

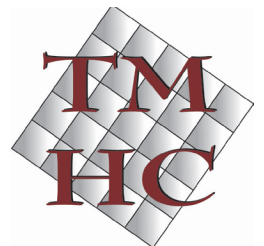
**Cultural Heritage Evaluation Report
& Heritage Impact Assessment**

**Durham Street Bridge, Walkerton
Municipality of Brockton, ON**



TMHC File: 2020-284

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Cover Image: Durham Street Bridge (TMHC 2021)



Executive Summary

BM Ross and Associates Limited has engaged Timmins Martelle Heritage Consultants Inc. (TMHC) to produce a Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) that considers the potential heritage value of the Durham Street Bridge, also known as the Walkerton Bridge, in Walkerton, Municipality of Brockton, Bruce County (the "Subject Site") and the potential heritage impacts of the bridge's proposed replacement.

Section 4.2 of the *Walkerton Community Official Plan* identifies the following relevant heritage objectives:¹

- To identify, protect, preserve and enhance Walkerton's built, landscape and archaeological heritage for its cultural, historic and economic value to the community (4.2.1);
- Encourage private and public sector initiatives for the protection, restoration and enhancement of existing heritage buildings, structures, streetscapes or areas which contribute to the identity, character and history of the Walkerton community, particularly those of historic, architectural, or archaeological significance, pursuant to the Ontario Heritage Act (4.2.2a); and,
- All new development permitted by the land use policies and designations of this Plan, and infrastructure projects, shall have regard for cultural heritage resources and encourage, wherever possible, the incorporation of these resources into any plans which may be prepared for such development and/or conserve such resources by removal and documentation. New structures built in the area of these resources shall be designed to reflect the surrounding landscape and built form. Council shall use Site Plan Control to ensure that new development is sited and designed to complement the historic and natural character of the Municipality.

This CHER/HIA is intended to provide a heritage evaluation of the Durham Street Bridge against the criteria set out by the *Ontario Heritage Act* (OHA)'s O.Reg. 9/06, an assessment of the proposed development's impact on identified heritage attributes, and strategies for mitigating that impact. The HIA portion of this report follows the general format set out in the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) *InfoSheet #5: Heritage Impact Assessments and Conservation Plans*, which is included in the resource *Heritage Resources in the Land Use Planning Process* within the Ontario Heritage Toolkit.

The Subject Site is a five-span, rigid frame concrete T-beam/girder design including a drop-in center span with half-joints and cantilevered end spans. The bridge carries County Road No. 4/Durham Street East over the Sauguen River in Walkerton in the Municipality of Brockton, Bruce County. The bridge is owned by Bruce County.

The Durham Street Bridge is not included on the heritage inventory of the Municipality of Brockton, nor has it been designated under Part IV or Part V of the OHA. There are no National Historic Sites, Ontario Heritage Trust-owned properties, conservation easements, or Provincial Heritage Properties present on or adjacent to the Subject Site as verified by the Ontario Heritage Trust and the MHSTCI. The bridge does not appear on the Ontario Heritage Bridge List.

I Municipality of Brockton



Evaluation of the Subject Site against the O.Reg. 9/06 criteria concluded that the property meets the criteria on the basis of its physical/design value, historical/associative value, and contextual value.

The proposed development at the Subject Site consists of demolition of the existing bridge and replacement with a new bridge in the same alignment and of approximately the same width though with potentially wider sidewalks. The new bridge may result in fewer piers while still relying on the same in-channel footprint of the original. A 2019 Condition Report for the bridge's drop-in span half-joints concluded that the bridge should be replaced within five years. These deteriorating half-joints are no longer permitted in current bridge construction due their single load path nature and history of failure.

This HIA concluded that the proposed development will cause impacts to the heritage value of the Subject Site. In order to address these impacts, mitigation measures have been recommended, including documentation of the bridge prior to demolition, and discussion with the County to gauge the feasibility of incorporating features of the existing bridge into the new bridge. A qualified engineer should complete a vibration assessment and make a recommendation for the extent of monitoring required taking into account the proposed bridge foundation details and potential heritage structures at 103-121 William Street and nearby heritage properties as identified by the municipality at 15 McNab Street, 336 Durham Street East - Rothwell Block; 249 Durham Street East - Walkerton Library; 331 Durham Street East; and, 228 & 232 Durham Street East.



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1.0 INTRODUCTION

1.1 Report Scope and Purpose

BM Ross and Associates Limited has engaged Timmins Martelle Heritage Consultants Inc. (TMHC) to produce a Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment that considers the potential heritage value of the Durham Street Bridge, also known as the Walkerton Bridge, in Walkerton, Municipality of Brockton, Bruce County (the "Subject Site") and the potential heritage impacts of the bridge's proposed replacement.

Section 4.2 of the *Walkerton Community Official Plan* identifies the following relevant heritage objectives:²

- To identify, protect, preserve and enhance Walkerton's built, landscape and archaeological heritage for its cultural, historic and economic value to the community (4.2.1);
- Encourage private and public sector initiatives for the protection, restoration and enhancement of existing heritage buildings, structures, streetscapes or areas which contribute to the identity, character and history of the Walkerton community, particularly those of historic, architectural, or archaeological significance, pursuant to the Ontario Heritage Act (4.2.2a); and,
- All new development permitted by the land use policies and designations of this Plan, and infrastructure projects, shall have regard for cultural heritage resources and encourage, wherever possible, the incorporation of these resources into any plans which may be prepared for such development and/or conserve such resources by removal and documentation. New structures built in the area of these resources shall be designed to reflect the surrounding landscape and built form. Council shall use Site Plan Control to ensure that new development is sited and designed to complement the historic and natural character of the Municipality.

This CHER/HIA is intended to provide a heritage evaluation of the Durham Street Bridge against the criteria set out by the *Ontario Heritage Act* (OHA)'s O.Reg. 9/06, an assessment of the proposed development's impact on identified heritage attributes, and strategies for mitigating that impact. The HIA portion of this report follows the general format set out in the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) *InfoSheet #5: Heritage Impact Assessments and Conservation Plans*, which is included in the resource *Heritage Resources in the Land Use Planning Process* within the Ontario Heritage Toolkit.

1.2 Methodology

This CHER was prepared in accordance with the Ontario Heritage Toolkit's guide to Heritage Property Evaluation and the *Ontario Heritage Act* O.Reg. 9/06. The HIA portion of this report follows the general format set out in the MHSTCI *InfoSheet #5: Heritage Impact Assessments and Conservation Plans*, which is included in the resource *Heritage Resources in the Land Use Planning Process* within the Ontario Heritage Toolkit.

2 Municipality of Brockton



For the purposes of preparing this report, Joshua Dent of TMHC visited the Subject Site in March 2021.

A full list of sources is included in Section 11.0 of this CHER/HIA.

1.3 Client Contact Information

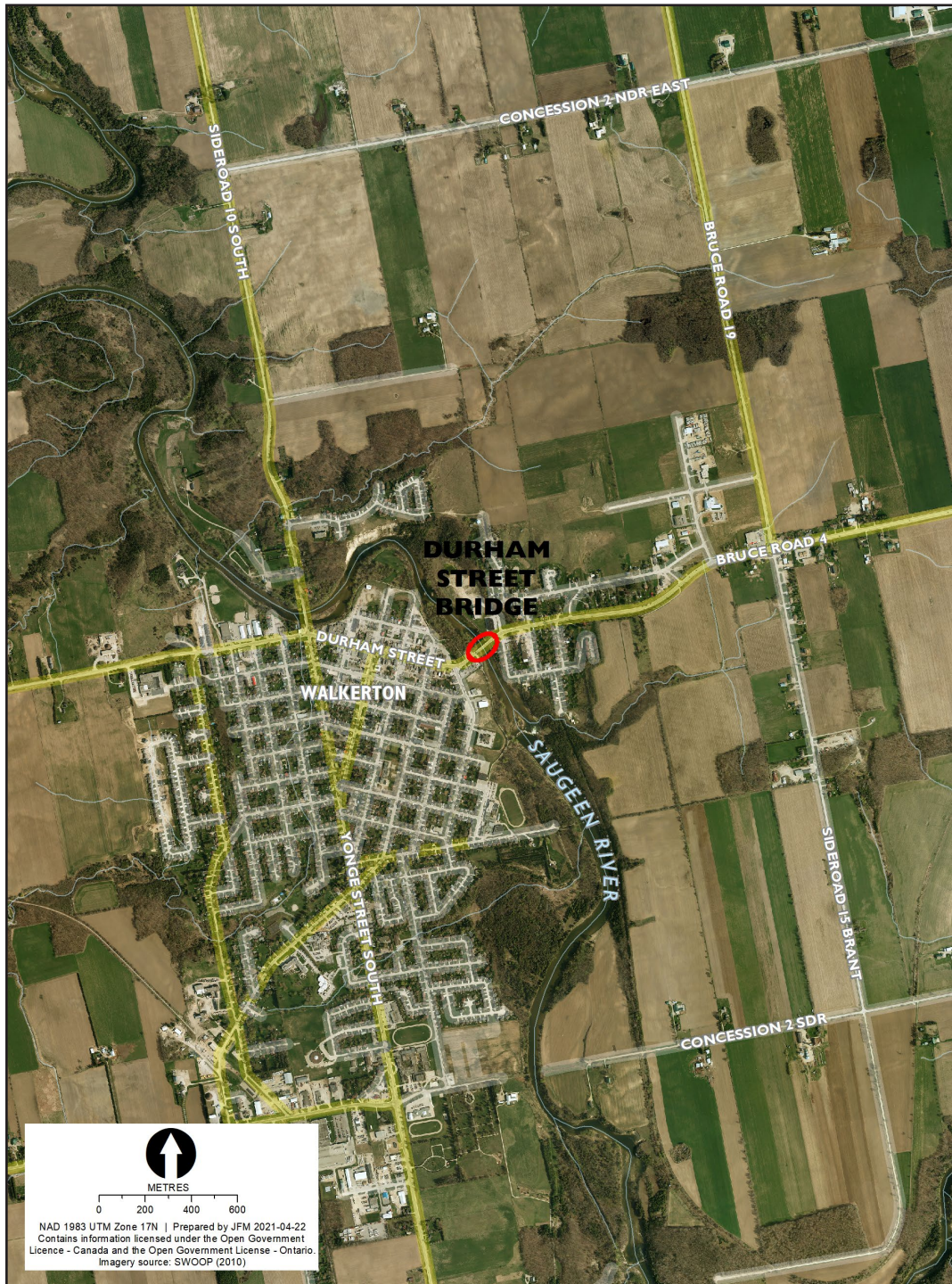
Kelly Vader
BM Ross and Associates Limited
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Territorial Acknowledgement

This cultural heritage study is undertaken within the traditional territory of Chippewas of Nawash Unceded First Nation and Saugeen First Nation, collectively Saugeen Ojibway Nation (SON). SON's Traditional Territory is bounded on the south by the Maitland River system from Goderich to past Arthur, on the west by the Canada/USA border in the middle of Lake Huron, on the north by a line along the midpoint of the channel between the Saugeen (Bruce) Peninsula and Manitoulin Island, and on the east by a line down the middle of Georgian Bay. The SON also asserts Aboriginal title over that portion of Lake Huron and Georgian Bay within their Territory.

The people of the Chippewas of Nawash and Saugeen First Nations have lived, fished, hunted, and traded throughout these lands for generations and continue to do so today. They have a deep connection to the lands within their traditional territory. This includes cultural heritage: spiritual and sacred sites, artifacts and archaeological sites, built heritage, and cultural heritage landscapes. It also includes care and protection for the Ancestors and their resting places.





Map 1: Location of Durham Street Bridge on a 2010 aerial photograph (Annotated by TMHC)



2.0 SITE DESCRIPTION

2.1 Location and Physical Description

The Subject Site is a five-span, rigid frame concrete T-beam/girder design including a drop-in center span with half-joints and cantilevered end spans. The bridge carries County Road No. 4/Durham Street East over the Sauguen River in Walkerton in the Municipality of Brockton, Bruce County. The bridge is owned by Bruce County. County Road No. 4 was previously known as the Durham Road and represented a significant throughfare and point of departure for the survey of the former Township of Brant's lot and concession fabric. The bridge is within the boundaries of the formerly independently incorporated Town of Walkerville.

2.2 Heritage Status

The Durham Street Bridge is not included on the heritage inventory of the Municipality of Brockton, nor has it been designated under Part IV or Part V of the OHA. There are no National Historic Sites, Ontario Heritage Trust-owned properties, conservation easements, or Provincial Heritage Properties present on or adjacent to the Subject Site as verified by the Ontario Heritage Trust and the MHSTCI. The bridge does not appear on the Ontario Heritage Bridge List.



3.0 HISTORICAL RESEARCH & ANALYSIS

This section includes a historical overview for the Subject Site. The location of the Subject Site was originally part of the Township of Brant and later the Town of Walkerville, Bruce County; the early historical context discussion refers to these previous jurisdictions.

3.1 Historic Context: Indigenous Settlement and Treaties

Indigenous peoples have used the lands that are now known as Bruce County for thousands of years. Prior to the displacement caused by early European settlement, this area was actively used by Anishinaabe peoples, including the Odawa, Ojibwa, and Potawatomi nations of the Three Fires Confederacy. The Confederacy reassumed control over what known as the Saugeen Peninsula following a 17th century incursion by the Haudenosaunee which also displaced the neighbouring Tionontate (Petun).³

Municipal settlement in Bruce County was facilitated by the signing of various treaties between the Crown and local Indigenous communities.⁴ The lands within Bruce County were acquired under two major treaties. Treaty No. 45 ½, also referred to as the Saugeen Tract Purchase, was signed by representatives of the Saugeen Nation and Lieutenant-Governor Francis Bond Head on August 9, 1836. The treaty established a line between the villages of Saugeen and Nawash near the base of the Saugeen Peninsula at Owen Sound. South of that line, Brant, Carrick, Elderslie, Greenock, Huron, Kincardine, Kinloss, and Saugeen Townships were considered ceded territory. The townships to the north of the line—Amabel, Albemarle, Eastnor, Lindsay, and St. Edmunds—became the Saugeen and Owen Sound Reserve. Treaty 72, signed on October 13, 1854 by the Crown and Saugeen and Chippewa peoples living in the Saugeen and Owen Sound Reserve, released the majority of the reserve lands on the Peninsula but established formal reservations - Saugeen First Nation Reserve #29 north of the Saugeen River, Chief's Point Reserve No. 28, the Nawash - Owen Sound First Nation Reserve (subsequently surrendered in 1857 under Treaty No. 82), the Cape Crocker or Neyaashiinigmiing Reserve No. 27 and a reserve around the Colpoy's Bay (subsequently surrendered in 1861 under Treaty No. 82). Shortly after the signing of these documents the Indigenous signatories questioned their validity and Crown commitments to both compensation and protection from encroachment from European settlement.⁵ Today, legal challenges to these treaties continue.

3.2 Historic Context: Early Settlement

Lieutenant-Governor Bond Head's motivation for the treaties was the gathering and opening up of lands for settlement to European and other non-Indigenous settlers. In 1849, the lands north of Huron District known as the "Queen's Bush"⁶ were surveyed, the new area was named after the Governor General of Canada at the time,

3 Copway 1850; Schmalz 1977, 1991

4 Canada 1891; Surtees 1984

5 Surtees 1984

6 The Queen's Bush was an extensive tract of land surrendered by local Ojibwa populations through

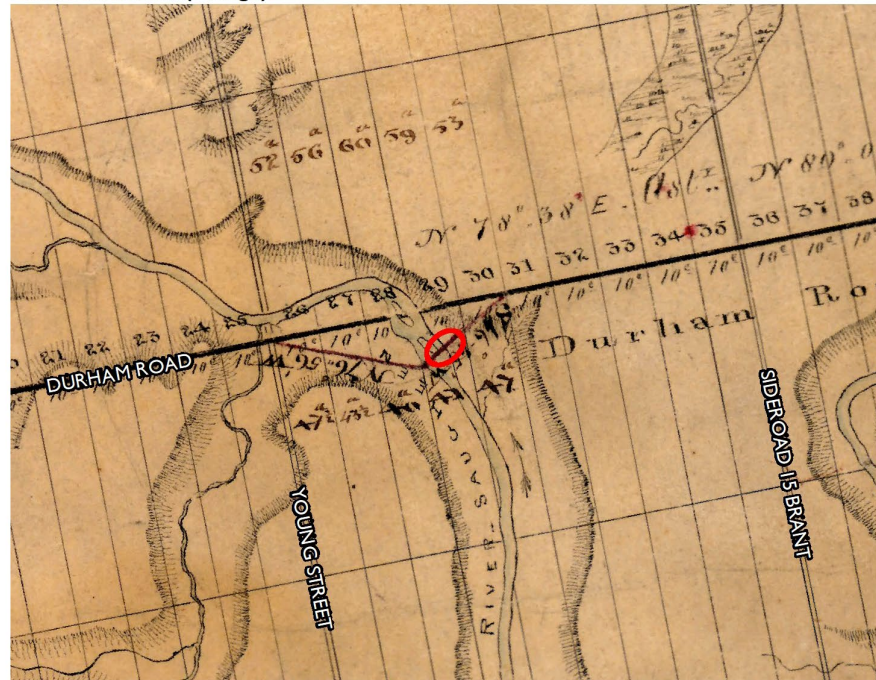




Map 2: Location of Durham Street Bridge on a 2010 aerial (annotated by TMHC)

1850

Brant Patent Plan (Brough)



1880

Illustrated Historical Atlas of the County of Bruce (Beldon)



1899

Plan of Walkerton (Hawkins)



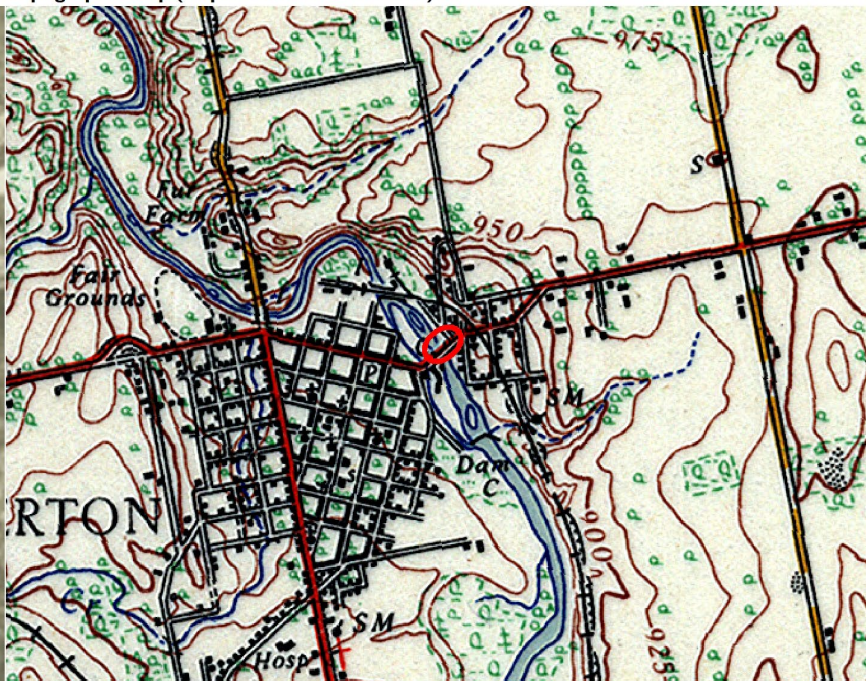
1919-22

Aerial Photo (Bishop Barker Co)



1946

Topographic Map (Dept. of National Defense)



1954

Aerial Image (Hunting Survey Corp.)



Map 3: Historic maps and aerials of Subject Site (annotated by TMHC)



James Bruce. This new county was created by an Act of Parliament in 1849, dividing the district of Huron into three counties: Huron, Perth and Bruce.⁷ Bruce County included 12 townships, including Brant Township, and the Peninsula (which was still under control of the Saugeen at the time). It is reported that the first European settlers to establish homes in Bruce County were William Withers and Allan Cameron who settled at the mouth of Penetangore River in present day Kincardine during the spring of 1848. Penetangore is believed to be a corruption of the Algonquin word “Na-Benem-tan-gaugh,” meaning “the river with sand on one side,” which reflected the fact that the river mouth’s was marked by a clay bluff on one side and a sand dune on the other.⁸

The earliest surveys in Bruce County (e.g., the first concession in Huron and Kinloss) were those created to provide access to the Queen’s Bush. These were followed by those to establish colonization roads, lots adjacent to these, and along the shore in the Lake Huron townships of Huron, Kincardine, Bruce and Saugeen. One of the earliest “Free Grant” or colonization roads was the Durham Road, cut through the southern Bruce townships in 1848-49, the majority of which were surveyed ca. 1851-1852. The northern townships were surveyed only after the signing of Treaty 72 in 1854.

The earliest European settlers arrived via river routes and from the lake, or along the colonization roads. Prior to the cutting of substantial thoroughfares, access to the Bruce was otherwise via Indigenous land trails or waterways. The latter were dotted with small taverns and inns, strategic stopping points for families heading north and westward from earlier settled counties to the south. The earliest foci for settlement were the Lake Huron shores, settlement roads, river mouths and riverside locales that made effective mill sites and strategic cross-roads. Saw and grist mills were the focal points for some of the earliest communities in Bruce County which by the mid-19th century also included taverns, churches, schools, stores and post offices.

The census of 1851 reported that there were no more than 499 recent settler families living in Bruce County, many of whom lived in shanties - small, rough built early pioneer dwellings that were erected to create temporary shelter and meet the Crown requirements for a land grant. The County’s population grew quickly into the 1860s, hastened by the construction of a series of stone roads that provided access between the County’s various settlements and much improved land travel.

The largest township in Bruce County, Brant Township was originally surveyed by A.P. Brough in 1848.⁹ Like the Township of Kinloss, the first available lands consisted of free grants in Concessions 1 and 2 north and south of the Durham Road in 1849. The remainder of the township was made available through a land sale in 1851. Lack of road access to much of the township meant settlement was slow during the early 1850s.¹⁰ The settlement of the northern portions of the township did not materialize until 1853, after Carrick Township was largely occupied. It has been suggested that as many as one third of early settlers in Brant were of German origin.¹¹

Treaty 45 ½ in 1836.

- 7 Robertson 1906 [1960]
- 8 Robertson 1906 [1960]
- 9 Robertson 1906 [1960]: 293
- 10 Robertson 1906 [1960]
- 11 Robertson 1906 [1960]: 286



Originally part of the United Townships, Brant joined with Carrick after dissolution until January 1, 1856, when it became a distinct municipality with a developing hub at Walkerton.¹²

In addition to the hub of Walkerton, several smaller hamlets and villages emerged in the township. Gaffaney's Corners included a tavern, a hotel, and a store in the 1850s.¹³ Early communities such as Maple Hill, Dunkeld and Ellengowan, which were built away from the railways that eventually bracketed the township, did not survive, with the exception of the village of Malcolm. Brant's portion of Cargill at the border with Greenock Township and Hanover in Grey County thrived along the railways. Eden Grove (post office established 1875) and Elmwood (post office established 1864) would also enjoy relative success due to the railways.¹⁴

Walkerton was first settled by Europeans when William Jasper and Edward Boulton arrived in 1849.¹⁵ Walkerton derives its name from Joseph Walker, who arrived at the site in 1850. He developed a dam across the Saugeen to power saw and grist mills in the early 1850s and surveyed many of the original town plots by 1857 around which time the town received its current name. A tannery, oatmeal mill, planing mill, woollen factory, machine shop, and foundry followed over the subsequent decade.¹⁶ Additional and varied manufacturers proliferated in the 1880s when a "municipal bonus" was available to assist developers.¹⁷ In 1857, 1860, and 1865, Walkerton was proclaimed the county town of Bruce County, prior to its incorporation in 1871.¹⁸ Shortly thereafter, the Wellington, Grey and Bruce Railway began operating out of Walkerton providing support to local farms and industry. In 1906-07, the Canadian Pacific Railway (CPR) also completed a branch that terminated in Walkerton after crossing the Saugeen River just north of the Subject Site.¹⁹ Both the Wellington, Grey and Bruce Railway (later the Canadian National Railway) and the CPR gradually discontinued services through Walkerton beginning in the 1930s. Both lines were closed by the late 1980s.²⁰



Image 1: Walker House - built in the 1850s and located west of the Subject Site on McNab Street (TMHC 2021)

12 Robertson 1906[1960]: 286

13 Robertson 1906[1960]: 289

14 Robertson 1906: 290–291

15 Robertson 1906[1960]: 294

16 Robertson 1906[1960]: 298

17 Robertson 1906[1960]: 299

18 Robertson 1906[1960]

19 Cooper n.d.

20 Cooper n.d.

Though Walkerton remained a manufacturing hub into the late-20th century, the rise of conservation planning including the development of the Saugeen Valley Conservation Authority in the mid-20th century further refined Walkerton's role as an administrative centre for Bruce County.²¹

In 1999, Brant and Greenock townships and the Town of Walkerton were amalgamated to create the incorporated Municipality of Brockton, whose name was derived from combining those of the amalgamated areas.²²

3.3 Local Property History

The location of the Durham Street Bridge placed it in close proximity to the proliferation of Walkerton during the 19th and 20th centuries, however much of the immediately adjacent historical fabric is no longer present.

One of the most expansive of these former developments was the Canada Spool Bobbin Co. factory once located immediately northeast of the current bridge. The company was originally known in Walkerton as Kerr & Harcourt before it briefly relocated to Wiarton in the late-19th century. By 1902, the company had returned to Walkerton, obtaining funding for a large complex east of the Saugeen River.²³ The area is now the site of a contemporary set of condominiums.

West of the bridge are two restaurants: a contemporary Tim Horton's on redeveloped industrial land and a converted mid-to-late 20th century garage now The Old Garage Wood Fired Pizza. The Tim Horton's is located on the former site of the R. Truax Son & Company door factory and, earlier, the site of Joseph Walker's original 1852 sawmill.²⁴ A raceway, originating from the dam to the south, once passed immediately west of the former



Image 2: c.1919-22 aerial image of industrial areas of Walkerton (Bruce County Museum & Cultural Centre)



Image 3: Canada Spool Bobbin Co. after the construction of the current bridge visible in background (Bruce County Museum & Cultural Centre)

21 Gateman 1979

22 Municipality of Brockton 2015

23 Robertson 1906[1960]

24 Truax n.d.

millsite. In 1871, the sawmill was upgraded by Stephen Noxon and his brothers into a millwork plant. The original building was torn down and replaced in 1913.²⁵ That plant operated as a door and sash factory until it was closed in 1980.

East and southeast of the bridge are several late 19th or early 20th century residences whose lot fabric was formed by an 1867 subdivision (Plan 7 Walkerton Book 14A, 277). These lots were owned by a succession of mill operators across the river. They included Joseph Walker, John Saylor, Stephen Noxon, and David Moore.²⁶ In 1890, the last of these owners, Reuben and Phillip Truax sold lots 3,4 and 5 likely marking the development of the separate residences.²⁷ That same year Reuben Truax's home at 415 Scott Street was completed.²⁸ The Truaxes retained the property immediately adjacent to the Subject Site, Lots 1 and 2 (103 William Street) until 1896 when it was sold to Joseph Lindsay who later sold it to Amos Dennie in 1921. In 1957, then owner Harry Beninger provided the Saugeen Valley Conservation Authority with an easement to construct a dyke.

3.4 History of the Subject Site

The location of the Subject Site along the historically significant Durham Road made it an integral link with Hanover, Grey County, and other parts of Ontario including Toronto.

While surveying the Durham Road in the late 1840s, A.P. Brough made these notes when he encountered the Saugeen River for the second time (the first being near Hanover):²⁹



When the Saugeen is met, the river is crossed obliquely, and at the crossing-point is intersected by an alluvial island standing six feet over the water, thus forming two channels in the river, the east one of which is shallow, with a rapid current, and is 185 feet in width. The west channel is also rapid and is four feet in depth and 87 feet in width. The island is crossed at its northern extremity, and is 177 feet in width; it will form a convenient resting-place for piers in erecting a bridge; the total distance across the river, including the island, is 449 feet.

Image 4: Undated image of earlier wooden bridge at the Subject Site's location (Schmalz 1983b)

Until the Durham Road's bridges were added in 1850, many settlers travelling west of Hanover resorted to floating

25 Truax n.d.

26 Truax n.d.

27 Ontario Land Registry

28 Brockton Heritage Committee n.d. <https://vitacollections.ca/BrocktonHeritage/details.asp?ID=2423886>

29 Quoted in Robertson 1906[1960]:294

down the Saugeen River as far as its mouth.³⁰ The original bridge at what would become Walkerton was built during this period by Joseph Walker who had recently arrived at the town that would bear his name.³¹ This earliest bridge would have been made of rough cut logs and timber consistent with the first bridges on much of Ontario's developing road systems. This first bridge was short-lived, being rebuilt by 1855.³² A bridge is visible in the 1880 H. Belden & Co. map of Brant Township in the same location as the current structure. This location was notable because it departed from the original Durham Road right-of-way eventually resulting in a realignment of the Durham Road to meet the bridge. The orientation of Walkerton's streets are also at an angle relative to the concession roads, resulting in what is now Durham Street running obliquely through Walkerton before resuming its original trajectory once west of town. Despite the bridge's exclusion from the Brant Township history, an early picture of a wooden iteration of the bridge was included in that book and in a later work by Peter Schmalz (Image 4).³³ By the early 20th century, the bridge had been replaced with a steel truss bridge likely as part of a township-wide program to modernize their bridge inventory (Image 5).³⁴ In 1929, Walkerton experienced significant flooding which may have impacted this steel bridge's integrity as it would be replaced with current bridge in the 1930s.³⁵



Image 5: Previous truss bridge in 1908 (Bruce County Museum & Cultural Centre)



Image 6: Current bridge shortly after construction, late 1930s (Bruce County Museum & Cultural Centre)

The current bridge dates to 1937 according to the Ontario Department of Highways report of its completion to the legislature the following year.³⁶ Also known as the East End Bridge and the Walkerton Bridge, this structure continued to link Walkerton's eastern and western/central areas. According to Ontario's Public Accounts

- 30 Robertson 1906[1960]:53
- 31 Robertson 1906[1960]:49
- 32 Robertson 1906[1960]:296
- 33 Gateman 1979
- 34 Robertson 1906[1960]:287
- 35 Gateman 1979
- 36 Ontario Department of Highways 1939

records, the bridge construction was likely contracted to W. G. Campbell, Engineering & Construction Co., Ltd. for \$25,000, however little more is available about this company, other than that they also worked on the Games-bridge and Beaverton bridges during the late 1920s.³⁷ Construction on the bridge occurred in 1936-37 with approximately eighty-five percent of construction work carried out by Walkerton residents; this represented a significant relief project in the midst of the Great Depression.³⁸

The Durham Street Bridge and County Road No. 4 were the responsibility of the provincial government and the Department of Highways later the Ministry of Transportation. In 1966, the approach slabs were replaced and the bridge deck was re-paved; additional deck repairs were completed in 1995.³⁹ In 1998, responsibility over this portion of the highway, including the bridge at Walkerton, was transferred from the province to Bruce County.⁴⁰

3.5 Historic Context: Bridge Typology

One year after its construction, the Durham Street Bridge was described as:⁴¹

...a multiple span reinforced concrete rigid frame girder bridge with cantilever end spans and without abutments. The new structure replaces an old steel structure over the Saugeen River on Highway No. 4 in the town of Walkerton.

The Subject Site's general rigid frame design was first conceived in Germany but was popularized by Arthur Hayden in New York State during the 1920s.⁴²

The strength of a rigid frame concrete bridge originated from the rigid connection of the vertical abutment walls with the horizontal deck slab, resulting in a shallow midspan section. This bridge type had a unique ability to redistribute loads throughout the structure until it reached a balance, if any one element of the bridge was overstressed. Their immense strength and rigidity provided an additional safety in the structure. The result was a bridge that provided greater structural strength than reinforced concrete girder bridges.

During the 1930s and 1940s, the rigid frame had become an efficient, low-cost choice for grade separations and water crossings across North America.⁴³ The earliest rigid frame bridges in Canada date to the 1930s.⁴⁴

37 Ontario 1930, 1937; Schmalz 1983:43

38 Schmalz 1983a:43

39 B.M. Ross 2019

40 MTO pers. comm.

41 Ontario Department of Highways 1939

42 Mergel and Almansour 2010:1

43 Mergel and Almansour 2010:1

44 Golder Associates 2010:4; University of Waterloo Heritage Resource Centre 2005:8



The T-beam spans include a center drop-in span with half-joints.⁴⁵ The historical use of cantilevered approach spans was noted as a common late-1930s practice in a photo history shared by the Ministry of Transportation.⁴⁶ Also noted were the embossed concrete stanchions/pillars, which were highlighted as a once-common feature on provincially-designed bridges in 1935-37, however only one other known example, the Jordan Bridge near Beamsville, was said to remain intact. Although the Durham Street Bridge is not recorded on the bridge conservation website, *Historicbridges.org*, the Jordan Bridge is and its rare concrete posts were identified as contributing to the bridge's aesthetic value.⁴⁷ The half-joints in the drop-in span are historically associated with bridge integrity concerns, most notable being the 2006 collapse of the De la Concorde Overpass in Laval, Quebec.⁴⁸

Early images of the Subject Site show ornate lightstands once stood on the large pillars/stanchions where the current wooden planters are located.⁴⁹

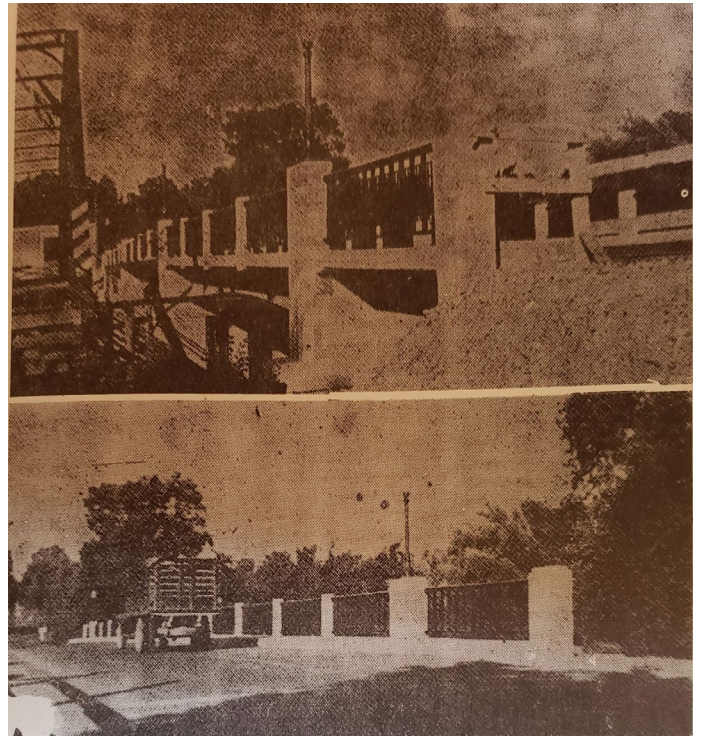


Image 7: Current bridge during and shortly after construction, c.1930s (Schmalz 1983a)

45 B.M. Ross 2019
46 Bevers 2004
47 Historicbridges.org 2012
48 B.M. Ross 2019
49 Schmalz 1983a:43

4.0 EXISTING CONDITIONS

A site visit to the Durham Street Bridge was undertaken by TMHC on March 16, 2021. The photographs in this section document the site's current conditions and nearby areas of interest.

Field observations of the bridge structure noted the previously identified embossed stanchions/pillars, 1930s-era railings, and concrete posts (Images 22-33). Also noted were several areas of concrete spalling and cracking in the stanchions and post, as well as multiple sites of impact/stress damage along the railings. Deterioration at the site of the half joints was visible from the riverbank (Image 20). A 2019 Condition Report for the bridge's drop-in span half joints concluded that rehabilitation of the bridge would require re-configuration of the structure with a continuous link to replace these deteriorating half joints which are no longer permitted in current bridge construction due its single load path nature and history of failure. The report recommended replacement of the bridge within five years. The report dismissed reconfiguration as a viable option since that approach still necessitated significant traffic alteration but only achieved a 20 year service life extension based on the condition of the remaining bridge components. The report also noted current bridge code expects a service life of 75 years and the Durham Street Bridge was already 83 years old at the time of the inspection.

Concrete deterioration was also visible on the underside of the bridge (Images 34 and 35). This deterioration was consistent with previously identified damage along the soffit and north diaphragm (Image 44).

According to BM Ross, given the background of sudden collapses of other bridges with half-joint connections, the Ontario Ministry of Transportation has encouraged the removal or replacement of all bridges with this feature. In the interest of public safety, the County of Bruce has chosen bridge replacement as the preferred alternative for this structure.



4.0 EXISTING CONDITIONS



Image 8: Westward approach to Durham Street Bridge (TMHC 2021)



Image 9: West side of Durham Street Bridge (TMHC 2021)



Image 10: Eastward approach to Durham Street Bridge (TMHC 2021)



Image 11: East side of Durham Street Bridge (TMHC 2021)



Image 12: North side (exterior) of Durham Street Bridge (TMHC 2021)



Image 13: North side (interior) of Durham Street Bridge (TMHC 2021)



Image I4: South side (exterior) of Durham Street Bridge with trail sign (TMHC 2021)



Image I5: South side (interior) of Durham Street Bridge (TMHC 2021)



Image 16: Bridge soffit (TMHC 2021)



Image 17: North piers and stanchions (TMHC 2021)



Image I8: South piers (TMHC 2021)



Image I9: Short cantilevered west approach span (TMHC 2021)



Image 20: Drop-in center span with visible deterioration of half-joints (TMHC 2021)



Image 21: Bridge deck at drop-in center span (TMHC 2021)



Image 22: Exterior view of stanchion/pillar with embossed detailing (TMHC 2021)



Image 23: Interior view of stanchion/pillar with embossed detailing (TMHC 2021)



Image 24: Representative image of stanchion deterioration particularly at railing joints (TMHC 2021)



Image 25: Planters box in former light standard location on top of stanchion (TMHC 2021)



Image 26: Concrete railing post (TMHC 2021)



Image 27: Concrete railing post deterioration north side (TMHC 2021)



Image 28: Concrete railing post deterioration north side (TMHC 2021)



Image 29: Concrete railing post deterioration north side (TMHC 2021)



Image 30: Railing detail (TMHC 2021)



Image 31: Railing damage southeast side (TMHC 2021)



Image 32: Railing damage northeast side (TMHC 2021)



Image 33: Railing impact damage north side (TMHC 2021)



Image 34: Concrete deterioration (TMHC 2021)



Image 35: Concrete deterioration (TMHC 2021)



Image 36: 85 William Street North - northeast of Durham Street Bridge (TMHC 2021)



Image 37: 103 William Street - southeast of Durham Street Bridge (TMHC 2021)



Image 38: Tim Horton's - southwest of Durham Street Bridge (TMHC 2021)



Image 39: The Old Garage - northwest of Durham Street Bridge





Image 40: Durham Street into Historic Walkerton - west of Durham Street Bridge (TMHC 2021)



Image 41: Saugeen Valley Conservation Authority plaque with Durham Street Bridge in background (TMHC 2021)



Image 42: River traffic wayfinding sign on south side of bridge (TMHC 2021)



Image 43: Saugeen River Trail information signage at west end of bridge (TMHC 2021)



Image 44: Nearest bridge upriver - South Durham Road/Concession 2 (TMHC 2021)



Image 45: Nearest bridge downriver - Yonge Street (Lobie's) Bridge in Walkerton (TMHC 2021)



Image 45: North diaphragm and soffit (image provided by BM Ross 2018)

5.0 POLICY CONTEXT

5.1 The Walkerton Community and Bruce County Official Plans

The Municipality of Brockton adopted an Official Plan for Walkerton in 2006, and completed its 5 year review and consolidation in 2017.

Section 4.2 of the *Walkerton Community Official Plan* identifies the following relevant heritage objectives:⁵⁰

- *To identify, protect, preserve and enhance Walkerton's built, landscape and archaeological heritage for its cultural, historic and economic value to the community (4.2.1);*
- *Encourage private and public sector initiatives for the protection, restoration and enhancement of existing heritage buildings, structures, streetscapes or areas which contribute to the identity, character and history of the Walkerton community, particularly those of historic, architectural, or archaeological significance, pursuant to the Ontario Heritage Act (4.2.2a); and,*
- *All new development permitted by the land use policies and designations of this Plan, and infrastructure projects, shall have regard for cultural heritage resources and encourage, wherever possible, the incorporation of these resources into any plans which may be prepared for such development and/or conserve such resources by removal and documentation. New structures built in the area of these resources shall be designed to reflect the surrounding landscape and built form. Council shall use Site Plan Control to ensure that new development is sited and designed to complement the historic and natural character of the Municipality.*

Section 4.2.3a also outlines the qualities of cultural heritage resources of significance to the Municipality including:

- i) *Properties, areas or cultural landscapes of historical value or interest, including properties associated with significant historical local, national or international personalities, and properties which serve to provide insights into the history and past development of the Town;*
- ii) *Properties, areas or cultural landscapes of architectural value or interest including properties representative of a certain style or period of architecture and/or building construction, important landmarks of the Town, and properties or areas which make an important contribution to the streetscape of the community;*
- iii) *Properties, areas or cultural landscapes which have been identified to contain significant archaeological remnants of prehistoric habitation and/or important archaeological evidence of historic activities;*
- iv) *Properties, areas or cultural landscapes considered to be important to the Town as a result of their location and setting; and,*
- v) *Natural features including trees and hedgerows considered to be of significant historical cultural or archaeological value.*

The Subject Site also abuts the area known as Historic Walkerton which is specifically referenced in the Official Plan including provisions related to "...the strengthening of linkages between the downtown and the Saugeen River..." (3.2.4e).

50 Municipality of Brockton 2017



The Bruce County Official Plan includes the following policies:⁵¹

4.10.1.1 Encourage the conservation of land, buildings and sites of historic, architectural and archaeological value.

4.10.1.2 County Council encourages the identification, acquisition, restoration and conservation of the historical, cultural, architectural and archaeological assets of the County.

5.2 Environmental Assessment Act (1990)

This CHER/HIA has been completed as part of the Class EA process in accordance with the Environmental Assessment Act. The Act includes within its definition of “environment” (1.1):

(c) the social, economic and cultural conditions that influence the life of humans or a community

(d) any building, structure, machine or other device or thing made by humans

5.3 Ontario Heritage Act (OHA)

The OHA provides a framework for municipalities in Ontario to ensure the conservation of properties with cultural heritage value or interest, including through the capacity to designate heritage properties:

29 (1) The council of a municipality may, by by-law, designate a property within the municipality to be of cultural heritage value or interest if,

(a) where criteria for determining whether property is of cultural heritage value or interest have been prescribed, the property meets the prescribed criteria; and

(b) the designation is made in accordance with the process set out in this section.

Under the OHA, O.Reg. 9/06 provides the criteria for determining a property's cultural heritage value or interest:

(2) A property may be designated under section 29 of the Act if it meets one or more of the following criteria for determining whether it is of cultural heritage value or interest

The O.Reg. 9/06 criteria are listed and applied to the Subject Site in Section 6.0 of this report.

5.4 Standards and Guidelines for the Conservation of Historic Places in Canada (2010)

Parks Canada produced the Standards & Guidelines for the Conservation of Historic Places in Canada to

⁵¹ Bruce County 2017



provide guidance to governments, property owners, developers, and heritage practitioners across the country. This document outlines the conservation decision process and establishes pan-Canadian conservation principles. Section 4.4 of the Standards & Guidelines provides “Guidelines for Engineering Works, Including Civil, Industrial & Military Works.” This section notes that, “Civil works, such as bridges, dams and canals, present a different challenge. These works often remain fully functional and so must meet stringent contemporary safety codes that did not exist at the time of their construction. Their continued use is contingent on meeting these standards, often necessitating significant rehabilitation.”



6.0 EVALUATION AGAINST O.REG. 9/06 CRITERIA

The Durham Street Bridge is not included on the heritage inventory of the Municipality of Brockton, nor has it been designated under Part IV or Part V of the OHA. There are no National Historic Sites, Ontario Heritage Trust-owned properties, conservation easements, or Provincial Heritage Properties present on or adjacent to the Subject Site as verified by the Ontario Heritage Trust and the MHSTCI. The bridge does not appear on the Ontario Heritage Bridge List.

Based on the research summarized in Section 3, the following tables consider the Subject Site with respect to the OHA's Ontario Regulation 9/06: Criteria for Determining Cultural Heritage Value or Interest. A property may be designated under section 29 of the OHA if it meets one or more of the following criteria for determining cultural heritage value or interest.

I. The property has design value or physical value because it:

Criterion	Summary of Response
i. is a rare, unique, representative or early example of a style, type, expression, material or construction method,	Yes; the property is a rare example of what was once a common concrete rigid frame T-beam bridge design with embossed stanchions/pillars, railings, and cantilevered end spans associated with late 1930s provincial bridge construction.
ii. displays a high degree of craftsmanship or artistic merit, or	No; while the property is an example of a concrete rigid frame bridge, it does not demonstrate a high degree of craftsmanship or artistic merit relative to what is typical for this typology.
iii. demonstrates a high degree of technical or scientific achievement.	No; while the property is an example of a concrete rigid frame bridge, it does not demonstrate a high degree of technical or scientific achievement relative to what is typical for this typology.



2. The property has historical value or associative value because it:

Criterion	Summary of Response
i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community,	Yes; the bridge is historically associated with the provincial response to and local experience of the Great Depression. The immediate vicinity also holds direct associations with the Saugeen River and historic Walkerton industry.
ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or	No; the property is not known to yield information that contributes to an understanding of a community or culture.
iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community	No; the property is not known to demonstrate the work or ideas of an architect, builder, designer or theorist who is significant to a community.

3. The property has contextual value because it:

Criterion	Summary of Response
i. is important in defining, maintaining or supporting the character of an area,	Yes; the bridge is a key access point to the area known as Historic Walkerton.
ii. is physically, functionally, visually or historically linked to its surroundings, or	Yes; although historically disassociated with earlier nearby residences and later commercial and condominium developments, the bridge remains historically linked with the current alignment of historic Durham Street. The bridge is also physically and visually linked to the Saugeen River Trail and canoe traffic on the Saugeen River.
iii. is a landmark.	No; the property is not currently known or believed to be considered a landmark.

Based on the research and analysis summarized in this CHER, the Durham Street Bridge was found to meet the O.Reg. 9/06 Criteria based on its design/physical, historical associative, and contextual value.



7.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development at the Subject Site consists of demolition of the existing bridge and replacement with a new bridge in the same alignment and of approximately the same width though with potentially wider sidewalks. A 2019 Condition Report for the bridge's drop-in span half-joints concluded that the bridge should be replaced within five years. These deteriorating half-joints are no longer permitted in current bridge construction due their single load path nature and history of failure. According to the proponent, the new bridge may result in fewer piers while still relying on the same in-channel footprint of the original.

The municipality has requested that the decorative fish and garden boxes be maintained and transferred to the new bridge, though the current condition of the garden boxes in particular may require reproduction in some form.



8.0 IMPACT ASSESSMENT

According to the MHSTCI’s InfoSheet #5: Heritage Impact Assessments and Conservation Plans, “Any impact (direct or indirect, physical or aesthetic) of the proposed development or site alteration on a cultural heritage resource must be identified. The effectiveness of any proposed conservation or mitigative or avoidance measures must be evaluated on the basis of established principles, standards and guidelines for heritage conservation.” The following table includes an assessment of the proposed development against the types of potential impacts identified in InfoSheet #5.

Negative impact on a cultural heritage resource	Assessment for proposal at Subject Site
Destruction of any, or part of any, significant heritage attributes or features	The proposed development will result in the demolition and replacement of the existing bridge. This loss of heritage fabric should be addressed by mitigation measures, as discussed in Section 9 of this report.
Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance	The proposed development will result in the demolition and replacement of the existing bridge. This loss of heritage fabric should be addressed by mitigation measures, as discussed in Section 9 of this report.
Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;	The proposed development will not result in shadows that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings.
Isolation of a heritage attribute from its surrounding environment, context or a significant relationship	The proposed development will result in the demolition and replacement of the existing bridge. This loss of heritage fabric should be addressed by mitigation measures, as discussed in Section 9 of this report.
Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features	No significant views or vistas within, from, or of built and natural features related to the Subject Site have been identified that would be affected by the replacement of the bridge.
A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	No change in land use will occur as a result of the proposed development.

Negative impact on a cultural heritage resource	Assessment for proposal at Subject Site
Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource	The Subject Site is not known to contain archaeological resources. Consultation with Bruce County planners would determine the need for archaeological assessment.
Other potential impacts	No other impacts have been identified.

Overall, the proposed development will result in the removal of all heritage fabric from the Subject Site. This impact should be addressed by mitigation measures, as discussed in Section 9 of this report.



9.0 CONSIDERED ALTERNATIVES AND MITIGATION STRATEGIES

While not directly applicable to this Subject Site, the Ministry of Transportation's Heritage Bridge Guidelines for Provincially Owned Bridges offers a relevant and useful discussion of considerations for conservation and/or mitigation options. The Guidelines set forth the following eight options:

- 1) Retention of existing bridge with no major modifications undertaken
- 2) Restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) exists for their design
- 3) Retention of existing bridge with sympathetic modification
- 4) Retention of existing bridge with sympathetically designed new structure in proximity
- 5) Retention of existing bridge no longer in use for vehicular purposes but adapted for a new use
- 6) Retention of bridge as a heritage monument for viewing purposes only
- 7) Relocation of smaller, lighter single span bridges to an appropriate new site for continued use (see 4) or adaptive re-use (see 5)
- 8) Bridge removal and replacement with a sympathetically designed structure
 - a. Where possible, salvage elements/members of bridge for incorporation into new structure or for future conservation work or displays
 - b. Undertake full recording and documentation of existing structure

As discussed in further detail under Section 9.1, options involving retention of the existing bridge for ongoing infrastructural function, either with or without modification (Options 1-4 above) are not considered viable in the long term. Retention of the structure for other purposes (Options 5-6) is not considered viable due to the need for a functioning vehicular bridge at this location and insufficient space for twinning the bridge without realigning historic Durham Street and/or impacting the Saugeen River Trail and nearby properties with contextual value and potentially independent historical value. The large, multi-span nature of the bridge also precludes relocating the bridge (Option 7). The mitigation options (Option 8 above) have been discussed in Section 9.2 with some consideration for the restoration (in some form, possibly contemporary) of historically removed light standards (adapted Option 2).

9.1 Alternative Option

A 2019 Condition Report for the bridge's drop-in span half-joints concluded that rehabilitation of the bridge would require re-configuration of the structure with a continuous link to replace the deteriorating half-joints which are no longer permitted in current bridge construction due its single load path nature and history of failure. The report recommended replacement of the bridge within five years. The report dismissed reconfiguration as that approach still necessitated significant traffic alteration but only achieved a 20 year service life extension based on the condition of the remaining bridge components. The report also noted current bridge code expects



a service life of 75 years and the Durham Street Bridge was already 83 years old at the time of the inspection. According to BM Ross, given the background of sudden collapses of other bridges with half-joint connections, the Ontario Ministry of Transportation has encouraged the removal or replacement of all bridges with this feature. In the interest of public safety, the County of Bruce has chosen bridge replacement as the preferred alternative for this structure.

9.2 Mitigation Strategies for Preferred Option

Documentation of the entire Subject Site, with particular attention to its embossed pillars/stanchions, posts and railings, and cantilevered end spans through drawings and/or photographs should be produced prior to demolition, and made available to future researchers through the Bruce County Archives.

It may also be possible to incorporate limited components salvaged or commemorate elements from the extant bridge in the new bridge through railing embellishments or imprints and bump-outs. Reproduction of the embossed concrete pillars in a representative form should also be considered, noting that the current design begins at the top of the piers, wraps over the railing to form a platform above the railing height and then connects to the interior bridge deck. If the new bridge proceeds with a reduced number of piers compared to the original, similar pillars or posts could be placed in approximately the same location as the originals to commemorate the original five span bridge. These would have the dual-purpose of providing platforms for the relocated garden boxes. If these reproductions are feasible, reintroducing ornate light standards as historically featured on, but since removed from, the extant bridge may present an opportunity to restore previously lost heritage fabric. If contemplated, the design of these standards (i.e., contemporary or 1930s-era), should be compatible/sympathetic with the new bridge design.

Retention and restoration (or enhancement/replacement) of the river traffic sign on the upriver side of the bridge will be necessary to preserve the bridge's link to historically significant river navigation. Any signage related to the Saugeen River Trail that could be impacted by the replacement should also be preserved and restored upon completion. The decorative fish currently attached to the bridge have already been discussed with the municipality regarding subsequent use and/or storage.

A qualified engineer should complete a vibration assessment and make a recommendation for the extent of monitoring required taking into account the proposed bridge foundation details and list of buildings with potential heritage value presented by the Municipality of Brockton.

Further discussions with Bruce County are recommended to gauge the desirability of this possible mitigation strategy as a whole as well as the need for additional assessments such as archaeology.



10.0 CONCLUSION AND RECOMMENDATIONS

The Durham Street Bridge in Walkerton is proposed for replacement due to deterioration of the current bridge's half joints and the projected remaining service life of the remaining structure. This CHER/HIA provided a heritage evaluation of the bridge against the criteria set out by the Ontario Heritage Act (OHA)'s O.Reg. 9/06, an assessment of the proposed development's impact on identified heritage attributes, and strategies for mitigating that impact.

Based on the research and analysis summarized in this CHER/HIA, the Subject Site was found to meet the O.Reg. 9/06 Criteria for its physical/design value, historical/associative value, and contextual value.

The impact assessment conducted for this CHER/HIA found that, while the proposed development is necessary to facilitate infrastructural functionality in this location, it will result in the removal of all heritage fabric from the Subject Site. Accordingly, the following mitigation measures have been recommended.

The municipality has requested that the decorative fish and garden boxes be maintained and transferred to the new bridge, though the current condition of the garden boxes in particular may require reproduction in some form.

Documentation of the entire Subject Site, with particular attention to its embossed pillars/stanchions, posts and railings, and cantilevered end spans through drawings and/or photographs should be produced prior to demolition, and made available to future researchers through the Bruce County Archives.

It may also be possible to incorporate limited components salvaged from the extant bridge into the new bridge through railing embellishments or imprints and bump-outs. Reproduction of the embossed concrete pillars in a representative form should also be considered. If these reproductions are feasible, reintroducing ornate light standards as historically featured on the current bridge may present an opportunity to restore previously lost heritage fabric.

Retention and restoration (or enhancement/replacement) of the river traffic sign on the upriver side of the bridge will be necessary to preserve the bridge's function to river navigation. Any signage related to the Saugeen River Trail that could be impacted by the replacement should also be preserved and restored upon completion.

A qualified engineer should complete a vibration assessment and make a recommendation for the extent of monitoring required taking into account the proposed bridge foundation details and potential heritage structures at 103-121 William Street and nearby heritage properties as identified by the municipality at 15 McNab Street, 336 Durham Street East - Rothwell Block; 249 Durham Street East - Walkerton Library; 331 Durham Street East; and, 228 & 232 Durham Street East.



Further discussions with Bruce County are recommended to gauge the desirability of the possible mitigation strategy as a whole.

Due to the proposed timeline for this development, drawings detailing the demolition plans and replacement bridge will be prepared and submitted at a later date.



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