CHAPTER SEVEN

Policy Analysis for the Turcot Interchange Reconstruction

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Modal shift—an approach that puts mass-transit at the heart of transportation planning—is a sustainability-oriented concept that is gaining world-wide acceptance and acclaim. At the time of writing, a debate is underway in Montreal that has this concept at its heart. The Turcot Interchange, a large inner-city highway junction, is in dire need of repair, replacement or removal. The course of action taken by transportation engineers and decision-makers will reflect either a commitment to sustainability or a step further away from it. If a plan which simply repairs or replaces the structure is implemented, as proposed by the Ministry of Transport of Quebec (MTQ), no modal shift away from auto dependence will occur and the negative effects associated with automobile and truck traffic volumes will continue or increase. If a modal shift-oriented plan is followed, the impacts of traffic in an urban context will decrease.

The purpose of this chapter is to evaluate these two potential courses of action in light of the federal, provincial, and municipal policies that are intended to guide transport and environmental decisions. Three sectors of the environment—noise, transport, and socioeconomic conditions—were used to assess the two alternative plans, the MTQ's repair/reconstruction plan versus a modal shift alternative. Projected impacts were then compared with 124 goals extracted from the relevant policies. The level of compliance between policy goals and environmental impacts was given a quantitative value. Finally, a scoring and weighting system was implemented which produced a numerical value for each alternative course of action. These numerical values represent a "policy score"; in other words, they measure which alternative is most consistent with environmental and transport policy. On a scale of –30 to +30, the Modal Shift alternative received a score of +14.01 (i.e., complies), whereas the current MTQ proposal received a score of –10.92 (i.e., detrimental). Thus, the Modal Shift, or transit-oriented alternative is far more compliant with existing policy goals than the current MTQ proposal.

Introduction

In the present international climate of economic crisis, global warming, and the impending end of cheap oil, it is becoming increasingly apparent that our current way of life is not sustainable. Transportation methods, most notably our reliance on the automobile, are often pointed to as major contributors to non-sustainability, especially in urban areas where alternative transport means are readily accessible.

Strategic-level plans and policies in Montreal often contain initiatives to reduce car volumes and increase the use of public modes of transportation. Such policy commitments, and accompanying environmental measures, are apparent at all levels of government, from the municipal (e.g., the City of Montreal's Master Plan and Transport Plan) to the provincial (e.g., the Quebec Ministry of Transport's own Environmental Plan), and federal (e.g., the investment plan in transport) level. Despite this apparent commitment to sustainability, major road and highway projects continue to be approved each year.

An example of this contradiction is the Turcot Interchange reconstruction proposed by the Ministère des Transports du Quebec (MTQ) (MTQ 2008a). This project aims to reinvent the crumbling interchange by lowering its elevated portions to the ground, while simultaneously accommodating an increase in the total number of cars on the structure (from 332,000 vehicles per day to 347,000 vehicles per day, counting all vehicles using all parts of this complex interchange) (SNC-Lavalin/CIMA 2008). The MTQ proposal contained no public transit elements when the research for this chapter was conducted. This chapter sets out a policy assessment of the MTQ's proposal, examining how well it performs against the sustainability objectives and goals contained in current policy documents relevant to the project.

For illustrative purposes, we compare the performance of the MTQ's proposal for the Turcot Exchange with one that could be a viable alternative and explicitly favours more public transit and a 'modal shift' away from automobiles. We chose the "Public Transit" alternative proposed by Pierre Brisset, architect for the Groupe de Recherche Urbaine Hochelaga Maisonneuve (GRUHM), which envisions a reduction in traffic volumes and an eventual removal of the inner-city highway 720, with commensurate increases in public transit (see chapter 2 by Brisset and Moorman).

It is worth reviewing their proposal here. The transit-oriented proposal, described in chapter two, aims to eliminate 68,000 vehicles per day (v.p.d.) on the Ville Marie Expressway by 2016. This objective is achieved by

implementing four complementary initiatives: (1) improving public transit service to the West Island; (2) removing ramps and introducing new mass transit links to inner city neighbourhoods to discourage "short" highway trips; (3) introducing drive-alone disincentives such as parking controls and congestion pricing to consolidate these gains; and (4) redesigning the Turcot Interchange to reflect and reinforce lower traffic flows.

Our analysis, described below, shows that the "Public Transit" alternative adheres best to the federal, provincial, and municipal policies that are intended to guide transport and environmental decisions. Our research outlined the regional effects of the MTQ and public transit proposals on transport, noise, and socioeconomic conditions. These effects were then compared with sustainability goals of thirteen relevant policy documents (**Table 7.1**), with the transit-oriented alternative identified as the most strategically appropriate course of action.

Method

In order to make a comparison of impacts and policy adherence, we developed a series of steps for the assessment of the alternatives. In Table 7.1, we show 'weight' for each policy document, a measure of their importance. First, each document was given a "strategic weight" based on the document's significance to the Turcot Interchange Reconstruction Project, its regional scope, and its relevance to sustainable development goals for the individual sectors (transport, noise and socioeconomic conditions). Some of the documents made no mention of certain environmental sectors, and thus a new "sector weight" was needed that reflected the mention of explicit policy objectives for each sector in the various policy documents (see Table 7.1). For example, Montreal's Master Plan was assigned an overall strategic weight of 14%; however, it has an even higher policy importance relative to other documents with respect to transport (16.87%) and noise (26.42%) since many other documents do not address these sectors.

From the relevant policy documents, 124 goals and objectives for each sector were identified. Policy compliance was then assessed by ranking the performance of each proposal (MTQ and Public Transit) against the policy objective; a simple scale of two pluses (++ or 2) to two negatives (- - or -2) was used to record compliance, with an accompanying rationale provided for each assigned rank (**Table 7.2**). Data on impacts were drawn from existing studies and established methods of environmental impact projections. For example, traffic volumes came from the MTQ (in Atlas des Transports and in the project document submitted by the MTQ for public

Table 7.1 The 13 policies used in this study and assignment of strategic weights

Level	Document	Strategic weight	Transport weight	Noise weight	Socioeconomic weight
Municipal	Montreal Master Plan: November 2004 (Ville de Montréal 2004)	14%	16.87%	26.42%	15.05%
Municipal	Montreal Transport Plan 2008 (Major 2008)	14%	16.87%	NA	15.05%
Municipal	Plan de Transport 2007 Mémoire de la Coalition Verte (Green Coalition Verte 2007)	4%	4.82%	7.55%	4.30%
Municipal	Plan d'Action Local pour l'Économie et L'Emploi 2007-2010, RESO (RESO 2007)	3%	NA	NA	3.22%
Municipal	Transportation Management Plan, Greater Montreal Area (MTQ 2000)	11%	13.25%	NA	11.82%
Provincial	The Environmental Policy of MTQ, 1992 (MTQ 1992)	9%	10.84%	16.98%	9.68%
Provincial	Politique sur la bruit routier (MTQ 1998)	7%	NA	13.21%	NA
Provincial	Quebec and Climate Change, 2008 (MDDEP 2008)	6%	7.23%	NA	6.45%
Provincial	Quebec Environmental Quality Act (Gouvernement du Québec 2008)	7%	NA	13.21%	7.52%
Provincial	Quebec Public Transit Policy, 2006 (MTQ 2006)	11%	13.25%	NA	11.82%
Provincial	Quebec Sustainable Development Strategy 2008-2013 (MDDEP 2007)	8%	9.64%	15.09%	8.60%
Provincial	Transport & Public Health (Drouin 2008)	4%	4.82%	7.55%	4.30%
Federal	Looking to the Future—A Plan for Investing in Canada's Transportation System (The Council of the Federation 2005)	2%	2.41%	NA	2.15%
Total		100%	100%	100%	100%

Table 7.2 Policy compliance of MTQ and Public Transit alternatives: four examples (full table available online: www.gpe.concordia.ca/turcotpolicyanalysis/tables.pdf).

Document	**Goals** (examples)	**Alternative**			
		MTQ	*Rationale: MTQ*	*Modal Shift*	*Rationale: Modal Shift*
Montreal Master Plan: November 2004 (Municipal)	Doubling Montreal's bicycle path network within 7 years (from 400 to 800 km of bike paths)	+	Propose the addition of bicycle paths but no mention of their location or the length of network	-	Does not include any new bicycle initiatives
Quebec Sustainable Development Strategy 2008–2013 (Provincial)	To reduce Québec's GHG emissions by 13.8 MT (6% decrease from 1990)	- -	The increase in predicted traffic volumes and automobile use, as well as the lack of public transport initiatives will increase GHG emissions	+	The reduction of the total number of automobiles predicted as well as the increase in public transit plans will decrease GHG emissions
Politique sur la bruit routier (Provincial)	Do not exceed a noise level of 55 dBA Leq, 24 h for sensitive areas (residential areas, institutional and recreational)	- -	Based on projected traffic volumes, residential areas neighbouring highway will experience unacceptable noise levels (based on preliminary GIS analysis)	-	Based on projected traffic volumes, some residential areas neighbouring the highway will experience unacceptable noise levels (based on GIS analysis), but there will be a reduction from the current state
Montreal Transport Plan 2008 (Municipal)	Reduce dependency on automobile and promote modal shift to public and active transit—reducing costs and commuter times	-	Increase in lanes, increase in capacity	++	By third phase, elimination of downtown highway 720 and replaced with public transit options

Legend

Rank	*Score*	*Description*
++	+2	Exceeds goals
+	+1	Complies
=	0	Neutral

Rank	*Score*	*Description*
-	-1	Detrimental
- -	-2	Highly Detrimental
?	Removed	Unknown
n.m.	Removed	Not Mentioned

Table 7.3 Expanded ranking score legend after applying a multiplier of 5

Sector Score	Total Score	Description
+10	+30	Exceeds goals
+5	+15	Complies
0	0	Neutral
-5	-15	Detrimental
-10	-30	Highly Detrimental

assessment) (MTQ 2008b; SNC-Lavalin/CIMA 2009), while projected noise and socioeconomic impacts were developed by the authors (www.gpe.concordia.ca/turcotpolicyanalysis/tables.pdf) (Brown et al. 2009).

Based on the ranks assigned to each goal for the two alternative proposals, an overall measure of compliance with the policy document was compiled. The overall score was then multiplied by the specific weight of the document for each sector, providing a weighted score for each document as well as for each alternative. The weighted scores for each document were then totaled in order to determine the total overall score for each sector, for either alternative. For example, MTQ received a total score of -0.92 for the Noise sector, in comparison to the Public Transit proposal's score of +0.39. These values fall within a scale of -2 to +2. In order to expand the range, the total scores were multiplied by 5, which resulted in a new scale of -10 (highly detrimental) to +10 (exceeds goals). The total scores for the Noise sector were therefore transformed into -4.58 for the MTQ alternative and +1.93 for Public Transit alternative.

Lastly, the total score for each alternative was calculated by adding the scores from each sector (a number between -10 and +10), resulting in a final score within the range of -30 to +30. This was done in order to determine the final scores for both the MTQ and Public Transit alternatives, taking into account transport, noise, and socioeconomic sectors. These scores reveal the alternative that complies best with the sustainability policies, plans, and programs that were strategically pertinent to the Turcot Interchange Reconstruction Project *(***Table 7.3***)*.

Table 7.4 Final result for policy scores for each alternative by sector, as well as total overall score.

	Alternative	
Sector	*MTQ*	*Public Transit*
Transport (Range -10 to +10)	-3.58	+6.00
Noise (Range -10 to +10)	-4.58	+1.93
Socioeconomic (Range -10 to +10)	-2.76	+6.08
Total Score (Range -30 to +30)	-10.92	+14.01

Results

The policy analysis produced a series of results for the three sectors in each alternative. The final result displayed in **Table 7.4** indicates that the MTQ's alternative falls within the detrimental rank across all sectors with scores of -3.58, -4.58, and -2.76 for transport, noise, and socioeconomic, respectively, within a range of -10 to +10. The Public Transit alternative resulted in values of +6.00, +1.93, and +6.08 for transport, noise and socioeconomic, indicating that this alternative complies better with the policy documents. Within the range of -30 to +30, the MTQ alternative received an overall score of -10.92 and Public Transit proposal received an overall score of +14.01.

Table 7.5 illustrates the individual scores for each goal and the resulting document scores, using the Montreal Master Plan as an example; all the other policies analyzed can be found online: www.gpe.concordia.ca/turcotpolicyanalysis/tables.pdf.

Discussion

During the analysis of policy goals, consistent themes emerged. In almost every document, the policymakers aim to enhance quality of life through the reduction of environmental degradation. Public transport, in lieu of automobile use, is routinely advocated. The reduction of noise in urban areas is favoured, and the promotion of socioeconomic benefits through environmentally conscious planning is advanced.

The specific goals we extracted from the policies were also consistent with this theme of improving quality of life through environmental stewardship. These goals were compared with the predicted impacts of each

Table 7.5 Average scores for the Montreal Master Plan: November 2004 (Municipal). Similar tables produced for all other policy documents can be found online at www.gpe.concordia.ca/turcotpolicyanalysis/tables.pdf

Transport Policy Analysis			
Document	*Goals*	*MTQ*	*Public Transit*
Montreal Master Plan: November 2004 (Municipal)	1. Increase the use of public transportation and active modes of transport	-1	+2
	2. Reduce the area of off-street parking lots, while applying landscape design and adding green areas	-1	+1
	3. Road rebuilding projects should reduce the width of roads and include landscaping and the planting of trees	-2	+2
	4. Commitment to reduce greenhouse gases (Kyoto Protocol)	-2	+1
	5. Reduce the number of parking spaces, particularly in the Centre	-1	+2
	6. Develop new bikeways to serve major activity areas, as well as parking areas for bicycles	+1	-1
	7. Establish new public transportation routes in order to facilitate trips between different areas of the City	-1	+2
	8. Establish measures to ease traffic flow, such as reducing speed limits, widening sidewalks and designating crosswalks	-1	+1
	9. Preserve and enhance the Saint-Jacques escarpment (prevent erosion)	-2	+2
	10. The construction of an urban boulevard in the Notre-Dame Street East corridor and the relocation and conversion of the Bonaventure Expressway into an urban boulevard	-2	+2
	11. Improve public access to the shorelines, complete the perimeter bikeway and protect the heritage areas and buildings located along the waterside roadway	0	0
	12. Doubling Montreal's bicycle path network within 7 years (from 400 to 800 km of bike paths)	+1	-1
	13. Ensure cycling network is accessible year-round (the white path)	0	-1

	14. Development in partnership of a self-serve bicycle system (operation in 2009 of 2400 bicycles and 300 stations)	0	-1
	Average Score	-0.79	+0.786
Noise Policy Analysis			
Document	*Goals*	*MTQ*	*Public Transit*
Montreal Master Plan: November 2004 (Municipal)	1. To limit noise pollution in residential areas	-1	+1
Socioeconomic Policy Analysis			
Document	*Goals*	*MTQ*	*Public Transit*
Montreal Master Plan: November 2004 (Municipal)	1. Increase development and density around public transit points such as metro stations	-1	+2
	2. Reduce Commuting times through railway/metro expansion and proposed light railway routes	-1	+2
	3. Urban development that promotes the use of public transport and active transport—mixed land use	-1	+1
	4. Region to Region transport networks to improve commuting time and monthly transport cost	0	+2
	5. Cycling Action Plan—Citywide bikeway	0	0
	6. Convert disused buildings and empty lots to mixed mode land use especially near transit nodes	+1	0
	7. Reformation of transport assistance and allocate financing	0	+2
	8. Public Transit promotes social equity, thus is targeted to residence, employment and education areas	0	+1
	Average Score	-0.25	+1.25

Table 7.6 Weighted scores for all the 13 policies for all three sectors (see text and Table 1 for explanation of weights).

Transport Policy Analysis					
Document	*MTQ*	*Public transit*	*Sector Weight*	*Weighted Score MTQ*	*Weighted Score Public transit*
Montreal Master Plan: November 2004	-0.79	+0.79	16.87%	-0.13	+0.13
Montreal Transport Plan 2008	-0.38	+1.13	16.87%	-0.06	+0.19
Plan de Transport 2007 Mémoire de la Coalition Verte	-0.71	+0.86	4.82%	-0.03	+0.04
Transportation Management Plan, Greater Montreal Area	-0.57	+1.43	13.25%	-0.08	+0.19
The Environmental Policy of MTQ, 1992	-1.00	+1.50	10.84%	-0.11	+0.16
Quebec and Climate Change, 2008	-0.67	+1.00	7.23%	-0.05	+0.07
Quebec Public Transit Policy, 2006	-1.25	+1.44	13.25%	-0.17	+0.19
Quebec Sustainable Development Strategy 2008-2013	-1.50	+1.50	9.64%	-0.14	+0.14
Transport & Public Health	+1.00	+1.00	4.82%	+0.05	+0.05
Looking to the Future—A Plan for Investing in Canada's Transportation System	+0.33	+1.17	2.41%	+0.01	+0.03
Total (Range: -2 to +2)				-0.72	+1.20
Total (multiplied by 5; Range: -10 to +10)				-3.58	+6.00
Noise Policy Analysis					
Document	*MTQ*	*Public transit*	*Sector Weight*	*Weighted Score MTQ*	*Weighted Score Public transit*
Montreal Master Plan: November 2004	-1	+1	26.42%	-0.26	+0.26
Plan de Transport 2007 Mémoire de la Coalition Verte	+1	-1	7.55%	+0.08	-0.08
Environmental Policy of MTQ, 1992	-1	+1	16.98%	-0.17	+0.17
Politique sur la bruit routier	-0.5	-0.5	13.21%	-0.07	-0.07

Quebec Environmental Quality Act	-2	-1	13.21%	-0.26	-0.13
Quebec Sustainable Development Strategy 2008-2013	-1	+1	15.09%	-0.15	+0.15
Transport & Public Health	-1	+1	7.55%	-0.08	+0.08
Total (Range: -2 to +2)				-0.92	+0.39
Total (multiplied by 5; Range: -10 to +10)				-4.58	+1.93
Socioeconomic Policy Analysis					
Document	*MTQ*	*Public transit*	*Sector Weight*	*Weighted Score MTQ*	*Weighted Score Public transit*
Plan d'Action Local pour l'Économie et L'Emploi 2007-2010, RESO	-0.67	+0.50	3.22%	-0.02	+0.02
Plan de Transport 2007 Mémoire de la Coalition Verte	-0.50	+1.00	4.30%	-0.02	+0.04
Montreal Master Plan: November 2004	-0.25	+1.25	15.05%	-0.04	+0.19
Transportation Management Plan: Greater Montreal Area	0.00	+1.00	11.82%	0.00	+0.12
Montreal Transport Plan 2008	-0.25	+1.50	15.05%	-0.04	+0.23
Transport & Public Health	-0.50	+1.00	4.30%	-0.02	+0.04
Environmental Policy of MTQ, 1992	-1.50	+2.00	9.68%	-0.15	+0.19
Quebec Public Transit Policy, 2006	-0.57	+0.71	11.82%	-0.07	+0.08
Quebec Sustainable Development Strategy 2008-2013	-0.50	+1.17	8.60%	-0.04	+0.10
Quebec Environmental Quality Act	-0.50	+1.00	7.52%	-0.04	+0.08
Quebec and Climate Change, 2008	-1.50	+1.33	6.45%	-0.10	+0.09
Looking to the Future: A Plan for Investing in Canada's Transportation System	-1.00	+2.00	2.15%	-0.02	+0.04
Total (Range: -2 to +2)				-0.55	+1.22
Total (multiplied by 5; Range: -10 to +10)				-2.76	+6.08

alternative on each environmental sector, and the resulting balance indicates the compliance of each alternative with the policies.

Policy Analysis—Transport

A clear link between sustainability and transport was made in the documents that were analyzed. The objective to increase the use of public transit and other modes of transport is apparent in nine out of the ten transport documents analyzed. Since the MTQ alternative does not propose any new public transportation initiatives and focuses mainly on automobile transportation, its average score indicated non-compliance. In contrast, the alternative proposal places public transit at the core and proposes many alternate forms of transport: the installation of the "Metro-express;" the Lachine commuter tramway; a railroad shuttle to Dorval; suburban trains, and reserved lanes (Brisset and Moorman 2009). The alternative therefore received an overall positive score (Table 7.6).

The reduction of greenhouse gas emissions is stated as a goal in both the Montreal Master Plan and the Québec Sustainable Development Strategy. The MTQ alternative will clearly not support this objective since the increase in predicted traffic volumes will result in increased emissions, at least in the short term and with existing vehicle technologies. A popular view amongst urban highway proponents is that improved combustion technology will reduce emissions to the point that increased road capacity and higher traffic volumes are environmentally acceptable. However, studies show that increased capacity on highways invariably leads to increased use, congestion, and greater emissions (Noland and Lem 2002). The Public Transit alternative, on the other hand, will reduce the predicted traffic volumes with the removal of the Ville Marie Highway and the implementation of public transit initiatives. This predicted reduction in traffic volumes would reduce CO_2 emissions, thus putting this proposal in compliance with emissions goals.

The overall analysis of the Transport sector revealed a score of -3.58 for the MTQ alternative, indicating non-compliance with the 58 goals extracted from the policies. The Public Transit alternative received an overall score of +6.00 for the Transport sector, signifying compliance with the documents analyzed (Table 8.4). These scores are consistent with expectations: the Transport policies all advocate reduced automobile use.

Policy Analysis—Noise

It can be clearly seen from the comparison of the two alternatives' compliance to noise policy that the MTQ proposal falls, on average, within the

detrimental range (negative), while the Public Transit proposal is found to be, on average, compliant (positive) (Table 7.6). While the Public Transit proposal did not comply strongly with noise policies and does not include any noise barriers to mitigate areas experiencing acute noise levels, this alternative will decrease noise levels in the areas surrounding the Turcot Interchange and its adjoining highways, based on preliminary GIS analysis. The MTQ proposal, in contrast, will increase noise levels in the area, but the plan also mentions that noise barriers will be constructed in areas meeting the MTQ's requirements for considering mitigation measures—where noise levels are greater than or equal to 65 dBA, where there are 10 or more houses, and where housing density is at least 30 units per square kilometres (Brown et al. 2009). The proposal does not, however, state where these areas might be. Interestingly, the final results table shows that noise is a significant factor in the MTQ's negative score (-4.58 on a range of -10 to +10). We presume that the MTQ's high negative score is a result of the increased traffic volumes posited by this alternative, notwithstanding the noise barriers.

Policy Analysis—Socioeconomic Conditions

First, the socioeconomic sector parametres chosen were those likely to be affected by the alternatives for the Turcot. These parametres were: housing prices; commuting times; in- and out-migration; and monthly household travel expenditures. A combination of qualitative methodology, in which general knowledge of generic types of impacts and case studies is used, and quantitative methodology, in which numerical techniques and knowledge of effects which have occurred in similar situations are used, was employed to assess the impacts on the parametres of the Public Transit and MTQ transport initiatives.

We discovered that the Public Transit alternative is far more compliant with socioeconomic policy objectives than the MTQ approach. The four parametres considered are affected by the Public Transit plan in a way that conforms, for the most part, to policy goals (Table 7.6). Housing prices are an exception to this rule: public transit projects typically increase property values in their proximity, while the policy documents specify that housing should remain affordable. Impacts of the Public Transit alternative on commuting times, in-and out-migration, and monthly household travel expenditures are consistent with policy: this alternative received a score within the range of compliance, while the MTQ's alternative fell within the detrimental category. The MTQ's proposal reduces the economic value of inner-city land by sealing it off with embankments, while demolishing

approximately 200 units of housing and further reducing the desirability of hundreds of other apartments along its entire route.

Since most of the policies emphasize environmental responsibility, the Public Transit alternative, which advocates reduction of negative effects of transportation, is far more compliant with 58 policy goals. The MTQ alternative, although some of its elements fulfill transport, noise mitigation, and socioeconomic needs, has few environmental measures. The final results of the policy tables confirm this position. This evaluation reflects, quantitatively, that the current MTQ alternative falls far behind other options in enhancing the quality of life of Montreal's residents.

Improvements to Policy Analysis

A possible criticism of the results presented in this chapter is that different raters may assess the level of compliance of the two alternatives with each goal differently to some degree. For example, the MTQ proposal might be rated "-" instead of "- -" in **Table 7.2** for the goal of reducing Quebec's GHG emissions. Therefore, it would be useful to perform a sensitivity analysis on how much the results change if the alternatives are assessed independently by different raters. However, this apparent variability among raters does not necessarily imply that the assessments are subjective. The 124 goals stated in the 13 policy documents are clear enough that little doubt can exist as to which alternative ranks higher for each particular goal. Overall patterns—and findings—would be the same, even if the quantitative score changes slightly.

A second concern relates to the choice of sectors to examine in depth. Additional sectors, such as Air Quality, Culture/Heritage, Health, and Biology, could be usefully analysed. The analysis of these sectors for each alternative would broaden the scope of impact prediction and assessment.

Likewise, the weighting assigned to each policy document and each sector could be subject to criticism. Again, as an exercise in policy assessment, the broad patterns revealed here would likely hold true—that there are fundamental contradictions between the impacts of highway reconstruction and environmental sustainability aims upheld in numerous local, provincial and federal policies. While the weighting of different policy objectives might shift—and therefore the overall numeric values assigned to each proposal, oversights and shortcomings in the plans (e.g., regarding noise and housing prices in the Public Transit plan; regarding noise, socio-economic impacts and transport objectives in the MTQ plan) revealed through the analysis would still likely be valid.

Conclusion

An assessment of the compliance of the MTQ's Turcot Interchange Reconstruction project with governmental policy guidelines related to environmental sustainability shows that the proposal does not effectively follow the stated policy goals. The final score for the MTQ alternative was -10.92, which indicates a detrimental overall impact. Reserved bus lanes, bike paths and other measures to promote public and active transit would certainly improve the proposal's compliance with policy, suggesting that the MTQ should seriously undertake a review of its plan in light of existing environmental and transit policies.

Equally important, this chapter shows that an alternative plan that promotes public transit, such as the one put forward by Brisset and Moorman (see chapter 2), outperforms the MTQ's proposals in almost all policy dimensions. The Public Transit alternative received a final score of +14.01 (range -30 to +30), showing compliance with policy objectives. The implications are profound. Development of alternatives for the Turcot Interchange that better match stated local, provincial and federal policies is possible. Rather than commit to the MTQ's plan, with its reliance on highways to maintain current traffic patterns and volumes, this research suggests that investment in the study, elaboration and implementation of policy-compliant alternatives is a more worthwhile endeavour.

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Appendix

Table 7.7 shows all 124 goals extracted from the 13 policy documents and the average scores for the two alternatives, for the three sectors (58 goals for Transport, 8 goals for Noise, 58 goals for Socio-economic). **Table 7.8** showing the full list of all rationales used in assessing the two alternatives in this study is available at the following website: www.gpe.concordia.ca/turcotpolicyanalysis/tables.pdf."

Table 7.7 Average scores for all 13 documents for the sectors Transport, Noise, and Socio-economic.

Transport Policy Analysis			
Document	*Goals*	*MTQ*	*Modal Shift*
Montreal Master Plan: November 2004 (Municipal)	1. Increase the use of public transportation and active modes of transport	-1	+2
	2. Reduce the area of off-street parking lots, while applying landscape design and adding green areas	-1	+1
	3. Road rebuilding projects should reduce the width of roads and include landscaping and the planting of trees	-2	+2
	4. Commitment to reduce greenhouse gases (Kyoto Protocol)	-2	+1
	5. Reduce the number of parking spaces, particularly in the Centre	-1	+2
	6. Develop new bikeways to serve major activity areas, as well as parking areas for bicycles	+1	-1
	7. Establish new public transportation routes in order to facilitate trips between different areas of the City	-1	+2
	8. Establish measures to ease traffic flow, such as reducing speed limits, widening sidewalks and designating crosswalks	-1	+1
	9. Preserve and enhance the Saint-Jacques escarpment (prevent erosion)	-2	+2
	10. The construction of an urban boulevard in the Notre-Dame Street East corridor and the relocation and conversion of the Bonaventure Expressway into an urban boulevard	-2	+2
	11. Improve public access to the shorelines, complete the perimeter bikeway and protect the heritage areas and buildings located along the waterside roadway	0	0
	12. Doubling Montreal's bicycle path network within 7 years (from 400 to 800 km of bike paths)	+1	-1
	13. Ensure cycling network is accessible year-round (the white path)	0	-1
	14. Development in partnership of a self-serve bicycle system (operation in 2009 of 2400 bicycles and 300 stations)	0	-1
	Average Score	*-0.79*	*+0.786*

Montreal Transport Plan, 2008 (Municipal)	1. Improve the STM's services to increase usage by 8 % in 5 years	-1	+2
	2. Build a tramway network in the core of the agglomeration	-2	+2
	3. Initiatives to have a Train shuttle to airport	-2	+2
	4. Maintain and complete the road network	+2	+2
	5. Priority measures for 240 kilometres of arterial roads	+2	-2
	6. Commuter railroad in the East	0	0
	7. Rapid transit system with exclusive right-of-way lanes	-1	+2
	8. Modernize and expand Métro system eastward	-1	+1
	Average Score	*-0.38*	*+1.125*
Plan de Transport 2007 Mémoire de la Coalition Verte (Municipal)	1. Encourage use of subways, trains and light rail vehicles	-2	+2
	2. Moratorium on new road/highway construction until the current network is fixed	+1	-1
	3. Focus on rail transit versus buses on trunk lines	-1	+1
	4. Conservation of strategic rail corridors for future transit use	+1	+1
	5. Designation of the CPR line, or something paralleling that line as the route for the airport shuttle	-2	+1
Plan de Transport 2007 Mémoire de la Coalition Verte (Municipal	6. Electrify existing diesel operated commuter rail lines and increase their frequency	-1	+1
	7. Encourage more freight on the railways	-1	+1
	Average Score	*-0.71*	*+0.857*

Transportation Management Plan, Greater Montreal Area (Municipal)	1. Emphasize initiatives that foster the revitalization and consolidation of the urban core	-1	+2
	2. Promote mass transit & transportation management to limit the drawbacks of the automobile (eg. noise)	-1	+2
	3. Give priority to reinforcing and modernizing existing transportation networks	+1	+2
	4. Promote broader use of mass transit: new metro lines, commuter trains, reserved lanes, park and ride	-2	+2
	5. Manage transport demand instead of reacting to it	-2	+2
	6. An integrated service strategy for the east end of the Greater Montreal Area	-1	+1
	7. Priority initiatives pertaining to the road network in and leading to urban core	+2	-1
	Average Score	*-0.57*	*+1.429*
The Environmental Policy of Quebec's MTQ, 1992 (Provincial)	1. Improve the complementarity of the various modes of transport	-1	+2
	2. Design transportation infrastructures with a view to favouring the development of the living environment	-1	+1
	Average Score	*-1*	*+1.5*
Quebec and Climate Change, 2008 (Provincial)	1. Encourage the development and use of transportation alternatives	-1	+2
	2. Encourage the development and use of public transit	-2	+2
	3. To develop networks of safe bicycle lanes that run from residential neighbourhoods to employment centres like downtown areas, industrial parks, shopping centres, etc.	+1	-1
	Average Score	*-0.67*	*+1*

Quebec Public Transit Policy, 2006 (Provincial)	1. A 8% increase in public transit ridership by 2012	-1	+2
	2. Improve quantity/quality of public transit services	-1	+2
	3. Backing alternatives to automobiles	-1	+2
	4. Improving energy efficiency of passenger transportation by road	-2	+1
	5. Ensuring the environment, society, and economy are factored into every transport decision	-2	+1
	6. A 10% reduction in present-day energy consumption by 2015	-2	+1
	7. A 16% increase in the supply of public transit services	-2	+2
	8. To make cycling more compatible with another mode of transportation	+1	+1
	Average Score	*-1.25*	*+1.444*
Quebec Sustainable Development Strategy 2008-2013 (Provincial)	1. To reduce Québec's GHG emissions by 13.8 MT (6% decrease from 1990)	-2	+1
	2. Support Quebec Public Transit Policy	-1	+2
	Average Score	*-1.5*	*+1.5*
Transport & Public Health (Provincial)	1. Safer Roads	+1	+1
	Average Score	*+1*	*+1*
Looking to the Future—A Plan for Investing in Canada's Transportation System (Federal)	1. Encompassing all modes of transportation in a balanced and integrated way	-1	+2
	2. Improving safety, security and efficiency on corridors serving strategic gateways and key economic nodes	+1	+1
	3. Recognizing the strategic role of urban centres & urban transit and eliminating bottlenecks within & between cities	+2	+1
	4. Facilitating interprovincial/territorial, international…tourist traffic	0	+1

Looking to the Future—A Plan for Investing in Canada's Transportation System (Federal)	5. Improving access to strategic transportation components that currently have aging, congested or absent highway connections	+1	+1
	6. Promoting innovation and efficiency in transport	-1	+1
	Average Score	*+0.33*	*+1.167*
Noise Policy Analysis			
Document	*Goals*	*MTQ*	*Modal Shift*
Montreal Master Plan: November 2004 (Municipal)	1. To limit noise pollution in residential areas	-1	+1
Plan de Transport 2007 Mémoire de la Coalition Verte (Municipal)	1. Improvements like: Noise/sound barriers	+1	-1
Environmental Policy of Quebec's MTQ, 1992 (Provincial)	1. Reduce noise and other forms of pollution generated by the construction, use and maintenance of transportation infrastructures	-1	+1
Politique sur la bruit routier (Provincial)	1. Do not exceed a noise level of 55 dBA Leq, 24 h for sensitive areas (residential areas, institutional and recreational)	-2	-1
	2. Construct barriers in areas where noise levels are 65 dBA Leq 24 h and include at least 10 housing units with a density of 30 dwelling units per kilometer	+1	0
	Average Score	*-0.5*	*-0.5*

Quebec Environmental Quality Act (Provincial)	1. Prescribed standards for noise intensity	-2	-1
Quebec Sustainable Development Strategy 2008-2013 (Provincial)	1. Increase standard of living (eg. limit noise exposure)	-1	+1
Transport & Public Health (Provincial)	1. Decrease Noise	-1	+1
Socioeconomic Policy Analysis			
Document	*Goals*	*MTQ*	*Modal Shift*
Plan d'Action Local pour l'Économie et L'Emploi 2007-2010, RESO (Municipal)	1. Creation of a healthy socio-economic environment	+1+	+1
	2. Creation of jobs and local business opportunities	+1	0
	3. Raise the cultural value of the area	-1	+1
	4. Commitment to sustainable development in social, economic, and environmental realms	-2	+1
	5. Develop affordable housing simultaneously with condominium options to meet the needs of a rapidly expanding population	0	0
	6. Improve public transit to neglected zones in collaboration with residences and local businesses	-1	+2
	7. Enlarge social housing options in response to different needs	0	0
	8. Diversify housing options under the perspective of mixed social conditions, without penalizing social and community housing	-1	0
	9. Limit rent increases in the area	-1	-1

Plan d'Action Local pour l'Économie et L'Emploi 2007-2010, RESO (Municipal)	10. Improve and develop services in close proximity to residential areas	-1	+1
	11. Prioritize public transit development in order to unblock traffic congestion in the industrial sector of Point St Charles	-2	+2
	12. Maintain a minimum of 30% of "affordable" housing, with half of that being social housing, in every residential project of over 200 units	-1	-1
	Average Score	*-0.67*	*+0.50*
Plan de Transport 2007 Mémoire de la Coalition Verte (Municipal)	1. Reduce commuting times by means of augmenting commuter rail links	-1	+2
	2. Implementation of regulations for railway lines near housing (barriers etc) to mitigate property value decline	0	0
	Average Score	*-0.50*	*+1.00*
Montreal Master Plan: November 2004 (Municipal)	1. Increase development and density around public transit points such as metro stations	-1	+2
	2. Reduce Commuting times through railway/metro expansion and proposed light railway routes	-1	+2
	3. Urban development that promotes the use of public transport and active transport—mixed land use	-1	+1
	4. Region to Region transport networks to improve commuting time and monthly transport cost	0	+2
	5. Cycling Action Plan—Citywide bikeway	0	0
	6. Convert disused buildings and empty lots to mixed mode land use especially near transit nodes	+1	0
	7. Reformation of transport assistance and allocate financing	0	+2
	8. Public Transit promotes social equity, thus is targeted to residence, employment and education areas	0	+1
	Average Score	*-0.25*	*+1.25*

Montreal Transport Plan 2008 (Municipal)	1. Reduce dependency on automobile and promote modal shift to public and active transit—reducing costs and commuter times	-1	+2
	2. Manage parking at a strategic level to mitigate traffic and automobile dependency in dense areas	0	+1
	3. Construction of pedestrian oriented areas therefore promoting intensification	0	+1
	4. Allocate Urban transit funding and reshape transit assistance	0	+2
	Average Score	*-0.25*	*+1.50*
Transportation Management Plan: Greater Montreal Area (Municipal)	1. Tax breaks, subsidies for mass transit use: Both to individuals and employers with transit benefit programs	0	+1
	Average Score	*0.00*	*+1.00*
Transport & Public Health (Provincial)	1. Provision of solutions to ameliorate health and economic standing with regards to transport in budget alignment	-1	0
	2. Reduction in speed and congestion and a shift to public transit alternatives and active transit	-1	+1
	3. Improve alternatives to all members of society for transportation, allocate funding	0	+2
	4. Reduce parking access, thus looking to reduce urban traffic, replaced with cost effective transit	0	+1
	Average Score	*-0.50*	*+1.00*
Environmental Policy of Quebec's MTQ, 1992 (Provincial)	1. Integrate land-use and transport in a way which encourages modal shift	-2	+2
	2. Accommodate people's growing need for rapid transport through systems which do not involve private automobile use	-2	+2
	3. Combat urban sprawl through better land-use planning and transport integration	-1	+2
	4. Reverse the trends of populations moving towards linear infrastructures and away from downtown cores	-1	+2
	Average Score	*-1.50*	*2.00*

Quebec's Public Transit Policy, 2006 (Provincial)	1. Promote the role of public transit as a lever for economic development	0	+1
	2. Encourage businesses to locate favourably for public transit access, and to provide workers with incentives to use public transit	-2	+2
	3. Reduce the monetary cost of congestion by reducing commuting times	-1	+2
	4. Ensure fair distribution of the burden of travel costs through taxation of gasoline and fees paid from vehicle licenses	0	0
	5. Allocate greater government funding to remote and sparsely populated regions in order to give residents wider transport choices	0	0
	6. Keep public transit fares within a range which does not inhibit use or restrict access to the service	0	-1
	7. Sustain the economy while improving the quality of urban life and the mobility of low-income earners	-1	+1
	Average Score	*-0.57*	*+0.71*
Quebec Sustainable Development Strategy 2008-2013, (Provincial)	1. To link environmental protection, social progress, and economic efficiency together under the auspices of sustainable development	-1	+1
	2. To encourage the economies of Quebec and its regions to effectively commit to innovation, prosperity, social progress and respect for the environment	0	+1
	3. "Polluter pays:" the costs of measures to prevent, control, and mitigate environmental damage are to be paid by the polluter (i.e. drivers, industrialists)	-1	+1
	4. Adjust to demographic changes by fostering economic prosperity through innovation	+1	+1
	5. Practice integrated, sustainable land-use and development	-2	+2
	6. Ensure the welfare of families and the promotion of conditions favourable to family life	0	+1
	Average Score	*-0.50*	*+1.17*

Quebec Environmental Quality Act (Provincial)	1. Maintain citizens' right to a healthy environment and the protection of all living species inhabiting it.	-1	+2
	2. Regulate for the protection of integrity of the land and its use; rehabilitate where necessary to maintain this integrity	0	0
	Average Score	*-0.50*	*+1.00*
Quebec and Climate Change, 2008 (Provincial)	1. Deal with climate change through two main strategies: avoid emissions and adapt to changing climatic conditions	-1	+1
	2. Maximize Quebec's economic competitiveness through optimizing energy efficiency	-1	+1
	3. Implement a greenhouse gas emission cap and trade system for certain economic sectors which are heavy GHG emitters	-1	+1
	4. Reduce emissions from Quebec's transport sector, which in 2005 accounted for 39% of total provincial greenhouse gas emissions	-2	+2
	5. Encourage the development and use of public transit and reduce the daily use of single passenger vehicles	-2	+2
	6. Encourage the implementation of multi-modal projects for the transportation of merchandise, reducing the role of trucks in goods transport and promoting the use of rail	-2	+1
	Average Score	*-1.50*	*+1.33*
Looking to the Future: A Plan for Investing in Canada's Transportation System (Federal)	1. To recognize and develop the critical link between transportation infrastructure and the economy	-1	+2
	2. To pursue opportunities to promote awareness of the importance of sustainable urban transport and transportation choices to the economic and social lives of Canadians	-1	+2
	Average Score	*-1.00*	*+2.00*