Appendix E

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATEWIDE MS4 LAND COVER ESTIMATES

The Pennsylvania Department of Environmental Protection (DEP) has developed this table of impervious and pervious land cover percentages within and outside of urbanized areas (UAs) to assist municipal MS4 permittees and applicants in developing estimates of existing pollutant loading for Pollutant Reduction Plans (PRPs) and TMDL Plans. DEP does not require that the data in this table be utilized and offers it only as a possible resource to MS4s. An MS4 may determine based on its own analysis that different percentages of impervious and pervious surfaces exist within the municipality. In addition, this table was developed without consideration to whether a PRP and/or TMDL Plan must be developed by an MS4; the MS4 Requirements Table identifies DEP's expectations for development of a PRP and/or TMDL Plan. In other words, the presence of a municipality in this table does not mean a PRP and/or TMDL Plan must be developed.

For those MS4s that do need to develop a plan, this table may be used to streamline the existing pollutant loading calculation. After determining the planning area (i.e., the storm sewershed(s) that drain to the Chesapeake Bay and/or locally impaired waters), DEP's simplified method of calculating existing pollutant loads as described in its PRP Instructions document calls for the determination of the percentages of impervious and pervious land cover within the planning area. The planning area will consist of the UA (or a portion thereof) and may include areas outside of the UA (if stormwater drains into the MS4 from outside the UA).

An example of how this table can be used is as follows:

Abbottstown Boro determines that its planning area for a Chesapeake Bay PRP is 500 acres. This includes all of the UA (321 acres) as well as 179 acres that drain into the MS4 from outside the UA. Abbottstown would like to determine its existing load of sediment (prior to any consideration of existing structural BMPs). Using Attachment B of DEP's PRP Instructions for sediment loading rates, Abbottstown calculates the following existing load:

321 acres UA x 0.3 (30% UA Impervious from table below) x 1,398.77 lbs/acre/yr =	134,702 lbs/yr
321 acres UA x 0.7 (70% UA Pervious from table below) x 207.67 lbs/acre/yr =	46,663 lbs/yr
179 acres outside UA x 0.28 (28% Outside UA Impervious from table below) x 1,398.77 lbs/acre/yr =	70,106 lbs/yr*
179 acres outside UA x 0.72 (72% Outside UA Pervious from table below) x 207.67 lbs/acre/yr =	26,765 lbs/yr*
Total:	278,236 lbs/yr

* MS4s may also elect to use loading rates for undeveloped land presented in Attachment B of DEP's PRP Instructions for areas outside of the UA.

The column for "UA Acres" in the table may or may not be useful in this calculation. If only a portion of the UA is part of the planning area, the MS4 will need to determine the applicable area using different methods.

DEP developed this table using the following methods:

Cartographic Boundary Shapefiles - Urban Areas 2010 were overlain on NLCD 2011 Land Cover (2011 Edition, amended 2014) - National Geospatial Data Asset (NGDA) Land Use/Land Cover data in order to calculate the percentages in the table. The High, Medium and Low Density Residential and mixed land uses were parsed to account for pervious and impervious surfaces within each land use classification. High Density is considered 87% impervious, Medium Density is 52% impervious, and Low Density is 15% impervious. This analysis was performed for entire municipalities but broken out into areas within the UA and outside of the UA.

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Adams	ABBOTTSTOWN BORO	30%	70%	28%	72%	321.0
Montgomery	ABINGTON TWP	42%	58%	42%	58%	9,922.4
Butler	ADAMS TWP	13%	87%	7%	93%	6,222.3
Cambria	ADAMS TWP	36%	64%	3%	97%	77.4
Westmoreland	ADAMSBURG BORO	27%	73%	18%	82%	103.5
Lancaster	ADAMSTOWN BORO	24%	76%	20%	80%	686.1
Lancaster	AKRON BORO	43%	57%	43%	57%	790.8
Lehigh	ALBURTIS BORO	32%	68%	32%	68%	445.4
Delaware	ALDAN BORO	56%	44%	56%	44%	386.6
Allegheny	ALEPPO TWP	10%	90%	14%	86%	845.5
Beaver	ALIQUIPPA CITY	43%	57%	43%	57%	2,839.0
Blair	ALLEGHENY TWP	36%	64%	11%	89%	3,731.3
Westmoreland	ALLEGHENY TWP	12%	88%	5%	95%	3,894.1
Northampton	ALLEN TWP	12%	88%	8%	92%	2,027.7
Washington	ALLENPORT BORO	31%	69%	8%	92%	279.7
Berks	ALSACE TWP	13%	87%	6%	94%	1,282.6
Blair	ALTOONA CITY	64%	36%	63%	37%	6,196.7
Montgomery	AMBLER BORO	71%	29%	71%	29%	545.2
Beaver	AMBRIDGE BORO	58%	42%	58%	42%	1,113.2
Berks	AMITY TWP	21%	79%	12%	88%	4,870.4
Washington	AMWELL TWP	20%	80%	3%	97%	105.4
Lebanon	ANNVILLE TWP	34%	66%	34%	66%	979.9
Blair	ANTIS TWP	22%	78%	4%	96%	1,830.5
Franklin	ANTRIM TWP	20%	80%	7%	93%	4,366.4
Armstrong	APOLLO BORO	48%	52%	44%	56%	206.7
Lackawanna	ARCHBALD BORO	41%	59%	11%	89%	1,626.5
Westmoreland	ARNOLD CITY	63%	37%	63%	37%	519.6
Westmoreland	ARONA BORO	14%	86%	15%	85%	286.8
Luzerne	ASHLEY BORO	33%	67%	33%	67%	591.6
Allegheny	ASPINWALL BORO	67%	33%	66%	34%	244.8
Delaware	ASTON TWP	34%	66%	34%	66%	3,735.0
Chester	ATGLEN BORO	26%	74%	21%	79%	359.0
Allegheny	AVALON BORO	47%	53%	47%	53%	436.4
Luzerne	AVOCA BORO	40%	60%	40%	60%	660.7
Chester	AVONDALE BORO	35%	65%	35%	65%	309.0
Beaver	BADEN BORO	25%	75%	25%	75%	1,582.5
Allegheny	BALDWIN BORO	37%	63%	37%	63%	3,764.3
Allegheny	BALDWIN TWP	46%	54%	47%	53%	318.3
Berks	BALLY BORO	49%	51%	48%	52%	330.0
Northampton	BANGOR BORO	37%	63%	37%	63%	979.0
Carbon	BANKS TWP	10%	90%	3%	97%	667.8
Lycoming	BASTRESS TWP	9%	91%	1%	99%	2.4
Northampton	BATH BORO	17%	83%	17%	83%	581.4
Luzerne	BEAR CREEK TWP	2%	98%	2%	98%	44,163.5
Beaver	BEAVER BORO	47%	53%	48%	52%	687.3
Beaver	BEAVER FALLS CITY	46%	54%	43%	57%	1,391.4
Carbon	BEAVER MEADOWS BORO	34%	66%	30%	70%	157.4
Berks	BECHTELSVILLE BORO	26%	74%	26%	74%	321.2
Bucks	BEDMINSTER TWP	13%	87%	6%	94%	1,444.9
Allegheny	BELL ACRES BORO	62%	38%	7%	93%	52.0
Fayette	BELLE VERNON BORO	34%	66%	36%	64%	223.1
Allegheny	BELLEVUE BORO	45%	55%	45%	55%	718.1

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Blair	BELLWOOD BORO	52%	48%	51%	49%	284.6
Allegheny	BEN AVON BORO	42%	58%	42%	58%	284.6
Allegheny	BEN AVON HEIGHTS BORO	14%	86%	15%	85%	110.3
Centre	BENNER TWP	15%	85%	6%	94%	726.6
Bucks	BENSALEM TWP	39%	61%	39%	61%	13,306.6
Washington	BENTLEYVILLE BORO	34%	66%	16%	84%	712.2
Berks	BERN TWP	27%	73%	10%	90%	2,692.3
Adams	BERWICK TWP	15%	85%	7%	93%	372.0
Columbia	BERWICK BORO	51%	49%	51%	49%	1,953.5
Delaware	BETHEL TWP	20%	80%	21%	79%	3,442.6
Allegheny	BETHEL PARK BORO	40%	60%	40%	60%	7,489.0
Northampton	BETHLEHEM CITY	40%	60%	39%	61%	12,356.2
Northampton	BETHLEHEM TWP	34%	66%	30%	70%	7,782.1
Beaver	BIG BEAVER BORO	32%	68%	7%	93%	287.0
Berks	BIRDSBORO BORO	48%	52%	47%	53%	853.3
Chester	BIRMINGHAM TWP	25%	75%	20%	80%	2,732.6
Blair	BLAIR TWP	35%	65%	11%	89%	1,330.7
Lackawanna	BLAKELY BORO	39%	61%	26%	74%	1,525.2
Allegheny	BLAWNOX BORO	43%	57%	44%	56%	283.1
Columbia	BLOOMSBURG TOWN	32%	68%	31%	69%	2,867.3
Carbon	BOWMANSTOWN BORO	40%	60%	26%	74%	274.1
Berks	BOYERTOWN BORO	63%	37%	63%	37%	495.9
Allegheny	BRACKENRIDGE BORO	59%	41%	59%	41%	359.8
Allegheny	BRADDOCK BORO	41%	59%	42%	58%	408.1
Allegheny	BRADDOCK HILLS BORO	27%	73%	28%	72%	626.5
Allegheny	BRADFORD WOODS BORO	14%	86%	14%	86%	588.0
Berks	BRECKNOCK TWP	10%	90%	5%	95%	1,651.6
Lancaster	BRECKNOCK TWP	16%	84%	7%	93%	3,035.7
Allegheny	BRENTWOOD BORO	45%	55%	45%	55%	927.2
Columbia	BRIAR CREEK BORO	27%	73%	19%	81%	408.3
Columbia	BRIAR CREEK TWP	28%	72%	6%	94%	853.8
Montgomery	BRIDGEPORT BORO	70%	30%	69%	31%	457.4
Allegheny	BRIDGEVILLE BORO	50%	50%	50%	50%	703.7
Beaver	BRIDGEWATER BORO	34%	66%	34%	66%	466.7
Beaver	BRIGHTON TWP	15%	85%	9%	91%	4,235.6
Bucks	BRISTOL BORO	45%	55%	45%	55%	1,186.7
Bucks	BRISTOL TWP	39%	61%	40%	60%	10,948.7
Delaware	BROOKHAVEN BORO	47%	53%	47%	53%	1,088.5
Cambria	BROWNSTOWN BORO	36%	64%	36%	64%	149.6
Fayette	BROWNSVILLE BORO	31%	69%	30%	70%	674.9
Fayette	BROWNSVILLE TWP	28%	72%	9%	91%	190.4
Montgomery	BRYN ATHYN BORO	13%	87%	12%	88%	1,236.5
Bucks	BUCKINGHAM TWP	21%	79%	14%	86%	9,780.6
Butler	BUFFALO TWP	11%	89%	5%	95%	2,998.6
Fayette	BULLSKIN TWP	18%	82%	4%	96%	1,540.3
Northampton	BUSHKILL TWP	10%	90%	7%	93%	6,567.9
Adams	BUTLER TWP	41%	59%	3%	97%	44.9
Butler	BUTLER CITY	50%	50%	50%	50%	1,725.8
Luzerne	BUTLER TWP	10%	90%	6%	94%	6,875.7
Lancaster	CAERNARVON TWP	30%	70%	3%	97%	48.3
Washington	CALIFORNIA BORO	34%	66%	11%	89%	1,166.9
Butler	CALLERY BORO	14%	86%	11%	89%	229.2

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Chester	CALN TWP	32%	68%	32%	68%	5,723.4
Cumberland	CAMP HILL BORO	53%	47%	53%	47%	1,343.8
Wayne	CANAAN TWP	3%	97%	3%	97%	12,386.0
Washington	CANONSBURG BORO	52%	48%	52%	48%	1,443.9
Washington	CANTON TWP	18%	82%	12%	88%	5,809.8
Lackawanna	CARBONDALE CITY	36%	64%	36%	64%	2,028.9
Lackawanna	CARBONDALE TWP	29%	71%	4%	96%	522.3
Cumberland	CARLISLE BORO	54%	46%	53%	47%	3,398.9
Allegheny	CARNEGIE BORO	57%	43%	57%	43%	1,038.8
Washington	CARROLL TWP	14%	86%	12%	88%	5,254.8
York	CARROLL TWP	15%	85%	9%	91%	3,243.9
Allegheny	CASTLE SHANNON BORO	48%	52%	48%	52%	1,013.9
Lehigh	CATASAUQUA BORO	44%	56%	45%	55%	856.9
Columbia	CATAWISSA BORO	49%	51%	36%	64%	232.1
Columbia	CATAWISSA TWP	12%	88%	3%	97%	187.0
Washington	CECIL TWP	24%	76%	10%	90%	4,330.8
Beaver	CENTER TWP	22%	78%	20%	80%	8,284.4
Berks	CENTERPORT BORO	34%	66%	31%	69%	95.9
Washington	CENTERVILLE BORO	19%	81%	8%	92%	272.1
Berks	CENTRE TWP	7%	93%	4%	96%	2,420.7
Delaware	CHADDS FORD TWP	17%	83%	9%	91%	1,395.6
Allegheny	CHALFANT BORO	52%	48%	52%	48%	103.0
Bucks	CHALFONT BORO	39%	61%	40%	60%	1,048.3
Franklin	CHAMBERSBURG BORO	47%	53%	47%	53%	4,457.4
York	CHANCEFORD TWP	17%	83%	3%	97%	671.2
Northampton	CHAPMAN BORO	11%	89%	11%	89%	227.5
Washington	CHARLEROI BORO	66%	34%	66%	34%	538.2
Chester	CHARLESTOWN TWP	18%	82%	12%	88%	1,793.7
Washington	CHARTIERS TWP	20%	80%	8%	92%	3,882.2
Montgomery	CHELTENHAM TWP	45%	55%	45%	55%	5,779.5
Delaware	CHESTER CITY	51%	49%	45%	55%	3,101.9
Delaware	CHESTER TWP	43%	57%	42%	58%	906.2
Delaware	CHESTER HEIGHTS BORO	15%	85%	15%	85%	1,419.3
Allegheny	CHESWICK BORO	50%	50%	44%	56%	295.8
Beaver	CHIPPEWA TWP	21%	79%	13%	87%	4,048.6
Lancaster	CHRISTIANA BORO	32%	68%	32%	68%	314.1
Allegheny	CHURCHILL BORO	30%	70%	30%	70%	1,400.5
Allegheny	CLAIRTON CITY	34%	66%	32%	68%	1,808.5
Mercer	CLARK BORO	33%	67%	6%	94%	175.5
Lackawanna	CLARKS GREEN BORO	79%	21%	79%	21%	343.4
Lackawanna	CLARKS SUMMIT BORO	60%	40%	59%	41%	1,009.7
Lancaster	CLAY TWP	15%	85%	6%	94%	2,983.7
Lebanon	CLEONA BORO	34%	66%	34%	66%	542.6
Susquehanna	CLIFFORD TWP	21%	79%	2%	98%	3.4
Delaware	CLIFTON HEIGHTS BORO	54%	46%	53%	47%	402.7
Butler	CLINTON TWP	11%	89%	2%	98%	73.0
Wayne	CLINTON TWP	28%	72%	2%	98%	135.0
Wyoming	CLINTON TWP	25%	75%	3%	97%	61.3
Washington	COAL CENTER BORO	49%	51%	40%	60%	45.2
Chester	COATESVILLE CITY	54%	46%	54%	46%	1,196.4
Washington	COKEBURG BORO	29%	71%	29%	71%	262.6

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Berks	COLEBROOKDALE TWP	22%	78%	14%	86%	2,864.6
Centre	COLLEGE TWP	35%	65%	19%	81%	3,806.7
Montgomery	COLLEGEVILLE BORO	46%	54%	47%	53%	1,027.0
Allegheny	COLLIER TWP	22%	78%	17%	83%	5,593.6
Delaware	COLLINGDALE BORO	51%	49%	50%	50%	558.2
Lancaster	COLUMBIA BORO	44%	56%	44%	56%	1,549.8
Delaware	COLWYN BORO	38%	62%	39%	61%	166.7
Delaware	CONCORD TWP	19%	81%	19%	81%	8,485.3
Cambria	CONEMAUGH TWP	35%	65%	6%	94%	247.0
Somerset	CONEMAUGH TWP	17%	83%	5%	95%	1,840.5
Lancaster	CONESTOGA TWP	11%	89%	3%	97%	1,047.1
Adams	CONEWAGO TWP	21%	79%	13%	87%	3,233.4
Dauphin	CONEWAGO TWP	7%	93%	6%	94%	539.9
York	CONEWAGO TWP	25%	75%	7%	93%	1,861.0
Fayette	CONNELLSVILLE CITY	50%	50%	47%	53%	1,354.6
Fayette	CONNELLSVILLE TWP	25%	75%	5%	95%	846.9
Lancaster	CONOY TWP	7%	93%	4%	96%	1,597.2
Montgomery	CONSHOHOCKEN BORO	67%	33%	67%	33%	660.5
Beaver	CONWAY BORO	45%	55%	45%	55%	958.7
Luzerne	CONYNGHAM BORO	29%	71%	29%	71%	652.9
Montour	COOPER TWP	33%	67%	5%	95%	97.9
Lehigh	COOPERSBURG BORO	36%	64%	36%	64%	598.7
Lehigh	COPLAY BORO	47%	53%	47%	53%	403.4
Allegheny	CORAOPOLIS BORO	52%	48%	52%	48%	949.4
Lebanon	CORNWALL BORO	16%	84%	9%	91%	1,567.7
Luzerne	COURTDALE BORO	14%	86%	14%	86%	646.8
Allegheny	CRAFTON BORO	45%	55%	46%	54%	732.9
Butler	CRANBERRY TWP	23%	77%	22%	78%	13,665.2
Allegheny	CRESCENT TWP	15%	85%	15%	85%	1,523.0
Adams	CUMBERLAND TWP	18%	82%	6%	94%	1,677.2
Berks	CUMRU TWP	26%	74%	13%	87%	4,583.9
Cambria	DAISYTOWN BORO	25%	75%	26%	74%	142.5
Cambria	DALE BORO	73%	27%	71%	29%	112.8
Luzerne	DALLAS BORO	23%	77%	22%	78%	1,442.9
Luzerne	DALLAS TWP	22%	78%	9%	91%	3,243.7
York	DALLASTOWN BORO	50%	50%	50%	50%	501.1
Lackawanna	DALTON BORO	33%	67%	11%	89%	348.0
Montour	DANVILLE BORO	43%	57%	43%	57%	985.3
Delaware	DARBY BORO	47%	53%	46%	54%	535.0
Delaware	DARBY TWP	48%	52%	49%	51%	917.9
Beaver	DARLINGTON BORO	58%	42%	58%	42%	53.2
Beaver	DARLINGTON TWP	31%	69%	4%	96%	220.2
Beaver	DAUGHERTY TWP	13%	87%	7%	93%	1,560.6
Dauphin	DAUPHIN BORO	37%	63%	32%	68%	223.3
Fayette	DAWSON BORO	37%	63%	36%	64%	101.0
Monroe	DELAWARE WATER GAP BORO	30%	70%	13%	87%	440.8
Westmoreland	DELMONT BORO	19%	81%	19%	81%	671.9
Lancaster	DENVER BORO	43%	57%	43%	57%	833.5
Dauphin	DERRY TWP	25%	75%	18%	82%	10,540.4
Westmoreland	DERRY BORO	25%	75%	24%	76%	510.6
Westmoreland	DERRY TWP	14%	86%	3%	97%	3,919.3
Lackawanna	DICKSON CITY BORO	40%	60%	29%	71%	1,899.8
York	DILLSBURG BORO	42%	58%	42%	58%	514.7

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Washington	DONORA BORO	37%	63%	35%	65%	1,281.6
Allegheny	DORMONT BORO	66%	34%	66%	34%	485.2
Berks	DOUGLASS TWP	9%	91%	7%	93%	3,205.8
Montgomery	DOUGLASS TWP	26%	74%	14%	86%	3,818.7
York	DOVER BORO	46%	54%	46%	54%	336.6
York	DOVER TWP	27%	73%	8%	92%	4,628.3
Chester	DOWNINGTOWN BORO	45%	55%	45%	55%	1,423.4
Bucks	DOYLESTOWN BORO	51%	49%	51%	49%	1,382.6
Bucks	DOYLESTOWN TWP	25%	75%	25%	75%	9,927.0
Allegheny	DRAVOSBURG BORO	22%	78%	23%	77%	683.9
Bucks	DUBLIN BORO	40%	60%	40%	60%	372.9
Lycoming	DUBOISTOWN BORO	31%	69%	28%	72%	391.2
Fayette	DUNBAR BORO	41%	59%	34%	66%	312.2
Fayette	DUNBAR TWP	14%	86%	3%	97%	3,083.3
Blair	DUNCANSVILLE BORO	52%	48%	49%	51%	301.2
Washington	DUNLEVY BORO	17%	83%	13%	87%	220.2
Lackawanna	DUNMORE BORO	41%	59%	29%	71%	3,766.0
Luzerne	DUPONT BORO	39%	61%	39%	61%	972.1
Allegheny	DUQUESNE CITY	46%	54%	46%	54%	1,298.7
Luzerne	DURYEA BORO	35%	65%	15%	85%	1,367.8
Berks	EARL TWP	12%	88%	4%	96%	875.2
Lancaster	EARL TWP	15%	85%	9%	91%	2,801.4
Northampton	EAST ALLEN TWP	15%	85%	9%	91%	3,184.9
Northampton	EAST BANGOR BORO	16%	84%	12%	88%	303.9
Chester	EAST BRADFORD TWP	21%	79%	15%	85%	6,342.4
Chester	EAST BRANDYWINE TWP	14%	86%	13%	87%	6,429.5
Chester	EAST CALN TWP	26%	74%	26%	74%	2,338.9
Lancaster	EAST COCALICO TWP	20%	80%	13%	87%	6,539.1
Cambria	EAST CONEMAUGH BORO	50%	50%	49%	51%	176.7
Chester	EAST COVENTRY TWP	12%	88%	11%	89%	5,508.1
Allegheny	EAST DEER TWP	17%	83%	17%	83%	1,601.1
Lancaster	EAST DONEGAL TWP	24%	76%	7%	93%	2,401.4
Lancaster	EAST EARL TWP	23%	77%	7%	93%	2,093.9
Chester	EAST FALLOWFIELD TWP	12%	88%	7%	93%	4,095.2
Chester	EAST GOSHEN TWP	37%	63%	37%	63%	6,488.6
Montgomery	EAST GREENVILLE BORO	65%	35%	65%	35%	336.8
Dauphin	EAST HANOVER TWP	13%	87%	5%	95%	3,686.4
Lancaster	EAST HEMPFIELD TWP	32%	68%	27%	73%	11,069.7
Westmoreland	EAST HUNTINGDON TWP	20%	80%	7%	93%	3,770.1
Lancaster	EAST LAMPETER TWP	30%	70%	21%	79%	7,541.2
Delaware	EAST LANSDOWNE BORO	56%	44%	56%	44%	131.1
Allegheny	EAST MCKEESPORT BORO	46%	54%	45%	55%	263.1
York	EAST MANCHESTER TWP	14%	86%	10%	90%	5,086.6
Chester	EAST MARLBOROUGH TWP	19%	81%	12%	88%	5,296.8
Montgomery	EAST NORRITON TWP	43%	57%	43%	57%	3,882.9
Chester	EAST NOTTINGHAM	14%	86%	10%	90%	5,154.2

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
	TWP					
Northampton	EASTON CITY	47%	53%	42%	58%	2,673.0
Carbon	EAST PENN TWP	27%	73%	4%	96%	265.5
Cumberland	EAST PENNSBORO TWP	35%	65%	29%	71%	5,664.3
Lancaster	EAST PETERSBURG BORO	51%	49%	51%	49%	772.0
Chester	EAST PIKELAND TWP	23%	77%	20%	80%	4,553.3
Allegheny	EAST PITTSBURGH BORO	67%	33%	68%	32%	245.0
York	EAST PROSPECT BORO	27%	73%	27%	73%	210.4
Beaver	EAST ROCHESTER BORO	42%	58%	42%	58%	288.2
Bucks	EAST ROCKHILL TWP	16%	84%	8%	92%	1,987.0
Monroe	EAST STROUDSBURG BORO	46%	54%	47%	53%	1,826.6
Cambria	EAST TAYLOR TWP	20%	80%	8%	92%	1,129.8
Chester	EASTTOWN TWP	35%	65%	33%	67%	4,879.9
Beaver	EASTVALE BORO	45%	55%	38%	62%	69.1
Westmoreland	EAST VANDERGRIFT BORO	45%	55%	46%	54%	97.9
Chester	EAST VINCENT TWP	18%	82%	12%	88%	3,532.2
Washington	EAST WASHINGTON BORO	50%	50%	50%	50%	286.3
Chester	EAST WHITELAND TWP	37%	63%	37%	63%	6,995.7
Beaver	ECONOMY BORO	17%	83%	11%	89%	4,832.8
Delaware	EDDYSTONE BORO	68%	32%	55%	45%	637.8
Allegheny	EDGEWOOD BORO	47%	53%	47%	53%	372.0
Allegheny	EDGEWORTH BORO	27%	73%	27%	73%	1,056.3
Delaware	EDGMONT TWP	14%	86%	8%	92%	2,827.3
Luzerne	EDWARDSVILLE BORO	44%	56%	44%	56%	779.1
Washington	ELCO BORO	31%	69%	12%	88%	80.1
Allegheny	ELIZABETH BORO	46%	54%	45%	55%	259.0
Allegheny	ELIZABETH TWP	17%	83%	9%	91%	5,773.7
Lancaster	ELIZABETH TWP	18%	82%	7%	93%	1,494.2
Lancaster	ELIZABETHTOWN BORO	49%	51%	49%	51%	1,702.4
Chester	ELK TWP	17%	83%	6%	94%	560.1
Lawrence	ELLPORT BORO	38%	62%	38%	62%	322.4
Washington	ELLSWORTH BORO	24%	76%	24%	76%	469.6
Lawrence	ELLWOOD CITY BORO	47%	53%	44%	56%	1,339.2
Lehigh	EMMAUS BORO	48%	52%	48%	52%	1,841.7
Allegheny	EMSWORTH BORO	36%	64%	36%	64%	437.9
Lancaster	EPHRATA BORO	49%	51%	50%	50%	2,219.8
Lancaster	EPHRATA TWP	24%	76%	12%	88%	3,436.7
Erie	ERIE CITY	61%	39%	61%	39%	11,566.7
Allegheny	ETNA BORO	61%	39%	61%	39%	504.2
Butler	EVANS CITY BORO	26%	74%	25%	75%	506.4
Fayette	EVERSON BORO	30%	70%	28%	72%	119.6
Berks	EXETER TWP	29%	71%	16%	84%	7,339.1
Luzerne	EXETER BORO	33%	67%	19%	81%	1,592.1
Westmoreland	EXPORT BORO	19%	81%	19%	81%	258.5
Wyoming	FACTORYVILLE BORO	21%	79%	21%	79%	462.3
Fayette	FAIRCHANCE BORO	36%	64%	36%	64%	759.5
Lycoming	FAIRFIELD TWP	17%	83%	7%	93%	1,761.2

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Erie	FAIRVIEW TWP	21%	79%	11%	89%	5,792.0
Luzerne	FAIRVIEW TWP	13%	87%	5%	95%	1,650.6
York	FAIRVIEW TWP	28%	72%	14%	86%	8,094.3
Washington	FALLOWFIELD TWP	17%	83%	6%	94%	1,649.4
Bucks	FALLS TWP	37%	63%	27%	73%	11,271.3
Beaver	FALLSTON BORO	34%	66%	34%	66%	345.4
Mercer	FARRELL CITY	54%	46%	55%	45%	1,455.4
Allegheny	FAWN TWP	13%	87%	4%	96%	582.8
Fayette	FAYETTE CITY BORO	30%	70%	26%	74%	155.2
Lackawanna	FELL TWP	15%	85%	5%	95%	1,378.0
York	FELTON BORO	17%	83%	17%	83%	325.6
Centre	FERGUSON TWP	27%	73%	7%	93%	5,420.0
Cambria	FERNDALE BORO	56%	44%	56%	44%	236.7
Allegheny	FINDLAY TWP	43%	57%	15%	85%	4,820.6
Washington	FINLEYVILLE BORO	64%	36%	63%	37%	74.2
Berks	FLEETWOOD BORO	52%	48%	52%	48%	660.9
Delaware	FOLCROFT BORO	32%	68%	32%	68%	895.0
Susquehanna	FOREST CITY BORO	29%	71%	28%	72%	597.0
Allegheny	FOREST HILLS BORO	46%	54%	46%	54%	996.8
Northampton	FORKS TWP	31%	69%	22%	78%	4,240.9
Luzerne	FORTY FORT BORO	45%	55%	45%	55%	972.4
Allegheny	FORWARD TWP	28%	72%	5%	95%	756.6
Butler	FORWARD TWP	8%	92%	2%	98%	344.6
Luzerne	FOSTER TWP	35%	65%	3%	97%	310.2
Lehigh	FOUNTAIN HILL BORO	55%	45%	55%	45%	485.2
Allegheny	FOX CHAPEL BORO	7%	93%	7%	93%	5,017.8
Montgomery	FRANCONIA TWP	25%	75%	24%	76%	8,060.4
Beaver	FRANKLIN TWP	7%	93%	7%	93%	11,612.8
Cambria	FRANKLIN BORO	33%	67%	32%	68%	365.1
Carbon	FRANKLIN TWP	25%	75%	8%	92%	969.4
Chester	FRANKLIN TWP	11%	89%	9%	91%	4,662.0
Fayette	FRANKLIN TWP	10%	90%	2%	98%	95.2
York	FRANKLIN TWP	16%	84%	5%	95%	1,128.3
Allegheny	FRANKLIN PARK BORO	23%	77%	17%	83%	5,922.8
York	FRANKLINTOWN BORO	46%	54%	28%	72%	78.1
Blair	FRANKSTOWN TWP	29%	71%	5%	95%	2,930.0
Allegheny	FRAZER TWP	37%	63%	7%	93%	753.7
Beaver	FREEDOM BORO	45%	55%	44%	56%	484.2
Blair	FREEDOM TWP	41%	59%	6%	94%	130.8
Luzerne	FREELAND BORO	51%	49%	50%	50%	429.6
Northampton	FREEMANSBURG BORO	36%	64%	35%	65%	458.6
Armstrong	FREEPORT BORO	17%	83%	16%	84%	682.4
Cambria	GEISTOWN BORO	54%	46%	53%	47%	679.2
Fayette	GEORGES TWP	12%	88%	4%	96%	2,529.5
Fayette	GERMAN TWP	19%	81%	3%	97%	172.8
Adams	GETTYSBURG BORO	47%	53%	47%	53%	1,063.7
Armstrong	GILPIN TWP	33%	67%	3%	97%	132.5
Erie	GIRARD BORO	31%	69%	27%	73%	1,221.8
Erie	GIRARD TWP	14%	86%	5%	95%	1,677.7
Allegheny	GLASSPORT BORO	37%	63%	37%	63%	1,140.8
Lackawanna	GLENBURN TWP	18%	82%	7%	93%	733.9
Northampton	GLENDON BORO	32%	68%	32%	68%	396.4
Allegheny	GLENFIELD BORO	14%	86%	15%	85%	401.2
Delaware	GLENOLDEN BORO	48%	52%	48%	52%	624.8

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Allegheny	GLEN OSBORNE BORO	13%	87%	13%	87%	354.1
York	GOLDSBORO BORO	30%	70%	28%	72%	249.0
Susquehanna	GREAT BEND BORO	44%	56%	40%	60%	178.2
Susquehanna	GREAT BEND TWP	37%	63%	2%	98%	390.0
Franklin	GREENCASTLE BORO	52%	48%	52%	48%	1,007.5
Erie	GREENE TWP	10%	90%	3%	97%	282.4
Franklin	GREENE TWP	25%	75%	9%	91%	7,998.1
Montgomery	GREEN LANE BORO	35%	65%	35%	65%	212.1
Westmoreland	GREENSBURG CITY	33%	67%	33%	67%	2,605.9
Allegheny	GREEN TREE BORO	42%	58%	42%	58%	1,318.0
Franklin	GUILFORD TWP	32%	68%	10%	90%	5,023.7
York	HALLAM BORO	42%	58%	35%	65%	342.4
Susquehanna	HALLSTEAD BORO	44%	56%	42%	58%	251.9
Berks	HAMBURG BORO	39%	61%	39%	61%	1,279.9
Adams	HAMILTON TWP	9%	91%	4%	96%	422.2
Franklin	HAMILTON TWP	24%	76%	6%	94%	3,370.1
Monroe	HAMILTON TWP	16%	84%	6%	94%	3,406.5
Cumberland	HAMPDEN TWP	40%	60%	36%	64%	9,885.5
Allegheny	HAMPTON TWP	20%	80%	19%	81%	9,826.7
Lehigh	HANOVER TWP	40%	60%	40%	60%	2,697.2
Luzerne	HANOVER TWP	25%	75%	14%	86%	6,048.8
Northampton	HANOVER TWP	37%	63%	35%	65%	4,018.6
Washington	HANOVER TWP	29%	71%	3%	97%	290.0
York	HANOVER BORO	61%	39%	61%	39%	2,368.9
Erie	HARBORCREEK TWP	28%	72%	11%	89%	5,516.0
Allegheny	HARMAR TWP	30%	70%	22%	78%	2,335.3
Beaver	HARMONY TWP	26%	74%	26%	74%	1,951.1
Butler	HARMONY BORO	29%	71%	28%	72%	249.4
Centre	HARRIS TWP	32%	68%	4%	96%	1,344.8
Dauphin	HARRISBURG CITY	41%	59%	41%	59%	7,473.4
Allegheny	HARRISON TWP	23%	77%	21%	79%	4,426.2
Luzerne	HARVEYS LAKE BORO	18%	82%	11%	89%	1,524.5
Montgomery	HATBORO BORO	67%	33%	67%	33%	909.9
Montgomery	HATFIELD BORO	52%	48%	52%	48%	410.3
Montgomery	HATFIELD TWP	41%	59%	41%	59%	6,376.5
Delaware	HAVERFORD TWP	39%	61%	39%	61%	6,372.1
Allegheny	HAYSVILLE BORO	9%	91%	9%	91%	147.4
Luzerne	HAZLE TWP	25%	75%	10%	90%	4,772.8
Luzerne	HAZLETON CITY	41%	59%	42%	58%	3,847.7
Allegheny	HEIDELBERG BORO	59%	41%	60%	40%	183.8
Berks	HEIDELBERG TWP	22%	78%	5%	95%	876.7
Lebanon	HEIDELBERG TWP	23%	77%	5%	95%	250.4
Lehigh	HEIDELBERG TWP	15%	85%	4%	96%	392.2
York	HEIDELBERG TWP	21%	79%	7%	93%	421.5
York	HELLAM TWP	24%	76%	6%	94%	1,365.3
Northampton	HELLERTOWN BORO	48%	52%	48%	52%	845.9
Columbia	HEMLOCK TWP	24%	76%	6%	94%	913.3
Westmoreland	HEMPFIELD TWP	17%	83%	11%	89%	20,777.6
Lycoming	HEPBURN TWP	17%	83%	4%	96%	332.2
Berks	HEREFORD TWP	35%	65%	4%	96%	251.9
Mercer	HERMITAGE CITY	28%	72%	16%	84%	8,105.8
Dauphin	HIGHSPIRE BORO	49%	51%	49%	51%	469.1
Bucks	HILLTOWN TWP	17%	83%	13%	87%	8,349.8
Blair	HOLLIDAYSBURG BORO	38%	62%	38%	62%	1,483.9

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Allegheny	HOMESTEAD BORO	68%	32%	67%	33%	416.9
Beaver	HOMEWOOD BORO	19%	81%	17%	83%	98.4
Chester	HONEY BROOK BORO	42%	58%	43%	57%	298.5
Chester	HONEY BROOK TWP	8%	92%	6%	94%	3,191.2
Beaver	HOPEWELL TWP	18%	82%	16%	84%	8,149.2
Montgomery	HORSHAM TWP	37%	63%	37%	63%	11,094.9
Washington	HOUSTON BORO	47%	53%	45%	55%	234.8
Luzerne	HUGHESTOWN BORO	27%	73%	27%	73%	582.6
Bucks	HULMEVILLE BORO	35%	65%	35%	65%	253.6
Dauphin	HUMMELSTOWN BORO	53%	47%	49%	51%	789.6
Westmoreland	HUNKER BORO	7%	93%	6%	94%	124.2
Westmoreland	HYDE PARK BORO	14%	86%	12%	88%	160.4
Allegheny	INDIANA TWP	12%	88%	8%	92%	5,885.5
Indiana	INDIANA BORO	57%	43%	56%	44%	1,130.0
Beaver	INDUSTRY BORO	46%	54%	6%	94%	198.2
Allegheny	INGRAM BORO	60%	40%	60%	40%	277.5
Westmoreland	IRWIN BORO	40%	60%	39%	61%	538.9
Bucks	IVYLAND BORO	44%	56%	44%	56%	227.5
Butler	JACKSON TWP	13%	87%	6%	94%	1,173.2
Cambria	JACKSON TWP	13%	87%	3%	97%	464.5
Lebanon	JACKSON TWP	15%	85%	9%	91%	4,411.3
Luzerne	JACKSON TWP	12%	88%	5%	95%	1,626.0
Monroe	JACKSON TWP	20%	80%	5%	95%	92.7
York	JACKSON TWP	17%	83%	8%	92%	3,306.2
York	JACOBUS BORO	37%	63%	28%	72%	407.4
Westmoreland	JEANNETTE CITY	52%	48%	52%	48%	1,537.9
Butler	JEFFERSON TWP	10%	90%	4%	96%	1,096.8
Allegheny	JEFFERSON HILLS BORO	14%	86%	13%	87%	8,538.3
Luzerne	JENKINS TWP	33%	67%	12%	88%	2,557.6
Montgomery	JENKINTOWN BORO	63%	37%	63%	37%	372.7
Lackawanna	JERMYN BORO	39%	61%	39%	61%	489.8
Lackawanna	JESSUP BORO	46%	54%	17%	83%	1,078.5
Cambria	JOHNSTOWN CITY	49%	51%	49%	51%	3,880.0
Lebanon	JONESTOWN BORO	28%	72%	28%	72%	408.1
Blair	JUNIATA TWP	26%	74%	2%	98%	135.5
Berks	KENHORST BORO	53%	47%	53%	47%	372.0
Allegheny	KENNEDY TWP	22%	78%	22%	78%	3,536.8
Chester	KENNETT TWP	18%	82%	12%	88%	5,663.4
Chester	KENNETT SQUARE BORO	52%	48%	52%	48%	683.6
Allegheny	KILBUCK TWP	7%	93%	7%	93%	1,690.4
Luzerne	KINGSTON BORO	68%	32%	68%	32%	1,395.8
Luzerne	KINGSTON TWP	26%	74%	10%	90%	2,575.2
Armstrong	KISKIMINETAS TWP	20%	80%	2%	98%	173.0
Schuylkill	KLINE TWP	30%	70%	4%	96%	415.6
Beaver	KOPPEL BORO	46%	54%	41%	59%	323.1
Luzerne	LAFLIN BORO	27%	73%	27%	73%	862.5
Erie	LAKE CITY BORO	33%	67%	29%	71%	966.0
Lancaster	LANCASTER CITY	63%	37%	63%	37%	4,706.6
Lancaster	LANCASTER TWP	31%	69%	29%	71%	3,378.2
Bucks	LANGHORNE BORO	45%	55%	44%	56%	316.3
Bucks	LANGHORNE MANOR BORO	39%	61%	39%	61%	384.9
Montgomery	LANSDALE BORO	65%	35%	65%	35%	1,915.5

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Delaware	LANSDOWNE BORO	46%	54%	46%	54%	763.7
Lackawanna	LAPLUME TWP	21%	79%	7%	93%	135.9
Luzerne	LARKSVILLE BORO	32%	68%	18%	82%	1,380.7
Westmoreland	LATROBE BORO	50%	50%	50%	50%	1,467.1
Berks	LAURELDALE BORO	52%	48%	52%	48%	507.9
Erie	LAWRENCE PARK TWP	56%	44%	56%	44%	1,122.2
Lancaster	LEACOCK TWP	14%	86%	6%	94%	1,431.5
Lebanon	LEBANON CITY	54%	46%	54%	46%	2,660.6
Armstrong	LEECHBURG BORO	53%	47%	51%	49%	289.0
Berks	LEESPORT BORO	45%	55%	44%	56%	469.1
Allegheny	LEET TWP	13%	87%	13%	87%	957.0
Allegheny	LEETSDALE BORO	53%	47%	54%	46%	747.6
Northampton	LEHIGH TWP	8%	92%	6%	94%	9,423.5
Carbon	LEHIGHTON BORO	48%	52%	46%	54%	1,036.3
Luzerne	LEHMAN TWP	8%	92%	4%	96%	1,229.6
Cumberland	LEMOYNE BORO	63%	37%	63%	37%	1,025.1
Franklin	LETTERKENNY TWP	17%	83%	4%	96%	280.9
York	LEWISBERRY BORO	49%	51%	48%	52%	88.8
Allegheny	LIBERTY BORO	19%	81%	19%	81%	940.6
Westmoreland	LIGONIER TWP	2%	98%	2%	98%	58,966.8
Montgomery	LIMERICK TWP	25%	75%	20%	80%	8,796.5
Allegheny	LINCOLN BORO	13%	87%	7%	93%	207.5
Lancaster	LITITZ BORO	51%	49%	51%	49%	1,483.2
Blair	LOGAN TWP	37%	63%	10%	90%	5,568.4
York	LOGANVILLE BORO	28%	72%	27%	73%	466.4
Chester	LONDON BRITAIN TWP	13%	87%	8%	92%	1,755.6
Chester	LONDONDERRY TWP	25%	75%	5%	95%	131.6
Dauphin	LONDONDERRY TWP	16%	84%	7%	93%	2,112.7
Chester	LONDON GROVE TWP	15%	85%	11%	89%	4,851.8
Berks	LONGSWAMP TWP	11%	89%	4%	96%	1,709.9
Cambria	LORAIN BORO	34%	66%	35%	65%	217.2
Cumberland	LOWER ALLEN TWP	32%	68%	32%	68%	6,546.7
Berks	LOWER ALSACE TWP	23%	77%	10%	90%	1,200.3
Westmoreland	LOWER BURRELL CITY	19%	81%	14%	86%	4,515.0
Delaware	LOWER CHICHESTER TWP	47%	53%	47%	53%	681.9
Montgomery	LOWER FREDERICK TWP	14%	86%	9%	91%	2,150.5
Montgomery	LOWER GWYNEDD TWP	39%	61%	39%	61%	5,957.5
Berks	LOWER HEIDELBERG TWP	20%	80%	6%	94%	1,350.4
Lehigh	LOWER MACUNGIE TWP	25%	75%	21%	79%	11,936.7
Bucks	LOWER MAKEFIELD TWP	32%	68%	32%	68%	11,435.8
Montgomery	LOWER MERION TWP	41%	59%	41%	59%	15,258.4
Lehigh	LOWER MILFORD TWP	16%	84%	6%	94%	1,393.4
Montgomery	LOWER MORELAND TWP	40%	60%	40%	60%	4,661.5
Northampton	LOWER MT BETHEL TWP	30%	70%	6%	94%	400.3
Northampton	LOWER NAZARETH TWP	28%	72%	18%	82%	3,509.7
Chester	LOWER OXFORD TWP	16%	84%	7%	93%	1,550.6
Dauphin	LOWER PAXTON TWP	31%	69%	29%	71%	16,190.1

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Montgomery	LOWER POTTSGROVE TWP	31%	69%	30%	70%	5,047.8
Montgomery	LOWER PROVIDENCE TWP	34%	66%	31%	69%	9,017.4
Montgomery	LOWER SALFORD TWP	25%	75%	21%	79%	6,737.8
Northampton	LOWER SAUCON TWP	18%	82%	8%	92%	3,956.8
Bucks	LOWER SOUTHAMPTON TWP	41%	59%	41%	59%	4,299.5
Dauphin	LOWER SWATARA TWP	26%	74%	22%	78%	7,943.2
Carbon	LOWER TOWAMENSING TWP	29%	71%	5%	95%	464.7
York	LOWER WINDSOR TWP	13%	87%	6%	94%	1,051.4
Cambria	LOWER YODER TWP	23%	77%	5%	95%	1,243.8
Lehigh	LOWHILL TWP	17%	83%	5%	95%	235.0
Lycoming	LOYALSOCK TWP	43%	57%	16%	84%	3,688.1
Fayette	LUZERNE TWP	25%	75%	4%	96%	754.7
Luzerne	LUZERNE BORO	44%	56%	43%	57%	441.0
Lycoming	LYCOMING TWP	34%	66%	3%	97%	195.0
Schuylkill	MCADOO BORO	54%	46%	52%	48%	228.0
Allegheny	MCCANDLESS TWP	29%	71%	26%	74%	9,046.2
Washington	MCDONALD BORO	54%	46%	54%	46%	325.1
Erie	MCKEAN TWP	9%	91%	4%	96%	633.1
Allegheny	MCKEESPORT CITY	48%	52%	48%	52%	3,448.0
Allegheny	MCKEES ROCKS BORO	63%	37%	63%	37%	716.8
Adams	MCSHERRYSTOWN BORO	48%	52%	48%	52%	327.1
Lehigh	MACUNGIE BORO	41%	59%	41%	59%	626.5
Carbon	MAHONING TWP	15%	85%	5%	95%	521.3
Lawrence	MAHONING TWP	14%	86%	3%	97%	597.7
Montour	MAHONING TWP	37%	63%	13%	87%	1,441.2
Berks	MAIDENCREEK TWP	33%	67%	12%	88%	2,251.3
Columbia	MAIN TWP	52%	48%	2%	98%	24.9
Chester	MALVERN BORO	38%	62%	37%	63%	817.1
York	MANCHESTER BORO	41%	59%	41%	59%	490.3
York	MANCHESTER TWP	28%	72%	25%	75%	8,594.2
Lancaster	MANHEIM BORO	53%	47%	53%	47%	887.4
Lancaster	MANHEIM TWP	35%	65%	34%	66%	15,011.9
Lancaster	MANOR TWP	21%	79%	7%	93%	5,189.9
Westmoreland	MANOR BORO	15%	85%	15%	85%	1,232.1
Delaware	MARCUS HOOK BORO	79%	21%	65%	35%	710.0
Lancaster	MARIETTA BORO	37%	63%	37%	63%	477.9
Berks	MARION TWP	17%	83%	3%	97%	315.1
Montgomery	MARLBOROUGH TWP	22%	78%	7%	93%	1,211.6
Delaware	MARPLE TWP	30%	70%	30%	70%	6,741.4
Butler	MARS BORO	36%	64%	36%	64%	285.8
Allegheny	MARSHALL TWP	23%	77%	14%	86%	4,523.6
Perry	MARYSVILLE BORO	32%	68%	16%	84%	530.1
Lackawanna	MAYFIELD BORO	44%	56%	19%	81%	438.8
Crawford	MEADVILLE CITY	38%	62%	38%	62%	2,797.8
Cumberland	MECHANICSBURG BORO	47%	53%	47%	53%	1,541.3
Delaware	MEDIA BORO	49%	51%	49%	51%	487.6
Fayette	MENALLEN TWP	22%	78%	5%	95%	23.4
Dauphin	MIDDLE PAXTON TWP	13%	87%	2%	98%	1,824.7
Butler	MIDDLESEX TWP	6%	94%	3%	97%	987.3

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Cumberland	MIDDLESEX TWP	28%	72%	10%	90%	2,674.8
Monroe	MIDDLE SMITHFIELD TWP	22%	78%	6%	94%	3,447.7
Cambria	MIDDLE TAYLOR TWP	6%	94%	3%	97%	52.2
Bucks	MIDDLETOWN TWP	34%	66%	34%	66%	12,357.7
Dauphin	MIDDLETOWN BORO	46%	54%	47%	53%	1,308.7
Delaware	MIDDLETOWN TWP	19%	81%	17%	83%	7,438.7
Washington	MIDWAY BORO	42%	58%	36%	64%	223.8
Columbia	MIFFLIN TWP	35%	65%	5%	95%	582.8
Bucks	MILFORD TWP	16%	84%	8%	92%	3,873.9
Delaware	MILLBOURNE BORO	60%	40%	55%	45%	44.2
Erie	MILLCREEK TWP	38%	62%	33%	67%	16,622.1
Lebanon	MILLCREEK TWP	34%	66%	4%	96%	525.2
Lancaster	MILLERSVILLE BORO	41%	59%	41%	59%	1,238.6
Allegheny	MILLVALE BORO	52%	48%	52%	48%	438.6
Chester	MODENA BORO	20%	80%	20%	80%	222.8
Berks	MOHNTON BORO	41%	59%	42%	58%	490.8
Beaver	MONACA BORO	39%	61%	39%	61%	1,530.3
York	MONAGHAN TWP	9%	91%	4%	96%	1,094.9
Westmoreland	MONESSEN CITY	31%	69%	30%	70%	1,835.2
Washington	MONONGAHELA CITY	31%	69%	30%	70%	1,257.7
Cumberland	MONROE TWP	24%	76%	6%	94%	901.8
Allegheny	MONROEVILLE BORO	29%	71%	29%	71%	12,573.2
Montgomery	MONTGOMERY TWP	49%	51%	49%	51%	6,802.7
Columbia	MONTOUR TWP	27%	73%	6%	94%	612.6
Lycoming	MONTOURSVILLE BORO	52%	48%	32%	68%	1,328.7
Allegheny	MOON TWP	27%	73%	26%	74%	13,376.9
Northampton	MOORE TWP	16%	84%	5%	95%	2,935.7
Lackawanna	MOOSIC BORO	26%	74%	25%	75%	3,923.4
Bucks	MORRISVILLE BORO	50%	50%	46%	54%	1,136.1
Delaware	MORTON BORO	57%	43%	57%	43%	232.6
Lancaster	MT JOY BORO	42%	58%	42%	58%	1,551.1
Lancaster	MOUNT JOY TWP	26%	74%	9%	91%	2,809.7
Allegheny	MT LEBANON TWP	50%	50%	50%	50%	3,893.1
Allegheny	MT OLIVER BORO	48%	52%	48%	52%	221.4
Berks	MT PENN BORO	55%	45%	55%	45%	273.1
Adams	MOUNT PLEASANT TWP	11%	89%	4%	96%	513.5
Washington	MOUNT PLEASANT TWP	38%	62%	2%	98%	158.4
Westmoreland	MOUNT PLEASANT BORO	38%	62%	38%	62%	644.1
Westmoreland	MOUNT PLEASANT TWP	12%	88%	4%	96%	3,271.0
Lancaster	MOUNTVILLE BORO	44%	56%	44%	56%	550.9
York	MOUNT WOLF BORO	35%	65%	35%	65%	335.1
Berks	MUHLENBERG TWP	48%	52%	39%	61%	5,880.6
Allegheny	MUNHALL BORO	47%	53%	47%	53%	1,517.6
Westmoreland	MURRYSVILLE BORO	15%	85%	8%	92%	8,692.5
Lebanon	MYERSTOWN BORO	47%	53%	48%	52%	546.0
Luzerne	NANTICOKE CITY	35%	65%	34%	66%	2,224.2
Montgomery	NARBERTH BORO	67%	33%	67%	33%	322.9
Northampton	NAZARETH BORO	44%	56%	44%	56%	1,068.3
Luzerne	NESCOPECK BORO	38%	62%	27%	73%	403.2
Delaware	NETHER PROVIDENCE TWP	33%	67%	33%	67%	3,034.3
Allegheny	NEVILLE TWP	37%	63%	37%	63%	1,499.3

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
York	NEWBERRY TWP	12%	88%	9%	91%	10,792.2
Beaver	NEW BRIGHTON BORO	58%	42%	57%	43%	708.5
Bucks	NEW BRITAIN BORO	38%	62%	39%	61%	774.2
Bucks	NEW BRITAIN TWP	22%	78%	14%	86%	5,175.7
Lawrence	NEW CASTLE CITY	41%	59%	41%	59%	5,478.6
Cumberland	NEW CUMBERLAND BORO	54%	46%	53%	47%	1,070.0
Washington	NEW EAGLE BORO	39%	61%	35%	65%	660.7
Chester	NEW GARDEN TWP	23%	77%	22%	78%	8,944.6
Montgomery	NEW HANOVER TWP	20%	80%	9%	91%	3,949.3
Lancaster	NEW HOLLAND BORO	49%	51%	49%	51%	1,243.8
Bucks	NEW HOPE BORO	31%	69%	29%	71%	818.6
Westmoreland	NEW KENSINGTON CITY	39%	61%	39%	61%	2,525.6
Chester	NEWLIN TWP	10%	90%	2%	98%	85.9
Chester	NEW LONDON TWP	14%	86%	13%	87%	6,044.6
Susquehanna	NEW MILFORD BORO	24%	76%	24%	76%	650.4
Susquehanna	NEW MILFORD TWP	2%	98%	2%	98%	29,060.5
Adams	NEW OXFORD BORO	37%	63%	38%	62%	387.1
Luzerne	NEWPORT TWP	22%	78%	4%	96%	1,193.0
Blair	NEWRY BORO	52%	48%	52%	48%	54.9
York	NEW SALEM BORO	29%	71%	29%	71%	288.0
Beaver	NEW SEWICKLEY TWP	18%	82%	7%	93%	2,452.2
Westmoreland	NEW STANTON BORO	25%	75%	19%	81%	1,245.7
Lackawanna	NEWTON TWP	24%	76%	4%	96%	163.3
Bucks	NEWTOWN BORO	55%	45%	55%	45%	354.6
Bucks	NEWTOWN TWP	27%	73%	25%	75%	6,886.6
Delaware	NEWTOWN TWP	21%	79%	21%	79%	6,463.4
Montgomery	NORRISTOWN BORO	62%	38%	62%	38%	2,310.4
Bucks	NORTHAMPTON TWP	28%	72%	28%	72%	16,673.3
Northampton	NORTHAMPTON BORO	46%	54%	46%	54%	1,639.2
Lebanon	NORTH ANNVILLE TWP	12%	88%	5%	95%	120.6
Armstrong	NORTH APOLLO BORO	29%	71%	28%	72%	369.0
Westmoreland	NORTH BELLE VERNON BORO	50%	50%	49%	51%	259.2
Washington	NORTH BETHLEHEM TWP	2%	98%	2%	98%	13,955.9
Allegheny	NORTH BRADDOCK BORO	38%	62%	38%	62%	991.4
Northampton	NORTH CATASAUQUA BORO	33%	67%	33%	67%	477.6
Columbia	NORTH CENTRE TWP	18%	82%	5%	95%	242.6
Washington	NORTH CHARLEROI BORO	63%	37%	59%	41%	177.4
York	NORTH CODORUS TWP	12%	88%	7%	93%	2,956.2
Lebanon	NORTH CORNWALL TWP	22%	78%	13%	87%	3,004.7
Chester	NORTH COVENTRY TWP	17%	83%	12%	88%	5,892.1
Allegheny	NORTH FAYETTE TWP	33%	67%	12%	88%	3,674.7
Washington	NORTH FRANKLIN TWP	23%	77%	16%	84%	2,848.0
Westmoreland	NORTH HUNTINGDON TWP	18%	82%	15%	85%	13,442.1
Westmoreland	NORTH IRWIN BORO	13%	87%	13%	87%	130.3
Lebanon	NORTH LEBANON TWP	25%	75%	14%	86%	4,580.4

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Lebanon	NORTH LONDONDERRY TWP	30%	70%	19%	81%	3,683.5
Cumberland	NORTH MIDDLETON TWP	23%	77%	9%	91%	4,768.9
Beaver	NORTH SEWICKLEY TWP	14%	86%	7%	93%	832.0
Washington	NORTH STRABANE TWP	27%	73%	12%	88%	5,274.1
Fayette	NORTH UNION TWP	26%	74%	12%	88%	6,580.8
Allegheny	NORTH VERSAILLES TWP	24%	76%	25%	75%	5,303.6
Montgomery	NORTH WALES BORO	65%	35%	65%	35%	376.6
Lehigh	NORTH WHITEHALL TWP	13%	87%	12%	88%	16,037.3
York	NORTH YORK BORO	62%	38%	62%	38%	184.0
Delaware	NORWOOD BORO	42%	58%	42%	58%	517.9
Washington	NOTTINGHAM TWP	16%	84%	3%	97%	612.4
Luzerne	NUANGOLA BORO	10%	90%	6%	94%	386.8
Allegheny	OAKDALE BORO	31%	69%	31%	69%	294.6
Allegheny	OAKMONT BORO	36%	64%	35%	65%	1,097.3
Allegheny	OHARA TWP	23%	77%	23%	77%	4,724.9
Allegheny	OHIO TWP	15%	85%	15%	85%	4,208.7
Beaver	OHIOVILLE BORO	3%	97%	3%	97%	15,168.4
Westmoreland	OKLAHOMA BORO	21%	79%	20%	80%	207.2
Lackawanna	OLD FORGE BORO	40%	60%	40%	60%	2,167.8
Lycoming	OLD LYCOMING TWP	44%	56%	15%	85%	1,338.5
Berks	OLEY TWP	27%	73%	5%	95%	933.8
Lackawanna	OLYPHANT BORO	39%	61%	20%	80%	1,632.6
Berks	ONTELAUNEE TWP	32%	68%	18%	82%	2,625.7
Columbia	ORANGE TWP	8%	92%	3%	97%	438.3
Columbia	ORANGEVILLE BORO	18%	82%	20%	80%	207.0
Adams	OXFORD TWP	11%	89%	9%	91%	3,660.1
Chester	OXFORD BORO	36%	64%	36%	64%	1,252.6
Somerset	PAINT BORO	38%	62%	38%	62%	187.4
Somerset	PAINT TWP	39%	61%	4%	96%	288.5
Northampton	PALMER TWP	39%	61%	34%	66%	5,617.5
Carbon	PALMERTON BORO	35%	65%	34%	66%	1,585.5
Lebanon	PALMYRA BORO	53%	47%	52%	48%	1,228.9
Lancaster	PARADISE TWP	17%	83%	7%	93%	2,255.2
Chester	PARKESBURG BORO	37%	63%	36%	64%	809.6
Armstrong	PARKS TWP	23%	77%	3%	97%	282.9
Delaware	PARKSIDE BORO	51%	49%	51%	49%	128.4
Carbon	PARRYVILLE BORO	25%	75%	11%	89%	277.0
Beaver	PATTERSON TWP	31%	69%	31%	69%	1,043.9
Beaver	PATTERSON HEIGHTS BORO	31%	69%	32%	68%	149.1
Centre	PATTON TWP	31%	69%	10%	90%	3,431.6
Dauphin	PAXTANG BORO	49%	51%	49%	51%	246.5
Northampton	PEN ARGYL BORO	26%	74%	25%	75%	890.4
Dauphin	PENBROOK BORO	70%	30%	69%	31%	281.7
Berks	PENN TWP	3%	97%	3%	97%	12,092.1
Chester	PENN TWP	19%	81%	15%	85%	3,356.4
Lancaster	PENN TWP	15%	85%	9%	91%	6,997.2
Perry	PENN TWP	30%	70%	4%	96%	413.7
Westmoreland	PENN BORO	32%	68%	31%	69%	100.6

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Westmoreland	PENN TWP	13%	87%	9%	91%	8,773.3
York	PENN TWP	34%	66%	24%	76%	4,879.9
Bucks	PENNDEL BORO	61%	39%	61%	39%	269.9
Allegheny	PENN HILLS TWP	24%	76%	24%	76%	12,410.7
Montgomery	PENNSBURG BORO	55%	45%	55%	45%	511.1
Chester	PENNSBURY TWP	20%	80%	9%	91%	1,485.2
Allegheny	PENNSBURY VILLAGE BORO	47%	53%	46%	54%	46.9
Lancaster	PEQUEA TWP	9%	91%	8%	92%	5,491.8
Bucks	PERKASIE BORO	36%	64%	36%	64%	1,640.1
Montgomery	PERKIOMEN TWP	27%	73%	27%	73%	3,127.0
Berks	PERRY TWP	23%	77%	6%	94%	482.3
Lawrence	PERRY TWP	2%	98%	2%	98%	11,849.3
Washington	PETERS TWP	25%	75%	23%	77%	11,241.6
Chester	PHOENIXVILLE BORO	43%	57%	43%	57%	2,380.2
Lycoming	PIATT TWP	4%	96%	4%	96%	6,542.0
Allegheny	PINE TWP	15%	85%	13%	87%	7,812.4
Allegheny	PITCAIRN BORO	44%	56%	43%	57%	351.9
Allegheny	PITTSBURGH CITY	45%	55%	45%	55%	37,351.3
Luzerne	PITTSTON CITY	53%	47%	52%	48%	1,085.6
Luzerne	PITTSTON TWP	35%	65%	14%	86%	2,777.5
Northampton	PLAINFIELD TWP	21%	79%	8%	92%	2,939.8
Luzerne	PLAINS TWP	29%	71%	19%	81%	4,685.6
Allegheny	PLEASANT HILLS BORO	40%	60%	41%	59%	1,776.8
Allegheny	PLUM BORO	20%	80%	15%	85%	11,357.5
Bucks	PLUMSTEAD TWP	22%	78%	9%	91%	3,833.3
Luzerne	PLYMOUTH BORO	57%	43%	57%	43%	738.3
Luzerne	PLYMOUTH TWP	20%	80%	3%	97%	636.8
Montgomery	PLYMOUTH TWP	53%	47%	53%	47%	5,429.1
Monroe	POCONO TWP	17%	83%	9%	91%	5,503.8
Chester	POCOPSON TWP	17%	83%	10%	90%	1,876.4
Schuylkill	PORT CLINTON BORO	26%	74%	8%	92%	105.4
Allegheny	PORT VUE BORO	36%	64%	36%	64%	744.4
Beaver	POTTER TWP	34%	66%	13%	87%	948.9
Montgomery	POTTSTOWN BORO	60%	40%	60%	40%	3,188.0
Schuylkill	POTTSVILLE CITY	39%	61%	39%	61%	2,600.8
Monroe	PRICE TWP	13%	87%	3%	97%	654.8
Luzerne	PRINGLE BORO	49%	51%	49%	51%	297.3
Delaware	PROSPECT PARK BORO	55%	45%	55%	45%	475.0
Lancaster	PROVIDENCE TWP	8%	92%	5%	95%	1,642.6
Beaver	PULASKI TWP	32%	68%	32%	68%	465.7
Bucks	QUAKERTOWN BORO	49%	51%	49%	51%	1,302.6
Delaware	RADNOR TWP	26%	74%	26%	74%	8,832.9
Allegheny	RANKIN BORO	55%	45%	55%	45%	310.9
Lackawanna	RANSOM TWP	5%	95%	2%	98%	69.6
Lancaster	RAPHO TWP	22%	78%	6%	94%	2,209.1
Berks	READING CITY	58%	42%	58%	42%	6,452.2
Montgomery	RED HILL BORO	52%	48%	51%	49%	433.5
York	RED LION BORO	53%	47%	53%	47%	835.7
Fayette	REDSTONE TWP	18%	82%	6%	94%	1,324.8
Allegheny	RESERVE TWP	22%	78%	22%	78%	1,306.3
Luzerne	RICE TWP	13%	87%	4%	96%	886.0
Allegheny	RICHLAND TWP	16%	84%	11%	89%	5,726.8
Bucks	RICHLAND TWP	21%	79%	13%	87%	5,547.9

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Cambria	RICHLAND TWP	30%	70%	20%	80%	6,547.4
Lebanon	RICHLAND BORO	25%	75%	21%	79%	650.9
Bucks	RICHLANDTOWN BORO	49%	51%	49%	51%	165.7
Berks	RICHMOND TWP	32%	68%	7%	93%	275.3
Delaware	RIDLEY TWP	53%	47%	52%	48%	3,290.3
Delaware	RIDLEY PARK BORO	51%	49%	51%	49%	686.8
Northumberland	RIVERSIDE BORO	41%	59%	14%	86%	814.2
Berks	ROBESON TWP	15%	85%	4%	96%	1,235.0
Berks	ROBESONIA BORO	37%	63%	35%	65%	534.5
Allegheny	ROBINSON TWP	27%	73%	26%	74%	9,109.9
Washington	ROBINSON TWP	47%	53%	4%	96%	153.0
Beaver	ROCHESTER BORO	68%	32%	68%	32%	450.1
Beaver	ROCHESTER TWP	24%	76%	15%	85%	1,310.4
Berks	ROCKLAND TWP	9%	91%	4%	96%	179.4
Montgomery	ROCKLEDGE BORO	54%	46%	55%	45%	219.7
Washington	ROSCOE BORO	57%	43%	46%	54%	115.7
Northampton	ROSETO BORO	32%	68%	32%	68%	396.1
Delaware	ROSE VALLEY BORO	16%	84%	16%	84%	465.9
Allegheny	ROSS TWP	33%	67%	33%	67%	9,263.1
Monroe	ROSS TWP	16%	84%	5%	95%	496.9
Allegheny	ROSSLYN FARMS BORO	28%	72%	27%	73%	355.9
Westmoreland	ROSTRAVER TWP	17%	83%	9%	91%	6,791.0
Dauphin	ROYALTON BORO	36%	64%	33%	67%	211.9
Montgomery	ROYERSFORD BORO	65%	35%	64%	36%	509.4
Berks	RUSCOMBMANOR TWP	8%	92%	7%	93%	1,298.7
Delaware	RUTLEDGE BORO	23%	77%	23%	77%	94.7
Perry	RYE TWP	15%	85%	2%	98%	290.7
Chester	SADSBURY TWP	24%	76%	13%	87%	1,489.8
Lancaster	SADSBURY TWP	12%	88%	4%	96%	1,872.7
Berks	ST LAWRENCE BORO	36%	64%	36%	64%	563.8
Franklin	ST THOMAS TWP	16%	84%	4%	96%	2,792.9
Luzerne	SALEM TWP	26%	74%	4%	96%	1,097.1
Westmoreland	SALEM TWP	22%	78%	4%	96%	1,149.8
Montgomery	SALFORD TWP	9%	91%	6%	94%	925.3
Lancaster	SALISBURY TWP	21%	79%	4%	96%	1,286.5
Lehigh	SALISBURY TWP	20%	80%	17%	83%	5,887.4
Butler	SAXONBURG BORO	17%	83%	17%	83%	569.4
Cambria	SCALP LEVEL BORO	22%	78%	21%	79%	406.9
Chester	SCHUYLKILL TWP	21%	79%	18%	82%	4,333.7
Montgomery	SCHWENKSVILLE BORO	40%	60%	40%	60%	259.4
Allegheny	SCOTT TWP	54%	46%	55%	45%	2,485.1
Columbia	SCOTT TWP	24%	76%	21%	79%	4,034.9
Lackawanna	SCOTT TWP	32%	68%	7%	93%	318.8
Westmoreland	SCOTTDALE BORO	49%	51%	49%	51%	736.6
Lackawanna	SCRANTON CITY	47%	53%	35%	65%	11,657.5
Bucks	SELLERSVILLE BORO	38%	62%	38%	62%	747.6
Butler	SEVEN FIELDS BORO	44%	56%	44%	56%	523.5
Allegheny	SEWICKLEY BORO	37%	63%	37%	63%	704.6
Westmoreland	SEWICKLEY TWP	16%	84%	5%	95%	838.9
Allegheny	SEWICKLEY HILLS BORO	35%	65%	11%	89%	116.7
Allegheny	SHALER TWP	38%	62%	38%	62%	7,163.4
Mercer	SHARON CITY	57%	43%	57%	43%	2,414.3

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Delaware	SHARON HILL BORO	57%	43%	57%	43%	489.6
Allegheny	SHARPSBURG BORO	58%	42%	59%	41%	416.4
Mercer	SHARPSVILLE BORO	52%	48%	51%	49%	896.5
Mercer	SHENANGO TWP	28%	72%	6%	94%	439.6
Berks	SHILLINGTON BORO	60%	40%	60%	40%	617.5
Cumberland	SHIREMANSTOWN BORO	55%	45%	54%	46%	192.1
Berks	SHOEMAKERSVILLE BORO	43%	57%	35%	65%	271.6
Bucks	SILVERDALE BORO	37%	63%	37%	63%	264.8
Cumberland	SILVER SPRING TWP	24%	76%	13%	87%	6,326.3
Berks	SINKING SPRING BORO	51%	49%	50%	50%	804.9
Montgomery	SKIPPACK TWP	20%	80%	16%	84%	6,312.6
Lehigh	SLATINGTON BORO	38%	62%	37%	63%	859.4
Washington	SMITH TWP	23%	77%	5%	95%	402.0
Monroe	SMITHFIELD TWP	15%	85%	8%	92%	5,120.3
Bucks	SOLEBURY TWP	22%	78%	9%	91%	2,514.2
Washington	SOMERSET TWP	27%	73%	3%	97%	90.1
Montgomery	SOUDERTON BORO	55%	45%	55%	45%	717.8
Lackawanna	SOUTH ABINGTON TWP	31%	69%	25%	75%	3,879.2
Lebanon	SOUTH ANNVILLE TWP	28%	72%	5%	95%	348.0
Beaver	SOUTH BEAVER TWP	20%	80%	3%	97%	154.5
Armstrong	SOUTH BUFFALO TWP	12%	88%	3%	97%	212.3
Columbia	SOUTH CENTRE TWP	23%	77%	19%	81%	2,858.8
Chester	SOUTH COATESVILLE BORO	28%	72%	29%	71%	1,147.9
Fayette	SOUTH CONNELLSVILLE BORO	50%	50%	22%	78%	409.8
Chester	SOUTH COVENTRY TWP	19%	81%	8%	92%	1,003.9
Allegheny	SOUTH FAYETTE TWP	15%	85%	12%	88%	9,982.7
Washington	SOUTH FRANKLIN TWP	13%	87%	4%	96%	49.1
Westmoreland	SOUTH GREENSBURG BORO	49%	51%	49%	51%	449.8
Dauphin	SOUTH HANOVER TWP	22%	78%	13%	87%	3,253.9
Berks	SOUTH HEIDELBERG TWP	18%	82%	8%	92%	2,670.6
Beaver	SOUTH HEIGHTS BORO	28%	72%	28%	72%	256.0
Westmoreland	SOUTH HUNTINGDON TWP	19%	81%	3%	97%	139.6
Lebanon	SOUTH LEBANON TWP	22%	78%	10%	90%	4,845.3
Lebanon	SOUTH LONDONDERRY TWP	24%	76%	7%	93%	1,754.1
Cumberland	SOUTH MIDDLETON TWP	37%	63%	8%	92%	3,787.9
Cambria	SOUTHMONT BORO	37%	63%	37%	63%	669.7
Allegheny	SOUTH PARK TWP	19%	81%	19%	81%	5,625.3
Mercer	SOUTH PYMATUNING TWP	18%	82%	3%	97%	687.3
Washington	SOUTH STRABANE TWP	26%	74%	13%	87%	5,889.6
Fayette	SOUTH UNION TWP	30%	70%	18%	82%	5,678.7
Allegheny	SOUTH VERSAILLES TWP	9%	91%	6%	94%	316.6
Westmoreland	SOUTHWEST GREENSBURG BORO	60%	40%	60%	40%	254.6

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Lehigh	SOUTH WHITEHALL TWP	39%	61%	27%	73%	7,076.8
Lycoming	SOUTH WILLIAMSPORT BORO	41%	59%	41%	59%	1,359.2
Washington	SPEERS BORO	31%	69%	31%	69%	647.0
Berks	SPRING TWP	41%	59%	21%	79%	5,391.7
Centre	SPRING TWP	34%	66%	8%	92%	797.4
Chester	SPRING CITY BORO	41%	59%	40%	60%	512.8
Allegheny	SPRINGDALE BORO	49%	51%	44%	56%	596.5
Allegheny	SPRINGDALE TWP	14%	86%	14%	86%	1,527.6
York	SPRINGETTSBURY TWP	37%	63%	34%	66%	9,473.5
Bucks	SPRINGFIELD TWP	14%	86%	4%	96%	978.5
Delaware	SPRINGFIELD TWP	42%	58%	42%	58%	4,035.9
Montgomery	SPRINGFIELD TWP	41%	59%	41%	59%	4,340.8
York	SPRINGFIELD TWP	16%	84%	6%	94%	854.0
York	SPRING GARDEN TWP	41%	59%	40%	60%	4,195.5
York	SPRING GROVE BORO	44%	56%	42%	58%	447.6
Centre	STATE COLLEGE BORO	57%	43%	57%	43%	2,924.7
Dauphin	STEELTON BORO	45%	55%	45%	55%	1,191.8
Washington	STOCKDALE BORO	44%	56%	24%	76%	82.7
Northampton	STOCKERTOWN BORO	37%	63%	37%	63%	631.2
Cambria	STONYCREEK TWP	23%	77%	17%	83%	1,396.6
Allegheny	STOWE TWP	40%	60%	39%	61%	1,463.2
Adams	STRABAN TWP	25%	75%	7%	93%	1,194.2
Lancaster	STRASBURG BORO	40%	60%	39%	61%	600.9
Lancaster	STRASBURG TWP	8%	92%	6%	94%	2,014.8
Monroe	STROUD TWP	18%	82%	12%	88%	12,314.7
Monroe	STROUDSBURG BORO	49%	51%	49%	51%	1,103.9
Luzerne	SUGARLOAF TWP	32%	68%	6%	94%	728.3
Luzerne	SUGAR NOTCH BORO	19%	81%	19%	81%	642.9
Erie	SUMMIT TWP	24%	76%	12%	88%	5,775.6
Dauphin	SUSQUEHANNA TWP	28%	72%	28%	72%	9,482.8
Lycoming	SUSQUEHANNA TWP	31%	69%	4%	96%	384.7
Westmoreland	SUTERSVILLE BORO	24%	76%	24%	76%	173.8
Delaware	SWARTHMORE BORO	23%	77%	23%	77%	898.7
Dauphin	SWATARA TWP	37%	63%	31%	69%	8,184.1
Lebanon	SWATARA TWP	9%	91%	4%	96%	2,592.7
Allegheny	SWISSVALE BORO	56%	44%	56%	44%	794.9
Luzerne	SWOYERSVILLE BORO	40%	60%	38%	62%	1,361.4
Allegheny	TARENTUM BORO	34%	66%	34%	66%	884.7
Northampton	TATAMY BORO	29%	71%	29%	71%	335.4
Lackawanna	TAYLOR BORO	31%	69%	26%	74%	2,476.8
Montgomery	TELFORD BORO	50%	50%	50%	50%	656.5
Lancaster	TERRE HILL BORO	40%	60%	40%	60%	291.9
Allegheny	THORNBURG BORO	23%	77%	23%	77%	281.2
Chester	THORNBURY TWP	16%	84%	16%	84%	2,468.0
Delaware	THORNBURY TWP	12%	88%	12%	88%	5,334.6
Lackawanna	THROOP BORO	40%	60%	21%	79%	1,464.4
Berks	TILDEN TWP	22%	78%	6%	94%	1,827.3
Delaware	TINICUM TWP	41%	59%	30%	70%	3,679.3
Berks	TOPTON BORO	47%	53%	46%	54%	423.7
Montgomery	TOWAMENCIN TWP	39%	61%	34%	66%	5,298.7
Westmoreland	TRAFFORD BORO	24%	76%	24%	76%	907.2
Delaware	TRAINER BORO	58%	42%	51%	49%	677.8
Montgomery	TRAPPE BORO	32%	68%	32%	68%	1,367.0

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Chester	TREDYFFRIN TWP	40%	60%	37%	63%	11,382.4
Bucks	TRUMBAUERSVILLE BORO	33%	67%	33%	67%	282.1
Bucks	TULLYTOWN BORO	25%	75%	22%	78%	1,141.5
Berks	TULPEHOCKEN TWP	17%	83%	4%	96%	272.1
Allegheny	TURTLE CREEK BORO	54%	46%	54%	46%	650.2
Washington	TWILIGHT BORO	29%	71%	8%	92%	91.5
Adams	UNION TWP	20%	80%	4%	96%	269.2
Berks	UNION TWP	18%	82%	4%	96%	1,414.6
Lebanon	UNION TWP	26%	74%	7%	93%	533.3
Washington	UNION TWP	22%	78%	11%	89%	2,324.3
Fayette	UNIONTOWN CITY	58%	42%	58%	42%	1,313.3
Westmoreland	UNITY TWP	15%	85%	6%	94%	11,343.6
Delaware	UPLAND BORO	39%	61%	40%	60%	423.0
Cumberland	UPPER ALLEN TWP	24%	76%	24%	76%	8,515.8
Westmoreland	UPPER BURRELL TWP	19%	81%	4%	96%	125.2
Delaware	UPPER CHICHESTER TWP	35%	65%	35%	65%	4,293.9
Delaware	UPPER DARBY TWP	53%	47%	53%	47%	5,014.1
Montgomery	UPPER DUBLIN TWP	44%	56%	44%	56%	8,499.9
Lycoming	UPPER FAIRFIELD TWP	19%	81%	3%	97%	86.6
Montgomery	UPPER FREDERICK TWP	13%	87%	8%	92%	879.9
Montgomery	UPPER GWYNEDD TWP	44%	56%	44%	56%	5,202.6
Montgomery	UPPER HANOVER TWP	21%	79%	10%	90%	2,694.8
Lancaster	UPPER LEACOCK TWP	34%	66%	12%	88%	2,148.0
Lehigh	UPPER MACUNGIE TWP	30%	70%	23%	77%	11,412.2
Bucks	UPPER MAKEFIELD TWP	23%	77%	13%	87%	3,495.6
Montgomery	UPPER MERION TWP	43%	57%	43%	57%	11,049.2
Lehigh	UPPER MILFORD TWP	14%	86%	9%	91%	4,468.4
Montgomery	UPPER MORELAND TWP	48%	52%	48%	52%	5,110.6
Northampton	UPPER MT BETHEL TWP	16%	84%	3%	97%	97.6
Northampton	UPPER NAZARETH TWP	16%	84%	15%	85%	4,288.8
Chester	UPPER OXFORD TWP	22%	78%	5%	95%	261.9
Montgomery	UPPER POTTSGROVE TWP	21%	79%	21%	79%	3,227.3
Delaware	UPPER PROVIDENCE TWP	19%	81%	19%	81%	3,689.6
Montgomery	UPPER PROVIDENCE TWP	27%	73%	27%	73%	11,579.6
Allegheny	UPPER ST CLAIR TWP	33%	67%	33%	67%	6,248.6
Montgomery	UPPER SALFORD TWP	19%	81%	12%	88%	1,481.5
Lehigh	UPPER SAUCON TWP	20%	80%	13%	87%	7,723.8
Bucks	UPPER SOUTHAMPTON TWP	39%	61%	39%	61%	4,229.5
Fayette	UPPER TYRONE TWP	10%	90%	5%	95%	1,355.6
Chester	UPPER UWCHLAN TWP	18%	82%	15%	85%	5,913.1
Cambria	UPPER YODER TWP	32%	68%	8%	92%	1,431.7
Chester	UWCHLAN TWP	35%	65%	35%	65%	6,691.9
Butler	VALENCIA BORO	19%	81%	19%	81%	211.6
Chester	VALLEY TWP	24%	76%	23%	77%	3,304.2
Montour	VALLEY TWP	35%	65%	7%	93%	210.9

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Fayette	VANDERBILT BORO	47%	53%	45%	55%	106.7
Westmoreland	VANDERGRIFT BORO	41%	59%	41%	59%	831.5
Lackawanna	VANDLING BORO	18%	82%	12%	88%	513.3
Beaver	VANPORT TWP	35%	65%	32%	68%	643.4
Allegheny	VERONA BORO	50%	50%	50%	50%	383.2
Allegheny	VERSAILLES BORO	39%	61%	39%	61%	329.5
Allegheny	WALL BORO	20%	80%	22%	78%	262.9
Chester	WALLACE TWP	7%	93%	6%	94%	1,727.8
Northampton	WALNUTPORT BORO	35%	65%	35%	65%	498.1
Bucks	WARMINSTER TWP	45%	55%	45%	55%	6,524.4
Bucks	WARRINGTON TWP	25%	75%	25%	75%	8,816.5
York	WARRINGTON TWP	3%	97%	3%	97%	23,023.0
Luzerne	WARRIOR RUN BORO	12%	88%	13%	87%	489.1
Bucks	WARWICK TWP	24%	76%	20%	80%	5,137.2
Lancaster	WARWICK TWP	20%	80%	16%	84%	9,002.7
Berks	WASHINGTON TWP	14%	86%	6%	94%	1,422.9
Fayette	WASHINGTON TWP	24%	76%	7%	93%	1,415.1
Lehigh	WASHINGTON TWP	11%	89%	6%	94%	4,491.1
Northampton	WASHINGTON TWP	8%	92%	5%	95%	3,483.1
Washington	WASHINGTON CITY	59%	41%	58%	42%	1,855.4
Westmoreland	WASHINGTON TWP	10%	90%	4%	96%	2,318.9
Lackawanna	WAVERLY TWP	26%	74%	13%	87%	1,256.7
Lawrence	WAYNE TWP	4%	96%	4%	96%	10,395.1
Lehigh	WEISENBERG TWP	15%	85%	5%	95%	1,343.4
Carbon	WEISSPORT BORO	32%	68%	26%	74%	83.5
Berks	WERNERSVILLE BORO	47%	53%	48%	52%	488.4
Erie	WESLEYVILLE BORO	59%	41%	59%	41%	339.0
Lackawanna	WEST ABINGTON TWP	3%	97%	3%	97%	3,514.6
Chester	WEST BRADFORD TWP	15%	85%	13%	87%	8,105.5
Chester	WEST BRANDYWINE TWP	18%	82%	15%	85%	5,216.7
Washington	WEST BROWNSVILLE BORO	29%	71%	21%	79%	531.6
Chester	WEST CALN TWP	9%	91%	6%	94%	6,106.4
Chester	WEST CHESTER BORO	73%	27%	73%	27%	1,186.4
Lancaster	WEST COCALICO TWP	10%	90%	5%	95%	5,609.7
Montgomery	WEST CONSHOHOCKEN BORO	48%	52%	48%	52%	575.0
Lebanon	WEST CORNWALL TWP	25%	75%	7%	93%	458.4
Allegheny	WEST DEER TWP	15%	85%	7%	93%	5,142.3
Lancaster	WEST DONEGAL TWP	15%	85%	10%	90%	5,317.3
Lancaster	WEST EARL TWP	29%	71%	11%	89%	2,634.5
Northampton	WEST EASTON BORO	46%	54%	48%	52%	211.6
Allegheny	WEST ELIZABETH BORO	33%	67%	33%	67%	164.3
Chester	WEST GOSHEN TWP	45%	55%	45%	55%	7,659.6
Chester	WEST GROVE BORO	54%	46%	53%	47%	427.4
Dauphin	WEST HANOVER TWP	22%	78%	10%	90%	4,670.0
Luzerne	WEST HAZLETON BORO	52%	48%	50%	50%	908.9
Lancaster	WEST HEMPFIELD TWP	16%	84%	16%	84%	11,594.0
Allegheny	WEST HOMESTEAD BORO	39%	61%	39%	61%	650.2
Lancaster	WEST LAMPETER TWP	26%	74%	16%	84%	5,330.2

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Lebanon	WEST LEBANON TWP	12%	88%	10%	90%	411.3
Westmoreland	WEST LEECHBURG BORO	44%	56%	44%	56%	253.3
York	WEST MANCHESTER TWP	28%	72%	25%	75%	10,675.8
York	WEST MANHEIM TWP	16%	84%	5%	95%	2,283.8
Beaver	WEST MAYFIELD BORO	29%	71%	29%	71%	511.1
Mercer	WEST MIDDLESEX BORO	35%	65%	33%	67%	494.2
Allegheny	WEST MIFFLIN BORO	32%	68%	33%	67%	9,351.3
Cambria	WESTMONT BORO	38%	62%	38%	62%	1,492.0
Westmoreland	WEST NEWTON BORO	29%	71%	29%	71%	711.0
Montgomery	WEST NORRITON TWP	40%	60%	40%	60%	3,929.8
Chester	WEST NOTTINGHAM TWP	16%	84%	5%	95%	1,380.5
Chester	WEST PIKELAND TWP	21%	79%	12%	88%	1,874.2
Luzerne	WEST PITTSTON BORO	64%	36%	63%	37%	598.5
Montgomery	WEST POTTSGROVE TWP	31%	69%	31%	69%	1,493.7
Berks	WEST READING BORO	73%	27%	73%	27%	380.3
Bucks	WEST ROCKHILL TWP	23%	77%	9%	91%	1,973.1
Chester	WEST SADSBURY TWP	10%	90%	8%	92%	860.6
Cambria	WEST TAYLOR TWP	24%	76%	5%	95%	269.2
Chester	WESTTOWN TWP	30%	70%	30%	70%	5,579.7
Allegheny	WEST VIEW BORO	57%	43%	57%	43%	641.4
Chester	WEST VINCENT TWP	11%	89%	6%	94%	2,804.1
Chester	WEST WHITELAND TWP	32%	68%	32%	68%	8,294.2
Luzerne	WEST WYOMING BORO	33%	67%	13%	87%	693.2
York	WEST YORK BORO	68%	32%	68%	32%	327.3
Mercer	WHEATLAND BORO	49%	51%	49%	51%	554.8
Allegheny	WHITAKER BORO	59%	41%	60%	40%	213.6
Beaver	WHITE TWP	25%	75%	25%	75%	445.4
Allegheny	WHITEHALL BORO	41%	59%	41%	59%	2,119.2
Lehigh	WHITEHALL TWP	32%	68%	32%	68%	8,156.3
Montgomery	WHITEMARSH TWP	24%	76%	24%	76%	9,425.7
Allegheny	WHITE OAK BORO	18%	82%	18%	82%	4,249.5
Montgomery	WHITPAIN TWP	41%	59%	41%	59%	8,230.0
Luzerne	WILKES-BARRE CITY	60%	40%	60%	40%	4,631.0
Luzerne	WILKES-BARRE TWP	52%	48%	52%	48%	1,877.9
Allegheny	WILKINS TWP	31%	69%	31%	69%	1,709.7
Allegheny	WILKINSBURG BORO	39%	61%	39%	61%	1,455.1
Northampton	WILLIAMS TWP	17%	83%	7%	93%	1,825.9
Lycoming	WILLIAMSPORT CITY	52%	48%	50%	50%	5,886.2
Chester	WILLISTOWN TWP	30%	70%	15%	85%	4,023.5
Allegheny	WILMERDING BORO	53%	47%	54%	46%	275.6
Northampton	WILSON BORO	65%	35%	65%	35%	742.2
Somerset	WINDBER BORO	34%	66%	34%	66%	1,230.1
Northampton	WIND GAP BORO	36%	64%	37%	63%	869.1
Berks	WINDSOR TWP	24%	76%	3%	97%	371.0
York	WINDSOR BORO	28%	72%	28%	72%	372.0
York	WINDSOR TWP	15%	85%	11%	89%	10,809.6
Butler	WINFIELD TWP	7%	93%	2%	98%	551.6
Berks	WOMELSDORF BORO	41%	59%	39%	61%	550.9
Lycoming	WOODWARD TWP	12%	88%	5%	95%	682.4
Montgomery	WORCESTER TWP	22%	78%	17%	83%	4,954.8

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Cumberland	WORMLEYSBURG BORO	45%	55%	44%	56%	547.4
Luzerne	WRIGHT TWP	19%	81%	12%	88%	2,367.2
Bucks	WRIGHTSTOWN TWP	19%	81%	11%	89%	1,017.0
York	WRIGHTSVILLE BORO	38%	62%	31%	69%	363.7
Luzerne	WYOMING BORO	33%	67%	33%	67%	1,002.6
Berks	WYOMISSING BORO	54%	46%	54%	46%	2,896.1
Bucks	YARDLEY BORO	34%	66%	32%	68%	605.3
Luzerne	YATESVILLE BORO	33%	67%	33%	67%	390.0
Delaware	YEADON BORO	43%	57%	43%	57%	1,020.5
York	YOE BORO	45%	55%	45%	55%	136.7
York	YORK CITY	67%	33%	67%	33%	3,413.3
York	YORK TWP	27%	73%	20%	80%	10,852.3
York	YORKANA BORO	21%	79%	22%	78%	72.7
York	YORK HAVEN BORO	30%	70%	25%	75%	191.1
Westmoreland	YOUNGSTOWN BORO	24%	76%	24%	76%	71.8
Westmoreland	YOUNGWOOD BORO	28%	72%	28%	72%	1,218.1
Butler	ZELIENOPLE BORO	24%	76%	24%	76%	1,257.7

Appendix F

PRP CALCULATIONS - DARBY CREEK - SIMPLIFIED LOADING METHOD

TOTAL AREA	
Area (sf)	Area (ac)
3524698	80.92

PENNDOT PARSED AREA	
Area (sf)	Area (ac)
0	0.00

Private Parsed Area	
Area (sf)	Area (ac)
748882	17.19

Township MS4 Area	
Area (sf)	Area (ac)
2775816	63.72

STATEWIDE MS4 LAND COVER ESTIMATES

COUNTY	MUNICIPALITY	UA % IMPERVIOUS	UA% PERVIOUS
DELAWARE	COLWYN BOROUGH	38%	62%

DEVELOPED AND AND UNDEVELOPED LOADING RATES - DELAWARE COUNTY

CATEGORY	SEDIMENT LOADING RATE (LBS/ACRES/YR)	MS4 AREA (ACRES) URBAN AREA	EXISTING SEDIMENT LOADING (LBS/YR)
Impervious Developed	1839.00	24.22	44532
Pervious Developed	264.96	39.51	10468
Undeveloped	234.60	0	0
TOTAL			55000

REQUIRED 10% SEDIMENT LOAD REDUCTION = **5500** LBS/YR

PRP CALCULATIONS - Cobbs Creek

TOTAL MS4 AREA	
Area (sf)	Area (ac)
3730670	85.64

PENNDOT PARSED AREA	
Area (sf)	Area (ac)
0	*0.00*

TOWNSHIP MS4 AREA	
Area (sf)	Area (ac)
3730670	85.64

STATEWIDE MS4 LAND COVER ESTIMATES

COUNTY	MUNICIPALITY	UA % IMPERVIOUS	UA% PERVIOUS
DELAWARE	COLWYN BOROUGH	38%	62%

DEVELOPED AND AND UNDEVELOPED LOADING RATES - DELAWARE COUNTY

CATEGORY	SEDIMENT LOADING RATE (LBS/ACRES/YR)	MS4 AREA (ACRES)	EXISTING SEDIMENT LOADING (LBS/YR)
Impervious Developed	1839.00	32.54	59850
Pervious Developed	264.96	53.10	14069
Undeveloped	234.60	0	0
TOTAL			73919

REQUIRED 10% SEDIMENT LOAD REDUCTION = **7392** LBS/YR

PRP REDUCTION CALCULATIONS

PRP BMP REDUCTIONS

CATEGORY	BMP	DRAINAGE AREA ACRES (IMPERVIOUS)	DRAINAGE AREA ACRES (PERVIOUS)	SEDIMENT LOADING REDUCTION (LBS/YR) (IMPERVIOUS)	SEDIMENT LOADING REDUCTION (LBS/YR) (PERVIOUS)
BMP Option #1	DETENTION BASIN CONVERSION	10.00	17.00	11034	2703
BMP Option #2 (Cobbs Creek)	STORM SEWER SYSTEM SOLIDS REMOVAL	2.90	3.10	3467	493
TOTAL REDUCTION					17696

TOTAL REQUIRED TSS REDUCTION:			12,904 LBS/YR	
TOTAL PROPOSED TSS REDUCTION:			17,696 LBS/YR	OK
TOTAL TSS SURPLUS:			4,792 LBS/YR	

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
BMP EFFECTIVENESS VALUES

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) (www.casttool.org). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, RA-EPPAMS4@pa.gov. Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. Effectiveness credit for TN is for 4 upslope acres for each acre of buffer (4:1), and 2 upslope acres for TP and sediment (2:1). Additional credit is gained by converting land use from current use to forest. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	This BMP (also referred to as "Storm Drain Cleaning") involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. To determine pollutant reductions for this BMP, these steps must be taken: 1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected. 2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter). 3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.