

ACTUARIAL MEMORANDUM

1.0 Overall Description of the Ratemaking Methodology and Summary

A loss ratio model is used to develop provincial indicated average rate levels for each of the following coverages for Facility Association Private Passenger Vehicles in the Province of Newfoundland and Labrador:

> Third Party Liability - Total Accident Benefits Uninsured Automobile Collision Comprehensive Specified Perils

The primary data sources underlying this analysis are Facility Association quarterly development exhibits ("QDE") compiled as at 30 June 2006, and Facility Association and Industry 2005 Automobile Insurance Experience ("AIX") - Calendar/Accident Year Exhibits compiled as at 31 December 2005, all prepared by the Insurance Bureau of Canada ("IBC"). We believe the data used is reliable and sufficient for this ratemaking exercise, and we have used this raw data as prepared by the IBC without modification, except as may be specifically noted in this report. In this regard, we have relied on the various data edit checks performed by IBC, which are designed to promote data integrity. IBC assembles the QDE and AIX data from the submissions made under the Automobile Statistical Plan by Facility Association Servicing Carriers and each of the insurers underwriting automobile insurance in the province. Because there are many companies providing this information and due to our remoteness from the individual data elements, it was not practical for us to directly put in place audit or audit-like procedures. Therefore, we have relied on this IBC data without the benefit of any independent audit. We did examine the data for reasonableness and any data we extracted from computerreadable sources was reconciled to within acceptable tolerances to the published reports.

A loss ratio method is used in the derivation of the provincial average rate level indications. The recent implementation of Facility Association's data repository makes it possible to calculate highly refined on-level factors, used to adjust historical premium to reflect current rate levels. Monthly written premiums from the data repository are brought on-level at the coverage/territory/class and driving record/policy term level, and are then earned over the appropriate policy term. From this exercise, on-level monthly written and earned premiums are aggregated to allow calculation of annual on-level factors, which in turn are applied to Facility Association written and earned premiums from the QDE or AIX exhibits. Data repository balances were reconciled to within acceptable tolerances to the QDE or AIX exhibits.

For each coverage or sub-coverage, Facility Association reported pure loss ratios (excluding all adjustment expenses) by accident period are developed to ultimate and



brought on-level. These ultimate pure loss ratios are then projected to expected future cost levels and a single projected pure loss ratio is determined by averaging the accident period projected pure loss ratios using weights that vary by coverage or sub-coverage. Where the volume of experience is sufficient, Facility Association's conventional methodology calls for selection of accident period weights roughly proportional to the earned exposures for the 4½ to 5 years of experience used.

Industry data is used in the determination of a surrogate Industry average rate level change, which is used in the derivation of the complement of credibility to Facility Association's provincial experience.

For Industry, reported losses and allocated loss adjustment expenses ("ALAE") by accident period are developed to ultimate values using incurred loss development factors. The corresponding loss costs are then projected to expected future cost levels, and a single projected loss cost is then determined by averaging the accident period projected loss costs using accident period weights selected to promote stability.

This Industry loss cost is then discounted and compared to the corresponding discounted loss cost from the previous Industry analysis to produce a change in the Industry discounted loss cost for each coverage or sub-coverage. This change, along with an Industry premium trend, is then applied to the Facility Association discounted expected loss ratio inherent in the current rates as derived in the prior analysis to produce a Facility Association expected discounted loss ratio assuming Industry experience, for use as the balance of credibility to the discounted loss ratio based directly on Facility Association experience. This balance of credibility approach promotes stability between successive rate reviews, while allowing for appropriate recognition of a changing environment. Certain modifications were necessary to the prior analysis results to reflect the separation of Bodily Injury Tort and Property Damage Tort sub-coverages, which is being more fully reflected in this application.

For each coverage or sub-coverage, the Facility Association projected loss ratio is then discounted and credibility weighted with the Facility Association discounted expected loss ratio assuming Industry experience. The resulting discounted loss ratio is then loaded for discounted expenses (including loss adjustment expenses based on Facility Association Servicing Carrier claims service fee arrangements) and for a discounted provision for cost of capital, producing indicated changes in average rate level by coverage.

The provincial indicated average rate level changes are then distributed by rating territory using territory deviations. The indicated changes in average rate level (by coverage, by territory) are derived by comparing the product of the provincial indicated average rate level and the territory deviations with the estimated current average rate level. These indications are then reviewed in selecting the proposed changes in average rate level, giving additional consideration to Industry concerns, market position and policyholder impact. The proposed base premiums are then derived to reflect these proposed changes in average rate level, and the estimated rate level impact of the proposed rule changes.



2.0 Losses

The sources for the analysis of incurred loss and claim count development are Facility Association QDE compiled as at 30 June 2006 and Industry 2005 AIX development exhibits.

Unless specifically noted otherwise in a particular context, the experience used for each coverage or sub-coverage encompasses all underlying categories of classification (e.g., limit, deductible) as reflected in the QDE or AIX.

2.1 Loss Development

With respect to Industry data, 2005 AIX accident half-year development assumptions as published by the Insurance Bureau of Canada have been reviewed (using losses combined with ALAE) and modified in some instances to reflect our interpretation of the available experience, or, in the case of the 6-12 month development factors, consideration of evidence of seasonality. The equivalent accident year development assumptions are derived using accident half-year incurred losses or incurred counts as weights.

With respect to Industry Uninsured Automobile, the combined experience of Uninsured Automobile and the former Accident Benefits Uninsured Automobile sub-coverage was used.

Facility Association development factors were selected on the basis of loss experience only (i.e. net of ALAE). This distinction from the Industry analysis (done gross of ALAE) was originally introduced for two reasons:

- (1) To enhance the consistency between the development assumptions used for pricing purposes and those used for valuation purposes, and
- (2) To provide for a revised treatment of all loss adjustment expenses, as described in Section 6.0.

Facility Association development assumptions for Uninsured Automobile were selected on the basis of the combined experience of the stand-alone Uninsured Automobile coverage, and the former Accident Benefits sub-coverage for Uninsured Automobile.

For some coverages, the development factors computed from Facility Association experience are subject to significant variability, due to a small volume of claims, or the inherent variability associated with the coverage. Industry experience was used as appropriate to supplement Facility Association experience. Specifically, we used the selected 2005 AIX Industry accident half-year factors, described earlier. Unlike the Facility Association factors referred to above, these Industry factors were selected on a gross basis (i.e. including ALAE). For the coverages or



specific intervals for which these factors were used in this filing and based on prior analysis, we assumed that the Industry development factors net of ALAE (and therefore on a basis consistent with the Facility Association factors) would not differ significantly from the Industry development factors gross of ALAE.

The following exhibits summarize the selected factors, the basis for selection of half-year factors, and the underlying Industry 2005 AIX experience (Exhibit 1) and Facility Association 2006Q2 QDE experience (Exhibit 2).

2.2 Loss Trend

The ratemaking model requires that the historical experience be adjusted to reflect the expected influence of economic, social and related forces over time.

The trend analysis utilizes only Industry data to take advantage of the greater inherent stability of the larger body of data. Also, the trends are derived from Industry losses including all loss adjustment expenses. It is assumed that the forces affecting Industry loss costs are similarly affecting Facility Association experience. The analysis is summarized in Exhibit 3.

The general approach used in this filing is to fit an exponential curve to Industry loss costs by coverage for accident years 1986 to 2005.

The 2004 product reforms became effective 1 August 2004, and have had an impact on the experience of certain coverages for the 2004 and subsequent accident years. Attempting to model this impact through the use of additional time and/or indicator variables (to allow for a different rate of change and/or a vertical shift in the curve) for only the two affected data points currently available would attribute all factors influencing those data points, except for those factors otherwise included in the model, to these reforms. This could produce non-intuitive fits for 2004 and subsequent, and could have a potentially significant impact on projected future trends. To avoid any such potential distortions, the historical ultimate losses were adjusted for the expected impact of the 2004 reforms, using mapping factors for the coverages (or sub-coverages) affected by the reforms. This restates the entire history for the expected impact of the 2004 reforms and permits the inclusion of the two most recent data points in the trend analysis. The mapping factors used are those described in Section 2.5.

In addition, consideration is also given to the impact of economic factors by adding a variable for the unemployment rate.

The mathematical equation representing this approach is:

fitted loss cost = constant x (pure trend factor)^t x (unemployment factor)^u



where t represents the time period (e.g., 1, 2, 3, etc.); and u represents the provincial unemployment rate during the period.

Historical and projected unemployment rates are obtained from the Conference Board of Canada and from the Bank of Canada.

For some coverages or sub-coverages, the analysis deviates from this standard methodology. For example, unemployment variables are only kept in a regression if they are statistically significant, and where appropriate, frequencies and severities are analyzed separately.

For certain coverages, when declining fitted future claim frequencies reach historically low levels and there is early evidence of potential pattern change, these are typically forecasted to continue at a tempered pace beyond that point. Careful consideration was given to assessing the sustainability of declining frequency trends going forward.

In some cases, certain accident periods are considered to be outliers and their experience is excluded from the trend analysis. Potential outliers are typically identified with an objective statistical outlier test examining standardized residuals (the ratio of the residuals to the square root of the mean squared error), and by visual inspection of the graphs.

No explicit allowance has been made for any expected impact on trend of the 2004 product reforms, instead allowing this possible influence to manifest itself directly through the regression.

From this analysis, projection factors which vary by coverage/sub-coverage and accident year are determined. These projection factors are derived as ratios of the fitted loss cost at the assumed future average accident date of 21 February 2008 to each historical accident year's fitted loss cost. The future average accident date was estimated assuming a rate programme effective for one year commencing 1 March 2007 with an average policy duration of 11.5 months. This assumed average policy duration was estimated using data from the data repository to determine the distribution of business by policy term.

The Liability projection factors are derived by weighting the separate Bodily Injury and Property Damage projection factors with the respective accident year ultimate incurred losses adjusted for the expected impact of the 2004 reforms. These Liability projection factors are also adopted for Uninsured Automobile due to the low volume and the volatility of data for this coverage.

Projection factors for application to the Facility Association 2006-1 accident halfyear experience were derived directly from the 2005 accident year factors.



2.3 Treatment of Large Losses

Large loss information was not generated for the purpose of this analysis.

2.4 Catastrophe (or Excess Claim) Procedure

The Comprehensive and Specified Perils analyses include no explicit supplementary provision for losses arising from natural catastrophes. To the extent that the underlying experience period is affected by such claims, some implicit provision is incorporated in the indications.

2.5 Other Adjustments to Losses – Product Reform

Adjustments are made to the Liability and Uninsured Automobile loss costs and loss ratios to reflect the expected impact of the 2004 product reforms. These adjustments are based on the estimates prepared for the IBC.

PRODUCT REFORM MAPPING FACTORS				
Coverage	Pre-2004	2004	Post-2004	
Bodily Injury	0.9586	0.9754	1.0000	
Property Damage	1.0000	1.0000	1.0000	
Third Party Liability	0.9650	0.9793	1.0000	
Accident Benefits	1.0000	1.0000	1.0000	
Uninsured Automobile	0.9650	0.9793	1.0000	
Collision	1.0000	1.0000	1.0000	
Comprehensive	1.0000	1.0000	1.0000	
Specified Perils	1.0000	1.0000	1.0000	

3.0 Allocated Loss Adjustment Expenses ("ALAE")

In the analysis of Industry experience, losses are used combined with allocated loss adjustment expenses.

In the analysis of Facility Association experience, losses are considered separately from allocated loss adjustment expenses. Provision is made for all loss adjustment expenses based on Facility Association Servicing Carrier claims service fee arrangements, and a provision for Excess Legal and Professional Fees, which are expected to be paid to Servicing Carriers in accordance with the Plan of Operation.

4.0 Unallocated Loss Adjustment Expenses ("ULAE")

In the trend analysis, Industry reported incurred losses (including ALAE) are loaded for unallocated loss adjustment expenses. The selected Industry factors are those published in the IBC Atlantic 2005 AIX Introduction exhibit.



For Facility Association, provision is made for all loss adjustment expenses based on Facility Association Servicing Carrier claims service fee arrangements, and a provision for Excess Legal and Professional Fees, which are expected to be paid to Servicing Carriers in accordance with the Plan of Operation.

5.0 Premium

Premium information is used to calculate current average rate levels and is also used as weights in the calculation of the weighted average change in average rate levels. The latter premium information is Facility Association 2006-1 accident half-year written premium (from the 2006Q2 QDE exhibit) adjusted for subsequent rate changes, and for premium drift.

5.1 On-Level Adjustments

Under this loss ratio approach, the earned premiums for each accident period and coverage are brought to the current rate level.

From the data repository, written premiums were extracted by effective month, policy term, coverage, territory, class and driving record. A corresponding history of rate changes at that detail level was assembled to bring these written premiums to current rate levels.

The last previous Private Passenger filing was approved as a uniform 5% reduction to base rates for all coverages, coincident with implementation of a revised classification plan patterned after that devised by the Superintendent of Insurance. A condition of that approval was that no ratepayer (either new or renewal business) would see a total vehicle premium increase due to the classification plan change. In effect this meant the rate reduction actually exceeded 5% (i.e., was more negative) due to the capping. The data available to estimate the impact of the capping is either incomplete or inconclusive. Accordingly, the estimated impact of the August 2005 rate level change was maintained at -5%, and the resulting indications in this analysis are correspondingly understated.

The actual written premiums and the resulting current level written premiums were then summarized by coverage, by accident year and by territory. Ratios of these two sets of written premiums produced written on-level factors, which were applied to written premiums from the 2006Q2 QDE to obtain on-level written premiums. These written on-level premiums were then used to derive the weighted average rate level change across all coverages.

The detailed actual written premiums and the current level written premiums were then earned over the appropriate policy term, and summarized by coverage and accident year. Ratios of the two sets of earned premiums were used as earned onlevel factors to be applied to the 2006Q2 QDE earned premiums in the provincial analysis.



Exhibit 4 shows a history of base rates, class differentials, driving record differentials as well as other changes used in this analysis, and the derivation of the on-level factors.

In order to derive the weighted average rate level change at a territorial level across coverages or at a coverage level across territories, the provincial on-level written premiums are distributed by territory using the on-level premium distribution underlying the territory deviation analysis. This distribution was obtained using the estimated on-level premiums by territory, which are derived from the product of the 2005 written vehicles and the estimated on-level average written premiums as shown in columns (1) and (4) of the territory deviation exhibits in Exhibit 12.

5.2 Premium Trend

The limit drift, deductible drift, and rate group drift assumptions were judgmentally selected from a review of Facility Association average limit, deductible and rate group differentials over recent accident years.

With respect to Industry rate group drift, assumptions were based on VICC's advisory CLEAR rate group drift assumptions as summarized in the IBC Bulletin dated 24 March 2006.

The analysis of premium trend, and the combining of drift assumptions, are summarized in Exhibit 5.

6.0 Expenses

The assumed provisions, shown below as a percentage of premiums, were derived from the Facility Association Plan of Operation and the July 2006 Facility Association Participation Report for Newfoundland and Labrador. The expenses shown below are split into fixed expenses and premium-variable expenses, both expressed as a percentage of premium. In the determination of the indicated rate level, the loss adjustment expense provision is adjusted iteratively based on Facility Association Serving Carrier claims service fee arrangements to reflect the indicated change in average rate level by coverage.

6.1 Exposure Variable Expenses (Fixed)

The following expenses are expressed as a percentage of premiums and are treated as fixed expenses.



Category	Percentage of Premiums
Driving Record Abstracts	2.07%
Bad Debt	0.00%
Central Office	0.71%
Loss Adjustment Expenses (fixed)	5.92%
Total	8.70%

In addition to the above, provision is made for Excess Legal and Professional Fees, which are expected to be paid to Servicing Carriers in accordance with the Plan of Operation, based on the results of the latest valuation estimates. This results in a provision of 1.36% for Third Party Liability.

6.2 Premium Variable Expenses (Variable)

The following expenses are expressed as a percentage of premiums and are treated as variable expenses.

Category	Percentage of Premiums	
Commissions	11.00%	
Premium Tax	4.00%	
Servicing Carrier Fees	1.00%	
Finance	0.00%	
Operating Costs	9.00%	
Loss Adjustment Expenses (variable)	3.25%	
Total	28.25%	

A provision of 1.90% is made in the indications for the Health Levy for Third Party Liability through an adjustment to the variable expense provision. This provision is taken from the IBC 2005 AIX Atlantic Introduction exhibit.

No provision for premium finance fee income (and the associated bad debts exposure) is made, to be consistent with the current practice of these amounts being retained by the Servicing Carriers.

7.0 Profit

Further to instructions from the Facility Association Board of Directors, this filing proposes to include a cost of capital provision of 7.49% in the rate indications. This provision reflects commonly used Industry benchmark levels for after-tax return on equity (12%) and premium-to-surplus ratios (2:1), along with tax rate (36.1%) and before-tax return on investment (3.8%) assumptions appropriate to the current circumstances.



In general, loss payment patterns are determined from Facility Association's 2005-2 AIX development experience. The basis of selection of the payment patterns is generally consistent with that of the selection of the loss development factors.

The discount rate of interest (3.8%) was selected giving consideration to several factors, including:

- 1) Facility Association's new cash management plan;
- 2) discount rate used in the previous 2004-2 AIX analysis (3.9%);
- 3) recent average yields on 2, 3, 5 and 10 year Government of Canada bonds;
- 4) current market yields of 2, 3, 5 and 10 year Government of Canada bonds; and
- 5) BMO, CIBC, ScotiaBank and TD/Canada Trust interest rate forecasts.

In late June of 2005, the Facility Association Board of Directors authorized the transfer to member companies of funds not required to meet Facility Association's short term cash flow needs, thus allowing member companies to invest these funds based upon their own investment plans and policies.

This change in Facility Association's cash management plan was implicitly considered in the selection of the discount rate. It is expected that member companies will hold somewhat less conservative positions, therefore improving expected rates of return.

The selected payment patterns and the details of these calculations are set out in Exhibits 6 and 7 for Industry and Facility Association experience, respectively.

8.0 Credibility

Throughout the analysis, credibility is assigned on the basis of estimated ultimate number of claim counts, adjusted for the relative accident period weightings adopted and totaled over the underlying experience period using the traditional square root formula.

The current full credibility standards were originally derived based on an analysis of 2003 AIX Industry Atlantic Private Passenger size of loss experience, as summarized in Exhibit 8. The standards used in this analysis are as follows:

Bodily Injury	2,164
Property Damage	1,082
Third Party Liability	3,246
Accident Benefits	2,164
Uninsured Automobile	2,164
Collision	1,082
Comprehensive	2,164
Specified Perils	2,164



9.0 Summary Rate Level Indications

Drawing from the analysis described in the preceding sections, the derivation of the indicated changes in average rate level by coverage or sub-coverage are presented in the Exhibits 9 through 11.

9.1 Industry Projected Provincial Loss Costs

Projected Industry loss costs by coverage or sub-coverage and accident period from the current 2005 AIX analysis are derived including adjustments for loss (including ALAE) development, product reform and trend (Exhibit 10). The results for these five latest accident periods are also combined using equal weights to promote stability, consistent with the corresponding values carried forward from the prior analysis (Exhibit 9).

9.2 Facility Association Seasonality Adjustments

Accident half-year estimated ultimate loss costs, based on Facility Association 2006Q2 QDE experience and adjusted for the expected impact of the 2004 reforms, are used in the derivation of seasonality adjustment factors to be applied to the 2006-1 accident half-year Facility Association experience (Exhibit 11).

9.3 Facility Association Projected Loss Ratios

Facility Association losses (excluding ALAE) by coverage or sub-coverage and accident period are projected to ultimate and adjusted for product reform and trend in the same manner as done for Industry. The corresponding historical earned premiums are adjusted to reflect current approved rate levels, and subjected to further adjustment for premium trend. The resulting projected on-level loss ratios for these five latest accident periods are then combined using graded weights. Where the volume of experience is sufficient, Facility Association's conventional methodology calls for selection of accident period weights roughly proportional to the earned exposures for the $4\frac{1}{2}$ to 5 years of experience used (Exhibit 11).

Credibilities are associated with these loss ratios based on the estimated ultimate number of claims during the underlying experience period, adjusted to acknowledge the accident year weights being employed.

9.4 Facility Association Current Discounted Expected Loss Ratio

The final credibility-weighted discounted expected loss ratio by coverage or subcoverage from the prior filing are updated for the estimated impact of subsequent rate revisions, for use in the balance of credibility process (Exhibit 9).



9.5 Indicated Provincial Changes in Average Rate Level

For each coverage or sub-coverage, the Facility Association projected on-level loss ratio is discounted and credibility-weighted with the Facility Association discounted expected loss ratio assuming Industry experience. This expected loss ratio reflects the projected on-level loss ratio from the prior filing, adjusted to reflect subsequent rate revisions, and the change implied by the shift in Industry projected average loss costs from the prior to the current analysis, offset by assumed Industry premium trend.

The credibility-weighted projected loss ratios are then used in the estimation of the indicated changes in average rate level, using appropriately discounted fixed and variable expense provisions and cost of capital provision.

The provincial indicated changes in average rate level were then combined with the results of the analysis of territorial experience described in Section 10.0. The proposed changes in average rate level by coverage were selected after consideration of Industry concerns, market position and policyholder impact.

10.0 Territorial Indications – Indicated Differentials and Off-Balance

Indicated territory deviations by coverage are developed from a credibility weighted average of territory pure premium relativities based on Facility Association experience, territory pure premium relativities based on Industry experience (adjusted for underlying distributional differences) and current Facility Association territory average premium relativities. An indicated territory deviation represents the deviation from the territory differential (relative to a provincial base) underlying current rates, as indicated by the analysis of experience. This analysis is summarized in Exhibit 12.

Losses taken from Facility Association's 2005 AIX Territorial exhibit are developed to ultimate (using assumptions adapted from the analysis of 2006Q2 QDE) and adjusted for product reform. Losses are then aggregated to derive pure premiums by territory and coverage for accident years 2001 to 2005 combined. Territory pure premium relativities are computed relative to the weighted average province-wide pure premiums which are derived using Facility Association 2005 accident year written exposures by territory as weights. Territorial credibilities are also assigned based on the credibility standards described earlier.

The Industry 2005 AIX Territorial exhibit is used to produce a similar set of territory pure premium relativities and credibilities for accident years 2001 to 2005 combined after adjusting losses for distributional differences between Facility Association and the Industry. Industry losses are adjusted to substitute updated development assumptions, to remove the Health Levy provision and for product reform. The distributional adjustments used in the derivation of Industry territorial adjusted losses are derived as the ratio of the Facility Association Proposed Aggregate Conversion Factors and the Industry Proposed Aggregate Conversion Factors. Facility Association 2005 accident year written



exposures are again used as weights to produce base province-wide Industry pure premiums.

For most territories and coverages, Facility Association data alone is not fully credible, so the complement of credibility is applied to Industry pure premium relativities. If the Industry experience is not sufficient to meet the standard for overall full credibility, the remaining credibility is assigned to Facility Association's on-level average premium relativities. These average premiums are derived as the product of the current base premium and the current average differential. The result of the three-way credibility process is then compared to the on-level average premium relativity to produce indicated deviations, for each territory by coverage. The indicated territory deviations are then judgmentally capped at $\pm 10\%$ for all coverages except Uninsured Automobile where deviations are capped at 0%.

The indicated territory average rate levels are then derived as the product of the provincial indicated average rate levels and the capped territory deviations.

11.0 Classification/Limit of Liability/Deductible or Other Rate Differential Indications

This filing proposes no changes to current rating differentials. The experience available for analysis is not suitable for developing differential indications. In particular, the available classification experience is not consistent with the current approved classifications.

The calculation of average differentials used in the premium trend and territorial analyses is summarized in Exhibit 13.

12.0 Discounts and Surcharges – Indicated and Off-Balance

This application proposes changes to a number of rules, as summarized at Tab 5 of the application.

Included in these rule changes is the elimination of the Multi-Vehicle Discount, the Clean Driver Discount, Driving Record 5 Accident Forgiveness, and the New Driver Driving Record Credit, for which estimates has been made of the expected rate level effects of the changes (at Tab 5). The available data is not sufficient to quantify the expected effect of the remaining rule changes.



Exhibit Table of Contents

	Exhibit
Industry Development	1
Facility Association Development	2
Industry Trend	3
On-Level Premiums	4
Premium Drift	5
Industry Payment Patterns	6
Facility Association Payment Patterns	7
Full Credibility Standards	8
Prior Analysis Results	9
Industry Provincial Analysis	10
Facility Association Provincial Analysis	11
Territorial Analysis	12
Average Differentials	13