



ASSET MANAGEMENT PLAN

2022

Approved February 6, 2023

EXECUTIVE SUMMARY

All municipalities in Ontario are required to complete an asset management plan (AMP) in accordance with Ontario Regulation 588/17 (O. Reg. 588/17). This AMP outlines the current state of asset management planning in the Township of Front of Yonge. It identifies the current practices and strategies that are in place to manage public infrastructure.

This AMP includes the following asset categories:

- Road Network
- Bridges and Culverts

This AMP has used a combination of proactive lifecycle strategies (roads) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

The Road Network, owned and operated by the Township of Front of Yonge, has an estimated replacement cost of \$35 million.

The Township's core infrastructure is considered to be in good condition on average, and it has been forecasted that the Township will require an estimated \$2.9 million for lifecycle maintenance activities for core infrastructure over the next ten years.

This AMP is based on the best available processes, data, and information at the Township. Strategic asset management planning is an ongoing and dynamic process that requires continuous maintenance.

Over the last five years, the Township of Front of Yonge's total population has decreased by 12 residents (-0.5%) with the number of private households increasing by 15 households (+1.24%). The rate of actual growth over the last five years is generally in line with both the Township's and the United Counties of Leeds and Grenville's Official Plan, which forecasts population growth of 1% per year. It is recognized that numerous variables can influence population and household growth. While the absence of significant levels of growth, combined with the small geographical area of the Township, indicates that significant demand for infrastructure expansion is not expected over the duration of the asset management plan, the Township will continue to face investment requirements associated with the replacement of existing infrastructure.

1 ASSET MANAGEMENT OVERVIEW

Municipalities are responsible for managing and maintaining infrastructure assets to deliver services to the community. The goal of asset management is to help communities manage municipal infrastructure assets to improve investment decisions. Asset management also helps reduce risks in order to provide reliable and cost-effective services.

1.1 Asset Management Policy

An asset management policy represents a statement of the principles guiding the municipality's approach to asset management activities. It aligns with the organizational strategic plan and provides clear direction to municipal staff on their roles and responsibilities as part of the asset management program.

The Township adopted By-law #16-19, "A By-law to Establish a Strategic Asset Management Policy for the Township of Front of Yonge" on May 6, 2019, in accordance with Ontario Regulation 588/17.

The objectives of the policy include:

- Providing a framework for implementing Asset Management to enable a consistent and strategic approach at all levels of the organization and meets the Township's priority objectives.
- Provide transparency and demonstrate to stakeholders the legitimacy of decision-making process which combine strategic plans, budgets, service levels and risks.

1.2 Asset Management Plan

The asset management plan (AMP) presents the outcomes of the municipality's asset management program and identifies the resource requirements needed to achieve a defined level of service. This AMP includes the following content:

- State of Local Infrastructure
- Asset Management Strategies
- Levels of Service

This AMP is a living document and updates will occur as necessary.

1.3 Next Steps

As required by the Act, the Township will undertake the following ongoing activities related to asset management planning:

- Updating the strategic asset management policy every five years, with the next update expected in 2024;
- Updating the asset management plan for core infrastructure every five years;
- Completing an asset management plan for other assets on or before July 1, 2024;
- Updating the asset management plan proposed levels of services on or before July 1, 2025; and
- Providing Council with an annual update as to the Township's progress against the asset management plan.

2 SCOPE AND METHODOLOGY

2.1 Replacement Costs

The estimated replacement costs of the Township's assets in this AMP have been calculated using user-defined cost and cost/unit, which are based on average costs from recent contracts, data from engineering reports and assessments, staff estimates based on knowledge and experience.

2.2 Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period of time the Township expects the asset to be able to be used or remain in service before requiring replacement. This data was developed from the information provided in the 2022 Road Needs Study.

Using the EUL as well as the assets in-service data, the Township was able to determine the service life remaining (SLR) for each asset. Using this in conjunction with condition data, the Township can more accurately forecast when replacement will be required. The SLR is calculated by taking the In-Service Date, adding it to the Estimated Useful Life and deducting the current year. For example:

Service Life Remaining (SLR) = In Service Date + Estimated Useful Life (EUL) – Current Year

2.3 Asset Condition Assessment

The most effective way to assess the condition of assets and identify repair and replacement needs is through condition assessments. Typically, condition assessments are performed on higher value assets or assets that have regulatory or safety regulations such as roads, buildings, bridges, fire equipment and vehicles.

To ensure repeatable and consistent approach of condition ratings, a general 5-tier condition rating system which is backed by other major organizations and associations has been used.

O. Reg. 588/17 requires that the asset management plan documents and describes the methods used for condition assessments for each asset category wherever it is applicable.

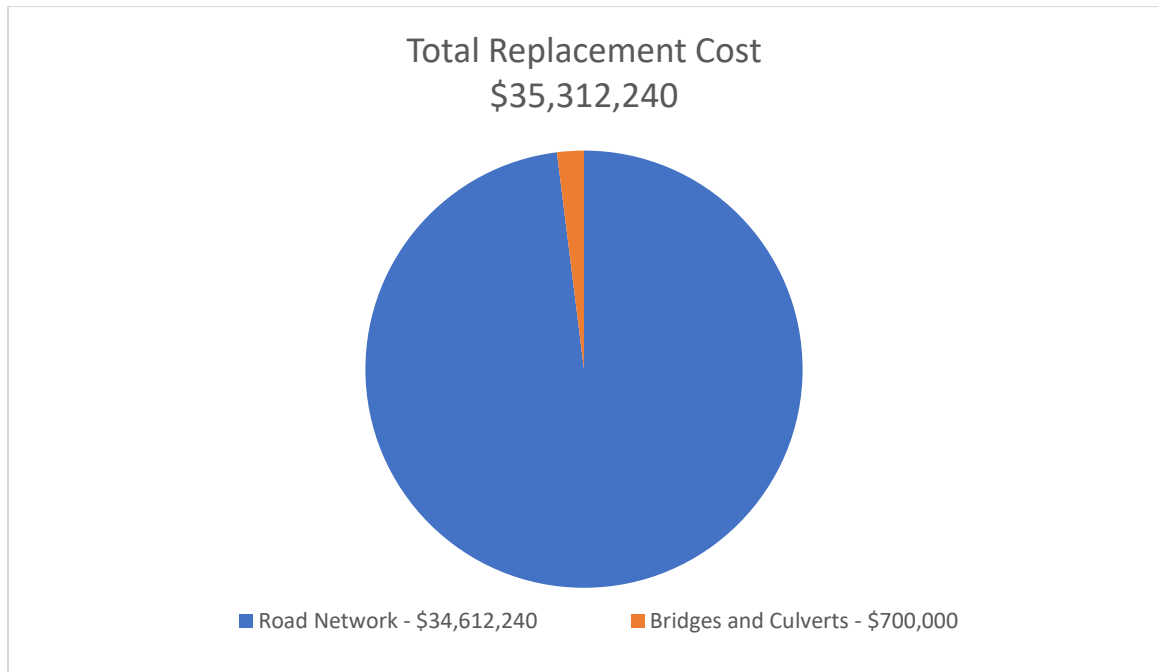
The table below outlines the condition rating system used in this AMP. Conditions are performed based on a 100-point scale. Where condition assessments are unavailable, the remaining useful life can be used in its place.

Rating	Condition	Criteria	Condition Range	Remaining Useful Life
1	Very Good	Well maintained, good condition, new or recently rehabilitated	Greater than 80	Greater than 80% of Asset Useful Life remaining
2	Good	Good condition, few elements exhibit existing deficiencies	70-80	60% - 80% of Asset Useful Life remaining
3	Fair	Some elements exhibit significant deficiencies. Asset requires attention	60-70	40% - 60% of Asset Useful Life remaining
4	Poor	A large portion of the system exhibits significant deficiencies. Asset mostly below standard and approaching end of service life	50-60	20% - 40% of Asset Useful Life remaining
5	Very Poor	Widespread signs of deterioration, some assets may be unusable. Service is affected	Less than 50	Less than 20% of Asset Useful Life remaining

3 OVERVIEW OF ASSETS

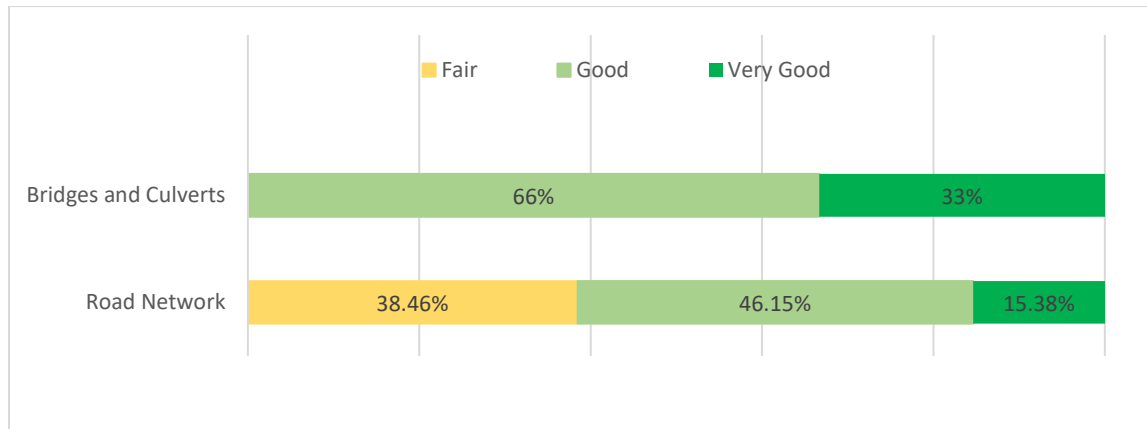
3.1 *Total Replacement Cost of Assets*

The assets outlined in this AMP have a total replacement cost of \$35,312,240. This amount was determined by using a combination of information, including recent contracts, engineering reports and assessments, staff estimates. This total reflects replacement of historical assets with similar, not necessarily identical assets available for procurement today.



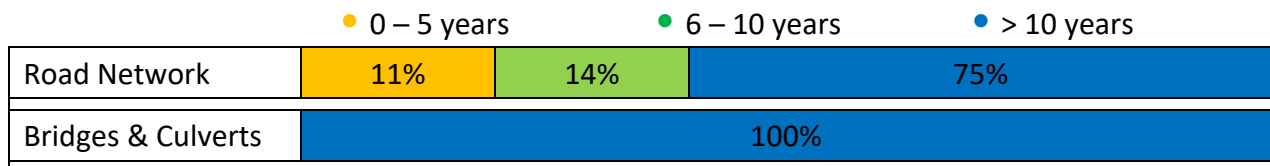
3.2 Asset Condition Assessment

The chart below depicts a picture of the condition of the road network and bridges and culverts in the Township of Front of Yonge. This information is based on a 2022 road study completed by an independent engineering firm. Based on this, the majority of the Township's bridges and culverts are considered to be in good condition (66%) and the road network has been classified as being in good condition (46.15%) with an average condition rating of 78 for HCB roads and 70 for LCB roads.



3.3 Service Life Remaining

Based on the asset age, the assessed condition data and estimated useful life, 22% of the Township's assets will require replacement within the next 10 years.



4 Analysis of Assets

4.1 Road Network

The Township of Front of Yonge has a total of 64.9 km of roads. The Road Network includes all municipally owned and maintained roadways and supporting roadside infrastructure including sidewalks and streetlights.

The Township's roads and sidewalks are maintained by the Public Works Department who is also responsible for winter operations, such as snow plowing and removal, and ice control.

4.2 Inventory and Replacement Cost

The Township of Front of Yonge municipal road system is made up of the following:

Asset Type	Length	Replacement Cost Method	Total Replacement Cost
Gravel	18.2 km	Not planned for replacement	
HCB (Asphalt)	14.6 km	Cost per unit	\$1,345,560
LCB (Surface Treatment)	32.1 km	Cost per unit	\$32,507,980
Sidewalks	615 sq m	User-defined	\$269,100
Streetlights	62	CPI Tables	\$45,000

4.3 Asset Condition

The table below identifies the current average condition and source of available condition data for each asset type.

Asset Type	Average Condition (%)	Average Condition Rating	Condition Source
HCB (Asphalt)	77%	Good	100% assessed
LCB (Surface Treatment)	70%	Good	100% assessed
Sidewalks	78%	Good	100% assessed
Streetlights	68%	Fair	Age-based

Current Approach to Condition Assessment

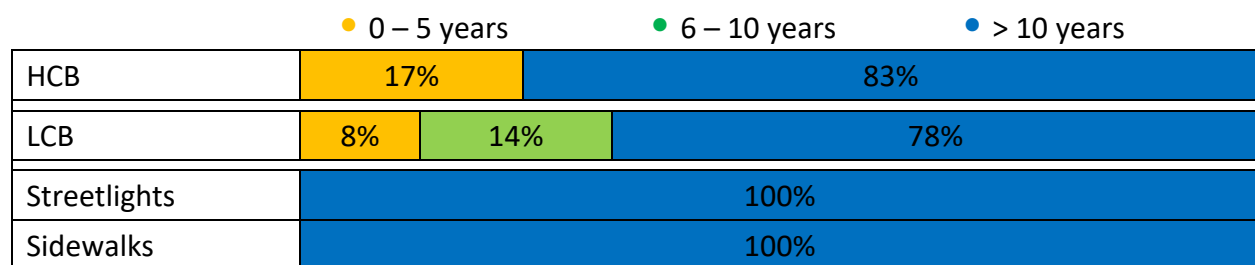
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

- A Road Needs Study by an outside consultant was completed in 2022 that included detailed assessment of each road segment.
- The Road Needs Study will be reviewed annually.

4.4 Estimated Useful Life & Average Age

The Estimated Useful Life for the Road Network assets has been calculated based on industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in service. The Average Service Life Remaining is the difference between the Estimated Useful Life and the Average Age, except when an asset has been provided an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Type	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
HCB	40	24.9	15.1
LCB	10	5.3	4.7
Streetlights	25	8	17
Sidewalks	40	13	27



Each asset's Estimated Useful Life will be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

4.5 Lifecycle Management Strategy

Many factors play a role in the deterioration of an asset, including the asset's characteristics, location, utilization, maintenance history and environment.

The following strategies have been developed as a proactive approach to managing the lifecycle of Surface Treated and Asphalt roads. The expected service life of roads can be extended at a lower cost by strategic rehabilitation, rather than allowing roads to deteriorate until replacement is required.

Asphalt (HCB)		
Event Name	Event Class	Event Trigger
Single Lift Resurfacing	Rehabilitation	20 Years
Full Reconstruction	Replacement	40 Years

Surface Treated (LCB)		
Event Name	Event Class	Event Trigger
Single Surface Treatment	Rehabilitation	5 - 10 Years
Full Reconstruction	Replacement	50 Years

Forecasted Lifecycle Management Requirements

For purposes of the asset management plan, the estimated cost of lifecycle activities includes:

- The replacement/reconstruction of the roads network at the end of their useful lives; and
- The cost of rehabilitation/annual maintenance activities required on an annual basis to maintain the Township's roads at the current state.

As summarized below, the estimated cost of required lifecycle activities is estimated at \$2.9 million over the next ten years.

Year	Lifecycle Maintenance Activities	Capital Works	Total
2022	\$30,455	\$244,289	\$274,744
2023	\$327,903	0	\$327,903
2024	\$236,900	\$55,500	\$293,400
2025	\$238,702	\$24,389	\$263,091
2026	\$95,692	\$219,794	\$315,486
2027	\$78,786	\$242,295	\$321,081
2028	\$197,077	\$57,964	\$255,041
2029	\$298,513	\$0	\$298,513
2030	\$319,767	\$0	\$319,767
2031	\$215,351	\$25,335	\$240,686
Total	\$2,108,702	\$869,566	\$2,909,712

4.6 Levels of Service

The following table identifies the Township's current level of service for the Road Network that is required as part of O. Reg. 588/17.

Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	The Township's transportation network comprises of 64.9 km of road, of which 18.2 km are gravel, 14.6 km are paved and 32.1km are surface treated. The network mostly consists of roads with MMS classes of 5 and 6. The network also consists of about 56 streetlights and 615 sq m of sidewalks within the Village of Mallorytown.
Quality	Description or images that illustrate the different levels of road class hard top condition.	The Township completed a Road Management Study in 2022 in coordination with Greer Galloway Consulting Engineers. Every road section received a surface condition rating (1-10).

5 BRIDGES AND CULVERTS

The Township of Front of Yonge has 1 bridge and 2 structural culverts. The bridge is located on Pond Road, and the structural culverts are located on Marsh Road and White Acres Road. The Public Works Department is responsible for the maintenance of the bridge and culverts.

5.1 Asset Inventory & Replacement

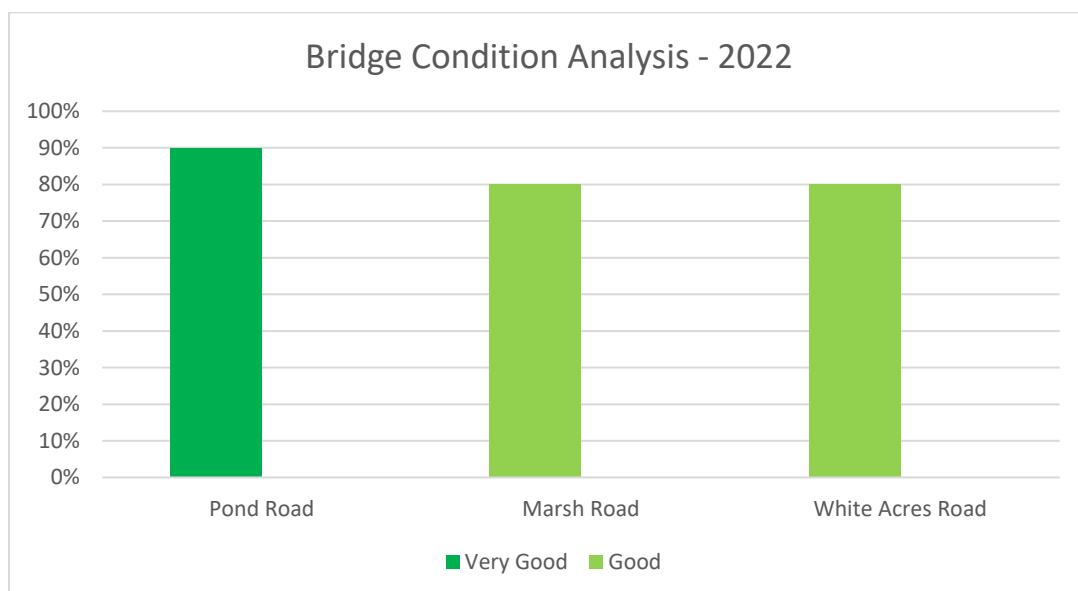
The table below includes the quantity, replacement cost method and total replacement cost of each bridge in the Township's inventory.

Asset	Quantity	Replacement Cost Method	Total Replacement Cost
Bridge	1	User-Defined Cost	\$400,000
Structural Culverts	2	User-Defined Cost	\$300,000

5.2 Asset Condition

The table below identifies the current average condition and source of available condition data for each bridge.

Asset	Average Condition (%)	Average Condition	Condition Source
Bridge	80%	Good	100% Assessed
Structural Culverts	90%	Very Good	100% Assessed



To ensure the Township's bridges continue to provide an acceptable level of service, the Township will monitor the average condition of all assets. If the average condition declines, staff will re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation, and replacement activities is required to increase the overall condition of the Bridges and Culverts.

Current Approach to Condition Assessment

The Township will follow the Ontario Structure Inspection Manual (OSIM) assessment schedule to ensure all bridge and culvert assessments meet the requirement.

5.3 Estimate Useful Life and Average Age

The Estimated Useful Life for Bridges and Culverts assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when the asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset	Estimated Useful Life	Average Age	Average Service Life Remaining (Years)
Bridges	150 Years	92	58
Culverts	100 Years	13	87

5.4 Lifecycle Management Strategy

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitations and Replacement	All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM). These are included in the capital forecasts for this asset category.
Inspection	The most recent inspection report was completed in 2020 for White Acres Road Bridge and 2022 for Pond Road and Marsh Road bridges by Eastern Engineering Inc.

Forecasted Lifecycle Management Requirements

Due to the current condition of the Township's Bridges and Culverts, there are no Forecasted Lifecycle Management Requirements at this time.

The Township will continue to monitor and update Lifecycle Management requirements based on results from Ontario Structure Inspection Manual assessments.

5.5 Levels of Service

The following table identifies the Township's current level of service for Bridges and Culverts that is required as part of O. Reg. 588/17.

Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the traffic that is supported by municipal bridges (eg. Heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Bridges and structural culverts are a key component of the municipal transportation network. None of the municipality's structures have loading or dimensional restrictions meaning that most types of vehicles including heavy transport, motors vehicles, emergency vehicles and cyclists can cross them without restriction.
Quality	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts.	See Appendix A

ASSET MANAGEMENT PLAN APPENDIX 'A'

Pond Road Bridge



Pond Road – Approach facing West



Pond Road – Approach facing East



Pond Road – South Guardrail Damage



Pond Road – Concrete Abutment

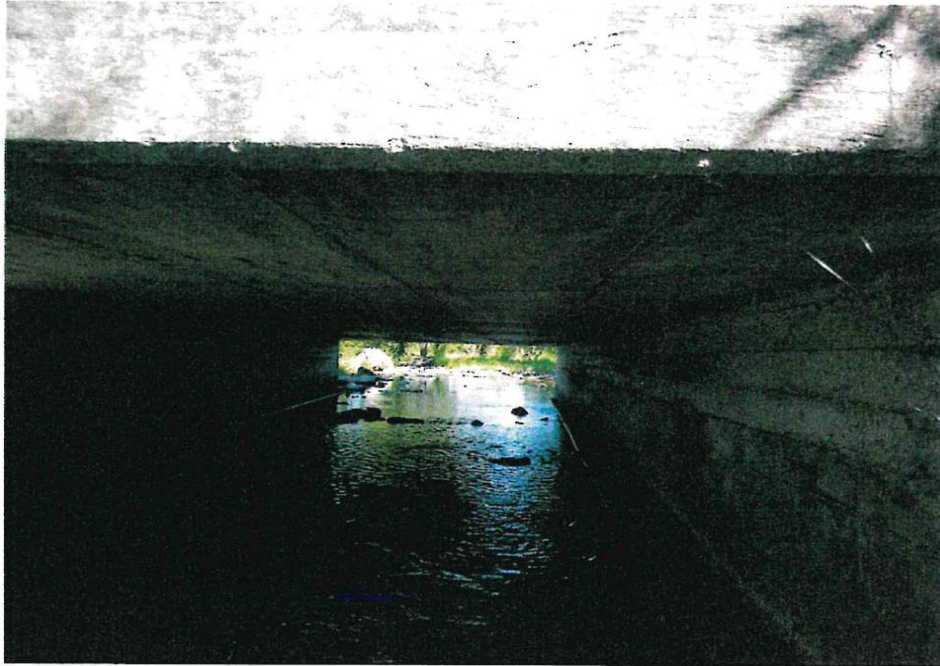


Pond Road – Footing Bearing on Weathered stone

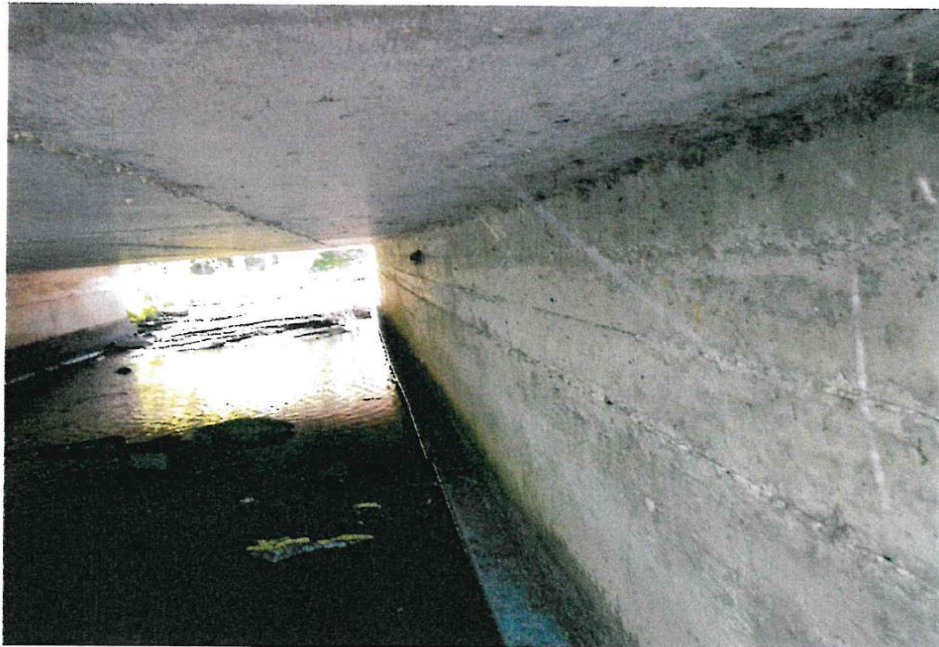


Pond Road – Signs of Concrete Delamination

Marsh Road Bridge



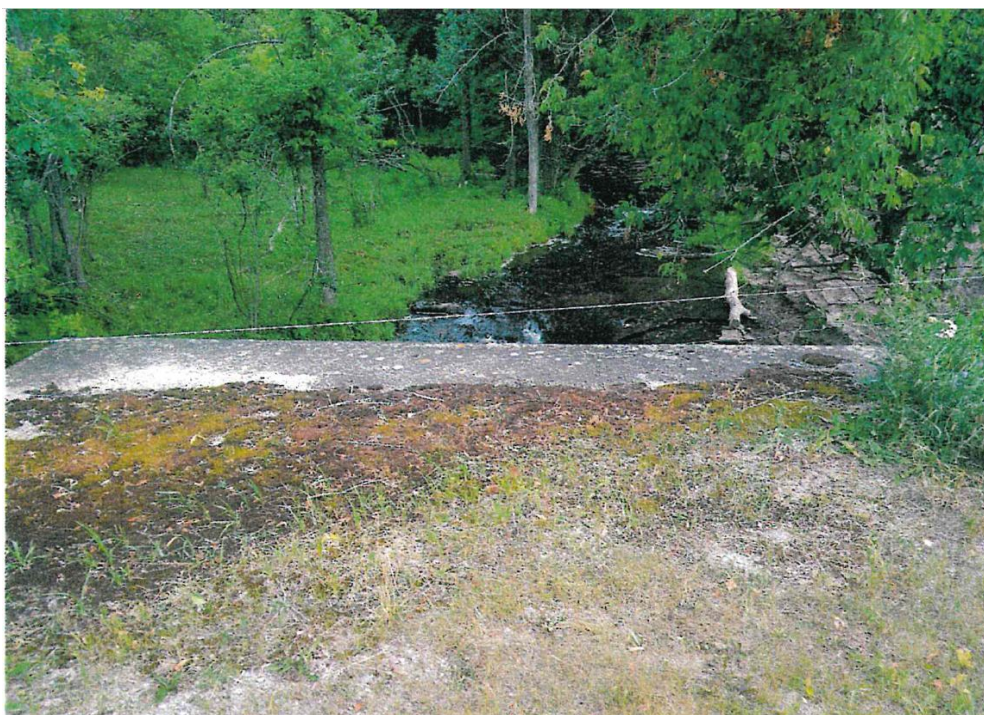
Marsh Road – U/S Concrete Deck in good condition



Marsh Road – Concrete Abutment in good condition

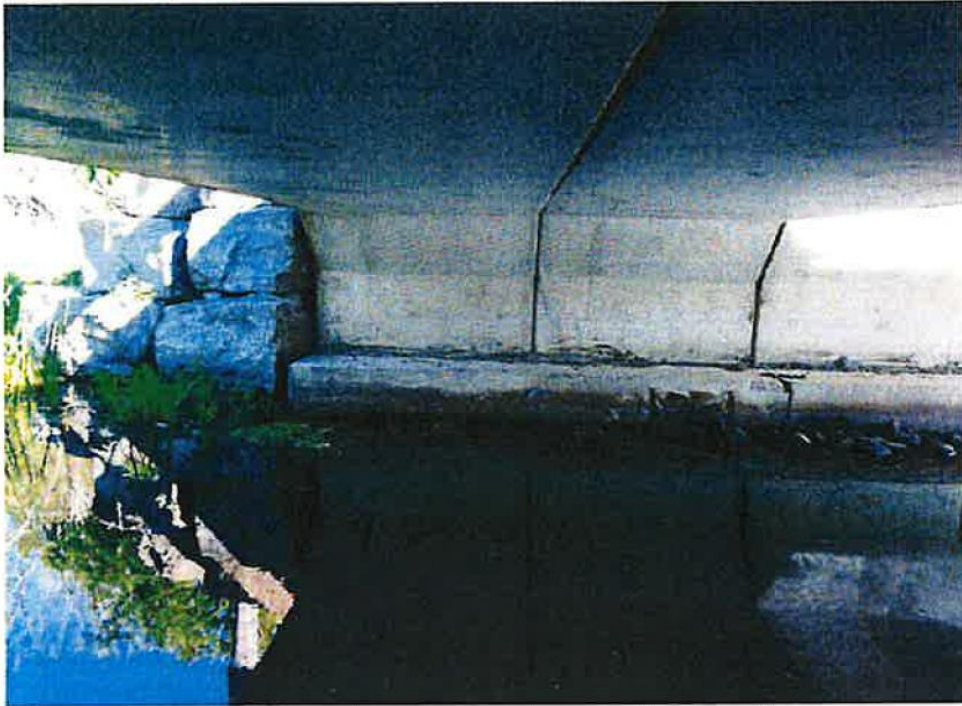


Marsh Road – Approach facing East



Marsh Road – Bridge Deck Surface Weathering

White Acres Road Bridge



White Acres- U/S Bridge Deck in excellent condition



White Acres- U/S Bridge Deck in excellent condition



White Acres- Abutment wall in excellent condition



White Acres- Approach looking North