

**Consumers' Association of Canada (Manitoba)
(CAC Manitoba)**

**2022 GRA Information Requests to Taxi Coalition
September 28, 2021**

CAC (TC) 1-1

Part and Chapter:	Dion Strategic report	Page No.:	P 14
PUB Approved Issue No:	2. Ratemaking		
Topic:	Generalized Linear Models		
Sub Topic:			

Preamble to IR:

On page 14 of their report, Dion Strategic makes the following recommendation:

“Dion Strategic recommends an immediate plan to be put in place for MPI to switch to Generalized Linear Models. GLMs are superior to the MBP and would provide a systematic method to determine rating variables, significance, and confidence measures. If modelled properly, it would reduce the cross subsidization amongst subsets of risk. It could potentially reduce the involvement of all interveners – if risks are priced more accurately, there would be less time spent debating the segmentation of risks.”

Question:

- a) Please outline the steps that should be included in an “immediate plan” for MPI to switch to Generalized Linear models, including possible timelines, where applicable.

- b) Please explain how Generalized Linear Models would “reduce the cross subsidization amongst subsets of risk.”

- c) Please further elaborate on how Generalized Linear Models could “reduce the involvement of all interveners – if risks are priced more accurately, there would be less time spent debating the segmentation of risks.”

Rationale for Question:

To better understand the practical steps of switching to Generalized Linear Models and the impact on MPI and other parties.

RESPONSE:

- a) Important with any change is to get stakeholder feedback. If Dion Strategic were designing a plan, it would include:
1. For the upcoming year, create a transition plan
 2. Run both GLM and MBP models for the coming year as a test
 - i. Decide on the assumptions to be used for the GLM
 1. Simplified model as a start.
 - For example, using only existing rating variables and not adding new ones.
 2. Formalize the Assumptions used, treatment of groups, etc.
 3. Compare the GLM results to MBP
 4. Plan for a transition between MBP and GLM rating in coming years
 - i. Decide on a capping and dislocation structure
 5. Plan for improvements to GLM models in following years
 - i. Determine additional data to collect to add to the model
- b) GLMs can pick up significant variables in the model and also which ones to discard. This helps in determining what the “true” rate should be for each subset. GLMs are also great at testing and finding interactions between rating variables.

For example, many companies have an Age variable and a Vehicle Type variable (e.g. Family Sedan, Sports Car). More advanced rating would use an

Age variable, a Vehicle Type variable, and a Age x Vehicle Type interaction. In this example, it would recognize that not all Sports Car drivers are poor risks. It would recognize for example, that older, possibly retired individuals who keep a sports car for pleasure use are actually great risks.

Relating back to the Territory discussions – there are perhaps interactions to be found between Territory and other factors, that would improve pricing for territories 2 to 4.

- c) From an actuarial perspective and from Dion Strategic's involvement in the 2021 GRA and now the 2022 GRA, in our opinion, the Ratemaking discussions generally do not challenge the overall rate levels of MPI as a whole, rather, the debates centre on the rates applicable to different subsets/classes of risks. In other words, the actuarial aspect is a debate on segmentation and charging the proper rate amongst different subsets/classes of risks. With the change to a more statistically sophisticated methodology and the feedback from stakeholders, this should increase the validity of the results to all parties – after all, the goal should be to charge rates that are just and reasonable and commensurate to the risk of each subset/class. GLMs have measures to determine if the segmentation done is statistically significant.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

CAC (TC) 1-2

Part and Chapter:	Dion Strategic report CAC (MPI) 1-58	Page No.:	P 12
PUB Approved Issue No:	2. Ratemaking		
Topic:	Territories		
Sub Topic:	Review of territories and uses		

Preamble to IR:

On page 12 of their report, Dion Strategic states:

“MPI should investigate improvements to the rating algorithm, increase the complexity, and minimize the cross subsidization amongst risks. The relativities and loss ratios indicate that rural taxis are overcharged while urban taxis are undercharged. This is not limited to taxis as other classes of business could be seeing similar subsidization across territories.”

In the 2021 GRA, MPI stated the following in response to CAC (MPI) 1-17:

“MPI has not conducted a territory review since their introduction. A full review of all Basic products is currently underway, including a review of territories and insurance uses. MPI expects this review to determine whether the suggested subsidization is in fact occurring. Having said that, MPI is prioritizing items that are not ‘out of the box’ solutions for Project Nova, including Driver Safety Rating, Vehicle for Hire, Motorcycles and the Fleet program.”

In the 2022 GRA, CAC Manitoba asked for an update regarding the review of territories and uses. MPI responded the following in CAC (MPI) 1-58:

“Reviews of insurance use and territories are in progress. It is anticipated that the

reviews will be completed with detailed summaries made available at the next General Rate Application.”

Question:

Would MPI’s “full review of all Basic Products [...] including a review of territories and insurance uses” assist in addressing Dion Strategic’s stated concerns in the preamble above? If so, please explain how. If not, please explain why not.

Rationale for Question:

To understand the link between Dion Strategic’s concerns and MPI’s ongoing review of territories and uses.

RESPONSE:

Depending on the findings and methodology used to arrive at those conclusions, the review could help addressing Dion Strategic’s concerns

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

CAC (TC) 1-3

Part and Chapter:	Dion Strategic report	Page No.:	
PUB Approved Issue No:	2. Ratemaking 12. Vehicles for Hire (VFH) class, including rates		
Topic:	Market dynamics		
Sub Topic:			

Preamble to IR:

Introduction of Private Passenger Vehicles for Hire has changed transportation market dynamics. Specifically, the usage of taxis may have decreased with the introduction of private passenger vehicles for hire.

Question:

Did Dion Strategic consider changes in market dynamics in evaluating the MPI GRA.

Rationale for Question:

To understand the potential implication of changes in dynamics.

RESPONSE:

Yes. The fast growing Passenger VFH class was noted and considered in the evaluation – we understand similar trends are present elsewhere in the Canadian market.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION: