

# Supplementary materials

The Supplementary materials is articulated in the following four parts:

- List of acronyms;
- Characteristics of open spaces and districts according to their physical characteristics;
- Characteristics of open spaces based on costs for climate adaptation interventions;
- Description of the proposed climate adaptation interventions.

**List of acronyms**

UHI – Urban Heat Island

LST – Land Surface Temperature

LPT – Local Public Transport

IPI - Local Permeability Index

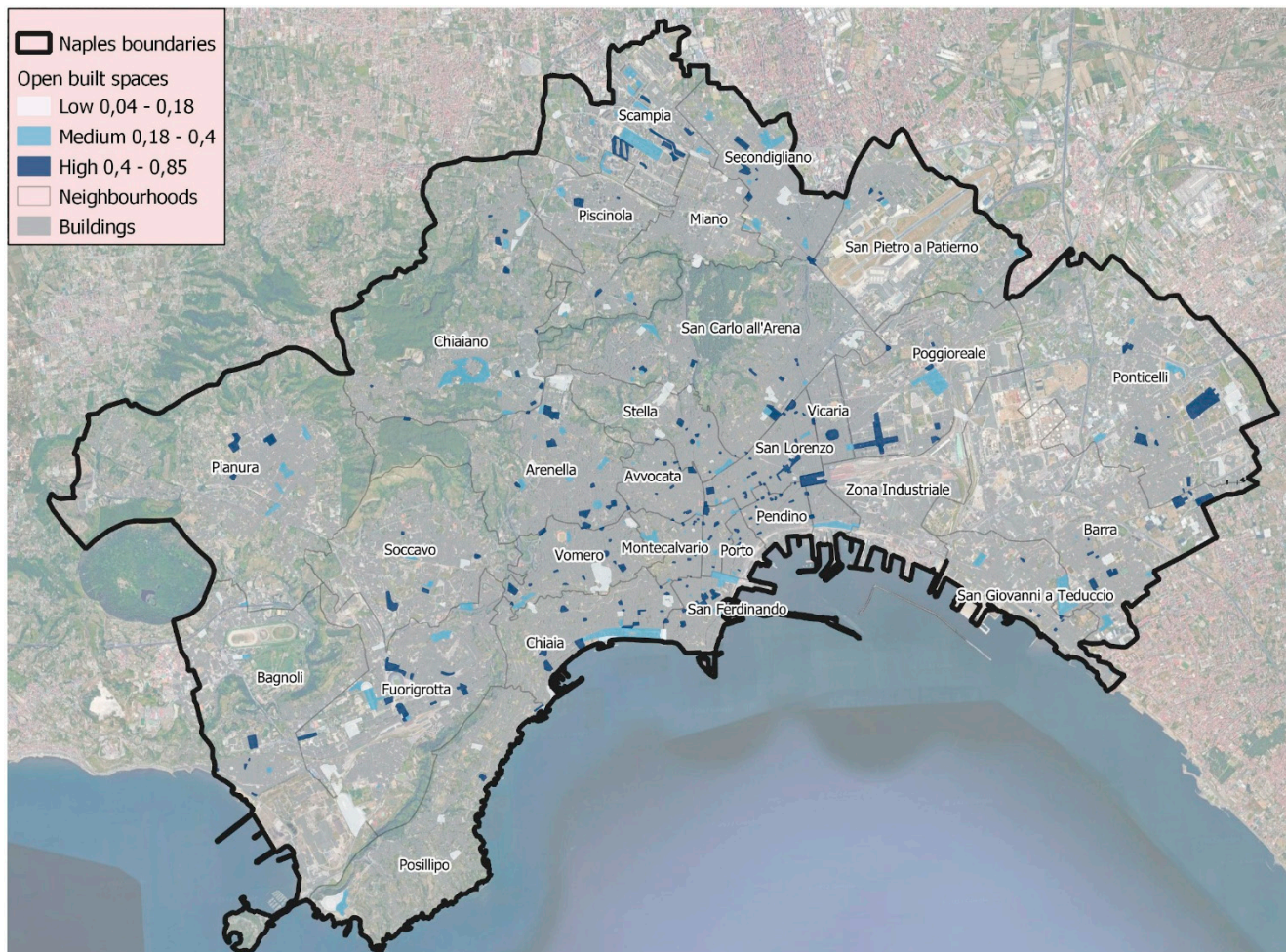
ITCI - Local Thermal Comfort Index

IAI - Local Accessibility Index

IPt - Total Permeability Index

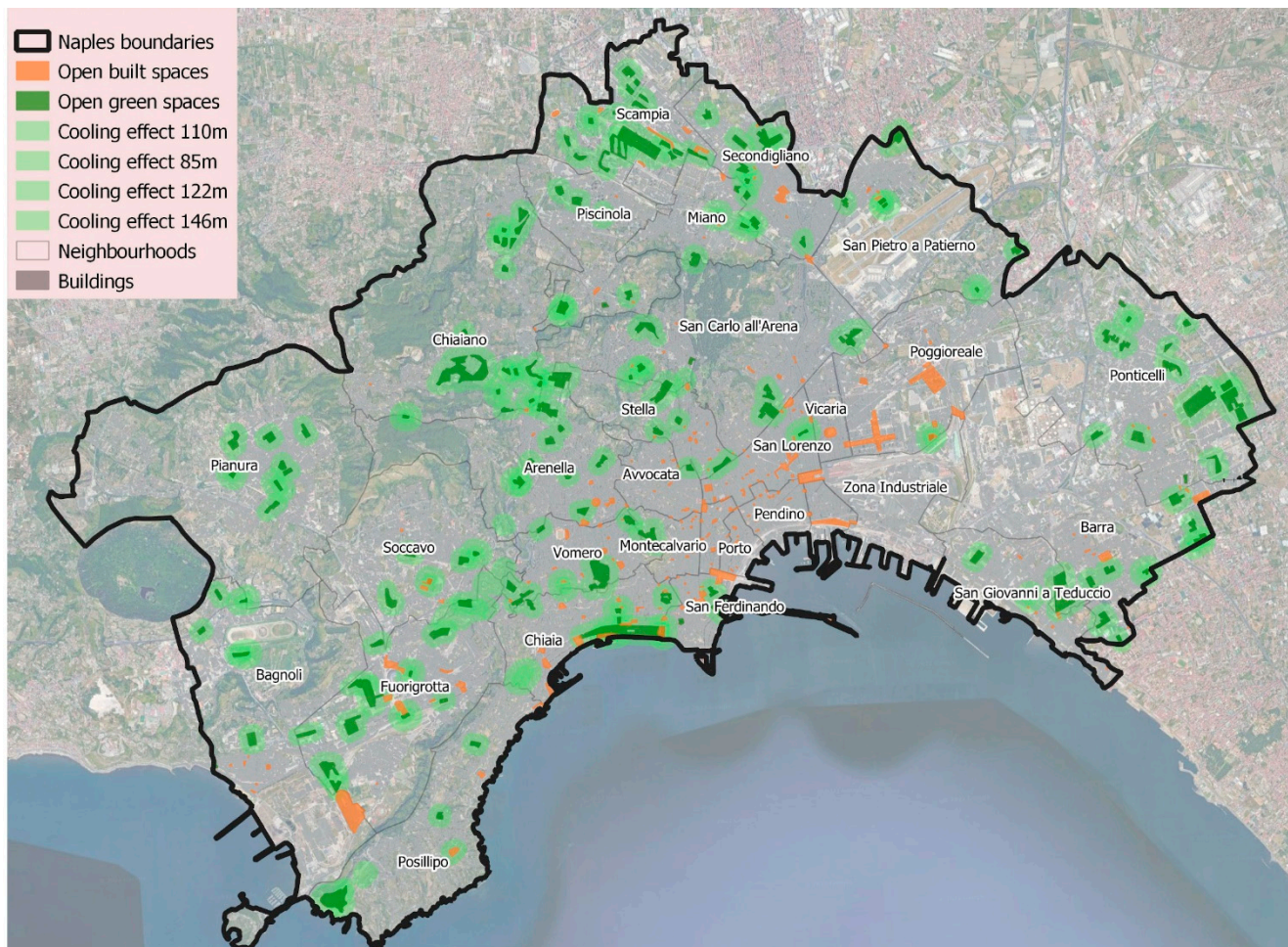
ITCt - Total Thermal Comfort Index

## Characteristics of open spaces and districts according to their physical characteristics:

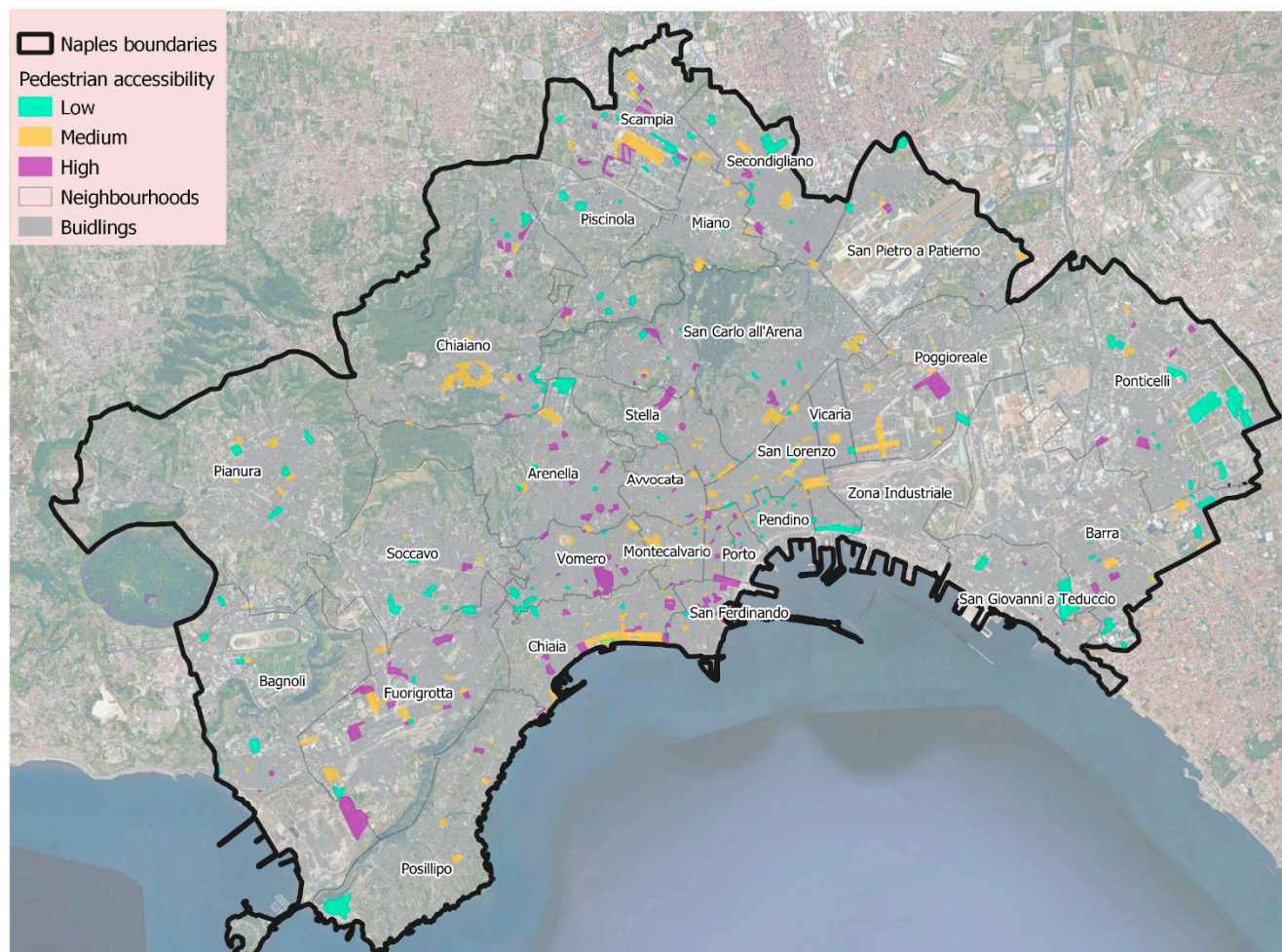


**Figure S1.** Classification of open spaces based on Runoff coefficients.



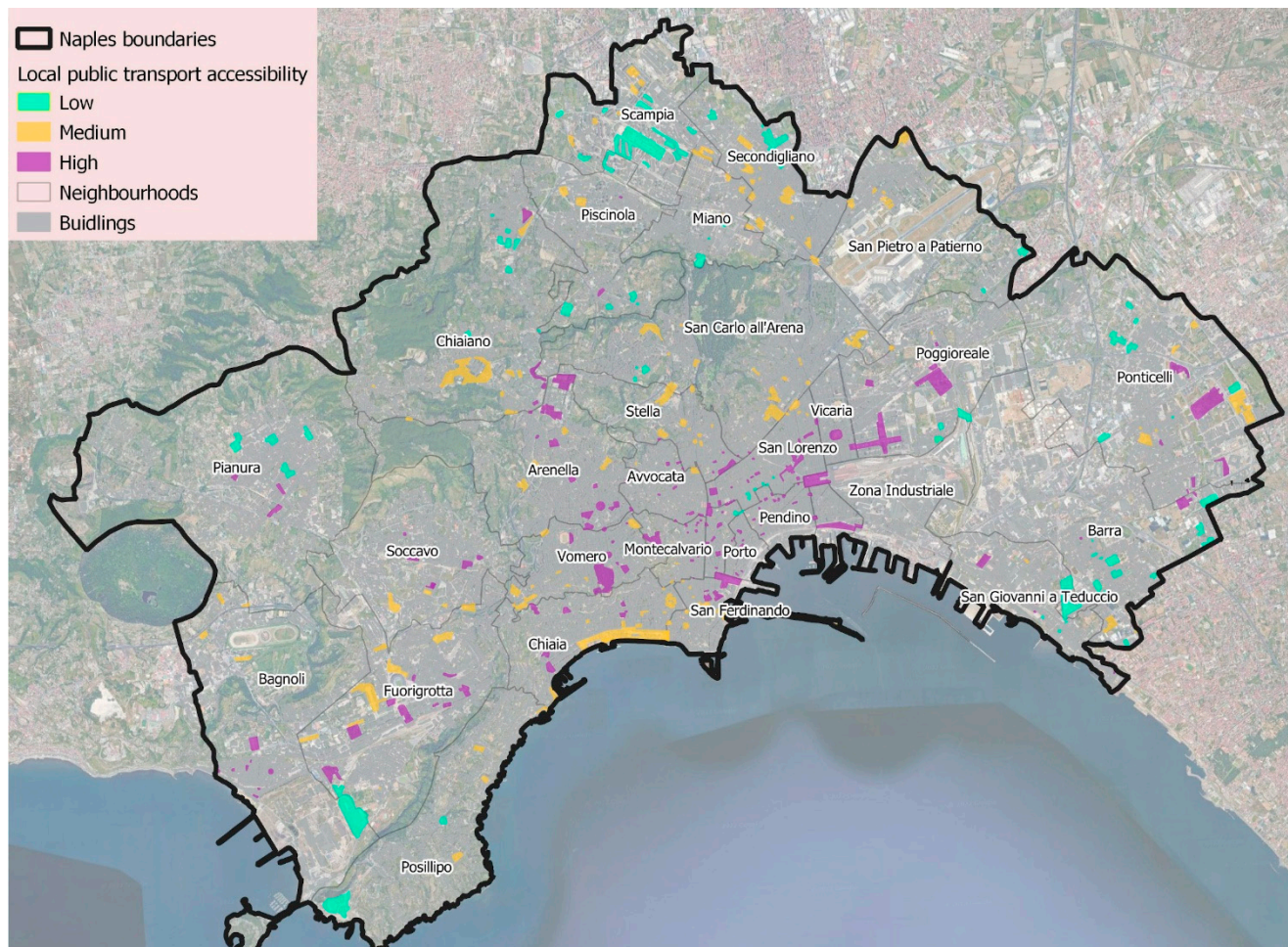


**Figure S2.** Classification of open spaces based on cooling effect, according to green areas dimensions and urban fabrics building density.



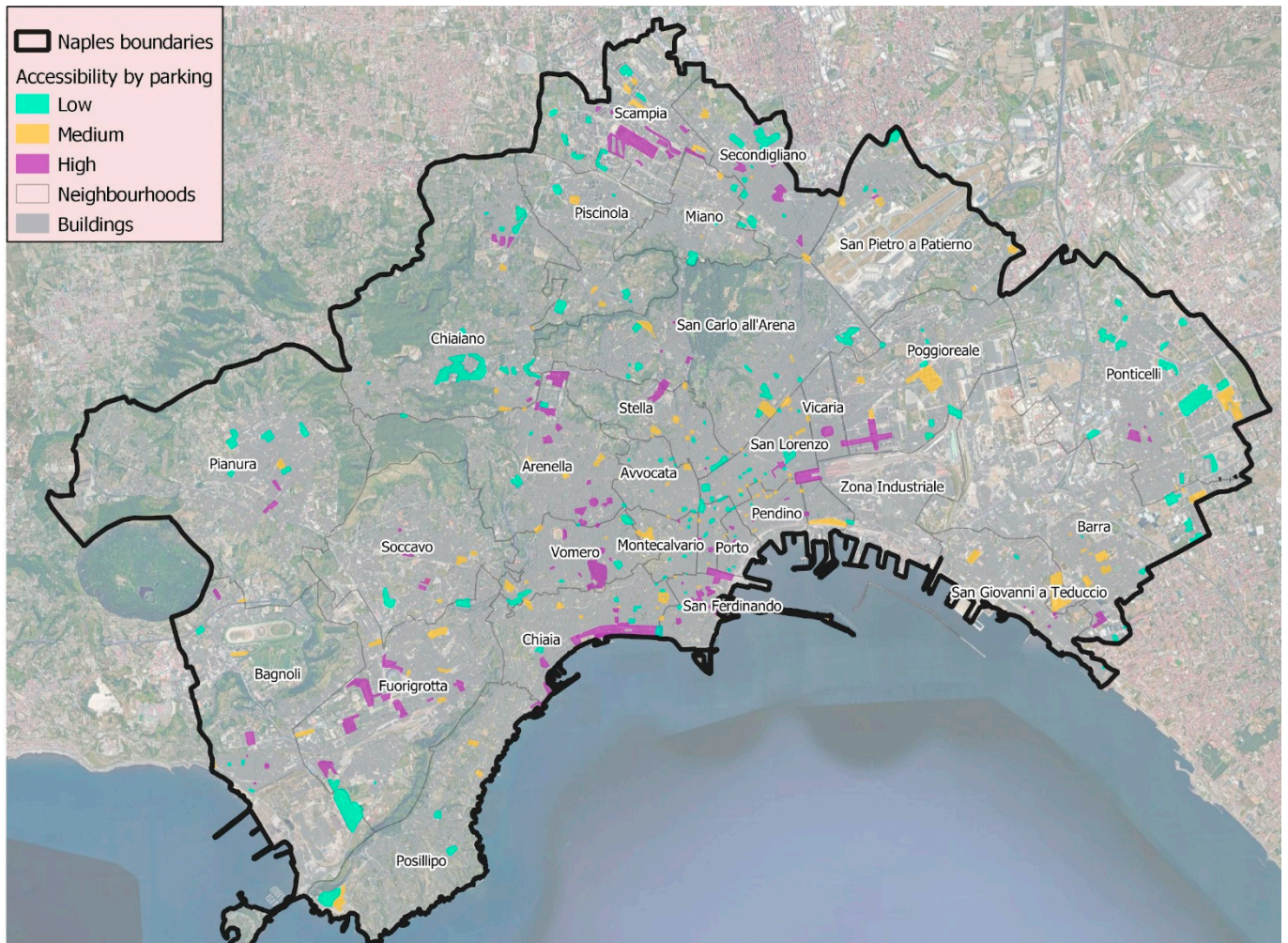
**Figure S3.** Classification of open spaces based on Pedestrian accessibility.



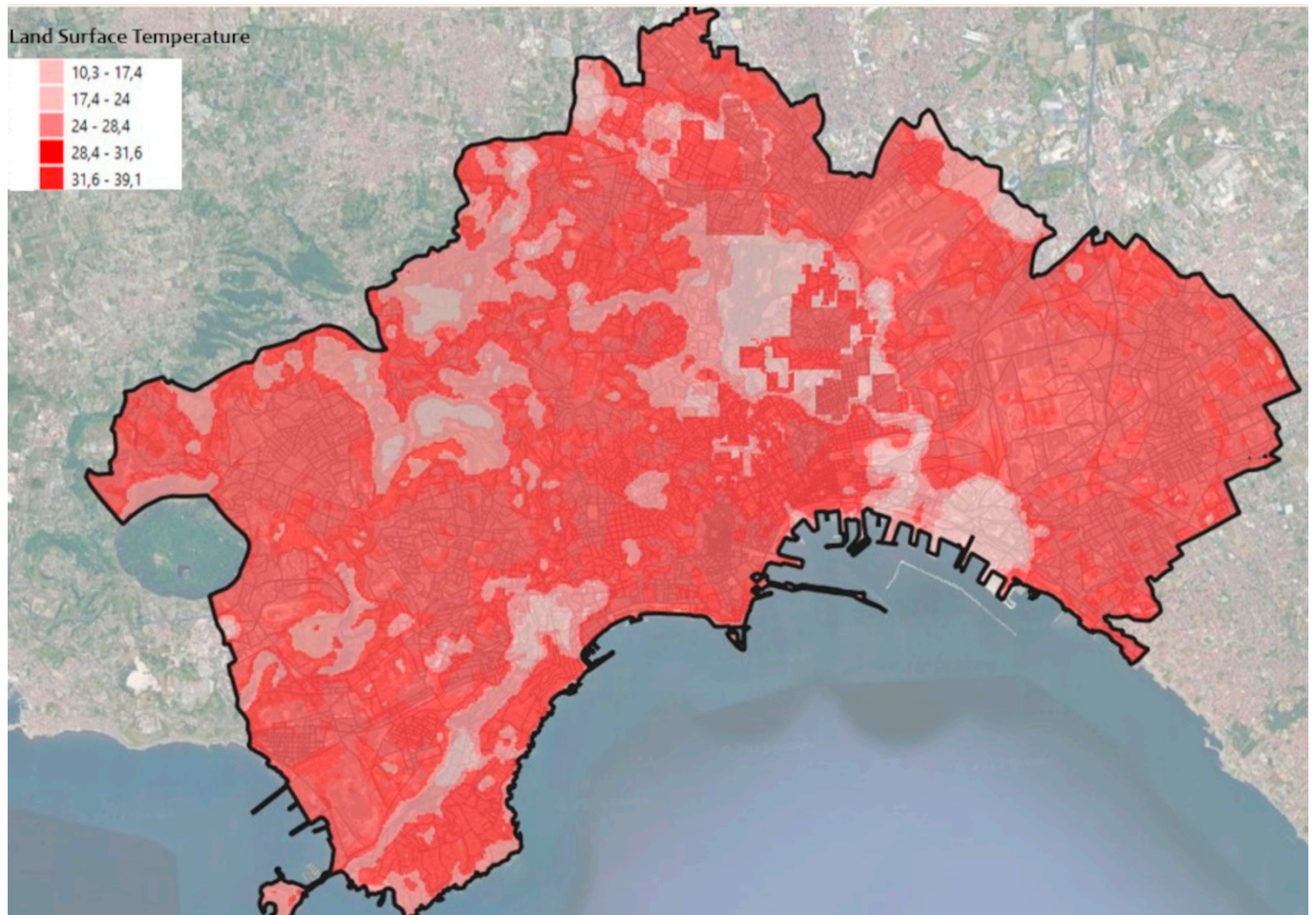


**Figure S4.** Classification of open spaces based on LPT accessibility.



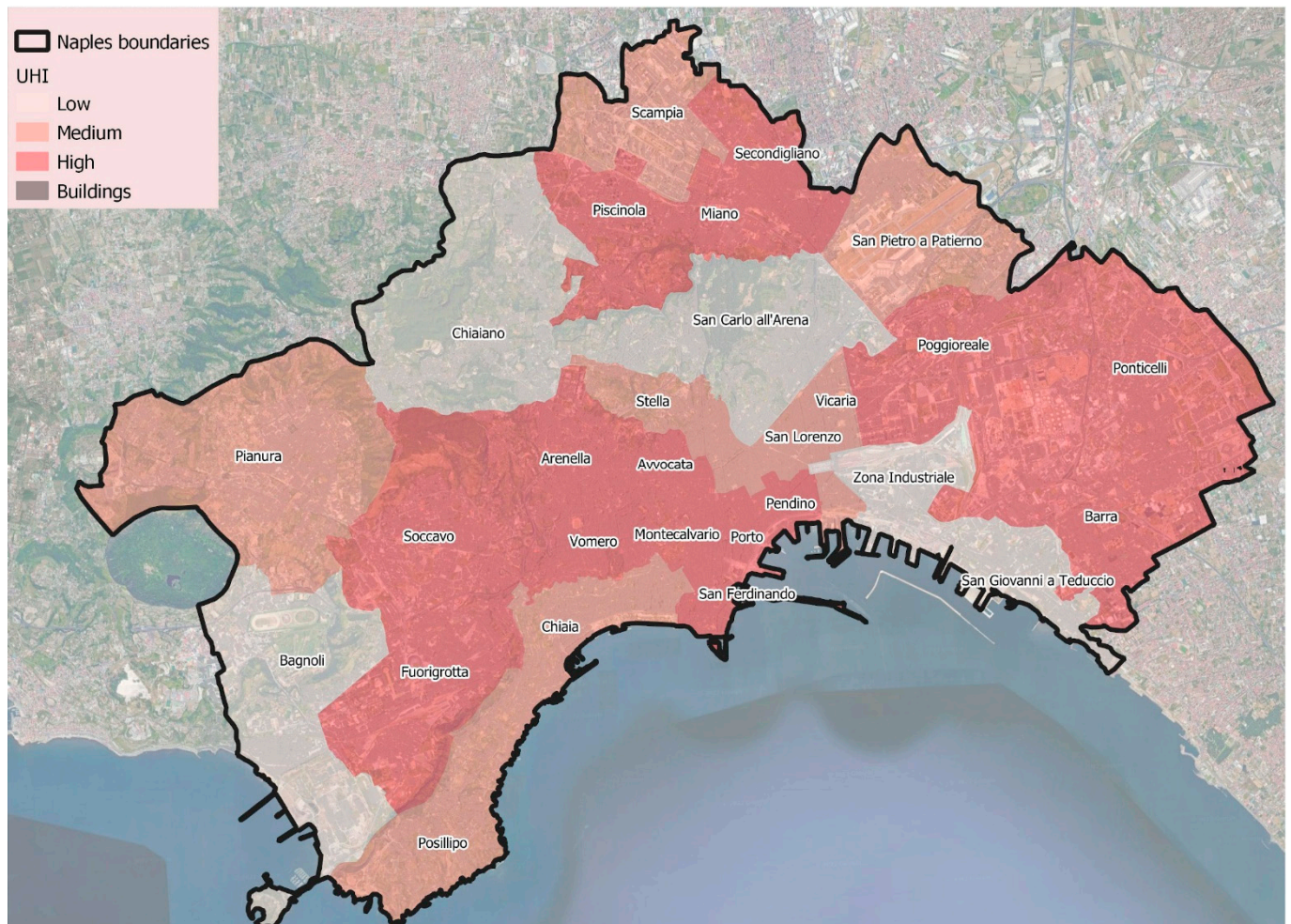


**Figure S5.** Classification of open spaces based on Parking supply accessibility.

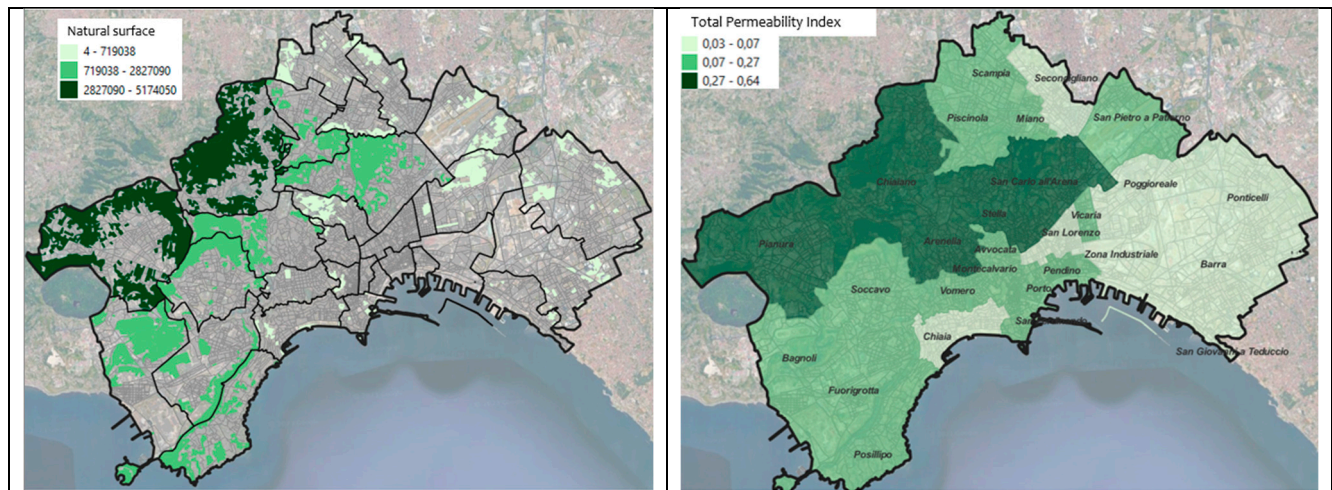


**Figure S6.** Land Surface Temperature (30x30m grid).

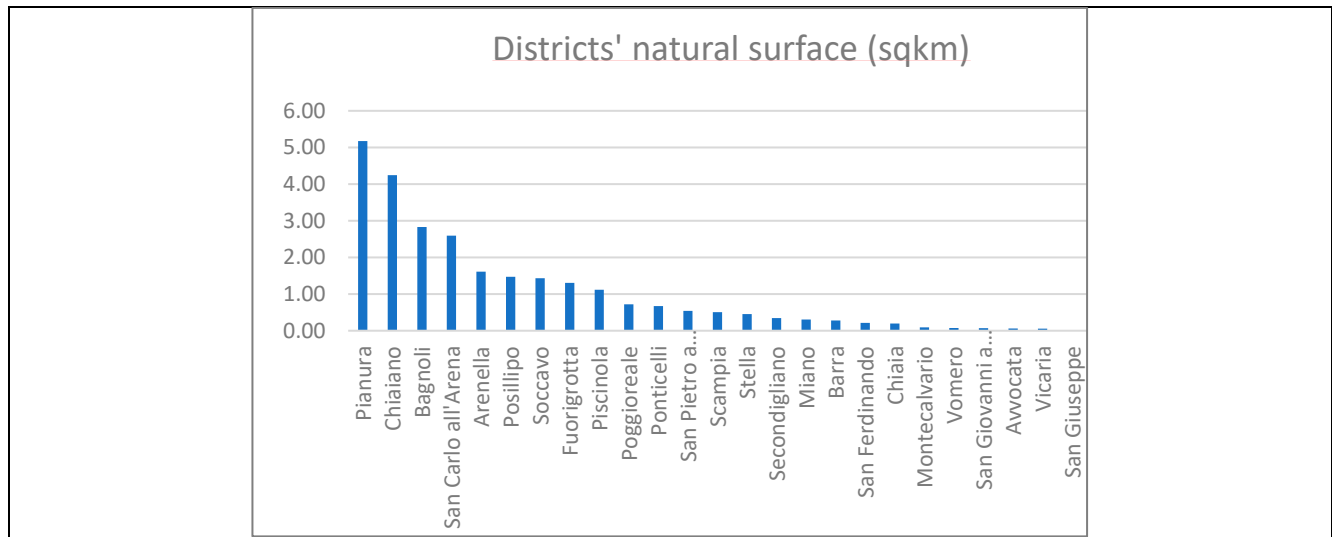




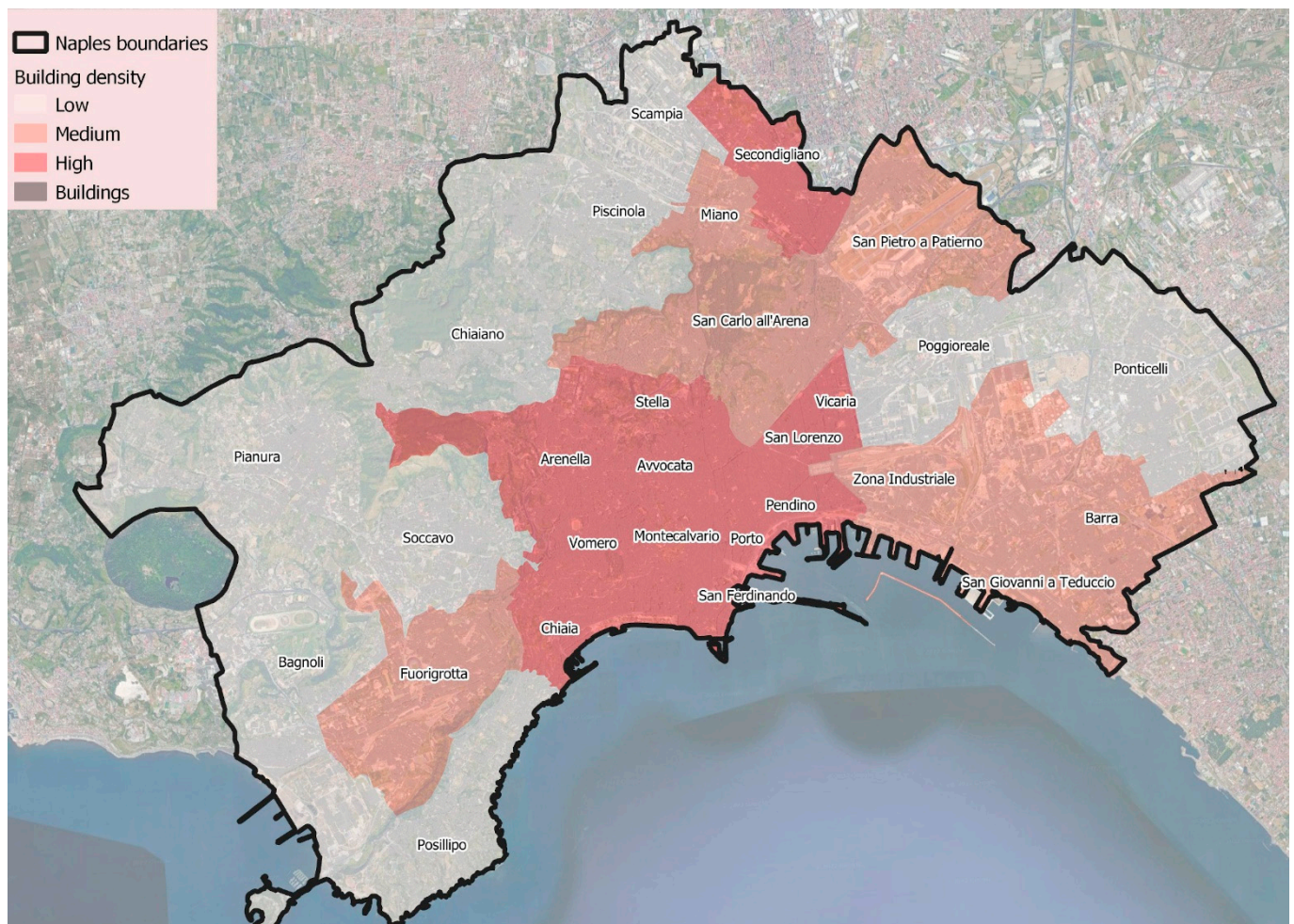
**Figure S7.** Classification of districts based on UHI levels.







**Figure S8.** Amount of natural surfaces within districts and their classification based on  $IP_t$ .



**Figure S9.** Classification of districts based on Building density.



	Neighbourhood	IP <sub>t</sub> lower than the average value (0.194)	ITC <sub>t</sub> higher than the average value (0.433)
1	Arenella		0.61
2	Avvocata	0.091	0.643
3	Bagnoli	0.162	
4	Barra	0.025	0.615
5	Chiaia	0.045	
6	Chiaiano		
7	Fuorigrotta	0.101	0.594
8	Mercato		
9	Miano		0.538
10	Montecalvario	0.16	0.801
11	Pendino	0.131	0.835
12	Pianura		
13	Piscinola		0,525
14	Poggioreale	0,06	0,525
15	Ponticelli	0,05	0,554
16	Porto		
17	Posillipo		
18	San Carlo all'Arena		
19	San Ferdinando	0.111	0.619
20	San Giovanni a Teduccio	0.044	
21	San Giuseppe		0.661
22	San Lorenzo	0.061	0.75
23	San Pietro a Patierno	0.066	
24	Scampia		
25	Secondigliano	0.054	0.616
26	Soccavo		0.531
27	Stella		
28	Vicaria	0.16	
29	Vomero	0.176	0.621
30	Zona Industriale		

**Figure S10.** Naples neighbourhoods representing “warning areas” due to their permeability and thermal comfort values indexes.

**Characteristics of open spaces based on costs for climate adaptation interventions:**



ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context area
1	109,65	San Lorenzo	filter strips	9.868,41	Historical ring
2	188,73	Montecalvario	filter strips	16.985,25	Historical ring
3	263,79	Montecalvario	filter strips	23.741,37	Historical ring
4	284,39	San Lorenzo	filter strips	25.594,83	Historical ring
5	302,75	Avvocata	rain garden	8.477,08	Historical ring
6	303,21	Pendino	rain garden	8.489,91	Historical ring
7	329,61	Avvocata	filter strips	29.664,90	Historical ring
8	366,33	Vomero	bioretention areas	17.583,89	First ring
9	386,61	Montecalvario	filter strips	34.794,99	Historical ring
10	392,90	Montecalvario	rain garden	11.001,28	Historical ring
11	396,45	Pendino	rain garden	11.100,66	Historical ring
12	404,69	San Lorenzo	parking garden	16.997,15	Historical ring
13	443,28	Avvocata	bioretention areas	21.373,44	Historical ring
14	453,73	Pendino	rain garden	12.704,47	Historical ring
15	463,30	Pendino	rain garden	13.028,40	Historical ring
16	468,55	San Lorenzo	filter strips	42.169,14	Historical ring
17	468,77	Pendino	filter strips	42.189,39	Historical ring
18	474,03	San Lorenzo	filter strips	42.662,52	Historical ring
19	494,87	San Ferdinando	filter strips	44.537,94	Historical ring
20	558,67	Pendino	rain garden	15.642,73	Historical ring
21	565,29	Pendino	filter strips	50.876,37	Historical ring
22	577,55	Avvocata	bioretention areas	27.722,35	Historical ring
23	615,56	Pendino	rain garden	17.235,79	Historical ring
24	638,44	Pendino	filter strips	57.459,78	Historical ring
25	638,52	San Lorenzo	filter strips	57.466,98	Historical ring
26	646,03	Barra	rain garden	18.088,92	Peripheral ring
27	657,87	Pendino	parking garden	27.630,37	Historical ring
28	662,57	Pendino	filter strips	59.631,03	Historical ring
29	726,68	Vomero	rain garden	20.347,04	First ring
30	732,06	Pendino	filter strips	65.885,49	Historical ring
31	768,70	Vomero	bioretention areas	36.897,50	First ring
32	770,35	Montecalvario	rain garden	21.569,86	Historical ring
33	780,34	San Lorenzo	filter strips	70.230,96	Historical ring
34	799,41	Montecalvario	rain garden	22.383,59	Historical ring
35	823,89	Pendino	filter strips	74.150,19	Historical ring
36	874,73	Vomero	bioretention areas	41.987,14	First ring
37	885,77	Pendino	rain garden	24.801,62	Historical ring
38	887,06	San Lorenzo	filter strips	79.835,58	Historical ring
39	891,25	San Lorenzo	rain garden	24.955,00	Historical ring
40	906,62	Avvocata	filter strips	81.595,62	Historical ring
41	924,17	San Lorenzo	filter strips	83.175,57	Historical ring
42	1.012,56	Montecalvario	rain garden	28.351,62	Historical ring
43	1.099,31	Vomero	filter strips	98.937,81	First ring
44	1.100,03	San Lorenzo	rain garden	30.800,73	Historical ring
45	1.155,04	Pendino	filter strips	103.953,69	Historical ring
46	1.173,49	San Lorenzo	parking garden	49.286,50	Historical ring
47	1.213,14	San Lorenzo	rain garden	33.967,78	Historical ring
48	1.273,84	Avvocata	rain garden	35.667,60	Historical ring
49	1.304,90	Pendino	parking garden	54.805,93	Historical ring
50	1.350,54	Montecalvario	filter strips	121.548,51	Historical ring
51	1.401,48	Avvocata	filter strips	126.133,02	Historical ring
52	1.639,47	Pendino	rain garden	45.905,08	Historical ring
53	1.643,94	Avvocata	filter strips	147.954,33	Historical ring
54	1.707,33	San Lorenzo	filter strips	153.659,70	Historical ring
55	1.775,09	Avvocata	bioretention areas	56.802,91	Historical ring
56	1.837,22	San Lorenzo	rain garden	51.442,19	Historical ring
57	1.839,17	San Ferdinando	rain garden	51.496,82	Historical ring
58	1.864,44	Montecalvario	filter strips	167.799,60	Historical ring
59	1.926,56	Barra	rain garden	53.943,74	Peripheral ring
60	1.944,51	Fuorigrotta	bioretention areas	62.224,22	Peripheral ring
61	2.069,04	San Lorenzo	filter strips	186.213,33	Historical ring
62	2.179,46	Avvocata	parking garden	52.307,06	Historical ring
63	2.713,25	Pendino	parking garden	65.117,95	Historical ring
64	3.228,01	Fuorigrotta	rain garden	90.384,22	Peripheral ring
65	3.463,71	San Ferdinando	rain garden	96.983,82	Historical ring
66	3.726,93	Pendino	filter strips	335.423,97	Historical ring
67	3.770,04	Poggioreale	bioretention areas	120.641,34	Peripheral ring
68	4.945,77	Fuorigrotta	rain garden	138.481,42	Peripheral ring
69	6.321,09	Poggioreale	bioretention areas	202.274,88	Peripheral ring
70	7.394,53	Vomero	bioretention areas and filter strips	902.132,78	First ring
71	7.744,56	Pendino	rain garden	216.847,57	Historical ring
72	8.070,28	San Lorenzo	bioretention areas	258.249,02	Historical ring
73	8.395,37	Secondigliano	filter strips and rain garden	990.653,42	Peripheral ring
74	24.565,03	Fuorigrotta	parking garden	1.621.292,18	Peripheral ring
75	26.638,03	Barra	water square	3.995.704,50	Peripheral ring
76	35.467,85	Poggioreale	rain garden	993.099,74	Peripheral ring
77	85.951,13	Poggioreale	water square	12.892.669,80	Peripheral ring

26.045.693,30

Figure S11. Proposed adaptation interventions for increasing permeability and related estimated costs.

ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context area
1	248,63	Barra	greening	11.380,53	Peripheral ring
2	289,28	Vomero	greening	13.209,78	First ring
3	19.104,92	Barra	greening	860.361,58	Peripheral ring
4	6.017,33	Vomero	greening	271.163,67	First ring
5	653,90	Vomero	greening	29.809,59	First ring
6	13.416,13	San Ferdinando	greening	603.981,85	Historical ring
7	8.962,93	Fuorigrotta	greening	403.907,63	Peripheral ring
8	2.534,14	Vomero	greening	114.420,35	First ring
9	1.932,27	Fuorigrotta	greening	87.335,93	Peripheral ring
10	52,53	Montecalvario	greening	2.428,03	Historical ring
11	59,11	Montecalvario	greening	3.043,73	Historical ring
12	78,02	San Ferdinando	greening	3.894,81	Historical ring
13	353,62	Fuorigrotta	greening	16.296,81	Peripheral ring
14	94,05	Montecalvario	greening	4.296,25	Historical ring
15	339,53	San Ferdinando	greening	15.342,90	Historical ring
16	1.150,11	Secondigliano	greening	52.139,13	Peripheral ring
17	1.733,07	Secondigliano	greening	78.372,33	Peripheral ring
18	1.606,77	Secondigliano	greening	72.688,52	Peripheral ring
19	31.273,59	Secondigliano	greening	1.408.271,42	Peripheral ring
20	962,04	Vomero	greening	43.675,89	First ring
21	2.841,12	Fuorigrotta	increasing the presence of trees	12.820,92	Peripheral ring
22	3.779,97	San Lorenzo	increasing the presence of trees	16.951,86	Historical ring
23	10.771,52	Fuorigrotta	increasing the presence of trees	47.842,70	Peripheral ring
24	13.229,43	Fuorigrotta	increasing the presence of trees	58.657,50	Peripheral ring
25	13.418,23	Vomero	increasing the presence of trees	59.360,20	First ring
26	13.442,93	Vomero	increasing the presence of trees	59.596,89	First ring
27	17.594,65	Fuorigrotta	increasing the presence of trees	77.864,46	Peripheral ring
28	18.507,79	Vomero	increasing the presence of trees	81.882,28	First ring
29	30.742,18	Vomero	increasing the presence of trees	135.713,57	First ring
30	32.083,21	Fuorigrotta	increasing the presence of trees	141.614,10	Peripheral ring
31	39.463,07	Fuorigrotta	increasing the presence of trees	174.085,51	Peripheral ring

**4.962.410,70**

**Figure S12.** Proposed adaptation interventions for improving thermal comfort and related estimated costs.



ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context ring
1	45010,06	San Ferdinando	rain gardens	1.890.422,52	Historical ring
2	537,949	San Lorenzo	parking gardens	23.669,76	Historical ring
3	487,013	San Lorenzo	rain gardens	33.896,10	Historical ring
4	2364,849	San Lorenzo	bioretention area	75.675,17	Historical ring
5	2006,34	San Lorenzo	increasing presence of trees	2.270,86	Historical ring
6	1086,697	Montecalvario	rain gardens	75.634,11	Historical ring
7	1182,671	San Lorenzo	bioretention area	37.845,47	Historical ring
8	10536,703	San Lorenzo	increasing presence of trees	4.909,47	Historical ring
9	2021,068	San Ferdinando	rain gardens	140.666,33	Historical ring
10	545,403	San Ferdinando	rain gardens	37.960,05	Historical ring
11	730,935	Montecalvario	rain gardens	30.699,27	Historical ring
12	1395,408	San Lorenzo	increasing presence of trees	2.527,77	Historical ring
13	361,155	San Lorenzo	bioretention area	11.556,96	Historical ring
14	3149,29	San Ferdinando	increasing presence of trees	6.267,80	Historical ring
15	844,992	San Lorenzo	bioretention area	27.039,74	Historical ring
16	5142,635	Vomero	increasing presence of trees	13.984,88	First ring
17	5366,675	Fuorigrotta	increasing presence of trees	3.845,96	Peripheral ring
18	8827,36	Barra	increasing presence of trees	22.755,59	Peripheral ring
19	8822,319	Fuorigrotta	permeable surfaces and bioretention area	727.841,32	Peripheral ring
20	13229,431	Fuorigrotta	bioretention area	423.341,79	Peripheral ring
21	13299,431	Fuorigrotta	permeable surfaces	162.918,03	Peripheral ring
22	26888,617	Fuorigrotta	increasing presence of trees	58.337,50	Peripheral ring
23	4683,992	Secondigliano	increase presence of trees	58.901,50	Peripheral ring
24	15527,809	Ponticelli	increasing presence of trees	118.437,91	Peripheral ring
25	3755,27	Barra	increase presence of trees	20.865,56	Peripheral ring
26	10938,554	Ponticelli	bioretention area	350.033,73	Peripheral ring
27	11538,524	Fuorigrotta	permeable surfaces	141.346,92	Peripheral ring
28	5140,088	Ponticelli	permeable surfaces	62.966,08	Peripheral ring
29	14983,65	San Ferdinando	permeable surfaces	183.549,71	Historical ring
30	12329,242	Fuorigrotta	bioretention area	394.535,74	Peripheral ring
31	7058,815	Avvocata	increasing presence of trees	66.312,06	Historical ring
32	4427,595	Barra	increasing presence of trees	54.632,66	Peripheral ring
33	13466,578	Secondigliano	increasing presence of trees	31.442,79	Peripheral ring
34	13466,578	Secondigliano	increase presence of trees	19.865,42	Peripheral ring
35	25801,662	Ponticelli	increase presence of trees	59.636,94	Peripheral ring
36	5753,299	Ponticelli	permeable surfaces and bioretention area	312.116,47	Peripheral ring
37	28089,598	Fuorigrotta	increasing presence of trees	837,46	Peripheral ring
38	7640,748	Secondigliano	increasing presence of trees	15.473,50	Peripheral ring
39	13526,487	Fuorigrotta	increase presence of trees	123.978,23	Peripheral ring
40	23053,205	Ponticelli	increasing presence of trees	34.003,29	Peripheral ring
41	3172,22	Barra	permeable surfaces	33.308,31	Peripheral ring
42	3172,22	Ponticelli	increasing presence of trees	101.818,10	Peripheral ring
43	4840,491	Barra	permeable surfaces and bioretention area	166.996,94	Peripheral ring
44	28357,89	San Ferdinando	increase presence of trees	837,46	Historical ring
45	7289,342	Ponticelli	rain gardens	306.152,36	Peripheral ring
46	9831,806	San Ferdinando	increase presence of trees	125.158,72	Historical ring
47	11518,497	Barra	permeable surfaces	120.944,22	Peripheral ring
48	11518,53	Barra	increasing presence of trees	43.643,95	Peripheral ring
49	5766,92	Barra	increase presence of trees	51.065,39	Peripheral ring
50	16777,536	Ponticelli	increasing presence of trees	51.065,53	Peripheral ring
51	6792,214	Secondigliano	increase presence of trees	25.758,45	Peripheral ring
52	20591,567	Ponticelli	increasing presence of trees	74.205,16	Peripheral ring
53	5129,799	Ponticelli	increase presence of trees	30.269,74	Peripheral ring
54	5129,799	Ponticelli	increasing presence of trees	90.986,89	Peripheral ring
55	21023,591	Barra	increasing presence of trees	22.955,12	Peripheral ring
56	5090,618	Barra	increasing presence of trees	22.955,12	Peripheral ring
57	2385,66	Fuorigrotta	increasing presence of trees	92.887,80	Peripheral ring
58	3047,322	Secondigliano	increase presence of trees	22.782,72	Peripheral ring
59	11652,30	Fuorigrotta	parking gardens	512.701,16	Peripheral ring

7.759.495,55

**Figure S13.** Proposed adaptation interventions for improving permeability and thermal comfort and related estimated costs.

ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context area	dimensional weight of open space %	economic weight of open space %	Δ
77	85,951,13	Poggioreale	water square	12,892,669,80	Peripheral ring	29,82%	49,50%	-19,68%
75	26,638,03	Barra		3,995,704,50	Peripheral ring	9,24%	15,34%	-6,10%
76	35,467,85	Poggioreale		993,099,74	Peripheral ring	12,31%	3,81%	8,49%
71	7,744,56	Pendino		216,847,57	Historical ring	2,69%	0,83%	1,85%
68	4,945,77	Fuorigrotta		13,848,142	Peripheral ring	1,72%	0,53%	1,18%
65	3,463,71	San Ferdinando		96,983,82	Historical ring	1,20%	0,37%	0,83%
64	3,228,01	Fuorigrotta		90,384,22	Peripheral ring	1,12%	0,35%	0,77%
59	1,926,56	Barra		53,943,74	Peripheral ring	0,67%	0,21%	0,46%
57	1,839,17	San Ferdinando		51,496,82	Historical ring	0,64%	0,20%	0,44%
56	1,837,22	San Lorenzo		51,442,19	Historical ring	0,64%	0,20%	0,44%
52	1,639,47	Pendino	rain garden	45,905,08	Historical ring	0,57%	0,18%	0,39%
48	1,273,84	Avvocata		35,667,60	Historical ring	0,44%	0,14%	0,31%
47	1,213,14	San Lorenzo		33,967,78	Historical ring	0,42%	0,13%	0,29%
44	1,100,03	San Lorenzo		30,800,73	Historical ring	0,38%	0,12%	0,26%
42	1,012,56	Montecalvario		28,351,62	Historical ring	0,35%	0,11%	0,24%
39	891,25	San Lorenzo		24,955,00	Historical ring	0,31%	0,10%	0,21%
37	885,77	Pendino		24,801,62	Historical ring	0,31%	0,10%	0,21%
34	799,41	Montecalvario		22,383,59	Historical ring	0,28%	0,09%	0,19%
32	770,35	Montecalvario		21,569,86	Historical ring	0,27%	0,08%	0,18%
29	726,68	Vomero		20,347,04	First ring	0,25%	0,08%	0,17%
26	646,03	Barra		18,088,92	Peripheral ring	0,22%	0,07%	0,15%
23	615,56	Pendino		17,235,79	Historical ring	0,21%	0,07%	0,15%
20	558,67	Pendino		15,642,73	Historical ring	0,19%	0,06%	0,13%
15	465,30	Pendino		13,028,40	Historical ring	0,16%	0,05%	0,11%
14	433,73	Pendino		12,704,47	Historical ring	0,16%	0,05%	0,11%
11	396,45	Pendino		11,100,66	Historical ring	0,14%	0,04%	0,09%
10	392,90	Montecalvario		11,001,28	Historical ring	0,14%	0,04%	0,09%
6	303,21	Pendino		8,489,91	Historical ring	0,11%	0,03%	0,07%
5	302,75	Avvocata		8,477,08	Historical ring	0,11%	0,03%	0,07%
74	245,65,03	Fuorigrotta	parking garden	1,621,292,18	Peripheral ring	8,52%	6,22%	2,30%
63	2,713,25	Pendino		65,117,95	Historical ring	0,94%	0,25%	0,69%
62	2,179,46	Avvocata		52,307,06	Historical ring	0,76%	0,20%	0,56%
49	1,304,90	Pendino		54,805,93	Historical ring	0,45%	0,21%	0,24%
46	1,173,49	San Lorenzo		49,286,50	Historical ring	0,41%	0,19%	0,22%
27	657,87	Pendino		27,630,37	Historical ring	0,23%	0,11%	0,12%
12	404,69	San Lorenzo		16,997,15	Historical ring	0,14%	0,07%	0,08%
72	8,070,28	San Lorenzo		25,824,90,02	Historical ring	2,80%	0,99%	1,81%
69	6,321,09	Poggioreale		202,274,88	Peripheral ring	2,19%	0,78%	1,42%
67	3,770,04	Poggioreale		120,641,34	Peripheral ring	1,31%	0,46%	0,84%
60	1,944,51	Fuorigrotta	bioretention areas	62,224,22	Peripheral ring	0,67%	0,24%	0,44%
55	1,775,09	Avvocata		56,802,91	Historical ring	0,62%	0,22%	0,40%
36	874,73	Vomero		41,987,14	First ring	0,30%	0,16%	0,14%
31	768,70	Vomero		36,897,50	First ring	0,27%	0,14%	0,13%
22	577,55	Avvocata		27,722,35	Historical ring	0,20%	0,11%	0,09%
13	445,28	Avvocata		21,373,44	Historical ring	0,15%	0,08%	0,07%
8	366,33	Vomero		17,583,89	First ring	0,13%	0,07%	0,06%
66	3,726,93	Pendino		335,423,97	Historical ring	1,29%	1,29%	0,01%
61	2,069,04	San Lorenzo		186,213,33	Historical ring	0,72%	0,71%	0,00%
58	1,864,44	Montecalvario		167,799,60	Historical ring	0,65%	0,64%	0,00%
54	1,707,33	San Lorenzo	filter strips	153,659,70	Historical ring	0,59%	0,59%	0,00%
53	1,643,94	Avvocata		147,954,33	Historical ring	0,57%	0,57%	0,00%
51	1,401,48	Avvocata		126,133,02	Historical ring	0,49%	0,48%	0,00%
50	1,350,54	Montecalvario		121,548,51	Historical ring	0,47%	0,47%	0,00%
45	1,155,04	Pendino		103,953,69	Historical ring	0,40%	0,40%	0,00%
43	1,099,31	Vomero		98,937,81	First ring	0,38%	0,38%	0,00%
41	924,17	San Lorenzo		83,175,57	Historical ring	0,32%	0,32%	0,00%
40	906,62	Avvocata		81,595,62	Historical ring	0,31%	0,31%	0,00%
38	887,06	San Lorenzo		79,835,58	Historical ring	0,31%	0,31%	0,00%
35	823,89	Pendino		74,150,19	Historical ring	0,29%	0,28%	0,00%
33	780,34	San Lorenzo		70,230,96	Historical ring	0,27%	0,27%	0,00%
30	732,06	Pendino		65,885,49	Historical ring	0,25%	0,25%	0,00%
28	662,57	Pendino		59,631,03	Historical ring	0,23%	0,23%	0,00%
25	638,52	San Lorenzo		57,466,98	Historical ring	0,22%	0,22%	0,00%
24	638,44	Pendino		57,459,78	Historical ring	0,22%	0,22%	0,00%
21	565,29	Pendino		50,876,37	Historical ring	0,20%	0,20%	0,00%
19	494,87	San Ferdinando		44,537,94	Historical ring	0,17%	0,17%	0,00%
18	474,03	San Lorenzo		42,662,52	Historical ring	0,16%	0,16%	0,00%
17	468,77	Pendino		42,189,39	Historical ring	0,16%	0,16%	0,00%
16	468,55	San Lorenzo		42,169,14	Historical ring	0,16%	0,16%	0,00%
9	386,61	Montecalvario		34,794,99	Historical ring	0,13%	0,13%	0,00%
7	329,61	Avvocata		29,664,90	Historical ring	0,11%	0,11%	0,00%
4	284,39	San Lorenzo		25,594,83	Historical ring	0,10%	0,10%	0,00%
3	263,79	Montecalvario		23,741,37	Historical ring	0,09%	0,09%	0,00%
2	188,73	Montecalvario		16,985,25	Historical ring	0,07%	0,07%	0,00%
1	109,65	San Lorenzo		9,868,41	Historical ring	0,04%	0,04%	0,00%
73	8,395,37	Secondigliano	filter strips and rain garden	990,653,42	Peripheral ring	2,91%	3,80%	-0,89%
70	7,394,53	Vomero	bioretention areas and filter strips	902,132,78	First ring	2,57%	3,46%	-0,90%

Figure S14. Classification of open spaces, according to adaptation interventions for improving permeability.



ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context area	dimensional weight of open space %	economic weight of open space %	Δ
77	85,951,13	Poggioreale	water square	12.892.669,80	Peripheral ring	29,82%	49,50%	-19,68%
76	35,467,85	Poggioreale	rain garden	993.099,74		12,31%	3,81%	8,49%
75	26,638,03	Barra	water square	3.995.704,50		9,24%	15,34%	-6,10%
74	24,565,03	Fuorigrotta	parking garden	1.621.292,18		8,52%	6,22%	2,30%
73	8,395,37	Secondigliano	filter strips and rain garden	990.653,42		2,91%	3,80%	-0,89%
69	6,321,09	Poggioreale	bioretention areas	202.274,88		2,19%	0,78%	1,42%
68	4,945,77	Fuorigrotta	rain garden	13.848,142		1,72%	0,53%	1,18%
67	3,770,04	Poggioreale	bioretention areas	12.064,34		1,31%	0,46%	0,84%
64	3,228,01	Fuorigrotta	rain garden	90.384,22		1,12%	0,55%	0,77%
60	1,944,51	Fuorigrotta	bioretention areas	62.224,22		0,67%	0,24%	0,44%
59	1,926,56	Barra	rain garden	53.943,74	First ring	0,67%	0,21%	0,46%
26	646,03	Barra	rain garden	18.088,92		0,22%	0,07%	0,15%
70	7,394,53	Vomero	bioretention areas and filter strips	902.132,78		2,57%	3,46%	-0,90%
43	1,099,31	Vomero	filter strips	98.937,81		0,38%	0,38%	0,00%
36	874,73	Vomero	bioretention areas	41.987,14		0,30%	0,16%	0,14%
31	768,70	Vomero	bioretention areas	36.897,50		0,27%	0,14%	0,13%
29	726,68	Vomero	rain garden	20.347,04		0,25%	0,08%	0,17%
8	366,33	Vomero	bioretention areas	17.583,89		0,13%	0,07%	0,06%
72	8,070,28	San Lorenzo	bioretention areas	25.824,02		2,80%	0,99%	1,81%
71	7,744,56	Pendino	rain garden	216.847,57		2,69%	0,83%	1,85%
66	3,726,93	Pendino	filter strips	335.423,97	Historical ring	1,29%	1,29%	0,01%
65	3,463,71	San Ferdinando	rain garden	96.893,82		1,20%	0,37%	0,83%
63	2,713,25	Pendino	parking garden	65.117,95		0,94%	0,25%	0,69%
62	2,179,46	Avvocata	parking garden	52.307,06		0,76%	0,20%	0,56%
61	2,069,04	San Lorenzo	filter strips	186.213,33		0,72%	0,71%	0,00%
58	1,864,44	Montecalvario	filter strips	167.799,60		0,65%	0,64%	0,00%
57	1,839,17	San Ferdinando	rain garden	51.496,82		0,64%	0,20%	0,44%
56	1,837,22	San Lorenzo	rain garden	51.442,19		0,64%	0,20%	0,44%
55	1,775,09	Avvocata	bioretention areas	56.802,91		0,62%	0,23%	0,40%
54	1,707,33	San Lorenzo	filter strips	153.659,70		0,59%	0,59%	0,00%
53	1,643,94	Avvocata	filter strips	147.954,33	Peripheral ring	0,57%	0,57%	0,00%
52	1,639,47	Pendino	rain garden	45.905,08		0,57%	0,18%	0,39%
51	1,401,48	Avvocata	filter strips	126.133,02		0,49%	0,48%	0,00%
50	1,350,54	Montecalvario	filter strips	121.548,51		0,47%	0,47%	0,00%
49	1,304,90	Pendino	parking garden	54.805,93		0,45%	0,21%	0,24%
48	1,273,84	Avvocata	rain garden	35.667,60		0,44%	0,14%	0,31%
47	1,213,14	San Lorenzo	rain garden	33.967,78		0,42%	0,13%	0,29%
46	1,173,49	San Lorenzo	parking garden	49.286,50		0,41%	0,19%	0,22%
45	1,155,04	Pendino	filter strips	103.953,69		0,40%	0,40%	0,00%
44	1,100,03	San Lorenzo	rain garden	30.800,73		0,38%	0,12%	0,26%
42	1,012,56	Montecalvario	rain garden	28.351,62	First ring	0,35%	0,11%	0,24%
41	924,17	San Lorenzo	filter strips	83.175,57		0,32%	0,32%	0,00%
40	906,62	Avvocata	filter strips	81.595,62		0,31%	0,31%	0,00%
39	891,25	San Lorenzo	rain garden	24.955,00		0,31%	0,10%	0,21%
38	887,06	San Lorenzo	filter strips	79.835,58		0,31%	0,31%	0,00%
37	885,77	Pendino	rain garden	24.801,62		0,31%	0,10%	0,21%
35	825,89	Pendino	filter strips	74.150,19		0,29%	0,28%	0,00%
34	799,41	Montecalvario	rain garden	22.383,59		0,28%	0,09%	0,19%
33	780,34	San Lorenzo	filter strips	70.230,96		0,27%	0,27%	0,00%
32	770,35	Montecalvario	rain garden	21.569,86		0,27%	0,08%	0,18%
30	732,06	Pendino	filter strips	65.885,49	Peripheral ring	0,25%	0,25%	0,00%
28	662,57	Pendino	filter strips	59.631,03		0,23%	0,23%	0,00%
27	657,87	Pendino	parking garden	27.630,37		0,23%	0,11%	0,12%
25	638,52	San Lorenzo	filter strips	57.466,98		0,22%	0,22%	0,00%
24	638,44	Pendino	filter strips	57.459,78		0,22%	0,22%	0,00%
23	615,56	Pendino	rain garden	17.235,79		0,21%	0,07%	0,15%
22	577,55	Avvocata	bioretention areas	27.722,35		0,20%	0,11%	0,09%
21	565,29	Pendino	filter strips	50.876,37		0,20%	0,20%	0,00%
20	558,67	Pendino	rain garden	15.642,73		0,19%	0,06%	0,13%
19	494,87	San Ferdinando	filter strips	44.537,94	Historical ring	0,17%	0,17%	0,00%
18	474,03	San Lorenzo	filter strips	42.662,52		0,16%	0,16%	0,00%
17	468,77	Pendino	filter strips	42.189,39		0,16%	0,16%	0,00%
16	468,55	San Lorenzo	filter strips	42.169,14		0,16%	0,16%	0,00%
15	465,30	Pendino	rain garden	13.028,40		0,16%	0,05%	0,11%
14	453,73	Pendino	rain garden	12.704,47		0,16%	0,05%	0,11%
13	445,28	Avvocata	bioretention areas	21.373,44		0,15%	0,08%	0,07%
12	404,69	San Lorenzo	parking garden	16.997,15		0,14%	0,07%	0,08%
11	396,45	Pendino	rain garden	11.100,66		0,14%	0,04%	0,09%
10	392,90	Montecalvario	rain garden	11.001,28		0,14%	0,04%	0,09%
9	386,61	Montecalvario	filter strips	34.794,99	Peripheral ring	0,13%	0,13%	0,00%
7	329,61	Avvocata	filter strips	29.664,90		0,11%	0,11%	0,00%
6	303,21	Pendino	rain garden	8.489,91		0,11%	0,03%	0,07%
5	302,75	Avvocata	rain garden	8.477,08		0,11%	0,03%	0,07%
4	284,39	San Lorenzo	filter strips	25.594,83		0,10%	0,10%	0,00%
3	263,79	Montecalvario	filter strips	23.741,37		0,09%	0,09%	0,00%
2	188,73	Montecalvario	filter strips	16.985,25		0,07%	0,07%	0,00%
1	109,65	San Lorenzo	filter strips	9.868,41		0,04%	0,04%	0,00%

Figure S15. Classification of open spaces for improving permeability, according to their district localisation.

ID	face [m]	District	Climate adaption intervention	Estimated Cost [€]	Context area	cost per inhab.	inhabitants
19	31.273,59	Secondigliano	greening	1.408.271,42	Peripheral ring	3.901,03	361
7	8.962,93	Fuorigrotta		403.907,63	Peripheral ring	1.035,66	390
3	19.104,92	Barra		860.361,58	Peripheral ring	375,38	2292
6	13.416,13	San Ferdinando		603.981,85	Historical ring	150,88	4003
4	6.017,33	Vomero		271.163,67	First ring	82,05	3305
8	2.534,14	Vomero		114.420,35	First ring	53,59	2135
20	962,04	Vomero		43.675,89	First ring	36,52	1196
9	1.932,27	Fuorigrotta		87.335,93	Peripheral ring	27,21	3210
5	653,90	Vomero		29.809,59	First ring	26,08	1143
17	1.733,07	Secondigliano		78.372,33	Peripheral ring	23,81	3292
18	1.606,77	Secondigliano		72.688,52	Peripheral ring	21,70	3350
16	1.150,11	Secondigliano		52.139,13	Peripheral ring	15,90	3280
15	339,53	San Ferdinando		15.342,90	Historical ring	7,15	2145
13	353,62	Fuorigrotta		16.296,81	Peripheral ring	6,67	2442
2	289,28	Vomero		13.209,78	First ring	4,14	3188
12	78,02	San Ferdinando		3.894,81	Historical ring	3,55	1098
1	248,63	Barra		11.380,53	Peripheral ring	3,20	3555
11	59,11	Montecalvario		3.043,73	Historical ring	1,40	2172
14	94,05	Montecalvario		4.296,25	Historical ring	1,38	3122
10	52,53	Montecalvario		2.428,03	Historical ring	0,77	3155
31	39.463,07	Fuorigrotta	increasing the presence of trees	174.085,51	Peripheral ring	1.200,59	145
29	30.742,18	Vomero		135.713,57	First ring	110,61	1227
28	18.507,79	Vomero		81.882,28	First ring	56,78	1442
30	32.083,21	Fuorigrotta		141.614,10	Peripheral ring	45,22	3132
26	13.442,93	Vomero		59.596,89	First ring	26,87	2218
27	17.594,65	Fuorigrotta		77.864,46	Peripheral ring	24,79	3141
23	10.771,52	Fuorigrotta		47.842,70	Peripheral ring	22,36	2140
25	13.418,23	Vomero		59.360,20	First ring	18,84	3150
24	13.229,43	Fuorigrotta		58.657,50	Peripheral ring	14,62	4011
21	2.841,12	Fuorigrotta		12.820,92	Peripheral ring	5,78	2220
22	3.779,97	San Lorenzo		16.951,86	Historical ring	5,17	3281

**Figure S16.** Classification of open spaces, according to adaptation interventions for improving thermal comfort.

ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context area	cost per inhab.	inhabitants
19	31.273,59	Secondigliano	greening	1.408.271,42	Peripheral ring	3.901,03	361
31	39.463,07	Fuorigrotta	increasing the presence of trees	174.085,51		1.200,59	145
7	8.962,93	Fuorigrotta	greening	403.907,63		1.035,66	390
3	19.104,92	Barra	greening	860.361,58		375,38	2292
30	32.083,21	Fuorigrotta	increasing the presence of trees	141.614,10		45,22	3132
9	1.932,27	Fuorigrotta	greening	87.335,93		27,21	3210
27	17.594,65	Fuorigrotta	increasing the presence of trees	77.864,46		24,79	3141
17	1.733,07	Secondigliano	greening	78.372,33		23,81	3292
23	10.771,52	Fuorigrotta	increasing the presence of trees	47.842,70		22,36	2140
18	1.606,77	Secondigliano	greening	72.688,52		21,70	3350
16	1.150,11	Secondigliano	greening	52.139,13		15,90	3280
24	13.229,43	Fuorigrotta	increasing the presence of trees	58.657,50		14,62	4011
13	353,62	Fuorigrotta	greening	16.296,81		6,67	2442
21	2.841,12	Fuorigrotta	increasing the presence of trees	12.820,92		5,78	2220
1	248,63	Barra	greening	11.380,53		3,20	3555
29	30.742,18	Vomero	increasing the presence of trees	135.713,57	First ring	110,61	1227
4	6.017,33	Vomero	greening	271.163,67		82,05	3305
28	18.507,79	Vomero	increasing the presence of trees	81.882,28		56,78	1442
8	2.534,14	Vomero	greening	114.420,35		53,59	2135
20	962,04	Vomero	greening	43.675,89		36,52	1196
26	13.442,93	Vomero	increasing the presence of trees	59.596,89		26,87	2218
5	653,90	Vomero	greening	29.809,59		26,08	1143
25	13.418,23	Vomero	increasing the presence of trees	59.360,20		18,84	3150
2	289,28	Vomero	greening	13.209,78		4,14	3188
6	13.416,13	San Ferdinando	greening	603.981,85	Historical ring	150,88	4003
15	339,53	San Ferdinando	greening	15.342,90		7,15	2145
22	3.779,97	San Lorenzo	increasing the presence of trees	16.951,86		5,17	3281
12	78,02	San Ferdinando	greening	3.894,81		3,55	1098
11	59,11	Montecalvario	greening	3.043,73		1,40	2172
14	94,05	Montecalvario	greening	4.296,25		1,38	3122
10	52,53	Montecalvario	greening	2.428,03		0,77	3155

**Figure S17.** Classification of open spaces for improving thermal comfort, according to their district localisation.



ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context ring	dimensional weight of open space %	economic weight of open space %	Δ	cost per inhab.	inhabitants
1	45010,06	San Ferdinando	rain gardens	1.890.422,52	Historical ring	13,3%	43,0%	-29,7%		
45	7289,342	Ponticelli		306.152,36	Peripheral ring	2,2%	7,0%	-4,8%		
9	2021,068	San Ferdinando		140.666,33	Historical ring	0,6%	3,2%	-2,6%		
6	1086,697	Montecalvario		75.634,11	Historical ring	0,3%	1,7%	-1,4%		
11	730,935	Montecalvario		30.699,27	Historical ring	0,2%	0,7%	-0,5%		
10	545,405	San Ferdinando		37.960,05	Historical ring	0,2%	0,9%	-0,7%		
3	487,013	San Lorenzo		33.896,10	Historical ring	0,1%	0,8%	-0,6%		
29	14983,65	San Ferdinando		183.549,71	Historical ring	4,4%	4,2%	0,3%		
21	13299,431	Fuorigrotta		162.918,03	Peripheral ring	3,9%	3,7%	0,2%		
27	11538,524	Fuorigrotta	permeable surfaces	141.346,92	Peripheral ring	3,4%	3,2%	0,2%		
47	11518,497	Barra		120.944,22	Peripheral ring	3,4%	2,8%	0,7%		
28	5140,088	Ponticelli		62.966,08	Peripheral ring	1,5%	1,4%	0,1%		
41	3172,22	Barra		33.308,31	Peripheral ring	0,9%	0,8%	0,2%		
20	13229,431	Fuorigrotta	bioretention area	423.341,79	Peripheral ring	3,9%	9,6%	-5,7%		
30	12329,242	Fuorigrotta		394.535,74	Peripheral ring	3,7%	9,0%	-5,3%		
26	10938,554	Ponticelli		350.093,73	Peripheral ring	3,2%	8,0%	-4,7%		
4	2364,849	San Lorenzo		75.675,17	Historical ring	0,7%	1,7%	-1,0%		
7	1182,671	San Lorenzo		37.845,47	Historical ring	0,4%	0,9%	-0,5%		
15	844,992	San Lorenzo		27.039,74	Historical ring	0,3%	0,6%	-0,4%		
13	361,155	San Lorenzo		11.556,96	Historical ring	0,1%	0,3%	-0,2%		
44	28357,89	San Ferdinando		837,46	Historical ring				20,94	40
37	28089,598	Fuorigrotta	increase presence of trees	837,46	Peripheral ring				5,08	165
22	26888,617	Fuorigrotta		124.902,72	Peripheral ring				105,40	1185
35	25801,662	Ponticelli		123.978,23	Peripheral ring				799,86	155
40	23053,205	Ponticelli		118.693,91	Peripheral ring				60,31	1968
55	21023,591	Barra		113.911,31	Peripheral ring				57,56	1979
52	20591,567	Ponticelli		101.818,10	Peripheral ring				39,56	2574
50	16777,536	Ponticelli		92.887,80	Peripheral ring				41,45	2241
24	15527,809	Ponticelli		90.730,89	Peripheral ring				111,46	814
39	13526,487	Fuorigrotta		74.205,16	Peripheral ring				436,50	170
33	13466,578	Secondigliano	permeable surfaces and bioretention area	68.706,36	Peripheral ring				61,45	1118
34	13466,578	Secondigliano		59.900,54	Peripheral ring				19,85	3017
48	11518,53	Barra		59.636,94	Peripheral ring				37,89	1574
8	10536,703	San Lorenzo		59.380,94	Historical ring				19,53	3041
46	9831,806	San Ferdinando		51.065,53	Historical ring				1.021,31	50
18	8827,36	Barra		46.489,49	Peripheral ring				15,00	3100
38	7640,748	Secondigliano		15.473,50	Peripheral ring				7,72	2005
31	7058,815	Avvocata		39.224,38	Historical ring				41,12	954
51	6792,214	Secondigliano		34.003,29	Peripheral ring				11,33	3001
49	5766,92	Barra	permeable surfaces and bioretention area	31.442,79	Peripheral ring				17,03	1846
17	5366,675	Fuorigrotta		30.013,74	Peripheral ring				13,78	2178
16	5142,635	Vomero		25.502,45	First ring				6,37	4001
53	5129,799	Ponticelli		23.997,37	Peripheral ring				8,95	2682
54	5129,799	Ponticelli		23.011,59	Peripheral ring				9,96	2310
56	5090,618	Barra		22.955,12	Peripheral ring				214,53	107
23	4683,992	Secondigliano		22.955,12	Peripheral ring				22,75	1009
32	4427,595	Barra		22.782,72	Peripheral ring				18,30	1245
25	3755,27	Barra		20.865,56	Peripheral ring				21,16	986
42	3172,22	Ponticelli	permeable surfaces and bioretention area	19.865,42	Peripheral ring				20,52	968
14	3149,29	San Ferdinando		16.651,19	Historical ring				4,53	3677
58	3047,322	Secondigliano		14.341,77	Peripheral ring				11,29	1270
57	2385,66	Fuorigrotta		14.240,88	Peripheral ring				73,03	195
5	2006,34	San Lorenzo		13.536,22	Historical ring				35,16	385
12	1395,408	San Lorenzo		10.624,90	Historical ring				3,67	2898
19	8822,319	Fuorigrotta		727.841,32	Peripheral ring	2,6%	16,6%	-13,9%		
36	5753,299	Ponticelli		312.116,47	Peripheral ring	1,7%	7,1%	-5,4%		
43	4840,491	Barra		166.996,94	Peripheral ring	1,4%	3,8%	-2,4%		

**Figure S18.** Classification of open spaces according to adaptation interventions for improving permeability and thermal comfort.

ID	Surface [sqm]	District	Climate adaption intervention	Estimated Cost [€]	Context ring	dimensional weight of open space %	economic weight of open space %	Δ	cost per inhab.	inhabitants
37	28089,598	Fuorigrotta	increasing presence of trees	837,46	Peripheral ring				5,08	165
22	26888,617	Fuorigrotta	increasing presence of trees	124.902,72					105,40	1185
35	25801,662	Ponticelli	increase presence of trees	123.978,23					799,86	155
40	23053,205	Ponticelli	increasing presence of trees	118.693,91					60,31	1968
55	21023,591	Barra	increasing presence of trees	113.911,31					57,56	1979
52	20591,567	Ponticelli	increasing presence of trees	101.818,10					39,56	2574
50	16777,536	Ponticelli	increasing presence of trees	92.887,80					41,45	2241
24	15527,809	Ponticelli	increasing presence of trees	90.730,89					111,46	814
39	13526,487	Fuorigrotta	increase presence of trees	74.205,16					436,50	170
33	13466,578	Secondigliano	increasing presence of trees	68.706,56						
									61,45	1118
34	13466,578	Secondigliano	increase presence of trees	59.900,54					19,85	3017
21	13299,431	Fuorigrotta	permeable surfaces	162.918,03						
						3,9%	3,7%	0,2%		
20	13229,431	Fuorigrotta	bioretention area	423.341,79						
						3,9%	9,6%	-5,7%		
30	12329,242	Fuorigrotta	bioretention area	394.535,74						
						3,7%	9,0%	-5,3%		
59	11652,30	Fuorigrotta	parking gardens	512.701,16						
						3,5%	11,7%	-8,2%		
27	11538,524	Fuorigrotta	permeable surfaces	141.346,92						
						3,4%	3,2%	0,2%		
48	11518,53	Barra	increasing presence of trees	51.654,12					32,82	1574
47	11518,497	Barra	permeable surfaces	120.944,22						
						3,4%	2,8%	0,7%		
26	10958,554	Ponticelli	bioretention area	350.053,73						
						3,2%	8,0%	-4,7%		
18	8827,36	Barra	increasing presence of trees	50.809,39					16,39	3100
19	8822,319	Fuorigrotta	permeable surfaces and bioretention area	727.841,32						
						2,6%	16,6%	-13,9%		
38	7640,748	Secondigliano	increasing presence of trees	15.473,50					7,72	2005
45	7289,342	Ponticelli	rain gardens	306.152,36						
						2,2%	7,0%	-4,8%		
51	6792,214	Secondigliano	increase presence of trees	34.003,29					11,33	3001
49	5766,92	Barra	increase presence of trees	32.457,10					17,58	1846
36	5753,299	Ponticelli	permeable surfaces and bioretention area	312.116,47						
						1,7%	7,1%	-5,4%		
17	5366,675	Fuorigrotta	increasing presence of trees	25.502,45					11,71	2178
28	5140,088	Ponticelli	permeable surfaces	62.966,08						
						1,5%	1,4%	0,1%		
53	5129,799	Ponticelli	increase presence of trees	23.997,37					8,95	2682
54	5129,799	Ponticelli	increasing presence of trees	23.000,39					9,96	2310
56	5090,618	Barra	increasing presence of trees	22.955,12					214,53	107
43	4840,491	Barra	permeable surfaces and bioretention area	166.996,94						
						1,4%	3,8%	-2,4%		
23	4683,992	Secondigliano	increase presence of trees	22.782,72					22,58	1009
32	4427,595	Barra	increasing presence of trees	21.682,16					17,42	1245
25	3755,27	Barra	increase presence of trees	20.865,56					21,16	986
41	3172,22	Barra	permeable surfaces	33.308,31						
						0,9%	0,8%	0,2%		
42	3172,22	Ponticelli	increasing presence of trees	16.907,19					17,47	968
58	3047,322	Secondigliano	increase presence of trees	14.341,77					11,29	1270
57	2385,66	Fuorigrotta	increasing presence of trees	14.341,77						
									73,55	195
16	5142,635	Vomero	increasing presence of trees	13.536,22	First ring				3,38	4001
1	45010,06	San Ferdinando	rain gardens	1.890.422,52	Historical ring					
						13,5%	43,0%	-29,7%		
44	28557,89	San Ferdinando	increase presence of trees	837,46					20,94	40
29	14983,65	San Ferdinando	permeable surfaces	183.549,71						
						4,4%	4,2%	0,3%		
8	10536,705	San Lorenzo	increasing presence of trees	124.902,72					41,07	3041
46	9851,806	San Ferdinando	increase presence of trees	66.312,06					1.326,24	50
31	7058,815	Avvocata	increasing presence of trees	46.745,49					49,00	954
14	3149,29	San Ferdinando	increasing presence of trees	43.387,95					11,80	3677
4	2364,849	San Lorenzo	bioretention area	75.675,17						
						0,7%	1,7%	-1,0%		
9	2021,068	San Ferdinando	rain gardens	140.666,33						
						0,6%	3,2%	-2,6%		
5	2006,34	San Lorenzo	increasing presence of trees	10.533,34					27,36	385
12	1395,408	San Lorenzo	increasing presence of trees	9.020,70					3,11	2898
7	1182,671	San Lorenzo	bioretention area	37.845,47						
						0,4%	0,9%	-0,5%		
6	1086,697	Montecalvario	rain gardens	75.634,11						
						0,3%	1,7%	-1,4%		
15	844,992	San Lorenzo	bioretention area	27.099,74						
						0,3%	0,6%	-0,4%		
11	730,955	Montecalvario	rain gardens	30.699,27						
						0,2%	0,7%	-0,5%		
10	545,403	San Ferdinando	rain gardens	37.960,05						
						0,2%	0,9%	-0,7%		
2	537,949	San Lorenzo	parking gardens	23.669,76						
						0,2%	0,5%	-0,4%		
3	487,015	San Lorenzo	rain gardens	33.896,10						
						0,1%	0,8%	-0,6%		
13	361,155	San Lorenzo	bioretention area	11.556,96						
						0,1%	0,3%	-0,2%		

**Figure S19.** Classification of open spaces for improving permeability and thermal comfort, according to their district localisation.

## **Description of the proposed climate adaptation interventions**

(references n. 11, 50, 51)

### **Rain garden**

Small gardens that are used for infiltration and storage. Also frequently known as "bioretention areas". They are typically used at the level of a single property, for instance, close to buildings, to collect rainwater infiltration from the roofs. They are made up of a variety of elements, including sand beds, flora, minor stagnation basins, manmade wetlands and filtering meadow strips. Either the water is gathered and pumped back into the collector system, or it seeps into the ground.

### **Bioretention area**

Ponds built with extra storage space to prevent washout during heavy downpours and gradually discharge the runoff. They are made up of an area with natural banks and a permanent pond. They are created by creating a new depression, exploiting an existing one or employing levees. It would be wiser to avoid using natural water sources to reduce the possibility that pollution and poor water quality will upset or harm the environment. In the event that they become overfilled, they are provided with an outlet to the collector system.

### **Permeable surface**

Permeable surfaces provide a surface suitable for pedestrian and/or vehicular traffic while allowing rainwater to infiltrate through the surface and into underlying layers. The water can be temporarily stored before infiltration to the ground, reused, or discharged to a watercourse or other drainage system. Surfaces with an aggregate sub-base can provide good water quality treatment.

### **Filter strip**

Filter strips are gently sloped areas designed to receive sheet flows from adjacent impervious surfaces. Filter strips are vegetated with grasses and groundcovers that filter and reduce the velocity of stormwater. Peak stormwater flows are attenuated as stormwater travels across the filter strip and infiltrates or is stored temporarily in the soils below. They treat runoff by vegetative filtering and promote the settlement of particulate pollutants and infiltration.

### **Water square**

Water squares feature lower-lying areas that can be submerged in the case of heavy rainfall. The runoff from the surrounding district is connected to the square by open drains or rainwater drainage systems. After rainfall, the lowest parts of the water square fill up first, and the water remains there longest. The parts that become submerged need to be easy to clean and must be cleaned after every rainfall.

### **Parking garden**

Parking gardens make it possible to think of car parks not only in functional terms as parking places for cars but as real usable green spaces. In fact, if, on the one hand, the same surface area results in fewer parking spaces, on the other hand, areas previously thought only for parking cars become parks, with filtering trenches and vegetated canals that channel rainwater into ponds. The ponds themselves, as well as allowing greater biodiversity, can be used to collect rainwater for both external uses, e.g. to irrigate the greenery, and internal use, e.g. for fire-fighting. Parking gardens contribute, thanks to the vegetation present, to reducing summer heat islands by increasing the usability of the area. Finally, if designed



appropriately, they make it possible to make the most of the phyto-depuration processes that occur in bioretention areas, minimising the risk of pollutant discharge into water bodies.

#### Greening

The presence of vegetation and, moreover, of trees contributes to climate change adaptation, compared to impervious surfaces, thanks to evapotranspiration and drainage processes.