Traffic in Chiang Mai

Matt Giangreco, Ben Hollemans, Alisha Wynia, and Caroline Coatney

METHODS

To study the sustainability of Chiang Mai traffic was used as an indicator and observed at four locations: the inbound/outbound 107 Road leading to greater Chiang Mai, Nimmanhaemin Road through a New City business district, the Old City road Ratchadamnoen near Tha Pae Gate, and Manee Noparat and Si Poom Roads which partially encircle the Old City. Traffic heading in both directions was monitored for all roads. At each site three five-minute samples were taken per traffic direction, this resulted in 24 samples. Different
variables were observed, which were vehicle type and density. One student counted privately owned vehicles (cars, vans and trucks), another student counted motorcycles/mopeds and motorcycle vendors, another student counted mass transit vehicles (song taos, tuk tuks, bike tuk tuks, buses, taxis), and the last student recorded the duration of time when there were no vehicles driving in the inner most lane directly in front of him in order to determine density. The four locations were picked to collect data from different types of roads in different areas of the city. The data was collected from 2:00PM to 4:30PM on February 9 and February 10 2010 (two locations per day).

FINDINGS

The busiest roads in terms of number of vehicles per minute were Manee Noparat and Si Poom (on average 459 vehicles passed in either direction every five minutes). The least busy was the road near Tha Pae Gate (on average 107 vehicles passed in either direction every five minutes). The differences in vehicles per minute seen among the four roads may be due to the roads' locations or direction in relation to other sites in the city. Manee Noparat and Si Poom Roads were also consequently found to be the densest while Ratchadamnoen Road was the least dense. Interestingly, Manee Noparat/Si Poom Roads and Ratchadamnoen Road had more mopeds/motorcycles than cars, whereas the other sites observed had more cars than mopeds/motorcycles.

The highest numbers of mass transit vehicles were found on the two busiest roads, 107 Road and Manee Noparat/Si Pooms Roads (23 vehicles per five minutes and 54 vehicles per five minutes respectively; see Figure 1).

From the research on average 47% of traffic was composed of privately owned vehicles, 42% were motorcycles/mopeds, and 11% was mass transit. Using traffic as a sustainability indicator, Chiang Mai has room for improvement. While mopeds/motorcycles comprise a significant portion of traffic, sometimes outnumbering cars, trucks and vans, mass transit vehicles never dominate traffic. In comparison to Curitiba, Brazil 85% of the population uses mass transit.[1] Curitiba's population is 3.6 times larger than Chiang Mai's population. While the number of people using mass transit in Chiang Mai was not counted, from our data it appears that the number of people that use mass transit is much lower than 85%. Also from the research the dominant use of privately owned cars and motorcycles reveals that economically people can afford to purchase a vehicle and fuel. Also socially it is also more convenient and comfortable to commute in a privately owned vehicle. The environment suffers as a result by higher consumption of fossil fuels and emissions of Green House Gasses. Improved public transportation would help reduce Chiang Mai's ecological footprint.

[1] http://en.wikipedia.org/wiki/Curitiba#Urban_planning

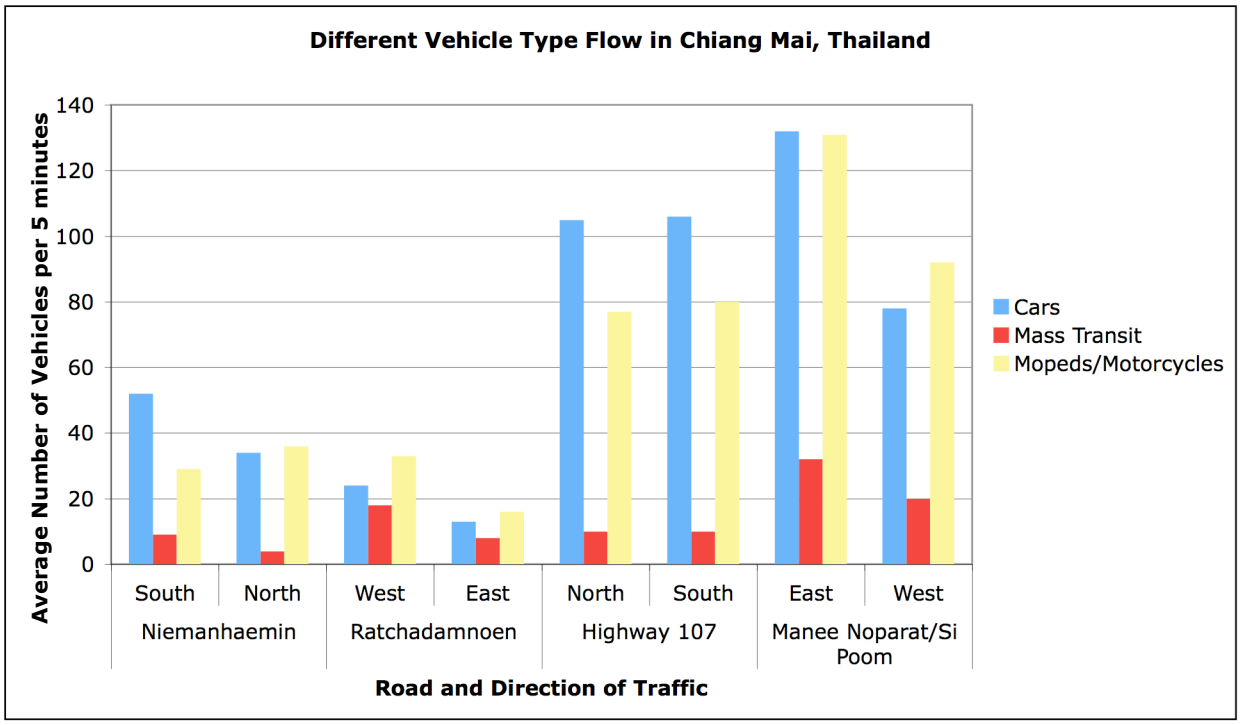

Figure 1. Traffic flow for three vehicle types as observed on four roads in Chiang Mai, Thailand. For each direction of traffic at each road, traffic was observed three times for five-minute observation periods. The collected data for each vehicle type at each direction of traffic was then averaged.