

# Traffic Management Plan Along Roxas Avenue, Iligan City: An Academe-LGU Initiative in Urban Transport

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## Abstract

Upon the request from Iligan City Traffic Management Office (ICTMO), a study is conducted to ease the traffic congestion along Roxas Avenue, from Quezon Avenue to Consunji Street intersections, Iligan City. The request is in line with the Memorandum of Agreement (MOA) on Academe-LGU Linkage in Urban Transport between the City Government of Iligan and MSU-Iligan Institute of Technology (MSU-IIT).

Road inventory and intersection traffic volume counts are conducted in the study area to determine the extent of the problem. Other traffic management measures, such as travel time, travel delay, etc., are not included in the survey due to time and financial constraints.

The results show that the average volume-capacity ratio in the study area is 0.50, which falls within the zone of stable flow. The percentage of vehicles that are right turning from Quezon Avenue to Roxas Avenue and from Roxas Avenue to Zamora Street exceeds 7% of the through traffic. Business establishments and vendors encroach the sidewalk areas. Traffic violations are rampant. Recommendations are presented to alleviate traffic congestion.

*Keywords:* traffic plan, traffic congestion, traffic management, Roxas Avenue, ICTMO

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## Introduction

Traffic management embodies activities that improve roadway system safety, efficiency, and effectiveness for both providers and consumers of transportation services. It is also one of the essential elements of social education and control. It is necessary for the creation of habits and rituals of discipline on the road. On the other hand, road discipline will likely have spill-over effects into other behavioral areas like corruption, crime, garbage disposal and other areas essential for a healthy and friendly environment.

The road is one of the places where the norms of civility are being demonstrated. It is where the law enforcers are tested in their ability to enforce traffic rules and regulations to citizens who openly violate them. It is where habits of obedience or of defiance are formed and maintained where youths learn and unlearn about civic responsibility and where reforms can be immediately implemented and gains demonstrated. Traffic discipline should not be looked upon as a mere reflection of the poor state of discipline in a society; it can be re-engineered so as to influence the state of national discipline.

In the Philippines, where road networks and paved roads are very limited, the usual approach to solve traffic congestion problems is to build additional lanes to increase capacity. This approach is always limited by the availability of funding. There are, however, traffic engineering management tools that can be utilized to regulate and control traffic in order to maximize the use of the limited road facilities.

The use of traffic control measures for traffic management should not be considered as an encroachment of the rights of drivers and pedestrians. It must be stressed that driving is actually not a right but a privilege. Therefore, it is necessary to show that restrictions on the use of roads are for the general welfare of the public, and that regulations do not curtail the rights of the majority.

On November 30, 2011, a Memorandum of Agreement (MOA) was entered into by and between the City Government of Iligan and the MSU-Iligan Institute of Technology (MSU-IIT). The MOA establishes the Academe-LGU Linkage in Urban Transport to include among others: sustainable transport planning, monitoring and development; traffic



engineering and management; reduction of traffic accidents and road safety. The primary implementing offices under this MOA are the Department of Civil Engineering, MSU-IIT and the Iligan City Traffic Management Office (ICTMO). Through the MOA, the City will make available areas of study, data, equipment and resources for MSU-IIT faculty and student researchers. Research results are then submitted to the City to improve its operations. The cooperation is a pioneering effort in establishing an academe-LGU Linkage in Urban Transport, not just for Iligan City but hopefully for the entire country. The World Bank has commissioned studies for "Promoting Partnerships for Transportation Planning for Local Government Units in the Philippines".

In line with the MOA, the City through the ICTMO, requested for technical assistance from MSU-IIT to help them solve the traffic congestion along Roxas Ave. from Quezon Ave. to Consuji St. intersections (Fig. 1). This strip of road is situated along a national highway that is constructed, maintained and managed by the Department of Public Works and Highways (DPWH). Such strip of road has experienced traffic congestion especially with the opening of Gaisano Mall.

The objective of this study is to evaluate if the road capacity in the strip of road can handle the actual volume of daily traffic and to propose possible solutions to the current problem of traffic congestion in the study area.



*Figure 1. Aerial View of Study Area in Roxas Ave. from Quezon Ave. to Consunji St.*



## Methodology

Road inventory was conducted to determine the actual conditions of the road under study and its adjacent roads and to evaluate if the road facilities can handle the expected volume of traffic. Inventory included the dimensions of roads, sidewalks, shoulders; presence of traffic signs, illegal signages; and, other obstructions that hindered the smooth flow of traffic along the area.

Traffic survey was conducted to determine the characteristics of vehicular and pedestrian traffic. A 12-hour traffic volume count was conducted from Roxas Ave. - Quezon Ave. intersection to Roxas Ave. - Consunji St. intersection from 7:00 A.M. to 7:00 P.M. on November 5, 2010. Mixed type of vehicles along the traffic stream were classified as all motor vehicles, motorcycles, and *sikads* (foot-pedalled tricycles) and bicycles. Trucks and buses were prohibited from using this strip of road. *Sikads* and bicycles were also included in the counting. Only one day was allotted to observe the flow of vehicles because this survey method is expensive. However, the time and day was chosen such that the collected data represented the average traffic characteristics of the area. Fourteen (14) senior civil engineering students of the MSU-IIT Department of Civil Engineering volunteered their services for the survey.

The volume-capacity ratio was determined from the road inventory and survey data to assess the level of service (LOS) in the study area. The LOS was most commonly used to analyze highways by categorizing traffic flow with corresponding safe driving conditions. It ranged from a free flow, with volume much smaller than the capacity, to a breakdown in vehicular flow as volume approached capacity levels.

Traffic management measures like travel time, travel delay and other measures were excluded due to time and financial constraints.

### Findings, Analyses and Recommendations

The study area had four lanes along a national highway traversing the north-south direction of the city with usable shoulders equivalent to one travel lane width in each direction. National highways were managed and maintained by the DPWH. However, the DPWH did not have the authority to apprehend traffic violators, thus there was need for DPWH to coordinate with the traffic enforcers of the City.

The survey stations are shown in Fig. 2; the actual traffic volume count is shown in Table 1, Fig. 2 and Fig. 3. In each direction at a particular station, volume count was tabulated as motor vehicles, motorcycles, *sikads* and bicycles.

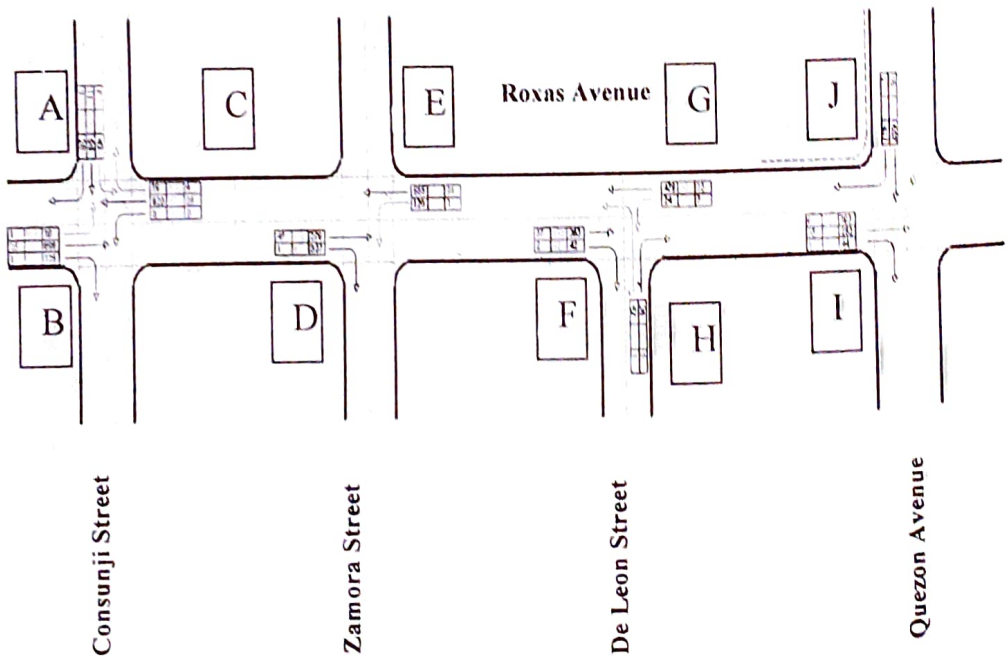


Figure 2. One-Hour Traffic Volume Count at Intersections on Nov. 25, 2010

*Table 1. One-Hour Traffic Volume Count at Identified Stations (Nov. 25, 2010)*

Station	Direction	Motor Vehicle	Motor cycles	Sikads/ Bicycles	Station	Direction	Motor Vehicles	Motor cycles	Sikads/ Bicycles
A	RT	28	12	3	F	RT	42	12	2
	Through	54	27	11		Through	363	102	37
	LT	43	9	8		G	LT	24	20
B	RT	135	17	1	Through		478	68	33
	Through	698	91	26	H		RT	36	20
	LT	10	3	1		Through	42	10	1
C	RT	19	9	4	I	RT	44	3	1
	Through	620	47	26		Through	252	74	35
	LT	8	2	10		LT	103	10	6
D	RT	337	6	1	J	RT	437	30	9
	Through	379	110	45		Through	607	60	16
E	LT	126	7	3					
	Through	555	83	34					

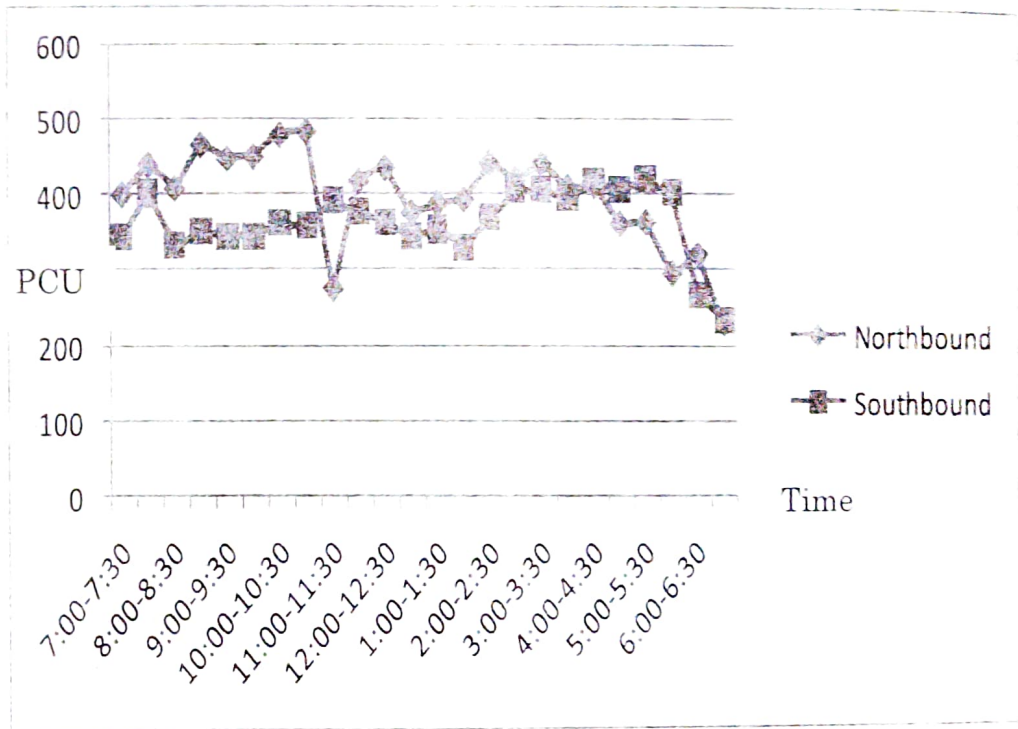


Figure 3. Traffic Volume, in Passenger Car Unit (PCU) on Nov. 25, 2010

Road dimensions from the road inventory are shown in Fig. 4. The strip of road in the study area was a four-lane highway that narrowed down in lane width beyond the Roxas-Quezon Ave. intersection. The road capacity was sufficient to handle the traffic demand, as shown in Table 1. Fig. 3 and Fig. 4. The other findings during the road inventory included unpassable sidewalks. Vendors and some business establishments encroached the sidewalk areas or installed illegal signages that blocked the free flow of pedestrians that forced them to walk through the travel lanes.

Vehicle drivers from Quezon Ave. turning to Roxas Ave. picked up or unloaded their passengers along the curve causing congestion despite the presence of a traffic signal to expedite the flow of traffic. “No



Stopping/No Loading and Unloading” areas were not properly provided with traffic signs and pavement markings, causing traffic enforcement problems.

*Sikads*, which are vulnerable to traffic accidents, were allowed to mix with the main stream of traffic. These, however, should not be allowed to mix with the main stream of traffic especially along the national highways.

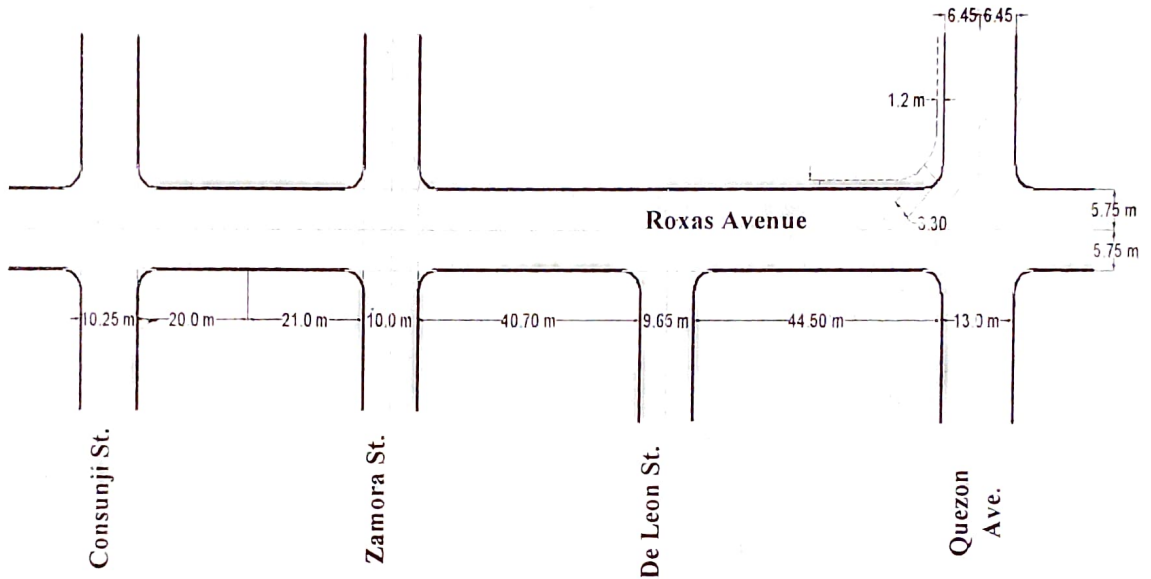


Figure 4. Road Dimensions

The recommendations and the basis of the recommendations are as follows:

A. Vehicular Traffic Issues

1. The average volume-capacity (v/c) ratio is 0.50, which indicated that traffic volume was only half the capacity of the lane, thus, the level of service was within the zone of a stable flow. In order to increase the volume and to reduce bottlenecks, jeepneys should not be allowed to load and unload passengers along the intersections but in designated loading and unloading areas. Left turning traffic to De Leon St. from Roxas Avenue shall not be allowed so as not to

render the traffic signal at the Roxas-Quezon Intersection, ineffective, i.e., the intersection shall be cleared of traffic for the next cycle.

2. The percentage of right turning vehicles from Quezon Ave. to Roxas Ave. is close to 50% of the through traffic. This value already warrants channelization of road. Other management measures include re-routing of jeepneys or improving the shoulder to accommodate an additional lane and to strictly implement "No Stopping/No Loading and Unloading Anytime" along the curve.
3. The percentage of right turning traffic from Roxas Ave. to Zamora St. is close to 50% of the through traffic. The traffic congestion in this area is compounded by the re-routing of the northbound vehicles, i.e., San Miguel, Bagong Silang, St. Felomina, Acmac, Tambo, Gerona, Bayug Lines, etc., to Roxas Avenue instead of turning right to Luna then Lluch Sts. from Andres Bonifacio Avenue. It is recommended to strictly follow the approved jeepney routing for northbound vehicles. Jeepneys turning left to Zamora St. from Roxas Ave. must load and unload passengers in designated loading and unloading bays along Zamora St.
4. Sikads are mixing with the main stream of traffic and crossing through the highway. Sikads are slow moving vehicles and vulnerable to accidents. It is recommended to strictly implement Section 3.e, Art. XXIII of the Iligan City Traffic Code (2003). Sikads should be confined to operate on the assigned feeder streets only and they should not cross the highway.
5. Motorcycle users often do not use headgears. Violators shall be apprehended and penalized. They are vulnerable users of the road. There is increasing trend in motorcycle accidents nationwide.

## B. Issues Related to the Use of Road

1. There are signages other than traffic signs, e.g., "Reserved Parking" for the owner or customer of certain business establishments, or placement of obstacles like used tires to reserve the space for parking, repair and other uses. It is recommended to strictly implement Sec. 13, Art. IV of the Iligan City Traffic Code. Illegal signages, advertisements and other obstacles to reserve space for someone or to be used for the repair of vehicles must be



removed and cleared. Business establishments should provide parking space for themselves and for their customers. For limited business space, motorists could use the parking spaces designated by the City but they were not given priority. Parking was a random process. Through the Traffic Impact Assessment (TIA), the City could require applicants for building and business permits to submit TIA that would include measures to mitigate traffic problems that were expected upon the opening of the business.

2. Some business establishments encroached the sidewalk areas. There should be clear markings designating the sidewalk areas. Edge of sidewalks should be painted to inform pedestrians where to walk and for the police to easily apprehend owners of establishments who encroached the sidewalks. There should be clear markings of road rights of way (RROW) and/or property lines of business establishments. Roof or building extensions beyond the property line were encroachments to the RROW as provided for in Sec. 1.xii, Art. VI of the Traffic Code.
3. The construction materials near Nokies-a business establishment-blocked the sidewalk. This must be cleared. Construction materials should be stored within the construction premises so as not to obstruct the flow of traffic ( Sec. 1.xiii, Art. VI of the Traffic Code).
4. The sidewalk near Honda and in some other sections were raised or depressed. Sidewalks should be used at the same elevation. Sidewalks should be raised at level with the curb to protect the pedestrians from out of control motor vehicles. It should be at the same elevation for safety.
5. Traffic signs should be installed only by the authorized public body to ensure uniformity and conformity with standards. Traffic signs with names of sponsors should not be allowed as this would diminish respect for the law.
6. Pavement markings should supplement the traffic signs. Pavement markings more visible to drivers, however, were easily soiled. Thus, these needed maintenance.
7. Plant boxes should be removed. The sidewalk zone along Roxas Ave. was narrow and plant boxes were blocking the free flow of pedestrians. Pedestrians were forced to walk along the vehicle travel lanes, thus, the danger to their lives increase.





Colors for pavement markings were based on the Iligan City Traffic Code. The stretch of road however is under the jurisdiction of the DPWH. There should be an agreement between the City and the DPWH that allows the ICTMO to manage the traffic along highways that are within the City limits or within the city centers.

#### D. Institutional Recommendation

This study is the first that is conducted by MSU-IIT in line with the MOA to assist the City of Iligan to improve its traffic situation. There are many other concerns of the City in urban transport that need the application of technical knowledge on traffic engineering and planning. The non-scientific rule-of-thumb to address the problems is a pure “trial and error” approach. The City may hire outside consultants to recommend transport solutions but this option may be expensive and unsustainable. If the partnership of the Academe and the LGU is in place, the experts from the academe can readily be tapped with minimal costs on the part of the City and students who will be involved in the studies will be exposed to solving real and current community problems.

It is recommended that the partnership be extended and strengthened to make it sustainable. Through this partnership, we recognized the limited resources and capabilities of both or one of the parties. We realized the need for funding assistance in order to enable such cooperative work to succeed. The World Bank is becoming supportive to this initiative. We hope that other funding institutions will also support this kind of initiative. Other LGUs may replicate the Academe-City of Iligan Partnership to their respective government units.

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3) Mr. Pacificador M. Lluch, Jr., acting City Administrator; 4) Atty. Providencio Abragan, Jr., Chairman of the Committee on Police, Traffic and Transportation, Public Safety and Order of the Sangguniang Panglunsod ng Iligan; 5) U.P. National Center for Transportation Studies (NCTS); and the 6) Graduating students, Batch 2011, of the Department of Civil Engineering, MSU-IIT.

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