Impacts of Visitor Spending on the Local Economy: Manzanar National Historic Site, 2004

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Executive Summary

Manzanar National Historic Site hosted 75,449 recreation visits in 2004. Based on the 2004 visitor survey 2% of the visitors are local residents, 43% are visitors from outside the local area not staying overnight within the Manzanar/Owens Valley area, and 55% are visitors staying overnight in the local area. Over half of the overnight visitors (58%) are staying in motels, cabins or B&B's, 31% are camping and 11% are staying with friends or relatives or other unpaid lodging.

The average visitor group spent $195 in the local area. Visitors reported expenditures of their group inside the park and in the Manzanar/Owens Valley area. On a party trip basis, average spending in 2004 was $70 for non-local day trips, $365 for visitors in motels, $253 for campers and $78 for other overnight visitors. On a per night basis, visitors staying in motels spent $200 in the local region compared to $102 for campers and $32 for other overnight visitors. The average per night lodging cost was $97 per night for motels and $16 for campgrounds.

Total visitor spending in 2004 within 50 miles of the park was $5.9 million including $215,000 spent in the gift shop inside the park. Thirty-six percent of the total spending was for lodging, 23% restaurant meals and bar expenses, 15% gas and oil and 13% souvenirs including the park gift shop. Overnight visitors staying in motels accounted for 63% of the spending.

Not all of this spending would be lost to the region in the absence of the park. The vast majority of visitors did not come to the area primarily to visit Manzanar NHS, so only a portion of their expenses can be attributed to the park visit.

Spending directly attributed to the park was estimated by counting all spending for visitors whose primary reason for coming to the area was to visit the park. Half of the spending outside the park was counted if Manzanar NHS was one of several destinations on the trip and only spending inside the park was counted if the park was not a planned stop. All spending inside the park was attributed to the park, while all spending by local residents outside the park was excluded. These procedures yield a total of $1.9 million in spending attributed to the park, about a third of the $5.9 million spent by park visitors in the area.

The economic impact of park visitor spending is estimated by applying this spending to a model of the local economy. The local region was defined to be Inyo county, California.

Including direct and secondary effects, the $1.9 million spent by park visitors supports 38 jobs in the area and generates about $2 million in sales, $774,000 in personal

income and $1.15 million in value added. Value added includes wages and salaries as well as profits and rents to area businesses and sales taxes.

Recreation visits increased by 4% in 2005 to 78,172 visitors. Combined with a 5% increase in per visitor spending, total visitor spending increased to $6.5 million in 2005. The park itself employed 16 people in FY 2005 with a total payroll of $749,000. Including secondary effects, the local impact of park operations in 2005 was 20 jobs, $835,000 in personal income and $919,000 total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 59 jobs and $2.18 million value added. Park operations account for a third of the employment effects and 42% of value added.

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Introduction

The purpose of this study is to document the local economic impacts of visitors to Manzanar National Historic Site (MANZ) in 2004. Economic impacts are measured as the direct and secondary sales, income and jobs in the local area resulting from spending by park visitors. The economic estimates are produced using the Money Generation Model 2 (MGM2) (Stynes and Propst, 2000). Three major inputs to the model are:

1) Number of visits broken down by lodging-based segments,
2) Spending averages for each segment, and
3) Economic multipliers for the local region

Inputs are estimated from the Manzanar NHS Visitor Survey, National Park Service Public Use Statistics, and IMPLAN input-output modeling software. The MGM2 model provides a spreadsheet template for combining park use, spending and regional multipliers to compute changes in sales, personal income, jobs and value added in the region.

Manzanar National Historic Site and the Local Region

Manzanar NHS is located in the Owens Valley of California between Sequoia and Death Valley National Parks. The park preserves and interprets the history of the Manzanar War Relocation Center where Japanese American's were interned during World War II. The park hosted 75,449 recreation visitors in 2004 and 78,182 in 2005. About 60% of the visitation is between June and September (Table 1).

The park is located between Lone Pine and Independence, two small California communities along US 395. The region is very rural. The population of Inyo county in 2004 was 18,244.

Table 1. Recreation Visits to Manzanar NHS, 2004-2005

Month	2004	2005
January	1,230	4,180
February	1,468	3,300
March	2,705	8,995
April	8,463	7,783
May	5,613	6,996
June	11,715	7,957
July	10,576	10,846
August	10,873	10,122
September	10,068	5,275
October	6,573	4,918
November	3,380	4,200
December	2,785	3,600
Total	75,449	78,172

Source: NPS Public Use Statistics

Manzanar NHS Visitor Survey, 2004

A park visitor study was conducted at Manzanar NHS from August 28 – September 5, 2004 (Littlejohn and Hollenhorst, 2005). The study measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a sample of 360 visitors at the park entrance. Visitors returned 276 questionnaires for a 77% response rate. Data generated through the visitor survey were used as the basis to develop the spending profiles, segment shares and trip characteristics for Manzanar NHS visitors.

Most visitors spent between one and two hours at the park. Only 9% of non-local visitors came to the area primarily to visit Manzanar NHS. Forty-two percent were driving through the area, 39% were in the area for recreation.

MGM2 Visitor Segments

MGM2 divides visitors into segments to help explain differences in spending across distinct user groups. Five segments were established for Manzanar NHS visitors:

Local day users: Day visitors who reside within the local region, defined as a 50 mile radius of the park.

Non-local day users: Visitors from outside the region, not staying overnight in the area. This includes day trips as well as pass-through travelers, who may be staying overnight on their trip outside the region.

Motel: Visitors staying in motels, hotels, cabins, or B&B's within 50 miles of the park

Camp: Visitors staying in private or public campgrounds within 50 miles of the park

Other OVN: Other visitors staying overnight in the area with friends or relatives or not reporting any lodging expenses

The 2004 visitor survey was used to estimate the percentage of visitors from each segment as well as spending averages, lengths of stay and party sizes for each segment. Only two percent of the visitors surveyed were local residents, 43% of the trips were classified as non-local day trips, and 55% were overnight trips including an overnight stay in the local area. Over half of the overnight visitors (58%) were staying in motels, cabins or B&B's, 31% were camping and 11% were staying with friends or relatives or other unpaid lodging (Table 2)[1]. The average spending party was 2.7 people.

Only three percent of visitors indicated that visiting the park was the primary reason for the trip to the area. Fifty-two percent indicated the park was one of several destinations and 44% had not planned to stop at the park.

Table 2. Selected Visit/Trip Characteristics by Segment, 2004

Characteristic	Local	Day trip	Motel	Camp	Other OVN	Total
Segment share	2%	43%	32%	17%	6%	100%
Average Party size	3.0	2.9	2.3	2.7	2.3	3.0
Length of stay (days/nights)	1.8	1.0	1.8	2.5	2.4	1.8
Percent primary purpose trips	33%	3%	3%	2%	0%	3%

Manzanar NHS hosted 75,449 recreation visitors in 2004. Recreation visits were allocated to the five segments using the segment shares in Table 2. These visits are converted to 28,678 party trips by dividing by the average party size for each segment (Table 3). Total visitor spending is estimated by multiplying the number of party trips of each segment by the average spending estimated in the survey.

[1] These percentages vary slightly from the VSP report (Littlejohn and Hollenhorst. 2005) as some visitors listing motels or campgrounds as lodging types did not report any lodging expenses and are classified here in the other OVN category.

Table 3. Recreation Visits and Party Trips by Segment, 2004

Measure	Local	Day trip	Motel	Camp	Other OVN	Total
Recreation visits	1,640	32,531	23,783	12,848	4,647	75,449
Party visits/trips	547	11,041	10,247	4,834	2,010	28,678

Visitor spending

Spending averages were computed on a party trip basis for each segment. The survey covered expenditures of the travel party in the Manzanar/Owens Valley area including Bishop, Big Pine, Lone Pine and Independence.

The average visitor group in 2004 spent $195 on the trip[2]. On a party trip basis, average spending was $70 for non-local day trips, $365 for visitors in motels, $253 for campers and $78 for other overnight visitors (Table 4). On a per night basis, visitors in motels spent $200 in the local region compared to $102 for campers and $32 for other overnight visitors. The average per night lodging cost was $97 per night for motels and $16 for campgrounds.

Table 4. Average Visitor Spending by Segment ($ per party per trip)

	Local[a]	Day trip	Motel	Camp	Other OVN	All Visitors
In Park						
Gift shop	20.00	5.87	9.32	7.53	3.63	7.41
Donations	3.33	1.11	1.72	1.32	1.25	1.39
In Community						
Motel, hotel cabin or B&B	15.00	0.00	177.37	32.61	0.00	61.79
Camping fees	0.00	0.00	0.00	38.92	0.00	6.63
Restaurants & bars	19.17	15.50	85.48	58.42	15.00	44.92
Groceries, take-out food/drinks	15.83	11.10	18.60	37.63	9.81	18.01
Gas & oil	16.67	20.76	39.47	44.82	26.56	31.02
Local transportation	0.00	1.52	0.68	3.16	0.00	1.41
Admissions & fees	0.00	3.10	5.63	3.16	2.81	3.82
Souvenirs and other expenses	1.67	10.06	25.22	23.76	17.94	17.48
Donations	1.67	0.58	1.28	1.32	0.94	0.97
Grand Total	**93.33**	**69.59**	**364.78**	**252.63**	**77.94**	**194.84**
Total in park	23.33	6.97	11.04	8.84	4.88	8.80
Total Outside park	70.00	62.62	353.74	243.79	73.06	186.04

a. The spending average for local visitors is based on only six cases and is therefore unreliable.

[2] The average of $195 is lower than the $275 spending average in the VSP report (Littlejohn and Hollenhorst 2005) due to the omission of some outliers and treatment of missing spending data.

Table 5. Average Spending per Night for Visitors on Overnight Trips ($ per party per night)

	Motel	Camp	Other OVN
Spending In Community			
Motel, hotel cabin or B&B	97.10	13.16	0.00
Camping fees	0.00	15.70	0.00
Restaurants & bars	46.80	23.57	6.25
Groceries, take-out food/drinks	10.19	15.18	4.09
Gas & oil	21.61	18.08	11.07
Local transportation	0.37	1.27	0.00
Admissions & fees	3.08	1.27	1.17
Souvenirs and other expenses	13.81	9.59	7.47
Donations	0.70	0.53	0.39
Grand Total	**199.70**	**101.94**	**32.47**

The sampling error at a 95% confidence level for the overall spending average is 13%. A 95% confidence interval for the overall spending average is ($170, $221). The sampling error for the motel segment is 13%. Sampling errors for other segments with smaller sample sizes are much higher (See Table B-2 in the appendix).

Manzanar NHS visitors spent a total of $5.9 million in the local area in 2004 (Table 6). Total spending was estimated by multiplying the number of party trips for each segment by the average spending per trip and summing across segments. Overnight visitors staying in motels accounted for 63% of the total spending. Lodging accounted for 36% of the total spending, restaurants and bars 23% and gas and oil 15%.

Table 6. Total Visitor Spending by Segment, 2004 ($000s)

	Local	Day trip	Motel	Camp	Other OVN	All Visitors
In Park						
Gift shop	10.9	64.8	95.5	36.4	7.3	214.9
Donations	1.8	12.2	17.6	6.4	2.5	40.5
In Community						
Motel, hotel cabin or B&B	8.2	0.0	1,817.5	157.6	0.0	1,983.3
Camping fees	0.0	0.0	0.0	188.1	0.0	188.1
Restaurants & bars	10.5	171.1	875.9	282.4	30.1	1,370.1
Groceries, take-out food/drinks	8.7	122.5	190.6	181.9	19.7	523.5
Gas & oil	9.1	229.2	404.4	216.6	53.4	912.8
Local transportation	0.0	16.8	7.0	15.3	0.0	39.0
Admissions & fees	0.0	34.2	57.7	15.3	5.7	112.8
Souvenirs and other expenses	0.9	111.1	258.4	114.9	36.0	521.4
Donations	0.9	6.4	13.2	6.4	1.9	28.7
Grand Total	**51.0**	**768.3**	**3,737.8**	**1,221.2**	**156.6**	**5,935.0**
Total In park	12.8	77.0	113.1	42.7	9.8	255.4
Total Outside park	38.3	691.3	3,624.7	1,178.5	146.8	5,679.6
Segment Percent of Total	1%	13%	63%	21%	3%	100%

Not all of this spending would be lost to the region in the absence of the park as most visitors did not make the trip primarily to visit the park. Spending directly attributed to the park visit was estimated by counting all spending for trips where the park was the primary reason for the trip and half of the spending outside the park if the park was one of several planned destinations. All spending inside the park was counted, but all spending by local visitors outside the park was excluded.

These attributions yield a total of $1.88 million in visitor spending attributed to the park visit, representing 32% of the overall visitor spending total (Table 7).

Table 7. Total Spending Attributed to Park Visits, 2004 ($000s)

	Local	Day trip	Motel	Camp	Other OVN	All Visitors
In Park						
Admissions	0.0	0.0	0.0	0.0	0.0	0.0
Gift shop		18.0	33.3	8.9	1.5	61.7
Donations	1.8	12.2	17.6	6.4	2.5	40.5
In Community						
Motel, hotel cabin or B&B		0.0	634.0	38.6	0.0	672.6
Camping fees		0.0	0.0	46.0	0.0	46.0
Restaurants & bars		47.5	305.6	69.1	6.2	428.3
Groceries, take-out food/drinks		34.0	66.5	44.5	4.1	149.1
Gas & oil		63.6	141.1	53.0	11.0	268.6
Local transportation		4.6	2.4	3.7	0.0	10.8
Admissions & fees		9.5	20.1	3.7	1.2	34.5
Souvenirs and other expenses		30.8	90.2	28.1	7.4	156.5
Donations		1.8	4.6	1.6	0.4	8.3
Total Attributed to Park	**1.8**	**221.9**	**1,315.3**	**303.6**	**34.2**	**1,876.9**
Percent of all spending attributed to the park	4%	29%	35%	25%	22%	32%

Economic Impacts of Visitor Spending

The economic impacts of Manzanar NHS visitor spending on the local economy are estimated by applying the spending attributed to the park (Table 7) to a set of economic ratios and multipliers representing the local economy. Multipliers for the region were estimated with the IMPLAN system using 2001 data. The tourism sales multiplier for the region is 1.35. Every dollar of direct sales to visitors geneates another $ .35 in secondary sales through indirect and induced effects[3].

Impacts are estimated based on the visitor spending attributed to the park in Table 7[4]. Including direct and secondary effects, the $1.88 million spent by park visitors[5] supports 38 jobs in the area and generates $1.95 million in sales, $774,000 in personal income and $1.15 million in value added (Table 8). Personal income covers wages and salaries, including payroll benefits. Value added is the preferred measure of the contribution to the local economy as it includes all sources of income to the area, payroll benefits to workers, profits and rents to businesses, and sales and other indirect business taxes. The largest direct effects are in lodging establishments and restaurants.

Table 8. Economic Impacts of Visitor Spending Attributed to the Park, 2004.

Sector/Spending category	Sales $000's	Jobs	Personal Income $000's	Value Added $000's
Direct Effects				
Motel, hotel cabin or B&B	673	13	293	476
Camping fees	46	0	5	13
Restaurants & bars	428	11	176	199
Admissions & fees	35	1	13	21
Local transportation	11	0	0	0
Retail Trade	207	4	98	129
Wholesale Trade	31	0	11	20
Local Production of goods	14	0	0	0
Total Direct Effects	1,444	30	597	858
Secondary Effects	507	8	176	294
Total Effects	1,951	38	774	1,152

[3] Indirect effects result from tourism businesses buying goods and services from local firms, while induced effects stem from household spending of income earned from visitor spending.

[4] The local economic impact of all $5.9 million in visitor spending (Table 6) is reported in Appendix C.

[5] Revenues received by the park (park admissions and donations) are excluded in estimating visitor spending impacts as the impacts resulting from park revenues are covered as part of park operations.

2005 Update

The spending and impact estimates may be updated to 2005 based on reported recreation visits in 2005. Recreation visits increased by 4% in 2005 to 78,172. The visitor segment mix, party sizes and lengths of stay were assumed unchanged from 2004. Spending averages measured in the 2004 visitor survey were price adjusted to 2005 using Bureau of Labor Statistics price indices for each spending category. Spending averages increased by about five percent in 2005 compared to 2004.

The increase in visits along with a five percent increase in per visitor spending, increased total visitor spending to $6.45 million in 2005 (Table 9).

Table 9. Update of Spending Estimates to 2005

		Local	Day trip	Motel	Camp	Other OVN	Total
Average Spending ($ per party)							
	2004	93	70	365	253	78	193
	2005	99	73	384	269	83	203
Total Spending ($000's)							
	2004	51	768	3,738	1,221	157	5,935
	2005	56	837	4,075	1,348	172	6,488
Spending Attributed to the Park ($000's)							
	2004	2	222	1,315	304	34	1,877
	2005	2	233	1,384	323	36	1,979

The park itself employed 16 people in FY 2005 with a total payroll of $749,000. Including secondary effects, the local impact of park operations in 2005 was 20 jobs, $835,000 in personal income and $919,000 total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 59 jobs and $2.18 million value added. Park operations account for a third of the employment effects and 42% of value added.

Study Limitations and Error

The accuracy of the MGM2 estimates rests on the accuracy of the three inputs: visits, spending averages, and multipliers. Recreation visit estimates rely on counting procedures at the park, which may miss some visitors and count others more than once during their visit.

Spending averages are derived from the 2004 Manzanar NHS Visitor Survey. Estimates from the survey are subject to sampling errors, measurement errors and seasonal/sampling biases. Due to relatively small samples and considerable variation in spending, the overall spending average is subject to sampling errors of 13%. Some expenses and overnight stays that took place outside the local area may have been

reported as within the Owens Valley region, as the percentage of overnight visitors appears high relative to local lodging opportunities.

Spending averages can also be sensitive to decisions about outliers and treatment of missing data. To estimate spending averages incomplete spending data had to be filled and decisions had to be made about the handling of missing spending data and zero spending reports. Spending averages were estimated under conservative assumptions.

First, cases reporting some expenses but leaving other categories blank were filled with zeros. Twenty-three respondents that did not complete the spending question were assumed to spend no money on the trip. Omitting cases with missing spending data instead of treating them as zeros would increase the spending average from $195 to $213. This change would increase overall spending totals and impacts by about 8% (see Appendix B, Table B1).

Outliers have a larger impact on the spending results. Twelve cases reporting expenses of more than $1,000 were omitted from the spending analysis. Eight cases reporting party sizes of more than seven people and three cases staying more than seven nights in the area were also omitted[6]. Spending averages including the outliers are $252 per party, almost 30 percent higher than the $195 average with outliers omitted.

As the sample only covers visitors during a single week, we must assume these visitors are representative of visitors during the rest of the year to extrapolate to annual totals.

Multipliers are derived from an input-output model of the local economy using IMPLAN. Input-output models rest on a number of assumptions, however, errors due to the multipliers will be small compared to potential errors in visit counts and spending estimates. Visits are taken from NPS public use statistics.

More problematic than the errors in visits, spending or multipliers is sorting out how much of the spending to attribute to the park. As the park was not the primary motivation for the trip to the region for most visitors, much of the spending would likely not be lost in the absence of the park. The procedures for attributing spending to the park are somewhat subjective, but reasonable. Thirty-eight percent of all visitor spending is attributed to park visits under the stated assumptions.

[6] Reports of spending for long stays are deemed unreliable. Spending reported for large parties may not include everyone in the party. Since spending averages are applied to all visits, omitting these cases is equivalent to substituting the average spending of visitors in the corresponding visitor segment for these outliers.

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Appendix A: Definitions of Economic Terms

Term	Definition
Sales	Sales of firms within the region to park visitors.
Jobs	The number of jobs in the region supported by the visitor spending. Job estimates are not full time equivalents, but include part time positions.
Personal income	Wage and salary income, sole proprietor's income and employee payroll benefits.
Value added	Personal income plus rents and profits and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a hotel includes wages and salaries paid to employees, their payroll benefits, profits of the hotel, and sales and other indirect business taxes. The hotel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the hotel.
Direct effects	Direct effects are the changes in sales, income and jobs in those business or agencies that directly receive the visitor spending.
Secondary effects	These are the changes in the economic activity in the region that result from the re-circulation of the money spent by visitors. Secondary effects include indirect and induced effects.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to the visitors. For example, linen suppliers benefit from visitor spending at lodging establishments.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of the visitor spending. For example, motel and linen supply employees live in the region and spend their incomes on housing, groceries, education, clothing and other goods and services.
Total effects	Sum of direct, indirect and induced effects. ▪ Direct effects accrue largely to tourism-related businesses in the area ▪ Indirect effects accrue to a broader set of businesses that serve these tourism firms. ▪ Induced effects are distributed widely across a variety of local businesses.

Appendix B: Handling of Missing Spending Data and Outliers

To compute spending averages and to sum spending across categories, spending categories with missing spending data had to be filled. If spending was reported in any category, the remaining categories were assumed to be zero. This yielded 251 cases with valid spending data, 2 cases reporting zero spending and 23 cases not completing the spending question. Cases with missing or no spending reported were local residents, day trips, or overnight trips without any local lodging expenses. It was assumed that these cases spent no money in the local area.

Table B-1. Cases with Valid, Zero and Missing Spending Data by Segment

	Local	Day trip	Motel	Camp	Other OVN	Total
Report some spending	5	101	87	47	11	251
Missing spending data	1	16	0	0	6	23
Zero spending	0	2	0	0	0	2
Total cases	6	119	87	47	17	276
Percent zero	0%	2%	0%	0%	0%	1%
Percent missing	17%	13%	0%	0%	35%	8%

Twelve cases reporting spending of more than $1,000 were dropped when computing spending averages. Another 11 cases with party sizes or lengths of stay greater than seven were also omitted, yielding a final sample of 253 cases for the spending analysis. The overall spending average is $252 including outliers compared to $195 without outliers.

Table B-2. Spending Averages by Segment, with and without outliers

	With outliers			Without outliers			
Segment	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Pct Error[a]
Local	93	6	111	93	6	111	95%
Day trip	83	119	133	70	112	91	24%
Motel	450	87	408	365	81	225	13%
Camp	378	47	444	253	38	185	23%
Other OVN	134	17	247	78	16	89	56%
Total	252	276	354	195	253	208	13%

a. Pct errors computed at a 95% confidence level

Appendix C. Impacts of all Visitor Spending, 2004

Table C1 gives the impacts of $5.9 million in visitor spending on the local economy. All visitor spending in the region except park admissions and donations is included in this analysis. Impacts attributed to the park in Table 8 are about a third of the impacts when all visitor spending is included.

Table C-1. Impacts on Local Economy of all Visitor Spending

Sector/Spending category	Sales $000's	Jobs	Personal Income $000's	Value Added $000's
Direct Effects				
Motel, hotel cabin or B&B	1,983	37	865	1,405
Camping fees	188	1	22	52
Restaurants & bars	1,370	36	564	637
Admissions & fees	113	4	41	69
Local transportation	39	0	0	0
Retail Trade	704	14	335	439
Wholesale Trade	106	2	39	68
Local Production of goods	48	0	0	0
Total Direct Effects	4,552	94	1,866	2,670
Secondary Effects	1,598	24	558	932
Total Effects	6,149	118	2,425	3,601