List of Supplemental Materials

Supplemental - Sensitivity analysis

Supplemental Figure 1. U.S. Environmental Protection Agency's EnviroAtlas communities (https://www.epa.gov/enviroatlas/enviroatlas-communities) and the availability of weight information on states' driver's licenses. The availability of weight information on driver's licenses is based on Littenberg and Lubetkin (2016). Driver's license records were accessible only for Arizona and Oregon at the time of analysis.

Supplemental Figure 2. Outlier detection using weight and height by Minimum Covariance Determinant.

Supplemental Table 1. Model improvement when modified by multiplicative interaction terms for each confounding factor for Phoenix, AZ (PAZ) and Portland, OR (POR).

Supplemental Table 2. Sensitivity analysis. Differences and percent change in adjusted odds ratios from using overlapping versus non-overlapping buffers, and Adjusted Threshold for Quality of Life (QOL index) versus Percent Population below Twice the Poverty Level as the income variable.

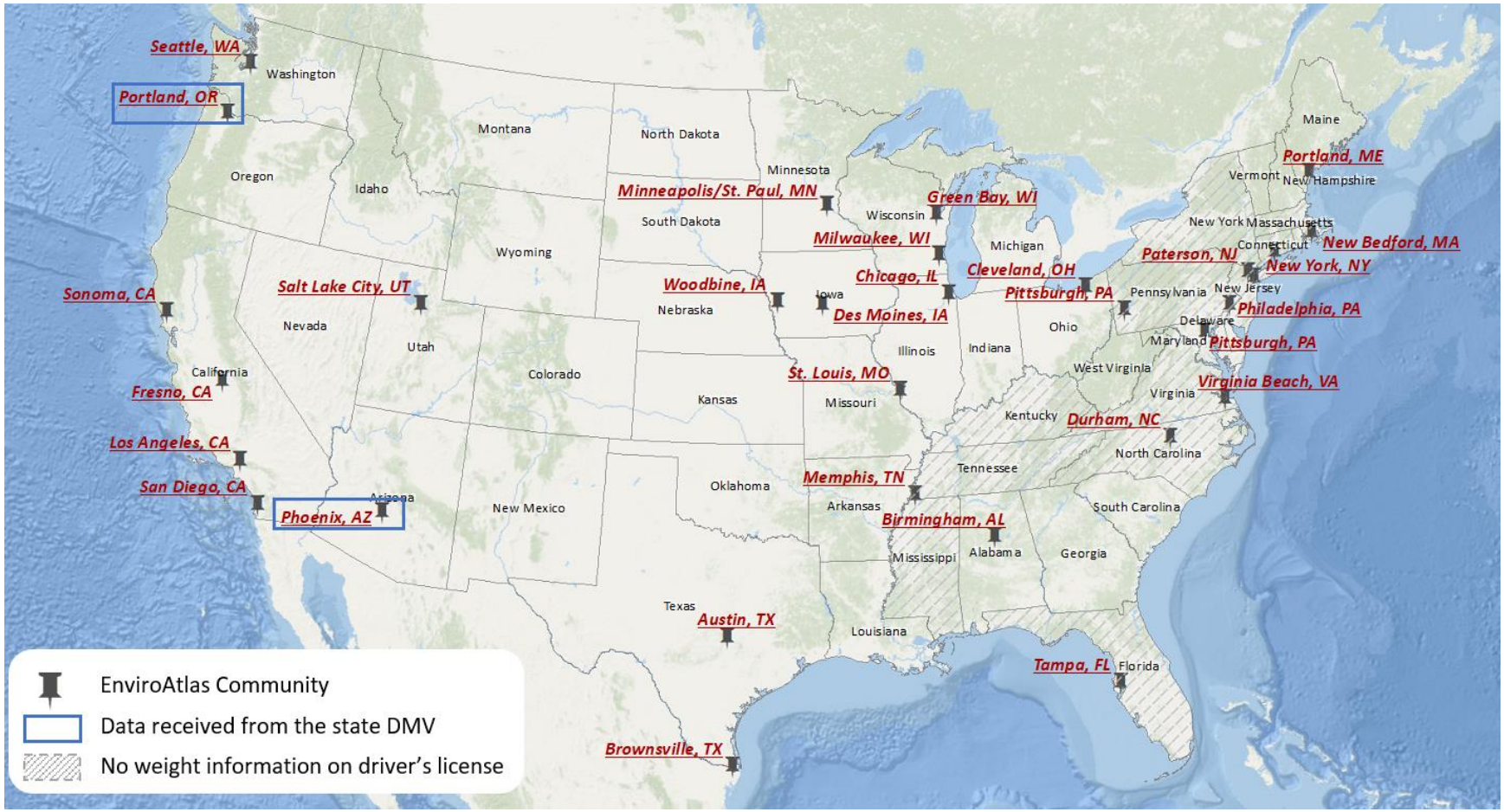
Supplemental - Sensitivity analysis

In analyses with overlapping buffers, environmental features in bigger buffers always encompass those measured within smaller buffers. When relationships are detected in larger buffers, it is not clear whether the health outcome is affected solely by the greenery within the non-overlapping buffer rings between smaller and larger buffers (nested buffer, or annulus), or by the greenery within the entire overlapping buffer (disk buffer). In physical activity studies, especially those using larger buffer sizes, it is possible that people may drive to a destination such as 10 minutes away from home to extend their activity area from there. In this case, the potentially influential greenery should properly be measured within the annulus between the perimeters of the larger and smaller buffers. Therefore, sensitivity analyses on the greenery effects of non-overlapping (500 – 1000m, 1000 – 1500m, and 1500 – 2000m) versus their respective overlapping (1000, 1500, and 2000m) buffers were conducted to address this research issue.

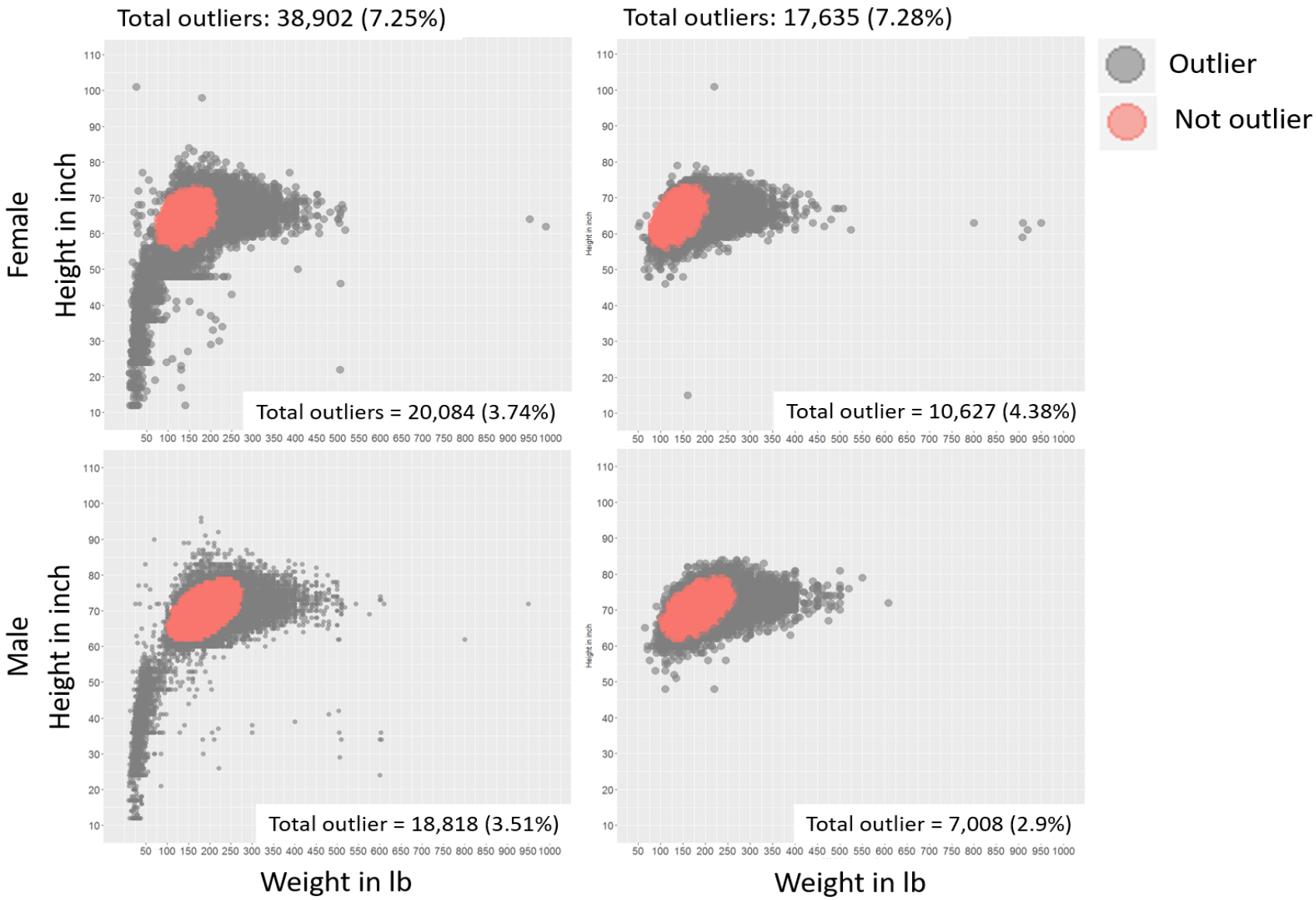
The adjusted odds ratios using greenery within the non-overlapping, nested buffer rings showed similar values to those for the corresponding upper-range disk buffer sizes (e.g., greenery effects between 500 to 1000m were similar to greenery effects within zero to 1000m) (Supplemental Table 2). The differences in AORs ranged from -0.02 to 0.02 for Phoenix, and from -0.05 to 0.06 for Portland. Model performance based on pseudo R-squared (McFadden) values for both types of buffers had similar results (not shown).

Sensitivity analysis using Percent Population with Income below Twice the Poverty Level showed that the adjusted odds ratios were similar to using Percent Households below the Adjusted Threshold for Quality of Life (Supplemental Table 2). The changes in adjusted odds ratios ranged from -0.03 to zero for all greenery types and buffers in Phoenix, and ranged from -

0.06 to zero in Portland. Overall, Level IV greenery of each type showed the greatest change at all buffer sizes in both communities from substituting one income variable for another.



Supplemental Figure 1



Supplemental Figure 2

Supplemental Table 1

		Age		Sex		QOL Index		Percent Non-White		Intersection Density		Park Proximity	
PAZ	500m												
	Tree	0.05%	***	0.90%	***	0.12%	***	0.20%	***	0.05%	***	0.06%	***
	Herbaceous	0.04%	**	0.71%	***	0.05%	***	0.13%	***	0.03%	**	0.04%	**
	Aggregate Greenery	0.08%	***	1.01%	***	0.09%	***	0.20%	***	0.05%	***	0.02%	
	1000m												
	Tree	0.06%	***	0.94%	***	0.14%	***	0.22%	***	0.04%	***	0.06%	***
	Herbaceous	0.05%	**	0.75%	***	0.06%	***	0.18%	***	0.05%	***	0.06%	***
	Aggregate Greenery	0.06%	***	1.09%	***	0.10%	***	0.22%	***	0.06%	***	0.04%	*
	1500m												
	Tree	0.06%	***	0.86%	***	0.10%	***	0.20%	***	0.11%	***	0.07%	***
	Herbaceous	0.07%	***	0.82%	***	0.05%	***	0.21%	***	0.08%	***	0.04%	*
	Aggregate Greenery	0.07%	***	1.06%	***	0.07%	***	0.21%	***	0.04%	***	0.05%	**
	2000m												
	Tree	1.19%	***	1.94%	***	1.26%	***	1.34%	***	1.25%	***	1.21%	***
	Herbaceous	0.05%	**	0.94%	***	0.05%	***	0.27%	***	0.06%	***	0.03%	
	Aggregate Greenery	1.20%	***	2.23%	***	1.19%	***	1.36%	***	1.19%	***	1.19%	***
POR	500m												
	Tree	0.08%	.	0.62%	***	0.07%	*	0.48%	***	0.15%	***	0.05%	
	Herbaceous	0.06%		0.32%	***	0.20%	***	0.80%	***	0.11%	***	0.20%	***
	Aggregate Greenery	0.11%	**	0.99%	***	0.06%	*	0.07%	*	0.10%	***	0.16%	***
	1000m												
	Tree	0.10%	*	0.75%	***	0.07%	*	0.34%	***	0.22%	***	0.07%	
	Herbaceous	0.04%		0.46%	***	0.17%	***	1.03%	***	0.20%	***	0.14%	***
	Aggregate Greenery	0.10%	*	1.48%	***	0.06%	*	0.21%	***	0.09%	**	0.14%	***
	1500m												
	Tree	0.14%	**	0.80%	***	0.16%	***	0.30%	***	0.33%	***	0.11%	
	Herbaceous	0.06%		0.46%	***	0.28%	***	1.24%	***	0.28%	***	0.18%	***
	Aggregate Greenery	0.10%	*	1.45%	***	0.04%		0.48%	***	0.15%	***	0.17%	***

2000m												
Tree	0.11%	**	0.84%	***	0.08%	**	0.27%	***	0.33%	***	0.07%	
Herbaceous	0.06%		0.47%	***	0.32%	***	1.27%	***	0.24%	***	0.10%	*
Aggregate Greenery	0.10%	*	1.54%	***	0.05%		0.66%	***	0.41%	***	0.20%	***

Model improvement was defined by percent change in pseudo R-squared (McFadden) values for each model.
Significance level: *: <0.05, **:<0.01, and ***:<0.001

Supplemental Table 2

Overlapping vs. Non-overlapping buffers							
	1000 vs. 500 - 1000m		1500 vs. 1000 - 1500m		2000 vs. 1500 - 2000m		
Phoenix, AZ	AOR Change	% Change	AOR Change	% Change	AOR Change	% Change	
Tree - Level II	0.00	0.42%	-0.01	-0.58%	0.01	0.65%	
Level III	0.00	0.16%	0.00	-0.02%	0.00	0.32%	
Level IV	0.01	1.25%	0.00	0.25%	0.01	1.61%	
Herbaceous - Level II	0.00	-0.01%	0.00	-0.24%	0.02	1.71%	
Level III	0.00	0.49%	-0.01	-0.86%	0.01	1.28%	
Level IV	0.00	0.33%	0.02	2.96%	0.03	4.22%	
Greenery - Level II	0.00	0.21%	-0.01	-0.96%	-0.01	-1.48%	
Level III	0.01	0.79%	0.00	-0.51%	0.01	0.67%	
Level IV	0.01	1.06%	0.01	1.35%	0.01	1.79%	
Portland, OR	AOR Change	% Change	AOR Change	% Change	AOR Change	% Change	
Tree - Level II	-0.01	-1.44%	0.01	0.74%	-0.01	-0.58%	
Level III	0.00	0.23%	0.00	0.53%	0.00	0.24%	
Level IV	-0.01	-2.21%	0.04	5.82%	0.02	2.68%	
Herbaceous - Level II	0.00	0.15%	-0.02	-1.65%	0.05	4.56%	
Level III	0.02	1.60%	-0.02	-1.86%	0.05	4.12%	
Level IV	-0.02	-1.53%	-0.05	-3.91%	0.06	4.16%	
Greenery - Level II	-0.02	-2.39%	-0.02	-2.07%	0.04	3.83%	
Level III	-0.02	-2.39%	-0.02	-1.88%	0.03	3.24%	
Level IV	-0.03	-3.66%	-0.03	-4.88%	0.02	3.34%	

OQL index vs. Percent Population with Income Twice below the Poverty Level								
	500m		1000m		1500m		2000m	
Phoenix, AZ	AOR Change	% Change	AOR Change	% Change	AOR Change	% Change	AOR Change	% Change
Tree - Level II	0.00	-0.18%	-0.03	-0.20%	-0.03	-0.22%	-0.03	-0.21%
Level III	0.00	-0.24%	-0.03	-0.26%	-0.03	-0.17%	-0.03	-0.06%
Level IV	-0.02	-2.09%	-0.03	-1.94%	-0.03	-1.58%	-0.03	-1.41%
Herbaceous - Level II	-0.01	-0.32%	-0.03	-0.26%	-0.03	-0.42%	-0.03	-0.30%
Level III	-0.01	-0.86%	-0.03	-0.70%	-0.03	-0.83%	-0.03	-0.76%
Level IV	-0.01	-1.19%	-0.03	-1.27%	-0.03	-1.09%	-0.03	-1.20%
Greenery - Level II	0.00	0.00%	-0.03	0.02%	-0.03	0.05%	-0.03	0.17%
Level III	0.00	-0.29%	-0.03	-0.35%	-0.03	-0.26%	-0.03	-0.13%
Level IV	-0.02	-2.03%	-0.03	-1.60%	-0.03	-1.45%	-0.03	-1.35%
Portland, OR	AOR Change	% Change	AOR Change	% Change	AOR Change	% Change	AOR Change	% Change

Tree - Level II	0.00	0.18%	0.00	-0.32%	0.00	-0.52%	0.00	-0.45%
Level III	0.00	0.01%	0.00	-0.08%	0.00	-0.46%	0.00	-0.39%
Level IV	-0.01	-1.71%	-0.02	-2.98%	-0.01	-1.35%	-0.01	-2.40%
Herbaceous - Level II	-0.01	-1.19%	-0.02	-1.68%	-0.02	-1.65%	-0.03	-2.28%
Level III	-0.01	-1.17%	-0.02	-1.91%	-0.02	-1.86%	-0.03	-2.12%
Level IV	-0.06	-4.66%	-0.06	-4.58%	-0.05	-3.91%	-0.06	-4.28%
Greenery - Level II	-0.01	-0.77%	-0.01	-1.44%	-0.02	-2.07%	-0.02	-2.02%
Level III	-0.01	-1.17%	-0.01	-1.69%	-0.02	-1.88%	-0.02	-2.03%
Level IV	-0.02	-3.06%	-0.03	-4.31%	-0.03	-4.88%	-0.03	-4.70%