

# **Traffic and Transportation Management Program for the City of Naga, Cebu: A Metro Cebu Development and Coordinating Board (MCDCB) Initiative**

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**Abstract:** Traffic congestion is already observed within the City of Naga. During peak hours, congestion is manifested by the presence of interrupted vehicular flows at intersections and also along midblock locations within the city. Motorists who are passing through the city have expressed their complaints to the local government unit (LGU). The LGU has started to provide solutions to the traffic-related problems being experienced in the city. However, the implemented solutions have not fully answered the need to minimize congestion in the streets. Facilities being installed along thoroughfares were not enforced and city residents do not have enough knowledge on the local and national traffic rules and regulations. The LGU has realized that in order to solve traffic-related problems, a comprehensive approach should be undertaken. Hence, the idea of coming up with a Traffic and Transportation Management Program (TTMP) is an important task for the elected city officials to accomplish.

**Keywords:** Traffic Management, Engineering, Education, Enforcement

## **1. INTRODUCTION**

The City of Naga has started to experience traffic congestion in its locality when commercial establishments have commenced to do their business in the city. Usually, the sprouting of commercial companies will also mean an increase in the activities of people at or near these establishments. Thus, with vehicles and pedestrians going to and coming from these locations, the traffic flow in the vicinity of these commercial establishments are surely affected. Hence, congestion was observed during peak periods in the morning and in the afternoon. But the drivers with their vehicles are not the only ones violating the traffic rules and regulations. The general public has been observed also, disobeying the traffic rules for pedestrians and for passengers as well.

There are basic fundamentals of traffic management that the City Government of Naga has to learn. These basic learning from the workshop will serve as guide for the city officials having the end goal of providing solutions to the congestion problem being experienced by the city at present. In addition, to prepare for a very good traffic and transportation management program (TTMP) will require a holistic approach instead of a piece-by-piece solution, as observed in the other cities of Cebu. Furthermore, the city officials have been made to understand that the success of the TTMP of the city will greatly depend on their teamwork and cooperation. If the people of the City of Naga will witness their city officials following traffic rules and regulations, then the general public will eventually obey the same traffic laws and policies.

### **1.1 Objectives of the Study**

The primary objective of this study is to prepare the TTMP of the LGU. Together with the TTMP, the following specific objectives are undertaken:

- 1) To conduct an inventory of the existing traffic-related ordinances, road network infrastructure for traffic management, enforcement capabilities and training needs assessment to become baseline data for this study;
- 2) To prepare the Traffic Management Code, creation of the Traffic Management Office, Traffic Management Board, and Traffic Violations Bureau;
- 3) To undertake traffic engineering surveys and analysis to come up with the traffic engineering report for the technical aspect of the TTMP; and
- 4) To conduct the Basic Traffic Enforcement Training Course to the traffic enforcement team of the city.

## **1.2 Participants of the Study**

Mayor Kristine Vanessa T. Chiong, the Mayor of the City of Naga, Cebu, has prepared a memorandum for the department heads to fully support the study and to participate in the different workshops which were scheduled accordingly. Thus, the participants of the study are the following, namely: City Administrator, City Legal Officer, Chief of Staff of the Mayor, City Engineer and staff, City Planning and Development Officer and staff, City Building Official, General Services Officer, City Budget Officer, City Information Technology Officer, Officer-in-Charge of the Enforcement Group, and Representative of the City of Naga Police Office.

## **2. METHODOLOGY**

The methodology of this study consisted of a series of workshops and/or activities which resulted in the completion of the contents of the TTMP, to wit:

- Review of traffic-related schemes implemented by the LGU at present;
- Conduct inventory of existing traffic-related ordinances and road network infrastructure and facilities for traffic management;
- Conduct an Evaluation of traffic enforcement capabilities and Training Needs Assessment;
- Perform workshops on the preparation of the Traffic Management Code, creation of the Traffic Management Office, Traffic Management Board, Traffic Violations Bureau;
- Conduct the Traffic Engineering Surveys and its Analysis;
- Conduct Participatory Consultation Meetings and Information Dissemination Campaign; and
- Conduct the Traffic Enforcement Training for Traffic Enforcers

## **3. WORKSHOP INPUTS**

### **3.1 Review of traffic-related schemes implemented by the LGU at present**

The main objective of this workshop activity is to come up with a leveling ground on individual perceptions of city officials when it comes to traffic management. Furthermore, the specific objectives for the workshops are the following:

- a. To determine the basic understanding of each participant of their work in relation to traffic management;
- b. To provide basic knowledge to the participants on transportation engineering, traffic engineering and traffic management; and
- c. To establish what are the common views and concerns of the participants in relation to traffic-related problems of the city

There were two (2) workshops undertaken during this activity. Workshop 1 was all about traffic-related activities that the participant is doing in relation to his work duties and responsibilities. In addition, the participants also verbalized their thoughts and concerns in which traffic management is needed to be implemented soon.

For Workshop 2, the participants were asked to give their perceptions on the positive and negative impacts that they have observed in relation to the causes of congestion in their locality or in other places of Cebu.

### **3.2 Inventory of existing traffic-related ordinances and road network infrastructure and facilities for traffic management**

The main objective of this activity is to conduct an inventory of the present traffic-related ordinances of the city as well as on the available road network infrastructure and facilities that are in-placed in the major thoroughfares, city streets and barrage roads. Furthermore, the specific objectives for the workshops are the following:

- a. To arrive at an agreed resolution on how to enhance the contents of the present and proposed ordinances in relation to traffic management; and
- b. To provide basic knowledge to the participants on a typical cross-section of a road and the importance of road safety.

The methodology being used in this activity is basic assessment on what the LGU has in relation to traffic ordinances as well as the present road network infrastructure with its facilities installed on the city streets and barangay roads.

As to the on-site ocular inspection on the road network infrastructure and facilities, the actual roadway width, pavement condition, drainage system and provision of sidewalk became the basis for the establishment of road safety for the city.

### **3.3 Evaluation of traffic enforcement capabilities and Training Needs Assessment**

The main objective of this activity is to conduct an evaluation on the capabilities of the traffic enforcers and assess their training needs requirements together with that of the technical personnel of the City Engineer's Office and the City Planning and Development Office. Furthermore, the specific objectives for the workshops are the following:

- a. To conduct a pre-evaluation on the knowledge and skills of the traffic enforcers in relation to traffic management;
- b. To conduct a training needs assessment to the technical personnel in relation to traffic management; and
- c. To establish what are the common aspirations of the traffic enforcers and city officials in relation to the incoming implementation of the TTMP.

A written examination was conducted to determine the knowledge of traffic enforcers on traffic control devices and basic procedures on traffic direction and control, and apprehension of traffic violators. In the field evaluation, proper usage of hand signaling and the whistle and in manning the vehicular traffic and pedestrians were noted. On the other hand, the training needs assessment for the technical personnel was carried out through a

workshop requiring the participants to list down their respective requisites in order to provide a better traffic management and to express their individual aspirations for the future of the traffic management of the city.

### **3.4 Workshops on the preparation of the Traffic Management Code, creation of the Traffic Management Office, Traffic Management Board, Traffic Violations Bureau**

The main objective of this activity is to prepare the necessary documents to be able to start the implementation of traffic rules and regulations within the city. Furthermore, the specific objectives for the workshops are the following:

- a. To prepare the traffic management code of the City;
- b. To facilitate the organization of the local traffic management authority; its Vision, Mission, Goals and Objectives, and its Logo;
- c. To assist in the creation of the Traffic Management Board and its responsibilities;
- d. To orient the designated Traffic Engineer of his/her responsibilities;
- e. To prepare the Traffic and Transportation Management Program (TTMP); and
- f. To formulate the Traffic Enforcement Training Program of the City

The participants of this activity have realized that it was not easy to prepare a traffic management code. They have exerted their utmost understanding in comprehending the complexities of making the content of the articles and sections in the code. In addition, the participants recognized that a consensus in arriving to a decision on what to include in the code is very important. Furthermore, they have learned to bring up their concerns to the group while the rest of the participants tried to come up with possible answers to the verbalized concerns.

### **3.5 Traffic Engineering Surveys and its Analysis**

The main objective of this activity is to prepare the traffic engineering data analysis on the technical surveys being undertaken. Furthermore, the specific objectives for the technical activities are the following:

- a. To conduct the traffic volume count survey and the travel time and delay survey;
- b. To perform data analysis on the survey data; and
- c. To provide recommendations based on the data analysis of the survey data.

The participants were enlightened on the Warrants for Traffic Signals and the fundamentals of the Level of Service (LOS) from the Highway Capacity Manual (HCM) 2000 and the LOS Criteria for Arterials from the Transportation Research Board, HCM Special Report 209.

### **3.6 Participatory Consultation Meetings and Information Dissemination Campaign**

The main objective of this activity is to conduct public consultation meetings to the representatives from the twenty-eight (28) barangays of the city, with the schedule as shown in Table 1. Furthermore, the specific objectives for the participatory consultation activities are the following:

- a. To inform the Nagahanons on the basic principles used for traffic management; and
- b. To obtain feedbacks from the Nagahanons in relation to the proposed traffic management code,

Table 1. Schedule of the Barangay Consultation Meetings

Session No.	Barangays	Date and Time
1	Tuyan, Pangdan and Lutac	9/18/2017 8:00 a.m.
2	Mayagan, Colon and Cogon	9/18/2017 1:00 p.m.
3	Cantao-an, Uling and Tagjaguimit	9/19/2017 8:00 a.m.
4	Patag, Mayana and Lanas	9/19/2017 1:00 p.m.
5	Balirong, Alpaco and Tinaan	9/20/2017 8:00 a.m.
6	Mainit, Langtad and Jaguimit	9/20/2017 1:00 p.m.
7	Inoburan, Cabungahan and Bairan	9/21/2017 8:00 a.m.
8	West Poblacion, Tangke and South Poblacion	9/21/2017 1:00 p.m.
9	North Poblacion, Naalad, East Poblacion and Central Poblacion	9/22/2017 8:00 a.m.

### 3.7 Traffic Enforcement Training for Traffic Enforcers

The main objective of this activity is to impart to the participants the basic fundamentals of traffic law enforcement and to share with them the important skills which are needed in order to become an effective traffic enforcer in the city.

## 4. WORKSHOP OUTPUTS AND ANALYSIS

### 4.1 Review of traffic-related schemes implemented by the LGU at present

The outputs of the first workshop are used as baseline indicators on what additional articles and sections have to be included in the drafting of the traffic code for the city. For traffic education, providing basic knowledge on traffic rules and regulations for all road users is very important. For traffic engineering, standards on the geometric design of roads are necessary for road safety. With the approval of the traffic code, traffic enforcement will be fully armed to implement the traffic rules and regulations. Lastly, with the active participation of the legal personnel, the TTMP can become comprehensive in its totality.

The results of the second workshop served as a guide for the city officials who are going to compose the team in the deliberation of the possible plans and programs for the TTMP. The success of the TTMP will depend on the realization of the plans and programs in order to minimize the occurrence of congestion on the city streets. Furthermore, evaluation on the TTMP plans and programs being executed should be undertaken so that possible updating of the TTMP for additional and/or enhancement of the programs will be completed according to its respective timeframes.

### 4.2 Inventory of existing traffic-related ordinances and road network infrastructure and facilities for traffic management

There is a proposed ordinance for the regulation and control of trisikads in the City of Naga. The Legal Group and the Enforcement Group has agreed to define the exact boundaries of the city inasmuch as the implementation of the future traffic code is going to be enforced within the city limits only. Furthermore, it was agreed that the said proposed ordinance, with its

corresponding enhancements and additions, will be incorporated in the future traffic management code as one of its articles. It was also concurred that Article N of the Revised Revenue Code of Naga should be used as basis once the in-depth discussion of the trisikads is to made in the formulation of the traffic code.

In addition, there was a decision to determine the routes of these trisikads as well as the corresponding color coding of the routes. The designation of waiting areas for passengers were brought up as well as parking garage for these transport mode when not in operation. There was also the consensus on the regulation of the number of trisikad units for each route and whether to increase the administrative penalty in cases when a trisikad will violate the provisions of the traffic management code.

The technical group has agreed to furnish the document on the actual description of the three (3) boundaries of the city. As to the street names of city streets and barangay roads, the City Engineer has produced the Road Inventory Form from the Department of Public Works and Highways (DPWH). In the said list, there are fifty-three (53) city streets and barangay roads which are already with official street names. In addition, according to the latest road inventory of the City Engineering Office, there are a total of sixty-six (66) barangay roads in the city which needs to have official street names.

During the actual ocular inspection of the present road network infrastructure of the city, it was observed that most of the city streets in the central business district (CBD) are not used mainly by the vehicles. There was the presence of street vendors and even the narrow sidewalks have been used to display their goods.

The covers of the gutters have been correspondingly used as sidewalks. All roads have no shoulders except the national roads. The road widths, which are indicated in the road inventory form, do not reflect the as-built road widths on site. Only about 10% of all roads in the road inventory form have the same width, according to the design plans and the as-built plans. Most of the barangay roads do not have any provisions yet for drainage. Since there are no sidewalks, the non-presence of curbs is also observed. Only the Bairan Road has very good street lighting facilities. The rest of the barangay roads do not have any street lights.

The vertical and horizontal alignments at most of the rural barangays are inadequate and not according to alignment standards. The blind curves with narrow-width roads are usually one of the causes of vehicle collisions in these areas. In addition, at areas where unstable slopes are observed, slope protection is not provided, thus, soil erosion and landslide were observed.

### **4.3 Evaluation of traffic enforcement capabilities and Training Needs Assessment**

In the written examination, there were ten (10) questions. The first four (4) questions asked the traffic enforcer to identify the traffic signs indicated in the questionnaire and for them to discuss the meaning of these traffic signs. About 7.69% of the thirteen (13) members of the traffic management unit got answers which are acceptable. 23.08% have answers which are understandable and 69.23% needs to be thoroughly taught on the fundamentals of traffic signs.

The next four (4) questions were about pavement markings. The traffic enforcers were directed to draw the pavement markings and explain their meanings. About 15.38% were able to draw correctly the pavement markings and gave acceptable meanings as well. The rest of the other traffic enforcers, about 84.62%, were not familiar with these common pavement markings and have to be educated about these pavement markings.

The traffic enforcers were made to discuss basic traffic enforcement procedures in the last two (2) questions. All of them were not able to give satisfactory answers to these

questions due to the fact that they have to be trained in order to know the complete procedure in traffic enforcement.

The traffic enforcers were observed in the field, during their schedule of duty and in their respective area of responsibility (AOR), of which majority of them demonstrated satisfactory skills in hand signaling and usage of the whistle. However, there is still the need to improve their knowledge in manning the flow of vehicular traffic.

Courtesy and discipline are qualities of a very good traffic enforcer. This was observed during the field evaluation but there are still a few lapses in being respectful to all road users and committed to their work responsibilities.

The traffic management unit of the City of Naga do not have any trainings yet with regards to the basic fundamentals of traffic law enforcement. A comprehensive understanding and knowledge on the traffic management code of the city is very important in order to become effective in the enforcement of these traffic rules and regulations.

As for the technical group, the only training that two (2) personnel, from the Office of the City Engineer, have participated was provided by the Road Board. The training was about road networks, its facilities and maintenance as well as road safety audits.

#### **4.4 Workshops on the preparation of the Traffic Management Code, creation of the Traffic Management Office, Traffic Management Board, Traffic Violations Bureau**

The Traffic Management Code was based on the model traffic code, which was prepared by Dr. Primitivo C. Cal, the Executive Director of UP PLANADES, for MCDCB. In-depth discussion and thorough deliberation were made for all the provisions in the said code. On the other hand, the participants were meticulous in the discussion on the creation of the City of Naga Traffic Management Office (CNTMO) together with its Vision, Mission, Goals and Objectives and its Logo. The roles and responsibilities of the Traffic Management Board and the Traffic Engineer were understood comprehensively. Furthermore, discussion on the concerns and issues for the TTMP and the Traffic Enforcement Training Program were given solutions by the Mayor and the City Administrator.

A thorough discussion on the provision for speed limits were undertaken in order to minimize the number of road crashes in the city especially in the city center. Referring on the City of Naga PNP records on road crashes, as shown in Table 2, the numbers are increasing.

Table 2. Road Crash Data in the City of Naga, Cebu

Type of Road Crash	2017	2018
<b>Physical Injury</b>	117	126
<b>Damage to Property</b>	44	84
<b>Homicide</b>	10	14

It was agreed by the participants that the provisions of the traffic management code, which are related to land use and transportation planning, should be included in their comprehensive land use plan (CLUP) which was at the same time being updated.

#### **4.5 Traffic Engineering Surveys and its Analysis**

It was decided by the participants to conduct traffic volume count surveys to seven (7) intersections and a travel time and delay survey along N. Bacalso Avenue, a primary national

road. After the analysis of the survey results, the determination of the LOS was based on the VCR and the TRB HCM Special Report 209, as shown in Table 3.

The Highway Capacity Manual (HCM) 2000 defines level of service as follows: "Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience."

Level of service (LOS) qualitatively measures both the operating conditions within a traffic system and how these conditions are perceived by drivers and passengers. It is related with the physical characteristics of the highway and the different operating characteristics that can occur when the highway carries different traffic volumes. Speed-flow-density relationships are the principal factor affecting the level of service of a highway segment under ideal conditions (HCM 2000).

Table 3. Level of Service Criteria for Arterials based on Volume – Capacity Ratios

Level of Service	Description	V/C <sup>b</sup>
A	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.	0.00 to 0.60
B	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.	0.61 to 0.70
C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.	0.71 to 0.80
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.	0.81 to 0.90
E	Operations with significant intersection approach delays and low average speeds.	0.91 to 1.00
F	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.	Greater Than 1.00

<sup>a</sup> For arterials that are multilane divided or undivided with some parking, a signalized intersection density of four to eight per mile, and moderate roadside development.

<sup>b</sup> Volume-to-capacity ratio.

≥ greater than or equal to.

< less than.

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209*

Using Table 3, the analysis of the traffic volume counts data for LOS was done for the seven (7) intersections which were considered by the participants as critical intersections. The results were presented in Table 4. On the other hand, Figure 5 is showing a traffic flow diagram of the intersection with an LOS D.



Table 4. LOS at the Intersections

	Name of Intersection	Level of Service
1	N. Bacalso Avenue – Cantao-an	C
2	N. Bacalso Avenue – Inoburan	A
3	N. Bacalso Avenue – Naga-Uling Road	A
4	N. Bacalso Avenue – P. Sayson St.	C
5	N. Bacalso Avenue – Rizal St.	C
6	N. Bacalso Avenue – Agoncillo St.	C
7	N. Bacalso Avenue – San Francisco St.	D

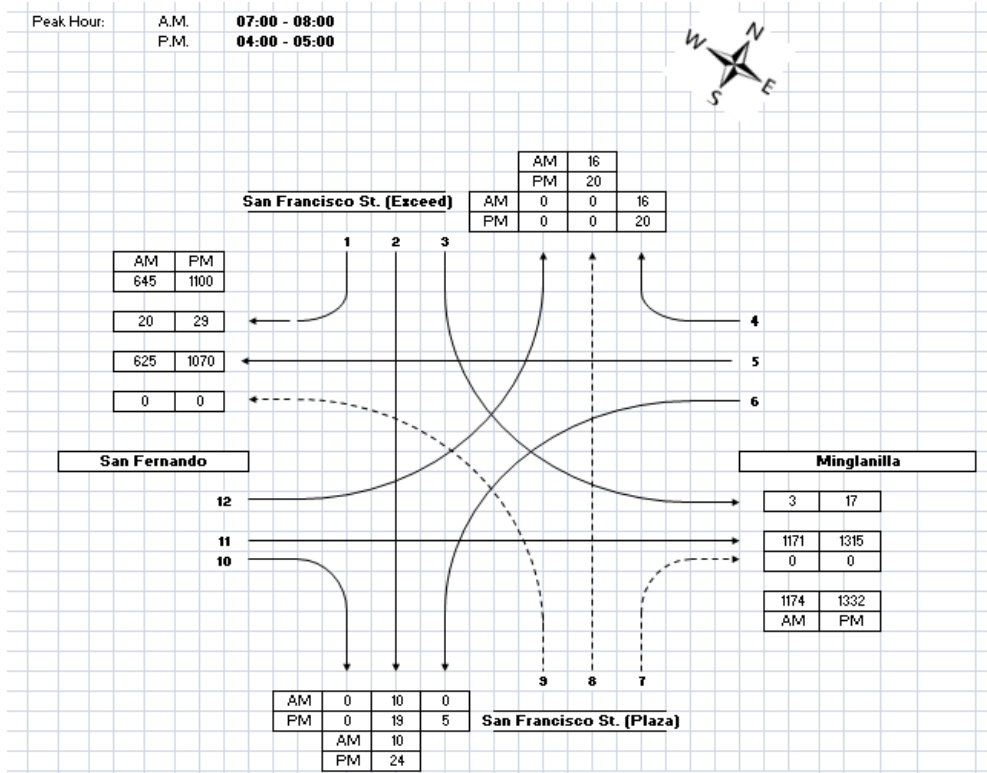


Figure 1. Traffic Flow Diagram of N. Bacalso Avenue – San Francisco St.

Table 5. VCR values at N. Bacalso Ave – San Francisco St.

FLOW	VOLUME / CAPACITY ( VCR)	
	A. M.	P. M.
1	0.01	0.02
2	0.01	0.01
3	0.00	0.01
4	0.01	0.01
5	0.39	0.67
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.73	0.82
12	0.00	0.00

In the computation of the VCR, as shown in Table 5, flow #11 has 0.73 for A.M. peak and 0.82 for the P.M. peak. The level of service of the intersection is LOS C for the morning peak and LOS D for the afternoon peak period. There is an indication in the afternoon peak of LOS D that the vehicular flow is approaching to a high degree of saturation, meaning the manual control in the intersection might not be adequate anymore. Thus, it can be deduced that this intersection might become a location for a traffic signal system installation in the future.

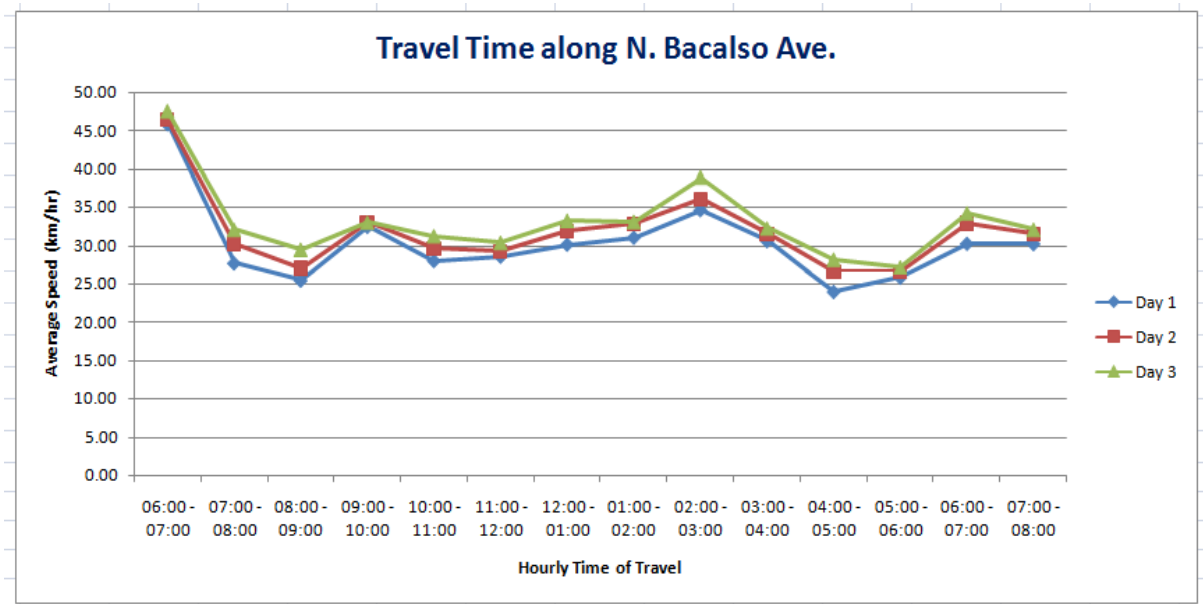


Figure 2. Graph of hourly average speeds along N. Bacalso Avenue for 3 days

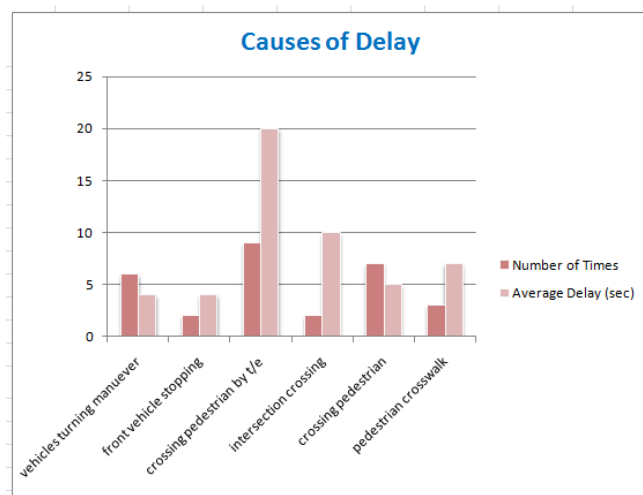


Figure 3. Graph of the causes of delays along N. Bacalso Avenue for 3 days

From Inayagan to Langtad, the average speed of travelling the 8.0 km national highway is 32.55 kph with lower speeds from 25 – 30 kph during peak hour periods, as indicated in Figure 2. The travel time is in the range of 10 – 12 minutes. In the direction of from Langtad to Inayagan, the average speed of travel is 27.84 kph with lower speeds from 20 – 25 kph during peak hour periods. The travel time is in the range of 12 – 14 minutes.

The causes of delay while travelling along the national highway are highest in locations where the traffic enforcers are stopping the vehicles due to allowing pedestrians to cross the road, as shown in Figure 3. Then there is the intersection delay where vehicles are stopping in order to allow other vehicles to cross the intersection. The third highest cause of delay is at locations where pedestrian crosswalks are installed and the pedestrians are using these crosswalks to cross the street.

The turning maneuvers can be minimized if the CNTMO will designate areas for turning maneuvers. As to the pedestrians who are crossing the road at any location, the implementation of the anti-jaywalking campaign will help in lessening the number of times of this type of delay.

#### 4.6 Participatory Consultation Meetings and Information Dissemination Campaign

Basing on the results of the consultation meetings with the Nagahanons, it was clearly shown that the people do not have an adequate knowledge on the traffic rules and regulations for the passengers and pedestrians. Road safety is the least of their concerns since they are not afraid to cross anywhere along the road. The pedestrians do not use the pedestrian bridge because they are in a hurry or would be late in going to school or to work. On the other hand, the passengers do not bother themselves if they are the cause of obstruction along a road as long as they are delivered by a transport mode right in front of their destination. However, they have agreed to change to the appropriate ways in being a pedestrian or a passenger in order to be safe on the road and not to cause an obstruction as well.

The concerns of the PUV operators and drivers were about unregistered vehicles and no drivers' licenses. Issues on the legalities of habal-habal and trisikads were voiced out as well as their fare regulation. Rerouting and terminals for PUJs and tricycles were also brought up as well as the PUV modernization of DoTr.

#### 4.7 Traffic Enforcers Training for Traffic Enforcers

The schedule of the one-month training for traffic law enforcement is shown in Table Nos. 6 – 9, as presented below.

Table 6. First Week Schedule of the Traffic Enforcement Training

TRAFFIC MANAGEMENT COURSE FOR TRAFFIC LAW ENFORCERS																		
1 <sup>st</sup> week	Day 1 (MONDAY)			Day 2 (TUESDAY)			Day 3 (WEDNESDAY)			Day 4 (THURSDAY)			Day 5 (FRIDAY)			Day 6 (SATURDAY)		
	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Facilitator
	8am - 12nn	Registration of Participants and Submission of Required Documents	Secretary	8am - 12nn	Traffic Management Code	City Legal Officer	8am - 12nn	Traffic Management Code	City Legal Officer	8am - 12nn	Traffic Management Code	City Legal Officer	8am - 12nn	Traffic Management Code	City Legal Officer	8am - 12nn	Driving Course and Preventive Maintenance	
	12nn - 1pm	Lunch Break																
	1pm - 5pm	Opening Ceremony/ Getting to Know you/Expectation Setting/ CNTMO Background	Mayor/ Lecturers/ Training Coordinator	1pm - 5pm	Traffic Management Code	City Legal Officer	1pm - 5pm	Traffic Management Code	City Legal Officer	1pm - 5pm	Traffic Management Code	City Legal Officer	1pm - 5pm	Traffic Management Code	City Legal Officer	1pm - 5pm	Self Defense Course	

Table 7. Second Week Schedule of the Traffic Enforcement Training

TRAFFIC MANAGEMENT COURSE FOR TRAFFIC LAW ENFORCERS																		
	Day 7 (MONDAY)			Day 8 (TUESDAY)			Day 9 (WEDNESDAY)			Day 10 (THURSDAY)			Day 11 (FRI DAY)			Day 12 (SATURDAY)		
2 <sup>nd</sup> week	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Facilitator
	8am - 12nn	Traffic Management Code	City Legal Officer	8am - 12nn	Public Service Ethics & Accountability	Ombudsman	8am - 12nn	Traffic Control Devices	Lecturer	8am - 12nn	R.A. 4136	LTO	8am - 12nn	Phil Human Rights Law & Enforcement/Constitutional Guarantees	CHR	8am - 12nn	Driving Course and Preventive Maintenance	
	12nn - 1pm	Lunch Break																
	1pm - 5pm	Traffic Management Code	City Legal Officer	1pm - 5pm	Public Service Ethics & Accountability	Ombudsman	1pm - 5pm	Traffic Control Devices	Lecturer	1pm - 5pm	R.A. 4136	LTO	1pm - 5pm	Rights of the Traffic Enforcer and the Violator	CHR	1pm - 5pm	Self Defense Course	
							4pm - 5pm	Evaluation & Assessment										

Table 8. Third Week Schedule of the Traffic Enforcement Training

TRAFFIC MANAGEMENT COURSE FOR TRAFFIC LAW ENFORCERS																		
	Day 13 (MONDAY)			Day 14 (TUESDAY)			Day 15 (WEDNESDAY)			Day 16 (THURSDAY)			Day 17 (FRIDAY)			Day 18 (SATURDAY)		
3 <sup>rd</sup> week	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Facilitator
	8am - 12nn	Traffic Law Enforcement	Lecturer	8am - 12nn	Mechanics of Apprehension & Issuance of Traffic Citation Ticket (Lecture)	Lecturer	8am - 12nn	Traffic Management Code IRR	Lecturer	8am - 12nn	Traffic Direction & Control (Lecture)	Lecturer	8am - 12nn	Traffic Direction & Control (Field Application)	Lecturer	8am - 12nn	Driving Course Evaluation (Written and Practical)	
	12nn - 1pm	Lunch Break																
	1pm - 5pm	Common Traffic Violations	Lecturer	1pm - 5pm	Mechanics of Apprehension & Issuance of Traffic Citation Ticket (Workshop)	Lecturer	1pm - 5pm	Traffic Management Code IRR	Lecturer	1pm - 5pm	Traffic Direction & Control (Workshop)	Lecturer	1pm - 4pm	Traffic Direction & Control (Field Application)	Lecturer	1pm - 5pm	Self Defense Course	
													4pm - 5pm	Weekly Exam				

Table 9. Fourth Week Schedule of the Traffic Enforcement Training

TRAFFIC MANAGEMENT COURSE FOR TRAFFIC LAW ENFORCERS																		
	Day 19 (MONDAY)			Day 20 (TUESDAY)			Day 21 (WEDNESDAY)			Day 22 (THURSDAY)			Day 23 (FRIDAY)			Day 24 (SATURDAY)		
4 <sup>th</sup> week	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Resource Speaker/ Lecturer	Time	Subject	Facilitator
	8am - 12nn	Traffic Sketching (Lecture)	Lecturer	8am - 12nn	Traffic Sketching (Field Application)	Lecturer	8am - 12nn	Conflict Management	Facilitator	8am - 12nn	Conflict Management	Facilitator	8am - 12nn	On the Job Training	Facilitator			
	12nn - 1pm	Lunch Break																
	1pm - 5pm	Traffic Sketching (Field Application)	Lecturer	1pm - 5pm	COMMEL Rules & Regulations/Ten Codes/Basic Parts of the Radio	Lecturer	1pm - 5pm	Conflict Management	Facilitator	1pm - 5pm	Criminal Law & Procedure	City Prosecutor	1pm - 4pm	Evaluation & Assessment	Facilitator			
													4pm - 5pm	Closing Ceremony	Mayor Facilitator Enforcers			

Lectures, workshops and field demonstrations were done by the training facilitators in order for the traffic enforcers to fully grasp and understand the knowledge and skills need for traffic law enforcement. At the same time, the qualities of a very good traffic enforcer, such

as discipline, courtesy, honesty, and teamwork, were inculcated in the minds and hearts of the participants so that their loyalty to the Nagahanons and to public service will be sustained.

## 5. CONCLUSIONS

The TTMP of the City Government of Naga, Cebu are the following:

a) The traffic management plan was prepared based on the outputs from the workshops being undertaken by the study, as presented in Tables 10 – 12, to wit:

Table 10. Traffic Management Plans for Traffic Engineering

3 E's	Short Term (1 - 2 years)	Medium Term (3 - 8 years)	Long Term (9 - 15 years)
<b>Engineering</b>	1. Training of technical personnel at UP-NCTS on Traffic Administration Course 1	1. Training of technical personnel at UP-NCTS on Traffic Impact Analysis	1. Installation of traffic signal system, if warranted
	2. Hiring of additional engineers for CNTMO	2. Casual and Regular Positions for the technical personnel	2. Training of technical personnel at UP-NCTS as continuing education
	3. Installation of No Stopping Anytime and No Parking Anytime Traffic Signs along N. Bacalso Ave	3. Installation of No Stopping Anytime and No Parking Anytime Traffic Signs at Poblacion streets	3. Provision of drainage system at all streets of the city.
	4. Installation of Pavement Markings along N. Bacalso Ave. and curb painting for trisikad routes	4. Installation of Pavement Markings at Poblacion streets	4. Installation of Standard Street Lighting facilities at all city and barangay streets
	5. Installation of PUJ/Bus Stops, Waiting Areas/Parking Areas, Pay Parking Areas Traffic Signs	5. Installation of Standard Streetlighting facilities at Poblacion streets	5. Installation of No Stopping Anytime and No Parking Anytime Traffic Signs at the rest of the city and barangay streets
	6. Installation of Street Names at Poblacion Area	6. Training at UP-NCTS On Traffic Administration Course 2	
	7. Implement the Maintenance Program for traffic control devices.	7. Continue implementing the Maintenance Program for traffic control devices.	
	8. Purchase of elf truck as transporter of traffic signs and barriers	8. Enhancement of the geometric design of intersections	

Table 11. Traffic Management Plans for Traffic Education

3 E's	Short Term (1 - 2 years)	Medium Term (3 - 8 years)	Long Term (9 - 15 years)
<b>Education</b>	1. Conduct traffic education on traffic management to all city government employees	1. Conduct continuous traffic education on defensive driving to PUJ, tricycle and trisikad drivers	1. Conduct continuous traffic education on defensive driving to PUJ, tricycle and trisikad drivers
	2. Procurement of leaflets and stickers about the traffic management program of the city	2. Conduct continuous traffic education on pedestrian safety to elementary students	2. Conduct continuous traffic education on pedestrian safety to elementary students
	3. Conduct traffic education on defensive driving to PUJ, tricycle and trisikad drivers	3. Conduct traffic education on pedestrian safety to purok members in the rural barangays	3. Conduct traffic education on pedestrian safety to purok members in the urban/rural barangays
	4. Conduct traffic education on pedestrian safety to elementary students	4. Conduct continuous traffic education on pedestrian safety to junior/senior high school students	4. Conduct continuous traffic education on pedestrian safety to junior/senior high school students
	5. Conduct traffic education on pedestrian safety to purok members in the poblacion.	5. Conduct traffic education on pedestrian safety to college students	5. Conduct continuous traffic education on pedestrian safety to college students
	6. Conduct traffic education on pedestrian safety to junior/senior high school students		

Table 12. Traffic Management Plans for Traffic Enforcement

3 E's	Short Term (1 - 2 years)	Medium Term (3 - 8 years)	Long Term (9 - 15 years)
Enforcement	1. Complete Type "A" and Type "B" Uniforms and accessories	1. Training at UP-NCTS for Traffic Administration Course 1	1. TESDA training on traffic enforcement for selected T/Es
	2. Provision of Casual Appointments of traffic enforcers	2. Provision of Regular appointments for supervisory positions on traffic enforcement personnel	2. Creation of CNTMO as a department
	3. TESDA training on traffic enforcement for selected T/Es	3. Training at UP-NCTS for Traffic Administration Course 2	3. Provision of Regular appointments for traffic enforcement personnel
	4. Hiring and training of additional CNTMO enforcers	4. TESDA training on traffic enforcement for selected T/Es	4. Purchase of additional motorcycles for T/E special teams
	5. Purchase of Towing Vehicle	5. Purchase of LIDAR Speed Detection Equipment to be placed along the national highway	
	6. Purchase of motorcycles for T/E inspectors	6. Purchase of additional Towing Vehicle	
	7. Purchase of 2 pcs Speed Gun (hand-held)	7. Purchase of mobile patrol car for CNTMO	
	8. Purchase of base and additional hand-held communication radios		

b) The local transport management plan was incorporated in the traffic management code for the tricycles, trisikads and the draft public utility jeepney routes. As shown in Figures 4 – 5, the routes of tricycles and trisikads have been clearly defined by color coding.



Figure 4. Proposed tricycle routes in the City of Naga, Cebu



Figure 5. Proposed trisikad routes in the City of Naga, Cebu

The succeeding paragraphs are the results from the outputs of the workshops to answer the specific objectives, as follows:

1) The participants of the workshops have been able to share their ideas and perceptions with regards to traffic management. Their observations from the road users in the city were brought up and possible solutions to the traffic-related problems were verbalized as well.

The participants from the technical group have realized that when it comes to road network infrastructure, the standards of highway geometric design all relate to road safety. If ever any of the elements of geometric design have not been considered, the affected stakeholders are the road users, most specially the pedestrians. On the other hand, if the vertical and horizontal alignments are not according to the specified standards, the occurrence of road accidents is more probable to occur. Street lighting facilities are still inadequate along baranggay roads. Connecting roads from each other will help the city when it comes to finding alternate routes if ever the major thoroughfares are not passable due to accidents, road repair and maintenance or the holding of special events.

Without a traffic management code, the city cannot be able to enforce any traffic rules and regulations. The enforcement group is not able to perform its full responsibility without the traffic management code. It was good that the traffic education to the operators and drivers of tricycles and trisikads has already started but if the traffic personnel do not have enough knowledge on traffic laws through learning the basics on traffic law enforcement, the information imparted to the drivers are not adequate enough for them to start obeying the traffic rules.

2) The provisions which are to be included in the proposed traffic management code are collected based on the workshop outputs of the first activity and from the inventory of the second activity. The proposed ordinance on the control and regulation of trisikads in the city is going to be included as a separate article in the future traffic code. The designation of waiting areas for tricycles and trisikads are to be included in the traffic code. The determination of the administrative penalties should be thoroughly discussed. Also, the concern that some old roads in the city have no proper documentation of its donation has to be looked into and checked before the traffic code is to be approved. Road courtesy and discipline of all road users is also verbalized and hoped to be included in the traffic code. The participants have agreed that information dissemination of these traffic rules and regulations in the traffic code should be extensive and comprehensive.

Street names are important in traffic management since installation of traffic control devices will require which streets are to be provided with traffic signs, pavement markings or traffic signals. Street names are also needed if ever there is a need to provide routing plans to tricycles or trisikads within the city. In addition, providing the general public with road network infrastructure of the city will require a very good street map as well.

The creation of the City of Naga Traffic Management Office (CNTMO) has been accomplished by including this office in one of the articles of the proposed traffic management code. Its vision, mission, goals and objectives are presented in the succeeding paragraphs.

## **VISION**

By 2025, the traffic management program of the City of Naga is fully implemented.

## **MISSION**

CNTMO, as the traffic enforcement arm of the City of Naga commits to provide effective traffic management services to the general public thru information dissemination, and proactive traffic control measures by:

1. Implementing the impartial enforcement of traffic laws and regulations;
2. Conducting intense and continuous traffic education;
3. Upgrading the quality of enforcement with competent traffic personnel, and
4. Providing standard traffic control facilities.

## **GOALS**

1. To enforce the Traffic Management Code strictly.
2. To provide traffic education to the drivers and pedestrian safety education to the children and adults.
3. To give the basic trainings to the traffic enforcement personnel relevant to the improvement of their performance.
4. To install the necessary traffic control devices in the Poblacion area.



## OBJECTIVES

1. To provide CNTMO with adequate number of personnel based on the transport and traffic management program (TTMP).
2. To educate the drivers thru one-minute lectures while being apprehended.
3. To inform the children and adults on pedestrian safety thru the purok system.
4. To let the traffic enforcers undergo TESDA trainings which are traffic-related in content.
5. To install traffic signs, pavement markings, street names and street lighting facilities at the national highway, city streets and barangay roads in the Poblacion area.

The logo of CNTMO was also prepared together with its corresponding meaning, as presented below.

Circle – symbolizes teamwork and unity among city government officials, employees, private sector and the Nagahanons in making the City of Naga a road safety city.

Equilateral Triangle – stands for the 3 Es of Traffic: Education, Engineering & Enforcement, which are all of equal importance for traffic management. Also, the 3 points of the triangle represents God, Man and the Environment

Flame or “Dagitab” – represents the 5 divisions of CNTMO which will lead in keeping the Nagahanons safe thru the implementation of the traffic management program of the city. The flame also serves as the guiding light towards a secure and protected environment while traveling within the city.

Can with Letter N – represents the dream of the city for a better environment with effective waste management program. Proper segregation of garbage will mean no clogging on the drainage system. No occurrence of flooding will result to a smooth flow of vehicles even in rainy days.

Narra Tree – embodies the characteristic of the city and its constituents in terms of being strong and steadfast in pursuing a better future for its people.

Industrial Structures – signifies the predominant land use of the city which is industrial

Traffic Light – represents the discipline of all road users in following the Traffic Management Code of the City of Naga.

Road – represents the provision of accessibility and mobility to all Nagahanons from the city government.

Green Color – signifies the environmentally-compatible undertakings and programs of the city.

Yellow Color – embodies the enthusiasm and cooperative disposition of the Nagahanons.

White Color (for the letters) – represents the commitment and honesty of CNTMO

The composition of the City of Naga Traffic Management Board and its roles and responsibilities were prepared as shown in the next paragraph.

A coordination body to be known as the City of Naga Traffic Management Board, hereinafter referred to as the Traffic Board, is hereby created which shall be composed of fourteen (14) members including the Chairman and Vice-Chairman. Membership of the Traffic Board shall be the following, namely:

Chairman : Mayor of the City of Naga  
Vice-Chairman: Chairman, Committee on Peace and Order / Public Safety



- Members : Sangguniang Panlungsod  
City Administrator  
City Engineer  
City Planning and Development Officer  
City Health Officer  
General Services Officer  
City Legal Officer  
Head, City Disaster Risk Reduction and Management Office  
Representative, City Prosecutor's Office  
Chief, City of Naga Police Office  
Regional Director, Land Transportation Office (LTO)  
Regional Director, Land Transportation Franchising and Regulatory Board (LTFRB)  
Representative, Private Sector
- Secretariat : Technical Staff, City Engineer's Office  
Technical Staff, City Planning and Development Office  
Head, CNTMO  
Staff, Special Programs and Projects Office

The Traffic Management Board shall have the following functions, to wit:

1. Coordinate, monitor and evaluate the planning and implementation of traffic management components undertaken by the various departments of the city government and other line agencies;
  2. Review and approve all traffic engineering and traffic management schemes before endorsing the said schemes to the City Council for a resolution or a traffic-related ordinance;
  3. Discuss and provide possible solutions to traffic-related problems experienced by the city at present;
  4. Provide formal responses to communications concerning traffic management from the general public and other road users;
  5. Review and approve the annual Traffic and Transportation Management Program of the city;
  6. Recommend internal guidelines in the implementation of the approved traffic management schemes;
  7. Submit periodic and special reports related to traffic management activities to the City Mayor;
  8. Perform such other related functions as may be necessary to ensure the effective planning and implementation of the traffic management schemes.
- 3) Based on the traffic volume count survey, temporary congestion occurs at the intersection of N. Bacalso Avenue – San Francisco Street having an LOS D during peak hours. With the assignment of a traffic enforcer at the said intersection from 6:00 a.m. to 8:00 p.m. Monday to Friday, the traffic flow in the intersection can be controlled and the occurrence of congestion can be minimized. Furthermore, with the implementation of the traffic management code, road safety can be improved and travel delay can be minimized.

4) The graduation of the traffic enforcers in their training for traffic law enforcement is shown in Figure 6.



Figure 6. Graduation Picture of the Participants in the Training for Traffic Enforcers

## 6. RECOMMENDATIONS

1) All of the concerns from the participants are recommended to be used in the drafting of the traffic code for the city. There will be articles and sections of the code which will specifically improve the traffic education of all road users in order to instill road courtesy and discipline. Articles and sections for the improvement of the road network should be included to promote road safety to the general public. The inclusion of the roadworthiness of vehicles can be incorporated in the code as well as provisions for a better public transportation system for the city. For the safety of the pedestrians, the traffic code can include provisions for the pedestrian traffic rules and regulations, how the pedestrian are going to obey these traffic laws as well as how the pedestrians can help the city government in traffic management. In addition, provisions for the capacitating of the traffic management team and the forming of its organization and mandate can be incorporated in the code. In addition, the regulation of the tricycles and trisikads can be comprised in another article in the traffic code.

Trainings for the technical personnel are recommended to be taken at the University of the Philippines – National Center for Transportation Studies (UP-NCTS).

2) It is recommended that the traffic management code should be approved in the soonest time possible in order for the city government to provide solutions to the traffic-related problems being experienced by the city at present. Furthermore, the city has to allocate enough budget allocations so that the necessary traffic control devices will be installed before the enforcement of the code can commence. On the other hand, the conduct of the traffic education for the city government employees can be started as soon as the traffic management code is already approved by the City Council.

3) Since it is shown in the results of the survey, that the seven (7) intersections have already a considerable number of vehicles in its approaches, it is recommended that at least two (2) traffic enforcers should be assigned to these intersections during peak hours of 7:00am to 9:00am in the morning and from 4:00pm to 6:00pm in the afternoon. And at least one (1) traffic enforcer to be assigned at these intersections during the off-peak periods. On the other hand, the traffic enforcers who are on-duty during the peak hours, they can conduct operations in enforcing the traffic management code.

4) Basing on the results of the consultation meetings with the Nagahanons, it was clearly shown that the people do not have an adequate knowledge on the traffic rules and regulations for the passengers and pedestrians. Road safety is the least of their concerns since they are not afraid to cross anywhere along the road. The pedestrians do not use the pedestrian bridge because they are in a hurry or would be late in going to school or to work. On the other hand, the passengers do not bother themselves if they are the cause of obstruction along a road as long as they are delivered by a transport mode right in front of their destination. However, they have agreed to change to the appropriate ways in being a pedestrian or a passenger in order to be safe on the road and not to cause an obstruction as well.

5) The items enumerated in the conclusion are recommended to serve as guides to the City Mayor and the City Administrator in their future implementation of the traffic management code of the city.

## **REFERENCES**

City Ordinance No, 801 known as the Traffic Code of Cebu City  
Highway Capacity Manual 2000  
Land Transportation Code of the Philippines