The Effects of Tall Buildings in the Management of Transport System in the Central Business District of Urdaneta City

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Abstract: This study was conducted to assess the effects of tall buildings in urban traffic management. It is also intended to determine what particular type of tall buildings within the CBD generates extensive activities contributing to traffic congestion. The existing traffic conditions and schemes were also considered in the assessment to see whether the existing traffic management system is effective to meet the demands generated from tall buildings. The study made use of gathered descriptive survey research data and information from past and current studies as reference.

Key Words: tall buildings, urban management, traffic management

1. BACKGROUND OF THE STUDY

The City of Urdaneta, earned its name as the “Bagsakan (trading post)” City of Pangasinan because it serves as a drop-off point of the various fruits and vegetables coming from the different municipalities in Pangasinan and nearby provinces. The City, is strategically located in the central eastern part of Pangasinan, which is transverse by the Manila North Road, virtually bisecting the locality into the west and east side. It is bounded in the north by the Municipality of Binalonan, south by the Municipality of Villasis, east by the Municipality of Asingan and west by the Municipality of Sta. Barbara. It is the gateway to Baguio City and Northern Luzon provinces, and to central and western Pangasinan.
Urdaneta City became a city through Republic Act 8480, otherwise known as “An Act Converting the Municipality of Urdaneta, Province of Pangasinan into a Component City to be known as the City of Urdaneta City on March 21, 1998.” Its conversion into a city has made a rapid transformation in making the city as an urban growth center and dynamic investment hub in central eastern Pangasinan. Traders and businessmen come to Urdaneta because of its undeniably good environment for business and peaceful community.

Travelers could easily reach the place through land transportation. The city is approximately 186 km from Metro Manila, 70 km from Baguio City and 40 km from Lingayen, the provincial capital of Pangasinan.

1.1 Demography
Based from the 2000 Census of Population and Housing, Urdaneta City recorded a population of 111,582, 50.2 percent of which were women. It had a relatively young population wherein about 45.1 percent were aged 19 years old and below. The City is composed of about 22,908 households with an average household size of 4.9. it had a population density of 1,113 persons per square kilometers. Ilocano was the predominant ethnicity in Urdaneta City as they comprised 87.1 percent of the total household population in 2000. Descendants of other ethnic groups such as Tagalog, Pangasinan/Pangalatok, Maranao, Kankanaey, Bisayan and Kapampangan also migrated in the City. Panggalatok and Ilokano are the city’s local dialect with Tagalog and English as the second language.

About 86.9 percent of the people in Urdaneta City are Roman Catholic based from the 2000 Census of Population. Other religious groups in the City include Iglesia ni Cristo (3.8 percent), Evangelicals (2.8 percent) and Aglipayan (1.5 percent).

1.2 Socio-economic Activities
Data from the Commission on Audit showed that the local revenue collection for the Urdaneta City steadily increased from 2004 to 2006. In 2006, nearly 100.0 percent of the City’s other income came from its Internal Revenue Allotment. Business income, the 2nd top contributor to the City’s income with a 33.9 percent share, were sourced from incomes from markets, slaughterhouses, landing and parking fees and tuition fees from the Urdaneta City Colleges. The city’s total income increased by 10.6 percent, largely due the 20.0 percent increase by other incomes.

Meanwhile, the City’s expenses were prudent, thus, contributing to a higher net income. Urdaneta City has a total land area of approximately 100.3 sq km, which represents 1.8 percent of the total land area of Pangasinan, divided among 34 barangays. Most of the barangays in the city are rural areas. With the flat terrain of the city, agriculture is the major source of income and livelihood of the people in Urdaneta City.
In 2006, the city had 4,512 registered establishments in the Office of the Mayor; most of them were large department and variety stores, business and professional offices and hotels/inns. There are also food chains and offices of multinational companies in the city. Currently, the city has four malls situated in the city proper.
1.3 Facilities
Urdaneta City has many established educational institutions. Of the 65 elementary schools, 42 were government and 23 were private. In the secondary level, of the 32 schools, 19 were government and 13 were private. For tertiary education, there were one state university (Pangasinan State University), one city university (Urdaneta City University) and nine private colleges. The City also had 10 private technical-vocational schools.

Aside from the regular schools, the City’s pre-school was also served by 49 Day Care Centers (DCCs) in 2006 with 49 Day Care Workers (DCWs) for the said year, the DCCs served 1,456 Day Care Children.

The city also has a cultural center, different government agency offices and branches, a public market and three Commercial mall and the cattle market.

Transport systems that ply within the city include the tricycles that service from and to the different barangays to the city proper. Aside from private vehicles, Public Utility Jeeps and Vans are present within the city transporting workers, students and the public from different neighboring towns to the city. Public Utility Busses also ply and passed by the National highway.

1.4 Rationale
Urban transport is considered the basis and prerequisite for urban development, an indispensable social facility for urban production and people’s living, and a basic infrastructure for urban investment and living environment. Urban transport, as the artery of cities, plays a role in promoting economic development and facilitating mobility (Jie, 1995). Moreover, Urban Transport is a key area of infrastructure investment, construction and management. It is closely linked with development of an urban economy and a national economy. By itself, it is also a precondition for development of a national economy and an urban economy (Liqun, 1995).

With growth of urbanization, urban transport is desired by every member of a society and it is only a derivative of other demands. Transports in its own right are not a final product for consumption but primarily a means to link the consumers, and producers of goods and services together (Yong, et al, 1995). The development of a socialist market economy needs a healthy and well-developed urban transport system to connect socialized production and circulation, and to establish an integrated open market. The underdevelopment of urban transport has adversely affected the establishment of a socialist market-economy system (Jie, 1995)

It is a common feature in an urban center the presence of tall buildings that houses commercial establishments, recreational facilities, educational institutions, health services and many others. The presence of these tall buildings however poses a problem as to the mobility of the members of the society in going to and from to their destination within the urban center. The traffic situation in this center where most tall buildings are constructed in worse than ever as the mushrooming of population in urban area is unabated. Likewise, the presence of business establishments attracts business oriented individuals that frequent the area using their private cars or using public transport. These further worsen the situation in the area if public or private terminals for vehicles are not in place.
In Urdaneta City, a developing city in the eastern part of Pangasinan is facing the traffic problem considering the presence of tall buildings in the central business district (CBD). Hence, the need to know how the transportation system is managed for efficient mobility of urban transporters/commuters.

![Fig 1.1 Map of Urdaneta City](image)

2. **OBJECTIVE OF THE STUDY**

This paper aims to describe the urban management problems of the City of Urdaneta of their Transportation System. Specifically, it aims to:

- **2.1** Characterize the tall buildings in the central business district (CBD) in terms of the following:
  a. identify the tall buildings present in the site.
  b. identify the different prevailing type of buildings or occupancies
- **2.2** Evaluate the transport flow in the city as to:
  a. the presence of motorized (public or private)
  b. movement of pedestrian
- **2.3** Identify the management of the city’s transport system
3. METHODOLOGY AND SCOPE AND LIMITATIONS

This paper will conduct research methods to gather data and information from past and current studies, on-site investigation and survey of the urban traffic conditions.

This paper will limit its scope on the following:
- 3.1 The current traffic congestion problem within the CBD
- 3.2 Assessing current and possible mitigation schemes made by the local government of Urdaneta to decongest traffic points.

4. SIGNIFICANCE OF THE STUDY

The significance of this paper is to identify, assess, and manage areas in the CBD that contributes to the traffic congestion in the city. This study will assess the transport system and conditions, its management, the current status of traffic patterns to be identified, areas affected by the urban traffic problems, factors and deficiencies of the management. The study shall provide possible solutions and recommendations to decongest the CBD, introduce re-routing schemes where needed as well as alternative solutions to address the transport management in the central business district of Urdaneta.

5. FRAMEWORK OF THE STUDY

This study desires to investigate and further assess the effects of tall buildings as a contributing factor of urban management problems, specifically traffic congestion affecting both motorized and non-motorized movements. Urban management strategies are now to be injected and studied within the vicinity on how the problems of congestion can be mitigated and controlled on the traffic flow movements.

![Figure 5.1 General Framework](image)
6. REVIEW OF RELATED LITERATURE

It is a common feature in an urban center the presence of tall buildings that houses commercial establishments, recreational facilities, educational institutions, health services and many others. The presence of these tall buildings however poses a problem as to the mobility of the members of the society in going to and from to their destination within the urban center. The traffic situation in this center where most tall buildings are constructed in worse than ever as the mushrooming of population in urban area is unabated. Likewise, the presence of business establishments attracts business oriented individuals that frequent the area using their private cars or using public transport. These further worsen the situation in the area if public or private terminals for vehicles are not in place.

Urbanization in the Philippines is one of the fastest in the region, as the Philippine economy continues towards service and industrial orientation and away from rural agriculture. Likewise, rapid urbanization led to uncontrolled developments, which contribute to the deterioration of urban environment. Among this is the increasing traffic congestion due to improper planning and inefficient traffic management. Pressure is therefore mounting for Philippine local cities to address urban service requirements including transportation, thus the capacity of local government units to deal with these issues is a critical element in the promotion of sustainable urban development. (Espada, et.al)

The rapid urbanisation process, high vehicular population growth and that of the mobility, inadequate transportation facilities and policies, varied traffic mix with over concentration of non-motorised vehicles, absence of dependable public transport system and inadequate traffic management practices and parking facilities have created a significant worsening of traffic and environmental problems in the major urban centres of Bangladesh. Key transport issues and possible solution strategies encompassing various opportunities and interventions for alleviating such problems are discussed with particular reference to both existing and future context with emphasis on wider application of traffic management measures. (Hoque et.al)

6.1 Past studies on traffic management

A text graph is shown in Fig. 6.1 to summarize some of the past studies from 1995, 1999 and 2004. The earlier studies have identified that urban transport is a key to the development of the urban economy, as a linkage to the consumers and producers of goods and other but the underdevelopment of urban has adversely affected the establishment of a socialist market-economy system. Transports in its own right are not a final product for consumption but primarily a means to link the consumers, and producers of goods and services together.

In 1999, a study made by Manongsong Sr. (1999), Urdaneta City, a developing city in the eastern part of Pangasinan is facing the traffic problem considering the presence of tall buildings in the central business district (CBD). Hence, the need to know how the transportation system is managed for efficient mobility of urban transporters/commuters.

In the assessment of traffic management problems, also the striking urban transport problem characteristics and the factors inhibiting mobility and the development of a safe and sustainable transportation system with particular reference to the situation in Dhaka.
Strategies encompassing various opportunities and interventions for alleviating such problems are discussed with particular reference to both existing and future context.

7. DATA AND RESULTS

7.1 Tall Buildings in the CBD

Some of the tall buildings within the central business district were identified according to the number of floors (Fig. 7.1.1). These buildings have an average number of floors ranging from 2 to 4-storey structure with most of them have extensive use type of activities. Located in the center is the public market and Magic mall that attract and generate traffic congestion on the area bounded by streets of Alexander (north), Aruego (south), Belmonte (east) which literally, is the main circulation of traffic of both pedestrians and vehicles. These streets experience extensive activities and massive flow of traffic during peak hours. Establishments along the national highway specifically on the CB Mall and new 168 Mall located on the corner of Alexander St. and National Road also attract large number of shoppers therefore...
causing some congestion points (Fig. 7.1.4). The church also located near the vicinity of the CBD also contributes to the build-up of traffic along Aruego St. (Fig. 7.1.7).

Source: Google Earth 2010

Figure 7.1.1. Google earth image showing the tall buildings in the CBD

Figure 7.1.2. Urdaneta Public Market

Figure 7.1.3. Magic Mall along Alexander St.
7.2. The CBD Road System

Since some tall buildings exist on the central business district, the road systems serve the purpose according to its hierarchy. The CBD is bounded by the National Highway on the east, Alexander Street on the north and going to the west are those barangay roads emanating from the highway on to where the tall buildings identified are located. The above mentioned streets are characterized as busy, for they are the main access of pedestrians and vehicles going in and out of the city center. Alexander St. is next to the national highway in terms of its width, served as an ingress and egress points of Urdaneta City to the other municipalities of Pangasinan.
The intersection between the Mc Arthur Highway and Alexander Street in Fig 7.2.2 shows a choke point especially during rush hours. The congestion which occurs on the said intersection greatly affects the flow of traffic stretching throughout the length of Alexander Street. The presence of commercial strip developments and tall buildings, considered as trip generators, along Alexander Street contributes to the congestion of traffic, hampering the efficient and smooth flow of pedestrian and vehicles.

Other roads like TMA Sison, Aruego and Belmonte Streets share the same traffic congestion problem with Alexander St. but the congestion is largely attributed to their lane widths, being barangay roads. Congestion usually occurs on these streets during peak hours, when the volume of vehicles traversing these streets is relatively high. Massive congestion also occurs due to improper loading and unloading of passengers.

Source: Google Earth 2010

Figure 7.2.1 Google earth image showing the road systems in the CBD
Figure 7.2.2 Showing 168 Mall along the National Highway

Figure 7.2.3 Alexander St, in front of Magic Mall going east

Figure 7.2.4 Alexander St. to Dagupan

Figure 7.2.5 Alexander St.

Figure 7.2.6 Alexander St. to Dagupan

Figure 7.2.7 TMA Sison Street
7.3 CLUP of Urdaneta City: Transportation

As part of the assessment that may lead to some of the recommendation of solutions, it is also important to consider and present the proposals and future programs of the City Government of Urdaneta to manage transportation problems. From the CLUP of the city, the following were listed:

**Goals**
- To ensure a road network and transportation system that is responsive to the development needs of the City
Objectives

• To develop a circulation network linking activity centers and agricultural areas
• To construct footbridges/hanging bridges in San Vicente, Caflorasan, Anonas and San Jose
• To further mitigate the vehicular traffic congestion in the Central Business District
• To position Urdaneta as a major stop-over point for public utility vehicles

7.4 Proposed Parking Layout Design
The lack of proper designated parking areas along the stretch of the Mc Arthur Highway where tall buildings and commercial establishments are located, is one of the causes of congestion. And for this, the local government will propose, as part of their urban management, parking areas to be built along the recently widened shoulders of the McArthur Highway (Fig 7.4.1) to help solve clogging.

![Proposed Parking Layout Design](image)

Source: CLUP of Urdaneta

7.4.1 Image of the Proposed Parking Layout Design

8. CONCLUSIONS
The traffic congestion problems of Urdaneta City’s CBD as stressed on this study can be attributed to the presence of tall buildings, in a way. This conclusion was based on assessments of traffic management data and information collected. The table below will discuss how tall buildings contribute to the traffic problem and how the problem is to be managed. Recommendations were also outlined to help mitigate the urban traffic problem. Further, it is also recommended that studies be conducted in the future to verify the effectiveness of the possible solutions to the urban problem.
Table 8.1 Assessment the study

<table>
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<tr>
<th>Objectives</th>
<th>Analysis</th>
<th>Conclusions</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td>Identify the tall buildings present in the site.</td>
<td>The tall buildings that were identified in the CBD are as follows: Public Market, 168 Mall, Magic Mall, CB Mall, Church which are strategically located along major road networks and routes.</td>
<td>The presence of these tall buildings (trip generators) combined with the extensive activities that takes place within them relatively contribute to the traffic congestion of the CBD.</td>
<td>Apply traffic management within the CBD such as re-routing schemes or one-way traffic schemes on high-density streets and on roads known to have high incidence of congestion.</td>
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<tr>
<td>Identify the different prevailing type of buildings or occupancies</td>
<td>The tall buildings identified within the CBD are mostly commercial and institutional in nature</td>
<td>The Magic Mall and Public Market were at the center and in front, is the Old City Hall. These buildings serve as a magnet to users.</td>
<td>Relocate some of these buildings to projected growth centers of the city. This will help decongest Urdaneta’s urban core.</td>
</tr>
<tr>
<td>Identify the management of the city’s transport system</td>
<td>The LGU is not blind not to know this major urban problem.</td>
<td>The local government included traffic management in their CLUP. Infrastructure development and formulation of various schemes will be initiated by the LGU to mitigate if not solve the traffic management problems of the city.</td>
<td>As shown in Fig 7.4.1, it is by far on that major road, that one of the best options to be considered by the LGU is an efficient parking system. Loading and unloading bays should be constructed at convenient intervals to keep traffic unobstructed. Maintain an efficient pedestrian circulation system.</td>
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REFERENCES


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CLUP of Urdaneta City (2006-2015)