Don Given
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April 29, 2020

MGP File: 15-2347

Ontario Ministry of Energy, Northern Development and Mines
77 Grenville Street, 6th Floor
Toronto, ON M7A 2C1

via email: kirby.dier@ontario.ca

Attention: Ms. Kirby Dier
Network and Microgrid Policy

Dear Ms. Dier:

RE: Comments Regarding Northwest GTA Transmission Corridor Identification Study
ERO No. 019-1503
Mayfield West, Town of Caledon

Malone Given Parsons Ltd. is the planning consultant to Brookvalley Project Management Inc. ("Brookvalley") who manage six parcels of land totalling approximately 234 hectares within Phase 2 of the Mayfield West Study Area in the Town of Caledon (the "Subject Lands"). The Mayfield West Study Area and lands managed by Brookvalley are shown in Figure 1.

The purpose of this letter is to provide comments, on behalf of Brookvalley, with respect to the proposed study area and guiding principles for the Northwest GTA Transmission Corridor Identification Study (the "Transmission Corridor Study").

On behalf of Brookvalley:

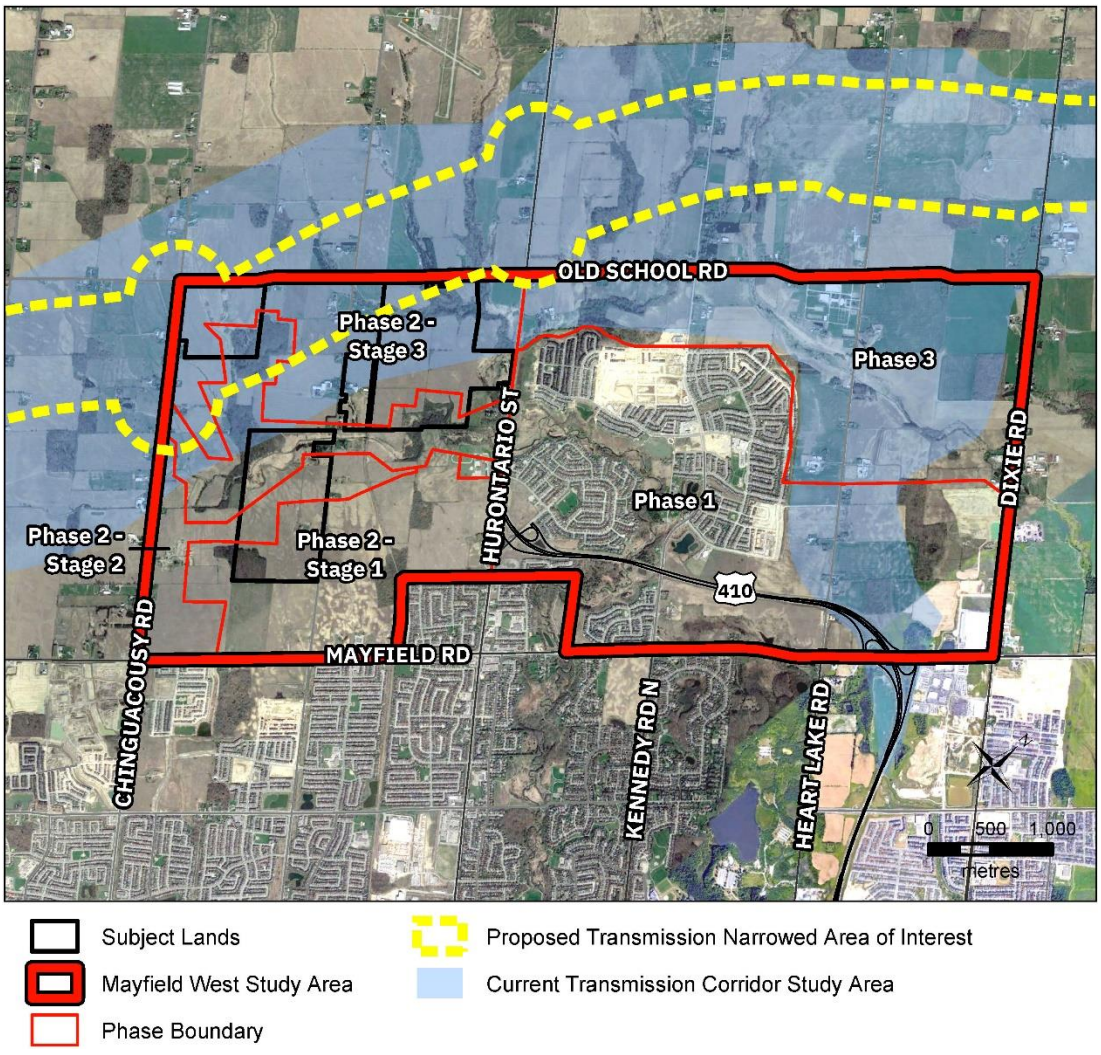
1) **We request that the Transmission Corridor Study synchronize with, or wait for the completion of, the GTA West Transportation Corridor Study and Environmental Assessment process and use the findings of the study and final alignment of the Transportation Corridor to inform the Transmission Corridor Study.**
2) **We request that, consistent with guiding principle four of the Transmission Corridor Study, the study area alignment be revisited to avoid impacts to built up areas including existing and planned communities.**

Consistent with the guiding principles of the Transmission Corridor Study, it is our opinion co-locating the Transmission Corridor with the GTA West Transportation Corridor is both cost- and land-efficient, will minimize impacts to natural heritage, agricultural and hydrological features, and will minimize impacts on both existing and planned communities and employment areas.

Malone Given Parsons Ltd., on behalf of Brookvalley, have made a number of submissions commenting on the proposed alignment of the GTA West Transportation Corridor as well as

the criteria used to evaluate the alignment alternatives. In general, our comments encourage the Province to revisit the alignment of the Transportation Corridor, to shift the alignment north and remove the proposed interchange at Chinguacousy Road to avoid impacting a number of planned community and employment areas, including the Mayfield West Study Area. Our comments and concerns regarding the GTA West Transportation Corridor are largely applicable to the Transmission Corridor Study, and as such our previous submissions are attached for your review.

Figure 1: Context Map of Mayfield West and Transmission Corridor Study Areas



Source: Ministry of Energy, Northern Development and Mines, 2020 and Google Earth, May 2018

The Mayfield West Study Area has been recognized for development since 1991 when adopted by Town Council and approved by the Ontario Municipal Board in 1997. Since then a series of settlement boundary expansions have occurred to accommodate population growth in the Town, including an expansion in 2006 for Mayfield West Phase 1 (Official Plan Amendment 208), an expansion in 2015 for Mayfield West Phase 2 Stage 1 (Official Plan Amendment 222), and most recently in 2018 the Town endorsed the commencement of local Official Plan Amendment 255 to expand the settlement boundary to include Mayfield

West Phase 2 Stage 2. The next logical settlement expansion would be to include the Mayfield West Phase 2 – Stage 3 lands to round out the Mayfield West Study Area and complete the community under development. It is clear the Town has maintained a long-standing commitment to allocate growth and development to the Mayfield West community.

The current Transmission Corridor study area impacts the developable residential and employment land base within the Town of Caledon, including the Mayfield West Study Area. Consideration should be given to delivering housing to accommodate growth allocations, the planning that has been undertaken by both Peel Region and the Town of Caledon and the infrastructure investments made in anticipation of residential development. In our opinion, the alignment for both the GTA West Transportation Corridor and the Transmission Corridor should be revisited and located further north so as to not impact these planned communities.

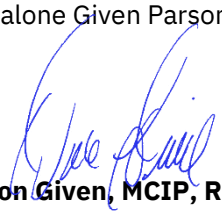
Given the immense amount of work and consultation being undertaken as part of the GTA West Transportation Corridor Study and the similar nature of the Transmission Corridor Study, it is our opinion that proceeding with the Transmission Corridor Study prior to the final determination of the GTA West Transportation Corridor alignment is premature.

We also ask that you review and consider our previous submissions and requests related to the GTA West Transportation Corridor as they are largely applicable to the Transmission Corridor Study.

We thank you for the opportunity to provide our input and look forward to working with you and your staff throughout this process. We would appreciate being added to the circulation list for any new information regarding the Northwest GTA Transmission Corridor as it arises.

If you have any questions or would like to meet to discuss the content of this letter and its attachments, please do not hesitate to contact me.

Yours very truly,
Malone Given Parsons Ltd.



Don Given, MCIP, RPP

cc: Matthew Cory, Malone Given Parsons Ltd.
Ashley Barter, Malone Given Parsons Ltd.
Nick Cortellucci, Brookvalley Project Management Inc.
Frank Filippo, Brookvalley Project Management Inc.

Attachment:

A. MGP Letter to Ministry of Transportation re: Comments Regarding GTA West Corridor Preferred Technical Alignment dated November 15, 2019

Malone Given Parsons.

Matthew Cory
905 513 0170 x116
mcory@mgp.ca

November 15, 2019

MGP File: 15-2347

GTA West EA Team
Ministry of Transportation
159 Sir William Hearst Avenue, 4th Floor
Toronto ON M3M 0B7

via email: project_team@gta-west.com

Attention: Mr. Lukasz Grobel
Ontario Ministry of Transportation Project Manager

Dear Mr. Grobel:

RE: Comments Regarding GTA West Corridor Preferred Technical Alignment
Brookvalley Project Management Inc.
Mayfield West Phase 2, Town of Caledon

Malone Given Parsons Ltd. ("MGP") are the planning consultants for Brookvalley Project Management Inc. ("Brookvalley"), who manage six parcels of land totalling approximately 234 hectares within Phase 2 of the Mayfield West Study Area in the Town of Caledon (the "Brookvalley Lands") (see Attachment 1).

The purpose of this letter is to provide comments with respect to Section S4-1 of the GTA West Corridor Technically Preferred Alternative ("Route S4-1") shown in Attachment 2, Alternative Route ("Route S4-2") shown in Attachment 3, and the Draft Evaluation of the Short List of Route Alternatives (the "Evaluation Criteria"), dated September 2019.

On behalf of Brookvalley:

1) **We request that Route S4-2 be carried forward as the preferred route alternative for Section 4 of the GTA West Corridor.**

2) **We further request that Route S4-2 be modified to straighten the alignment and eliminate the interchange at Chinguacousy Road to provide a more efficient route along the GTA West Corridor.**

As shown in Attachment 2, Route S4-1 frustrates the development of the Mayfield West Study Area. Short Listed Alternative Route Section S4-2 ("Route S4-2"), shown in Attachment 3, minimizes the impact to the Mayfield West Study Area.

A modified Route Section S4-2 ("Modified Route S4-2"), shown in Attachment 4, has been prepared that improves Route S4-2 by providing a more efficient alignment that further minimizes impacts to the Mayfield West Study Area and eliminates the interchange at

Chinguacousy Road. It is additionally requested that this modified route be explored by the GTA West Team and adopted as the preferred route if possible.

Request 1:

On behalf of Brookvalley, we request that the EA be concluded identifying Route S4-2 as the preferred route for the GTA West Corridor Alignment for the following reasons:

The basis of this request is elaborated upon in the following text.

1) **Route S4-2 provides the least impact to the natural environment of the published routes, as demonstrated in the Evaluation of the Short List Alternatives. Moreover, the preferred option (Route S4-1) appears to require crossing and/or removal of additional significant features and traverses through significantly more of the Greenbelt Natural Heritage System ("NHS") than S4-2. S4-2 provides the minimum impact to the natural environment both within and outside the Greenbelt Plan.**

It appears that, within the Evaluation Criteria, significant weight was given to the impact of the route alternatives on the agricultural system. While we can appreciate the importance of maintaining prime agricultural areas, we note that the agricultural potential of the lands in all route alternatives is generally equivalent; however, implementing Route S4-2 would result in an alignment that impacts the smallest amount of agricultural lands (125 ha compared to 153 ha in Route S4-1), and provides an alignment that would result in the least fragmentation of the agricultural system, north of Phase 2 of the Mayfield West Study Area.

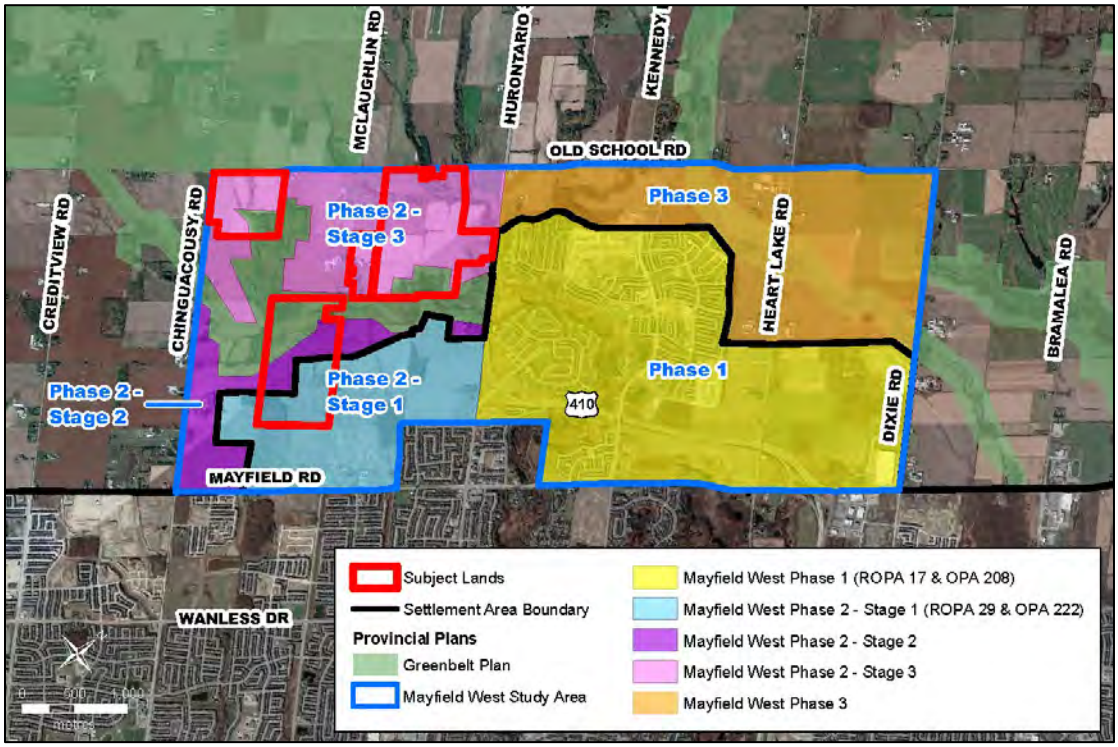
It appears that Route S4-2 ranked poorly with respect to the Natural Environment due to the extent to which it aligns the corridor within the Greenbelt Plan area (2.64 km versus Route S4-1 at 1.76km). However, it appears that the majority of this additional area within the Greenbelt Plan falls within the Protected Countryside and not within the Natural Heritage System and therefore, does not appear to impact the natural heritage features of the Greenbelt Plan to any greater extent than the other route alternatives.

From a natural heritage features perspective Route S4-2 provides an alignment that scores favourably when compared to Route S4-1, and the other route alternatives in many evaluation aspects. For example, based on the Evaluation Criteria, Route S4-2 has fewer potential water crossings, results in the lowest overall loss of wildlife habitat and the lowest overall loss of significant woodlands. Further, Route S4-2 scores equivalent to Route S4-1 with respect to the impact on fish communities, provincially and locally significant wetlands, groundwater recharge and wellhead protection areas.

2) Route S4-2 results in the least impact to land use planning and socio-economic factors, particularly recognizing that the analysis did not have the proper regard for the Mayfield Study Area and the intent that these lands provide for the Town's community growth needs to 2041. S4-2 minimizes the impacts to developable community area lands and the delivery of housing supply and is consistent with Bill 108 that was released in June 2019.

The Mayfield West Study Area was adopted by Town Council in September 1991 and approved by the Ontario Municipal Board (the "OMB") in January 1997. Figure 1 below shows the boundaries of the study area and different phases.

Figure 1. Mayfield West Study Area



The Study Area was identified to accommodate future growth and development to support the Town of Caledon (the "Town") "tri-nodal" approach to growth management. Since that time, it has been the intent of the Town to round out the Mayfield West Study Area through a series of settlement area expansions to accommodate growth:

- In July 2006, the Town adopted Official Plan Amendment 208 ("OPA 208") to implement the policies of Regional Official Plan Amendment 17 for the settlement boundary expansion to accommodate a population of approximately 9,000 in Mayfield West Phase 1. OPA 208 was approved by the OMB in 2007.
- In June 2010, the Town adopted Official Plan Amendment 226 ("OPA 226") which confirmed the "tri-nodal" approach to growth and allocated approximately 12,148 people and 4,072 jobs to Mayfield West Phase 2. Based on provincial and regional changes to growth allocation, the Town reduced the Mayfield West Phase 2 allocation

resulting in the staging of Mayfield West Phase 2 into two stages (MW2-1 and MW2-2). The OMB approved OPA 226 in June 2013.

- In November 2015, the Town adopted Official Plan Amendment 222 ("OPA 222") which expanded the Settlement Area Boundary to include MW2-1. OPA 222 was approved by the OMB in May 2017.
- In July 2018, the Town endorsed the commencement of a local official plan amendment for MW2-2. This process (referred to as Official Plan Amendment 255) is a Town-initiated amendment to support the Mayfield West settlement area expansion to include the MW2-2 lands.

Based on the above, it is clear the Town has maintained a long-standing commitment to allocate growth and development to the Mayfield West community. The next logical settlement expansion would be to include the Mayfield West Phase 2 – Stage 3 (MW2-3) lands to round out the Mayfield West Study Area and complete the community under development.

Route S4-1 will cut through the northwest corner of the Mayfield West Study Area and directly impact approximately 35 hectares of land anticipated to accommodate residential development. The inclusion of an interchange at Chinguacousy Road would further impact the development potential of the lands, including the MW2-2 lands which were recently endorsed by Council for settlement area boundary expansion. It is likely that if the alignment of Route S4-1 were implemented, especially with the introduction of an interchange at Chinguacousy Road, the MW2-2 and MW2-3 lands may not be developed as a residential community, and if so would have to deal with issues associated with sensitive uses adjacent to the highway (i.e. noise, air quality etc.). This would result in a displacement of allocated population and dwelling units that would need to be accommodated elsewhere within the Town, for which the land use planning processes have not yet necessarily been completed and servicing solutions may not exist, thereby delaying the timing of delivery for units to accommodate projected populations.

Route S4-2 locates the alignment of the GTA West Corridor north of the approved Mayfield West Study Area, and into whitebelt and Greenbelt Plan areas. This alignment transitions efficiently and would ensure the Mayfield West Study Area, could be developed in a timely manner to accommodate population growth.

It is the policy of both the Provincial Policy Statement ("PPS") 2014 and Draft 2019, that communities should be sustained by *"avoiding development and land use patterns that would prevent the efficient expansion of settlement areas in those areas which are adjacent or close to settlement areas…"* (Section 1.1.1.d). These policies indicate it is the Province's priority to respect settlement area boundaries and their efficient expansion, of which the Mayfield West Study Area is a prime example.

The 2019 Draft of the PPS provides policies that promote *"… the integration of land use planning, growth management, transit-supportive development, intensification and infrastructure planning to achieve cost-effective development patterns…"* (Section 1.1.1.e). This policy indicates the Province's priority to ensuring various planning initiatives work together to optimize results.

The Minister of Municipal Affairs and Housing made clear the intention to increase housing supply and housing affordability in a statement made on May 2, 2019, on the release of Bill

108. *"More Homes, More Choice: Ontario's Housing Supply Action Plan is a full-spectrum suite of legislative changes to increase the supply of housing that is affordable and provide families with more meaningful choices on where to live, work and raise their families…"*.

While the Draft Evaluation of the Short List of Route Alternatives (the "Evaluation Criteria"), dated September 2019, provide significant consideration for impacts to the agricultural and Greenbelt Plan systems, they do not appear to provide appropriate weighting to the potential impacts to urban land use planning policies and initiatives. Based on the Evaluation Criteria, it appears that the Province's objectives to maintain the integrity of settlement areas and increase housing supply have not been considered as part of the selection of Route S4-1. Route S4-1 would sever the Mayfield West Study Area thereby preventing the efficient expansion and development of an existing settlement area and further would limit, and delay, the delivery of housing which is contrary to Provincial Policy and the Minister's direction to increase housing supply.

Route S4-2 is the only route alternative that accounts for these Provincial objectives, aligning the GTA West Corridor north to reduce the impact to the Mayfield West Study Area to ensure the efficient expansion of an existing settlement area and maintaining the integrity of the historical municipal land use planning policies and initiatives by the Councils of the Town of Caledon and Region of Peel .

The Mayfield West Study Area is consistent with the Settlement Area Boundary Expansion policies of the A Place to Grow: Growth Plan for Greater Golden Horseshoe, 2019 (the "Growth Plan). As mentioned, the Mayfield West Study Area has been contemplated to accommodate growth for 20+ years, MW2-2 and MW2-3 are the next obvious extension of the settlement area boundary, infrastructure and water and wastewater services, and would round out a community that has been protected for residential development since 1997.

It is the policy of the Growth Plan that *"…Planning for new or expanded infrastructure will occur in an integrated manner, including evaluations of long-range scenario-based land use planning, environmental planning and financial planning, and will be supported by relevant studies…"* (Section 3.2.1.2). Further policies 3.2.1.1 and 3.2.2.1of the Growth Plan require infrastructure and transportation planning be co-ordinated with land use planning.

With respect to infrastructure corridors it is the policy of the Growth Plan that *"The planning, location, and design of planned corridors and the land use designations along these corridors will support the policies of this Plan, in particular that development is directed to settlement areas…"* (Section 3.2.5.2).

3) Route S4-2 is more cost-effective when costs associated with land acquisition are considered;

It is the Province's priority to ensure various planning initiatives work together to optimize results and, require that such infrastructure and transportation projects specifically be coordinated with land use, environmental and fiscal planning processes.

Selection of Route S4-1 would result in an alternative that disregards the in-force and effect land use planning initiatives and cost-efficiency related to the costs associated with land acquisition.

As mentioned, Route S4-2 proposes an alignment that would traverse north of the Mayfield West Study Area which would result in an alternative that is more consistent with Provincial Policy as it provides consideration for land use planning initiatives, environmental features and fiscal responsibility.

The lands have been included within the Settlement Area and would have proceeded to development by now, if not for the delay in planning these lands caused by the GTA West Study, as noted in section 2.1.4 of the evaluation Matrix. This is a negative and prolonged impact on the subject lands as a result of the project, where additional negative impacts are likely with the preferred option disrupting the logical and good planning of this area.

With respect to the transportation-related evaluation criteria, the route alternatives scored equally, except for construction costs and traffic operations as they relate to the potential realignment of roads.

While it is appreciated that the Evaluation Criteria identify construction costs as a criterion for evaluating the route alternatives, we note that the Evaluation Criteria neglect to consider the costs associated with land acquisition. Acquiring land for the alignment of the GTA West Corridor will require the Province to pay market value for the lands anticipated to accommodate the Corridor. The market value for lands anticipated for urban development, such as the Mayfield West Community Study Area, has reached a value substantially higher than the value of either Greenbelt Plan or whitebelt lands. As a result, these costs have the potential to significantly increase the anticipated costs associated with each respective route alternative.

If land acquisition costs had been considered as part of the Evaluation Criteria it is likely that Route S4-2 would have scored much higher as a preferred route alternative given that it is the only alternative that locates the GTA West Corridor outside of the Mayfield West Study Area lands, which as mentioned, are anticipated for urban development. Route S4-2 locates the GTA West Corridor north of the Mayfield West Study Area where costs associated with land acquisition are anticipated to be a fraction of the cost, making it the most cost-effective route alternative.

4) The evaluation table appears to have several inconsistencies and errors which negatively effect the assessment of S4-2 as the preferred option – if these errors were corrected, we believe the option would be selected as the preferred option;

1.1.1	S4-2 has the least crossings yet is ranked 3rd
1.1.2	All entries are identical yet S4-2 is ranked lower
1.2.2	S4-2 effects the same amount of wetlands as other options, and less area than S4-3, yet is ranked lowest, and doesn't specify the amount or area of unevaluated wetlands affected
1.2.4	Erroneously states that S4-2 has 2.64km within the NHS of the Greenbelt, when measured this is ~500m, which when corrected would result in this being ranked #1 as opposed to #4.
1.3	Given the other errors in the section, question the calculation and conclusion and ranking of S4-2.
1.5.1	Only S4-2 has a mention of the number of crossings, air photography review appears to show that all options have similar amount of crossings, with more significant crossings with other options, primarily the preferred option.
1.6.1	If air quality impacts on future residents of Mayfield Secondary Plan were considered S4-2 would have the least impact on the most residents and would be ranked #1.
2.1.2	Given other discrepancies believe the measurements are incorrect relative to other entries in the table. However, agree that the least Agricultural lands are impacted. Moreover, most policy considerations in the PPS and Growth Plan (discussed in item 2 of this letter) were not considered, and if considered S4-2 would be ranked #1.
2.1.3	S4-2 impacts the smallest Agricultural Area and avoids impacts to the future planning of the Mayfield Study Area as opposed to all other options. The preferred option could result in the creation of a dysfunctional employment area next to the highway and should be ranked #4, and S4-2 should be ranked #1.
2.1.4	As with above point, the impact on the Study Area has not be contemplated, if it was, the preferred option would be ranked lower than S4-2.
2.3.1	The impacts of locating a Highway through a new community are high regarding ambient noise as it effects nearby residents. In this regard, S4-2 avoids the Mayfield Study Area and should be ranked #1 as it impacts the least residents (existing and planned).
2.4.2	Discrepancy between the agricultural area in this entry vs. 2.1.2.
2.7.3	If the Mayfield Study area and future residents are considered, S4-2 has the

2.7.4	least negative visual impacts to current and planned sensitive viewers and should be ranked #1.
3.1.3 3.2.4	We believe the cemetery could be avoided through more detailed design and therefore S4-2 should be ranked equally with the other options.
4.7	Other options appear to require more watercourse crossings, which should result in a greater cost relative to S4-2 – believe the costing needs to be re-evaluated. Moreover, the cost of land acquisition through the Mayfield Study Area will be higher vs outside of this area, and therefore believe that the cost of the S4-2 should be the lowest and therefore ranked #1.
4.8	There appears to be no significant difference in any of the options regarding road realignment requirements – believe S4-2 should be ranked the same as other options.

The Draft Evaluation of the Short List of Route Alternatives (the "Evaluation Criteria") is shown in Attachment 4.

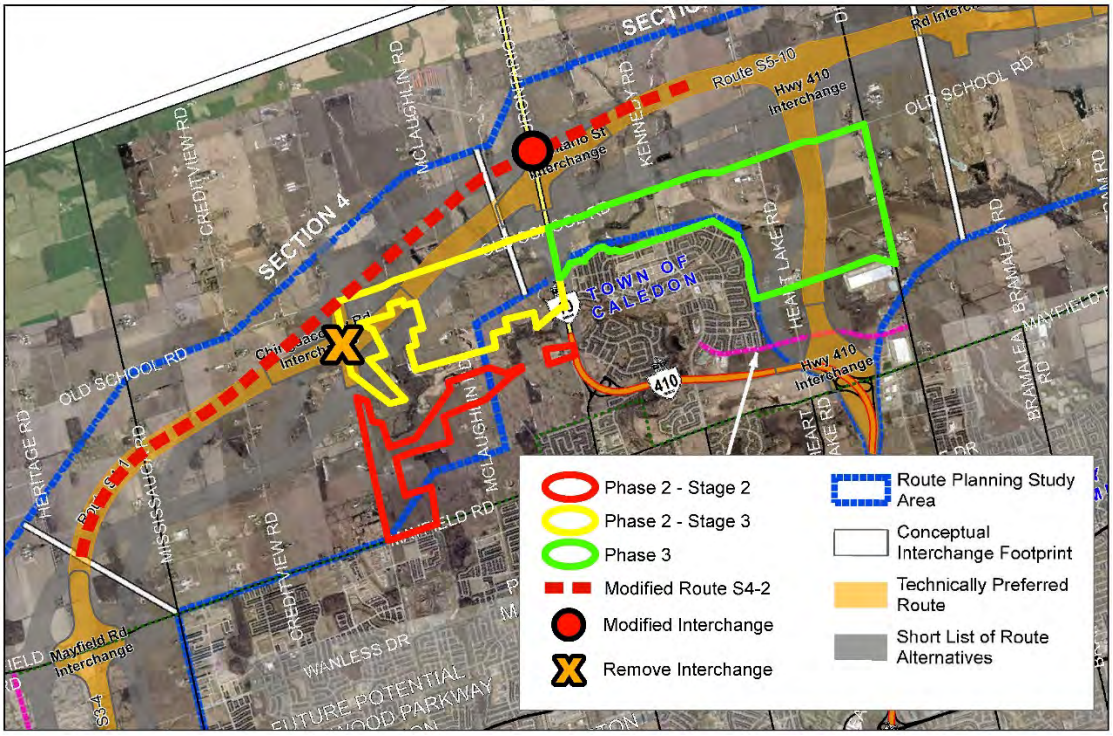
Request 2:

We request that Route S4-2 be modified to straighten the alignment and eliminate the interchange at Chinguacousy Road to provide a more efficient route along the GTA West Corridor.

Modified Route S4-2, shown below in Figure 2 and included in Attachment 5, straightens the alignment of Route S4-2 and removes the interchange at Chinguacousy Road resulting in a simplified corridor, shorter overall length and provides savings related to construction costs while mitigating the inefficiencies within Route S4-2. In terms of length, Modified Route S4-2 (7.0 km) is shorter than Route S4-2 (7.3 km) and slightly longer than Route S4-1 (6.9 km).

With respect to provincial, regional, and local policy initiatives, Modified Route S4-2 best accommodates the land needs of the Town and Region to 2041 by providing the best opportunity for the full development of the Mayfield West Study Area and maintain the Town's long-standing commitment to allocate growth and development to the Mayfield West community. The proposed interchange at Chinguacousy Road disrupts the growth and development of the Mayfield West community by cutting through lands intended for residential growth that are vital and required to accommodate the Town and Region's population growth to 2041. The interchanges at Hurontario Road and Mayfield Road provide adequate access to the surrounding area and the elimination of the Chinguacousy interchange simplifies the GTA West Corridor and reduces cost.

Figure 2. Modified Route S4-2



We respectfully request that GTA West team examine Modified Route S4-2 as an alternative route during the EA process and identify this modified route as the preferred alignment for Section 4 of the GTA West Corridor.

CONCLUSION

Based on the issues and comments of this letter, it is our opinion that Route S4-1 significantly reduces the development potential of the Mayfield West Study Area. We therefore request that Route S4-2, as seen in Attachment 4, be carried forward as the preferred route for Section 4 of the GTA West Corridor for the following reasons:

1) Route S4-2 provides the least impact to the natural environment of the published routes, as demonstrated in the Evaluation of the Short List Alternatives. Moreover, the preferred option (Route S4-1) appears to require crossing and/or removal of additional significant features and traverses through significantly more of the Greenbelt Natural Heritage System ("NHS") than S4-2. S4-2 provides the minimum impact to the natural environment both within and outside the Greenbelt Plan.

2) Route S4-2 results in the least impact to land use planning and socio economic factors of the published routes, particularly recognizing that the analysis did not have the proper regard for the Mayfield West Study Area and the intent that these lands provide for the Town's community growth needs to 2041. S4-2 minimizes the impacts to developable community area lands and the delivery of housing supply and is consistent with Bill 108 that was released in June 2019.

3) Route S4-2 is more cost-effective when costs associated with land acquisition are considered;

4) The evaluation table appears to have several inconsistencies and errors which negatively effect the assessment of S4-2 as an option – if these errors were corrected, we believe the option would be selected as the preferred option;

As discussed throughout this letter, it appears that Route S4-1 has not given consideration to delivering housing to accommodate population growth and ignores the long history of planning undertaken by both Peel Region and the Town of Caledon. Furthermore, it appears that the Province's objectives to increase housing supply have not been considered when S4-1 was identified through the Environmental Assessment process, nor were the costs of acquiring lands planned for urban growth versus the lesser cost of Greenbelt and whitebelt lands if the alignment were to be moved northward. Finally, it appears that the Evaluation Criteria inappropriately evaluate the impact to the natural environment, providing significant weight on the impact to the agricultural system and Greenbelt Plan area rather than the impact to the natural heritage features themselves.

We additionally request that Route S4-2 be modified to straighten the alignment and remove the interchange at Chinguacousy Road to provide a more efficient route along the GTA West Corridor

A modified alternative route has been prepared ("Modified Route S4-2") that straightens the alignment of Route S4-2 (see Attachment 4) while simplifying the route by removing the interchange at Chinguacousy Road. Modified Route S4-2 results in the fewest impacts to the Mayfield West Study Area and we respectfully request that the GTA West Team explore this option and if possible, carry forward Modified Route S4-2 as the final preferred alignment for this section of the GTA West Corridor.

We thank you for the opportunity to provide our input and look forward to working with you and your staff throughout this process. We would appreciate being added to the circulation list for any new information with respect to the GTA West Corridor as it arises.

If you have any questions, or would like to meet to discuss the content of this letter, please do not hesitate to contact me.

Yours very truly,
Malone Given Parsons Ltd.

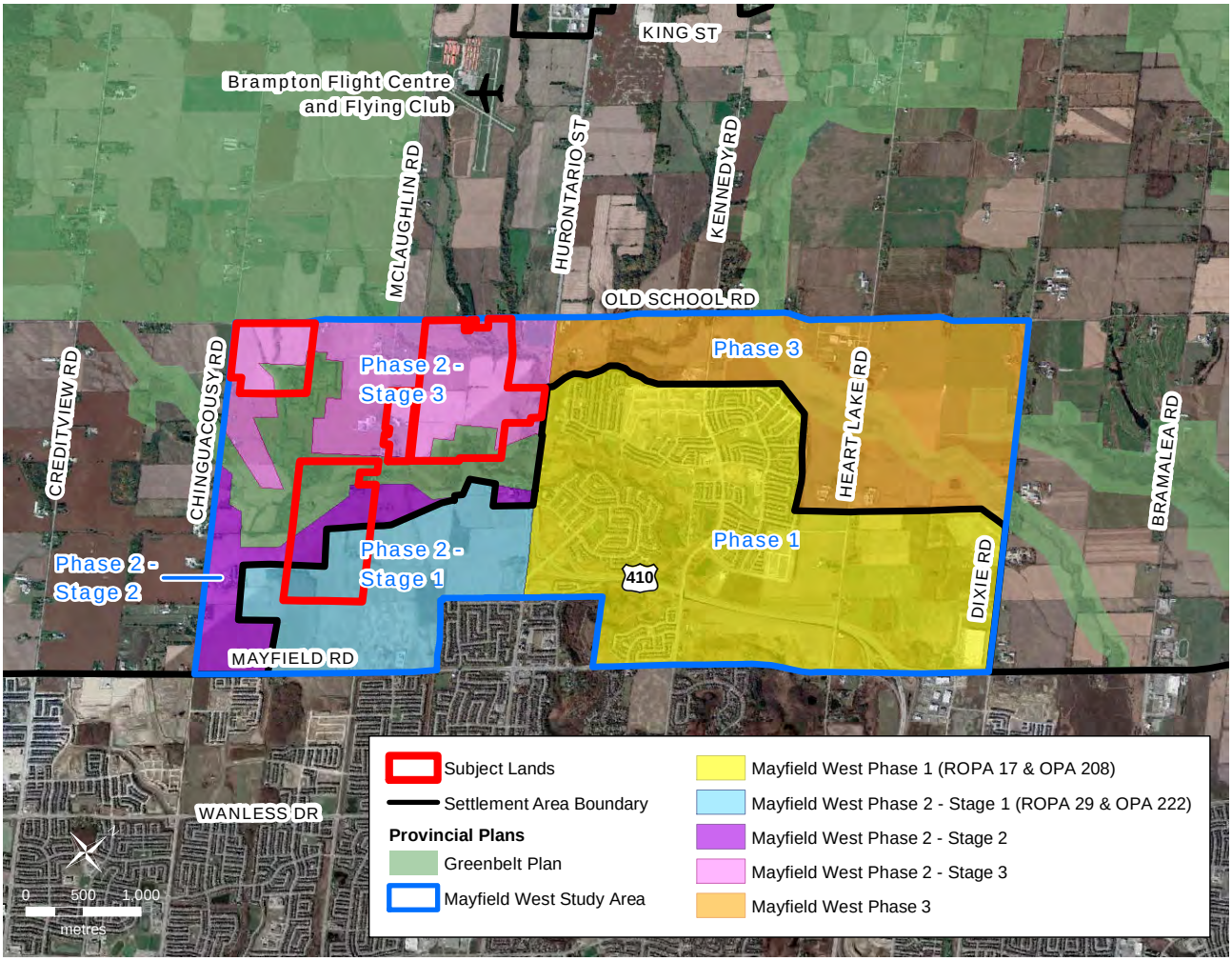
Matthew Cory, MCIP, RPP, PLE, PMP
Principal

mcory@mgp.ca

cc: Mayor and Members of Regional Council, Region of Peel
Adrian Smith, Region of Peel
Mayor and Members of Council, Town of Caledon
Sylvia Kirkwood, Town of Caledon
Kant Chawla, Town of Caledon
Frank Filippo, Brookvalley Project Management Inc.

Attachment 1: Mayfield West Study Area and Brookvalley Lands
Attachment 2: GTA West Corridor Technically Preferred Alternative Route (“Route S4-1”)
Attachment 3: Short Listed Alternative Route Section S4-2 (“Route S4-2”)
Attachment 4: Modified Route S4-2 (“Modified Route S4-2”)
Attachment 5: Draft Evaluation of the Short List of Route Alternatives (“Evaluation Criteria”)

ATTACHMENT 1



ATTACHMENT 2

GTA West

Legend

- Railway
- Freeway
- 407 ETR
- Future Highway 427 Extension
- Highway
- Arterial Road
- Local Municipal Road
- Section Boundary
- Planned Municipal Improvements
- Municipal Boundary
- Route Planning Study Area
- Preferred Route Alternative
- Conceptual Interchange Footprint
- Short List of Route Alternatives

DRAFT

Sources:
Regional Municipality of York, Regional Municipality of Peel, Regional Municipality of Halton, Township of King, City of Vaughan, Town of Caledon, City of Brampton, City of Mississauga, Town of Halton Hills, Town of Milton

Route S4-1

Page 4 of 9

September 2019

0 0.45 0.9 1.35 1.8 km

WSP AECOM Ontario

ATTACHMENT 3

GTA West

Legend

- Railway
- Freeway
- 407 ETR
- Future Highway 427 Extension
- Highway
- Arterial Road
- Local Road
- Section Boundary
- Planned Municipal Improvements
- Municipal Boundary
- Route Planning Study Area
- Featured Route Alternative
- Conceptual Interchange Footprint
- Short List of Route Alternatives

DRAFT

Sources:
Regional Municipality of York, Regional Municipality of Peel, Regional Municipality of Halton, Township of King, City of Vaughan, Town of Caledon, City of Brampton, City of Mississauga, Town of Halton Hills, Town of Milton

Alternative Route S4-2

September 2019

0 0.45 0.9 1.35 1.8 km

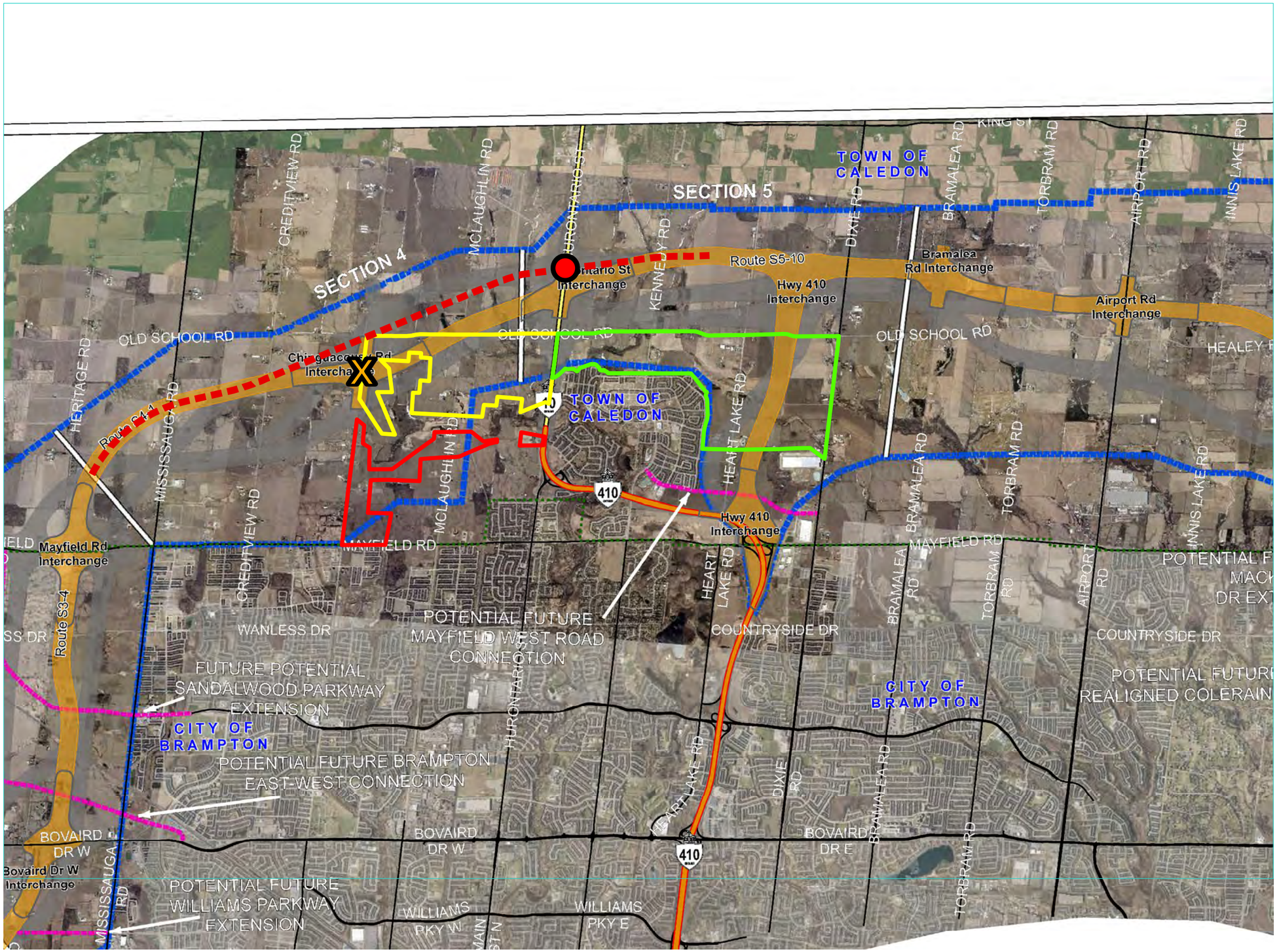
WSP AECOM Ontario

AECOM \\artrt3fs001\proj\Aecom\Projs\60347240\900-CAD_GIS\920-929 (GIS-Graphics)\920-ENV\Design\01_Reports\PICMXD\60347240_GTAW_Alternatives_ShortList.mxd 2019/08/16

ATTACHMENT 4

MODIFIED GTA WEST CORRIDOR ALIGNMENT

MAYFIELD, CALEDON



- Phase 2 - Stage 2
- Phase 2 - Stage 3
- Phase 3
- Modified Route S4-2
- Modified Interchange
- Remove Interchange
- Railway
- Freeway
- 407 ETR
- Future Highway 427 Extension
- Highway
- Arterial Road
- Section Boundary
- Planned Municipal Improvements
- Municipal Boundary
- Route Planning Study Area
- Conceptual Interchange Footprint
- Technically Preferred Route
- Short List of Route Alternatives

Sources: GTA West Technically Preferred Route, 2019

MGP File: 15-2347
Date: November 15, 2019

Malone Given Parsons.

ATTACHMENT 5

Ontario

GTA West
Planning *with* Vision | Planning *for* People

GTA West Transportation Corridor Route Planning and Environmental Assessment Study, Stage 2

EVALUATION OF THE SHORT LIST OF ROUTE ALTERNATIVES

Draft September 2019

VOLUME I

Comparative Evaluation of Net Effects and Ranking, Sections 1 to 9
Reference Documents #1 to #6

WSP AECOM

COMPARATIVE EVALUATION OF NET EFFECTS AND RANKING TABLES, SECTIONS 1 to 9 (Draft)

Comparative Evaluation of Net Effects and Ranking – Section S4

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
1.0 Natural Environment				
1.1 Fish and Fish Habitat				
1.1.1 Fish Habitat	Standard net effects to watercourses as outlined in the accompanying memo at the following: **21 total potential water crossings:** • 1 intermittent, baitfish (coolwater) • 13 intermittent, unconfirmed fish • 7 ephemeral headwaters (no fish habitat) No sensitive or highly challenging features to mitigate impacts. LOW NET EFFECT	Standard net effects to watercourses as outlined in the accompanying memo at the following: **18 total potential water crossings:** • 1 permanent, unconfirmed fish, coolwater • 8 intermittent, unconfirmed fish • 9 ephemeral headwaters (no fish habitat) Incrementally greater net effects are anticipated at the following features where mitigation of potential effects is more challenging and/or fish and fish habitat is more sensitive: • Unable to avoid the negative effects of structures on groundwater patterns LOW NET EFFECT	Standard net effects to watercourses as outlined in the accompanying memo at the following: **20 potential water crossings**: • 2 permanent, baitfish, coolwater • 3 intermittent, baitfish, coolwater • 9 intermittent, unconfirmed fish • 6 ephemeral headwaters (no fish habitat) Incrementally greater net effects are anticipated at the following features where mitigation of potential effects is more challenging and/or fish and fish habitat is more sensitive: • Unable to avoid the negative effects of structures on groundwater patterns • Potential realignment of section of main stem Etobicoke Creek including a 90-degree bend may be required and would require a natural channel design in the considerations MODERATE NET EFFECT	Standard net effects to watercourses as outlined in the accompanying memo at the following: **20 potential water crossings:** • 1 intermittent, baitfish (coolwater) • 13 intermittent, unconfirmed fish • 6 ephemeral headwaters (no fish habitat) No sensitive or highly challenging features to mitigate impacts. LOW NET EFFECT
	RANKING: 1st While this alternative has many potential crossings, all are either intermittent or ephemeral systems where standard mitigation should eliminate or minimize long term impacts.	**RANKING: 3rd** While this alternative has many potential crossings, all are either intermittent or ephemeral systems. However, the presence of groundwater upwellings raises the sensitivity of this alternative.	**RANKING: 4th** In addition to this alternative having many potential water crossings, it also includes the potential realignment of sections of natural, permanent creeks. Additionally, several coldwater upwellings were observed.	**RANKING: 1st** While this alternative has many potential crossings, all are either intermittent or ephemeral systems where standard mitigation should eliminate or minimize long term impacts.
1.1.2 Fish Community	Incrementally greater net effects are anticipated at the following features where mitigation of potential effects is more challenging and/or fish and fish habitat is more sensitive: • No known impacts to sensitive fish species or communities. LOW NET EFFECT	Incrementally greater net effects are anticipated at the following features where mitigation of potential effects is more challenging and/or fish and fish habitat is more sensitive: • No known impacts to sensitive fish species or communities. LOW NET EFFECT	Incrementally greater net effects are anticipated at the following features where mitigation of potential effects is more challenging and/or fish and fish habitat is more sensitive: • No known impacts to sensitive fish species or communities. LOW NET EFFECT	Incrementally greater net effects are anticipated at the following features where mitigation of potential effects is more challenging and/or fish and fish habitat is more sensitive: • No known impacts to sensitive fish species or communities. LOW NET EFFECT
	RANKING: 1st Limited fish community distribution dominated by warmwater species resilient to disturbance. Ranking is based on habitat.	**RANKING: 3rd** Limited fish community distribution dominated by warmwater species resilient to disturbance. Ranking is based on habitat.	**RANKING: 4th** Limited fish community distribution dominated by warmwater species resilient to disturbance. Ranking is based on habitat.	**RANKING: 1st** Limited fish community distribution dominated by warmwater species resilient to disturbance. Ranking is based on habitat.
1.2 Terrestrial Ecosystems				
1.2.1 Wildlife and Wildlife Habitat	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of isolated wildlife habitats will be removed. Net effects include:	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of isolated wildlife habitats will be removed. Net effects include:	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of isolated wildlife habitats will be removed. Net effects include:	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of isolated wildlife habitats will be removed. Net effects include:

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
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	• Major wildlife habitat features associated with this alternative consist of 6 isolated patches evenly spaced throughout the alternative • Permanent loss of wildlife habitat including confirmed habitat for SAR and SCC and candidate SWH. • Landscape level movement corridors are identified. Local movement may occur along riparian corridors. The landscape surrounding these features is agricultural and generally permeable to wildlife movement. • Removals would represent ~22.68 ha loss of habitat with respect to patches affected by this alternative. • Reduction of wildlife habitat quality through indirect effects that cannot be fully mitigated including edge effects (e.g. increased light and noise and the introduction of pathways for invasive species) and increased potential for animal-vehicle collisions. • Removals would result in major removal, fragmentation and edge effects for all patches identified within the alternative. Loss of habitat would affect critical life stages through by removing habitat requirements (e.g. wetlands for amphibian breeding, forests for bat maternity colonies, etc.). MODERATE NET EFFECT	• Major wildlife habitat features associated with this alternative consist of 8 isolated patches evenly spaced throughout the alternative. • Permanent loss of wildlife habitat including confirmed habitat for SAR and SCC, large tracts of candidate SWH and other areas for breeding and rearing of young (e.g. amphibian breeding habitat) • Landscape level movement corridors are identified. Local movement may occur along riparian corridors. The landscape surrounding these features is agricultural and generally permeable to wildlife movement. • Removals would represent ~18.37 ha loss of habitat with respect to patches affected by this alternative • Reduction of wildlife habitat quality through indirect effects that cannot be fully mitigated including edge effects (e.g. increased light and noise and the introduction of pathways for invasive species) and increased potential for animal-vehicle collisions • Removals would result in major removal, fragmentation and edge effects for all patches identified within the alternative. Loss of habitat would affect critical life stages through by removing habitat requirements (e.g. wetlands for amphibian breeding, forests for bat maternity colonies, etc.). MODERATE NET EFFECT	• Major wildlife habitat features associated with this alternative consist of 8 isolated patches evenly spaced throughout the alternative. • Permanent loss of wildlife habitat including confirmed habitat for SAR and SCC, large tracts of candidate SWH and other areas for breeding and rearing of young (e.g. amphibian breeding habitat) • Landscape level movement corridors are identified. Local movement may occur along riparian corridors. The landscape surrounding these features is agricultural and generally permeable to wildlife movement. • Removals would represent ~28.6 ha loss of habitat with respect to patches affected by this alternative. • Reduction of wildlife habitat quality through indirect effects that cannot be fully mitigated including edge effects (e.g. increased light and noise and the introduction of pathways for invasive species) and increased potential for animal-vehicle collisions • Removals would result in major removal, fragmentation and edge effects for all patches identified within the alternative. Loss of habitat would affect critical life stages through by removing habitat requirements (e.g. wetlands for amphibian breeding, forests for bat maternity colonies, etc.). HIGH NET EFFECT	• Major wildlife habitat features associated with this alternative consist of 8 isolated patches evenly spaced throughout the alternative. • Permanent loss of wildlife habitat including confirmed habitat for SAR and SCC, large tracts of candidate SWH and other areas for breeding and rearing of young (e.g. amphibian breeding habitat) • Landscape level movement corridors are identified. Local movement may occur along riparian corridors. The landscape surrounding these features is agricultural and generally permeable to wildlife movement. • Removals would result in major removal, fragmentation and edge effects for all patches identified within the alternative. Loss of habitat would affect critical life stages through by removing habitat requirements (e.g. wetlands for amphibian breeding, forests for bat maternity colonies, etc). MODERATE NET EFFECT
	RANKING: 3rd All alternatives affect wildlife habitat. This alternative will result in a large area of wildlife habitat removal. This alternative will remove a large candidate animal movement corridor associated with Etobicoke Creek West Branch.	**RANKING: 1st** All alternatives affect wildlife habitat. This alternative will result in habitat removal greater than that of alternative S4-4. This alternative will result in less habitat removal than alternative S4-1. However, a large portion of contiguous swamp will be fragmented as a result of removal.	**RANKING: 4th** All alternatives affect wildlife habitat. This alternative will result in the largest area of wildlife habitat including the candidate animal movement corridor and swamp and deciduous forest.	**RANKING: 2nd** All alternatives affect wildlife habitat. This alternative will result in the least amount of habitat removal.
1.2.2 Wetlands	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of small existing communities will be removed. Net Effects include: • 1 PSW, 1 LSW and 4 unevaluated wetlands are affected by this alternative • Removal of ~9.3 ha of wetland. • Reduction in wetland quality through Indirect	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of existing unevaluated communities will be removed. Net Effects include: • 1 PSW, 1 LSW are affected by this alternative • Removal of ~9.9 ha of wetland	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of existing unevaluated communities will be removed. Net Effects include: • 1 PSW, 1 LSW and 1 unevaluated wetlands are affected by this alternative including ~15.71 ha	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of existing unevaluated communities will be removed. Net Effects include: • 1 PSW, 1 LSW and 1 unevaluated wetlands are affected by this alternative including removal of ~ 9.7 ha • Wetland features within the alternative are

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
		Summary of Potential Net Effects and Ranking		
	effects that cannot be fully mitigated including edge effects (e.g. increased light, wind, road contaminants and the introduction of pathways for invasive species) and impacts to hydrologic and groundwater inputs that support these features The majority of adjacent lands affected include agricultural lands with little buffer functionality. However, adjacent land that provide buffer function when present are proposed for removal MODERATE NET EFFECT	• Significant removals to several larger, more contiguous wetlands communities throughout the section. • Wetland features within the alternative are associated with moderately large isolated patches, made up of swamp, marsh and open water communities. • Reduction in wetland quality through Indirect effects that cannot be fully mitigated including edge effects (e.g. increased light, wind, road contaminants and the introduction of pathways for invasive species) and impacts to hydrologic and groundwater inputs that support these features The majority of adjacent lands affected include agricultural lands with little buffer functionality. However, adjacent land that provide buffer function when present are proposed for removal. HIGH NET EFFECT	• Wetland features within the alternative are associated with moderately large isolated patches, made up of deciduous swamp, thicket swamp, marsh and open water communities. • Reduction in wetland quality through Indirect effects that cannot be fully mitigated including edge effects (e.g. increased light, wind, road contaminants and the introduction of pathways for invasive species) and impacts to hydrologic and groundwater inputs that support these features The majority of adjacent lands affected include agricultural lands with little buffer functionality. However, adjacent land that provide buffer function when present are proposed for removal. MODERATE NET EFFECT	associated with moderately large isolated patches, made up of deciduous swamp, thicket swamp, marsh and open water communities. • Reduction in wetland quality through Indirect effects that cannot be fully mitigated including edge effects (e.g. increased light, wind, road contaminants and the introduction of pathways for invasive species) and impacts to hydrologic and groundwater inputs that support these features The majority of adjacent lands affected include agricultural lands with little buffer functionality. However, adjacent land that provide buffer function when present are proposed for removal. MODERATE NET EFFECT
	RANKING: 1st All alternatives affect unevaluated wetlands. This alternative will affect a similar area of wetland compared to alternative S4-4 but will require less wetland patch removal.	**RANKING: 4th** All alternatives affect unevaluated wetlands. This alternative will result in removal of a greater amount of larger patches of unevaluated wetland.	**RANKING: 3rd** All alternatives affect unevaluated wetlands. This alternative will result in the removal of less unevaluated wetland loss than alternative S4-2. Wetlands impacted are smaller and more isolated than those affected by alternative S4-2.	**RANKING: 2nd** All alternatives affect unevaluated wetlands. This alternative will affect a similar area to alternative S4-1 but will result in more unevaluated individual wetland patches being removed.
1.2.3 Woodlands and Vegetation	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Woodland features will be affected. Opportunities for reducing net effects are limited. Net Effects include: • Removal of ~18 ha of vegetation communities including deciduous forest, and cultural plantation • Seven potentially significant woodlands (~17.3 ha) are affected by this alternative. • No interior woodland habitat is impacted by this alternative. • No significant valley lands are affected by this alternative. • Reduction in vegetation community quality through Indirect effects that cannot be fully mitigated including effects from road contaminants (e.g. salt, heavy metals, sediment / debris), introduction of pathways for invasive species, edge / exposure impacts (e.g. canopy blow down) MODERATE NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Woodland features will be affected. Opportunities for reducing net effects are limited. Net Effects include: • Removal of ~ 16.7 ha of vegetation communities including forest, meadow and plantation • Six potentially significant woodlands (~15.3 ha) are affected by this alternative. • No interior woodland habitat is affected by this alternative. • No significant valley lands are affected by this alternative. • Reduction in vegetation community quality through Indirect effects that cannot be fully mitigated including effects from road contaminants (e.g. salt, heavy metals, sediment / debris), introduction of pathways for invasive species, edge / exposure impacts (e.g. canopy blow down) MODERATE NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Woodland features will be affected. Opportunities for reducing net effects are limited. Net Effects include: • Removal of ~24.1 ha of vegetation communities including forest and plantation. • Five potentially significant woodlands (~23.91 ha) are affected by this alternative. • No interior woodland habitat is impacted by this alternative. • No significant valley lands are affected by this alternative. • Reduction in vegetation community quality through Indirect effects that cannot be fully mitigated including effects from road contaminants (e.g. salt, heavy metals, sediment / debris), introduction of pathways for invasive species, edge / exposure impacts (e.g. canopy blow down) HIGH NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Woodland features will be affected. Opportunities for reducing net effects are limited. Net Effects include: • Removal of ~ 20.97 ha of vegetation communities including forest and plantation. • Six potentially significant woodlands (~20.8 ha) are affected by this alternative. • No interior woodland habitat is impacted by this alternative. • No significant valley lands are affected by this alternative. • Reduction in vegetation community quality through Indirect effects that cannot be fully mitigated including effects from road contaminants (e.g. salt, heavy metals, sediment / debris), introduction of pathways for invasive species, edge / exposure impacts (e.g. canopy blow down) HIGH NET EFFECT

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
	RANKING: 2nd All alternatives will result in the removal of woodland and other vegetation communities. This alternative will require more amount of woodland and other vegetation community removal than S4-2 but less than S4-3 and S4-4.	**RANKING:1st** All alternatives will result in the removal of woodland and other vegetation communities. This alternative will require less woodland and other vegetation removal than alternative S4-1.	**RANKING: 4th** All alternatives will result in the removal of woodland and other vegetation communities. This alternative will require the greatest area of removal of woodland and other vegetation communities. It will also result in the highest amount of potentially significant woodland removal.	**RANKING: 3rd** All alternatives will result in the removal of woodland and other vegetation communities. This alternative will result in the removal of large portions of potentially significant woodland.
1.2.4 Designated/Special/ Natural Areas	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. • There are no ESAs, ESPAs, ANSI or other designated areas within this alternative. • There are no national or provincial parks within this alternative. • There are no Conservation Authority lands within this alternative. • ~1.76 km of the alternative is within the Greenbelt Plan Area – Natural Heritage System. • Region of Peel Official Plan Designations - Intersects with 'Core Areas of Greenlands System' at one location: edge removal for one woodlot. • Town of Caledon Official Plan (Schedule A - Land Use Plan) - Intersects with Environmental Policy Areas at four locations, including fragmentation of four minor riparian zones. • Town of Caledon Official Plan (Schedule B – Mayfield West Land Use Plan) - Intersects with Environmental Policy Areas at two locations, including fragmentation of two minor riparian zones MODERATE NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. • There are no ESAs, ESPAs, ANSI or other designated areas within this alternative. • There are no national or provincial parks within this alternative. • There are no Conservation Authority lands within this alternative. • ~2.64 km of this alternative is within the Greenbelt Plan Area – Natural Heritage System. There are no Greenbelt Area Natural Heritage System crossings within this alternative. • Region of Peel Official Plan Designations - Intersects with 'Core Areas of Greenlands System' at one location: partial removal of one woodlot • Town of Caledon Official Plan Plan (Schedule A – Land Use Plan) - Intersects with Environmental Policy Areas at seven locations, including fragmentation of seven minor riparian zones. HIGH NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. • There are no ESAs, ESPAs, ANSI or other designated areas within this alternative. • There are no national or provincial parks within this alternative. • There are no Conservation Authority lands within this alternative. • This alternative is within the Greenbelt Plan Area – Natural Heritage System. The alternative has 2 crossings of 1.21 km. • Region of Peel Official Plan Designations - Intersects with 'Core Areas of Greenlands System' at two locations: partial removal of one woodlot and significant removal of one woodlot. • Town of Caledon Official Plan (Schedule A - Land Use Plan) - Intersects with Environmental Policy Areas at three locations, including fragmentation of three minor riparian zones. • Town of Caledon Official Plan (Schedule B – Mayfield West Land Use Plan) - Intersects with Environmental Policy Areas at three locations, including fragmentation of three minor riparian zones MODERATE NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. • There are no ESAs, ESPAs, ANSI or other designated areas within this alternative. • There are no national or provincial parks within this alternative. • There are no Conservation Authority lands within this alternative. • There are 2 Greenbelt Area Natural Heritage System crossings within this alternative (~1.47 km). • Region of Peel Official Plan Designations - Intersects with 'Core Areas of Greenlands System' at two locations: edge removal for two woodlots • Town of Caledon Official Plan (Schedule A - Land Use Plan) - Intersects with Environmental Policy Areas at four locations, including fragmentation of four minor riparian zones • Town of Caledon Official Plan (Schedule B – Mayfield West Land Use Plan) - Intersects with Environmental Policy Areas at two locations, including fragmentation of two minor riparian zones MODERATE NET EFFECT
	RANKING: 1st All alternatives have the potential to affect designated features such as Greenbelt, greenlands and EPAs. This alternative will result in the lesser area of these features removal.	**RANKING: 4th** All alternatives have the potential to affect designated features such as Greenbelt, greenlands and EPAs. This alternative will result in the greatest area of these features removal.	**RANKING: 3rd** All alternatives have the potential to affect designated features such as Greenbelt, greenlands and EPAs. This alternative will result in the greater area of these features removal.	**RANKING: 1st** All alternatives have the potential to affect designated features such as Greenbelt, greenlands and EPAs. This alternative will result in the lesser area of these features removal.
1.3 Ecosystem Services	**Relative ES Value** • Agriculture: Moderate • Natural Cover: Moderate • Cumulative: Moderate **ES Value Representation** • Agriculture: 36%	**Relative ES Value** • Agriculture: High • Natural Cover: Moderate • Cumulative: Moderate **ES Value Representation** • Agriculture: 37%	**Relative ES Value** • Agriculture: Moderate • Natural Cover: Moderate • Cumulative: Moderate **ES Value Representation** • Agriculture: 23%	**Relative ES Value** • Agriculture: Moderate • Natural Cover: Moderate • Cumulative: Moderate **ES Value Representation** • Agriculture: 31%

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
			Summary of Potential Net Effects and Ranking	
	• Natural Cover: 64% MODERATE NET EFFECT	• Natural Cover: 63% MODERATE NET EFFECT	• Natural Cover: 77% MODERATE NET EFFECT	• Natural Cover: 69% MODERATE NET EFFECT
	RANKING: 1st All alternatives in S4 have moderate net effects using the Ecosystem Service (ES) Net Effects weighting. Differentiation between alternatives is generated by examining the land cover Relative ES Value impacts and the proportion of Natural Cover contribution to total ES value. S4-1, S4-3 and S4-4 all have Moderate Land Cover ES impacts. Variation exists in the relative contribution of Natural Cover to total ES value. S4-1 has the lowest impact of these three alternatives to natural cover, making it the preferred alternative in S4.	**RANKING: 4th** All alternatives in S4 have moderate net effects using the Ecosystem Service (ES) Net Effects weighting. Differentiation between alternatives is generated by examining the land cover Relative ES Value impacts and the proportion of Natural Cover contribution to total ES value. S4-2 has a High Land Cover ES impact for Agriculture. No other alternative in S4 has a high land cover ES impact, making this the least preferred alternative in S4.	**RANKING: 3rd** All alternatives in S4 have moderate net effects using the Ecosystem Service (ES) Net Effects weighting. Differentiation between alternatives is generated by examining the land cover Relative ES Value impacts and the proportion of Natural Cover contribution to total ES value. S4-1, S4-3 and S4-4 all have Moderate Land Cover ES impacts. Variation exists in the relative contribution of Natural Cover to total ES value. S4-3 has the highest impact of these three alternatives to natural cover, making it the third least preferred alternative in S4. .	**RANKING: 2nd** All alternatives in S4 have moderate net effects using the Ecosystem Service (ES) Net Effects weighting. Differentiation between alternatives is generated by examining the land cover Relative ES Value impacts and the proportion of Natural Cover contribution to total ES value. S4-1, S4-3 and S4-4 all have Moderate Land Cover ES impacts. Variation exists in the relative contribution of Natural Cover to total ES value. S4-4 has the second lowest impact of these three alternatives to natural cover, making it the second preferred alternative in S4.
1.4 Groundwater				
1.4.1 Areas of Groundwater Recharge or Discharge	• Low net effect to groundwater recharge and discharge in 12 ha of high permeability surficial sediments. LOW NET EFFECT	• Low net effect to groundwater recharge and discharge in 9 ha of high permeability surficial sediments. LOW NET EFFECT	• Low net effect to groundwater recharge and discharge in 11 ha of high permeability surficial sediments. LOW NET EFFECT	• Low net effect to groundwater recharge and discharge in 12 ha of high permeability surficial sediments. LOW NET EFFECT
	RANKING: 1st Comparable with all other alternatives.	**RANKING: 1st** Comparable with all other alternatives.	**RANKING: 1st** Comparable with all other alternatives.	**RANKING: 1st** Comparable with all other alternatives.
1.4.2 Groundwater Source Areas and Wellhead Protection Areas	NO NET EFFECT	NO NET EFFECT	NO NET EFFECT	NO NET EFFECT.
	RANKING: 1st No relative ranking; effect on indicator is not present for any alternatives.	**RANKING: 1st** No relative ranking; effect on indicator is not present for any alternatives.	**RANKING: 1st** No relative ranking; effect on indicator is not present for any alternatives.	**RANKING: 1st** No relative ranking; effect on indicator is not present for any alternatives.
1.4.3 Large Volume Wells	• 1 large volume well requiring decommissioning. LOW NET EFFECT	• 1 large volume well requiring decommissioning. LOW NET EFFECT	• 1 large volume well potentially affected by reduction in water quality. LOW NET EFFECT	• 1 large volume well requiring decommissioning. LOW NET EFFECT
	RANKING: 1st Large volume well requiring decommissioning.	**RANKING: 1st** Large volume well requiring decommissioning.	**RANKING: 4th** Large volume well potentially affected by long term operation of new highway/interchange.	**RANKING: 1st** Large volume well requiring decommissioning.
1.4.4 Private Wells	• Potential reduction in water quality to 14 shallow wells due to the use of road salt on new highway/interchange resulting in a potential reduction in water quality. At least 9 wells require decommissioning. MODERATE NET EFFECT	• Potential reduction in water quality to 29 shallow wells due to the use of road salt on new highway/interchange resulting in a potential reduction in water quality. At least 11 wells require decommissioning. MODERATE NET EFFECT	• Potential reduction in water quality to 24 shallow wells due to the use of road salt on new highway/interchange resulting in a potential reduction in water quality. At least 21 wells require decommissioning. MODERATE NET EFFECT	• Potential reduction in water quality to 15 shallow wells due to the use of road salt on new highway/interchange resulting in a potential reduction in water quality. At least 16 wells require decommissioning. MODERATE NET EFFECT
	RANKING: 1st Lower number of potentially affected shallow wells. Similar to S4-4.	**RANKING: 3rd** Higher number of potentially affected shallow wells. Similar to S4-3.	**RANKING: 3rd** Higher number of potentially affected shallow wells. Similar to S4-2.	**RANKING: 1st** Lower number of potentially affected shallow wells. Similar to S4-1.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
		Summary of Potential Net Effects and Ranking		
1.4.5 Groundwater-Dependent Commercial Enterprises	• Potential to adversely affect 1 groundwater-dependent commercial enterprise. LOW NET EFFECT	• Potential to adversely affect 1 groundwater-dependent commercial enterprise. LOW NET EFFECT	• Potential to adversely affect 1 groundwater-dependent commercial enterprise. LOW NET EFFECT	• No net effect to groundwater-dependent commercial enterprises. NO NET EFFECT
	RANKING: 2nd One (1) groundwater-dependent commercial enterprise located within highway/interchange footprint and may require decommissioning.	**RANKING: 2nd** One (1) groundwater-dependent commercial enterprise located within highway/interchange footprint and may require decommissioning.	**RANKING: 2nd** One (1) groundwater-dependent commercial enterprise located within highway/interchange footprint and may require decommissioning.	**RANKING: 1st** No ground-water dependent commercial enterprises within study area.
1.4.6 Groundwater-Sensitive Ecosystems	• Moderate net effect to groundwater-sensitive ecosystems due to the presences of 1 pond, wetland headwaters, 1.3 ha of unevaluated wetland and 12 watercourse crossings within highway corridor. MODERATE NET EFFECT	• Low net effect to groundwater-sensitive ecosystems due to the presences of 1 pond, wetland headwaters, 0.1 ha of unevaluated wetland and 17 watercourse crossings within highway corridor. LOW NET EFFECT	• Moderate net effect to groundwater-sensitive ecosystems due to the presences of 1 pond, wetland headwaters, 2.9 ha of unevaluated wetland and 16 watercourse crossings within highway corridor. MODERATE NET EFFECT	• Moderate net effect to groundwater-sensitive ecosystems due to the presences of 1 pond, wetland headwaters, 1.9 ha of unevaluated wetland and 11 watercourse crossings within highway corridor. MODERATE NET EFFECT
	RANKING: 2nd Similar to S4-3 and S4-4	**RANKING: 1st** Lowest area coverage of wetland.	**RANKING: 2nd** Similar to S4-1 and S4-4	**RANKING: 2nd** Similar to S4-1 and S4-3.
1.5 Surface Water				
1.5.1 Watershed / Subwatershed Drainage Features / Patterns	• All watercourse crossings are close to perpendicular and some minor watercourse crossings can be eliminated. Net effect is common and straightforward and easily mitigated. LOW NET EFFECT	• 15 watercourse crossings included in fluvial geomorphology assessment. Crossings are for the most part all perpendicular and can be mitigated with culverts. A number of the minor watercourses (up to 6) would be candidates for removal with function replicated in SWM design. • The Chinguacousy/Old School Road interchange would have to have design components for open watercourse features to qualify as an enhancement. • Generally, mitigable effects with the exception of the interchange which is a significant effect and will be costly to mitigate from a fluvial perspective. MODERATE NET EFFECT	• Minor watercourse crossings are near perpendicular to the roadway and can be mitigated through culverts. The moderate crossings are also perpendicular and can use culverts but the sinuosity of two of them would require wider spans. • The interchange watercourses designated as minor can be removed and have their function replaced with SWM contributions. The moderate watercourse could take some additional flow from one of the minor watercourses. • Net effect straightforward and easily mitigated. LOW NET EFFECT	• All watercourse crossings are close to perpendicular so mitigation with culverts is straightforward. • Some minor watercourses can be eliminated and the downstream function met with stormwater drainage. • Chinguacousy interchange effects can be mitigated through realignments of the watercourse tributary junction. • Net effect is straightforward and easily mitigated. LOW NET EFFECT
	RANKING: 1st As the most northerly option, S4-1 requires crossings at upper sections of the watercourses, resulting in smaller culverts and more opportunities for diversions.	**RANKING: 4th** Large footprint for interchange creates a greater number of additional surface water impacts that will require attention / intervention.	**RANKING: 2nd** Smaller net effect resulting from interchange than S4-2.	**RANKING: 2nd** Smaller net effect resulting from interchange than S4-2.
1.5.2 Surface Water Quality and Quantity	• Introduces 55 ha impervious area to Etobicoke Creek watershed. • Medium impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off, thermal impact on the coolwater system. • Medium impacts on hydrology due to	• Introduces 55 ha impervious area to Etobicoke Creek watershed. • Medium impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off, thermal impact on the coolwater system. • Medium impacts on hydrology due to changes in ground permeability.	• Introduces 54 ha impervious area to Etobicoke Creek watershed. • Medium impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off, thermal impact on the coolwater system. • Medium impacts on hydrology due to changes in ground permeability.	• Introduces 54 ha impervious area to Etobicoke Creek watershed. • Medium impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off, thermal impact on the coolwater system. • Medium impacts on hydrology due to changes in ground permeability.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
	changes in ground permeability. • Low impacts on modifications to surface drainage patterns and alterations of waterbodies. MODERATE NET EFFECT	• Low impacts on modifications to surface drainage patterns and alterations of waterbodies. MODERATE NET EFFECT	• Low impacts on modifications to surface drainage patterns and alterations of waterbodies. MODERATE NET EFFECT	• Low impacts on modifications to surface drainage patterns and alterations of waterbodies. MODERATE NET EFFECT
	RANKING: 1st Similar net effect as other alternatives.	**RANKING: 1st** Similar net effect as other alternatives.	**RANKING: 1st** Similar net effect as other alternatives.	**RANKING: 1st** Similar net effect as other alternatives.
1.6 Air Quality and Climate Change				
1.6.1 Local and regional air quality impacts; greenhouse gas emissions	• Some residences on Heritage Rd., Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a change in air quality, but pollutants will remain within acceptable levels. LOW NET EFFECT	• Some residences on Heritage Rd., Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a change in air quality, but pollutants will remain within acceptable levels. LOW NET EFFECT	• Some residences on Heritage Rd., Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a change in air quality, but pollutants will remain within acceptable levels. LOW NET EFFECT	• Some residences on Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a change in air quality, but pollutants will remain within acceptable levels. LOW NET EFFECT
	RANKING: 2nd S4-1, S4-2 and S4-3 have similar number of affected residences.	**RANKING: 2nd** S4-1, S4-2 and S4-3 have similar number of affected residences.	**RANKING: 2nd** S4-1, S4-2 and S4-3 have similar number of affected residences.	**RANKING: 1st** Slightly fewer affected residences than other alternatives. This alternative also contributes to the shortest overall corridor length, thus reducing regional emissions of GHG and air pollutants.
2.0 Land Use / Socio-Economic Environment				
2.1 Land Use Planning Policies, Goals, Objectives				
2.1.1 Indigenous Land Claims	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
2.1.2 Provincial / Federal Land Use Planning Policies / Goals / Objectives	• Impacts PPS agriculture, employment and housing policies. • Impacts 153 hectares of Agricultural lands. • Impacts 27 hectares of Greenbelt lands Protected Countryside (22.6 hectares Natural Heritage System). • Impact to Agricultural System. MODERATE NET EFFECT	• Impacts PPS agriculture, employment and housing policies. • Impacts 125 hectares of Agricultural lands. • Impacts 57 hectares of Greenbelt lands Protected Countryside (12.2 hectares Natural Heritage System). • Impact to Agricultural System. • Could establish a long-term urban-rural edge. MODERATE NET EFFECT	• Impacts PPS agriculture, employment, public space and recreation, and housing policies. • Impacts 150 hectares of Agricultural lands. • Impacts 23 hectares of Greenbelt lands Protected Countryside-Natural Heritage System. Greater impact on Agricultural System but could establish a long-term urban-rural edge. MODERATE NET EFFECT	• Impacts PPS agriculture, employment, public space and recreation, and housing policies. • Impacts 148 hectares of Agricultural lands. • Impacts 27 hectares of Greenbelt lands Protected Countryside (22.6 hectares Natural Heritage System). • Impact to Agricultural System. MODERATE NET EFFECT
	RANKING: 1st	**RANKING: 4th**	**RANKING: 1st**	**RANKING: 1st**

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
	High impact on Agricultural lands and System and low impact on Greenbelt lands.	High impact on Greenbelt lands and moderate impact on Agricultural lands and System.	High impact on Agricultural lands and System and low impact on Greenbelt lands.	High impact on Agricultural lands and System with low impact on Greenbelt lands.
2.1.3 Municipal (local and regional) Land Use Planning Policies / Goals / Objectives	• Impacts 153 hectares of Agricultural lands. • Impacts 26 hectares of future urban development lands. • Impacts 2 hectares of environmental policy area. • Impacts 34.6 hectares of Mayfield West Secondary Plan (ROPA 29): future urban development to include a mix of residential and employment and development with general commercial. MODERATE NET EFFECT	• Impacts 125 hectares of Agricultural lands. • Impacts 0.3 hectares of Mayfield West Secondary Plan (ROPA 29): future urban development to include a mix of residential and employment and development with general commercial. MODERATE NET EFFECT	• Impacts 150 hectares of Agricultural lands. • Impacts 33 hectares of future urban development lands. • Impacts 4 hectares of environmental policy area. • Impacts 51.78 hectares of Mayfield West Secondary Plan: future urban development to include a mix of residential and employment and development with general commercial. HIGH NET EFFECT	• Impacts 148 hectares of Agricultural lands. • Impacts 26 hectares of future urban development lands. • Impacts 2 hectares of environmental policy area. • Impacts 34.6 hectares of Mayfield West Secondary Plan: future urban development to include a mix of residential and employment and development with general commercial. MODERATE NET EFFECT
	RANKING: 1st High impact on agricultural lands and System and a moderate impact on the future development of the Mayfield West Secondary Plan.	**RANKING: 3rd** Proposed interchange at Old School Road has a high impact on the use of Agricultural Lands and System. Low impact on the future development of the Mayfield West Secondary Plan.	**RANKING: 4th** High impact on agricultural lands and System and the future development of Mayfield West Secondary Plan.	**RANKING: 1st** High impact on agricultural lands and System and a moderate impact on the future development of Mayfield West Secondary Plan.
2.1.4 Development Objectives of Private Property Owners	• Likely interest to develop in the Mayfield West Secondary Plan area. LOW NET EFFECT	• Likely interest to develop lands but no applications made because of the GTA West Study Area. LOW NET EFFECT	• Likely interest to develop in the Mayfield West Secondary Plan area. MODERATE NET EFFECT	• Likely interest to develop in the Mayfield West Secondary Plan area. MODERATE NET EFFECT
	RANKING: 1st Possibility through design refinements to reduce the amount of future urban development lands impacted for Mayfield West Secondary Plan; however, would have a collateral impact on Greenbelt and Agricultural lands. Potential to further reduce FAA to allow for development.	**RANKING: 1st** Impact to future potential development can be reduced by removing property from the FAA to allow for development.	**RANKING: 4th** Possibility through design refinements to reduce the amount of future urban development lands impacted for Mayfield West Secondary Plan; however, would have a collateral impact on Greenbelt and Agricultural lands. Potential to further reduce FAA to allow for development.	**RANKING: 3rd** Possibility through design refinements to reduce the amount of future urban development lands impacted for Mayfield West Secondary Plan; however, would have a collateral impact on Greenbelt and Agricultural lands. Potential to further reduce FAA to allow for development.
2.2 Land Use – Community				
2.2.1 First Nation Reserves	• No reserves in study area. NO NET EFFECT	• No reserves in study area. NO NET EFFECT	• No reserves in study area. NO NET EFFECT	• No reserves in study area. NO NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
2.2.2 Indigenous Sacred Areas	• No known or reported Indigenous Sacred Areas. NO NET EFFECT	• No known or reported Indigenous Sacred Areas. NO NET EFFECT	• No known or reported Indigenous Sacred Areas. NO NET EFFECT	• No known or reported Indigenous Sacred Areas. NO NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
2.2.3 Urban and Rural Residential Uses and Properties	• 10 residential properties impacted. LOW NET EFFECT	• 11 residential properties impacted. MODERATE NET EFFECT	• 17 residential properties impacted. HIGH NET EFFECT	• 14 residential properties impacted. MODERATE NET EFFECT
	RANKING: 1st Impacts a low number of residential dwellings.	**RANKING: 2nd** Impacts the lowest moderate number of residential dwellings. Interchange at	**RANKING: 4th** Impacts the highest number of residential dwellings.	**RANKING: 2nd** Impacts the highest moderate number of residential dwellings.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
		Summary of Potential Net Effects and Ranking		
		Chinguacousy Rd. would result in more impacts.		
2.2.4 Commercial/ Industrial Uses and Properties	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• 1 property impacted (Gro Bark). MODERATE NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 4th** Impacts a portion of Gro Bark lands but not the building; design refinements could reduce the impacts.
2.2.5 Recreational Areas and Tourist Attractions	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.
2.2.6 Community Facilities / Institutions	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.
2.2.7 Municipal Infrastructure and Public Service Facilities	• Impacts GO Transit line. LOW NET EFFECT	• Impacts GO Transit line. LOW NET EFFECT	• Impacts GO Transit line. LOW NET EFFECT	• Impacts GO Transit line. LOW NET EFFECT
	RANKING: 1st All alternatives require 1 rail line crossing. Impacts can be mitigated through design refinements.	**RANKING: 1st** All alternatives require 1 rail line crossing. Impacts can be mitigated through design refinements.	**RANKING: 1st** All alternatives require 1 rail line crossing. Impacts can be mitigated through design refinements.	**RANKING: 1st** All alternatives require 1 rail line crossing. Impacts can be mitigated through design refinements.
2.3 Noise Sensitive Areas (NSA's)				
2.3.1 Transportation Noise	• Some residences on Heritage Rd., Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a significant change in noise. MODERATE NET EFFECT	• Several residences on Heritage Rd., Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a significant change in noise. MODERATE NET EFFECT	• Several residences on Heritage Rd., Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a significant change in noise. MODERATE NET EFFECT	• Several residences on Mississauga Rd., Creditview Rd., Chinguacousy Rd., and McLaughlin Rd. are anticipated to be close enough to experience a significant change in noise. MODERATE NET EFFECT
	RANKING: 1st Fewest affected residences.	**RANKING: 3rd** More affected residences than S4-1 and S4-4. Similar to S4-3.	**RANKING: 3rd** More affected residences than S4-1 and S4-4. Similar to S4-2.	**RANKING: 2nd** Slightly more affected residences than S4-1.
2.4 Land Use – Resources				
2.4.1 Indigenous Treaty Rights and Land Use Management	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
		Summary of Potential Net Effects and Ranking		
2.4.2 Agriculture / Specialty Crop				
• Removal or sterilization of Class 1 – 3 agricultural lands	• Loss of 133.6 ha of Class 1 – 3 lands	• Loss of 156.2 ha of Class 1 – 3 lands	• Loss of 113.5 ha of Class 1 – 3 lands	• Loss of 126.2 ha of Class 1 – 3 lands
• Specialty Crops/Cropland affected	• No effect	• No effect	• No effect	• No effect
• Cropland affected	• Loss of 26.2 ha of small grain cropland Loss of 60.8 ha of common field cropland Loss of 25.7 ha of pasture/forage cropland	• Loss of 25.5 ha of small grain cropland Loss of 92.2 ha of common field cropland Loss of 14.0 ha of pasture/forage cropland Loss of 20.3 ha of plowed cropland	• Loss of 25.5 ha of small grain cropland Loss of 51.9 ha of common field cropland Loss of 22.5 ha of plowed cropland Loss of 18.0 ha of pasture/forage cropland	• Loss of 14.9 ha of small grain cropland Loss of 70.8 ha of common field cropland Loss of 20.4 ha of pasture/forage cropland
• Livestock operations affected	• Six livestock operations affected (dairy, sheep/beef, poultry, horse (2), beef) (land for four, buildings for two)	• Six livestock operations affected (beef, dairy, horse (2), poultry/beef, poultry) (land only for five, land and buildings for one)	• Six livestock operations affected (dairy, beef, poultry, poultry/beef, horse, beef) (loss of land for five, loss of land and buildings for one)	• Six livestock operations affected (dairy, beef, poultry, horse (2), beef) (three for loss of land only, three for loss of land and buildings)
• Loss of agricultural buildings	• Loss of large pole barn, two small pole barns, two forage storage structures, loss of indoor riding arena, two machine sheds, three farm residential units	• Loss of large pole barn with two small feed bins, large bank barn, plastic covered storage building, metal clad pole building, and farm residential unit, medium size pole building	• Loss small pole barn, two plastic covered structures, one farm residential unit	• Loss of large bank barn, large machine shed (with extension), two sheds, small pole barn, two silos, large pole building, farm residential unit, two pole buildings, farm residential unit, indoor riding arena, pole barn with addition, large pole barn, farm residential unit, small pole barn, two plastic covered structures, farm residential unit
• Agricultural buildings within 50 m	• One small shed	• No effect	• Four pole barns, one machine shed, one farm residential unit, one large bank barn, one large pole barn with two feed bins, one metal chad pole building, one plastic covered structure, one farm residential unit	• No effect
• Field crop operations affected	• Six crop operations affected	• Ten crop operations affected	• Four crop operations affected	• Five crop operations affected
• Farm properties greater than 20 ha affected	• Twelve farm properties greater than 20 ha affected	• Twelve farm properties greater than 20 ha affected	• Nine farm properties greater than 20 ha affected	• Twelve farm properties greater than 20 ha affected
• Farm properties less than 20 ha affected	• Four farm properties less than 20 ha affected	• Fourteen farm properties less than 20 ha affected	• Six farm properties less than 20 ha affected	• Seven farm properties less than 20 ha affected
• Severed parcels greater than 20 ha created	• Six severed parcels greater than 20 ha created	• Seven severed parcels greater than 20 ha created	• Four severed parcels greater than 20 ha created	• Three severed parcels greater than 20 ha created
• Severed parcels less than 20 ha created	• Thirteen severed parcels less than 20 ha created	• Eighteen severed parcels less than 20 ha created	• Eleven severed parcels less than 20 ha created	• Twelve severed parcels less than 20 ha created
• Landlocked parcels created	• Three landlocked parcel created	• Four landlocked parcels created	• Three landlocked parcels created	• Five landlocked parcels created
• High investment operations affected	• Three high investment operations affected (land only)	• Four high investment operations affected (land only for three, land and buildings for one)	• Four high investment operations affected (dairy, beef, poultry, poultry/beef) (loss of land only)	Three high investment operations affected (two for land only, one for land and buildings

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
• Farm equipment transportation routes affected • Division of agricultural community areas • Loss of tile drainage	• No effect • No effect • Loss of 23.9 ha of tile drainage (systematic) MODERATE NET EFFECT	• No effect • No effect • Loss of 30.4 ha of tile drainage (systematic) MODERATE NET EFFECT	• No effect • No effect • Loss of 29.1 ha of tile drainage (systematic) and 3.1 ha of tile drainage (random) MODERATE NET EFFECT	• No effect • No effect • Loss of 13.5 ha of tile drainage (systematic) MODERATE NET EFFECT
	RANKING: 1st - Loss of 133.6 ha of Class 1 – 3 lands - Six livestock operations affected - Three high investment operations affected (land only) - Loss of 23.9 ha of tile drainage	**RANKING: 4th** - Loss of 156.2 ha of Class 1 – 3 lands - Loss of greatest quantity of cropland - Greatest number of cropland properties affected - Greatest number of severed parcels created - Six livestock operations affected - Four high investment operations affected (land only for three, land and buildings for one) - Loss of 30.4 ha of tile drainage	**RANKING: 2nd** - Loss of 113.5 ha of Class 1 – 3 lands - Fewest number of farm properties affected - Fewest number of landlocked parcels created - Six livestock operations affected - Four high investment operations affected (land only) - Loss of 29.1 ha of tile drainage (systematic) and 3.1 ha (random)	**RANKING: 3rd** - Loss of 126.2 ha of Class 1 – 3 lands - Six livestock operations affected - Greatest loss of agricultural buildings - No additional agricultural buildings within 50 m - Three high investment operations affected (two for land only, one for land and buildings) - Loss of 13.5 ha of tile drainage
2.4.3 Recreation	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.
2.4.4 Aggregate and Mineral Resources	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.
2.5 Major Utility Transmission Corridors and Pipelines				
2.5.1 Major Existing Utility Transmission Corridors and Pipelines	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.
2.5.2 Major Proposed Utility Transmission Corridors and Pipelines	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT	• No impacts NO NET EFFECT
	RANKING: 1st Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.	**RANKING: 1st** Does not have any impacts.
2.6 Contaminated Property and Waste Management	**Properties within alternative:** • One (1) CPR rail line. **Properties within 250 m of alternative:** • One (1) CPR rail line;	**Properties within alternative:** • One (1) CPR rail line; • One (1) light industrial property. **Properties within 250 m of alternative:**	**Properties within alternative:** • One (1) CPR rail line; • One (1) light industrial property. **Properties within 250 m of alternative:**	**Properties within alternative:** • One (1) CPR rail line; • One (1) commercial/ light industrial property.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
		Summary of Potential Net Effects and Ranking		
	• One (1) light industrial property. LOW NET EFFECT	• One (1) CPR rail line; • One (1 registered waste management facility within 100 m of the alternative; • One (1) institutional property. MODERATE NET EFFECT	• One (1) CPR rail line; • One (1) registered waste management facility within 5 m of the alternative; • One (1) institutional property. MODERATE NET EFFECT	**Properties within 250 m of alternative:** • One (1) CPR rail line; • One (1) light industrial property; One (1) institutional property. MODERATE NET EFFECT
	RANKING: 1st One property of medium concern to be directly impacted; two properties of medium concern to be indirectly impacted.	**RANKING: 2nd** Two properties of medium concern to be directly impacted; three properties of medium concern to be indirectly impacted. Same properties as Alternative S4-3	**RANKING: 2nd** Two properties of medium concern to be directly impacted; three properties of medium concern to be indirectly impacted. Same properties as Alternative S4-2	**RANKING: 4th** One property of high concern and one property of medium concern to be directly impacted; three properties of medium concern to be indirectly impacted.
2.7 Landscape Composition				
2.7.1 Terrain	• Predominantly flat, level topography with agricultural land use (most of alternative designated agricultural; crosses two small portions of protected Greenbelt towards the east). • A total of 21 watercourse crossings and associated floodplains are impacted by this alternative. • 4 Unevaluated Wetlands are affected by this alternative (approximately 9.0 ha of wetland in total) • 1 LSW is impacted by this alternative • 1 PSW is impacted by this alternative MODERATE NET EFFECT	• Much of alternative consists of flat, level topography and agricultural land use (most of alternative designated agricultural; crosses one small portion and one large area of protected Greenbelt at the east end of the section). • Alternative crosses a total of 18 watercourses • 6 Unevaluated Wetlands are affected by this alternative (approximately 10.0 ha of wetland in total) • 1 PSW is impacted by this alternative • 1 LSW is impacted by this alternative MODERATE NET EFFECT	• Predominantly flat, level topography throughout alternative with agricultural land use (most of alternative designated agricultural; crosses two small portions of protected Greenbelt towards the east as well as a Future Urban area) • Alternative crosses portions of 20 watercourses throughout section • Alternative impacts approx. 16.0 ha in total of wetland including: o 1 LSW is affected by this alternative o 1 PSW is affected by this alternative o 1 unevaluated wetland is affected by this alternative MODERATE NET EFFECT	• Predominantly flat, level topography with agricultural land use (most of alternative designated agricultural; crosses two small portions of protected Greenbelt towards the east). • Alternative crosses portions of 20 watercourses and associated floodplains throughout section • Approximately 10.0ha of Wetlands are impacted by this alternative including: o 1 LSW is affected by this alternative o 1 PSW is affected by this alternative o 1 unevaluated wetland is affected by this alternative MODERATE NET EFFECT
	RANKING: 1st Alternative has fewest overall effects on topographic character and existing land use patterns.	**RANKING: 2nd** Similar to S4-1; however, a few additional effects to topographic character / drainage patterns.	**RANKING: 4th** Alternative has greatest effects on existing topography and land use patterns.	**RANKING: 3rd** Similar to S4-3; however, somewhat fewer overall effects to topographic character.
2.7.2 Vegetation	• Alternative effects / interrupts 7 potentially significant woodland areas (approximately 17.0 ha in total) • Alternative interrupts connectivity of 2 vegetated corridors associated with watercourses toward north end of alternative (combination of woody vegetation and open/ meadow vegetation) MODERATE NET EFFECT	• Alternative effects / interrupts 6 potentially significant woodland areas (approximately 15.0 ha in total) MODERATE NET EFFECT	• Alternative effects / interrupts 5 potentially significant woodland areas (approximately 24.0 ha in total) • Alternative interrupts connectivity of 2 vegetated corridors associated with watercourses toward north end of alternative (combination of woody vegetation and open/ meadow vegetation) HIGH NET EFFECT	• Alternative effects / interrupts 6 potentially significant woodland areas are impacted by this alignment (approximately 21.0 ha in total) • Alternative interrupts connectivity of 2 vegetated corridors associated with watercourses toward north end of alternative (combination of woody vegetation and open / meadow vegetation) HIGH NET EFFECT
	RANKING: 2nd Similar to S4-2 in terms of overall effects; however, this alternative has less effect to forested area at west end of section, but has greater impacts to vegetation connectivity at east end.	**RANKING: 1st** This alternative has less overall amount of disruption to connectivity of established vegetation communities; however, this alternative has greater disruptions to vegetation connectivity, including on forest at west end of alternative.	**RANKING: 4th** Alternative affects the highest overall area of woodland vegetation.	**RANKING: 3rd** Large amounts of potentially significant woodland areas are affected by this alternative.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
2.7.3 Visual Impacts	• Diminished aesthetic quality of scenic views, reduced visual impact through mitigation/compensation measures. • Sporadic sensitive viewers along Mississauga Rd. (5 farm/residential properties, 5 residential properties). • Sporadic sensitive viewers on Creditview Rd. (2 residential/farm properties to the north, 2 residential/farm properties to the south, cluster of 9 residential properties). • Additional sensitive viewers include 2 residential properties on Chinguacousy Rd., 3 residential properties and 3 residential/farm properties on McLaughlin Rd. • Generally low landscape absorptivity due to level topography and open agricultural land; some opportunities for integration into existing wooded areas and hedgerows at both west and east edges of alternative. MODERATE NET EFFECT	• Diminished aesthetic quality of scenic views, reduced visual impact through mitigation/compensation measures. • Sensitive viewers include: 2 residential / farm properties and 1 commercial property on Mississauga Rd.; 1 residential / farm property, cluster of 9 residential properties and another cluster of 4 residential properties on Creditview Rd.; cluster of 8 residential properties on Old School Rd.; 4 residential / farm properties and 3 residential properties on Chinguacousy Rd.; 2 residential / farm properties and 4 residential clusters (totalling 13 properties) on McLaughlin Rd. • Generally low landscape absorptivity due to level topography and open agricultural land; some opportunities for integration into existing wooded areas and hedgerows at both west and east edges of alternative, as well as some small woodlot clusters mid-section. • Brampton Airport is sensitive viewer located just to the north on McLaughlin Rd. MODERATE NET EFFECT	• Diminished aesthetic quality of scenic views, reduced visual impact through mitigation/compensation measures. • Sensitive viewers include: 2 residential/ farm properties and 1 commercial property on Mississauga Rd.; 1 residential/ farm property, cluster of 9 residential properties and another cluster of 2 residential properties on Creditview Rd.; 1 residential/ farm properties and 5 residential properties on Chinguacousy Rd.; 1 residential/ farm property and 2 residential properties on McLaughlin Rd. • Generally low landscape absorptivity due to level topography and open agricultural land; some opportunities for integration into existing wooded areas and hedgerows at both west and east edges of alternative, as well as some small woodlot clusters mid-section MODERATE NET EFFECT	• Diminished aesthetic quality of scenic views, reduced visual impact through mitigation/compensation measures. • Sensitive viewers include 1 commercial property, 2 residential/farm properties, 4 residential properties on Mississauga Rd. • Sporadic sensitive viewers on Creditview Rd. (2 residential/farm properties to the north, 2 residential/farm properties to the south, cluster of 9 residential properties). • Additional sensitive viewers include 2 residential properties on Chinguacousy Rd., 3 residential properties and 3 residential/farm properties on McLaughlin Rd. • Generally low landscape absorptivity due to level topography and open agricultural land; some opportunities for integration into existing wooded areas and hedgerows at both west and east edges of alternative. MODERATE NET EFFECT
	RANKING: 3rd Alternative has moderate amount of sensitive viewers affected as compared to other alternatives.	**RANKING: 4th** Alternative has greatest overall number of sensitive viewers affected.	**RANKING: 1st** Alternative has fewest overall number of sensitive viewers affected.	**RANKING: 2nd** Alternative has moderate amount of sensitive viewers affected as compared to other alternatives.
2.7.4 Aesthetics	• Open vistas across agricultural land (crops) throughout much of alternative, broken up by a few wooded areas at west and east end of section. • More gently undulating topography and increased vegetation provides more scenic interest at east end of alternative. LOW NET EFFECT	• Open vistas across agricultural land (crops) throughout much of alternative, broken up by a few wooded areas at west and east end of section. • More gently undulating topography and increased vegetation provides more scenic interest at east end of alternative. MODERATE NET EFFECT	• Open vistas across agricultural land (crops) throughout much of alternative, broken up by a few wooded areas at west and east end of section. • More gently undulating topography and increased vegetation provides more scenic interest at east end of alternative MODERATE NET EFFECT	• Open vistas across agricultural land (crops) throughout much of alternative, broken up by a few wooded areas at west and east end of section. • More gently undulating topography and increased vegetation provides more scenic interest at east end of alternative LOW NET EFFECT
	RANKING: 1st Alternative has fewest overall effects on aesthetic quality, as well as opportunities for scenic views over creek crossing areas.	**RANKING: 3rd** Alternative has moderate effects on aesthetic quality as compared to other alternatives.	**RANKING: 4th** Alternative has greatest overall effects on aesthetic quality of existing landscapes.	**RANKING: 2nd** Similar to S4-1 with opportunities for scenic views over creek crossing areas.
3.0 Cultural Environment				
3.1 Built Heritage and Cultural Heritage Landscapes				
3.1.1 Built Heritage Resources	• There are 4 potential (BHR 095, BHR 113, BHR 114 and BHR 112) BHR's affected by this alternative.	• There are 5 potential (BHR 093, BHR 094, BHR 100, BHR 113, BHR 114) BHR's affected by this alternative.	• There are 2 listed (BHR 119 and BHR 112) and 6 potential (BHR 093, 094, 100, 111, 113 and 114) BHR's affected by this alternative.	• There are 4 listed (BHR 093, BHR 094, BHR 113 and BHR 114) and 1 potential (BHR 112) BHR's affected by this alternative.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
	MODERATE NET EFFECT	HIGH NET EFFECT	HIGH NET EFFECT	HIGH NET EFFECT
	RANKING: 1st There are 4 potential BHR's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 2nd** There are 5 potential BHR's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 2nd** There are 2 listed and 6 potential BHR's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 2nd** There are 4 listed and 1 potential BHR's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed.
3.1.2 Heritage Bridges	• There are no Heritage Bridges affected by this alternative. NO NET EFFECT	• There are no Heritage Bridges affected by this alternative. NO NET EFFECT	• There are no Heritage Bridges affected by this alternative. NO NET EFFECT	• There are no Heritage Bridges affected by this alternative. NO NET EFFECT
	RANKING: 1st There are no Heritage Bridges affected by this alternative.	**RANKING: 1st** There are no Heritage Bridges affected by this alternative.	**RANKING: 1st** There are no Heritage Bridges affected by this alternative.	**RANKING: 1st** There are no Heritage Bridges affected by this alternative.
3.1.3 Cultural Heritage Landscapes	• There are 2 listed (CHL 120 and CHL 121) and 3 potential (CHL 101, CHL 102 and CHL 122) CHL's affected by this alternative. MODERATE NET EFFECT	• There is 1 cemetery (CHL 123) CH affected by this alternative. HIGH NET EFFECT	• There are 2 listed (CHL 120 and CHL 121) CHL's affected by this alternative. MODERATE NET EFFECT	• There are 2 listed (CHL 120 and CHL 121) and 1 potential CHL (CHL 122) CHL's affected by this alternative. MODERATE NET EFFECT
	RANKING: 1st There are 2 listed and 3 potential CHL's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed. While not within the alternative, the cemetery is within 100 m and is therefore visually impacted.	**RANKING: 4th** There is 1 cemetery CHL affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 1st** There are 2 listed CHL's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 1st** There are 2 listed and one potential CHL's affected by this alternative which will require further evaluation in order to determine their cultural heritage value and interest. Once cultural heritage value and interest has been determined, avoidance, protection and mitigation measures must be completed. While not within the alternative, the cemetery is within 100 m and is therefore visually impacted.
3.2 Archaeology				
3.2.1 Pre-Contact and Contact Indigenous Archaeological Sites	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT
	RANKING: 1st No registered pre-contact and contact Indigenous sites are present within this alternative. This alternative contains 198 hectares of undisturbed land containing archaeological potential.	**RANKING: 1st** No registered pre-contact and contact Indigenous sites are present within this alternative. This alternative contains 227 hectares of undisturbed land containing archaeological potential.	**RANKING: 1st** No registered pre-contact and contact Indigenous sites are present within this alternative. This alternative contains 184 hectares of undisturbed land containing archaeological potential.	**RANKING: 1st** No registered pre-contact and contact Indigenous sites are present within this alternative. This alternative contains 191 hectares of undisturbed land containing archaeological potential.
3.2.2 Historic Euro-Canadian Archaeological Sites	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites within this alternative, however archaeological potential is present within much of this alternative. LOW NET EFFECT
	RANKING: 1st	**RANKING: 1st**	**RANKING: 1st**	**RANKING: 1st**

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
	No registered Historic Euro-Canadian Archaeological Sites are present within this alternative. This alternative contains 198 hectares of undisturbed land containing archaeological potential.	No registered Historic Euro-Canadian Archaeological Sites are present within this alternative. This alternative contains 227 hectares of undisturbed land containing archaeological potential.	No registered Historic Euro-Canadian Archaeological Sites are present within this alternative. This alternative contains 184 hectares of undisturbed land containing archaeological potential.	No registered Historic Euro-Canadian Archaeological Sites are present within this alternative. This alternative contains 191 hectares of undisturbed land containing archaeological potential.
3.2.3 Indigenous Burial Sites	• No known or reported Indigenous Burial Sites. NO NET EFFECT	• No known or reported Indigenous Burial Sites. NO NET EFFECT	• No known or reported Indigenous Burial Sites. NO NET EFFECT	• No known or reported Indigenous Burial Sites. NO NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
3.2.4 Cemeteries	• No registered cemeteries present within this alternative. LOW NET EFFECT	• 1 registered cemetery is present within this alternative. HIGH NET EFFECT	• No registered cemeteries present within this alternative. LOW NET EFFECT	• No registered cemeteries present within this alternative. LOW NET EFFECT
	RANKING: 1st No registered cemeteries are present within this alternative. A total of 198 hectares of undisturbed land containing archaeological potential is found within this alternative.	**RANKING: 4th** 1 registered cemetery is located within this alternative. As well, a total of 227 hectares of undisturbed land containing archaeological potential is present.	**RANKING: 1st** No registered cemeteries are present within this alternative. A total of 184 hectares of undisturbed land containing archaeological potential is found within this alternative.	**RANKING: 1st** No registered cemeteries are present within this alternative. A total of 191 hectares of undisturbed land containing archaeological potential is found within this alternative.
4.0 Transportation				
4.1 System Capacity & Efficiency				
4.1.1 Movement of People	• Supports efficient movement of people. • Improves transportation options for travellers. HIGH CAPACITY & EFFICIENCY	• Supports efficient movement of people. • Improves transportation options for travellers. HIGH CAPACITY & EFFICIENCY	• Supports efficient movement of people. • Improves transportation options for travellers. HIGH CAPACITY & EFFICIENCY	• Supports efficient movement of people. • Improves transportation options for travellers. HIGH CAPACITY & EFFICIENCY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.1.2 Movement of Goods	• Supports efficient movement of goods. HIGH CAPACITY & EFFICIENCY	• Supports efficient movement of goods. HIGH CAPACITY & EFFICIENCY	• Supports efficient movement of goods. HIGH CAPACITY & EFFICIENCY	• Supports efficient movement of goods. HIGH CAPACITY & EFFICIENCY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.1.3 System performance during peak periods	• Improves system performance during peak periods. HIGH PERFORMANCE	• Improves system performance during peak periods. HIGH PERFORMANCE	• Improves system performance during peak periods. HIGH PERFORMANCE	• Improves system performance during peak periods. HIGH PERFORMANCE
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.2 System reliability / redundancy	• Supports system reliability and redundancy. HIGH RELIABILITY / REDUNDANCY	• Supports system reliability and redundancy. HIGH RELIABILITY / REDUNDANCY	• Supports system reliability and redundancy. HIGH RELIABILITY / REDUNDANCY	• Supports system reliability and redundancy. HIGH RELIABILITY / REDUNDANCY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
	Summary of Potential Net Effects and Ranking			
4.3 Safety				
4.3.1 Traffic Safety	• Improves traffic safety. HIGH POTENTIAL FOR IMPROVEMENT	• Improves traffic safety. HIGH POTENTIAL FOR IMPROVEMENT	• Improves traffic safety. HIGH POTENTIAL FOR IMPROVEMENT	• Improves traffic safety. HIGH POTENTIAL FOR IMPROVEMENT
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.3.2 Emergency Access	• Supports emergency service access / routing. HIGH ACCESS	• Supports emergency service access / routing. HIGH ACCESS	• Supports emergency service access / routing. HIGH ACCESS	• Supports emergency service access / routing. HIGH ACCESS
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.4 Mobility & Accessibility				
4.4.1 Modal integration and balance	• Improves transportation options for travellers. HIGH POTENTIAL FOR IMPROVEMENT	• Improves transportation options for travellers. HIGH POTENTIAL FOR IMPROVEMENT	• Improves transportation options for travellers. HIGH POTENTIAL FOR IMPROVEMENT	• Improves transportation options for travellers. HIGH POTENTIAL FOR IMPROVEMENT
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.4.2 Linkages to Population and Employment Centres	• Improves linkages to population and employment centres. HIGH ACCESSIBILITY	• Improves linkages to population and employment centres. HIGH ACCESSIBILITY	• Improves linkages to population and employment centres. HIGH ACCESSIBILITY	• Improves linkages to population and employment centres. HIGH ACCESSIBILITY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.4.3 Recreation and Tourism Travel	• Supports recreation and tourism travel. HIGH SUPPORT	• Supports recreation and tourism travel. HIGH SUPPORT	• Supports recreation and tourism travel. HIGH SUPPORT	• Supports recreation and tourism travel. HIGH SUPPORT
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.4.4 Accommodation for pedestrians, cyclists, snowmobiles, and specialized vehicles	• High potential to accommodate pedestrians, cyclists and specialized vehicles at grade separated crossings. HIGH ACCOMMODATION	• High potential to accommodate pedestrians, cyclists and specialized vehicles at grade separated crossings. HIGH ACCOMMODATION	• High potential to accommodate pedestrians, cyclists and specialized vehicles at grade separated crossings. HIGH ACCOMMODATION	• High potential to accommodate pedestrians, cyclists and specialized vehicles at grade separated crossings. HIGH ACCOMMODATION
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.5 Network Compatibility				
4.5.1 Network connectivity	• Improves network connectivity. • Improves transportation options for travellers. HIGH CONNECTIVITY	• Improves network connectivity. • Improves transportation options for travellers. HIGH CONNECTIVITY	• Improves network connectivity. • Improves transportation options for travellers. HIGH CONNECTIVITY	• Improves network connectivity. • Improves transportation options for travellers. HIGH CONNECTIVITY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.

Evaluation Factors and Sub-Factors	Alternative S4-1 - Preferred	Alternative S4-2	Alternative S4-3	Alternative S4-4
		Summary of Potential Net Effects and Ranking		
4.5.2 Flexibility for future expansion	• Provides flexibility for future expansion. HIGH FLEXIBITY	• Provides flexibility for future expansion. HIGH FLEXIBITY	• Provides flexibility for future expansion. HIGH FLEXIBITY	• Provides flexibility for future expansion. HIGH FLEXIBITY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.6 Engineering				
4.6.1 Constructability	• Railway crossing and multiple watercourse crossings. MODERATE POTENTIAL FOR CONSTRUCTABILITY ISSUES	• Railway crossing and multiple watercourse crossings. MODERATE POTENTIAL FOR CONSTRUCTABILITY ISSUES	• Railway crossing and multiple watercourse crossings. MODERATE POTENTIAL FOR CONSTRUCTABILITY ISSUES	• Railway crossing and multiple watercourse crossings. MODERATE POTENTIAL FOR CONSTRUCTABILITY ISSUES
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.6.2 Compliance with design criteria	• High conformity to safety and design standards. HIGH CONFORMITY	• High conformity to safety and design standards. HIGH CONFORMITY	• High conformity to safety and design standards. HIGH CONFORMITY	• High conformity to safety and design standards. HIGH CONFORMITY
	RANKING: 1st Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.	**RANKING: 1st** Comparable net effect to other alternatives.
4.7 Construction Cost	• Estimated Cost $205 Million MODERATE RELATIVE COST	• Estimated Cost $211 Million HIGH RELATIVE COST	• Estimated Cost $205 Million MODERATE RELATIVE COST	• Estimated Cost $204 Million MODERATE RELATIVE COST
	RANKING: 1st Comparable relative cost to Alternatives S4-3 and S4-4.	**RANKING: 4th** Higher relative cost then Alternatives S4-1, S4-3 and S4-4.	**RANKING: 1st** Comparable relative cost to Alternatives S4-1 and S4-4.	**RANKING: 1st** Comparable relative cost to Alternatives S4-1 and S4-3.
4.8 Traffic Operations	• Complies with design standards and maintains local road network connectivity. LOW POTENTIAL FOR NEGATIVE EFFECT	• Complies with design standards and maintains local road network connectivity but may result in less than desirable geometry for required road realignments. MODERATE POTENTIAL FOR NEGATIVE EFFECT	• Complies with design standards and maintains local road network connectivity. LOW POTENTIAL FOR NEGATIVE EFFECT	• Complies with design standards and maintains local road network connectivity. LOW POTENTIAL FOR NEGATIVE EFFECT
	RANKING: 1st Comparable net effect to Alternatives S4-3 and S4-4.	**RANKING: 4th** Higher negative effect then Alternatives S4-1, S4-3 and S4-4.	**RANKING: 1st** Comparable net effect to Alternatives S4-1 and S4-4.	**RANKING: 1st** Comparable net effect to Alternatives S4-1 and S4-3.