

# **National Park Service Winter Use Modeling Program Yellowstone NP, Grand Teton NP, and JDR N Parkway**

Prepared for,  
National Park Service, Yellowstone NP, WY

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## 1.0 Introduction.

The level of regional economic impact due to changes in Winter visitation to the YNP region is largely a factor of 1) the total change in the number of visitors to the area, and 2) the average amount that nonresident Winter visitors spend within the region on each of their visits. In addition to these two major driving factors, a number of other generally less influential factors and modeling assumptions combine to determine the final estimates of local economic impacts.

The National Park Service Winter Use Modeling Program for Yellowstone NP, Grand Teton NP, and JDR N Parkway is a Microsoft Excel program designed to provide NPS planners with estimates of the impacts associated with a wide spectrum of user-specified assumptions and restrictions regarding Winter use management and Winter visitor access policies. The program and this document were prepared under a contract with the NPS.

### *Structure of the Program.*

The “Winter Use Program” Excel spreadsheet consists of 6 separate worksheets. The names and functions of these worksheets are described in the Table 1. The program is set up to accept user input only in selected cells of the “Main Data Input” sheet. The remaining sheets provide the background model calculations and present the final model visitation and economic impact estimates.

Assumptions impacting the model results are of three primary types: 1) assumptions which modify use calculations at the day, entrance, and mode level, 2) assumptions that modify use calculations at the aggregated total seasonal use level, and assumptions regarding expenditure levels and expenditure and employment multipliers.

The visitation and economic impact program is designed to provide direction to the user and to be independent of any separate “user’s manual.” This document provides general guidance for the program user to provide some familiarity with the model’s estimation process prior to actually employing the model.

<b>Names and Functions of Worksheets within the Winter Use Program Excel Workbook</b>	
<b>Worksheet Name</b>	<b>Worksheet Function</b>
<i>Main Data Input</i>	This sheet is the only sheet intended for direct user modification. This sheet guides the user through a series of user-selected assumptions regarding Winter park use and travel restrictions.
<i>Final Visitation Changes</i>	This sheet displays both intermediate and final impacts of the inputs from the Main Data Input sheet on Winter visitation to the parks.

<b><i>Final Economic Impacts</i></b>	This sheet uses the calculated percentage changes in visitation from the “Final Visitation Changes” sheet to calculate the approximate impact of changes in Winter use policies on the economic output and employment in a number of relevant economic sub-areas. These estimates are general and represent aggregated economic information from the most recent IMPLAN economic models.
<b><i>Baseline Winter Use Data</i></b>	This is the raw, unadjusted daily use data for the 1997-98 Winter Season. This is a protected worksheet that does not accept any modification.
<b><i>Modified Winter Use Data</i></b>	This sheet presents a series of replicates of the Baseline Winter Use Data which have been modified to reflect the inputs in the Main Data Input sheet.
<b><i>Aggregated Visitation changes</i></b>	This is another intermediary sheet which shows a number of the impacts of Winter use assumptions on projected use levels.

## **2.0 Data Input**

**Step 1** The Winter use model uses the actual Winter season data from 1997-98 as its’ baseline data. If the model user wishes to continue to use 1997-98 as a baseline, then Step 1 should be skipped over and the cells should be left with the default index value of 1.0. If however, a different baseline level is desired, the 97-98 data can be scaled (in a generalized way) by entering alternative assumptions about changes in the level of visitation. Alternative assumptions can be entered for individual entrances, travel modes, or combinations of these two.

If an alternative baseline is desired, the modifications should be made to the Step 1 cells and then the model results shown in the Final Visitation Changes, and Final Economic Impacts should be printed to establish this modified baseline.

**Step 2** This step has been included to allow the modification of preliminary estimates of the re-entry rates at individual Winter entrance stations. As the actual re-entry rate is less likely to actually change in the future, entries in these cells more likely will reflect an improvement in estimates of the current re-entry rates by park visitors.

**Step 3** One of the SEIS alternatives called for a closure of the parks to snowmobiles after the President’s Day weekend. This step allows the user of the program to invoke this model assumption as well as any length of snowmobile closure throughout the Winter season. Dates in this step are to be entered as numbers (exp. February=2).

**Step 4** Step 4 allows the model user to place a limit on the daily number of snowmobiles

entering through any park gate. In the SEIS the only gate with a constraining limitation was the heavily used West Entrance.

**Step 5** This program step displays for the user the impact on snowmobile visitation of any snowmobile limits entered in Step 4, above. With information on the number of snowmobiles excluded under the Step 4 maximums, and information on the extent of remaining excess capacity on non-peak days, the user can make additional assumptions about the degree to which excluded snowmobiles would shift use to non-peak days.

**Step 6** Step 6 provides functionality not utilized in the alternatives examined in the SEIS. This step allows the user to make assumptions on changes in Snowcoach visitation on a day and entrance level basis for periods during which snowmobiles are banned from the park.

**Step 7** This step allows the application of an assumption of an overall change in Winter visitation levels due to increased use by current non-Winter users. Both the FEIS and the SEIS utilized assumptions of increases in overall Winter visitation due to current non-Winter visitors being attracted to the parks in Winter due to significant restrictions in snowmobile use. These assumptions were based on data collected from Summer visitors to the parks in 1998.

**Step 8** This final input step allows the use of alternative levels of per-visitor spending than those used in the FEIS and SEIS, and collected from the 1997-98 Winter visitor survey. This step could be used to modify the expenditure data from the 97-98 Winter season to either correspond to new expenditure data or to account for inflation since the original data was collected.

### ***Model Settings for Draft SEIS Alternatives***

For reference purposes, Table 2 details the specific model inputs associated with the Draft SEIS visitation and economic impact estimates. Inputs to the model are only noted where they differ from the default input settings (noted on the “Main Data Input” worksheet).

**Winter Visitation Model Inputs Associated with Draft SEIS Alternatives**

Input Step	Alternatives 1a and 1b	Alternative 2		Alternative 3		FEIS Alternative A
		Low est.	High est.	Low est.	High est.	
Step 1	The estimates for Alternatives 1a and 1b were estimated in the FEIS directly from the 1997-98 Winter Use Survey data. This methodology differed from the SEIS estimation method described by the Winter Use Model due to differences in data availability.	--	--	--		--
Step 2		--	--	--		--
Step 3		--	--	No snowmobile access after Feb 23	No snowmobile access after Feb 23	--
Step 4		500 machine daily maximum at West Entrance	500 machine daily maximum at West Entrance	330 machine daily maximum at West Entrance	330 machine daily maximum at West Entrance	--
Step 5		--	50% of excluded machines (6,406 machines) shift to non-peak days at West Entrance	--	All available West Entrance capacity filled (5,820 snowmobiles shift to low-use days)	--
Step 6		--	--	--	--	--
Step 7		0.0%	0.0%	2.25%	2.25%	--
Step 8		--	--	--	--	--

Estimated Change in Total Visitation	-33.4%	-9.16%	-4.58%	-17.3%	-13.13%	0.0%
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