Kincardine Bridge Master Plan

Council Presentation

February 26, 2025

AGENDA

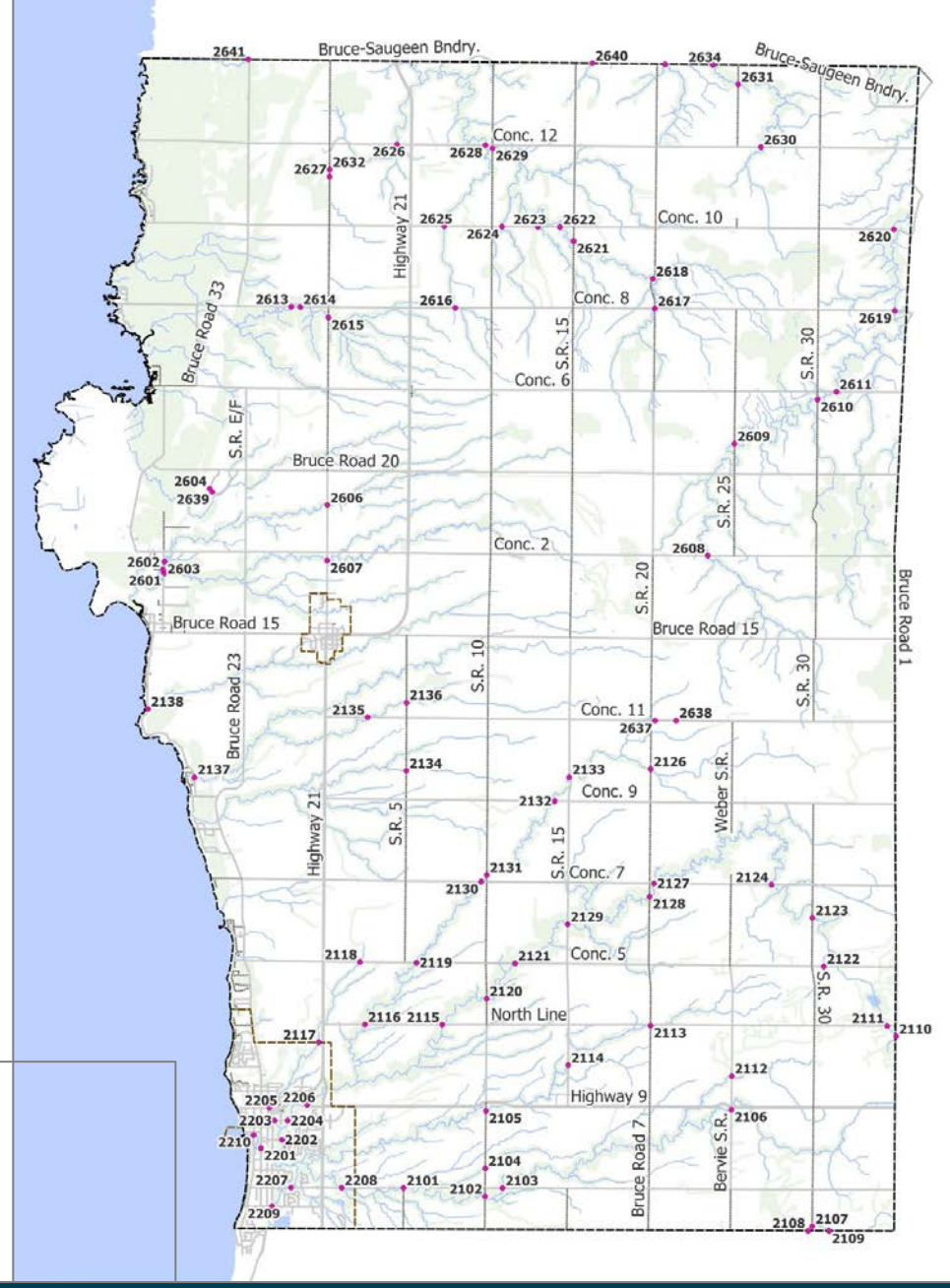
1 Introduction
2 Evaluation Methodology
3 Evaluation of Alternatives
4 Recommended Retirements and Next Steps

OBJECTIVES

- Review Master Plan objectives, process, and strategy
- Identify proposed bridges for retirement

Project Introduction and Master Plan Objectives

- Evaluation of 83 active bridge structures and their corresponding Ontario Structure Inspection Manual (OSIM) report
  - OSIM reports were completed by BM Ross in 2023
  - 51 culverts, 32 bridges
  - Structures have an average age of 47 years
  - 21 bridges have annual average daily traffic counts of less than 50 trips per day
- High cost associated with OSIM recommendations over the next 10 years
  - Total cost of repairing 31 bridges: $5,314,000
  - Total cost of replacing 12 bridges: $14,286,000
- Master plan aims to identify structures for permanent retirement
  - Avoids substantial costly repair and replacements
  - Maintains overall road network connectivity



Evaluation Methodology

- Evaluation was completed in 2 steps to determine short (0-10 years) and long (10+ years) capital works to ensure long term overall network connectivity
  - Actions include: do nothing, repair, replacement, or retirement
- Short term strategy is based on OSIM report recommendations of repair or replacements works
- Long term strategy includes bridges with no short term capital works and looks to future potential bridge retirement vs replacement following further deterioration

Step 1: Screening Process

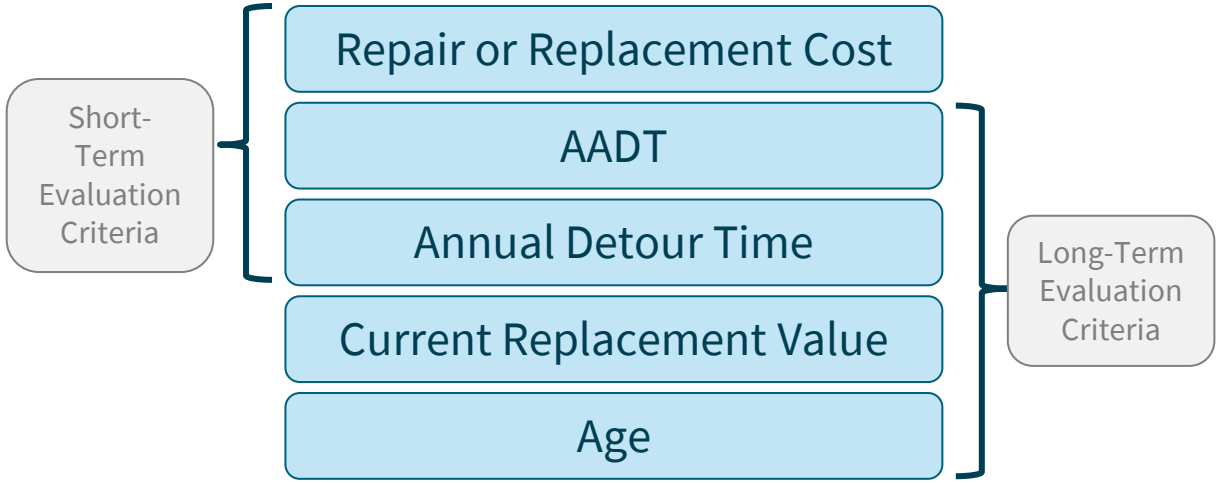
- Each bridge was evaluated based on criteria and then ranked. A threshold score was used to identify bridges to carry forward for detailed evaluation.
- Short term (<10 years) and long term (>10 years) projects were evaluated using different criteria based on needs of the OSIMs or current value.

Step 2: Detailed Evaluation

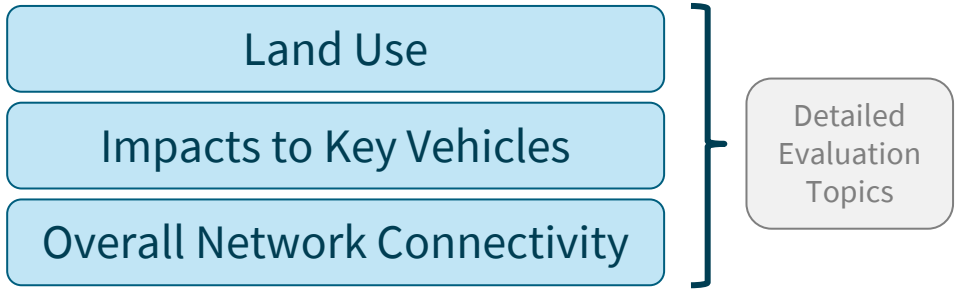
- A comprehensive review detailing potential impacts, opportunities, constraints, and mitigation measures, for each bridge carried forward.
- Recommendations for potential retirement were based on a reasoned-argument approach and discussion with municipal staff.

Evaluation Criteria

- Under **Step 1: Screening**, different criteria assessed bridges for long- and short-term evaluations
  - Each evaluation criteria was assigned a score between 1 and 5 with
  - Final scoring was out of 100
  - Threshold score indicated if a bridge would be carried forward for detailed evaluation



- Under **Step 2: Detailed Evaluation**, each bridge carried forward was comprehensively evaluated
  - Detailed impacts of retiring a subject bridge including opportunities and constraints through a reasoned argument approach
  - Inclusion of mitigation measures to limit potential impacts

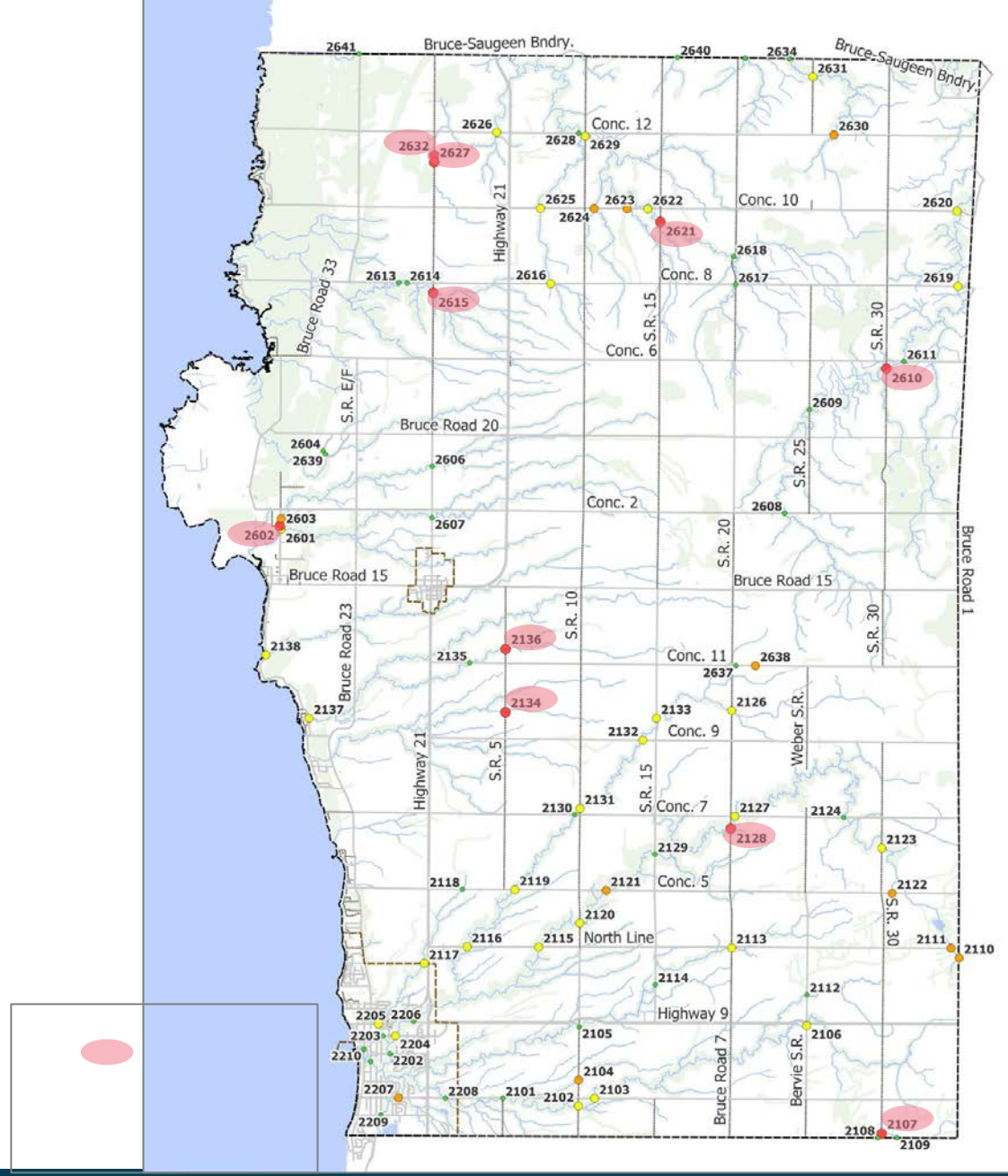


Overall Short and Long Term Strategy

- Short term evaluation identified the following, over the next 10 years:
  - 5 bridges for retirement
  - 28 bridges for repairs
  - 11 bridges for replacement
  - Remaining 37 bridges to be maintained performing maintenance as needed
- Long term evaluation identified the following, extending +10 years
  - 5 bridges for retirement following their deterioration
- Criticality of overall transportation network was evaluated with combined potential bridge closures and limited disruption is anticipated through bridge retirements

Short Term Bridge for Retirement	OSIM Short-Term Costs
2128	$3,592,000
2610	$519,000
2136	$562,000
2621	$216,000
2134	$159,000
Total Savings	**$5,048,000**

Long Term Bridge for Retirement	CRV Costs
2602	$387,000
2615	$427,500
2632	$494,000
2627	$255,400
2107	$469,000
Total Savings	**$2,032,900**

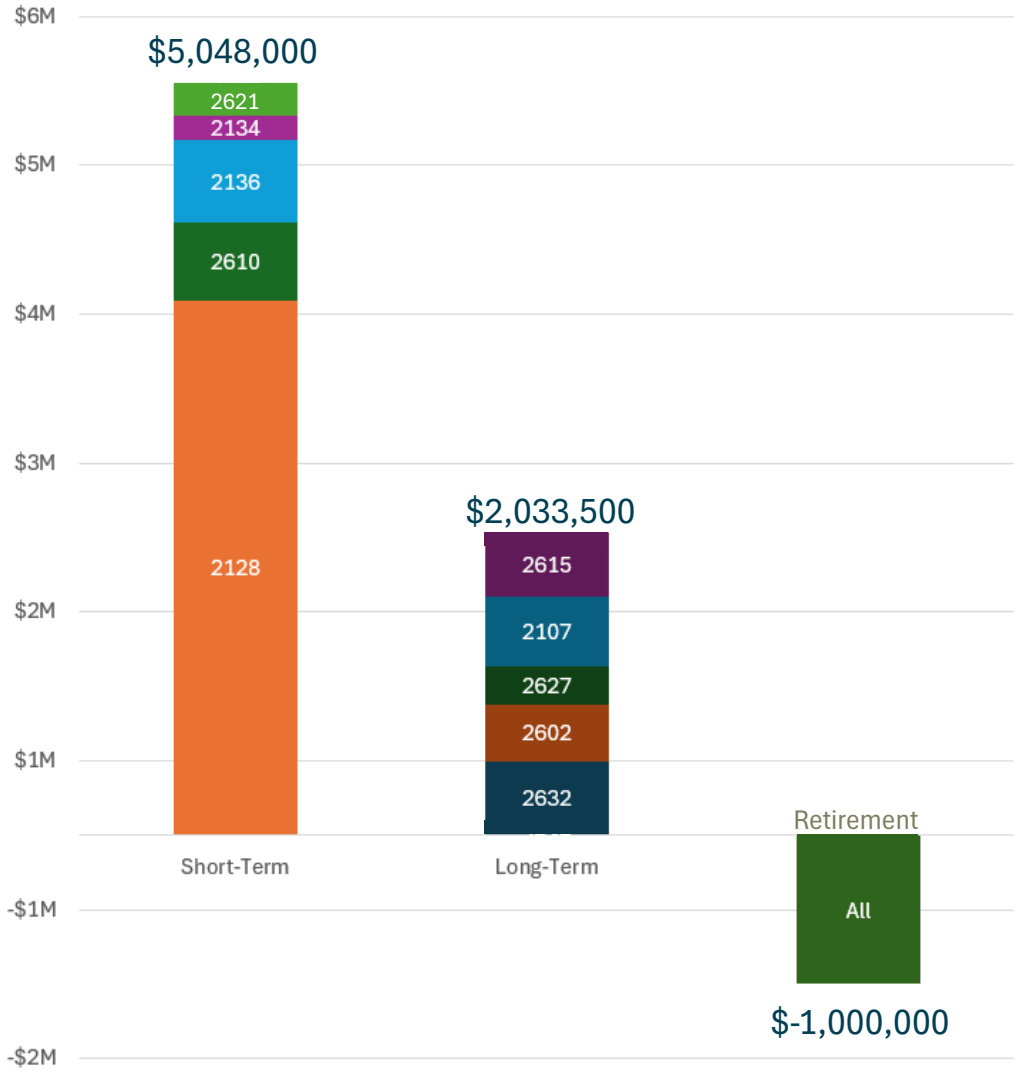


Capital Program and Cost Savings

- Through the recommended actions for both OSIM reports and potential retirements, over the next 10 years, municipality should prepare to spend $1.5 million annually on bridge repairs and retirements

Timeline	Action	# Bridges	Cost
1-5 years	Retire	3	$300,000
	Replace	3	$5,222,000
	Repair	20	$2,116,000
	Total:	**26**	**$7,638,000**
6-10 years	Retire	2	$200,000
	Replace	8	$5,357,000
	Repair	8	$2,304,000
	Total:	**18**	**$7,861,000**

- Through the retirement of the 10 recommended bridges, the Municipality stands to save $6,081,500
  - This figure includes an assumed $100,000 cost to permanently retire bridges



Risk Mitigation Measures and Next Steps Implementation

- Risk mitigation measures were identified to limit potential impacts of a bridge's retirement:
  - Allow appropriate turning radius for large vehicles (snow plow, farm equipment)
  - Notify emergency services of closures
  - Ensure load limits are posted on bridges
  - Confirm potential environmental constraints on Bridge 2621
- Additional studies may be required through further investigations including:
  - Confirmation of cultural heritage significance
  - Public consultation
  - Additional environmental assessment
  - Mitigation of environmental needs during dismantling of existing structures

Permanent retirement has been recommended for Bridge 2128

Questions

GEI Consultants