

Chapter 7

Public Transport in Chiang Mai

7.1 General Transport Services Available in Chiang Mai

There are several kinds of transport service available in and around Chiang Mai. Besides private vehicles (including automobiles, bicycles, motorcycles, etc.), the primary means of transport is via the broadly-defined bus system, estimated to account for about 12% of all trips taken.¹ There are four types of buses:

- 1) **Shared-taxis**, also referred to as *songtaews*, are essentially customized pick-up trucks, with seating space for 10 passengers, and are delineated by different colors according to their operator.²
- 2) **Minibuses** are smaller than regular buses and provide around 30 seats.³
- 3) **Buses** are used for inter-city transport and provide between 60 to 70 seats.
- 4) **Vans** provide up to 15 seats and are used primarily for transport to/from school as well as for tourism-related purposes.

In addition to the four types of buses, Chiang Mai also has motorized tricycles (locally as *tuk tuks*), cycle rickshaws (locally known as *samlors*), motorcycles (acting as taxis), and airport limousines.⁴ It should be specifically noted however, that Chiang Mai is quite unique in that no metered-taxis exist.

Table 7-1 below gives an outline of the various transport services available in Chiang Mai.

¹ The modal split (by total trips) is broken down as follows: Motorcycles (51%); Private Vehicles/Pickup Trucks (34%); Bus/Minibus (12%); and Others (3%). Songtaews average about 165,000 trips per day, and minibus about 16,000 trips per day. Source: Office of Commission for the Management of Road Traffic (OCMRT) and Chiang Mai University (CMU), Traffic and Transport System Management Model for Regional City: Chiang Mai (Executive Summary), 1995, p. 6.

² *Songtaews*, the local name for shared-taxis, will henceforth be used to refer to shared-taxis.

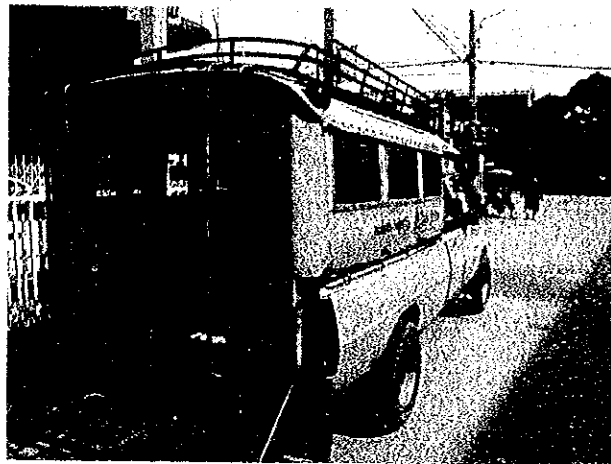
³ Intracity minibus services were cancelled as operators were financially unable to sustain their operations.

⁴ *Tuk tuk* and *samlor* service only carries about 2% of all passengers within Chiang Mai. Source: Office of Commission for the Management of Road Traffic (OCMRT) and Chiang Mai University (CMU), Traffic and Transport System Management Model for Regional City: Chiang Mai (Executive Summary), 1995.

Table 7-1 Outline of Public Transport Services in Chiang Mai

Mode	Vehicle Capacity	Number of Registered Vehicles (2000)	Type of Route	Fare Structure (baht)
<i>Songtaew</i>	9-11	3,689	Fixed/ Flexible	Red <i>Songtaews</i> : 10 Others: Depends on distance
Minibus	30-40	119	Fixed	Depends on distance
Van	10-15	15 ⁵	Fixed/ Flexible	Depends on distance
<i>Tuk tuk</i>	2	1,160	Flexible	20-50
<i>Samlors</i>	2	2,504	Flexible	10-30
Airport Limousine	3	60	Flexible	100-300

Source: This study, Land Transport Department



Source: This study

Figure 7-1 Typical *Songtaew* Operating in Chiang Mai

Due to the nature of transport services within Chiang Mai, the term “public transport” will be restricted to include only those bus services that operate within the municipality area (excluding inter-city or long-distance buses), including *songtaews*, minibuses and vans.⁶

7.2 Public Transport Development in Chiang Mai

The history of Chiang Mai’s public transport development can trace its origin back some thirty years, when individual *songtaew* operations were initiated between suburban areas and the Municipality. In the 1970’s, a cooperative-style of organizational management

⁵ Vans Registered in commercial categories. Most of Vans operated in tourism industries or school commuting are not included.

⁶ At this moment, minibuses are not operated regularly within the municipality.

was adopted among various private operators in order to ensure continued profitability.⁷ Within city areas, *songtaew* operators organized the “Red Bus Cooperative” in 1976. All “Red Bus Cooperative” *songtaews* initially operated on a non-fixed route basis. The Land Transport Act (1979) required that all *songtaews* register with the Land Transport Department and operate in a fixed-route manner. Some 40 *songtaew* routes were proposed as well. Despite this Act, providers have continued to operate non-fixed route service as in the past.

Minibus operations started nearly 30 years ago by the Chalermpon Dernrod Company Limited. Minibuses had a capacity of about 40 seats and operated within the city proper. In 1979, a private company, Chiang Mai Thai Dernrod Company Limited, proposed a concession to operate a four-route network for the Land Transport Department, which resulted in a radial service network within the city that linked suburbs on opposite sides of the city. By 1995 however, operations had been terminated altogether, as service became fiscally unsustainable and the company went bankrupt. In a similar venture, Prempracha Motor Works Company Limited began service on two circular routes within the city in 1986, only to see these operations terminate in 1998 for the same insolvency reasons.

Public transport, not explicitly mentioned under the Land Transport Act, includes shared vans, which have been carrying students from suburban villages to school. Also vans have been used to shuttle tourists around the many attractions within the Municipality.

7.3 Public Transport Survey

(1) Background

The Study Team conducted interview surveys for passengers in order to examine the state of the public transport demand. The survey was conducted on August 28, 2001 in cooperation with NTCT (Northern Technical Center for Traffic System Management) and the Chiang Mai University's Department of Marketing.

Interviewees consisted of *songtaew* and minibus users. 2,602 passengers are interviewed.⁸ The survey consisted of five categories of information:

- Origin and Destination⁹
- Transport Service Level
- Trip Purpose
- Public Transport Opinion
- Socio-Economic Data

⁷ A government organization called the “Cooperative Department” is responsible for controlling cooperative formation according to the Cooperative Law. For instance, at least 100 members are needed to form a cooperative.

⁸ According to a CMU survey in 2000, it is estimated that there are approximately 114,000 person-trips/day on public transport, with about 71,000 person-trips/day on red *songtaews* and the rest on other fixed route *songtaews* and minibuses. Therefore, the survey size is slightly greater than 2% of all person-trips/day taken in the Municipality.

⁹ For the OD survey, although the target area is the municipality, the survey area is redefined to be the area demarcated in the Chiang Mai Metropolitan Master Plan.

(2) Transport Demand Patterns

Table 7-2 shows how districts are defined in the survey.¹⁰

Table 7-2 Demarcation of Districts for Transport Survey

#	District	Zones in OCMLT Study
1	Area within City Moat	1-11
2	Night Bazaar, Ta Phae	28,30-33
3	Chang Klan (Montfort College, Pra Haruethai, etc.)	34-36
4	Tippanate, Hai Ya	37-40
5	Railway Station, Sun Pa Khoi, Nong Hoi, Kawila Barrack	49-56,109
6	Suthep District, Suan Dok Hospital, Phayom Market, Watthanotai Payap	12,15,41,42
7	Suthep, Kad Suan Kaew, Chiang Mai Ram I Hospital	13,14,16,17
8	Chang Phueak, Chotana, Rachapat Institute	18-22
9	Muang Mai Market, Municipality Office	23-25
10	Kad Luang, Chang Moi	26,27,29
11	Prince Royal, Dara College, Mc Cormic Hospital	43-48
12	Suthep, C.M.U., Racha Mongkol Institute, Doi Suthep	62-68,107
13	Mae Rim, Mae Tang District, Chiang Rai	69,79-81,94-96,108,111
14	Mae Jo Univ., Phrao District, Chiang Rai	70,71,82,83,97-100
15	Sun Sai, Doi Saked District	72,73,84-86,101
16	Sun Kumphang District	57,74,87,102
17	Saraphi District, Lamphoon	58,59,75,76,88-90,103,104
18	Airport, Hang Dong, Sun Patong, Chom Thong District	60,61,77,78,91-93,105-106,110

Source: NTCT Study, Chiang Mai University.

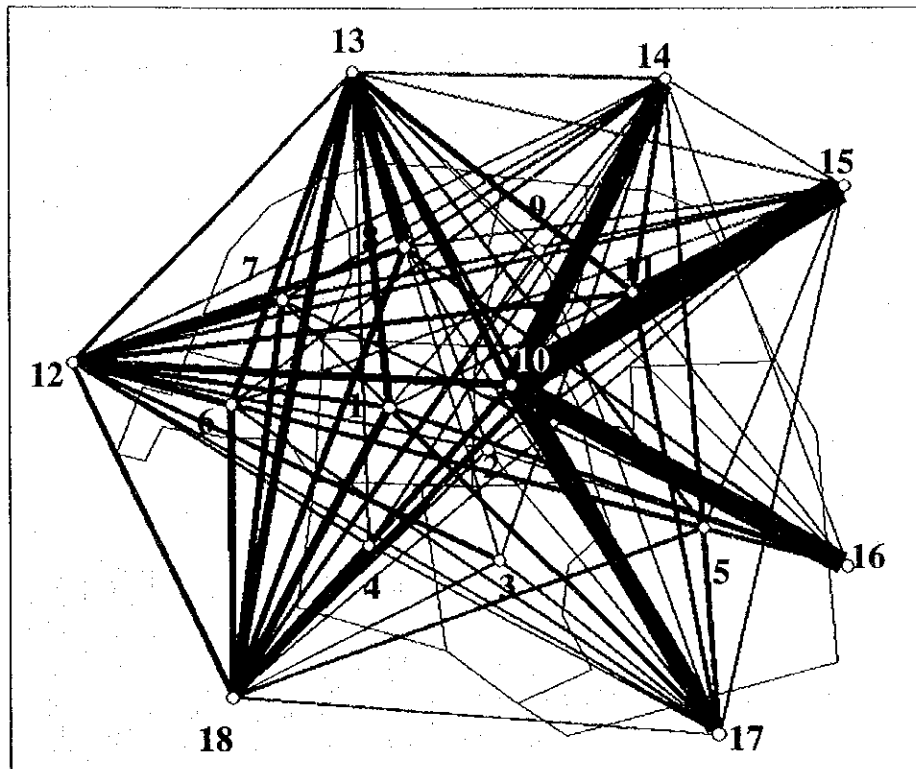
Figure 7-2 and Figure 7-3 show traffic demand patterns in and around the Municipality, by district.¹¹ From Figure 7-2, it is clear that District #10 (which includes the Warorot Market) is a major destination point for intercity travel. It is evident that significant intercity demand exists between District #10 and several areas to the east of the Municipality, specifically the Phrao area (#14), the Sun Sai area (#15), the Sankanpean area (#16), and the Saraphi area (#17).¹²

Public transport demand within the Municipality is much smaller. Based on the sample survey, it was projected the largest intercity demand (between two districts) would produce about 5,000 daily trips. For intra-city trips however, projections estimated that the largest demand would be between the Warorot Market and the Keao Nawarat Area, and would produce about 1,600 daily trips.

¹⁰ Chapter 3 also shows a map of the Municipality, according to district, for the survey.

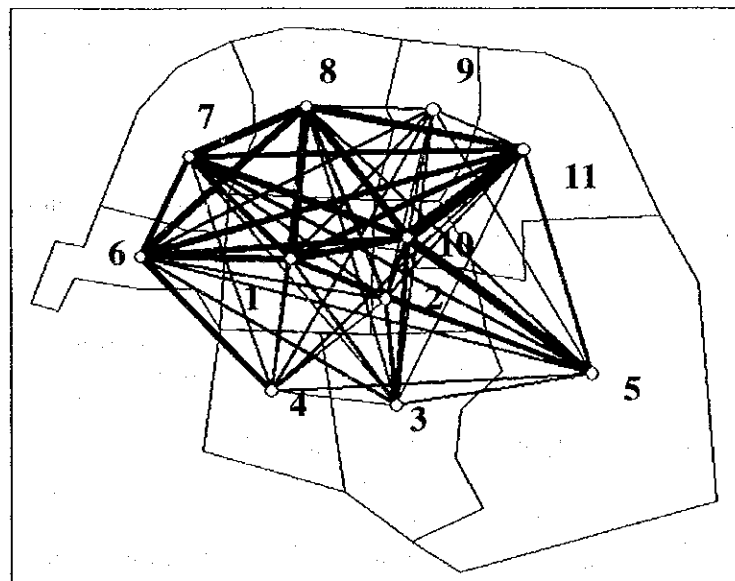
¹¹ The thickness of lines in the figures represents the demand between two districts. Both figures utilize the same thickness scale to represent demand.

¹² It is estimated that 36% of trips from the suburbs have the Warorot Area as the destination.



Source: This study

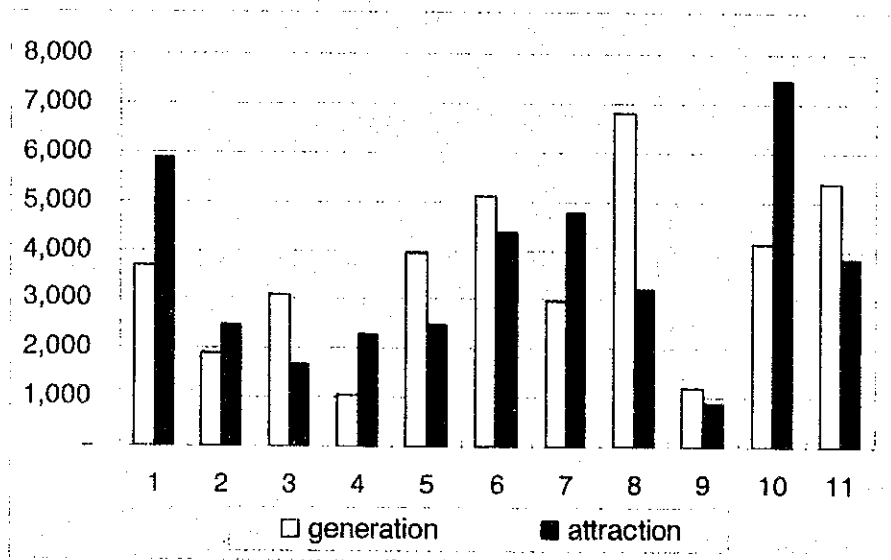
Figure 7-2 Demand Profile for Public Transport Between Inner and Outer Districts



Source: This study

Figure 7-3 Demand Profile for Public Transport Among Municipality Area

Figure 7-4 shows the expanded number of trips generated and attracted according to district, based on the sample survey taken. It is found that there is a high number of trips generated from District #8, most likely due to the location of the Chang Puak Bus Terminal, which acts as a hub terminal for outlying transport services. The Warorot and Thapae Districts (District #10) have the highest number of trips attracted, while the Huay Kaeo Area (District #7) also has significant trips attracted due to its reputation as a shopping area.



Source: This study

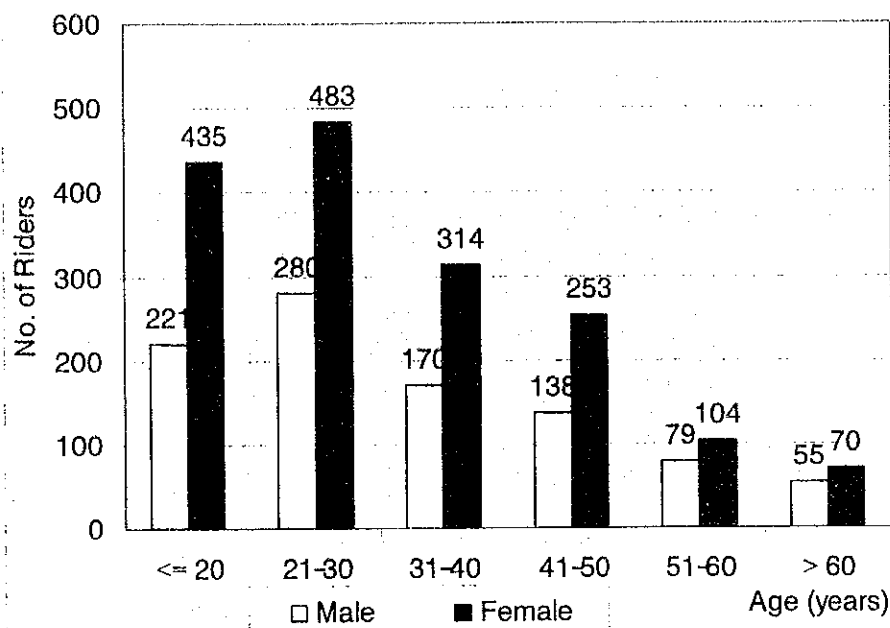
Figure 7-4 Daily Trips Generated and Attracted by District

(3) User Profile

Figure 7-5 shows the number of respondents according to age and gender, while Figure 7-6 characterizes them by educational and income level. Lastly, Figure 7-7 characterizes them according to profession.

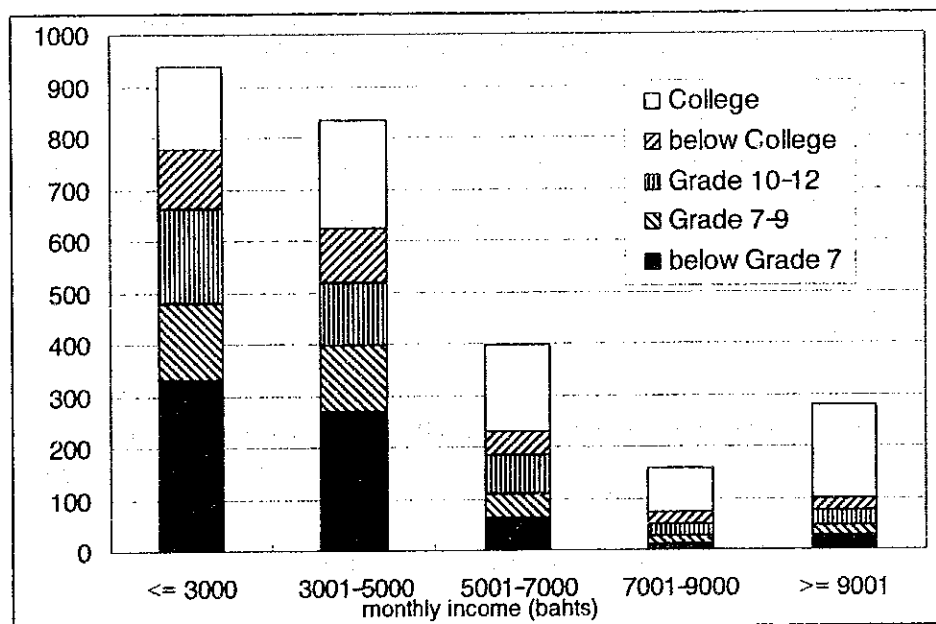
From the survey of transport users, the Study Team observes the following patterns about public transport service and the public transport demand profile in the Municipality:

- Twice as many females use public transport as males
- The young (under 20 years of age) use public transit at a rate about four times larger than the elderly (older than 60 years of age)
- Over 70 percent of respondents earn less than 5,000 baht/month; the majority of them either possess less than a college education or are currently studying at primary or secondary institutions
- Over 30 percent of passengers are students



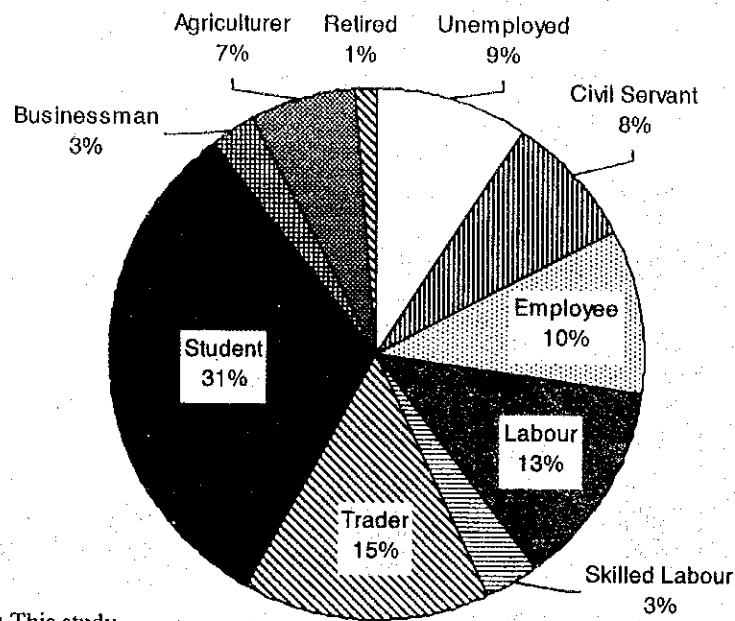
Source: This study

Figure 7-5 Daily Public Transport Passengers According to Age and Gender



Source: This study

Figure 7-6 Daily Public Transport Passengers According to Education and Income Level



Source: This study

Figure 7-7 Proportion of Public Transport Passengers According to Profession

(4) Average Fares

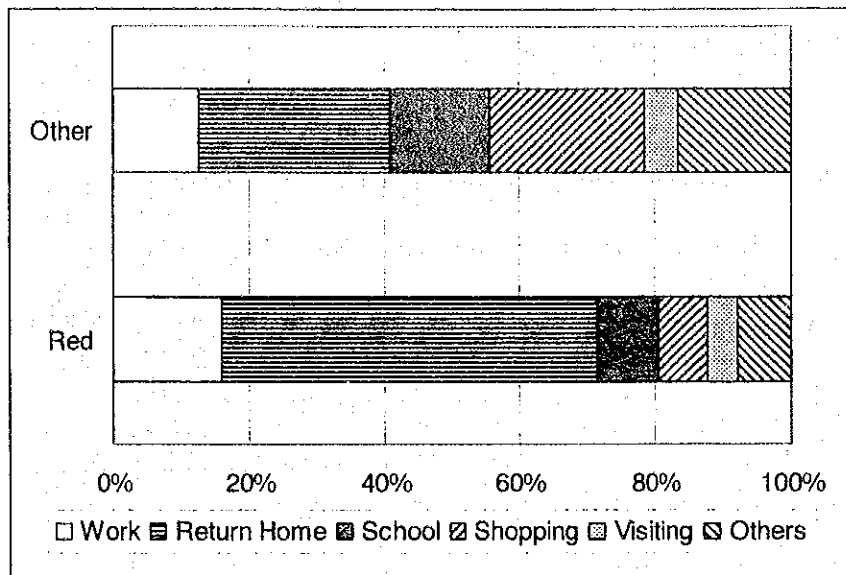
The average fare level per trip for red *songtaews* is 12.4 baht, somewhat higher than the published rate. The average fare on other *songtaews* and the minibuses is 21.0 baht, including passengers taking relatively long trips from the suburbs.

(5) Average Trip Times and Waiting Times

The average trip time on red *songtaews* is about 22 minutes, with an average wait time of about 7.5 minutes. For other *songtaews* and minibuses, the average trip time is 61.6 minutes, with an average wait time of 15.5 minutes.

(6) Trip Purpose

Public transport trip purpose is shown in Figure 7-8. The majority of red *songtaew* passengers use the service to return home, with the second most common purpose being work-related trips. Among users of other *songtaews*, besides home-related trips, shopping trips are the most popular.

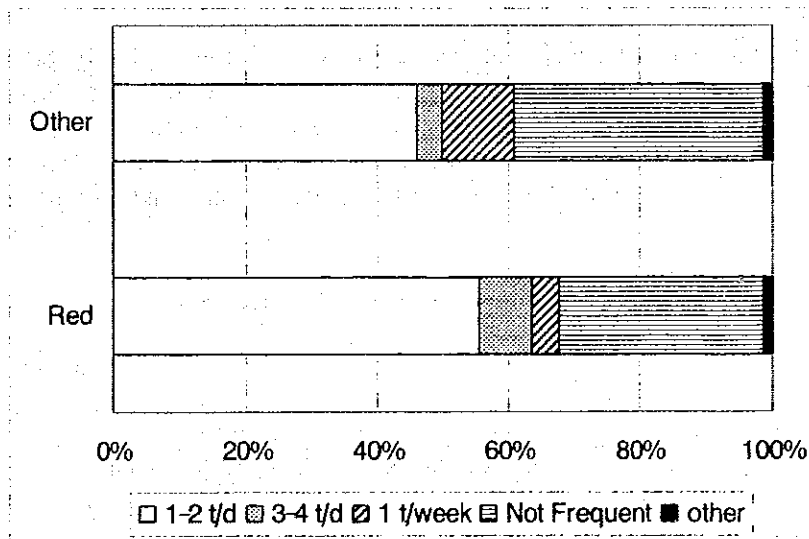


Source: This study

Figure 7-8 Trip Purpose by Public Transport

(7) Trip Frequency

Figure 7-9 shows how often respondents utilized public transport. From the figure, it is clear that the majority of interviewees (almost 60 percent) take 1-2 trips per day on red *songtaews*, whereas only about 50% of interviewees took 1-2 trips per day on other *songtaews*. In both cases however, there is a large proportion of interviewees that use the services of the red *songtaews* (nearly 30 percent) and the other *songtaews* (nearly 40 percent) infrequently.



Source: This study

Figure 7-9 Trip Frequency by Public Transport

(8) Number of Transfers

From the interviews, it was found that 481 persons (about 19% of the sample group) had to transfer to another bus or *songtaew* in the municipal area to complete their trip. Table 7-3 summarizes transfer activities at important interchange locations.

Table 7-3 Transfers at Important Interchange Locations

Interchange Location	Traffic Zone	Number of Transfers (Passengers)		
		To Red <i>Songtaew</i>	To Fixed Route	Total
Warorot Market	29	120	125	245
Chiang Mai Gate, North Terminal	7	54	45	99
Chang Puak Gate	20	14	23	37
Thapae Rd. West	31	31	1	32
Chiang Mai Gate, South Terminal	37	6	8	14
Thapae Rd. East	30	10	0	10
Arcade	48	1	8	9

Note: Chiang Mai Gate has two terminals, which serve different zones.

Source: This study

The largest transfer activity occurs at the Warorot Market, as well as near the Chiang Mai Gate Terminals. In both cases, the proportion of transferring passengers using red *songtaews* as well as fixed route services is about the same, thus it can be concluded that both transport modes concentrate services at these two terminals. It is interesting to note that at Thapae Rd. West, nearly all transferring passengers transfer to red *songtaews*, thus making this spot a popular pickup location for red *songtaew* drivers.

(9) Opinions about Present Service Level

Table 7-4 summarizes the results of service level opinion. Nearly 80 percent of passengers are currently satisfied with the present level of service. Nearly seven out of ten respondents felt that service frequency was at least adequate, and that fares were reasonable and appropriate. Seven out of ten also responded that they had no problems with the drivers. Lastly, about 85 percent of respondents felt satisfied with the existing route network operated.

Table 7-4 Opinion of Present Service Level

Question	Ratio (%)		
	Yes	No	Don't know
1. Is public transport safe?	69.8	6.8	23.3
2-1. Do you have problems in dealing with drivers?	35.6	64.4	—
2-2. Are there problems with service frequency?	28.4	71.6	—
2-3. Is the fare too high or inappropriate?	32.8	67.2	—
2-4. Are there problems with the route?	15.3	84.7	—
3. Is service satisfactory?	78.0	22.0	—

Source: This study

(10) Opinions about Future Service Level

Figure 7-10 shows the desired types of public transport in the future. Of the respondents, 76.4 percent of passengers found fixed route transport preferable over flexible routes, with the half of these favoring 24-seat minibuses as the vehicle of choice.¹³ As expected, respondents desiring flexible route transport favored *songtaews*.

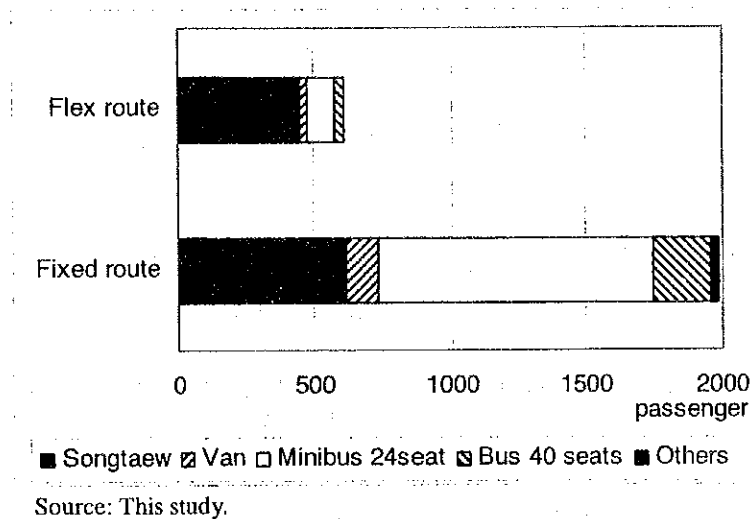
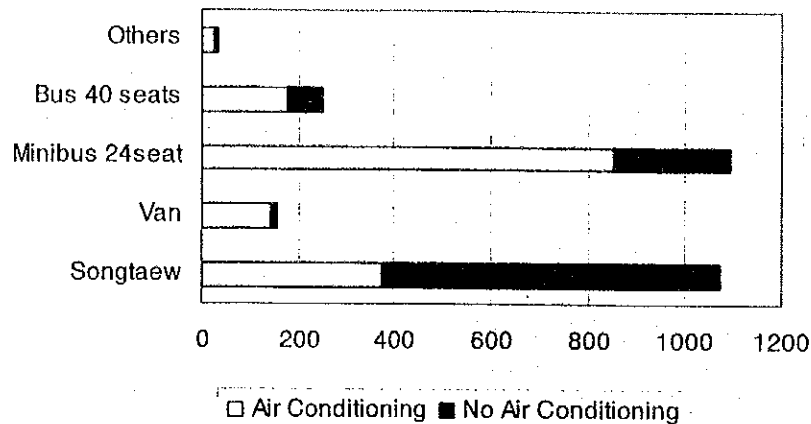


Figure 7-10 Desired Type of Public Transport Service in Municipality

In recent years, air-conditioned minibus services operated throughout Bangkok with great popularity. It is surmised that the additional comfort from air-conditioned vehicles may spur growth in ridership. Figure 7-11 shows the preference of respondents for air-conditioned vehicles in Chiang Mai. It is interesting to note however, that more than half of the *songtaew* riders that responded, indicated a preference to maintain the status quo. This may indicate unwillingness on the part of respondents to pay higher fares accompanying such an upgrade. For all other vehicles types however, there was a strong preference for conversion to air-conditioned units.

¹³ It is likely that fixed route service is preferred, despite the strong support given to non-fixed route service (shown in Table 7-4), because of improved reliability and service levels. Lastly, it was hypothesized that some public transport riders have visited Bangkok and seen the fixed route minibus services in operation and concluded that in order for Chiang Mai to approach the status of Bangkok as a metropolitan and modern city, it needs to significantly upgrade its current forms of transport.



Source: This study

Figure 7-11 Preference for Air Conditioning by Type of Public Transport Vehicle

Table 7-5 shows the acceptable fare levels for fixed route services, as indicated by the respondents, for both air-conditioned and non-air-conditioned vehicles.

Table 7-5 Acceptable Future Fare Levels for Air-Conditioned/Non Air-Conditioned Vehicles

Mode	Acceptable Fare Levels (baht)	
	Air Conditioning	No Air Conditioning
<i>Songtaew</i>	12.0	8.0
Minibus (24 seats)	10.9	6.8

Source: This study

7.4 Regulatory Framework of *Songtaew* Service in Chiang Mai

(1) General Background

Public transport network routes are based upon the Land Transport Act (1979), which categorized vehicle routes, in which passengers and goods are carried, into the following five groups:

- 1) Type 1 Routes – ONLY operated within the municipal area
- 2) Type 2 Routes – ONLY operated from Bangkok to regional provinces
- 3) Type 3 Routes – ONLY operated to Bangkok from regional provinces
- 4) Type 4 Routes – ONLY operated within the provincial area
- 5) Type 5 Routes – ONLY for small vehicles, regardless of area

Public transport service within Chiang Mai consists of Type 1, Type 4, and Type 5 routes. Minibuses operated Type 1 routes, however these were terminated in the 1990's. The *songtaew* network consists of both Type 4 and 5 routes. Type 4 routes are fixed route operations run by the yellow, white and part of the red *songtaew* fleets. Most of the red *songtaews* however, operate Type 5 routes. Type 2, 3, and 4 routes require the usage of

docking facilities (at the origin and/or destination terminal) and consequently the drivers must pay usage fees. Such facilities are developed by the LTD and all usage fees are collected by the LTD.

In addition, the Land Transport Act stipulated that route information for public transport including the number of vehicles operating on a specific route (specifies the minimum and maximum number of vehicles), the vehicle size, approximate operating hours, the fare rate and the fare structure be explicitly specified. Table 7-6 shows an example of the type of route information that is required under the Land Transport Act.

Table 7-6 Typical Route Information Required by the Land Transport Act

Route Particulars	Description/Explanation
Route Number	#52019
Start/End Points	Nong Prathip – Chiang Mai University
Number of Vehicles Operating on Route	Minimum 31 red <i>songtaews</i> ; Maximum 335 red <i>songtaews</i>
Approximate Departure Route	Starting from a small parking space in front of Poi Luang Hotel (Nong Prathip), go straight along Charoen Muang Road, cross Nawarat Bridge, go straight along Thapae Road, turn right on Soi Kuang Main, turn right on Chang Moy Road, turn right on Witchayanon Road and pass through the Warorot Market, then turn right on Thapae Road, pass Thapae Road, go straight along Rajadamnoen Road, turn right on Samlaan Road, turn left on Intawaroros Road, pass Suan Dok Gate, go straight along Suthep Road, turn right into a parking space in Chiang Mai University. (ROUTE END)
Approximate Return Run	Starting from a parking space in Chiang Mai University then go along Suthep road, pass Suan Dok Gate, go straight along Suan Dok Gate then head on to Inthawaroros Road, turn right on Samlaan Road, turn left on Rajadamnoen Road, pass the Klang Wieng Intersection, turn left on Thapae Road, cross Nawarate Bridge then head to Charoen Muang Road, turn into a parking space in front of Poi Luang Hospital (Nong Prathip) (ROUTE END)
Operating Time and Service Frequency	Trip start from 6:00AM; end at 10:00PM Frequency = 10 minutes; there are 192 rounds per day (96 Departure rounds and 96 Return Runs)

Source: Chiang Mai University

Vehicles operating on Type 5 routes, must not exceed 4,000 kg.¹⁴ Vehicles operating on Type 4 routes may use bigger vehicles, thus permitting traditional *songtaews* to maintain their operations. Passenger capacity is to be explicitly displayed on the side of the vehicle. Passengers are permitted to board/alight at any point along the route through the rear door.

The height of passenger compartments in *songtaews* is about 1.3 meters, making passengers stoop down when sitting or entering the vehicle to avoid hitting their heads. Each side has slideable windows, which are about 15 cm high. Electronic buzzers are installed on the ceiling of the passenger compartment to notify the driver of an impending

¹⁴ This weight stipulation includes passengers.

stop. Vehicles are usually plastered with advertisements on both sides of the compartment. Passengers pay their fares when alighting. This is accomplished either by passing it through the cabin, or by walking to the driver-side window of the vehicle and personally handing it to the driver.

Songtaew operations are divided into several cooperatives or companies, depending upon their service area.¹⁵ Table 7-7 below identifies the major *songtaew* operators, including the size of their network (number of routes), the number of vehicle registered in the cooperative/company, and the respective base fare.¹⁶

Table 7-7 *Songtaew* Operators in Chiang Mai

Operator	Service Area	Number of Routes/OD Pairs (1999)	Vehicles Registered in Cooperative/Company (1999) ^A	Base Fare (baht)
Nakorn Lanna Dernrod Cooperative (Red Bus Cooperative)	Municipality Area	31	2,904 2,574 ^B	10 ^C 5 ^D
Nakorn Chiang Mai Dernrod Cooperative (Yellow Bus Cooperative)	Northern/Southern Suburbs	19	930	5
Dernrod Sankampane Cooperative (White Bus Cooperative)	Sankanpen	6	290	5
Nakornping Dernrod Company (Blue – White Bus)	Doi Tao	4	52	2-5
Prempracha Motor Work Company (Red – White Bus)	Prao	1	18	2-5
Chiang Mai Rom Luang Company (Green Bus)	Rom Luang	1	118	2-5
Yanyon Nakorn Chiang Mai Company (Orange – White Bus)	Taton, Fang	2	27	2-5
Daw Tong Konsong Company (White Truck Bus)	Thailand Border	3	5	2-5

Source: Northern Technical Center for Traffic System Management (2000), "Characteristics and Organization of Public Transport in Chiang Mai City", and this Study Team.

Notes:

^A The number of vehicles registered in Table 7-7 may differ from those in Table 7-1 because information is gathered from the cooperatives themselves, instead of the Land Transport Department.

^B This figure is from Year 2000. ^C The base fare of 10 baht is for flexible route service only.

^D The base fare of 5 baht is for fixed route services only.

¹⁵ In the following sections, *songtaews* from the "Red Bus Cooperative" or the "Red *Songtaew* Cooperative" are referred to as red *songtaews*, and those from the "White Bus Cooperative" or the "White *Songtaew* Cooperative" are referred to as white *songtaews* etc.

¹⁶ The number of routes in this case may also represent the number of origin/destination pairs served by the vehicle. For instance, on non-fixed route services (for red *songtaews*), service is between two points, but the routing is dependent upon the driver. The total number of vehicles registered in the cooperative/company does not necessarily mean the number of vehicles in operation or working order. Passenger fares gradually increase from the base fare according to distance traveled.

It should be noted that the major operators are organized according to a cooperative arrangement, similar to a farmers' cooperative, which is basically an assembly of individual operators. Previously, cooperatives allowed free registration for operators, but charged them an annual membership fee. This annual fee varied according to cooperative, with fees being between 200 baht for red *songtaews*, and 25-1500 baht for other *songtaews*.¹⁷ In recent years however, this annual fee has been dropped in favor of a one-time registration charge (for new operators) of between 20,000-30,000 baht. Licenses were valid for three years at which point they were automatically renewed by the cooperative. Most drivers own the vehicles themselves and must personally maintain them. Cooperatives do assist drivers by purchasing large quantities of spare parts and supplies and re-selling them at discounted prices to the drivers. Drivers do not have salaries, but are permitted to keep all farebox revenues at the end of the day.

(2) Red *Songtaews*

The red *songtaews* operate on routes categorized as Types 4 and 5 by the Land Transport Act, with 20 percent running on Type 4 routes and 80 percent on Type 5 routes. Red *songtaews* do not always follow a specific route and therefore provide a pseudo shared-taxi service, which successfully combines the flexibility of a taxi, with the capacity of a bus. According to CMU surveys, it was found that only 4 percent of all drivers actually followed the intended service plan.

For flexible routes, the base fare is 10 baht for adults except on cross-Municipality routes, which normally cost between 20-30 baht depending on the driver. In some instances, passengers must negotiate with drivers. Students and monks may board at discounted rates. Fixed route vehicle charge a base fare of 5 baht.

Table 7-8 in the following section gives some description of the drivers for the red *songtaews*.

(3) Other *Songtaew* Services

From Table 7-7, there are seven other *songtaew* services operating in and around Chiang Mai, besides the red *songtaews*. These however operate routes that are classified as Type 4, typically operating at fixed intervals from terminals. A clerk is stationed at each terminal to keep track of schedules and driver assignments. The clerk also informs each driver when the next shift is slated to leave. To avoid parking problem near the terminal, some cooperatives have prepared additional queuing space for spare vehicles.

The fare structure is a graduated system based on travel distance. The base fare within the Municipality is between 2-5 baht, much cheaper than the base fare for the red *songtaews*. Not surprisingly, travel from the suburbs costs much more.

Most of the drivers for the other seven *songtaew* operators live in close proximity to their

¹⁷ B Satayopas et. Al. (Chiang Mai University), *Characteristics and Organization of Public Transport in Chiang Mai City*, 2000.

daily (morning) starting points. Many of them in fact, have developed their own "individual" service routes throughout their driving careers.

Table 7-8 shows statistics on the Red *Songtaew* Cooperative and the Yellow *Songtaew* Cooperative.¹⁸

Table 7-8 Red and Yellow *Songtaew* Cooperative Statistics

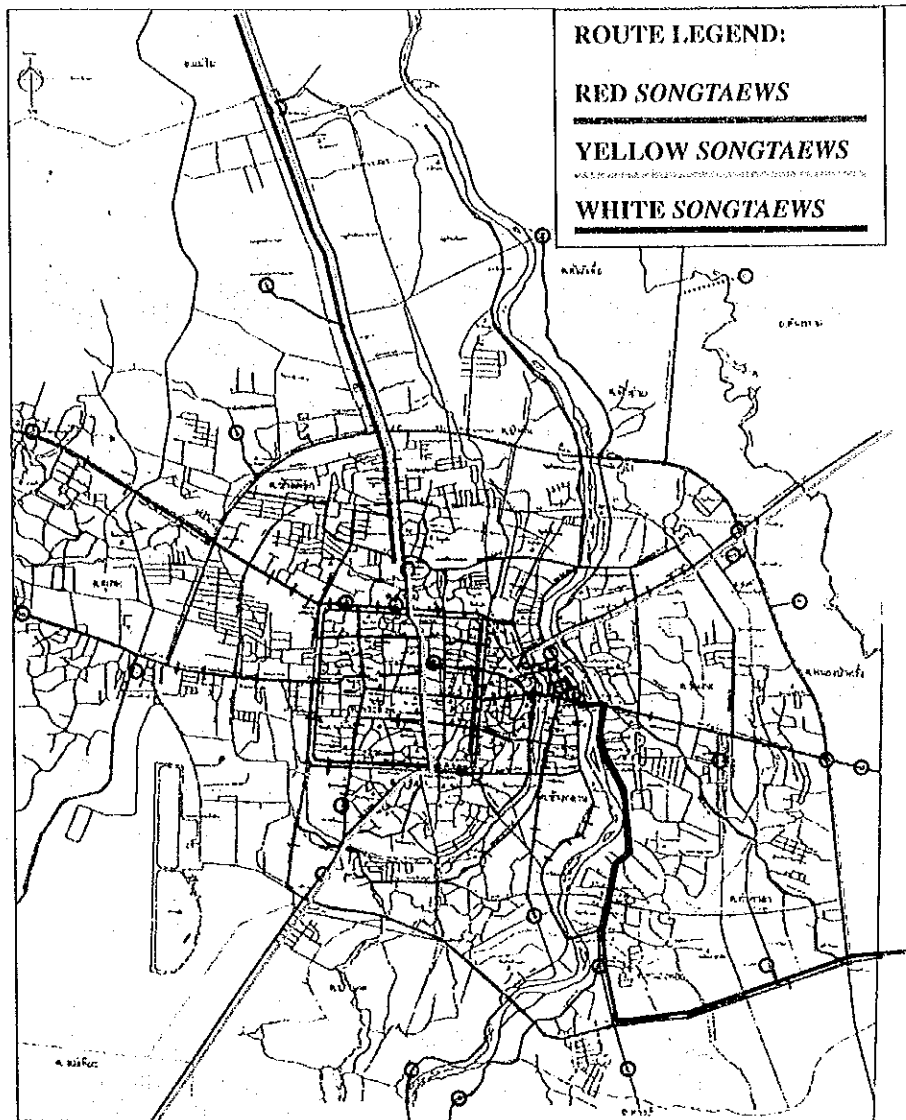
Cooperative	Red <i>Songtaew</i> Cooperative	Yellow <i>Songtaew</i> Cooperative
Percent of Male Drivers	97%	97%
Percent with Less Than Junior High School Education	87%	96%
Percent Claiming Driving <i>Songtaew</i> is Primary Means of Income	96%	96%
Percent Owning Vehicle Themselves	96%	97%
Percent Believing They Will Drive <i>Songtaews</i> for Next 20 Years	89%	93%
Percent of Drivers Involved in Accident During Last Year	16%	9%
Percent of Vehicles Over 11 Years of Age	46%	26%
Average Daily Fare Revenues	484 baht/veh.	602 baht/veh.
Average Daily Petrol Costs	202 baht/veh.	285 baht/veh.

Source: CMU Study, 2000.

(4) *Songtaew* Service Network

Figure 7-12 below shows the routes of the red, yellow, and blue *songtaews*. Red *songtaew* drivers, operating within the municipal area, do not follow their scheduled routes, instead concentrating service mainly on profitable routes and at densely-packed waiting points. In some instances, especially in the vicinity of bus terminals, the routes of red, yellow and blue *songtaews* may overlap and duplicate one another. Under these circumstances, the Red *Songtaew* Cooperative, have voiced serious objectives and insisted upon the development of additional terminals along Super Highway to reduce *songtaew* competition.

¹⁸ It was also found that 62% of yellow *songtaew* drivers operated their vehicles at speeds exceeding 70 km/hour, whereas 76% of red *songtaew* drivers operated their vehicles at speeds between 40-60 km/hour.



Source: CMU and this Study Team.

Figure 7-12 Songtaew Service Network in Chiang Mai

7.5 Public Transport-Related Entities

Within Chiang Mai, there are numerous agencies/bureaus/organizations involved in the operation, planning, and management of public transport. These are discussed below.

(1) Central-Government Level Entities

The fare structure and the nature of transport services in Chiang Mai is under the jurisdiction of the Central Office of the Department of Land Transport and Communication (DLTC) through its provincial office (in this case, the Chiang Mai Provincial Office).

(2) Provincial-Level Entities

The Chiang Mai Land Transport Office is responsible for supervision of public transport in Chiang Mai.¹⁹ It is responsible for controlling, managing, and organizing all transport networks within Chiang Mai as specified by the Land Transport Act. The Chiang Mai Board of Land Traffic under the Provincial Governor, acts as the advisory committee to the LTD. LTD requests that a sub-committee, consisting of Government officials, private organizations/offices, as well as the news media, be formed and periodically meet to discuss proposals and ideas, and elicit further comments or opinions. Lastly, provincial police under the direction of the LTD is responsible for vehicle safety among the public operators.

(3) Municipal-Level Entities

The Municipal Planning Office is responsible for assigning the public works budget, which includes improvement to public transport. The Planning Office works in collaboration with LTD to coordinate public transport planning activities. Meanwhile, the Municipal Construction Office is concerned with the development/maintenance of bus facilities, including shelters.

7.6 Existing Plans and Experiments for Public Transport Improvement

Several improvement plans for public transport within Chiang Mai have been proposed. These proposals and the current status of the proposals are summarized below.

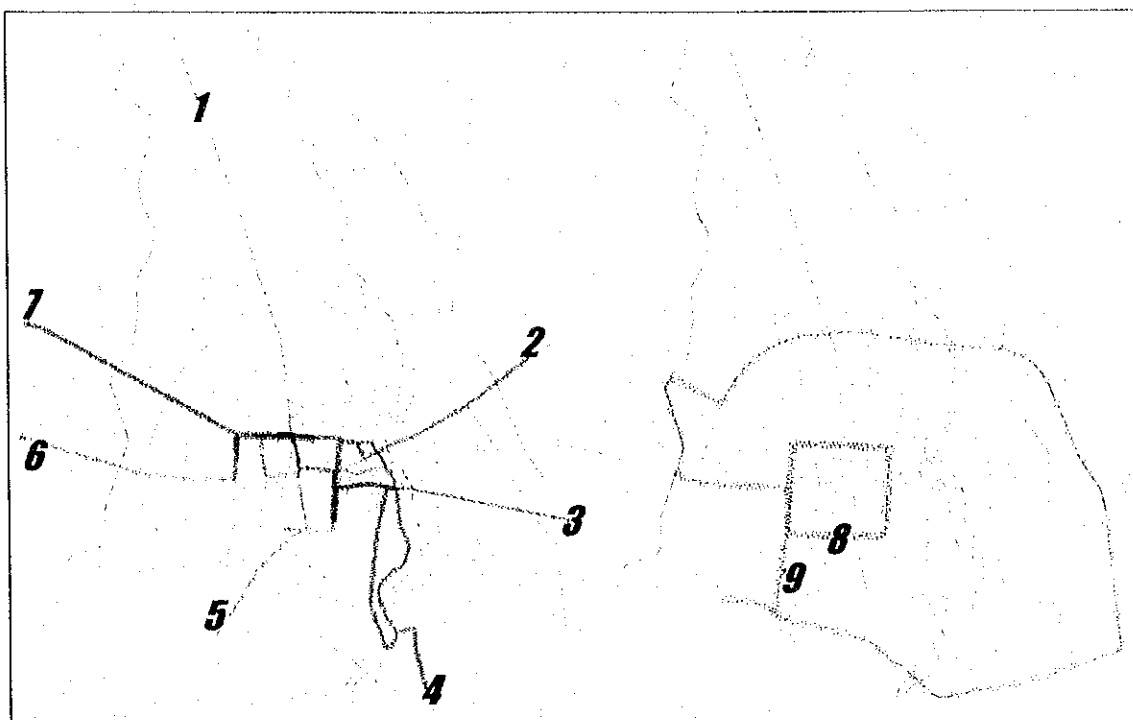
(1) New Bus Routes Proposed by the Municipality and LTD

The Municipality and LTD have proposed a series of new minibus routes to replace those terminated in the late 1990's.²⁰ In the proposal, there would be a total of 9 new routes, including 7 radial and 2 circular routes. Since the terminated routes suffered from traffic congestion when passing through certain areas of the Municipality, the new radial routes were designed to avoid these congested areas when passing through the city. The proposed routes are shown in Figure 7-13.

The Municipality approached the "Red *Songtaew* Cooperative" and invited them to participate, but were subsequently rejected. At this point in time, the LTD is currently awaiting private investors to show interest in the proposal. Although some private operators in Chiang Mai and Bangkok have expressed an interest in the plan, they have insisted, as a pre-condition for their entry, that red *songtaew* operations be turned into a fixed-route service.

¹⁹ Although the official acronym for the Chiang Mai Land Transport Office is "LTO", it is commonly referred to as "LTD" within the Municipality. It will hereinafter be referred to as "LTD".

²⁰ The Engineering Department of Chiang Mai University recently conducted initial planning for the new route specification.



Source: Chiang Mai Municipality, Planning Office.

Figure 7-13 Proposed Plan for New Minibus Routes in Chiang Mai

(2) Experiments with Electric-Powered Vehicle Transit (EVT)

The Municipality planned to conduct a month-long experiment with electric-powered vehicles along fixed minibus routes in May 2000, funded by Electric Vehicles Co., Ltd. (Thailand). The proposed route connected City Hall, the Chang Puak Bus Terminal, and the Warorot Market. During the testing period, the shuttle service was free of charge.

The experiment lasted only twenty days however, as the Red *Songtaew* Cooperative raised objections to the Provincial Transport Sub-Committee, since the route duplicated some of its own routes. The Land Transport Department, one of the Sub-Committee representatives, whose approval was required to operate such services, failed to give its approval, thus undermining the effort. In the short trial run of the EVT, passenger surveys revealed that nearly 90% of passengers found the project useful and would use it if implemented.

(3) LRT Development

The role of the Expressways and Rapid Transit Authority (ETA) is to address transport problems through the construction of an expressway and mass transit railway system. ETA targeted Chiang Mai as the first regional city in Thailand to receive a mass transit system. Accordingly in 1994, master plans were produced and in 1996 a feasibility study was conducted. The proposed network was to consist of 4 lines, operating on some 27.35

km, with 18.90 km of the network being underground, with a proposed starting date in 2001. The projected EIRR of the project was between 14.0% to 17.6%. French and German consortiums showed interest in and participated in the initial stages of the investment. Due to the 1997 Asian Economic Crisis, the project has been suspended.²¹

(4) New Bus Terminal Development

As the current terminal setup exists, *songtaews* from the suburbs enter the Municipality to service their respective terminals. Upon entering the Municipality, these suburban *songtaews* immediately infringe upon the jurisdictional service areas of the red *songtaews*. Therefore to eliminate service duplication among *songtaew* cooperatives, the Red *Songtaew* Cooperative unveiled new terminal development plans to the provincial committee. These plans include moving all suburban *songtaew* terminals to the outskirts of the Municipality, where they would also be served by red *songtaews*.

These plans have not been approved by the Municipality as there is currently no budget surplus for the LTD for implementation. Another potential obstacle to this proposal is the stipulation that the Red *Songtaew* Cooperative must change its modus operandi to a fixed-route service.

(5) Introduction of Air-Conditioned Vehicles

The Red *Songtaew* Cooperative has a plan to introduce air-conditioned *songtaews* by the end of 2001. Although the plan passed, most drivers have not supported it due to the high associated costs. However, the President of the Red *Songtaew* Cooperative is rather optimistic and hopes that between 10-15 such vehicles can be introduced within the first year of the plan. It is hoped that the introduction of the air-conditioned vehicles will eventually phase out deteriorated *songtaews* or individual operators unable to upgrade their vehicles. Thus, the introduction of such vehicles serves a dual purpose, to improve comfort of passengers and make public transport more attractive, and to reduce the number of *songtaews* operating in the Municipality.

Prior experiences in Metro Manila showed that the introduction of an upgraded level-of-service, in the form of air-conditioned vehicles (called Mega Taxis), resulted in a shift of riders from the old, traditional means of transport (called Jeepneys). Box 7-1 describes the atmosphere in Metro Manila and the results of these initiatives.

²¹ Shanghai, a sister city of Chiang Mai, had plans to donate several used LRT vehicles. Details of this proposal have yet to be worked out however.

BOX 7-1 Mega-Taxi Operation in Metro Manila

Transport in Metro Manila is famous for the traditional Jeepney style, which has 18 seats, and operates on fixed service routes. The Jeepney, a heavily decorated vehicle, only operates on radial arterials

Another new style of transport service called the Mega Taxi has arrived in the market and taken much of the market share away from Jeepneys. This new style of vehicle seats 7-9 passengers and is basically an air-conditioned SUV (Sports Utility Vehicle). Although registered as a taxi service, most vehicles function as shared-route buses, similar to the Jeepneys.

The operators of Mega Taxis display their destination in the window and serve passengers all around the city, whereas Jeepneys are limited to radial arterial routes. There are three doors for passengers on Mega Taxis, compared to Jeepneys, which possess a rear door only. The fare of Mega Taxis is 3 pesos per kilometer, which is 2 to 3 times higher than that of Jeepneys.

The number of Mega Taxis has grown exponentially over the last few years, with 6,147 vehicles in service as of June 2000. It has been observed that the Mega Taxis have taken a large share of the ridership away from Jeepneys, thus reducing the number of Jeepneys on the roadways. Officers in the Land Transport Department commented that the Mega Taxi style is appropriate and suits the inclination of society in the Philippines to move around in large groups

Source: Japan Transport Cooperation Association and PADECO, *State of Practice of Urban Bus Transport in Developing Countries*, 2000.

7.7 Summary of Issues

Previously, much of the transport service within Chiang Mai was provided by private operators, enjoying a great degree of autonomy from Municipal regulations. Only recently has the Municipality become acutely aware of the importance of the public transport system as problems produced by urbanization, motorization, congestion, and the failure of several private bus operators (between 1992 and 1996) have arisen. As increased motorization will likely continue as increasing affluence among Municipality residents pervades, it is the right time for the Municipality to propose key changes within the operation of the system to promote improved service. More importantly, greater operational efficiency to encourage potential private car users to use public transport instead. The primary focus of these improvement measures should concentrate on the broadly-defined bus system operating in Chiang Mai, which consists of *songtaew* cooperatives, as well as minibus and van operators. These issues are now discussed below. Recommendations for public transport improvement are found in Chapter 9.

(1) Over-Supply of Red *Songtaews*

As of 1997, the Red *Songtaew* Cooperative had over 3000 drivers. To reduce redundancy and promote efficiency, the cooperative focused restructuring efforts on reducing the

number of existing operators and restricting the entry of new drivers into the force. As noted previously, new operators were required to obtain a registration or license, costing between 20,000-30,000 baht, which were valid for three years and automatically renewed by the cooperative. The cooperative decided to eliminate the automatic renewal of such licenses and actually determine how many of the licensed drivers were actually in the field operating their *songtaews*. Thus, the initiative sought to eliminate all drivers that did not re-register as active drivers. Overall, 548 drivers were removed from the active drivers list in 2000 and 2001. In practice however, the number of drivers that were dropped from the active list was less than stated, due to the fact that the cooperative would take these cancelled licenses and resell them. There is no word on further reduction measures besides this initial step.

In keeping with these efficiency measures, the LTD also stopped issuing new licenses.

(2) Duplication of Route Network

Although the nominal operating jurisdiction for each *songtaew* cooperative is different, there is still a problem with route duplication between *songtaew* cooperatives. Thus despite the fact that red *songtaews* have exclusive operating rights inside the municipal area enclosed by Super Highway, other *songtaews* must enter this area to service their inner-city terminals, thus creating competition among operators.²²

Representatives for the red *songtaews* have complained that the cheaper fare of the yellow and white *songtaews* draws ridership away. Proposals have been submitted to the sub-committee of the provincial office for a new terminal for yellow/white *songtaews*, which would help eliminate competition from other *songtaews* and prevent other *songtaews* from operating within the city. As noted previously, the current terminals would be relocated to the outskirts of the Municipality, which the red *songtaews* would also serve.

(3) Problems with Cooperative Management Style

The cooperative-style of management employed by the operators of red, yellow and white *songtaews* has both its advantages and disadvantages. Drivers have tremendous autonomy in choosing their working schedule and regiment as nearly 95% of red *songtaew* drivers own their own vehicles. They can basically set their own routes (the origin and destination are determined by the Cooperative) and choose their working hours. In fact, it was estimated that the average net income for drivers was almost twice that of normal citizens in Chiang Mai.²³ Lastly the size of the cooperatives (the red *songtaew* cooperative has over 3,000 drivers, nearly 1.5% of the total population of the Municipality), constitutes a major political entity that can be used to promote the political and social agenda of the cooperatives.

²² One such example of network duplication is along Keaw Nawarat Road and Charoen Muan Road.

²³ The average monthly income is 5,000 baht per person in 2000. Source: National Statistical Office, General Statistics for Chiang Mai Province, 2000.

However as its name suggests, a cooperative is a loosely-bound group of individual operators. Several weaknesses within this management structure quickly emerge as it lacks the definitive power to enforce certain operating rules that govern other public transport service observed in other cities throughout the world. It is difficult to promote a coordinated and uniform level-of-service among the quasi-independent drivers. Some examples are given below.

- The drivers handle maintenance responsibilities themselves, thus there is no uniform or standard repair or vehicle replacement policy. Careless or improper maintenance may increase the chances of breakdowns and/or accidents.
- Some drivers (as noted above) deviate from their assigned routes to maximize profits. This may make it difficult for novice passengers to use and familiarize themselves with the route network. In addition, some areas may not receive any service at all (for instance such areas may generate/attract a small number of trips compared to other areas).
- Competition among drivers to pickup passengers may increase the risk of accidents between themselves or surrounding traffic.
- There is also an incentive to drive quickly and make short stops (when unloading and loading) to maximize passenger pickup opportunities, again increasing the risk of accidents.
- Fare discounts are not uniform, depending upon driver discretion. For instance some drivers may give discounts to shoppers based on concession agreements with supermarkets or souvenir shops.
- Vehicle operating time is up to the discretion of the driver. Therefore, waiting passengers may be uncertain during late night hours, if a vehicle will pick them up.

(4) Minibus Failures in the Past

Minibus operations in Chiang Mai have floundered in the past for several reasons. Prempracha Motors Co., one of the minibus operators, cited traffic congestion, rising gasoline costs, fare structures, difficulty in keeping drivers and competition from red *songtaews* as the primary reasons for the poor performance of minibuses. In fact, it was found that, passengers preferred red *songtaews* over minibuses whenever the two competed along the same route. Despite the fact that on average, minibus fares were lower than those for the *songtaews*, the literal door-to-door service espoused by *songtaews* was a primary factor in the decision to utilize *songtaews*.

As a result of these operational considerations, two private minibus operators were forced to terminate service between 1992 and 1996. Despite LTD negotiations to preserve some semblance of minibus service, operations were halted as LTD could not fully subsidize the large operating debt incurred under the existing operations conditions.

Proposals for new minibus routes submitted by the Municipality have so far attracted few investors, as the primary condition for entry into the market has been the minimization of red *songtaew* competition along common routes, which has subsequently been blocked by the Red *Songtaew* Cooperative, unwilling to accept this arrangement.

(5) Poor Vehicle Maintenance

The Land Transport Act (1979) failed to spell out the specific details governing vehicle maintenance. Maintenance is left to the whims of the vehicle inspection system and the conscientiousness of drivers. Some *songtaews* are in a deteriorated state, being between 20-30 years old. There are no provisions for the removal of old vehicles and their replacement with new vehicles. Besides being a constant maintenance nuisance, these vehicles are unsafe to the driver and passengers alike. Furthermore, older vehicles are ill-equipped to meet the emission standards governing new vehicles, emitting large amounts of pollutants and toxins into the atmosphere. Older vehicles also are less fuel-efficient compared to newer ones, resulting in higher fuel costs to continue operating.

The Yangyong Bus Company, which operates suburban minibus routes in Chiang Mai Province (Type 4 routes), maintains an interesting philosophy in regards to maintenance. Whenever it incurs an operating deficit, instead of raising fares or cutting back on maintenance or salaries, the company removes certain vehicles that do not meet specific maintenance levels from service. This more than anything else promotes improved operational efficiency of the company and addresses a major issue that results in the drain of revenues. Operators and drivers of *songtaew* companies however do not agree with Yangyong in this respect however.

(6) High Level of Fares

The fare level for the red *songtaews* is extremely high compared to other Thai cities. For example, the basic fee for regular buses in Bangkok is 3.5 baht. The high fare levels are a barrier dissuading residents reliant upon public transport as well as those in lower-income brackets from utilizing the public transport system.

(7) Resistance to Change

The proud history and tradition of *songtaews* was started in Chiang Mai. As both a relic of the past and a key transport cog of present-day Chiang Mai, *songtaews* have proven to be quite popular with foreign tourists as well. As a result, drivers, especially on suburban routes, have been quite resistant to change and would likely disapprove of plans to place *songtaew* operations under a more centralized control body (which would impose fixed fares, fixed routes etc.).

(8) Lack of Public Transport Enforcement

It is quite clear however that in terms of *songtaew* operation, the Land Transport Department (LTD) has failed for over 20 years to enforce the Land Transport Act (1979), stipulating fixed-route operations. One explanation for this lack of enforcement may stem from the fact that LTD does not possess its own personnel for enforcement, but must rely upon the Chiang Mai Traffic Police.

It was also found that LTD has no budget to subsidize transport service. Although income earned from private operators for terminal usage charges amounted to about 3.67 million

baht in 1999 and 4.29 million baht in 2000. This amount was subsequently transferred into the provincial budget coffers.

Lastly, the LTD as a provincial level body has little power over the municipality-based Chiang Mai Planning Office, which has its own enforcement body.

(9) Unlicensed Transport Operators

Licensed transport service providers must register their operations with LTD, according to the Land Transport Act of 1979, which would regulate service level, vehicle size, as well as oversee safety requirements. Despite this fact, several unregistered (unlicensed) operators have reportedly been active in providing transport services for school and tourism related-activities.

According to surveys conducted by the Study Team, unlicensed operators serving schools consist mainly of school teachers and volunteers who live in outlying village using vans with between 20-25 seats. Red *songtaew* operators living outside of the city also use their vehicles for this purpose. Student costs are between 400-500 baht per month.

While there is no doubt such services benefit the riders immensely, the fact that they operate as unlicensed transport providers potentially removes additional revenues sources (from taxation and registration) for the Municipality. Furthermore, there may be no safety and maintenance regulations on such vehicles, which is dangerous for driver, passenger, and citizen alike.