
4 ALTERNATIVE SOLUTIONS

4.1 Description of Alternative Solutions

The following alternatives were identified for consideration at the planning level to address the problems and opportunities identified in **Section 2.3**:

- “Do Nothing”
- Limit Development
- Travel Demand Management Measures (TDM)
- Improved Transit Services (GO Transit) / Other Modes of Transportation
- Intersection and / or Operational Improvements
- Improvements to Other Roadways Beyond Planned Program
- Improvements to Trafalgar Road

A brief description of each of the planning alternatives is outlined below; this applies to the study area of Trafalgar Road between Steeles Avenue and north of 10 Side Road.

4.1.1 Do Nothing

With the *Do Nothing* alternative, the existing road network will be maintained as status quo. Only planned infrastructure improvements will be in place, for example, widening of Ninth Line, Steeles Avenue, and 10 Side Road (east of Trafalgar Road), as shown in the Halton Region Roads Capital Projects (to 2031).

4.1.2 Limit Development

Under this scenario, there would be more limits placed on land use development. Projections of future travel demands are based on the approved future urban area (Halton Region Official Plan, in accordance with the *Places to Grow*). Limiting development would reduce future travel demands and require fewer infrastructure improvements to be completed.

4.1.3 Travel Demand Management (TDM) Measures

Travel Demand Management measures include measures to reduce the number of vehicles during the peak hours, e.g. carpooling, staggered work hours, etc. These are currently part of Halton Region’s overall transportation strategy, and can help manage the rate of growth in travel demand when considered in tandem with other alternatives.

4.1.4 Improved Transit Services (GO Transit) / Other Modes of Transportation

This alternative would involve upgrades to GO Transit services on the Kitchener Line, and provision of facilities for active transportation to accommodate pedestrians and cyclists.

4.1.5 Intersection and / or Operational Improvements

Intersection improvements include the addition of traffic signals, auxiliary lanes (e.g. right turn and left turn lanes) and additional lanes through the intersection. Operational

improvements include modifications to signal timing plans, traffic signal interconnect systems, and road user information systems.

4.1.6 Improvements to Other Roadways Beyond Planned Program

This alternative would widen other Regional roadways in the immediate proximity to the Study Area beyond planned improvements (e.g. Steeles Avenue, Ninth Line, and 10 Side Road).

4.1.7 Improvements to Trafalgar Road

Improvements to the Trafalgar Road corridor to address future corridor requirements would involve widening from 2 to 4 general traffic lanes, and provision for active transportation.

4.2 Analysis and Evaluation of Alternative Solutions

The above-noted planning alternatives were assessed in terms of how they would address the problem under consideration outlined in **Section 2.2.4**. **Table 4-1** summarizes the analysis and evaluation of the planning alternatives under factor groups such as socio-economic environment, cultural environment, natural environment, transportation and costs. **Sections 4.2.1 to 4.2.7** discuss the results of this evaluation in further detail.

Table 4-1: Analysis and Evaluation of Alternative Solutions

FACTORS	ALTERNATIVES SOLUTIONS						
	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Service / Other Modes of Transportation	Intersection and/or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to Trafalgar Road
Socio-Economic Environment							
Property Effects / Existing Land Use / Community Effects	<ul style="list-style-type: none"> No impact to adjacent properties and existing land use 	<ul style="list-style-type: none"> No impact to adjacent properties and existing land use 	<ul style="list-style-type: none"> No impact to adjacent properties and existing land use 	<ul style="list-style-type: none"> Would likely have some property impact due to the implementation of transit and active transportation related improvements (e.g. bus bays, transit stops, intersection reconstruction, bike lanes, multi-use pathways, etc.) 	<ul style="list-style-type: none"> Would likely have some property impact particularly for properties in close proximity to the intersections Minimal impact to overall existing land use 	<ul style="list-style-type: none"> Improvements on other roadways have already been identified as part of the Region and local Transportation Master Plans. Impact to existing properties would be determined based on respective EA studies Potential impact to access along the improved roadways 	<ul style="list-style-type: none"> Property impact generally along the frontage of properties adjacent to Trafalgar Road south of 15 Side Road. Greater potential for direct property impacts north of 15 Side Road due to proximity of existing houses to Trafalgar Road in Stewarttown. Some existing accesses on Trafalgar Road will become right-in/right-out only; however, U-Turn will be permitted at signalized intersections
Consistency with Planning Policies (Official Plan, Transportation Master Plan, Active Transportation Plan)	<ul style="list-style-type: none"> Not consistent with the Halton Region Transportation Master Plan Not consistent with Region and Town's objective to promote Active Transportation 	<ul style="list-style-type: none"> Not consistent with the planned population and employment growth identified by Halton Region and Town of Halton Hills in conformance with the Provincial Growth Plan 	<ul style="list-style-type: none"> Consistent with the Region and Town's objectives to manage travel demand However, this is not consistent within the Region and Town's need to provide additional capacity with the Trafalgar Road corridor 	<ul style="list-style-type: none"> Consistent with the Region and Town's vision to increase modal share of transit and other transportation methods 	<ul style="list-style-type: none"> Will not fully address transportation needs in the future 	<ul style="list-style-type: none"> Improvements on other roadways have already been identified as part of the Region and Town Transportation Master Plans; widening beyond planned program would be inconsistent with existing Regional planning 	<ul style="list-style-type: none"> Consistent with the Region and Town's Transportation Master Plans and Official Plans to provide additional capacity within the Trafalgar Road corridor
Impacts to Future Development	<ul style="list-style-type: none"> Would not provide the transportation network improvements required (e.g. additional capacity) to support future developments (e.g. Vision Georgetown) 	<ul style="list-style-type: none"> Not consistent with the planned population and employment growth identified by Halton Region and the Town of Halton Hills 	<ul style="list-style-type: none"> No direct physical impact to future development 	<ul style="list-style-type: none"> No direct physical impact to future development 	<ul style="list-style-type: none"> No direct physical impact to future development Does not provide the infrastructure improvement required for future developments 	<ul style="list-style-type: none"> Future developments will have to coordinate with the Region and Town to integrate with proposed additional roadway improvements (additional would be required beyond what is identified as the right-of-way in planning documents) 	<ul style="list-style-type: none"> Future developments will coordinate with the Region and Town to integrate with proposed Trafalgar Road improvements Widening of Trafalgar Road will support future travel demand generated from future developments
Noise	<ul style="list-style-type: none"> Some potential increase in noise level due to increased traffic near noise sensitive areas adjacent to Trafalgar Road when compared to existing conditions 	<ul style="list-style-type: none"> Likely no significant impact to existing noise sensitive areas adjacent to Trafalgar Road 	<ul style="list-style-type: none"> Likely no significant impact to existing noise sensitive areas adjacent to Trafalgar Road 	<ul style="list-style-type: none"> Minimal change in noise level from new transit services 	<ul style="list-style-type: none"> Minimal change in noise level 	<ul style="list-style-type: none"> Potential increase in noise level to noise sensitive areas adjacent to the roadways 	<ul style="list-style-type: none"> Potential increase in noise level to noise sensitive areas adjacent to Trafalgar Road

ALTERNATIVES SOLUTIONS							
FACTORS	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Service / Other Modes of Transportation	Intersection and/or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to Trafalgar Road
Cultural Environment							
Archaeological Resources	<ul style="list-style-type: none"> A Stage 1 Archaeology Assessment was completed. There are 20 registered sites located within 1 km of the Trafalgar Road corridor. The existing Trafalgar Road right-of-way is previously disturbed and did not require further assessment. Much of the study area outside of the existing right-of-way appears to be undisturbed, and will require a Stage 2 Archaeological Assessment if land is to be impacted. Details may be found in Appendix G – Stage 1 Archaeological Assessment. 						
Built Heritage Resources / Cultural Landscape	<ul style="list-style-type: none"> A built heritage and cultural landscapes review was carried out. Within the study area there are 5 Halton Hills Designated and Heritage Register Phase 1 and 2 Consolidated properties, and 9 properties associated with the historic settlement of Stewarttown. Devereaux House, located at 11494 Trafalgar Road, is the only property designated under Part IV of the Ontario Heritage Act. The heritage features are listed in Appendix F Cultural Heritage Resource Assessment. 						
	<ul style="list-style-type: none"> No impacts to cultural heritage landscapes 			<ul style="list-style-type: none"> Implementation of transit and/or active transportation facilities (e.g. bus bays and bike lanes) may have minor impacts to features located directly adjacent to the roadway. 	<ul style="list-style-type: none"> Likely limited impact to built heritage features. 	<ul style="list-style-type: none"> May have impact to other built heritage features along those roadways. 	<ul style="list-style-type: none"> Design will be modified to minimize impact to built heritage features where possible (e.g. at Devereaux House). Mitigation measures will be reviewed as required.
Natural Environment							
Fisheries and Aquatic Habitat	<ul style="list-style-type: none"> Potential minor impact on fish habitat quality through increased traffic demand and resulting incremental contaminant runoff from existing roads No net loss of fish habitat 	<ul style="list-style-type: none"> No net loss of fish habitat 	<ul style="list-style-type: none"> No net loss of fish habitat 	<ul style="list-style-type: none"> Incremental effects on fish habitat may be experienced to accommodate transit initiatives such as new stations, etc. These effects will depend on nature of improvements relative to watercourse features No net loss of fish habitat 	<ul style="list-style-type: none"> Incremental effects on fish habitat may be experienced to accommodate intersection and/or operational improvements. These effects will depend on nature of improvements relative to watercourse features No net loss of fish habitat 	<ul style="list-style-type: none"> Potential fish habitat effects associated with culvert replacements / extensions for road widening – dependent on nature of undertaking and agency liaison Increased contaminant runoff volumes may be generated with widened pavement surface and will be mitigated 	<ul style="list-style-type: none"> Potential fish habitat effects associated with culvert replacements / extensions for road widening – dependent on nature of undertaking and agency liaison Increased contaminant runoff volumes may be generated with widened pavement surface and will be mitigated No net loss of fish habitat
Surface Water Quality and Quantity	<ul style="list-style-type: none"> Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads 	<ul style="list-style-type: none"> No direct impact to surface water quality and quantity 	<ul style="list-style-type: none"> No direct impact to surface water quality and quantity 	<ul style="list-style-type: none"> Incremental effects on surface water resources may be experienced to accommodate transit initiatives such as new stations, etc. These effects will depend on nature of improvements relative to watercourse features 	<ul style="list-style-type: none"> Potential impact on surface water quality through increased traffic demand and resulting incremental increase in contaminant runoff from existing roads 	<ul style="list-style-type: none"> Potential water quality effects through widening at existing water courses (short term impact due to construction, long term impact due to increased runoff) 	<ul style="list-style-type: none"> Potential water quality effects through widening at existing water courses (short term impact due to construction, long term impact due to increased runoff)
Vegetation (Wetland and Upland)	<ul style="list-style-type: none"> No physical impacts to vegetation Possible incremental contaminant drift with increased traffic demand – localized vegetation stress 	<ul style="list-style-type: none"> No physical impacts to vegetation 	<ul style="list-style-type: none"> No physical impacts to vegetation 	<ul style="list-style-type: none"> Incremental effects (such as vegetation / wetland intrusion) may occur to accommodate various transit initiatives. These effects will depend on nature and location of improvements 	<ul style="list-style-type: none"> Potential for physical removal of vegetation in localized areas where improvements are made. Anticipated that these would be relatively minor 	<ul style="list-style-type: none"> Potential for physical removal where road widening borders existing vegetation / wetlands or where vegetation / wetlands features extend into right-of-way Typically results in edge effects rather than fragmentation 	<ul style="list-style-type: none"> Potential for physical removal where road widening borders existing vegetation / wetlands or where vegetation / wetlands features extend into right-of-way Typically results in edge effects rather than fragmentation Potential for fragmentation with alternative alignments.

ALTERNATIVES SOLUTIONS							
FACTORS	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Service / Other Modes of Transportation	Intersection and/or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to Trafalgar Road
Wildlife	<ul style="list-style-type: none"> No physical impacts to wildlife and wildlife habitats 	<ul style="list-style-type: none"> No physical impacts to wildlife and wildlife habitats 	<ul style="list-style-type: none"> No physical impacts to wildlife and wildlife habitats 	<ul style="list-style-type: none"> Potential for incremental habitat removal / intrusion to accommodate various transit initiatives. These effects will depend on nature and location of improvements 	<ul style="list-style-type: none"> Potential for physical habitat impact in localized areas where improvements are made. Anticipated that these would be relatively minor, if any 	<ul style="list-style-type: none"> Potential for habitat removal where road widening borders existing vegetation / wetlands or where vegetation / wetland features extend into right-of-way Existing drainage crossing structures used by wildlife may require lengthening Potential for reduced quality in habitat adjacent to the widened roadway (increased noise, light) 	<ul style="list-style-type: none"> Potential for habitat removal where road widening borders existing vegetation / wetlands or where vegetation / wetland features extend into right-of-way Existing drainage crossing structures used by wildlife may require lengthening Potential for reduced quality in habitat adjacent to the widened roadway (increased noise, light) Improved passage at Black Creek and other culverts
Transportation							
Ability to Accommodate Traffic Demand	<ul style="list-style-type: none"> Will not provide capacity and infrastructure required for future transportation demand on Trafalgar Road 	<ul style="list-style-type: none"> Trafalgar Road is operating near capacity based on existing and planned future development and there are existing delays due to the two at grade rail crossings (CN and Metrolinx) 	<ul style="list-style-type: none"> Would help to reduce and optimize transportation demand Would require significant changes to travel behavior to achieve improved levels of service 	<ul style="list-style-type: none"> Provides choice for mobility needs of population (reduces auto dependency); potential for reduction of traffic congestion 	<ul style="list-style-type: none"> Localized improvements would not be sufficient to accommodate transportation demand generated by scale of planned development 	<ul style="list-style-type: none"> Needs for improvements to other roads to support future transportation demand generated for planned development have been established and identified in the Halton Transportation Master Plan 	<ul style="list-style-type: none"> Supports transportation demand for population growth adjacent to the corridor and surrounding area
Costs							
Order of Magnitude Cost (Construction Costs)	N/A	N/A	\$	\$\$	\$\$	\$\$\$\$	\$\$\$\$
SUMMARY	<ul style="list-style-type: none"> Do Nothing would restrict future approved development and would not address future transportation needs. 	<ul style="list-style-type: none"> Projections of future travel demands are based on the approved future urban area as shown in the Halton Region Official Plan. Limiting development was not considered to be reasonable in isolation. 	<ul style="list-style-type: none"> While these are part of Halton Region's overall transportation strategy, on their own they do not address the need for additional capacity on Trafalgar Road. 	<ul style="list-style-type: none"> The increased use of transit (such as those provided by GO Transit) is part of the overall transportation strategy and it is expected that services will be improved through planning by local transit authorities. Improvements to Trafalgar Road will assist in achieving and implementing Halton Region's Transportation Master Plan by providing additional lanes and infrastructure to support transit services and provide for a multi-modal corridor. 	<ul style="list-style-type: none"> They would not fully address the identified problem but are required as part of the overall improvement strategy. 	<ul style="list-style-type: none"> These are required as part of the overall transportation strategy in addition to improvements to the Trafalgar Road corridor and will be subject to separate studies. 	<ul style="list-style-type: none"> Improvements to Trafalgar Road are required in order to address future corridor requirements, and support future developments and implementation of multimodal transportation strategies.
Recommended to be Carried Forward	NO – for comparison purposes only	NO – Not consistent with Provincial <i>Growth Plan</i>	YES – but within the overall strategy	YES – but within the overall strategy	YES – but within the overall strategy	NO – however, planned improvements would be under separate studies	YES – carried forward as the preferred alternative solution

4.2.1 Do Nothing

This alternative involves maintaining status quo. The existing roadway would be retained in its present configuration and operational problems would continue to grow. Only planned improvements will be in place including the widening of Ninth Line, Steeles Avenue, and 10 Side Road (east of Trafalgar Road). The *Do Nothing* alternative would not address future transportation needs of Trafalgar Road and result in the escalation of congestion issues. The existing at-grade rail crossings will continue to be an operation and safety concern. While this alternative is not considered to be a reasonable alternative, it is carried forward as part of the EA process and used for comparison purposes.

4.2.2 Limit Development

Projections of future travel demands are based on the approved future urban area as shown in the Halton Region Official Plan which is in conformance with the Provincial *Growth Plan*. One of the planned growth areas in the Town of Halton Hills is Vision Georgetown, which is slated for development and will require infrastructure improvements to be completed in advance. Limiting development was not considered to be reasonable in isolation, and therefore was not carried forward for further consideration as part of this study.

4.2.3 Travel Demand Management Measures

Travel Demand Management (TDM) measures include measures to reduce the number of vehicles during the peak hours, e.g. carpooling, staggered work hours, etc. While these are part of Halton Region's overall transportation strategy, on their own, they do not address the need for additional capacity on Trafalgar Road. There is a deficiency in roadway capacity under existing conditions, and while travel demand measures may help manage the rate of growth in travel demand; however, travel demand will continue to increase with ongoing growth and development. Therefore, this alternative is carried forward for further consideration as part of the overall transportation strategy.

4.2.4 Improved Transit Services (GO Transit) / Other Modes of Transportation

Upgrades to GO Transit services on the Kitchener Line and provision of facilities for active transportation to accommodate pedestrians and cyclists are part of the overall transportation strategy but do not address the problem on their own. Widening of Trafalgar Road would assist in achieving and implementing Halton Region's Transportation Master Plan by providing additional infrastructure to support transit service provided by GO Transit and active transportation facilities. Therefore, this is carried forward for further consideration as part of the overall transportation strategy.

4.2.5 Intersection and / or Operational Improvements

Intersection improvements include the addition of traffic signals, auxiliary lanes (e.g. right turn and left turn lanes) and additional lanes through the intersection. They would not fully address the identified problem but are required as part of the overall improvement strategy. Operational improvements include modifications to signal timing plans, traffic signal interconnect systems, and road user information systems. They would not fully address the identified problem but would be considered as part of the overall improvement strategy.

4.2.6 Improvements to Other Roadways Beyond Planned Program

Widening of other Regional roadways in the immediate study area beyond planned improvements (e.g. Steeles Avenue, Ninth Line, and 10 Side Road) would not be consistent with the Halton Region Transportation Master Plan, as well as other local improvements by the Town of Halton Hills (e.g. Eighth Line). This would lead to impacts beyond the planned rights-of-way.

4.2.7 Improvements to Trafalgar Road - Recommended

Improvements to the Trafalgar Road corridor are required in order to address future corridor requirements. In the Halton Region Transportation Master Plan, Trafalgar Road was identified as requiring additional capacity and widening from 2 to 4 general traffic lanes to support future growth. Provision for active transportation are included as part of the improvements. Therefore, this is carried forward for further consideration as part of the overall improvement strategy.

5 ALTERNATIVE DESIGN CONCEPTS

Phase 3 of the Municipal Class EA process involves the development and review of alternative design concepts. Having established the need for improvements on Trafalgar Road (**Section 2.2**) and selected a recommended planning alternative (**Chapter 4**), the next phase involved the development of alternative designs.

5.1 Approach to Developing Alternative Design Concepts

The following were taken into consideration for the widening of Trafalgar Road from two to four lanes between Steeles Avenue and north of 10 Side Road.

- Background information from previous studies and relevant planning documents (e.g. Official Plans, Transportation Master Plan, Active Transportation Master Plan);
- Integrate with ongoing, planned and completed improvements (e.g. 4 lanes at Steeles Avenue, 4 lanes at 5 Side Road, etc.)
- Impacts to adjacent properties
- Impacts to community features (e.g. churches and schools)
- Access to existing properties
- Cultural heritage features
- Natural environment features
- Provision for active transportation facilities
- Urban section (i.e. curb and gutter) vs. rural section (i.e. ditches)
- Stormwater management and fluvial geomorphology
- Construction staging

5.1.1 Preliminary Screen of Trafalgar Road Alternatives – Steeles Avenue to North of 10 Side Road

Consideration was given to alternatives for widening Trafalgar Road between Steeles Avenue and 10 Side Road from two to four lanes:

- Widen Trafalgar Road on existing centreline
- Widen Trafalgar Road to the east only (i.e. holding the westerly property line)
- Widen Trafalgar Road to the west only (i.e. holding the easterly property line)

There are existing agricultural land uses, as well as intermittent residential houses on both sides of Trafalgar Road between Steeles Avenue and 10 Side Road. Key constraints included the Coulson Tract Woodlot which is located about 600 m north of Steeles Avenue and some existing houses are in close proximity to the roadway on both sides of the road.

Given these constraints, it is not considered reasonable to develop alternatives that widen to the east only, west only or “strictly” on the existing centreline for the entire section. Based on preliminary screening of alternatives, it is proposed to widen based on a “best fit” approach (i.e. a combination to widen by the centreline, to the east or to the west) to accommodate the proposed cross sectional elements.

5.2 Design Criteria

Trafalgar Road is proposed to be widened from two to four lanes between Steeles Avenue and 10 Side Road. The design criteria are summarized in **Table 5-1**.

Table 5-1: Preliminary Design Criteria (Steeles Avenue to North of 10 Side Road)

	Design Standard
Design Speed	90 km/h
Posted Speed	70 km/h to 80 km/h
No. of Lanes and Width	4 Lanes at 3.5 m each
Provision for Pedestrians and Cyclists	Paved shoulder (1.5 m) in rural section Bike Lane (1.8 m) in urban section Multi use path (3.0 m)
Minimum Grade	0.5 %
Maximum Grade	5 %
Minimum Curve Radius	340 m
Minimum Stopping Sight Distance	160 m
Minimum Crest Curve	$K_{\text{crest}} = 50$
Minimum Sag Curve	$K_{\text{sag}} = 40$
Basic Right-of-Way	47 m

5.3 Description of Alternative Design Concepts – 10 Side Road Intersection

While much of the alignment for the widening of Trafalgar Road is based on a “best fit” alignment, three alternatives were developed at the 10 Side Road intersection since there are existing land uses on both sides of the road (part of the Ashgrove community).

Three alignment options have been developed in order to consider a range of potential impacts. The three options are, see **Exhibits 5-1 to 5-3**:

- Widen by the centreline
- Widen to the west only (i.e. holding the easterly property line)
- Widen to the east only (i.e. holding the westerly property line)

All three alternatives would have similar impacts to cultural and natural environment and would provide similar improvements from a transportation perspective. Therefore, the three alternatives were evaluated based on potential impacts to properties.

The alternative to widen by centreline only and to the east only would impact properties both on the east and west side of Trafalgar Road, including residential properties on the east side of Trafalgar Road north of 10 Side Road. The alternative to widen to the west only would limit the property impacts to the single commercial property in the southwest quadrant of Trafalgar Road / 10 Side Road only. **Therefore, the alternative to widen to the west only at the 10 Side Road intersection was selected as preferred.**



Scale 1:2000



Scale 1:2000



Scale 1:2000