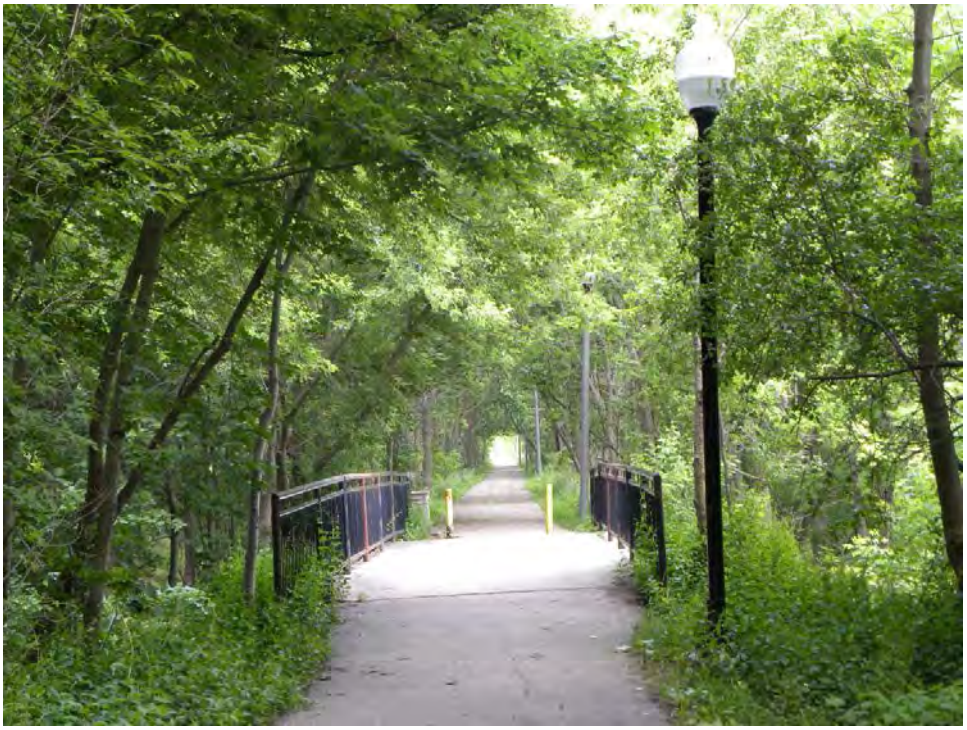

Plate 27: Landscape, showing recreational walking trail

4.0 EVALUATION

4.1 Planning Context

The *Town of St Marys Official Plan 1987 (consolidated 2007)* recognizes the importance of heritage conservation, including bridges, in defining the urban character of the town. The *Official Plan* is illustrated with 15 drawings of municipal heritage structures. Two illustrations are of bridges, a distinction shared with two houses and two railway stations. Only churches, with four drawings, are more represented by building type.

The following is a review of the key components of the Town's *Official Plan* as they pertain to the three bridges assessed in this HIA.

4.1.1 Official Plan Section 2: Goals and General Principles

2.3 Heritage Conservation

2.3.1 Objectives

2.3.1.2 To protect and enhance the Town's heritage resources by developing policies that strike a balance between conservation and preservation with development and re-development.

2.3.1.3 To be proactive in identifying cultural heritage sites that are considered worthy of conservation or preservation.

Analysis

This HIA is a component of an EA that is evaluating the future of the Water and Wellington Bridges over Trout Creek. Objective 2.3.1.2 indicates that compromises may be required in balancing the needs of modern needs of the town and those of cultural heritage. Objective 2.3.1.3 notes that the town wishes to anticipate where compromises may occur by identifying cultural resources as part of a planning process, such as this HIA.

2.3.2 Policies

2.3.2.6 Council may, upon the recommendation of the St. Marys Heritage Committee.

a) Designate individual properties for heritage conservation under Part IV of the *Ontario Heritage Act*;

c) Give consideration to the preparation of a Heritage Conservation District Plan for the area or areas which will include design guidelines for both existing buildings and new construction;

d) Give consideration to designating a portion or portions of the Town, as identified in Heritage Conservation District Plan(s), as Heritage Conservation Districts under Part V of the *Ontario Heritage Act;*

f) Update the inventory of built heritage resources as shown on Schedule "D" to this Official Plan.

Analysis

On the findings in Section 4.3 of this HIA (below), Water Street Bridge appears to be eligible for designation under Part IV of the *Act*. The Emily Street Underpass (Section 4.5 below), could possibly be designated subject to interpretation by community.

a) The Church Street Bridge has been designated under Part IV of the *Ontario Heritage Act*. Policy 5.3.10 of the OP (below) acknowledges that designated bridges need to be protected.

b) The St Marys Heritage Conservation District was created in October 2012 and Trout Creek forms the northern boundary of the District. Therefore the south abutments of both Water and Wellington bridges are within the HCD and would be subject to the HCD Design Guidelines.

c) The St. Marys Heritage Conservation District Plan indicates that the historic bridges of St. Marys are part of the prominent feature landmarks of the town. Additionally, Section 4.7 of the HCD Plan suggests "The steel bridge should be retained and restored if feasible."

4.1.2 Official Plan Section 3 – Land Use Policies

3.2 Central Commercial

3.2.1 Objectives

3.2.1.3 To encourage commercial development which is consistent with the physical amenities of the Town and in particular, Council encourages the maintenance and improvement of the Central Commercial streetscape.

3.2.1.5 To integrate the distinct natural environment associated with the Thames River and Trout Creek with "Central Commercial" development.

Analysis

Both the Water Street and Wellington Street Bridges are adjacent to the Central Commercial development and could be considered as physical amenities. Similarly the two bridges are resources that could assist in integrating Trout Creek into the Central Commercial development.

3.2.2 Policies

3.2.2.5 Council encourages the co-operative maintenance and improvement of the streetscape consistent with its architectural heritage. Accordingly, a combined effort between Council, the Downtown Merchants Association, Heritage St. Marys and the Business Improvement Area Board of Management is encouraged to adopt a façade improvement and maintenance strategy.

3.2.2.7 c) Development or redevelopment which involves the razing of more than one existing building shall be carefully considered by Council in order to assess its potential impact on the built form of the area, compatibility with adjacent development, and potential effects on heritage buildings.

Analysis

The language of these two policies is specific to buildings. However, OP Objective 2.3.1.2 (above) is to protect and enhance the Town's heritage resources, not just buildings. The pattern of bridges in the Trout Creek Valley is a distinctive streetscape character. As such, the Church Street Bridge – although not part of this HIA – should be included in any streetscape analysis of the Wellington and Water Street Bridges. The close proximity of the three bridges is indicative of former commercial/industrial activity along Trout Creek and it importance to the Central Commercial area. The high, steel trusses of the Water Street Bridge and the tall stone arches of the Church Street Bridge are physically prominent in the landscape. As well, the three bridges represent three different building technologies (arch, beam, and truss) and three different building materials (stone, steel, concrete).

4.1.3 Official Plan Section 5 – Transportation & Services

5.3 Roads

5.3.10 Bridge Improvements

It is intended that as traffic and safety conditions warrant, improvements shall be made to existing bridges requiring upgrades and that these improvements will meet the appropriate current or forecasted road classification. Any Bridge that is in need of repair may be subject to studies to evaluate the cost to improve or replace. Decisions will be made in the public best interests.

In those cases where a bridge has been designated under the *Ontario Heritage Act* or is subject to an easement agreement with the Ontario Heritage Trust, a heritage impact study may be required to be completed prior to the commencement of any bridge improvement project.

Analysis

Policy 5.3.10 indicates the importance of designating significant bridges to flag them for future consideration in infrastructure planning within the town.

4.2 Ontario Regulation 9/06

In 2005 the *Ontario Heritage Act* was revised to provide municipalities and the province with enhanced powers to conserve Ontario's heritage. *Ontario Regulation 9/06* was prepared to provide *criteria for determining cultural heritage value or interest*. If a property meets one or more of the following criteria it may be designated under Section 29 of the *Ontario Heritage Act*.

In this report, *Reg. 9/06* was used as a tool to evaluate the heritage significance of the bridge and is not necessarily sufficient for designation.

The criteria for determining cultural heritage value or interest according to *Ontario Regulation 9/06* are as follows:

1) The property has ***design value or physical value*** because it:

   Is a rare, unique, representative or early example of a style, type, expression, material or construction method;

   Displays a high degree of craftsmanship or artistic merit; or

   Demonstrates a high degree of technical or scientific achievement.

2) The property has ***historic value or associative value*** because it:

   Has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community;

   Yields, or has the potential to yield information that contributes to an understanding of a community or culture; or

   Demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.

3) The property has ***contextual value*** because it:

   Is important in defining, maintaining or supporting the character of an area;

   Is physically, functionally, visually or historically linked to its surroundings; or is a landmark.

4.3 Water Street Bridge

Table 1: O.Reg. 9/06 Evaluation of the Water Street Bridge

Criteria		Site Specific Evaluation
1)	**The property has *design value* or *physical value* because it:**	
i)	*Is a rare, unique, representative or early example of a style, type, expression, material or construction method;*	Representative design of through Pratt truss used in the late 19th/ early-20th century in Ontario; few survive today
ii)	*Displays a high degree of craftsmanship or artistic merit; or*	None identified
iii)	*Demonstrates a high degree of technical or scientific achievement.*	None identified
2)	**The property has *historic value* or *associative value* because it:**	
i)	*Has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community;*	Trusses: built by local company, Stratford Bridge Company Abutments: demonstrates the work of local architect Joseph Humphries, and local stonemason John Elliot
ii)	*Yields, or has the potential to yield information that contributes to an understanding of a community or culture; or*	None identified
iii)	*Demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.*	None identified
3)	**The property has *contextual value* because it:**	
i)	*Is important in defining, maintaining or supporting the character of an area;*	Through-trusses are visible in the area and design provides a feeling of an earlier era in St. Marys
ii)	*Is physically, functionally, visually or historically linked to its surroundings; or*	Three bridges in close proximity across Trout Creek creates a distinctive landscape
iii)	*Is a landmark.*	None identified

4.3.1 Cultural Heritage Value

4.3.1.1 Design/Physical Value

The metal Pratt truss was a widely used design in Ontario in the late 19th/early-20th century. This is a rare survivor of this type of bridge.

4.3.1.2 Historic/Associative Value

The bridge contains cultural heritage interest as the abutments were designed and built by well-known local architect Joseph Humphries, and built by the stone mason John Elliot. Typically, stone is uncommon building material for truss bridges. The steel truss was fabricated and assembled by the Stratford Bridge Company, one of the several short-lived bridge manufacturers in southern Ontario.

4.3.1.3 Contextual Value

The bridge has contextual value as it is important in defining the Water Street streetscape and the landscape along Trout Creek. . It is visually linked to its surroundings as it is one of the three road bridges over the Trout Creek within less than 300 m.

4.3.2 Statement of Cultural Heritage Value

The 1898 pin connected steel Pratt truss Water Street bridge, crossing Trout Creek is a rare survivor of a once common bridge design. The truss bridge is a part of a cultural landscape that characterizes the Trout Creek in the Town of St. Marys.

4.3.3 Heritage Attributes

The following are the character-defining attributes of the Water Street Bridge

- Limestone abutments;
- Pratt truss system, including diagonal and vertical members, top and bottom chords, and pin connections
- Walkway cantilevered away from truss with riveted lattice panels

4.4 Wellington Street Bridge

Table 2: O.Reg 9/06 Evaluation of the Wellington Street Bridge

Criteria	Site Specific Evaluation
1) The property has *design value* or *physical value* because it:	
i) Is a rare, unique, representative or early example of a style, type, expression, material or construction method;	None identified
ii) Displays a high degree of craftsmanship or artistic merit; or	None identified
iii) Demonstrates a high degree of technical or scientific achievement.	None identified
2) The property has *historic value* or *associative value* because it:	
i) Has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community;	None identified
ii) Yields, or has the potential to yield information that contributes to an understanding of a community or culture; or	None identified
iii) Demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	None identified
3) The property has *contextual value* because it:	
i) Is important in defining, maintaining or supporting the character of an area;	None identified
ii) Is physically, functionally, visually or historically linked to its surroundings; or	Three bridges in close proximity across Trout Creek creates a distinctive landscape
ii) Is a landmark.	None identified

4.4.1 Cultural Heritage Value

4.4.1.1 Design/Physical Value

The Wellington Street Bridge does not exhibit any cultural heritage value or interest due to its design or physical value.

4.4.1.2 Historic/Associative Value

The Wellington Street Bridge does not exhibit any cultural heritage value or interest due to its historic or associative value.

4.4.1.3 Contextual Value

The Wellington Street Bridge has contextual value as it is important in defining the landscape along Trout Creek as one of the three road bridges over the Trout Creek within less than 300 m.

4.4.2 Statement of Cultural Heritage Value

The 1971 two-span, concrete box beam, Wellington Street Bridge is a part of the cultural landscape that characterizes the Trout Creek in the Town of St. Marys.

4.4.3 Heritage Attributes

The following are the character defining attributes of the Wellington Street Bridge:

- Proximity to the Water Street and Church Street Bridges.

4.5 Emily Street Underpass

Table 3: O.Reg 9/06 Evaluation of the Emily Street Underpass

Criteria	Site Specific Evaluation
1) The property has *design value* or *physical value* because it:	
i) Is a rare, unique, representative or early example of a style, type, expression, material or construction method;	None identified
ii) Displays a high degree of craftsmanship or artistic merit; or	None identified
iii) Demonstrates a high degree of technical or scientific achievement.	None identified
2) The property has *historic value* or *associative value* because it:	
i) Has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community;	GTR bridge and railway construction through St. Marys
ii) Yields, or has the potential to yield information that contributes to an understanding of a community or culture; or	None identified
iii) Demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	None identified
3) The property has *contextual value* because it:	
i) Is important in defining, maintaining or supporting the character of an area;	The earthworks and narrow crossing helps define a railway landscape
ii) Is physically, functionally, visually or historically linked to its surroundings; or	The underpass is associated with the GTR Thames River bridge and the earthworks
iii) Is a landmark.	None identified

4.5.1 Cultural Heritage Value

4.5.1.1 Design/Physical Value

The Emily Street Underpass does not exhibit any cultural heritage value or interest due to its design or physical value. The design is a standard railway underpass.

4.5.1.2 Historic/Associative Value

The Emily Street Underpass is part of the Grand Trunk Railway's history in the Town of St. Marys.

4.5.1.3 Contextual Value

The earthworks and narrow passage over Emily Street define its contextual relation to its surroundings.

4.5.2 Statement of Cultural Heritage Value

The Emily Street Underpass is a steel plate girder structure with riveted connections and cast-in-place abutments and wing walls built on a steep earthwork embankment. The bridge over Emily Street is an important association with the Sarnia Bridge where the GTR previously connected St. Marys to Toronto and Sarnia.

4.5.3 Heritage Attributes

The following are the character-defining attributes of the Emily Street Underpass:

- Steel plate girders with riveted connections
- Heavy bridge timbers
- Tall earthworks due to approach to Thames Bridge
- Orientation of the bridge over Emily Street to avoid disrupting the road circulation in St Marys

5.0 ASSESSMENT

5.1 Proposed Undertaking

B.M. Ross was retained by the Town of St. Marys to evaluate options for the future of the Water and Wellington Street Bridges as part of the Class EA alternative process. The proposed options and their impacts were assessed for each respective bridge. The three options considered for the bridges include rehabilitation, retirement, and replacement.

5.1.1 Rehabilitation

Rehabilitation consists of replacement of all deteriorated components of the structure with components that are sympathetic to the historic design but that are also in accordance with the Canadian Highway Bridge Design Code.

5.1.2 Retirement

Retirement (repair and eventual closure) consists of replacement of all significantly deteriorated components of the existing structure with new components in accordance the Canadian Highway Bridge Design Code such that the structure is in a safe condition for posted load limits. This option would include the establishment of a timeline for the eventual closure of the crossing, followed by closure of the crossing to vehicular traffic. The option would include the consideration of alternative uses for the crossing such as pedestrian or recreational traffic. Removal of the bridge structure, piers, abutments and associated road approaches is also possible.

5.1.3 Replacement

Replacement consists of demolition of the existing structure and the installation of a new concrete bridge structure. Any option involving replacement of the Water Street Bridge would result in upgrading and widening of the Emily Street underpass.

B.M. Ross and the Town of St. Marys are considering the following seven combinations for the proposed undertaking:

1) Replace both crossings
2) Rehabilitate both crossings
3) Replace Water Street and Rehabilitate Wellington Street
4) Replace Water Street and Close Wellington Street
5) Replace Wellington Street and Close Water Street to vehicular traffic
6) Rehabilitate Wellington Street and Close Water Street to vehicular traffic
7) Do Nothing

The actual combination of options does not affect the assessment of cultural heritage value. Therefore this Golder HIA assessed each bridge individually.

5.2 Water Street Bridge

5.2.1 Rehabilitation

A rehabilitation option would need to ensure that the heritage attributes of the Water Street Bridge are replaced sympathetically if replacement is necessary due to deterioration. This includes, but is not limited to the limestone abutments, the elements of the Pratt truss including diagonal and vertical members, top and bottom chords, railing systems, rivets, pin connections, and deck walkways.

No adverse impacts are anticipated for a sympathetic rehabilitation of the Water Street Bridge and therefore no mitigation is required if sympathetic rehabilitation takes place.

5.2.2 Retirement (Repair and Eventual Closure)

Retirement of the bridge would need to ensure that deteriorated heritage attributes of the bridge are replaced sympathetically until such time as the structure is closed to vehicular traffic.

a) If the bridge is subsequently maintained for pedestrian traffic no adverse impacts are anticipated as long as the structure is adequately maintained.

b) If the bridge is subsequently demolished, this would result in the loss of a historic structure and of a cultural landmark in the Town. In addition the distinctive landscape pattern created by the close proximity of the Water, Wellington, and Church Street Bridges would be diminished. Appropriate mitigation should be developed such as relocating the historic structure away from Trout Creek and photographic documentation.

5.2.3 Replacement

Replacement of the Water Street Bridge would result in the replacement of the Pratt truss bridge with a new concrete structure. This would result in the loss of a historic structure and of a cultural landmark in the Town.

5.3 Wellington Street Bridge

5.3.1 Rehabilitation

Rehabilitation of the bridge would replace the deteriorated components such as the abutments and pier and replace them with new components. No impacts are anticipated for a rehabilitation of the Wellington Street Bridge and no mitigation would be required.

5.3.2 Retirement (Repair and Eventual Closure)

Retirement of the Wellington Street Bridge could result in the replacement of deteriorated components such as the abutments and pier. No adverse impacts are anticipated for reducing the Wellington Street Bridge to pedestrian traffic. However, if the bridge is demolished, the distinctive landscape pattern created by the close proximity of the Water, Wellington, and Church Street Bridges would be diminished.

5.3.3 Replacement

Replacement of the bridge would result in the demolition of the existing bridge including the 1912 abutments and pier and the 1971 deck. The structure would be replaced with a new concrete structure. This option would result in the loss of the 1912 pier and abutments, however, the decorative elements have been altered and removed and the level of deterioration has already caused a loss of heritage attributes. The attributes and the bridge have little heritage value and no mitigation would be required.

5.4 Emily Street Underpass

Any option that includes the replacement of the Water Street Bridge would result in an upgrading and widening to the Emily Street underpass. Widening of the underpass would require the replacement of the bridge with a longer span in order to accommodate a wider road.

The widening of the underpass would result in the removal of the existing girder structure and the reconstruction of one or both abutments. The changes to these elements would reduce the existing railway character of the underpass as viewed from Emily Street. Although the Emily Street underpass is a typical short-span railway underpass with limited physical cultural value, it does possess landscape value.

6.0 RECOMMENDATIONS

6.1 Water Street Bridge

The Water Street Bridge should be maintained and open to vehicular traffic by means of sympathetic rehabilitation or restricted to pedestrian traffic. Retention of the truss structure will result in the least impact to the heritage attributes and the character of the bridge and adjacent landscape. In addition, retention of the Water Street Bridge will obviate the need to widen the Emily Street underpass.

The Water Street Bridge should be considered for designation under Part IV of the Ontario Heritage Act so that it will have protection under the St Marys Official Plan Policy 5.3.10 “Bridge Improvements.”

6.2 Wellington Street Bridge

If the Wellington Street Bridge is to be replaced, the new bridge should contribute to the existing character of the Trout Creek and the Town of St. Marys. The bridge should be consistent with the character with respect to materials, scale, massing, and design of the adjacent Water Street and Church Street bridges.

6.3 Emily Street Underpass

If the Emily Street underpass is to be widened the design of the new structure should minimize changes to the existing character of the former rail earthworks and bridge span.

6.4 Deposit Copies

Copies of this report should be deposited with the:

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177 Church Street South
St. Marys, Ontario
N4X 1B6

St. Marys Public Library
15 Church Street North
St. Marys, Ontario
N4X 1B4

Stratford-Perth Archives
24 St. Andrew Street
Stratford, Ontario
N5A 1A3

7.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder Associates Ltd. has prepared this report in a manner consistent with the standards and guidelines developed by the Ontario Ministry of Transportation, the Ontario Heritage Bridge Guidelines and the Ontario Ministry of Tourism, Culture, and Sport, Programs and Services Branch, Cultural Division, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder Associates Ltd., by B.M. Ross and Associates Limited (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

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Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

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9.0 CLOSURE

We trust that this report meets your current needs. If you have any question, or if we may be of further assistance, please contact the undersigned.

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