

County of Bruce

Class EA for the Durham Street Bridge

Community of Walkerton



Public Information Meeting

October 4, 2022



Agenda

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

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

Concrete deterioration



Drop in half joint



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

CLASS EA STUDY PHASES

PROBLEM DEFINITION



EVALUATION OF ALTERNATIVES



EVALUATION OF DESIGN CONCEPTS



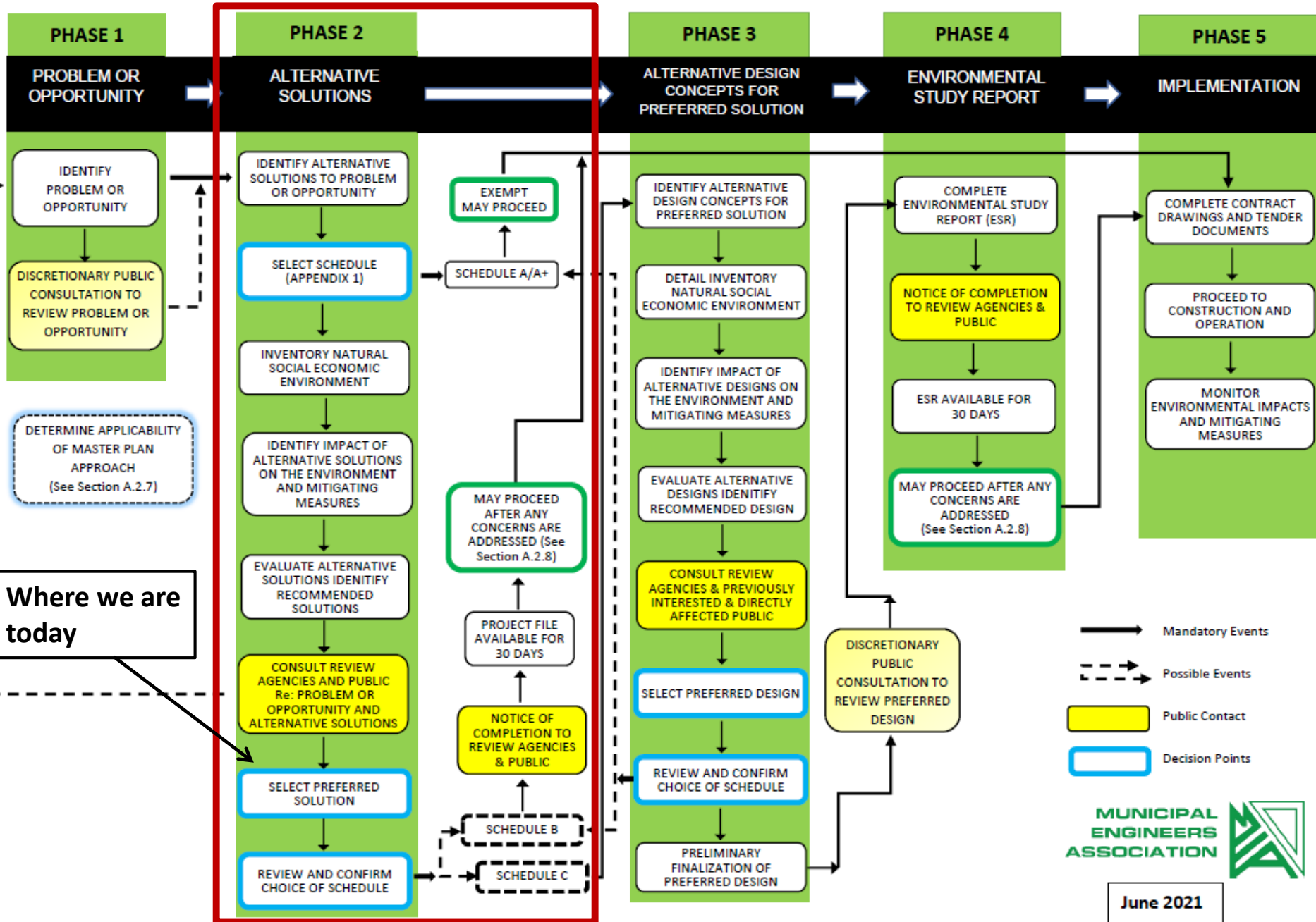
PREPARE ENVIRONMENTAL STUDY REPORT



PROJECT IMPLEMENTATION

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



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

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

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

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

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 deficiencies
- **Alternative 3** – Do Nothing – No work would occur to address the existing deterioration



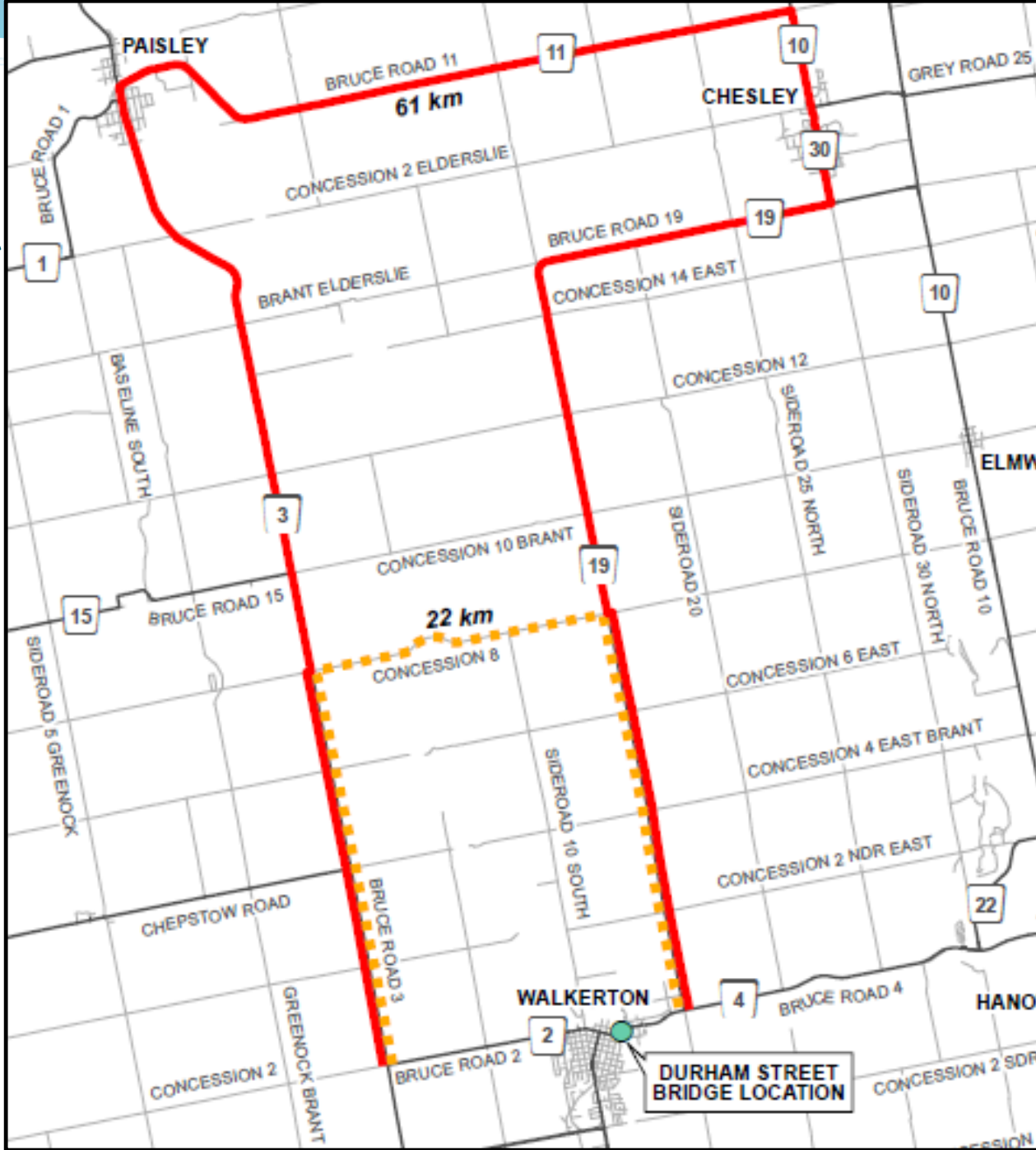
Recommended Bridge Alternative:

- Alternative 1 – Replace Bridge in the Same Location

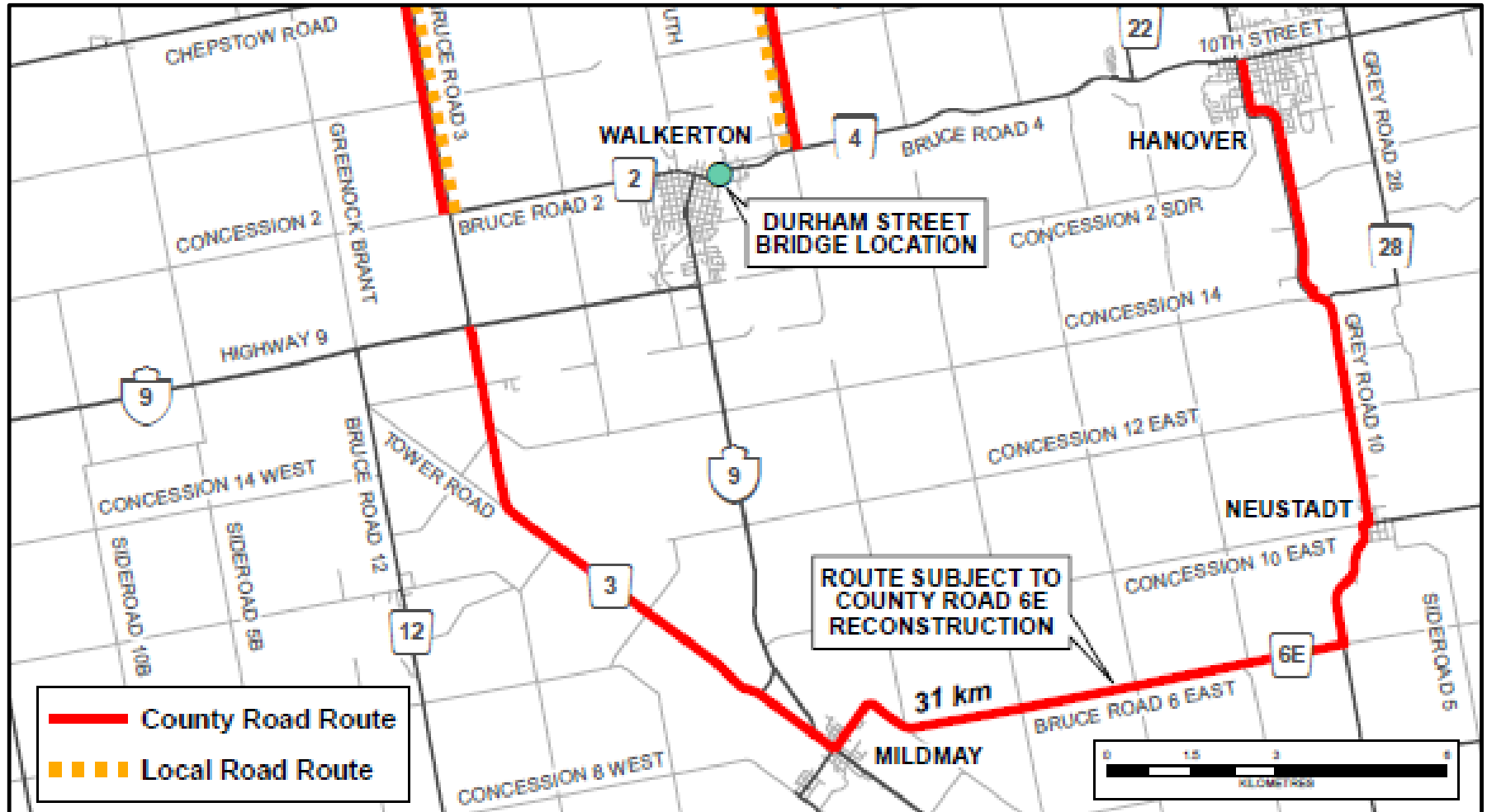
Class EA Detour Alternatives

- **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

Detour Option 1A – County Roads North



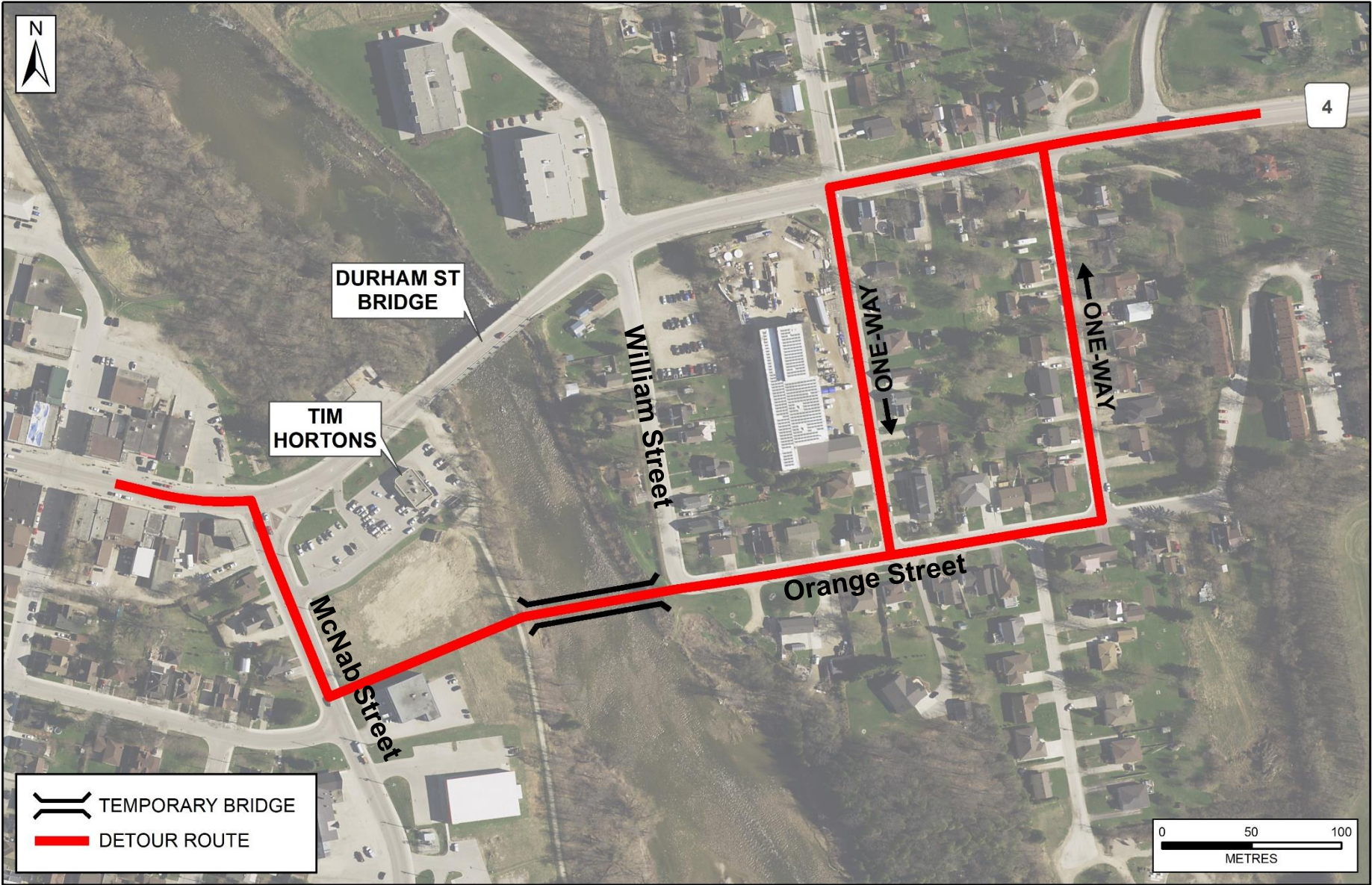
Detour Option 1B – County Roads South



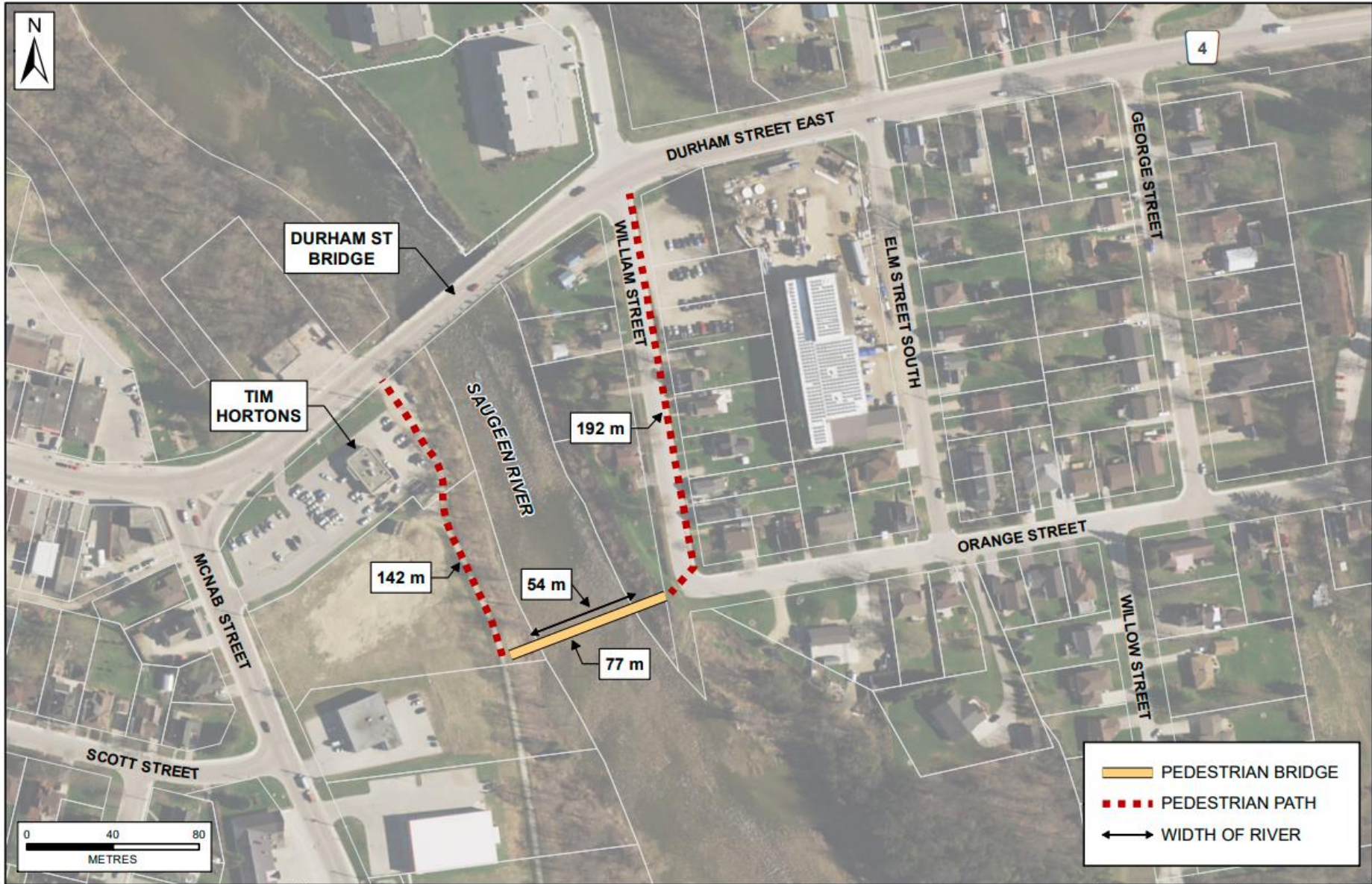
Detour Option 2 - Local Roads



Detour Option 3 – Temporary Vehicle Bridge



Detour Option 4 – Pedestrian Bridge

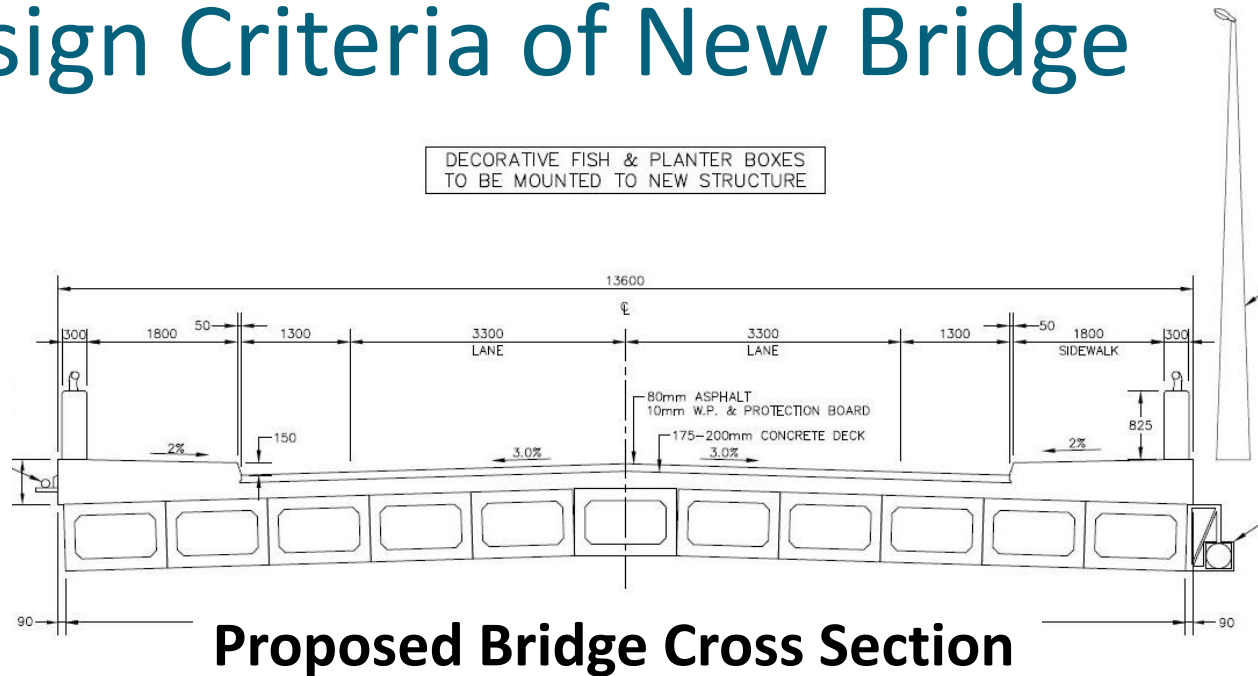


Preferred Detour Option

● **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



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



Spike Shell



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

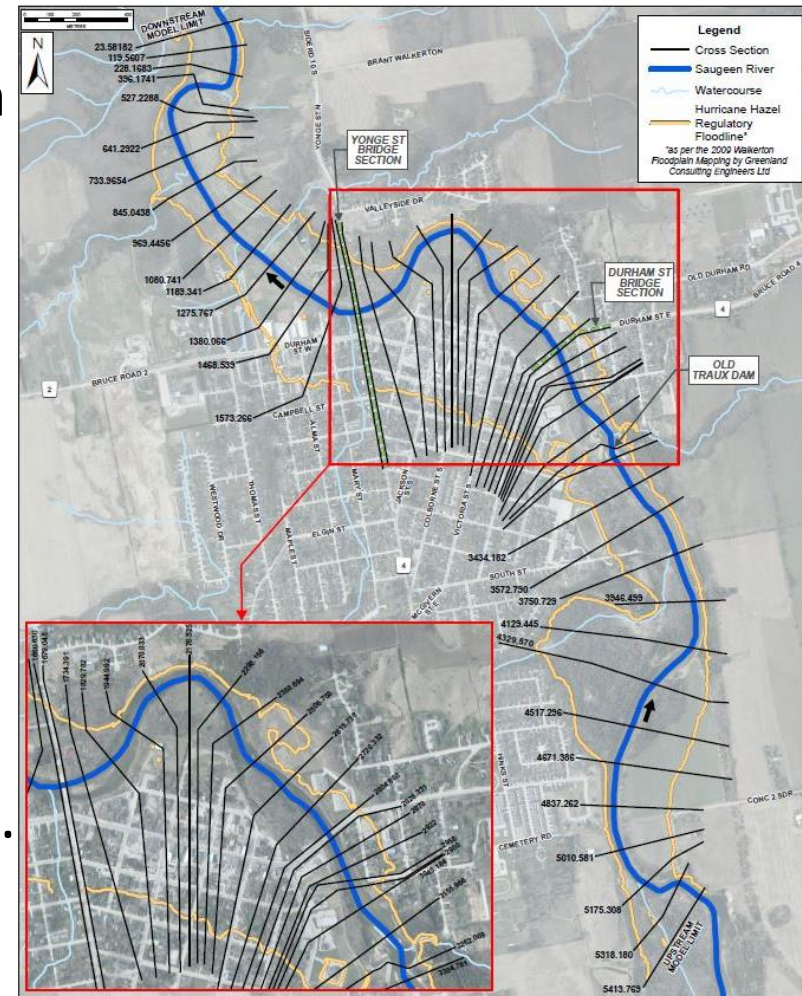


Image 5: Previous truss bridge in 1908 (Bruce County
Museum & Cultural Centre)

Additional Investigations

Hydraulic Investigation

- Walkerton is protected with a system of flood dykes owned and maintained by SVCA, providing protection up to a 100 yr return event.
- 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

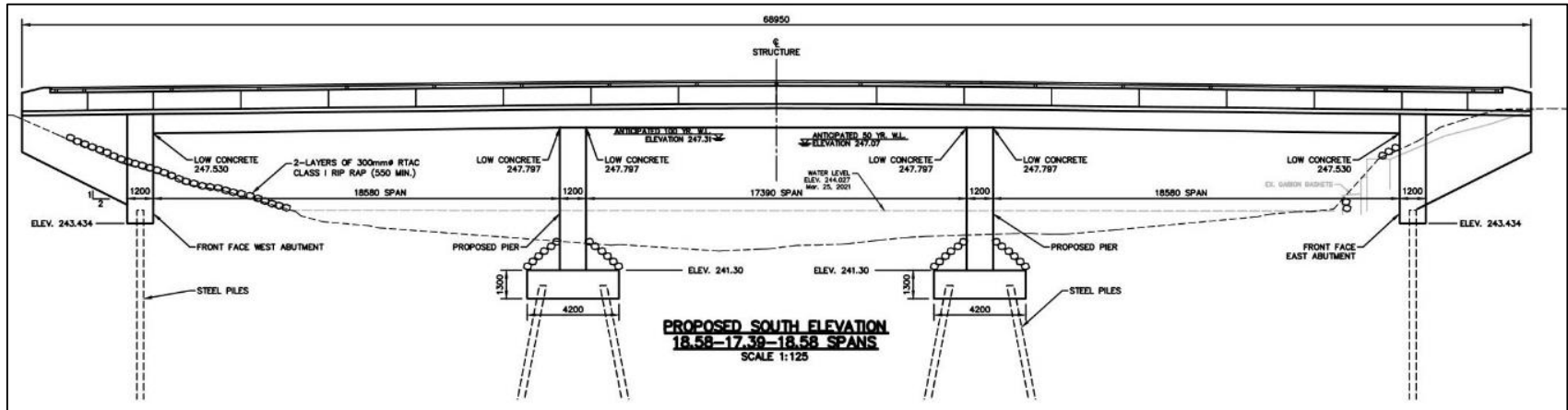
- Assessment of the Proposed Durham Street Bridge and Potential Temporary Bridge Included:
 - Floodplain model updates with new survey data and the partial removal of the Truax Dam
 - Ensuring no flooding impacts to properties or dyke system
 - Cut and fill assessment for impacts on flood storage, particularly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

Hydraulic Investigation

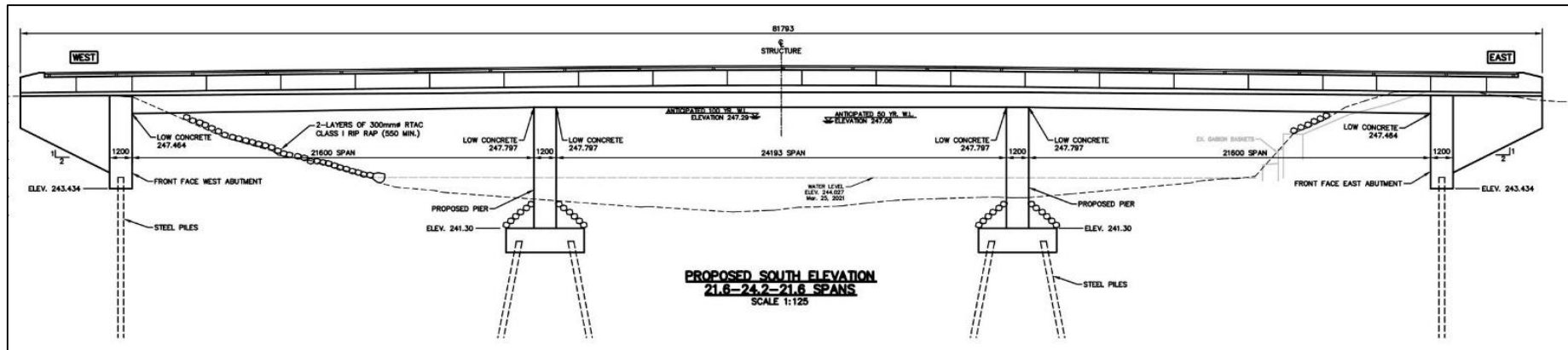
- **Proposed Replacement Bridge**

- 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

Proposed Replacement Bridge Options



Option #1 – Piers in same location

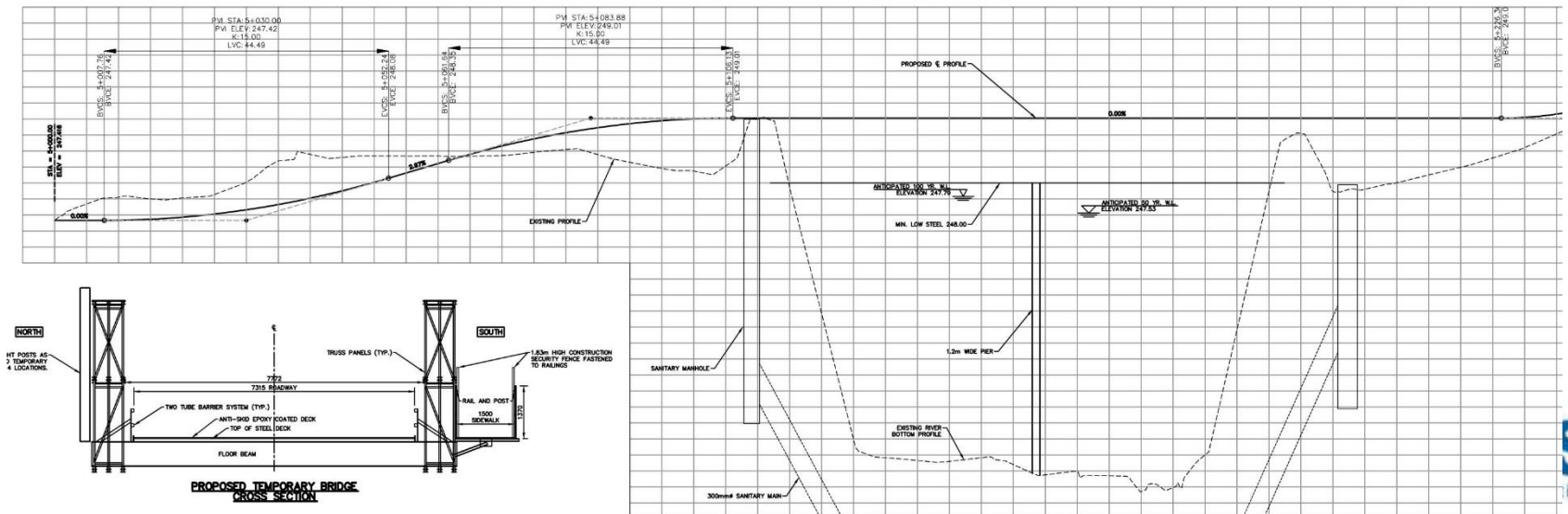


Option #2 – Piers wider

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

Next Steps

- Collect and Review Public Input
- Initiate Additional Discussions with SVCA related to Hydrology and Temporary Bridge
- 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

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.