

Alignment of Clark Boulevard Extension

One of the recommendations of the Preferred Solution is the extension of Clark Boulevard from Rutherford Road to meet Hansen Road. Three alignment alternatives have been identified and are listed below:

- **Alignment 1 – Road alignment curved at watercourse:** The proposed road alignment for the extension connects Eastern Avenue at Hansen Road to the Clark Boulevard intersection at Rutherford Road with a new crossing of Tributary to Etobicoke Creek bisecting 35 Rutherford Road (concrete plant). The horizontal road alignment is approximately 430m in length and gradually curves as it crosses the watercourse.
- **Alignment 2 - Road alignment curved east of watercourse:** The proposed road alignment for the extension connects Eastern Avenue at Hansen Road to the Clark Boulevard intersection at Rutherford Road with a new crossing of Tributary to Etobicoke Creek bisecting 35 Rutherford Road (concrete plant). The horizontal road alignment is approximately 430m in length, but unlike Alternative 1, the curvature of the road alignment is east of the watercourse crossing.
- **Alignment 3 – Road alignment north of Tributary to Etobicoke Creek and jogged at Hansen Road:** The proposed road alignment for the extension connects Eastern Avenue at Hansen Road to Clark Boulevard at Rutherford with the introduction of a second jogged intersection on Hansen Road and horizontal road alignment north of the Tributary to Etobicoke Creek but does not cross the watercourse. A roundabout is also introduced approximately 200m east of Hansen Road to provide an entrance to the adjacent property as a third leg.

Evaluation Criteria for Extension Alignment

The evaluation criteria used to compare the alternative designs carried forward is listed below in **Table 1**.

Table 1 Evaluation Criteria for Alternative Design Concepts

Consideration	Criteria
Technical and Engineering	<ul style="list-style-type: none"> • Accommodate Future Travel Demands • Provide Connectivity and Compatibility with Road Network • Improve Public Transit Service • Create a Pedestrian-Friendly Environment • Create a Cyclist-Friendly Environment • Improve Safety for All Travel Modes • Improve Mode Choice • Accommodate Emergency Services • Potential to Impact Utilities in the Corridor
Planning Objectives	<ul style="list-style-type: none"> • Consistent with Provincial Plans and Policies • Consistent with Regional Plans and Policies • Consistent with Municipal Plans and Policies



Consideration	Criteria
Social and Cultural Environment	<ul style="list-style-type: none"> Minimize Access Impacts Minimize Traffic Noise Preserve Archaeological and Cultural Heritage Features Improve Visual Aesthetics Improve Community Character and Public Realm Minimize Disruption due to Construction
Economic Environment	<ul style="list-style-type: none"> Improve Access to Businesses and Key Employment Areas Minimize Operating and Maintenance Costs Minimize Capital and Construction Costs, and Maximize Construction Value Minimize Property Requirements
Natural Environment	<ul style="list-style-type: none"> Minimize Impacts to Designated Natural Areas Minimize Impacts to Vegetation Minimize Impacts to Wildlife Minimize Impacts to Aquatic Habitat Minimize Impacts to Surface Water and Groundwater Management Minimize Impacts to Potentially Contaminated Lands Improve Air Quality Minimize Effects on Climate Change

Based on the evaluation criteria identified in **Table 1**, an evaluation was conducted amongst the alternative alignments and a recommended alternative was carried forward. Each category that was evaluated was summarized using the following rankings from Preferred to Least Preferred:

Least Preferred (Does not meet objectives)	Less Preferred (Partially meets objectives)	Preferred (Meets objectives)
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The evaluation is provided in **Table 2**.

Table 2 Detailed Evaluation of Road Alignment Alternatives

Evaluation Criteria and Sub-Factors	1. Road alignment curved at watercourse	2. Road alignment curved east of watercourse	3. Road Alignment runs north of Tributary to Etobicoke Creek and jogged at Hansen Road
Technical and Engineering			
Accommodate Future Travel Demands	<ul style="list-style-type: none"> Alternative will increase road capacity, thus increasing traffic mobility, reduce traffic congestion and delays, and accommodate future travel demands in the overall network. 		<ul style="list-style-type: none"> Alternative will increase road capacity, thus increasing traffic mobility, reduce traffic congestion and delays, and accommodate future travel demands in the overall road network. However, this alternative results in a discontinuous road and requires a jogged intersection at Hansen Road and roundabout to accommodate the proposed alignment which may result in additional delays and travel time in comparison to Alternatives 1 and 2.
Provide Connectivity and Compatibility with Road Network	<ul style="list-style-type: none"> Adding a new connection between Hansen Road and Rutherford Road will provide connectivity and compatibility with the overall Road Network. Road extension will provide a direct connection of Clark Boulevard with Eastern Avenue, thus providing compatibility with the Road Network 		<ul style="list-style-type: none"> Adding a new connection between Hansen Road and Rutherford Road will provide connectivity with the overall Road Network. Road extension requires the introduction of a jogged intersection at Hansen Road and will be discontinuous reducing the connectivity of the corridor in comparison to Alternatives 1 and 2.
Improve Public Transit Service	<ul style="list-style-type: none"> Although no public transit service currently runs along the study corridor, the direct road extension from Hansen Road to Rutherford Road can provide opportunities for transit service to be implemented and increase efficiencies in routing. 		<ul style="list-style-type: none"> Although no public transit service currently runs along the study corridor, the discontinuous road extension from Hansen Road to Rutherford Road can provide opportunities for transit service to be implemented but may result in delays from increased travel time and inefficiencies in future transit routing in



Evaluation Criteria and Sub-Factors	1. Road alignment curved at watercourse	2. Road alignment curved east of watercourse	3. Road Alignment runs north of Tributary to Etobicoke Creek and jogged at Hansen Road
			comparison to Alternatives 1 and 2 based on the introduction of the jogged intersection at Hansen Road and roundabout.
Create a Pedestrian-Friendly Environment	<ul style="list-style-type: none"> Alternative will implement continuous and dedicated active transportation facilities and direct access to adjacent lands. Pedestrians will cross the corridor at protected signalized intersections. 		<ul style="list-style-type: none"> Alternative will implement dedicated active transportation facilities but will be discontinuous at the jogged intersection at Hansen Road resulting in increased travel distance Pedestrians will have a second intersection to cross at the jogged intersection at Hansen Road and an unprotected crossing at the roundabout in comparison to Alternatives 1 and 2.
Create a Cyclist-Friendly Environment	<ul style="list-style-type: none"> Alternative will implement continuous and dedicated active transportation facilities and direct access to adjacent lands. Cyclists will cross the corridor at protected signalized intersections. 		<ul style="list-style-type: none"> Alternative will implement dedicated active transportation facilities but will be discontinuous at the jogged intersection at Hansen Road and result in increased travel distance. Cyclists will have a second intersection to cross at the jogged intersection at Hansen Road and an unprotected crossing at the roundabout in comparison to Alternatives 1 and 2.
Improve Safety for All Travel Modes	<ul style="list-style-type: none"> Road geometry meets 60km/h design speed (50km/h posted speed), which meets the design criteria outlined for the study corridor. Alternative will implement the improvements identified in the preferred solution, including: four drive lanes, intersection improvements and cross rides/crosswalks which have the potential to reduce sudden stops to make turns and rear-end collisions, accommodating safe passage of pedestrians and cyclists at intersections, and providing dedicated space in boulevards to increase pedestrian and cyclist comfort, and increase separation with vehicles to minimize conflicts. 		<ul style="list-style-type: none"> Road geometry requires reduction of design speed to 50km/h (and subsequent posted speed of 40km/h tbc), which would not meet the design criteria outlined for the study corridor. Road geometry has curvilinear alignment and increased conflict points with



Evaluation Criteria and Sub-Factors	1. Road alignment curved at watercourse	2. Road alignment curved east of watercourse	3. Road Alignment runs north of Tributary to Etobicoke Creek and jogged at Hansen Road
			introduction of roundabout and jogged intersection at Hansen Road. <ul style="list-style-type: none"> • Pedestrians and cyclists will be required to cross at a roundabout through gaps.
Improve Mode Choice	<ul style="list-style-type: none"> • Alternative improves mode choice through the provision of dedicated and continuous active transportation facilities, four drive lanes, and intersection improvements to improve transit routing. 		<ul style="list-style-type: none"> • Alternative improves mode choice through the provision of dedicated active transportation facilities, four drive lanes, and intersection improvements to improve transit routing, however the connection is discontinuous for all users at Hansen Road.
Accommodates Emergency Services	<ul style="list-style-type: none"> • Alternative includes increased connectivity in the network, which can improve the efficiency of travel and direct access to accommodate emergency services 		<ul style="list-style-type: none"> • Alternative includes increased connectivity in the network; however, this alternative results in a discontinuous road and requires a jogged intersection at Hansen Road and roundabout which may result in additional delays / increased travel time to emergency vehicles in comparison to Alternatives 1 and 2.
Potential to Impact Utilities in the Corridor	The road extension is for a new road corridor and utility impacts and requirements are considered to be equal amongst the alternatives.		
Technical and Engineering Evaluation Summary	Preferred	Preferred	Least Preferred
Planning Objectives			
Consistent with Provincial Plans and Policies <i>(Provincial Policy Statement, Places to Grow Act, Greenbelt Plan)</i>	<ul style="list-style-type: none"> • The ability for the road to accommodate future travel demands due to the extension of a road supports the density targets set out by Provincial Plans and Policies for the City of Brampton. 		



Evaluation Criteria and Sub-Factors	1. Road alignment curved at watercourse	2. Road alignment curved east of watercourse	3. Road Alignment runs north of Tributary to Etobicoke Creek and jogged at Hansen Road
<p>Consistent with Regional Plans and Policies</p> <p><i>(Peel Region Official Plan, Peel Region Long Range Transportation Plan, Region of Peel Road Characterization Study, Region of Peel Active Transportation Study, Region of Peel Strategic Goods Movement Network Study)</i></p>	<ul style="list-style-type: none"> The ability for the road to accommodate future travel demands and improve modal choices due to a road extension is consistent with Regional Plans and Policies. All alternatives accommodate planned development and growth by providing additional capacity to accommodate all road users. 		
<p>Consistent with Municipal Plans and Policies</p> <p><i>(City of Brampton Official Plan, City of Brampton Transportation Master Plan Update, Brampton Vision 2040, Queen Street Corridor Secondary Plan, Brampton Human Health and Sciences Cluster Development Strategy, City of Brampton Active Transportation Master Plan)</i></p>	<ul style="list-style-type: none"> The ability for the road to accommodate future travel demands and improve modal choices due to a road extension is consistent with Municipal Plans and Policies. Alternative accommodates planned development and growth by providing additional capacity to accommodate all road users and improving connectivity in the Road Network. Alternative is compatible with the urban greenway identified in the Queen Street East Precinct Plan through provision of continuous facilities along the corridor. 	<ul style="list-style-type: none"> The ability for the road to accommodate future travel demands and improve modal choices due to a road extension is consistent with Municipal Plans and Policies. Alternative accommodates planned development and growth by providing additional capacity to accommodate all road users and improving connectivity in the Road Network although discontinuous. Alternative is less compatible with the urban greenway identified in the Queen Street East Precinct Plan through discontinuous corridor at Hansen Road. 	
<p>Planning Objectives Evaluation Summary</p>	<p>Preferred</p>	<p>Preferred</p>	<p>Less Preferred</p>
<p>Social & Cultural Environment</p>			
<p>Minimize Access Impacts</p>	<ul style="list-style-type: none"> No change to existing accesses to lands north of the Tributary to Etobicoke Creek. Significant impact to existing access point at Hansen Road to 35 Rutherford Road (concrete plant) as road extension is anticipated to require business displacement. Opportunities to provide direct access to potential reconfigured lands at 35 Rutherford Road (north and south of new road corridor) Opportunity to provide direct access to future Fire Hall from new corridor located off Rutherford Road. 		<ul style="list-style-type: none"> Significant impact to several existing business accesses north of the Tributary to Etobicoke Creek to accommodate new corridor location. No change to existing access point at Hansen Road to 35 Rutherford Road (concrete plant).



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			<ul style="list-style-type: none"> Opportunity to provide direct access to future Fire Hall from new corridor located off Rutherford Road.
Minimize Traffic Noise	<ul style="list-style-type: none"> Noise impacts due to additional traffic from additional road capacity are equal for all alternatives and absence of noise sensitive areas in the study area. 		
Preserve Archaeological and Cultural Heritage Features	<ul style="list-style-type: none"> The study area does not retain any potential cultural heritage resources. The Study Area does not retain archaeological potential on account of deep and extensive land disturbance. 		
Improve Visual Aesthetics	<ul style="list-style-type: none"> Visual aesthetics will be slightly reduced due to increased pavement width for the road extension, but can be improved through tree plantings and other boulevard treatments within available ROW 		
Improve Community Character and Public Realm	<ul style="list-style-type: none"> Implementation of active transportation facilities, tree plantings, and other boulevard treatments will improve community character and public realm. 		
Minimize Disruption due to Construction	<ul style="list-style-type: none"> Construction of this alignment is anticipated to cease operations at 35 Rutherford Road South (concrete plant) anticipated to result in business displacement. Construction of a new curved structure over the Tributary to Etobicoke Creek with channel re-alignment will be more complex than Alternative 2. 	<ul style="list-style-type: none"> Construction of this alignment is anticipated to cease operations at 35 Rutherford Road South (concrete plant) anticipated to result in business displacement. Construction of a new structure over the Tributary to Etobicoke Creek will be required with channel re-alignment. 	<ul style="list-style-type: none"> Construction of this alignment will significantly disrupt many businesses located north of the Tributary to Etobicoke Creek (requiring potential full business displacement in some properties and temporary and permanent displacement of parking on other properties).
Social & Cultural Environment Evaluation Summary	Less Preferred	Less Preferred	Least Preferred
Economic Environment			
Improve Access to Businesses and Key Employment Areas	<ul style="list-style-type: none"> Improves access to businesses along Eastern Avenue and Clark Boulevard by providing a direct connection between Clark Boulevard and Eastern Avenue. 		<ul style="list-style-type: none"> Limited opportunity to improve access to businesses with discontinuous connection between Clark Boulevard and Eastern Avenue at Hansen Road.
Minimize Operating and Maintenance Costs	<ul style="list-style-type: none"> Highest operating and maintenance costs due to potential curved structure over the Tributary to Etobicoke Creek although road alignment is shorter and 	<ul style="list-style-type: none"> Less operating and maintenance costs in comparison to Alternative 1 due to potential straight structure crossing over the Tributary to Etobicoke Creek 	<ul style="list-style-type: none"> Lowest maintenance and operation costs as no new structure crossing of the Tributary to the Etobicoke Creek, although longer alignment and



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	has fewer intersection control requirements in comparison to Alignment 3.	although road alignment is shorter and has fewer intersection control requirements in comparison to Alignment 3.	additional intersection requirements as Hansen Road jogged intersection and roundabout.
Minimize Capital and Construction Costs, and Maximize Construction Value	<ul style="list-style-type: none"> Highest capital and construction costs due to potential curved structure over the Tributary to Etobicoke Creek although road alignment is shorter and has fewer intersection control requirements in comparison to Alignment 3. 	<ul style="list-style-type: none"> Less capital and construction costs in comparison to Alternative 1 due potential straight structure crossing over the Tributary to Etobicoke Creek although road alignment is shorter and has fewer intersection control requirements in comparison to Alignment 3. 	<ul style="list-style-type: none"> Lowest capital and construction costs as no new structure crossing of the Tributary to the Etobicoke Creek, although longer alignment and additional intersection requirements as Hansen Road jogged intersection and roundabout.
Minimize Property Requirements	<ul style="list-style-type: none"> 35 Rutherford Road existing concrete plant operations is anticipated to be displaced with potential full property purchase of site to accommodate road extension and channel re-alignment. Opportunities to redevelop lands for other use to be explored. 		<ul style="list-style-type: none"> Significant impacts to businesses located north of the Tributary to Etobicoke Creek (requiring potential full business displacement in some properties and temporary and permanent displacement of parking on other properties). Opportunities to redevelop lands to be explored.
Economic Environment Evaluation Summary	Least Preferred	Less Preferred	Preferred
Natural Environment			
Protect Designated Natural Areas	<ul style="list-style-type: none"> No identified wetlands, no significant wildlife habitat (SWH), no Species At Risk (SAR), no fish species are present in the study area. There is a single occurrence of regionally significant species (Larger Straw Sedge). No impacts to designated natural areas. 		
Minimize Impacts to Vegetation	<ul style="list-style-type: none"> The study area is highly disturbed and heavily industrialized. No significant tree species or federally or provincially significant vascular flora are within the study area. Lowland deciduous forest (FOD07) is associated with the watercourse habitat. No impacts. Alternative provides opportunity to enhance vegetation through channel re-alignment and associated plantings. 		<ul style="list-style-type: none"> The study area is highly disturbed and heavily industrialized. No significant tree species or federally or provincially significant vascular flora are within the study area. Lowland deciduous forest

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			<p>(FOD07) is associated with the watercourse habitat. No impacts.</p> <ul style="list-style-type: none"> No opportunity to enhance vegetation in the existing channel as channel re-alignment would not be required with this alternative.
Minimize Impacts to Wildlife	<ul style="list-style-type: none"> No suitable habitat for Species At Risk (SAR), Species of Conservation Concern (SCC) nor suitable Significant Wildlife Habitat (SWH) in the study area. Study area is highly developed and disturbed and does not provide important habitat functions. No impacts. 		
Minimize Impacts to Protect Aquatic Habitat	<ul style="list-style-type: none"> A single engineered drain is present east of Hansen Road and is a tributary to the Etobicoke Creek. Numerous barriers to fish movement are present and aquatic habitat is poor. Alternative requires a new crossing of the Tributary to Etobicoke Creek and accommodates channel re-alignment. Significant opportunity to improve and enhance the aquatic habitat. 		<ul style="list-style-type: none"> A single engineered drain is present east of Hansen Road and is a tributary to the Etobicoke Creek. Numerous barriers to fish movement are present and aquatic habitat is poor. Alternative does not provide opportunity to enhance aquatic habitat as a new crossing is note required.
Minimize Impacts to Surface Water and Groundwater Management	<ul style="list-style-type: none"> Moderate impact with new roadway connection. Stormwater quantity will increase, and quality mitigation will be required, which can be addressed through design. Moderate impact to shallow groundwater system due to potential increase in contaminants related to increased roadway width and extension (i.e. road salt, etc.) Opportunities to improve flooding conditions with channel re-alignment. 		<ul style="list-style-type: none"> Greater impact with new roadway connection in comparison to Alternative 1 and 2 with additional length of road extension and roundabout. Stormwater quantity will increase, and quality mitigation will be required, which can be addressed through design Moderate impact to shallow groundwater system due to potential increase in contaminants related to increased roadway width and extension (i.e. road salt, etc.) which is greater in comparison to Alternative 1 and 2 with increased length of road extension. No change to address flooding with existing channel alignment



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Minimize Impacts to Contaminated Properties	<ul style="list-style-type: none"> Potential for impacts to contaminated properties along study corridor to be determined through completion of Contamination Overview Study. 		<ul style="list-style-type: none"> Potential for impacts to contaminated properties along study corridor to be determined through completion of Contamination Overview Study.
Improve Air Quality	<ul style="list-style-type: none"> Alternative includes increased connectivity which will increase traffic mobility and reduce traffic congestion and delays as well as improvements to support active transportation modes and transit in the broader network. This reduction in congestion and associated idling can reduce emissions and have potential for improvements to air quality. 		<ul style="list-style-type: none"> Alternative includes increased connectivity which will increase traffic mobility and reduce traffic congestion and delays as well as improvements to support active transportation modes and transit in the broader network. This reduction in congestion and associated idling can reduce emissions and have potential for improvements to air quality. This alternative however will result in increased travel time and congestion in comparison to Alternatives 1 and 2 with the introduction of the second jogged intersection at Hansen Road and roundabout.
Minimize Effects on Climate Change	<ul style="list-style-type: none"> This alternative connects Clark Boulevard with Eastern Avenue and will improve connectivity in the network, thus, increasing traffic mobility and reducing traffic congestion and delays. It will also support active transportation modes. This reduction in congestion, infrastructure to support active transportation modes, and improved transit operations can decrease vehicle greenhouse gases that contribute to climate change. Opportunities for implementation of tree plantings and Low Impact Development stormwater management strategies during road construction can improve the study corridor resiliency to climate change 		<ul style="list-style-type: none"> This alternative will improve connectivity in the network but is discontinuous and requires additional intersection control. Traffic mobility, congestion and delays can be improved in the overall network but to a lesser extent than Alternative 1 or Alternative 2 Opportunities for implementation of tree plantings and Low Impact Development stormwater management strategies during road construction can improve the study corridor resiliency to climate change



Evaluation Criteria and Sub-Factors	1. Road alignment curved at watercourse	2. Road alignment curved east of watercourse	3. Road Alignment runs north of Tributary to Etobicoke Creek and jogged at Hansen Road
Natural Environment Evaluation Summary	Preferred	Preferred	Less Preferred
Summary of Evaluation	Not Recommended	Recommended	Not Recommended
	<p>This alternative is <u>not recommended</u>. Although it is shorter in length than Alternative 3, it has slightly greater construction, capital, and maintenance costs in comparison to Alternative 2 with a potential new curved structure over the Tributary to Etobicoke Creek. It provides good connectivity to existing businesses for all users (pedestrians, cyclists, transit and motorist), and is compatible with the future greenway as it supports continuous, direct and dedicated facilities for pedestrians and cyclists. This alternative will improve traffic mobility and decrease congestion, having less negative impacts on climate change and air quality. This alternative provides an opportunity to re-channelize the Tributary to Etobicoke Creek and significantly enhance the aquatic habit and natural environment. This alternative is anticipated to require full displacement to 35 Rutherford Road (concrete plant). Opportunities to redevelop the site if displaced, require further study.</p>	<p>This alternative is <u>recommended</u>. It is shorter in length than Alternative 3, and although it has a higher construction, capital, and maintenance costs in comparison to Alternative 3, it is less than Alternative 1 as the new structure over the Tributary to Etobicoke Creek is not anticipated to be curved. It provides good connectivity to existing businesses for all users (pedestrians, cyclists, transit and motorist), and is compatible with the future greenway as it supports continuous, direct and dedicated facilities for pedestrians and cyclists. This alternative will improve traffic mobility and decrease congestion, having less negative impacts on climate change and air quality. This alternative is anticipated to require full displacement to 35 Rutherford Road (concrete plant). Opportunities to redevelop the site if displaced, require further study.</p>	<p>This alternative is <u>not recommended</u>. Although it has a lower construction, capital, and maintenance costs in comparison to Alternatives 1 and 2 as it does not require a crossing of the Tributary to Etobicoke Creek, it results in a discontinuous alignment and jogged intersection at Hansen Road and an additional roundabout. The discontinuity of the alignment results in less connectivity and is less compatible with the future greenway. This option also does not provide an opportunity to re-channelize the Tributary to Etobicoke Creek nor enhance its aquatic habit. This alternative will also impact many businesses located north of the Tributary to Etobicoke Creek requiring potential displacement of businesses (in some properties) and temporary/ permanent loss of parking in other properties.</p>