APPENDIX D

Segments D and E: East of East Limit of Stratford to East of Road 106

Environmental Considerations Mapping: Preliminary Design Map for Recommended Plan and Close-up Maps of Crossing Road Intersection Treatment Alternatives

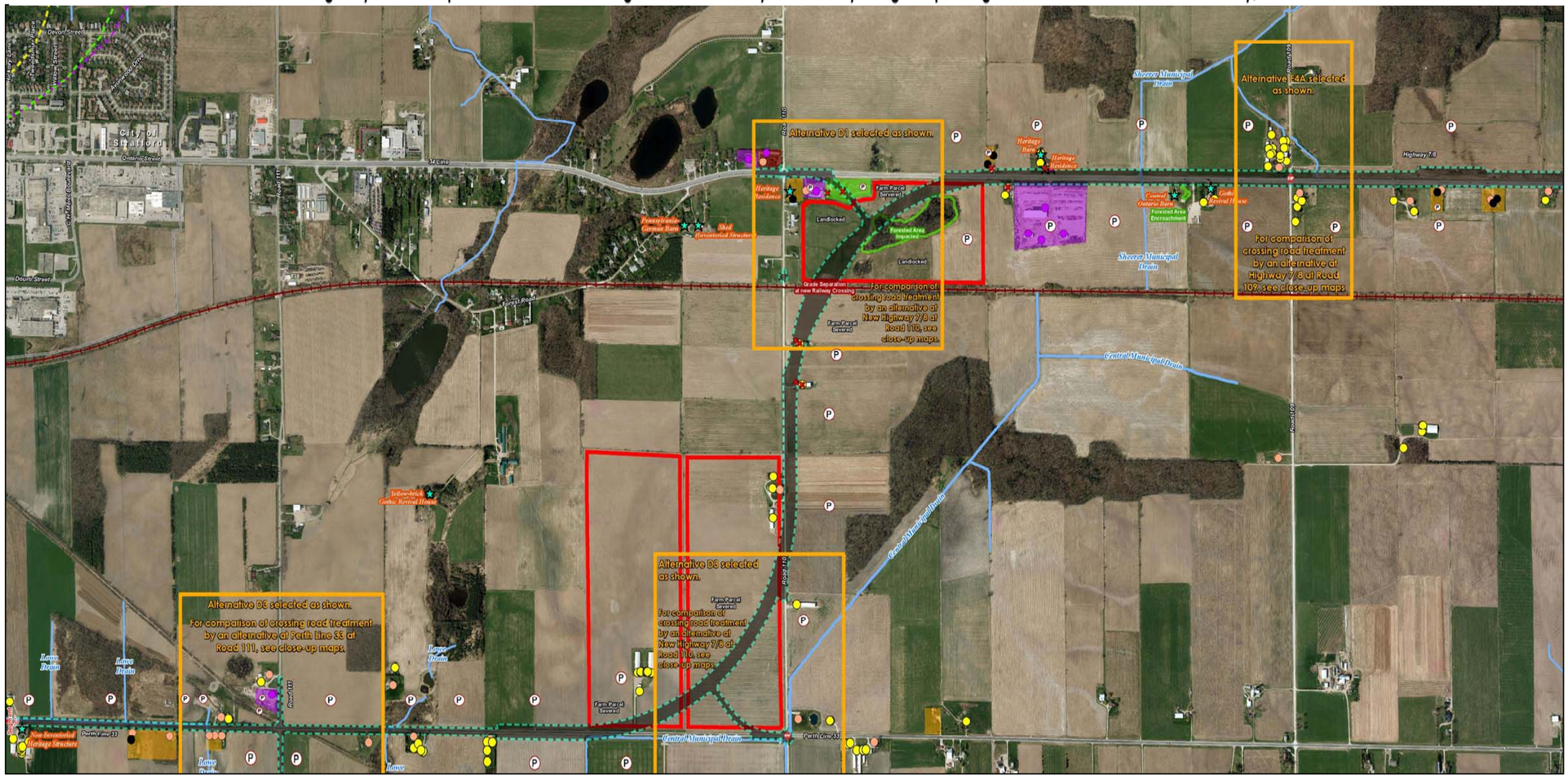
Preliminary Design Alternatives Assessment and Evaluation Table

APPENDIX D

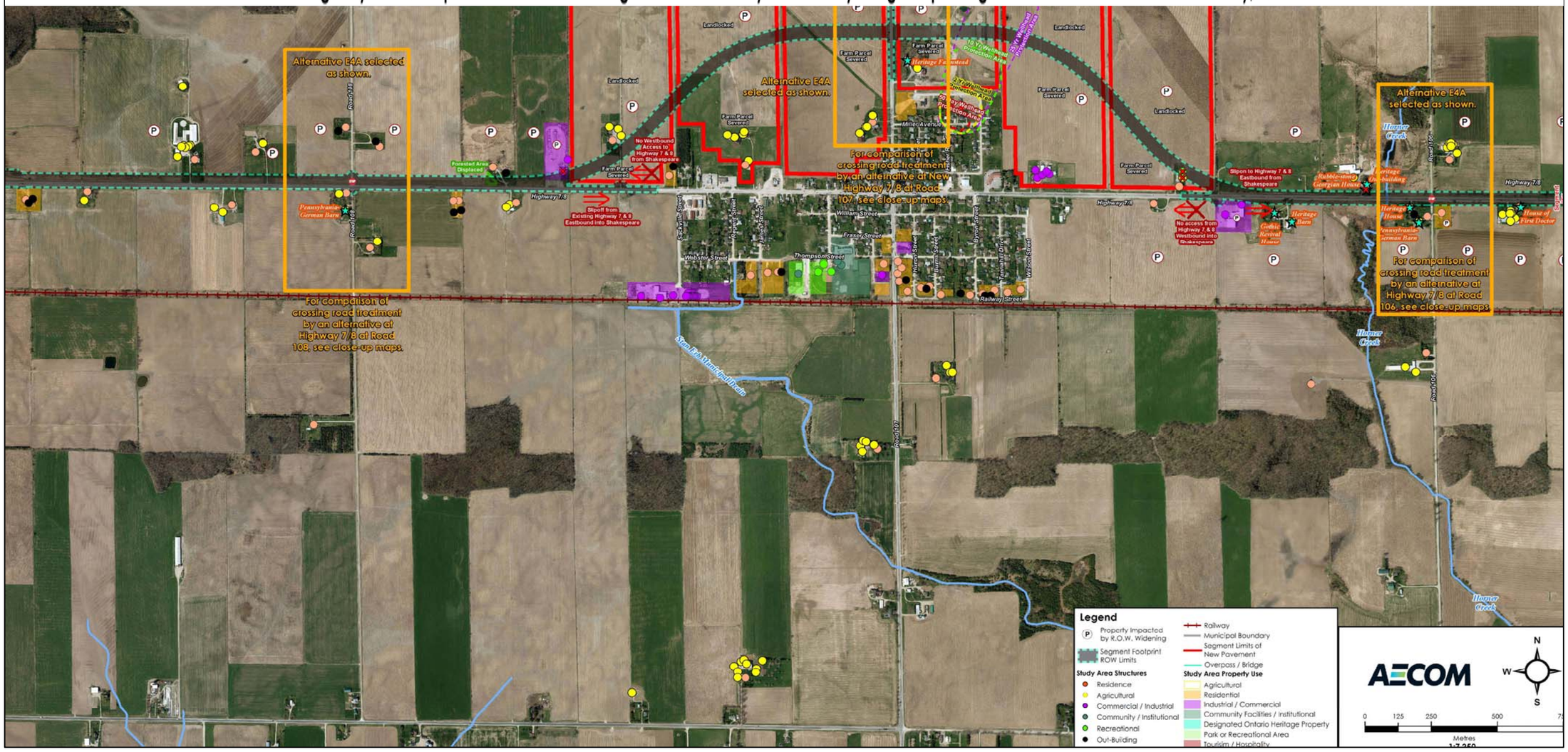
Segments D and E: East of East Limit of Stratford to East of Road 106

North Bypass Preliminary Design Alternatives

Highway 7 & 8 Transportation Corridor Planning and Class EA Study - Preliminary Design Map of Segment D and E - North Alternative - July, 2013



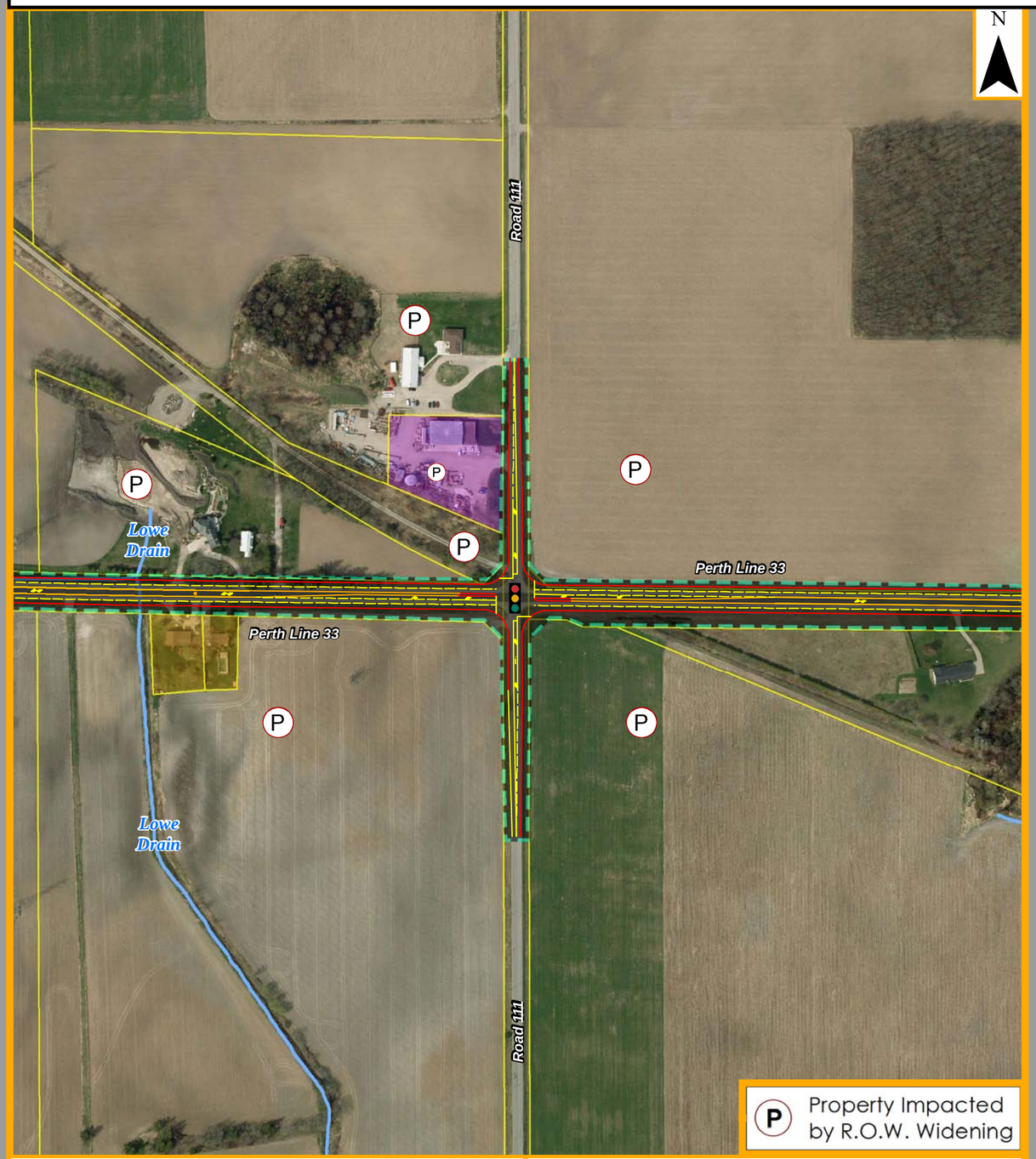
Highway 7 & 8 Transportation Corridor Planning and Class EA Study - Preliminary Design Map of Segment D and E - North Alternative - July, 2013



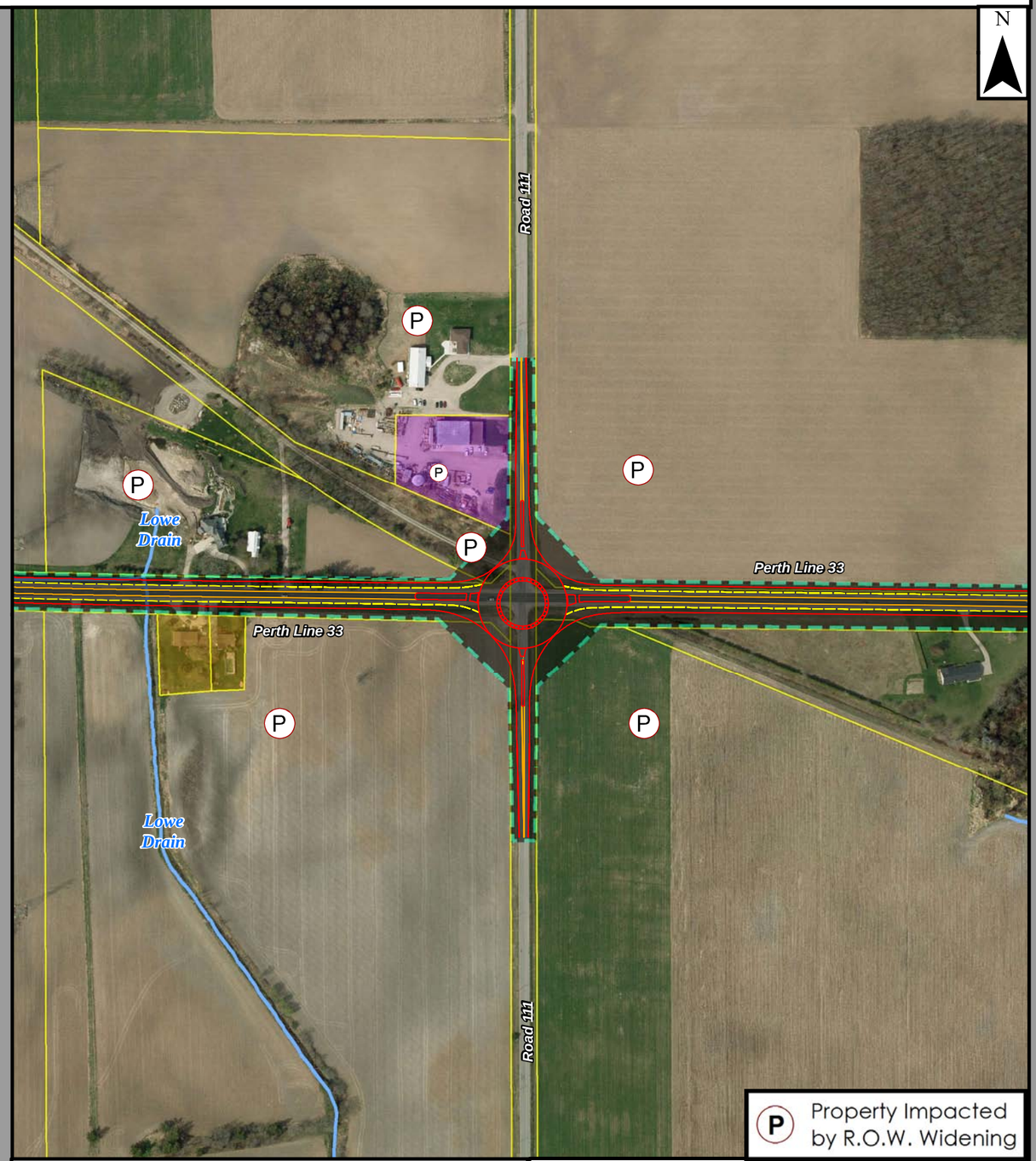
Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment D - North Alternative - 1 of 3 (July, 2013)

Perth Line 33 at Road 111



Selected Alternative D3 - Signalized intersection



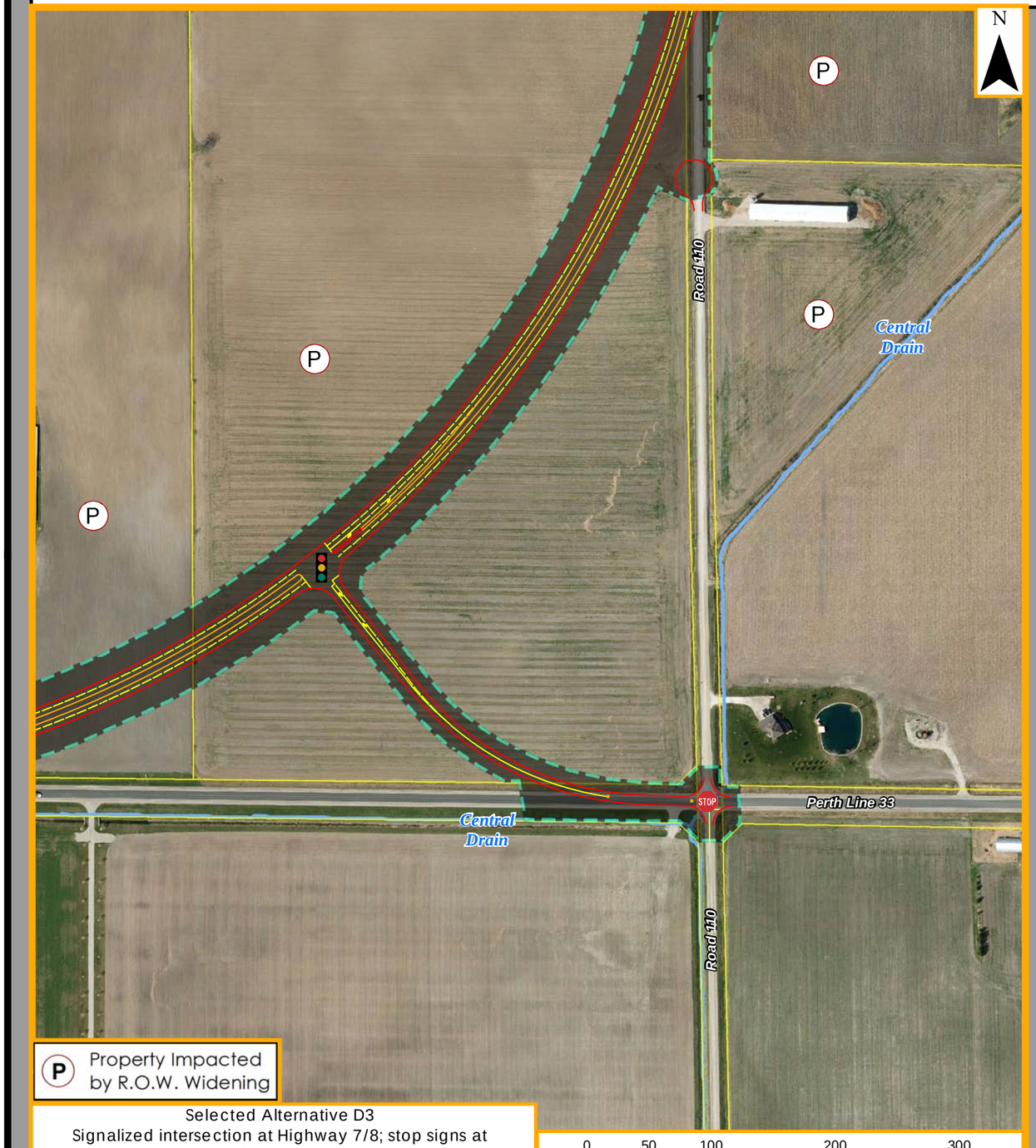
Alternative D4 - 2-Lane roundabout

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegDN_1_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment D - North Alternative - 2 of 3 (July, 2013)

Perth Line 33 at Road 110



P Property Impacted by R.O.W. Widening

Selected Alternative D3
Signalized intersection at Highway 7/8; stop signs at Perth Line 33 / Road 110 intersection; Road 110 cul-de-sac just south of Highway 7/8

P Property Impacted by R.O.W. Widening

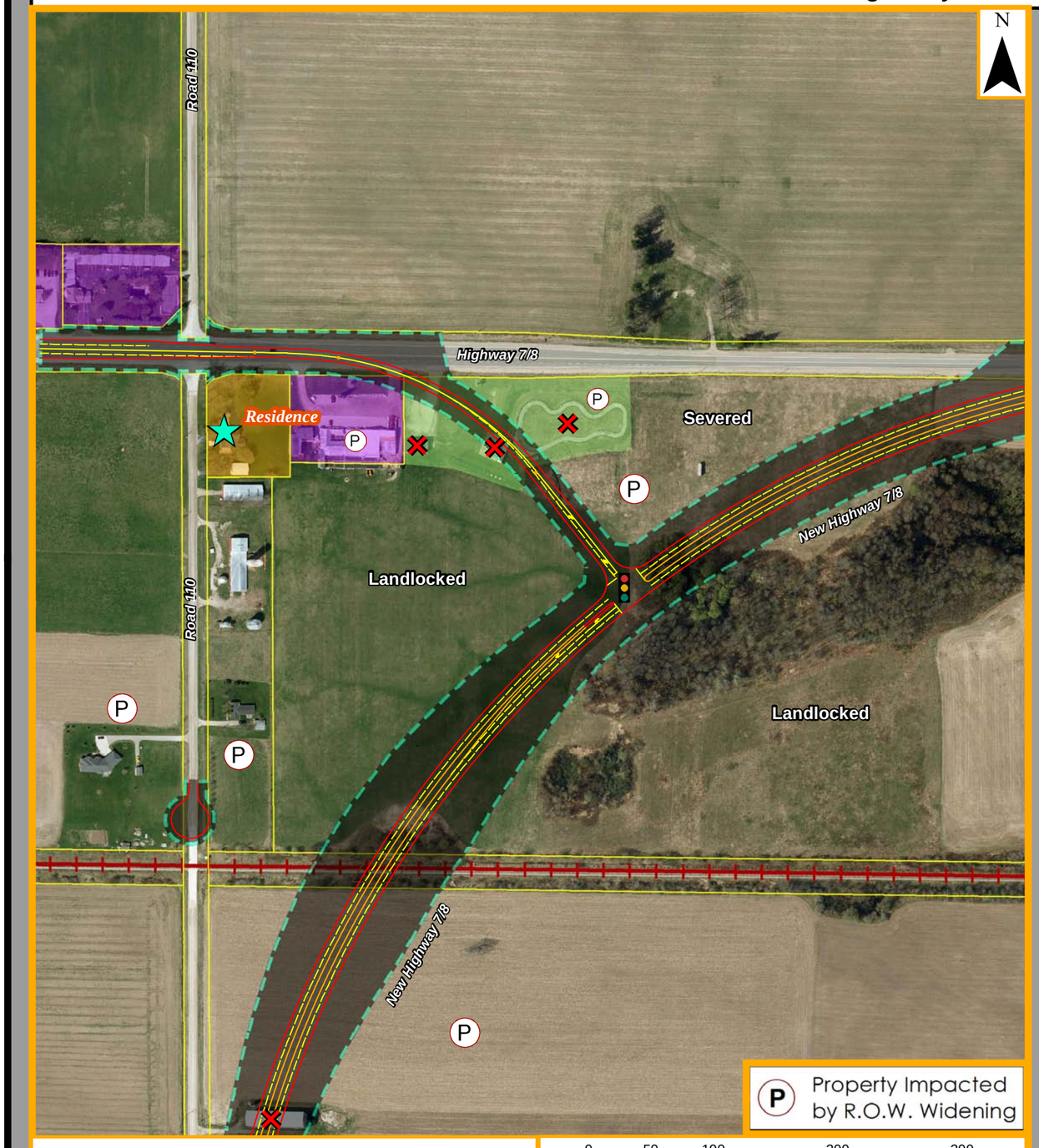
Alternative D4
Roundabout at Highway 7/8; stop sign at Line 33 / Road 110 intersection; Road 110 cul-de-sac just south of Highway 7/8.

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegDN_2_Intersection_Group_Map_20130409.mxd

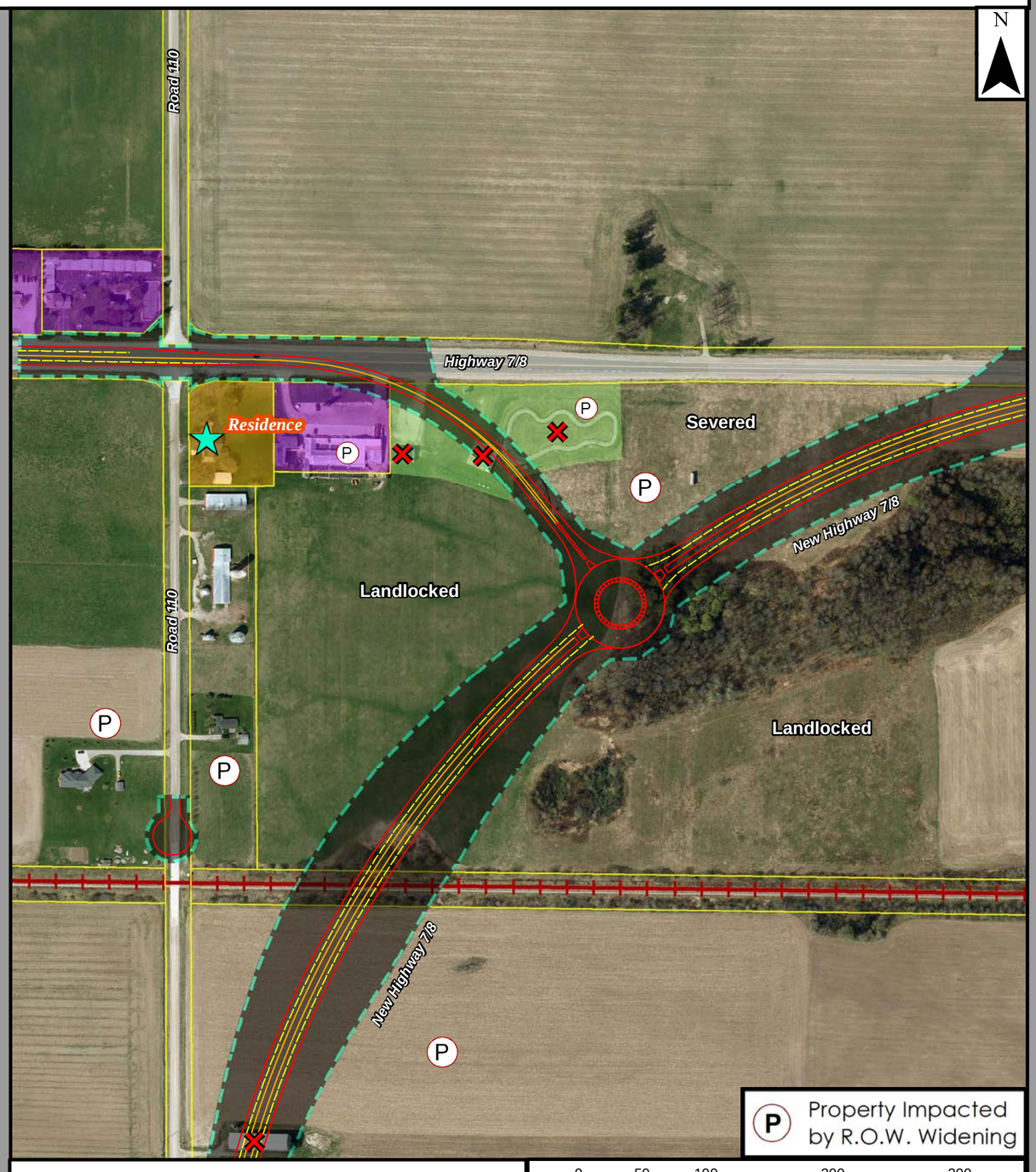
Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment D - North Alternative - 3 of 3 (July, 2013)

Highway 7/8 at Road 110



Selected Alternative D3 - Signalized intersection



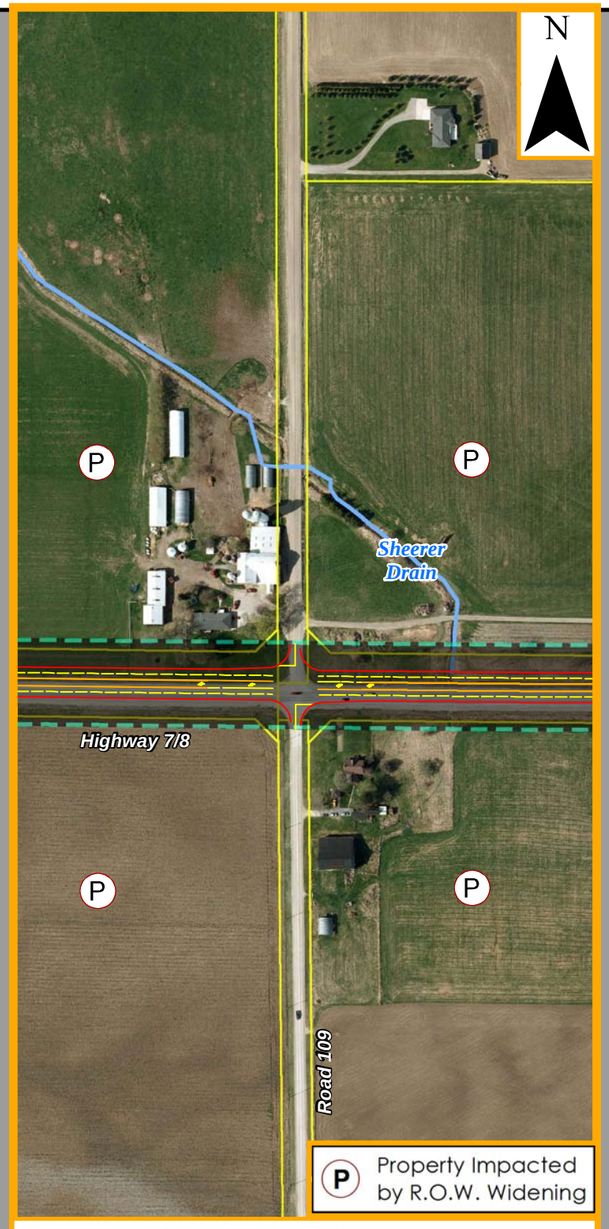
Alternative D4 - 2-Lane roundabout

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegDN_3_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - North Alternative - 1 of 4 - (July, 2013)

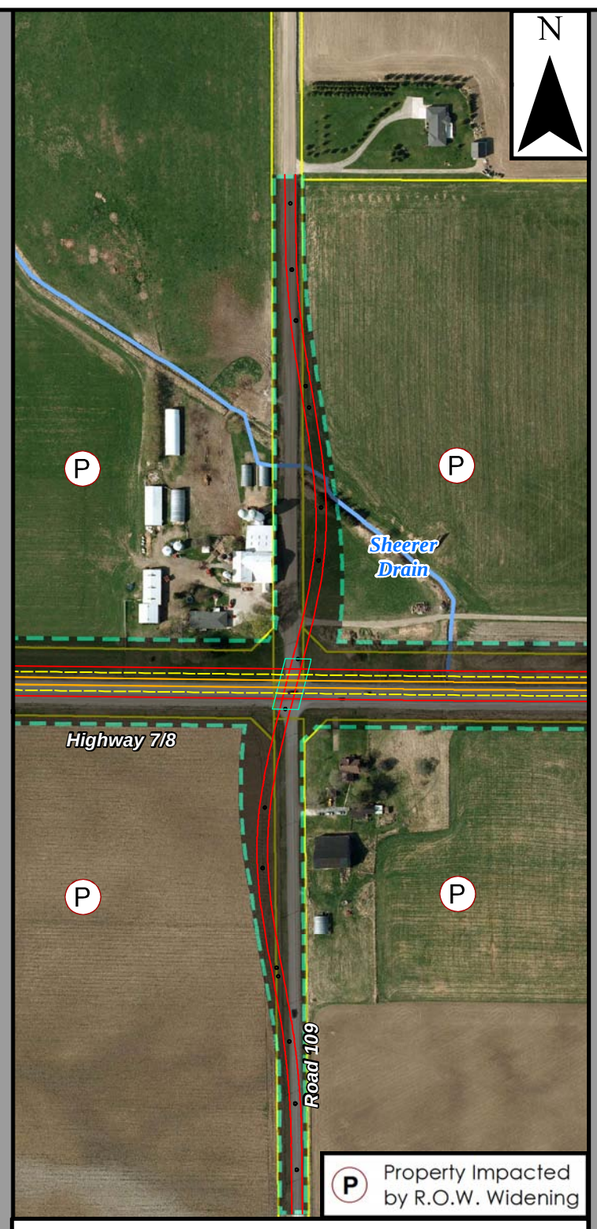
Highway 7/8 and Road 109



Alternative E4A and E5A are the same at this crossing road.

Selected Alternative E4A
Unsignalized with stop signs

0 50 100 200 300
Metres



Alternative E4B and E5B are the same at this crossing road.

Grade Separation over Highway 7/8

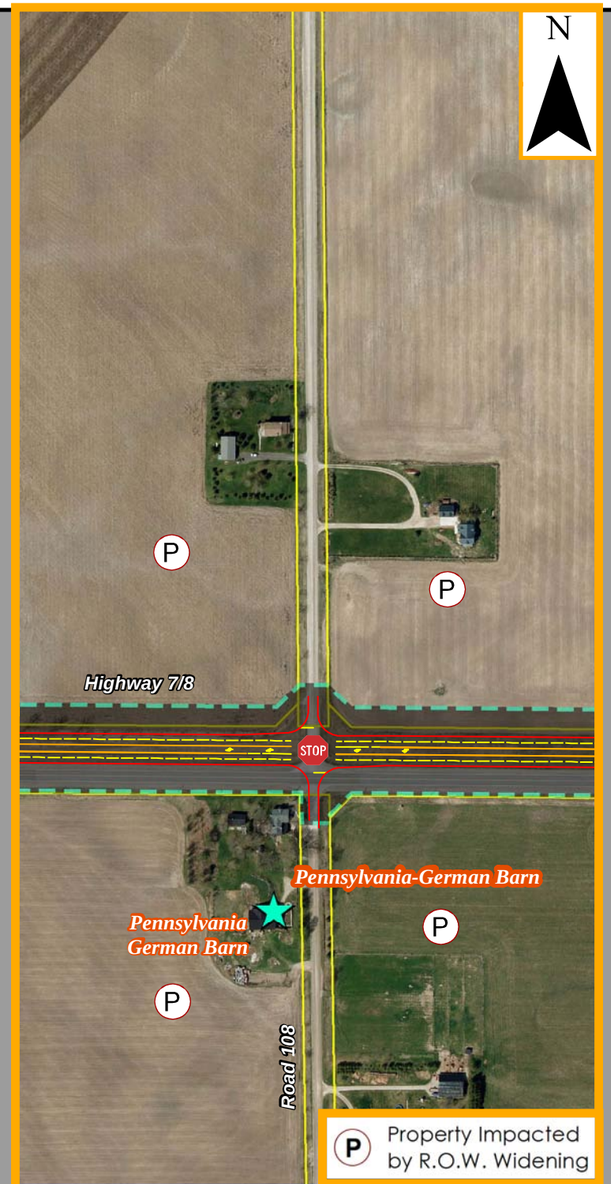
0 50 100 200 300
Metres

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegENorth109_Intersection_Group_Map_20130408.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - North Alternative - 2 of 4 - (July, 2013)

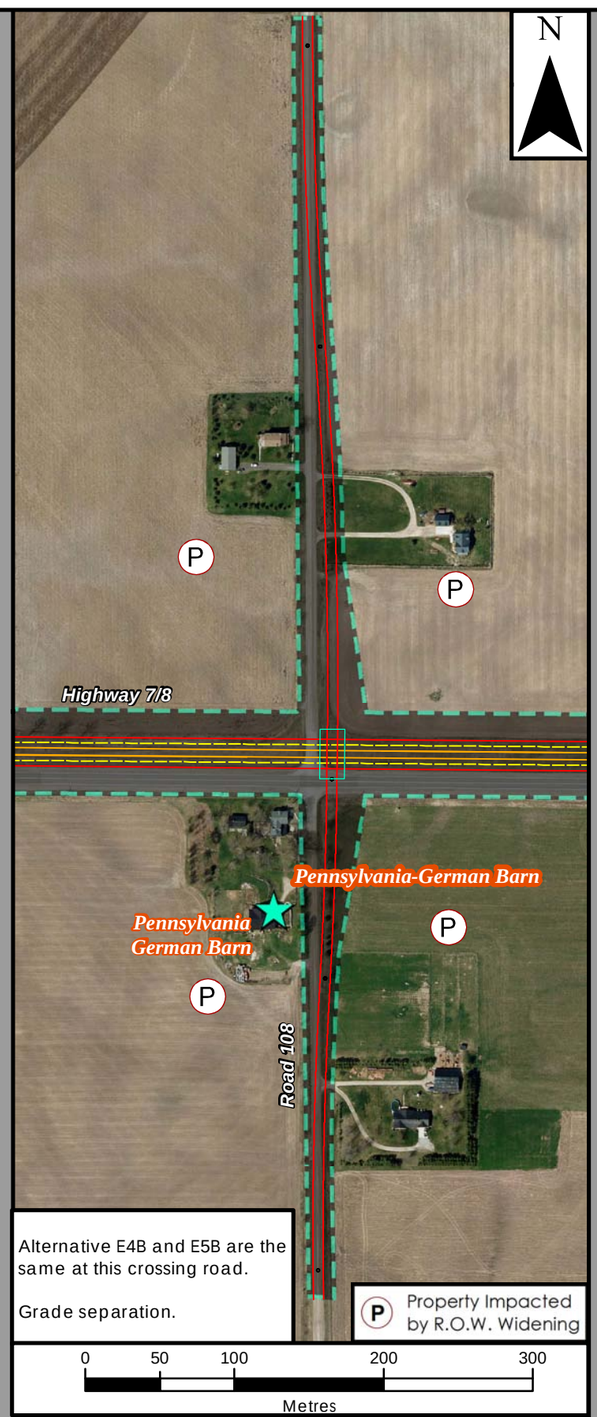
Highway 7/8 and Road 108



Alternative E4A and E5A are the same at this crossing road.

Selected Alternative E4A
Unsignalized with stop signs.

0 50 100 200 300
Metres



Alternative E4B and E5B are the same at this crossing road.

Grade separation.

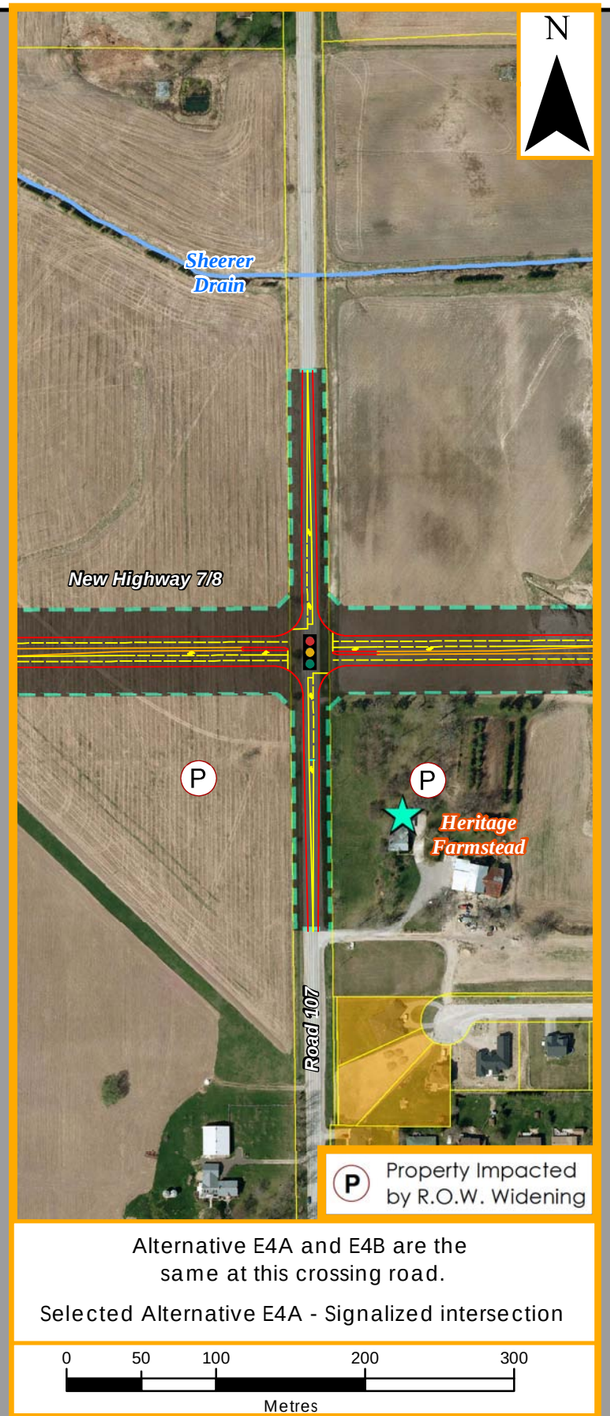
0 50 100 200 300
Metres

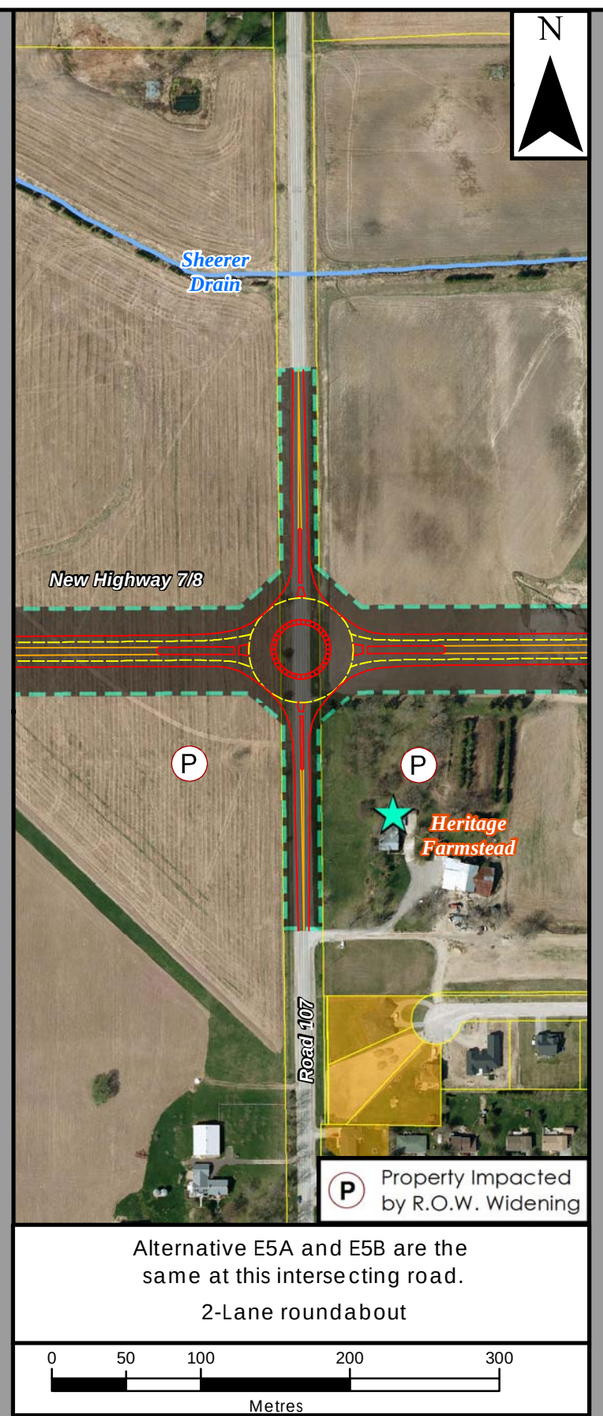
Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegE108_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - North Alternative - 3 of 4 - (July, 2013)

New Highway 7/8 and Road 107

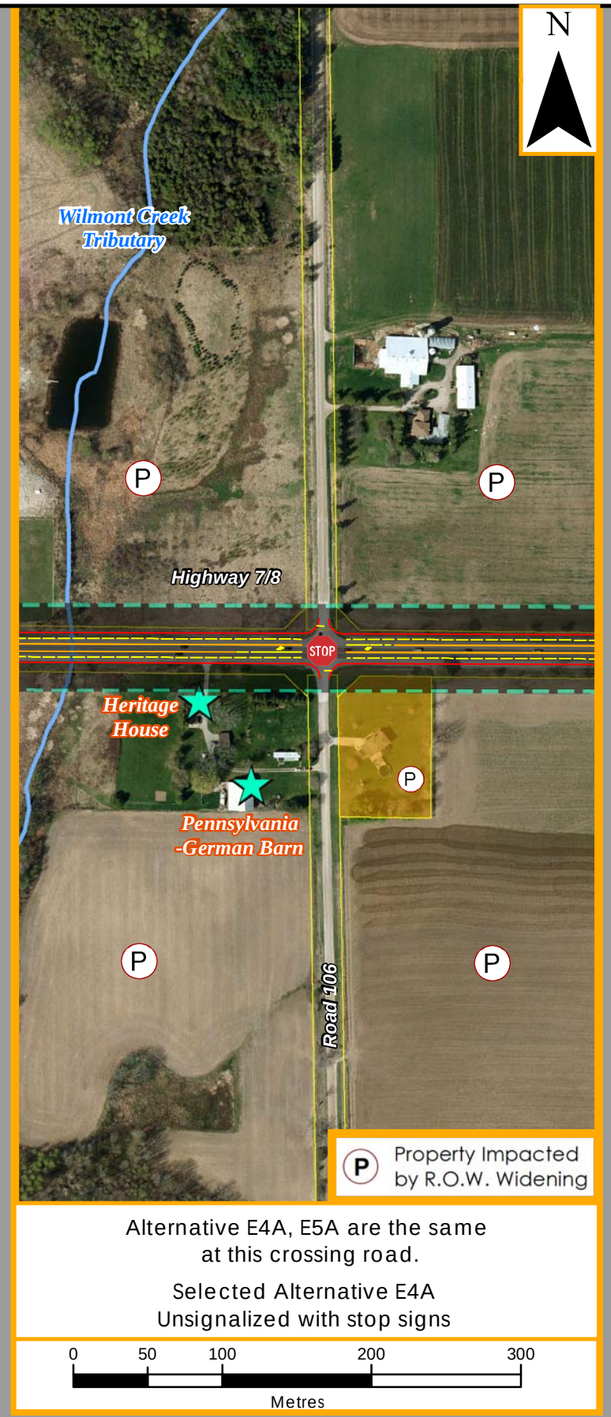




Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegENorth107_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design
Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - North Alternative - 4 of 4 (July, 2013)

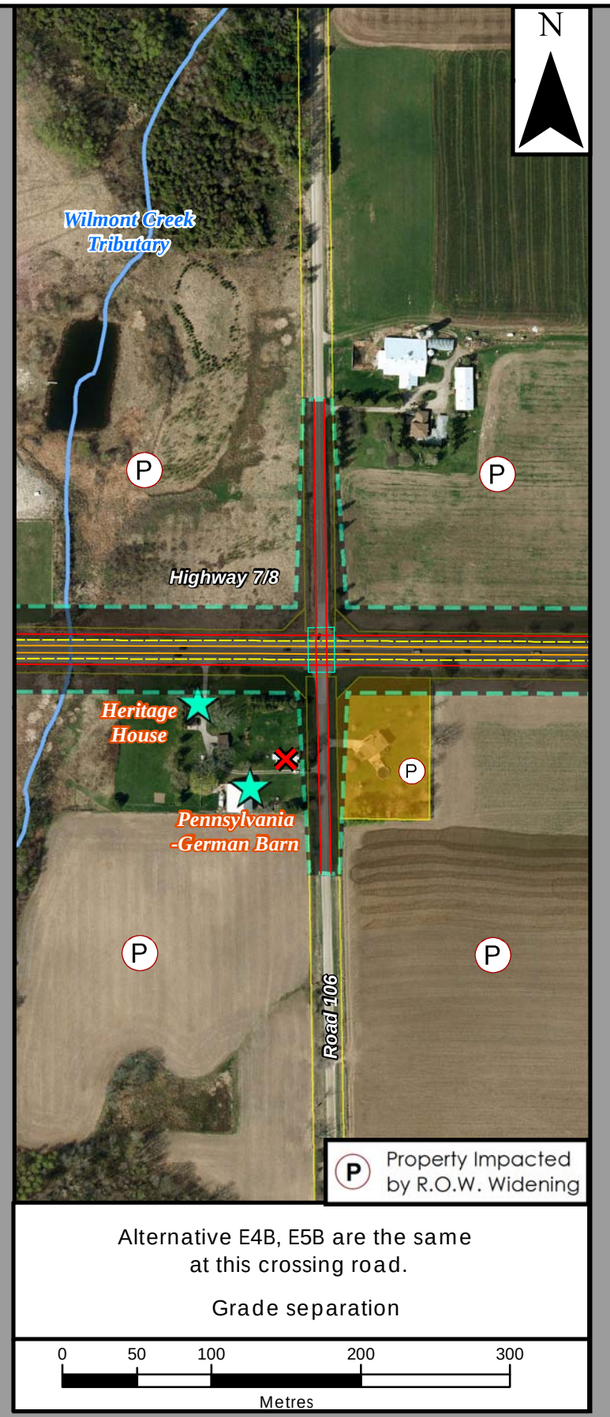
Highway 7/8 and Road 106



Alternative E4A, E5A are the same at this crossing road.

Selected Alternative E4A
Unsignalized with stop signs

0 50 100 200 300
Metres



Alternative E4B, E5B are the same at this crossing road.

Grade separation

0 50 100 200 300
Metres

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegESouth106_Intersection_Group_Map_20130409.mxd

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
1. Natural Environmental Factors					
1.1 Fisheries and Aquatic Ecosystems	1.1.1 Fish Habitat 1.1.2 Fish Community	**Low** potential to affect fish and fish habitat • 11 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Sheerer Municipal Drain (unknown thermal regime) - 3 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 12 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 3 crossings of Sheerer Municipal Drain (unknown thermal regime) - 3 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 12 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 3 crossings of Sheerer Municipal Drain (unknown thermal regime) - 3 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 12 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 3 crossings of Sheerer Municipal Drain (unknown thermal regime) - 3 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing
1.2 Terrestrial Ecosystems	1.2.1 Wildlife	**Low** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species recorded in close proximity	**Low** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species recorded in close proximity	**Low** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species recorded in close proximity	**Low** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species recorded in close proximity
	1.2.2 Wetlands	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted
	1.2.3 Forests (e.g. woodlands [forest stands, woodlots and interior forest habitat] and significant valley lands [valley and stream corridors])	**Moderate** potential to affect forested areas • 4 forested areas impacted - 3 encroachments displacing approximately 0.45 hectares fringe area - 1 forested area displaced, approximately 0.14 hectares fringe area	**Moderate** potential to affect forested areas • 4 forested areas impacted - 3 encroachments displacing approximately 0.45 hectares fringe area - 1 forested area displaced, approximately 0.14 hectares fringe area	**Moderate** potential to affect forested areas • 4 forested areas impacted - 3 encroachments displacing approximately 0.45 hectares fringe area - 1 forested area displaced, approximately 0.14 hectares fringe area	**Moderate** potential to affect forested areas • 4 forested areas impacted - 3 encroachments displacing approximately 0.45 hectares fringe area - 1 forested area displaced, approximately 0.14 hectares fringe area

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	1.2.4 Vegetation Species At Risk	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)
	1.2.5 Designated/Special Areas (such as world biosphere reserves, heritage rivers, ESAs, ESPAs, ANSIs, environmental plan areas, conservation reserves; and the designated special areas of national parks, provincial parks, conservation areas, etc)	**No** potential to affect designated special areas • No designated areas impacted	**No** potential to affect designated special areas • No designated areas impacted	**No** potential to affect designated special areas • No designated areas impacted	**No** potential to affect designated special areas • No designated areas impacted
1.3 Groundwater	1.3.1 Areas of Ground water Recharge and Discharge 1.3.2 Groundwater Source Areas and Wellhead Protection Areas	**Moderate** potential to affect areas of groundwater recharge / discharge areas • 2 recharge areas / municipal wellhead protection areas impacted - Shakespeare Municipal Well – 25 Year capture zone, 0.86 hectares impacted (1.38 % of the total WPA); Steady State capture zone, 1.46 hectares displaced (11.62% of the total WPA) • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Moderate** potential to affect areas of groundwater recharge / discharge areas • 2 recharge areas impacted - Shakespeare Municipal Well – 25 Year capture zone, 0.86 hectares impacted (1.38 % of the total WPA); Steady State capture zone, 1.46 hectares impacted (11.62% of the total WPA) • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Moderate** potential to affect areas of groundwater recharge / discharge areas • 2 recharge areas impacted - Shakespeare Municipal Well – 25 Year capture zone, 0.86 hectares impacted (1.38 % of the total WPA); Steady State capture zone, 1.46 hectares displaced (11.62% of the total WPA) • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Moderate** potential to affect areas of groundwater recharge / discharge areas • 2 recharge areas impacted - Shakespeare Municipal Well – 25 Year capture zone, 0.86 hectares impacted (1.38 % of the total WPA); Steady State capture zone, 1.46 hectares displaced (11.62% of the total WPA) • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	1.3.3 Large Volume Wells	**Low** potential to affect large volume wells • No large volume wells impacted	**Low** potential to affect large volume wells • No large volume wells impacted	**Low** potential to affect large volume wells • No large volume wells impacted	**Low** potential to affect large volume wells • No large volume wells impacted
	1.3.4 Private Wells	**Moderate** potential to affect private well use • 7 private wells displaced - 6 shallow dug wells - 1 deep bedrock well • 31 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 2 deep bedrock aquifer wells in close proximity (<50) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 7 private wells displaced - 6 shallow dug wells - 1 deep bedrock well • 31 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 2 deep bedrock aquifer wells in close proximity (<50) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 7 private wells displaced - 6 shallow dug wells - 1 deep bedrock well • 31 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 2 deep bedrock aquifer wells in close proximity (<50) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 7 private wells displaced - 6 shallow dug wells - 1 deep bedrock well • 31 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 2 deep bedrock aquifer wells in close proximity (<50) - May require decommissioning and replacement
	1.3.5 Groundwater-Sensitive Ecosystems (e.g. groundwater fed wetlands, coldwater streams)	**Low** potential to affect groundwater sensitive ecosystems • 3 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Areas) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 3 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Areas) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 3 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Areas) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 3 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Areas) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
1.4 Surface Water	1.4.1 Watershed / Sub-Watershed Drainage Features/Patterns 1.4.2 Surface Water Quality and Quantity	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 11 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 12 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 12 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 12 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted
NATURAL ENVIRONMENT SUMMARY		**For all alternatives, potential impacts to features of the natural environment are comparable with no discernible differences.**			
2. Land Use / Socio-Economic Environmental Factors					
2.1 Land Use Planning Policies, Goals, Objectives	2.1.1 First Nations Land Claims	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area
	2.1.2 Provincial/Federal land use planning policies/goals/objectives	*Previously addressed through the detailed planning phase.*			
	2.1.3 Municipal (regional and local) land use planning policies/ goals/objectives (Official Plans)	*Previously addressed through the detailed planning phase.*			
	2.1.4 Development Objectives of Private Property Owners	*Previously addressed through the detailed planning phase.*			
2.2 Land Use / Community	2.2.1 First Nation Reserves	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area
	2.2.2 First Nations' Sacred Grounds	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	2.2.3 Urban and Rural Residential	**Moderate** potential for impacts to urban and rural residential areas • 4 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 2 of these residential properties - No residential property completely displaced - No residential property severed • Low impact on character and use of residential property because change is limited to a few individual rural residential properties, and alternative is well separated from the built up area of Shakespeare • Low interference with residential community cohesion given the alternative does not pass through built up residential areas • (refer to 2.2.9 for access impacts)	**Moderate** potential for impacts to urban and rural residential areas • 4 residential properties impacted - 4 residential properties lose frontage - 1 of these properties also loses areas of side yard - Homes are displaced on 2 of these residential properties - No residential property completely displaced - No residential property severed • Low impact on character and use of residential property because change is limited to a few individual rural residential properties, and alternative is well separated from the built up area of Shakespeare • Low interference with residential community cohesion given the alternative does not pass through built up residential areas • (refer to 2.2.9 for access impacts)	**Moderate** potential for impacts to urban and rural residential areas • 4 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 2 of these residential properties - No residential property completely displaced - No residential property severed • Low impact on character and use of residential property because change is limited to a few individual rural residential properties, and alternative is well separated from the built up area of Shakespeare • Low interference with residential community cohesion given the alternative does not pass through built up residential areas • (refer to 2.2.9 for access impacts)	**Moderate** potential for impacts to urban and rural residential areas • 4 residential properties impacted - 4 residential properties lose frontage - 1 of these properties also loses areas of side yard - Homes are displaced on 2 of these residential properties - No residential property completely displaced - No residential property severed • Low impact on character and use of residential property because change is limited to a few individual rural residential properties, and alternative is well separated from the built up area of Shakespeare • Low interference with residential community cohesion given the alternative does not pass through built up residential areas • (refer to 2.2.9 for access impacts)
	2.2.4 Commercial/Industrial	**Moderate** potential for impacts to commercial and industrial areas • 5 commercial / industrial properties impacted - 5 commercial / industrial properties lose frontage - 1 commercial / industrial building displaced (trucking facility) • (refer to 2.2.9 for access impacts)	**Moderate** potential for impacts to commercial and industrial areas • 5 commercial / industrial properties impacted - 5 commercial / industrial properties lose frontage - 1 commercial / industrial building displaced (trucking facility) • (refer to 2.2.9 for access impacts)	**Moderate** potential for impacts to commercial and industrial areas • 5 commercial / industrial properties impacted - 5 commercial / industrial properties lose frontage - 1 commercial / industrial building displaced (trucking facility) • (refer to 2.2.9 for access impacts)	**Moderate** potential for impacts to commercial and industrial areas • 5 commercial / industrial properties impacted - 5 commercial / industrial properties lose frontage - 1 commercial / industrial building displaced (trucking facility) • (refer to 2.2.9 for access impacts)

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives

Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	2.2.5 Tourist Areas and Attractions (e.g. museums, theatres, etc.)	**High** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • North bypass does not provide direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business. Westbound traffic must access Shakespeare via Road 107. • North bypass results in no visibility of Shakespeare business area from Highway 7&8, reducing potential number of drive-by / impulse visitors to the area. • (refer to 2.2.9 for access impacts)	**High** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • North bypass does not provide direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business. Westbound traffic must access Shakespeare via Road 107. • North bypass results in no visibility of Shakespeare business area from Highway 7&8, reducing potential number of drive-by / impulse visitors to the area. • (refer to 2.2.9 for access impacts)	**High** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • North bypass does not provide direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business. Westbound traffic must access Shakespeare via Road 107. • North bypass results in no visibility of Shakespeare business area from Highway 7&8, reducing potential number of drive-by / impulse visitors to the area. • (refer to 2.2.9 for access impacts)	**High** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • North bypass does not provide direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business. Westbound traffic must access Shakespeare via Road 107. • North bypass results in no visibility of Shakespeare business area from Highway 7&8, reducing potential number of drive-by / impulse visitors to the area. • (refer to 2.2.9 for access impacts)
	2.2.6 Community Facilities / Institutions (e.g. hospitals, schools, places of worship, community features, municipal parks, public spaces, golf courses, trails, greenways and open space linkages)	**Moderate** potential for impacts to community facilities and institutions • 1 recreational / community facility impacted - Recreational portion of property is severed - 3 recreational structures displaced • 1 recreational / community facility impacted - Riding stable is displaced	**Moderate** potential for impacts to community facilities and institutions • 1 recreational / community facility impacted - Recreational portion of property is severed - 3 recreational structures displaced • 1 recreational / community facility impacted - Riding stable is displaced	**Moderate** potential for impacts to community facilities and institutions • 1 recreational / community facility impacted - Recreational portion of property is severed - 3 recreational structures displaced • 1 recreational / community facility impacted - Riding stable is displaced	**Moderate** potential for impacts to community facilities and institutions • 1 recreational / community facility impacted - Recreational portion of property is severed - 3 recreational structures displaced • 1 recreational / community facility impacted - Riding stable is displaced
	2.2.7 Municipal Infrastructure and Public Service Facilities (e.g. sewage and water services, police/emergency services, local utilities)	**Low** potential to affect Municipal Infrastructure and Public Service Facilities • 3 municipal infrastructure / public service facilities impacted by the alternative - 2 crossings of Sheerer Municipal Drain - 3 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain	**Low** potential to affect Municipal Infrastructure and Public Service Facilities • 3 municipal infrastructure / public service facilities impacted by the alternative - 3 crossings of Sheerer Municipal Drain - 3 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain	**Low** potential to affect Municipal Infrastructure and Public Service Facilities • 3 municipal infrastructure / public service facilities impacted by the alternative - 3 crossings of Sheerer Municipal Drain - 3 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain	**Low** potential to affect Municipal Infrastructure and Public Service Facilities • 3 municipal infrastructure / public service facilities impacted by the alternative - 3 crossings of Sheerer Municipal Drain - 3 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives

Segments D and E North Alternatives		North Alternative DE1	North Alternative DE2	North Alternative DE3	North Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	2.2.8 Downtown Historic Crossroads Function	**Moderate** potential to affect Downtown or Historic Crossroads • Bypass of Shakespeare restores historic downtown cross road function along Highway 7&8, but has a moderate negative impact along Road 107 due to traffic between the bypass alternative and areas south of Shakespeare	**Moderate** potential to affect Downtown or Historic Crossroads • Bypass of Shakespeare restores historic downtown cross road function along Highway 7&8, but has a moderate negative impact along Road 107 due to traffic between the bypass alternative and areas south of Shakespeare	**Moderate** potential to affect Downtown or Historic Crossroads • Bypass of Shakespeare restores historic downtown cross road function along Highway 7&8, but has a moderate negative impact along Road 107 due to traffic between the bypass alternative and areas south of Shakespeare	**Moderate** potential to affect Downtown or Historic Crossroads • Bypass of Shakespeare restores historic downtown cross road function along Highway 7&8, but has a moderate negative impact along Road 107 due to traffic between the bypass alternative and areas south of Shakespeare
	2.2.9 Out of Way Travel for Access to / from local land uses	**Moderate** potential to affect Out of Way Travel • No crossing roads where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced) - Eastbound traffic leaving Shakespeare can use existing Highway 7&8 to travel east of Shakespeare (i.e. eastbound slip on lane provided at east end of Shakespeare) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel west of Shakespeare (i.e. no connection to Highway 7&8 at west end of Shakespeare – road cul-de-saced), which is a concern for response by emergency vehicles from	**High** potential to affect Out of Way Travel • 3 crossing roads (Road 109, Road 108 and Road 106) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced) - Eastbound traffic leaving Shakespeare can use existing Highway 7&8 to travel east of Shakespeare (i.e. eastbound slip on lane provided at east end of Shakespeare) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel west of Shakespeare (i.e. no connection to Highway 7&8 at west end of Shakespeare – road cul-de-saced), which is a concern	**Moderate** potential to affect Out of Way Travel • No crossing roads where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced) - Eastbound traffic leaving Shakespeare can use existing Highway 7&8 to travel east of Shakespeare (i.e. eastbound slip on lane provided at east end of Shakespeare) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel west of Shakespeare (i.e. no connection to Highway 7&8 at west end of Shakespeare – road cul-de-saced), which is a concern for response by emergency vehicles from	**High** potential to affect Out of Way Travel • 3 crossing roads (Road 109, Road 108 and Road 106) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced) - Eastbound traffic leaving Shakespeare can use existing Highway 7&8 to travel east of Shakespeare (i.e. eastbound slip on lane provided at east end of Shakespeare) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel west of Shakespeare (i.e. no connection to Highway 7&8 at west end of Shakespeare – road cul-de-saced), which is a concern

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		North Alternative DE1	North Alternative DE2	North Alternative DE3	North Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	Criteria				
		Shakespeare to areas westerly - Eastbound traffic can travel directly into Shakespeare using eastbound slip off lane from existing Highway 7&8	for response by emergency vehicles from Shakespeare to areas westerly - Eastbound traffic can travel directly into Shakespeare using eastbound slip off lane from existing Highway 7&8	Shakespeare to areas westerly - Eastbound traffic can travel directly into Shakespeare using eastbound slip off lane from existing Highway 7&8	for response by emergency vehicles from Shakespeare to areas westerly - Eastbound traffic can travel directly into Shakespeare using eastbound slip off lane from existing Highway 7&8
2.3 Noise Sensitive Areas (NSAs) (residential areas and sensitive institutional uses)	2.3.1 Highway Noise	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • North design alternatives have approximately 60 receptors impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 49 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • North design alternatives have approximately 60 receptors impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 49 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • North design alternatives have approximately 60 receptors impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 49 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • North design alternatives have approximately 60 receptors impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 49 receptors experiencing a decrease of 5 dBA or greater
	2.3.2 Construction Noise	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
2.4 Agriculture	2.4.1 Agriculture - Canada Land Inventory Class 1,2,3 Land	**Moderate** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 46.2 hectares of agricultural land from a total of 49 agricultural properties	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 47.5 hectares of agricultural land from a total of 49 agricultural properties	**Moderate** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 46.9 hectares of agricultural land from a total of 49 agricultural properties	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 48.2 hectares of agricultural land from a total of 49 agricultural properties
	2.4.2 Agricultural - Farm Infrastructure	**High** potential for impacts to farm infrastructure • 5 farm buildings (excluding houses) displaced • 49 farm properties with tile drainage / irrigation systems impacted (assumes all impacted agricultural properties are tile drained)	**High** potential for impacts to farm infrastructure • 6 farm buildings (excluding houses) displaced • 49 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)	**High** potential for impacts to farm infrastructure • 5 farm buildings (excluding houses) displaced • 49 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)	**High** potential for impacts to farm infrastructure • 6 farm buildings (excluding houses) displaced • 49 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)
	2.4.3 Agriculture – Operations on Individual Farms	**High** potential for impacts to operations on individual farms • 49 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances - 41 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 49 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances - 41 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 49 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances - 41 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 49 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances - 41 agricultural properties lose frontage
	2.4.4 Agriculture – Transportation Linkages between Integrated Agricultural Business Units	**Moderate** potential for impacts to transportation linkages between integrated agricultural business units • 2 crossing roads where additional intersections must be crossed - 1 new intersection on Road 107 (signalized) - 2 new intersections on Road 110 (signalized) • No crossing roads where grade separations improve travel across the highway but introduce out-of-way travel to access highway • 1 crossing road where grade separations improve travel across railway (Road 110)	**High** potential for impacts to transportation linkages between integrated agricultural business units • 2 crossing roads where additional intersections must be crossed - 1 new intersection on Road 107 (signalized) - 2 new intersections on Road 110 (signalized) • 3 crossing roads (Road 109, Road 108 and Road 106) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • 1 crossing road where grade separations	**Moderate** potential for impacts to transportation linkages between integrated agricultural business units • 2 crossing roads where additional intersections must be crossed - 1 new intersection on Road 107 (roundabout) - 2 new intersections on Road 110 (roundabouts) • No crossing roads where grade separations improve travel across the highway but introduce out-of-way travel to access highway • 1 crossing road where grade separations improve travel across railway (Road 110)	**High** potential for impacts to transportation linkages between integrated agricultural business units • 2 crossing roads where additional intersections must be crossed - 1 new intersection on Road 107 (roundabout) - 2 new intersections on Road 110 (roundabouts) • 3 crossing roads (Road 109, Road 108 and Road 106) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • 1 crossing road where grade separations

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
		• 2 existing municipal roads (Line 33 and Road 110) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL and left turn lanes at signalized intersections	improve travel across railway (Road 110) • 2 existing municipal roads (Line 33 and Road 110) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL and left turn lanes at signalized intersections	• 2 existing municipal roads (Line 33 and Road 110) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL	improve travel across railway (Road 110) • 2 existing municipal roads (Line 33 and Road 110) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL
2.5 Land Use / Resources	2.5.1 First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes (e.g. hunting, fishing, harvesting of country foods, harvesting of medicinal plants)	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway
	2.5.2 Parks and Recreational Areas (e.g. national/provincial parks, conservation areas)	**Moderate** potential to affect parks and recreational areas • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated • 1 conservation area (Shakespeare Conservation Area / Shakespeare Pond) in close proximity (<1km)	**Moderate** potential to affect parks and recreational areas • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated • 1 conservation area (Shakespeare Conservation Area / Shakespeare Pond) in close proximity (<1km)	**Moderate** potential to affect parks and recreational areas • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated • 1 conservation area (Shakespeare Conservation Area / Shakespeare Pond) in close proximity (<1km)	**Moderate** potential to affect parks and recreational areas • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated • 1 conservation area (Shakespeare Conservation Area / Shakespeare Pond) in close proximity (<1km)
	2.5.3 Aggregates, Mineral Resources	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
2.6 Major Utility Transmission Corridors (e.g. railroads, hydro, gas, oil)		**Low** potential to affect major utility corridors • 1 railway crossing • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 1 railway crossing • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 1 railway crossing • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 1 railway crossing • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors
2.7 Contaminated Property and Waste Management (e.g. Landfills, Hazardous Waste Sites, "Brownfield" Areas, other known contaminated sites, and high-risk contamination areas)		**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • No hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • No hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • No hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • No hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern
2.8 Landscape Composition	2.8.1 Scenic Composition (total aesthetic value of landscape components)	**Low** potential to affect scenic composition / aesthetic value • Low impacts to aesthetic value for a majority of route given route is on existing highway and / or in a 'depressed' area north of Shakespeare (and therefore largely not visible)	**Low** potential to affect scenic composition / aesthetic value • Low impacts to aesthetic value for a majority of route given route is on existing highway and / or in a 'depressed' area north of Shakespeare (and therefore largely not visible)	**Low** potential to affect scenic composition / aesthetic value • Low impacts to aesthetic value for a majority of route given route is on existing highway and / or in a 'depressed' area north of Shakespeare (and therefore largely not visible)	**Low** potential to affect scenic composition / aesthetic value • Low impacts to aesthetic value for a majority of route given route is on existing highway and / or in a 'depressed' area north of Shakespeare (and therefore largely not visible)
	2.8.2 Sensitive Viewer Groups	**Low** potential to affect sensitive viewer groups • No sensitive viewer groups in rural area adjacent to this alternative where vistas / outlooks will be impacted	**Low** potential to affect sensitive viewer groups • No sensitive viewer groups in rural area adjacent to this alternative where vistas / outlooks will be impacted	**Low** potential to affect sensitive viewer groups • No sensitive viewer groups in rural area adjacent to this alternative where vistas / outlooks will be impacted	**Low** potential to affect sensitive viewer groups • No sensitive viewer groups in rural area adjacent to this alternative where vistas / outlooks will be impacted

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	2.8.3 Scenic value of views/vistas from the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility
	2.8.4 Specimen Trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees
2.9 Air Quality	2.9.1 Regional Air Quality and Total Contaminant and Greenhouse Gas Emissions	*Previously considered during the detailed planning phase.*			
	2.9.2 Local Air Quality and Sensitive Receptors to Air Pollutants	**Low** potential to affect air quality for sensitive receptors • North design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • North design alternatives have 13 sensitive receptors within 20m of the edge of right-of-way	**Low** potential to affect air quality for sensitive receptors • North design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • North design alternatives have 13 sensitive receptors within 20m of the edge of right-of-way	**Low** potential to affect air quality for sensitive receptors • North design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • North design alternatives have 13 sensitive receptors within 20m of the edge of right-of-way	**Low** potential to affect air quality for sensitive receptors • North design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • North design alternatives have 13 sensitive receptors within 20m of the edge of right-of-way
SOCIO-ECONOMIC SUMMARY		**For all alternatives, impacts to features of the social environment are comparable. However, North Alternative DE1 is preferred as it displaces less agricultural land (0.5 ha or greater, less land than other alternatives) and results in least disruption to transportation linkages between Integrated Agricultural Business Units.**			
3. Cultural Environmental Factors					
3.1 Cultural Heritage – Built Heritage and Cultural Landscapes	3.1.1 Buildings or "Standing" Sites of Architectural or Heritage Significance or Ontario Heritage Foundation Easement Properties	**Moderate-High** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • Moderate Impact to Georgian House and Pennsylvania German Barn at 2698 Highway 7/8 north side mid-way between 110 and 109,	**Moderate-High** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • Moderate Impact to Georgian House and Pennsylvania German Barn at 2698 Highway 7/8 north side mid-way between 110 and 109,	**Moderate-High** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • Moderate Impact to Georgian House and Pennsylvania German Barn at 2698 Highway 7/8 north side mid-way between 110 and 109,	**Moderate-High** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • Moderate Impact to Georgian House and Pennsylvania German Barn at 2698 Highway 7/8 north side mid-way between 110 and 109,

Highway 7&8 Transportation Corridor Planning and Class EA Study **EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES** Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
		because widening places highway closer. • Uncertain Impact to James Rankin Cemetery as precise location is not known? • Low impact to Pennsylvania-German Barn at southwest of Highway 7/8 / Road 108 intersection because no change to Highway 7/8 south right-of-way limit or road 108 west right of way limit. • Heritage structure south of route on Road 107 will not be disturbed • High impact to rubblestone Georgian house at 2026 Hwy 7&8 (north side west of Road 106) because widening places highway closer • Moderate impact to Gothic revival house at 2053 Hwy 7&8(south side west of Road 106) because highway 7/8 wideing places right-of way limit closer to the house. • High impact to house and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway in close proximity to house	because widening places highway closer. • Uncertain Impact to James Rankin Cemetery as precise location is not known? • Low impact to Pennsylvania-German Barn at southwest of Highway 7/8 / Road 108 intersection because no change to Highway 7/8 south right-of-way limit or road 108 west right of way limit. • Heritage structure south of route on Road 107 will not be disturbed • High impact to rubblestone Georgian house at 2026 Hwy 7&8 (north side west of Road 106) because widening places highway closer • Moderate impact to Gothic revival house at 2053 Hwy 7&8(south side west of Road 106) because highway 7/8 widening places right-of way limit closer to the house and road 106 widening places road closer to Pennsylvania-German Barn.. • High impact to house and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway in close proximity to house	because widening places highway closer. • Uncertain Impact to James Rankin Cemetery as precise location is not known? • Low impact to Pennsylvania-German Barn at southwest of Highway 7/8 / Road 108 intersection because no change to Highway 7/8 south right-of-way limit or road 108 west right of way limit. • Heritage structure south of route on Road 107 will not be disturbed • High impact to rubblestone Georgian house at 2026 Hwy 7&8 (north side west of Road 106) because widening places highway closer • Moderate impact to Gothic revival house at 2053 Hwy 7&8(south side west of Road 106) because highway 7/8 widening places right-of way limit closer to the house and road 106 widening places road closer to Pennsylvania-German Barn.. • High impact to house and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway in close proximity to house	because widening places highway closer. • Uncertain Impact to James Rankin Cemetery as precise location is not known? • Low impact to Pennsylvania-German Barn at southwest of Highway 7/8 / Road 108 intersection because no change to Highway 7/8 south right-of-way limit or road 108 west right of way limit. • Heritage structure south of route on Road 107 will not be disturbed • High impact to rubblestone Georgian house at 2026 Hwy 7&8 (north side west of Road 106) because widening places highway closer • Moderate impact to Gothic revival house at 2053 Hwy 7&8(south side west of Road 106) because highway 7/8 widening places right-of way limit closer to the house and road 106 widening places road closer to Pennsylvania-German Barn.. • High impact to house and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway in close proximity to house
	3.1.2 Heritage Bridges	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced
	3.1.3 Areas of Historic 19th Century Settlement	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives

Segments D and E North Alternatives		North Alternative DE1	North Alternative DE2	North Alternative DE3	North Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	3.1.4 Cultural Heritage Landscapes (collection of individual man-made features modifying pristine landscape)	**Low** potential for impacts to cultural landscapes • Minimal Impact to heritage landscape beyond highway 7 & 8 from West of Shakespeare to Road 110.	**Low** potential for impacts to cultural landscapes • Minimal Impact to heritage landscape beyond highway 7 & 8 from West of Shakespeare to Road 110.	**Low** potential for impacts to cultural landscapes • Minimal Impact to heritage landscape beyond highway 7 & 8 from West of Shakespeare to Road 110.	**Low** potential for impacts to cultural landscapes • Minimal Impact to heritage landscape beyond highway 7 & 8 from West of Shakespeare to Road 110.
	3.1.5 First Nations' Burial Sites	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area
	3.1.6 Cemeteries	**Low** potential for impacts to cemeteries • Uncertain Impact to James Rankin Cemetery as precise location is not known	**Low** potential for impacts to cemeteries • Uncertain Impact to James Rankin Cemetery as precise location is not known	**Low** potential for impacts to cemeteries • Uncertain Impact to James Rankin Cemetery as precise location is not known	**Low** potential for impacts to cemeteries • Uncertain Impact to James Rankin Cemetery as precise location is not known
3.2 Cultural Heritage – Archaeology	3.2.1 Pre-Historic and Historic First Nations Sites 3.2.2 Historic Euro-Canadian Archaeological Sites	**Low** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Low** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Low** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Low** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites
CULTURAL ENVIRONMENT SUMMARY		**For all alternatives, potential impacts to features of the cultural environment are comparable with no discernible differences.**			
4. Area Economy	Previously Addressed During the Needs Assessment Phase				

Highway 7&8 Transportation Corridor Planning and Class EA Study
EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES
Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives

Segments D and E North Alternatives		North Alternative DE1	North Alternative DE2	North Alternative DE3	North Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
5. Transportation Factors					
5.1 Area Transportation System Capacity and Efficiency	5.1 Federal/Provincial/Municipal transportation planning policies/goals/objectives	*Previously addressed during Needs Assessment Phase*	Highway 7&8 is a regionally significant part of the overall provincial highway network. It plays a key role in linking communities in south-western Ontario and supports economic prosperity across Ontario.		
	5.2 Efficient movement of people	**Moderate** potential to support efficient movement of people • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**Moderate** potential to support efficient movement of people • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**Moderate** potential to support efficient movement of people • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**Moderate** potential to support efficient movement of people • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare
	5.3 Efficient movement of goods	**Moderate** potential to support efficient movement of goods • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number of private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**Moderate** potential to support efficient movement of goods • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number of private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**Moderate** potential to support efficient movement of goods • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number of private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**Moderate** potential to support efficient movement of goods • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number of private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare
5.2 System reliability / redundancy		**Low** potential to support system reliability and redundancy • Route predominantly uses existing alignment, which does not provide an alternate route to accommodate travel during adverse conditions; however,	**Low** potential to support system reliability and redundancy • Route predominantly uses existing alignment, which does not provide an alternate route to accommodate travel during adverse conditions; however,	**Low** potential to support system reliability and redundancy • Route predominantly uses existing alignment, which does not provide an alternate route to accommodate travel during adverse conditions; however,	**Low** potential to support system reliability and redundancy • Route predominantly uses existing alignment, which does not provide an alternate route to accommodate travel during adverse conditions; however,

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
		parallel municipal roads do currently serve this function	parallel municipal roads do currently serve this function	parallel municipal roads do currently serve this function	parallel municipal roads do currently serve this function
5.3 Safety	5.3.1 Traffic Safety	**Moderate** potential to improve traffic safety • Majority of route uses existing roadway corridor with numerous access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway since limited opportunity to reduce number of intersections and driveways	**Moderate** potential to improve traffic safety • Majority of route uses existing roadway corridor with numerous access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway since limited opportunity to reduce number of intersections and driveways	**Moderate** potential to improve traffic safety • Majority of route uses existing roadway corridor with numerous access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway since limited opportunity to reduce number of intersections and driveways • Reduced collision potential at roundabout intersections due to lower speed operation	**Moderate** potential to improve traffic safety • Majority of route uses existing roadway corridor with numerous access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway since limited opportunity to reduce number of intersections and driveways • Reduced collision potential at roundabout intersections due to lower speed operation
	5.3.2 Emergency Access	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 107 and all other sideroads • Opportunity to provide emergency service connections to existing Highway 7&8 at east and west ends of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**Moderate** potential to support emergency access to/from route • Full moves connection provided at Perth Road 107, 110 and 111; no access from existing Highway 7&8 to Perth Road 106, 108 and 109 (grade separated) • Opportunity to provide emergency service connections to existing Highway 7&8 at east and west ends of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 107 and all other sideroads • Opportunity to provide emergency service connections to existing Highway 7&8 at east and west ends of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**Moderate** potential to support emergency access to/from route • Full moves connection provided at Perth Road 107, 110 and 111; no access from existing Highway 7&8 to Perth Road 106, 108 and 109 (grade separated) • Opportunity to provide emergency service connections to existing Highway 7&8 at east and west ends of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained
	5.3.3 Pedestrian, Cyclist and Snowmobile Safety within the highway right-of-way	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated north of developed area of Shakespeare so need for movement within	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated north of developed area of Shakespeare so need for movement within	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated north of developed area of Shakespeare so need for movement within	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated north of developed area of Shakespeare so need for movement within

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
		the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur; however, traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur; however, traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur; however, traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur; however, traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations
5.4 Mobility and Access	5.4.1 Modal integration, balance and efficiency	**Low** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Low** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Low** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Low** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.
	5.4.2 Linkages to Population and Employment Centres	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
	5.4.3 Recreation and Tourism Travel	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced)	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced)	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced)	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced)
	5.4.4 Accommodate mobility of pedestrians, cyclists and snowmobiles	**High** potential to accommodate mobility of pedestrians, cyclists and snowmobiles • Route situated north of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area provides opportunity to improve mobility of pedestrian / cyclist movements within developed area; however traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Existing snowmobile trail crossings east and west of Shakespeare can be maintained	**High** potential to accommodate mobility of pedestrians, cyclists and snowmobiles • Route situated north of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area provides opportunity to improve mobility of pedestrian / cyclist movements within developed area; however traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Existing snowmobile trail crossings east and west of Shakespeare can be maintained	**High** potential to accommodate mobility of pedestrians, cyclists and snowmobiles • Route situated north of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area provides opportunity to improve mobility of pedestrian / cyclist movements within developed area; however traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Existing snowmobile trail crossings east and west of Shakespeare can be maintained	**High** potential to accommodate mobility of pedestrians, cyclists and snowmobiles • Route situated north of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area provides opportunity to improve mobility of pedestrian / cyclist movements within developed area; however traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Existing snowmobile trail crossings east and west of Shakespeare can be maintained
5.5 Network Compatibility	5.5.1 Network Connectivity	**High** potential to improve transportation system connectivity • Provides improved linkage between Stratford and New Hamburg	**High** potential to improve transportation system connectivity • Provides improved linkage between Stratford and New Hamburg	**High** potential to improve transportation system connectivity • Provides improved linkage between Stratford and New Hamburg	**High** potential to improve transportation system connectivity • Provides improved linkage between Stratford and New Hamburg

<table>
<tr><td colspan="6">Highway 7&8 Transportation Corridor Planning and Class EA Study
EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES
Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.</td></tr>
<tr><td colspan="6">SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives</td></tr>
<tr><td colspan="2">Segments D and E
North Alternatives</td><td>North Alternative DE1</td><td>North Alternative DE2</td><td>North Alternative DE3</td><td>North Alternative DE4</td></tr>
<tr><td colspan="2">Cross Section</td><td>Segment D – Four lanes, 5 m continuous two-way centre left-turn lane
Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment</td><td>Segment D – Four lanes, 5 m continuous two-way centre left-turn lane
Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment</td><td>Segment D – Four lanes, 5 m continuous two-way centre left-turn lane
Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment</td><td>Segment D – Four lanes, 5 m continuous two-way centre left-turn lane
Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment</td></tr>
<tr><td colspan="2">Crossing Road Treatments</td><td>Road 111 – Signalized
Road 110 / Perth Line 33 – Signalized
Existing Highway 7&8 – Signalized
Road 109 / Existing Highway 7&8 – Unsignalized
Road 108 – Unsignalized
Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare
Road 107 – Signalized
Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound
Road 106 – Unsignalized</td><td>Road 111 – Signalized
Road 110 / Perth Line 33 – Signalized
Existing Highway 7&8 – Signalized
Road 109 / Existing Highway 7&8 – Grade separation
Road 108 – Grade separation
Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare
Road 107 – Signalized
Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound
Road 106 – Grade separation</td><td>Road 111 – 2-lane roundabout
Road 110 / Perth Line 33 – 2-lane roundabout
Existing Highway 7&8 – 2-lane roundabout
Road 109 / Existing Highway 7&8 – Unsignalized
Road 108 – Unsignalized
Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare
Road 107 – 2-lane roundabout
Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound
Road 106 – Unsignalized</td><td>Road 111 – 2-lane roundabout
Road 110 / Perth Line 33 – 2-lane roundabout
Existing Highway 7&8 – 2-lane roundabout
Road 109 / Existing Highway 7&8 – Grade separation
Road 108 – Grade separation
Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare
Road 107 – 2-lane roundabout
Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound
Road 106 – Grade separation</td></tr>
<tr><td>Factor / Sub-Factor</td><td>Criteria</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>5.5.2 Flexibility for Future Expansion</td><td>Moderate potential for future expansion
• Route is outside Shakespeare urban boundary, but is predominantly on existing alignment</td><td>Moderate potential for future expansion
• Route is outside Shakespeare urban boundary, but is predominantly on existing alignment</td><td>Moderate potential for future expansion
• Route is outside Shakespeare urban boundary, but is predominantly on existing alignment</td><td>Moderate potential for future expansion
• Route is outside Shakespeare urban boundary, but is predominantly on existing alignment</td></tr>
<tr><td>5.6 Engineering</td><td>5.6.1 Constructability</td><td>Moderate potential for constructability issues
• Predominantly uses existing roadway corridors (Perth Line 33, Road 110, Highway 7&8) requiring more complex traffic staging during construction
• One railway crossing
• Structure required over 1 municipal drain</td><td>Moderate potential for constructability issues
• Predominantly uses existing roadway corridors (Perth Line 33, Road 110, Highway 7&8) requiring more complex traffic staging during construction
• One railway crossing
• Structure required over 1 municipal drain</td><td>Moderate potential for constructability issues
• Predominantly uses existing roadway corridors (Perth Line 33, Road 110, Highway 7&8) requiring more complex traffic staging during construction
• One railway crossing
• Structure required over 1 municipal drain</td><td>Moderate potential for constructability issues
• Predominantly uses existing roadway corridors (Perth Line 33, Road 110, Highway 7&8) requiring more complex traffic staging during construction
• One railway crossing
• Structure required over 1 municipal drain</td></tr>
<tr><td></td><td>5.6.2 Compliance with Design Criteria</td><td>High conformity to safety and design standards
• Supports use of better than minimum horizontal and vertical alignment elements
• Can accommodate standard lane and shoulder widths
High conformity to control private entrances and road connections onto highway
• Strict access control resulting in highway that functions safely and efficiently for its useful life
• Develop a Highway Access Management Plan for managing entrances onto the corridor:
- spacing between existing/proposed intersections along highway
- density of proposed entrances along highway
- offset spacing from highway to first intersection / entrance on public crossing road
- location of existing and proposed inter-</td><td>High conformity to safety and design standards
• Supports use of better than minimum horizontal and vertical alignment elements
• Can accommodate standard lane and shoulder widths
High conformity to control private entrances and road connections onto highway
• Strict access control resulting in highway that functions safely and efficiently for its useful life
• Develop a Highway Access Management Plan for managing entrances onto the corridor:
- spacing between existing/proposed intersections along highway
- density of proposed entrances along highway
- offset spacing from highway to first intersection / entrance on public crossing road
- location of existing and proposed inter-</td><td>High conformity to safety and design standards
• Supports use of better than minimum horizontal and vertical alignment elements
• Can accommodate standard lane and shoulder widths
High conformity to control private entrances and road connections onto highway
• Strict access control resulting in highway that functions safely and efficiently for its useful life
• Develop a Highway Access Management Plan for managing entrances onto the corridor:
- spacing between existing/proposed intersections along highway
- density of proposed entrances along highway
- offset spacing from highway to first intersection / entrance on public crossing road
- location of existing and proposed inter-</td><td>High conformity to safety and design standards
• Supports use of better than minimum horizontal and vertical alignment elements
• Can accommodate standard lane and shoulder widths
High conformity to control private entrances and road connections onto highway
• Strict access control resulting in highway that functions safely and efficiently for its useful life
• Develop a Highway Access Management Plan for managing entrances onto the corridor:
- spacing between existing/proposed intersections along highway
- density of proposed entrances along highway
- offset spacing from highway to first intersection / entrance on public crossing road
- location of existing and proposed inter-</td></tr>
</table>

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
		regional and municipal transit routes and facilities - traffic impact study(s), to support existing and future land use planning decisions for above	regional and municipal transit routes and facilities - traffic impact study(s), to support existing and future land use planning decisions for above	regional and municipal transit routes and facilities - traffic impact study(s), to support existing and future land use planning decisions for above	regional and municipal transit routes and facilities - traffic impact study(s), to support existing and future land use planning decisions for above
5.7 Traffic Operations		**High** potential for negative impact on traffic operations • Route predominantly uses existing roadway alignments, with multiple private entrances • 7 at-grade intersections (4 signalized and 3 unsignalized) • 0 grade-separated crossings • Partial connections to existing Highway 7&8 at east and west ends of Shakespeare; however does not provide direct access into Shakespeare for westbound traffic (predominant direction for tourist business) – westbound traffic must use bypass to access Shakespeare via Road 107	**Moderate** potential for negative impact on traffic operations • Route predominantly uses existing roadway alignments, with multiple private entrances • 4 at-grade signalized intersections • 3 grade-separated crossings • Partial connections to existing Highway 7&8 at east and west ends of Shakespeare; however does not provide direct access into Shakespeare for westbound traffic (predominant direction for tourist business) – westbound traffic must use bypass to access Shakespeare via Road 107 • Will provide marginal improvement in traffic operation, grade separations at low volume crossings	**High** potential for negative impact on traffic operations • Route predominantly uses existing roadway alignments, with multiple private entrances • 7 at-grade intersections (3 unsignalized and 4 roundabouts) • 0 grade-separated crossings • Partial connections to existing Highway 7&8 at east and west ends of Shakespeare; however does not provide direct access into Shakespeare for westbound traffic (predominant direction for tourist business) – westbound traffic must use bypass to access Shakespeare via Road 107 • Reduced speed associated with roundabout intersections not consistent with role and function of provincial highway	**Moderate** potential for negative impact on traffic operations • Route predominantly uses existing roadway alignments, with multiple private entrances • 4 at-grade intersections (4 roundabouts) • 3 grade-separated crossings • Partial connections to existing Highway 7&8 at east and west ends of Shakespeare; however does not provide direct access into Shakespeare for westbound traffic (predominant direction for tourist business) – westbound traffic must use bypass to access Shakespeare via Road 107 • Will provide marginal improvement in traffic operation, grade separations at low volume crossings • Reduced speed associated with roundabout intersections not consistent with role and function of provincial highway
5.8 Construction Cost (excludes property costs and engineering costs)		**Low Relative Cost** $75 M	**Low Relative Cost** $75 M	**Low Relative Cost** $75 M	**Low Relative Cost** $75 M
TRANSPORTATION SUMMARY		**For all alternatives, potential impacts and benefits from a transportation perspective are comparable with no discernible differences.**			

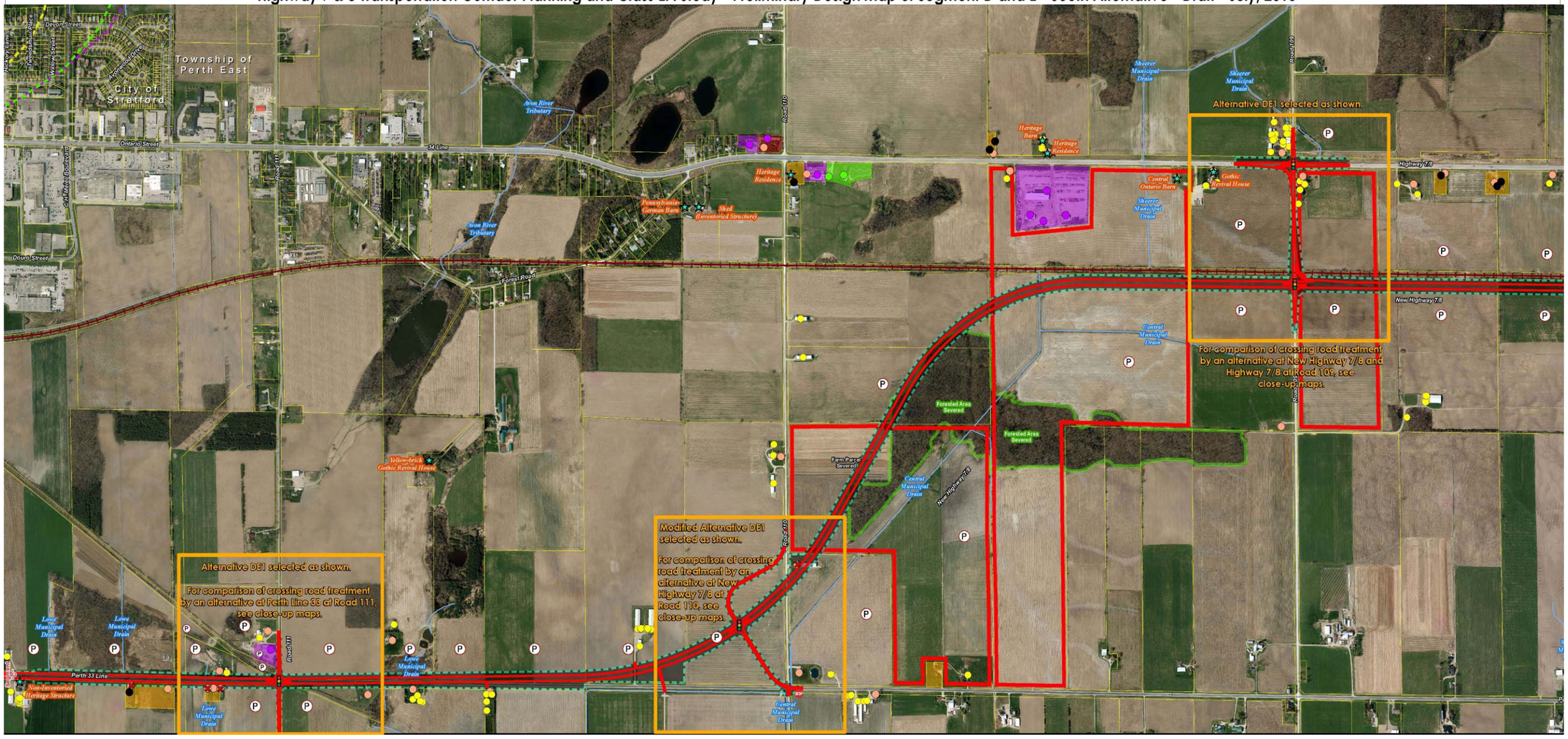
Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 – North Bypass Alternatives					
Segments D and E North Alternatives		**North Alternative DE1**	**North Alternative DE2**	**North Alternative DE3**	**North Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – 2-lane roundabout Road 110 / Perth Line 33 – 2-lane roundabout Existing Highway 7&8 – 2-lane roundabout Road 109 / Existing Highway 7&8 – Grade separation Road 108 – Grade separation Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – 2-lane roundabout Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Grade separation
Factor / Sub-Factor	**Criteria**				
RECOMMENDATION		**North Bypass Alternative DE1 is recommended. For all alternatives, potential impacts to features of the natural and cultural environments are comparable with no discernible differences. From a socio-economic environment perspective, north bypass Alternative 1 is preferred as it displaces the least agricultural land and results in the least disruption to linkages and local travel routes. The provision of full moves access at the majority of the crossing road via traffic signals or stop sign control on the crossing road provides improved operational and safety performance and maintain current direct access to and from the highway for local traffic and emergency service.**			

APPENDIX D

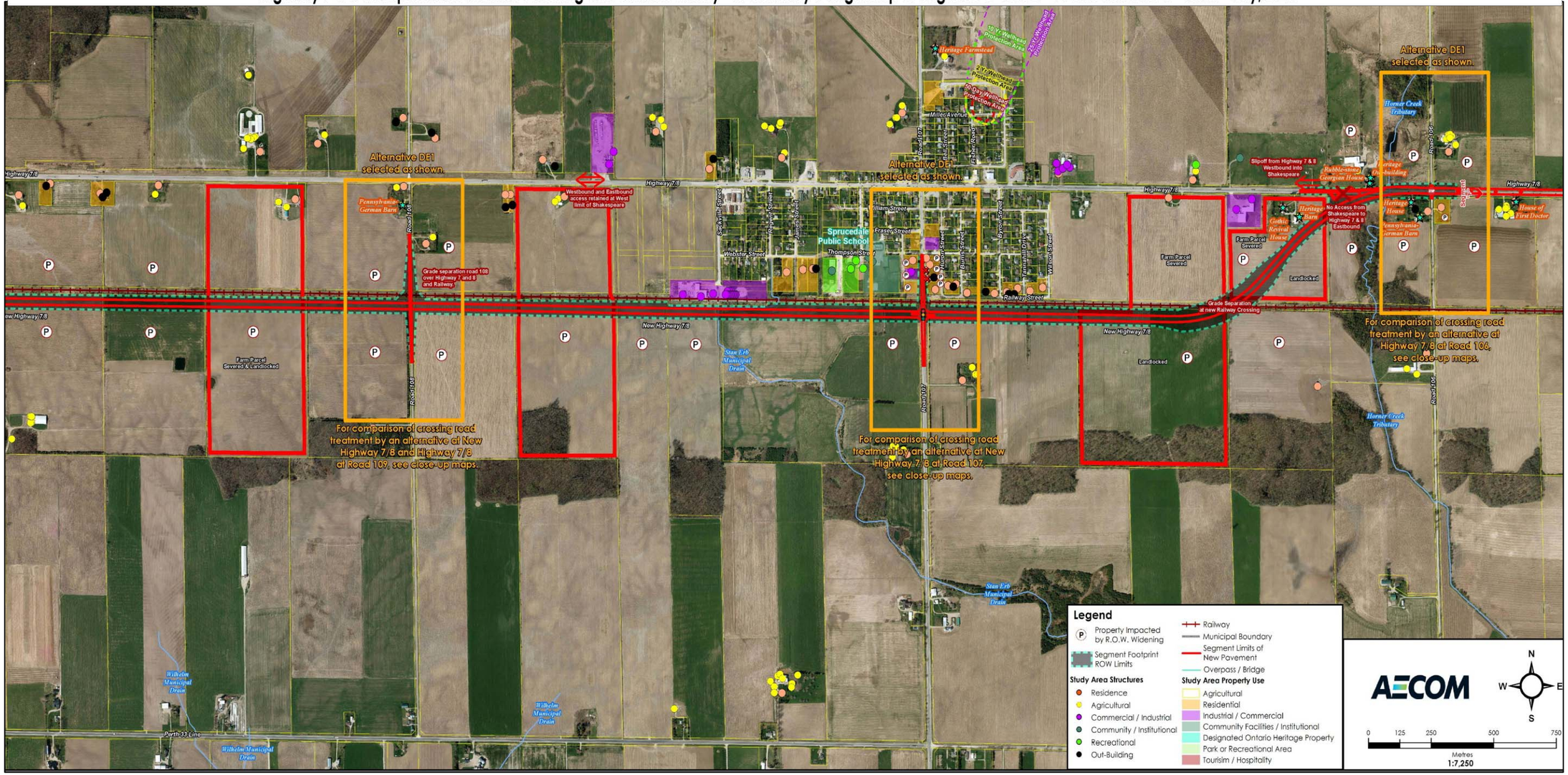
Segments D and E: East of East Limit of Stratford to East of Road 106

South Bypass Preliminary Design Alternatives

Highway 7 & 8 Transportation Corridor Planning and Class EA Study - Preliminary Design Map of Segment D and E - South Alternative - Draft - July, 2013



Highway 7 & 8 Transportation Corridor Planning and Class EA Study - Preliminary Design Map of Segment D and E - South Alternative - Draft - July, 2013

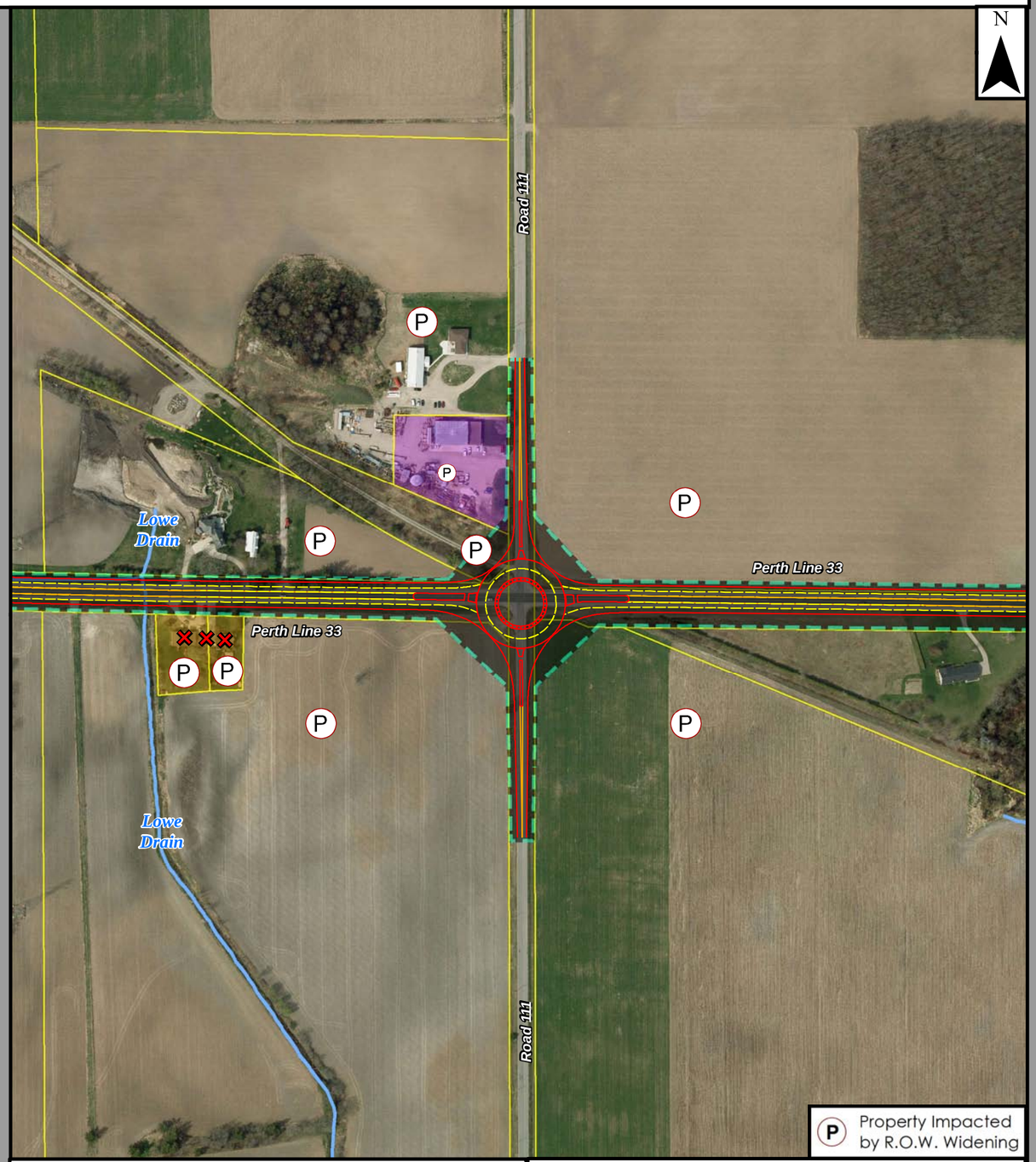


Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Crossing Road Intersection Treatment Alternatives for Segment D - South Alternative - 1 of 3 (July, 2013)

Perth Line 33 at Road 111

Selected Alternative D1 - Signalized intersection



Alternative D2 - 2-Lane roundabout

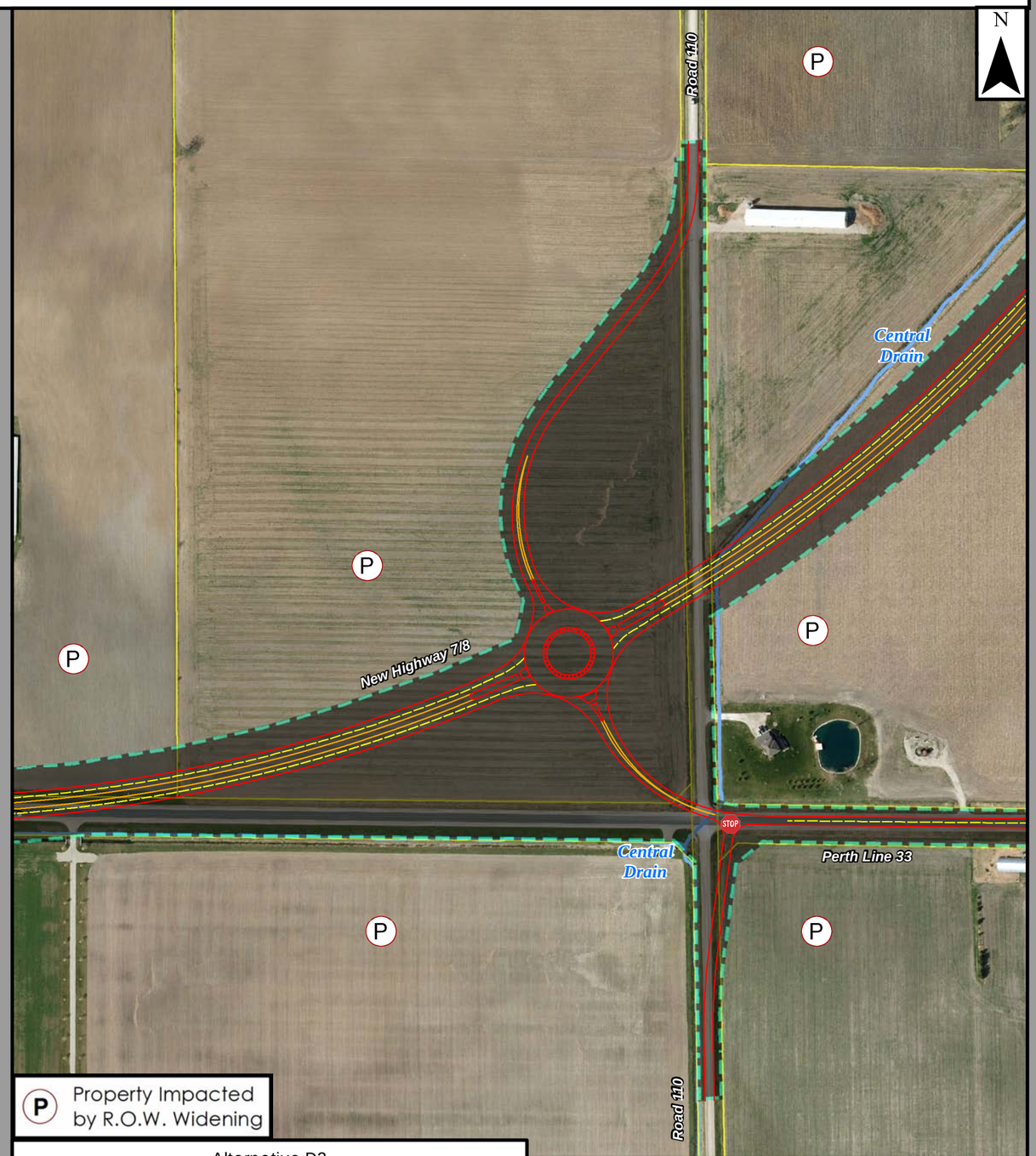
Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegDS_1_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment D - South Alternative - 2 of 3 (July, 2013)

Perth Line 33 at Road 110

Alternative D1
Signalized intersection at Highway 7/8;
stop sign at Perth Line 33 / Road 110 intersection.

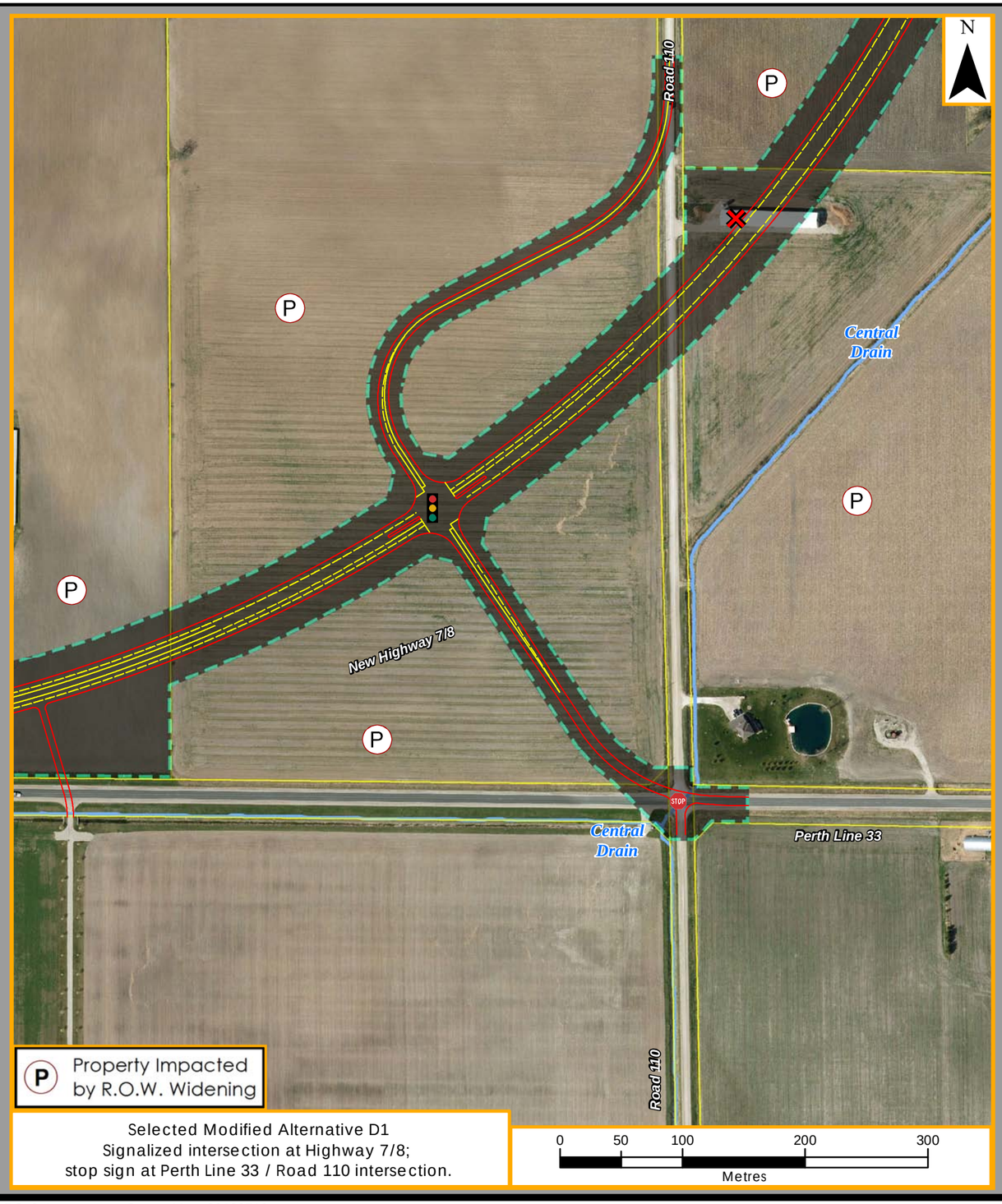


Alternative D2
2-Lane roundabout at Highway 7/8;
stop sign at Perth Line 33 / Road 110 intersection

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegDS_2_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design
Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment D - South Alternative - 3 of 3 (July, 2013)

Perth Line 33 at Road 110

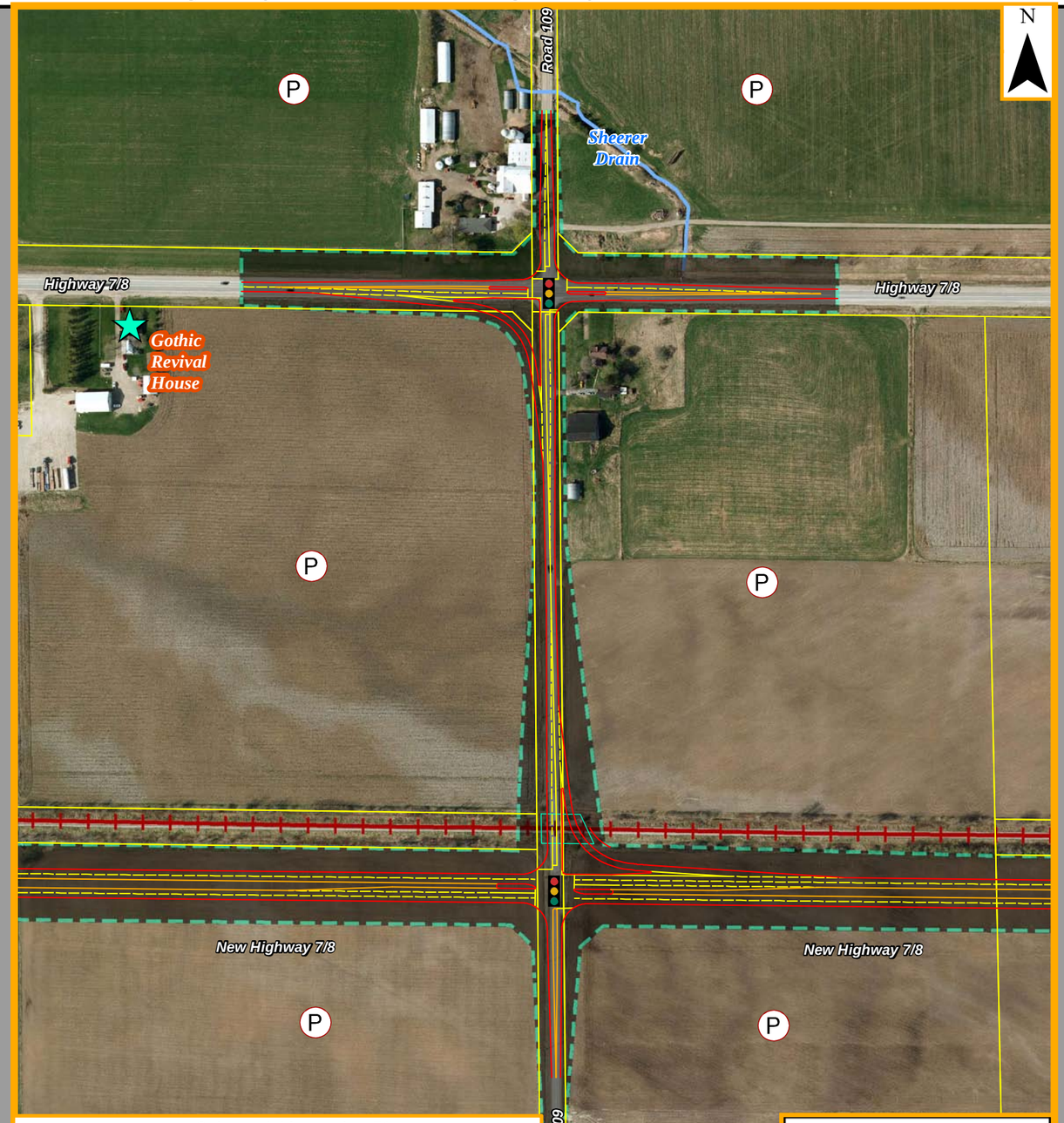


Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegDS_3_Intersection_Group_Map_20130719.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - South Alternative - 1 of 5 (July, 2013)

Highway 7/8 and New Highway 7/8 at Road 109



Selected Alternative E1

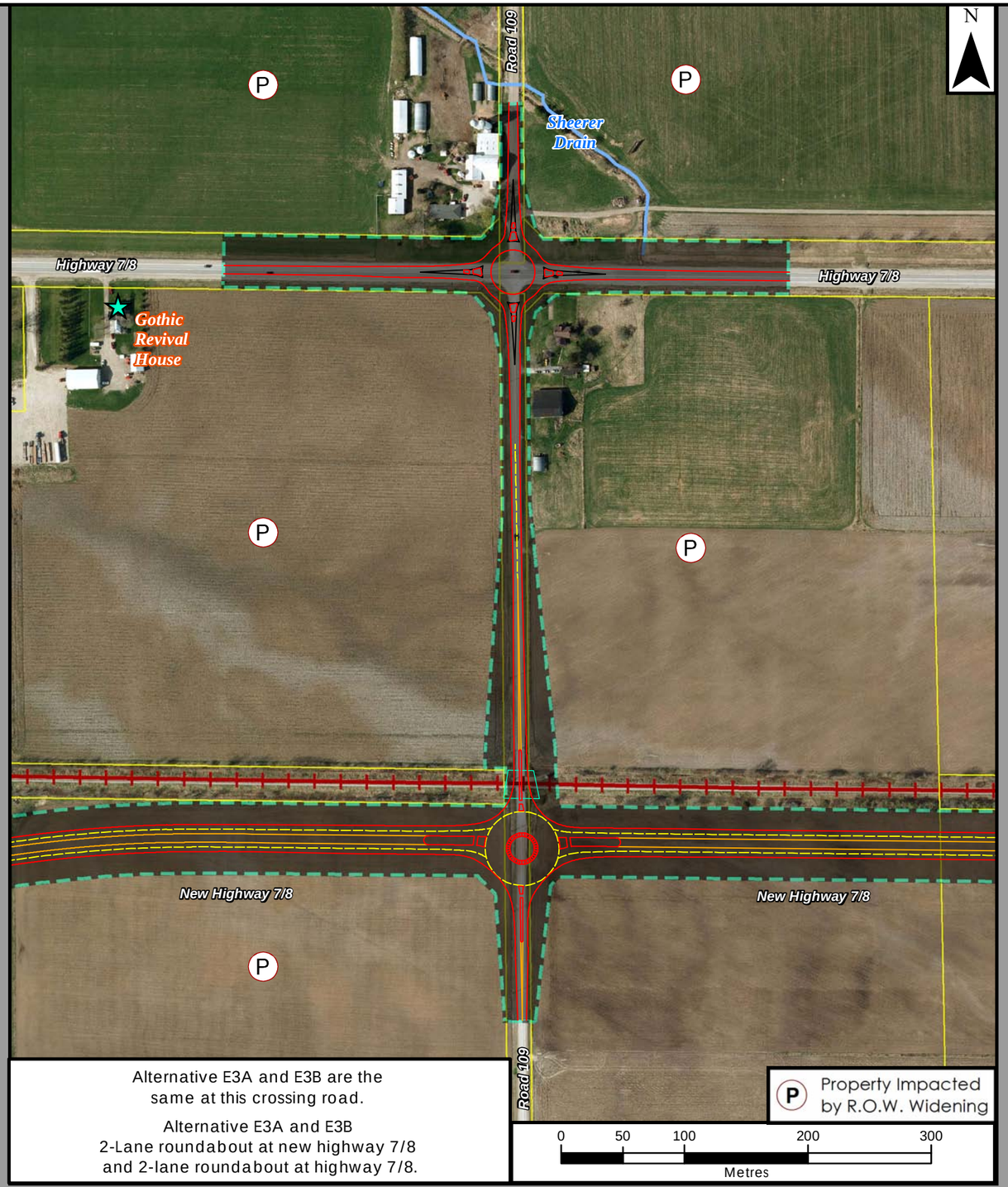
Alternative E1 and E2 with Signalized intersection
and channelization at Road 109
and New Highway 7/8 with Signalized intersection
and channelization at Road 109 and Highway 7/8

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegESouth1091_Intersection_Group_Map_20130719.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - South Alternative - 2 of 5 (July, 2013)

Highway 7/8 and New Highway 7/8 at Road 109



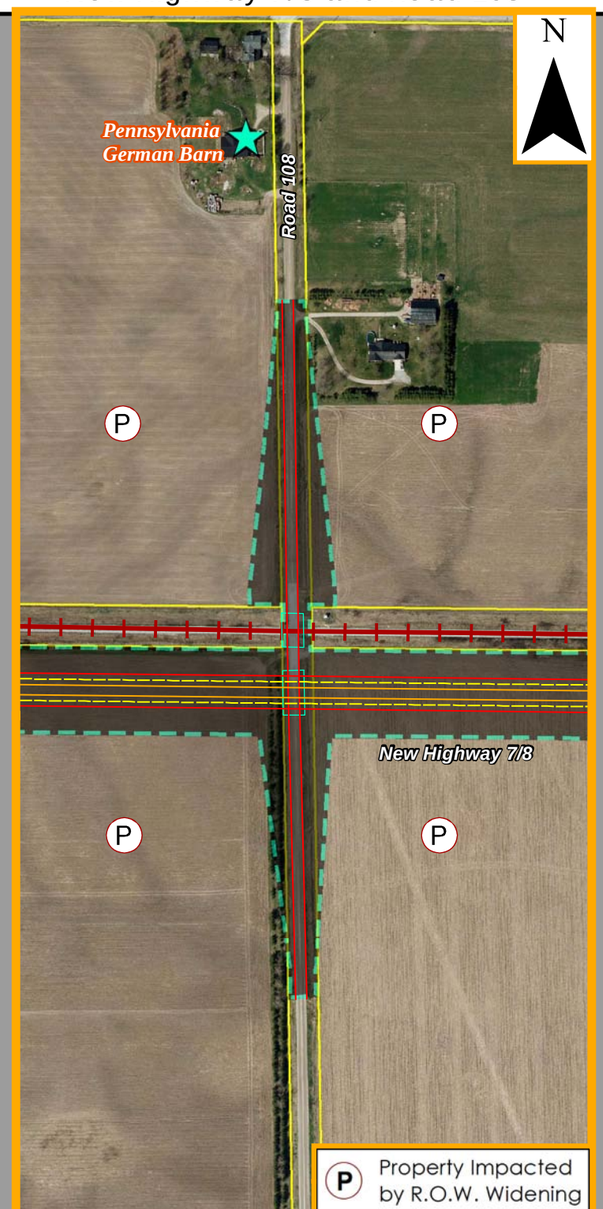
Alternative E3A and E3B are the same at this crossing road.

Alternative E3A and E3B
2-Lane roundabout at new highway 7/8
and 2-lane roundabout at highway 7/8.

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegESouth109_2_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design
Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - South Alternative - 3 of 5 (July, 2013)

New Highway 7/8 and Road 108



Alternative E1, E2, E3A, and E3B
are the same at this crossing road.

Selected Alternative E1
Grade separation over railway.

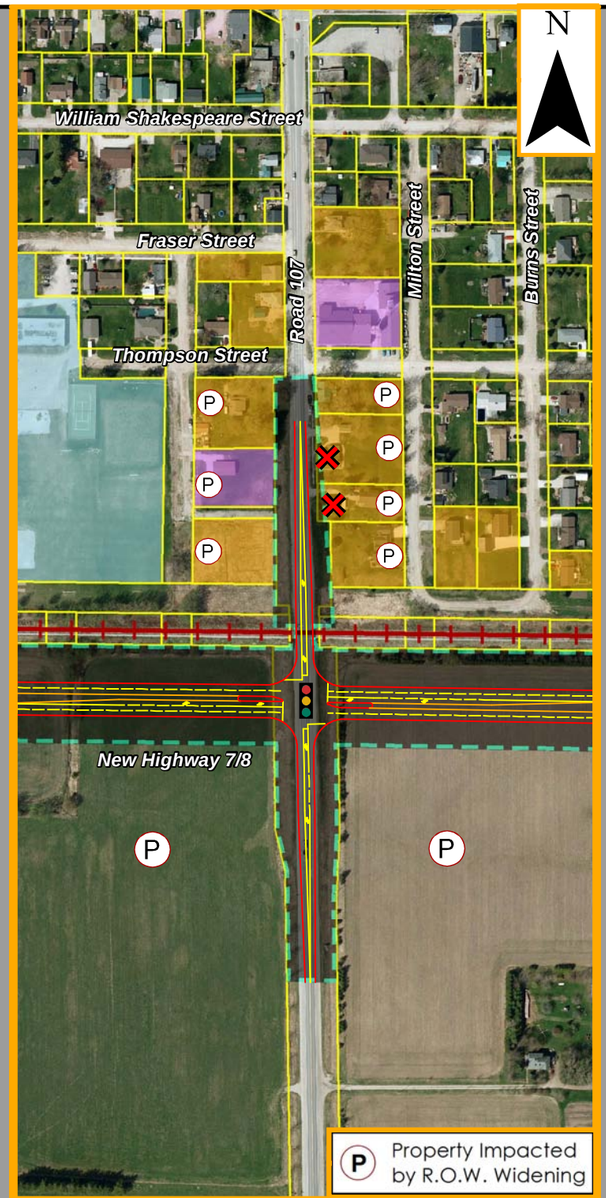
0 50 100 200 300
Metres

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegESouth108_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - South Alternative - 4 of 5 (July, 2013)

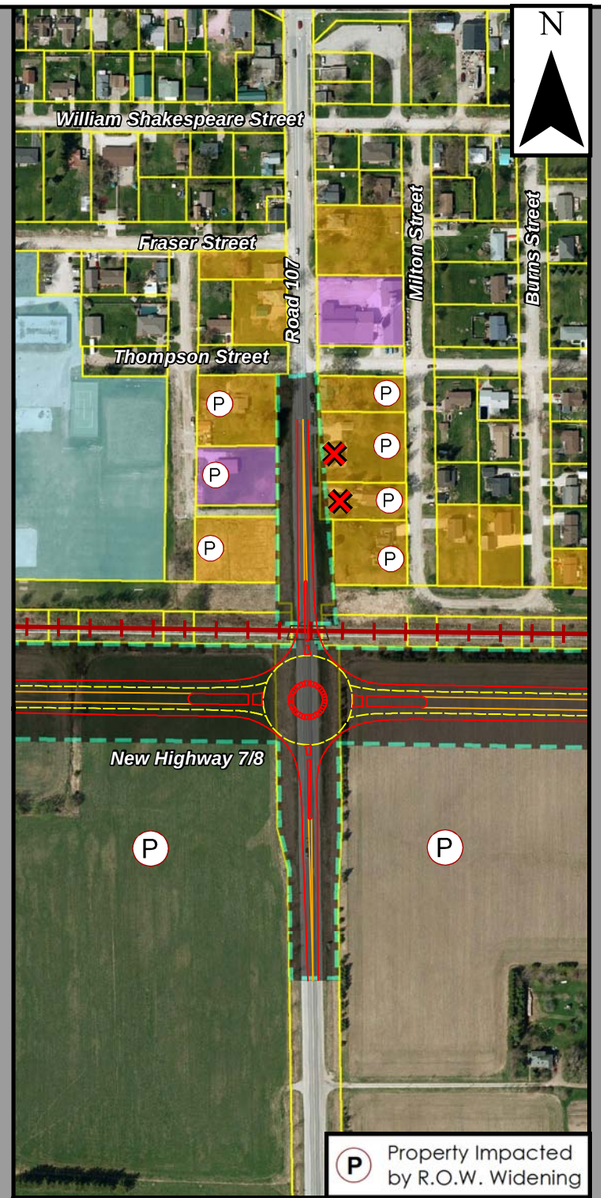
New Highway 7/8 at Road 107



Alternative E1 and E2 are the same at this crossing road.

Selected Alternative E1
Signalized intersection with grade separation over railway.

0 50 100 200 300
Metres



Alternative E3A and E3B are the same at this crossing road.

Alternative E3A and E3B
2-Lane roundabout with grade separation over railway.

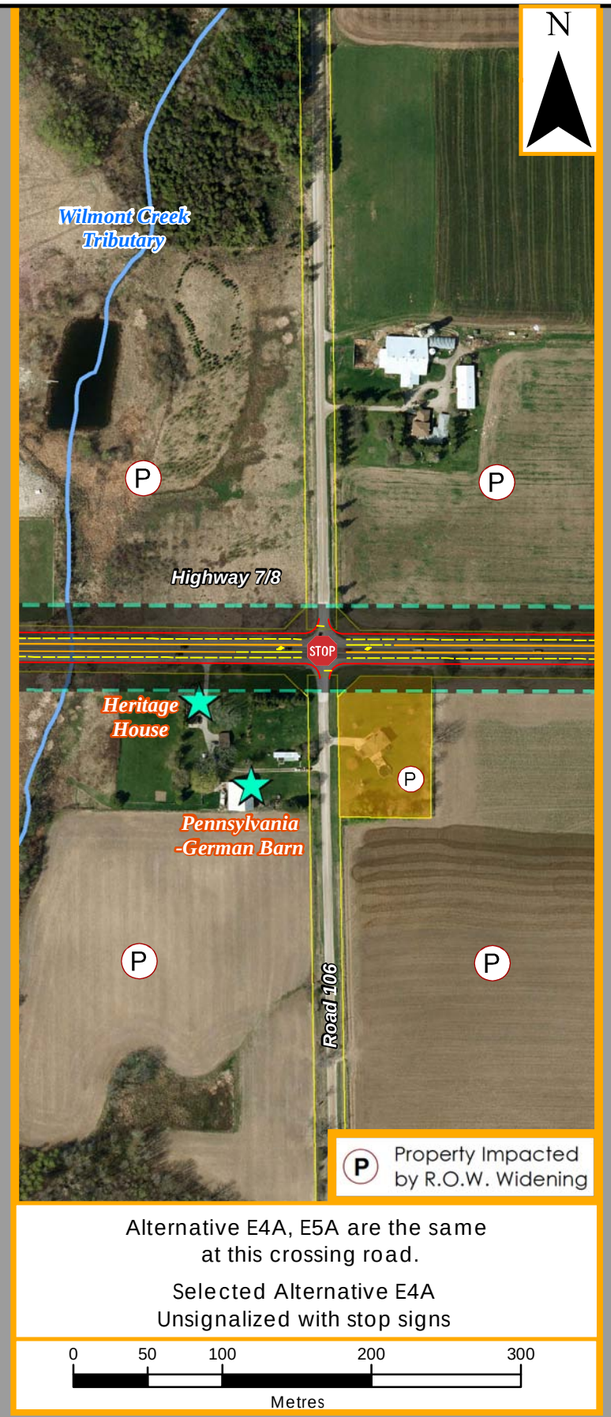
0 50 100 200 300
Metres

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegESouth107_Intersection_Group_Map_20130409.mxd

Highway 7 & 8 Corridor Planning and Class EA Study - Preliminary Design

Close-up Map of Connecting Road Intersection Treatment Alternatives for Segment E - South Alternative - 5 of 5 (July, 2013)

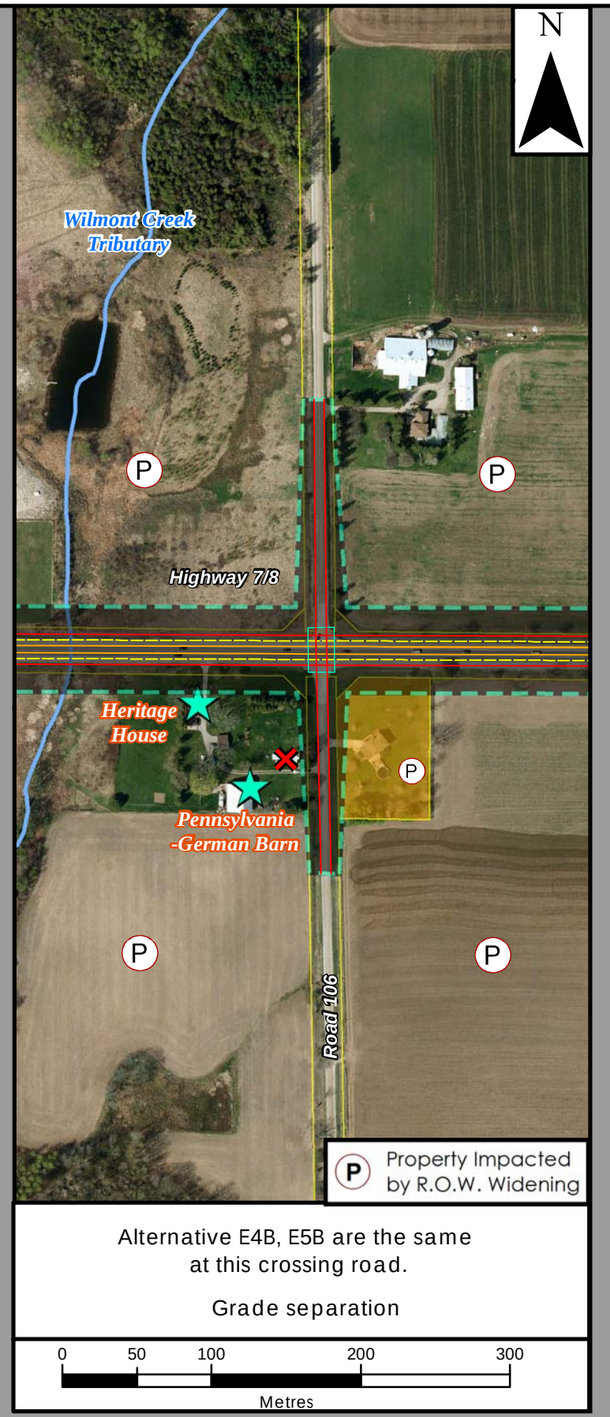
Highway 7/8 and Road 106



Alternative E4A, E5A are the same at this crossing road.

Selected Alternative E4A
Unsignalized with stop signs

0 50 100 200 300
Metres



Alternative E4B, E5B are the same at this crossing road.

Grade separation

0 50 100 200 300
Metres

Path: F:\60117929 Highway 7 and 8\GIS Data\Maps\Road Treatments\60117929_SegESouth106_Intersection_Group_Map_20130409.mxd

Highway 7&8 Transportation Corridor Planning and Class EA Study **EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES** Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
1. Natural Environmental Factors					
1.1 Fisheries and Aquatic Ecosystems	1.1.1 Fish Habitat 1.1.2 Fish Community	**Low** potential to affect fish and fish habitat • 13 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Stan Erb Municipal Drain (unknown thermal regime) - 1 crossing of Sheerer Municipal Drain (unknown thermal regime) - 4 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 12 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Stan Erb Municipal Drain (unknown thermal regime) - 1 crossing of Sheerer Municipal Drain (unknown thermal regime) - 4 crossings of Central Municipal Drain (unknown thermal regime) - 4 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 12 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Stan Erb Municipal Drain (unknown thermal regime) - 1 crossing of Sheerer Municipal Drain (unknown thermal regime) - 4 crossings of Central Municipal Drain (unknown thermal regime) - 4 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 12 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Stan Erb Municipal Drain (unknown thermal regime) - 1 crossing of Sheerer Municipal Drain (unknown thermal regime) - 4 crossings of Central Municipal Drain (unknown thermal regime) - 4 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing
1.2 Terrestrial Ecosystems	1.2.1 Wildlife	**High** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species in close proximity / within the alternative • Severs large forest area, displacing areas of interior woodlot and potentially impacting wildlife area / corridor.	**High** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species in close proximity / within the alternative • Severs large forest area, displacing areas of interior woodlot and potentially impacting wildlife area / corridor.	**High** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species in close proximity / within the alternative • Severs large forest area, displacing areas of interior woodlot and potentially impacting wildlife area / corridor.	**High** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species in close proximity / within the alternative • Severs large forest area, displacing areas of interior woodlot and potentially impacting wildlife area / corridor.
	1.2.2 Wetlands	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted
	1.2.3 Forests (e.g. woodlands [forest stands,	**High** potential to affect forested areas • 1 forested area impacted - Encroachment displaces approximately	**High** potential to affect forested areas • 1 forested area impacted - Encroachment displaces approximately	**High** potential to affect forested areas • 1 forested area impacted - Encroachment displaces approximately	**High** potential to affect forested areas • 1 forested area impacted - Encroachment displaces approximately

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
	woodlots and interior forest habitat] and significant valley lands [valley and stream corridors])	1.9 hectares of fringe area	1.37 hectares of fringe area - Severance displaces approximately 0.13 hectares of interior woodlot	1.37 hectares of fringe area - Severance displaces approximately 0.13 hectares of interior woodlot	1.37 hectares of fringe area - Severance displaces approximately 0.13 hectares of interior woodlot
	1.2.4 Vegetation Species At Risk	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)
	1.2.5 Designated/Special Areas (such as world biosphere reserves, heritage rivers, ESAs, ESPAs, ANSIs, environmental plan areas, conservation reserves; and the designated special areas of national parks, provincial parks, conservation areas, etc)	**No** potential to affect designated special areas • No designated special areas	**No** potential to affect designated special areas • No designated special areas	**No** potential to affect designated special areas • No designated special areas	**No** potential to affect designated special areas • No designated special areas
1.3 Groundwater	1.3.1 Areas of Ground water Recharge and Discharge 1.3.2 Groundwater Source Areas and Wellhead Protection Areas	**Low** potential to affect areas of groundwater recharge / discharge areas / Wellhead Protection Areas • No recharge areas / municipal wellhead protection areas impacted • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Low** potential to affect areas of groundwater recharge / discharge areas / Wellhead Protection Areas • No recharge areas / municipal wellhead protection areas impacted • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Low** potential to affect areas of groundwater recharge / discharge areas / Wellhead Protection Areas • No recharge areas / municipal wellhead protection areas impacted • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Low** potential to affect areas of groundwater recharge / discharge areas / Wellhead Protection Areas • No recharge areas / municipal wellhead protection areas impacted • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils
	1.3.3 Large Volume Wells	**No** potential to affect large volume wells • No large volume wells impacted	**No** potential to affect large volume wells • No large volume wells impacted	**No** potential to affect large volume wells • No large volume wells impacted	**No** potential to affect large volume wells • No large volume wells impacted

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
	1.3.4 Private Wells	**Moderate** potential to affect private well use • 3 private wells displaced - 2 shallow dug wells - 1 deep bedrock well • 40 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 5 deep bedrock aquifer wells in close proximity (<150 m) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 3 private wells displaced - 2 shallow dug wells - 1 deep bedrock well • 40 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 5 deep bedrock aquifer wells in close proximity (<150 m) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 3 private wells displaced - 2 shallow dug wells - 1 deep bedrock well • 40 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 5 deep bedrock aquifer wells in close proximity (<150 m) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 3 private wells displaced - 2 shallow dug wells - 1 deep bedrock well • 40 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 5 deep bedrock aquifer wells in close proximity (<150 m) - May require decommissioning and replacement
	1.3.5 Groundwater-Sensitive Ecosystems (e.g. groundwater fed wetlands, coldwater streams)	**Low** potential to affect groundwater sensitive ecosystems • 2 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Area) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 2 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Area) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 2 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Area) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 2 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Area) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.
1.4 Surface Water	1.4.1 Watershed / Sub-Watershed Drainage Features/Patterns 1.4.2 Surface Water Quality and Quantity	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 13 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 12 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 12 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 12 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted
NATURAL ENVIRONMENT SUMMARY		**For all alternatives, potential impacts to features of the natural environment are comparable with no discernible differences, however Alternative DE1 is slightly preferred as it results in no impacts to areas of forest interior.**			
2. Land Use / Socio-Economic Environmental Factors					

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
2.1 Land Use Planning Policies, Goals, Objectives	2.1.1 First Nations Land Claims	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area
	2.1.2 Provincial/Federal land use planning policies/goals/objectives	*Previously addressed through the detailed planning phase.*			
	2.1.3 Municipal (regional and local) land use planning policies/ goals/objectives (Official Plans)	*Previously addressed through the detailed planning phase.*			
	2.1.4 Development Objectives of Private Property Owners	*Previously addressed through the detailed planning phase.*			
2.2 Land Use / Community	2.2.1 First Nation Reserves	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area
	2.2.2 First Nations' Sacred Grounds	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area
	2.2.3 Urban and Rural Residential	**High** potential for impacts to urban and rural residential areas • 9 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 5 of these residential properties - 5 residential properties completely displaced - No residential property severed • Moderate impact on character and use of residential property because change is limited to a few individual rural residential properties, but alternative is not well separated from the built up area of Shakespeare, though it does parallel the existing railway • Moderate interference with residential	**High** potential for impacts to urban and rural residential areas • 9 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 5 of these residential properties - 5 residential properties completely displaced - No residential property severed • High impact on character and use of 1 residential property in southeast quadrant of Highway 7&8 and Road 106 intersection. • Moderate impact on character and use of residential property because change is limited to a few individual rural residential properties, but alternative is not well separated from the built up area of	**High** potential for impacts to urban and rural residential areas • 9 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 5 of these residential properties - 5 residential properties completely displaced - No residential property severed • Moderate impact on character and use of residential property because change is limited to a few individual rural residential properties, but alternative is not well separated from the built up area of Shakespeare, though it does parallel the existing railway • Moderate interference with residential	**High** potential for impacts to urban and rural residential areas • 9 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 5 of these residential properties - 5 residential properties completely displaced - No residential property severed • High impact on character and use of 1 residential property in southeast quadrant of Highway 7&8 and Road 106 intersection. • Moderate impact on character and use of residential property because change is limited to a few individual rural residential properties, but alternative is not well separated from the built up area of

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives

Segments D and E South Alternatives		South Alternative DE1 - Recommended	South Alternative DE2	South Alternative DE3	South Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		community cohesion given the alternative does not pass through built up residential areas but does displace 2 residential homes in the south of Shakespeare	Shakespeare, though it does parallel the existing railway • Moderate interference with residential community cohesion given the alternative does not pass through built up residential areas but does displace 3 residential homes in the south of Shakespeare	community cohesion given the alternative does not pass through built up residential areas but does displace 3 residential homes in the south of Shakespeare	Shakespeare, though it does parallel the existing railway • Moderate interference with residential community cohesion given the alternative does not pass through built up residential areas but does displace 3 residential homes in the south of Shakespeare
	2.2.4 Commercial/Industrial	**Low** potential for impacts to commercial and industrial areas • 3 commercial / industrial properties impacted - 2 commercial / industrial properties lose frontage - Home is displaced on 1 commercial / industrial property - 1commercial / industrial property completely displaced • (refer to 2.2.9 for access impacts)	**Low** potential for impacts to commercial and industrial areas • 3 commercial / industrial properties impacted - 2 commercial / industrial properties lose frontage - Home is displaced on 1 commercial / industrial property - 1commercial / industrial property completely displaced • (refer to 2.2.9 for access impacts)	**Low** potential for impacts to commercial and industrial areas • 3 commercial / industrial properties impacted - 2 commercial / industrial properties lose frontage - Home is displaced on 1 commercial / industrial property - 1commercial / industrial property completely displaced • (refer to 2.2.9 for access impacts)	**Low** potential for impacts to commercial and industrial areas • 3 commercial / industrial properties impacted - 2 commercial / industrial properties lose frontage - Home is displaced on 1 commercial / industrial property - 1commercial / industrial property completely displaced • (refer to 2.2.9 for access impacts)
	2.2.5 Tourist Areas and Attractions (e.g. museums, theatres, etc.)	**Low** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • South bypass provides a slip-off for direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business • South bypass retains visibility of Shakespeare business area from Highway 7&8 maintaining potential number of drive-by / impulse visitors to the area.	**Low** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • South bypass provides a slip-off for direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business • South bypass retains visibility of Shakespeare business area from Highway 7&8 maintaining potential number of drive-by / impulse visitors to the area.	**Low** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • South bypass provides a slip-off for direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business • South bypass retains visibility of Shakespeare business area from Highway 7&8 maintaining potential number of drive-by / impulse visitors to the area.	**Low** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • South bypass provides a slip-off for direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business • South bypass retains visibility of Shakespeare business area from Highway 7&8 maintaining potential number of drive-by / impulse visitors to the area.

Highway 7&8 Transportation Corridor Planning and Class EA Study **EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES** Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
2.2 Land Use / Community	2.2.6 Community Facilities / Institutions (e.g. hospitals, schools, places of worship, unique community features)	**No** potential for impacts to community facilities and institutions • No community facilities / institutions impacted by the alternative • No impacts on use, character and cohesion of community facilities / institutions	**No** potential for impacts to community facilities and institutions • No community facilities / institutions impacted by the alternative • No impacts on use, character and cohesion of community facilities / institutions	**No** potential for impacts to community facilities and institutions • No community facilities / institutions impacted by the alternative • No impacts on use, character and cohesion of community facilities / institutions	**No** potential for impacts to community facilities and institutions • No community facilities / institutions impacted by the alternative • No impacts on use, character and cohesion of community facilities / institutions
	2.2.7 Municipal Infrastructure and Public Service Facilities (e.g. sewage and water services, police/emergency services, local utilities)	**Moderate** potential to affect Municipal Infrastructure and Public Service Facilities • 4 municipal infrastructure / public service facilities impacted by the alternative with property encroachment(s) - 2 crossings of Stan Erb Municipal Drain - 1 crossing of Sheerer Municipal Drain - 4 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain	**Moderate** potential to affect Municipal Infrastructure and Public Service Facilities • 4 municipal infrastructure / public service facilities impacted by the alternative with property encroachment(s) - 2 crossings of Stan Erb Municipal Drain - 1 crossing of Sheerer Municipal Drain - 4 crossings of Central Municipal Drain - 4 crossings of Lowe Municipal Drain	**Moderate** potential to affect Municipal Infrastructure and Public Service Facilities • 4 municipal infrastructure / public service facilities impacted by the alternative with property encroachment(s) - 2 crossings of Stan Erb Municipal Drain - 1 crossing of Sheerer Municipal Drain - 4 crossings of Central Municipal Drain - 4 crossings of Lowe Municipal Drain	**Moderate** potential to affect Municipal Infrastructure and Public Service Facilities • 4 municipal infrastructure / public service facilities impacted by the alternative with property encroachment(s) - 2 crossings of Stan Erb Municipal Drain - 1 crossing of Sheerer Municipal Drain - 4 crossings of Central Municipal Drain - 4 crossings of Lowe Municipal Drain
	2.2.8 Downtown Historic Crossroads Function	**Low** potential to affect Downtown or Historic Crossroads • Bypass alternative south of Shakespeare restores historic downtown cross road function along Highway 7&8 and along Road 107	**Low** potential to affect Downtown or Historic Crossroads • Bypass alternative south of Shakespeare restores historic downtown cross road function along Highway 7&8 and along Road 107	**Low** potential to affect Downtown or Historic Crossroads • Bypass alternative south of Shakespeare restores historic downtown cross road function along Highway 7&8 and along Road 107	**Low** potential to affect Downtown or Historic Crossroads • Bypass alternative south of Shakespeare restores historic downtown cross road function along Highway 7&8 and along Road 107
	2.2.9 Out of Way Travel	**Low** potential to affect Out of Way Travel • 1 crossing road (Road 108) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 - Eastbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel east of	**Moderate** potential to affect Out of Way Travel • 2 crossing roads (Roads 108 and 106) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 - Eastbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel east of	**Moderate** potential to affect Out of Way Travel • 1 crossing road (Roads 108) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 - Eastbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel east of	**Moderate** potential to affect Out of Way Travel • 2 crossing roads (Roads 108 and 106) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 - Eastbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel east of

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives

Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		Shakespeare (i.e. no connection to existing Highway 7&8 at east end of Shakespeare – road cul-de-saced) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare can use existing Highway 7&8 to travel west of Shakespeare - Eastbound traffic entering Shakespeare can travel directly into Shakespeare using existing Highway 7&8	Shakespeare (i.e. no connection to existing Highway 7&8 at east end of Shakespeare – road cul-de-saced) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare can use existing Highway 7&8 to travel west of Shakespeare - Eastbound traffic entering Shakespeare can travel directly into Shakespeare using existing Highway 7&8	Shakespeare (i.e. no connection to existing Highway 7&8 at east end of Shakespeare – road cul-de-saced) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare can use existing Highway 7&8 to travel west of Shakespeare - Eastbound traffic entering Shakespeare can travel directly into Shakespeare using existing Highway 7&8	Shakespeare (i.e. no connection to existing Highway 7&8 at east end of Shakespeare – road cul-de-saced) • At west limit of Shakespeare - Westbound traffic leaving Shakespeare can use existing Highway 7&8 to travel west of Shakespeare - Eastbound traffic entering Shakespeare can travel directly into Shakespeare using existing Highway 7&8
2.3 Noise Sensitive Areas (NSAs) (residential areas and sensitive institutional uses)	2.3.1 Highway Noise	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • South design alternatives have approximately 121 receptors, including 1 school (Sprucedale Public School) impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 77 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • South design alternatives have approximately 121 receptors, including 1 school (Sprucedale Public School) impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 77 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • South design alternatives have approximately 121 receptors, including 1 school (Sprucedale Public School) impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 77 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • South design alternatives have approximately 121 receptors, including 1 school (Sprucedale Public School) impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 77 receptors experiencing a decrease of 5 dBA or greater
	2.3.2 Construction Noise	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
2.4 Agriculture	2.4.1 Agriculture - Canada Land Inventory Class 1,2,3 Land	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 70.1 hectares of agricultural land from a total of 43 agricultural properties	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 65.8 hectares of agricultural land from a total of 48 agricultural properties	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 65.8 hectares of agricultural land from a total of 48 agricultural properties	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 66.1 hectares of agricultural land from a total of 48 agricultural properties
	2.4.2 Agricultural - Farm Infrastructure	**Moderate** potential for impacts to farm infrastructure • 1 farm building (excluding houses) displaced • 43 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)	**Moderate** potential for impacts to farm infrastructure • No farm buildings (excluding houses) displaced • 48 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)	**Moderate** potential for impacts to farm infrastructure • No farm buildings (excluding houses) displaced • 48 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)	**Moderate** potential for impacts to farm infrastructure • No farm buildings (excluding houses) displaced • 48 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)
	2.4.3 Agriculture – Operations on Individual Farms	**High** potential for impacts to operations on individual farms • 43 agricultural properties impacted - 7 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances (2 severed and landlocked areas are areas of woodlot) - 36 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 48 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances (all severed and landlocked areas are agricultural field areas) - 41 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 48 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances(all severed and landlocked areas are agricultural field areas) - 41 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 48 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances(all severed and landlocked areas are agricultural field areas) - 41 agricultural properties lose frontage
	2.4.4 Agriculture – Transportation Linkages between Integrated Agricultural Business Units	**Low** potential for impacts to transportation linkages between integrated agricultural business units • 3 crossing roads where additional intersections must be crossed - 1 new intersection on Road 110 (signalized) - 1 new intersection on Road 109 (signalized) - 1 new intersection on Road 107 (signalized) • 1 crossing road (Road 108) where grade separations improve travel across the highway but introduce out-of-way travel to	**Moderate** potential for impacts to transportation linkages between integrated agricultural business units • 3 crossing roads where additional intersections must be crossed - 1 new intersection on Road 110 (signalized) - 1 new intersection on Road 109 (signalized with channelization) - 1 new intersection on Road 107 (signalized) • 2 crossing roads (Roads 108 and 106) where grade separations improve travel across the highway but introduce out-of-way travel to	**Moderate** potential for impacts to transportation linkages between integrated agricultural business units • 3 crossing roads where additional intersections must be crossed - 1 new intersection on Road 110 (2 lane roundabout) - 1 new intersection on Road 109 (2 lane roundabout) - 1 new intersection on Road 107 (2 lane roundabout) • 1 crossing road (Roads 108) where grade separations improve travel across the highway but introduce out-of-way travel to	**Moderate** potential for impacts to transportation linkages between integrated agricultural business units • 3 crossing roads where additional intersections must be crossed - 1 new intersection on Road 110 (2 lane roundabout) - 1 new intersection on Road 109 (2 lane roundabout) - 1 new intersection on Road 107 (2 lane roundabout) • 2 crossing roads (Roads 108 and 106) where grade separations improve travel across the highway but introduce out-of-way travel to

Highway 7&8 Transportation Corridor Planning and Class EA Study **EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES** Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		access highway • 3 crossing roads (Roads 109, 108 and 107) where grade separations improve travel across railway • 1 existing municipal road (Line 33) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL and left turn lanes at signalized intersections	access highway • 3 crossing roads (Roads 109, 108 and 107) where grade separations improve travel across railway • 1 existing municipal road (Line 33) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL and left turn lanes at signalized intersections	access highway • 3 crossing roads (Roads 109, 108 and 107) where grade separations improve travel across railway • 1 existing municipal road (Line 33) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL	access highway • 3 crossing roads (Roads 109, 108 and 107) where grade separations improve travel across railway • 1 existing municipal road (Line 33) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL
2.5 Land Use / Resources	2.5.1 First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes (e.g. hunting, fishing, harvesting of country foods, harvesting of medicinal plants)	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway
	2.5.2 Parks and Recreational Areas (e.g. national/provincial parks, conservation areas, municipal parks, public spaces, golf courses, trails, greenways and open space linkages)	**Low** potential to affect parks and recreational areas • Playing fields at Sprucedale Public School / Optimist Hall will be in close proximity (< 100m) with nuisance impacts anticipated • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated	**Low** potential to affect parks and recreational areas • Playing fields at Sprucedale Public School / Optimist Hall will be in close proximity (< 100m) with nuisance impacts anticipated • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated	**Low** potential to affect parks and recreational areas • Playing fields at Sprucedale Public School / Optimist Hall will be in close proximity (< 100m) with nuisance impacts anticipated • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated	**Low** potential to affect parks and recreational areas • Playing fields at Sprucedale Public School / Optimist Hall will be in close proximity (< 100m) with nuisance impacts anticipated • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated
	2.5.3 Aggregates, Mineral Resources	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted
2.6 Major Utility Transmission Corridors (e.g. railroads, hydro, gas, oil)		**Low** potential to affect major utility corridors • 4 railway crossings to be constructed • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 4 railway crossings to be constructed • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 4 railway crossings to be constructed • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 4 railway crossings to be constructed • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives

Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
2.7 Contaminated Property and Waste Management (e.g. Landfills, Hazardous Waste Sites, "Brownfield" Areas, other known contaminated sites, and high-risk contamination areas)		**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • 0 hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • 0 hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • 0 hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • 0 hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern
2.8 Landscape Composition	2.8.1 Scenic Composition (total aesthetic value of landscape components)	**Moderate** potential to affect scenic composition / aesthetic value • Aesthetic value impacted negatively by raising of route over railway in / around southeast Shakespeare • Low impacts to aesthetic value for a majority of route as adjacent to railway corridor and municipal drain which are existing landscape interruptions	**Moderate** potential to affect scenic composition / aesthetic value • Aesthetic value impacted negatively by raising of route over railway in / around southeast Shakespeare • Low impacts to aesthetic value for a majority of route as adjacent to railway corridor and municipal drain which are existing landscape interruptions	**Moderate** potential to affect scenic composition / aesthetic value • Aesthetic value impacted negatively by raising of route over railway in / around southeast Shakespeare • Low impacts to aesthetic value for a majority of route as adjacent to railway corridor and municipal drain which are existing landscape interruptions	**Moderate** potential to affect scenic composition / aesthetic value • Aesthetic value impacted negatively by raising of route over railway in / around southeast Shakespeare • Low impacts to aesthetic value for a majority of route as adjacent to railway corridor and municipal drain which are existing landscape interruptions
	2.8.2 Sensitive Viewer Groups	**Moderate** potential to affect sensitive viewer groups • 1 sensitive viewer groups in Shakespeare area adjacent to this alternative where vistas / outlooks will be negatively impacted	**Moderate** potential to affect sensitive viewer groups • 1 sensitive viewer groups in Shakespeare area adjacent to this alternative where vistas / outlooks will be negatively impacted	**Moderate** potential to affect sensitive viewer groups • 1 sensitive viewer groups in Shakespeare area adjacent to this alternative where vistas / outlooks will be negatively impacted	**Moderate** potential to affect sensitive viewer groups • 1 sensitive viewer groups in Shakespeare area adjacent to this alternative where vistas / outlooks will be negatively impacted
	2.8.3 Scenic value of views/vistas from the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility
	2.8.4 Specimen Trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees
2.9 Air Quality	2.9.1 Regional Air Quality and Total Contaminant and Greenhouse Gas Emissions	*Previously considered during the detailed planning phase.*			
	2.9.2 Local Air Quality and	**Low** potential to affect air quality for sensitive	**Low** potential to affect air quality for sensitive	**Low** potential to affect air quality for sensitive	**Low** potential to affect air quality for sensitive

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives

Segments D and E South Alternatives		South Alternative DE1 - Recommended	South Alternative DE2	South Alternative DE3	South Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
	Sensitive Receptors to Air Pollutants	receptors • South design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • South design alternatives have 15 sensitive receptors within 20m of the edge of right-of-way	receptors • South design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • South design alternatives have 15 sensitive receptors within 20m of the edge of right-of-way	receptors • South design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • South design alternatives have 15 sensitive receptors within 20m of the edge of right-of-way	receptors • South design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • South design alternatives have 15 sensitive receptors within 20m of the edge of right-of-way
SOCIO-ECONOMIC SUMMARY		**For all alternatives, impacts to features of the social environment are comparable. However, South Alternative DE1 is preferred as it:** • **Impacts fewer agricultural properties with fewer parcels severed and least area of agricultural field landlocked** • **does not impact use of residential property at Road 106 as much as other alternatives** • **results in least disruption to transportation linkages between Integrated Agricultural Business Units**			
3. Cultural Environmental Factors					
3.1 Cultural Heritage – Built Heritage and Cultural Landscapes	3.1.1 Buildings or "Standing" Sites of Architectural or Heritage Significance or Ontario Heritage Foundation Easement Properties	**Moderate** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • High impact to farm buildings at 2053 at Highway 7 & 8 - abuts heritage barn and is close proximity to Gothic Revival House. • Moderate impact to Georgian house and out-building at 2026 highway 7 & 8 north side because widening places highway closer. • Moderate Impact to House and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway 7/8 closer.	**Moderate** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • High impact to farm buildings at 2053 at Highway 7 & 8 - abuts heritage barn and is close proximity to Gothic Revival House. • Moderate impact to Georgian house and out-building at 2026 highway 7 & 8 north side because widening places highway closer. • Moderate Impact to House and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway 7/8 and road 106 closer.	**Moderate** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • High impact to farm buildings at 2053 at Highway 7 & 8 - abuts heritage barn and is close proximity to Gothic Revival House. • Moderate impact to Georgian house and out-building at 2026 highway 7 & 8 north side because widening places highway closer. • Moderate Impact to House and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway 7/8 and road 106 closer.	**Moderate** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • High impact to farm buildings at 2053 at Highway 7 & 8 - abuts heritage barn and is close proximity to Gothic Revival House. • Moderate impact to Georgian house and out-building at 2026 highway 7 & 8 north side because widening places highway closer. • Moderate Impact to House and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway 7/8 and road 106 closer.
	3.1.2 Heritage Bridges	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced
	3.1.3 Areas of Historic 19th Century Settlement	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives

Segments D and E South Alternatives		South Alternative DE1 - Recommended	South Alternative DE2	South Alternative DE3	South Alternative DE4
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
	3.1.4 Cultural Heritage Landscapes (collection of individual man-made features modifying pristine landscape)	**No** potential for impacts to cultural landscapes • No cultural landscapes identified	**No** potential for impacts to cultural landscapes • No cultural landscapes identified	**No** potential for impacts to cultural landscapes • No cultural landscapes identified	**No** potential for impacts to cultural landscapes • No cultural landscapes identified
	3.1.5 First Nations' Burial Sites	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area
	3.1.6 Cemeteries	**Low** potential for impacts to cemeteries • No cemeteries displaced • Cemetery south of route on Road 107 will not be disturbed	**Low** potential for impacts to cemeteries • No cemeteries displaced • Cemetery south of route on Road 107 will not be disturbed	**Low** potential for impacts to cemeteries • No cemeteries displaced • Cemetery south of route on Road 107 will not be disturbed	**Low** potential for impacts to cemeteries • No cemeteries displaced • Cemetery south of route on Road 107 will not be disturbed
3.2 Cultural Heritage – Archaeology	3.2.1 Pre-Historic and Historic First Nations Sites 3.2.2 Historic Euro-Canadian Archaeological Sites	**Moderate** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Moderate** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Moderate** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Moderate** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites
CULTURAL ENVIRONMENT SUMMARY		**For all alternatives, potential impacts to features of the cultural environment are comparable with no discernible differences.**			
4. Area Economy	Previously Addressed During the Needs Assessment Phase				
5. Transportation Factors					
5.1 Area Transportation System Capacity and Efficiency	5.1 Federal/Provincial/Municipal transportation planning policies/goals/objectives	*Previously addressed during Needs Assessment Phase*	Highway 7&8 is a regionally significant part of the overall provincial highway network. It plays a key role in linking communities in south-western Ontario and supports economic prosperity across Ontario.		
	5.2 Efficient movement of people	**High** potential to support efficient movement of	**High** potential to support efficient movement of	**High** potential to support efficient movement of	**High** potential to support efficient movement of

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		people • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	people • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	people • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	people • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare
	5.3 Efficient movement of goods	**High** potential to support efficient movement of goods • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**High** potential to support efficient movement of goods • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**High** potential to support efficient movement of goods • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**High** potential to support efficient movement of goods • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare
5.2 System reliability / redundancy		**High** potential to support system reliability and redundancy • Route is predominantly on new alignment which provides an alternate route to accommodate travel during adverse conditions (parallel municipal roads also currently serve this function)	**High** potential to support system reliability and redundancy • Route is predominantly on new alignment which provides an alternate route to accommodate travel during adverse conditions (parallel municipal roads also currently serve this function)	**High** potential to support system reliability and redundancy • Route is predominantly on new alignment which provides an alternate route to accommodate travel during adverse conditions (parallel municipal roads also currently serve this function)	**High** potential to support system reliability and redundancy • Route is predominantly on new alignment which provides an alternate route to accommodate travel during adverse conditions (parallel municipal roads also currently serve this function)
5.3 Safety	5.3.1 Traffic Safety	**High** potential to improve traffic safety • Route is predominantly on new alignment, with few access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway at intersection and driveway locations	**High** potential to improve traffic safety • Route is predominantly on new alignment, with few access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway at intersection and driveway locations	**High** potential to improve traffic safety • Route is predominantly on new alignment, with few access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway at intersection and driveway locations • Reduced collision potential at roundabout intersections due to lower speed operation	**High** potential to improve traffic safety • Route is predominantly on new alignment, with few access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway at intersection and driveway locations • Reduced collision potential at roundabout intersections due to lower speed operation

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
	5.3.2 Emergency Access	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 106, 107, 109, 110 and 111; no access from existing Highway 7&8 to Perth Road 108 (grade separated) • Full access for emergency services maintained at west end of Shakespeare • Opportunity to provide emergency service connections to existing Highway 7&8 at east end of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 106, 107, 109, 110 and 111; no access from existing Highway 7&8 to Perth Road 108 (grade separated) • Full access for emergency services maintained at west end of Shakespeare • Opportunity to provide emergency service connections to existing Highway 7&8 at east end of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 106, 107, 109, 110 and 111; no access from existing Highway 7&8 to Perth Road 108 (grade separated) • Full access for emergency services maintained at west end of Shakespeare • Opportunity to provide emergency service connections to existing Highway 7&8 at east end of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 106, 107, 109, 110 and 111; no access from existing Highway 7&8 to Perth Road 108 (grade separated) • Full access for emergency services maintained at west end of Shakespeare • Opportunity to provide emergency service connections to existing Highway 7&8 at east end of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained
	5.3.3 Pedestrian, Cyclist and Snowmobile Safety within the highway right-of-way	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations
5.4 Mobility and Access	5.4.1 Modal integration, balance and efficiency	**Moderate** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Moderate** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Moderate** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Moderate** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		• Opportunity to support interface between rail transit service and highway	• Opportunity to support interface between rail transit service and highway	• Opportunity to support interface between rail transit service and highway	• Opportunity to support interface between rail transit service and highway
	5.4.2 Linkages to Population and Employment Centres	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway
	5.4.3 Recreation and Tourism Travel	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8
	5.4.4 Accommodate mobility of pedestrians, cyclists and snowmobiles	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations
5.5 Network Compatibility	**5.5.1 Network Connectivity**	**High** potential to improve transportation system connectivity • Provides improved linkage between	**High** potential to improve transportation system connectivity • Provides improved linkage between	**High** potential to improve transportation system connectivity • Provides improved linkage between	**High** potential to improve transportation system connectivity • Provides improved linkage between

Highway 7&8 Transportation Corridor Planning and Class EA Study **EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES** Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		Stratford and New Hamburg	Stratford and New Hamburg	Stratford and New Hamburg	Stratford and New Hamburg
	5.5.2 Flexibility for Future Expansion	**High** potential for future expansion • Route is outside Shakespeare urban boundary, and since it is predominantly on new alignment, the majority of the right-of-way could accommodate future expansion	**High** potential for future expansion • Route is outside Shakespeare urban boundary, and since it is predominantly on new alignment, the majority of the right-of-way could accommodate future expansion	**High** potential for future expansion • Route is outside Shakespeare urban boundary, and since it is predominantly on new alignment, the majority of the right-of-way could accommodate future expansion	**High** potential for future expansion • Route is outside Shakespeare urban boundary, and since it is predominantly on new alignment, the majority of the right-of-way could accommodate future expansion
5.6 Engineering	**5.6.1 Constructability**	**Moderate** potential for constructability issues • Predominantly on new alignment requiring less complex traffic staging during construction • Four railway grade separations to be constructed plus construction in close proximity to railway corridor where alignment abuts railway corridor • Structure required over 2 municipal drains	**Moderate** potential for constructability issues • Predominantly on new alignment requiring less complex traffic staging during construction • Four railway grade separations to be constructed plus construction in close proximity to railway corridor where alignment abuts railway corridor • Structure required over 2 municipal drains	**Moderate** potential for constructability issues • Predominantly on new alignment requiring less complex traffic staging during construction • Four railway grade separations to be constructed plus construction in close proximity to railway corridor where alignment abuts railway corridor • Structure required over 2 municipal drains	**Moderate** potential for constructability issues • Predominantly on new alignment requiring less complex traffic staging during construction • Four railway grade separations to be constructed plus construction in close proximity to railway corridor where alignment abuts railway corridor • Structure required over 2 municipal drains
	5.6.2 Compliance with Design Criteria	**High** conformity to safety and design standards • Supports use of better than minimum horizontal and vertical alignment elements • Can accommodate standard lane and shoulder widths	**High** conformity to safety and design standards • Supports use of better than minimum horizontal and vertical alignment elements • Can accommodate standard lane and shoulder widths	**High** conformity to safety and design standards • Supports use of better than minimum horizontal and vertical alignment elements • Can accommodate standard lane and shoulder widths	**High** conformity to safety and design standards • Supports use of better than minimum horizontal and vertical alignment elements • Can accommodate standard lane and shoulder widths
5.7 Traffic Operations		**Low** potential for negative impact on traffic operations • Route is predominantly on new alignment, with limited number of access points at intersection locations and a few access points associated with private entrances. • 6 at-grade intersections (5 signalized and 1 unsignalized) • 1 grade-separated crossing • Will provide marginal improvement in traffic operations, grade separations at low volume crossing • Partial connections to existing Highway 7&8 at east end of Shakespeare; provides direct access into Shakespeare for	**Low** potential for negative impact on traffic operations • Route is predominantly on new alignment, with limited number of access points at intersection locations and a few access points associated with private entrances. • 5 at-grade intersections (all signalized • 2 grade-separated crossings • Will provide marginal improvement in traffic operations, grade separations at low volume crossings • Partial connections to existing Highway 7&8 at east end of Shakespeare; provides direct access into Shakespeare for westbound traffic (predominant direction	**Low** potential for negative impact on traffic operations • Route is predominantly on new alignment, with limited number of access points at intersection locations and a few access points associated with private entrances. • 6 at-grade intersections (5 roundabouts and 1 unsignalized) • 1 grade-separated crossings • Will provide marginal improvement in traffic operations, grade separations at low volume crossing • Partial connections to existing Highway 7&8 at east end of Shakespeare; provides direct access into Shakespeare for	**Low** potential for negative impact on traffic operations • Route is predominantly on new alignment, with limited number of access points at intersection locations and a few access points associated with private entrances. • 5 at-grade intersections (all roundabouts) • 2 grade-separated crossings • Will provide marginal improvement in traffic operations, grade separations at low volume crossing • Partial connections to existing Highway 7&8 at east end of Shakespeare; provides direct access into Shakespeare for westbound traffic (predominant direction

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.					
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106, South Bypass Alternatives					
Segments D and E South Alternatives		**South Alternative DE1 - Recommended**	**South Alternative DE2**	**South Alternative DE3**	**South Alternative DE4**
	Cross Section	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 m continuous two-way centre left-turn lane Segment E – Four lanes, 7 m median on new alignment, 5 m continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Signalized Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized	Road 111 – 2-lane Roundabout Road 110 / Perth Line 33 – 2-lane Roundabout Road 109 / South Bypass Highway 7&8 – 2-lane Roundabout Road 109 / Existing Highway 7&8 – 2-lane Roundabout Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – 2-lane Roundabout Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Grade Separation
Factor / Sub-Factor	**Criteria**				
		westbound traffic (predominant direction for tourist business) – westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8	for tourist business) – westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8	westbound traffic (predominant direction for tourist business) – westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 • Reduced speed with roundabout intersections not consistent with role and function of provincial highway	for tourist business) – westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 • Reduced speed with roundabout intersections not consistent with role and function of provincial highway
5.8 Construction Cost (excludes property costs and engineering costs)		**High Relative Cost** $90 M	**High Relative Cost** $90 M	**High Relative Cost** $90 M	**High Relative Cost** $90 M
TRANSPORTATION SUMMARY		**For all alternatives, potential impacts and benefits from a transportation perspective are comparable with no discernible differences.**			
RECOMMENDATION		**South Bypass Alternative DE1 is recommended.** **For all alternatives, potential impacts to features of the natural and cultural environments are comparable with no discernible differences, except that it does not impact areas of interior forest. From a socio-economic environment perspective, south bypass Alternative 1 is preferred as it Impacts fewer agricultural properties with fewer parcels severed and least area of agricultural field landlocked, results in least disruption to transportation linkages between Integrated Agricultural Business Units and does not impact use of residential property at Road 106 as much as other alternatives. The provision of full moves access at the majority of the crossing road via traffic signals or stop sign control on the crossing road provides improved operational and safety performance and maintain current direct access to and from the highway for local traffic and emergency service.**			

APPENDIX D

Segments D and E: East of East Limit of Stratford to East of Road 106

North versus South Bypass Preliminary Design Alternatives

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives

Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
1. Natural Environmental Factors			
1.1 Fisheries and Aquatic Ecosystems	1.1.1 Fish Habitat	**Low** potential to affect fish and fish habitat • 11 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Sheerer Municipal Drain (unknown thermal regime) - 3 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing	**Low** potential to affect fish and fish habitat • 13 watercourse crossings - 1 crossing of a Horner Creek Tributary (unknown thermal regime) - 2 crossings of Stan Erb Municipal Drain (unknown thermal regime) - 1 crossing of Sheerer Municipal Drain (unknown thermal regime) - 4 crossings of Central Municipal Drain (unknown thermal regime) - 5 crossings of Lowe Municipal Drain (warmwater) • No SAR recorded in any crossing
	1.1.2 Fish Community		
1.2 Terrestrial Ecosystems	1.2.1 Wildlife	**Low** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species recorded in close proximity	**High** potential to affect wildlife and their habitat • 1 species of special concern (MNR S-Rank 3) in close proximity / within the alternative • 98 breeding bird species in the study area • 3 area sensitive bird species recorded in close proximity / within the alternative • 1 MNR area sensitive bird species in close proximity / within the alternative • 2 frog species in close proximity / within the alternative • Severs large forest area, displacing areas of interior woodlot and potentially impacting wildlife area / corridor.
	1.2.2 Wetlands	**No** potential to affect wetlands • No wetlands impacted	**No** potential to affect wetlands • No wetlands impacted
	1.2.3 Forests (e.g. woodlands [forest stands, woodlots and interior forest habitat] and significant valley lands [valley and stream corridors])	**Moderate** potential to affect forested areas • 4 forested areas impacted - 3 encroachments displacing approximately 0.45 hectares fringe area - 1 forested area displaced, approximately 0.14 hectares fringe area	**High** potential to affect forested areas • 1 forested area impacted - Encroachment displaces approximately 1.9 hectares of fringe area
	1.2.4 Vegetation Species At Risk	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)	**Moderate** potential to affect vegetation • 1 species endangered (Showy Goldenrod, MNR S-Rank 1) • 1 species of special concern (Harbinger of Spring, MNR S-Rank 3)
	1.2.5 Designated/Special Areas (such as world biosphere reserves, heritage rivers, ESAs, ESPAs, ANSIs, environmental plan areas, conservation reserves; and the designated	**No** potential to affect designated special areas • No designated areas impacted	**No** potential to affect designated special areas • No designated special areas

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
	special areas of national parks, provincial parks, conservation areas, etc)		
1.3 Groundwater	1.3.1 Areas of Ground water Recharge and Discharge 1.3.2 Groundwater Source Areas and Wellhead Protection Areas	**Moderate** potential to affect areas of groundwater recharge / discharge areas • 2 recharge areas / municipal wellhead protection areas impacted - Shakespeare Municipal Well – 25 Year capture zone, 0.86 hectares impacted (1.38 % of the total WPA); Steady State capture zone, 1.46 hectares displaced (11.62% of the total WPA) • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils	**Low** potential to affect areas of groundwater recharge / discharge areas / Wellhead Protection Areas • No recharge areas / municipal wellhead protection areas impacted • No discharge areas impacted • No temporary or long term change to groundwater recharge / discharge areas • Some surface runoff is expected to exceed infiltration for the majority of the route given the relatively impermeable nature of the surrounding soils
	1.3.3 Large Volume Wells	**Low** potential to affect large volume wells • No large volume wells impacted	**No** potential to affect large volume wells • No large volume wells impacted
	1.3.4 Private Wells	**Moderate** potential to affect private well use • 7 private wells displaced - 6 shallow dug wells - 1 deep bedrock well • 31 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 2 deep bedrock aquifer wells in close proximity (<50) - May require decommissioning and replacement	**Moderate** potential to affect private well use • 3 private wells displaced - 2 shallow dug wells - 1 deep bedrock well • 40 shallow dug wells in close proximity (<150 m) - Sensitive to surface contamination; potential short and long term impacts • 5 deep bedrock aquifer wells in close proximity (<150 m) - May require decommissioning and replacement
	1.3.5 Groundwater-Sensitive Ecosystems (e.g. groundwater fed wetlands, coldwater streams)	**Low** potential to affect groundwater sensitive ecosystems • 3 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Areas) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. - Potential for temporary effects to groundwater quantity if construction dewatering is required.	**Low** potential to affect groundwater sensitive ecosystems • 2 groundwater sensitive ecosystems impacted (Horner Creek and the Municipal Wellhead Protection Area) • Low potential for short and long term change to groundwater quantity / quality - Potential for long-term effects to groundwater quality due to increased road salt use and road run-off. • Potential for temporary effects to groundwater quantity if construction dewatering is required.
1.4 Surface Water	1.4.1 Watershed / Sub-Watershed Drainage Features/Patterns	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 11 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted	**Moderate** potential to affect drainage features / patterns and surface water quality / quantity • 13 watercourse / municipal drain crossings • 1 watershed / subwatershed management area impacted
	1.4.2 Surface Water Quality and Quantity		
NATURAL ENVIRONMENT SUMMARY		**From a natural environment perspective, North Alternative DE1 is preferred as it avoids the forested area in the vicinity of Road 110.**	

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives

Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
2. Land Use / Socio-Economic Environmental Factors			
2.1 Land Use Planning Policies, Goals, Objectives	2.1.1 First Nations Land Claims	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area	**No** potential to affect First Nations Land Claims • No First Nations Land Claims impacted - 5 First Nations Land Claims filed in the study area
	2.1.2 Provincial/Federal land use planning policies/goals/objectives	*Previously addressed through the detailed planning phase.*	
	2.1.3 Municipal (regional and local) land use planning policies/ goals/objectives (Official Plans)	*Previously addressed through the detailed planning phase.*	
	2.1.4 Development Objectives of Private Property Owners	*Previously addressed through the detailed planning phase.*	
2.2 Land Use / Community	2.2.1 First Nation Reserves	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area	**No** potential to affect First Nations Reserves • No First Nations Reserves in the study area
	2.2.2 First Nations' Sacred Grounds	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area	**Low** potential to affect First Nations Sacred Grounds • No known First Nations Sacred Grounds in the study area
	2.2.3 Urban and Rural Residential	**Moderate** potential for impacts to urban and rural residential areas • 4 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 2 of these residential properties - No residential property completely displaced - No residential property severed • Low impact on character and use of residential property because change is limited to a few individual rural residential properties, and alternative is well separated from the built up area of Shakespeare • Low interference with residential community cohesion given the alternative does not pass through built up residential areas • (refer to 2.2.9 for access impacts)	**High** potential for impacts to urban and rural residential areas • 9 residential properties impacted - 4 residential properties lose frontage - Homes are displaced on 5 of these residential properties - 5 residential properties completely displaced - No residential property severed • Moderate impact on character and use of residential property because change is limited to a few individual rural residential properties, but alternative is not well separated from the built up area of Shakespeare, though it does parallel the existing railway • Moderate interference with residential community cohesion given the alternative does not pass through built up residential areas but does displace 2 residential homes in the south of Shakespeare
	2.2.4 Commercial/Industrial	**Moderate** potential for impacts to commercial and industrial areas • 5 commercial / industrial properties impacted - 5 commercial / industrial properties lose frontage - 1 commercial / industrial building displaced (trucking facility) • (refer to 2.2.9 for access impacts)	**Low** potential for impacts to commercial and industrial areas • 3 commercial / industrial properties impacted - 2 commercial / industrial properties lose frontage - Home is displaced on 1 commercial / industrial property - 1commercial / industrial property completely displaced • (refer to 2.2.9 for access impacts)

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives

Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
	2.2.5 Tourist Areas and Attractions (e.g. museums, theatres, etc.)	**High** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • North bypass does not provide direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business. Westbound traffic must access Shakespeare via Road 107. • North bypass results in no visibility of Shakespeare business area from Highway 7&8, reducing potential number of drive-by / impulse visitors to the area. • (refer to 2.2.9 for access impacts)	**Low** potential for impacts to tourist areas and attractions • No tourist areas / attractions impacted • No impacts on use, character and cohesion of tourist areas / attractions • South bypass provides a slip-off for direct access from Highway 7&8 to the Shakespeare business area for westbound traffic, which is the predominant direction for Shakespeare tourist business • South bypass retains visibility of Shakespeare business area from Highway 7&8 maintaining potential number of drive-by / impulse visitors to the area.
	2.2.6 Community Facilities / Institutions (e.g. hospitals, schools, places of worship, community features, municipal parks, public spaces, golf courses, trails, greenways and open space linkages)	**Moderate** potential for impacts to community facilities and institutions • 1 recreational / community facility impacted - Recreational portion of property is severed - 3 recreational structures displaced • 1 recreational / community facility impacted - Riding stable is displaced	**No** potential for impacts to community facilities and institutions • No community facilities / institutions impacted by the alternative • No impacts on use, character and cohesion of community facilities / institutions
	2.2.7 Municipal Infrastructure and Public Service Facilities (e.g. sewage and water services, police/emergency services, local utilities)	**Low** potential to affect Municipal Infrastructure and Public Service Facilities • 3 municipal infrastructure / public service facilities impacted by the alternative - 2 crossings of Sheerer Municipal Drain - 3 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain	**Moderate** potential to affect Municipal Infrastructure and Public Service Facilities • 4 municipal infrastructure / public service facilities impacted by the alternative with property encroachment(s) - 2 crossings of Stan Erb Municipal Drain - 1 crossing of Sheerer Municipal Drain - 4 crossings of Central Municipal Drain - 5 crossings of Lowe Municipal Drain
	2.2.8 Downtown Historic Crossroads Function	**Moderate** potential to affect Downtown or Historic Crossroads • Bypass of Shakespeare restores historic downtown cross road function along Highway 7&8, but has a moderate negative impact along Road 107 due to traffic between the bypass alternative and areas south of Shakespeare	**Low** potential to affect Downtown or Historic Crossroads • Bypass alternative south of Shakespeare restores historic downtown cross road function along Highway 7&8 and along Road 107
	2.2.9 Out of Way Travel for Access to / from local land uses	**Moderate** potential to affect Out of Way Travel • No crossing roads where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced) - Eastbound traffic leaving Shakespeare can use existing Highway 7&8 to travel east of Shakespeare (i.e. eastbound slip on lane provided at east end of Shakespeare)	**Low** potential to affect Out of Way Travel • 1 crossing road (Road 108) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • At east limit of Shakespeare - Westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8 - Eastbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel east of Shakespeare (i.e. no connection to existing Highway 7&8 at east end of Shakespeare – road cul-de-saced)

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
		• At west limit of Shakespeare - Westbound traffic leaving Shakespeare must use Road 107 to connect to proposed bypass route to travel west of Shakespeare (i.e. no connection to Highway 7&8 at west end of Shakespeare – road cul-de-saced), which is a concern for response by emergency vehicles from Shakespeare to areas westerly - Eastbound traffic can travel directly into Shakespeare using eastbound slip off lane from existing Highway 7&8	• At west limit of Shakespeare - Westbound traffic leaving Shakespeare can use existing Highway 7&8 to travel west of Shakespeare - Eastbound traffic entering Shakespeare can travel directly into Shakespeare using existing Highway 7&8
2.3 Noise Sensitive Areas (NSAs) (residential areas and sensitive institutional uses)	2.3.1 Highway Noise	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • North design alternatives have approximately 60 receptors impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 49 receptors experiencing a decrease of 5 dBA or greater	**Low** potential for highway noise impacts. • Noise levels are anticipated to increase based on additional traffic volumes using the corridor. • South design alternatives have approximately 121 receptors, including 1 school (Sprucedale Public School) impacted by an increase of 5 dBA or greater and / or with 65 dBA ambient noise levels within 10 years of project construction, with approximately 77 receptors experiencing a decrease of 5 dBA or greater
	2.3.2 Construction Noise	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.	**Moderate** potential for construction noise impacts • For all alternatives, construction activities will vary temporally and spatially as the project progresses. • Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location. • At this time, detailed construction plans are not available. Construction noise mitigation in the form of a construction Code of Practice will be written into the contract documentation for the contractor.
2.4 Agriculture	2.4.1 Agriculture - Canada Land Inventory Class 1,2,3 Land	**Moderate** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 46.2 hectares of agricultural land from a total of 49 agricultural properties	**High** potential for impacts to CLI Class 1,2, 3 lands • Potentially displaces 70.1 hectares of agricultural land from a total of 43 agricultural properties
	2.4.2 Agricultural - Farm Infrastructure	**High** potential for impacts to farm infrastructure • 5 farm buildings (excluding houses) displaced • 49 farm properties with tile drainage / irrigation systems impacted (assumes all impacted agricultural properties are tile drained)	**Moderate** potential for impacts to farm infrastructure • 1 farm building (excluding houses) displaced • 43 farm properties with tile drainage / irrigation systems impacted (assume all impacted agricultural properties are tile drained)
	2.4.3 Agriculture – Operations on Individual Farms	**High** potential for impacts to operations on individual farms • 49 agricultural properties impacted - 8 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances - 41 agricultural properties lose frontage	**High** potential for impacts to operations on individual farms • 43 agricultural properties impacted - 7 agricultural properties are severed, of which 5 parcels become potentially landlocked by severances (2 severed and landlocked areas are areas of woodlot) - 36 agricultural properties lose frontage
	2.4.4 Agriculture – Transportation Linkages between Integrated Agricultural Business Units	**Moderate** potential for impacts to transportation linkages between integrated agricultural business units • 2 crossing roads where additional intersections must be crossed - 1 new intersection on Road 107 (signalized) - 2 new intersections on Road 110 (signalized)	**Low** potential for impacts to transportation linkages between integrated agricultural business units • 3 crossing roads where additional intersections must be crossed - 1 new intersection on Road 110 (signalized) - 1 new intersection on Road 109 (signalized) - 1 new intersection on Road 107 (signalized)

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
		• No crossing roads where grade separations improve travel across the highway but introduce out-of-way travel to access highway • 1 crossing road where grade separations improve travel across railway (Road 110) • 2 existing municipal roads (Line 33 and Road 110) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL and left turn lanes at signalized intersections	• 1 crossing road (Road 108) where grade separations improve travel across the highway but introduce out-of-way travel to access highway • 3 crossing roads (Roads 109, 108 and 107) where grade separations improve travel across railway • 1 existing municipal road (Line 33) converted to highway use with additional traffic causing disruption to agricultural linkage • Linkage and travel along highway improved with additional lanes and introduction of CLTL and left turn lanes at signalized intersections
2.5 Land Use / Resources	2.5.1 First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes (e.g. hunting, fishing, harvesting of country foods, harvesting of medicinal plants)	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway	**Low** potential to affect First Nations People's Treaty Rights or Use of Land and Resources for Traditional Purposes • All alternatives result in similar potential to affect First Nations People's Treaty Rights of Use of Land / Resources given they are comprised of both existing highway and segments of new highway
	2.5.2 Parks and Recreational Areas (e.g. national/provincial parks, conservation areas)	**Moderate** potential to affect parks and recreational areas • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated • 1 conservation area (Shakespeare Conservation Area / Shakespeare Pond) in close proximity (<1km)	**Low** potential to affect parks and recreational areas • Playing fields at Sprucedale Public School / Optimist Hall will be in close proximity (< 100m) with nuisance impacts anticipated • 1 crossing of the Avon Trail on Line 33, change in ease of crossing for pedestrians and cyclists is anticipated
	2.5.3 Aggregates, Mineral Resources	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted	**No** potential to affect aggregate / mineral resources • No aggregate / mineral resources impacted
2.6 Major Utility Transmission Corridors (e.g. railroads, hydro, gas, oil)		**Low** potential to affect major utility corridors • 1 railway crossing • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors	**Low** potential to affect major utility corridors • 4 railway crossings to be constructed • 1 crossing of a major hydro transmission corridor • No crossings of major gas / oil corridors
2.7 Contaminated Property and Waste Management (e.g. Landfills, Hazardous Waste Sites, "Brownfield" Areas, other known contaminated sites, and high-risk contamination areas)		**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • No hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern	**Low** potential to affect contaminated property / waste management sites • 1 landfill (Stratford Landfill Facility) is in close proximity (<250 m) • No hazardous waste sites / brownfield areas impacted • 2 high risk sites (vehicle fuel and repair facilities) are in close proximity (>400 m) but are of minimal concern • 1 low risk site (fuel ASTs) is in close proximity (<200 m) but is of minimal concern
2.8 Landscape Composition	2.8.1 Scenic Composition (total aesthetic value of landscape components)	**Low** potential to affect scenic composition / aesthetic value • Low impacts to aesthetic value for a majority of route given route is on existing highway and / or in a 'depressed' area north of Shakespeare (and therefore largely not visible)	**Moderate** potential to affect scenic composition / aesthetic value • Aesthetic value impacted negatively by raising of route over railway in / around southeast Shakespeare

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
	Cross Section	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
			• Low impacts to aesthetic value for a majority of route as adjacent to railway corridor and municipal drain which are existing landscape interruptions
	2.8.2 Sensitive Viewer Groups	**Low** potential to affect sensitive viewer groups • No sensitive viewer groups in rural area adjacent to this alternative where vistas / outlooks will be impacted	**Moderate** potential to affect sensitive viewer groups • 1 sensitive viewer groups in Shakespeare area adjacent to this alternative where vistas / outlooks will be negatively impacted
	2.8.3 Scenic value of views/vistas from the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility	**Low** potential to affect views / vistas from the facility • All alternatives result in similar alteration of the vistas / outlooks for users of the transportation facility
	2.8.4 Specimen Trees	**Moderate** potential to affect specimen trees	**Moderate** potential to affect specimen trees
2.9 Air Quality	2.9.1 Regional Air Quality and Total Contaminant and Greenhouse Gas Emissions	*Previously considered during the detailed planning phase*.	
	2.9.2 Local Air Quality and Sensitive Receptors to Air Pollutants	**Low** potential to affect air quality for sensitive receptors • North design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • North design alternatives have 13 sensitive receptors within 20m of the edge of right-of-way	**Low** potential to affect air quality for sensitive receptors • South design alternatives result in no discernible differences in air quality levels for sensitive receptors adjacent to or in close proximity to the corridor. • South design alternatives have 15 sensitive receptors within 20m of the edge of right-of-way
SOCIO-ECONOMIC SUMMARY		**From a socio-economic environment perspective, South Bypass Alternative DE1 is preferred as it impacts fewer agricultural properties with fewer severances and least area of agricultural field landlocked; better supports tourist traffic into the village of Shakespeare and better accommodates movement of farm vehicles and safety through provision of grade separations on Roads 109, 108 and 107 at the railway.**	
3. Cultural Environmental Factors			
3.1 Cultural Heritage – Built Heritage and Cultural Landscapes	3.1.1 Buildings or "Standing" Sites of Architectural or Heritage Significance or Ontario Heritage Foundation Easement Properties	**Moderate-High** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • Moderate Impact to Georgian House and Pennsylvania German Barn at 2698 Highway 7/8 north side mid-way between 110 and 109, because widening places highway closer. • Uncertain Impact to James Rankin Cemetery as precise location is not known? • Low impact to Pennsylvania-German Barn at southwest of Highway 7/8 / Road 108 intersection because no change to Highway 7/8 south right-of-way limit or road 108 west right of way limit. • Heritage structure south of route on Road 107 will not be disturbed • High impact to rubblestone Georgian house at 2026 Hwy 7&8 (north side west of Road 106) because widening places highway closer • Moderate impact to Gothic revival house at 2053 Hwy 7&8(south side west of Road 106) because highway 7/8 wideing places right-of way limit closer to the house. • High impact to house and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway in close proximity to house	**Moderate** potential for impacts to buildings or "standing" sites of architectural or heritage significance • Low impact to non-inventoried heritage farm structures at 3075 Line 33 because right-of-way limit to south does not change. • High impact to farm buildings at 2053 at Highway 7 & 8 - abuts heritage barn and is close proximity to Gothic Revival House. • Moderate impact to Georgian house and out-building at 2026 highway 7 & 8 north side because widening places highway closer. • Moderate Impact to House and gothic revival barn at 2007 Hwy 7&8 (south side at Road 106) because widening places highway 7/8 closer.

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
	3.1.2 Heritage Bridges	**No** potential for impacts to heritage bridges • No heritage bridges displaced	**No** potential for impacts to heritage bridges • No heritage bridges displaced
	3.1.3 Areas of Historic 19th Century Settlement	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas	**No** potential for impacts to areas of historic 19th century settlement • No intrusion into 19th century settlement areas
	3.1.4 Cultural Heritage Landscapes (collection of individual man-made features modifying pristine landscape)	**Low** potential for impacts to cultural landscapes • Minimal Impact to heritage landscape beyond highway 7 & 8 from West of Shakespeare to Road 110.	**No** potential for impacts to cultural landscapes • No cultural landscapes identified
	3.1.5 First Nations' Burial Sites	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area	**No** potential for impacts to First Nations burial sites • No known / reported First Nation burial sites in the study area
	3.1.6 Cemeteries	**Low** potential for impacts to cemeteries • Uncertain Impact to James Rankin Cemetery as precise location is not known	**Low** potential for impacts to cemeteries • No cemeteries displaced • Cemetery south of route on Road 107 will not be disturbed
3.2 Cultural Heritage – Archaeology	3.2.1 Pre-Historic and Historic First Nations Sites 3.2.2 Historic Euro-Canadian Archaeological Sites	**Low** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites	**Moderate** potential for destruction or disturbance of documented or undocumented archaeological sites • General concentration of registered archaeological sites in vicinity of existing Highway 7&8 and Roads 106,108, 109 and 110 • Potential for previously undocumented archaeological sites
CULTURAL ENVIRONMENT SUMMARY		**From a cultural perspective, South Bypass Alternative DE1 is slightly preferred as it has least potential to impact Buildings or "Standing" Sites of Architectural or Heritage Significance or Ontario Heritage Foundation Easement Properties.**	
4. Area Economy	Previously Addressed During the Needs Assessment Phase		
5. Transportation Factors			
5.1 Area Transportation System Capacity and Efficiency	5.1 Federal/Provincial/Municipal transportation planning policies/goals/objectives	*Previously addressed during Needs Assessment Phase*	Highway 7&8 is a regionally significant part of the overall provincial highway network. It plays a key role in linking communities in south-western Ontario and supports economic prosperity across Ontario.
	5.2 Efficient movement of people	**Moderate** potential to support efficient movement of people • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**High** potential to support efficient movement of people • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare

Highway 7&8 Transportation Corridor Planning and Class EA Study

EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES

Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.

SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives

Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
	5.3 Efficient movement of goods	**Moderate** potential to support efficient movement of goods • Route predominantly utilizes existing roadway corridors (Perth Line 33, Road 110, existing Highway7&8), with reduced level of service given number of private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare	**High** potential to support efficient movement of goods • Route is predominantly on new alignment, with high level of service due to few private driveways • Direct route • Some out-of-way travel for local access to/from Shakespeare
5.2 System reliability / redundancy		**Low** potential to support system reliability and redundancy • Route predominantly uses existing alignment, which does not provide an alternate route to accommodate travel during adverse conditions; however, parallel municipal roads do currently serve this function	**High** potential to support system reliability and redundancy • Route is predominantly on new alignment which provides an alternate route to accommodate travel during adverse conditions (parallel municipal roads also currently serve this function)
5.3 Safety	5.3.1 Traffic Safety	**Moderate** potential to improve traffic safety • Majority of route uses existing roadway corridor with numerous access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway since limited opportunity to reduce number of intersections and driveways	**High** potential to improve traffic safety • Route is predominantly on new alignment, with few access points associated with private entrances • A four/five lane cross section provides for good passing opportunity, provides a wider platform to accommodate evasive moves during potential accidents, and a centre left turn lane would accommodate safer left turns along the highway at intersection and driveway locations
	5.3.2 Emergency Access	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 107 and all other sideroads • Opportunity to provide emergency service connections to existing Highway 7&8 at east and west ends of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained	**High** potential to support emergency access to/from route • Full moves connection provided at Perth Road 106, 107, 109, 110 and 111; no access from existing Highway 7&8 to Perth Road 108 (grade separated) • Full access for emergency services maintained at west end of Shakespeare • Opportunity to provide emergency service connections to existing Highway 7&8 at east end of Shakespeare • Direct access from existing fire hall east of Perth Road 107 to existing Highway 7&8 will be maintained
	5.3.3 Pedestrian, Cyclist and Snowmobile Safety within the highway right-of-way	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated north of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur; however, traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations
5.4 Mobility and Access	5.4.1 Modal integration, balance and efficiency	**Low** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance.	**Moderate** potential to improve modal integration, balance and efficiency. • Transit service is potentially constrained by the bypass of the community of Shakespeare, but is supported by the direct connection to development along Highway 7&8 both east and west of Shakespeare. • Use of existing Highway 7&8 would constrain transit travel performance. • Opportunity to support interface between rail transit service and highway

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
	Cross Section	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
	Crossing Road Treatments	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
	5.4.2 Linkages to Population and Employment Centres	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway	**High** potential to improve linkages to population and employment centres • Linkage to Stratford and New Hamburg improved • Linkages to Shakespeare reduced because of limitations imposed by intersection design requirements at tie-in points between the bypass and the current highway
	5.4.3 Recreation and Tourism Travel	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) must use proposed bypass route and Road 107 to access Shakespeare (i.e. no connection to existing Highway 7&8 westbound – road cul-de-saced)	**Moderate** potential to support recreation and tourism travel • Shakespeare tourist area is bypassed, but tourist travel through the analysis area is facilitated • Westbound traffic (predominant direction of tourist business for Shakespeare) can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8
	5.4.4 Accommodate mobility of pedestrians, cyclists and snowmobiles	**High** potential to accommodate mobility of pedestrians, cyclists and snowmobiles • Route situated north of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area provides opportunity to improve mobility of pedestrian / cyclist movements within developed area; however traffic destined to/from south on Road 107 must pass through Shakespeare to access new Highway 7&8 alignment • Existing snowmobile trail crossings east and west of Shakespeare can be maintained	**High** potential to improve pedestrian, cyclist and snowmobile safety • Route situated south of developed area of Shakespeare so need for movement within the right-of-way eliminated; reduced traffic on existing Highway 7&8 in developed area where pedestrian / cyclist movements predominately occur • Pedestrian, cyclist and snowmobile movements across right-of-way can be provided at intersection locations and/or designated crossing locations
5.5 Network Compatibility	5.5.1 Network Connectivity	**High** potential to improve transportation system connectivity • Provides improved linkage between Stratford and New Hamburg	**High** potential to improve transportation system connectivity • Provides improved linkage between Stratford and New Hamburg
	5.5.2 Flexibility for Future Expansion	**Moderate** potential for future expansion • Route is outside Shakespeare urban boundary, but is predominantly on existing alignment	**High** potential for future expansion • Route is outside Shakespeare urban boundary, and since it is predominantly on new alignment, the majority of the right-of-way could accommodate future expansion
5.6 Engineering	5.6.1 Constructability	**Moderate** potential for constructability issues • Predominantly uses existing roadway corridors (Perth Line 33, Road 110, Highway 7&8) requiring more complex traffic staging during construction • One railway crossing • Structure required over 1 municipal drain	**Moderate** potential for constructability issues • Predominantly on new alignment requiring less complex traffic staging during construction • Four railway grade separations to be constructed plus construction in close proximity to railway corridor where alignment abuts railway corridor • Bridge required over 2 municipal drains
	5.6.2 Compliance with Design Criteria	**High** conformity to safety and design standards • Supports use of better than minimum horizontal and vertical alignment elements • Can accommodate standard lane and shoulder widths **High** conformity to control private entrances and road connections onto highway • Strict access control resulting in highway that functions safely and efficiently for its useful life • Develop a Highway Access Management Plan for managing entrances onto the corridor: - spacing between existing/proposed intersections along highway - density of proposed entrances along highway - offset spacing from highway to first intersection / entrance on public crossing road - location of existing and proposed inter-regional and municipal transit routes and facilities - traffic impact study(s), to support existing and future land use planning decisions for above	**High** conformity to safety and design standards • Supports use of better than minimum horizontal and vertical alignment elements • Can accommodate standard lane and shoulder widths **High** conformity to control private entrances and road connections onto highway • Strict access control resulting in highway that functions safely and efficiently for its useful life • Develop a Highway Access Management Plan for managing entrances onto the corridor: - spacing between existing/proposed intersections along highway - density of proposed entrances along highway - offset spacing from highway to first intersection / entrance on public crossing road - location of existing and proposed inter-regional and municipal transit routes and facilities - traffic impact study(s), to support existing and future land use planning decisions for above

Highway 7&8 Transportation Corridor Planning and Class EA Study EVALUATION OF PRELIMINARY DESIGN ALTERNATIVES Note: The evaluation is based on a qualitative assessment of each alternative (high, medium or low). Relevant and site-specific information for each criterion/cell is provided to justify the high, medium or low assessment.			
SEGMENTS D and E – East of East Limit of Stratford to East of Road 106 - North versus South Bypass Alternatives			
Segments D and E		**North Alternative DE1**	**South Alternative DE1 - Recommended**
Cross Section		Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment	Segment D – Four lanes, 5 metre continuous two-way centre left-turn lane Segment E – Four lanes, 7 metre median on new alignment, 5 metre continuous two-way centre left-turn lane on existing alignment
Crossing Road Treatments		Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Existing Highway 7&8 – Signalized Road 109 / Existing Highway 7&8 – Unsignalized Road 108 – Unsignalized Existing Highway 7&8 / West of Shakespeare – No access from Shakespeare to Highway 7&8 westbound. Slip off from Highway 7&8 eastbound into Shakespeare Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access into Shakespeare from Highway 7&8 westbound. Slip on from Shakespeare to Highway 7&8 eastbound Road 106 – Unsignalized	Road 111 – Signalized Road 110 / Perth Line 33 – Signalized Road 109 / South Bypass Highway 7&8 – Signalized with Channelization Road 109 / Existing Highway 7&8 – Signalized with Channelization Road 108 – Grade Separation Existing Highway 7&8 / West of Shakespeare – No change Road 107 – Signalized Existing Highway 7&8 / East of Shakespeare – No access from Shakespeare to Highway 7&8 eastbound. Slip off from Highway 7&8 westbound into Shakespeare Road 106 – Unsignalized
Factor / Sub-Factor	**Criteria**		
5.7 Traffic Operations		**High** potential for negative impact on traffic operations • Route predominantly uses existing roadway alignments, with multiple private entrances • 7 at-grade intersections (4 signalized and 3 unsignalized) • 0 grade-separated crossings • Partial connections to existing Highway 7&8 at east and west ends of Shakespeare; however does not provide direct access into Shakespeare for westbound traffic (predominant direction for tourist business) – westbound traffic must use bypass to access Shakespeare via Road 107	**Low** potential for negative impact on traffic operations • Route is predominantly on new alignment, with limited number of access points at intersection locations and a few access points associated with private entrances. • 6 at-grade intersections (5 signalized and 1 unsignalized) • 1 grade-separated crossing • Will provide marginal improvement in traffic operations, grade separations at low volume crossing • Partial connections to existing Highway 7&8 at east end of Shakespeare; provides direct access into Shakespeare for westbound traffic (predominant direction for tourist business) – westbound traffic can travel directly into Shakespeare using westbound slip off lane from existing Highway 7&8
5.8 Construction Cost (excludes property costs and engineering costs)		**Low Relative Cost** $75 M	**High Relative Cost** $90 M
TRANSPORTATION SUMMARY		**South Alternative DE1 is preferred from a transportation perspective as it best attracts inter-regional traffic from municipal roads and existing Hwy 7&8 and it better improves highway capacity, operational and safety performance.**	
RECOMMENDATION		**South Bypass Alternative DE1 is recommended.** **From a natural environment perspective, North Bypass Alternative DE1 is slightly preferred as it results in no impacts to areas of forest interior.** **From a socio-economic environment perspective, South Bypass Alternative DE1 is preferred as it impacts fewer agricultural properties with fewer severances and least area of agricultural field landlocked; better supports tourist traffic into the village of Shakespeare and better accommodates movement of farm vehicles and safety through provision of grade separations on Roads 109, 108 and 107 at the railway.** **South Alternative DE1 is preferred from a transportation perspective as it best attracts inter-regional traffic from municipal roads and existing Hwy 7&8 and it better improves highway capacity, operational and safety performance.**	

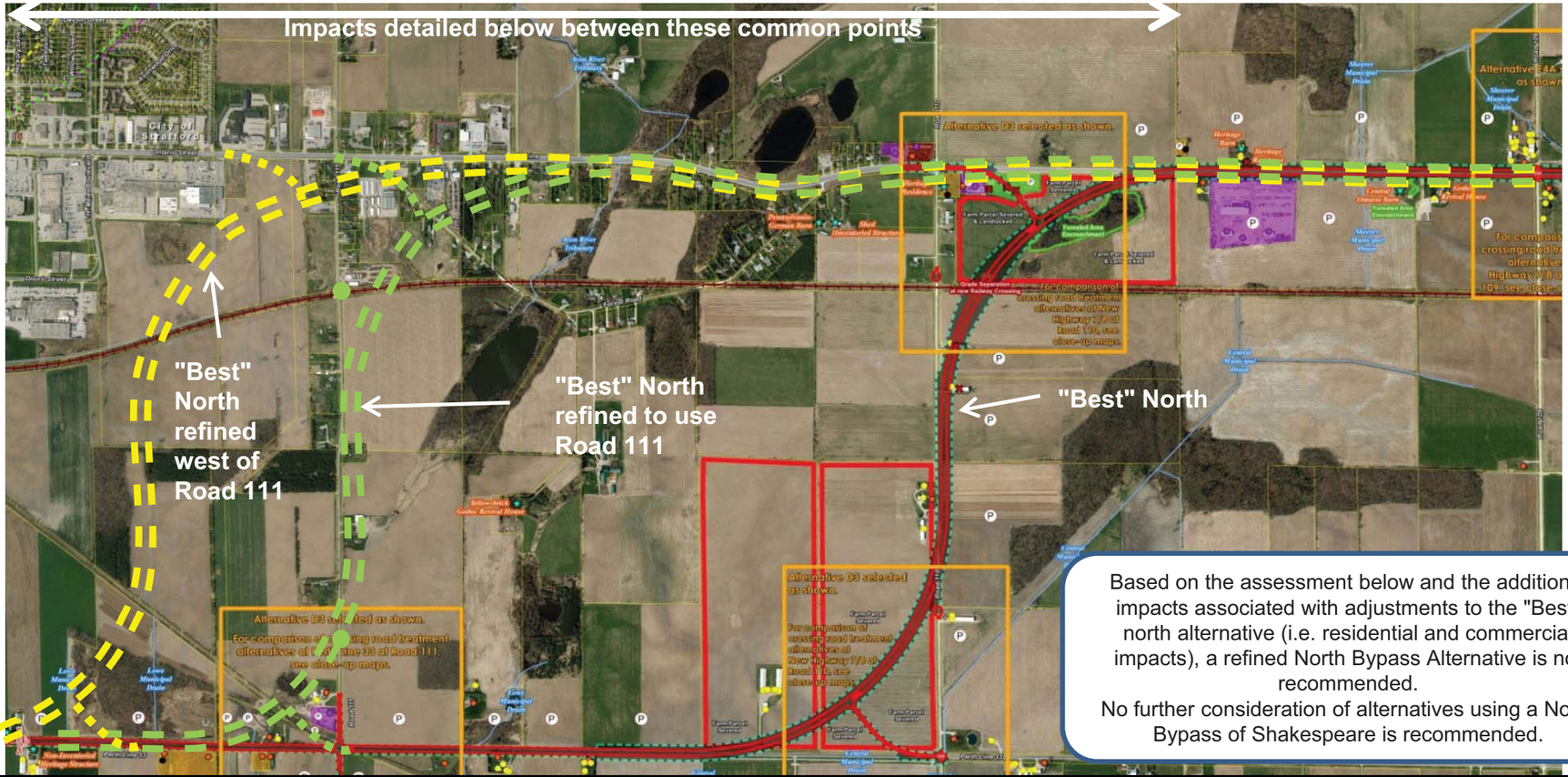
APPENDIX D

Segments D and E: East of East Limit of Stratford to East of Road 106

Shakespeare Bypass Preliminary Design Sub-Alternatives

July, 2013

Potential Adjustments to “Best” North Bypass Alternative



Based on the assessment below and the additional impacts associated with adjustments to the "Best" north alternative (i.e. residential and commercial impacts), a refined North Bypass Alternative is not recommended.
No further consideration of alternatives using a North Bypass of Shakespeare is recommended.

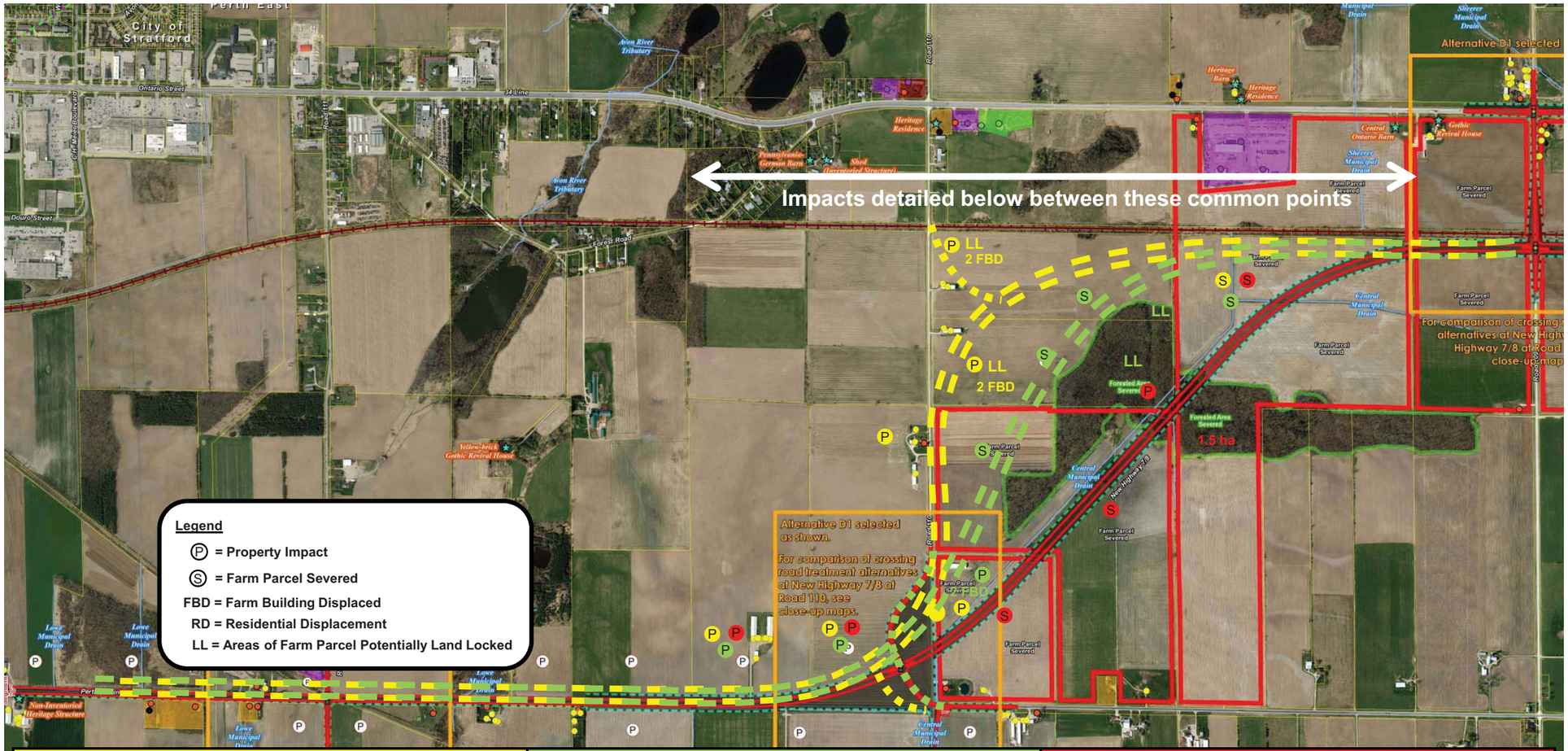
The "Best" North Route refined West of Road 111 results in:	The "Best" North Route refined to use Road 111 results in:	"Best" North Route (based on evaluation of original four north bypass preliminary design alternatives) results in:

• 9 agricultural properties impacted
  ▪ 5 severances with property bisected by ROW
  ▪ 4 lose frontage
  ▪ 6 parcels of land (in use as areas of agricultural production) and 1 parcel of land (forested area) are potentially land locked
• 28 residential properties impacted
  ▪ 10 residences displaced
• 9 commercial properties impacted
  ▪ 6 properties with significant impacts (severance and building displacement)
• 20 ha agricultural land displaced
• Encroachment into forested area associated with the Little Lakes Bog and Swamp Forest ANSI (PSW) on existing Highway 7&8
• Encroachment into wooded area north of Line 33
• 1 additional crossing of a tributary to the Avon River
	• 9 agricultural properties impacted
	  ▪ 1 severance with property bisected by ROW
	  ▪ 8 lose frontage
	• 28 residential properties impacted
	  ▪ 10 residences displaced
	• 9 commercial properties impacted
	  ▪ 5 properties with significant impacts (severance and building displacement)
	• 13 ha agricultural land displaced
	• Encroachment into forested area associated with the Little Lakes Bog and Swamp Forest ANSI (PSW) on existing Highway 7&8
	• Displacement of forested area associated with the Little Lakes Bog and Swamp Forest ANSI (PSW) north of Line 33 / west of Road 111
	• 1 additional crossing of a tributary to the Avon River
		• 22 agricultural properties impacted
		  ▪ 2 severances with property bisected by ROW
		  ▪ 20 lose frontage
		  ▪ 2 agricultural buildings displaced
		• 1 residential properties impacted
		  ▪ 0 residences displaced
		• 3 commercial properties impacted
		  ▪ 1 severance
		• 17 ha agricultural land displaced
		• Encroachment into forested area associated with the Little Lakes Bog and Swamp Forest ANSI (PSW) south of existing Highway 7&8

Not Recommended	**Not Recommended**	**Confirmed as “Best” North Bypass**

July, 2013

Potential Adjustments to "Best" South Bypass Alternative



The "Best" South Route refined to use Road 110 results in:	The "Best" South Route refined to avoid severing the woodlot results in:	"Best" South Route (based on evaluation of original four north bypass preliminary design alternatives) results in:
• 7 agricultural properties impacted ▪ 1 severance with ROW adjacent to railway ▪ 4 lose frontage ▪ Results in significant impacts to field operations for 2 agricultural properties ▪ 5 farm structures displaced (3 large barns & 2 silos) ▪ 2 parcels of land (in use as areas of agricultural production) are potentially land locked • 13 ha agricultural land displaced	• 7 agricultural properties impacted ▪ 1 severance with ROW adjacent to railway ▪ 3 severances with property bisected by ROW ▪ Results in significant impacts to field operations for 1 agricultural properties ▪ 3 lose frontage ▪ 2 farm structures displaced (1 large barn & 1 silo) ▪ 2 parcels of land (forested area) are potentially land locked • Impacts large forested area (1.9 ha displaced of fringe area) • 14 ha agricultural land displaced	• 6 agricultural properties impacted ▪ 3 severances with property bisected by ROW ▪ Results in significant impacts to field operations for 3 agricultural properties ▪ 3 lose frontage • Severance of large forested area (1.5 ha displaced including 0.13 of interior area) • 11 ha agricultural land displaced
Not Recommended	**Recommended**	**Not Recommended**