

Assessment Of Road-User's Perspective Towards Traffic Congestion in Mabini Extension, Cabanatuan City

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Abstract: - This study aimed to define the causes of traffic congestion in Mabini Extension, Cabanatuan City for the awareness of road users. The descriptive method was used in this research to get the data from 251 respondents. Findings revealed that the majority of the respondents are aged 20–24, male, high school graduates or lower, single, not residents of Mabini Extension and workers in the area. Results have shown that major causes of traffic congestion are human elements. In addition, it shows that the majority of the respondents are passing through Mabini Extension from 6:00 a.m. to 8:59 a.m., with 3 to 4 trips a day, an 11 to 15 minute time interval from the front of WUP (the main gate) to the intersection of Mabini Extension, and changing their route 1 to 2 times a day between 6:00 a.m. and 8:59 a.m. The most accessible and efficient alternative routes are passing through Caridad when avoiding traffic in Mabini Extension, Vergara Hi-Way (by pass to Sta. Rosa) for Sta. Rosa, Mayapyap for Talavera, Vergara Hi-Way (by pass to San Isidro) for Palayan City, and Mabini Extension for Maharlika Hi-Way. The researchers, therefore, recommend that authorities should educate drivers, enforcers, and pedestrians on traffic rules and practice regulations to reduce traffic congestion in the area. Finally, from the interview with the officer-in-charge, the data suggested building an overpass in front of the schools to reduce traffic in the area if the funds allowed.

Key Words - *traffic congestion, physical characteristics, control measures, human elements, maintenance.*

I. INTRODUCTION

Traffic is one of the most common problems in society nowadays, especially when you are living in urban areas such as Cabanatuan City, Nueva Ecija. It is known as the "Tricycle Capital of the Philippines" and is popular for being home to more than 30,000 tricycles in the city. Moreover, Mabini Extension is known for always being in traffic congestion, especially during working hours and when students are going to their school or their houses, since the area has more than three schools to pass through Mabini Extension.

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The researchers will study the causes of traffic congestion in Mabini Extension, Cabanatuan City, how road users affect the aggravation of traffic jams, whether tricycle drivers, public or private vehicles, also indulge in the traffic problems in the area, and what possible solutions to recommend on how to lessen the traffic in the area. Furthermore, the researchers will study the significant elements that may alleviate the traffic, such as travel demand history and alternative routes, to help the road users by giving them the best possible routes depending on their destination. The country's broken modes of transportation are as they are because of private companies owning public transport; it is a chaos of different modes of transport out there. In which there is chaos of tricycles and other transport modes that are privately owned and slightly regulated. One possible solution can be to make the tricycle transport system government-owned so that it is regulated and the government of Cabanatuan can control the number of tricycles around the city (Regalado, 2020).

II. TRAFFIC ENGINEERING THEORY AND PRACTICE

Identifying causes of traffic congestion in Mabini Extension, Cabanatuan City through Traffic Engineering will be beneficial to every end-user that will ease comfort, safety, and trouble-free travel in the area that everyone will all compensate for. As per Pignataro (1974), the Traffic Engineering: Theory and Practice proved that the researcher's study is relevant as it shows proper inclusion and relevance to the study connected within the theory stated. It prove what are the lameness of traffic engineering in aspects of road users, traffic theory, capacity of urban and rural area, traffic signs and markings, traffic signals, and traffic control that researchers can use as a proof of validity of their research study.

III. MATHEMATICAL MODEL

This research study is extensively examined through quantitative research methodology. The quantitative data is done through survey, questionnaire, observation, and interview that mainly focus on the citizens of Mabini Extension, public transportation drivers, students, workers, and The Officer-in-Charge of Mabini Extension, Cabanatuan City, wherein the researchers selected 251 sample respondents from an overall population of 3,314 of Mabini Extension in terms of Probability Sampling through Simple Random Sampling. The research focused on gathering data that helped the researchers to perform Frequency Counts and Percentage and Weighted Mean. In addition to that, the purpose of this study is for the researchers to extent a conclusion to the aggravation of traffic in Mabini Extension, Cabanatuan City so that the road-users will have accessible and efficient alternative routes for a hassle free and beneficial travel.

The data collected were computed using Frequency Counts and Percentage and Weighted Mean. The weighted mean was verbally described using the following table:

Verbal Description (VD)	Weighted Mean (WM)	Range
Strongly Agree (SA)	4.20-5.00	5
Agree (A)	3.40-4.19	4
Moderately Agree (MA)	2.60-3.39	3
Disagree (D)	1.80-2.59	2
Strongly Disagree (SD)	1.00-1.79	1

IV. RESULTS AND DISCUSSION

This chapter provides the presentation of statistical data. The data are presented in tabular form and supported by analysis and interpretation.

Table 1. Distribution of Respondents According to Age

Age	Frequency	Percentage	Rank
15-19 years old	58	23.1%	2
20-24 years old	79	31.5%	1
25-29 years old	35	13.9%	3
30-34 years old	23	9.2%	5
35-39 years old	23	9.2%	5
40 years old and above	33	13.1%	4
Total	251	100%	

Table 1 shows the age distribution of the respondents. Based on the analysis of data, the majority of the respondents are 20 years old to 24 years old, which accounts for 31.5% (79 people) of the respondents and ranks top. It is followed by ages from 15 years old to 19 years old, accounting of 23.1% (58 people) of the total respondents. The third rank has a data of 13.9% (35 people) which are the total data of respondents that are 25 years old to 29 years old. The age group of 40 years old and above is placed fourth, accounting for 13.1% (33 people) of the total respondents. Finally, the age groups of 30 years old to 34 years old and 35 years old to 39 years old are tied for fifth place, each contributing 9.2% (23 people) of the respondents. The result shows that age from 20 years old to 24 years old has the greatest number of respondents. People in their early 20s have a tendency to travel more frequently for entertainment since they are more likely to go out and mingle with friends of the same ages. (Basaric et al, 2016). It is unlike older people who are usually working so they make fewer trips.

Table.2. Distribution of Respondents According to Gender

Gender	Frequency	Percentage	Rank
Male	145	57.8%	1
Female	106	42.2%	2
Total	251	100%	

Table 2 shows the gender distribution of the respondents consisting of 251 individuals. Based on the analysis of the data, 145 of these individuals, or 57.8%, were males, while the remaining 106, or 42.2%, were females. These findings show that majority of respondents are male but not far apart of frequency from female respondents. However, it's important to note that this data only represents a small sample of the population, and the actual gender distribution in the entire

population may differ. In the study conducted by Kalhoro, Hui Nee and Ramendran (2021), they stated that gender has an impact on differences in travel behavior. Compared to women, men have been socialized differently over the world. This explains that there is distinction between what men and women want.

Table.3. Distribution of Respondents According to Education Level

Education Level	Frequency	Percentage	Rank
High School Graduate or lower	137	54.6%	1
College Graduate	110	43.8%	2
Master's degree	4	1.6%	3
Total	251	100%	

Table 3 shows the education level the respondents. According to analysis of data, 54.6% (137 people) has a high school diploma or less. College Graduate is the second most prevalent educational level, accounting for 110 people or 43.8% of the respondents. Master's degrees are held by four people, accounting for 1.6% of the total number of respondents. The study conducted by Topolsek, Babic and Fiolic (2019) indicated that teens who participated in the education program were less likely to be involved in accidents during their first two years of driving than those who did not participate in the education. Accident can also be a cause of traffic; therefore, people who are educated regarding the rules and regulations of the traffic can less likely to cause an accident and traffic on the road.

Table.4. Distribution of Respondents According to Marital Status

Marital Status	Frequency	Percentage	Rank
Single	170	67.7%	1
Married	75	29.9%	2
Divorced/Separated	3	1.2%	3
Widowed/Widower	3	1.2%	3
Total	251	100%	

Table 4 represents the distribution of respondents according to their marital status. As reflected in the table, 170 people are Single which accounts for 67.7% of the total respondents. The second is Married which has a frequency of 75 individuals or 29.9% of the total respondents. Lastly, Divorced/Separated and Widowed/Widower have the same frequency of 3 individuals, accounting for 1.2%. The result shows that the respondents are most likely single. In the study conducted by Puciato et al (2022), it is stated that one of the most important current social trends is the growing number of single people. It has numerous

consequences because single people often live and behave differently than those in relationships. This explains why there is frequently a discrepancy between what single, married, divorced, and widowed people want.

Table 5. Distribution of Respondents According to Years of Residency in Mabini Extension, C.C

Years of Residency	Frequency	Percentage	Rank
Not a Resident	152	60.6%	1
1-3	14	5.6%	4
4-6	12	4.8%	5
6-10	17	6.8%	3
10 above	56	22.3%	2
Total	251	100%	

The data presented in the table 5 shows the distribution of years of residency in Mabini Extension, Cabanatuan City of the respondents. The largest group consists of those who are not residents, with a frequency of 152 (60.6%). The second largest group consists of those who have been residents for 10 years or more, with a frequency of 56, representing 22.3% of the respondents. The remaining residents are fairly evenly distributed across the 1 year to 6 years range, with a slight increase in the number of residents in the 6 years to 10 years range. The smallest group consists of those who have been residents for 4-6 years, with a frequency of 12, representing 4.8% of the total respondents.

Table.6. Distribution of Respondents According to Classification of Residents

Classification of Residents	Frequency	Percentage	Rank
Not a Resident	152	60.6%	1
With vehicle	65	25.9%	2
Without vehicle	34	13.5%	3
Total	251	100%	

The data presented in the table 6 shows the classification of residents based on whether they have a vehicle or not, with a total respondent size of 251 individuals. The majority consists of respondents who do not reside in the Mabini Extension, Cabanatuan City. It is followed by the residents who have a vehicle, with a percentage of 25.9% (65 people). The remaining group consists of individuals who do not have a vehicle, with a frequency of 34, representing 13.5% of the total sample. The result shows that the residents are most likely to have a vehicle that indicates that they have access to their own transportation, which can impact their mobility and access to various

resources. The way of living of the residents has altered as a result of urbanization and the motorization of society. It significantly increases locals' reliance on vehicles, leading to a variety of traffic-related issues (Yu et al, 2020).

Table.7. Distribution of Respondents According to Classification of Respondents

Classification of Respondents	Frequency	Percentage	Rank
Public transportation driver	31	12.4%	3
Worker	123	49%	1
Student	97	38.6	2
Total	251	100%	

The data presented in the table 7 shows the classification of respondents whether they are public transportation driver, worker or student. According to the data analysis, the worker group with a frequency of 123 people, representing 49% of the total respondents ranked first. The second largest group consists of students, with a frequency of 97, representing 38.6% of the total respondents. The third and smallest group consists of public transportation drivers, with a frequency of 31, representing 12.4% of the total respondents. The data gathered shows that majority of the respondents are worker.

Table.8. Physical Characteristics as a Cause of Traffic

No.	Statement	WM	VD
1	Faded paintings of warning signs	3.43	A
2	The amount of time of traffic light in Mabini Extension exceeds the recommended time for red light. (Recommended: 60-90 seconds)	3.42	A
3	Lack of traffic equipment such as traffic lights.	3.26	MA
4	Absence of road markings.	3.79	A
5	Narrow road.	3.78	A
6	Lack of safety barriers.	3.53	A
7	Confusing road markings.	3.24	MA
8	Improperly located warning signs.	3.13	MA
9	Inappropriate placement of safety barriers.	3.02	MA
10	Lack of warning signs.	3.27	MA
	Total Average Weighted Mean	3.39	A

Table 8 presents the results of a survey regarding physical characteristics of the area. The table shows that the top three

issues identified by the respondents are the absence of road markings (statement 4), the narrow road (statement 5), and the lack of safety barriers (statement 6). Roadways should be monitored and governed by a system of warning and traffic signs that are in charge of disseminating driving regulations, upholding traffic management, and guiding motorists along roads and highways (Industry Today, 2020).

Statements 1 and 2 are also agreed upon, indicating that the faded paintings of warning signs and the amount of time of traffic light in Mabini Extension exceeds the recommended time for red light are issues that also need to be addressed. Statements 3, 7, 8, 9 and 10 have a moderate level of agreement, suggesting that while respondents acknowledge the lack of traffic equipment such as traffic lights, confusing road markings, improperly located warning signs, inappropriate placement of safety barriers, and lack of warning signs; these issues are not as pressing as the others. The overall average weighted mean score for all the statements is 3.39, which is categorized as "Agree". This means that the respondents generally agree that physical characteristics can be a factor in having traffic within the area.

Table.9. Control Measures as a Cause of Traffic

No.	Statement	WM	VD
1	Lack of mechanical control devices such as monitoring system.	3.30	MA
2	Ineffective mechanical control devices such as monitoring system.	3.36	MA
3	Poor traffic management when accidents occur.	3.52	A
4	Poor implementation of traffic rules.	3.58	A
5	Vehicles are unregistered but still allowed to use.	3.79	A
6	Stalls near the road that has no parking spaces.	3.92	A
7	Lack of traffic enforcers.	3.35	MA
8	Establishments occupy the road for their parking space as they do not have their own space for customer's vehicle.	3.94	A
9	Presence of heavy vehicles in the road.	3.50	A
10	Uncontrollable number of vehicles in the city.	4.22	SA
	Total Average Weighted Mean	3.65	A

Table 9 presents data on the control measures. Based on the data analysis, the top one problem cited by respondents are uncontrollable number of vehicles in the city (statement 10) with a weighted mean of 4.22 and a verbal description of strongly agree. It is followed by establishments occupy the road for their parking space as they do not have their own space for customer’s vehicle (statement 8) and stalls near the road that has no parking spaces (statement 6). Everyone understands that traffic congestion is produced by a large number of vehicles sharing the same sections of road, resulting in saturation and slow movement (BusinessMirror Editorial, 2016). This agrees with the uncontrollable number of vehicles being the first one as the cause of traffic.

Statements 3, 4, 5, and 9 are also agreed, showing that concerns regarding poor traffic management when accidents occur, poor implementation of traffic rules, vehicles are unregistered but still allowed, and presence of heavy vehicles in the road to use are issues that also required to be addressed. Statements 1, 2, and 7 on the other hand are all somewhat agreed upon, implying that lack of mechanical control devices such as monitoring system, ineffective mechanical control devices such as monitoring system, and lack of traffic enforcers are problems that are less serious than the others. Overall, the total weighted mean for all statements is 3.65, indicating that the respondents' perception of the control measures related to traffic management in the area as a cause of traffic is generally agreeable.

Table.10. Human Elements as a Cause of Traffic

No.	Statement	WM	VD
1	Drivers who are not discipline on the road.	4.12	A
2	Drivers who are not aware of traffic signs.	3.76	MA
3	Traffic enforcers cannot handle the situation when there’s an accident, such as panicking.	3.19	MA
4	Inefficient traffic enforcers.	3.08	A
5	Drivers that maneuver slowly.	3.48	A
6	Drivers that park on the roadside.	4.07	A
7	Unknowledgeable drivers.	3.87	A
8	Pedestrians who are not following the proper pedestrian crossing.	3.87	A
9	A lot of students and workers in the area.	4.18	A

10	Traffic enforcers focus more on violators instead of fixing the flow of traffic.	3.43	A
Total Average Weighted Mean		3.71	A

According to the data gathered, the top three concerns cited by the respondents are statement number 9, which states that there are a lot of students and workers in the area. It is followed by statement 1 which indicates that there are drivers who are not discipline on the road. Then, by statement 6 that says drivers park on the roadside. Urban population increase will put more strain on public transportation systems (Intelligent Transport, 2021).

The respondents also agree with statements 2, 5, 7, 8, and 10. It shows that drivers who are not aware of traffic signs, drivers that maneuver slowly, unknowledgeable drivers, pedestrians who are not following the proper pedestrian crossing, and traffic enforcers focus more on violators instead of fixing the flow of traffic are issues that should also be addressed. Statements 3 and 4 are both moderately agreed upon by the respondents. It illustrates that though traffic enforcers cannot handle the situation when there’s an accident, such as panicking and there are inefficient traffic enforcers, there are not that concerning compare to other statements. In other words, the respondents believe that there are human elements that contribute to traffic problems.

Table.11. Maintenance as a Cause of Traffic

No.	Statement	WM	VD
1	Debris on the road caused by trucks transporting soil or rocks.	3.17	MA
2	Unfinished road pavement concreting.	3.12	MA
3	There is a damaged portion of the traffic way.	3.22	MA
4	Unrepaired diggings/canals on the side of the road.	3.22	MA
5	The road is frequently flooded as a result of an unrepaired drainage system.	3.46	A
6	Waste that litters on the road.	3.19	MA
7	Wiped off pedestrian lanes.	3.90	A
8	The cracked or uneven road pavements.	3.33	MA

9	Warning signs are damaged and not repaired.	3.29	MA
10	Road signs are damaged and not repaired.	3.17	MA
Total Average Weighted Mean		3.31	MA

The findings of a survey on the maintenance road conditions are shown in Table 11. The top concerns cited by the respondents are wiped off pedestrian lanes (statement 7) and the road is frequently flooded as a result of an unrepaired drainage system (statement 5) which both falls under the “Agree” category. They are followed by statement 8 that indicates that there are cracked or uneven road pavements which categorized as “Moderately Agree”. The wiped off pedestrian lanes can be very dangerous for both pedestrians and drivers. Pedestrian crossings are places designated for foot traffic that are meant to improve pedestrian safety while also facilitating vehicular traffic flow. They are critical in preserving street order and protecting both drivers and pedestrians on the road (Road Traffic Signs, 2023).

The data shows that debris on the road caused by trucks transporting soil or rocks (statement 1), unfinished road pavement concreting (statement 2), there is a damaged portion of the traffic way (statement 3), unrepaired diggings/canals on the side of the road (statement 4), waste that litters on the road (statement 6), warning signs are damaged and not repaired (statement 9), and road signs are damaged and not repaired (statement 10) all falls under the “Moderately Agree” category. All in all, the total average weighted mean of the maintenance is 3.31 that also fall under “Moderately Agree”. This indicates that respondents believe that maintenance of the area do not cause traffic as much as the other factors

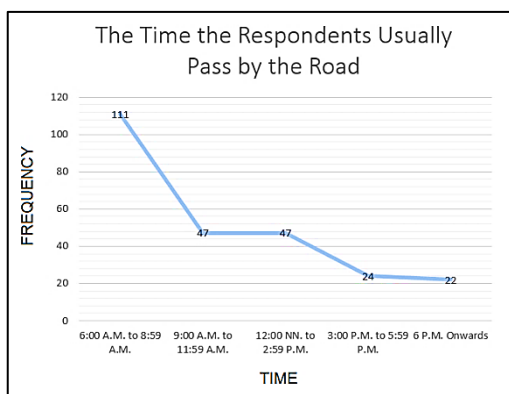


Fig.1. The Time the Respondents Usually Pass by the Road

Figure 1 shows the frequency distribution of the times at which respondents usually pass by the Mabini Extension Road in Cabanatuan City. Of the 251 respondents, the majority (111 or 44.2%) indicated that they usually pass by the road between 6:00 A.M. to 8:59 A.M. The next responses were 9:00 A.M. to 11:59 A.M. and 12:00 NN. To 2:59 P.M., with each receiving 47 responses or 18.7%. Next, 24 people of the total respondents chose 3:00 P.M. to 5:59 P.M. as the time that they usually pass by the area. Finally, 22 people or of 8.8% of the total number of respondents usually passed by the area 6 P.M. onwards.

The data suggests that the peak traffic hours on Mabini Extension Road in Cabanatuan City are between 6:00 A.M. to 8:59 A.M. This information could be useful for transportation planners and traffic management officials in designing solutions to reduce congestion during these peak hours. Additionally, the data suggests that there is still significant traffic during the late afternoon and early evening hours, indicating a potential need for further investigation and planning to alleviate traffic during these times.

Table.12. The Number of Times the Respondents Usually Pass by the Road

Choices	Frequency	Percentage	Rank
1-2 times	80	31.9%	2
3-4 times	81	32.3%	1
5-6 times	38	15.1%	3
6-7 times	15	6%	5
9 or more times	37	14.7%	4
Total	251	100	

According to the survey, the respondents pass by the road in Mabini Extension in Cabanatuan City for different number of times in a day. Majority of the respondents (32.3%) pass by the road 3-4 times a day, while 31.9% pass by 1-2 times a day. On the other hand, 14.7% pass by the road 9 or more times a day, while 15.1% pass by 5-6 times a day. The least common frequency was passing by 6-7 times a day, which was indicated by 6% of the respondents. The data shows that the majority of respondents make 3-4 trips in Mabini Extension, Cabanatuan City per day.

Table.13. The Time the Respondents Travel from WUP (Main Gate) to the Intersection

Choices	Frequency	Percentage	Rank
1 to 5 minutes	44	17.5%	4
6 to 10 minutes	64	25.5%	2
11 to 15 minutes	83	33.1%	1

16 to 20 minutes	47	18.7%	3
21 to 30 minutes	13	5.2%	5
Total	251	100	

Based on the analysis of data, the most common travel time the respondents take from Wesleyan University-Philippines (Main gate) to the intersection of Mabini Extension when traffic occur was between 11 to 15 minutes, with 83 people (33.1%). The next most common time interval was between 6 to 10 minutes, with 64 people (25.5%). With 47 people (18.7%), 16 to 20 minutes follow. Then, 44 respondents (17.5%) reported that they take 1 to 5 minutes to travel from the area. Finally, the least common travel time was between 21 to 30 minutes, with only 13 people or 5.18% of the total respondents falling in this category.

Table.14. The Number Times the Respondents Change Route

Choices	Frequency	Percentage	Rank
1-2 times	124	49.4%	1
3-4 times	67	26.7%	2
5-6 times	25	10%	4
6-7 times	9	3.6%	5
9 or more times	26	10.4%	3
Total	251	100	

Based on the data gathered, the most common response is 1-2 times, with 124 respondents indicating that they change their route this many times to avoid traffic in Mabini Extension, Cabanatuan City, giving it a rank of 1. The second most common response is 3-4 times, with 67 respondents, giving it a rank of 2. 9 or more times were the response for 26 respondents, giving it a rank of 3. The response of 5-6 times was selected by 25 respondents, giving it a rank of 4, while only 9 respondents indicated that they change their route 6-7 times in a day, giving it the lowest rank of 5.

Overall, the data indicates that the majority of respondents change their route 1-2 times to avoid traffic in Mabini Extension, Cabanatuan City. This information could be useful for transportation planners and traffic management officials in understanding the extent to which drivers are willing to change their routes to avoid traffic and in planning for future transportation solutions to reduce congestion on this road.

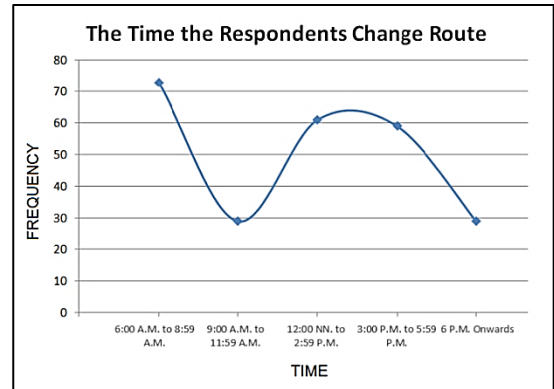


Fig.2. The Time the Respondents Change Route

According to the data provided on figure 2, out of the 251 respondents, the majority (73 or 29.1%) indicated that they change route between 6:00 A.M. to 8:59 A.M. to avoid traffic. The next time interval chosen was between 12:00 NN. to 2:59 P.M., with 61 people or 24.3% of the total respondents. In the late afternoon and early evening hours, between 3:00 P.M. to 5:59 P.M., 59 people or 23.51% of the total respondents reported changing their route to avoid traffic. Lastly, 9:00 A.M. to 11:59 A.M. and 6 P.M. onwards, with each receiving 29 responses or 11.6%. As the data shows, we can see that the majority of the respondents (29.1%) reported changing their route during the morning, highlighting the importance of avoiding peak traffic times in Mabini Extension, Cabanatuan City.

Table.15. Possible Routes without Passing Mabini Extension

Choices	Frequency	Percentage	Rank
Aduas	12	4.8%	7
Caridad	70	27.9%	1
Mabini	26	10.4%	5
Maharlika Hi-Way	16	6.4%	6
Magsaysay Norte	37	14.7%	2
Mayapyap	5	2%	8
Vergara Hi-Way (By Pass To San Isidro, C.C.)	31	12.4%	3
Vergara Hi-Way (By Pass To Sta. Rosa)	27	10.8%	4
Villa Ofelia	27	10.8%	4
Total	251	100	

Table 15 presents the frequency, percentage, and rank of the possible routes that are more accessible and efficient to road users to lessen the traffic in the area without passing through Mabini Extension. Based on the data, the most accessible and efficient route is Caridad, with a frequency of 70 or 27.9% of the total responses. The second most popular route is Magsaysay Norte, with a frequency of 37 or 14.7%. This is followed by Vergara Hi-way (by pass to San Isidro, C.C.) with frequencies of 31 or 12.4%, and Vergara Hi-Way (By Pass to Sta. Rosa) and Villa Ofelia, with frequencies of 27 or 10.8% each. Meanwhile, Mabini and Maharlika Hi-way have frequencies of 26 and 16 or 10.4% and 6.4%, respectively, suggesting that these routes are also being used by some road users but not as frequently as the top routes. On the other hand, the least preferred routes are Mayapyap and Aduas, with frequencies of 5 and 12 or 21.99% and 4.8%, respectively. The data gathered showed that Caridad is the best possible route to use when avoiding traffic in Mabini Extension, Cabanatuan City.

Table.16. Possible Routes when heading to Sta. Rosa

Choices	Frequency	Percentage	Rank
Aduas	5	2%	6
Caridad	17	6.8%	3
Mabini	18	7.2%	2
Maharlika Hi-Way	15	6%	4
Magsaysay Norte	10	4%	5
Mayapyap	1	0.4%	7
Vergara Hi-Way (By Pass To San Isidro, C.C.)	18	7.2%	2
Vergara Hi-Way (By Pass To Sta. Rosa)	166	66.1%	1
Villa Ofelia	1	0.4%	7
Total	251	100	

Table 16 displays the results of a survey that asked respondents about their preferred route when heading to Sta. Rosa. The most commonly preferred route is the Vergara Highway (by-pass to Sta. Rosa), with 166 respondents, representing 66.1% of the total number of respondents. The second most popular route is a tie between Mabini and Vergara Highway (by-pass to San Isidro, C.C.), with each route selected by 18 respondents (7.2%). Following these two options, Caridad was the third most popular route with 17 respondents (6.8%). Maharlika Hi-Way came in at fourth place with 15 respondents (6%). Next, Magsaysay Norte was chosen by 10 respondents (4%). Then, Aduas was chosen by 5 people or 2% of the total respondents.

Finally, only one respondent selected Mayapyap and Villa Ofelia representing 0.40% of the total respondents. The data illustrates that the majority of respondents preferred to take the Vergara Hi-Way (by-pass to Sta. Rosa) when heading to Sta. Rosa, while other routes received much lower percentages of responses.

Table.17. Possible Routes when heading to Talavera

Choices	Frequency	Percentage	Rank
Aduas	14	5.6%	6
Caridad	8	3.2%	8
Mabini	40	15.9%	3
Maharlika Hi-Way	54	21.5%	2
Magsaysay Norte	27	10.8%	5
Mayapyap	61	24.3%	1
Vergara Hi-Way (By Pass To San Isidro, C.C.)	34	13.5%	4
Vergara Hi-Way (By Pass To Sta. Rosa)	11	4.4%	7
Villa Ofelia	2	0.8%	9
Total	251	100	

Table 17 presents the results of a survey on the preferred route of people who are heading to the road of Talavera from Mabini Extension. The most popular route chosen by the respondents is Mayapyap, which was selected by 61 respondents, representing 24.3% of the total. The second most chosen route is Maharlika Hi-way with 54 respondents or 21.5% of the total. Mabini is the third most popular route with 40 respondents or 15.9% of the total. The other routes and their respective frequencies and percentages are as follows: Vergara Hi-way (by pass to San Isidro, C.C.) with 34 respondents or 13.5% of the total, Magsaysay Norte with 27 respondents or 10.8% of the total, Aduas with 14 respondents or 5.6% of the total, Vergara Hi-way (by pass to Sta. Rosa) with 11 respondents or 4.4% of the total and Caridad with 8 respondents or 3.2% of the total. The least popular route, with only two respondents or 0.8% of the total is Villa Ofelia. The survey revealed that the most preferred route of people who are heading to the road of Talavera from Mabini Extension is Mayapyap.

Table.18. Possible Routes when heading to Sta. Rosa

Choices	Frequency	Percentage	Rank
Aduas	5	2%	8
Caridad	7	2.8%	6
Mabini	26	10.4%	4

Maharlika Hi-Way	28	11.2%	3
Magsaysay Norte	40	15.9%	2
Mayapyap	6	2.4%	7
Vergara Hi-Way (By Pass To San Isidro, C.C.)	122	48.6%	1
Vergara Hi-Way (By Pass To Sta. Rosa)	15	6%	5
Villa Ofelia	2	0.8%	9
Total	251	100	

Table 18 shows the results of a survey on the preferred route of people who are heading to the road of Palayan from Mabini Extension. Based on the data analysis, the most popular route chosen by the respondents is Vergara Hi-way (by pass to San Isidro, C.C.), which was selected by 122 respondents, representing 48.6% of the total. The second most chosen route is Magsaysay Norte with 40 respondents or 15.9% of the total. Maharlika Hi-way is the third most popular route with 28 respondents or 11.2% of the total. The other routes and their respective frequencies and percentages are as follows: Mabini with 26 respondents or 10.4% of the total, Vergara Hi-way (by pass to Sta. Rosa) with 15 respondents or 6% of the total, Caridad with seven respondents or 2.8% of the total, Mayapyap with 6 respondents or 2.4% of the total, and Aduas with 5 respondents or 2% of the total. The least popular route, with only two respondents or 0.8% of the total is Villa Ofelia. The survey revealed that the most preferred route of people who are heading to the road of Palayan from Mabini Extension is Vergara Hi-way (by pass to San Isidro, C.C.).

Table.19. Possible Routes when heading to Maharlika Hi-Way

Choices	Frequency	Percentage	Rank
Aduas	9	3.6%	7
Caridad	40	15.9%	3
Mabini	68	27.1%	1
Maharlika Hi-Way	48	19.1%	2
Magsaysay Norte	24	9.6%	4
Mayapyap	4	1.6%	8
Vergara Hi-Way (By Pass To San Isidro, C.C.)	20	8%	5
Vergara Hi-Way (By Pass To Sta. Rosa)	24	9.6%	4
Villa Ofelia	14	5.6%	6
Total	251	100	

Table 19 shows the results of a survey on the preferred route of people who are heading to the road of Maharlika Hi-Way from Mabini Extension. Based on the results, the most popular route chosen by the respondents is Mabini, which was selected by 68 respondents, representing 27.1% of the total. The second most chosen route is Maharlika Hi-way with 48 respondents or 19.1% of the total. Caridad is the third most popular route with 40 respondents or 15.9% of the total. The other routes and their respective frequencies and percentages are as follows: Magsaysay Norte and Vergara Hi-way (by pass to Sta. Rosa) with 24 respondents or 9.6% of the total, Vergara Hi-way (by pass to San Isidro, C.C.) with 20 respondents or 8% of the total, Villa Ofelia with 14 respondents or 5.6% of the total, Aduas with 9 respondents or 3.6% of the total, and Mayapyap with 4 respondents or 1.6% of the total. The survey shows that the most preferred route of people who are heading to the road of Maharlika Hi-Way from Mabini Extension is Mabini

V. CONCLUSION

Majority of the respondents from Mabini Extension, Cabanatuan City, is of age 20-24, male, high school graduate or lower, single on their relationship status, not a resident of Mabini Extension, Cabanatuan City, and workers in the area. The factors affecting traffic in Mabini Extension, Cabanatuan City in terms of human elements, control measures, physical characteristics and maintenance are agreed by the respondents to be the cause of traffic, which indicated that there is a reasonable and observable factor that affects traffic in Mabini Extension, Cabanatuan City. The significant elements in reducing traffic in Mabini Extension, Cabanatuan City based on travel demand history is that respondents are passing through Mabini Extension at 6:00 A.M. to 8:59 A.M., with 3 to 4 trips a day, 11 to 15 minutes time interval from front of Wesleyan University-Philippines (Main gate) to intersection of Mabini Extension, and changes their route 1 to 2 times per day to avoid traffic in the area between 6:00 A.M. to 8:59 A.M. In connection to alternative route, the most accessible and efficient route to avoid traffic in Mabini Extension is passing through Caridad. Meanwhile, respondents usually took road of Vergara Hi-Way (By pass to Sta. Rosa) if they are going to Sta. Rosa. Thus, they are passing through Mayapyap if they are going to Talavera, Nueva Ecija. Moreover, they usually took the road of Vergara Hi-Way (By pass to San Isidro) if they are going to Palayan City. And lastly, they are passing through Mabini Extension if they are heading to Maharlika Hi-Way.

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