

APPENDIX E: MS4 LAND USE AND WLAS

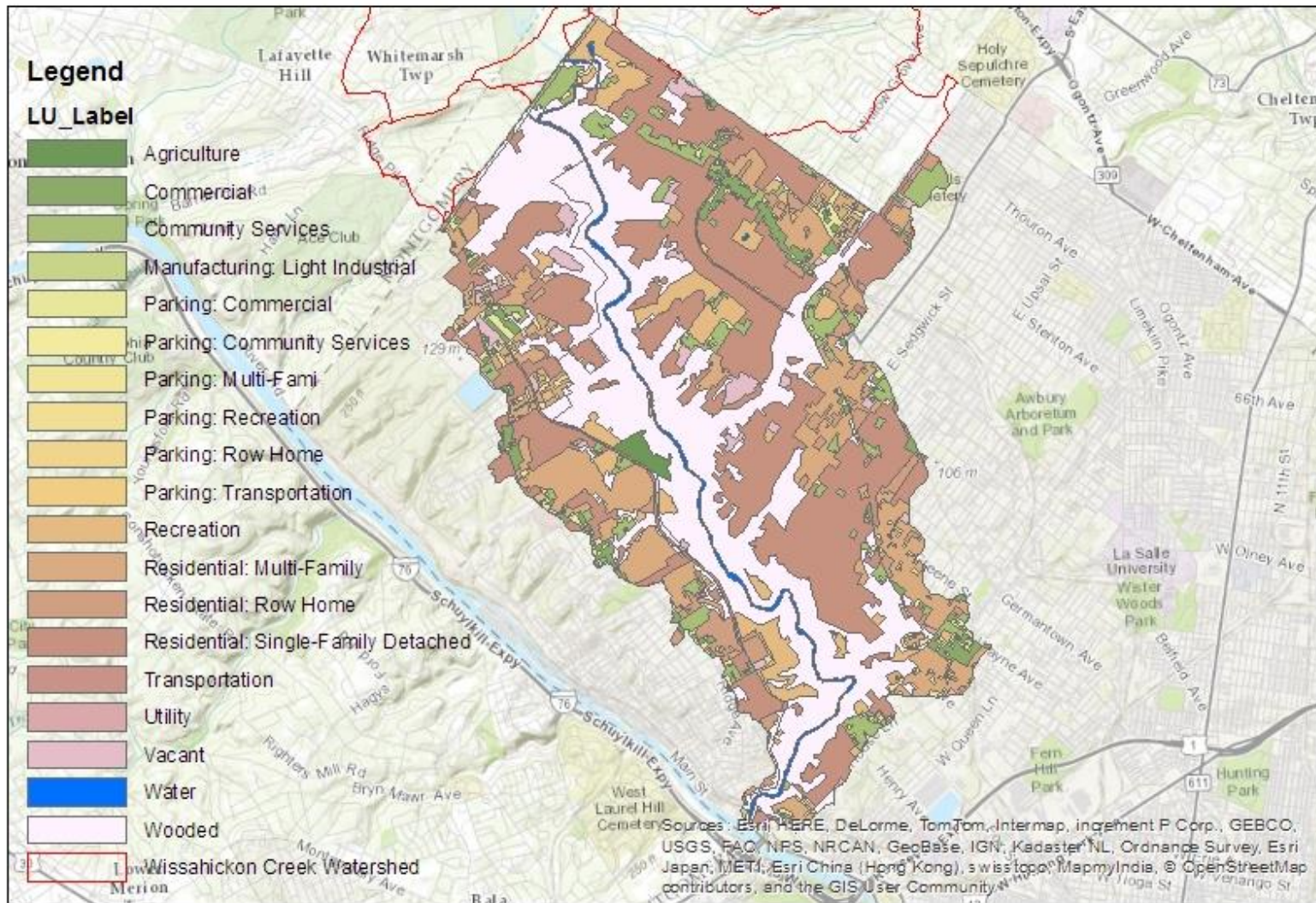


Figure H-1. Land uses for the portion of the City of Philadelphia MS4 that lies within the Wissahickon Creek Watershed.

Table H-1. Annual TP WLA and component TP loadings by land use for the portion of the City of Philadelphia MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Philadelphia	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	34.94	0.51	Agriculture	60.41	2.24	96.30
Residential: Multi-Family	897.70	13.22	Residential	15391.04	613.22	96.02
Residential: Row Home	185.41	2.73	Residential			
Residential: Single-Family Detached	2183.93	32.15	Residential			
Commercial	194.02	2.86	Impervious Developed	3964.41	209.53	94.71
Manufacturing: Light Industrial	1.47	0.02	Impervious Developed			
All other parking	155.74	2.29	Impervious Developed			
Transportation	42.66	0.63	Impervious Developed			
Recreation	378.05	5.57	Pervious Developed	4053.91	249.31	93.85
Parking: Community Services	47.89	0.70	Pervious Developed			
Community Services	328.10	4.83	Pervious Developed			
Utility	12.20	0.18	Pervious Developed			
Vacant	130.63	1.92	Pervious Developed			
Water	82.58	1.22	Background	1329.84	1329.84	0.00
Wooded	2117.47	31.17	Background			
Total Aggregate MS4 WLA for City of Philadelphia				24799.61	2404.14	90.31

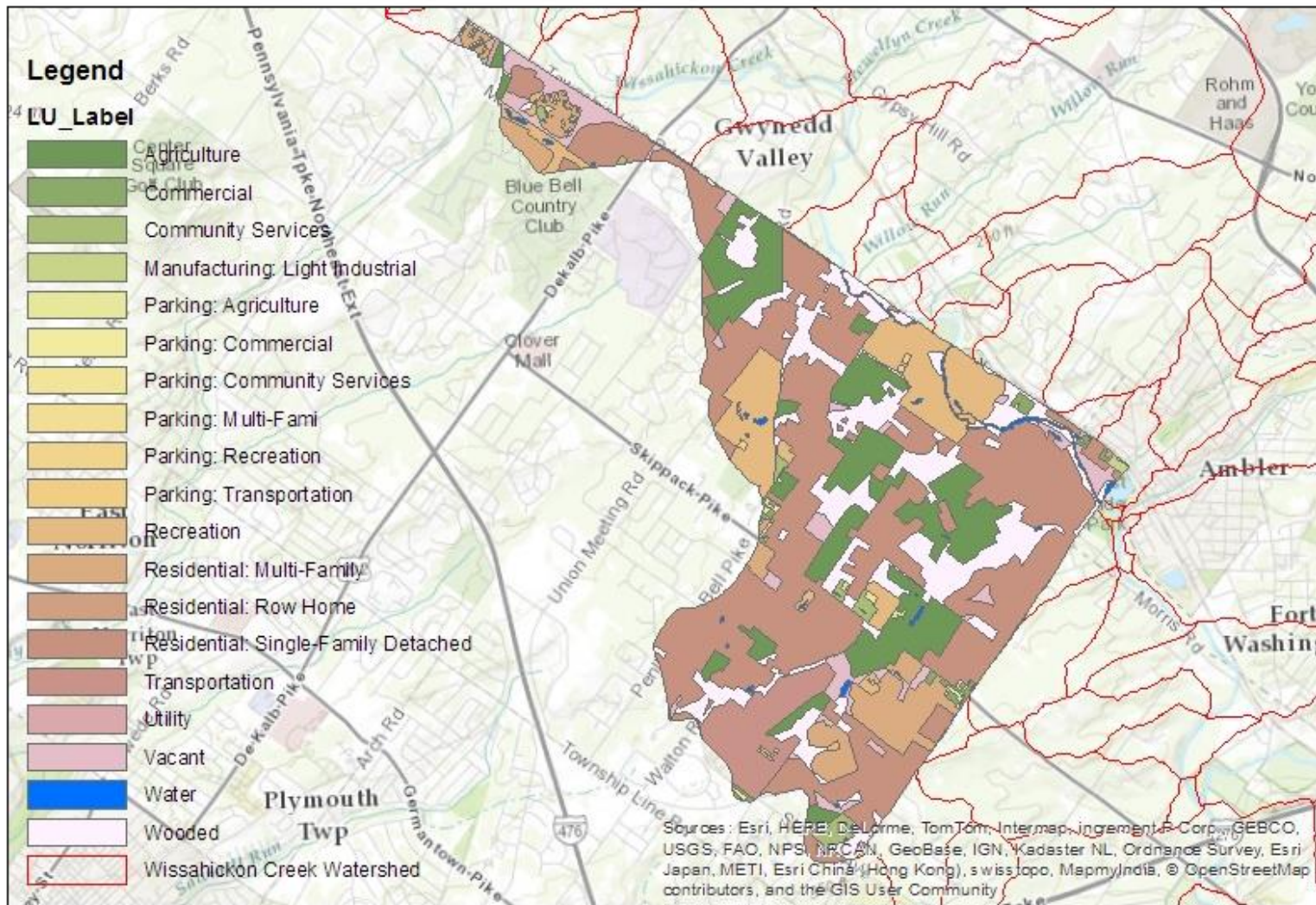


Figure H-2. Land uses for the portion of the Whitpain MS4 that lies within the Wissahickon Creek Watershed.

Table H-2. Annual TP WLA and component TP loadings by land use for the portion of the Whitpain MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Whitpain	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	505.17	15.13	Agriculture	1150.52	23.48	97.96
Residential: Multi-Family	204.36	6.12	Residential	8537.94	174.92	97.95
Residential: Row Home	0.64	0.02	Residential			
Residential: Single-Family Detached	1420.69	42.55	Residential			
Commercial	22.66	0.68	Impervious Developed	674.04	156.34	76.81
Manufacturing: Light Industrial	4.32	0.13	Impervious Developed			
All other parking	22.08	0.66	Impervious Developed			
Transportation	142.25	4.26	Impervious Developed			
Recreation	56.79	1.70	Pervious Developed	1077.76	67.52	93.74
Parking: Agriculture	1.42	0.04	Pervious Developed			
Parking: Community Services	4.45	0.13	Pervious Developed			
Community Services	31.96	0.96	Pervious Developed			
Utility	2.17	0.07	Pervious Developed			
Vacant	144.60	4.33	Pervious Developed			
Water	27.68	0.83	Background	352.71	352.71	0.00
Wooded	484.15	14.50	Background			
Golf	263.55	7.89	Golf	502.94	9.43	98.12
Total Aggregate MS4 WLA for Whitpain				12295.91	784.4	93.62

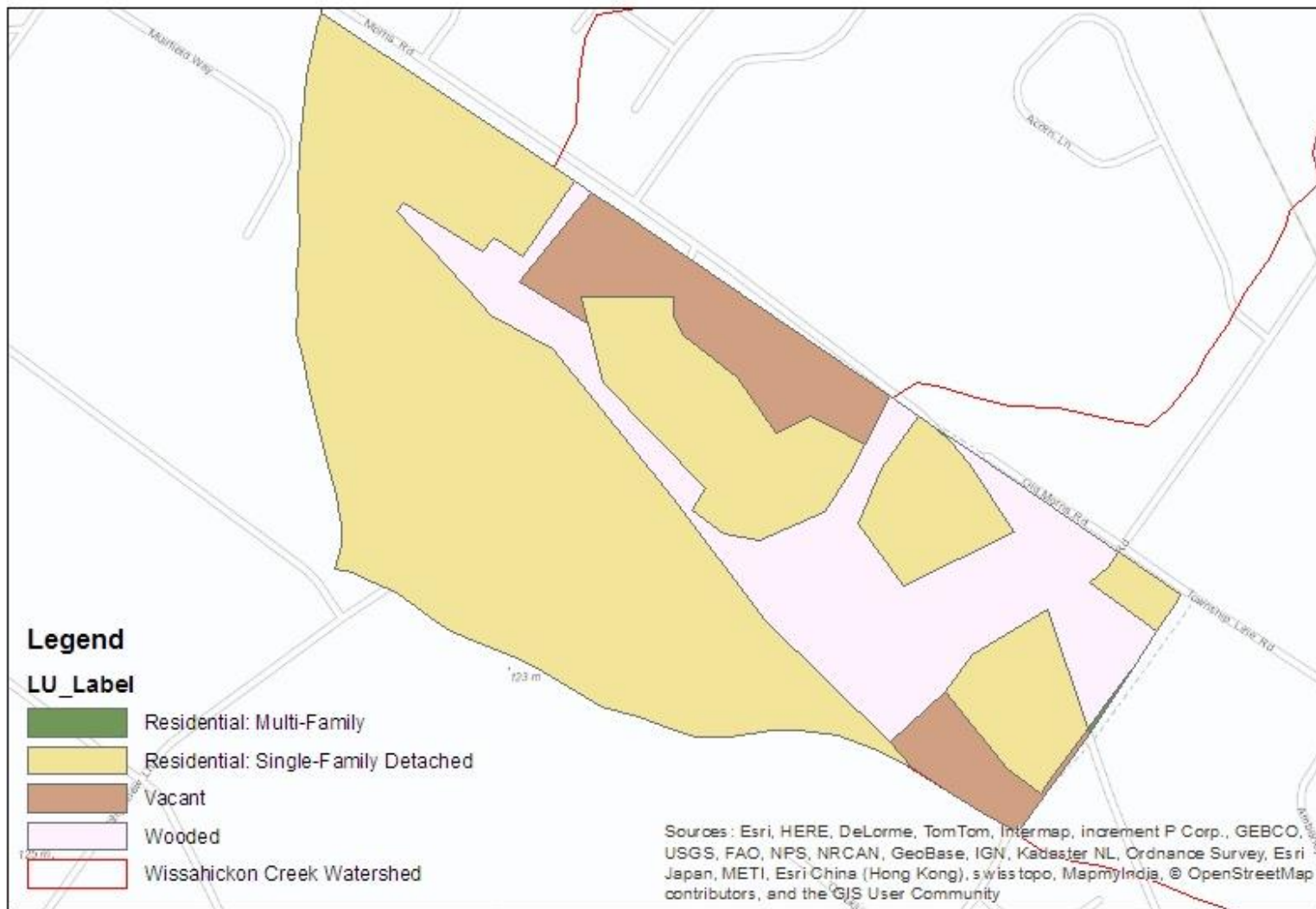


Figure H-3. Land uses for the portion of the Worcester MS4 that lies within the Wissahickon Creek Watershed.

Table H-3. Annual TP WLA and component TP loadings by land use for the portion of the Worcester MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Worcester	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Residential: Single-Family Detached	42.54	68.15	Residential	275.88	2.76	99.00
Vacant	6.65	10.65	Pervious Developed	32.02	0.32	99.00
Wooded	13.23	21.20	Background	6.74	6.74	0.00
Total Aggregate MS4 WLA for Worcester				314.64	9.82	96.88

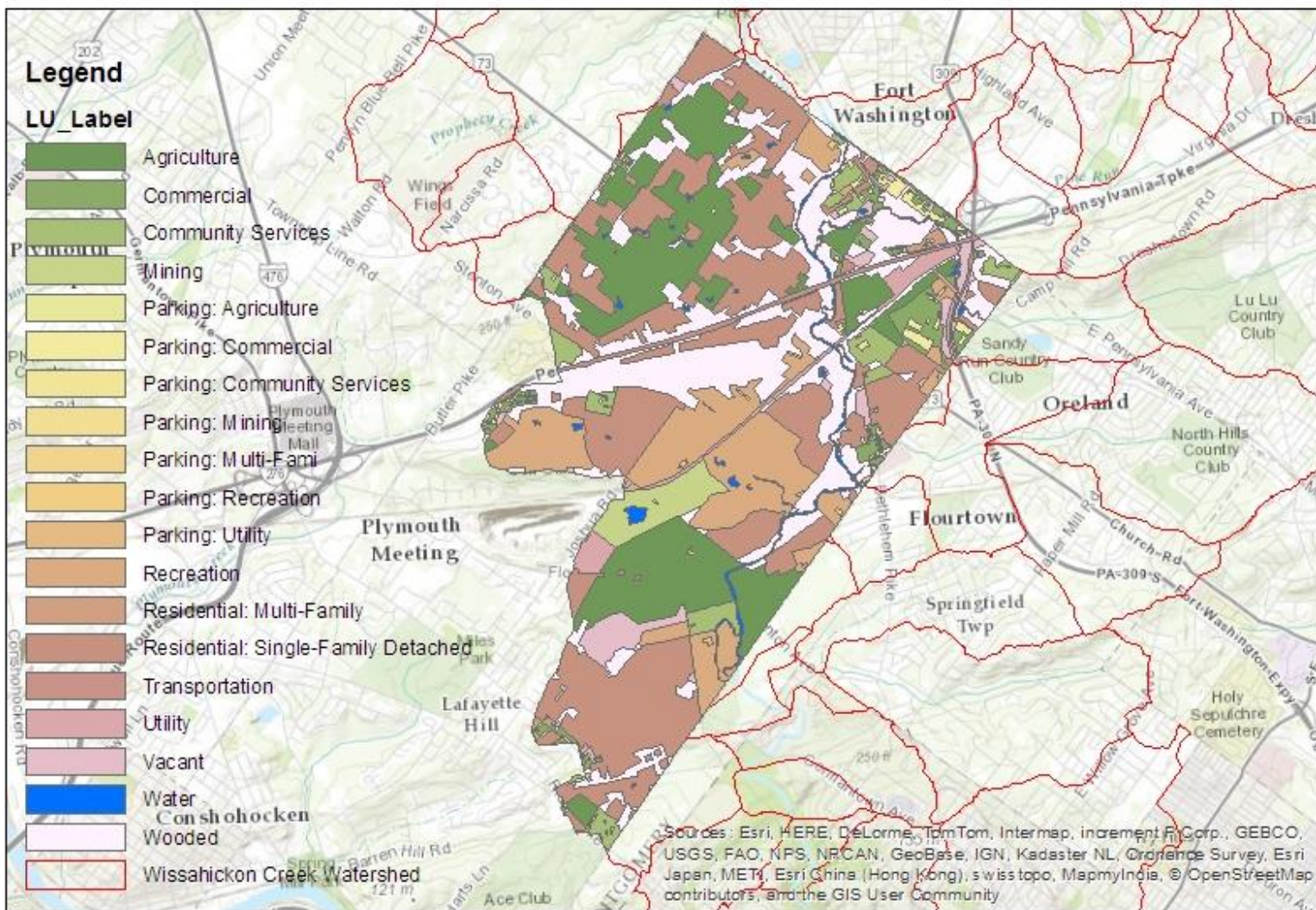


Figure H-4. Land uses for the portion of the Whitemarsh MS4 that lies within the Wissahickon Creek Watershed.

Table H-4. Annual TP WLA and component TP loadings by land use for the portion of the Whitemarsh MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Whitemarsh	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	978.74	18.67	Agriculture	2094.36	35.06	98.33
Residential: Multi-Family	14.59	0.28	Residential	7524.28	118.42	98.43
Residential: Single-Family Detached	1606.38	30.64	Residential			
Commercial	139.21	2.66	Impervious Developed	2064.94	122.50	94.07
All other parking	78.06	1.49	Impervious Developed			
Transportation	55.27	1.05	Impervious Developed			
Mining	114.84	2.19	Pervious Developed	3000.75	214.86	92.84
Recreation	123.11	2.35	Pervious Developed			
Parking: Agriculture	2.07	0.04	Pervious Developed			
Parking: Community Services	13.69	0.26	Pervious Developed			
Community Services	167.56	3.20	Pervious Developed			
Utility	97.19	1.85	Pervious Developed			
Vacant	144.30	2.75	Pervious Developed			
Water	80.02	1.53	Background	867.57	867.57	0.00
Wooded	1062.37	20.26	Background			
Golf	565.05	10.78	Golf	1043.95	14.84	98.58
Total Aggregate MS4 WLA for Whitemarsh				16595.85	1373.25	91.73

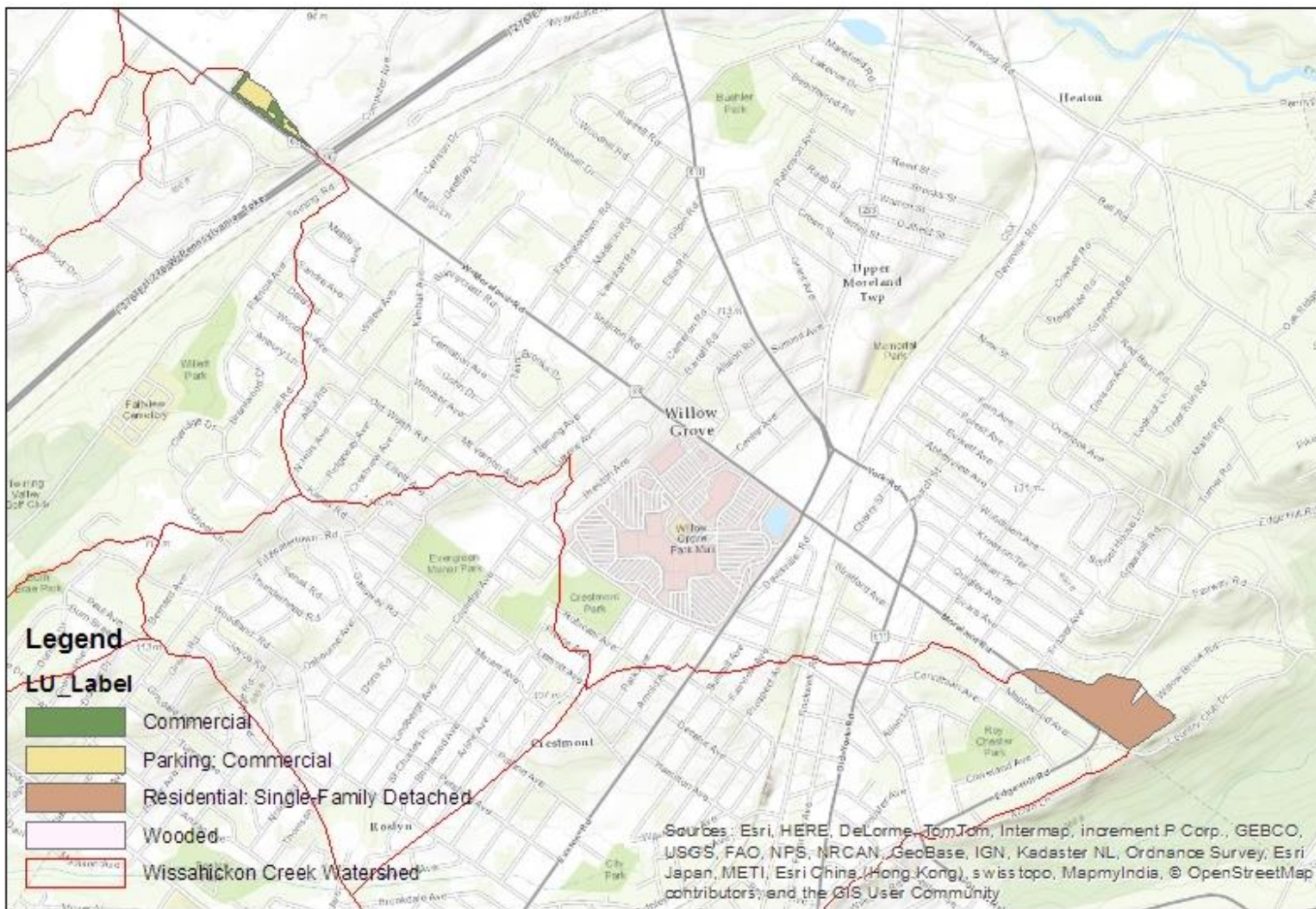


Figure H-5. Land uses for the portion of the Upper Moreland MS4 that lies within the Wissahickon Creek Watershed.

Table H-5. Annual TP WLA and component TP loadings by land use for the portion of the Upper Moreland MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Upper Moreland	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Residential: Single-Family Detached	20.82	77.75	Residential	75.23	0.75	99.00
Commercial	2.28	8.50	Impervious Developed	81.06	0.81	99.00
All other parking	3.22	12.02	Impervious Developed			
Wooded	0.46	1.74	Background	0.22	0.22	0.00
Total Aggregate MS4 WLA for Upper Moreland				156.51	1.78	98.86

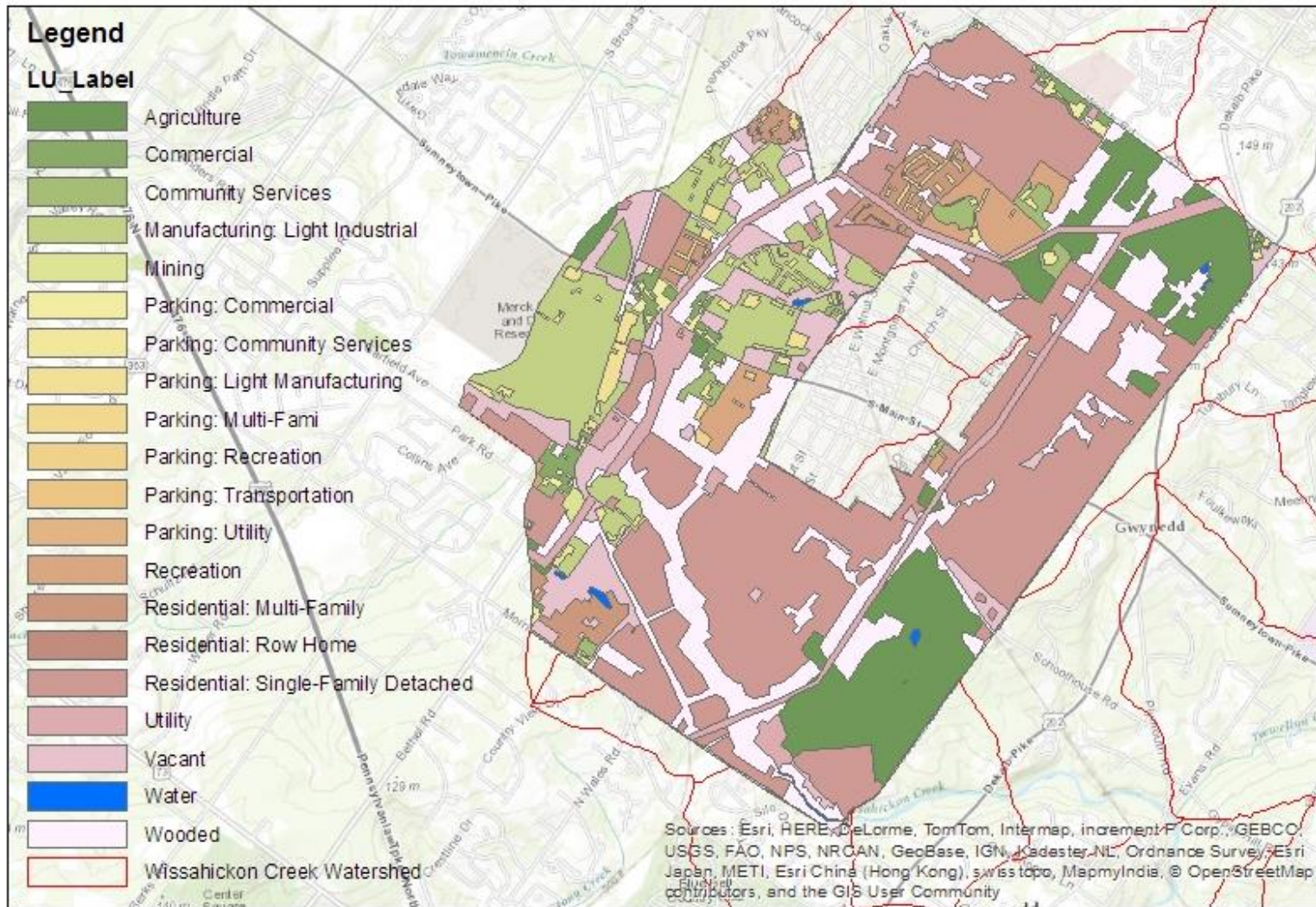


Figure H-6. Land uses for the portion of the Upper Gwynedd MS4 that lies within the Wissahickon Creek Watershed.

Table H-6. Annual TP WLA and component TP loadings by land use for the portion of the Upper Gwynedd MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Upper Gwynedd	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	401.46	12.56	Agriculture	971.55	21.77	97.76
Residential: Multi-Family	93.99	2.94	Residential	5802.86	86.39	98.51
Residential: Row Home	0.17	0.01	Residential			
Residential: Single-Family Detached	1173.81	36.73	Residential			
Commercial	41.95	1.31	Impervious Developed	2577.73	26.31	98.98
Manufacturing: Light Industrial	294.68	9.22	Impervious Developed			
All other parking	97.40	3.05	Impervious Developed			
Recreation	86.54	2.71	Pervious Developed	2512.43	38.93	98.45
Parking: Community Services	10.56	0.33	Pervious Developed			
Community Services	53.34	1.67	Pervious Developed			
Mining	4.54	0.14	Pervious Developed			
Utility	147.66	4.62	Pervious Developed			
Vacant	229.71	7.19	Pervious Developed			
Water	6.67	0.21	Background	285.11	285.11	0.00
Wooded	552.99	17.31	Background			
Total Aggregate MS4 WLA for Upper Gwynedd				12149.68	458.51	96.23

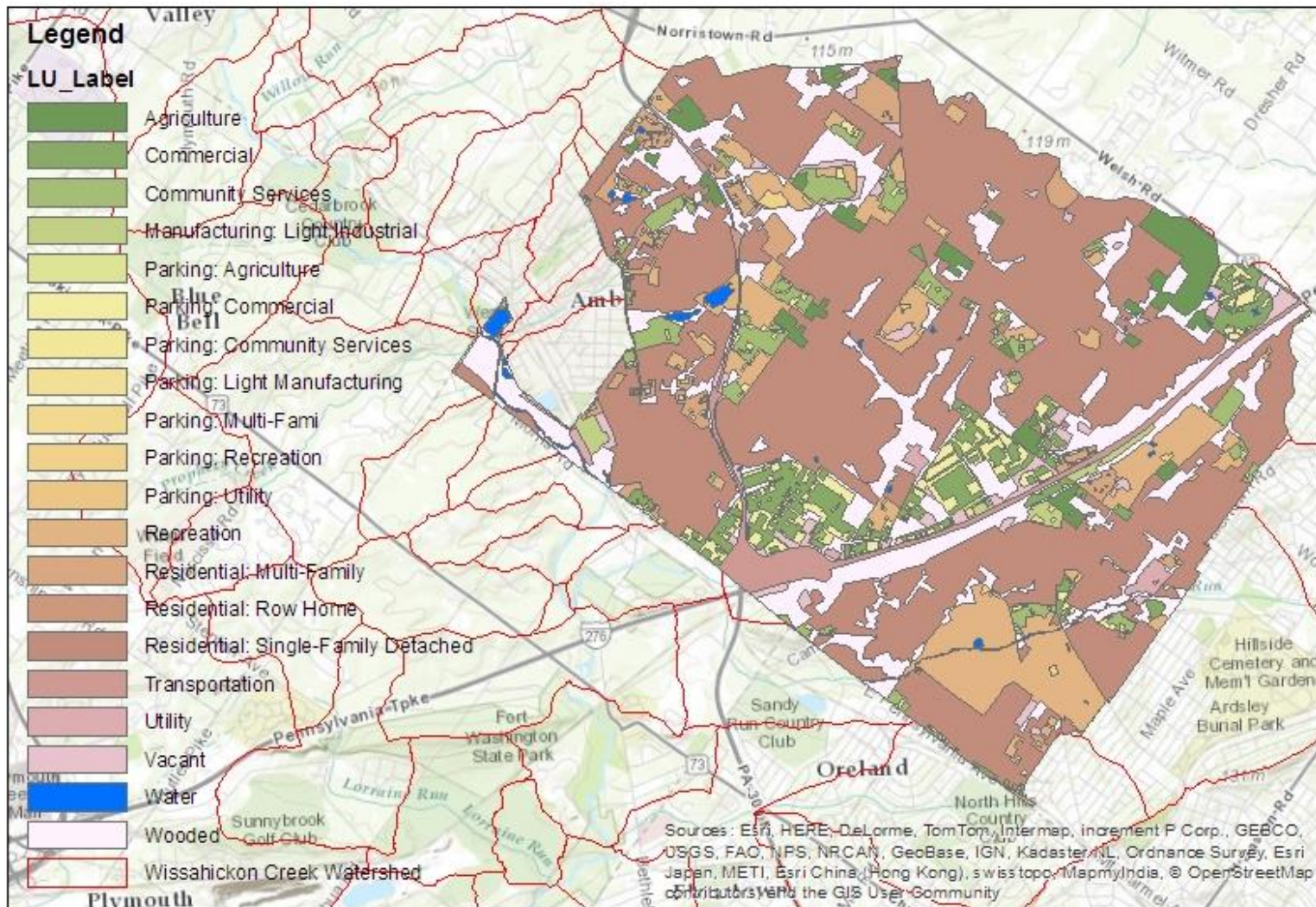


Figure H-7. Land uses for the portion of the Upper Dublin MS4 that lies within the Wissahickon Creek Watershed.

Table H-7. Annual TP WLA and component TP loadings by land use for the portion of the Upper Dublin MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Upper Dublin	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	241.03	3.13	Agriculture	568.23	33.31	94.14
Residential: Multi-Family	199.65	2.60	Residential	17503.11	258.05	98.53
Residential: Row Home	0.12	0.00	Residential			
Residential: Single-Family Detached	3980.62	51.77	Residential			
Commercial	349.55	4.55	Impervious Developed	6577.95	192.38	97.08
Manufacturing: Light Industrial	49.08	0.64	Impervious Developed			
All other parking	245.40	3.19	Impervious Developed			
Transportation	182.20	2.37	Impervious Developed			
Recreation	312.93	4.07	Pervious Developed	4186.76	247.88	94.08
Parking: Agriculture	0.51	0.01	Pervious Developed			
Parking: Community Services	44.93	0.58	Pervious Developed			
Community Services	244.09	3.17	Pervious Developed			
Utility	38.80	0.50	Pervious Developed			
Vacant	173.22	2.25	Pervious Developed			
Water	52.09	0.68	Background	846.47	846.47	0.00
Wooded	1192.53	15.51	Background			
Golf	382.10	4.97	Golf	853.14	9.58	98.88
Total Aggregate MS4 WLA for Upper Dublin				30535.66	1587.67	94.80

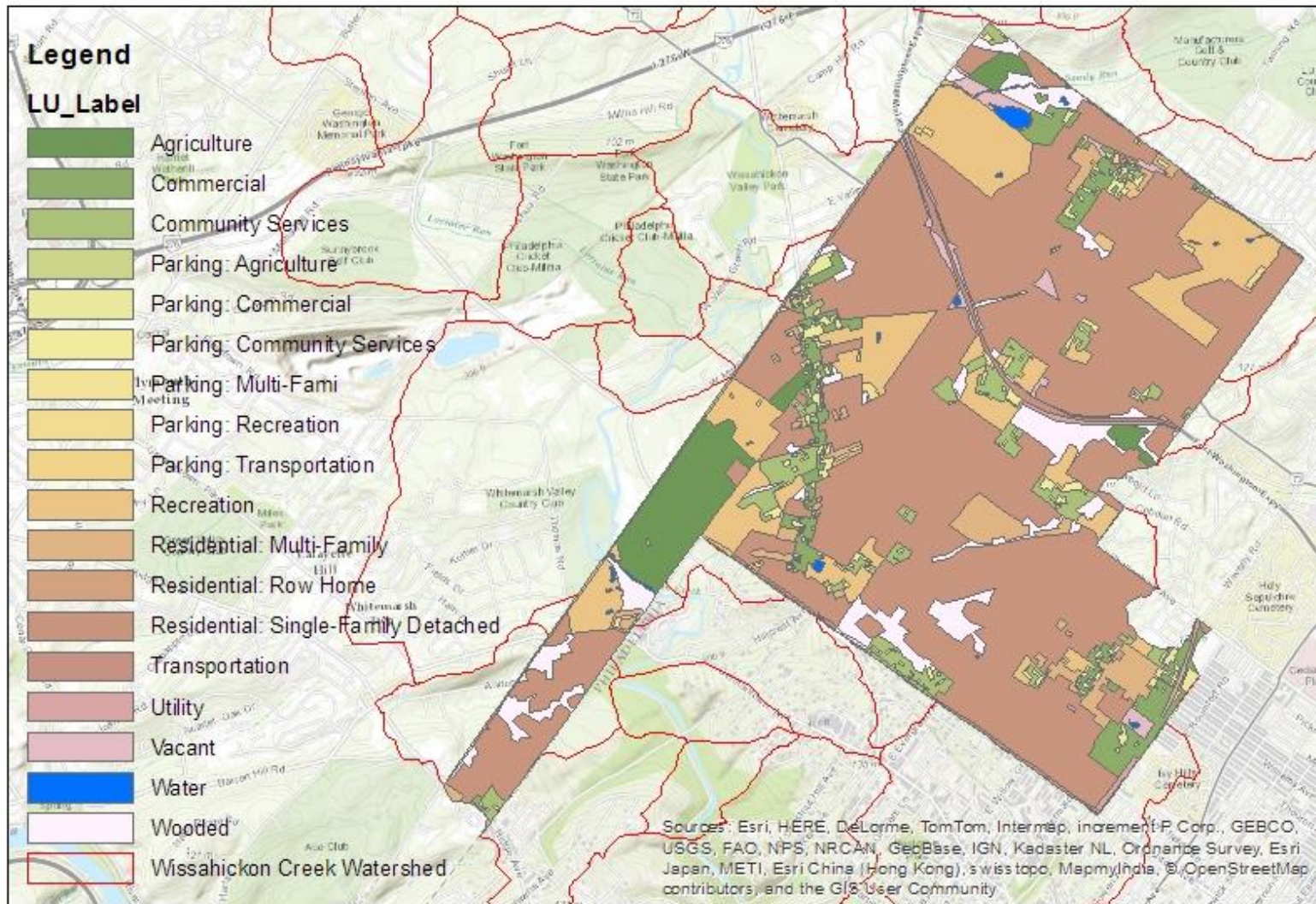


Figure H-8. Land uses for the portion of the Springfield MS4 that lies within the Wissahickon Creek Watershed.

Table H-8. Annual TP WLA and component TP loadings by land use for the portion of the Springfield MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Springfield	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	201.18	4.88	Agriculture	406.16	7.73	98.10
Residential: Multi-Family	135.19	3.28	Residential	9365.92	216.93	97.68
Residential: Row Home	1.20	0.03	Residential			
Residential: Single-Family Detached	2432.42	59.00	Residential			
Commercial	176.47	4.28	Impervious Developed	2055.09	54.03	97.37
All other parking	77.42	1.88	Impervious Developed			
Transportation	30.51	0.74	Impervious Developed			
Recreation	279.57	6.78	Pervious Developed	2511.88	156.39	93.77
Parking: Agriculture	0.46	0.01	Pervious Developed			
Parking: Community Services	35.79	0.87	Pervious Developed			
Community Services	151.40	3.67	Pervious Developed			
Utility	24.53	0.59	Pervious Developed			
Vacant	52.19	1.27	Pervious Developed			
Water	19.75	0.48	Background	197.52	197.52	0.00
Wooded	235.19	5.70	Background			
Golf	269.72	6.54	Golf	501.66	9.27	98.15
Total Aggregate MS4 WLA for Springfield				15038.23	641.87	95.73

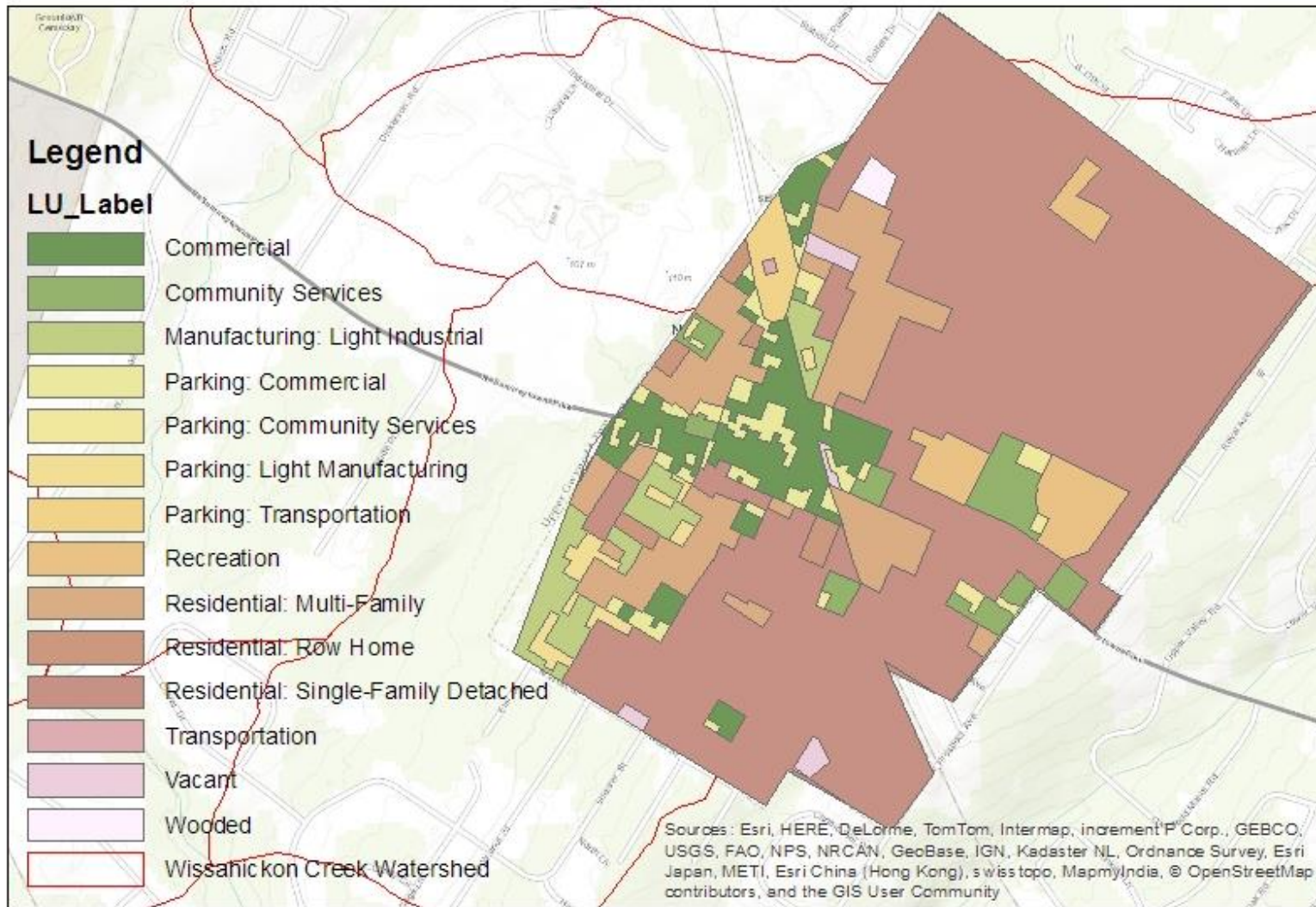


Figure H-9. Land uses for the portion of the North Wales MS4 that lies within the Wissahickon Creek Watershed.

Table H-9. Annual TP WLA and component TP loadings by land use for the portion of the North Wales MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: North Wales	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Residential: Multi-Family	40.89	11.07	Residential	1055.63	17.06	98.38
Residential: Row Home	3.90	1.06	Residential			
Residential: Single-Family Detached	235.44	63.75	Residential			
Commercial	24.70	6.69	Impervious Developed	456.29	4.73	98.96
Manufacturing: Light Industrial	12.40	3.36	Impervious Developed			
All other parking	18.16	4.92	Impervious Developed			
Transportation	0.18	0.05	Impervious Developed			
Recreation	13.07	3.54	Pervious Developed	126.90	4.57	96.40
Parking: Community Services	3.46	0.94	Pervious Developed			
Community Services	12.55	3.40	Pervious Developed			
Vacant	2.87	0.78	Pervious Developed			
Wooded	1.69	0.46	Background	0.65	0.65	0.00
Total Aggregate MS4 WLA for North Wales				1639.47	27.01	98.35

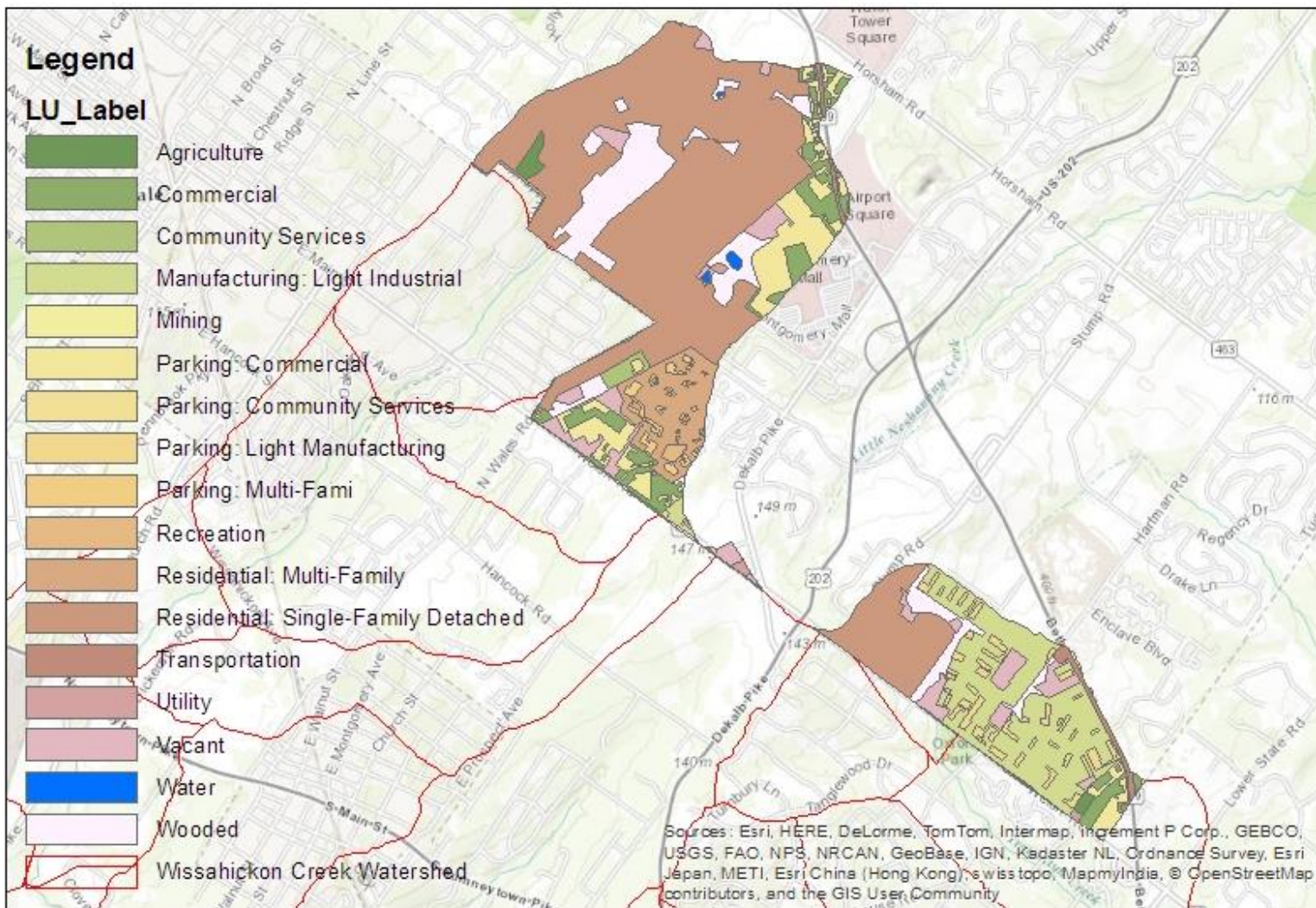


Figure H-10. Land uses for the portion of the Montgomery MS4 that lies within the Wissahickon Creek Watershed.

Table H-10. Annual TP WLA and component TP loadings by land use for the portion of the Montgomery MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Montgomery	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	7.56	0.77	Agriculture	10.17	0.33	96.74
Residential: Multi-Family	49.86	5.05	Residential	2083.32	23.02	98.89
Residential: Single-Family Detached	465.89	47.21	Residential			
Commercial	56.58	5.73	Impervious Developed	2684.62	36.62	98.64
Manufacturing: Light Industrial	128.67	13.04	Impervious Developed			
All other parking	105.81	10.72	Impervious Developed			
Transportation	9.39	0.95	Impervious Developed			
Mining	0.43	0.04	Pervious Developed	310.90	5.38	98.27
Recreation	3.47	0.35	Pervious Developed			
Parking: Community Services	0.87	0.09	Pervious Developed			
Community Services	5.74	0.58	Pervious Developed			
Utility	2.91	0.29	Pervious Developed			
Vacant	51.43	5.21	Pervious Developed			
Water	2.08	0.21	Background	54.50	54.50	0.00
Wooded	96.18	9.75	Background			
Total Aggregate MS4 WLA for Montgomery				5143.51	119.85	97.67

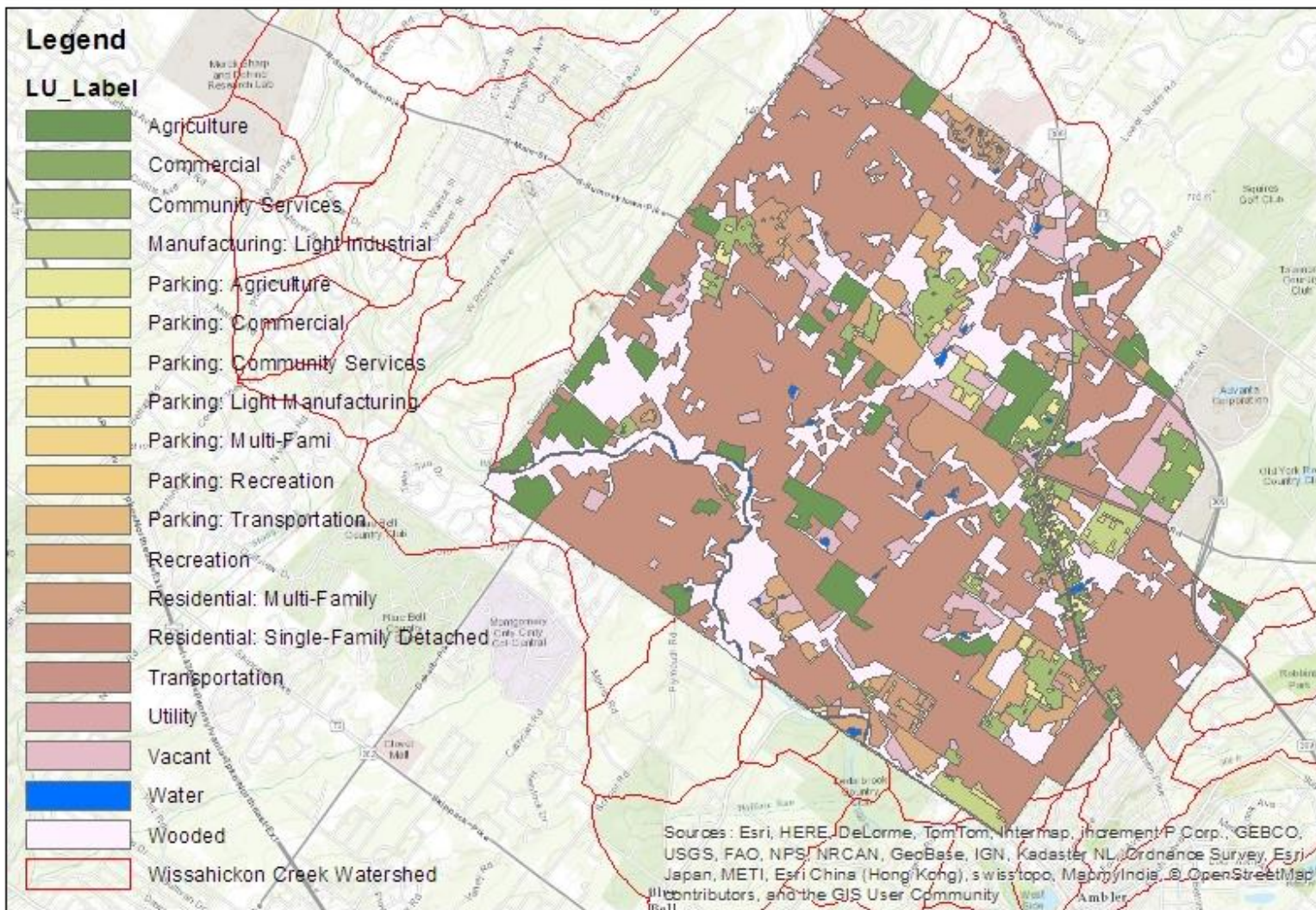


Figure H-11. Land uses for the portion of the Lower Gwynedd MS4 that lies within the Wissahickon Creek Watershed.

Table H-11. Annual TP WLA and component TP loadings by land use for the portion of the Lower Gwynedd MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Lower Gwynedd	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	324.10	6.14	Agriculture	805.35	38.93	95.17
Residential: Multi-Family	212.94	4.03	Residential	16247.52	312.33	98.08
Residential: Single-Family Detached	2692.11	50.98	Residential			
Commercial	116.03	2.20	Impervious Developed	2279.96	155.89	93.16
Manufacturing: Light Industrial	61.28	1.16	Impervious Developed			
All other parking	85.49	1.62	Impervious Developed			
Transportation	38.10	0.72	Impervious Developed			
Recreation	210.73	3.99	Pervious Developed	3503.89	285.35	91.86
Parking: Agriculture	1.10	0.02	Pervious Developed			
Parking: Community Services	28.81	0.55	Pervious Developed			
Community Services	133.99	2.54	Pervious Developed			
Utility	1.79	0.03	Pervious Developed			
Vacant	299.69	5.68	Pervious Developed			
Water	29.37	0.56	Background	666.04	666.04	0.00
Wooded	1043.64	19.76	Background			
Golf	1.57	0.03	Golf	3.00	0.06	98.00
Total Aggregate MS4 WLA for Lower Gwynedd				23505.76	1458.60	93.79

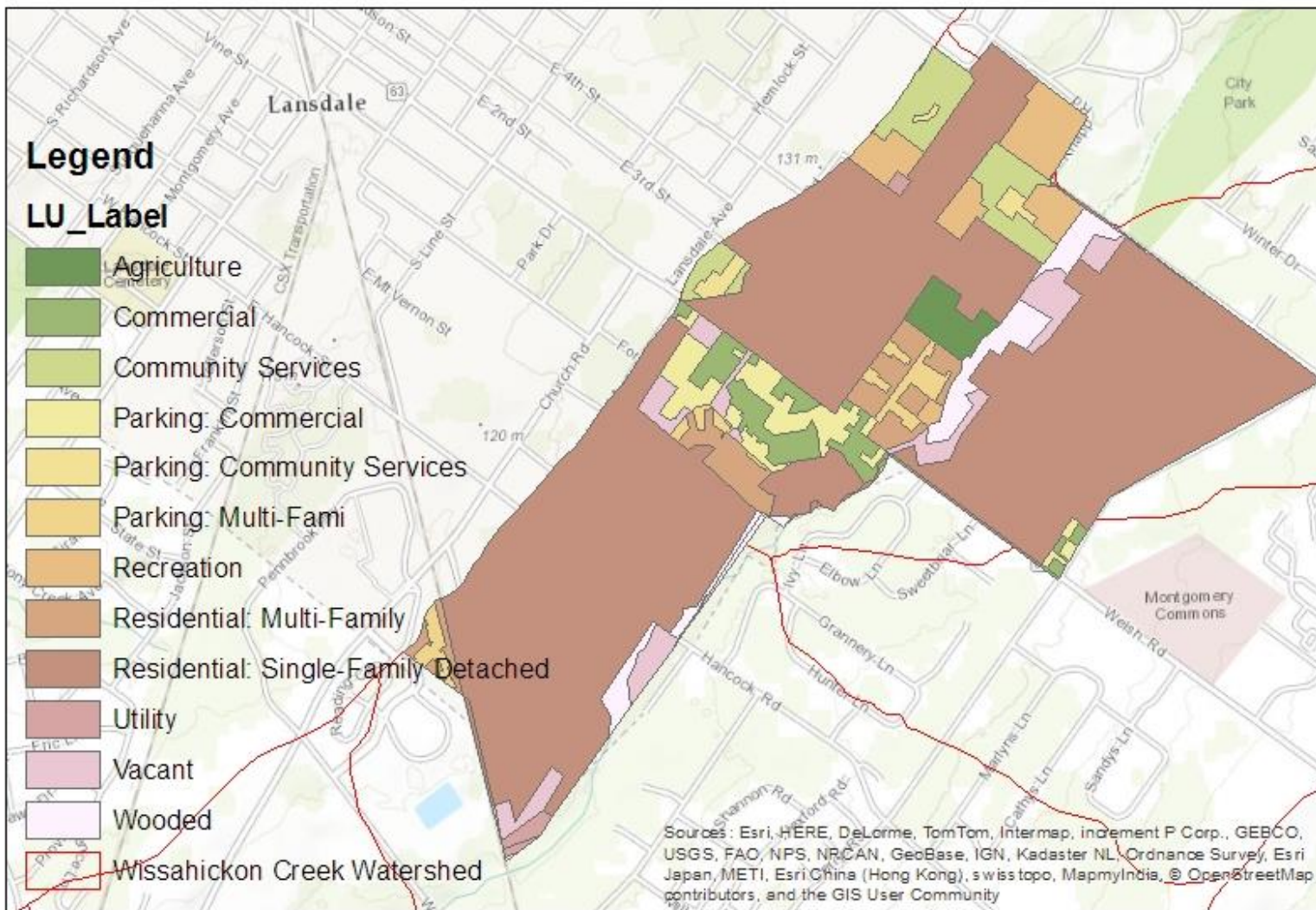


Figure H-12. Land uses for the portion of the Lansdale MS4 that lies within the Wissahickon Creek Watershed.

Table H-12. Annual TP WLA and component TP loadings by land use for the portion of the Lansdale MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Lansdale	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	6.18	1.41	Agriculture	13.45	0.13	99.00
Residential: Multi-Family	16.86	3.85	Residential	1100.72	11.01	99.00
Residential: Single-Family Detached	306.22	69.83	Residential			
Commercial	13.37	3.05	Impervious Developed	517.25	5.17	99.00
All other parking	21.77	4.96	Impervious Developed			
Recreation	18.32	4.18	Pervious Developed	274.29	3.12	98.86
Parking: Community Services	3.05	0.70	Pervious Developed			
Community Services	17.69	4.03	Pervious Developed			
Utility	2.19	0.50	Pervious Developed			
Vacant	17.97	4.10	Pervious Developed			
Wooded	14.92	3.40	Background	6.59	6.59	0.00
Total Aggregate MS4 WLA for Lansdale				1912.30	26.02	98.64

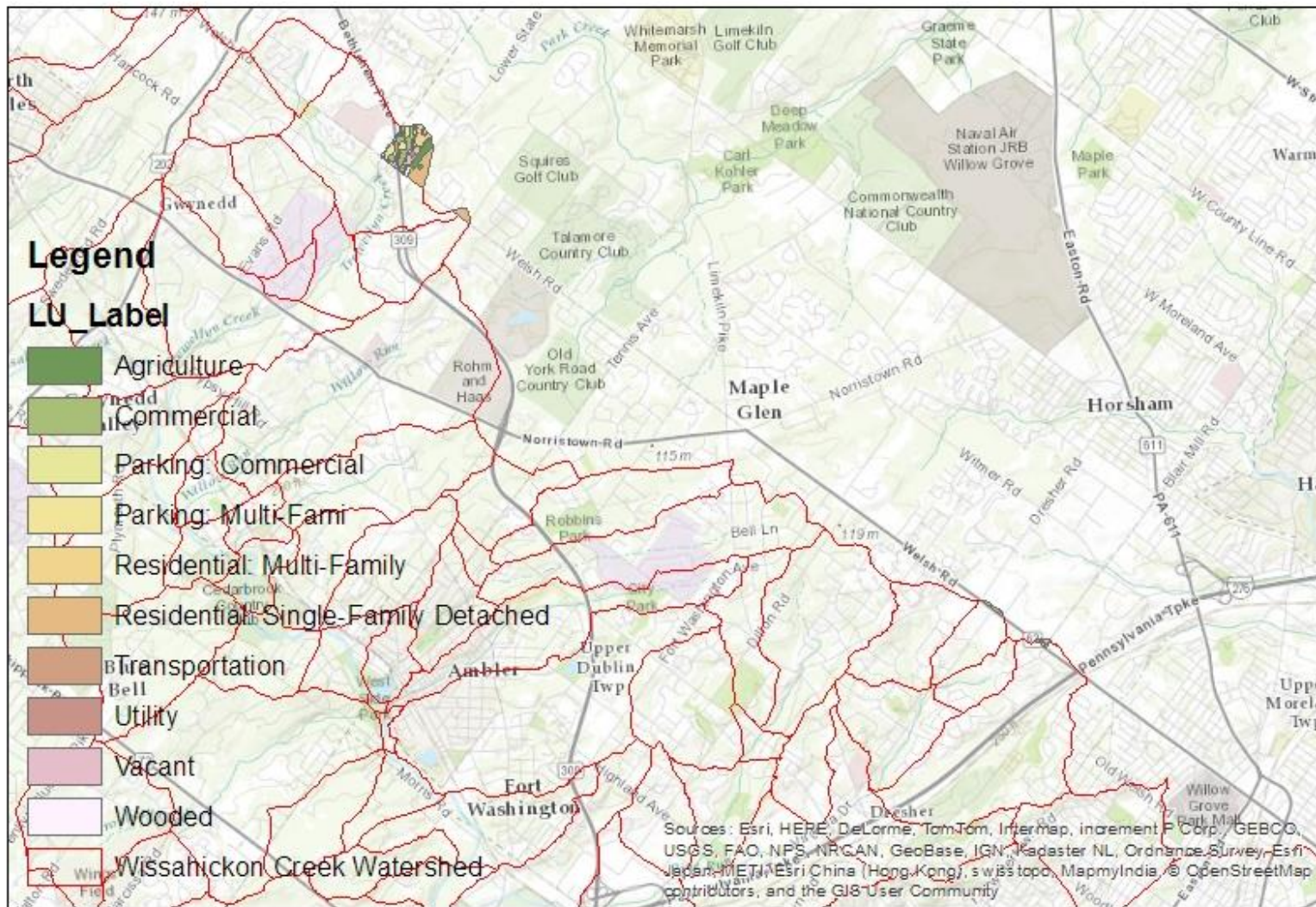


Figure H-13. Land uses for the portion of the Horsham MS4 that lies within the Wissahickon Creek Watershed.

Table H-13. Annual TP WLA and component TP loadings by land use for the portion of the Horsham MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Horsham	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Agriculture	7.08	10.33	Agriculture	18.01	0.36	98.00
Residential: Multi-Family	6.21	9.06	Residential	157.78	3.16	98.00
Residential: Single-Family Detached	16.83	24.54	Residential			
Commercial	14.70	21.44	Impervious Developed	354.31	10.60	97.01
All other parking	13.78	20.10	Impervious Developed			
Transportation	2.54	3.70	Impervious Developed			
Utility	0.71	1.04	Pervious Developed	33.22	0.61	98.16
Vacant	5.49	8.01	Pervious Developed			
Wooded	1.21	1.77	Background	0.55	0.55	0.00
Total Aggregate MS4 WLA for Horsham				563.87	15.28	97.29

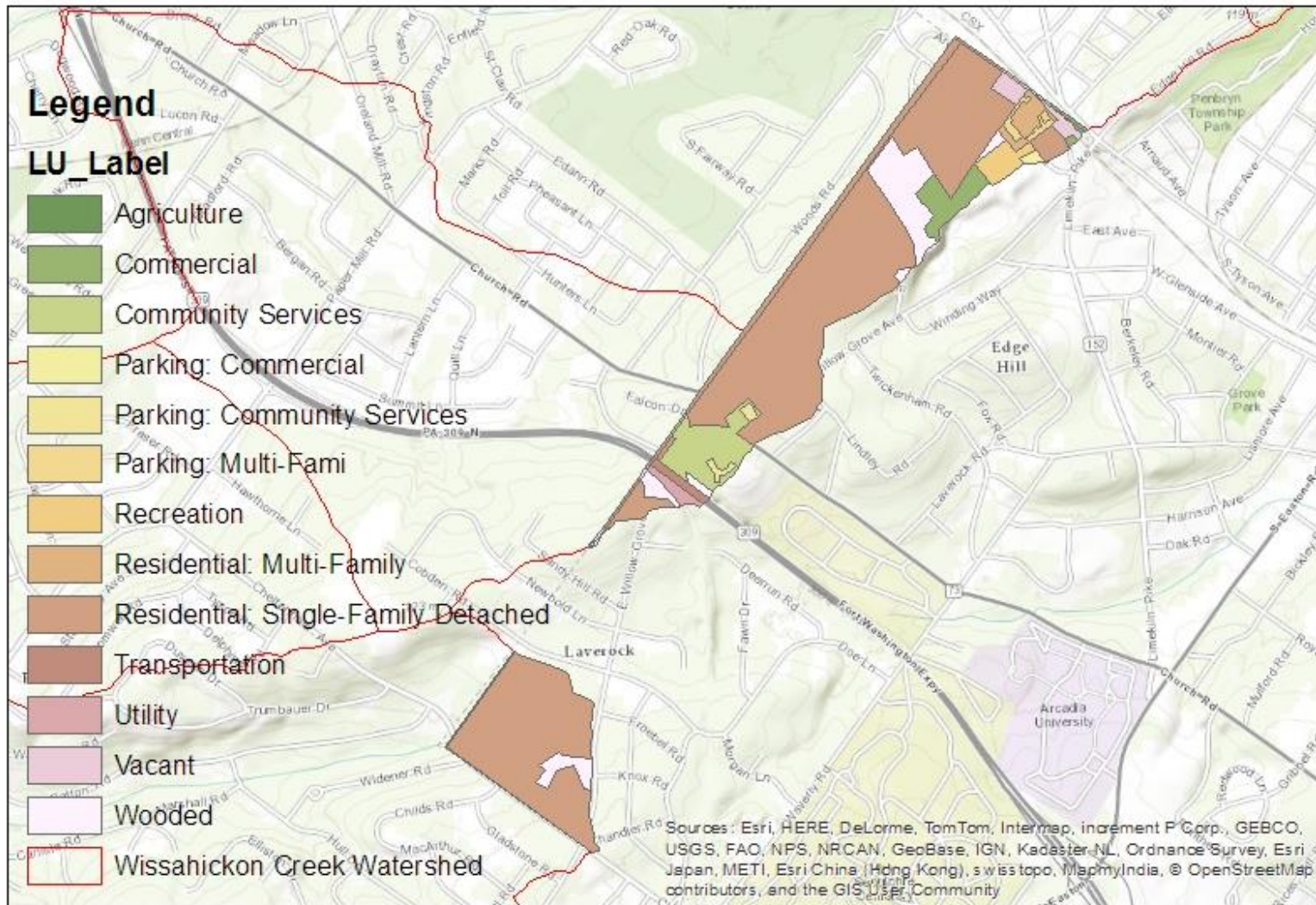


Figure H-14. Land uses for the portion of the Cheltenham MS4 that lies within the Wissahickon Creek Watershed.

Table H-14. Annual TP WLA and component TP loadings by land use for the portion of the Cheltenham MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Cheltenham	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Residential: Multi-Family	2.95	1.70	Residential	437.53	8.75	98.00
Residential: Single-Family Detached	127.24	73.40	Residential			
Commercial	5.85	3.38	Impervious Developed	49.43	0.99	98.00
All other parking	1.77	1.02	Impervious Developed			
Transportation	1.29	0.74	Impervious Developed			
Recreation	3.35	1.93	Pervious Developed	83.94	11.99	85.72
Parking: Community Services	0.97	0.56	Pervious Developed			
Community Services	10.21	5.89	Pervious Developed			
Utility	1.46	0.84	Pervious Developed			
Vacant	2.99	1.73	Pervious Developed			
Wooded	15.27	8.81	Background	6.09	6.09	0.00
Total Aggregate MS4 WLA for Cheltenham				576.99	27.82	95.18

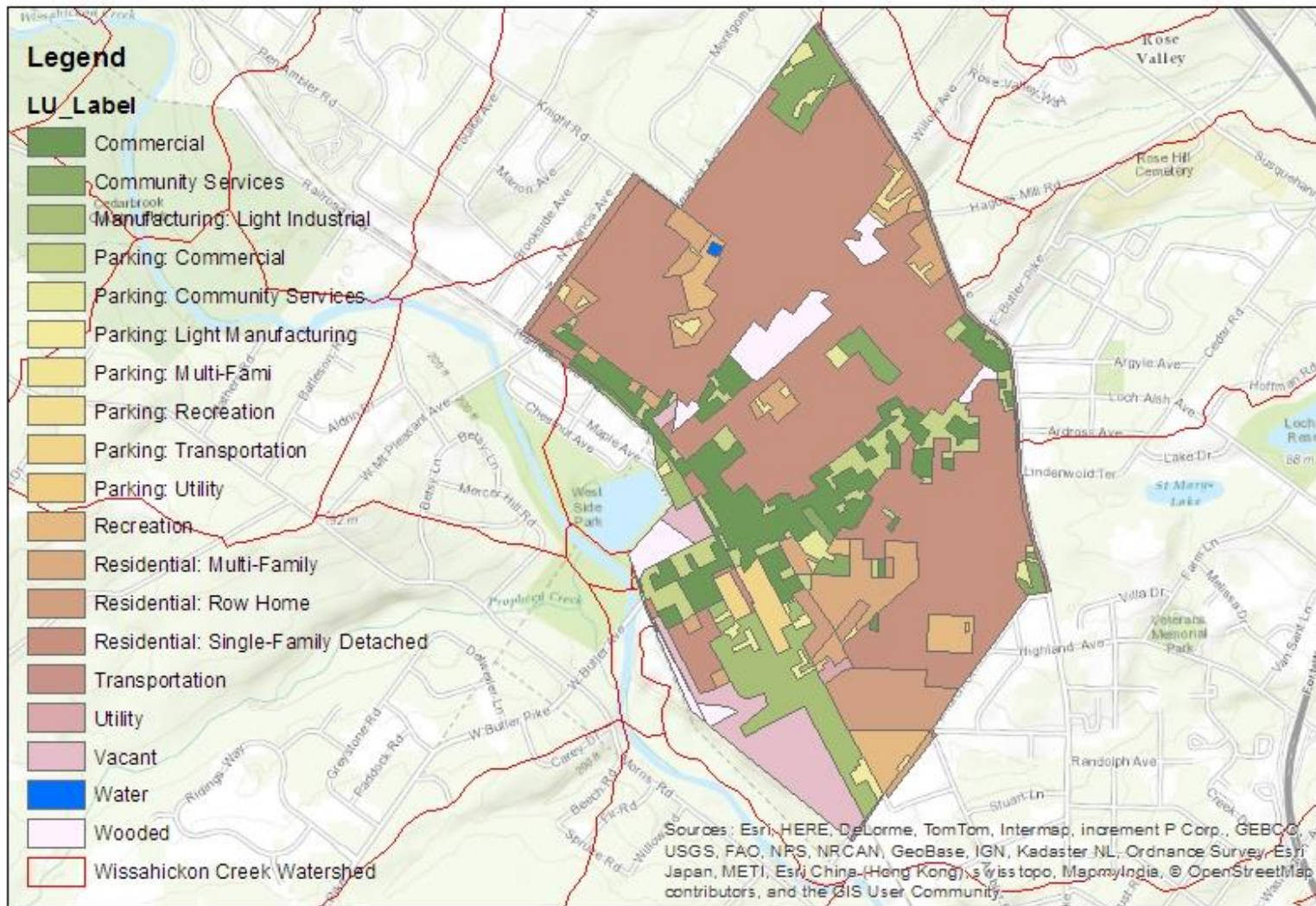


Figure H-15. Land uses for the portion of the Ambler MS4 that lies within the Wissahickon Creek Watershed.

Table H-15. Annual TP WLA and component TP loadings by land use for the portion of the Ambler MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Ambler	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Residential: Multi-Family	34.19	6.30	Residential	1392.24	22.05	98.42
Residential: Row Home	19.11	3.52	Residential			
Residential: Single-Family Detached	281.74	51.95	Residential			
Commercial	52.96	9.76	Impervious Developed	994.80	20.43	97.95
Manufacturing: Light Industrial	27.22	5.02	Impervious Developed			
All other parking	37.23	6.86	Impervious Developed			
Transportation	5.97	1.10	Impervious Developed			
Recreation	14.43	2.66	Pervious Developed	309.27	25.42	91.78
Parking: Community Services	4.70	0.87	Pervious Developed			
Community Services	15.46	2.85	Pervious Developed			
Utility	1.27	0.23	Pervious Developed			
Vacant	26.52	4.89	Pervious Developed			
Water	0.36	0.07	Background	11.47	11.47	0.00
Wooded	21.20	3.91	Background			
Total Aggregate MS4 WLA for Ambler				2707.78	79.37	97.07

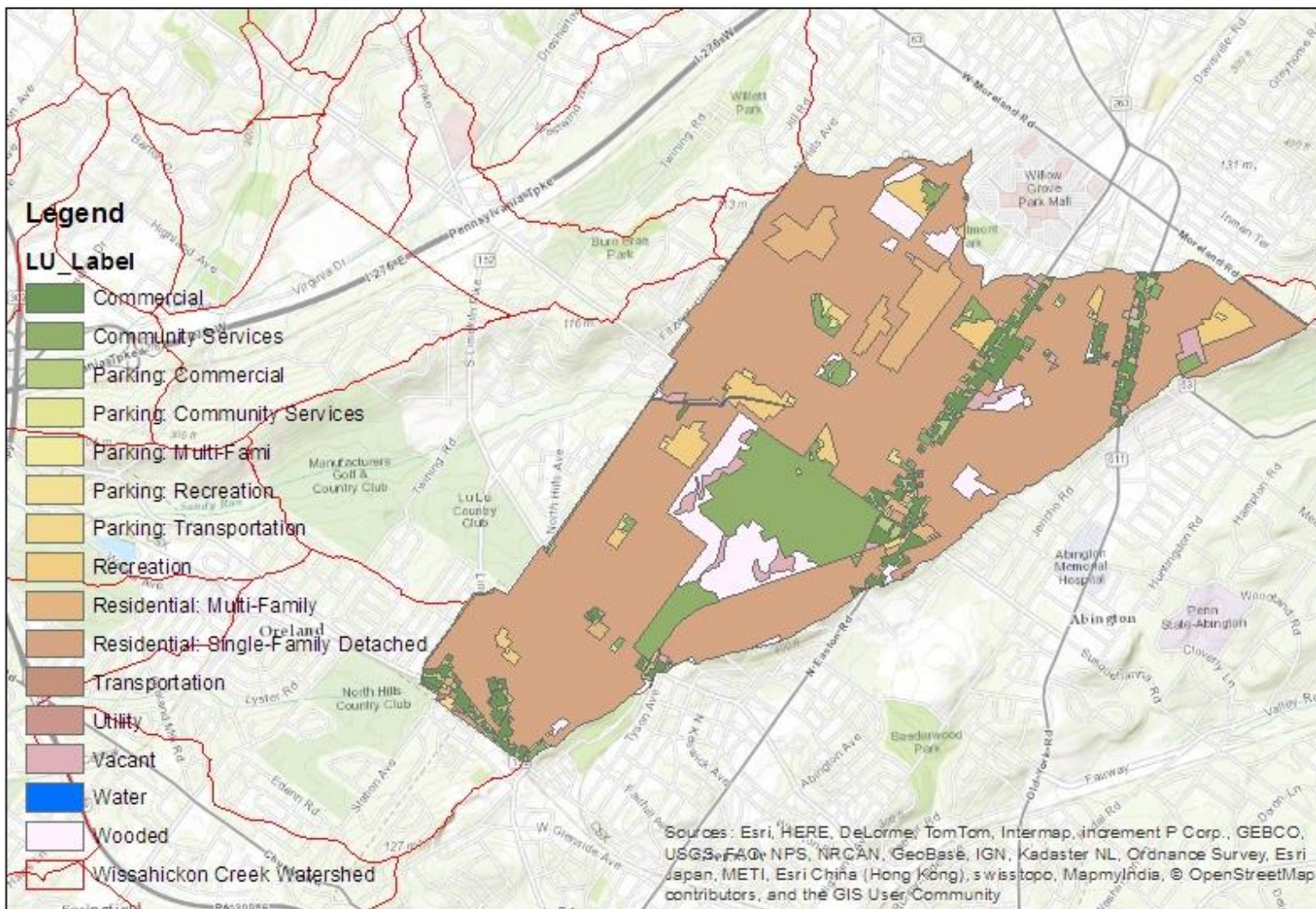


Figure H-16. Land uses for the portion of the Abington MS4 that lies within the Wissahickon Creek Watershed.

Table H-16. Annual TP WLA and component TP loadings by land use for the portion of the Abington MS4 that lies within the Wissahickon Creek Watershed.

Modeled Land Use: Abington	Acres	Percent Area (%)	Summarized Group	Baseline TP Load (lbs/yr)	Allocated TP Load (lbs/yr)	Percent Reduction (%)
Residential: Multi-Family	84.61	3.68	Residential	6487.62	69.65	98.93
Residential: Single-Family Detached	1590	69.26	Residential			
Commercial	97.33	4.24	Impervious Developed	1285.48	15.30	98.81
All other parking	48.77	2.12	Impervious Developed			
Transportation	1.60	0.07	Impervious Developed			
Recreation	82.89	3.61	Pervious Developed	1717.55	40.85	97.62
Parking: Community Services	10.19	0.44	Pervious Developed			
Community Services	204.92	8.92	Pervious Developed			
Utility	1.04	0.05	Pervious Developed			
Vacant	38.51	1.68	Pervious Developed			
Water	2.41	0.11	Background	83.80	83.80	0.00
Wooded	133.72	5.82	Background			
Total Aggregate MS4 WLA for Abington				9574.45	209.60	97.81