
APPENDIX C

Analysis and Evaluation of Alternatives

Effect on Road Delays at At-Grade Rail Crossings

Effect on Road Delay	Road Class	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B			
					L1A	L1B	L2	L1A	L1B							
Chatham Subdivision																
Riverside Drive East	Scenic Drive	None	None	None	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed			
Devonshire Road	L															
Walker Road	A2	W	W	W	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed			
George Avenue	C1															
Pilette Road	A2															
Jefferson Boulevard	A2	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed			
Lauzon Parkway	A1															
Lauzon Road	A2	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed			
Clover Avenue	C1															
Banwell Road	A2															
Windsor Subdivision																
Dougall Avenue	C1	CD1'	No Change	No Change	CD1'	No Change	No Change	CD1'	No Change	@1'	Crossing Removed	No Change	W			
McDougall Street	C1		CD1'			No Change		CD1'	No Change		@1'		@1'	W	Crossing Removed	
E.C. Row Avenue	C1		CD1'	CD1'		No Change	CD1'	CD1'	No Change		@1'	@1'	@1'	W	No Change	Crossing Removed
Jefferson Boulevard	A2		CD1'	CD1'		No Change	CD1'	CD1'	No Change		@1'	@1'	@1'	W	No Change	Crossing Removed
Banwell Road	C1		CD1'	CD1'		No Change	CD1'	CD1'	No Change		@1'	@1'	@1'	W	No Change	Crossing Removed
Pelton Spur																
Foster Avenue	L	No Change	CD1'	No Change	No Change	CD1'	No Change	Q1'	@1'	Crossing Removed	Crossing Removed	No Change	No Change			
Airport Road	L															
Division Road	A2															
7th Concession Road	L															
Provincial Road	A2															
CASO Subdivision																
Howard Avenue	A2	No Change	CD1'	CD1'	No Change	CD1'	CD1'	No Change	CD1'	Crossing Removed	® 1'	CD1'	® 1'			
Cabana Road East	A2															
6th Concession Road	C1															
Walker Road	A2															

W = Decrease in road delays

CD 1' = Increase in road delays due to the addition of VIA trains (relatively short and higher speed)

Q 1' = Increase in road delays due to the addition of CN trains

@ 1' = Increase in road delays due to the addition of VIA and CN trains

® 1' = Increase in road delays due to the addition of VIA, CPR, and ETR trains

Ax = Arterial Road, Class "x"

Cx = Collector Road, Class "x"

L = Local Road

Potential New Road Connections

Roads currently divided by rail track that may be suitable for connection (Preliminary Candidates)	L1A	L1B	L2	L3 in conjunction with			L4 in conjunction with		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
Chatham Subdivision												
Ellrose Avenue	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Arthur Road												
Westminster Boulevard												
Buckingham Drive												
Ford Boulevard												
Windsor Subdivision												
Munich Crescent/ Lauzon Road	No	No	No	No	No	No	No	No	No	Possible*	No	Yes
CASO Subdivision												
Maguire Street/ Marentette Avenue	No	No	No	No	No	No	No	No	Yes	No	No	No

* Depending on the alignment of the new rail corridor south of the airport.

VIA: Key Benefits, Impacts and Track Changes

	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
Benefit												
A new VIA station closer to downtown	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Direct connection to the rail tunnel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Impact												
Requires relocation of the Chatham Station			X			X						
Required Track Upgrades for VIA Trains												
Windsor Subdivision – Ringold to Tilbury - 20 km											X	X
Windsor Subdivision – Ringold to Windsor Airport - 60 km										X		
Windsor Subdivision – Ringold to Pelton Spur - 63 km		X			X			X				
Windsor Subdivision – Ringold to rail tunnel - 70 km	X			X			X		X			
CASO Subdivision – Pelton Spur to rail tunnel - 13.5 km		X			X			X		X		
CASO Subdivision – Tilbury to rail tunnel - 60 km											X	X
CASO Subdivision – Fargo to rail tunnel - 90 km			X			X						
Track Retirement – Chatham Subdivision												
Ringold to Tecumseh - 61 km	●	●		●	●		●	●	●	●	●	●
Chatham to Tecumseh - 69 km			●			●						
New Track												
From the Chatham Subdivision to the Windsor Subdivision at the Ringold Diamond - 0.5 km	●	●		●	●		●	●	●	●	●	●
From the Windsor Subdivision to the CASO Subdivision across Highway 401 near Tilbury - 3 km											●	●
New Airport Bypass connection between Windsor Subdivision and CASO Subdivision - 8 km										●		

Benefit: ✓ Impact: X Track Changes: ●

CN: Key Benefits, Impacts and Track Changes

	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
Benefit												
New train yard near Oldcastle with close proximity to Highway 401												✓
New train yard at the Windsor Airport										✓		✓
Impact												
Loss of alternative route into Windsor as a result of the Chatham Subdivision abandonment	X	X	X	X	X	X	X	X	X	X	X	X
Loss of connection to Hiram Walker would result in a competitive and commercial impact to CN – as a result of the Chatham Subdivision abandonment				X	X	X	X	X	X	X	X	X
Loss of connection to existing customers on the Pelton Spur would result in a competitive and commercial impact to CN – as a result of the Pelton Spur abandonment									X	X		
Accessibility of Van de Water Yard from the Windsor Subdivision (shunting moves near the rail tunnel entrance)									X			
Combined VIA/CN operations on one corridor will reduce operating flexibility and could create operating issues		X	X		X	X		X	X	X	X	X
Combined CPR/CN operations on one corridor will reduce operating flexibility and could create operating issues							X	X	X	X	X	X
Track Upgrades (due to additional rail traffic from other railways)												
CASO Subdivision – Pelton Spur to rail tunnel - 13.5 km		●			●			●		●		
CASO Subdivision – Tilbury to rail tunnel - 60 km											●	●
CASO Subdivision – Fargo to rail tunnel - 90 km			●			●						
Pelton Spur - 7 km		●			●			●				

	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
Track Retirement												
Chatham Subdivision – Tecumseh to Chrysler Spur - 4 km	●	●	●									
Chatham Subdivision – Tecumseh to the Detroit River - 9 km				●	●	●	●	●	●	●	●	●
CASO Subdivision – Fargo to Tilbury - 30 km											●	●
CASO Subdivision – Fargo to Pelton Spur - 76 km							●	●		●		
CASO Subdivision – Fargo to Van de Water Yard - 90 km									●			
Pelton Spur - 7 km									●	●		
New Track												
Reinstated connection between the Pelton Spur and the CASO Subdivision east of Walker Road - 0.5 km												●
Between the Windsor Subdivision and the CASO Subdivision across Highway 401 near Tilbury - 3 km											●	●
New Airport Bypass connection between Windsor Subdivision and CASO Subdivision - 8 km										●		

Benefit: ✓

Impact: X

Track Changes: ●

ETR: Key Benefits, Impacts and Track Changes

	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
Benefit												
New track connection with the CASO Subdivision										✓		✓
Impact												
Longer travel time to access the new CN and CPR yards										X		X
New Track												
From the ETR mainline to the CASO Subdivision through the abandoned Van de Water Yard - 1 km										●		●

Benefit: ✓ Impact: X Track Changes: ●

CPR: Key Benefits, Impacts and Track Changes

	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
Benefit												
New train yard near Oldcastle with close proximity to Highway 401												✓
New train yard at the Windsor Airport										✓		✓
Impact												
Increase in rail traffic through the complex Lakeshore Interchange – as a result of VIA relocation to the Windsor Subdivision	X			X				X				
Increase in rail traffic through the complex Lakeshore Interchange – as a result of VIA and CN relocation to the Windsor Subdivision									X			
Relocation of the recently installed VACIS facility would incur additional cost to secure the corridor										X		X
Combined VIA/CPR operations on one corridor will reduce operating flexibility and could create operating issues	X	X		X	X			X	X	X	X	X
Combined CN/CPR operations on one corridor will reduce operating flexibility and could create operating issues								X	X	X	X	X
Track Upgrades (due to additional rail traffic from other railways) – Windsor Subdivision												
Ringold to Tilbury - 20 km											●	●
Ringold to Windsor Airport - 60 km										●		
Ringold to Pelton Spur - 63 km		●			●				●			
Ringold to rail tunnel - 70 km	●			●				●		●		
Track Retirement – Windsor Subdivision												
Lakeshore Junction to rail tunnel - 2.5 km												●
Walkerville Yard to rail tunnel - 7 km										●		
Tilbury to Walkerville Yard - 52 km												●

	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
New Track												
Between the Windsor Subdivision and the CASO Subdivision across Highway 401 near Tilbury - 3 km											●	●
New Airport Bypass connection between Windsor Subdivision and CASO Subdivision - 8 km										●		

Benefit: ✓ Impact: X Track Changes: ●

Required New Operating/Commercial Agreements between Railways

Railway company that may require a new commercial agreement for operating rights in the specified corridor	L1A	L1B	L2	L3			L4		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
CPR Windsor Subdivision												
VIA	●	●		●	●		●	●	●	●	●	●
CN							●	●	●	●	●	●
NS							●	●	●	●	●	●
CASO Subdivision												
VIA			●			●					●	●
ETR										●		●
CSXT										●		●
CN Pelton Spur												
NS							●	●				

Summary of Evaluation of Alternatives

Set Aside	Category and Evaluation	Carried Forward
None	<p>Retire the Chatham Subdivision?</p> <ul style="list-style-type: none"> • Has the most potential to generate significant community benefits in Windsor. • Primarily used by VIA, who would prefer a direct connection to the rail tunnel and a new Windsor Station. • Most Preferred by the City. • Technically feasible from the point of view of railway operations. <p><i>Between Ringold and the Chrysler Spur</i></p> <ul style="list-style-type: none"> • Would eliminate 4 at-grade crossings in Windsor. • Would reduce rail traffic between the Chrysler Spur and the Detroit River. • Would maintain a connection with Hiram Walker. • Would have lesser potential to generate significant community benefits in Windsor. <p><i>Between Ringold and the Detroit River</i></p> <ul style="list-style-type: none"> • Would eliminate 10 at-grade crossings in Windsor. • Would improve roadway operation and increases traffic/pedestrian safety along the entire corridor. • Hiram Walker would need to be served by other means. • NS would lose its operating and commercial rights between Tecumseh and the Detroit River. <p><i>Conclusion</i></p> <ul style="list-style-type: none"> • It is feasible to retire the Chatham Subdivision—however, the NS operating and commercial rights and Hiram Walker servicing issues would need to be addressed. • It is desirable to retire the entire Chatham Subdivision between Ringold and the Detroit River. 	<p>L1A</p> <p>L1B</p> <p>L2</p> <p>L3</p> <p>L4</p> <p>L5</p> <p>L6</p> <p>L7A</p> <p>L7B</p>

Set Aside	Category and Evaluation	Carried Forward
L1B L2	<p>New VIA route between Ringold and the rail tunnel?</p> <p><i>Windsor Subdivision</i></p> <ul style="list-style-type: none"> • Most preferred by VIA. <p><i>Windsor Subdivision–Pelton Spur–CASO Subdivision</i></p> <ul style="list-style-type: none"> • Least preferred by VIA, longer travel time. <p><i>CASO Subdivision</i></p> <ul style="list-style-type: none"> • Least preferred by VIA, new Chatham Station required. <p><i>Conclusion</i></p> <ul style="list-style-type: none"> • VIA on the Windsor Subdivision is preferred. 	<p>L3 (VIA: L1A)</p> <p>L4 (VIA: L1A)</p> <p>L5</p> <p>L6</p> <p>L7A</p> <p>L7B</p>
L7A L7B	<p>New Windsor Subdivision–CASO Subdivision Connection near Tilbury?</p> <ul style="list-style-type: none"> • Would have complicated and costly Highway 401 rail crossing. • Would create a new rail corridor near Tilbury, which could be view unfavourably by the local community. • Would have only limited community benefits in Windsor. • Would require complicated combined CPR and CN operations in one corridor (CASO Subdivision) under Option L7B. <p><i>Conclusion</i></p> <ul style="list-style-type: none"> • Only limited operating and community benefits in Windsor when compared to other alternatives, but with significant impacts to the community near Tilbury. 	<p>L3 (VIA: L1A)</p> <p>L4 (VIA: L1A)</p> <p>L5</p> <p>L6</p>
L6	<p>Retire the Windsor Subdivision?</p> <ul style="list-style-type: none"> • Would create significant railway operation issues in Windsor. • Would nullify recent infrastructure investments along the Windsor Subdivision (i.e., Walker Road and Howard Avenue grade separations and VACIS installation west of Walkerville Yard). • Would nullify existing rail/road grade separations along the Windsor Subdivision. • Would require significant infrastructure upgrades along the CASO Subdivision (e.g., double-tracking, CTC, rail/road grade separations, and VACIS relocation). • Would generate significant impacts to communities along the CASO Subdivision within and outside of Windsor due to higher use of the corridor. <p><i>Conclusion</i></p> <ul style="list-style-type: none"> • Not preferred by the City. • Technically challenging from the point of view of railway operations. 	<p>L3 (VIA: L1A)</p> <p>L4 (VIA: L1A)</p> <p>L5</p>

Set Aside	Category and Evaluation	Carried Forward
L5	<p>Retire the CASO Subdivision?</p> <ul style="list-style-type: none"> • Would require significant infrastructure upgrades along the Windsor Subdivision (e.g., double-tracking, triple track sidings, CTC). <p><i>Between Fargo and rail tunnel</i></p> <ul style="list-style-type: none"> • Would provide a poor connection to the Van de Water Yard from the Windsor Subdivision. • Would have more community benefits in Windsor. • Would require complicated combined CPR and CN operations in one corridor (Windsor Subdivision) outside and inside Windsor. • Would significantly increase rail traffic through the complex Lakeshore Junction. • Would likely require triple-tracking on the Windsor Subdivision west of Pelton Spur, where there is only limited railway right-of-way. • Would require changes to the existing and planned Windsor Subdivision grade separations to accommodate a third track. <p><i>Conclusion</i></p> <ul style="list-style-type: none"> • Technically challenging from the point of view of railway operations. <p><i>Between Fargo and Pelton Spur</i></p> <ul style="list-style-type: none"> • Would have only limited community benefits in Windsor (some less rail traffic on the CASO Subdivision in Windsor). • Would maintain access to the Van de Water Yard. • Would require complicated combined CPR and CN operations in one corridor (Windsor Subdivision) outside of Windsor. <p><i>Conclusion</i></p> <ul style="list-style-type: none"> • Technically feasible as long as combined CPR/CN operating and commercial issues can be overcome. 	<p>L4 (VIA: L1A)</p> <p>*L3*</p>

Based on the evaluation of the alternatives, the identified technically preferred alternative is **Option L4**: the retirement of the CASO Subdivision outside of Windsor, the retirement of the entire Chatham Subdivision, and the consolidation of CN, CPR and VIA rail operations on the Windsor Subdivision.

In light of the complications surrounding combined CN/CPR operations, **Option L3** is identified as an ‘**interim**’ step to the implementation of the technically preferred alternative.