

The majority of this section of the West Mainline crosses Class 1 – 3 lands. Smaller areas of Class 4 – 7 lands and marsh land are crossed in this section and are located within the lower areas and stream channels. One specialty crop area (nursery stock) is affected in this area. The nursery is located on the northwest corner of Highway 7 and Sideline 16. The proposed route would result in the removal of a portion of the cropland and a further severance of a portion of the cropland from the main farm on the north side.

Twenty (20) field crop operations would be affected, resulting in the loss of land and severance of property. One (1) diary livestock operation would be affected. Eighteen (18) farm properties greater than 20 ha would be impacted due to the loss of land and potential severance of property. Fourteen (14) parcels of land greater than 20 ha and 8 parcels less than 20 ha would be created.

Two high investment agricultural operations would be affected. These operations include the nursery identified above and a beef operation located north of the West Mainline and east of Westney Road.

No properties with the potential for site contamination will be impacted in urban areas. However, two (2) properties with the potential for site contamination will be impacted in rural areas. The properties are a small waste debris area (low to moderate potential for contamination) and a gravel pit and debris area (low potential for contamination). No (known) operating or closed waste management facilities will be disturbed by this route segment.

Cultural Environment

There are four archaeological sites within this segment, all situated around node M1. One site is an Aboriginal Archaic campsite; two sites are Aboriginal Late Paleo-Indian, Hi-Lo Findspots; and the fourth is a Euro-Canadian Homestead that has undergone Stage 4 salvage excavation and is considered clear of any further archaeological concern.

The potential for adverse effects to known archaeological sites and areas of archaeological potential are high albeit there may be opportunities for avoidance or mitigation of effects.

The cultural heritage analysis identified fourteen (14) cultural heritage resources including residences, roadscapes, farm complexes and agricultural lands and one built heritage resource that will be displaced or disrupted by the route alternative.

Technical Considerations

This route provides high accessibility to population and employment centres. Full interchanges and transit stations are planned for Brock Road, Westney Road and Salem Road. The preferred 407 alternative is compatible with the proposed Brock Road realignment east of the Village of Brougham and the proposed Westney Road realignment east of the Hamlet of Greenwood.

5.3 Section 2 – West Mainline, Audley Road to Ashburn Road

5.3.1 Net Effects Analysis

The following provides the key net environmental effects for the two routes within Section 2. Refer to the Specialist Reports in **Appendices E through M** and **Supporting Document #1** for additional information.

5.3.1.1 Route WM1

Route WM1 is illustrated in **Figure 5.3**.

Figure 5.3: Route Alternative WM1



Natural Environment

This route crosses a predominantly agricultural area where most of the natural vegetation features have been previously cleared/removed. The most important natural features are associated with the West Lynde Creek and Lynde Creek valley forested systems and to a lesser degree discontinuous riparian and forest cover associated with smaller tributaries. The Lynde Creek crossing is common to both WM1 and WM2.

- West Lynde Creek and Lynde Creek valleys are designated ESAs.
- Large natural areas occur to the south of existing Highway 7 and are associated with the Heber Downs Wetland Complex and adjacent upland forest and thicket communities.
- The West Lynde and Lynde Creek crossings will result in the permanent removal of some forested valley vegetation, however, the crossings are located mainly in cultural meadow and cultural thicket. The new

valley crossings and associated removal of vegetation will also introduce a new disturbance at the valley crossings. Valley openings will be maintained but linkage quality may be reduced somewhat. Design measures to facilitate wildlife passage under the structures have been recommended.

- Several watercourses crossed by the route have high sensitivity fish and fish habitat, including Redside Dace. Overall potential impacts to fish and fish habitat will be greatly reduced by meander belt spanning structures, anticipated avoidance of instream works and implementation of stormwater management measures (e.g. water quality treatment, water quantity control and controlled discharge to creeks).

Summary of net effects:

- 5 permanent watercourse crossings (West Lynde Creek, Lynde Creek and its tributaries).
- 7 intermittent watercourse crossings (1 with low fish sensitivity and others are agricultural swales).
- 1 offline pond within route alternative footprint at Tributary I of Lynde Creek
- 1210 m of fish habitat rated as high sensitivity within the footprint of the route alternative. This habitat is associated with West Lynde Creek, Lynde Creek and its tributaries D, H and I, and supports migratory and resident salmonids and Redside Dace. Confluence of Tributaries F and G (as noted on plates) is located along the edge of the route alternative. Mitigation assumes major bridge spanning across both valleys – i.e. no piers in water.
- 613 m of watercourses with low sensitivity fish and fish habitat within the footprint of the route alternative.
- 1 offline pond of unconfirmed sensitivity fish and fish habitat adjacent to Tributary I of Lynde Creek is within the footprint of the route alternative. The pond is likely a dug irrigation pond.
- 25.0 ha of vegetation removed.
- Potential removal of one Butternut tree located in West Lynde Creek valley forest. However, the exact location of the Butternut relative to the route alternative must be confirmed to determine impact.
- Approximately 1.4 ha of unevaluated wetland vegetation in two communities affected that are small, low to moderate quality mineral meadow marshes or thicket associated with agricultural drains.
- The route alternative is approximately 200-250 m south of a small block of interior forest habitat in West Lynde Creek valley.
- There are no known species of conservation concern or Species at Risk within 50 m of the route alternative.
- 2 new crossings of Lynde Valley-Iroquois Beach ESA at West Lynde Creek and Lynde Creek.
- The West Lynde and Lynde Creek crossings will result in the permanent removal of some forested valley vegetation, however, the crossings are located mainly in cultural meadow and cultural thicket.
- Other tributary crossings are largely agricultural swales with variable (typically weak or no) connectivity to other natural areas.
- Route WM1 covers 115 ha of low permeability soil, crosses 21 ha of high permeability soil, intersects 6 water wells within the route and associated interchange footprints, and, intersects 21 shallow water wells in low permeability soil and 5 shallow water wells in high permeability soil within 500 m of the route and associated interchange footprints.

Social Environment

There are low impacts with respect to the community fabric indicator for the north route from Audley Road to Ashburn Road. The route slightly encroaches on an established settlement area. The route does not affect the planned or approved community structure of the area. The route may have a low impact on the delivery of community services. The route does not impact any recreational opportunities.

Property impacts are moderate given that there are a total of 25 properties affected and a total of five residential displacements.

There are 88 noise sensitive receptors that could potentially be impacted by this route alternative and 71 sensitive receptors that could potentially be impacted from an air quality perspective.

Summary of net effects:

- Slight encroachment on community of Kinsale
- No net effects on recreational opportunities
- 25 property affected, including 5 residential displacements
- 88 noise sensitive receptors
- 71 air quality sensitive receptors

Land Use/Economic Environment

The north route has a high degree of compatibility with the Provincial/Municipal and private land use development strategies. The route was identified in the Durham Regional Official Plan and Town of Whitby Official Plan.

The route located at the northern limits of the Town of Whitby provides for a new defined boundary for the limits of development within the Town of Whitby and may result in stimulating further development in this location.

With respect to non-farm commercial activities, this route displaces a nursery and orchard. The nursery operation is relatively small and does not appear to sell to the public. There may be increased exposure for an industrial storage facility.

The majority of this section of the West Mainline crosses Class 1 – 3 lands. Smaller areas of Class 4 – 7 lands are crossed in this section and are located within the lower areas and stream channels.

One specialty crop area (nursery stock) is affected in this area. The nursery is located on a small parcel of land on the east side of Country Lane. A portion of this parcel will be consumed by this route alternative while the remaining portion would be considered a severance.

Two livestock operations would be affected on this proposed route. The proposed route would sever a portion of the field crop operations from the main farm buildings, but not affect the buildings directly.

Fourteen (14) field crop operations would be affected, resulting in the loss of land and severance of property. Twelve (12) farm properties greater than 20 ha would be impacted due to the loss of land and potential severance of property. Ten (10) parcels of land greater than 20 ha and 13 parcels less than 20 ha would be created.

Two high investment agricultural operations would be affected. One is a livestock operation located west of Cochrane Street and north of Highway 7. This route would result in a severance of a portion of the field operations from the main farm buildings. The other operation is a large livestock complex including numerous concrete silos, metal grain bins, large barns and machine sheds located north of Highway 7 and west of Ashburn Road.

No properties with the potential for site contamination will be directly impacted by this route segment in urban or rural areas. In addition, no (known) operating or closed waste disposal sites will be disturbed.

Summary of net effects:

- High compatibility with the provincial/municipal and private land use development strategies
- Displaces one business (nursery / orchard)
- One specialty crop area affected
- Two livestock operations and fourteen field crop operations affected
- Two high investment agricultural operations affected
- No properties with potential for site contamination directly impacted

Cultural Environment

There are no known archaeological sites but there is a high archaeological potential. The potential for adverse effects to known archaeological sites is low while there is a potentially high net effect for areas of archaeological potential.

Route WM1 will displace or disrupt eight (8) cultural heritage landscapes and two (2) built heritage resources.

Technical Considerations

WM1 is highly accessible to population and employment centres. Full interchanges can be accommodated at Salem Road and at Cochrane Street with a freeway to freeway interchange connecting Highway 407E and the West Link either west of Lakeridge Road (node W24) or at Lakeridge Road (node W25). Partial diamond interchanges can be accommodated at Lakeridge Road and Cochrane Street with a freeway to freeway interchange connecting Highway 407E and the West Link east of Lakeridge Road (node W26). The partial interchange at Lakeridge Road would allow N/S-W and W-N/S traffic movements. The partial interchange at Cochrane Street would allow N/S-E and E-N/S traffic movements

The areas where traffic nuisance could be experienced are the communities of Kinsale, Macedonian Village and Brooklin. Low volumes of traffic in the vicinity of Lakeridge Road could be diverted east or west to the interchanges at Salem Road and Cochrane Street.

The preliminary construction cost for WM1 is approximately \$129M.

Summary of net effects:

- High transportation compatibility
- High accessibility to population and employment centres

5.3.1.2 Route WM2

Route WM2 is illustrated in **Figure 5.4**.

Figure 5.4: Route Alternative WM2



Natural Environment

This route crosses a predominantly agricultural area where most of the natural vegetation features have been previously cleared/removed. The most important natural features are associated with the West Lynde Creek and Lynde Creek valley forested systems and to a lesser degree discontinuous riparian and forest cover associated with smaller tributaries. The Lynde Creek crossing is common to both WM1 and WM2.

- West Lynde Creek and Lynde Creek valleys are designated ESAs.
- Large natural areas occur to the south of existing Highway 7 and are associated with the Heber Downs Wetland Complex and adjacent upland forest and thicket communities.
- The West Lynde and Lynde Creek crossings will result in the permanent removal of some forested valley vegetation, however, the crossings are located mainly in cultural meadow and cultural thicket. The new valley crossings and associated removal of vegetation will also introduce a new disturbance at the valley crossings. Valley openings will be maintained but linkage quality may be reduced somewhat. Design measures to facilitate wildlife passage under the structures will be investigated in the design stage.
- Several watercourses crossed by the route alternative have high sensitivity fish and fish habitat, including Redside Dace. Overall potential impacts to fish and fish habitat will be greatly reduced by meander belt spanning structures, anticipated avoidance of instream works and implementation of stormwater

management measures (e.g. water quality treatment, water quantity control and controlled discharge to creeks).

This route alternative requires realignment of existing Highway 7. The proposed realignment is problematic from a natural environmental perspective as the potential to negatively affect natural features and aquatic resources is high. The route alternative and Highway 7 ramp overlie two parallel sections of West Lynde Creek. Valley slopes in this area are steep and susceptible to erosion. Mitigation such as spanning structures will be challenging to design in this location.

Other ramps located on the west side of Cochrane Street will remove forested vegetation and sever forest and thicket habitat from the larger contiguous natural area of the Heber Downs PSW.

The interchange footprint at Cochrane Street encompasses an extremely long length of Tributary I, which provides known Redside Dace habitat.

Summary of net effects:

- 5 permanent watercourse crossings (West Lynde Creek, Lynde Creek and its tributaries) including a major encroachment on Tributary I of Lynde Creek.
- 7 intermittent watercourse crossings (2 with low fish sensitivity, 2 with unconfirmed fish sensitivity and 3 with no potential to directly support a fishery).
- At least 8 additional crossings associated with the required future Highway 7 realignment and ramps.
- At least 5 ponds (offline/online) within route alternative footprint. Most are likely irrigation ponds.
- 2530 m of fish habitat rated high in sensitivity being crossed. Large “S” meander bend of West Lynde Creek just south of existing Highway 7 is very problematic for the proposed realignment of Highway 7. Long reach of Tributary I of Lynde Creek (Redside Dace habitat) encompassed by interchange footprint. Assumes major bridge spanning valleys – no piers in water. However other realignment and ramp works would affect high sensitivity fish habitat - high relative net affects assumed.
- 374 m of watercourses with low fish and fish habitat sensitivity within the footprint of the route alternative.
- At least 5 ponds and 114 m of watercourse (Tributaries J/K) with unconfirmed fish and fish habitat sensitivity within route alternative footprint. Tributaries J/K outlet to Tributary I, which has been confirmed as supporting Redside Dace habitat.
- 28.3 ha of vegetation removed.
- Potential removal of two Butternuts located in West Lynde Creek valley forest. However, the exact location of the Butternut relative to the route alternative must be confirmed to determine impact.
- Approximately 7.0 ha of unevaluated wetland vegetation in three communities of low to moderate quality that are predominantly small thicket/meadow marsh units associated with agricultural drains.
- Areas of the route alternative are within 120 m of the Heber Downs PSW and an unevaluated wetland southeast of Winchester Road and Lake Ridge Road.
- Approximately 5 new crossings of the Lynde Valley-Iroquois Beach ESA.
- 2 new crossings of major linkages.
- Route WM2 covers 105 ha of low permeability soil, crosses 61 ha of high permeability soil, intersects 9 water wells within the route and associated interchange footprints, and, intersects 24 shallow water wells in low permeability soil and 7 shallow water wells in high permeability soil within 500 m of the route and associated interchange footprints.

Social Environment

There are moderate impacts with respect to the community fabric indicator for the south route from Audley Road to Ashburn Road. The route would encroach on the community of Kinsale and the Macedonian Village. The route may have a low impact on the delivery of community services. There is a high impact in regards to recreational opportunities as the route displaces a golf centre located at Winchester Road and Coronation Road.

Property impacts are high given that there are a total of 37 properties affected and a total of 14 residential displacements.

There are 90 noise sensitive receptors that could potentially be impacted by this route alternative, including one critical receptor, a daycare facility in the area of influence. Similarly, there are 78 sensitive receptors that could potentially be impacted from an air quality perspective, including one critical receptor.

Summary of net effects:

- Encroaches on community of Kinsale and Macedonian Village
- Displaces a golf centre
- 37 properties affected, including 14 residential displacements
- 90 noise sensitive receptors, including one critical receptor
- 78 air quality sensitive receivers, including one critical receptor

Land Use/Economic Environment

The south route has a moderate degree of compatibility with the provincial/municipal and private land use development strategies.

This south route displaces a golf centre resulting in a higher negative impact for this route alternative. There is a higher potential for increased business exposure for the industrial storage facility and a nursery/tree farm for this route alternative.

The majority of this section of the West Mainline crosses Class 1 – 3 lands. Smaller areas of Class 4 – 7 lands are crossed in this section and are located within the lower areas and stream channels.

One specialty crop area (orchard) is affected in this area. The orchard area is located on a small parcel of land on the north side of Highway 7 east of Coronation Road. This parcel will be consumed by this proposed route. Three livestock operations would be affected on this proposed route.

Twelve (12) field crop operations would be affected, resulting in the loss of land and severance of property. Nine (9) farm properties greater than 20 ha would be impacted due to the loss of land and potential severance of property. Six (6) parcels of land greater than 20 ha and 13 parcels less than 20 ha would be created.

Three high investment agricultural operations would be affected. One is a livestock operation located west of Cochrane Street and north of Highway 7. This route would result in the consumption of a portion of the field operations and the main farm buildings. The second operation is a large livestock complex including numerous

concrete silos, metal grain bins, large barns and machine sheds located north of Highway 7 and west of Ashburn Road. This route would result in a consumption of a portion of the field operations. The third operation is a livestock operation with large barns, concrete silos and ancillary buildings located south of Highway 7 and west of Ashburn Road. This route would result in a severance of a portion of the field operations from the main farm buildings.

No properties with the potential for site contamination will be directly impacted by this route segment in urban or rural areas. A fuel service station in a rural area is located adjacent to an arterial road associated with this route segment, but it will not be directly impacted.

One (1) closed waste disposal site will be directly impacted by this route segment. The closed waste disposal site has a high potential for site contamination. Under the Environmental Protection Act (EPA), no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order.

Summary of net effects:

- Moderate compatibility with the provincial/municipal and private land use development strategies
- Displaces one business (golf centre)
- One specialty crop area (orchard) is affected
- Three livestock operations and twelve field crop operations affected
- Three high investment agricultural operations affected
- No properties with potential for site contamination will be impacted; one closed waste disposal site will be directly impacted

Cultural Environment

One Aboriginal findspot is known within 50 m of this route segment and more than 50% of the segment is identified as having archaeological potential. The potential for adverse effects to known archaeological sites is low while there is a potentially high net effect for areas for archaeological potential.

Route WM2 will displace or disrupt nine (9) cultural heritage landscapes and two (2) built heritage resources.

Technical Considerations

WM2 is moderately compatible with the existing and planned road network. Realignment of Highway 7 is required in order to accommodate the freeway to freeway interchange S-E ramp, the 170 metre right-of-way for Highway 407E and to achieve desirable separation between the intersection of Highway 7/Cochrane Street and the Highway 407E partial diamond interchange at Cochrane Street.

The areas where traffic nuisance could be experienced are the communities of Kinsale, Macedonian Village and Brooklin. Low volumes of traffic in the vicinity of Lakeridge Road could be diverted east or west to the interchanges at Salem Road and Cochrane Street.

WM2 provides medium accessibility to population and employment centres. A full interchange can be accommodated at Salem Road and a partial interchange can be accommodated at Cochrane Street with a freeway to freeway interchange at Lakeridge Road (node W25) or east or west of Lakeridge Road (nodes W24 and W26). A partial diamond interchange can be accommodated at Lakeridge Road with a freeway to freeway interchange east of Lakeridge Road (node W26). The partial interchange at Lakeridge Road would allow N/S-W and W-N/S traffic movements. The partial interchange at Cochrane Street would allow N/S-E and E-N/S traffic movements.

The preliminary construction cost for Alternative WM2 is approximately \$133M.

Summary of net effects:

- Highway 7 requires significant realignment to accommodate Highway 407E and the Highway 407E/West Link interchange.
- Only a partial interchange can be accommodated at Cochrane Street

5.3.2 Comparative Evaluation

5.3.2.1 Reasoned Argument Results

The reasoned argument evaluation results for Section 2, the West Mainline from Audley Road to Ashburn Road, are summarized below, with the details provided in **Supporting Document #1**.

Natural Environment

Route WM1 was ranked first compared to Route WM2 from a Natural Environment Factor perspective because it has lower groundwater quality changes, has lower watercourse crossings, affects half the length of highly sensitive fish habitat, removes significantly less unevaluated wetlands, has fewer new crossings of ESAs, and does not sever and isolate a forest.

Social Environment

Route WM1 was ranked first compared to Route WM2 from a Social Environment Factor perspective because it has lower net property, noise, and air quality effects.

Land Use/Economic Environment

Although the South Route WM2 is slightly better in terms of agriculture, the North Route WM1 was ranked first from an Economic Environment Factor perspective because it is more compatible with Provincial and Municipal planning goals/objectives/policies and has lower net effects on businesses (relatively small scale nursery/orchard displaced versus a golf centre).

Technical Considerations

Routes WM1 and WM2 are the same for Overall System Performance, Transportation System Connectivity, Emergency Access and Cost. WM1 is preferred over WM2 since WM1 has higher Transportation System

Compatibility, offers higher Accessibility, requires fewer road realignments and allows for an interchange at Highway 7.

Overall Ranking and Rationale for the West Mainline

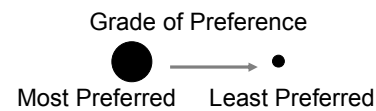
In summary, Route WM 1 is recommended for the following primary reasons:

- Minimizes effects on sensitive watercourses, forested valley habitat, ESA's and other natural heritage features.
- Impacts fewer residential and business properties.
- Requires fewer and less significant local road realignments and allows for an interchange at Highway 7, a key east-west arterial road.

Table 5.2 provides a visual representation of the evaluation results.

Table 5.2: Visual Representation of Reasoned Argument Evaluation Results for Section 2, West Mainline from Audley Road to Ashburn Road

Factor Area	Alternative	WM1	WM2
Natural		●	●
Social		●	●
Land Use /Economic		●	●
Cultural		●	●
Technical		●	●
		Rec'd	Not Rec'd



5.3.2.2 Arithmetic Results

The arithmetic evaluation results for Section 2 confirmed that Route WM1 is the Technically Recommended Route from Audley Road to Ashburn Road. Route WM1 ranked first for all Factor areas based on the initial weightings as well as with the various alternate weightings considered as part of the sensitivity testing. The arithmetic evaluation results are summarized in **Table 5.3**, with the details provided in **Supporting Document #1**.

Table 5.3: Arithmetic Evaluation Results for Section 2, West Mainline from Audley Road to Ashburn Road

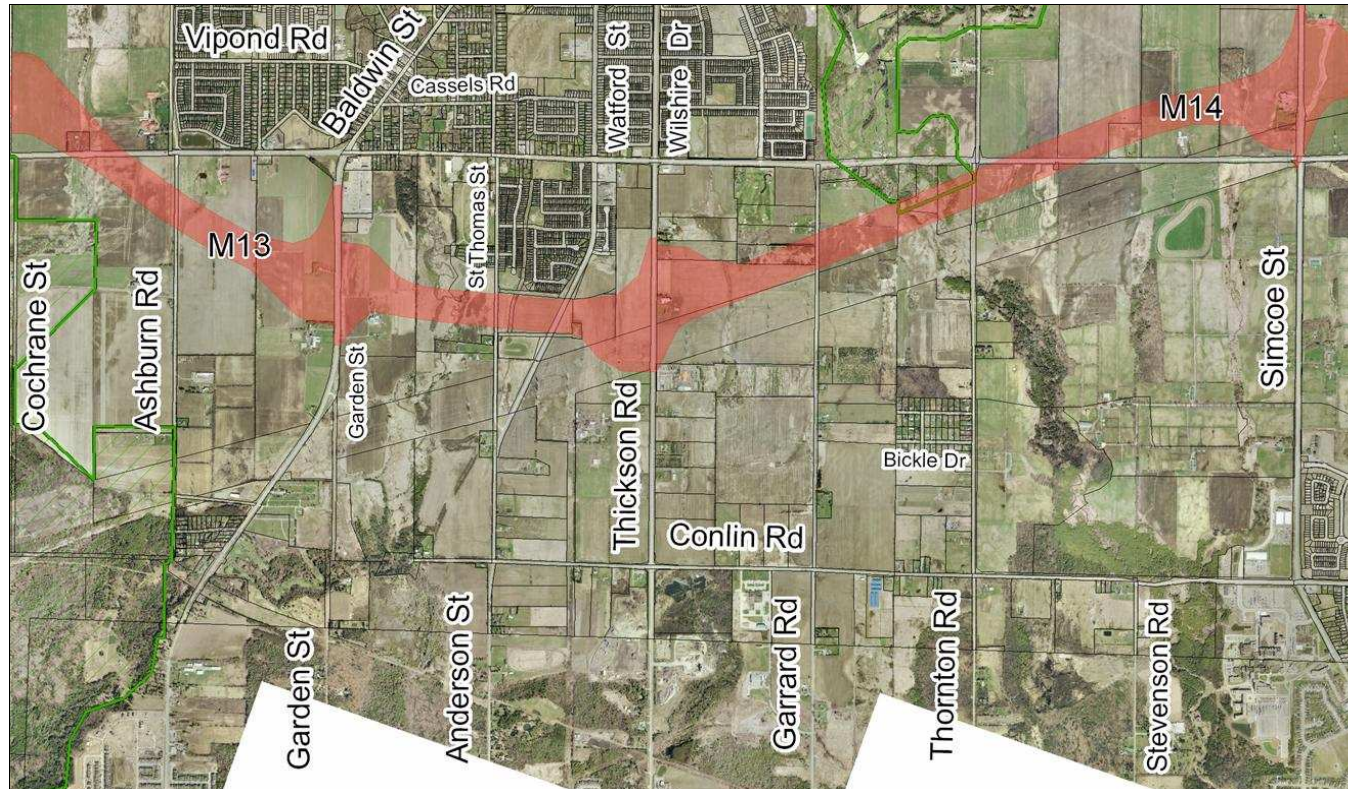
Factor		Rankings Based on Initial Weights	
		Alternative WM1	Alternative WM2
Natural Environment (40%)		1	2
Social Environment (20%)		1	2
Land Use/Economic Environment (25%)		1	2
Cultural Environment (5%)		1	2
Technical Considerations (10%)		1	2
Overall Ranking		1	2
Sensitivity Analysis			
Factor		Rankings Based on Alternate Weights	
		Alternative WM1	Alternative WM2
Natural Environment	High (50%)	1	2
Natural Environment	Low (20%)	1	2
Social Environment	High (40%)	1	2
Social Environment	Low (10%)	1	2
Economic Environment	High (40%)	1	2
Economic Environment	Low (10%)	1	2
Cultural Environment	High (10%)	1	2
Cultural Environment	Low (5%)	1	2
Technical Environment	High (10%)	1	2
Technical Environment	Low (5%)	1	2
Stakeholder Weights		1	2
Overall Ranking		1	2

5.4 Section 3 – Central Mainline, Ashburn Road to Simcoe Street

5.4.1 Net Effects Analysis

The following provides the key net environmental effects for the single route within Section 3 as illustrated in **Figure 5.5**. Refer to the Specialist Reports in **Appendices E through M** for additional information.

Figure 5.5: Central Mainline Alternative, Ashburn Road to Simcoe Street



Natural Environment

The west portion of the route segment occurs just south of the expanding settlement area of Brooklin. To the east, land use is predominately agricultural and rural. Within this landscape, most of the natural vegetation features have been previously cleared/removed. Remnant and therefore important natural areas are associated with the Lynde Creek and Oshawa Creek valley systems. Large natural core areas associated with each of these systems are present approximately 2 km south.

Both valley crossings are located in anthropogenically influenced vegetation communities (cultural meadow, cultural thicket) and open areas with limited forest valley cover. Even so, the route segment does encompass narrow strips of forested valley along Oshawa Creek, which are more sensitive to disturbance than open meadow and thicket.

Only two watercourses crossed by the route have fish and fish habitat. Lynde Creek and Oshawa Creek are both permanent watercourses and are considered to provide fish habitat with high sensitivity, including migratory and resident salmon and trout species. Overall potential impacts to fish and fish habitat will be greatly reduced by meander belt spanning structures, anticipated avoidance of instream works and implementation of stormwater management measures (e.g. water quality treatment, water quantity control and controlled discharge to creeks). Appropriate mitigation measures will be developed during the subsequent design stages to protect fish habitat.

Summary of net effects:

- 2 permanent watercourse crossings at Oshawa Creek West and Lynde Creek
- 7 intermittent watercourse crossings: 6 are agricultural swales and 1 is an ephemeral drainage area with no defined channel
- 631 m of high sensitivity fish habitat being crossed associated with Lynde Creek and Oshawa Creek. West, including spawning habitat for migratory and resident trout and salmon species
- Removal of a total of approximately 15.5 ha of terrestrial vegetation communities (includes 3.6 ha of upland deciduous, mixed and conifer forest and 12.9 ha of culturally influenced features (including meadow and thicket) of low to moderate quality)
- No known flora species of conservation concern are present
- Less than 0.1 ha of unevaluated wetland vegetation removed in one low quality thicket community
- No interior forest is removed by the route alternative
- No known wildlife species of conservation concern or Species At Risk within 50 m of route alternative
- 2 ESA crossings: Upper Lynde Creek to Chalk Lake and Oshawa Creek ESA. Recreational trails and restoration/stewardship planting sites are present in the Upper Lynde Creek ESA north of the route alternative
- 2 major linkages are crossed by the route alternative
- The west mainline route from Ashburn Road to Simcoe Street covers 108 ha of low permeability soil, crosses 13 ha of high permeability soil, intersects 3 water wells within the route and associated interchange footprints, and, intersects 11 shallow water wells in low permeability soil and 5 shallow water wells in high permeability soil within 500 m of the route and associated interchange footprints.

Social Environment

There are low impacts to the community fabric indicator for this route alternative extending from Ashburn Road to Simcoe Street. The route does not encroach on or sever established or proposed settlement areas however the route does create a barrier effect between the community of Brooklin to the community of Whitby to the south.

The route does not have any effect on hiking, hunting, fishing, nature viewing or educational opportunities.

There is a moderate impact on property as there are a total of 29 property impacts, including 8 residential displacements for this route alternative.

There are 100 noise sensitive receptors that could potentially be impacted by this route segment and 89 sensitive receptors that could potentially be impacted from an air quality perspective.

Land Use/Economic Environment

This route has a high degree of compatibility with the Provincial/municipal and private land use development strategies. The route was identified in the Durham Regional Official Plan and Town of Whitby Official Plan.

The route has a low impact on non-farm commercial activities as the route displaces an Industrial storage facility located on Thickson Road. There is potential for increased business exposure for two golf courses located north and south of Winchester Road, a plaza located east of Montgomery Avenue, a coffee shop/gas station located at

Winchester and Thicksen Road, a home building centre located at Winchester Road, a gas station and animal clinic located along Winchester Road.

The majority of this section of the Central Mainline crosses Class 1 – 3 lands. Smaller areas of Class 4 – 7 lands are crossed in this section and are located within the lower elevation areas and stream channels.

No specialty crop areas were affected in this area. Two (2) dairy/livestock operations would be affected. Seventeen (17) field crop operations would be affected, resulting in the loss of land and severance of property. Seven (7) farm properties greater than 20 ha would be impacted due to the loss of land and potential severance of property. Seven (7) parcels of land greater than 20 ha and three (3) parcels less than 20 ha would be created.

Two (2) high investment agricultural operations would be affected. These operations included two livestock operations located west of County Road 12 south of Highway 7 and east of County Road 12 south of Highway 7. Both operations comprise large barns, concrete silos and ancillary buildings. The proposed route will sever the farm buildings from portions of the land base for the farm operation on the west side of County Road 12. The farm on the east side of County Road 12 will be severed and portions of the farm buildings will be consumed.

No properties with the potential for site contamination will be directly impacted by this route segment in urban areas. However, one (1) property with the potential for site contamination will be directly impacted by this route segment in a rural area. The property is a landscaping and gardening supply centre with a high potential for site contamination.

One (1) former waste disposal site will be disturbed by this route segment, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order.

Cultural Environment

There are no known archaeological sites but more than 50% of the segment is identified as having archaeological potential. The potential for adverse effects to known archaeological sites is low while there is a potentially high net effect for areas of archaeological potential.

Fourteen (14) cultural heritage landscapes and zero (0) built heritage resources will be displaced or disrupted by this route alternative.

Technical Considerations

This route is highly accessible to population and employment centres. Full interchanges can be accommodated at Brock Street, Thicksen Road and Simcoe Street. Traffic nuisance could be experienced for the community of Brooklin.

Summary of net effects:

- High transportation compatibility
- High accessibility to population and employment centres

5.5 Section 4 – Central Mainline, Simcoe Street to Enfield Road

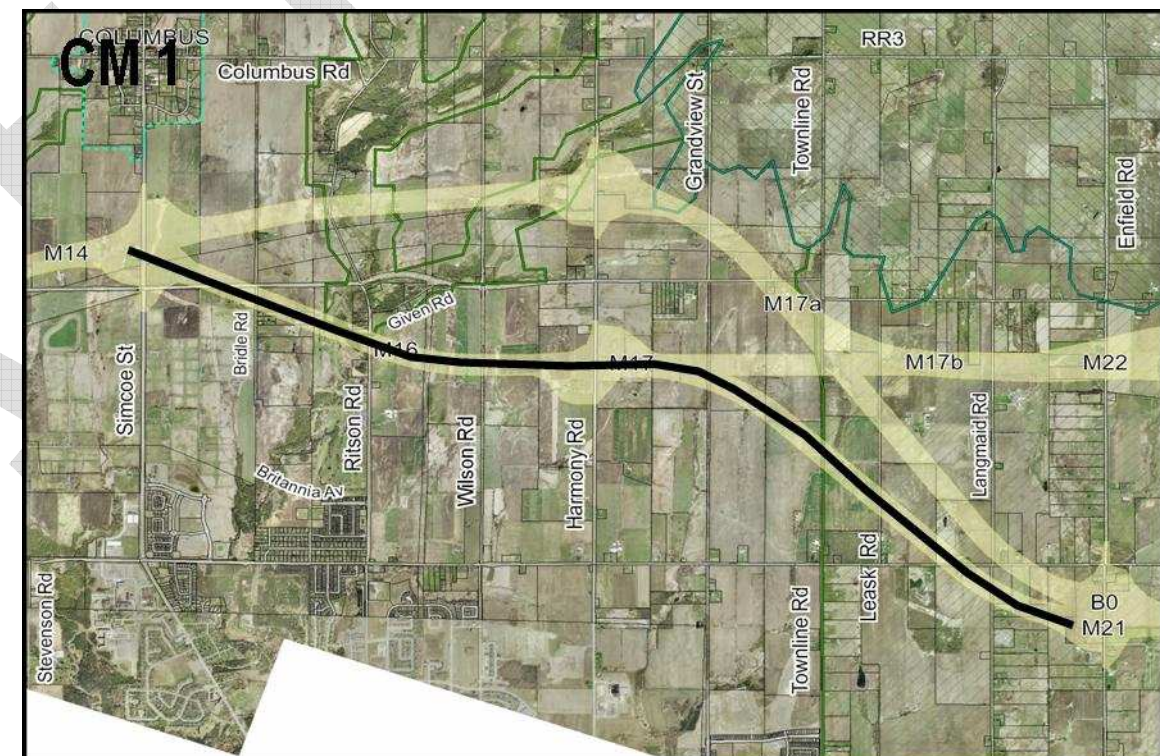
5.5.1 Net Effects Analysis

The following provides the key net environmental effects for the two routes within Section 4. Refer to the Specialist Reports in **Appendices E through M** and **Supporting Document #2** for additional information.

5.5.1.1 Route CM1

Route CM1 is illustrated in **Figure 5.6**.

Figure 5.6: Route Alternative CM1



Natural Environment

This route crosses a predominantly agricultural area where most of the natural vegetation features have been previously cleared/removed. Given the high level of anthropogenic influence in this setting, the most important natural feature is the valley system associated with Oshawa Creek East. It is noted that at the route crossing location, the valley system consists of discontinuous remnant patches of valley forest in a golf course setting.

The new valley crossing will result in the permanent removal of some valley vegetation that includes woodland and open golf course turf/scattered trees.