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# **APPENDIX C**

## **Analysis and Evaluation of Alternatives**

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## Effect on Road Delays at At-Grade Rail Crossings

Effect on Road Delay	Road Class	L1A	L1B	L2	L3			L4		L6	L7A	L7B
					L1A	L1B	L2	L1A	L1B			
<b>Chatham Subdivision</b>												
Riverside Drive East	Scenic Drive	None	None	None	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed	Crossing Removed
Devonshire Road	L											
Walker Road	A2											
George Avenue	C1	↓	↓	↓								
Pilette Road	A2											
Jefferson Boulevard	A2											
Lauzion Parkway	A1											
Lauzion Road	A2											
Clover Avenue	C1											
Banwell Road	A2											
<b>Windsor Subdivision</b>												
Dougall Avenue	C1	①↑	No Change	No Change	①↑	No Change	①↑	①↑	No Change	Crossing Removed	No Change	↓
McDougall Street	C1											Crossing Removed
E. C. Row Avenue	C1											
Jefferson Boulevard	A2											
Banwell Road	C1											
<b>Pelton Spur</b>												
Foster Avenue	L											
Airport Road	L											
Division Road	A2											
7th Concession Road	L											
Provincial Road	A2											
<b>CASO Subdivision</b>												
Howard Avenue	A2	No Change	①↑	No Change	①↑	No Change	①↑	②↑	③↑	Crossing Removed	No Change	No Change
Cabana Road East	A2											
6th Concession Road	C1	No Change	①↑	①↑	①↑	①↑	①↑	No Change	①↑	Crossing Removed	④↑	④↑
Walker Road	A2											

↓ = Decrease in road delays

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

②↑ = Increase in road delays due to the addition of CN trains

③↑ = Increase in road delays due to the addition of VIA and CN trains

④↑ = 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				
<b>Chatham Subdivision</b>												
Ellrose Avenue				Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Arthur Road	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Westminster Boulevard												
Buckingham Drive												
Ford Boulevard												
<b>Windsor Subdivision</b>												
Munich Crescent/ Lauzon Road	No	No	No	No	No	No	No	No	No	Possible *	No	Yes
<b>CASO Subdivision</b>												
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.

## Potential Transit Windsor Bus Route Improvements at At-Grade Railway Crossings

Improvement to Bus Route?	L1A	L1B	L2	L3 in conjunction with			L4 in conjunction with		L5	L6	L7A	L7B
				L1A	L1B	L2	L1A	L1B				
<b>Chatham Subdivision</b>												
Route 4 at Pillette Road and Jefferson Boulevard	Some, due to the reduction in trains	Some, due to the reduction in trains	Some, due to the reduction in trains	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Some, due to the reduction in trains	Yes
Route 2, 2 Express, and 10 at Lauzon Parkway	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Windsor Subdivision</b>												
Route 6 at Dougall Avenue (CPR Windsor Yard Lead)	No	No	No	No	No	No	No	No	No. There may be further delays due to the addition of VIA and CN trains	Yes	No	Some, due to the reduction in rail traffic
Route 6 at Dougall Avenue (CPR tunnel access)	No	No	No	No	No	No	No	No	No. There may be further delays due to the addition of VIA and CN trains	Yes	No	Some, due to the reduction in rail traffic
Route 1A and 14 at Howard Avenue	Howard Avenue grade-separation project under EA study											
Route 8 at Walker Road	Walker Road grade-separation project under construction											
Route 3 at E.C. Row North Service Road and Jefferson Boulevard	No	No	No	No	No	No	No	No	No. There may be further delays due to the addition of VIA and CN trains	Some, due to the reduction in trains	No	Yes
<b>CASO Subdivision</b>												
Route 7 at Howard Avenue	No	No	No	No	No	No	No	No	Yes	No. There would be further delays due to the addition of VIA, CPR, and ETR trains	No	No. There would be further delays due to the addition of VIA, CPR, and ETR trains
Route 8 at Walker Road	No	No	No	No	No	No	No	No	Yes	No. There would be further delays due to the addition of VIA, CPR, and ETR trains	No	No. There would be further delays due to the addition of VIA, CPR, and ETR trains



### VIA: Key Benefits, Impacts and Track Changes

Benefit	L1A		L1B		L2		L3		L4		L5	L6	L7A	L7B
	L1A	L1B	L2	L1A	L1B	L2	L1A	L1B						
A new VIA station closer to downtown	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Direct connection to the rail tunnel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Impact</b>														
Requires relocation of the Chatham Station			X											
<b>Required Track Upgrades for VIA Trains</b>														
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						
CASO Subdivision – Pelton Spur to rail tunnel - 13.5 km		X					X					X		
CASO Subdivision – Tilbury to rail tunnel - 60 km													X	X
CASO Subdivision – Fargo to rail tunnel - 90 km			X											
<b>Track Retirement – Chatham Subdivision</b>														
Ringold to Tecumseh - 61 km	●	●		●	●				●	●	●	●	●	●
Chatham to Tecumseh - 69 km			●											
<b>New Track</b>														
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

Benefit	L1A	L1B	L2	L3		L4		L5	L6	L7A	L7B
				L1A	L1B	L1A	L1B				
New train yard near Oldcastle with close proximity to Highway 401											✓
New train yard at the Windsor Airport									✓		✓
<b>Impact</b>											
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
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
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
Combined CPR/CN operations on one corridor will reduce operating flexibility and could create operating issues						X		X	X	X	X
<b>Track Upgrades (due to additional rail traffic from other railways)</b>											
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				
<b>Track Retirement</b>												
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								●	●	●		
<b>New Track</b>												
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	L1A	L1B				
<b>Benefit</b>											
New track connection with the CASO Subdivision									✓		✓
<b>Impact</b>											
Longer travel time to access the new CN and CPR yards									X		X
<b>New Track</b>											
From the ETR mainline to the CASO Subdivision through the abandoned Van de Water Yard - 1 km									●		●

Benefit: ✓

Impact: X

Track Changes: ●



New Track	L1A		L1B		L2		L3		L4		L5		L6		L7A		L7B		
	L1A	L1B	L2	L1A	L1B	L2	L1A	L1B	L2	L1A	L1B	L5	L6	L7A	L7B				
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	L2	L1A	L1B	L2	L1A	L1B	L5	L6	L7A	L7B				
<b>CPR Windsor Subdivision</b>																			
VIA	●	●		●	●			●		●	●	●	●	●	●	●	●	●	●
CN										●	●	●	●	●	●	●	●	●	●
NS										●	●	●	●	●	●	●	●	●	●
<b>CASO Subdivision</b>																			
VIA			●													●	●	●	●
ETR															●				●
CSXT															●				●
<b>CN Pelton Spur</b>																			
NS																●	●	●	●

### Summary of Evaluation of Alternatives

Set Aside	Category and Evaluation	Carried Forward
None	<p><b>Retire the Chatham Subdivision?</b></p> <ul style="list-style-type: none"> <li>• Has the most potential to generate significant community benefits in Windsor.</li> <li>• Primarily used by VIA, who would prefer a direct connection to the rail tunnel and a new Windsor Station.</li> <li>• <b>Most Preferred</b> by the City.</li> <li>• <b>Technically feasible</b> from the point of view of railway operations.</li> </ul> <p><i>Between Ringold and the Chrysler Spur</i></p> <ul style="list-style-type: none"> <li>• Would eliminate 4 at-grade crossings in Windsor.</li> <li>• Would reduce rail traffic between the Chrysler Spur and the Detroit River.</li> <li>• Would maintain a connection with Hiram Walker.</li> <li>• Would have lesser potential to generate significant community benefits in Windsor.</li> </ul> <p><i>Between Ringold and the Detroit River</i></p> <ul style="list-style-type: none"> <li>• Would eliminate 10 at-grade crossings in Windsor.</li> <li>• Would improve roadway operation and increases traffic/pedestrian safety along the entire corridor.</li> <li>• Hiram Walker would need to be served by other means.</li> <li>• NS would lose its operating and commercial rights between Tecumseh and the Detroit River.</li> </ul> <p><i>Conclusion</i></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• It is desirable to retire the entire Chatham Subdivision between Ringold and the Detroit River.</li> </ul>	<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><b>New VIA route between Ringold and the rail tunnel?</b></p> <p><i>Windsor Subdivision</i></p> <ul style="list-style-type: none"> <li>• <b>Most</b> preferred by VIA.</li> </ul> <p><i>Windsor Subdivision–Pelton Spur–CASO Subdivision</i></p> <ul style="list-style-type: none"> <li>• <b>Least</b> preferred by VIA, longer travel time.</li> </ul> <p><i>CASO Subdivision</i></p> <ul style="list-style-type: none"> <li>• <b>Least</b> preferred by VIA, new Chatham Station required.</li> </ul> <p><i>Conclusion</i></p> <ul style="list-style-type: none"> <li>• VIA on the Windsor Subdivision is preferred.</li> </ul>	L3 (VIA: L1A) L4 (VIA: L1A) L5 L6 L7A L7B
L7A L7B	<p><b>New Windsor Subdivision–CASO Subdivision Connection near Tilbury?</b></p> <ul style="list-style-type: none"> <li>• Would have complicated and costly Highway 401 rail crossing.</li> <li>• Would create a new rail corridor near Tilbury, which could be view unfavourably by the local community.</li> <li>• Would have only limited community benefits in Windsor.</li> <li>• Would require complicated combined CPR and CN operations in one corridor (CASO Subdivision) under Option L7B.</li> </ul> <p><i>Conclusion</i></p> <ul style="list-style-type: none"> <li>• Only limited operating and community benefits in Windsor when compared to other alternatives, but with significant impacts to the community near Tilbury.</li> </ul>	L3 (VIA: L1A) L4 (VIA: L1A) L5 L6
L6	<p><b>Retire the Windsor Subdivision?</b></p> <ul style="list-style-type: none"> <li>• Would create significant railway operation issues in Windsor.</li> <li>• 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).</li> <li>• Would nullify existing rail/road grade separations along the Windsor Subdivision.</li> <li>• Would require significant infrastructure upgrades along the CASO Subdivision (e.g., double-tracking, CTC, rail/road grade separations, and VACIS relocation).</li> <li>• Would generate significant impacts to communities along the CASO Subdivision within and outside of Windsor due to higher use of the corridor.</li> </ul> <p><i>Conclusion</i></p> <ul style="list-style-type: none"> <li>• <b>Not preferred</b> by the City.</li> <li>• <b>Technically challenging</b> from the point of view of railway operations.</li> </ul>	L3 (VIA: L1A) L4 (VIA: L1A) L5

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