

**PTSA Task Force Draft Report
February 2005**

- 1. Introduction**
 - 2. Background of the PTSA.**
 - 3. The PTSA Task Force**
 - a. Task force members**
 - b. Terms of reference**
 - 4. Data Sources and Methods**
 - 5. Issues identified by PTSA Taskforce**
 - a. Communication/Procedural**
 - i. Provincial and territorial partners have little input to the PTSA calculation process**
 - ii. Provincial and territorial partners do not get the final PTSA data in advance and therefore are not prepared to properly brief their ministers**
 - b. Concepts/Methodology**
 - i. Reliability of Supply Estimates**
 - ii. Allocation of Commodities**
 - ◆ Food & Groceries**
 - ◆ Treatment of Travel Agency Commissions and Net Valuation**
 - iii. Data Gaps**
 - ◆ Tips**
 - ◆ Tourism capital spending**
 - ◆ Second Homes**
 - ◆ Supply-side surveys**
 - ◆ Supporting Services**
 - ◆ The North**
 - c. Access to Confidential Data**
- 6. Conclusion**

Appendix

- A. Report on Demand/Supply Reconciliation**
- B. Quality of Supply-side estimates**
- C. Reliability of Supply-side estimates**
- D. What is Net Valuation**
- E. Supporting Services**
- F. The North**
- G. Agendas of taskforce meetings**
- H. Minutes of taskforce meetings**

1.0 Introduction

This report summarizes the discussion and findings of the Provincial and Territorial Tourism Satellite Account Taskforce. The taskforce (TF) first met in November of 2002 to discuss the then recently released Provincial and Territorial Tourism Satellite Account (PTSA).

This report provides background to the PTSA and then describes the goals and objectives of the taskforce. Issues identified and discussed will be presented along with possible solutions and/or recommendations.

2.0 Background of the PTSA

The Provincial and Territorial Tourism Satellite Accounts (PTSA) are designed to measure the macro-economic importance of tourism in terms of supply, expenditures, employment and Gross Domestic Product¹. The PTSA follows the principles of the Tourism Satellite Account: Recommended Methodological Framework² (TSA: RMF). This framework provides internationally recognized standards for TSAs based on concepts consistent with the System National Accounts (SNA).

The objective of the PTSA is to expand the national TSA into a regional space, thereby allowing the analysis of tourism by regions in Canada. It also allows for the ability to consistently measure tourism across regions in Canada. Before the PTSA were first published, a feasibility study was undertaken and distributed by Statistics Canada concluding that the PTSA could be completed. The feasibility study provided an overview of the concepts and methods to be used in the estimation process.

Funding for the 1996 PTSA primarily came from the Canadian Tourism Commission (CTC). Paying partners also included the Alberta and Quebec. These partners received more detailed information than those published in the report.

3.0 The PTSA Task Force

The PTSA taskforce was created as a result of recommendations by the Economics Sub-committee to discuss issues concerning the regional account. The originally stated goal of the group was to explore the contentious area of demand/supply reconciliation in the PTSA. The role of the taskforce has expanded to look at other issues concerning the PTSA as well. While this taskforce is sitting, any further work related to the PTSA has been suspended.

¹ Only direct expenditures, GDP and employment, as opposed to indirect and induced, are measured. Expenditures are expressed at market prices whereas GDP is at factor cost. Employment refers to number of jobs, as opposed to persons or full-time equivalent.

² The Tourism Satellite Account: Recommended Methodological Framework (TSA: RMF) is a collaborative publication of the World Tourism Organization (WTO), the United Nations (UN) and the OECD and EuroStat. (check)

3.1 List of members of the task force

Alex Athanassakos, Bonnie Baird, Conrad Barber-Dueck, Chris Jackson, Demi Kotsovos, Denisa Georgescu, Scott Meis, Richard Zieba³

3.2 Terms of reference

The following objectives were identified by the group.

1. To obtain a common understanding of the process of reconciliation between supply and demand;
2. To identify data gaps or weaknesses in demand or supply-side information;
3. To identify possible ideas for solutions in solving those data gaps/weaknesses;
4. To conduct the dialog within the task force during future meetings (possible two-three).

4.0 Data Sources and Methods

Several of the main sources of data in the PTSA are detailed below. This data is integrated into a single account using a demand/supply reconciliation.

4.1 Tourism Supply and the Input-Output System

The Input-Output (I/O) tables in the SNA provide the supply estimates for the PTSA. Supply estimates refer to the total output of commodities available to tourists in an economy. In addition, the I/O tables provide the Gross Domestic Product for all the industries within the Canadian economy. They integrate a wide range of data sources (administrative, census and survey). The I/O system also allows for the identification of inconsistencies between sources of data.

4.2 Tourism Demand and the Travel Surveys

Tourism demand can be defined as the spending of tourists⁴. In the PTSA, total tourism demand is split into several components including domestic (intra-provincial) demand, inter-provincial demand and international demand. Domestic and inter-provincial demand estimates are based on the Canadian Travel Survey (CTS). International demand originates from the International Travel Survey (ITS).

4.3 Demand/Supply Reconciliation

The construction of the PTSA starts with the derivation of tourism supply and is followed by the estimation of demand and ends with the calculation of tourism GDP and employment. The interconnectedness of this process is one of the strengths of the PTSA but it also causes concerns. It strengthens the data by requiring the reconciliation of all sources of data. Concerns did arise however, in that data that was originally published from a survey had different levels in the PTSA.

³ Jacques Delisle and Maurice Bertholet were on the taskforce when it began. As a result of moving to other employment, they were replaced by Chris Jackson and Richard Zieba.

⁴ In this document “tourists” refers to overnight and same-day visitors.

5.0 Issues identified by PTSA Taskforce

The issues raised by the taskforce can be split into two general categories. One category concerned issues surrounding communication and procedures, the other concerned concepts and methodologies.

5.1 Communication/Procedural

5.1.1 Provincial and territorial partners have little input in the PTSA calculation process.

In the production of the 1996 and 1998 PTSAs, the provincial focal points were sent copies of the PTSA a month before the data was released. Several of the focal points took the opportunity to review the data and provide helpful feedback to Statistics Canada. However, tourism partners were not sent the data as a result of confidentiality rules.

5.1.2 Provincial and territorial partners do not get the final PTSA data in advance and therefore are not prepared to properly brief their ministers.

For the first PTSA release, provincial and territorial partners received the data at the same time as the rest of the public. This left them with no time to prepare for any possible questions or concerns that they, their minister or anyone else might have.

5.2 Concepts and Methodologies

One of the chief purposes of the taskforce was to get a better understanding of the demand/supply reconciliation process. A paper was written by Statistics Canada for the taskforce describing this process. Much of the discussion of the group concerning concepts and methodology originated from this paper. Appendix 1 contains this document.⁵ The major issues concerning the reliability of supply-side estimates, the allocation of commodities and data gaps in the PTSA.

5.2.1 Reliability of Supply Estimates

Generally, although not always, if there is an apparent discrepancy between demand and supply estimates, Statistics Canada will use the supply estimates since they considered them to be more accurate. Appendix B contains a report describing the quality of the supply-side estimates. Appendix C provides an outline of why Statistics Canada believes supply-side data is more reliable than demand side data.

The taskforce suggested that other sources of data could be used to supplement supply-side estimates. For example, revenue and taxation data for accommodation available from several provinces could be used.

⁵ Several documents outlining the concepts and definitions concerning PTSAs have been published by Statistics Canada. The 1996 and 1998 PTSA publications both have general overviews.

5.2.2 Allocation of commodities

Another concern stemming from the paper on demand/supply reconciliation was that of the allocation of commodities. This issue arises because the commodity detail provided by the demand surveys does not match that found in the Input-Output system. However, for reconciliation to take place between these two sources, the commodities do need to be aligned. This process does not directly affect the total expenditure in the PTSA but does affect the share of expenditures of each commodity. The most problematic allocation issues are outlined below.

5.2.2.1 Food and Groceries

In the case of food and groceries, the CTS provides information of how much tourists have spent in restaurants and bars (FoodBev) and how much they have spent in grocery stores (FoodDur). However, to match with the IO commodity classification, the “FoodBev” needs to be split into food from restaurants and bars and alcohol beverages from restaurants and bars. The grocery store totals need to be split between food from grocery stores and purchases of alcoholic beverages.

The current PTSA methodology uses shares from the personal expenditure data. This method implies that tourists will spend the same share of their “food” money on meals and alcoholic beverages as the average Canadian consumer would. The taskforce discussed whether tourists, particularly if they were on a business trip, would be more likely to spend a greater share of their “food” money on alcoholic beverages than the average consumer. Alex suggested a method using the “per diem” business rates for allocation of food. However, this still would not help in splitting the food and alcoholic beverages.

This allocation method needs further review. Any changes to the methodology would be shared with partners (or the Taskforce) in advance and described in the PTSA publication.

5.2.2.2 Treatment of Travel Agency commissions and Net Valuations

This issue involves reallocation of commodity spending between travel agency commissions and other commodities which might use the service of travel agents (i.e. air transportation). This issue arose because the travel agency services commodity had the largest demand/supply reconciliation. In fact, without this reconciliation item in the 1998 PTSA, the adjustment for demand/supply reconciliation would have been only about 1/3 of what was published. This large discrepancy between demand and supply is the result of what the TSA: RMF calls “net valuation”. The net valuation treatment was also brought forward as one of the areas in which Statistics Canada might differ from the TSA: RMF recommendations.⁶

⁶ See Shaila and Katharine’s paper.

Statistics Canada has not fully implemented the net valuation methodology since it has implications for the treatment of various commodities in the TSA, the Balance of Payment of services in the TSA, as well; this treatment differs from the System of National Accounts. See Appendix D for a discussion on net valuation.

To implement the net valuation methodology, data limitations would be an issue. This is especially true for the cases in which travel is done by Canadians on foreign carriers but booked in Canada and also when foreigners use their own travel agents to book a flight on a Canadian carrier.

Further investigation is required.

5.2.3 Data Gaps

The PTSA taskforce identified some data gaps in the account. They are listed below.

5.2.3.1 Tips

The taskforce investigated the treatment of tips in the PTSA. It was unclear what methodology was used and whether it really was necessary for there to be an adjustment. Tips were added to the demand estimates of accommodation and restaurants (food and beverages) since they were not explicitly captured in the 1996 & 1998 travel surveys.

The adjustment for tips was made to both the CTS and the ITS data. Adjustments were made to the supply estimates in the provincial Input-Output tables. In fact, the PTSA used the same calculations as those used in the calculation of supply in the IO tables, to adjust the demand estimates. The information on tips for both accommodation and food and beverages were derived from information obtained by the IO Division from a one time survey.

For meals and alcoholic beverages, half of the amount reported in the survey was assumed to include tips. Further, only 88% of the expenditures were in establishments that required tips. A tipping rate of 10% was used.

Statistics Canada proposes to review the treatment of tips during the next PTSA exercise. Changes to methodology would be shared with partners (or the Taskforce) in advance and described in the PTSA publication.

5.2.3.2 Tourism capital spending

Capital spending on tourism has not been part of the PTSA (or the national TSA) estimates. These are important economic indicators that could provide further insight into the economic conditions of tourism. The TSA: RMF also recommends the incorporation of this spending into the TSA, however offers few guidelines for implementation.

Capital spending on tourism should be incorporated into the PTSA if feasible.

5.2.3.3 Second homes

Currently, the PTSA does not cover expenditures related to the capital spending on second homes. Pre-trip spending on travel to second homes is also not included in the account. The TSA: RMF recommends that expenditures from second homes be included in the account.

Little information is currently available on expenditures on second homes. Further investigation into this data gap would be required to see whether it was feasible to include second homes in the PTSA.

5.2.3.4 Supporting services

The issue of whether supporting services should be included, when not directly purchased by tourists, was discussed by the taskforce. For example, baggage handlers working at an airport may provide services to a non-domestic carrier. Since the carrier is not Canadian, its expenditures are not included in the TSA and thus, in turn, neither are the supporting services. Appendix E provides a note on supporting services written by Statistics Canada.

Three issues exist concerning support services to tourism, one for domestic production, another for international production and the last for private use. In the case of domestic production, the supporting services are covered by the purchase of the airline ticket and the production has been covered. In the case of international production, the support services are exported to another country as an intermediate purchase. Although they contribute to the GDP and employment of a country they are not directly bought by tourists. International guidelines (TSA: RMF) recommend not including this activity. In the case of tourists directly purchasing support services, this expenditure should be included in the PTSA and currently is not.

Further investigation is required to see whether any data is available for these expenditures. However, it is believed that these services do not sum to a significant amount.

5.2.3.5 The North

The CTS survey does not provide data for domestic demand for the territories. The taskforce asked that the method used to calculate these expenditures be clarified. Appendix F contains the note on methodology written by Statistics Canada.

This methodology has not yet been discussed by the taskforce.

5.3 Access to Confidential Data

One of the issues concerning the data in the PTSA was that the estimates were difficult to assess since confidentiality rules did not allow for the publishing of many data points. This is particularly true in the smaller regions. As part of the review process, Statistics Canada attempted to give the taskforce members access to the data. This was to be done by making the members "deemed employees". This process has already been done for provincial and territorial government focal points.

However, Statistics Canada policy did not allow for deemed employee for the taskforce members. Access to the confidential information is still available to provincial and territorial focal points.

6.0 Conclusion

To be written by the taskforce.

APPENDIX A: Report on Demand/Supply Reconciliation

Written for the PTSA taskforce by Statistics Canada

1. Introduction

The Provincial and Territorial Tourism Satellite Accounts (PTSA) are designed to measure the macro-economic importance of tourism in terms of supply, expenditures, employment and Gross Domestic Product⁷. This document primarily focuses on the methodology used to derive the 1996 estimates for tourism demand (expenditures) as per the PTSA.

This paper adds to a considerable amount of documentation concerning the demand methodology of the PTSA. The technical paper written at the time the PTSA 1996 was released in April 2002 included a section on data sources and methodology. As well, a number of presentations and sessions devoted strictly to TSA methodology have taken place both prior to and after the release of the PTSA. A data validation period with the Provincial/Territorial Statistical Focal Points was also undertaken throughout the course of the project. The current document, which expands on the information currently available, was requested by a number of provincial representatives of the PTSA Task Force of the Canadian Tourism Commission Research Committee⁸. This document is also motivated by the recognition by Statistics Canada to provide as much as possible detailed information on data methodology and sources for its products.

The methodological process of the PTSA starts with the derivation of tourism supply and is followed by the estimation of demand and ends with the calculation of tourism GDP and employment. As a result of the interconnectedness of this process, it is essential to briefly review the overall methodology of the PTSA and the System of National Accounts framework upon which it is based, before discussing in greater detail the demand methodology.

2. The System of National Accounts and the Input-Output Accounts

The PTSA is based on the accounting principles of the System National Accounts. This internationally recognized system is an integrated framework of statistics that allows for the measurement of a country's economic production. It outlines the structure of the economy and the contribution of each industry.

For the tourism satellite account, the Input-Output (IO) tables in the SNA play a pivotal role. These tables focus on the producers and purchasers of commodities within the various industries of the economy. They show the total output and use of commodities by industries, as well as the primary costs (or inputs) associated with

⁷ Only direct expenditures, GDP and employment, as opposed to indirect and induced, are measured. Expenditures are expressed at market prices whereas GDP is at factor cost. Employment refers to number of jobs, as opposed to persons or full-time equivalent.

⁸ The PTSA Task Force was created in October 2002. The objectives of this taskforce are (i) to obtain a common understanding of the process of reconciliation between supply and demand; (ii) to identify data gaps or weaknesses in demand or supply-side information; (iii) to identify possible ideas for solutions in solving those data gaps/weaknesses; (iv) and to conduct the dialog within the task force during future meetings.

production of the commodities. The estimates of total output (supply) from the IO tables are important elements in the making of the PTSA, given that tourism demand is analyzed and reconciled against them. In addition, the IO tables provide the measurement of Gross Domestic Product for all the industries within the Canadian economy. These tables, which integrate a wide range data sources (administrative and surveys), allow for a detailed analysis and accounting of the economy. As a result of its various data sources, the IO system also allows for the identification of statistical issues and inconsistencies between various sources of data.

Tourism is not an industry explicitly identified within the IO tables or the SNA. This is because it is dependent on the consumer's purchases as a tourist, rather than on the production of certain goods and services. Constructing the PTSA, therefore, requires the identification of the tourism industries and splitting these IO industries into their tourism and non-tourism components. By aggregating the value added and employment for the each tourism component, tourism GDP and employment can be derived.

The identification of tourism and non-tourism portions of an industry is dependent on the criteria used to define tourism. The definition for a tourism commodity and tourism industry is based on the National Task Force on Tourism Data, Final Report (March 1989, Statistics Canada). The list of commodities and industries used in the PTSA has not been modified from this national list. A list of industries is shown in the technical paper released in April 2002.

Since the PTSA is so closely linked to the IO tables, the amount of information that is published in the PTSA is dependent upon the confidentiality rules of the Input-Output system. Essentially the data available to be published in the IO system is also the data available to be published in the PTSA. Unfortunately this limits the data that can be released to the public, in particular for the smaller provinces and territories.

3. Demand Methodology

A) Concept and definitions

Tourism demand can be defined as the spending of tourists⁹. Total tourism demand can be split into several components including domestic demand, international demand and inter-provincial demand. Domestic demand includes the expenditures associated with tourism activity within a given region by residents of that region. International demand (also be described as international exports) consists of the expenditures from non-residents of Canada on tourism in Canada. Inter-provincial demand includes the expenditures on tourism activity within a given region by residents of another province or territory in Canada. As well, expenditures are measured at market prices, that is, they include indirect taxes such as sale taxes.

The distance criteria used in the definition of domestic tourism (80 km) has been maintained for all jurisdictions within Canada. The provincial methodology is, to some

⁹ In this document tourists also include same-day travellers.

extend, a replica of National TSA that was developed several years ago and released for the first time in 1994.

B) Methodological approach

The overall methodological approach to derive tourism demand as per the PTSA 1996 can be best summarized by an eight-step process. The table below lists the eight steps and the contribution each makes to total tourism demand.

National Tourism Demand – PTSA 96 (millions of dollars, 1996)	
1. Tourism expenditures as per Canadian Travel Survey	16167
2. Tourism expenditures as per International Travel Survey (incl. fares to Canadian carriers)	12796
3. Domestic portion of international trips	317
4. Canadian Fares of international trips	3478
5. Domestic Demand for the territories	63
6. Tips	377
7. Pre-trip expenditures	1056
8. Demand-to-Supply reconciliation	5398
9. Tourism Demand as per PTSA 1996 (sum of 1 to 8)	39651

1. Tourism expenditures as per the Canadian Travel Survey

The Canadian Travel Survey (CTS), conducted by Statistics Canada, is designed to collect information on expenditures and trip characteristics of Canadians while traveling in the country. Estimates for both intra-provincial and inter-provincial tourism expenditures can be gleaned from this survey. The value in the table above is the sum of these two demand series.

CTS Commodity Reallocation		
PTSA Commodity	CTS Commodity	Allocation Method
Passenger Air	Transportation Fares	CTS Mode of Transportation Data (percentage of visits using air)
Passenger Rail	Transportation Fares	CTS Mode of Transportation Data (percentage of visits using rail)
Passenger Water	Transportation Fares	CTS Mode of Transportation Data (percentage of visits using water)
Interurban and other bus	Transportation Fares	CTS Mode of Transportation Data (percentage of visits using bus)
Taxis	Local Transportation	Personal Expenditure share of taxis in local transportation
Vehicle Rental	Vehicle Rental	No reallocation required
Vehicle Repair & Parts	Vehicle Operations	Personal Expenditure & IO splits of vehicle operations
Vehicle Fuel	Vehicle Operations	Personal Expenditure & IO splits of vehicle operations
Hotels	Accommodation	No. of nights stayed in this type of accommodation from CTS
Motels	Accommodation	Same as hotels
Camping	Accommodation	Same as hotels
Other Accommodation	Accommodation	Same as hotels

CTS Commodity Reallocation		
PTSA Commodity	CTS Commodity	Allocation Method
Meals from accommodation	Restaurants & Bars	First personal expenditure splits food & alcohol from restaurants, then supply ratios for splits into "from acc. restaurants and other"
Meals from restaurants	Restaurants & Bars	Same as meals from accommodation
Alcohol from accommodation	Restaurants & Bars	Same as meals from accommodation
Alcohol from restaurants	Restaurants & Bars	Same as meals from accommodation
Meals and alcohol from other tourism industries	Restaurants & Bars	Same as meals from accommodation
Recreation & Entertainment	Recreation & Entertainment	No reallocation required
Travel agency services	Other Costs	Portion of Accommodation and Passenger Air
Groceries	Food & Beverage in Stores	Personal expenditure ratios for food & alcohol from stores
Alcohol from stores	Food & Beverage in Stores	Same as groceries
Urban transit & parking	Local transportation	PE distribution of local transportation
Other commodities	Clothing, Other Costs	No reallocation required

The CTS, however, does not provide the same commodity detail as require to match the Input-Output commodities used for supply. This “concordance” is required in order to ensure an accurate demand to supply reconciliation. The table above links the PTSA commodity with the matching CTS commodity and provides the method and data in which the allocation was made.

For example, the “vehicle operations” commodity found in the CTS needs to be split into vehicle repair and fuel. Commodity splits from personal expenditure¹⁰ and from the “Traveller and Entertainment industry” were used to allocate the vehicle operations expenditures. Similarly, the “restaurants and bars” commodity was also split into greater detail using personal expenditure ratios (see table above). The accommodation commodity used the “number of nights stayed” data from the CTS micro file to split the commodity into the various types of accommodation (e.g. hotels, motels, cottages) used in the PTSA.

It is important to note that the reallocation process described above does not change the total expenditures of the CTS initially taken from the survey. This allocation method was done for each province and territory.

2. Tourism expenditures as per the International Travel Survey

Statistics Canada’s International Travel Survey (ITS) was initially constructed to provide estimates for Canada’s Balance of Payments with other countries. More specifically, it provides estimates of travel spending in Canada by foreign residents as well as Canadian travel spending abroad. The difference between these estimates

¹⁰ National and provincial estimates of personal expenditure on goods and services are derived by Statistics Canada in the National and Provincial Economic Accounts as well as the IO tables. The values for personal expenditure match each other in these two accounts as a result of a validation process.

is referred to as the International Travel Account, indicating Canada's net balance toward foreign countries in terms of travel.

Since the ITS was intended to measure the Balance of Payments, its composition does not exactly match that of the PTSA. For example, the PTSA needs to remove the estimates for crews, education, and medical travel since these elements fall outside the definition of tourism. On the other hand, receipts (fares) from foreign residents to Canadian carriers need to be added to the BOP estimates to align it with the PTSA concepts.

The commodity details provided by the "ITS Provincial harmonized survey results" were used for calculation of international demand in the PTSA. The so-called harmonized data was based on a set of algorithms developed by the Ontario Ministry of Economic Development, Trade and Tourism (MEDTT) and used by Research Resolutions, a consulting firm, to produce the 1996 report "The Cities Project" for the Canadian Consortium of Municipal Bureaus of Tourism and Convention. The report was released in November 1997. Staff members of Income and Expenditure Accounts Division obtained the provincial 1996 annual estimates from the Culture, Tourism and Centre for Education Statistics Division of Statistics Canada. The following eleven categories of expenditures for the combined United States and overseas visitors and associated amounts (in millions) were provided:

- 1. Accommodation (\$3,368)
- 2. Transportation in Canada (\$1,491)
- 3. of which: air transportation (\$42)
- 4. of which: other commercial transportation (\$378)
- 5. of which: rented car (\$488)
- 6. of which: private transportation (\$331)
- 7. of which: unknown transportation (\$252)
- 8. Food and beverages (\$2,691)
- 9. Recreation and entertainment (\$1,441)
- 10. Fares (\$2,002)
- 11. Other (\$1,803)
- 12. TOTAL (\$12,796)

As in the case of the CTS, the commodity breakdown received from the survey results (as shown above), is not the same as the one found in the IO system. As in the case of the CTS, it is important that the commodity match those of the IO system to allow for a proper analysis of demand and supply. The table below lists the associated PTSA and ITS commodities and provides the method used to allocate the ITS commodity to the PTSA (IO) equivalent. The numbers in the ITS commodity column refer to the table above.

ITS Commodity Reallocation		
PTSA Commodity	ITS Commodity	Allocation Method
Passenger Air	Fares(# 10), Air transportation (#3)	ITS micro data - percent of trips using this mode of transportation.
Passenger Rail	Fares(# 10), Other commercial (#4)	Same as passenger air
Passenger Water	Fares(# 10), Other commercial (#4)	Same as passenger air
Interurban and other bus	Fares(# 10), Other commercial (#4)	Same as passenger air
Taxis	Private (#6), Unknown Transport (#7)	Same as passenger air
Vehicle Rental	Rented Car (#5)	No reallocation required
Vehicle Repair & Parts	Private (#6), Unknown Transport (#7)	Personal Expenditure splits for vehicle operations
Vehicle Fuel	Private (#6), Unknown Transport (#7)	Same as vehicle repair and parts
Hotels	Accommodation (#1)	ITS micro data, No. of nights stayed in this type of accommodation
Motels	Accommodation (#1)	Same as hotels
Camping	Accommodation (#1)	Same as hotels
Other Accommodation	Accommodation (#1)	Same as hotels
Meals from accommodation	Food & Beverages (#8)	First personal expenditure splits food & alcohol from restaurants, then supply ratios for splits into "from acc. restaurants and other"
Meals from restaurants	Food & Beverages (#8)	Personal Expenditure
Alcohol from accommodation	Food & Beverages (#8)	Personal Expenditure
Alcohol from restaurants	Food & Beverages (#8)	Personal Expenditure
Meals and alcohol from other tourism industries	Food & Beverages (#8)	Personal Expenditure
Recreation & Entertainment	Recreation & Entertainment (#9)	No reallocation required
Travel agency services	Other (#11)	Portion of Accommodation and Passenger Air
Groceries	Food & Beverages (#8)	Personal expenditure ratios for food & alcohol from stores
Alcohol from stores	Food & Beverages (#8)	Same as groceries
Urban transit & parking	Private (#6), Unkn Tr(#7) Other (#11)	PE distribution of local transportation
Other commodities	Other (#11)	ITS commodity total minus travel agts.

As in the case of the CTS, the reallocation process did not change the total of the ITS data.

3. Domestic Portion of International Trips

This data for a domestic portion of an international trip is collected by the CTS but not included in the published results. For example, an individual flying to New York from Regina may need to fly to Toronto first. The Regina to Toronto portion of the trip is included in the PTSA since economic production within Canada was associated with these tourism activities. In deciding which survey data should be included for this adjustment, only trips reported in the CTS with destination outside of Canada but with spending in Canada were included.

4. Canadian Fares of International Trips

An additional calculation was made to account for the Canadian fares of international trips. Although used for a trip to go outside of Canada, the service provided was produced in Canada and therefore contributes to the production of the Canadian economy. This data is available from the ITS survey but is not published since it is not an export of a service but rather a transaction between Canadian citizens. These expenditures are allocated to the province of residence of the traveller. From the survey records, international trips by Canadians using Canadian carriers can be separated and these fares were included in this calculation.

5. Domestic demand for the territories

Another calculation was made to include domestic tourism spending in the territories since travel origin data, or tourism spending of residents within their own territory, was not included in the CTS survey. However data for the territories as a destination are captured in the CTS. Supply (revenue) data was available for all the tourism commodities from the territorial IO accounts. Total demand data was calculated using the national average for demand/supply ratio¹¹ and multiplying it by total supply for each tourism commodity in the territories. International demand (derived from the ITS) and interprovincial demand (derived from the CTS) was then removed from this total leaving only domestic or intra-provincial demand for the territory.

The Survey of Household Spending (SHS) and origin and destination air passenger statistics were also used as indicators for demand. The SHS is a household survey conducted by Statistics Canada that collects information on detailed household spending. Expenditure on tourism commodities such as accommodation and food and beverages can be obtained from this survey and are used as indicators for the territories.

6. Tips

The inclusion of tips was another calculation made in the PTSA process of estimating tourism demand expenditures. Tips were added to the demand estimates of accommodation and restaurants (food and beverages) since they were not explicitly captured in the 1996 travel surveys. Similar adjustments are performed in the Provincial Input-Output tables. In fact, the PTSA used the same calculations as those used in the creation of the IO tables.

For example, in the case of accommodation, 3% of expenditure on hotels and motels were added as tips. This adjustment was made to both the CTS and the ITS data. In the case of food & beverage expenditures, a 4.4% tip was added to all meals and a 5.0% tip was added to all alcoholic beverages.

This information on tips for both accommodation and food and beverages were derived from information obtained by the IO Division from a one time survey. In the case of food and beverages, the data indicated that half of the total expenditures

¹¹ The demand/supply ratio is simply the ratio of total tourism demand to total tourism supply. It indicates the percentage of the commodity used by tourists.

were eligible for tips. Of the expenditure eligible, an 8.8% rate was used for food, while for alcohol, a 10% rate was applied. These of course, translate into the rates of 4.4% and 5.0% described earlier.

7. Pre-trip expenditures

Pre-trip expenses or spending made by a traveller before a trip made for the sole purpose of travelling was another important addition made to the PTSA. These expenses include motor homes, travel and tent trailers, luggage and travel sets, tents and camping equipment and sleeping bags. In the discussion that led to the creation of the international conceptual framework of a TSA, these commodities were identified by a number of international organizations (such as the OECD) as single-purpose tourism goods.

The commodities included in pre-trip expenses were calculated using a supply and disposition method. Total unit exports of these goods were subtracted from total unit supply (including imports and items manufactured) of these items to obtain total disposition for Canada.

The data sources for this calculation included the IO tables (supply), administrative customs data (imports) and the annual survey of manufacturing (manufactured goods in Canada), a survey conducted by Statistics Canada. Total units of each of these items were then multiplied by the Input-Output price associated with these commodities to get total revenues for pre-trip expenses. The initial calculation was done at the national level since the quality of the inter-provincial trade data for these commodities was considered to be too poor to get accurate results. The Canadian totals were then distributed provincially and by territory using shares for these pre-trip commodities from the personal expenditure vector from the I-O tables.

8. Demand-to-supply reconciliation

The demand-to-supply (D-S) reconciliation can be seen as a detailed and comprehensive data confrontation exercise between demand-side and supply-side data. One of the identities of the IO system is that supply must equal uses for each commodity (i.e. demand). In other words, the sum of the expenditures made by tourists plus those made by non-tourists will equal the revenues received by the establishment providing the commodity. This identity is widely recognized in traditional economic theory.

In practice, however, this concept is often challenged as a result of statistical limitations. For instance, data obtained from surveys or administrative sources have different levels of quality, may contain reporting errors and coverage issues in the survey sample, timing issues may exist or the data may be based on a classification system originally designed for a different purpose. Nevertheless, this process of forcing the data to match this identity through an iterative process (also referred to as IO commodity balancing) allows analysts to identify data weaknesses or inconsistencies and to eventually minimize them.

The Demand-Supply reconciliation is an important step in the final derivation of demand estimates in the PTSA. The process performs a check on the various data sources thereby allowing for the clearest, most accurate rendering of the statistical information.

Two numerical examples extracted from the PTSA follow below outlining the steps in the reconciliation process. The first example illustrates the demand – supply reconciliation for passenger air transportation, the second for accommodation.

Air Transportation

i) As stated above, the supply of a commodity must equal its demand. The supply information comes from the IO tables and is based on data from the Transportation Division of Statistics Canada. This data represents the revenues earned by airline companies from air passenger transportation. Starting with this demand = supply identity, tourism supply for passenger air transportation should equal the domestic portion (from the CTS) and the international portion (from the ITS) plus the non-tourism demand.

However, by adding the CTS and ITS estimates together it can be seen that demand is equal to just over half of supply (\$4735 compared to \$9415) at this stage. We know that the non-tourism component should be minimal since the definition of tourism considers trips that are 80 kilometers and over. The vast majority of air trips would be beyond this limit. The only exclusions to the passenger air transportation trips would be flights by crews, students and for medical purposes.

$ \begin{aligned} \text{Tourism Supply} &= 1996 \text{ CTS} + 1996 \text{ ITS} + \text{non-tourism demand} \\ \$9415 &= \$2,756 + \$1,979 + \text{non-tourism demand} \\ &= \$4,735 + \text{non-tourism demand} \end{aligned} $

ii) The second step in the PTSA demand-supply reconciliation is to include Canadian fares of international trips as discussed in section 4 above. Another adjustment made to the data is for commissions. This is required because commissions are not explicitly removed from air and hotel accommodation totals in the survey process although they may be embedded in the price of these services if bought from a travel agent. Travel agents are accounted for elsewhere in the IO (PTSA) system. For this adjustment, 2% of total personal domestic expenditure and 3% of total business domestic expenditure are removed from air and hotel expenditure. After these adjustments, the non-tourism portion calculated residually equals \$1725.

$ \begin{aligned} \text{Tourism Supply} &= 1996 \text{ CTS} + 1996 \text{ ITS} + \text{Canadian Fares} - \text{Commissions} \\ \$9415 &= \$2,756 + \$1,979 + \$3,346 - \$391 \end{aligned} $
$ \begin{aligned} \text{Tourism Supply} &= \text{Tourism Demand} + \text{Non-tourism Demand} \\ \$9415 &= \$7,690 + \$1725 \text{ (18\% of supply)} \end{aligned} $

iii) The last step is to incorporate the demand-supply reconciliation. The content of non-tourism demand for air transportation (including crews, medical and students) could not account for 18% of supply. As a result, adjustments for under-coverage

were made to bring the demand/supply ratio to around 95%, the remaining 5% representing non-tourism demand. Therefore, tourism demand for air transportation as per PTSA 1996 = \$8982.

$\begin{aligned} \text{Tourism Supply} &= \text{Tourism Demand} && + \text{Non-tourism Demand} \\ & \text{(plus adjustment)} \\ \$9415 &= \$8982 (\$7690 + \$1292) && + \$433 \end{aligned}$
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Accommodation

iv) The second example illustrates the reconciliation process for accommodation. Again, the calculation starts with data from the CTS and ITS surveys. An adjustment is made for commissions as described above.

$\begin{aligned} \text{Tourism Supply} &= 1996 \text{ CTS} &+& 1996 \text{ ITS} &-& \text{Commissions} &+& \text{Residual} \\ \$7155 &= \$2,708 &+& \$3,368 &-& \$143 &+& \$1,222 \end{aligned}$
$\begin{aligned} \text{Tourism Supply} &= \text{Tourism Demand} && + \text{Non-Tourism} &+& \text{Residual} \\ \$7155 &= && \$5,933 &+& \$106 &+& \$1,116 \end{aligned}$

As seen above, these initial adjustments result in a residual of \$1222 or 17% of total supply. Of this residual, CTS information indicates that \$106 should be removed as a result of trips of less than 80 kilometers in length. This information is known because the CTS collects information on accommodation regardless the length of the trip. As shown below, \$501 million was added to the total as an under coverage adjustment leaving a non-tourism portion of \$721.

$\begin{aligned} \text{Tourism Supply} &= \text{Tourism Demand} &+& \text{D/S Adjustment} &+& \text{Non-Tourism} \\ \$7155 &= \$5,933 &+& \$501 &+& \$721 \end{aligned}$
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Demand-supply reconciliation was done for all commodities in all provinces and territories as show above for the air transportation industry and for accommodation. The results of this process can be seen in the table below.

Demand-Supply Reconciliation, 1996			
(\$millions)	Demand/Supply Reconciliation	Total Demand	Reconciliation, % of Total
Total Transportation	1825	15066	12.1
Transportation Excluding Air	532	6083	8.7
Total Accommodation	501	6434	7.8
Total Food and Beverage Services	478	5822	8.2
Total Other Tourism Commodities	2124	6416	33.1
"Other" excl. Travel Agents	191	2744	7.0
Total Other Commodities Purchased By Tourists	470	5913	8.0
Total Tourism Expenditures	5398	39651	13.6
Total Tourism Excluding Air & Travel Agents	2172	26996	8.0

The reconciliation calculation, totalling \$5.4 billion represented 13.6% of total demand. The largest additions were for air transportation and travel agents. In the case of air transportation, as a result of the definition of tourism, demand and supply must nearly be equal as discussed earlier. Travel agent services are not explicitly reported by respondents in the survey but still are part of tourism expenditures. Therefore, an adjustment was made so that demand and supply would be almost equal. Supply data was taken from a Statistics Canada survey in which travel agents were asked for data concerning their revenues and expenses.

On average, an 8% under coverage rate was added to all the other commodities that comprise demand since this was the rate approximately found to be missing in air transportation and accommodation as shown above in the two examples. Some variation did exist for this adjustment across commodities and regions.

The issue of resolving under coverage is not uncommon in the System of National Accounts. A discussion paper written on a related subject several years ago¹² illustrates this point. The paper illustrates that over half of the net income of unincorporated businesses is considered to be missing from administrative sources and therefore is added to the Accounts (see page 13). A similar adjustment is made for imputed rents paid by owner-occupied dwellings (page 29). Other examples include under reporting of tips (page 30), spending on childcare (page 31) and estimates of wages paid for domestic services (page 39). Other adjustments are made throughout the accounts for both over and under estimation of economic data after data validation processes have been undertaken.

¹² "The Size of the Underground Economy" by Gylliane Gervais, Statistics Canada, 13-603E, No.2

4. Conclusion

The PTSA concepts, definitions and methodology follow closely the international guidelines for TSA construction. The IO tables, which have been agreed upon by both provincial and national statisticians, remain a major part of the account since they provide the underlying estimates of tourism supply and associated GDP. The demand data extracted from the CTS and ITS surveys are the other key components. The reconciliation of demand and supply of these sources of data are an important element of the PTSA and provide an important check on the data, increasing its quality.

The PTSA developed by Statistics Canada is the first of its kind in the world. The provisional estimates obtained for the 1996 account should be further enhanced by publishing the PTSA98 later this year.

APPENDIX B: Quality of the Supply-side Estimates

From the Guide to the National Tourism Indicators: Sources and Method (Cat # 13-594-GPE)

Quality of Estimates

Quality assessment is a difficult matter given the number and variety of data sources and methods employed. This section is to help users understand the tourism indicators and apply them more effectively, with a fuller awareness of their strengths and weaknesses.

An important aspect of quality is the accuracy of the indicators. For which aggregates are these indicators considered to be quite good and for which are they seen to be of lower quality? One objective measure of the reliability of the indicator for any commodity is the share of its 1988 value that is accounted for by the data series used to construct the indicator. For example, because revenue from passenger transportation by level I and level II carriers constitutes about 80% of all air passenger transport revenue, the indicator is very reliable. By this measure, the majority of the indicators are considered to be reliable approximations to the commodities they represent.

Ideally, the quality characteristics of the indicators should be rigorously ascertained from measured sampling biases and variances, and other measurement error properties of the survey and other input data sources. In practice, this is not possible, certainly not in any comprehensive manner, given the complexity of the estimation methods involved, the variety of inputs and the lack of reliable statistical measures of errors for many of these.

A subjective approach is followed instead, using ordinal quality ratings. The ratings are assigned by statisticians of the National Accounts and Environment Division.

The scale allows for three ratings:

- 1. most reliable**
- 2. reliable**
- 3. acceptable**

A rating of 1 is assigned when the estimates are based on censuses, administrative records, surveys or other highly reliable sources, and the concepts and definitions underlying the input data closely correspond to those of the TSA, or else adjustments required for coverage, valuation and classification are straightforward.

A rating of 2 is attributed primarily to estimates based on administrative records or surveys which are not highly reliable, or else require difficult, error-prone adjustments to convert them to the concepts of the TSA.

Finally, a rating of 3 denotes estimates for which direct, reliable observation is not possible and which are therefore dependent on judgement to a large degree or are based on indirect sources.

The ratings apply to the indicators at current prices. The quality of the estimates at constant prices usually depends on that of the estimates at current prices, because the former are derived through the division of the latter by appropriate deflators or price indexes. In such cases, the quality of the constant price indicators is deemed no better than that of those at current prices; the quality reduction, if any, is then attributable to the corresponding price indexes.

An overall quality assessment of the published supply indicators in current prices is shown below. Lower quality ratings are given in cases where current price series are built up from partial information or less reliable data series, or when problems of concept or definition remain in the measurement.

Table 3 provides the quality assessments by commodity using the criteria set out in Chapter 1 and drawing on the personal expenditure series evaluations. The commodities with the highest proportion of spending generally have the best ratings, while the heterogeneous categories have the lowest quality ratings. Overall, the total supply of tourism commodities is rated as a “1”. This table also presents the ratios calculated in the TSA of tourism demand to supply. Overall, the ratio is 38.8, with a range from 7 (parking) to 97.8 (travel agency services). The latter, not surprisingly, is the most tourism-intensive commodity in the list. As indicated in Chapter 3, these ratios, when applied to the supply estimates, form the basis of the values for the demand indicator series from 1986 to date.

TABLE 3 Supply Indicators: Quality Assessment and Ratios of Tourism Demand to Supply

Indicator	Rating
1. Transportation	1
1.1 Passenger Air Transport	1
1.2 Passenger Rail Transport	1
1.3 Interurban Bus Transport	2
1.4 Vehicle Rental	2
1.5 Vehicle Repairs and Parts	2
1.6 Vehicle Fuel	2
1.7 Other Transportation	3
1.7.1 Passenger Water Transport	3
1.7.2 Urban Transit	3
1.7.3 Taxi	3
1.7.4 Parking	3
2. Accommodation	2
2.1 Hotel Accommodation	2
2.2 Motel Accommodation	2
2.3 Other Accommodation	3
3. Food and Beverage Services	2
3.1 Meals from Accommodation Services	2
3.2 Meals from Food and Beverage Service	2
3.2 Alcoholic Beverages from Accommodation Services	2
3.3 Alcoholic Beverages from Food and Beverage Services	2
3.4 Meals and Alcoholic Beverages from Other Tourism Industries	2
4. Other Tourism Commodities	2
4.1 Recreation and Entertainment	2
4.2 Travel Agency Services	2
4.3 Convention Fees	3
5. Total Supply of Tourism Commodities	1

APPENDIX C: The Reliability of Supply-Side Estimates

Written for the PTSA taskforce by Statistics Canada

There are several reasons why supply-side estimates (from the I/O accounts) can be viewed as more reliable, in most instances, than the demand-side estimates (from the Canadian Travel Survey and International Travel Survey).

One reason is that the supply-side estimates are drawn from business/industry surveys while the demand-side estimates come from household surveys. Many industries, including tourism industries, are dominated by only a handful of companies. A good example of this is air transportation. This means that it takes only a small sample to cover a large portion or even all of an industry's total revenue. In the case of other industries, large firms are always included in the survey (i.e. a take-all approach), thereby keeping the total coverage of revenue high and adding stability to the year-over year results.

In addition, the information gathered in surveys of business is (1) drawn from information kept in business accounting records, and (2) provided by persons in surveyed businesses who are knowledgeable about those records.

The supply-side estimates are then confronted against tax revenue data obtained by Statistics Canada from the Canadian Revenue Agency (CRA). This administrative data is of high quality. A data gap does exist for small operators. For most tourists industries this is less than 1% of total revenue. Input-Output does make an upward adjustment to its data to cover this gap. The IO data then goes through an extensive reconciliation process where initially inputs and outputs from all industries in the economy are matched. Then the production and use of each commodity in the economy is balanced. This process invariably reveals inconsistencies and weaknesses that must be reconciled at the detailed industry and commodity levels, and in aggregate, within the IO system.

Travel spending estimates are derived from "household surveys". These surveys usually include more respondents than industry surveys, but are nonetheless based on relatively small samples of total travellers. Because of the resulting large weights given to each response, a poor sample or one incorrect response can have a marked effect on the accuracy of the survey results. Time series data from the demand surveys show great variability from one year to the next, partially as a result of this. In contrast to the business surveys, the information gathered in household surveys is more likely to be based on recall of events as opposed to actual records of them.

The household surveys also do not go through the demanding process of data confrontation and integration. No reconciliation is done on the demand survey estimates (i.e. with tax records or with supply data). Part of the reason for this of course is that much of the data that get used in the IO reconciliation process does not become available until long after the release of the demand survey estimates.

The main strength of the demand-side surveys is that they specifically cover travel expenditures, and thus very nearly match the PTSA's conceptual requirements for data on tourism spending. The supply-side estimates from the IO system in contrast cover the total supply of commodities to visitors and non-visitors. Therefore, although the travel survey information shows more variability in year over year trends, the information from these surveys are still valuable sources of information concerning actual tourism spending.

APPENDIX D: What is Net Valuation

Written for the PTSA taskforce by Statistics Canada

What is Net Valuation? Net valuation is a specific treatment of travel agency services presented in the TSA: RMF, the international guide to TSA accounting. This methodology requires the removal of all travel agents inputs from tourism commodities (such as air transportation and accommodation) and leaving them with the travel agency commodity. So they are not double-counted, the commissions need to be either “netted out” of the various commodities sold by travel agents, or “netted out” of the travel agency service. The TSA: RMF has suggested that they remain with travel agents. This treatment differs from the System of National Accounts (SNA) principles in that the final commodity purchased (say air transportation) is not the commodity in which the TSA allocates the revenue to (travel agency services).

The net valuation treatment of travel agency services also has implications for Balance of Payments (BOP) and the net trade of goods and services for the tourism account. If the net valuation treatment were used, the domestic travel agency services provided to foreign carriers would need to be included in the export of services. For example, if a Canadian traveller booked an airline ticket with a domestic travel agent on a foreign carrier, the ITS survey would allocate the full amount of this revenue to the foreign carrier and none of it would appear in the TSA domestic revenue. It would all be considered an import.

However, according to the net valuation treatment, the travel agency portion should be netted out of the ticket price and retained as Canadian production. This would lower the imports of air transportation services and increase the domestic production of travel agency services. A similar adjustment would need to be made for foreigners using foreign travel agents to book flights on a Canadian carrier. In this case, exports of air transportation would be reduced by the amount of the travel agency service.

APPENDIX E: Supporting Services

Written for the PTSA taskforce by Statistics Canada

In the case of domestic carriers, the supporting services provided to airlines are included in the price of the airline ticket. The service is an input to the air transportation industry and therefore does not explicitly need to be included in the account. In other words, the support services are not bought directly by the tourists but rather provided by the airline. This treatment is used for both demand and supply so no theoretical differences exist in the data.

For international carriers, the supporting services again are part of the ticket price. However, in this case, the airfare is an import of services to the Canadian purchaser and the supporting services provided for the airline are exports (since they have been purchased by an international carrier). Thus, a service has been provided by a domestic producer and GDP (production) has been created. The question then arises as to whether this GDP, created by the export of a service, should be included in the GDP of tourism.

These supporting services are not bought directly by tourists but rather are an input into the air transportation purchased by the tourist. So, although production (GDP) was created, this production is not within the scope of the TSA. This treatment is consistent with the TSA: RMF recommendations.

The issue of supporting services differs slightly from that of travel agents, also a kind of supporting service, where a net valuation method is used to calculation demand and supply. For travel agents, the tourist does buy the ticket directly from the agent and therefore it is included in the TSA.

The TSA: RMF does consider another alternative for supporting services and this is when they are bought directly by tourists. In some cases, a tourist travels using, say a private plane. The supporting services provided in this case are bought directly by the tourist and therefore should be included in the TSA. Thus, the TSA: RMF does include supporting services of transportation as one of the commodities bought by tourists. In the Canadian case, this spending does exist (although it is very small) but data is not available to calculate it. This is a data gap in the PTSA.

APPENDIX F: The North

Written for the PTSA taskforce by Statistics Canada

The CTS survey does not provide data for domestic demand for the territories.

The Survey of Household Spending (SHS) is one source of data for these estimates. There are three commodity groups for which SHS data is used to calculate data for the territories. The commodities are accommodation, meals and alcoholic beverages.

In the SHS, data is available for these commodities for the amount spent within the territory on overnight trips only. This amount is used as the basis for domestic demand.

If, for example, the SHS indicates that \$1000 is spent for accommodation, this total would be split into the various accommodation components using the shares from supply.

Example

Commodity	Supply	Domestic Demand
Hotel	30,000	=30,000/50,000 x 1,000 = \$600
Motel	10,000	=10,000/50,000 x 1,000 = \$200
Camping	5,000	= 5,000/50,000 x 1,000 = \$100
Other Accom	5,000	= 5,000/50,000 x 1,000 = \$100
TOTAL	50,000	

Territorial exports to other regions in Canada (e.g. spending by Ontario residents in the Yukon) are taken from the CTS while international exports originate in the ITS. These two, along with domestic demand, sum to form total demand. The numbers then go through a demand/supply reconciliation. This helps to correct the data limitation because of the under coverage due to only having data for overnight visits from the SHS.

In the case of commodities where this SHS data is not available, domestic demand was calculated residually by taking the supply times the average demand/supply ratio of the western provinces to calculate total demand. The international and inter-provincial exports were then deducted from the total and the remainder was intra-provincial demand. The numbers again go through a demand/supply reconciliation.

Numeric Example: Recreation

Supply 50,000

D/S ratio = .25

Total Demand = 50,000 x .25 = \$12,500

Exports (international and inter-regional from ITS and CTS) = 10,000

Domestic Demand = residual = Total – exports = \$12,500 - \$10,000 = \$2,500.

Information from the Yukon exits surveys was also used as indicators.

APPENDIX G: Agendas of Task Force meetings

APPENDIX H: Minutes of Task Force meetings