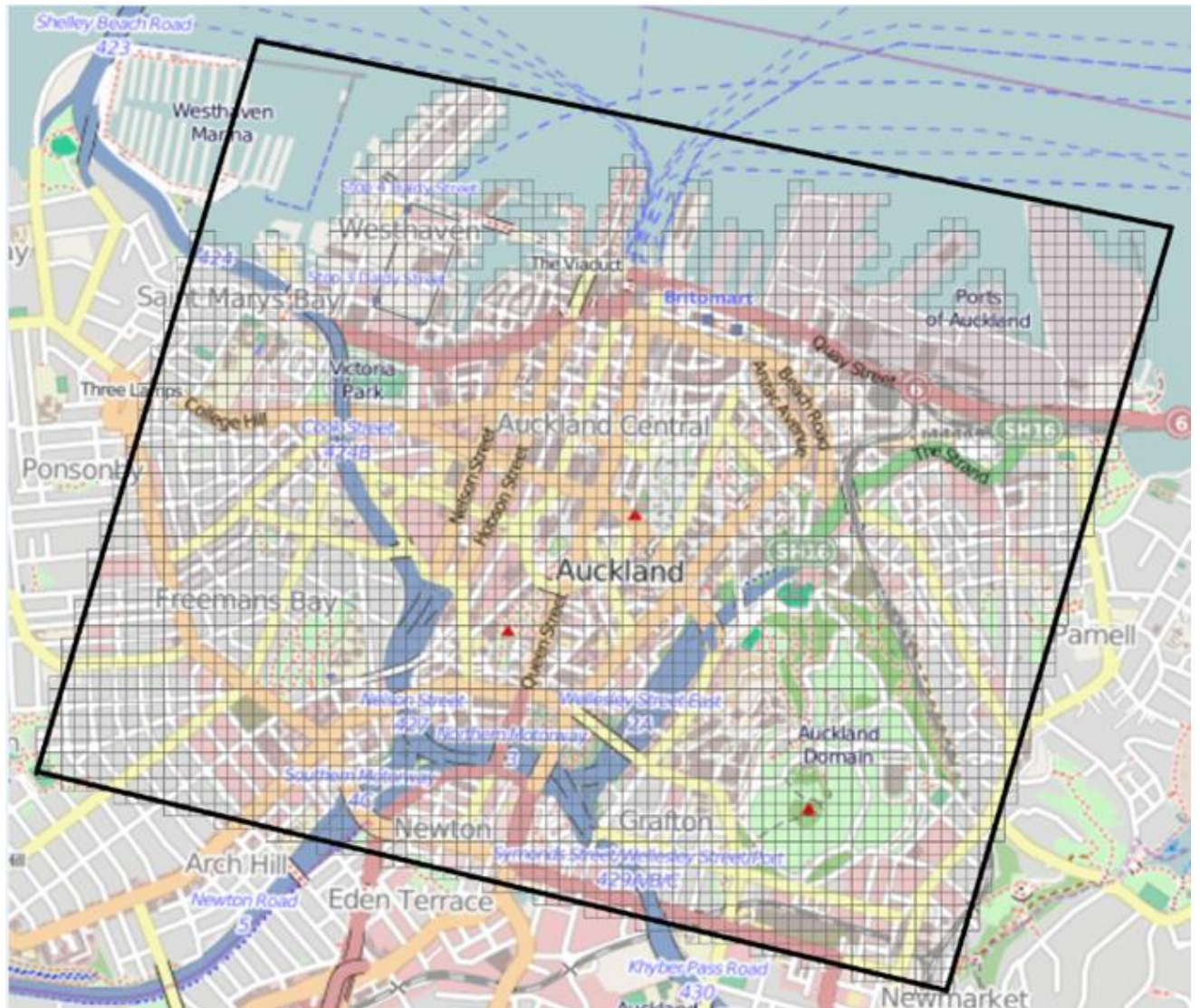**Supplemental Material:**

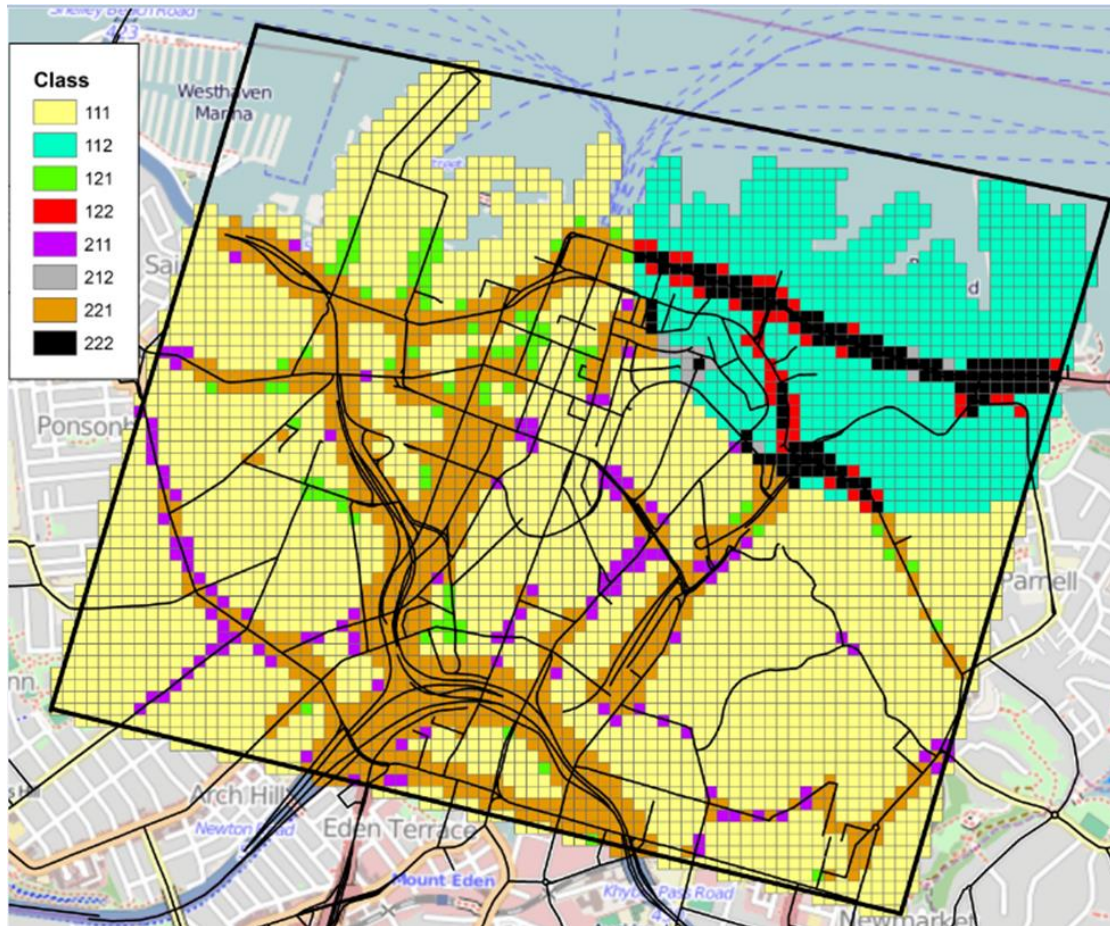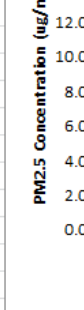**Figure S1.** 50 × 50 m grid used for site classification in GIS.

Figure S2. Source classification map used for site selection. Numerical class categories refer to (in order): Total traffic density, truck density, distance to port (1 = low, 2 = high, in all cases).
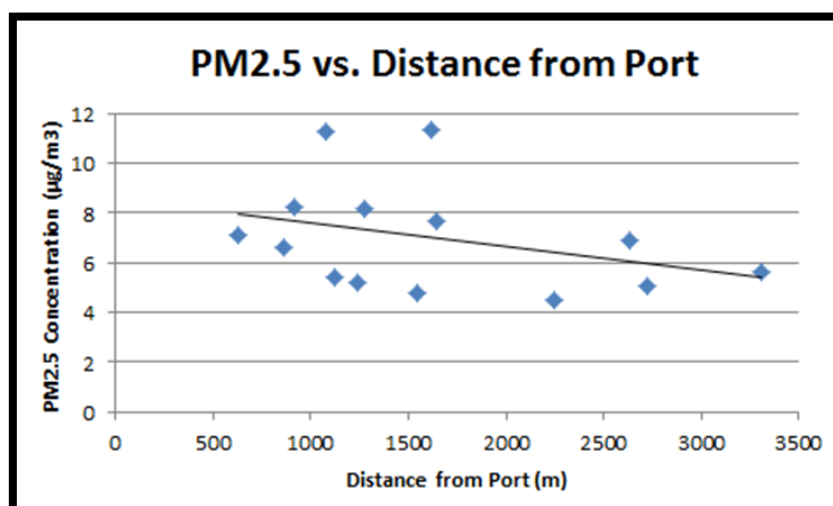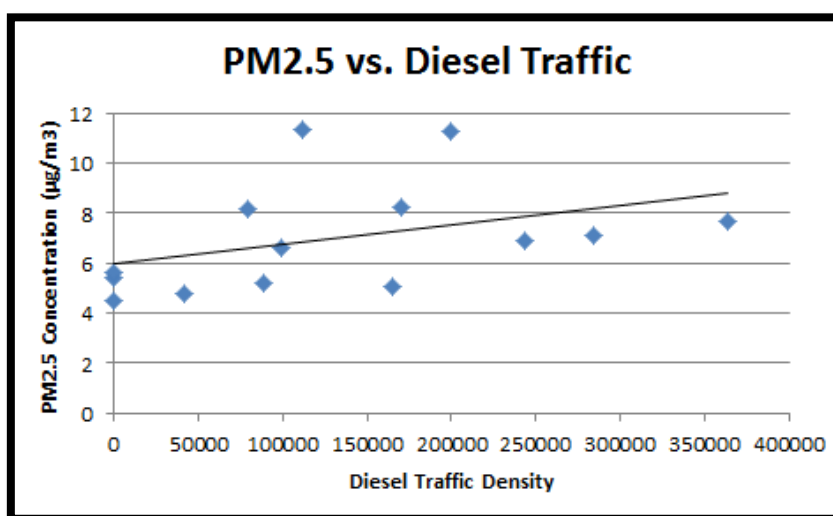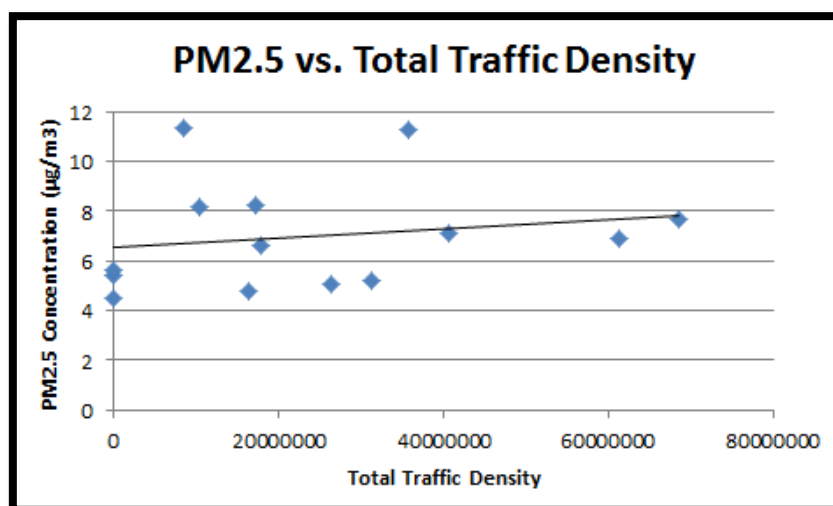
Session	Albert St	Albert Park	
1	14.00	5.33	
2	8.05	5.29	
3	10.12	3.48	
4	13.13	4.88	
average	11.33	4.75	
overall_avg	8.04		
		0.216754054	

Figure S3. Summary of data from Albert St and Albert Park sites, monitored during all four sessions.

Figure S4. Scatterplots of temporally-adjusted PM$_{2.5}$ concentrations vs. source classes.
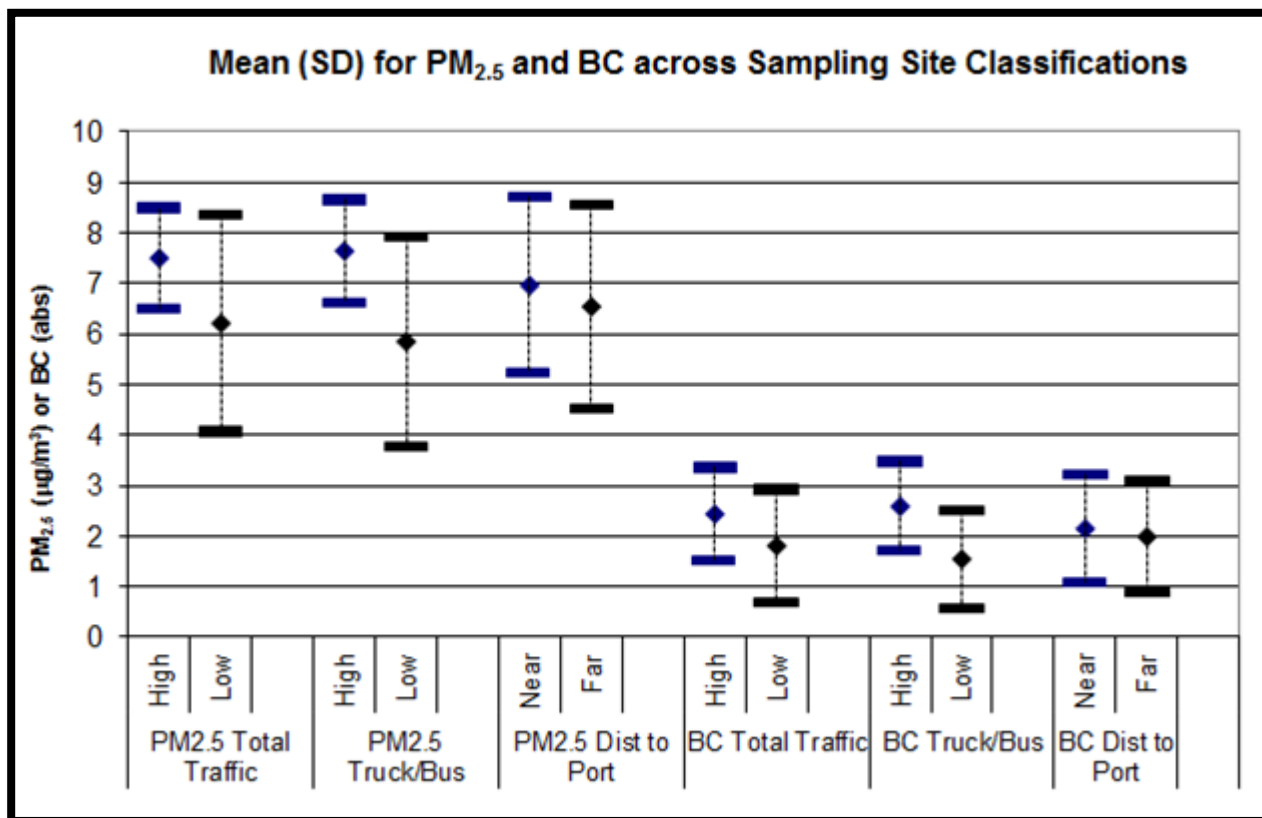
Figure S5. Boxplots of PM$_{2.5}$ and BC concentrations by source category (Total traffic density, truck density, distance to port). In all cases, we found non-normal distributions in concentrations, and slightly higher average concentrations in the high-source category.
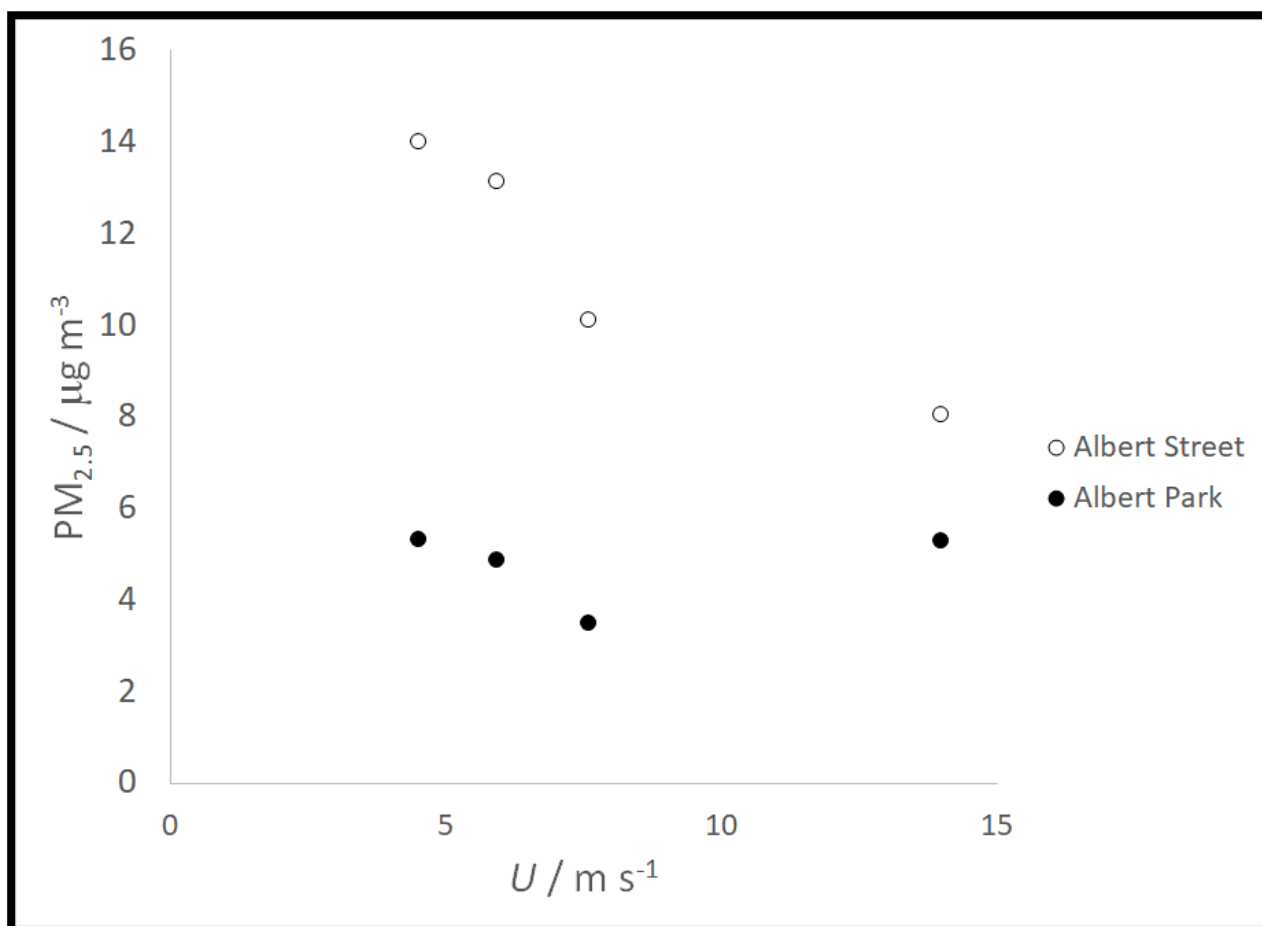
Figure S6. PM$_{2.5}$ concentration vs. windspeed, across sessions, at two reference sites (Albert St is a low-elevation street canyon in the center of CBD; Albert Park is a high-elevation green park adjacent to the CBD).