Supplementary Material

Supplementary file 1. Search strategy to identify urban planning attributes related to health outcomes.

Urban planning and environment	**Health and health-related concepts**
("urban planning"[Title/Abstract] OR "city Planning" [MeSH Terms] OR "urban design" OR "built environment"[Title/Abstract] OR "public space"[Title/Abstract] OR "open space"[Title/Abstract])	*("public health"[MeSH Terms] OR "Health"[MeSH Terms] OR well-being[Title/Abstract] OR wellness[Title/Abstract] OR "quality of life"[MeSH Terms] OR "disease"[MeSH Terms] OR burden[Title/Abstract] OR "epidemiology"[Subheading] OR "mortality"[MeSH Terms] OR "morbidity"[MeSH Terms] OR live*[Title/Abstract])*

Supplementary file 2. Google search strategy to identify urban planning actions within the urban planning attributes related to health outcomes

Key terms for "Document":	***Key terms for "Urban Planning":***	***Key terms for "Environment":***	***Key terms for "Health and Health-related concepts":***	***Internet domains***
Guidelines OR Guide OR Guiding OR Guidance OR "Design Guidance" OR Manual OR Intervention OR Action Plan OR Plans OR Planning OR Project	*Urban* OR metropolitan OR city OR neighbourhood OR residence OR community OR region OR living environment OR physical environment OR "built environment" OR build environment OR social environment OR social interaction OR urban design OR urban settings OR design interventions OR "public space" OR space OR pro-social activity OR infrastructure OR residential OR "open spaces" OR natural outdoors OR natural environament OR city OR cities OR smart city OR smart cities OR spaces OR land use OR liveable cities OR "healthy urban planning"*	*"Urban design" OR "urban planning" OR transportation design OR green space OR car space OR noise OR air pollution OR blue space OR accessibility OR walkability OR cyclability OR air pollution OR noise OR heat OR green OR green open space OR mobility OR active design OR urban settings OR design interventions OR parks OR illuminating OR streets OR urban elements OR indicators OR natural forested areas OR pedestrian facilities OR greening OR trees*	"Public health" OR health* OR wellbeing OR wellness OR "quality of life" OR live* OR behaviour OR movement OR mortality OR morbidity OR physical activity OR healthy habits OR smoking OR disease* OR sedentary behaviour OR burden OR disability-adjusted life-years OR obesity OR "healthy spaces" OR "human-centred urban development" OR "community needs" OR "happier" OR "healthy living" OR "healthier lifestyle" OR "healthy life" OR "healthy communities"	.gov (USA government) .gov.* (Other governments) .int (International non-governmental organisations) .eu (European) .org (Non-profit organisations)

Supplementary file 3. Reference list of the studies included in the systematic review of the scientific literature.

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Supplementary file 4. Significant associations between urban planning attributes and health outcomes.

Authors (year)	Population	Urban planning outcomes	Health outcomes	Direction of the relationship	Relationship	Level of significance
Adachi-Mejia et al. (2017)	Adults (USA)	Land use mix (unspecified)	Obesity	Negative		p<0.05
		Connectivity (walkability/ pedestrian and cycling infrastructure)				
		Landscape (green and blue areas; vegetation coverage)				
		Landscape (aesthetic and cleanness)				
Adams et al. (2015)	Adults (USA)	Walkability/pedestrian infrastructure	Physical Activity	Positive		p<0.05
		Land use mix (entertainment, culture and recreation services)				z score around 1
		Connectivity (intersection density and street connectivity)				p<0.05
Albrecht et al. (2015)	Spanish Chinese adults (USA)	Connectivity (walkability and pedestrian infrastructure)	Obesity	Negative		P=0.04
		Land use mix (physical and sport infrastructures)				OR 2.1 (0.4-4.0)
		Land use mix (health services)				3.8 (3.5-3.9)
Ali et al. (2017)	Adults (UK)	Landscape (green and blue areas)	Physical Activity	Positive	OR: 0.50 0.37-0.68	
Bourdeaudhuij et al. (2015)	Adults	Connectivity (walkability and pedestrian infrastructure)	Obesity	Negative	OR: 0.96 O.94-0.99	p<0.05
		Land use mix (unspecified)	BMI		OR: 1.01 0.99-1	p=0.04
		Landscape (well maintenance and lighting; crime safety)				p<0.05
Bringolf-Isler et al. (2015)	Children (Switzerland)	Landscape (green and blue areas)	Sedentary behaviour	Negative		p<0.01
Burgoine et al. (2015)	Children (USA)	Connectivity (walkability and pedestrian infrastructure)	Obesity	Both		
		Land use mix (physical and sport infrastructures)	BMI	Positive	z-score 0.967	p<0.05
		Landscape (green and blue areas)			z-score 1.379	p<0.01
Carlson et al. (2015)	Adolescents	Connectivity (walkability and pedestrian infrastructure)	Physical Activity	Positive		p<0.01
		Density (population density)				p<0.05

		Connectivity (intersection density and street connectivity)				p<0.05
Carlson et al. (2016)	Women	Land use mix (health, wellness and community services; neighbourhood activity supportiveness index)	Obesity	Negative		p=0.009
		Land use mix (health, wellness and community services; neighbourhood activity supportiveness index)	Physical Activity	Positive		B = 0.23; 95% CI = −0.02, 0.47; β = .07
Cerin et al. (2017)	Adults	Density (population density)	Physical Activity	Positive		p<0.05
		Connectivity (intersection density and street connectivity)				
		Land use mix (entertainment, cultural and recreational services)				
		Connectivity (public transport density)				
		Landscape (green and blue areas)				
Chaudhury et al. (2016)	Adults	Connectivity (walkability and pedestrian infrastructure)	Physical Activity	No		No association
Chen et al. (2016)	General (China)	Density (business density)	Physical Activity	Positive	-0.01	p<0.05
		Traffic (Type of traffic and traffic density)		Negative	0.03	p<0.02
		Landscape (well maintenance and lighting)		Positive	-0.09	p<0.05
Chen et al. (2017)	General (China)	Landscape (green and blue areas)	Physical and social health Physical Activity	Positive	(OR = 1.216, CI = [1.047, 1.413])	p=0.041
		Landscape (well maintenance and lighting)	Physical and social health		(OR = 0.762, CI = [0.612, 0.949])	p=0.015
Christian et al. (2017)	Children	Traffic (traffic density)	Wellbeing and quality of life	Negative	(OR 0.98; 95% CI: 0.98 to 0.99)	
		Land use mix (all four subgroups included)		Positive	(OR 1.98; 95% CI 1.02 to 4.20)	
Chudyk et al. (2017)	General (Canada)	Connectivity (walkability and pedestrian infrastructure)	Physical Activity	Positive	OR = 1.45, 95% CI = 1.18, 1.78)	
		Connectivity (public transport density)				
Chum et al. (2015)	General (Canada)	Traffic (traffic density and truck routes)	Cardiovascular disease	Positive		p<0.05
		Landscape (green and blue areas)		Negative		
		Land use mix (entertainment, cultural and recreational services; physical and sport infrastructures)				
		Landscape (well maintenance and lighting; crime safety)				

Creatone et al. (2016)	Adults	Connectivity (walkability and pedestrian infrastructure)	Obesity	Negative		p<0.001
		Connectivity (public transport density)				
		Connectivity (walkability and pedestrian infrastructure)	Diabetes Mellitus Type 2			p<0.05
			Physical Activity	Positive		p<0.05
Dadvand et al. (2016)	General	Landscape (green and blue areas)	Mental health and psychological disorders	Negative		p<0.05
			Physical Activity	Positive		
Dadvand et al. (2017)	Children (Barcelona)	Landscape (green and blue areas; greenness index)	Functional capacity (visual capacity)	Positive		p<0.05
Dressing et al. (2016)	Children	Landscape (urban furniture)	Physical Activity	Positive	OR = 1.03, 95 % CI = 1.01– 1.05	
		Landscape (aesthetic and cleanness)				
		Traffic (traffic density)		Negative	(OR = 0.57, 95 % CI = 0.43– 0.76)	
Drewnowski et al. (2016)	General	Landscape and Land use mix (all subgroups; build environment)	Physical Activity, Obesity, Diet	No		No association
Duncant et al. (2016)	Adults (France)	Connectivity (walkability and pedestrian infrastructure)	Physical Activity (nº of steps)	Positive	OR 3.48 (95% CI: 2.73 to 4.44)	p<0.05
		Land use mix (unspecified)				
		Density (population density)				
		Landscape (green and blue areas)				
Edwards et al. (2015)	Adolescents	Land use mix (health, wellness and community services)	Physical Activity	Positive		p<0.01
		Landscape (aesthetic and cleanness; well maintenance and lighting)				
		Land use mix (distance to public open spaces)				p<0.001
		Landscape (green and blue areas; vegetation coverage)				p<0.01
Farrell et al. (2016)	-	Traffic (traffic density and truck routes)	Air pollution	Positive	R2 . 43.80%	
Feng et al. (2016)	General	Connectivity (intersection density and street connectivity)	Physical Activity	Positive		p<0.04

		Connectivity (walkability and pedestrian infrastructure)				p<0.001
Flacke et al. (2016)	Children	Traffic (traffic density and truck routes)	Wellbeing and QoL	Negative		Without p value available
			Noise pollution	Positive		
			Air pollution			
		Landscape (green and blue areas; greenness index)	Wellbeing and QoL			p<0.05
			Noise and air pollution	Negative		
Fleig et al. (2016)	Older adults	Land use mix (unspecified)	Sedentary behaviour	Negative		p<0.01
			Physical Activity	Positive		
		Connectivity (intersection density and street connectivity)	Sedentary behaviour	Negative		
			Physical Activity	Positive		
		Land use mix (all four subgroups included)	Physical Activity	Positive		p<0.05
			Sedentary behaviour	Negative		
		Landscape and Land use mix (all subgroups; build environment)	Physical Activity	Positive		p<0.01
			Sedentary behaviour	Negative		
Goa et al. (2016)	General	Connectivity (walkability and pedestrian infrastructure: intersection density and street connectivity)	Wellbeing and quality of life	Positive		p<0.05
		Landscape (aesthetic and cleanness)				
		Land use mix (unspecified)				
Graziose et al. (2016)	Children-adolescents	Landscape (well maintenance and lighting; crime safety)	Physical Activity	Positive	(β = −0.189	p<0.02
		Connectivity (public transport density)			(β = 0.375	
		Land use mix (distance to public open spaces)			(β = 0.188	p<0.04
Heaviside et al. (2017)	Qualitative revision	Landscape (green and blue areas)	Cardiovascular disease	Negative		
			Environment air pollution			
			Mental Health and Wellbeing	Positive		
		Landscape (urban furniture)	Cardiovascular disease	Negative		

Heerman et al. (2016)	General	Landscape and Land use mix (all subgroups; build environment)	Physical Activity	Positive		p<0.001
		Connectivity (walkability and pedestrian infrastructure; cycling infrastructure)				p=0.007
Heesch et al. (2015)	Adults	Connectivity (walkability and pedestrian infrastructure; cycling infrastructure)	Physical Activity	Positive	OR 1.23 (1.04, 1.45)	
		Connectivity (public transport density)			OR 2.82 (1.36, 5.85)	
		Landscape (well maintenance and lighting)			OR 1.38 (1.09, 1.74)	
Hogan et al. (2016)	Young adults	Land use mix (all four subgroups included)	Vitality and happiness	Positive		p<0.001
Hwang 2016	General	Connectivity (walkability and pedestrian infrastructure)	Physical Activity	Positive	r=0.39	p<0.001
James et al. (2015)	Women	Connectivity (walkability and pedestrian infrastructure)	Cardiovascular disease	Negative	11.74% (1.07%, 23.37%)	
		Connectivity (intersection density and street connectivity)	Air pollution	Positive	OR 1.20 (1.16-1.24)	
		Density (population density)			OR 1.84 (95% CI 1.80, 1.88)	
		Density (business density)			OR 1.31 (95% CI 1.27, 1.35)	
		Connectivity (walkability and pedestrian infrastructure)			OR 1.58 (95% CI 1.54, 1.62)	
Jauregui et al. (2016)	Mexican adults	Density (population density)	Physical Activity	Positive		p<0.05
		Land use mix (unspecified)				
		Land use mix (distance to public open spaces)				
Katapally et al. (2015)	Children	Land use mix (all four subgroups included)	Physical Activity	Positive	OR 2.09(1.14 to 3.83)	p<0.01
Kelley 2016	General	Connectivity (walkability and pedestrian infrastructure)	Physical Activity	Positive		p=0.025
Kerr et al. (2017)	Adults	Land use mix (unspecified)	Physical Activity	Positive		p<0.001
		Connectivity (intersection density and street connectivity)				p<0.003
		Landscape (aesthetic and cleanness)				p<0.032

		Landscape (well maintenance and lighting; crime safety)				p<0.010
		Connectivity (public transport density)				p<0.001
		Traffic (type of traffic; traffic hazard)		Negative		p<0.002
		Connectivity (walkability and pedestrian infrastructure)		Positive		p<0.001
		Density (population density)				p<0.001
King et al. (2015)	Older adults	Density (population density)	Obesity	Negative	OR = 0.6, 95 % CI: 0,4-0,9	p=0.007
Kolbe-Alexander et al. (2015)	Older adults	Land use mix (unspecified)	Leisure-time physical activity	Negative	r2=0.20	p<0.02
		Landscape (aesthetic and cleanness)		Positive	r2=0.33	p=0.02
		Traffic (type of traffic; traffic hazard)	Physical activity	Negative	r2=0.14	p=0.01
Koohsari et al. (2016)	Adults	Connectivity (intersection density and street connectivity)	Physical activity	Positive	0.09 (0.05, 0.12)	p<0.01
		Connectivity (intersection density and street connectivity)			0.10(0.06, 0.14)	
		Land use mix (all four subgroups included)			0.09 (0.05, 0.12)	
Koohsari et al. (2017)	Adults	Density (population density)	Support and social skills: socioeconomic status	Positive		p<0.01
		Connectivity (intersection density and street connectivity)				
		Density (population density)	Physical Activity	Positive		p<0.001
		Connectivity (intersection density and street connectivity)				
Kurka et al. (2015)	Children	Land use mix (entertainment, cultural and recreational services)	Physical Activity	Positive		p<0.05
		Connectivity (walkability and pedestrian infrastructure)				
		Traffic (type of traffic: traffic safety)				
		Land use mix (unspecified)				
		Traffic (type of traffic; traffic access)				
		Landscape (well maintenance and lighting; crime safety)				
Lavin et al. (2015)	Children	Landscape (distance to green and blue areas)	Physical Activity	Negative	b = −0.23	p<0.001
		Land use mix (distance to public open spaces)			b= −0.14	
		Landscape (well maintenance and lighting; crime safety)		Positive	b= −0.41	p=0.05

Lee et al. (2017)	Middle-aged and older adults	Traffic (type of traffic; traffic hazard)	Accidents and falls	Positive	OR = 0.420, 95% CI = 0.188–0.935	p<0.01
		Landscape (well maintenance; drainage ditches)		Negative	OR = 2.383, 95% CI= 1.136-5.000	
		Landscape (well maintenance; broken pavements)			OR = 3.800, 95% CI = 1.742–8.288	
		Landscape (well maintenance)			0.337** 0.163–0.697	p=0.03
Liao et al. (2016)	General	Density (population density)	Sedentary behaviour	Negative	0.65 (0.51-0.82)	p<0.001
		Land use mix (all four subgroups included)			0.70 (0.55-0.88)	p<0.003
		Connectivity (public transport density)			0.74 (0.59-0.92)	p=0.008
		Connectivity (walkability and pedestrian infrastructure)			0.72 (0.57-0.90)	p=0.005
		Connectivity (intersection density and street connectivity)			0.78 (0.61-0.98)	p=0.04
Mackenbach et al. (2016)	General	Connectivity (cycling infrastructure)	Physical Activity	Positive	OR 0.67 (0.45; 1.01)	
		Land use mix (community services)	Good diet habits			p<0.05
		Land use mix (public open spaces)	Physical Activity		(OR= 0.75, 95%CI = 0.62; 0.90)	
		Land use mix (health, wellness and community services; fast food restaurants availability)	Good diet habits	Negative		p<0.05
Maisel et al. (2016)	Older adults	Connectivity (intersection density and street connectivity)	Physical Activity	Positive	r = .25	p<0,01
		Traffic (type of traffic: traffic safety)			r = 0.19	p<0.05
		Landscape (well maintenance and lighting; crime safety)			r = .23	p<0.05
		Landscape (aesthetic and cleanness)			r = .23	p<0.05
		Land use mix (health, wellness and community services; socioeconomic status)			χ2[4.118] = 13.697	P<0.001
Mäki-Opas et al. (2016)	Adults (Finland)	Connectivity (walkability and pedestrian infrastructure; cycling infrastructure)	Physical Activity	Positive	(3.28; 1.71– 6.31)	p<0.05
		Landscape (green and blue areas)		Negative	(OR 0.73; 0.57– 0.94)	
Malambo et al. (2017)	Adults (South Africa)	Land use mix (community services)	Physical Activity	Positive	(OR: 4.26; 95% CI, 1.00–18.08)	p<0.05

		Connectivity (walkability and pedestrian infrastructure)			(2.44; 1.48–4.02)	
		Landscape (aesthetic and cleanness)			(1.93; 1.07–3.46)	
		Connectivity (intersection density and street connectivity)			(2.36; 1.25–4.44)	
		Landscape (green and blue areas; vegetation coverage)			(2.14; 1.19–3.85)	
		Traffic (type of traffic; traffic safety)			(2.17; 91.21–3.91)	
		Landscape (lighting)			(2.01; 1.04–3.89)	
		Landscape (well maintenance)			(2.69; 2.20–10.02)	
Markevych et al. (2016)	Adolescents (Germany)	Landscape (green and blue areas; greenness index)	Sedentary behaviour	Positive	0.98 (0.96–0.99)	p<0.05
		Land use mix (physical and sport infrastructures)	Physical Activity		1.09(1.01–1.17)	
McAlexander et al. (2015)	General (New York City)	Traffic density	Noise pollution	Positive		p<0.001
McCormack 2015	Adults (Canada)	Connectivity (walkability and pedestrian infrastructure)	General health	Positive		p<0.05
			Physical Activity			
McCormack et al. (2016)	Adults (Canada)	Connectivity (intersection density and street connectivity)	Physical Activity (walking with dogs)	Positive		p<0.05
		Connectivity (walkability and pedestrian infrastructure)				
		Landscape (aesthetic and cleanness)				
Melis et al. (2015)	Adults (Italy)	Connectivity (public transport density)	Mental health (Antidepressant medication)	Negative	OR 1.04 (1.01-1.08)	
		Density (population density)				
Mertens et al. (2016)	Adults (Europe)	Connectivity (intersection density and street connectivity)	Physical Activity	Positive	OR 1.38 (1.15, 1.65)	p<0.001
		Traffic (type of traffic: lower speed)			OR 1.10 (1.01, 1.19)	p=0.028
		Traffic (traffic density; air pollution)		Negative	OR 0.81 (0.72, 0.90)	p<0.001
McInerey et al. (2016)	Adults (Canada)	Land use mix (community services; food destination density)	Walkshed SES and diet quality	Positive	(β 0.06, 95 % CI 0.01-0.12)	p=0.04
Miranda et al. (2016)	General (Peru)	Traffic (traffic density)	Sedentary behaviour	Positive	PR = 1.24; 95% CI 1.01–1.54	p<0.001
		Landscape (well maintenance and lighting)		Negative		p=0.006
		Traffic and crime safety				p<0.001
	Children	Land use mix (public open spaces)	Physical Activity	Positive		p=0.016

Mitchell et al. (2015)		Multi-use path space				P=0.018
Mueller et al. (2017)	General (Barcelona)	Landscape (green and blue areas)	Wellbeing and quality of life	Positive	CI 0.236	NO
Mueller et al. (2017b)	General (Barcelona)	-	-	-	-	-
Nehme et al. (2016)	Adults (Texas)	Land use mix (entertainment, cultural and recreational services)	Physical Activity	Positive	OR. 2.49, 95% CI = 1.29–4.84),	
		Landscape (well maintenance and lighting; crime safety)			OR.40, 95% CI...20–.77)	
		Traffic (type of traffic; traffic safety)			(OR . .43, 95% CI . .22–.87)	
		Connectivity (walkability and pedestrian infrastructure)			(OR.3.58, 95% CI.1.07–4.46)	
		Traffic (type of traffic; speed traffic limits)			(OR.1.31 for 10% increase, 95% CI.1.08–1.61)	
		Landscape (green and blue areas; vegetation coverage)			OR= 1, 55 95% CI ¼ 1.12–2.14).	
Nicklett et al. (2017)	Older adults (USA)	Landscape (aesthetic and cleanness)	Accidents and falls	Negative	(OR: 0.95, 95% CI: 0.91–1.00)	p<0,01
		Land use mix (community services; friendly neighbourhood cohesion)			(OR: 0.94, 95% CI: 0.90–0.98)	
Nutsford et al. (2016)	General (New Zealand)	Landscape (green and blue areas)	Emotional wellbeing	Positive	β=0.28	p<0.001
		Land use mix (health, wellness and community services; socioeconomic status)				p<0.05
		Density (population density)			β=0.001	
		Landscape (well maintenance and lighting; crime safety)			β=0.001	
Oliver et al. (2015)	Adults (New Zealand)	Connectivity (intersection density and street connectivity)	Obesity	Negative		p=0.01
		Land use mix (all four subgroups included)				p=0.02
		Density (population density)				NO (p-0.06)
		Connectivity (intersection density and street connectivity)	Physical Activity	Positive		p<0.001
		Land use mix (all four subgroups included)				
		Density (population density)				
Paul et al. (2016)	Adults (USA)	Traffic (type of traffic; traffic hazard)	Physical Activity	Negative	OR 1.31 (1.01, 1.70)	

Perchoux et al. (2015)	General (Paris)	Land use mix (all four subgroups included)	Physical Activity	Positive	OR = 0.72; 95% CI: 0.56, 0.93	
		Landscape (green and blue areas)			OR=0.84; 95% CI): 0.71, 0.99	
Rothman et al. (2017)	Children (Canada)	Connectivity (walkability and pedestrian infrastructure)	Traffic collision	Positive	(OR = 4.00, 95% CI = 1.76, 9.08)	p<0.001
		Traffic (type of traffic; school guard presence)			(OR = 3.65, 95% CI = 1.10, 12.20	
		Land use mix (health, wellness and community services; socioeconomic status)			(OR = 1.37, 95% CI = 1.11, 1.70,)	
		Land use mix (all four subgroups included)		Negative	OR = 0.56, 95% CI = 0.37, 0.86).	
		Traffic (type of traffic; traffic light)		Positive	(OR = 1.59, 95% CI = 1.17, 2.15)	p<0.0001
		Traffic (traffic density)			(OR = 3.56, 95% CI = 1.03, 12.26)	
Ruff et al. (2016)	General (New York City)	Land use mix (health, wellness and community services)	Food habits	Positive	OR 1.957 CI= 1.152 3.325	
Sallis et al. (2016)	General (Worldwide)	Density (population density)	Physical Activity	Positive	exp[b] 1.006 [95% CI 1.003–1.009];	p=0.001
		Connectivity (intersection density and street connectivity)			(1.069 [1.011–1.130];	p=0.019
		Traffic (traffic density)			(1.037 [1.018–1.056];	p=0.0007
		Land use mix (public open spaces)			(1.146 [1.033–1.272];	p=0.010
Salvo et al. (2017)	General (California)	Land use mix (public open spaces)	Physical Activity	Positive	$\chi 2 = 6.0$;	p=0.01
Schild et al. (2016)	Youth (Portland)	Connectivity (walkability and pedestrian infrastructure)	Pain	Negative	t(134) = 3.70	p < 0.001
		Landscape (distance to green and blue areas)			t(134) = 2.43,	p = 0.016
		Land use mix (health, wellness and community services; socioeconomic status)			t(135) = 2.51	p = 0.013
Schoffman et al. (2015)	Adults	Land use mix (public open spaces)	Physical Activity	Positive		p=0.004
		Connectivity (walkability and pedestrian infrastructure)				p=0.004
		Land use mix (community services; social support)				p<0.001
		Traffic (traffic density)	Overweight	Positive	OR 1.38(1.09–1.73)	p=0.007

Schüle et al. (2016)	Children (Germany)	Landscape (green and blue areas; greenness index)		Negative	1.48(1.16–1.90)	p=0.002
		Traffic (truck routes)		Positive	1.48(1.21–1.80)	p<0.001
		Traffic (traffic density)			1.58(1.21–2.07)	p<0.001
		Traffic (type of traffic)			1.55(1.24–1.94)	p=0,001
		Land use mix (health, wellness and community services; socioeconomic status)			OR 2.35 (1.69–3.27)	p<0.001
Shaffer et al. (2017)	Adults (USA)	Connectivity (cycling infrastructure)	Diabetes; glucose homeostasis	Positive	r=0.28	p=0.02
		Landscape (well maintenance and lighting; crime safety)			r=0.21	p=0.04
		Land use mix (physical and sport infrastructures)	Sedentary behaviour	Negative	r=-0.17	p=0.04
		Connectivity (walkability and pedestrian infrastructure)			r=-0.14	p=0.04
Spring et al. (2017)	General	Land use mix (health, wellness and community services)	General health	Positive		p<0.05
Sunyer et al. (2016)	Children (Barcelona)	Traffic (traffic density; air pollution)	Attention deficit	Positive	r=0.76	
Thompson et al. (2016)	General (United Kingdom)	Landscape (green and blue areas; greenness index)	Stress	Negative	r = - 0.22,	p < 0.01
Triguero-Mas et al. (2015)	General (Catalonia)	Landscape (green and blue areas; greenness index)	Depression or anxiety	Negative	0.81 (0.75, 0.88)	p<0.05
			Tranquilizers or sedatives		0.88 (0.79, 0.99)	
			Antidepressants		0.80 (0.71, 0.91)	
			Sleeping medication		0.89 (0.79, 0.99)	
		Landscape (access to green and blue areas; greenness index)	Stress and anxiety		0.86 (0.76, 0.98)	
			Mental Health and psychological disorders		0.79 (0.63, 0.98)	
van den Berg et al. (2017)	General (Europe)	Landscape (green and blue areas; greenness index)	Physical Activity	Positive		p< .001
			Loneliness		a = −0.006	
			Social cohesion		a = −0.005	
Waygood et al. (2015)	General (Osaka)	Land use mix (unspecified)	Physical Activity	Positive	OR=1.404	

Weyde et al. (2017)	Children	Traffic (type of traffic; traffic hazard)	Cognitive function (inattention)	Negative	Coef=0.0083	(0.0012-0.0154)
Winters et al. (2015)	Older	Connectivity (walkability and pedestrian infrastructure)	Physical Activity	Positive	OR=1.17	(1.07-1.27)
Wood et al. (2017)	General	Land use mix (public open spaces)	Mental Health and psychological disorders	Positive	β= 0.12	p=0.0006
		Land use mix (distance to public open spaces)			β= 0.07	p<0.0001
Xu et al. (2015)	General	Connectivity (walkability and pedestrian infrastructure)	Obesity	Negative	OR 0.998	p<0.001
		Connectivity (walkability and pedestrian infrastructure)	Physical inactivity		OR 0.999	p<0.05
		Connectivity (walkability and pedestrian infrastructure: walkability index reported)			OR 0.998	p<0.001
Zandieh et al. (2016)	Older people	Landscape (well maintenance and lighting; crime safety)	Physical Activity	Positive	β= 1.33	p<0.05
		Landscape (aesthetic and cleanness)			β= 0.55	p<0.01
Zhou et al. (2017)	Older people	Land use mix (distance to: public open spaces)	Physical Activity	Positive	β= 0.517	p<0.001
Zijlemaa et al. (2017)	Adults	Landscape (distance to green and blue areas)	Cognitive function	Positive	OR 1.02	(0.97, 1.07)
		Landscape (green and blue areas; greenness index)			OR 1.01	(0.97, 1.05)

Supplementary file 5. Reference list of the documents included in the systematic Google search.

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Supplementary file 6. Complete list of health-enhancing urban actions identified in the systematic Google search.

URBAN ACTIONS	Urban planning attributes				
	Density	Connectivity	Land use mix	Landscape	Traffic
ENHANCE THE APPEAL OF GREEN AND BLUE AREAS IN NATIONAL PARKS					
1- Provide better access and facilities to national parks					
2- Create ecological corridors in national parks					
ENHANCE THE LANDSCAPE VALUES AND GREENNESS OF THE URBAN FABRIC					
3- Designate and/or update iconic urban parks to enhance the value of the landscape and the green cover of the urban fabric					
4- Prioritise areas of improvement to enrich the landscape value and the green cover of the urban fabric					
5- Redesign local open spaces					
6- Add more green at various levels of development					
ENHANCE BLUE AREAS					
7- Enhance ports by improving connectivity to the sea to improve blue areas					
8- Revitalise river beds and channels					
INTEGRATE PLANNING OF GREEN AND BLUE AREAS					
9- Integrate green and blue areas					
10- Regenerate bodies of water in green and blue areas					
11- Enhance people's visual and physical connection with water in green and blue areas					
12- Improve accessibility to green and blue areas					
13- Integrate multiple uses in green and blue areas					
CONFIGURE THE "GREEN AND BLUE SYSTEM" NETWORK WITH ECOLOGICAL CORRIDORS					
14- Create ecological corridors to establish the green and blue system network					
15- Improve the connectivity and accessibility of urban areas with ecological corridors					
16- Design ecological corridors in the green and blue system network to make them more accessible and ecological					
PROMOTE GREEN NETWORKS FOR THE COMMUNITY					
17- Create community green spaces in neighbourhoods					
18- Create spaces for recreational and community agriculture					
DEVELOP AN URBAN FOREST STRATEGY					
19- Create or improve urban forests					
PRODUCE A PLAN FOR IMPROVING PLANTS IN THE STREET					
20- Improve the aesthetics of the street					
21- Develop an integrated system for walking in new development areas					
PROMOTE GREEN INFRASTRUCTURE AND THE DESIGN OF GREEN BUILDINGS					
22- Improve green or green and blue infrastructure in most new development areas					
URBAN INFRASTRUCTURE					
23- Create easily identifiable connection areas					
24- Connect bus stops with railway stations					
URBAN EXPANSION					
25- Improve the design of streets in urban expansion processes					
DENSITY AND MIXED USES					
26- Create adaptable and flexible buildable structures in areas with high population densities					

URBAN ACTIONS	Urban planning attributes				
	Density	Connectivity	Land use mix	Landscape	Traffic
HEIGHT AND CONCENTRATION					
27- Improve the appearance of neighbourhoods					
PUBLIC AREAS					
28- Improve public spaces					
DESIGN OF THE URBAN LANDSCAPE					
29- Improve landscape infrastructure					
FAÇADES AND CONTACT POINTS					
30- Improve the façades of buildings					
DETAILS AND MATERIALS					
31- Improve the details and materials of items in the built environment					
RESOURCE EFFICIENCY					
32- Create opportunities to live a more sustainable lifestyle					
GREEN INFRASTRUCTURE AND ICONIC PARKS					
33- Create iconic parks as integrated elements in green infrastructure					
GREEN INFRASTRUCTURE AND GROWTH OF THE CITY					
34- Improve areas where railway stations are located or where railway stations will be in the future					
PROMOTION OF A HEALTHY LIFESTYLE					
35- Provide parks and green spaces for entertainment and relaxation					
REINFORCE RESILIENCE					
36- Adapt the different spaces in urban areas and the built environment so that they are more resistant to the impacts of climate change					
37- Prepare green infrastructures for climate change					
38- Model the capacity of the water network's sewage and drainage system to cope with climate change					
39- Increase green roughage and the areas of green roofs in the urban environment					
WATER STORAGE AND IMPROVEMENT OF WATER QUALITY					
40- Improve the functionality of wet areas (marshes, wetlands, etc.)					
PROMOTE AN ACTIVE LIFESTYLE					
41- Redesign the use and function of the city's area based on its growth					
REIMAGINE THE STREETS AS GREEN INFRASTRUCTURE					
42- Convert old disused roads into friendly green high quality streets for people					
CREATE LIVING LANDSCAPES					
43- Improve ecological resilience and expand the connectivity of the green network					
RESTORE URBAN FORESTS					
44- Improve and expand the urban forest landscape					

URBAN ACTIONS	Urban planning attributes				
	Density	Connectivity	Land use mix	Landscape	Traffic
IMPROVE THE GREEN INFRASTRUCTURE OF DISADVANTAGED HIGH-DENSITY AREAS					
45- Improve the green infrastructure of the most disadvantaged areas with limited ability to use the green space, to make it more inclusive					
GREEN DEVELOPMENT AND EXTENDING ACCESS TO NATURE					
46- Redevelop urban areas which have been abandoned or closed to the public and create new accessible nature reserves					
CREATE BUSINESS PARKS					
47- Allocate spaces for offices in green areas					
48- Create business parks					
IMPROVE THE URBAN LANDSCAPE OF THE CITY CENTRE					
49- Improve the city centre					
IMPROVE THE LOCAL ENVIRONMENT TAKING ADVANTAGE OF ITS POTENTIAL					
50- Improve areas for active and passive leisure					
51- Protect and improve local waterways and water environments					
52- Support urban biodiversity					
IMPROVE WATERWAYS AND GREEN CORRIDORS					
53- Improve vegetation on river banks					
54- Improve green areas on alluvial plains					
55- Improve wetlands and bogs					
IMPROVE RESIDENTIAL STREETS					
56- Improve conservation of residential streets with an urban design sensitive to water					
57- Incorporate trees and passive irrigation systems using trees in residential streets					
IMPROVE PARKS					
58- Improve wet areas, bio retention areas and scuppers in parks for rainwater treatment					
59- Improve local vegetation in parks					
IMPROVE SHOPPING AREAS					
60- Improve bio retention in rain gardens in streets and in car parks in shopping areas					
61- Improve the irrigation system for trees in shopping streams with passive irrigation systems					
EXPAND URBAN GROWTH AND THE GREEN AREA IN THE WALKABLE CITY					
62- Interconnect adjacent districts using parks and green areas					
63- Improve existing areas with links to outlying areas					
MAKE A DISTRICT INTO AN ECO-CITY					
64- Make a district ecological					
ESTABLISH A GREEN BELT					
65- Establish a green belt in the city					
CREATE GREEN ROOFS AND GREEN WALLS					
66- Put green roofs on all new buildings					
67- Put green roofs on buildings with various uses					
68- Put green façades and green roofs on buildings in the city centre					

URBAN ACTIONS	Urban planning attributes				
	Density	Connectivity	Land use mix	Landscape	Traffic
PRODUCE A COMPACT HIGHER DENSITY DESIGN					
69- Adapt the design of the city to a compact and higher density design					
CREATE SAFE PARKS					
70- Improve safety in parks					
IMPROVE THE ENVIRONMENT OF VULNERABLE COMMUNITIES IN TERMS OF POLLUTION					
71- Increase the number of trees in vulnerable areas to reduce air pollution 72- Increase the number of trees in the communities most vulnerable to heatwaves which have insufficient trees					
RENEW THE EXISTING PARKS					
73- Update the existing parks					
IMPLEMENT MEASURES TO SUPPORT SAFETY IN PUBLIC SPACES					
74- Improve safety in public spaces					
TAKE MEASURES TO IMPROVE THE URBAN GREEN AREA					
75- Improve the urban green area					
PUBLIC TRANSPORT					
76- Create new fast transit corridors for high-quality buses					
ACCESSIBILITY OF THE PHYSICAL ENVIRONMENT					
77- Improve accessibility to the city's physical environment for citizens with disabilities (reduced mobility)					
MUNICIPAL MARKETS					
78- Improve the location and infrastructure of Municipal Markets					
IMPROVE THE COMMUNITY'S SAFETY					
79- Improve safety in bicycle lanes and for walking					
IMPROVE THE ENVIRONMENT TO PROMOTE PHYSICAL ACTIVITY IN SCHOOLS					
80- Improve the infrastructure of areas around schools to encourage physical activity					
REDUCE CAR TRAFFIC					
81- Pave traffic infrastructure, giving priority to cyclists and pedestrians					
PREPARE RESIDENTIAL AREAS AND NEIGHBOURHOODS TO ENCOURAGE PHYSICAL ACTIVITY					
82- Design residents' areas and neighbourhoods to promote physical activity					
IMPROVE THE BUILT ENVIRONMENT BY BUILDING ACTIVE COMMUNITIES					
83- Improve the built environment to encourage active transportation					
IMPROVE THE BUILT ENVIRONMENT BY ACTIVE TRANSPORTATION					
84- Improve the built environment to encourage active transportation					
IMPROVE BIKE LANES					
85- Improve bike lanes					

URBAN ACTIONS	Urban planning attributes				
	Density	Connectivity	Land use mix	Landscape	Traffic
IMPROVE AREAS FOR WALKING IN NEIGHBOURHOODS					
86- Improve recreational walking areas in neighbourhoods		■		■	■
IMPROVE THE CONNECTIVITY OF ROUTES FOR WALKING					
87- Improve the connectivity of specific paths for walking and promote walking		■		■	
IMPROVE LOCAL ROUTES FOR WALKING AND CYCLING					
88- Improve the connectivity of local walking and bicycle routes		■			
FACILITATE GREEN TRANSPORTATION					
89- Prioritise routes for walking, cycling and public transport		■		■	■
90- Implement a shared bicycle pool service			■		
91- Implement improvements for motor vehicle traffic		■			■
92- Allocate areas of land to develop compact communities with complete streets that foster active transport (walking and cycling)				■	
INCREASE ACCESS TO NATURE					
93- Increase access to green spaces and urban forests			■	■	
LOCAL FOODS					
94- Expand local food systems	■		■	■	
CLEAN AIR					
95- Improve Metro stations				■	
96- Develop an infrastructure to support the use of electric vehicles					■
ROUTES FOR WALKING					
97- Develop routes for walking		■			
IMPROVE STREETS TO PROMOTE ECOLOGICAL TRAFFIC					
98- Improve the design of the streets to enhance ecological traffic		■		■	■
ENABLE ECOLOGICAL TRANSPORT					
99- Allocate land to establish charging stations for electric vehicles					■
100- Allocate areas to biogas production and/or recharging for biogas vehicles					
ADAPTING URBAN PLANNING TO CLIMATE CHANGE					
101- Adapt land and water infrastructure for climate change				■	
IMPROVE SUSTAINABLE USE OF LAND AND WATER					
102- Reinforce and develop the city's bodies of water		■	■	■	
IMPROVE SUSTAINABLE GROWTH					
103- Plan to improve sustainable growth	■	■	■	■	■
LAND AND WATER SUSTAINABILITY: ECOLOGICAL STRUCTURE WITH WIDE BIOLOGICAL DIVERSITY					
104- Update the natural landscape for the sustainable use of land and water (ecological structure and biological diversity)				■	
LAND AND WATER SUSTAINABILITY: GOOD ACCESS TO PARKS AND NATURE WITH HIGH RECREATIONAL AND NATURAL LEVELS					
105- Improve access to the quality and functions of parks and nature		■		■	■

URBAN ACTIONS	Urban planning attributes				
	Density	Connectivity	Land use mix	Landscape	Traffic
LAND AND WATER SUSTAINABILITY: PLAN A GOOD URBAN ENVIRONMENT FOR EACH DISTRICT					
106- Improve the urban environment of districts					
ADAPT INFRASTRUCTURE TO PROMOTE SPORTS AND PHYSICAL ACTIVITY					
107- Adapt infrastructure to promote sports and physical activity					
COMMUNITIES FOR WALKING					
108- Create well-connected walking communities					
DESIGN OF ROUTES FOR WALKING AND CYCLING					
109- Improve the design of walking and cycling routes					
PLACEMENT OF COMMUNITY FACILITIES					
110- Promote the placing of community facilities					
DESIGN OF A MULTIFUNCTIONAL NETWORK OF OPEN SPACES					
111- Create a multifunctional open space network					
DESIGN OF HIGH QUALITY STREETS AND SPACES					
112- Promote the design of high quality streets and public spaces					
SUPPORT INFRASTRUCTURE FOR SPORTS AND PHYSICAL ACTIVITY IN ALL CONTEXTS					
113- Provide a support infrastructure for sports and physical activity in all contexts					
ACTIVE BUILDINGS					
114- Adapt the design and use of buildings (indoor and outdoor) to provide opportunities for physical activity					
MOBILITY AND LANDSCAPE					
115- Expand the tram area					
116- Prioritise walking, cycling and public transport in the city centre					
117- Create neighbourhoods with identity					

Supplementary file 7. Design of health-enhancing urban planning actions into the Urban Master Plan of the city of Vic

	n	URBAN ACTIONS OF THE MASTER CITY PLAN OF VIC (n=112)		URBAN PLANNING ATTRIBUTES RELATED TO HEALTH (n=16)
OPEN SPACES	1	Green ring continuity	Manlleu Street	4,11,5,14
	2		d'en Planes Castle	4,11,5,14
	3	Complete parks	Can Forcada	10, 11,5
	4		Can Pau Raba	10, 11,5
	5		Bassa dels germans maristes	10, 11,5
	6		Aluders Atlàntida	10, 11,5
	7		Sant Jaume Park	10, 11,5
	8	Proximity of green areas	de la Noguera Square	10, 11, 12, 13, 14, 5, 7
	9		M. Àngels Anglada Park	7, 8, 10, 12, 13, 11
	10		Sant Pere street del Morbo wall	10, 11,13
	11		Square Sant Jordi del Camp Street	10, 11,13
	12		Petrol station Passeig Generalitat	10, 11,13
	13		de la Sínia Park	10, 11,13
	14		Puig dels Jueus vial	10, 11, 5
MOBILITY	15	Complete viality (south round)		3, 16, 3, 14, 5, 11
	16	Puig dels Jueus vial		16, 6, 3, 5,
	17	Connection Ronda Camprodon vial Puig dels Jueus		16, 6, 3, 5,
	18	Cycle lanes network		5, 10
	19	Landscape car parks network		6, 11, 12
	20	Healthy routes connecting parks green areas the green ring paths networks		5, 10
	21	Reorganization of Mil·lenari Square		7, 10, 12, 13, 5
	22	Redevelopment axis Onze de Setembre north section		5, 11 , 4
	23	Redevelopment axis Onze de Setembre section Sucre		5, 11 , 4
	24	Paisos catalans horta vermella		5, 11 , 4
	25	de l'Amusic Square		4, 5
	26	Coll de Vic		4,5
	27	Pep Ventura pedestrian walk (can Baulenas)		3, 12, 5, 14
EQUIPMENTS	28	Expansion work of exhibition		8
	29	Salut Campus		7, 8, 12, 2, 10
	30	Environmental equipment aorund la Central		10, 5
	31	Cultural equipment el Vigatà		7, 8, 5
	32	Rehabilitation cavallerisses Atlàntida		7, 8, 5
	33	Kindergarden Av. Olimpia		7
	34	Sports equipment Salarich		7, 9, 10, 5
	35	Sports equipment a la Bòbila		7, 9, 10, 5
	36	Sorroundings of the public fresh fruit market.		12, 2, 7, 8
	37	Outdoor sports facilities		7, 9, 10, 5
	38	Sport equipment Sant Llàtzer		7, 9, 10, 5
	39	Health assistance equipment Sant Llàtzer		7
	40	Environmental actions in el Graell		5, 11
URBAN LAND	41	Measures to promote rehabilitation		1, 7, 12
	42	Measures to promote a healthier city		5, 6, 10, 12, 11, 13, 14
	43	Tanneries (paths, green zones, etc)		1, 2, 7, 12, 8
	44	Sorroundings of the cathedral		12
	45	Protection of the urban landscape	City gates	12
	46		Wooded inputs	12, 11, 5
AMBITS OF REFORM (PAU)	47	PAU 01	Sant Antoni Feed	2
	48	PAU 02	Farinera Vila	2
	49	PAU 03	Aliança-La Central	8, 11, 7, 1
	50	PAU 04	Mossèn Gudiol	3, 5
	51	PAU 05	Pavesa island	11, 8, 10, 2, 1
	52	PAU 06	del Camp street	8, 1
	53	PAU 07	Sant Jordi street	8, 1
	54	PAU 08	Baumann	8, 7, 9, 10, 5, 1
	55	PAU 09	de Roda 1 road	8, 1
	56	PAU 10	Manuel Galadies street	8, 1
	57	PAU 11	Josep Deloncle 1 street	8, 1
	58	PAU 12	Josep Deloncle 2 street	8, 1
	59	PAU 13	Gurri north 1	2
	60	PAU 14	Can Pau Raba	10, 11, 5, 1
	61	PAU 15	Jaume I street	10, 11, 5, 1
	62	PAU 16	Vigatà	1, 8, 7
	63	PAU 17	de Somoto Park	1, 10, 5
	64	PAU 18	Prat d'en Galliners	8, 3, 7, 12, 1
	65	PAU 19	Aluders 1	8, 12, 1
	66	PAU 20	Aluders 2	8, 12, 1
	67	PAU 21	Saint Sivt-Pati Vic	3, 5, 1
	68	PAU 22	Can Pamplona	1, 10, 8
	69	PAU 23	Axis Onze de Setembre 1	1, 8, 5
	70	PAU 24	Axis Onze de Setembre 2	1, 8, 5
	71	PAU 25	Axis Onze de Setembre 3	1, 8, 5
	72	PAU 26	Axis Onze de Setembre 4	1, 8, 5
	73	PAU 27	Axis Onze de Setembre 5	1, 8, 5, 10
	74	PAU 28	Axis Onze de Setembre 6	1, 8, 5
	75	PAU 29	Axis Onze de Setembre 7	1, 8, 5
	76	PAU 30	Can Garrofa 1-de la Guixa road	1, 7
	77	PAU 31	Can Baulenas	1, 5
	78	PAU 32	Pedestrian walk Pep Ventura 1	1, 10, 5
	79	PAU 33	Pedestrian walk Pep Ventura 2	1, 10, 5
	80	PAU 34	de la Noguera square	1, 10, 5
	81	PAU 35	Sant Francesc	5
	82	PAU 36	Martí Genís	5
	83	PAU 37	de Sant Jaume park	10, 11
	84	PAU 38	Can Gasparó	7, 8, 10
	85	PAU 39	Curtits Codina 1	8
	86	PAU 40	Serra-de-senferm	12
	87	PAU 41	El pou del Call	12, 4, 5
	88	PAU 42	Olimpia-C17 avenue	4
	89	PAU 43	Collsacabra street	5
AMBITS OF TRANSFORMATION (PMU)	90	PMU 01	Coll de Vic	7, 12, 3
	91	PMU 02	Sant Miquel Xic	5, 11,8, 1
	92	PMU 03	de Roda 2 Road	1, 8
	93	PMU 04	Teodor de Mas 1 Street	1, 8
	94	PMU 05	Teodor de Mas 2 Street	1, 8
	95	PMU 06	North Gurri 2	1, 8, 10, 11, 5
	96	PMU 07	de Montserrat Street	1
	97	PMU 08	Mil·lenari	1, 7, 8, 5, 10
	98	PMU 09	La Farinera Catalana	1, 8, 5
	99	PMU 10	East door	1
	100	PMU 11	de Prats Road	1, 8, 5
	101	PMU 12	Can Garrofa 2	1, 9, 10
	102	PMU 13	La Gran Font	1, 10, 5
	103	PMU 14	Curtits Codina 2	1, 10, 5, 8, 7
	104	PMU 15	Joan Maragall	1
	105	PMU 16	del Call Street	1
	106	PMU 17	El Vivet	1, 10, 5
AMBITS OF GROWTH (PPU)	107	PPU 01	Expansion work PAE	2
	108	PPU 02	Expansion work PAE II	2
	109	PPU 03	El Graell	1, 10, 8
	110	PPU 04	la Bòbila	1, 9, 5
	111	PPU 05	El Marratet	1, 7, 8, 9, 10, 12, 11
	112	PPU 06	El Pujolar	1, 3, 10, 5