

Supplemental Files for Online Only

Table S1: Association between performance on Trailmaking Test analyzed and residential proximity to major roadway excluding participants that could not complete parts A or B within 5 minutes.*

	Change in Score (95% CI)	p-value
Higher Scores Indicate Poorer Performance		
Trailmaking Test		
Part A	1.5 (-1.2, 4.1)	0.28
Part B	6.8 (1.7, 12.0)	0.009
Delta [†]	6.0 (1.8, 10.3)	0.006

*Association is expressed as change in test score per interquartile range (851.2 m) decrease in residential distance to major roadways. [†]Trailmaking Test Delta is calculated as the time to complete Part B minus the time to complete Part A of the test.

Table S2: Change in score on tests of cognitive function associated with an interquartile range decrease (851.2 m) in residential distance to major roadway, stratified by education and age.*

Outcome	High School or less	College or more	P _h	Age ≤ 77	Age > 77	P _h
MMSE <26, odds ratio	0.86 (0.66, 1.12)	1.54 (1.10, 2.17)	0.007	1.34 (1.01, 1.76)	0.89 (0.65, 1.21)	0.056
HVLТ-R						
Immediate Recall	-0.36 (-0.97, 0.25)	-0.66 (-1.15, -0.17)	0.45	-0.60 (-1.11, -0.10)	-0.40 (-0.97, 0.17)	0.59
Delayed Recall	-0.31 (-0.69, 0.07)	-0.40 (-0.71, -0.08)	0.72	-0.59 (-0.87, -0.31)	-0.04 (-0.44, 0.37)	0.026
Recognition	0.10 (-0.18, 0.38)	0.05 (-0.12, 0.23)	0.76	0.08 (-0.09, 0.26)	0.05 (-0.23, 0.33)	0.83
Letter Fluency	-1.85 (-3.35, -0.35)	-1.04 (-2.27, 0.18)	0.41	-1.00 (-2.22, 0.23)	-1.60 (-3.12, -0.08)	0.54
Category Fluency	-0.59 (-1.10, -0.09)	-0.87 (-1.36, -0.39)	0.43	-1.03 (-1.50, -0.55)	-0.32 (-0.81, 0.16)	0.041
Clock-in-the-box	0.004 (-0.15, 0.15)	-0.09 (-0.22, 0.04)	0.36	-0.10 (-0.23, 0.02)	0.04 (-0.12, 0.20)	0.16
Trailmaking Test						
Part A	2.1 (-1.8, 6.0)	1.4 (-1.1, 3.9)	0.78	3.2 (0.9, 5.5)	-0.66 (-4.6, 3.3)	0.11
Part B	15.1 (5.9, 24.4)	5.6 (-0.1, 11.2)	0.085	12.9 (6.8, 18.9)	3.23 (-4.9, 11.3)	0.062
Delta [†]	11.3 (3.5, 19.1)	4.1 (-0.6, 8.8)	0.12	10.1 (4.9, 15.3)	1.75 (-5.0, 15.3)	0.054

*Association is expressed as change in test score per interquartile range (851.2 m) decrease in residential distance to major roadways. P_h denotes the P-value from the test for homogeneity. [†]Trailmaking Test Delta is calculated as the time to complete Part B minus the time to complete Part A of the test.

Table S3. Association between mean annual estimated black carbon levels and performance on tests of cognitive function.*

	Change in test score (95% CI)	p-value
Lower Scores Indicate Poorer Performance		
Hopkins Verbal Learning Test		
Immediate Recall	-0.36 (-0.71, -0.01)	0.046
Delayed Recall	-0.14 (-0.37, 0.09)	0.22
Recognition	0.03 (-0.12, 0.17)	0.73
Letter Fluency	-0.26 (-1.04, 0.53)	0.52
Category Fluency	0.05 (-0.26, 0.35)	0.77
Clock-in-the-box	-0.04 (-0.13, 0.05)	0.36
Higher Scores Indicate Poorer Performance		
Trailmaking Test, seconds		
Part A	0.59 (-2.17, 3.35)	0.67
Part B	2.51 (-2.91, 7.94)	0.36
Delta [†]	2.23 (-2.11, 6.57)	0.32

*All models are adjusted for age, sex, race, history of stroke, history of smoking, education, visit number, body mass index, physical activity, household income, percent of neighborhood population that is non-white, and percent of neighborhood population with college degree or above. Association is expressed as change in test score per interquartile range (0.11 $\mu\text{g}/\text{m}^3$) increase in mean annual residential black carbon levels.

[†]Trailmaking Test Delta is calculated as the time to complete Part B minus the time to complete Part A of the test.