



Mill St. Sanitary Pumping Station and Bay Street Reconstruction

Public Information Centre No. 1

April 18th, 2024

PRESENTATION OUTLINE

Background

Existing Conditions

Problem Identification

Forcemain Alignment Options

Potential Alternative Reinstatement Configurations

Next Steps

Questions

WHY NOW?



Growth in the collection system – Campus of Care, Thornbury West, Lora Bay and growth within the existing community limits



Existing Infrastructure is reaching end of life (Sanitary sewer is leaky, Nineteen watermain breaks or incidents in recent years. (1 in 2013, 7 in 2015, 1 in 2016, 1 in 2017, 2 in 2019, 2 in 2020, 3 in 2023, 2 in 2024)



Mill St. Sanitary Pumping Station has reached capacity resulting in situations where flooding has been avoided by trucking wastewater away from the pumping station during peak events.

DECEMBER 2ND, 2023 – PUBLIC INFORMATION WALKING TOUR

- **What the Town heard:**
 - **Residents do not endorse road upgrades (i.e. curb, widening, ditches) and would like to retain current character and feel.**
 - **Residents were concerned with loss of trees and tree health.**
 - **Residents do not feel separate active transportation is necessary through “their community” i.e. no sidewalks, trail or bike lanes.**
 - **Residents were concerned with the drinking water quality considering the number of recent breaks.**
 - **Residents wanted to be engaged during design process.**
 - **Residents were surprised/shocked at the actual property line locations along the north side of Bay St. E.**

This Public Information Centre is the next step in the process to address identified concerns and communicate the Town approach going forward to engage the community in the delivery of this project.

RELEVANT STUDIES



Town-wide Wastewater Master Plan (ongoing)

Projected Flows at Mill St. Sanitary Pumping Station exceed available capacity



Town-wide Master Drainage Plan (ongoing)

Proposed Trunk Sewer on Elgin St. N. crossing Bay St. East



Town-wide Water Distribution Master Plan (2019)

Identified Highway 26/Georgian Trail as preferred alignment for water transmission main



Transportation Master Plan

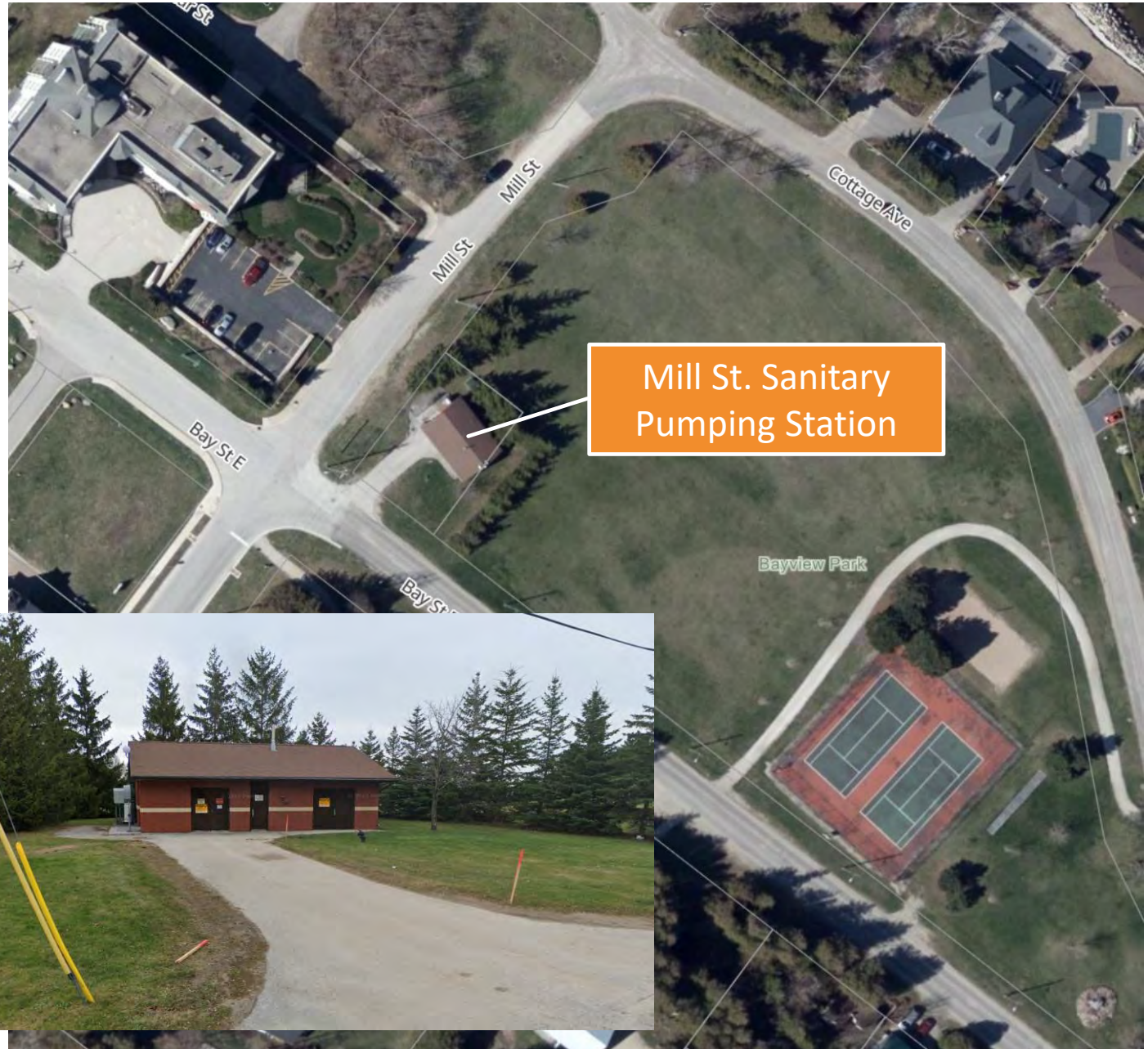
Bay St. is identified as Active Transportation General (facilitate the movement of cyclists and pedestrians) – Basic Infrastructure Standard

ACTIVE TRANSPORTATION GUIDANCE – TOWN OFFICIAL PLAN

- SECT. A1.1 GUIDING PRINCIPLES - “To establish an integrated transportation system that safely and efficiently accommodates various modes of transportation including walking, cycling, automobiles and trucks”.
- SECT. A3.1.2 STRATEGIC OBJECTIVES - “Encourage reductions in the use of private automobiles by promoting active transportation and the use of Transportation Demand Management measures such as public transit, cycling and walking.”
- SECT. D2.5 - “Active Transportation (walking and cycling) is an important component of building active communities and reducing dependence on single occupant vehicles.
 - a) promote a connected safe and well-designed active transportation network which can include exclusive facilities for pedestrians and cyclists (sidewalks, bicycle lanes, trails, etc.) that are connected to origins and destinations within and beyond the Town;
 - e) require the provision of sidewalks in settlement areas and hamlets, where appropriate;
 - g) investigate and provide for bicycle lanes wherever possible in the construction or reconstruction of roads and bridges;
 - h) encourage and support measures which will provide for barrier-free design of pedestrian facilities;
 - i) support an accessible network that allows for use by all members of the community, which includes barrier-free design of pedestrian facilities which considers the location and width of sidewalks, use of curb cuts, pedestrian crosswalks and signals, etc.
 - k) encourage pedestrian and cycling amenities, both on the active transportation network and at key destinations, ... and water fountains and benches along trail network;
 - m) ensure that all pedestrian and cycling routes are designed to be safe.

BACKGROUND: MILL ST. SANITARY PUMPING STATION

- Mill St. Sanitary Pumping Station Services all of Thornbury.
- Designed for Peak Hourly Flow.
- Current Pumping Capacity is 140 L/s ~ 12,100 m³/day
- Originally Constructed in 1976. Last Major Upgrade was 2005.
- Expansion of the system for Campus of Care and development growth to the west requires an expansion of the system to approximately 450 L/s ~ 38,900 m³/day (Peak Instantaneous Flow)



BACKGROUND: MILL ST. FORCEMAIN

- Forcemain was completed in 1976 (48 years old).
- Raw Wastewater (Influent) is pumped from Mill St. Sanitary Pumping Station (SPS) to the Thornbury Wastewater Treatment Plant (WWTP).
- Treated Wastewater (Effluent) returns from the WWTP via the same route and discharges to the Beaver River.
- Existing alignment is congested and must stay operational throughout construction.



Mill Street Sanitary
Pumping Station

Current Sanitary
Forcemain
Alignment

Thornbury WWTP
Headworks



BACKGROUND: PROBLEM IDENTIFICATION

- Mill St. Sanitary Pumping Station Forcemain – Existing Pipe is too small for higher flow. Another or larger pipe is required.
- The existing sanitary sewer and watermain on Bay St. have reached the end of their useful life.
- The existing forcemain alignment is congested with the existing forcemain, outfall and storm sewer. No space available to construct without excessive risk.
- During construction the system must be kept in full operation.
- A New Forcemain Alignment is required.



ALTERNATIVE FORCEMAIN ALIGNMENT CONSIDERATIONS – ALTERNATIVE A

Pros:

- Similar hydraulic characteristics
- Entirely in accessible Town ROW

Cons:

- Congested Alignment – No room
- Does not allow for forcemain redundancy.
- Higher risk of impacting current operations
- Does not address existing infrastructure deficits on Bay St. (water, sanitary, storm, drainage, intersection)
- Grey St. will still need to be reconstructed for new outfall.
- Expensive with minimal additional benefits and high risk.
- Higher energy costs due to increased pressure loss.



Thornbury WWTP
Headworks

Existing Route - 1.32 km

Mill St. SPS

ALTERNATIVE FORCEMAIN ALIGNMENT CONSIDERATIONS – ALTERNATIVE B



Pros:

- Least impact on residents of Bay St.
- Minimum residential frontage
- Entirely in accessible ROW

Cons:

- Highest traffic alignment
- Most significant impact on overall population due to traffic impacts.
- Other utility impacts (large gas main on Hwy 26) and congested corridor.
- High cost due to low production rate.
- Mill St. was recently reconstructed.
- Does not address existing infrastructure deficits on Bay St.
- Grey St. will still need to be reconstructed for new outfall.
- Will delay project due to business impacts.



Thornbury WWTP
Headworks

Mill St. SPS

Highway 26 Route – 1.31 km

ALTERNATIVE FORCEMAIN ALIGNMENT CONSIDERATIONS – ALTERNATIVE C



Georgian Trail Route – 1.25 km

Thornbury WWTP Headworks

Mill St. SPS

- Pros:**
- Shortest Length
 - Reduces impacts on Bay St. Residents from Elgin to Grey.
- Cons:**
- Congested corridor with future water transmission main.
 - Access is limited compared to other alternatives.
 - Elgin St. is already congested with utilities.
 - No infrastructure renewal on Bay St. Bay St. would need to be upgraded at some point in near future.
 - Grey St. will still need to be reconstructed for sanitary outfall.
 - Construction impact of rerouting recreational traffic for an entire summer.

ALTERNATIVE FORCEMAIN ALIGNMENT CONSIDERATIONS – ALTERNATIVE D



Bay St. Route – 1.27 km

Mill St. SPS

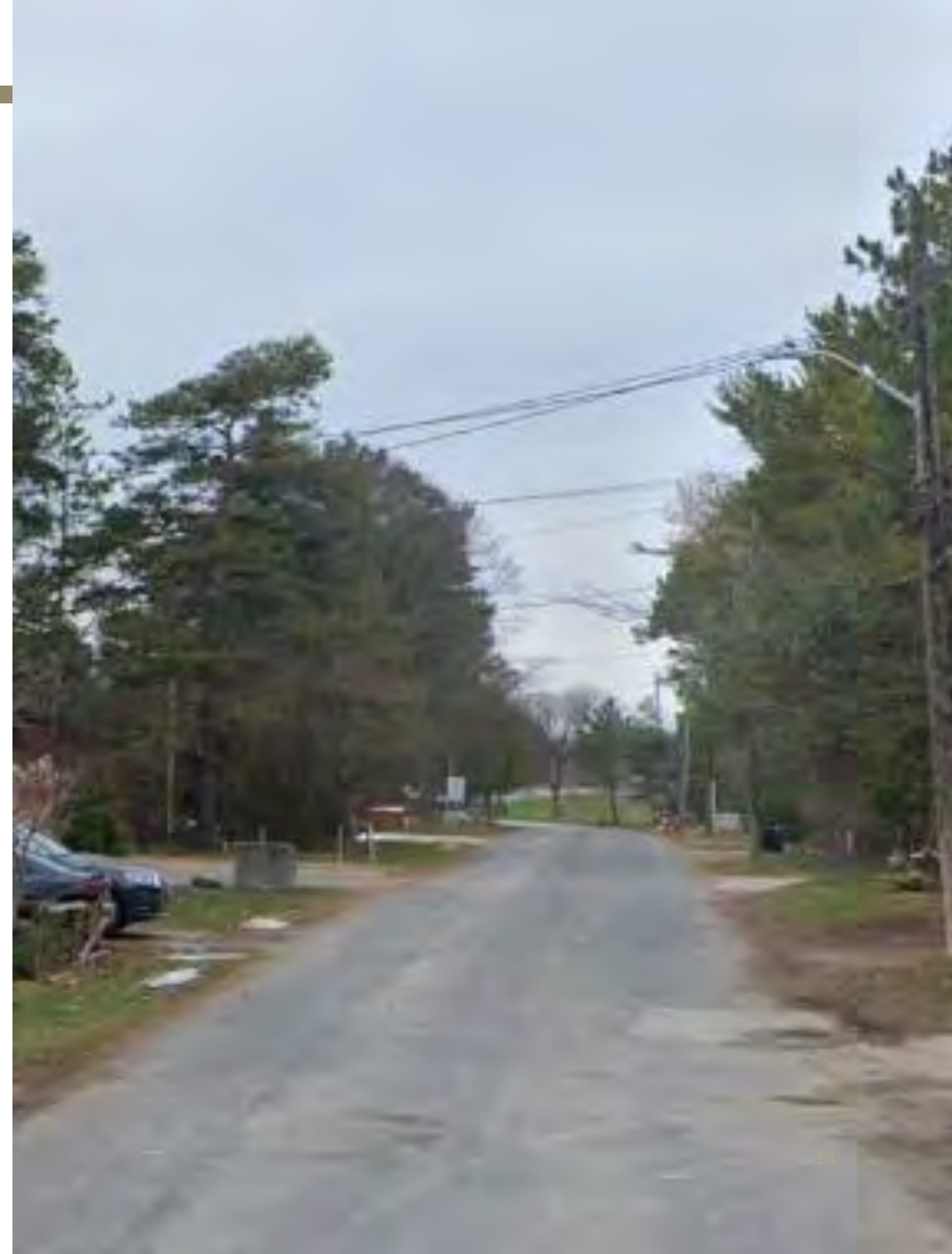
Thornbury WWTP
Headworks

- Pros:**
- Addresses water, sanitary, and drainage issues.
 - Entirely in accessible Town ROW
 - Cost savings due to concurrent outfall project work.
 - Provides redundancy
 - Potential to eliminate Elgin St. SPS.
 - Most cost effective alternative due to savings associated with common reinstatement for utility renewal.

- Cons:**
- Significant residential frontage and associated impacts compared to current condition.
 - Roadway offset in ROW may need to be corrected in order to fit all of the utility components.
 - Risk of impacts to trees in right-of-way is high.

PREFERRED ALTERNATIVE – BAY STREET EAST ALIGNMENT

- Watermain and sanitary sewer on Bay St. East are at or past the end of their useful life. Alignment would need to be reconstructed in near future independent of this project.
- Maintain and improve Active Transportation Route as per Master Plan (improve pedestrian safety).
- Drainage improvements to maximize lifespan of new infrastructure (minimize risk of seasonal frost heave improved flood control).
- Eliminate illegal storm connections to the sanitary sewer. Long-term cost savings due to reduced inflow/infiltration.
- Intersection improvements at Bay St. E. and Elgin St.
- Alignment provides long term access to the forcemain in a low traffic environment with no anticipated future need to expand other infrastructure.
- Cost Savings are achieved by coordinating this work with the new treated effluent outfall on Grey St. to avoid having reconstruction on two streets when it can be completed in a single project.
- Opportunity to potentially eliminate Elgin St. Sanitary Pumping Station which is currently undersized to reduce risk of sanitary back-ups.



KEY ROAD REINSTATEMENT CRITERIA

PEDESTRIAN AND DRIVER SAFETY

MINIMIZE ENVIRONMENTAL IMPACTS

DURABILITY

CAPITAL COST

EASE OF MAINTENANCE

TOWN PLANNING AND STANDARDS

AREA OF CONCERN: BAY ST. E. – ELGIN ST. N. TO GREY ST. N.

ROAD OFFSET IN RIGHT OF WAY

- Looking at options to maintain or minimize realignment in corridor. However, Town Standard is primary starting point.

ROAD WIDTH AND LACK OF PEDESTRIAN FACILITIES

- Reconfiguration to maintain safety while acknowledging the community character within boundaries of Town Standards.

ROAD SURFACE CONDITION AND AGE

- Reconstruct after utility installation.

TREE/SHRUB ENCROACHMENT ON ROADWAY

- Tree inventory is complete and protection plan will be developed during design.

UTILITY CONDITION AND SEPARATION

- Replacement and realignment of utilities to minimize cross-section while maintaining access for emergencies.

DRAINAGE

- Controlling street and subsurface drainage to minimize risk and maximize durability of the pavement infrastructure (e.g. minimize frost heave cracking).

■ TOWN STANDARD WITH BIKE LANES

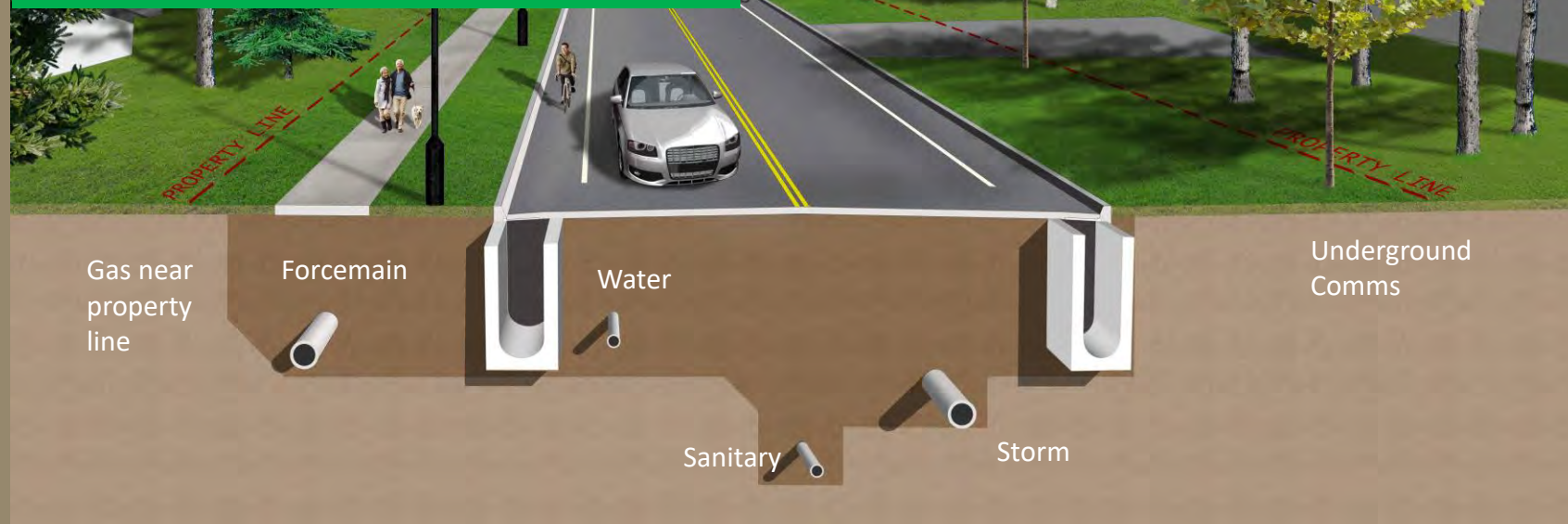
- Road in Centre of ROW
- 1.5 m sidewalk and narrowed lanes with allowance for bike lane.
- Relocated utility poles to south side with cut-off streetlights (dark sky compliant)
- Approximately 5.5 m (18 ft) from property line back of curb.
- Standard Utility Locations with forcemain under sidewalk to minimize tree removals on north side of corridor.
- Opportunities for tree compensation on north side a minimum of 2.25 m back of curb. Trees within ROW is not Town Standard.

Pros:

- Improved Drainage
- Generally, complies with Town Standard
- Removal of ROW off-set will balance frontages on both sides of street.
- Addresses pedestrian and active transportation routing.
- Improves safety.
- Compliant with complete streets approach.
- Provides emergency vehicle access.
- Improves sight lines for driveways.
- Maximizes access for utilities and road maintenance.

Cons:

- Removal of ROW off-set will reduce buffer for north side of street.
- Wider cross-section may increase risk of higher vehicle speeds.
- Removal of mature trees.
- Change to current road character.



■ SOUTH OFFSET – SIDEWALK AND BIKE LANES

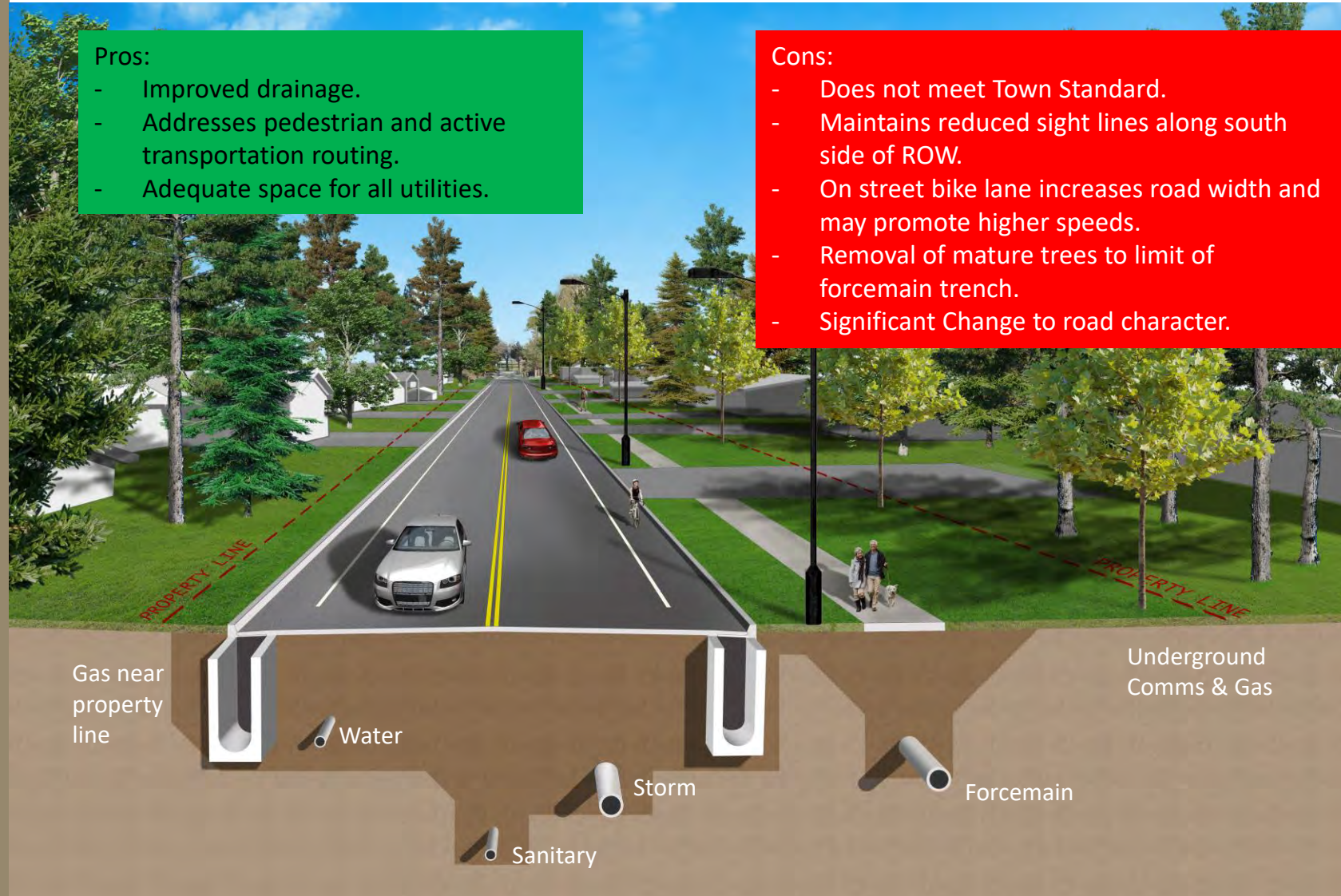
- Road offset south to centreline at approximately 2/3 across right-of-way.
- 1.5 m sidewalk and narrowed lanes with allowance for bike lane.
- Minor relocation of utility poles north of current location with cut-off streetlights (dark sky compliant)
- Approximately 6 m (20 ft) from property line back of sidewalk.
- Standard Utility Locations with forcemain under sidewalk to minimize tree removals on north side of corridor.
- Opportunities for tree compensation on north side a minimum of 2.25 m back of curb. Trees within ROW is not Town Standard.

Pros:

- Improved drainage.
- Addresses pedestrian and active transportation routing.
- Adequate space for all utilities.

Cons:

- Does not meet Town Standard.
- Maintains reduced sight lines along south side of ROW.
- On street bike lane increases road width and may promote higher speeds.
- Removal of mature trees to limit of forcemain trench.
- Significant Change to road character.



■ SOUTH OFFSET – MULTI-USE TRAIL

- Road offset south to centreline at approximately 2/3 across right-of-way.
- 2.7 - 3 m multi-use trail and narrowed lanes.
- Minor relocation of utility poles north of current location with cut-off streetlights (dark sky compliant).
- Approximately 4 m (13 ft) from property line back of multi-use trail.
- Minimum Utility Locations with forcemain under multiuse trail to minimize tree removals on north side of corridor.
- Opportunities for tree compensation on north side behind multi-use trail. Trees within ROW are not Town Standard.

Pros:

- Increased safety for cyclists and pedestrians.
- Reduced road width will promote slower speeds
- Addresses pedestrian and active transportation routing.
- Provides access for utilities and road maintenance.
- Minimizes tree removal on north side of ROW.

Cons:

- Road is not centred in the Right-of-Way.
- Does not comply to Town Standard.
- South driveway sight lines are still impaired.
- Multi-use trail will require removal of some trees.
- Change to road character.



■ SOUTH OFFSET – ONE-WAY

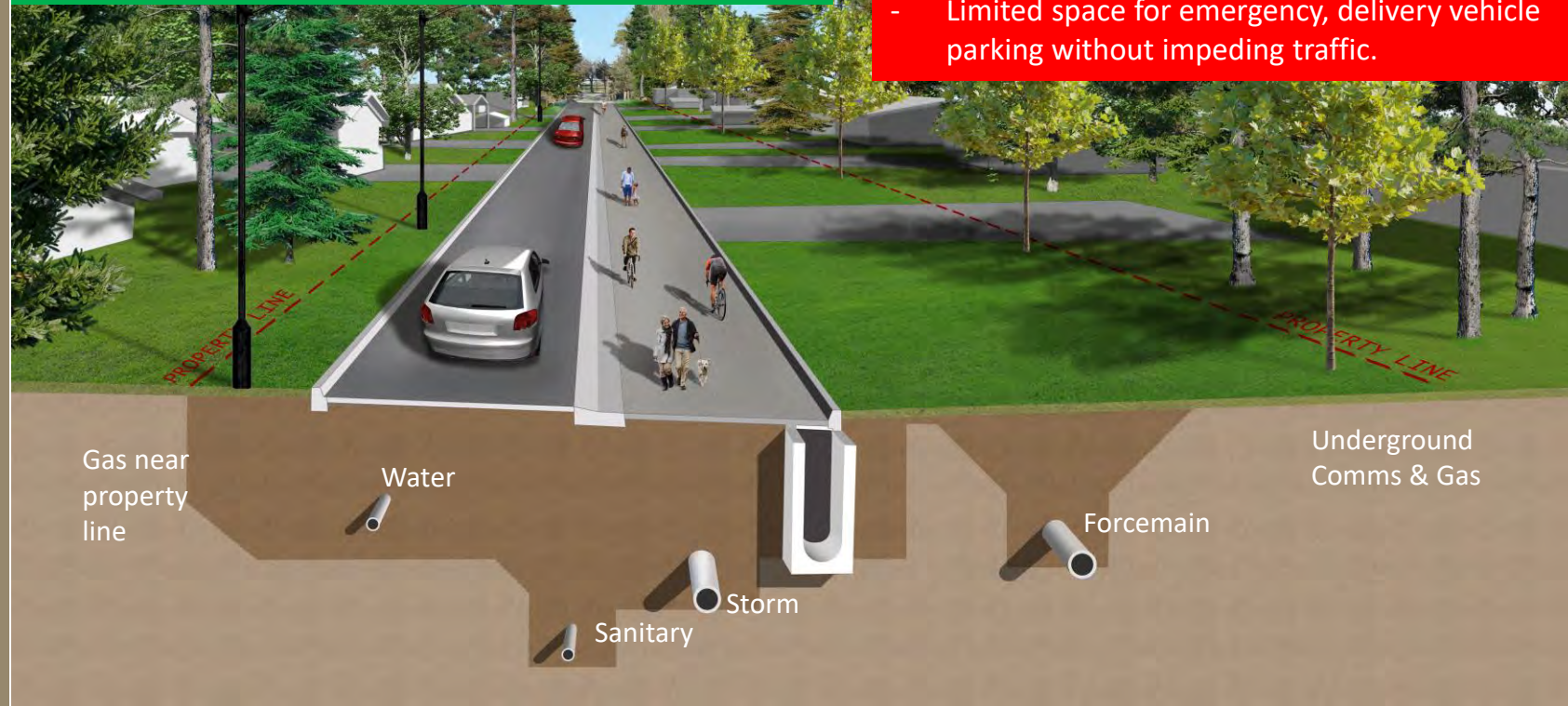
- One-way traffic westbound
- Preference for centre of right-of-way. Road offset south to centreline at approximately 3/4 across right-of-way.
- 3 m multi-use trail and 3.5 m lane with mountable curb in between.
- Relocation of utility poles to south side of corridor with cut-off streetlights (dark sky compliant)
- Approximately 10 m (33 ft) from property line back of curb.
- Minimum Utility Locations with forcemain under boulevard minimize tree removals on north side of corridor.
- Opportunities for tree compensation on north side offset from top of forcemain.

Pros:

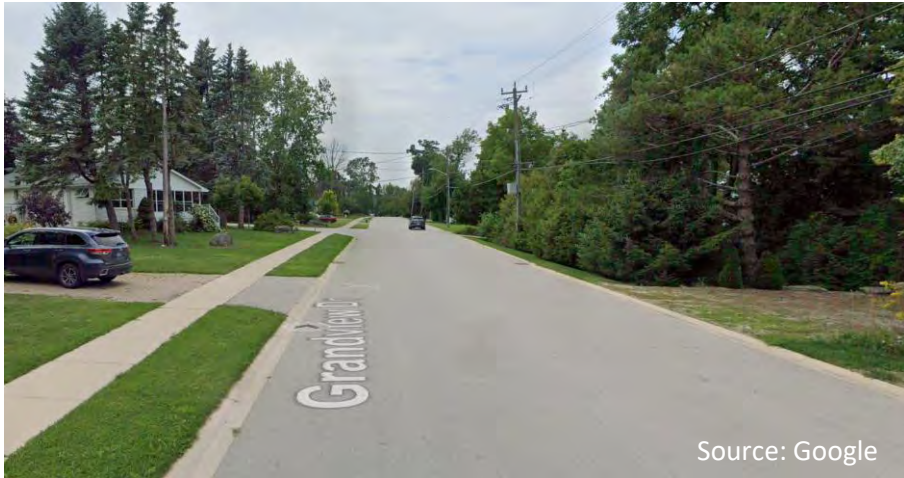
- One-way traffic will reduce number of vehicles.
- Reduced cross-section may promote lower speeds with clear delineation and restriction of lane.
- Multi-use trail will better replicate existing condition.
- Addresses pedestrian and active transportation routing.
- Maximizes access for utilities and road maintenance.

Cons:

- Wider one-way roads promote higher speeds
- Does not comply to Town Standard.
- Poor traffic circulation.
- Limited access for EMS.
- Maintains reduction in sight lines if offset.
- Tree removal will be required to limit of forcemain trench.
- Limited space for emergency, delivery vehicle parking without impeding traffic.



OTHER COMPARATIVES



Source: Google

Meaford – Grandview Dr.

- Limited trees in ROW
- Urbanized Cross-Section
- Street parking permitted
- More consistent with Bay St.

Saugeen Shores – Cottage Streets

- 6 or 10 m right-of-way
- Includes sidewalks in two options.
- No discussion of underground utilities.
- Not same issue as Bay St.



Source: Natures Path

Woonerf

- European concept
- Integrates cars, pedestrians and cyclists
- Closest comparative would be Blue Mountain Village.
- Intended for higher density areas.

Proposed Cross-Sections

Design Concept 1
10 m Right-of-Way
with 6.0 m Roadway
and Sidewalk



Design Concept 2
10 m Right-of-Way
with 6.0 m Roadway
and No Sidewalk



Source: Saugeen Shores – PTSL
Consultants



Design Concept 3
10 m Right-of-Way
with 4.5 m Roadway
and Sidewalk



Design Concept 4
10 m Right-of-Way
with 4.5 m Roadway
and No Sidewalk



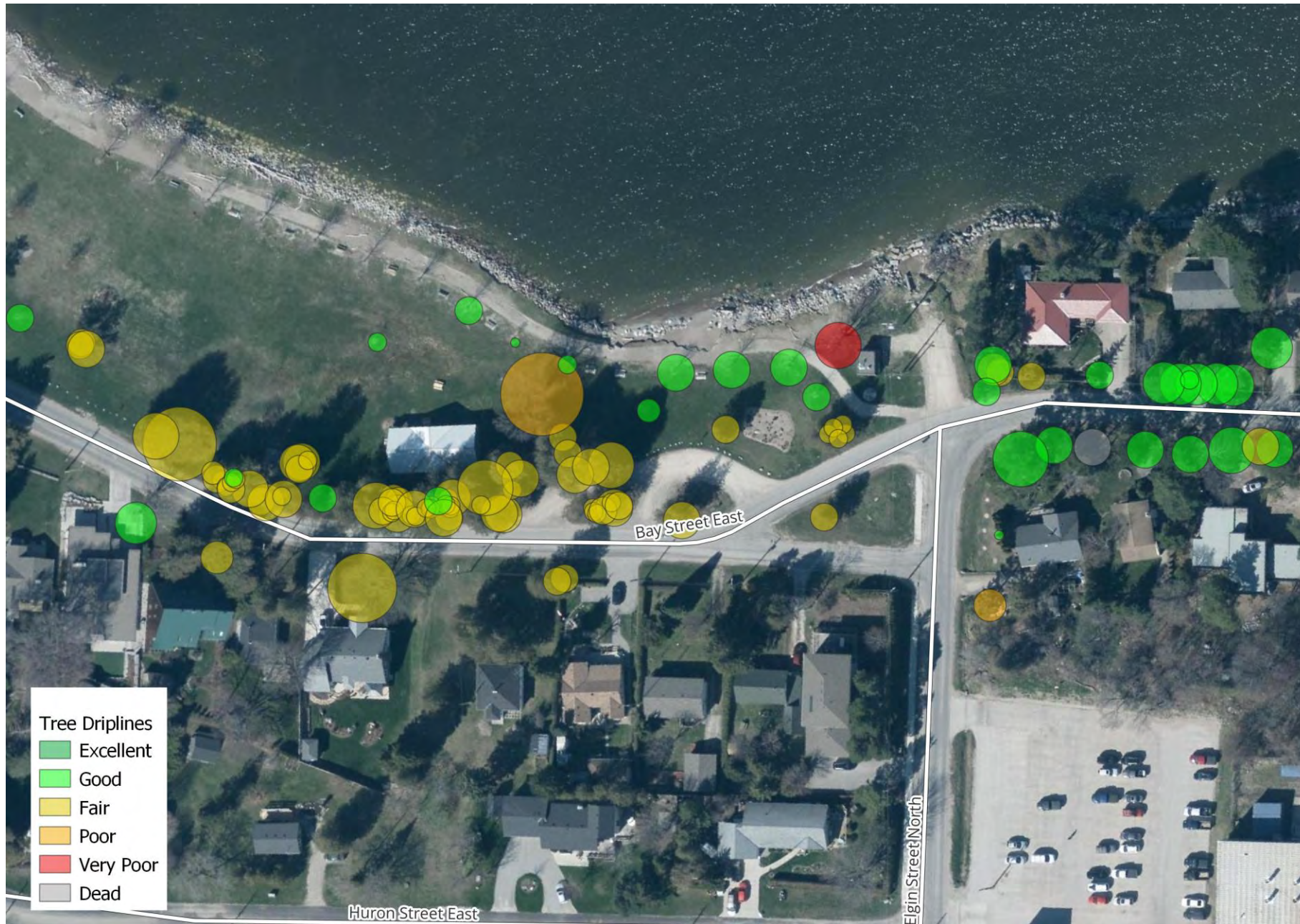
Design Concept 5
6 m Right-of-Way
with 3.0 m Roadway
and No Sidewalk

TREE INVENTORY VS. TREE PROTECTION PLAN

- Tree Inventory and Assessment has been completed. Inventory was completed without leaves on trees which is typical to assess the viability of the tree through clear exposure of trunk and branch condition.
- Tree Inventory is a list of the trees within the right-of-way and private trees that may be impacted by construction due to their proximity to the right-of-way. The assessment component of the inventory is a Certified Arborist's assessment of the health of the trees that were inventoried.
- Impact to trees is currently not determined and to be reviewed in the next stage of design with the goal to minimize all impacts. Opportunity of planting new trees will be considered in future stage of design in town's right of way wherever there is sufficient space.
- Tree Protection Plan is part of the construction documents is prepared through the design process based on:
 - Health and viability of existing trees – Dead, very poor and poor condition assessments within the right-of-way are typically recommended for removal.
 - Construction Conflicts – Trees in fair condition are typically recommended for removal if they are in direct or root zone conflict with proposed works.
 - Construction Conflicts/Design Revisions – Trees in good to excellent that are in direct conflict (e.g. trunk is within excavation zone) with proposed works will be recommended for removal. Design effort is made to avoid trees where possible including deviations from Town standards when approved.
 - Tree Protection – Trees in good to excellent condition within the right-of-way and those close to right-of-way limits on private property are then identified for protection with specific methods (fencing, crown pruning, root pruning) for protection of the trees. This may include watering of the trees in advance of construction and fertilizing to promote improved health for recovery after construction.
 - New trees can be planted as compensation for lost trees either along the alignment (if space permits) or at other sites within the Town. This will be finalized once design has reached 90% complete.



TREE INVENTORY MAPPING: MILL ST. TO MCAULEY ST. N.



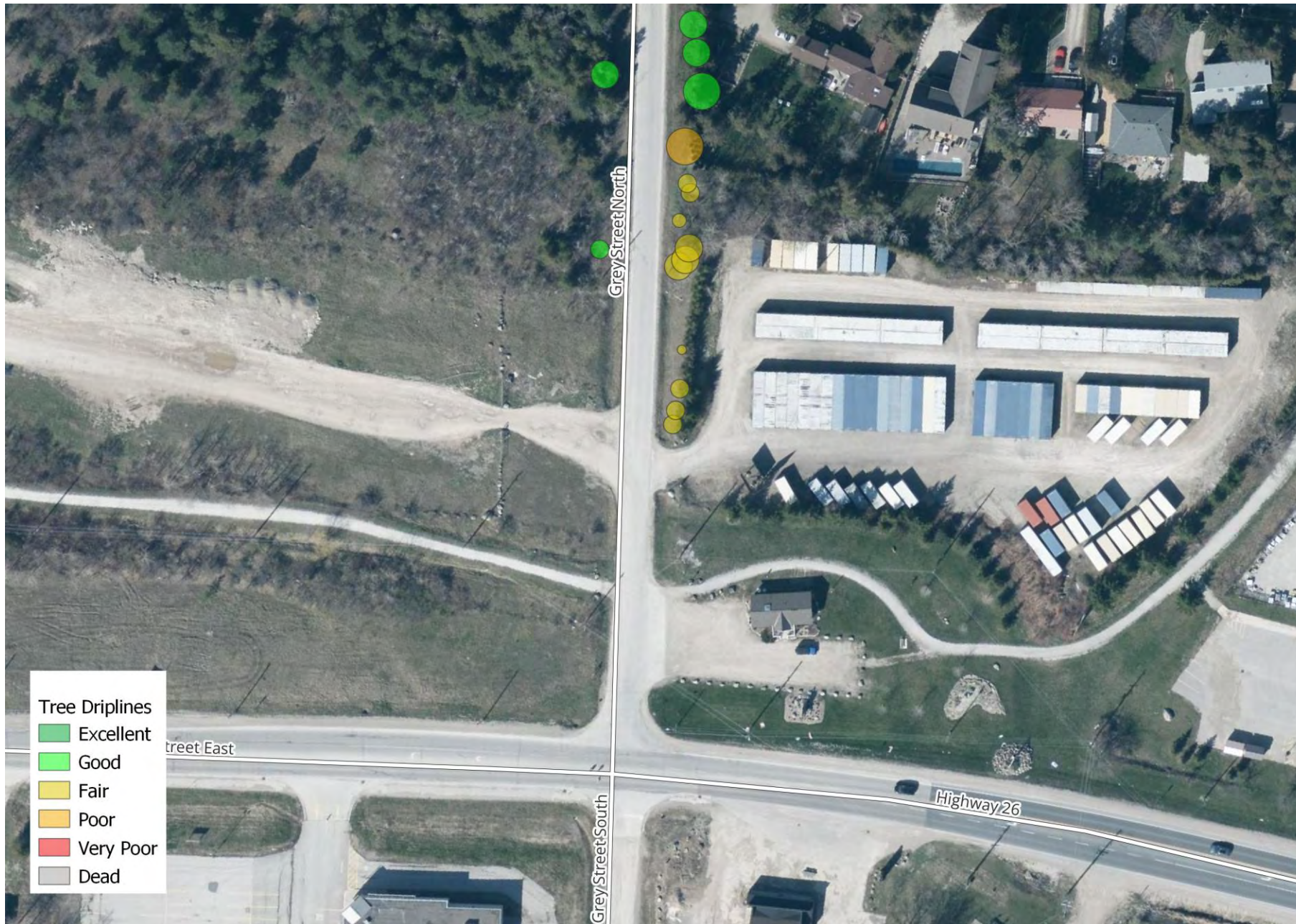
**TREE INVENTORY MAPPING:
MCAULEY ST. N. TO
ELGIN ST. S.**



TREE INVENTORY MAPPING: ELGIN ST. S. TO 172 BAY ST. E.



TREE INVENTORY MAPPING: 172 BAY ST. E. TO GREY ST. N.



TREE INVENTORY MAPPING: GREY ST. N. TO HIGHWAY 26

PROPOSED DESIGN APPROACH – BAY ST. EAST – MILL ST. TO ELGIN ST. N.



- FLEXIBLE ALIGNMENT SECTIONS
 - Bay St. E. - Mill St. to Elgin St. N. – Town Standard Cross-section with multiuse trail on Park Side adjusted for tree protection as necessary.
 - Addition of pedestrian scale lighting through park area.
- CORRECTION OF BAY ST. AND ELGIN ST. INTERSECTION
 - Remove triangle and place stop sign at a single intersection.



PROPOSED DESIGN APPROACH – BAY ST. EAST – ELGIN ST. N. TO GREY ST. N.



- FLEXIBLE ALIGNMENT SECTIONS
 - Bay St. E. – Elgin St. N. to Grey St. N. – Town Standard is the starting point; however, alternative alignment integrating off-set condition and traffic management approach for shared use may be considered by Council. Final solution to be determined considering resident feedback.
- MINIMIZING ROAD CROSS SECTION FOR SPEED CONTROL
 - Consideration of width and limiting traffic flow
- MAINTAINING CHARACTER OF ROAD BY DESIGN
 - Deviation from the Town Standard would need to be approved by Council to consider maintaining an off-set road alignment.
 - Maintaining Town Standard with road in centre of right of way is the preferred technical approach.
 - Minimizing tree removal within ROW where possible for utility installation.
 - Adding visual barriers (i.e. road narrowing with landscaping) to limit traffic and promote alternative traffic routing through area may be considered.

PROPOSED DESIGN APPROACH – GREY ST. N.

- FLEXIBLE ALIGNMENT SECTIONS
 - Grey St. N. – Bay St. E. to WWTP – Urbanized cross-section with 2.7-3 m multi-use trail connecting to Georgian Trail.



IMPACTS DURING CONSTRUCTION

ACCESS TO PROPERTY

- Road will be closed to through traffic.
- Residents will have full access with short term limitations with appropriate notification (48 hours followed by 24-hour confirmation).

WATER SERVICE

- Temporary Watermain will be provided.
- Minor Water Outages may be required for connections with appropriate notification.

SANITARY SERVICE

- Short term (hours) outages may occur when your sanitary service is being connected. Appropriate notification will be provided.

PUBLIC CONSULTATION APPROACH GOING FORWARD

- This afternoon's presentation are alternatives and the advantages and disadvantages for each cross-section.
- The Town Standard (2023) was developed and approved by Council to ensure consistency through the Town. Deviations from the Town Standard are intended be the exception rather than the rule. **Council must approve any deviation from the Town Standard.**
- A liaison committee was discussed at the December site meeting, but after careful consideration, establishing this committee may not be necessary due to the scale of the project. Town staff can effectively communicate with all impacted residents including on a one-on-one basis if the need arises.
- Liaison committees are best suited for larger projects where a variety of opinions and perspectives.



PUBLIC INFORMATION
CENTRE NO. 1 - TONIGHT



OPPORTUNITY TO SUBMIT
COMMENTS REGARDING
OPTIONS PRESENTED AT PIC
NO. 1 – TWO WEEKS
FOLLOWING PIC



PIC NO. 1 FOLLOW-UP
STAFF REPORT TO
COMMITTEE OF THE
WHOLE – MAY 2024 (EST.)



DESIGN PROGRESSES BASED
ON COUNCIL DIRECTION
FROM STAFF REPORT –
JUNE TO AUGUST 2024
(EST.)



PUBLIC INFORMATION
CENTRE NO. 2 –
AUGUST/SEPTEMBER 2024
(EST.)



OPPORTUNITY TO SUBMIT
COMMENTS REGARDING
OPTIONS PRESENTED AT PIC
NO. 2 – TWO WEEKS
FOLLOWING PIC



PIC NO. 2 FOLLOW-UP
STAFF REPORT TO THE
COMMITTEE OF THE
WHOLE –
OCTOBER/NOVEMBER 2024
(EST.)



ADVANCE DESIGN TO
TENDER STAGE



CONSTRUCTION NOTICE
PRIOR TO MOBILIZATION



ONGOING EMAIL/WEBSITE
UPDATES THROUGHOUT
CONSTRUCTION.

PUBLIC CONSULTATION PLAN



ADVANCE DESIGN TO
TENDER STAGE – EARLY
2025



CONTRACTOR
PROCUREMENT



CONSTRUCTION START
SPRING 2025



COMPLETION – FALL 2026

CONSTRUCTION SCHEDULE

Thank you for your time

Questions?

For additional project information and updates go to:
<https://www.thebluemountains.ca/planning-building-construction/current-projects/municipal-infrastructure-projects/bay-street-east>

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