County of Bruce

Class EA for the Durham Street Bridge
Community of Walkerton

Public Information Meeting

October 4, 2022

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Agenda

- Project Background
- Schedule ‘C’ Class EA Process
- Specialized Studies
- Detour Alternatives
- Bridge Alternatives
- Next Steps

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Durham Street Bridge

Bridge Details

- Five span rigid frame T-Beam Girder Bridge with a drop-in centre span with half joints and cantilevered end spans.
- Constructed Circa 1937

Deficiencies

- Concrete Deterioration
- Safety concerns associated with the drop in centre span

Durham Street Bridge - Deficiencies

Drop in half joint

Concrete deterioration

Municipal Class Environmental Assessment (Class EA)

- Planning and Design Process for Municipal Water, Wastewater and Road Projects
- Conducted to Evaluate the Potential Impacts of Municipal Projects and Impact Mitigation
- Involves Consultation with the Public, Regulatory Agencies, Adjacent Property Owners
- Requires Consideration of Natural, Social, Cultural, Economic and Built Environments

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CLASS EA STUDY PHASES

PROBLEM DEFINITION

EVALUATION OF ALTERNATIVES

EVALUATION OF DESIGN CONCEPTS

PREPARE ENVIRONMENTAL STUDY REPORT

PROJECT IMPLEMENTATION

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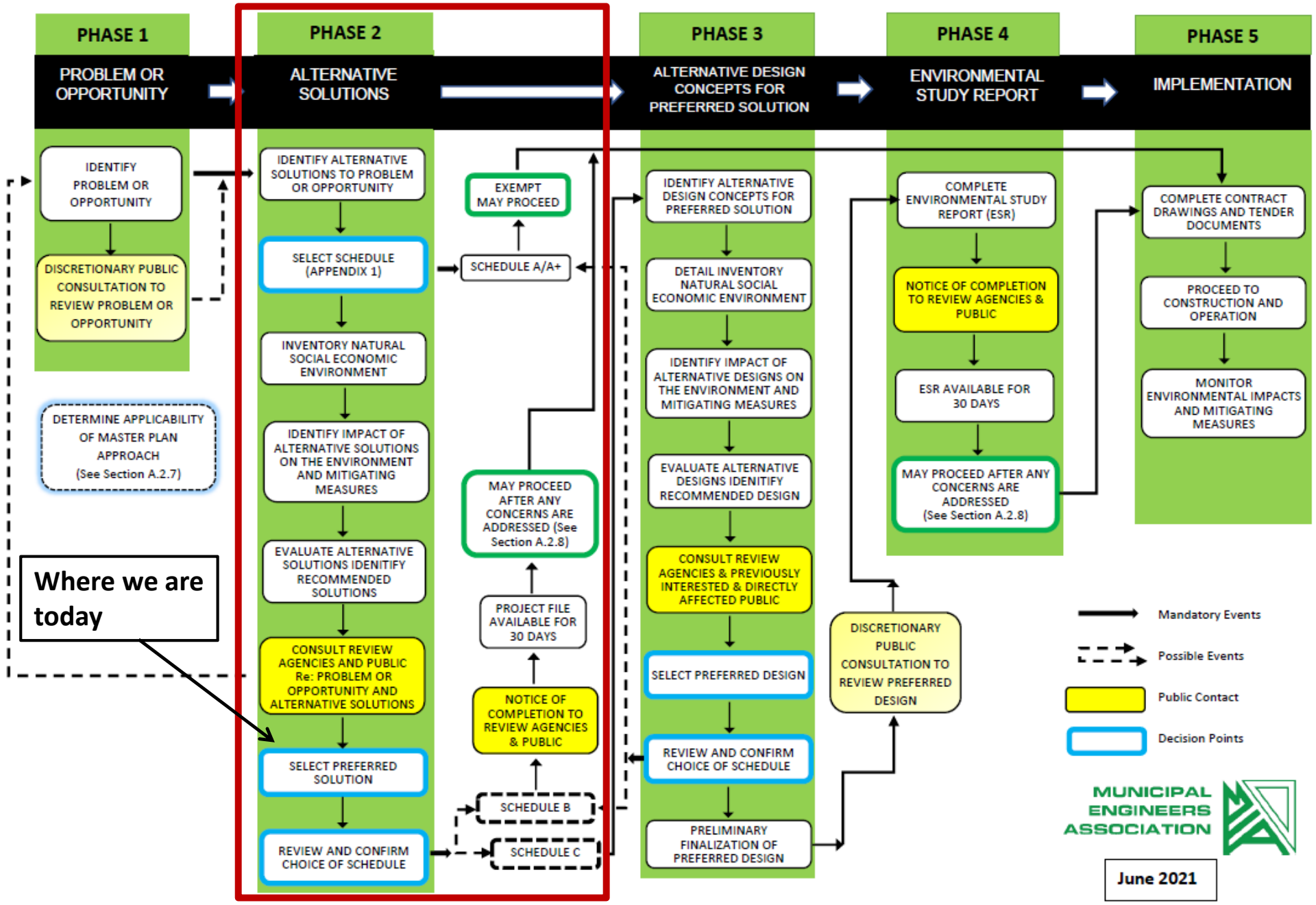
MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



MUNICIPAL ENGINEERS ASSOCIATION

June 2021

Class EA Consultation Program

- February 2021 – Project Initiation
  - Notice Published in Walkerton Herald, Hanover Post
  - Letter sent to Review Agencies and Stakeholders
  - Notice sent to 400+ Adjacent Property Owners
  - Letter sent to Indigenous Communities
- May 2021 – Website launched with Signs at Bridge
  - Dedicated website created for the project
  - Opportunity for residents to provide additional input
  - Opportunity for travelers to provide input
  - Approximately 20 submission through the website

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Input from Residents

- Comments Related to the New Bridge Design
  - Wider sidewalk would be preferred
  - Better lighting on the new bridge
- Comments Related to Longer Detour during Construction
  - Concerned with impacts to downtown businesses during construction.
  - Want pedestrian access over the river during construction.
  - Traffic concerns on Bruce Road 4 at Bruce Road 19
  - Suggestions that another bridge crossing of the Saugeen River is needed
  - Questions about timing of the work

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Input from Agencies

- **Ministry of Environment, Conservation and Parks**
  - Adequate consultation must occur with residents, stakeholders, First Nation and Métis Communities
  - Impacts associated with Climate Change and Source Water Protection need to be considered
- **Saugeen Valley Conservation Authority (SVCA)**
  - Ontario Regulation 169/06, Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses.
  - Approval from SVCA will be required for the new bridge
  - SVCA owns and maintains flood control dyke system in Walkerton
  - Floodplain modeling and mapping is available

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Input from Agencies

- **Municipality of Brockton**
  - Want to salvage and maintain fish symbols on bridge as well as the planter boxes
  - Ensure access to trail system is maintained
  - Want input on detour routes, particularly routes using local roads
- **Ministry of Tourism, Culture and Sport**
  - Concerns related to archaeological resources, built heritage resources, and cultural heritage landscapes
  - Potential impacts should be screened as part of EA process and be documented in the final report

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Class EA Bridge Alternatives

- **Alternative 1** – Replacement in the Same Location
  - Remove existing bridge and construct a new bridge in the same location
- **Alternative 2** – Repair the Existing Bridge
  - Complete repairs to the crossing to address existing concrete deterioration, deck and railing repairs, other identified deficiences
- **Alternative 3** – Do Nothing – No work would occur to address the existing deterioration

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Recommended Bridge Alternative:

- Alternative 1 – Replace Bridge in the Same Location

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Class EA Detour Alternatives

- **Alternative 1A & 1B** – Detour using County Roads
  - County Road detour north and south of Walkerton
- **Alternative 2** – Detour using local roads
  - Detour north of Walkerton using Bruce Road 19 and local roads and provide a transit stop for pedestrians
- **Alternative 3 –** Temporary Vehicle Bridge
  - Install a temporary vehicle bridge upstream of the bridge adjacent to Orange Street, connecting to McNab Street
- **Alternative 4** – Temporary Pedestrian Bridge
  - A pedestrian bridge installed upstream of the bridge adjacent to Orange Street, connecting to the trail network

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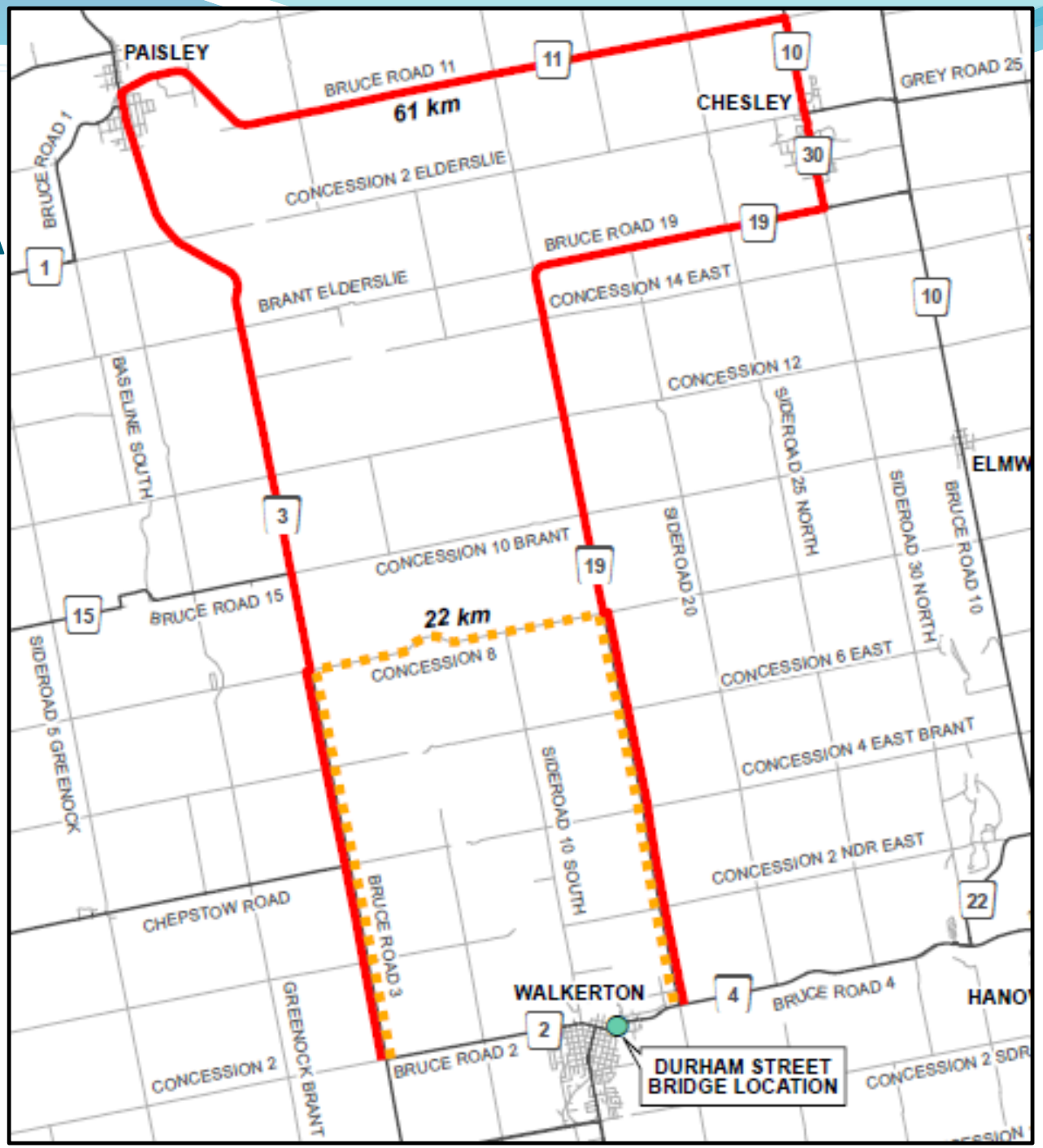
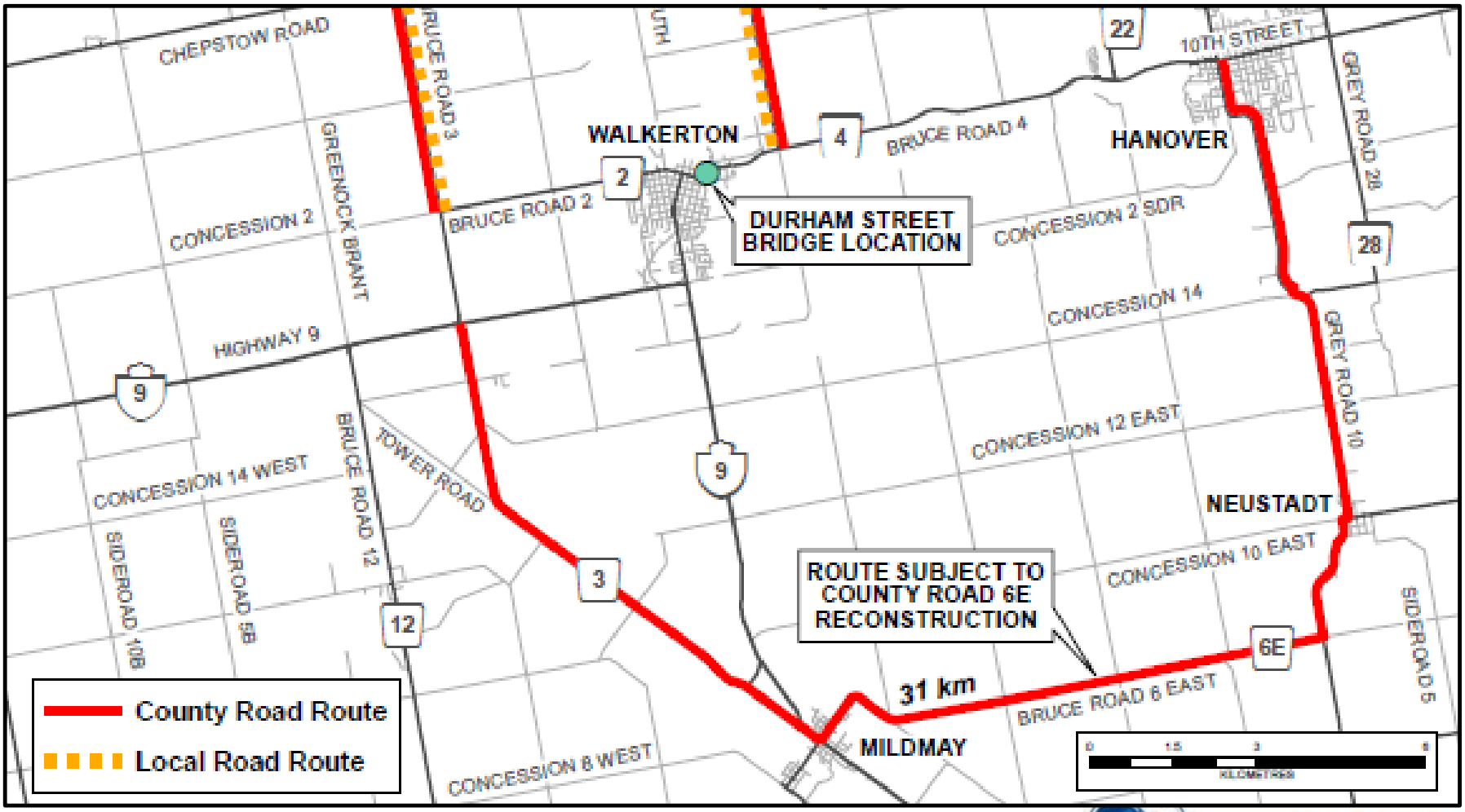
Detour Option 1A – County Roads North



Detour Option 1B – County Roads South



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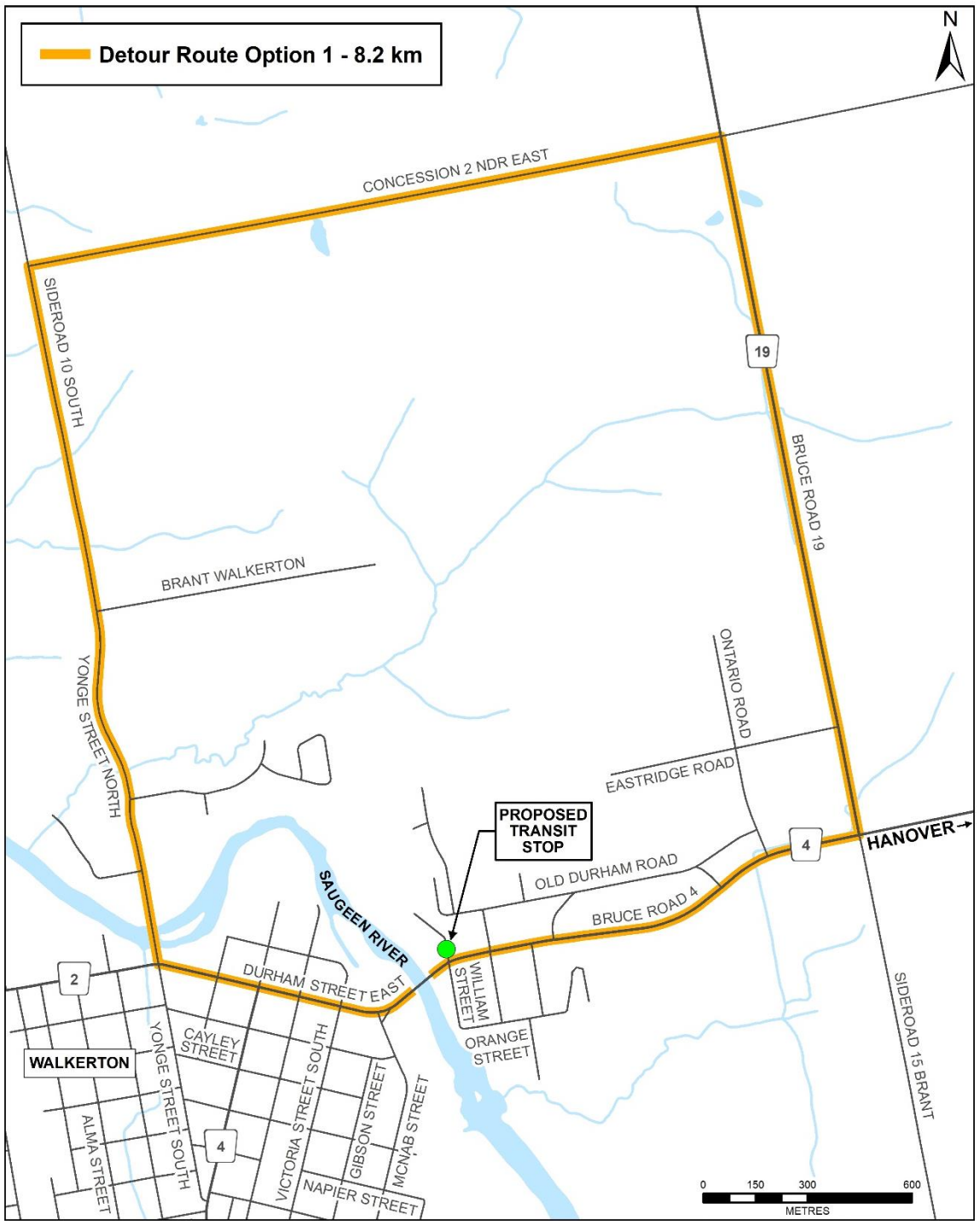
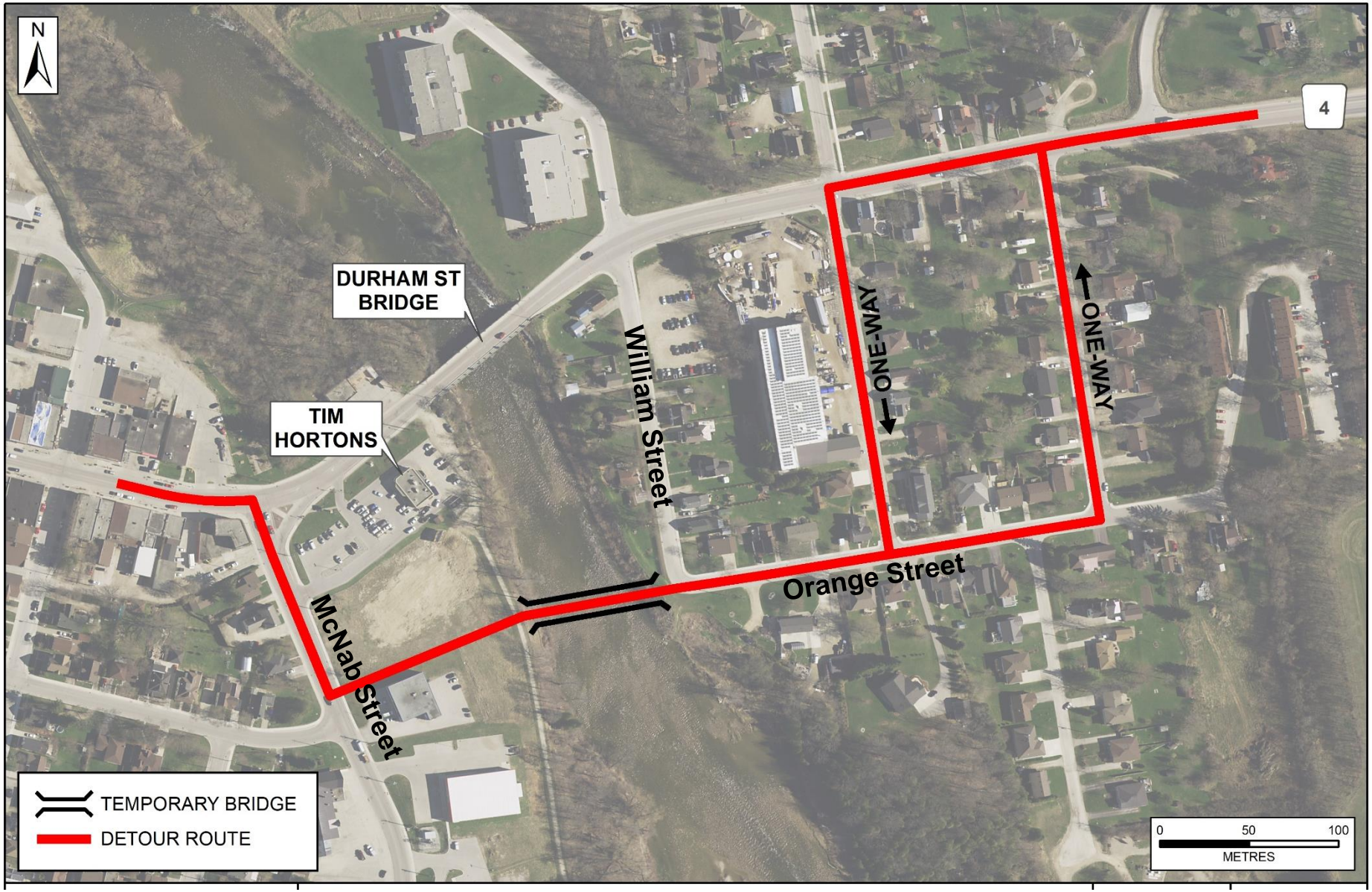
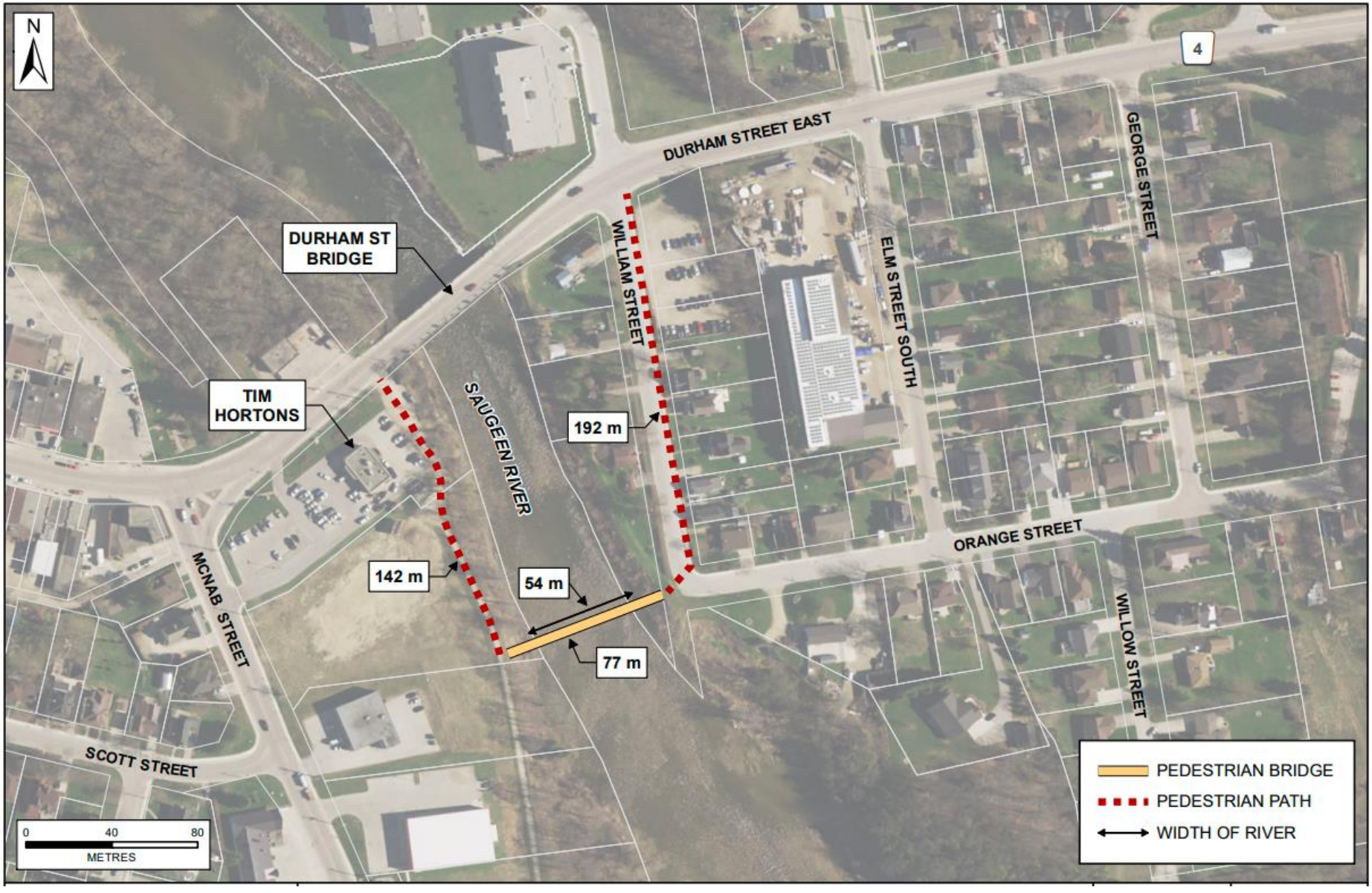
Detour Option 2 - Local Roads



Detour Option 3 – Temporary Vehicle Bridge



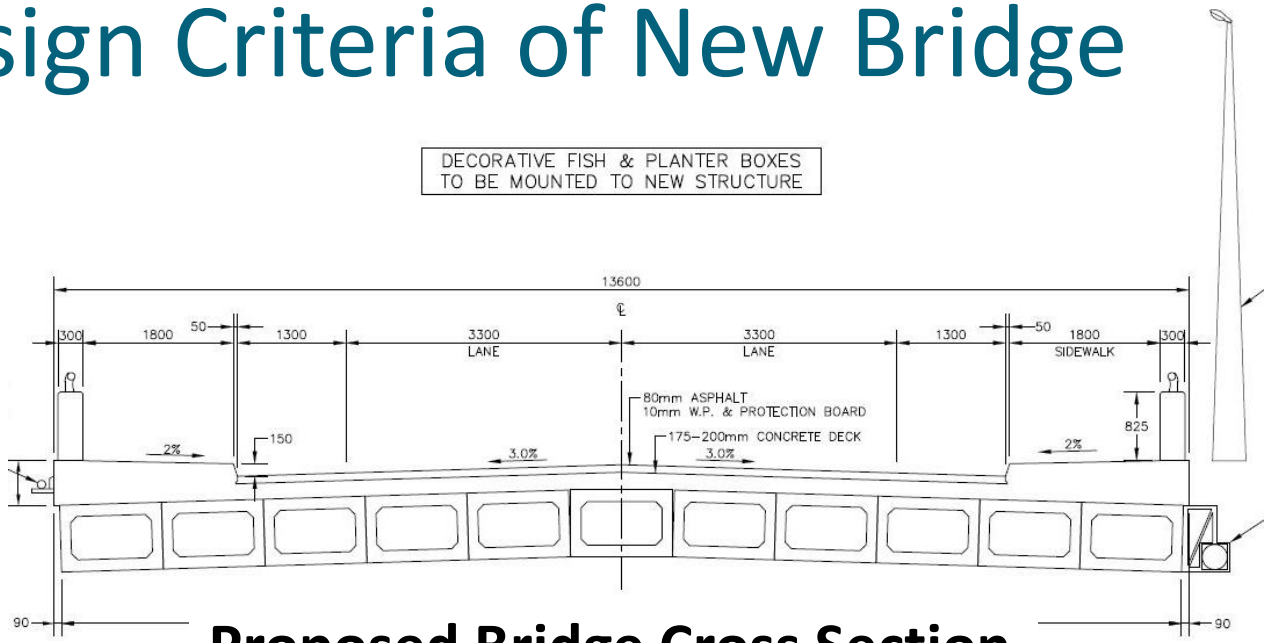
Detour Option 4 – Pedestrian Bridge



Preferred Detour Option

- **Local Detour – Option 2**
  - Local traffic to use local detour to the north via Bruce Road 19, Concession 2 and Yonge Street
  - Transit stop to be created on the north side of the river to convey pedestrians into Walkerton
  - Truck traffic encouraged to use truck detour routes
  - Concession 2 and Yonge Street to be upgraded with additional lift of asphalt to improve road base
  - Improvements planned for intersections of 19/Conc. 2, Yonge/Conc. 2 to improve turning radius
  - Improvements at Yonge/Durham Street to improve turning radius and provide temporary signals

Design Criteria of New Bridge



Proposed Bridge Cross Section

Preliminary Design

- Three spans/2 in-water piers
- 2 Sidewalks 1.8m (6’) wide
- Maintain integrity of dyke
- Sympathetic design of posts

Specialized Studies

- **Saugeen River Habitat Assessment**
  - Assessed river at bridge site
  - Completed by BMROSS technical staff in August 2021
  - Examined aquatic & terrestrial habitat adjacent to bridge
  - Fresh water mussels are present at the site and will need to be moved from impacted areas prior to construction.
  - In-water work should be timed to avoid fish spawning period from March 15 to July 15
  - Bridge removal should be timed to avoid impacts to nesting birds

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Specialized Studies

- **Built Cultural Heritage**
  - Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) completed by Timmins Martelle Heritage Consultants in May 2021
  - Assessment required by Ministry due to age of bridge
  - First bridge at site built circa 1850 – wooden bridge
  - A steel truss bridge was constructed in early 1900's
  - Current bridge replaced the iron bridge in 1937

Statement of Cultural Heritage Value

The bridge 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 1930's provincial bridge design

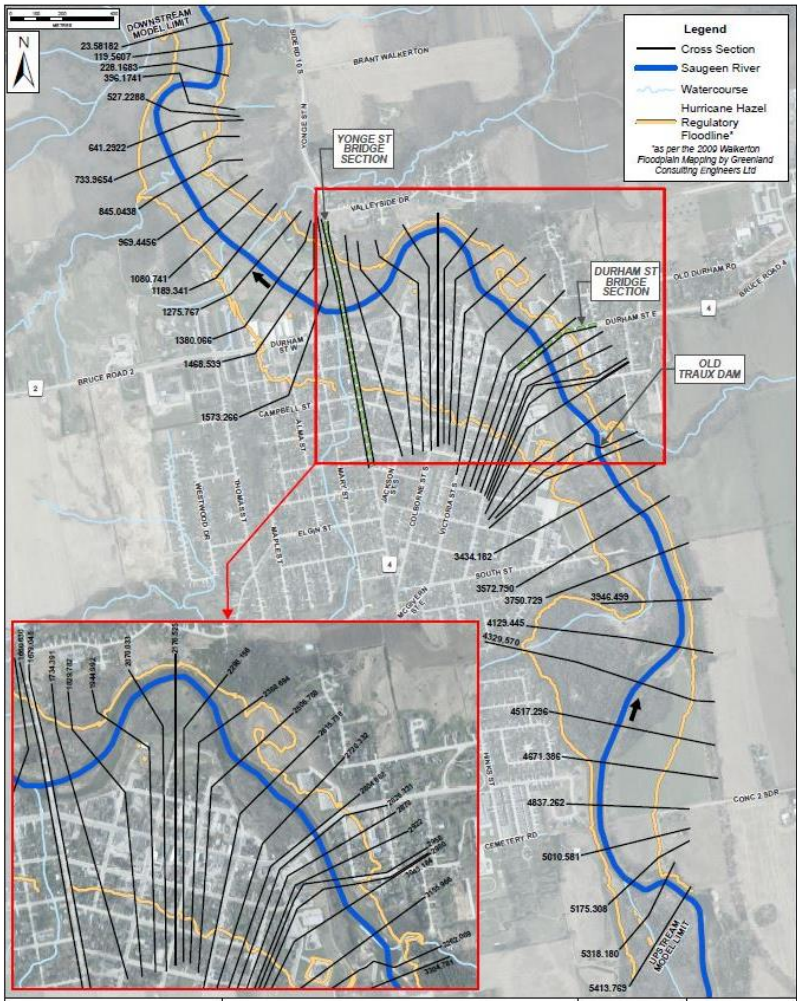
Cultural Heritage Report

Undated photo of early wooden bridge at the subject site

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

Additional Investigations

- **Hydraulic Investigation**
  - Walkerton is protected with a system of flood dykes owned and maintained by SVCA, providing protection up to a <u>100 yr return event</u>.
  - Floodplain mapping has recently been completed in 2009.
  - Floodplain mapping indicates overtopping of the flood dykes for the regulatory Hurricane Hazel event.
  - Recent changes include partial Removal of Truax Dam in 2019.



Hydraulic Investigation

- Assessment of the Proposed Durham Street Bridge and Potential Temporary Bridge Included:
  - Floodplain model updates with new survey data and the partial removal of the Truax Dam
  - Ensuring no flooding impacts to properties or dyke system
  - Cut and fill assessment for impacts on flood storage, particularly detour route bridge options
  - Scour Assessment for determining rock protection
  - Ice jam and ice flow considerations

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Hydraulic Investigation

- **Proposed Replacement Bridge**
  - Two hydraulic design options considered for the proposed bridge.
  - Existing bridge includes 4 piers and arch beam design.
  - Proposed bridge options include 2 piers and varying span alternatives
  - Both options improve the efficiency of structure for flow and ice movement.
  - Option 1 has the middle piers in the same location as the existing structure
  - Option 2 has piers offset to create a wider middle span

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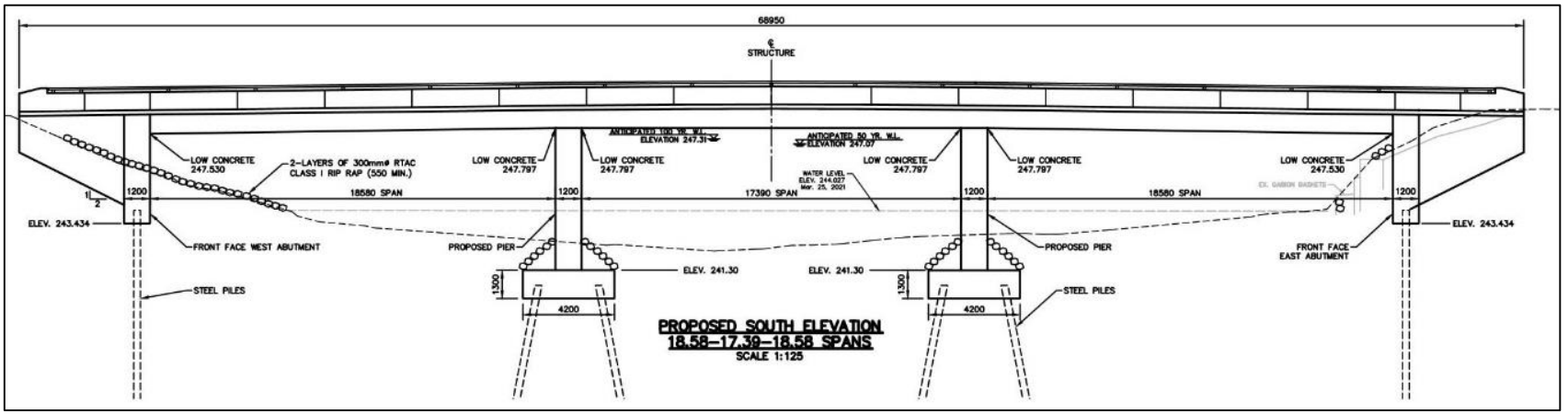
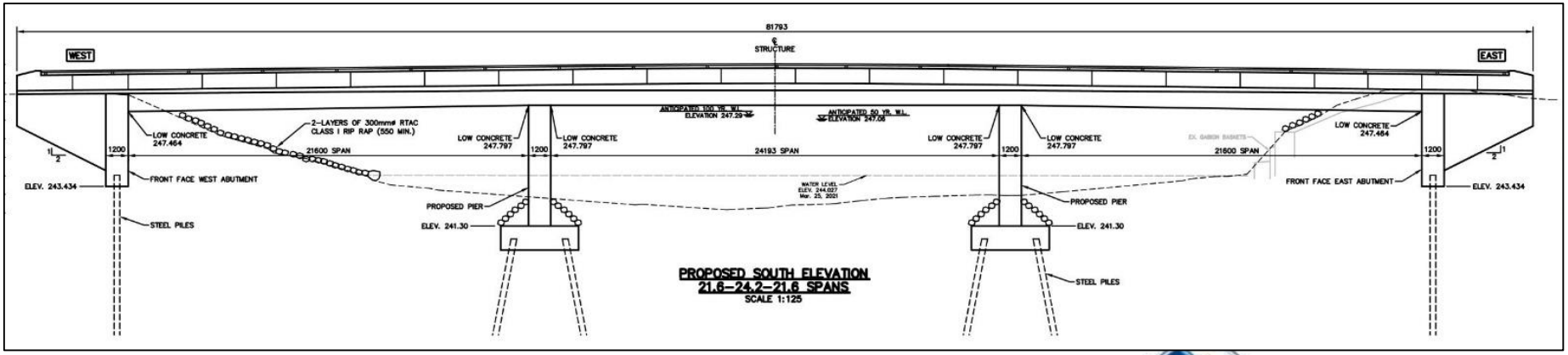
Proposed Replacement Bridge Options



Option #1 – Piers in same location



Option #2 – Piers wider

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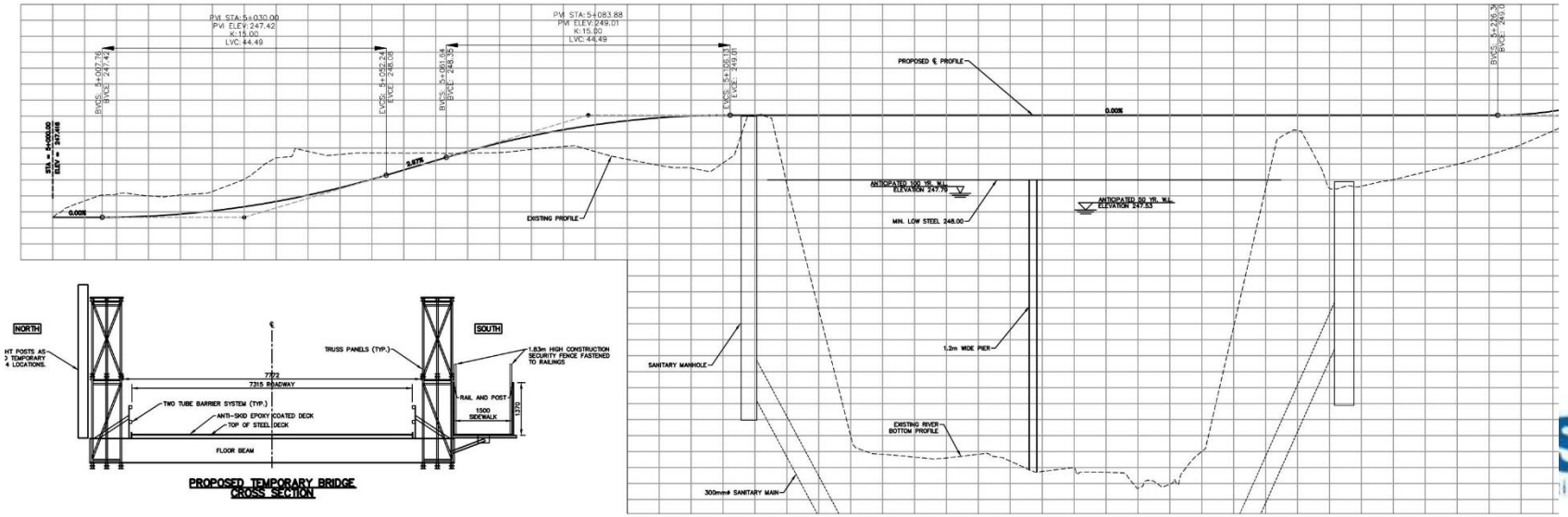
Hydraulic Investigation

- **Temporary Detour Bridge Option**
  - Designed to 100 year return event, with negligible impacts on flooding up to 100 year.
  - Construction contingency plans to include stockpiling of sandbags or steel sheet piling to fill any breach in the dyke due to construction
  - Full restoration of dyke proposed post construction.



Proposed Schedule

- **Fall/Winter 2022:**
  - Complete Hydrologic Investigation/Consult with SVCA
  - Complete Preliminary Bridge Design
  - Refine Bridge Design
- **Spring 2023** – Public Information Meeting #2
  - Present Updated Reports and Investigations
  - Present Preliminary Bridge Design and Features
- **Fall 2023** – Finalize EA Process & Publish Report
- **Winter 2023/24** – Complete Engineering Design & Apply for Approvals (DFO/SVCA/MECP)
- **Spring 2025** - Construction

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Next Steps

- Collect and Review Public Input
- Initiate Additional Discussions with SVCA related to Hydrology and bridge design
- Start Preliminary Design of New Bridge
- Confirm the preferred Detour Route
- Draft Class EA Environmental Study Report (ESR)
- Additional Consultation with Agencies and Indigenous Communities

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Questions?

- Comments or questions on the presentation material can be directed to Kelly Vader at kvader@bmross.net or through the project website at www.walkertonbridgestudy.ca
- Staff from the County of Bruce and BMROSS will be present at the meeting to answer questions.

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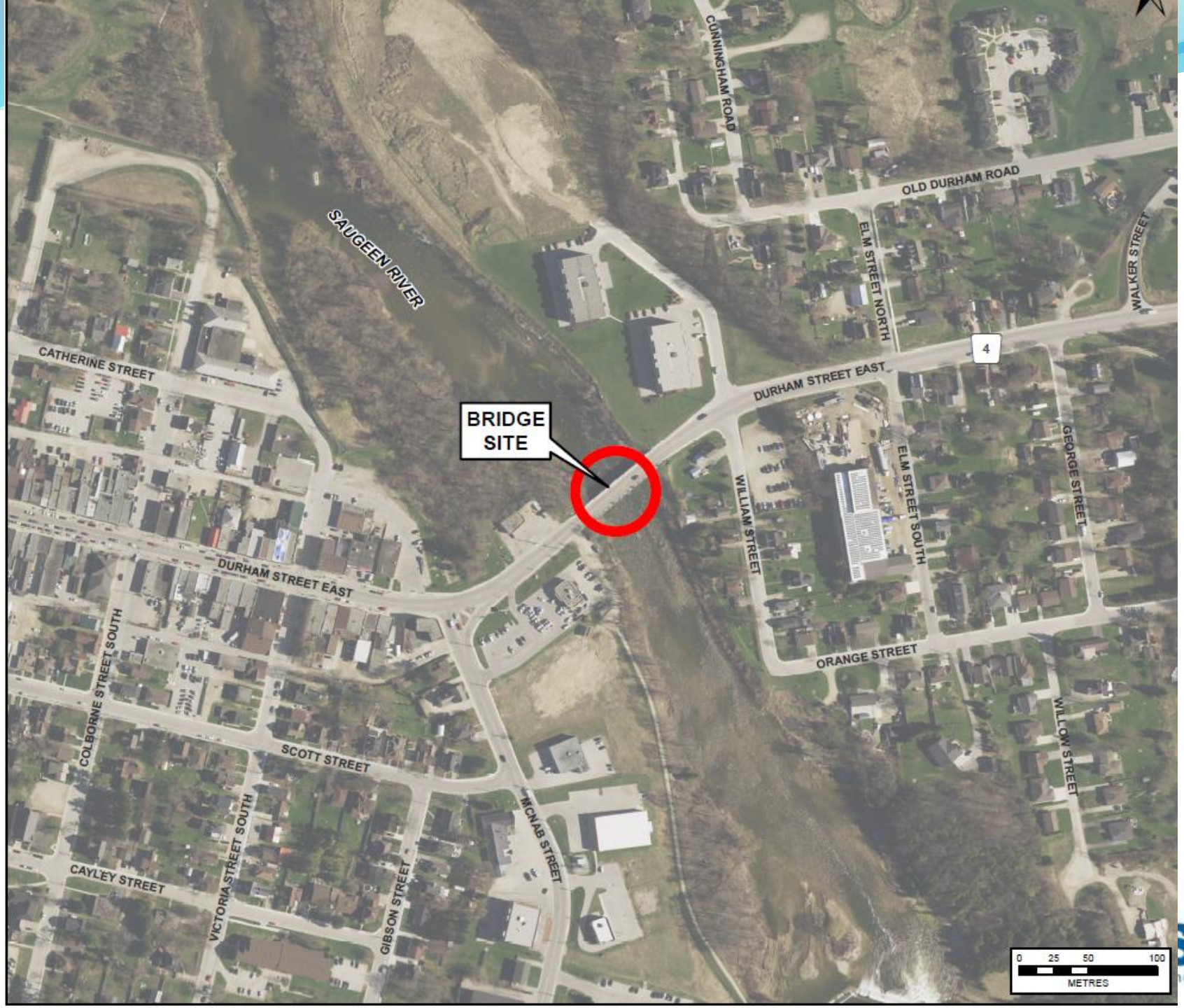
BRIDGE SITE
SAUGEEN RIVER
CUNNINGHAM ROAD
OLD DURHAM ROAD
ELM STREET NORTH
WALKER STREET
4
CATHERINE STREET
DURHAM STREET EAST
DURHAM STREET EAST
WILLIAM STREET
ELM STREET SOUTH
GEORGE STREET
ORANGE STREET
WILLOW STREET
COLBORNE STREET SOUTH
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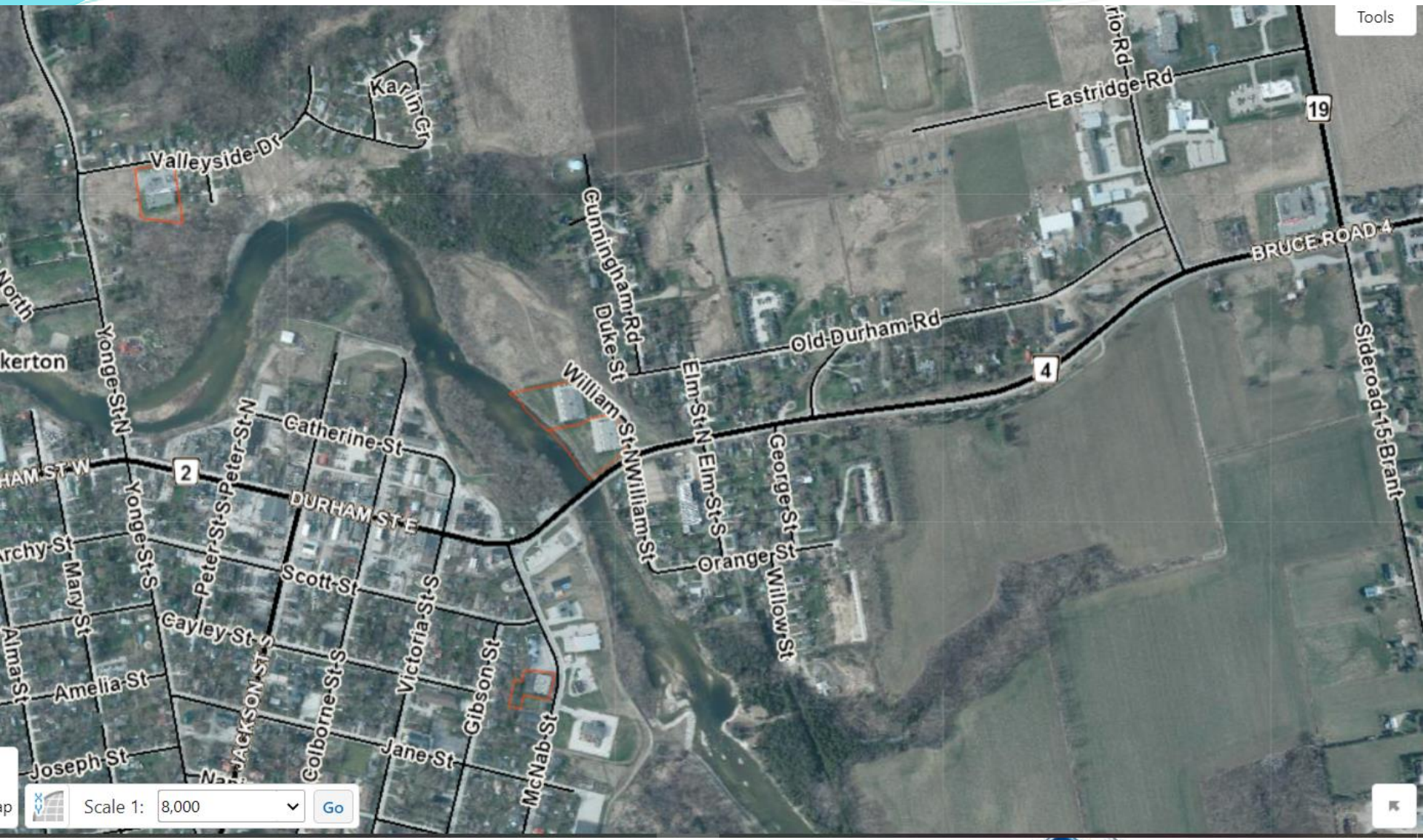

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