

Calculator 1.

## **Air Pollution Removal for Wilmington**

### Study Area Attributes

Park Acres: 443.6

Park Percent Tree Cover: 58.5%

### Externality Values Used for Pollutants (dollars per ton)

CO: \$870

NO2: \$6,127

O3: \$6,127

PM10: \$4,091

SO2: \$1,500

### Flux Values (pounds of pollutant per square foot of tree canopy)

CO: 0.000038929

NO2: 0.000051222

O3: 0.000719154

PM10: 0.000442556

SO2: 0.000184398

### Results (pounds of Pollutants Removed per Year)

CO: 440.1

NO2: 579.0

O3: 8,129.4

PM10: 5,002.7

SO2: 2,084.5

*Total:* 16,235.6

### Dollar Value of Pollutants Removed (per Year)

CO: \$191.42

NO2: \$1,773.82

O3: \$24,904.34

PM10: \$10,233.00

SO2: \$1,563.34

**Total: \$38,665.93**

Calculator 2.

## Stormwater Runoff Reduction for Wilmington

Climate Region: Piedmont

Percent of City Perviousness (omitting parkland & water): **38.8%**

### Percent of Parkland Perviousness

	<u>Acres of Parkland</u>	<u>% of total</u>
With Pervious Soil	384.2	86.6
With Impervious Surface	56.7	12.8
Under Water	2.7	0.6
<b>Total</b>	<b>10,334.1</b>	<b>100.0</b>

### Vegetation Coverage

<u>Vegetation Type</u>	<u>Open Grown</u>		<u>Forest</u>		<u>Total</u>	
	<u>Acres</u>	<u>% of Total Parkland</u>	<u>Acres</u>	<u>% of Total Parkland</u>	<u>Acres</u>	<u>% of Total Parkland</u>
Trees			259.4	58.5	259.4	58.5
Grass	124.8	28.1			124.8	28.1
Total	124.8	28.1	259.4	58.5	384.2	86.6

### Results for a Typical Weather Year

	<u>Inches</u>	<u>Cubic Feet</u>
Rainfall	41.36	66,600,684
Runoff with Parks	7.44	11,975,863
Runoff without Parks	18.52	29,828,289
Runoff Reduction due to Parks	11.09	17,852,426
Runoff Reduction Rate		60%

Cost of treating storm water (dollars per cubic foot) \$0.0229

**Total savings due to park runoff reduction: \$408,642**

Calculator 3.

## The Hedonic (Property) Value added by Parks -- Wilmington

*Fiscal Year 2008*

<i>Line</i>			
	<b>1. Property Tax</b>		
1	Number of Properties Within 500 Feet of a Park	10,822	
2	Total Assessed Value of Properties Within 500 Feet of a Park		<b>\$515,421,200</b>
3	<b>Portion of the Value of These Properties Attributed to Parks (15%)</b>	0.15	<b>\$77,313,180</b>
4	<b>Additional Tax Based on Millage Rate (\$1.397 per \$100 assessed value)</b>	0.01397	<b>\$1,080,065</b>
	<b>2. Personal Wealth to Sellers</b>		
5	Now, let's go back to the value of properties within 500 Feet parks ( <i>line 2</i> ), multiplied by the 3.79 correction factor	3.79	<b>\$1,953,446,348</b>
6	<b>Portion of this value that is attributable to Parks (15%)</b>	0.15	<b>\$293,016,952</b>
7	<b>Portion of this value that was realized in 2008 based on sales of dwelling units (3.5%)</b>	0.035	<b>\$10,255,593</b>
	<b>3. Transfer Tax</b>		
8	Total value of park-proximate dwelling units sold in 2008 ( <i>from line 7</i> )		<b>\$10,255,593</b>
9	<b>Portion of state transfer tax that goes to the city of Wilmington (1.5%)</b>	0.015	<b>\$153,834</b>
10	<b>Total Tax Receipts (lines 4+9)</b>		<b>\$1,233,899</b>

Calculator 4.

## Park Direct Use Value -- Wilmington

By Type of Use/Activity, 2008

Facility/Activity	Use Measure	Use Measure	Value Per Unit of Use	Total Adjusted Value		
Common Activities	Annual Person-Visits (Children)	Annual Person-Visits (Adults)	Value Per Visit	Cost per Visit	Net Value per Visit	Total Value [Person-Visits * Value per Visit]
Visiting Playgrounds or Tot Lots	758,835	1,187,139	\$2.85	\$0.00	\$2.85	\$5,548,899
Picnicking or Bench-Sitting	332,640	1,033,477	\$2.62	\$0.00	\$2.62	\$3,580,637
Walking on Trails	409,500	1,803,665	\$1.63	\$0.00	\$1.63	\$3,598,810
Walking Dog in Park	417,375	2,015,335	\$1.20	\$0.00	\$1.20	\$2,915,081
Birdwatching/Nature	636,300	2,030,837	\$2.04	\$0.00	\$2.04	\$5,429,675
Community Gardening	40,320	370,699	\$3.03	\$0.00	\$3.03	\$1,246,657
Using Exercise Equipment	432,180	739,354	\$2.64	\$0.00	\$2.64	\$3,097,815
Running on Park Trails	234,360	1,032,795	\$3.14	\$0.00	\$3.14	\$3,975,418
Playing Tennis	63,000	169,506	\$3.70	\$5.00	-\$1.30	\$0
Watching Team Sports	430,920	609,882	\$2.65	\$0.00	\$2.65	\$2,754,926
Playing Team Sports	609,840	329,132	\$2.45	\$1.56	\$0.89	\$835,004
Bicycling on Trails	516,600	414,992	\$3.34	\$0.00	\$3.34	\$3,110,141
Swimming	212,940	188,075	\$3.07	\$0.00	\$3.07	\$1,230,071
Rollerblading in Parks	71,820	63,373	\$3.32	\$0.00	\$3.32	\$449,190
Skateboarding in Parks	147,420	43,612	\$2.97	\$0.00	\$2.97	\$567,364
<b>Subtotal, Common Activities</b>	<b>5,314,050</b>	<b>12,031,872</b>			<b>\$3.19</b>	<b>\$38,339,689</b>
Other Activities	Annual Person-Visits (Children)	Annual Person-Visits (Adults)	Value Per Visit	Cost per Visit	Net Value per Visit	Total Value [Person-Visits * Value per Visit]
Fishing	7,560	27,342	\$4.25	\$0.00	\$4.25	\$148,221
Visiting Flower Gardens	8,348	35,179	\$10.00	\$0.00	\$10.00	\$435,264
Sledding or Tobogganing	11,025	9,966	\$2.44	\$0.00	\$2.44	\$51,132
Ice Skating on Park Rinks	5,513	6,474	\$2.97	\$0.00	\$2.97	\$35,580
Attending Festival or Performance	22,365	61,755	\$30.37	\$0.00	\$30.37	\$2,554,340
Visiting Historic Sites	14,805	39,097	\$3.33	\$0.00	\$3.33	\$179,586
Visiting Arts & Craft Fairs	11,025	54,344	\$5.93	\$5.00	\$0.93	\$60,733
Visiting Brandywine Zoo	31,185	46,337	\$3.40	\$4.50	-\$1.10	\$0
<b>Subtotal, Other Activities</b>	<b>111,825</b>	<b>280,494</b>			<b>\$12.35</b>	<b>\$3,464,856</b>
<b>Grand Total</b>						<b>\$41,804,545</b>

Calculator 5.

<b>Physical Activity Health Benefits</b>	
Wilmington, Delaware, 2008	
<b><u>Cost Description</u></b>	<b><u>Amount</u></b>
Average annual medical care cost difference between active and inactive persons, under 65 yrs. of age	\$250
<i>Number of adults under 65 years of age who are physically active in the park</i>	13,996
Subtotal of health care benefits for adults under 65 years of age	\$3,499,025
Average annual medical care cost difference between active and inactive persons over 65 years of age	\$500
<i>Number of adults 65 and older who physically active in the park</i>	1,502
Subtotal of health care benefits for adults 65 years of age and older	\$751,127
Subtotals combined	\$4,250,152
<i>Regional multiplier</i>	1.017
<b><i>Total annual value of health benefits from physical activity in the park</i></b>	<b>\$4,322,405</b>

Calculations based on persons engaging in moderate or vigorous activity as defined by CDC Guidelines for Physical Activity: <http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.html>.

Calculator 6.

## Spending by Tourists Who Came to the Parks of Wilmington, 2006

Line			
<b>I. Overnight Visitors Who Stay in Hotels</b>			
1	Number of visitors to New Castle County who stayed overnight (37% of total visitorship)		814,000
2	Number who visited parks [6% of line 1]	0.06	48,840
3	Overnight visitors who visited parks and came <i>because</i> of parks [20% of line 2]	0.20	9,768
4	<b>Overnight visitors who visited parks, came because of parks and stayed in a hotel [55% of line 3]</b>	0.55	<b>5,372</b>
5	Average hotel spending for those staying in hotels		\$181
6	Hotel spending per person, based on an average group size of 1.9 [line 5 divided by 1.9]	0.53	\$96
7	True hotel spending, considering the average trip length of 1.4 days	1.40	\$134
8	Daytime spending of hotel visitors (in addition to hotel spending)		\$50
9	<b>Spending of overnight visitors who visited parks, came because of parks and stayed at hotels [(line 4) * (line 7 + 8)]</b>		<b>\$990,144</b>
<b>II. Overnight Visitors Who Stay with Friends</b>			
10	Number of visitors to New Castle County who stayed overnight (37% of total)		814,000
11	Number who visited parks [6% of line 1]	0.06	48,840
12	Overnight visitors who visited parks and came <i>because</i> of parks [20% of line 2]	0.20	9,768
13	<b>Overnight visitors who visited parks, came because of parks and stayed in a friend's house [45% of line 12]</b>	0.45	<b>4,396</b>
14	Daytime spending of visitors staying with friends		\$50
15	<b>Spending of overnight visitors who visited parks, came because of parks and stayed with friends [line 14 times line 13]</b>		<b>\$219,780</b>
<b>III. Day Visitors</b>			
16	Number of visitors to New Castle County who came only for the day (63% of total)		1,386,000
17	Number of day visitors to New Castle County who visited parks [6% of line 16]	0.06	83,160
18	<b>Day visitors who visited parks and came <i>because</i> of parks [20% of line 17]</b>	0.20	<b>16,632</b>
19	Spending per day visitor		\$50

20	Spending of day visitors who visited parks and came because of parks [line 19 times line 18]		\$831,600
	<b>Total Spending by Park Visitors</b>		
14	Total spending, overnight plus day [lines 9+15+20]		\$2,041,524
	<b>Tax Receipts</b>		
15	Tax payments by overnight visitors who stayed in hotels and who visited parks and came because of parks (average tax rate of 13 percent for hotel)	0.13	\$128,719
16	Tax payments by overnight visitors who stayed in homes and who visited parks and came because of parks -- 0%	0.00	\$0
17	Tax payments by day visitors who visited parks and came because of parks -- 0%	0.00	\$0
	<b>Total Tax Receipts</b>		<b>\$128,719</b>
	<b>Profit to Citizenry</b>		
18	Collective profit to the citizens of Wilmington from park visitors who came because of parks [35% of total sales]	0.35	\$714,533
	<i>Data source: 2007 Visitor Profile Study New Castle County</i>		
	<i>Data source: Delaware Travel Barometer 2006</i>		
	<i>Red numbers are based on surveys or best guesses</i>		

Calculator 7.

**Organizations Whose Volunteers Donated Time and Funds to Wilmington's Parks**

1980 Superfine Lane Condo Association
4-H Afterschool program of Shue-Medill School
American Automobile Association (AAA)
ACE INA Foundation
AIDS Delaware
All Seasons Landscaping Co, Inc
American Tennis Association
Astra Zeneca
Bank of America
Barclay's
Bartlett's Tree Experts
Bayard Square Neighborhood Association
Best Buy
Bethel Girl Scouts
Boy Scout Troop #285
Boys and Girls Clubs of Delaware
Citizens Bank
Citizens Charitable Foundation
Conley Ward's Steakhouse
Delaware Baptist Association
Delaware Center for Horticulture
Delaware Climbing Coalition
Delaware Department of Corrections
Delaware Financial Literacy Institute
Delaware Greenways
Delaware State Parks Partners (AmeriCorps)
Delaware Zoological Society
Delmarva Power
DiSabatino Landscaping and Tree Service, Inc.
Downtown Visions
Eastern Mountain Sports
Eastside Charter School
Environmental Protection Agency, Region III
Erthnxt
Evan G. Shortlidge Academy
Fifth District Neighborhood Planning Council
First State Community Loan Fund
Friends of Cool Spring & Tilton Parks
Friends of Brown-Burton-Winchester Park
Friends of Canby Park
Friends of Kosciuszko Park



Friends of Wilmington Parks
Girl Scout Troop 85
Girl Scout Troop 716
Greater Brandywine Village Revitalization
Hedgeville Community Association
Henrietta Johnson Medical Center
Hockessin Baptist Church
Hope Commission
Howard High School Interact Club
IBM Corporation
IM Learning Program
ING Direct
Irwin Landscaping, Inc.
Kerns Brothers Tree Service
Laffey-McHugh Foundation
Latin American Community Center
MAP Industries, Inc.
Merrill Lynch & Company
Molly's Old Fashioned Ice Cream & Deli
Morgan Stanley
Neighborhood House
Nemours Health and Prevention Services
New Castle Conservation District
Operation Clean Sweep
Patterson Schwartz Real Estate
Prestige Academy
Project Stay Free
Public Allies Delaware
Richards, Layton, & Finger
Riverfront Development Corporation
Rodney Robinson Landscape Architects
Rotary Club of Wilmington, Growing Neighborhoods Project
Ruppert Nurseries
Sabion Sound
Second District Blueprint Team
Second District Neighborhood Planning Council
Sir Speedy
Sixth District Neighborhood Planning Council
Small Business Administration
Southbridge Civic Association
Staples Foundation (Dream Park Challenge)
Thomas A. Edison Charter School
Triangle Neighborhood Association
University of Delaware
University of Delaware Health Promotion Program
University of Delaware InterVarsity Group
Urban Promise Wilmington
West Center City Neighborhood Planning Advisory Committee, Inc.

Westside Family Healthcare
Wilmington Beautification Commission
Wilmington Flower Market, Inc.
Wilmington Renaissance Corporation
Wilmington Talented Youth
Wilmington Trust Company
Winner Automotive Group
Winterthur Garden and Country Estate
Woodlawn Trustees

	<b>Volunteer Hours</b>	<b>Value of a Volunteer Hour: \$21.56*</b>	<b>Financial Contributions</b>	<b>Total Value</b>
<b>City and State Park Volunteers</b>	6,320	\$136,259		\$136,259
<b>"Friends of Parks" Groups</b>	22,546	\$486,081	\$435,352	\$921,433
<b>TOTAL</b>	<b>28,866</b>	<b>\$622,340</b>	<b>\$435,352</b>	<b>\$1,057,692</b>

\*Source: Independent Sector for 2007.