

CALCULATOR 1

Air Pollution Removal Calculator: Philadelphia

Study Area Attributes

Acres: 10,334

Percent Cover: 54%

Externality Values: Dollars per short ton

CO: \$870

NO2: \$6,127

O3: \$6,127

PM10: \$4,091

SO2: \$1,500

Flux Values: Pounds per square foot of tree canopy

CO: 0.000070659

NO2: 0.0041227

O3: 0.000782587

PM10: 0.001129479

SO2: 0.000413214

Results: Pollutants

Pounds Removed/Year

CO: 17,175.8

NO2: 100,214.8

O3: 190,231.6

PM10: 274,554.3

SO2: 100,444.3

Total: 682,620.8

US Dollars/Year

CO: \$7,741

NO2: \$307,000

O3: \$582,774

PM10: \$561,600

SO2: \$75,333

Total: \$1,534,188

CALCULATOR 2 - Stormwater Runoff: Philadelphia

Climate Region: Piedmont

Percent of City Pervious (omitting parkland & water)

34.9%

Acres of Parkland	Acres	% of total
With Pervious Soil	8,396.8	81.3
With Impervious Surface	1,379.9	13.4
Under Water	557.4	5.9
Total	10,334.1	100

Vegetation Coverage

Vegetation Type	Open Grown		Forest		Total	
	Acres	% of Total Parkland	Acres	% of Total Parkland	Acres	% of Total Parkland
Broadleaf Deciduous	-	-	5,580.3	54.0	5,580.3	54.0
Broadleaf Evergreen	-	-	-	-	-	-
Conifer	-	-	-	-	-	-
Shrub	-	-	-	-	-	-
Grass	2,816.5	27.3	-	-	2,816.5	27.3
Total	2,816.5	27.3	5,580.3	54.0	8,396.8	81.3

Results for a Typical Weather Year

	Inches	Cubic Feet
Rainfall	43.29	1,623,928,386
Runoff with Parks	4.49	168,480,901
Runoff without Parks	17.71	664,198,620
Runoff Reduction due to Parks	13.21	495,717,719
Runoff Reduction Rate		75%
Dollars		
Cost of treating stormwater (\$ per cubic foot)		0.0120
Total savings due to park runoff reduction		\$5,948,613

CALCULATOR #3 - Property Value and Property Taxes

The Hedonic (Property) Value added by Parks: Philadelphia
FISCAL YEAR 2007

Total Assessed Value of Properties Within 500 Feet of a Park		\$4,387,574,062
The Contributing Value of an Average Park	5%	
Portion of the Value of These Properties Attributed to Parks		\$219,378,703
Additional Tax Based on Millage Rate (\$82.64 per \$1,000 assessed value)	0.08264	\$18,129,456
Incidentally, the "real" value of properties within 500 Feet of "Average Parks" is the assessed value multiplied by a correction factor of	314%	\$13,776,982,555
Portion of this "real" value that is attributable to Parks	5%	\$688,849,128

MARCH 20, 2008

CALCULATOR #4 - Direct Use

Direct Use Value Estimator, by Type of Activity: Philadelphia, 2007

	PERSON-VISITS (YOUTH)	VALUE / PERSON-VISIT (YOUTH)	TOTAL VALUE (YOUTH)	PERSON-VISITS (ADULT)	VALUE / PERSON-VISIT (ADULT)	TOTAL VALUE (ADULT)	TOTAL VALUE (YOUTH + ADULT)	COST / PERSON-VISIT	VALUE MINUS COST	TOTAL ADJUSTED VALUE
General Park Use										
Playgrounds or Tots Lots	22,338,336	\$2.81	\$62,728,637	28,651,344	\$2.87	\$82,194,555	\$144,923,192	\$0.00	\$2.87	\$144,923,192
Picnicking or Bench-Sitting	11,897,592	\$2.49	\$29,622,576	33,993,120	\$2.52	\$85,670,756	\$115,293,332	\$0.00	\$2.52	\$115,293,332
Walking on Trails	10,521,680	\$1.65	\$17,314,234	53,114,250	\$1.47	\$78,000,047	\$95,314,280	\$0.00	\$1.47	\$95,314,280
Walking Dog in Park	7,081,900	\$1.26	\$8,945,451	22,257,400	\$1.32	\$29,373,698	\$38,319,149	\$0.00	\$1.32	\$38,319,149
Birdwatching/Nature	13,556,780	\$2.05	\$27,842,996	46,335,860	\$1.95	\$90,165,739	\$118,008,735	\$0.00	\$1.95	\$118,008,735
General Use Subtotal							\$511,858,689			\$511,858,689
Outdoor Sports Facilities (per individual use)										
Tennis	1,618,720	\$2.43	\$3,930,252	3,642,120	\$3.41	\$12,409,917	\$16,340,169	\$0.00	\$3.41	\$16,340,169
Team Sports	22,176,464	\$2.23	\$49,532,832	13,192,568	\$2.40	\$31,605,508	\$81,138,340	\$1.50	\$0.90	\$31,680,237
Bicycling on Trails	15,377,840	\$2.95	\$45,385,671	20,234,000	\$3.16	\$63,951,580	\$109,337,252	\$0.00	\$3.16	\$109,337,252
Swimming	10,440,744	\$3.05	\$31,815,942	13,678,184	\$3.22	\$44,085,839	\$75,901,781	\$0.00	\$3.22	\$75,901,781
Sledding or Tobogganing	3,884,928	\$3.09	\$12,018,996	4,289,608	\$3.07	\$13,152,100	\$25,171,096	\$0.00	\$3.07	\$25,171,096
Running on Park Trails	3,803,992	\$3.24	\$12,311,175	20,314,936	\$3.25	\$65,939,369	\$78,250,544	\$0.00	\$3.25	\$78,250,544
Ice Skating on Park Rinks	2,428,080	\$4.16	\$10,100,813	3,803,992	\$4.16	\$15,814,894	\$25,915,707	\$2.00	\$2.16	\$13,445,364
Rollerblading in Park	3,884,928	\$3.42	\$13,293,738	1,456,848	\$2.96	\$4,309,842	\$17,603,580	\$0.00	\$2.96	\$17,603,580
Skateboarding in Park	4,127,736	\$2.88	\$11,905,686	404,680	\$3.55	\$1,436,614	\$13,342,300	\$0.00	\$3.55	\$13,342,300
Horseback Riding	161,872	\$8.00	\$1,294,976	404,680	\$8.40	\$3,399,312	\$4,694,288	\$0.00	\$8.40	\$4,694,288
Boating	647,488	\$3.74	\$2,419,379	2,670,888	\$4.33	\$11,567,171	\$13,986,550	\$0.00	\$4.33	\$13,986,550
Fishing	1,133,104	\$4.96	\$5,619,791	5,827,392	\$4.31	\$25,101,491	\$30,721,282	\$0.00	\$4.31	\$30,721,282
Sports Subtotal							\$492,402,888			\$430,474,442
Special Uses										
Flower Gardens	144,167	\$10.00	\$1,441,673	897,884	\$10.00	\$8,978,838	\$10,420,510	\$0.00	\$0.00	\$10,420,510
Golf Courses	404,680	\$17.60	\$7,122,368	2,994,632	\$18.16	\$54,388,992	\$61,511,360	\$14.75	\$3.41	\$11,599,004
Community Gardening	647,488	\$3.19	\$2,063,868	5,989,264	\$3.08	\$18,454,217	\$20,518,085	\$0.42	\$2.66	\$17,661,832
Festival or Performance	657,605	\$28.02	\$18,425,586	2,344,615	\$28.55	\$66,949,248	\$85,374,834	\$5.00	\$23.55	\$70,715,715
Visiting Historic Sites	657,605	\$3.16	\$2,076,514	2,091,690	\$3.13	\$6,557,081	\$8,633,595	\$0.00	\$0.00	\$8,633,595
Visiting Arts & Crafts Fairs	584,257	\$5.48	\$3,200,766	2,149,863	\$5.46	\$11,738,882	\$14,939,647	\$0.00	\$0.00	\$14,939,647
Special Use Subtotal							\$201,398,031			\$133,970,304
TOTAL							\$1,205,659,608			\$1,076,303,434

CALCULATOR #5 - Health

Physical Activity Health Benefits Calculator: Philadelphia

Cost Description	Amount
Average annual medical care cost difference between active and inactive persons, under 65 yrs. of age	\$250
Number of adults under 65 years of age who are physically active in the park	245,376
Subtotal of health care benefits for adults under 65 years of age	\$61,344,000
Average annual medical care cost difference between active and inactive persons over 65 years of age	\$500
Number of adults 65 and older physically active in the park	10,045
Subtotal of health care benefits for adults 65 years of age and older	\$5,022,500
Subtotals combined	\$66,366,500
Regional multiplier	1.046
Total annual value of health benefits from physical activity in the park	\$69,419,359

Calculations based on persons engaging in moderate, vigorous, or strenuous activity at least 3 days per week

CALCULATOR #6 - Tourism

Spending by Tourists Who Came to the Parks of Philadelphia in 2006

I. Overnight Visitors

1. Number of overnight tourists to the 5-county Philadelphia Region		12,650,000
2. Number of overnight visitors to city of Philadelphia (one-third of regional tourists) [33% of line 1]	0.33**	4,174,500
3. Number of overnight visitors to Philadelphia who visited parks [41% of line 2]	0.41*	1,711,545
4. Overnight Visitors who visited parks and came because of parks [20% of line 3]	0.20**	342,309
5. Spending by 2 persons for 2 nights		\$881
6. Spending per person per night [25% of line 5]	0.25	\$220
7. Spending of overnight visitors who visited parks and came because of parks [line 6 times line 4]		\$75,393,557

II. Day Visitors

8. Number of day tourists to the 5-county Philadelphia Region		14,650,000
9. Number of day tourists to city of Philadelphia (one-third of regional tourists) [33% of line 8]	0.33**	4,834,500
10. Number of day tourists to Philadelphia who visited parks [41% of line 9]	0.41*	1,982,145
11. Day visitors who visited parks and came because of parks [20% of line 10]	0.20**	369,429
12. Spending per day visitor		\$100
13. Spending of day visitors who visited parks and came because of parks [line 10 times line 12]		\$39,642,900
14. Total (Overnight plus Day)		\$115,036,457
15. Tax payments by visitors who visited parks and came because of parks (average tax rate of 4.5 percent)		\$5,176,641
16. Collective profit to the citizens of Philadelphia from park visitors who came because of parks [35% of total sales]		\$40,262,760

* Numbers are taken from Convention and Visitors Bureau data

** Numbers are based on surveys, or best guesses

CALCULATOR #7 - Community Cohesion

Organization or Activity	VOLUNTEER HOURS	TOTAL VALUE OF VOLUNTEER HOURS*	FINANCIAL CONTRIBUTIONS	TOTAL
Callowhill Neighborhood Assoc.	250	\$4,693	\$0	\$4,693
Fairmount Park Volunteers as well as 54 Friends Groups (see sheet 2) ¹	154,209	\$2,894,503	\$3,318,713	\$6,213,216
Independence National Historical Park ²	10,390	\$195,017	\$0	\$195,017
Neighborhood Gardens Assoc. ³			\$257,961	\$257,961
Northern Liberties Neighborhood Assoc.			\$10,000	\$10,000
Pennsylvania Horticultural Society, as well as 52 local Friends Groups ⁴	65,052	\$1,221,026	\$694,680	\$1,915,706
Valley Forge Audubon Society (within city of Philadelphia)	152	\$2,853	\$0	\$2,853
Washington Square Committee of Society Hill Civic Assoc.	50	\$939	\$0	\$939
Totals		\$4,319,030	\$4,281,354	\$8,600,383

*Value of one hour of volunteer labor as determined by Independent Sector, 2005 \$18.77

1 Data source: Fairmount Park Commission; Friends Group List on p. 2.

2 Includes interpretive docents, volunteers in cultural resources, and volunteers in living history center.

3 From 2006 tax form 990.

4 includes \$155,269 from Friends groups and \$539,411 from Philadelphia Green