## Memorandum

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Project: (190486)

## To

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## RE: REGION OF PEEL - SETTLEMENT AREA BOUNDARY EXPANSION (SABE) TRANSPORTATION TECHNICAL STUDY - PHASE 2 DETAILED ASSESSMENT SUPPLEMENTAL TRANSPORTATION ANALYSIS (REVISED)

This memorandum summarizes supplemental transportation analysis completed for the Settlement Area Boundary Expansion (SABE) Transportation Technical Study - Phase 2 Detailed Assessment following release of the report in August 2021. The analysis was undertaken to:

- Address apparent inconsistencies in the findings for Scenario 1; and
- Determine road infrastructure requirements and cost impacts for the draft recommended SABE with and without the proposed GTA West 413 Highway and northerly extension of Highway 410.


## Scenario 1 Inconsistencies

## Issue

The Transportation Technical Study report ${ }^{1}$ summarizes the road infrastructure requirements and cost impacts to serve new projected residential and employment growth between the years 2041 and 2051 in the conceptual SABE area. The study assessed different growth scenarios for 2051 that varied by:

[^0]- Housing intensification rates for the proposed Community Area lands;
- Density of housing in the designated greenfield area (DGA) of the Community Area lands;
- Community Area and Employment Area land needs; and
- Population and employment forecasts by municipality.

The analysis showed somewhat of a correlation between the amount of SABE land and road costs for Scenario 2 (Higher Designated Greenfield Area Density), Scenario 3 (Lower Designated Greenfield Area Density), and Scenario 4 (Minimum Intensification). Scenario 2, which is denser and thus needs less land than Scenario 3 (less dense) and Scenario 4 (less intense) to meet population and employment targets, had lower road widening costs. Costs also increased incrementally between these scenarios as land needs grew.

Counterintuitively, the correlation between land need and roads costs did not hold for Scenario 1 (Updated Land Needs Assessment Base) when compared to Scenario 2 (and Scenarios 3 and 4). Scenario 1 is not as dense and requires more land than Scenario 2 but had (considerably) lower road widening costs. This finding raised the question: why would a scenario that uses more land have significantly lower roads widening costs?

Peel Region staff and the consultant team carried out further detailed diagnosis and discovered errors in the vehicle traffic volumes generated by the Peel Travel Demand Forecasting Model (the Model) that served as the basis for the transportation analysis. The errors were attributed to issues with the modelling software itself, as the tool only incorrectly simulated traffic flows for Scenario 1. The cause of the fault is uncertain, but volumes for Scenario 1 appear more rational after re-running the Model with the same inputs, as elaborated on further below.

## Deficiency Analysis with Revised Model Run

Table S. 1 (attached) updates Table 3 from the Transportation Technical Study report, which summarizes the forecast $2051 \mathrm{v} / \mathrm{c}$ ratios at the screenline locations shown on Map 3 (attached) of the report for each growth scenario, with data from the revised model run for Scenario 1. The screenline and sub-screenline numbers referenced in the table correspond to the identifiers noted on the map. The table shows the v/c ratios are still not projected to exceed 0.9 for Scenario 1.

Location-specific needs for Scenario 1 were reassessed based on a link-level analysis of the forecast $2051 \mathrm{v} / \mathrm{c}$ ratios using data from the revised model run. Map S. 1 (attached) shows the links with estimated v/c ratios of 0.9 or higher by direction. Table $\mathbf{S .} 2$ (attached) updates
Table 4 from the Transportation Technical Study report, which summarizes the number of links exceeding this threshold, with data from the revised model run for Scenario 1.

General observations from the deficiency analysis include the following:

- As noted in the Transportation Technical Study report, and reaffirmed for Scenario 1, the absence of screenline deficiencies suggests the 2041 road network set out in the 2019 LRTP may be able to serve projected 2051 travel demands for all scenarios on a broader basis, but localized capacity deficiencies may still exist.
- Scenario 2 now has the fewest links with forecast $2051 \mathrm{v} / \mathrm{c}$ ratios of 0.9 or higher at 54.
- Scenario 1 has the second fewest links at 56, then Scenario 3 at 60 links and Scenario 4 at 64 links.
- Scenario 5 still has the most links with forecast $2051 \mathrm{v} / \mathrm{c}$ ratios of 0.9 or higher at 112 .
- The number of links with $2051 \mathrm{v} / \mathrm{c}$ ratios of 0.9 or higher do not differ considerably between Scenarios 1, 2, 3, and 4 (56, 54, 60, and 64, respectively).


## Potential Road Widening Program with Revised Model Run

Map S. 2 (attached) illustrates the updated potential road widening program proposed to address the forecast capacity deficiencies attributed to growth between 2041 and 2051 within the SABE area for Scenario 1 with the revised model run. The list of projects was developed to address the projected deficiencies shown on Map S. 1 using the same approach applied in the original analysis.

Table S. 3 (attached) updates Table 5 from the Transportation Technical Study report, which summarizes the estimated costs for the road infrastructure needed to serve growth in the SABE area from 2041 to 2051 for each growth scenario, for Scenario 1 with the revised model run. These are additional costs over and above the proposed 2041 road capital program outlined in the 2019 LRTP. The updated cost estimates for the study are appended.

General observations from developing the potential road widening programs include the following:

- Road infrastructure costs to serve the SABE area vary by scenario, in generally the same relative proportions as the link deficiency analysis showed.
- Scenario 2 now has the lowest potential road widening program cost at approximately $\$ 403.3 \mathrm{M}$.
- Scenario 5 still has the highest potential road widening program cost at approximately $\$ 597.6 \mathrm{M}$, about $50 \%$ higher than Scenario 2.
- The potential road widening program costs for Scenarios 1, 3, and 4 are slightly higher than Scenario 2 but do not differ considerably (\$463.0 M, \$436.3 M, and \$458.9 M, respectively).
- The least expensive option, Scenario 2, would also pose the lowest cost for road widening to the Town of Caledon at about \$92.2 M. Regional road widening costs account for the remainder at $\$ 311.15 \mathrm{M}$. Town costs for other scenarios would be higher, especially for Scenario 5 (No GTA West).
- Several road widening projects are common to all scenarios, specifically Project \#2 (Dixie Road), \#3 (Airport Road), \#4 (Airport Road), \#7 (Humber Station Road), \#8 (Coleraine Drive), \#11 (Highway 50), \#14 (Healey Road), and \#15 (King Street). These roads are mostly in the Bolton area or immediately to the west, consistent with the allocation of new growth. Where the programs differ relate, in part, to the different distributions of new growth to the SABE area.


## Sensitivity Analysis with Revised Model Run

Table S. 4 (attached) updates Table 6 from the Transportation Technical Study report, which summarizes the key differences between Scenario 1 and Scenarios 2 to 5, for Scenario 1 with the revised model run.

With updated Scenario 1, the analysis now shows a somewhat better correlation between the amount of SABE land and road costs for Scenarios 1, 2, 3, and 4, which tested different levels of intensification and density. Scenario 2, which is denser and thus needs less land than Scenarios 1 (less dense), 3 (even less dense), and 4 (less intense), has the lowest road widening costs.

Costs also generally increased incrementally between these four scenarios as land needs grew, although Scenario 1 with the revised model run had slightly higher costs than Scenarios 3 and 4, which require more land. Peel Region staff and the consultant team again conducted detailed diagnosis of the vehicle traffic volumes generated by the Model for the other scenarios but found no evidence of the types of errors observed with the original runs for Scenario 1. Given the nature of the modelling process and software, these incongruities could be attributed to any number of factors, such as:

- Variations in the manner the Model assigned traffic to the road network to reach "equilibrium". The Model algorithms apply network solutions to congestion arising in specific locations that can differ slightly between runs;
- Proximity to GTA West Highway 413, particularly the interchanges. With ease of access, the proposed freeway becomes an attractive route for trips made to and from the SABE area (despite likely toll charges). This helps to lessen demand and minimize capacity deficiencies on the adjacent Regional and lower-tier road networks;
- Distributing new growth more broadly throughout the SABE area. The roads to the north in Caledon carry less traffic today than facilities in Brampton given their somewhat rural nature, meaning more capacity exists to accommodate new travel demand and fewer deficiencies result; and
- Some costs triggered prior to 2051 in Scenarios 1 may not manifest until after in Scenarios 3 and 4.

Simply put, one cannot presume growth in one or two zones in Caledon will trigger additional expenditures on nearby Regional roads. It may even be bottlenecks arising in Brampton that contribute to the additional costs in Caledon.

Scenario 5 (No GTA West) still has the greatest road widening needs and the highest costs despite having similar new growth assumptions as Scenario 1. This observation can be attributed to the elimination of the proposed GTA West 413 Highway from the future road network, as noted in the Transportation Technical Study report.

## Draft Recommended SABE

## Description

Peel Region staff has prepared a draft recommended SABE map (attached) based on the results of the technical studies, input from the public and other stakeholders, and Regional Council's resolutions of March 11, 2021 regarding the GTA West Corridor. This land use concept provides for approximately 3,000 hectares of Community lands and 1,400 hectares of Employment lands based on an intensification rate of 55 per cent and a density of 65 persons and jobs per hectare for new designated greenfield areas, like Scenario 1.

Paradigm determined the road infrastructure requirements and cost impacts to serve new projected growth between 2041 and 2051 for the draft recommended SABE land use concept using the same methodology applied in the Transportation Technical Study. The analysis examined scenarios with and without the GTA West 413 Highway and northerly extension of Highway 410 to assess the implications of excluding the proposed provincial highway from a municipal road widening perspective.

## Deficiency Analysis

Table S. 5 (attached) summarizes the forecast 2051 screenline v/c ratios for the draft recommended SABE land use concept with and without GTA West 413 Highway. The table shows the $\mathrm{v} / \mathrm{c}$ ratios are not projected to exceed 0.9 for either scenario.

Location-specific needs were assessed based on a link-level analysis of the forecast $2051 \mathrm{v} / \mathrm{c}$ ratios. Map S. 3 and Map S. 4 (attached) show the links with estimated v/c ratios of 0.9 or higher by direction for the draft recommended SABE land use concept with and without GTA West 413 Highway, respectively. Table S. 6 (attached) summarizes the number of links exceeding this threshold.

General observations from the deficiency analysis include the following:

- As noted in the Transportation Technical Study report, the absence of screenline deficiencies suggests the 2041 road network set out in the 2019 LRTP may be able to serve projected 2051 travel demands for all scenarios on a broader basis, but localized capacity deficiencies may still exist.
- The scenario with GTA West 413 Highway had fewer links with forecast v/c ratios of 0.9 or higher (59) than the scenario without the proposed highway (99).


## Potential Road Widening Program

Map S. 5 and Map S. 6 (attached) illustrate the potential road widening programs proposed to address the forecast capacity deficiencies attributed to growth between 2041 and 2051 for the draft recommended SABE land use concept with and without the GTA West 413 Highway, respectively. The lists of projects were developed to address the projected deficiencies shown on Map S. 3 and Map S.4, respectively, using the same approach applied in the original analysis.

Table S. 7 (attached) summarizes the estimated costs for the road infrastructure needed to serve growth in the SABE area from 2041 to 2051 for the draft recommended SABE land use concept with and without the GTA West 413 Highway. These are additional costs over and above the proposed 2041 road capital program outlined in the 2019 LRTP. As noted above, the updated cost estimates for the study are appended.

Not surprisingly, the road infrastructure costs to serve the draft recommended SABE land use concept are considerably lower (about a third) with the GTA West 413 Highway (\$390.8 M) than without the proposed highway ( $\$ 600.4 \mathrm{M}$ ). Municipal roads would need to serve additional traffic demand without the proposed highway, which would intensify road widening requirements as noted in the Transportation Technical Study report.

# Attachments 

## Tables <br> Maps <br> Cost Estimates

TABLE S.1: FORECAST 2051 V/C RATIOS AT SCREENLINE LOCATIONS (WITH UPDATED SCENARIO 1)


TABLE S.1: FORECAST 2051 V/C RATIOS AT SCREENLINE LOCATIONS (WITH UPDATED SCENARIO 1)

| Screenline (S/L) and Limits (Sub-Screenline) | Direction | Capacity (vph) |  | v/c Ratio for Scenario |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | w/ GTA West Highway | w/o GTA <br> West <br> Highway | 0 | $\begin{gathered} 1 \\ \text { (revised } \\ \text { model } \\ \text { run) } \end{gathered}$ | 2 | 3 | 4 | 5 |
| North-South Screenlines (West to East) |  |  |  |  |  |  |  |  |  |
| Screenline 4 - East of Winston Churchill Boulevard |  |  |  |  |  |  |  |  |  |
| Wanless Drive to King Street | EB | 6,000 | 6,000 | 0.49 | 0.49 | 0.50 | 0.49 | 0.46 | 0.45 |
|  | WB | 6,000 | 6,000 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.34 |
| Screenline 5 - East of Hurontario Street |  |  |  |  |  |  |  |  |  |
| Conservation Drive to King Street | EB | 14,500 | 9,100 | 0.71 | 0.71 | 0.73 | 0.71 | 0.74 | 0.83 |
|  | WB | 14,500 | 9,100 | 0.41 | 0.41 | 0.39 | 0.41 | 0.42 | 0.39 |
| Screenline 6 - East of Airport Road |  |  |  |  |  |  |  |  |  |
| Countryside Drive to Castlederg Side Road | EB | 12,400 | 7,000 | 0.64 | 0.61 | 0.59 | 0.63 | 0.65 | 0.62 |
|  | WB | 12,400 | 7,000 | 0.58 | 0.60 | 0.63 | 0.58 | 0.61 | 0.69 |
| Screenline 9 - East of The Gore Road |  |  |  |  |  |  |  |  |  |
| Countryside Drive to Castlederg Side Road | EB | 13,400 | 8,000 | 0.63 | 0.61 | 0.61 | 0.61 | 0.64 | 0.63 |
|  | WB | 13,400 | 8,000 | 0.52 | 0.54 | 0.55 | 0.54 | 0.54 | 0.54 |
| Screenline 7 - West of Albion Vaughan Road |  |  |  |  |  |  |  |  |  |
| Countryside Drive to Castlederg Side Road | EB | 8,000 | 8,000 | 0.46 | 0.45 | 0.46 | 0.46 | 0.49 | 0.50 |
|  | WB | 8,000 | 8,000 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.33 |

TABLE S.2: LINKS WITH FORECAST 2051 V/C RATIO OF 0.9 OR HIGHER (WITH UPDATED SCENARIO 1)

| v/c Ratio | Number of Links for Scenario |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{0}$ | $\mathbf{1}$ (revised <br> model run) | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ |
| Between 0.9 and 1.0 | 32 | 36 | 31 | 32 | 30 | 59 |
| Over 1.0 | 22 | 20 | 23 | 28 | 34 | 53 |
| TOTAL $\mathbf{0 . 9}$ or higher | $\mathbf{5 4}$ | $\mathbf{5 6}$ | $\mathbf{5 4}$ | $\mathbf{6 0}$ | $\mathbf{6 4}$ | $\mathbf{1 1 2}$ |

TABLE S.3: COST ESTIMATES FOR POTENTIAL ROAD WIDENING PROGRAMS, 2041-2051 (WITH UPDATED SCENARIO 1)


TABLE S.4: COMPARISON TO SCENARIO 1 (WITH UPDATED SCENARIO 1)

| Difference from Scenario 1 in: | Scenario 2 <br> Higher Designated Greenbelt Area | Scenario 3 <br> Lower <br> Designated Greenbelt Area | Scenario 4 <br> Minimum Intensification | Scenario 5 <br> No GTA West |
| :---: | :---: | :---: | :---: | :---: |
| Total Program Costs | - \$59,711,200 | - \$26,695,200 | - \$4,158,100 | + \$134,524,100 |
| Peel Region Costs | + \$1,004,300 | + \$13,311,300 | + \$35,848,400 | + \$78,749,600 |
| Town of Caledon Costs | - \$60,715,500 | - \$40,006,500 | - \$40,006,500 | + \$55,774,500 |
| Intensification Rate | 0\% | 0\% | -5\% | 0\% |
| Designated Growth Area Density | + $10 \mathrm{ppj} / \mathrm{ha}$ | -10 ppj/ha | $0 \mathrm{ppj} / \mathrm{ha}$ | $0 \mathrm{ppj} / \mathrm{ha}$ |
| Land Need Community Area | - 500 ha | + 200 ha | + 1,200 ha | 0 ha |
| Land Need Employment Area | 0 ha | 0 ha | +200 ha | 0 ha |
| Potential Road Widening Projects | 9 different projects. Added 3 and removed 6. | 10 different projects. Added 4 and removed 6. | 11 different projects. Added 5 and removed 6. | 12 different projects. Added 8 and removed 4. |

## TABLE S.5: FORECAST 2051 V/C RATIOS AT SCREENLINE LOCATIONS FOR DRAFT RECOMMENDED SABE

| Screenline (S/L) and Limits (Sub-Screenline) | Direction | With GTA West 413 Highway |  | Without GTA West 413 Highway |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Capacity (vph) | v/c Ratio | Capacity (vph) | v/c Ratio |
| East-West Screenlines (South to North) |  |  |  |  |  |
| Screenline 1 - South of Mayfield Road |  |  |  |  |  |
| Winston Churchill Boulevard to Hurontario Street (S/L 1A) | NB | 20,800 | 0.23 | 15,400 | 0.35 |
|  | SB | 20,700 | 0.32 | 15,300 | 0.55 |
| Heart Lake Road to Kennedy Road (S/L 1B) | NB | 14,900 | 0.43 | 14,900 | 0.43 |
|  | SB | 14,900 | 0.68 | 14,900 | 0.69 |
| Goreway Drive to Highway 50 (S/L 1C) | NB | 20,800 | 0.19 | 15,400 | 0.27 |
|  | SB | 21,100 | 0.52 | 15,700 | 0.73 |
| Screenline 2 - North of Mayfield Road |  |  |  |  |  |
| Winston Churchill Boulevard to Hurontario Street (S/L 2A) | NB | 13,400 | 0.28 | 8,000 | 0.55 |
|  | SB | 13,300 | 0.26 | 7,900 | 0.51 |
| Heart Lake Road to Kennedy Road (S/L 2B) | NB | 13,200 | 0.39 | 7,800 | 0.74 |
|  | SB | 13,200 | 0.42 | 7,800 | 0.80 |
| Goreway Drive to Albion Vaughan Road (S/L 2C) | NB | 18,000 | 0.31 | 10,800 | 0.54 |
|  | SB | 18,200 | 0.47 | 11,000 | 0.87 |
| Screenline 3 - South of King Street |  |  |  |  |  |
| Winston Churchill Boulevard to Hurontario Street (S/L 3A) | NB | 8,200 | 0.21 | 8,200 | 0.25 |
|  | SB | 8,100 | 0.33 | 8,100 | 0.30 |
| Kennedy Road to Airport Road (S/L 3B) | NB | 7,000 | 0.18 | 7,000 | 0.10 |
|  | SB | 7,000 | 0.51 | 7,000 | 0.46 |
| Goreway Drive to Albion Vaughan Road (S/L 3C) | NB | 9,200 | 0.21 | 9,200 | 0.25 |
|  | SB | 9,400 | 0.74 | 9,400 | 0.83 |
| Screenline 8 - South of Castlederg Side Road |  |  |  |  |  |
| Airport to $12^{\text {th }}$ Concession | NB | 6,700 | 0.28 | 6,700 | 0.32 |
|  | SB | 6,800 | 0.61 | 6,800 | 0.67 |
| North-South Screenlines (West to East) |  |  |  |  |  |
| Screenline 4 - East of Winston Churchill Boulevard |  |  |  |  |  |
| Wanless Drive to King Street | EB | 6,000 | 0.51 | 6,000 | 0.45 |
|  | WB | 6,000 | 0.34 | 6,000 | 0.40 |
| Screenline 5 - East of Hurontario Street |  |  |  |  |  |
| Conservation Drive to King Street | EB | 14,500 | 0.46 | 9,100 | 0.89 |
|  | WB | 14,500 | 0.23 | 9,100 | 0.45 |

TABLE S.5: FORECAST 2051 V/C RATIOS AT SCREENLINE LOCATIONS FOR DRAFT RECOMMENDED SABE

| Screenline (S/L) and Limits (Sub-Screenline) | Direction | With GTA West 413 Highway |  | Without GTA West 413 Highway |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Capacity (vph) | v/c Ratio | Capacity (vph) | v/c Ratio |
| Screenline 6 - East of Airport Road |  |  |  |  |  |
| Countryside Drive to Castlederg Side Road | EB | 12,400 | 0.32 | 7,000 | 0.69 |
|  | WB | 12,400 | 0.39 | 7,000 | 0.75 |
| Screenline 9 - East of The Gore Road |  |  |  |  |  |
| Countryside Drive to Castlederg Side Road | EB | 13,400 | 0.35 | 8,000 | 0.69 |
|  | WB | 13,400 | 0.32 | 8,000 | 0.56 |
| Screenline 7 - West of Albion Vaughan Road |  |  |  |  |  |
| Countryside Drive to Castlederg Side Road | EB | 8,000 | 0.54 | 8,000 | 0.56 |
|  | WB | 8,000 | 0.29 | 8,000 | 0.34 |

TABLE S.6: LINKS WITH FORECAST 2051 V/C RATIO OF 0.9 OR HIGHER FOR DRAFT RECOMMENDED SABE

| v/c Ratio | With GTA West <br> 413 Highway | Without GTA West <br> 413 Highway |
| :--- | :---: | :---: |
| Between 0.9 and 1.0 | 28 | 53 |
| Over 1.0 | 31 | 46 |
| TOTAL 0.9 or higher | $\mathbf{5 9}$ | $\mathbf{9 9}$ |

TABLE S.7: COST ESTIMATES FOR POTENTIAL ROAD WIDENING PROGRAMS, 2041-2051 FOR DRAFT RECOMMENDED SABE

| Project No. | Road | Limits | Description | Cost (Rounded) | With GTA West 413 Highway | Without GTA West 413 Highway |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| North-South Roads |  |  |  |  |  |  |
| 1* | Chinguacousy Road | Mayfield Road to Old School Road | Widen 2 to 4 | \$25,738,100 | $\bullet$ |  |
| 2 | Dixie Road | 2 km north of Mayfield Road to King Street | Widen 2 to 4 | \$31,582,400 | - | $\bigcirc$ |
| 3 | Airport Road | Countryside Drive to Mayfield Road | Widen 4 to 6 | \$14,752,900 | $\bigcirc$ | $\bigcirc$ |
| 4 | Airport Road | Mayfield Road to Highway 413 | Widen $2 / 4$ to 6 | \$35,346,400 | $\bigcirc$ | $\bigcirc$ |
| 5 | Airport Road | King Street to Castlederg Side Road | Widen 2 to 4 | \$49,532,200 | - | - |
| 6 | The Gore Road | Healey Road to King Street | Widen 2 to 4 | \$22,638,100 | - | - |
| 7* | Humber Station Road | Mayfield Road to Healey Road | Widen 2 to 4 | \$22,412,200 | $\bigcirc$ | - |
| 8 | Coleraine Drive | Mayfield Road to Healey Road | Widen 4 to 6 | \$29,615,300 | - | - |
| 9 | Coleraine Drive | Healey Road to King Street | Widen 4 to 6 | \$22,363,400 | - | - |
| 10 | Emil Kolb Parkway | King Street to Highway 50 | Widen 2 to 4 | \$28,798,400 | - | - |
| 11 | Highway 50 | Emil Kolb Parkway to Castlederg Side Road | Widen 2 to 4 | \$ 9,869,800 | $\bigcirc$ | $\bigcirc$ |
| 16 | The Gore Road | King Street to Castlederg Side Road | Widen 2 to 4 | \$22,537,100 |  | $\bigcirc$ |
| 20 | Emil Kolb Parkway | King Street/Harvest Moon Drive to King Street | Widen 4 to 6 | \$ 9,965,400 | $\bigcirc$ | - |
| 28* | McLaughlin Road | Mayfield Road to Old School Road | Widen 2 to 4 | \$27,405,900 |  | - |
| 29* | McLaughlin Road | Old School Road to King Street | Widen 2 to 4 | \$21,887,100 |  | - |

TABLE S.7: COST ESTIMATES FOR POTENTIAL ROAD WIDENING PROGRAMS, 2041-2051 FOR DRAFT RECOMMENDED SABE

| Project No. | Road | Limits | Description | Cost (Rounded) | With GTA <br> West 413 <br> Highway | Without GTA <br> West 413 <br> Highway |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| East-West Roads |  |  |  |  |  |  |
| 12 | Mayfield Road | Heritage Road to west of Mississauga Road | Widen 4 to 6 | \$10,848,800 | $\bigcirc$ |  |
| 13* | Old School Road | Chinguacousy Road to Hurontario Road | Widen 2 to 4 | \$23,357,200 | $\bigcirc$ | $\bigcirc$ |
| 14* | Healey Road | The Gore Road to Coleraine Drive | Widen 2 to 4 | \$20,725,400 | - | $\bullet$ |
| 15 | King Street | Airport Road to The Gore Road | Widen 2 to 4 | \$33,210,300 | $\bigcirc$ | $\bigcirc$ |
| 18 | King Street | Dixie Road to Airport Road | Widen 2 to 4 | \$34,844,100 |  | $\bullet$ |
| 19 | King Street | The Gore Road to Coleraine Drive | Widen 2 to 4 | \$19,307,600 |  | $\bullet$ |
| 21* | Old School Road | Hurontario Street to Dixie Road | Widen 2 to 4 | \$32,697,800 |  | $\bullet$ |
| 22* | Old School Road | Dixie Road to Airport Road | Widen 2 to 4 | \$31,650,200 |  | - |
| 23* | Healey Road | Airport Road to The Gore Road | Widen 2 to 4 | \$31,433,000 |  | $\bullet$ |
| 24 | King Street | Chinguacousy Road to Hurontario Road | Widen 2 to 4 | \$24,477,000 |  | $\bigcirc$ |
| TOTAL |  |  |  |  | \$390,756,300 | \$600,409,200 |
| Regional Roads |  |  |  |  | \$298,523,400 | \$388,840,400 |
| Town of Caledon Roads (projects denoted with an *) |  |  |  |  | \$ 92,232,900 | \$211,568,800 |
| Number of Projects in Potential Road Widening Program |  |  |  |  | 16 | 23 |










## Peel Region Settlement Area Boundary Expansion Study

Transportation Technical Analysis - Phase 2 Detailed Assessment
Table B-1 - Project Descriptions

| Project \# | Road Name | Limits | Description | Length (km) | Number of: |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Intersections | Bridges | Culverts |
| 1 | Chinguacousy Road | Mayfield Road to Old School Road | Widen from 2 rural to 4 rural lanes | 3.07 | 4 | 0 | 3 |
| 2 | Dixie Road | 2 km north of Mayfield Road to King Street | Widen from 2 rural to 4 rural lanes | 4.16 | 2 | 0 | 1 |
| 3 | Airport Road | Countryside Drive to Mayfield Road | Widen from 4 urban to 6 urban lanes | 1.27 | 2 | 1 | 0 |
| 4 | Airport Road | Mayfield Road to Highway 413 | Widen from $2 / 4$ rural to 6 urban lanes | 3.27 | 5 | 1 | 0 |
| 5 | Airport Road | King Street to Castlederg Side Road | Widen from 2 rural to 4 rural lanes | 7.20 | 2 | 0 | 0 |
| 6 | The Gore Road | Healey Road to King Street | Widen from 2 rural to 4 rural lanes | 3.07 | 2 | 0 | 0 |
| 7 | Humber Station Road | Mayfield Road to Healey Road | Widen from 2 rural to 4 rural lanes | 3.07 | 2 | 0 | 0 |
| 8 | Coleraine Drive | Mayfield Road to Healey Road | Widen from 4 rural to 6 urban lanes | 3.15 | 4 | 0 | 1 |
| 9 | Coleraine Drive | Healey Road to King Street | Widen from 4 urban/rural to 6 urban lanes | 2.05 | 5 | 0 | 0 |
| 10 | Emil Kolb Parkway | King Street to Highway 50 | Widen from 2 rural to 4 rural lanes | 3.28 | 3 | 2 | 1 |
| 11 | Highway 50 | Emil Kolb Parkway to Castlederg Side Road | Widen from 2 rural to 4 rural lanes | 1.10 | 2 | 0 | 0 |
| 12 | Mayfield Road | Heritage Road to west of Mississauga Road | Widen from 4 rural to 6 rural lanes | 1.10 | 1 | 0 | 0 |
| 13 | Old School Road | Chinguacousy Road to Hurontario Street | Widen from 2 rural to 4 rural lanes | 2.79 | 3 | 0 | 4 |
| 14 | Healey Road | The Gore Road to Coleraine Drive | Widen from 2 rural to 4 rural lanes | 2.75 | 3 | 0 | 1 |
| 15 | King Street | Airport Road to The Gore Road | Widen from 2 rural to 4 rural lanes | 4.14 | 4 | 0 | 3 |
| 16 | The Gore Road | King Street to Castlederg Side Road | Widen from 2 rural to 4 rural lanes | 3.06 | 2 | 0 | 1 |
| 17 | Chinguacousy Road | Old School Road to King Street | Widen from 2 rural to 4 rural lanes | 3.07 | 0 | 0 | 0 |
| 18 | King Street | Dixie Road to Airport Road | Widen from 2 rural to 4 rural lanes | 4.13 | 4 | 0 | 3 |
| 19 | King Street | The Gore Road to Coleraine Drive | Widen from 2 rural to 4 rural lanes | 2.46 | 4 | 0 | 1 |
| 20 | Emil Kolb Parkway | King Street/Harvest Moon Drive to King Street | Widen from 4 urban to 6 urban lanes | 0.99 | 2 | 0 | 0 |
| 21 | Old School Road | Hurontario Street to Dixie Road | Widen from 2 rural to 4 rural lanes | 4.12 | 4 | 0 | 3 |
| 22 | Old School Road | Dixie Road to Airport Road | Widen from 2 rural to 4 rural lanes | 4.16 | 4 | 0 | 2 |
| 23 | Healey Road | Airport Road to The Gore Road | Widen from 2 rural to 4 rural lanes | 4.18 | 4 | 0 | 1 |
| 24 | King Street | Chinguacousy Road to Hurontario Street | Widen from 2 rural to 4 rural lanes | 2.80 | 4 | 0 | 0 |
| 25 | Airport Road | Castlederg Side Road to Olde Base Line Road | Widen from 2 rural to 4 rural lanes | 1.21 | 1 | 0 | 0 |
| 25 | Mayfield Road | Heritage Road to west of Mississauga Road | Widen from 4 rural to 6 rural lanes | 1.72 | 2 | 0 | 0 |
| 26 | Old School Road | Mississauga Road to Chinguacousy Road | Widen from 2 rural to 4 rural lanes | 2.76 | 3 | 0 | 0 |
| 27 | McLaughlin Road | Mayfield Road to Old School Road | Widen from 2 rural to 4 rural lanes | 3.07 | 2 | 1 | 2 |
| 28 | McLaughlin Road | Old School Road to King Street | Widen from 2 rural to 4 rural lanes | 3.07 | 2 | 0 | 1 |

## Peel Region Settlement Area Boundary Expansion Study

Transportation Technical Analysis - Phase 2 Detailed Assessment
Table B-2 - Component Construction Costs

| Project \# | Road Name | Limits | Component Construction Costs (Based on Benchmark Unit Costs) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Roadwork | Bridges |  | Culverts |  | Intersections |  | Sidewalks |  | Landscaping |  | Streetlighting |  | Utility Relocation |  |
| 1 | Chinguacousy Road | Mayfield Road to Old School Road | \$ 8,401,209 | \$ | - | \$ | 1,539,000 | \$ | 1,977,870 | \$ | 1,117,541 | \$ | 299,878 | \$ | 2,538,767 | \$ | 2,124,440 |
| 2 | Dixie Road | 2 km north of Mayfield Road to King Street | \$ 11,384,048 | \$ | - | \$ | 122,000 | \$ | 2,340,030 | \$ | 1,514,323 | \$ | 406,349 | \$ | 3,440,154 | \$ | 2,878,720 |
| 3 | Airport Road | Countryside Drive to Mayfield Road | \$ 4,140,606 | \$ | 870,000 | \$ | - | \$ | 2,356,260 | \$ | 462,305 | \$ | 124,054 | \$ | 1,050,239 | \$ | 878,840 |
| 4 | Airport Road | Mayfield Road to Highway 413 | \$ 12,063,138 | \$ | 1,651,561 | \$ |  | \$ | 4,526,320 | \$ | 1,190,345 | \$ | 319,414 | \$ | 2,704,159 | \$ | 2,262,840 |
| 5 | Airport Road | King Street to Castlederg Side Road | \$ 19,703,160 | \$ | - | \$ |  | \$ | 674,010 | \$ | 2,620,944 | \$ | 703,296 | \$ | 5,954,112 | \$ | 4,982,400 |
| 6 | The Gore Road | Healey Road to King Street | \$ 8,401,209 | \$ | - | \$ |  | \$ | 1,349,010 | \$ | 1,117,541 | \$ | 299,878 | \$ | 2,538,767 | \$ | 2,124,440 |
| 7 | Humber Station Road | Mayfield Road to Healey Road | \$ 8,401,209 | \$ | - | \$ | - | \$ | 1,191,000 | \$ | 1,117,541 | \$ | 299,878 | \$ | 2,538,767 | \$ | 2,124,440 |
| 8 | Coleraine Drive | Mayfield Road to Healey Road | \$ 10,270,008 | \$ | - | \$ | 85,200 | \$ | 4,115,740 | \$ | 1,146,663 | \$ | 307,692 | \$ | 2,604,924 | \$ | 2,179,800 |
| 9 | Coleraine Drive | Healey Road to King Street | \$ 6,683,656 | \$ | - | \$ | - | \$ | 4,894,700 | \$ | 746,241 | \$ | 200,244 | \$ | 1,695,268 | \$ | 1,418,600 |
| 10 | Emil Kolb Parkway | King Street to Highway 50 | \$ 8,975,884 | \$ | 3,344,000 | \$ | 300,000 | \$ | 1,022,290 | \$ | 1,193,986 | \$ | 320,390 | \$ | 2,712,429 | \$ | 2,269,760 |
| 11 | Highway 50 | Emil Kolb Parkway to Castlederg Side Road | \$ 3,010,205 | \$ | - | \$ | - | \$ | 786,870 | \$ | 400,422 | \$ | 107,448 | \$ | 909,656 | \$ | 761,200 |
| 12 | Mayfield Road | Heritage Road to west of Mississauga Road | \$ 3,586,352 | \$ | - | \$ |  | \$ | 994,000 | \$ | 400,422 | \$ | 107,448 | \$ | 909,656 | \$ | 761,200 |
| 13 | Old School Road | Chinguacousy Road to Hurontario Street | \$ 7,634,975 | \$ | - | \$ | 1,436,400 | \$ | 1,736,280 | \$ | 1,015,616 | \$ | 272,527 | \$ | 2,307,218 | \$ | 1,930,680 |
| 14 | Healey Road | The Gore Road to Coleraine Drive | \$ 7,525,513 | \$ | - | \$ | 615,600 | \$ | 905,330 | \$ | 1,001,055 | \$ | 268,620 | \$ | 2,274,140 | \$ | 1,903,000 |
| 15 | King Street | Airport Road to The Gore Road | \$ 11,329,317 | \$ | - | \$ | 336,054 | \$ | 3,358,650 | \$ | 1,507,043 | \$ | 404,395 | \$ | 3,423,614 | \$ | 2,864,880 |
| 16 | The Gore Road | King Street to Castlederg Side Road | \$ 8,373,843 | \$ | - | \$ | 364,230 | \$ | 961,290 | \$ | 1,113,901 | \$ | 298,901 | \$ | 2,530,498 | \$ | 2,117,520 |
| 17 | Chinguacousy Road | Old School Road to King Street | \$ 8,401,209 | \$ | - | \$ | - | \$ |  | \$ | 1,117,541 | \$ | 299,878 | \$ | 2,538,767 | \$ | 2,124,440 |
| 18 | King Street | Dixie Road to Airport Road | \$ 11,301,952 | \$ | - | \$ | 721,376 | \$ | 4,163,070 | \$ | 1,503,403 | \$ | 403,418 | \$ | 3,415,345 | \$ | 2,857,960 |
| 19 | King Street | The Gore Road to Coleraine Drive | \$ 6,731,913 | \$ | - | \$ | 46,817 | \$ | 1,850,640 | \$ | 895,489 | \$ | 240,293 | \$ | 2,034,322 | \$ | 1,702,320 |
| 20 | Emil Kolb Parkway | King Street/Harvest Moon Drive to King Street | \$ 3,227,717 | \$ | - | \$ | - | \$ | 863,720 | \$ | 360,380 | \$ | 96,703 | \$ | 818,690 | \$ | 685,080 |
| 21 | Old School Road | Hurontario Street to Dixie Road | \$ 11,274,586 | \$ | - | \$ | 1,436,400 | \$ | 1,994,280 | \$ | 1,499,762 | \$ | 402,442 | \$ | 3,407,075 | \$ | 2,851,040 |
| 22 | Old School Road | Dixie Road to Airport Road | \$ 11,384,048 | \$ | - | \$ | 1,333,800 | \$ | 1,175,640 | \$ | 1,514,323 | \$ | 406,349 | \$ | 3,440,154 | \$ | 2,878,720 |
| 23 | Healey Road | Airport Road to The Gore Road | \$ 11,438,779 | \$ | - | \$ | 1,231,200 | \$ | 1,032,000 | \$ | 1,521,604 | \$ | 408,302 | \$ | 3,456,693 | \$ | 2,892,560 |
| 24 | King Street | Chinguacousy Road to Hurontario Street | \$ 7,662,340 | \$ | - | \$ | - | \$ | 3,908,590 | \$ | 1,019,256 | \$ | 273,504 | \$ | 2,315,488 | \$ | 1,937,600 |
| 25 | Airport Road | Castlederg Side Road to Olde Base Line Road | \$ 3,311,226 | \$ | - | \$ | - | \$ | 808,000 | \$ | 440,464 | \$ | 118,193 | \$ | 1,000,622 | \$ | 837,320 |
| 25 | Mayfield Road | Heritage Road to west of Mississauga Road | \$ 5,607,750 | \$ | - | \$ | - | \$ | 1,313,000 | \$ | 626,114 | \$ | 168,010 | \$ | 1,422,371 | \$ | 1,190,240 |
| 26 | Old School Road | Mississauga Road to Chinguacousy Road | \$ 7,552,878 | \$ | - | \$ | - | \$ | 774,000 | \$ | 1,004,695 | \$ | 269,597 | \$ | 2,282,410 | \$ | 1,909,920 |
| 27 | McLaughlin Road | Mayfield Road to Old School Road | \$ 8,401,209 | \$ | 2,605,680 | \$ | 615,600 | \$ | 1,461,870 | \$ | 1,117,541 | \$ | 299,878 | \$ | 2,538,767 | \$ | 2,124,440 |
| 28 | McLaughlin Road | Old School Road to King Street | \$ 8,401,209 | \$ | - | \$ | 307,800 | \$ | 516,000 | \$ | 1,117,541 | \$ | 299,878 | \$ | 2,538,767 | \$ | 2,124,440 |
|  |  | TOTAL | \$ 244,581,143 | \$ | 8,471,241 | \$ | 10,491,477 | \$ | 53,050,460 | \$ | 31,404,005 | \$ | 8,426,854 | \$ | 71,341,839 | \$ | 59,698,840 |

## Peel Region Settlement Area Boundary Expansion Study

Transportation Technical Analysis - Phase 2 Detailed Assessment
Table B-3 - Total Project Costs

| Project \# | Road Name | Limits | TOTAL Construction Components | Municipal Class EA Study |  | Detailed Design |  | Contingency |  | TOTAL PROJECT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Chinguacousy Road | Mayfield Road to Old School Road | \$ 17,998,705 | \$ | 539,961 | \$ | 2,699,806 | \$ | 4,499,676 | \$ | 25,738,148 |
| 2 | Dixie Road | 2 km north of Mayfield Road to King Street | \$ 22,085,624 | \$ | 662,569 | \$ | 3,312,844 | \$ | 5,521,406 | \$ | 31,582,442 |
| 3 | Airport Road | Countryside Drive to Mayfield Road | \$ 9,882,305 | \$ | 400,000 | \$ | 2,000,000 | \$ | 2,470,576 | \$ | 14,752,881 |
| 4 | Airport Road | Mayfield Road to Highway 413 | \$ 24,717,777 | \$ | 741,533 | \$ | 3,707,667 | \$ | 6,179,444 | \$ | 35,346,421 |
| 5 | Airport Road | King Street to Castlederg Side Road | \$ 34,637,922 | \$ | 1,039,138 | \$ | 5,195,688 | \$ | 8,659,481 | \$ | 49,532,228 |
| 6 | The Gore Road | Healey Road to King Street | \$ 15,830,845 | \$ | 474,925 | \$ | 2,374,627 | \$ | 3,957,711 | \$ | 22,638,108 |
| 7 | Humber Station Road | Mayfield Road to Healey Road | \$ 15,672,835 | \$ | 470,185 | \$ | 2,350,925 | \$ | 3,918,209 | \$ | 22,412,154 |
| 8 | Coleraine Drive | Mayfield Road to Healey Road | \$ 20,710,027 | \$ | 621,301 | \$ | 3,106,504 | \$ | 5,177,507 | \$ | 29,615,339 |
| 9 | Coleraine Drive | Healey Road to King Street | \$ 15,638,709 | \$ | 469,161 | \$ | 2,345,806 | \$ | 3,909,677 | \$ | 22,363,354 |
| 10 | Emil Kolb Parkway | King Street to Highway 50 | \$ 20,138,739 | \$ | 604,162 | \$ | 3,020,811 | \$ | 5,034,685 | \$ | 28,798,396 |
| 11 | Highway 50 | Emil Kolb Parkway to Castlederg Side Road | \$ 5,975,801 | \$ | 400,000 | \$ | 2,000,000 | \$ | 1,493,950 | \$ | 9,869,751 |
| 12 | Mayfield Road | Heritage Road to west of Mississauga Road | \$ 6,759,078 | \$ | 400,000 | \$ | 2,000,000 | \$ | 1,689,770 | \$ | 10,848,848 |
| 13 | Old School Road | Chinguacousy Road to Hurontario Street | \$ 16,333,696 | \$ | 490,011 | \$ | 2,450,054 | \$ | 4,083,424 | \$ | 23,357,185 |
| 14 | Healey Road | The Gore Road to Coleraine Drive | \$ 14,493,258 | \$ | 434,798 | \$ | 2,173,989 | \$ | 3,623,314 | \$ | 20,725,358 |
| 15 | King Street | Airport Road to The Gore Road | \$ 23,223,953 | \$ | 696,719 | \$ | 3,483,593 | \$ | 5,805,988 | \$ | 33,210,253 |
| 16 | The Gore Road | King Street to Castlederg Side Road | \$ 15,760,183 | \$ | 472,805 | \$ | 2,364,027 | \$ | 3,940,046 | \$ | 22,537,061 |
| 17 | Chinguacousy Road | Old School Road to King Street | \$ 14,481,835 | \$ | 434,455 | \$ | 2,172,275 | \$ | 3,620,459 | \$ | 20,709,024 |
| 18 | King Street | Dixie Road to Airport Road | \$ 24,366,524 | \$ | 730,996 | \$ | 3,654,979 | \$ | 6,091,631 | \$ | 34,844,129 |
| 19 | King Street | The Gore Road to Coleraine Drive | \$ 13,501,794 | \$ | 405,054 | \$ | 2,025,269 | \$ | 3,375,448 | \$ | 19,307,565 |
| 20 | Emil Kolb Parkway | King Street/Harvest Moon Drive to King Street | \$ 6,052,290 | \$ | 400,000 | \$ | 2,000,000 | \$ | 1,513,073 | \$ | 9,965,363 |
| 21 | Old School Road | Hurontario Street to Dixie Road | \$ 22,865,585 | \$ | 685,968 | \$ | 3,429,838 | \$ | 5,716,396 | \$ | 32,697,787 |
| 22 | Old School Road | Dixie Road to Airport Road | \$ 22,133,034 | \$ | 663,991 | \$ | 3,319,955 | \$ | 5,533,258 | \$ | 31,650,238 |
| 23 | Healey Road | Airport Road to The Gore Road | \$ 21,981,138 | \$ | 659,434 | \$ | 3,297,171 | \$ | 5,495,284 | \$ | 31,433,027 |
| 24 | King Street | Chinguacousy Road to Hurontario Street | \$ 17,116,778 | \$ | 513,503 | \$ | 2,567,517 | \$ | 4,279,195 | \$ | 24,476,993 |
| 25 | Airport Road | Castlederg Side Road to Olde Base Line Road | \$ 6,515,824 | \$ | 400,000 | \$ | 2,000,000 | \$ | 1,628,956 | \$ | 10,544,780 |
| 25 | Mayfield Road | Heritage Road to west of Mississauga Road | \$ 10,327,486 | \$ | 400,000 | \$ | 2,000,000 | \$ | 2,581,871 | \$ | 15,309,357 |
| 26 | Old School Road | Mississauga Road to Chinguacousy Road | \$ 13,793,500 | \$ | 413,805 | \$ | 2,069,025 | \$ | 3,448,375 | \$ | 19,724,704 |
| 27 | McLaughlin Road | Mayfield Road to Old School Road | \$ 19,164,985 | \$ | 574,950 | \$ | 2,874,748 | \$ | 4,791,246 | \$ | 27,405,928 |
| 28 | McLaughlin Road | Old School Road to King Street | \$ 15,305,635 | \$ | 459,169 | \$ | 2,295,845 | \$ | 3,826,409 | \$ | 21,887,058 |
|  |  | TOTAL | \$ 487,465,860 | \$ | 15,658,592 | \$ | 78,292,962 |  | 121,866,465 |  | 703,283,879 |


[^0]:    1 Paradigm Transportation Solutions Limited, Region of Peel Settlement Area Boundary Expansion (SABE), Transportation Technical Study - Phase 2 Detailed Assessment, August 2021

