Supplemental Table 1. Effect of Combined Major Roadway Proximity on Asthma Symptoms

	Adjusted Analyses*†		Adjusted Analyses**††	
	Effect estimates based on each 100m <u>farther away</u> from major roadway			
	OR (95% CI) n=350 participants	**p-value**	**OR (95% CI)** n=282 participants	**p-value**
Primary Outcome *Components*				
Maximum Symptom Days	0.71 (0.58 – 0.87)	p<0.01	0.64 (0.49 – 0.84)	p<0.01
Daytime Wheeze	0.76 (0.61 – 0.95)	p=0.02	0.67 (0.50 – 0.89)	p<0.01
Limitations in Activities	0.61 (0.43 – 0.88)	p<0.01	0.39 (0.19 – 0.79)	p<0.01
Nighttime Wheeze	0.79 (0.59 – 1.05)	p=0.10	0.68 (0.46 – 1.01)	p=0.05
Secondary Outcomes				
Health Care Utilization	0.63 (0.47 – 0.85)	p<0.01	0.64 (0.40 – 1.01)	p=0.05
Missed School Days	0.97 (0.54 – 1.74)	p=0.92	0.57 (0.24 – 1.31)	p=0.18
Caregiver Plans Changed	0.73 (0.43 – 1.24)	p=0.24	0.54 (0.22 – 1.33)	p=0.18
Caregiver Lost Sleep	0.75 (0.54 – 1.06)	p=0.10	0.58 (0.34 – 1.00)	p=0.05
Composite Poor Asthma Control	0.80 (0.69 – 0.94)	p<0.01	0.74 (0.62– 0.88)	p<0.01
Spirometry Outcomes	**β (95% CI)** n=327	**p-value**	**β (95% CI)** n=188	**p-value**
FEV_1, % predicted	-0.44 (-4.20 – 3.31)	p=0.82	-3.10 (-7.07 – 0.86)	p=0.13
FVC, % predicted	-2.26 (-5.15 – 0.64)	p=0.13	-4.27 (-6.71 – -1.84)	p<0.01
FEV_1/FVC, percent	1.39 (0.18 – 2.60)	p=0.03	0.50 (-1.31 – 2.31)	p=0.59
FEF_{25-75}, % predicted	-2.77 (-10.93 – 5.39)	p=0.51	-8.31 (-20.45 – 3.82)	p=0.18

FEV_1: Forced expiratory volume in one second; FVC: Forced Vital Capacity; FEV_1/FVC: The ratio of forced expiratory volume in one second over forced vital capacity; FEF_{25-75}: Forced expiratory flow at 25-75% of the forced vital capacity.
***Adjusted for:** age, sex, race/ethnicity, annual household income, environmental tobacco smoke, controller medication, recent upper respiratory infections, and seasonality. Models for "FEV_1, % predicted" and "FEF_{25-75}, % predicted" did not adjust separately for age, sex, and race/ethnicity as these are included in the percent prediction estimates. [As presented in Table 2]
****Adjusted for:** age, sex, race/ethnicity, annual household income, environmental tobacco smoke, controller medication, recent upper respiratory infections, endotoxin and mouse allergen levels, and seasonality. Models for "FEV_1, % predicted" and "FEF_{25-75}, % predicted" did not adjust separately for age, sex, and race/ethnicity as these are included in the percent prediction estimates.
† Includes all study participants (n=1327 observations; n=350 participants) and corresponding spirometry outcomes (n=645 observations; n=327 participants); ††Limited to within school year observations (n=707 observations; 282 participants) and corresponding spirometry outcomes (n=321 observations; n=188 participants).

Supplemental Table 2. Effect of Residential Major Roadway Proximity on Asthma Symptoms

	Unadjusted Analyses†		Adjusted Analyses∗††	
Effect estimates based on each 100m <u>farther away</u> from major roadway				
	OR (95% CI) n=350 participants	p-value	OR (95% CI) n=282 participants	p-value
Primary Outcome Components				
Maximum Symptom Days[***]	0.73 (0.59 – 0.91)	p<0.01	0.69 (0.55 – 0.86)	p<0.01
Daytime Wheeze[***]	0.75 (0.60 – 0.94)	p=0.01	0.70 (0.56 – 0.88)	p<0.01
Limitations in Activities[****]	0.63 (0.44 – 0.88)	p<0.01	0.45 (0.29 – 0.68)	p<0.001
Nighttime Wheeze	0.80 (0.57 – 1.12)	p=0.19	0.87 (0.60 – 1.27)	p=0.47
Secondary Outcomes				
Health Care Utilization	0.62 (0.47 – 0.83)	p<0.01	0.83 (0.52 – 1.31)	p=0.42
Missed School Days	0.98 (0.55 – 1.73)	p=0.94	0.61 (0.34 – 1.10)	p=0.10
Caregiver Plans Changed	0.78 (0.47 – 1.32)	p=0.36	0.99 (0.45 – 2.17)	p=0.97
Caregiver Lost Sleep	0.77 (0.53 – 1.10)	p=0.15	0.84 (0.52 – 1.37)	p=0.48
Composite Poor Asthma[***]	0.80 (0.68 – 0.94)	p<0.01	0.81 (0.69 – 0.94)	p<0.01
Spirometry Outcomes	β (95% CI) n=327 participants	p-value	β (95% CI) n=188 participants	p-value
FEV$_1$, % predicted	0.94 (-2.92 – 4.80)	p=0.63	0.44 (-5.26 – 4.39)	p=0.86
FVC, % predicted	-0.82 (-3.81 – 2.16)	p=0.59	-2.38 (-5.42 – 0.65)	p=0.12
FEV$_1$/FVC, percent	1.45 (0.36 – 2.54)	p<0.01	0.32 (-1.22 – 1.86)	p=0.68
FEF$_{25-75}$, % predicted	-0.96 (-8.29 – 6.37)	p=0.80	-2.62 (-11.81 – 6.58)	p=0.58

FEV$_1$: Forced expiratory volume in one second; FVC: Forced Vital Capacity; FEV$_1$/FVC: The ratio of forced expiratory volume in one second over forced vital capacity; FEF$_{25-75}$: Forced expiratory flow at 25-75% of the forced vital capacity.

† Unadjusted estimates include all study participants (n=1327 observations; n=350 participants) and corresponding spirometry outcomes (n=645 observations; n=327 participants); ††Limited to within school year observations (n=707 observations; 282 participants) as models adjusted for distance from major roadway at school and corresponding spirometry outcomes (n=321 observations; n=188 participants).

∗**Adjusted for:** Distance from major roadway at school, age, sex, race/ethnicity, annual household income, environmental tobacco smoke, controller medication, recent upper respiratory infections, endotoxin and mouse allergen levels, and seasonality. Models for "FEV$_1$, % predicted", "FVC, % predicted" and "FEF$_{25-75}$, % predicted" did not adjust separately for age, sex, and race/ethnicity as these are included in the percent prediction estimates. **p<0.05 in adjusted analyses; ***p<0.01 in adjusted analyses; **** p<0.001 in adjusted analyses

Supplemental Table 3. Effect of School Major Roadway Proximity on Asthma Symptoms†

	Unadjusted Analyses		Adjusted* Analyses	
Effect Estiamtes based on each 100m _farther away_ from major roadway				
	OR (95% CI) n=282 participants	p-value	OR (95% CI) n=282 participants	p-value
Primary Outcome _Components_				
Maximum Symptom Days	0.91 (0.75 – 1.11)	p=0.38	0.98 (0.79 – 1.20)	p=0.82
Daytime Wheeze	0.94 (0.77 – 1.15)	p=0.57	1.01 (0.82 – 1.25)	p=0.90
Limitations in Activities	0.87 (0.63 – 1.22)	p=0.42	0.93 (0.65 – 1.33)	p=0.69
Nighttime Wheeze	0.83 (0.57 – 1.20)	p=0.31	0.79 (0.56 – 1.11)	p=0.18
Secondary Outcomes				
Health Care Utilization	0.73 (0.43 – 1.24)	p=0.24	0.70 (0.39 – 1.27)	p=0.24
Missed School Days	0.88 (0.55 – 1.40)	p=0.58	0.94 (0.62 – 1.42)	p=0.76
Caregiver Plans Changed**	0.49 (0.27 – 0.92)	p=0.03	0.49 (0.27 – 0.89)	p=0.02
Caregiver Lost Sleep	0.69 (0.42 – 1.14)	p=0.15	0.64 (0.39 – 1.03)	p=0.07
Composite Poor Asthma	0.95 (0.82 – 1.09)	p=0.43	0.97 (0.85 – 1.10)	p=0.62
Spirometry Outcomes	β (95% CI) n=188 participants	p-value	β (95% CI) n=188 particpants	p-value
FEV_1, % predicted	-3.24 (-6.04 – -0.44)	p=0.02	-3.0 (-6.11 – 0.13)	p=0.06
FVC, % predicted**	-3.56 (-5.73 – -1.40)	p<0.01	-2.58 (-4.78 – -0.38)	p=0.02
FEV_1/FVC, %	0.15 (-0.89 – 1.19)	p=0.78	0.37 (-0.55 – 1.28)	p=0.43
FEF_{25-75}, % predicted	-5.95 (-15.58 – 3.68)	p=0.23	-4.95 (-14.21 – 4.30)	p=0.29

FEV_1: Forced expiratory volume in one second; FVC: Forced Vital Capacity; FEV_1/FVC: The ratio of forced expiratory volume in one second over forced vital capacity; FEF_{25-75}: Forced expiratory flow at 25-75% of the forced vital capacity.
†Limited to within school year observations (n=707 observations; 282 participants); †Limited to within school year observations (n=707 observations; 282 participants) for health outcomes and corresponding spirometry outcomes (n=321 observations; n=188 participants).
***Adjusted for:** distance from major roadway at home, age, sex, race/ethnicity, annual household income, environmental tobacco smoke, controller medication, recent upper respiratory infections, endotoxin and mouse allergen levels, and seasonality.
**p<0.05 in adjusted analyses.

Supplemental Table 4. Effect of Stratified School Major Roadway Proximity on Asthma Symptoms†

	Unadjusted Analyses		Adjusted* Analyses	
Reference population: Attending school less than 100 meters from major roadway.				
	OR (95% CI) n=282	**p-value**	**OR (95% CI)** n=282	**p-value**
Primary Outcome *Components*				
Maximum Symptom Days[**]	0.70 (0.51 – 0.95)	p=0.02	0.68 (0.51 – 0.91)	p=0.01
Daytime Wheeze[**]	0.75 (0.54 – 1.05)	p=0.09	0.66 (0.49 – 0.91)	p=0.01
Limitations in Activities[**]	0.68 (0.44 – 1.04)	p=0.07	0.66 (0.44 – 0.98)	p=0.04
Nighttime Wheeze[**]	0.61 (0.40 – 0.94)	p=0.03	0.59 (0.39 – 0.89)	p=0.01
Secondary Outcomes				
Health Care Utilization	0.85 (0.46 – 1.58)	p=0.61	0.71 (0.41 – 1.23)	p=0.23
Missed School Days[***]	0.50 (0.29 – 0.84)	p=0.01	0.48 (0.29 – 0.78)	p<0.01
Caregiver Plans Changed[**]	0.58 (0.34 – 0.98)	p=0.04	0.56 (0.32 – 0.97)	p=0.04
Caregiver Lost Sleep	0.66 (0.42 – 1.03)	p=0.07	0.65 (0.41 – 1.01)	p=0.06
Composite Poor Asthma	0.95 (0.78 – 1.15)	p=0.58	0.93 (0.77 – 1.12)	p=0.43
Spirometry Outcomes	**β (95% CI)** n=188	**p-value**	**β (95% CI)** n=188	**p-value**
FEV_1, % predicted	-2.06 (-7.41 – 3.28)	p=0.45	-1.52 (-6.84 – 3.80)	p=0.58
FVC, % predicted	-2.53 (-7.31 – 2.25)	p=0.30	-3.33 (-7.87 – 1.21)	p=0.15
FEV_1/FVC, percent	0.52 (-1.35 – 2.39)	p=0.59	0.81 (-1.20 – 2.81)	p=0.43
FEF_{25-75}, % predicted	11.28 (-11.15 – 33.71)	p=0.32	9.58 (-8.29 – 27.45)	p=0.29

FEV_1: Forced expiratory volume in one second; FVC: Forced Vital Capacity; FEV_1/FVC: The ratio of forced expiratory volume in one second over forced vital capacity; FEF_{25-75}: Forced expiratory flow at 25-75% of the forced vital capacity.
†Limited to within school year observations (n=707 observations; 282 participants) for health outcomes and corresponding spirometry outcomes (n=321 observations; n=188 participants).
∗**Adjusted for:** Distance from major roadway at home, age, sex, race/ethnicity, annual household income, environmental tobacco smoke, controller medication, recent upper respiratory infections, endotoxin and mouse allergen levels, and seasonality. Models for "FEV_1, % predicted" and "FEF_{25-75}, % predicted" did not adjust separately for age, sex, and race/ethnicity as these are included in the percent prediction estimates. **p<0.05 in adjusted analyses; ***p<0.01 in adjusted analyses.