

Chapter 4
Direct Spending Associated with the Allegheny Trail System
in Neighboring Communities and the State of Pennsylvania in 2002

Chapter 2 provided estimates of trail usage from trail counters. Chapter 3 analyzed the user survey to determine the characteristics of user groups, frequencies of visitation, and spending during the trail use season, April through November. These spending behaviors reflected what we can call "direct" spending; local purchases, lodging and trail associated bike and equipment. This spending does not include "indirect," or induced spending, such as the local purchases of a B&B for labor and food.

This chapter combines the use and spending information from Chapters 2 and 3 to determine the direct economic implications of the trail system to communities along the trail and to the state. The user survey provides estimates of three different types of spending associated with trail use:

- Spending for small items (food, gasoline, bike rental, etc) in trailside communities.
- Spending for lodging during the trail visit.
- Expenditures for bikes and equipment that may be related to trail use.

This chapter establishes total spending estimates for these three types of expenditures.

4-1. Spending for Small Items in Trailside Communities

Chapter 3 determined that the average person spent **\$8.84 per person per trip** in trailside communities for each visit to the trail system. A statistical analysis established that we could be 95% confident that the mean spending was in the range, **\$8.11 to \$9.56 per person per trip**. However, average spending differed significantly across trailheads and types of use. We can make spending estimates for the trail use season based upon increasingly complicated considerations of these trailhead and type of use differences. Each sub-section below increases the complexity of these considerations in the economic impact estimates.

4-1.a Spending Estimates: No Consideration for Trailhead and Types of Use Differences

A very simple, back-of-the-envelope estimate of local spending on small items is based on average spending per person per trip, \$8.84, and the estimated total number of visits during the 2002 trail season, 347,053 (Chapter 2), which we assume runs from April 15 through November 15. This point estimate is \$3,067,944 for the season. The 95% confidence interval ranges from \$2,814,596 to \$3,317,822.

4-1.b Spending Estimates: Consideration of Trailhead Differences Only

A more accurate estimate of local spending on small items is obtained by accounting for spending differences across trailheads. This estimate is shown in Table 4-1.1 below. This table shows a total local spending point estimate of **\$3,188,990**, with a 95% confidence range from **\$2,615,143 to \$3,762,238** for the season.

Table 4-1.1
 Estimated Total Spending in Local Trail Communities for
 Small Items (Question 8), by Trail Counter Location

Trail Counter Location	Total Use (# Visits) During Season	Trailhead Used for Spending Estimates	Mean Spending per Person per Visit	95% Lower Bound	95% Upper Bound	Total Annual Spending (using col 3)	95% Lower Bound	95% Upper Bound
	1	2	3	4	5	6	7	8
Garrett	9121	Rockwood	\$9.82	\$7.82	\$11.82	\$89,573	\$71,330	\$107,816
Rockwood	10551	Rockwood	\$9.82	\$7.82	\$11.82	\$103,607	\$82,506	\$124,709
Confluence	9484	Confluence	\$15.62	\$11.15	\$20.08	\$148,144	\$105,749	\$190,444
RamCat	27883	Ohiopyle	\$11.41	\$9.97	\$12.84	\$318,146	\$277,995	\$358,019
RR Station	27566	Ohiopyle	\$11.41	\$9.97	\$12.84	\$314,533	\$274,837	\$353,953
Ferncliff	58616	Ohiopyle	\$11.41	\$9.97	\$12.84	\$668,805	\$584,399	\$752,626
Connellsville-S	51224	Connellsville	\$9.03	\$7.49	\$10.57	\$462,550	\$383,666	\$541,435
Connellsville-N	39879	Connellsville	\$9.03	\$7.49	\$10.57	\$360,109	\$298,695	\$421,523
Outback	8482	W.Newton ^a	\$8.25	\$5.98	\$10.53	\$69,975	\$50,721	\$89,314
Buddtown	55083	W.Newton	\$8.25	\$5.98	\$10.53	\$454,438	\$329,399	\$580,028
Greenock	49163	Boston	\$4.05	\$3.17	\$4.93	\$199,109	\$155,846	\$242,373
Total	347053					\$3,188,990	\$2,615,143	\$3,762,238

^a While the Outback trail counter is closer to Connellsville, this is a relatively remote section of trail, and does not have the urban spending opportunities of Connellsville. In this regard, it is more similar to West Newton; hence the assignment of West Newton spending behavior to Outback.

4-1.c Spending Estimates: Consideration of Trailhead and Day of Week Differences

An even more sophisticated estimate of spending can be made by distinguishing between trailheads, as in Table 4-1.1, but also considering differences in spending by days of the week. Figure 3-8.4 has shown that local spending varies significantly over days of the week. Weekday spending, \$7.89 per person per visit, is 89% of average spending on all days, \$8.84. Likewise, Saturday spending is 14% higher than average spending on all days; and Sunday spending is 92% of average spending. We can use these daily spending relationships to estimate spending per person per visit by days of the week. For example, Boston average spending is \$4.05 (Table 3-8.3), so an estimate of weekday spending would be \$3.60 per person per visit ($\$4.05 \times 89\%$). Likewise, Saturday spending would be estimated to be \$4.62. This procedure is used for all trailheads. Table 4-1.2 shows that the total spending estimate is \$3,057,887 for the season. It is clear that this adjustment does not make much difference in the estimate, compared to the simpler estimate in Table 4-1.1.

4-1.d Spending Estimates: Consideration of Trailhead and Monthly Differences

Spending varied significantly over the trail season, as Figure 3-8.3 shows. We have accounted for these differences in a spending estimate based on the procedure described in 4-1.c above; i.e., adjust monthly spending at each trailhead by the overall relative spending. This consideration made very little difference in the estimated total spending. The point spending estimate was \$3,165,654 for the season. The 95% confidence interval ranged from \$2,830,038 to \$3,453,111. It is apparent that such fine-tuning of spending estimates makes little difference to the estimates.

Table 4-1.2
 Estimated Total Spending in Local Trail Communities for
 Small Items (Question 8), by Trail Counter Location Accounting
 for Differences in Spending by Day of Week

Trail Counter Location	Weekday Use	Saturday Use	Sunday Use	Trailhead Used for Spending Estimates	Weekday Spending per Person per Visit	Saturday Spending per Person per Visit	Sunday Spending per Person per Visit	Total Annual Spending
	1	2	3	4	5	6	7	8
Garrett	4768	1801	2553	Rockwood	\$8.74	\$11.19	\$9.03	\$84,893
Rockwood	5853	1985	2713	Rockwood	\$8.74	\$11.19	\$9.03	\$97,883
Confluence	5378	2031	2076	Confluence	\$13.90	\$17.81	\$14.37	\$140,751
RamCat	12671	8034	7178	Ohiopyle	\$10.15	\$13.01	\$10.50	\$308,525
RR Station	13180	7054	7332	Ohiopyle	\$10.15	\$13.01	\$10.50	\$302,565
Ferncliff	25266	18877	14473	Ohiopyle	\$10.15	\$13.01	\$10.50	\$654,038
Connellsville-S	31883	10821	8520	Connellsville	\$8.04	\$10.29	\$8.31	\$438,406
Connellsville-N	24123	10403	5353	Connellsville	\$8.04	\$10.29	\$8.31	\$345,432
Outback	4487	1792	2203	W.Newton	\$7.34	\$9.41	\$7.59	\$66,519
Buddtown	31624	11004	12455	W.Newton	\$7.34	\$9.41	\$7.59	\$430,228
Greenock	27858	9933	11372	Boston	\$3.60	\$4.62	\$3.73	\$188,646
Total	187089	83735	76228					\$3,057,887

4-2 Spending on Lodging During Trail Visits

The user survey collected information on the overnight lodging costs and number of nights stayed. Overnight lodging is NOT included in Question 8, which was analyzed above. The survey determined that only 13.3% of the visiting groups stayed overnight during their visit. While the average number of nights stayed by groups who DID stay overnight was 2.4 nights, over the ENTIRE sample, the average number of nights stayed during a visit was only 0.31 nights. While the average expenditure for groups who DID stay overnight was \$21.36 per person per night, over the ENTIRE sample, the average lodging expenditure per night was \$3.24 per person per night. This implies that over the ENTIRE sample, the average spending for lodging on a visit was \$1.00 per person per visit ($0.31 \times \$3.24$). A simple back-of-the-envelope estimate of lodging spending would be this \$1.00 times the number of estimated person visits, 347,053, or \$347,053 for the season.

Use of lodging and associated spending varied significantly across trailheads. Table 4-2.1 accounts for these differences. Column 3 of this table shows estimated lodging spending per person per visit, obtained from Table 3-13.1 in Chapter 3. This column is calculated by multiplying the spending per person per night for each trailhead by the average number of nights stayed per person at that trailhead. For example, among ALL the visitors to Rockwood, the average spending per person per night was \$3.67 (see Figure 3-13.1); this is for ALL visitors to Rockwood, NOT just those staying overnight. The average number of nights stayed among ALL visitors to Rockwood (i.e., NOT just those staying overnight) was 0.55. So the estimated lodging spending per person per visit is \$2.02, as shown in Table 4-2.1.

Using this procedure for estimating lodging spending, Table 4-2.1 shows a point estimate of total lodging spending during the trail season of **\$522,814**. The table also shows the 95% confidence interval of the mean lodging spending to be between **\$338,322 and \$707,592**. This spending may or may not have been in trail related communities.

4-3 Expenditures on Bikes and Equipment Related to Trail Use

The survey collected information on persons' expenditures for bikes and biking equipment (rack, pumps, etc), i.e., "capital equipment," during the PAST TWO years. It also collected information on the percentage of biking time during the past year that was on the Allegheny Trail system. Under a traditional joint cost accounting procedure, we can allocate those expenditures to Allegheny Trail system use based on the percentage of biking time on the trail system. This estimation for all trail users during the trail season also requires an estimate of the number of "distinct" persons using the trail; and the survey permits us to determine that.

A statistical analysis determined that the bike and equipment spending varied significantly across trailheads. We make increasingly sophisticated estimates of the capital spending impacts below accounting for these differences.

Table 4-2.1
Estimated Lodging Spending (Question 13),
by Trail Counter Location

Trail Counter Location	Total Use (# Visits) During Season	Trailhead Used for Spending Estimates	Mean Lodging Spending per Person per Visit	95% Lower Bound	95% Upper Bound	Total Lodging Spending (1x3)	95% Lower Bound	95% Upper Bound
	1	2	3	4	5	6	7	8
Garrett	9121	Rockwood	\$2.02	\$1.29	\$2.74	\$18,412	\$11,739	\$25,034
Rockwood	10551	Rockwood	\$2.02	\$1.29	\$2.74	\$21,296	\$13,579	\$28,956
Confluence	9484	Confluence	\$5.05	\$1.99	\$8.10	\$47,865	\$18,876	\$76,855
RamCat	27883	Ohiopyle	\$3.26	\$2.30	\$4.22	\$90,810	\$64,159	\$117,625
RR Station	27566	Ohiopyle	\$3.26	\$2.30	\$4.22	\$89,778	\$63,430	\$116,289
Ferncliff	58616	Ohiopyle	\$3.26	\$2.30	\$4.22	\$190,900	\$134,875	\$247,270
Connellsville-S	51224	Connellsville	\$0.62	\$0.33	\$0.91	\$31,759	\$17,032	\$46,357
Connellsville-N	39879	Connellsville	\$0.62	\$0.33	\$0.91	\$24,725	\$13,260	\$36,091
Outback	8482	W.Newton	\$0.10	\$0.02	\$0.18	\$862	\$183	\$1,534
Buddtown	55083	W.Newton	\$0.10	\$0.02	\$0.18	\$5,596	\$1,190	\$9,959
Greenock	49163	Boston	\$0.02	\$0.00	\$0.03	\$811	\$0	\$1,622
Total	347053	All Combined				\$522,814	\$338,322	\$707,592

The survey determined that the average bike and equipment expenditures during the past two years were \$234.93 per person, with a 95% confidence range of \$217.83 to \$252.02 per person, as shown in columns 1-3 of Table 4-3.1. This implies an average of \$117.47 per person per year over this two year period; and a 95% confidence range of \$108.92 to \$126.01 per person per year. The survey also determined that the percentage biking time on the Allegheny Trail system for all users combined was 47.2%. A simple analysis would then conclude that the average annual bike and equipment spending that is reasonably attributable to the trail system is **\$55.45 per person per year** (\$117.47 x 47.2%); and the 95% confidence range is **\$51.41 to \$59.48 per person per year**. These estimates are shown in columns 5-7 of Table 4-3.1.

Table 4-3.1
Mean Spending on Bike and Equipment in Past Two Years (Question 12),
Total and the Share Allocated to Trail Use, by Trailhead

Trailhead	Mean Total Spending Per Person In Past 2 Years	95% Lower Bound	95% Upper Bound	% Time Spent on Trails	Allocated Spending per Person per Year (1x4)/2	95% Lower Bound	95% Upper Bound
	1	2	3	4	5	6	7
Montour	\$173.78	\$129.57	\$217.98	54.3%	\$ 47.18	\$ 35.18	\$ 59.18
Boston	\$238.92	\$198.64	\$279.20	60.1%	\$ 71.80	\$ 59.69	\$ 83.90
W. Newton	\$263.24	\$215.27	\$311.20	64.8%	\$ 85.29	\$ 69.75	\$ 100.83
Connellsville	\$288.73	\$235.19	\$342.27	63.5%	\$ 91.67	\$ 74.67	\$ 108.67
Ohiopyle	\$198.68	\$166.30	\$231.07	42.9%	\$ 42.62	\$ 35.67	\$ 49.56
Confluence	\$242.04	\$167.73	\$316.34	51.3%	\$ 62.08	\$ 43.02	\$ 81.14
Rockwood	\$273.73	\$230.44	\$317.01	52.7%	\$ 72.13	\$ 60.72	\$ 83.53
Total	\$234.93	\$217.83	\$252.02	47.2%	\$ 55.44	\$ 51.41	\$ 59.48

In order to use these per person expenditure estimates to determine annual bike and equipment spending, we must convert the total number of persons visiting the trail system in 2002, 357,043, to the number of different INDIVIDUALS. That is why we asked for the number of trips to a trailhead (Question 9). Table 4-3.2, column 4, shows the estimated number of different individuals using the trails during the year. For the sample as a whole, excluding Montour, the average number of trips per person during the year was 6.8 (Figure 3-9.3). This implies a total of **51,342 individuals** using the trails in the year. A back-of-the-envelope estimate of total bike and equipment spending

allocable to the trail system is then \$2,138,207 in 2002. The 95% confidence range of this estimate is \$1,982,421 to \$2,293,608.

Table 4-3.2
Estimated Number of INDIVIDUALS
Making Visits in 2002, by Trailhead

Trail Counter Location	Total Use (# Visits) During Season	Trailhead Used for Spending Estimates	Number of Trips per Person	Estimated Number of Individuals Making Visits (1/3) 4
	1	2	3	4
Garrett	9121	Rockwood	4.0	2280
Rockwood	10551	Rockwood	4.0	2638
Confluence	9484	Confluence	2.9	3270
RamCat	27883	Ohiopyle	3.5	7967
RR Station	27566	Ohiopyle	3.5	7876
Fernclyff	58616	Ohiopyle	3.5	16747
Connellsville-S	51224	Connellsville	9.7	5281
Connellsville-N	39879	Connellsville	9.7	4111
Outback	8482	W.Newton	12.0	707
Buddtown	55083	W.Newton	12.0	4590
Greenock	49163	Boston	12.1	4063
Total	347053	All Combined	6.8	51342

A more accurate estimate can be obtained by taking account of differences across trailheads. Table 4-3.3 shows these estimates. The point estimate for total trail allocated bike and equipment spending is **\$3,551,135 for the season**, which is considerably larger than the back-of-the-envelope calculation. The 95% confidence interval ranges from **\$2,915,181 to \$4,187,120**.

Table 4-3.3
Estimated Total Bike and Equipment Spending, by Trailhead

Trail Counter Location	Trailhead Used for Spending Estimates	Estimated Number of Individuals Making Visits	Allocated Spending per Person per Year	95% Lower Bound	95% Upper Bound	Estimated Total Bike & Equipment Spending	95% Lower Bound	95% Upper Bound
	1	2	3	4	5	6	7	8
Garrett	Rockwood	2280	\$ 72.13	\$ 60.72	\$ 83.53	\$ 164,478	\$ 138,466	\$ 190,484
Rockwood	Rockwood	2638	\$ 72.13	\$ 60.72	\$ 83.53	\$ 190,249	\$ 160,161	\$ 220,329
Confluence	Confluence	3270	\$ 62.08	\$ 43.02	\$ 81.14	\$ 203,039	\$ 140,703	\$ 265,366
RamCat	Ohiopyle	7967	\$ 42.62	\$ 35.67	\$ 49.56	\$ 339,512	\$ 284,180	\$ 394,861
RR Station	Ohiopyle	7876	\$ 42.62	\$ 35.67	\$ 49.56	\$ 335,656	\$ 280,952	\$ 390,376
Fernciff	Ohiopyle	16747	\$ 42.62	\$ 35.67	\$ 49.56	\$ 713,719	\$ 597,400	\$ 830,074
Connellsville-S	Connellsville	5281	\$ 91.67	\$ 74.67	\$108.67	\$ 484,100	\$ 394,332	\$ 573,868
Connellsville-N	Connellsville	4111	\$ 91.67	\$ 74.67	\$108.67	\$ 376,886	\$ 306,999	\$ 446,773
Outback	W.Newton	707	\$ 85.29	\$ 69.75	\$100.83	\$ 60,284	\$ 49,299	\$ 71,268
Buddtown	W.Newton	4590	\$ 85.29	\$ 69.75	\$100.83	\$ 391,504	\$ 320,161	\$ 462,833
Greenock	Boston	4063	\$ 71.80	\$ 59.69	\$ 83.90	\$ 291,708	\$ 242,528	\$ 340,888
Total	All Combined	51342				\$3,551,135	\$2,915,181	\$4,187,120

4-4 Spending Summary

A summary of spending estimates for the trail from Boston to Garrett during the 2002 trail season is shown in Table 4-4.1. These are point estimates based on means of spending per person for small items, lodging and bike and equipment during the trail season of 2002. The estimated grand total is **\$7,262,939**. This estimate excluded Montour, as we did not have any trail count data from that section of the trail. The Ohiopyle area, which includes the counters at RamCat, RR Station and Ferncliff, account for nearly \$3.1 million, or one-third, of the total spending.

Table 4-4.1
Estimated Total Spending During the 2002
Trail Season, by Trail Counter Location

Trail Counter Location	Total Local Spending on Small Items 1	Total Lodging Spending 2	Total Bike & Equipment Spending (B&E) 3	Grand Total Spending 4	% of Total 5
Garrett	\$ 89,573	\$ 18,412	\$ 164,478	\$ 272,462	3.8%
Rockwood	\$ 103,607	\$ 21,296	\$ 190,249	\$ 315,153	4.3%
Confluence	\$ 148,144	\$ 47,865	\$ 203,039	\$ 399,048	5.5%
RamCat	\$ 318,146	\$ 90,810	\$ 339,512	\$ 748,468	10.3%
RR Station	\$ 314,533	\$ 89,778	\$ 335,656	\$ 739,967	10.2%
Ferncliff	\$ 668,805	\$ 190,900	\$ 713,719	\$ 1,573,424	21.7%
Connellsville-S	\$ 462,550	\$ 31,759	\$ 484,100	\$ 978,408	13.5%
Connellsville-N	\$ 360,109	\$ 24,725	\$ 376,886	\$ 761,721	10.5%
Outback	\$ 69,975	\$ 862	\$ 60,284	\$ 131,121	1.8%
Buddtown	\$ 454,438	\$ 5,596	\$ 391,504	\$ 851,539	11.7%
Greenock	\$ 199,109	\$ 811	\$ 291,708	\$ 491,628	6.8%
Total	\$ 3,188,990	\$ 522,814	\$ 3,551,135	\$ 7,262,939	100.0%

We have also established the 95% confidence intervals for these estimates. As Table 4-4.2 shows, we can be 95% confident that the total spending lies between **\$5,868,646 and \$8,656,950**.

These confidence intervals are based upon the uncertainties associated with the mean spending estimates. They are not based upon any consideration of the uncertainties associated with the trail counts. Although we have adjusted for the counting errors at individual counters, we still have no way of knowing whether one person gets counted at more than one counter. If this were true, all our estimates are over-estimates. On the other hand, it is unlikely that the distribution of counters is capable of counting all persons. We have no way of knowing, at this time, the extent to which these counting errors are offsetting.

Table 4-4.1
95% Confidence Intervals for Total Spending Estimates

Trail Counter Location	Local 95% Lower Bound	Local 95% Upper Bound	Lodging 95% Lower Bound	Lodging 95% Upper Bound	B & E 95% Lower Bound	B & E 95% Upper Bound	Grand 95% Lower Bound	Grand 95% Upper Bound
	1	2	3	4	5	6	7	8
Garrett	\$ 71,330	\$ 107,816	\$ 11,739	\$ 25,034	\$ 138,466	\$ 190,484	\$ 221,535	\$ 323,333
Rockwood	\$ 82,506	\$ 124,709	\$ 13,579	\$ 28,956	\$ 160,161	\$ 220,329	\$ 256,246	\$ 373,994
Confluence	\$ 105,749	\$ 190,444	\$ 18,876	\$ 76,855	\$ 140,703	\$ 265,366	\$ 265,328	\$ 532,665
RamCat	\$ 277,995	\$ 358,019	\$ 64,159	\$ 117,625	\$ 284,180	\$ 394,861	\$ 626,333	\$ 870,505
RR Station	\$ 274,837	\$ 353,953	\$ 63,430	\$ 116,289	\$ 280,952	\$ 390,376	\$ 619,219	\$ 860,618
Ferncliff	\$ 584,399	\$ 752,626	\$ 134,875	\$ 247,270	\$ 597,400	\$ 830,074	\$ 1,316,674	\$ 1,829,970
Connellsville-S	\$ 383,666	\$ 541,435	\$ 17,032	\$ 46,357	\$ 394,332	\$ 573,868	\$ 795,029	\$ 1,161,660
Connellsville-N	\$ 298,695	\$ 421,523	\$ 13,260	\$ 36,091	\$ 306,999	\$ 446,773	\$ 618,954	\$ 904,387
Outback	\$ 50,721	\$ 89,314	\$ 183	\$ 1,534	\$ 49,299	\$ 71,268	\$ 100,203	\$ 162,115
Buddtown	\$ 329,399	\$ 580,028	\$ 1,190	\$ 9,959	\$ 320,161	\$ 462,833	\$ 650,750	\$ 1,052,820
Greenock	\$ 155,846	\$ 242,373	\$ -	\$ 1,622	\$ 242,528	\$ 340,888	\$ 398,374	\$ 584,883
Total	\$ 2,615,143	\$ 3,762,238	\$ 338,322	\$ 707,592	\$ 2,915,181	\$ 4,187,120	\$ 5,868,646	\$ 8,656,950