



Schedule 'B' Municipal Class Environmental Assessment: Watermain to Service Downtown Brampton

Alternative Solutions Workshop

April 24, 2020

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Agenda

1. Health and Safety Moment
2. Problem and Opportunity Statement
3. Project Information
4. Development of Alternatives: Strategies and Criteria
5. Screening of Strategies
6. Development of Long List of Alternatives and Comparison
7. Next Steps
8. Evaluation Criteria for Short List of Alternatives

Health and Safety Moment

Healthy Activities for Mental Health

- Meditation/ yoga
- Physical exercise
- Try something new
- Spend time outdoors and get fresh air (at a distance)
- Make time to socialize (digitally) with people who make you feel good



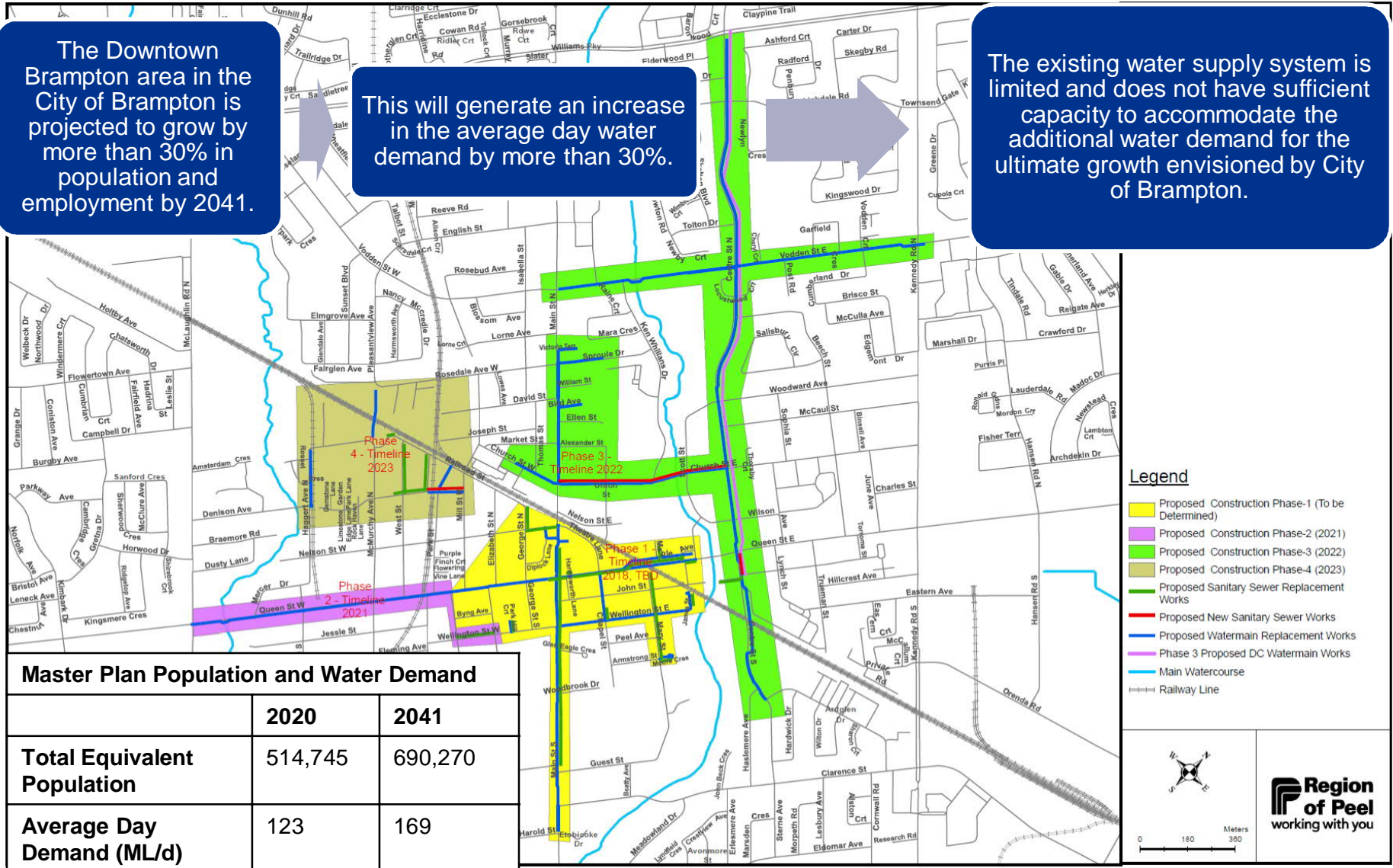
Problem and Opportunity Statement

- Problem: System Capacity**

The Downtown Brampton area in the City of Brampton is projected to grow by more than 30% in population and employment by 2041.

This will generate an increase in the average day water demand by more than 30%.

The existing water supply system is limited and does not have sufficient capacity to accommodate the additional water demand for the ultimate growth envisioned by City of Brampton.

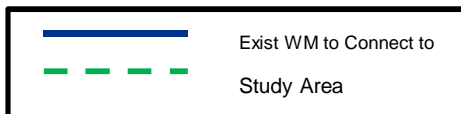


Master Plan Population and Water Demand		
	2020	2041
Total Equivalent Population	514,745	690,270
Average Day Demand (ML/d)	123	169

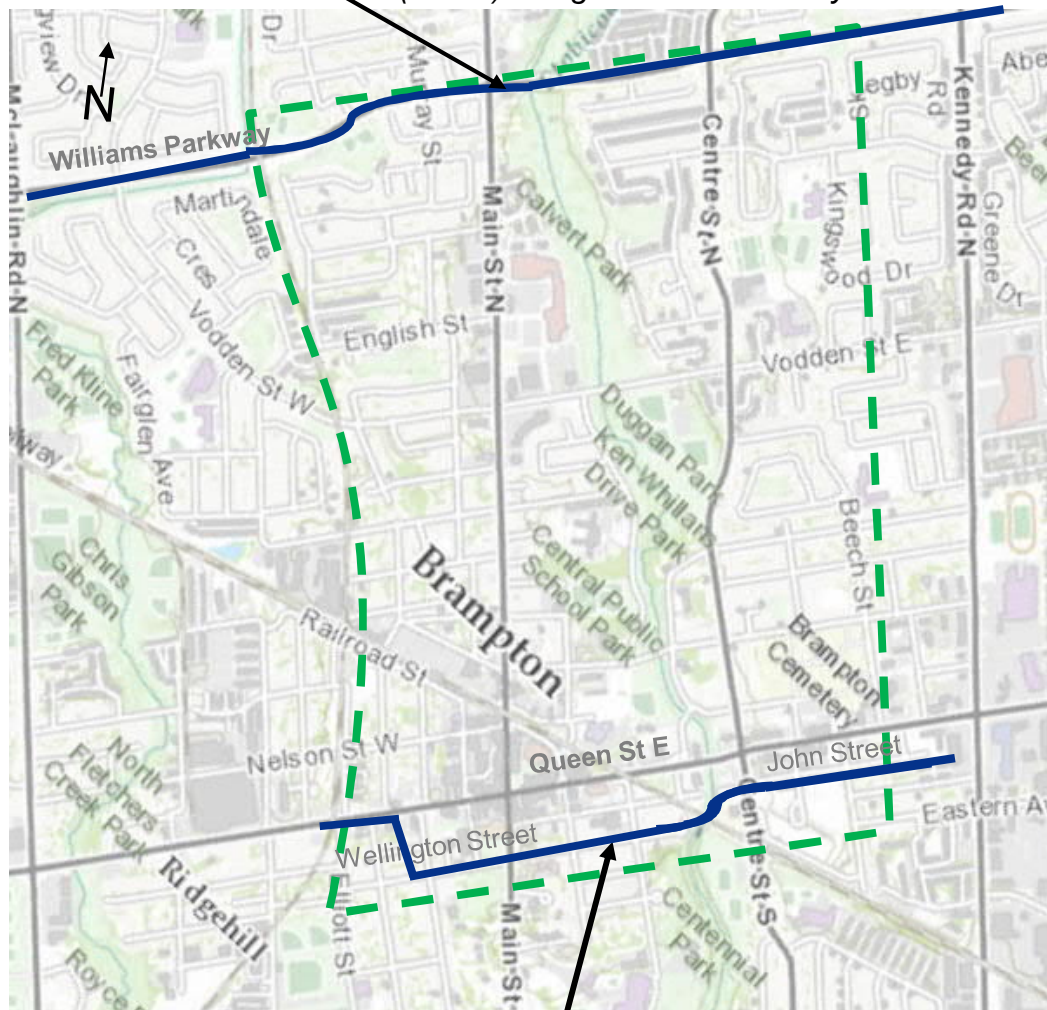
Environmental Assessment: Study Area

Preferred Strategy from Master Plan

- Supply Downtown Brampton area from 900mm transmission main (future) along Williams Parkway and connect to the 600mm existing watermain along Wellington Street and John Street.
- Provide interconnections to all watermains $\geq 400\text{mm}$ along the route.



900 mm transmission main (future) along Williams Parkway



Existing 600mm watermain along Wellington Street and John Street

Master Plan Preferred Water Service Strategy



- **Maximizing the use of the existing water transmission mains and treatment infrastructure** as it builds off existing and planned transmission and distribution infrastructure;
- **Minimizes environmental crossings for west-to-east transfers** as well as **reduced transmission costs** with no west-to-east transfers;
- **Does not require the construction of new water treatment facilities** within the 2031 horizon
- Includes opportunities to leverage the existing water servicing strategy with **optimization of system hydraulics.**

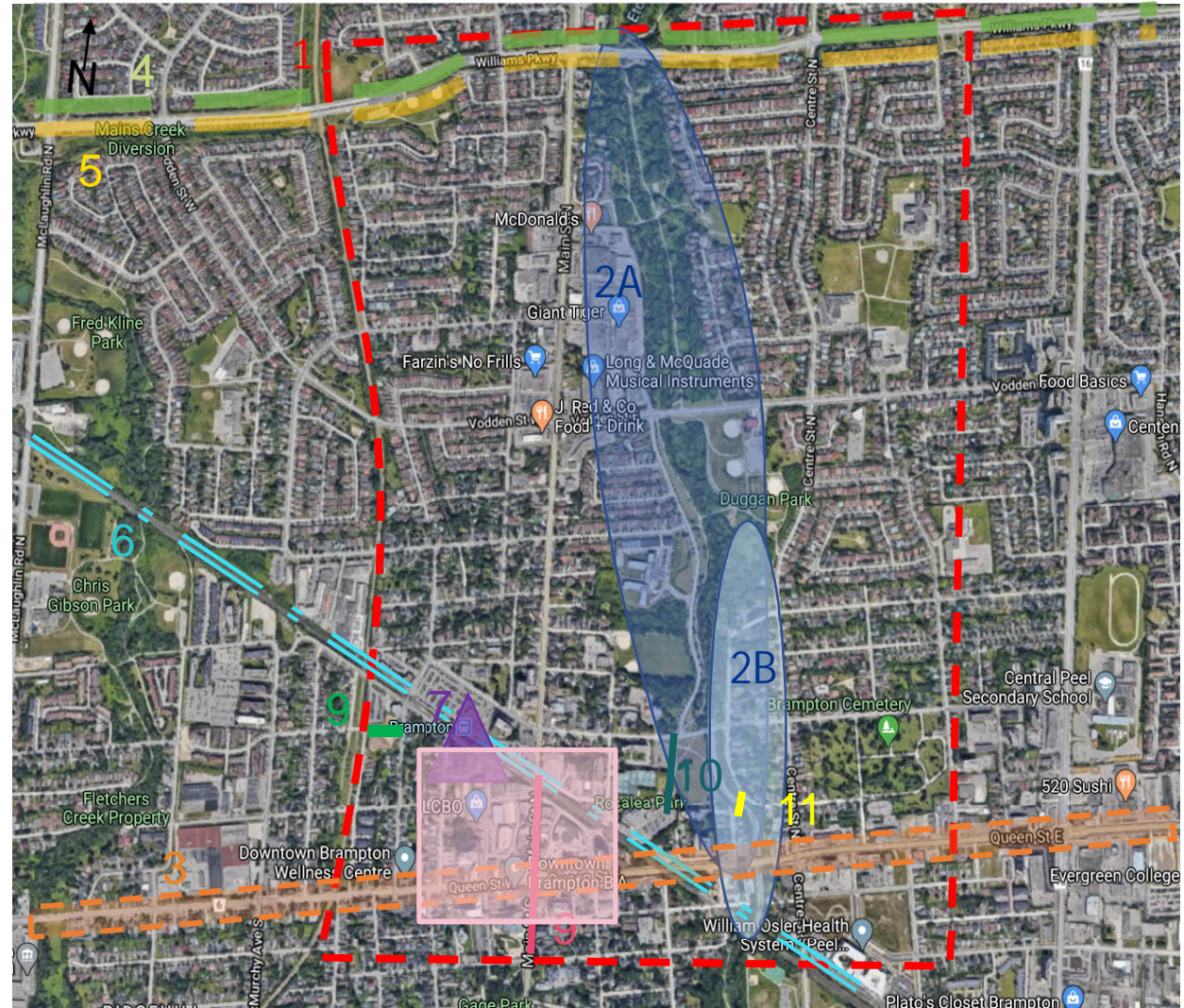
Project Timeline

	Feb. 2020	Mar. 2020	Apr. 2020	May 2020	Jun. 2020	Jul. 2020	Aug. 2020	Sept. 2020	Oct. 2020	Nov. 2020	Dec. 2020	Jan. 2021	Feb. 2021
Notice of Commencement	█												
Phase 1	█	█	█	█									
Phase 2			★	█	█	█	█						
Public Information Centre						█							
Notice of Completion								█					
Project File									█				
Field Investigations								█	█				
Preliminary Design									█	█	█	█	█

★ We are here

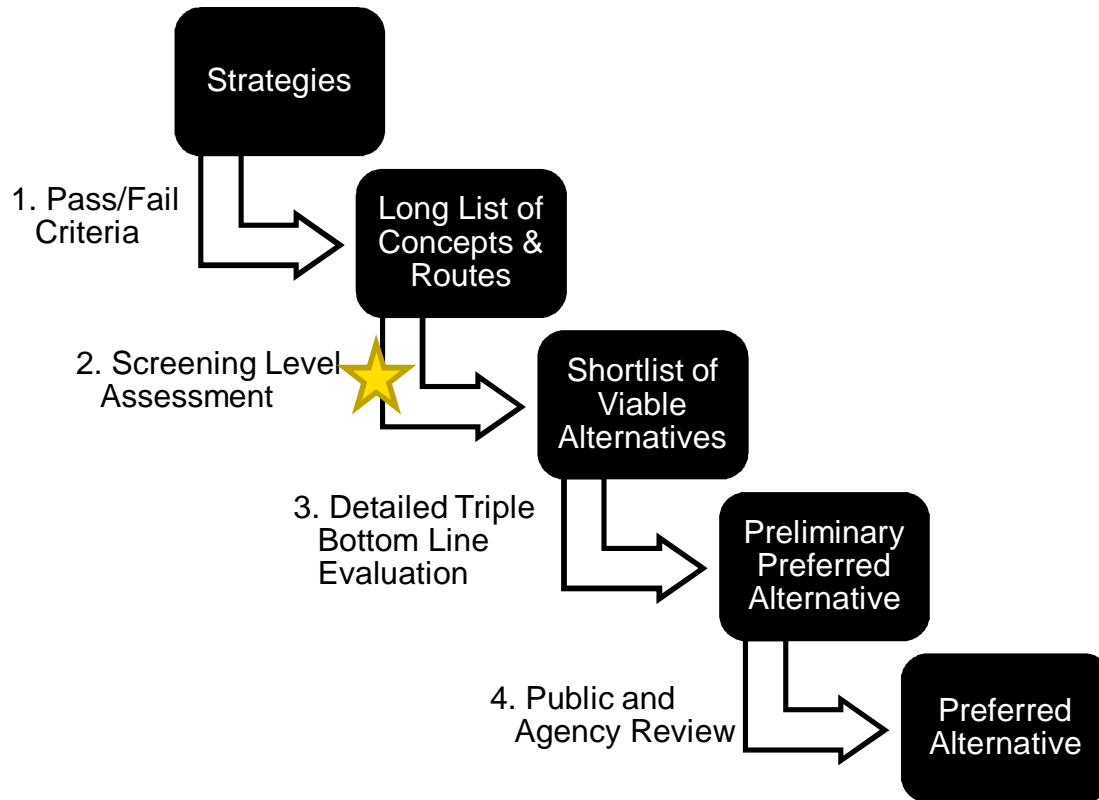
Planned Major Projects in the Study Area


1. Study Area
2. City of Brampton Projects
 - a) Downtown Brampton Flood Protection Project (Completion 2024)
 - b) Riverwalk (2025)
3. City of Brampton - Queen Street BRT Planned (Completion 2028)
4. City of Brampton - Capital Road Works along Williams Parkway (McLaughlin to Kennedy - Completion 2025)
5. Region of Peel New 900 mm Watermain (2022) (West Brampton PS to Dixie Road)
6. CN Rail Track Expansion (2024)
7. City of Brampton - Centre for Innovation
8. Dennison Avenue Expansion (EA Study – awaiting completion – post meeting)
9. Main Street LRT EA (PIC June 2020) and Streetscaping –post meeting
10. Ken Whillans Drive Extension
11. City of Brampton Scott Street Bridge
12. City of Brampton Design Feasibility Assessment for Cycling Facilities along Vodden St., Howden, Blvd. And Hanover Rd.
13. City of Brampton – Downtown Reimagined and Downtown Re-vamped on hold



Development of Alternatives

Alternatives Development Process



 We are here

- Step 1: Identify and screen strategies to address the problem statement, using Pass/Fail criteria
- Step 2: Identify and evaluate long list of servicing concepts & routes to achieve the strategy using screening level assessment
- Step 3: Evaluate viability and feasibility of short list of alternatives using detailed evaluation
- Step 4: Consult and receive input to select the preferred alternative.

Strategies and Pass/Fail Criteria

Strategies

1. Do nothing
2. Limit growth
3. Supply from alternative source
4. Upsize/upgrade existing infrastructure
5. Provide new infrastructure as identified in Master Plan

Pass/Fail Criteria

- Meets the problem statement – Provides system capacity for identified growth
- Alignment with the Master Plan recommendations
- Feasibility/Constructability – Maximize road right of way or existing easement, avoid easements or land acquisition

Screening of Strategies

	Meets the Problem Statement	Alignment with Master Plan	Feasible to Construct
Do nothing	No	No	N/A
Limit growth	No	No	N/A
Supply from alternative source	Possible	No	Unknown
Upsize/upgrade existing infrastructure	Yes	No	No
Provide new infrastructure	Yes	Yes	Yes

Conclusion:

- Do nothing and limiting growth does not meet the problem statement.
- Supply from alternative sources does not align with the Master Plan.
- Upsize/upgrade of existing infrastructure will be very difficult to construct as the existing mains are live distribution mains with service connections.
- The only strategy that satisfies all the criteria is **“Provide new infrastructure”**.

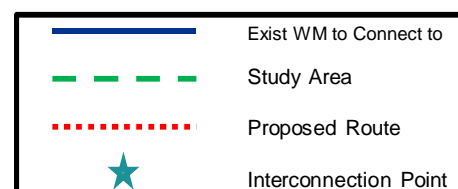
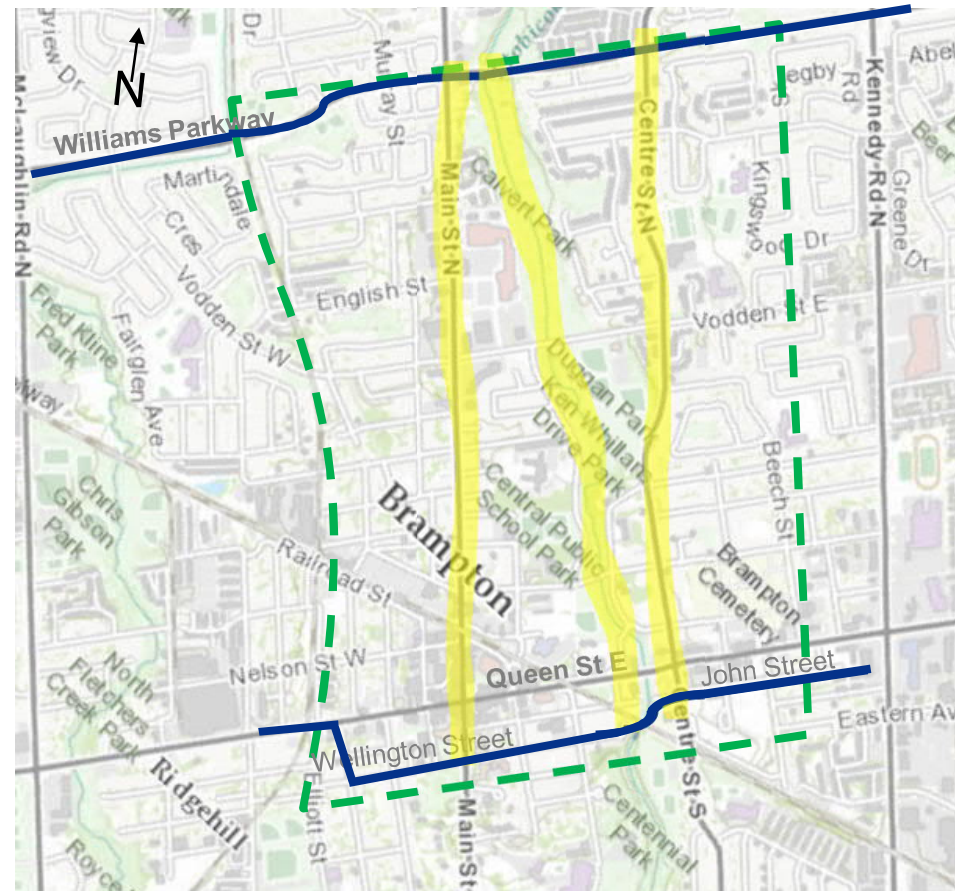
Long List of Alternatives Development

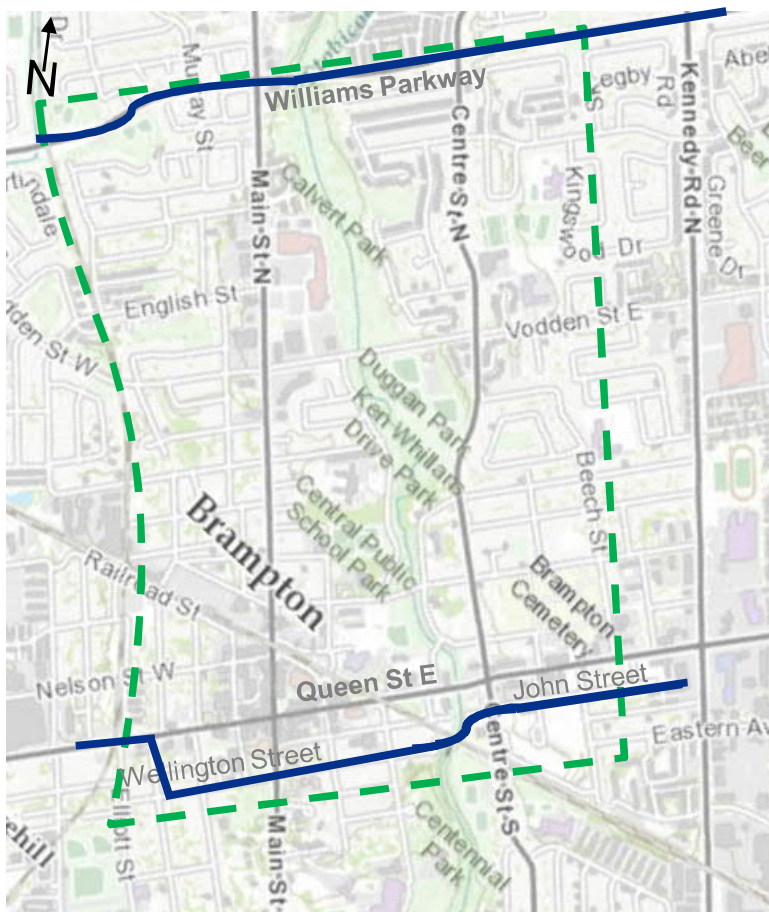
Strategy: Provide New Infrastructure as identified in Master Plan

Option 1: Do Nothing Baseline

Provide new infrastructure:

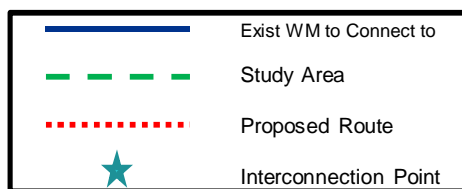
- **Option 2: Centre Street**
 - A: Centre Street
 - B: Centre Street and Beech Street
- **Option 3: Etobicoke Creek**
 - A: East Side of Creek and Scott Street
 - B: West Side of Creek
- **Option 4: Main Street**
 - A: Main Street
 - B: Main Street, Vodden, Centre
 - C: Main Street and Mill Street
 - D: Main Street, Church, Centre
- **Option 5: West Neighborhood Route**





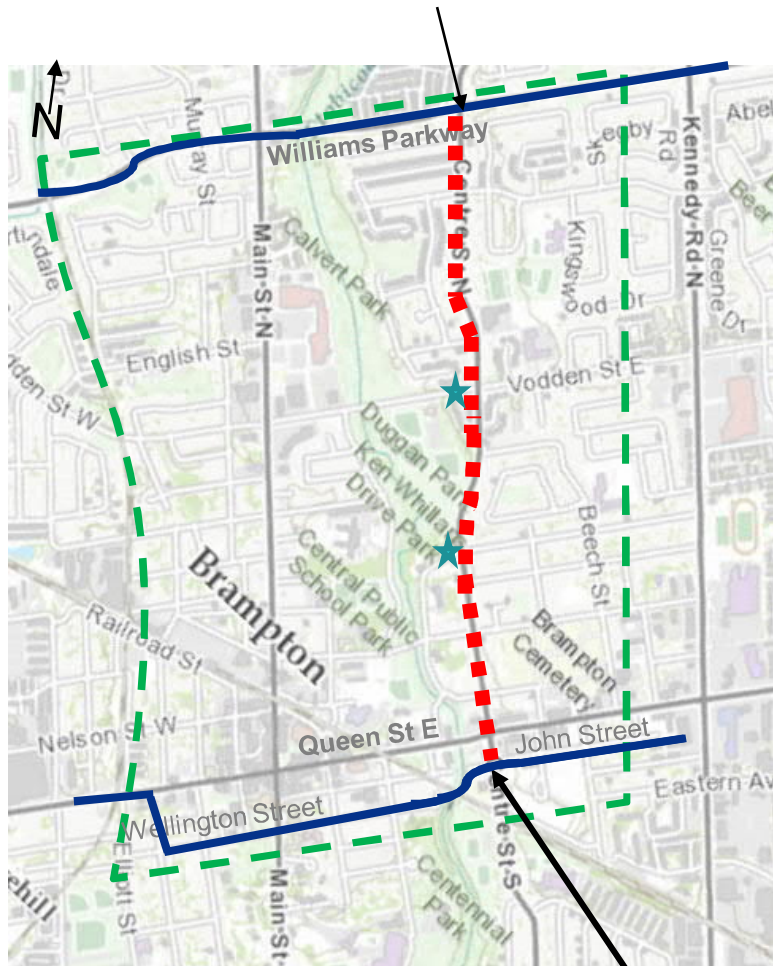
Option 1: Do Nothing Baseline

- **Description**
 - Existing infrastructure continues to supply the Downtown Core
 - This option relies on an additional assessment of the growth projections and is a time sensitive solution.
 - Timeline is dependent on actual growth in the downtown core
 - Baseline solution
- **Advantages/Opportunities**
 - No or Delayed Expenditure
- **Disadvantages/Constraints**
 - Does not satisfy the problem and opportunity statement



Option 2A – Centre Street

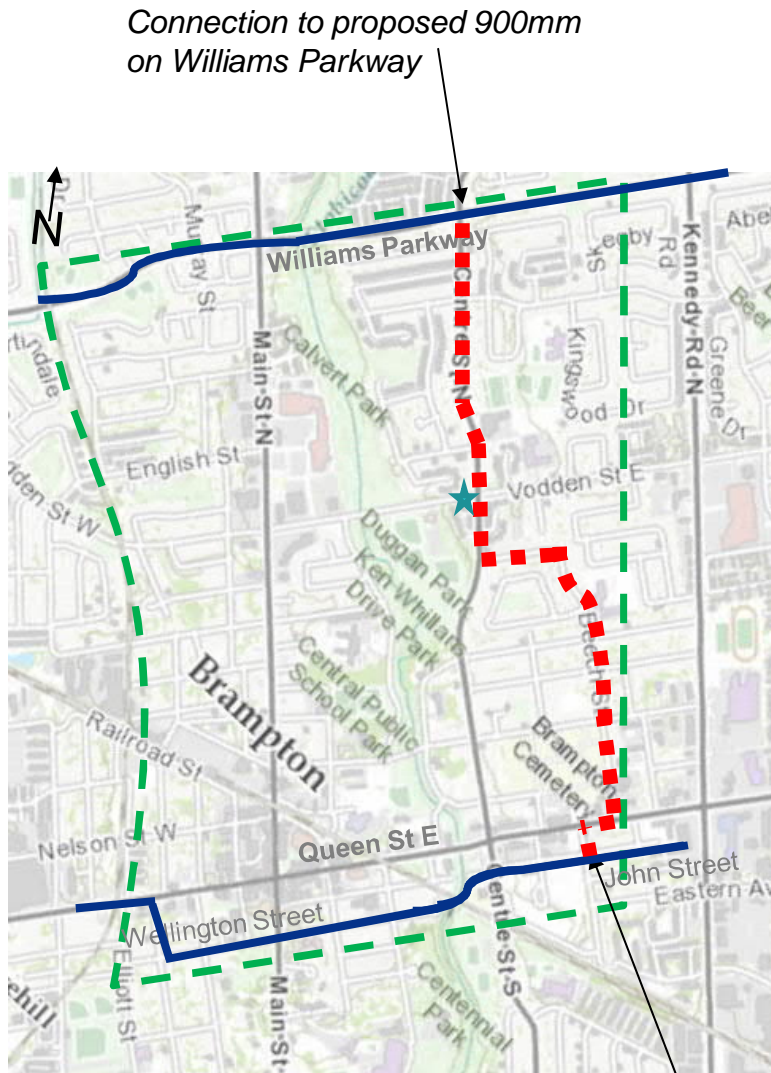
Connection to proposed 900mm on Williams Parkway



Connection to existing 600mm watermain along John Street

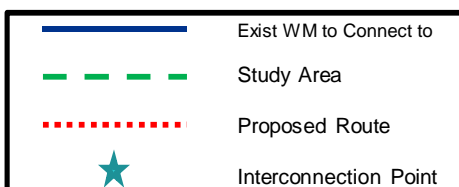
- **Description**
 - Route alignment to be along Centre Street Right of Way
 - Connection points at Williams Parkway and Centre Street and John Street and Centre Street
 - Interconnection at 600 mm WM on Vodden and 400 mm WM at Woodward
 - Approximately 2000 linear meters
 - Proposed as all open cut construction along existing road right of way
- **Advantages/Opportunities**
 - Solution avoids work near Etobicoke Creek
 - Residential area reduces impact to local businesses
 - No rail crossings
 - Alignment in right-of-way of collector road
- **Disadvantages/Constraints**
 - Existing 400 mm Diameter WM along Centre Street
 - Impact to local residents
 - Traffic Disruptions for local residents

Option 2B – Centre Street and Beech Street



Connection to proposed 900mm on Williams Parkway

Connection to existing 600mm watermain along John Street



• Description

- Route alignment to be along Centre Street and Beech Street Right of Way
- Connection points at Williams Parkway and Centre Street and John Street and Trueman Street
- Interconnection at 600 mm WM on Vodden
- Approximately 2041 linear meters
- Proposed as open cut construction

• Advantages and Opportunities

- Solution avoids work near Etobicoke Creek
- Residential area reduces impact to local businesses
- No rail crossings
- Alignment in right-of-way of collector road and residential roads

• Disadvantages and Constraints

- Direct impacts to residents
- Longer route
- Work on Centre Street will have traffic impacts
- Smaller streets could exacerbate traffic impacts

Option 3A – Etobicoke Creek East Side and Scott Street

• Description

- Follows the East Side of the Etobicoke Creek to Vodden and follows Centre and Scott Street to John Street
- Follows the route of the existing 1200 mm sanitary trunk
- Approximately 2250 linear meters
- Connection points at Williams Parkway and John Street
- Proposed as open cut
- Interconnection at 600 mm Vodden and 400 m at Woodward

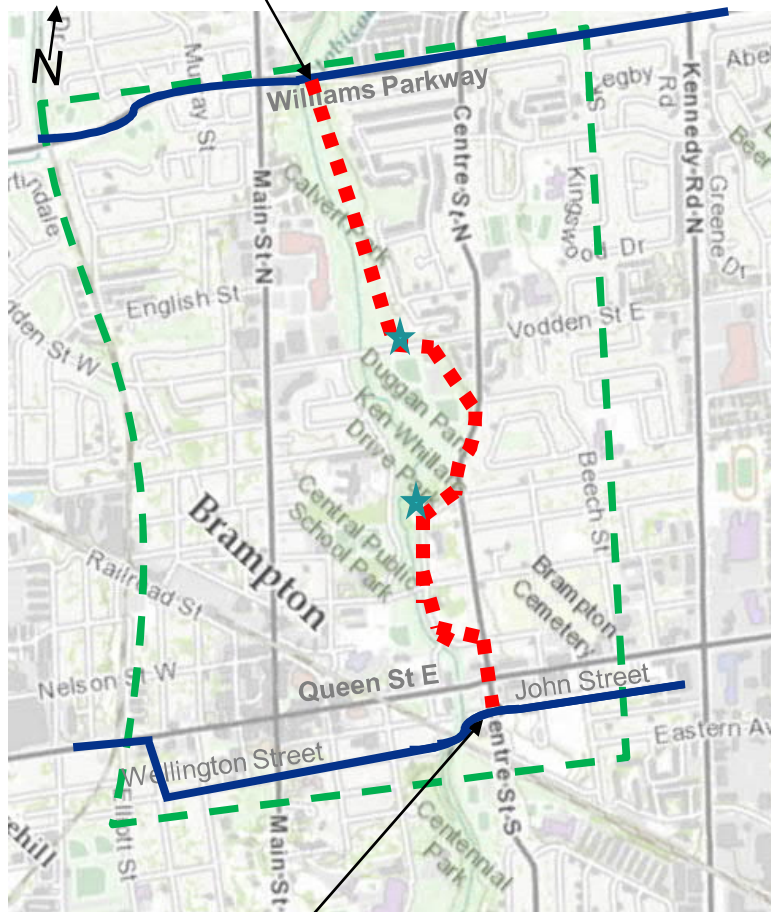
– Advantages/Opportunities

- Avoids disruption to local businesses and direct impacts to residents
- Low traffic impacts
- Access for existing sanitary trunk may be used for maintenance activities
- Avoids Creek Crossings

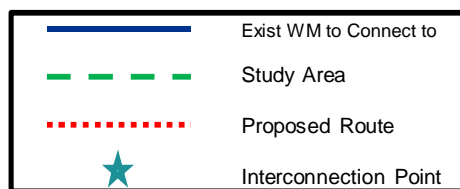
• Disadvantages and Constraints

- Work in area of Creek could be influenced by DT Brampton Flood Protection Project including widening and deepening of creek bed
- TRCA approval is required
- 3 m horizontal distance and 0.5 m vertical separation required from Sanitary Trunk
- Significant impacts to natural features and archeology and cultural heritage
- Possible impacts to the City of Brampton’s “River Walk” project

Connection to proposed 900mm on Williams Parkway



Connection to existing 600mm watermain along John Street



Option 3B – West Side of Etobicoke Creek

- **Description**

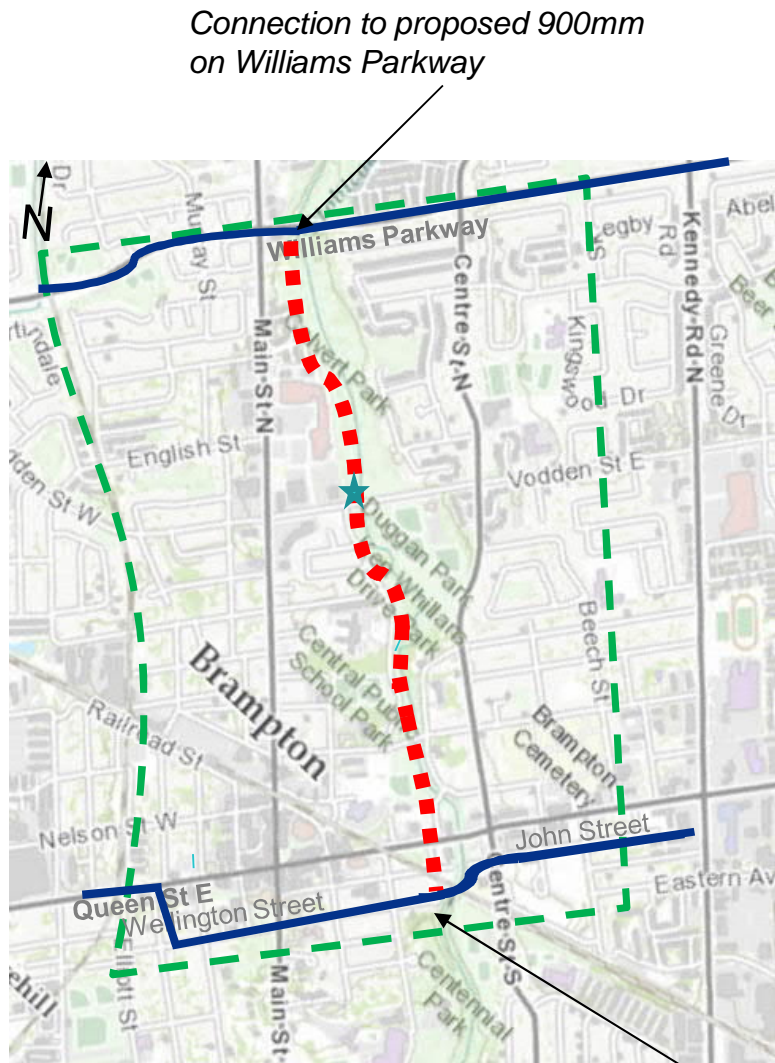
- Follows the West Side of the Etobicoke Creek
- Approximately 2000 linear meters
- Connection points at William Parkway and John Street
- Proposed as open cut
- Interconnection to 600 mm on Vodden Street

- **Advantages/Opportunities**

- Avoids disruption to local businesses and direct impacts to residents
- Low traffic impacts
- No large utilities in the area

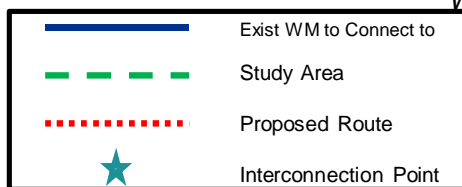
- **Disadvantages and Constraints**

- Work in area of Creek will be influenced by DT Brampton Flood Protection Project including widening and deepening of creek bed, and realignment of Ken Whillans Drive
- TRCA approval is required
- Significant impacts to natural features and archeology and cultural heritage
- Construction would be in a Special Policy Area

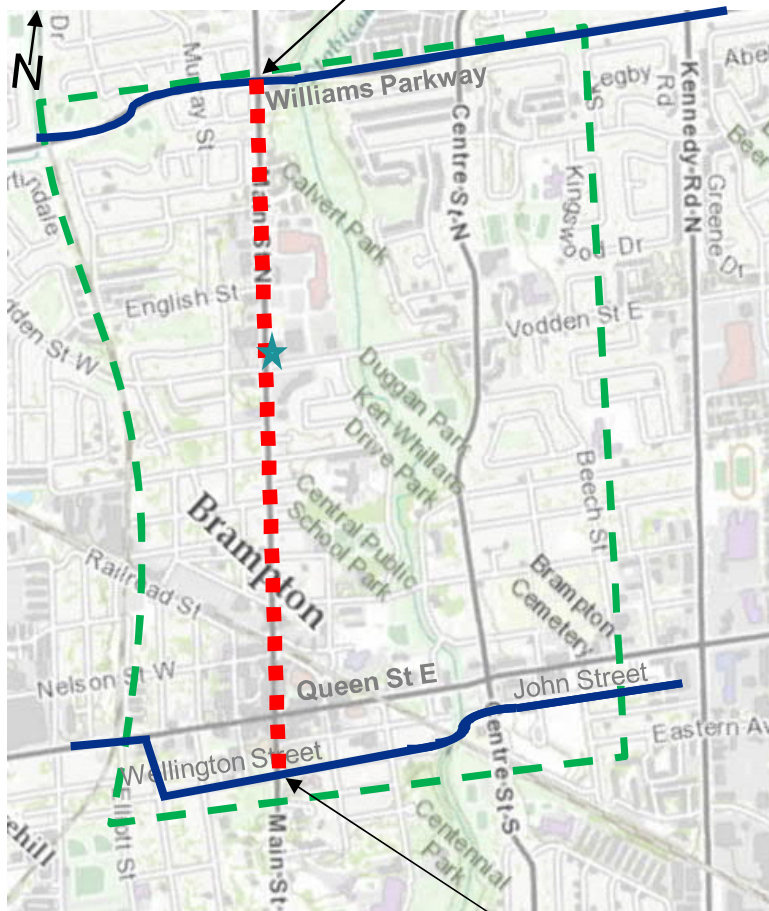


Connection to proposed 900mm on Williams Parkway

Connection to existing 600mm watermain along John Street

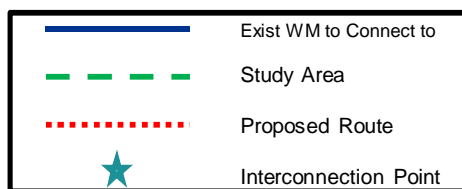


Connection to proposed 900mm on Williams Parkway



Option 4A : Main Street

- **Description**
 - Route alignment to be along Main Street Right of Way
 - Connection points at Williams Parkway and Wellington Street along Main Street Right of Way.
 - Interconnection to 600 diameter at Voddan Street
 - Approximately 2000 linear m
 - Proposed as open cut
- **Advantages/Opportunities**
 - Shortest length as along a single road right of way and least number of bends.
 - Avoids work in the creek bed
- **Disadvantages/Constraints**
 - Construction would have significant traffic and transit impacts as Main Street is a main thoroughfare
 - Crossing a Railway Bridge may need to be trenchless and requiring Railway permits
 - Major development area including Streetscaping projects, “Center for Innovation” project etc.



Connection to existing 600mm watermain along Wellington Street

Option 4B : Main, Vodden and Centre Street

- Description**

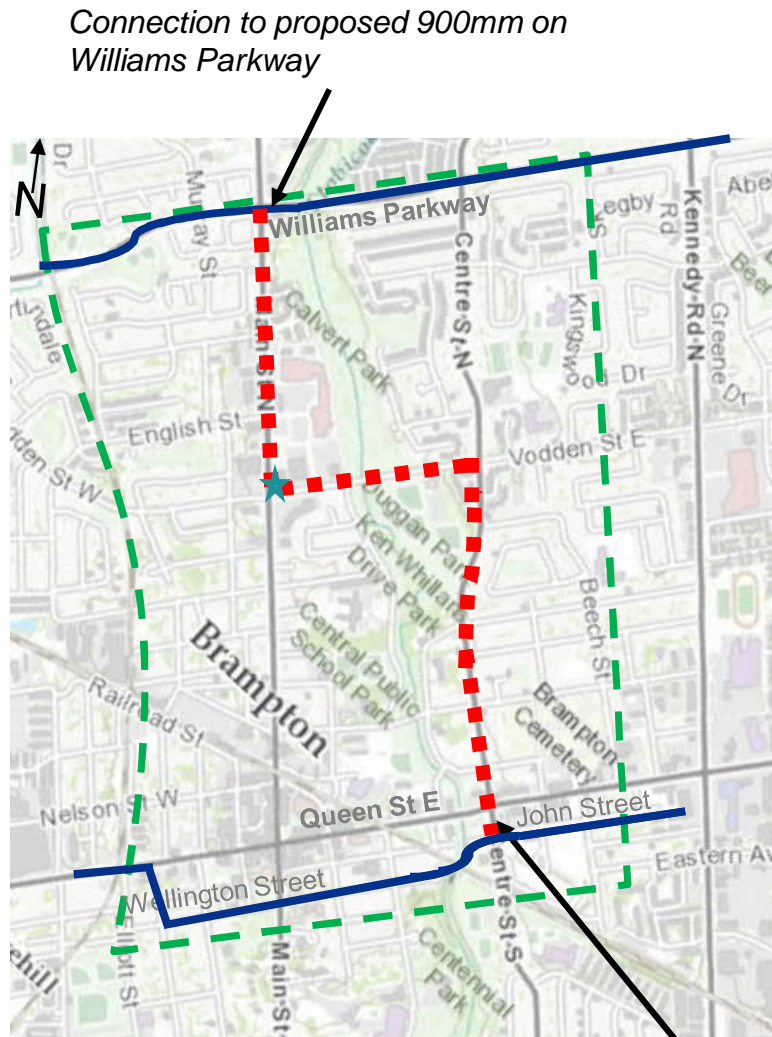
- Route alignment to be along Main Street, Vodden and Centre Street Right of Way
- Connection point at Williams Parkway and Wellington Street
- Interconnection to 600 diameter at Vodden Street
- Approximately 2760 linear m
- Proposed as open cut

- Advantages/Opportunities**

- Reduces Traffic and Transit Impacts as less of Main Street is occupied
- Limits impacts to Downtown Brampton "Business Improvement Association" South of Vodden Street

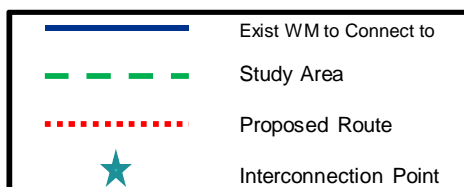
- Disadvantages/Constraints**

- Creek Crossing is required
- Creek Crossing will require TRCA permit
- Longer length compared to other options
- May not bring supply to area of demand directly and require additional infrastructure west towards main street.



Connection to proposed 900mm on Williams Parkway

Connection to existing 600mm watermain along John Street



Option 4C: Main Street and Mill Street

• Description

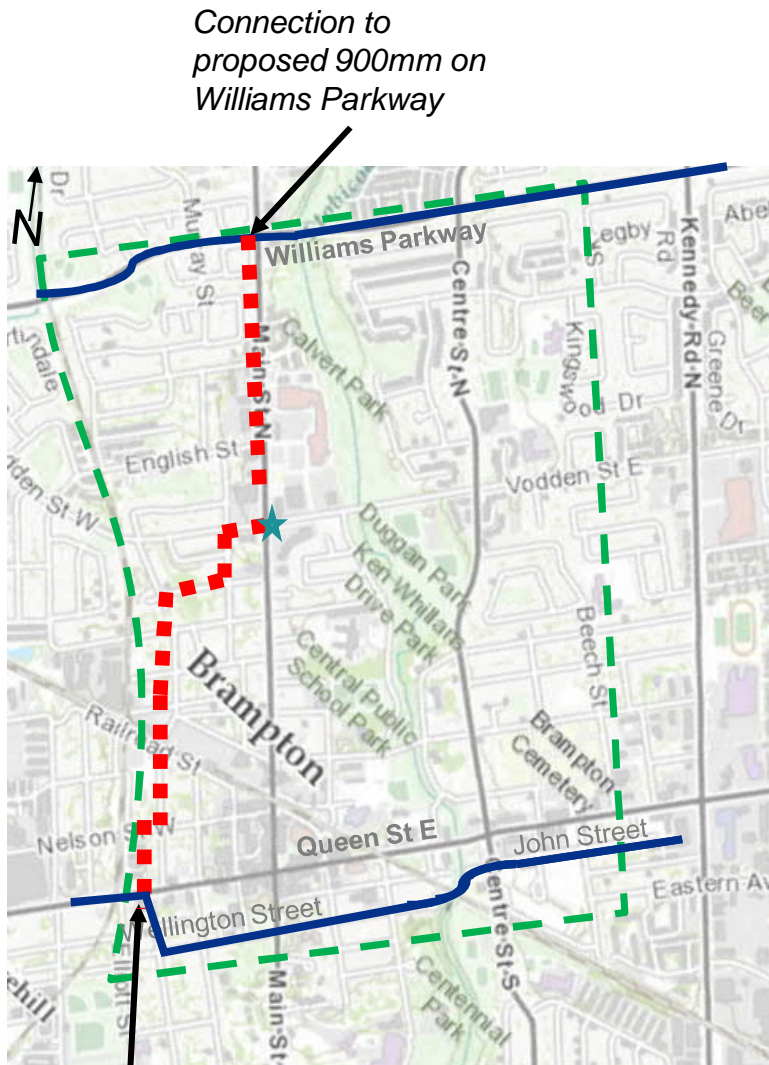
- Route alignment to be along Main Street, Vodden, Isabella, Rosedale, and Mill Street.
- Connection point at Williams Parkway and Wellington Street
- Interconnection to 600 diameter at Vodden Street
- Approximately 2300 linear meters
- Proposed as open cut

• Advantages/Opportunities

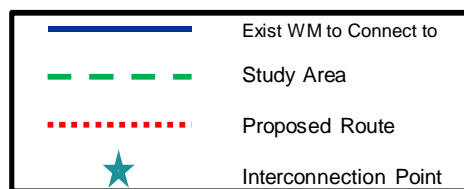
- Reduces Traffic and Transit Impacts as less of Main Street is occupied
- Limited impact to natural features

• Disadvantages/Constraints

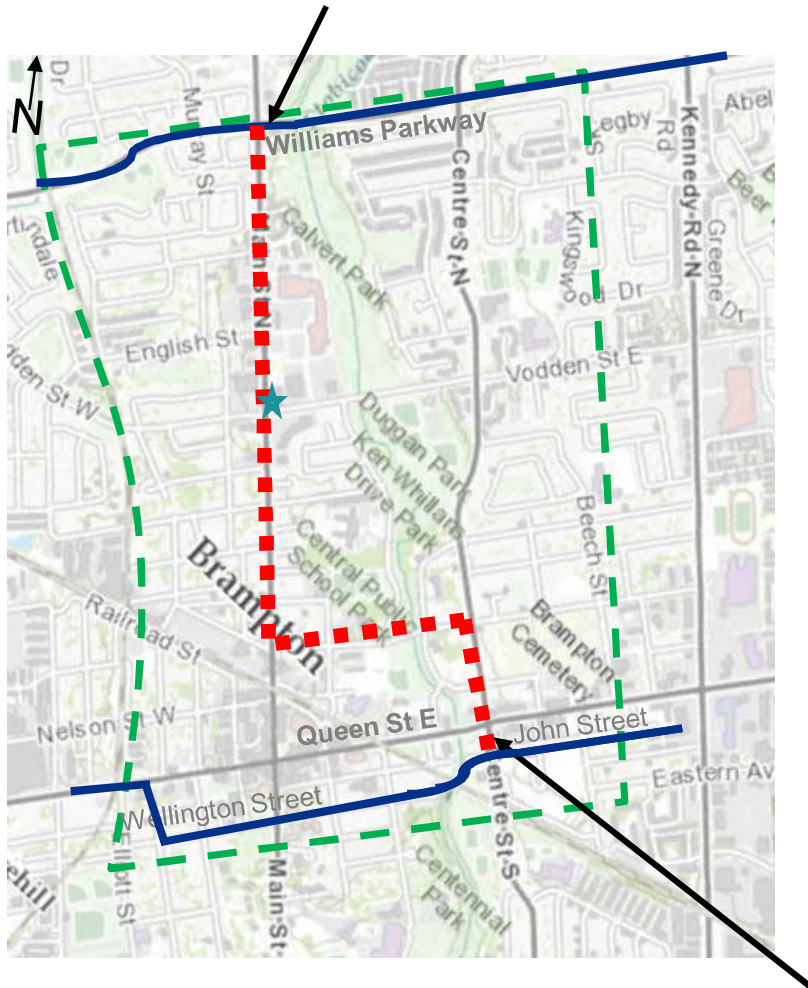
- Significant impact to local businesses, traffic and residents
- Complicated longer route
- Crossing a Railway will need to be trenchless and requires Railway permits



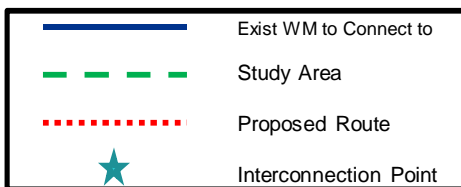
Connection to existing 600mm watermain along Queen Street



Connection to proposed 900mm on Williams Parkway



Connection to existing 600mm watermain along John Street



Option 4D: Main Street and Centre Street with Church Street

- Description**

- Route alignment to be along Main Street, Church and Centre Street Right of Way
- Connection point at Williams Parkway and Wellington Street
- Interconnection to 600 diameter at Vodden Street
- Approximately 2760 linear m
- Proposed as open cut

- Advantages/Opportunities**

- Supplies to the area of need
- Avoids congested intersection of Main and Queen Street
- Limits impacts to Downtown Brampton “Business Improvement Association” South of Church Street

- Disadvantages/Constraints**

- Creek Crossing is required
- Creek Crossing will require TRCA permit
- Significant work in the area of the DTFP Project
- Longer length compared to other options

Option 5 – West Neighborhood Route

- **Description**

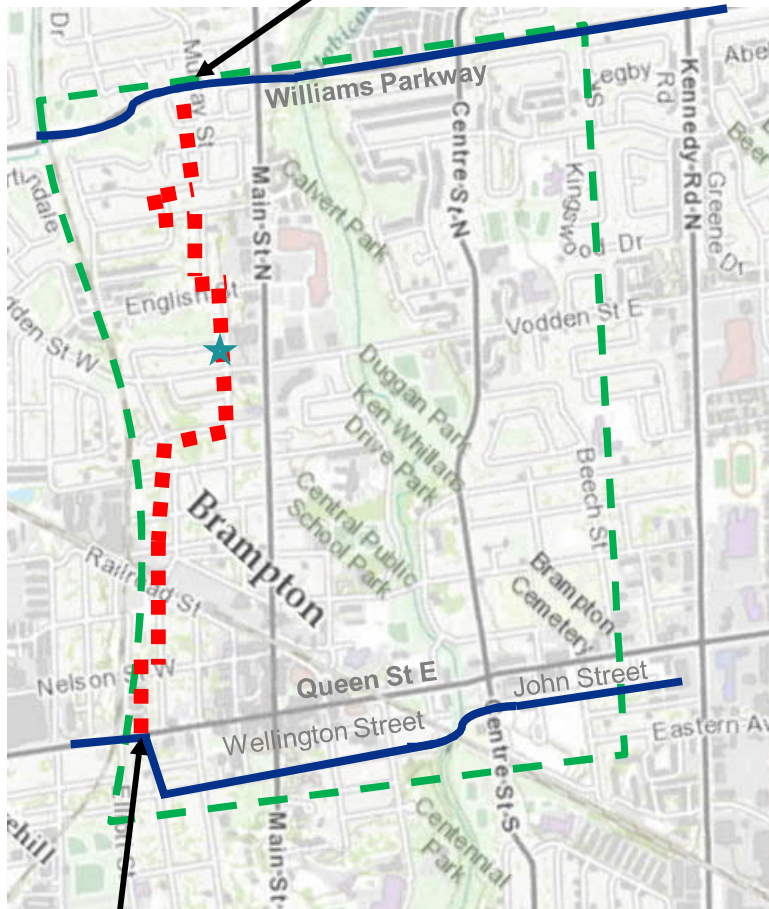
- Follows smaller residential streets west of Main Street (Murray, Garden, Bagshot, Archibald, Murray, English, Isabella, Rosedale, Mill Street)
- Connection Point at Murray Street and Williams Parkway and Wellington Street.
- Connection to 600 mm WM at Vodden Street
- Approximately 2600 linear meters
- Proposed as open cut

- **Advantages/Opportunities**

- Avoids Major Development Areas such as Main Street
- Avoids work in Creek Bed

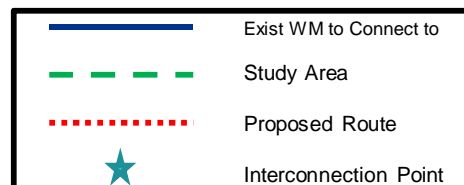
- **Disadvantages/Constraints**

- Smaller streets could pose construction difficulties
- Direct affect to residents
- Complicated Route with many bends
- Significant disruption to residents
- Crossing a Railway will need to be trenchless and requires Railway permits



Connection to
proposed 900mm on
Williams Parkway

Connection to existing
600mm watermain along
Queen Street






Comparison Methodology

- **Comparison Criteria**

- Services Longterm Growth
- Impacts and Coordination with other Major Capital Projects
- O&M Requirements including access, operational flexibility
- Impacts to Natural Environment
- Impact to Local Businesses
- Traffic Impacts
- Relative Cost

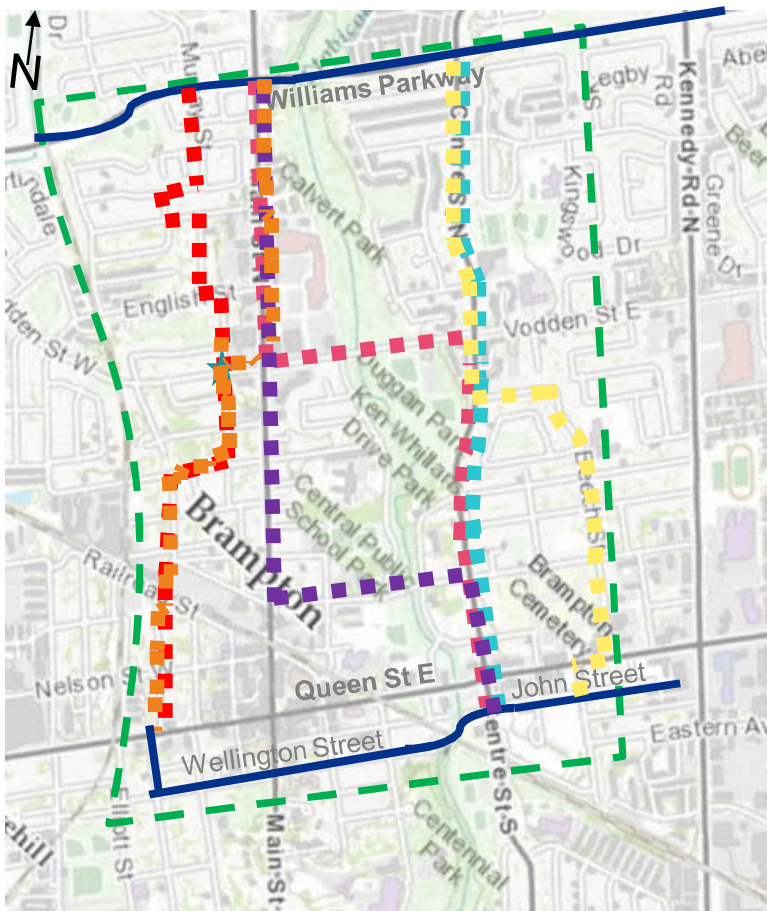
- **Comparison Legend**

- Most Preferred 3+ 
- Preferred 2+ 
- Least Preferred 1+ 

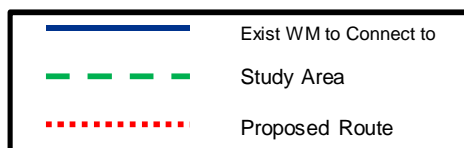
Comparison Evaluation

- Options to utilize the areas within the Creek will result in higher costs and have significantly more impacts to the environment and natural features
- Options that avoid the Main Street South of Vodden have reduced impacts to local businesses, traffic impacts
- The lowest cost options are Main Street and Centre due to their simplicity
- The Rail Crossings required for Options 4C and 5 increase total costs
- Overall the options are comparable though any options that resulted in a final score of ● will not be carried forward
- **2A, 2B, 4B, 4C, 4D, 5 will be conditionally carried forward as the shortlisted options** pending modelling results.

Proposed Short List



- Option 2A – Centre Street -----
- Option 2B – Centre and Beech Street -----
- Option 4B – Main and Centre Street -----
- Option 4C – Main and Mill Street -----
- Option 4D – Main and Centre with Church Street -----
- Option 5 – West Neighborhood -----



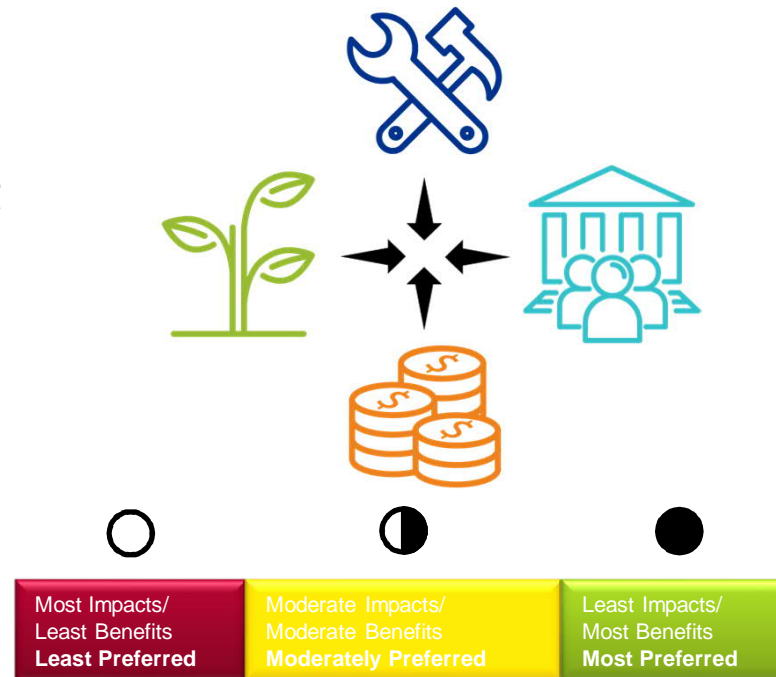
Next Steps

- Finalize Phase 1 Report – April, 2020
- Confirm Short List & Evaluation Criteria – April, 2020
- Further Develop and Evaluate Short List of Alternatives-
May, 2020
- Review Preliminary Preferred Alternative with Project
Team - June, 2020
- Schedule PIC – July 2020

Evaluation Criteria for Short List

Evaluation Criteria – Methodology

- Triple Bottom Line +
 - Technical Considerations
 - Socio-cultural Environment
 - Natural Environment
 - Economic Evaluation
- Comparative Evaluation
- Scoring Approach



Evaluation Criteria – Development Guidelines

- **Mutually Exclusive and Collectively Exhaustive** – to avoid double counting of possible consequence, and to ensure that no important considerations are neglected
- **Concise** – to focus the analysis only on those objectives necessary to make a decision
- **Operational** – to ensure that the information necessary to measure objectives can be obtained with reasonable time and effort
- **Measurable** – to define objectives precisely and to specify the degree to which objectives may be achieved
- **Understandable** – to facilitate the communication of insights from the decision making process

Evaluation Criteria – Natural Environment



Comparative Criteria	Description
Terrestrial Systems	Proximity to and potential impacts to the local vegetation, trees and wildlife of construction and crossings, connectivity
Aquatic Systems	Proximity to and potential impact to the local aquatic flora and fauna of construction and crossings, connectivity
Surface and Groundwater	Potential impact to the quality of surface water and groundwater resources, Flooding, erosion or slope instability
Soil and Geology	Geology, hydrogeology, contamination considerations
Environmental Best Management Practices	Practices that support climate change mitigation or adaptation

Evaluation Criteria – Socio-Cultural Environment



Comparative Criteria	Description
Land Uses and availability	Potential to impact existing parks and open spaces, land use, land size, availability and location, TRCA Property and Heritage Resources
Future Planning Policies/Initiatives	Compatibility with Region of Peel & City of Brampton growth initiatives. Compliance with applicable planning and land use policies
Permits and Approvals	Ease of receiving permits and approvals, including the agency approvals necessary.
Disruption During Construction	Disruption to existing community during construction (traffic, access, parking, schools, emergency and medical services, etc.)
Air Quality/Noise/Vibration	Potential impacts to air quality and noise levels (pre and post-construction). Potential impacts of vibration on existing structures.
Visual Landscape	Potential to impact character of the existing community; or interfere with views , Existing landforms features and functions
Archaeological and Cultural Resources	Potential impacts to archaeological and cultural resources
Indigenous Communities	Potential impacts to Indigenous Communities

Evaluation Criteria – Technical Considerations



Comparative Criteria	Description
Implementation Feasibility	Feasibility of implementation in terms of available space, accessibility, constructability, ground conditions, easements, and land acquisition needs
Implementation Constraints	Construction and Operational Constraints while working within proximity of critical infrastructure like utility corridors, major roads, employment areas, institutional areas, hydro corridors, railways and watercourse including crossings
Compatibility with Existing/Proposed Infrastructure	Ease of connection with existing/proposed infrastructure. Conflicts or opportunities with recent/planned infrastructure
Future Maintenance	Technical viability to maintain operational access and servicing
Effectiveness and Flexibility	Effectiveness and Flexibility in being able to meet current and future demands/variations/expansion requirements; or future regulatory requirements

Evaluation Criteria – Economic Evaluation



Comparative Criteria	Description
Capital Cost	Estimated Capital Costs
Operation and Maintenance Cost	Estimated Operational and Maintenance Costs
Financial Risk	Consideration of financial risk during construction and operation

Questions

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