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### Statewide Nonresident Travel Survey: Survey Methods and Data Analysis

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## Statewide Nonresident Travel Survey

### Survey Methods & Data Analysis

#### Introduction

July 1, 2009 marked the beginning of a continuous statewide data collection effort by the Institute for Tourism & Recreation Research. The Statewide Nonresident Travel Survey is conducted throughout Montana, and the resulting data are analyzed and made available to the public on the ITRR website on a quarterly basis. Statewide visitation and traveler spending estimates, as well as an analysis of the contribution of nonresident travel to Montana's economy, are published annually. This research note provides information regarding the survey methods and data analysis process.

#### Survey Population

The population of interest for the Statewide Nonresident Travel Survey is all nonresident travelers in Montana, including all international travelers, as well as domestic, out-of-state travelers.

#### Sampling Schedule & Locations

ITRR currently employs nine surveyors in various locations around the state. Each surveyor averages 25 working hours per week, year-round, including travel time to survey locations, survey data collection, and highway and airport proportion counts (used to help determine the total volume of nonresident traffic entering the state via highways and airports). The sampling schedule allows survey shifts and proportion counts to cover a wide range of days and times during which visitors may be travelling, and ensures that the data is representative of the variability of all types of travelers. However, surveyor shifts generally occur between 7:00 am and 7:00 pm at gas stations and rest stops, and between 5:00 am and 9:00 pm at airports.

Surveying occurs at sites considered to be unbiased to specific types of travelers: gas stations, rest areas, and airports. Permission to survey has been acquired for each location. The current list of survey communities includes the following:

- Airports: Billings, Bozeman, Great Falls, Helena, Kalispell, Missoula;
- Kalispell area: Kalispell, West Glacier, Hungry Horse, Columbia Falls, Whitefish, Polson, Libby, Eureka, Bigfork, Troy;
- Missoula area: Missoula, Bonner, Frenchtown Wye, Lolo, Hamilton, St. Regis, Thompson Falls;
- Dillon area: Dillon, Rocker, rest area along I-15, Anaconda, Butte;
- Shelby area: Shelby, Cut Bank, St. Mary, Havre;
- Great Falls area: Great Falls, Helena, Lewistown;
- Bozeman area: Bozeman, Belgrade, Four Corners, Big Sky, West Yellowstone, Ennis, Three Forks, Townsend, Livingston, Gardiner, Big Timber, White Sulphur Springs, Harlowton;
- Billings area: Billings, Crow Agency, Red Lodge, Columbus, Hardin, Laurel;
- Eastern MT area: Culbertson, Glasgow, Glendive, Miles City, Sidney, Plentywood, Broadus, Forsyth, Terry.

The list may be expanded or reduced if data analysis suggests either a need for more variability in data collection sites or data volume collected at a site is not sufficient to justify the resources required to continue sampling at that site.

Proportion counts are conducted during survey shifts to enable determination of the proportion of nonresident to

resident travelers entering the state. Airport proportion counts are obtained by questioning boarding air passengers about their place of residence. A random sampling of days, airlines, and times of day is used. Highway proportion counts are obtained by surveyors observing license plates as vehicles pass by, and categorizing vehicles as resident or nonresident. A random sampling of days and time of day is used to schedule hour-long observations at 21 border points around the state to ensure representative coverage of traffic flows, with the number of counts conducted at each site during the month based upon highway traffic load. Highway proportion counts are only conducted during daylight hours.

### **Data Collection Methods**

Two separate, but related, survey instruments are used to collect the nonresident travel data. An on-site survey is conducted by the surveyors at all of the previously mentioned locations; a follow-up survey is distributed by the surveyors to those nonresidents who participate in the on-site survey. (The survey instruments can be found in the appendix.)

Surveyors approach travelers at gas stations, rest areas, and airports to ask if they are from out-of-state, and therefore eligible to take part in the survey. Data are collected using iPads via the iForm application. The on-site survey form obtains information regarding mode of travel; group type and size; state, province, or country of residence; purpose of trip; point of entry into the state; length of stay in Montana; and expenditures during a 24-hour period. Upon completion of the on-site survey, respondents are asked to participate in the follow-up survey, and are given a postage-paid business reply envelope containing (1) a paper survey form, (2) a letter introducing ITRR and explaining the survey, and (3) a slip informing them of the annual incentive drawing (either 2 round-trip airline tickets or a \$1000 Visa gift card) and providing the link to complete the survey on-line, if they prefer.

The follow-up survey is a more extensive survey, and, as mentioned, can be completed via either a mail-back paper form or the on-line form. The data collected via these forms includes activities, sites visited, routes driven, satisfaction, attractions to the state, information sources used, and technology use.

For international visitors who are uncomfortable with or unable to participate in the survey in the English language, the surveyors can offer to the visitors the option of completing the entire survey in one of several foreign languages. Currently, the survey instrument is translated into Chinese, French, German, Italian, and Spanish. If a surveyor approaches a visitor who cannot speak English, the surveyor can give to the person a card which briefly introduces the study in each of the five languages. The card, which is given to the visitor, provides a link to the entire survey, on-line, in each of the languages.

### **Working with the Nonresident Travel Data**

#### ***Merging the Two Data Sets***

Data from the two separate survey instruments are cleaned and coded as needed (e.g., the length of stay is delimited to ensure exceptionally long visits to the state do not skew the average length of stay). Although the survey is confidential, a unique survey ID number, matching the ID printed on the follow-up survey envelope, is entered into the survey form along with each respondent's on-site data. The unique ID numbers allow the respondents' on-site data to be merged with their follow-up survey data. Merging the two sets of data allows for a more complete picture of traveler characteristics and experiences.

#### ***Weighting***

To allow the data to be representative of all travelers to Montana, the data is weighted in two ways:

- Based on entry point into Montana— this adjusts for any proportional disparities between where vehicles enter the state and the number of surveys collected from respondents entering at those points.
- Based on purpose of trip— this adjusts for any proportional disparities between the relative distributions

amongst main purposes of trip reported on the on-site versus follow-up surveys. Not all respondents return the follow-up survey; weighting the follow-up data to the on-site data ensures that the full data set represents the population of travelers.

### **Expenditure Data**

The expenditure data collected represents a visitor group's 24-hour-period spending in Montana. (Please refer to the survey instrument in the appendix for the expenditure categories.) In addition to the amount spent in each category, the location of the expenditure is recorded. During data cleaning, each expenditure location is coded for the county and region in which it occurred to allow for regional expenditure analysis. Expenditure data is delimited to prevent outliers from skewing the average expenditure amount within each category. Any expenditures within a category above the cutoff amount, defined as three standard deviations plus the mean, is reduced to that cutoff amount. The mean for each delimited expenditure category is calculated, resulting in the average daily spending per group. An adjustment is made to reduce the mean calculated for the accommodations categories based on bed tax collections. Adding together the means for each expenditure category results in the average daily spending per group. This figure is used in combination with the estimate of total visitation to the state to determine the total amount of nonresident travel spending in Montana.

### **Nonresident Visitation Estimation Model**

ITRR produces an annual estimate of the total volume of nonresident travelers and travel groups to Montana. A variety of information sources, including both primary and secondary data, are incorporated into the model to produce these figures. Primary data include the proportion counts recorded by the surveyors and average group size from the survey data. Secondary sources include airport deboardings (from 8 Montana airports) and traffic counts from MT, ND, WY and ID Departments of Transportation, as well as border crossing data from U.S. Customs and Border Patrol (39 count sites, in all). Various adjustments are made within the model to account for things such as monthly traffic fluctuations in cases where only a yearly traffic count is available, and travelers repeatedly entering the Montana when travelling in/through Yellowstone National Park.

Aside from such adjustments, the Nonresident Visitation Estimation Model essentially works as follows:

# of cars entering MT X nonresident % of cars entering X average group size = total number of nonresident travelers

### **Estimating Statewide Nonresident Travel Spending**

Once analysis of the survey expenditure data is complete, and visitation estimates have been produced using the visitation model, an estimate of statewide nonresident travel spending is produced. The calculation used to reach this figure is as follows:

Average daily group spending X average length of stay X total # of visitor groups = total MT nonresident travel spending

### **Economic Contribution of Nonresident Travel to Montana**

IMPLAN economic analysis software and data are used to produce estimates of the impact of nonresident travel spending in Montana. A model using IMPLAN data specific to Montana is constructed each year, and total spending within each category is entered into the model under the appropriate IMPLAN economic sector. Several of the expenditure categories require close inspection of the data to determine what sectors should be selected for the model and the appropriate amount of money to be allocated to those sectors.

In addition to the statewide estimates, ITRR has produced estimates of nonresident travel spending within the state's six travel regions and counties for which enough data exists.

## Access to and Use of Nonresident Travel Data

The nonresident travel data is available for public use via the “Customize Your Report” button on the ITRR homepage. Users can select the quarter or quarters of data they wish to view, and may select the data by a variety of options, allowing them to view the data most useful to them. Selection options include, but are not limited to:

- Visitors to specific sites in Montana (e.g., national parks, museums, etc.)
- Visitors of a certain age range
- Visitors entering the state via specific travel modes (e.g., car/truck, RV/trailer, airplane, etc.)
- Visitors who participated in specific activities (e.g., hiking, golfing, rafting, etc.)

The visitation and spending estimates are published yearly on the ITRR website. All of the information resulting from the Nonresident Travel Survey is frequently used by marketers, business owners, and legislators, to name just a few, and access to the high quality information provided by ITRR is essential for many.

## Appendix A

### Nonresident Travel Survey: Instrument for on-site data collection

INTRODUCTION for Gas Stations or Rest Areas: I'm \_\_\_\_\_ from the University of Montana doing a study of nonresident travelers in Montana. I noticed your license plate was from \_\_\_\_\_. Could I ask you a few questions about your travel in Montana?

INTRODUCTION FOR Airport: I'm \_\_\_\_\_ from the University of Montana doing a study of nonresident travelers in Montana. Do you permanently reside in Montana? (If No,) Could I ask you a few questions about your travel in Montana?

INSTRUCTION: If they outright refuse, write "refused" in the first question (residence)

In what US State, Canadian Province, or Foreign Country do you permanently reside? \_\_\_\_\_

Have you ever visited Montana before?

- Yes
- No

Purpose of Trip (ALL Purposes)

Script: "I am going to list all of the possible purposes for being in Montana on THIS trip and just say yes or no to each."  
(Select ALL that apply)

- Vacation, recreation, or pleasure
- Visit friends, relatives, family event
- Just passing through
- Shopping
- Business, convention, meeting
- Other

Of these purposes you just mentioned (replied 'yes' to), what is the MAIN purpose for you being IN MONTANA? (Select only one)

- Vacation, recreation, or pleasure
- Visit friends, relatives, family event
- Just passing through
- Shopping
- Business, convention, meeting
- Other

What is your travel group size?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- More than 10

What option best describes your travel party/group?

- Self
- Couple
- Immediate Family
- Extended Family
- Friends
- Business Associates
- Organized Group or Club

How did you enter Montana?

- Car/truck
- RV/trailer
- Air
- Motorcycle
- Bus
- Train
- Other

Where did you most recently enter Montana? (Enter code for entry point location) \_\_\_\_\_

How many nights has your group already spent in Montana since you most recently entered the state? \_\_\_\_\_

How many additional nights is your group planning to spend on this trip? \_\_\_\_\_

What is your zip/postal code? \_\_\_\_\_

Script: Now I am going to ask you about your spending patterns IN MONTANA for Yesterday OR the Past 24 hours (If nights already spent =0 or 1, ask for the PAST 24 HOUR'S expenses. If nights spent = 2 or more, ask for YESTERDAY'S expenses.)

What type of PAID ACCOMMODATION did you use last night?

- Hotel/motel
- Rental home/cabin/condo or Bed and Breakfast
- Private campground/RV park (e.g., KOA)
- Public campground (e.g., state/national park, forest service)

How much did you spend on your ACCOMMODATION? \_\_\_\_\_

And where did you spend the night? (town name or closest town) \_\_\_\_\_

Did you rent a car while IN Montana on THIS trip?

- Yes
- No

Approximately how much is the DAILY fee? (the cost of the rental car for a 24-hour period) \_\_\_\_\_

In what TOWN did you rent the car/RV? \_\_\_\_\_

Yesterday or in the Past 24 hours, Did you spend money on GASOLINE?

How much was it? \_\_\_\_\_

What town did you fill up? \_\_\_\_\_

Did you fill up another time YESTERDAY or in the PAST 24 HOURS?

How much did you spend on GASOLINE then? \_\_\_\_\_

And in what LOCATION? (GASOLINE town name) \_\_\_\_\_

Gasoline, Oil Amount Spent \_\_\_\_\_

Gasoline, oil Location \_\_\_\_\_

Did you spend money in a RESTAURANT or BAR?

Restaurant, bar Amount Spent1 \_\_\_\_\_

In what town did you spend money in a Restaurant/bar- Location Spent \_\_\_\_\_

Restaurant, bar Amount Spent \_\_\_\_\_

Restaurant, bar Town Spent \_\_\_\_\_

Restaurant, bar Amount Spent \_\_\_\_\_

Restaurant, bar Town Spent \_\_\_\_\_

Did you spend money at a Farmers Market or Road-side Stand while IN Montana on THIS trip? (during ANY portion of your trip, not just the last 24 hours/yesterday)

How much money did you spend at a Farmers Market or Road-side Stand? \_\_\_\_\_

Where (what town) was the LOCATION for that cost at a FARMERS MARKET or ROAD-SIDE STAND? \_\_\_\_\_

Did you spend money on GROCERIES and SNACKS?

How much money did you spend on GROCERIES or SNACKS? \_\_\_\_\_

Where (what town) was the LOCATION for that cost for GROCERIES/SNACKS? \_\_\_\_\_

Groceries, snacks Amount spent \_\_\_\_\_

Groceries, snacks Town spent \_\_\_\_\_

Did you buy an RETAIL GOODS?

Please DESCRIBE your RETAIL purchases \_\_\_\_\_

How much did you spend on RETAIL GOODS? \_\_\_\_\_

In what town did you buy RETAIL GOODS? \_\_\_\_\_

Any other RETAIL GOODS? DESCRIBE \_\_\_\_\_

Retail goods amount spent \_\_\_\_\_

Retail goods Town where spent \_\_\_\_\_

Retail goods, describe \_\_\_\_\_

Retail goods amount spent - \_\_\_\_\_

Retail goods Town where spent - \_\_\_\_\_

Did you pay for any SERVICES? (i.e., haircut, medical expenses, carwash)

If YES, please DESCRIBE your SERVICE... \_\_\_\_\_

Services amount spent \_\_\_\_\_

Services Town/Location where spent \_\_\_\_\_

Did you take a GUIDED or OUTFITTED TRIP while IN Montana on THIS trip? (during ANY portion of your trip, not just the last 24 hours/yesterday)

If yes, How much did you spend on a GUIDE OR OUTFITTER? \_\_\_\_\_

In what town did you hire a GUIDE or OUTFITTER? \_\_\_\_\_

Yesterday or the last 24 hours, have you had to pay for any VEHICLE REPAIRS?

How much was that? \_\_\_\_\_

Auto/RV repair TOWN \_\_\_\_\_

INSTRUCTION: YESTERDAY or in the PAST 24 HOURS, did you pay for any TRANSPORTATION FARES?

If yes, what was the TRANSPORTATION FARE? Please describe it \_\_\_\_\_

How much was the TRANSPORTATION FARE? \_\_\_\_\_

And where was the TRANSPORTATION FARE? \_\_\_\_\_

INSTRUCTION: YESTERDAY or in the PAST 24 HOURS, did you spend money on any LICENSES, FEES, ADMISSIONS?

Please describe your LICENSE, FEE, or ADMISSION \_\_\_\_\_

How much was that License, fee, or admissions? \_\_\_\_\_

In what TOWN did you spend money on a License, fee, or admission? \_\_\_\_\_

Did you spend money on GAMBLING?

How much did you spend on GAMBLING? \_\_\_\_\_

In what TOWN did you spend money on GAMBLING? \_\_\_\_\_

INSTRUCTION: Are there any other expenditures you may have had YESTERDAY or the PAST 24 HOURS?

Please describe your ADDITIONAL Expenditures... \_\_\_\_\_

How much were your ADDITIONAL Expenditures? \_\_\_\_\_

And where did you spend ADDITIONAL money? \_\_\_\_\_

Please describe ADDITIONAL \_\_\_\_\_

Additional Amount Spent \_\_\_\_\_

TOWN where ADDITIONAL money spent: \_\_\_\_\_

Additional, please specify \_\_\_\_\_

Additional Amount Spent \_\_\_\_\_

TOWN where ADDITIONAL money spent: \_\_\_\_\_

INSTRUCTION Script: Thanks so much! Now, the good part. If you could please help us out by completing the rest of this survey at your convenience, you will be entered into our annual grand prize drawing of EITHER round trip airfare for 2 anywhere in the continental U.S. OR a \$1,000 VISA gift card. You can complete this survey and mail it back, or complete it on-line. The instructions are in here (envelope). We can only improve your visit to Montana if you tell us what you think. Thank you!

Surveyor records the following:

Survey ID \_\_\_\_\_

Site Code \_\_\_\_\_

Date \_\_\_\_\_

**Appendix B**

**Nonresident Travel Survey: Instrument for follow-up data collection**

(insert survey pdf here)