

1 **Supplementary Information of**

2 **High-resolution simulation of link-level vehicle emissions and**  
3 **concentrations for air pollutants in a traffic-populated East Asian city**  
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1 **Supplementary Tables**

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3 **Table S1.** Estimated traffic activity by vehicle category in Macao during a typical weekday of 2010

Vehicle category	Traffic activity (veh km d <sup>-1</sup> )	Vehicle category	Traffic activity (veh km d <sup>-1</sup> )
LDPV	1.72×10 <sup>6</sup>	Taxi	6.01×10 <sup>5</sup>
MDPV	1.08×10 <sup>5</sup>	Motorcycle	1.23×10 <sup>6</sup>
HDPV	8.44×10 <sup>4</sup>	LDT	1.37×10 <sup>5</sup>
Public bus	1.42×10 <sup>5</sup>	HDT	2.12×10 <sup>4</sup>

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1 **Table S2.** Spatial allocation of vehicle emissions in Macao during a typical weekday of 2010

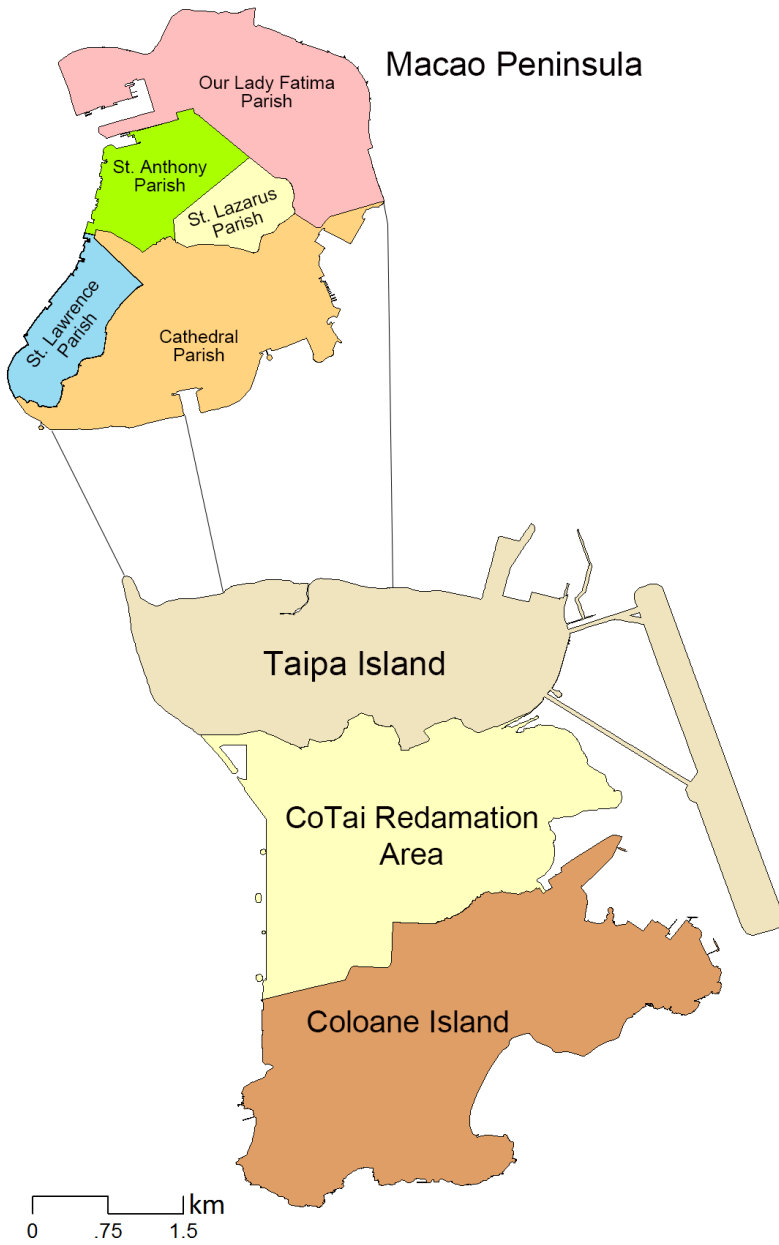
Region / Parish	Allocation of vehicle emissions				
	CO	THC	NO <sub>x</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Macao Peninsula	74%	77%	58%	52%	59%
St. Lazarus Parish	12%	12%	9%	8%	9%
St. Lawrence Parish	8%	8%	6%	5%	6%
Our Lady Fatima Parish	2%	2%	2%	2%	3%
St. Anthony Parish	23%	24%	17%	16%	18%
Cathedral Parish	16%	17%	12%	10%	13%
Taipa	12%	10%	20%	23%	19%
CoTai Reclamation Area	6%	5%	8%	10%	8%
Coloane	2%	2%	2%	2%	3%
Others (three cross-sea bridges)	7%	6%	11%	13%	10%

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1 **Supplementary Figures**

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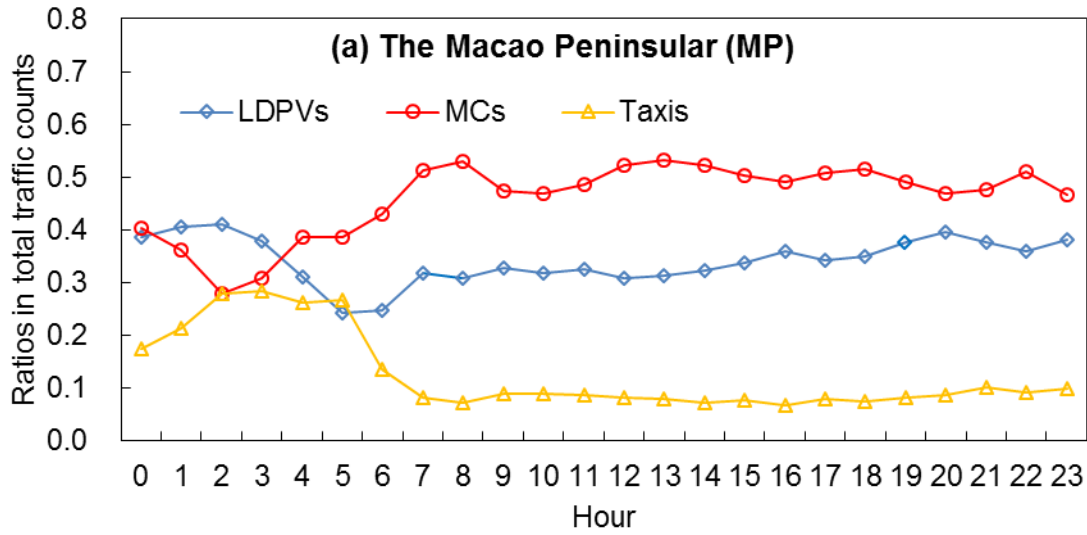
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4 Fig. S1. Map of the Special Administrative Region of Macao, China

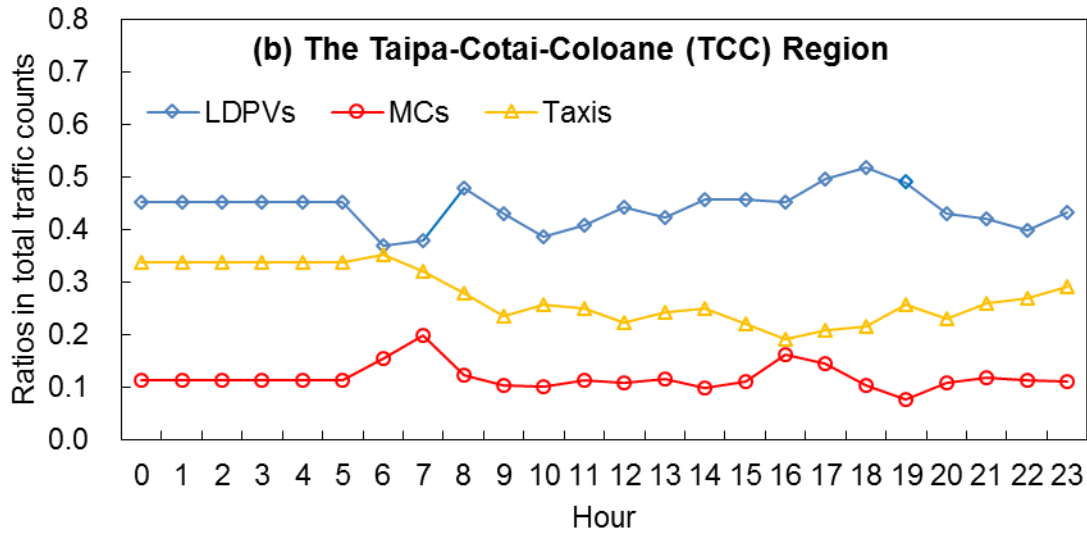
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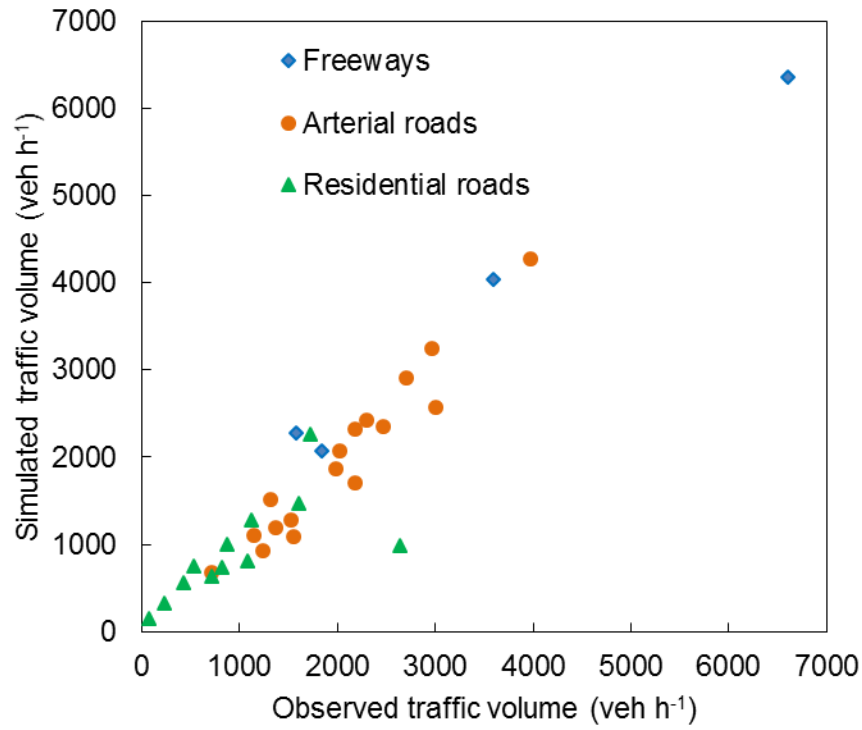
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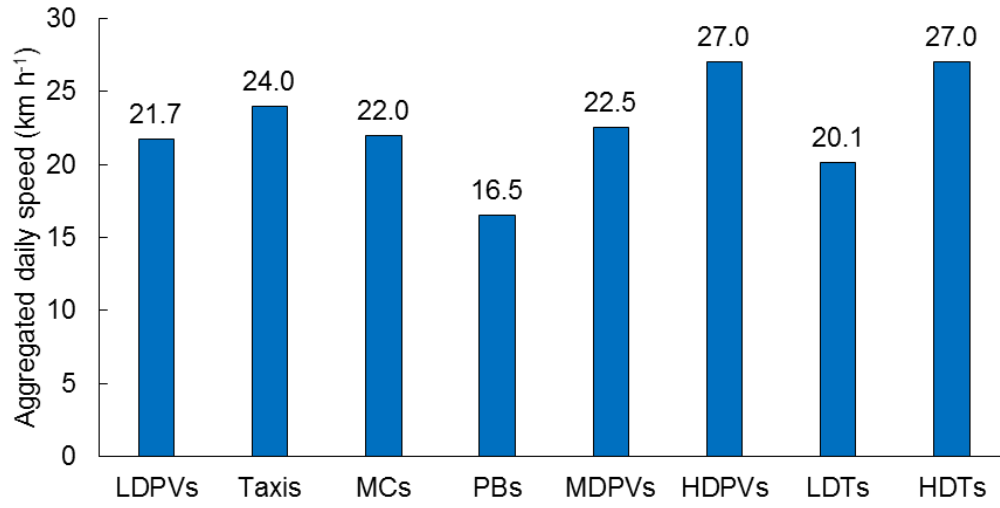
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4 Fig. S2. Hourly allocations of traffic volume for LDPVs, motorcycles and taxis on the arterial roads in (a)  
5 the Macao Peninsula and (b) the Taipa-Cotai-Coloane Region.

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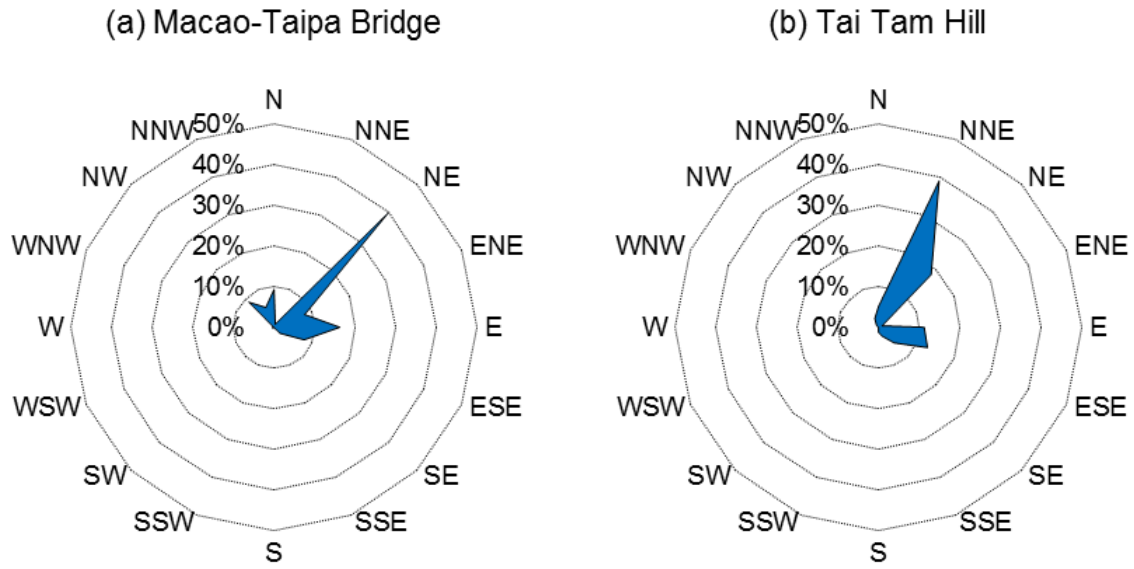
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 2 Fig. S3. Comparison of observed traffic volume and simulated results with the TransCAD model for 33  
 3 roads during 6 p.m. hour of typical weekdays  
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Fig. S4. Fleet-average speed of each vehicle category in Macao, during a typical weekday of 2010.

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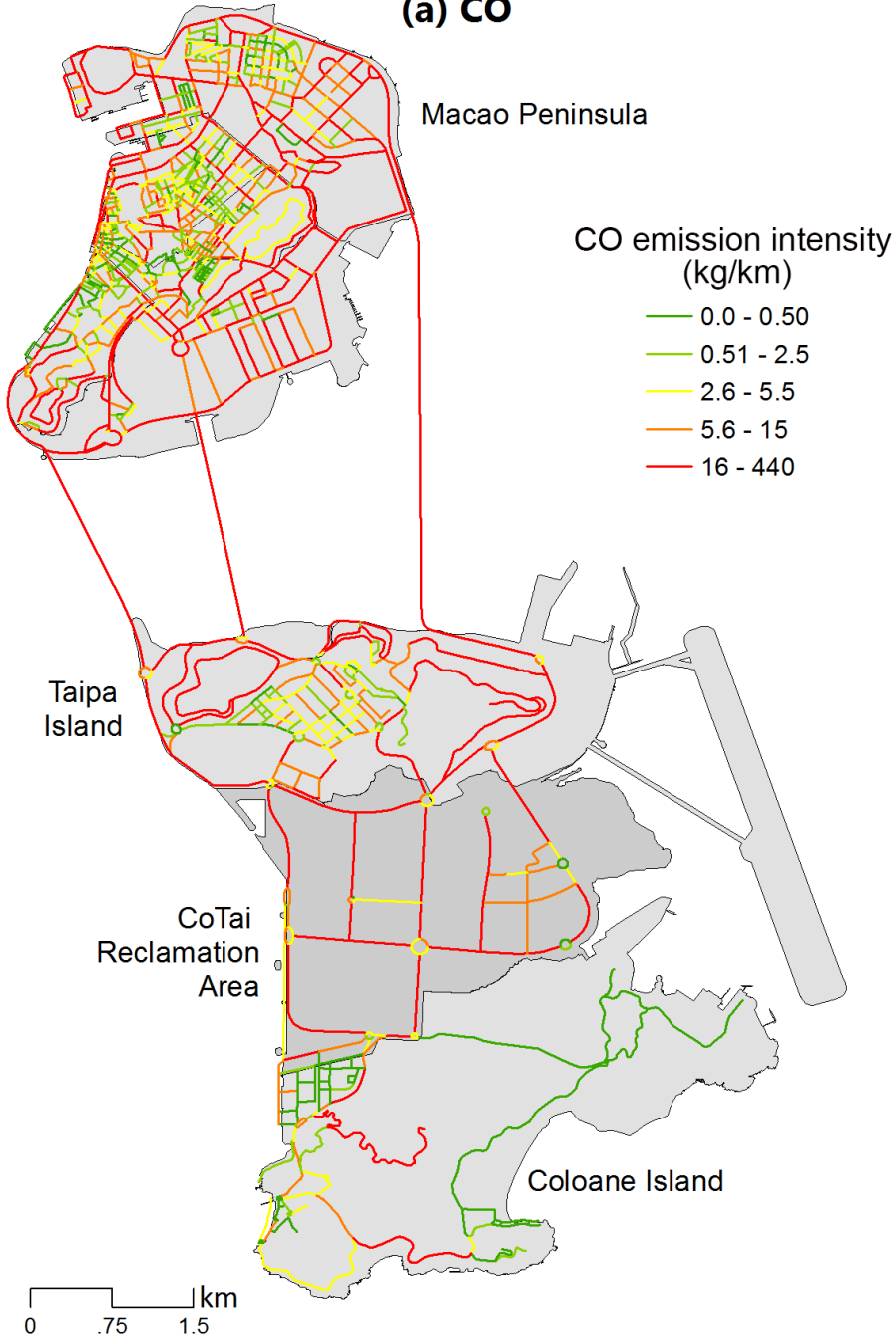
Fig. S5. Wind rose map of two weather stations in Macao during weekdays of November 2010.

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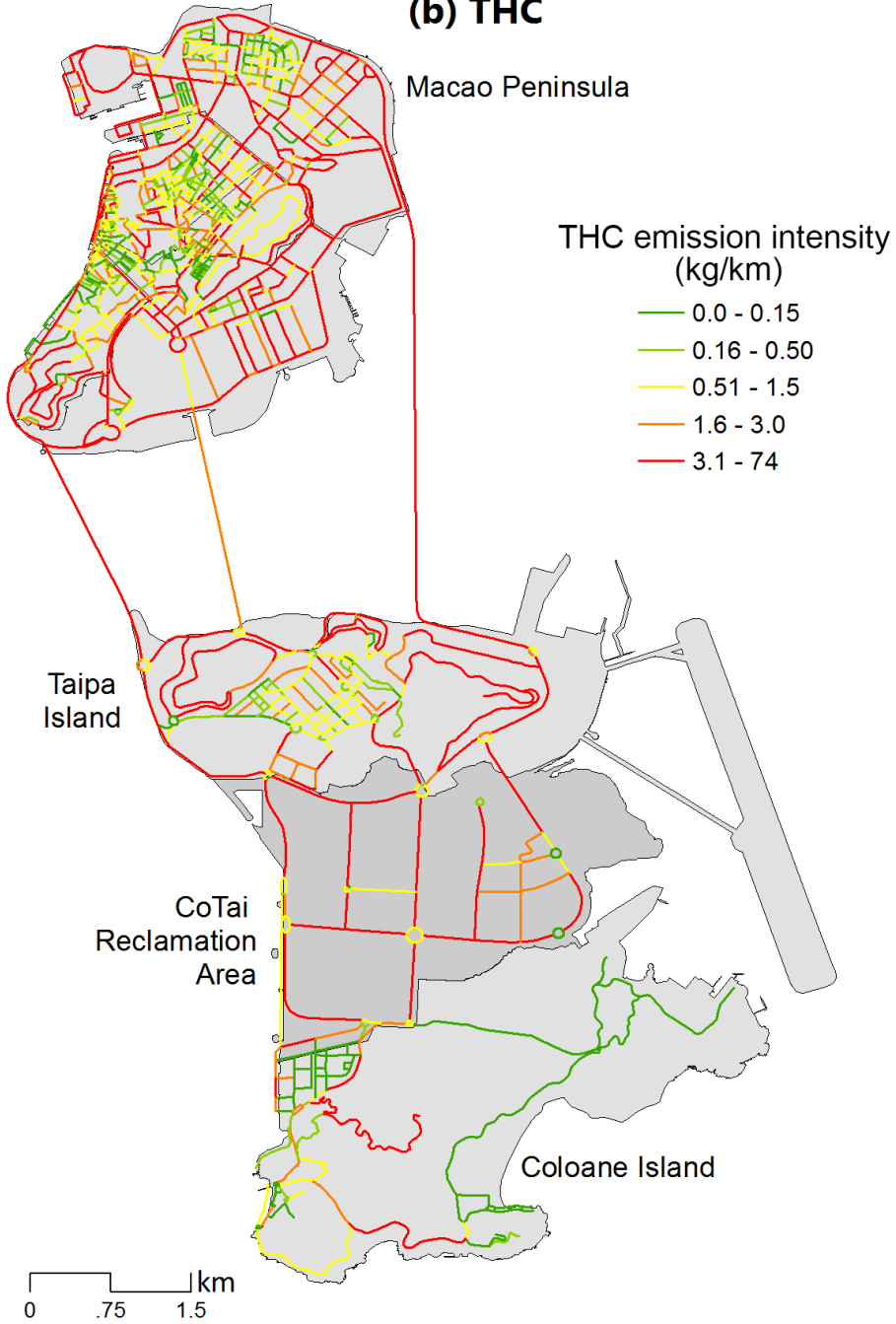


**(a) CO**

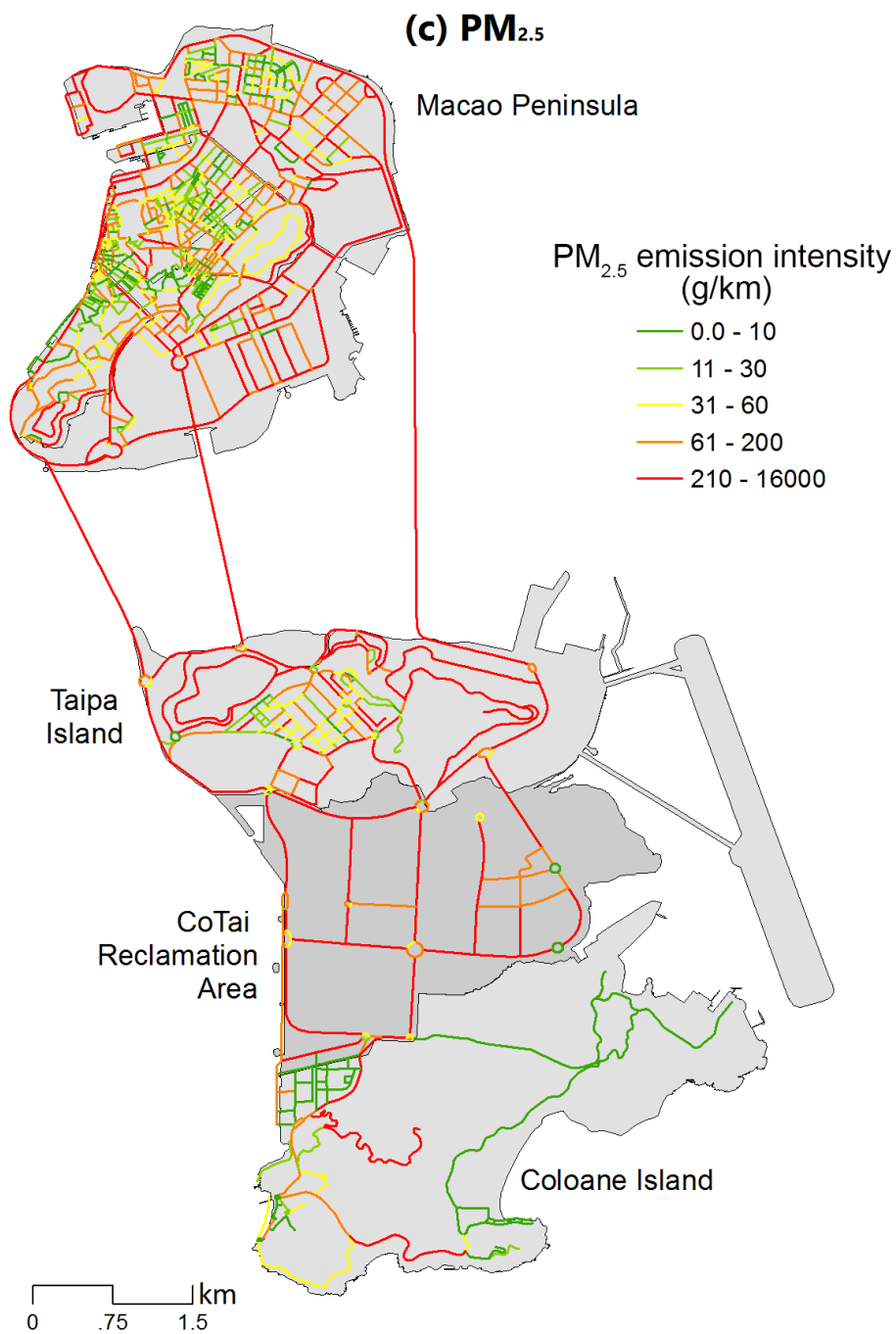


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**(b) THC**

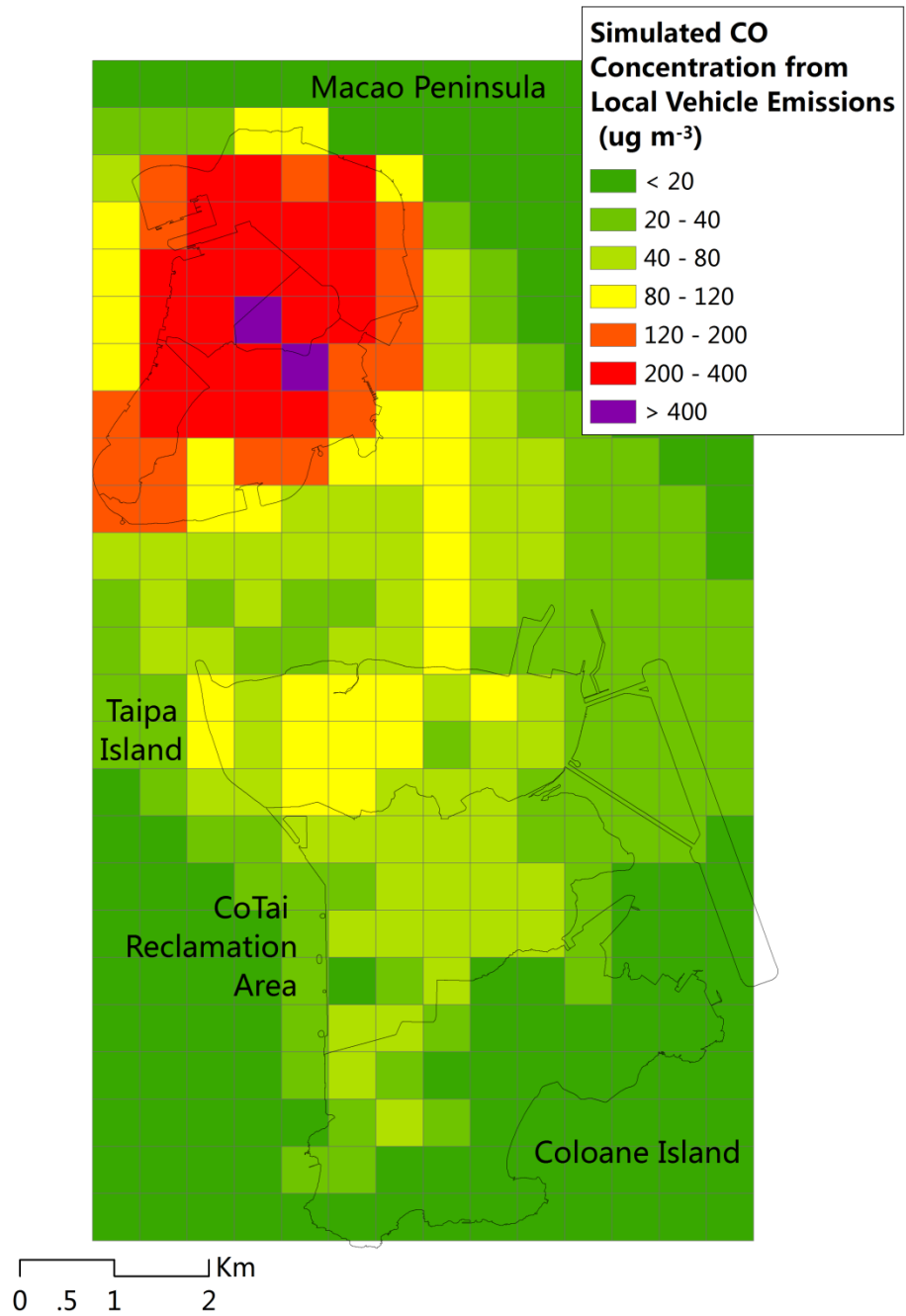


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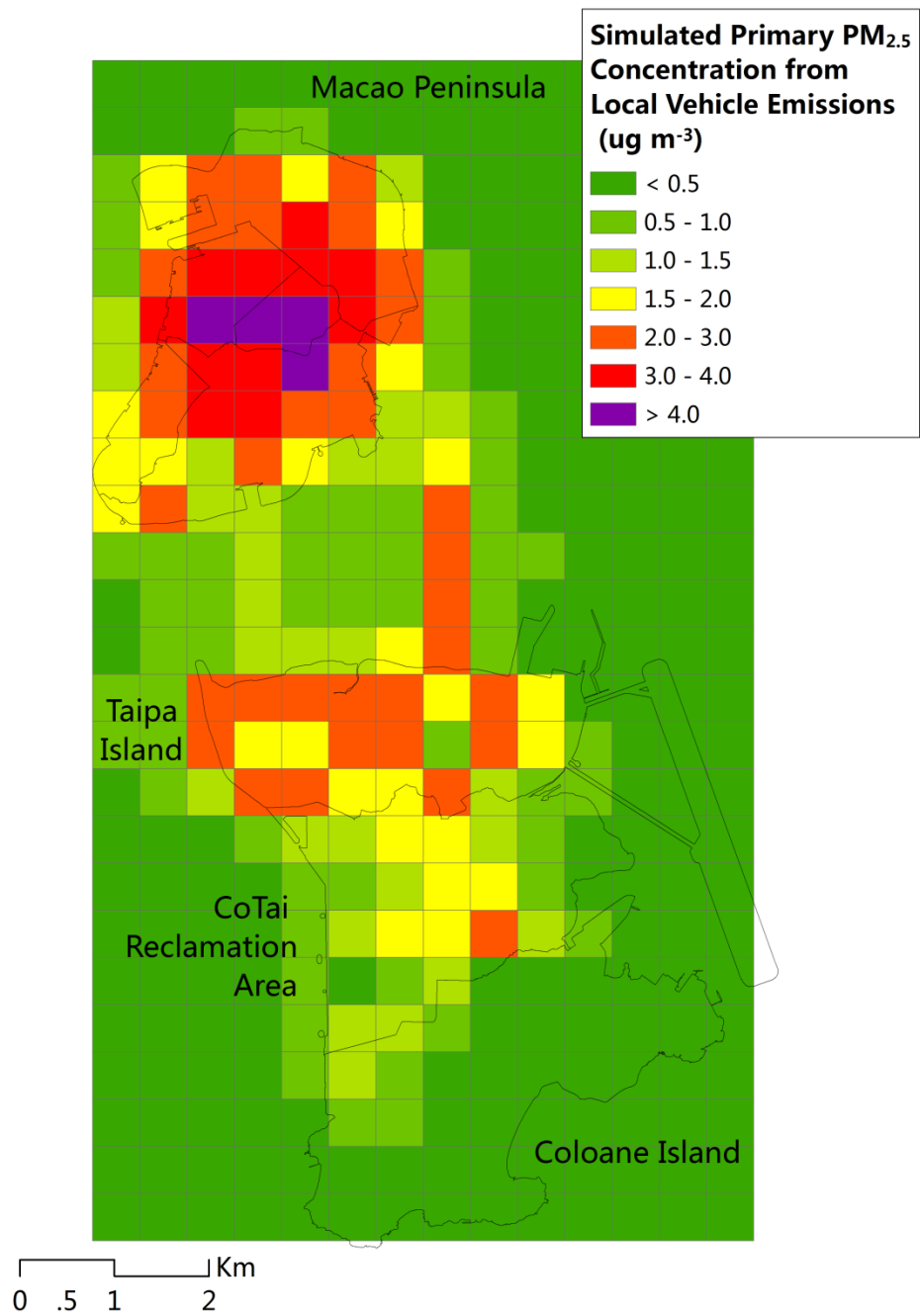


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Fig. S6. The spatial distribution of vehicle emissions for (a) CO, (b) THC, (c) PM<sub>2.5</sub> and (d) CO<sub>2</sub> in Macao during a typical weekday of 2010



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 2 Fig. S7. Simulated vehicle-contributed concentrations of (a) CO and (b) PM<sub>2.5</sub> in Macao during  
 3 weekdays of November, 2010  
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