

# Estimating Traffic Disruption Patterns with Volunteered Geographic Information

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## Supplementary Information

Variable	Estimate	Variable	Estimate
Commercial	0.0227***	Parking	0.040***
Recreational	-0.0303**	House	0.005*
Institutional	0.0087	...	
Green space	0.0026	Pitch	-0.007
Industrial	-0.0005	Farmyard	-0.008
Residential	-0.0084	Pub	-0.013
Observations	112	Observations	112
Adjusted $R^2$	0.26	Adjusted $R^2$	0.45

(a) Meta-categories only                      (b) Granular model

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table S1: Coefficients for the linear regression model for the incoming traffic for every ward.** The traditional land-use categories shown in (a) that produce an adjusted  $R^2 = 0.26$ , while the granular classifications used in (b) increase the adjusted  $R^2$  to 0.45. Only a small subset of the 40 predictor variables are shown for (b). Entries without \* have p-values in excess of 0.05.

	ranking	stability		ranking	stability
commercial	1.000	1.000	clothes	1.000	1.000
recreational	1.028	0.972	bench	1.000	1.000
institutional	1.113	0.915	supermarket	1.022	0.978
green space	1.506	0.607	post box	1.146	0.876
residential	2.048	0.458	playground	1.317	0.829
industrial	2.839	0.209	fast food	1.525	0.792

(a) Meta-categories, total traffic volume                      (b) Granular model, total traffic volume

**Table S2: Average ranking and stability of different meta-categories in predicting the traffic volume for every Oxfordshire ward, for trips at any time of the day.** Only the top 6 OSM categories are shown in (b). The ranking and stability results are similar to the ones obtained when only selecting trips on weekday mornings.

OSM category	Coefficient	OSM category	Coefficient	OSM category	Coefficient	OSM category	Coefficient
allotments	0.0778 **	farmland	0.555 ***	park	-0.011	residential	0.6092 ***
apartments	-0.0908 **	farmyard	0.3094 ***	parking	0.2406 ***	restaurant	0.0079
bench	0.0372	fast food	0.0502	pitch	0.0811 *	retail	0.0482
bicycle parking	0.029	forest	0.236 ***	place of worship	0.0088**	school	0.0422**
cafe	-0.0727 *	garage	-0.0146	playground	-0.028	soccer	0.0937 *
clothes	0.0659	garden	-0.067	post box	0.0786 **	supermarket	-0.0689 *
commercial	0.0765 **	grass	0.0241	pub	-0.0425	telephone	-0.0291
convenience	-0.0028	house	0.0639 *	recreation ground	0.0269	tennis	0.071
entrance	-0.0453	industrial	0.1388 ***	recycling	-0.0028	terrace	-0.0426
farm	0.2515 ***	meadow	0.1846 ***	reservoir	0.1166	university	0.1179 **

**Table S3: All coefficients of the granular model of traffic disruptions.**

Respectively, \*, \*\* and \*\*\* indicate  $p < 0.05$ ,  $p < 0.01$  and  $p < 0.001$ .