An Assessment of Walkability in a Medium-Sized Philippine City

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Abstract: Over the last few years, Philippine cities have become more aware of sustainable transport and have sought to improve their transport systems towards achieving environment-friendly transport. Part of the initiatives in cities seeking to improve air quality and promote healthy lifestyles is the promotion of walking. This paper presents the application of a methodology developed by the Asian Development Bank to evaluate the walkability of cities. The methodology is applied to a medium-sized city in the Philippines. Olongapo City represents a typical medium-sized Philippine city that is experiencing rapid urbanization with economic development. Results show that Olongapo is at par if not slightly better than other Asian cities in terms of walkability. In conclusion, this paper discusses recommendations to improve the walking environment in Olongapo and similar-sized cities.

Keywords: Walkability, Sustainable Transport, Cities

1. INTRODUCTION

Walkability is the extent to which the built environment is “pedestrian-friendly.” This means that a walkable city is a city whose citizens have the option and preference to walk to their destinations safely, comfortably, and within acceptable levels of service. A walkability survey and assessment was conducted to assess the quality of the walking environment in a typical medium-sized city in the Philippines. The selected city is Olongapo City in the Province of Zambales, located to the northwest of Metro Manila. Olongapo City is a city with a population of 221,178 (as of May 1, 2010). It is adjacent to the former United States Naval Base that is now the Subic Freeport. Figure 1 shows the location of Olongapo City with reference to Metro Manila. Shown on the inset is the central business district of the city that is adjacent to Subic Freeport.

The objectives of this paper are the following:

- Examine the walkability of a medium-sized city in the Philippines using established methodology for assessment;
- Present survey methodology applied in the study;
- Compare walkability in Olongapo to that of other Asian cities; and
- Formulate recommendations specific to the city and generally applicable to similar-sized cities in the Philippines.

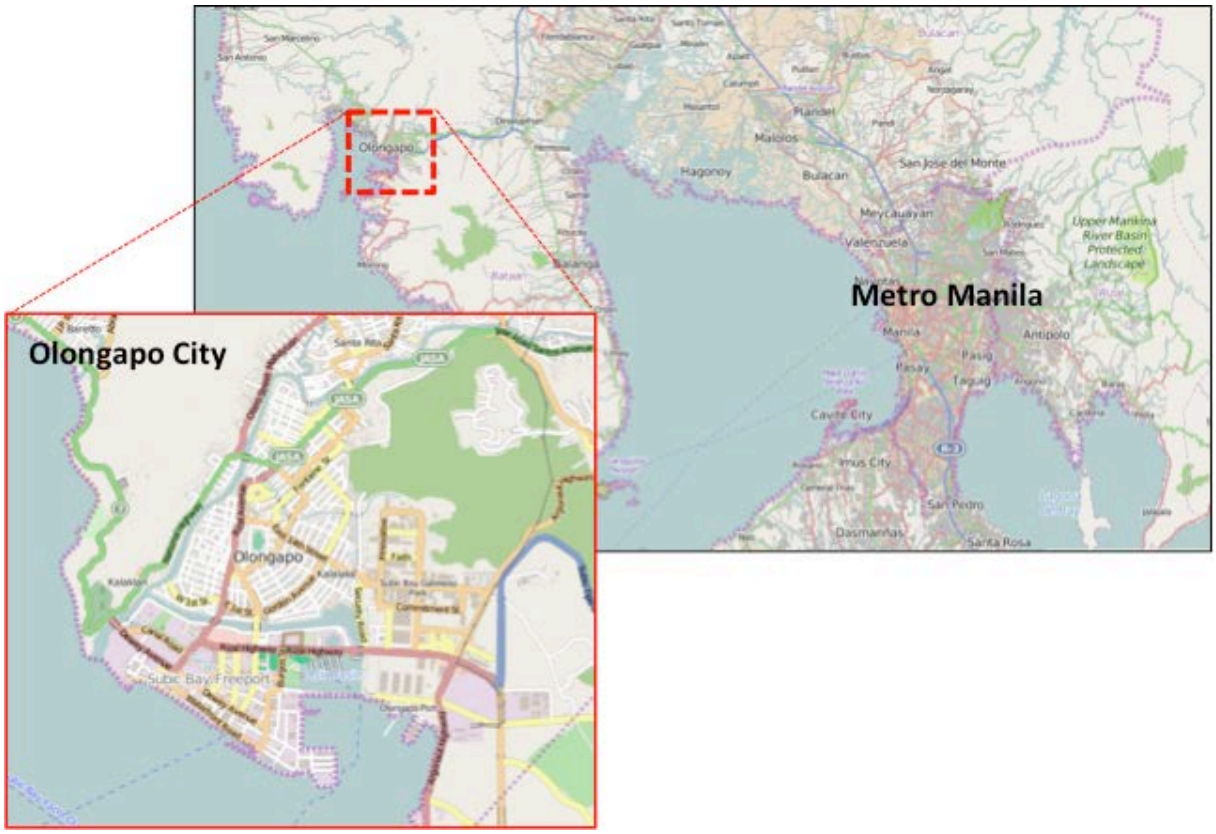

Figure 1. Location of Olongapo City

2. METHODOLOGY

The study team employed a procedure for determining the walkability index for Asian cities recommended by the Asian Development Bank (ADB) through the Clean Air Initiative for Asian Cities (CAI ASIA), which is now Clean Air Asia (CAA). The method is a modification of the World Bank-developed "Global Walkability Index" and involve the survey of field walkability parameters that are shown in Table 1. The output of the survey is a set of walkability scores for selected areas of various land use types in Olongapo city. These results are compared to the scores of other Asian cities that were surveyed and examined under the CAA study.

Ideally, a comprehensive walkability study incorporates findings from (1) pedestrian interviews, (2) stakeholder interviews (for national and local government agencies), and (3) field walkability survey. This study is limited only to the conduct of the field walkability survey. One goal of a walkability study is to benchmark the walkability score of a city with others, and to inform policy makers, development agencies and other stakeholders on the results to enable them to improve walkability. The scores obtained from field surveys will give indication of the condition of current pedestrian infrastructure and facilities so that actions for improvement could be proposed.

Table 1. Field Walkability Survey Parameters

#	Parameter	Description
1	Walking Path Modal Conflict	The extent of conflict between pedestrians and other modes on the road, such as bicycles, motorcycles and cars.
2	Availability of Walking Paths	The need, availability and condition of walking paths. This parameter is amended from the parameter “Maintenance and Cleanliness” in the Global Walkability Index.
3	Availability of Crossings	The availability and length of crossings to describe whether pedestrians tend to jaywalk when there are no crossings or when crossings are too far apart.
4	Grade Crossing Safety	The exposure to other modes when crossing roads, time spent waiting and crossing the street and the amount of time given to pedestrians to cross intersections with signals.
5	Motorist Behavior	The behavior of motorists towards pedestrians as an indication of the kind of pedestrian environment.
6	Amenities	The availability of pedestrian amenities, such as benches, street lights, public toilets, and trees, which greatly enhance the attractiveness and convenience of the pedestrian environment, and in turn the surrounding area.
7	Disability Infrastructure	The availability of, positioning of, and maintenance of infrastructure for the disabled.
8	Obstructions	The presence of permanent and temporary obstructions on pedestrian pathways. These ultimately affect the effective width of the pedestrian pathway and may cause inconvenience to pedestrians.
9	Security from Crime	The general feeling of security from crime on a certain stretch of road.

3. DATA COLLECTION

Field surveys were conducted in several areas in the city. These include areas that are dominantly residential, commercial or institutional in land use. The areas were selected in coordination with the Olongapo City Government’s City Planning and Development Office, which identified areas with high pedestrian activity. Figure 2 shows the maps of selected areas for the walkability surveys undertaken for this study. Indicated in the maps are the general land use characteristics of each area.

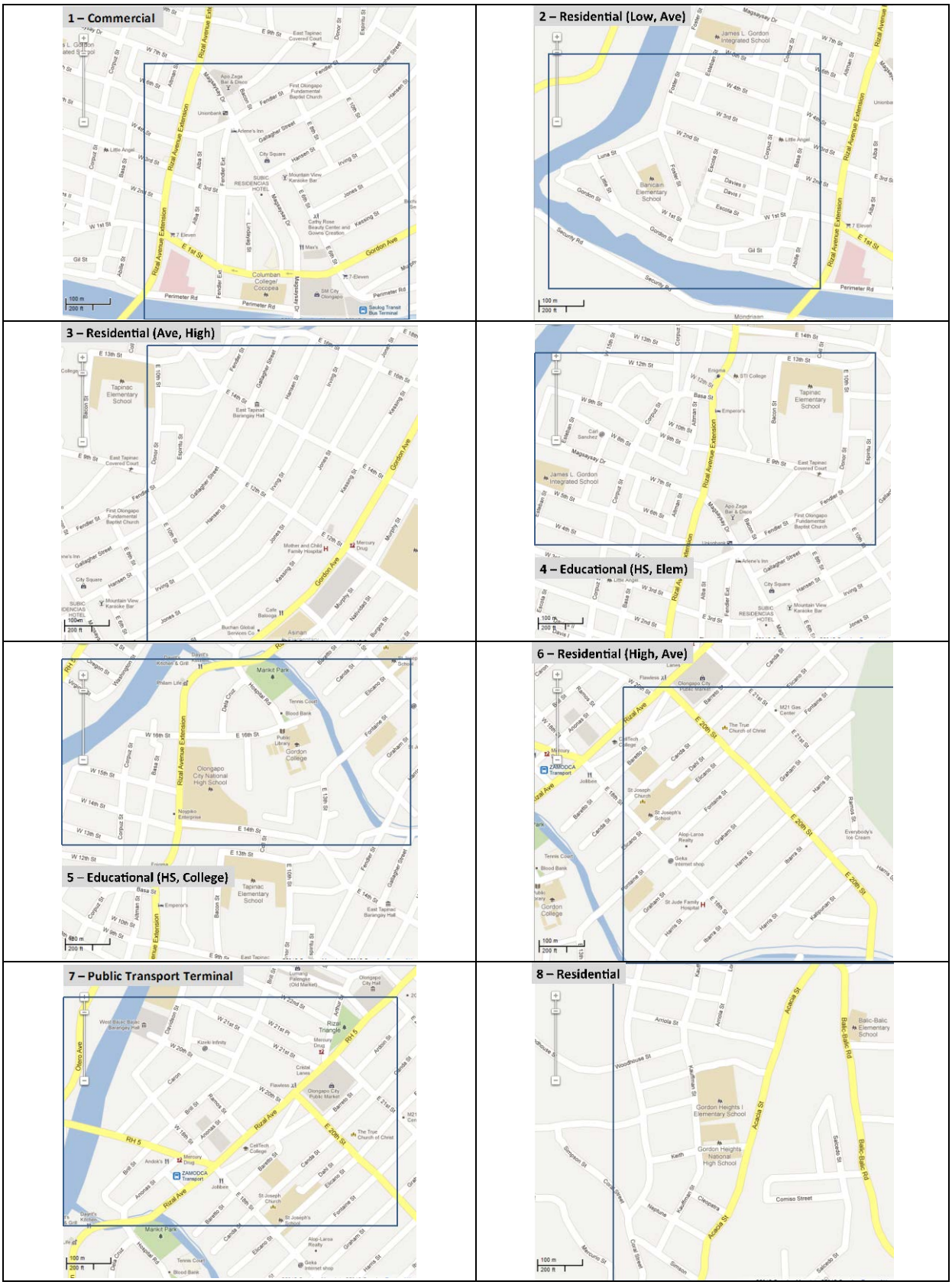

Figure 2. Maps of 8 Selected Areas for the Walkability Survey

Olongapo's overall walkability index is 56.32 out of a possible maximum score of 100. Figure 3 and Table 2 show overall scores for each assessment item and for each type of area. Figure 4 graphically shows the values in Table 2 using a web chart.

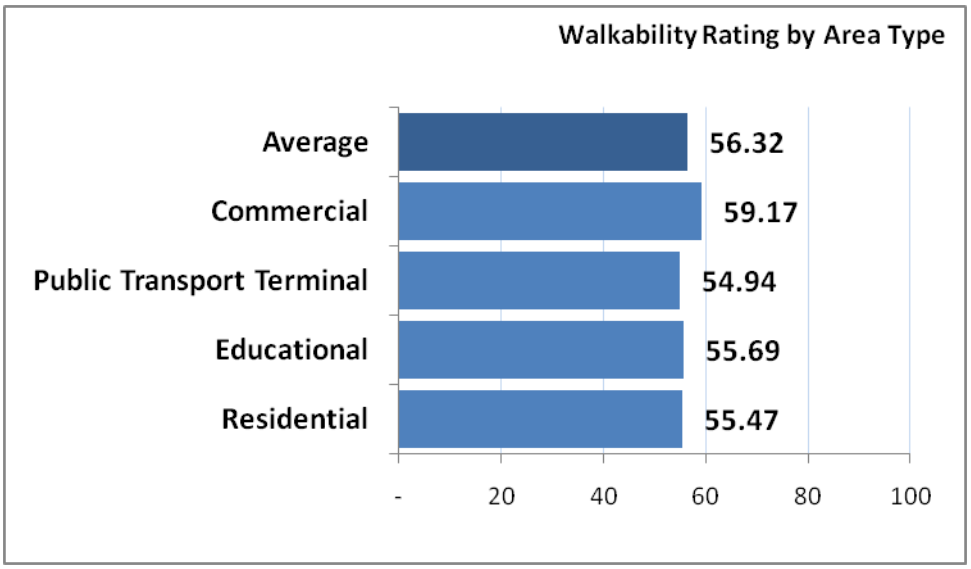

Figure 3. Overall Walkability Ratings for Olongapo City

Table 2. Walkability Scores of Olongapo City
(Scores - out of a maximum possible 100)

Criteria	Residential	Educational	Public Transport Terminal	Commercial	Average
1. Walking path modal conflict	58	63	56	64	60
2. Availability of walking paths	49	65	53	60	57
3. Availability of crossings	69	67	57	85	69
4. Grade crossing safety	68	65	57	58	62
5. Motorist behavior	73	63	68	60	66
6. Amenities	36	46	56	51	47
7. Disability infrastructure	23	23	46	35	32
8. Obstructions	55	56	44	58	53
9. Security from crime	69	53	59	63	61
Walkability Score	**55**	**56**	**55**	**59**	**56.32**

The commercial area scored slightly higher than the other three types. Among the assessment parameters, Olongapo city scored lowest in "Disability Infrastructure". The city also scored low in "Amenities", and "Obstructions". High scores were obtained in the "availability of crossings" and "motorist behavior".

Highest pedestrian counts were obtained in the public transport terminal area. Residential and commercial areas have moderately high pedestrian volumes as shown in Table 4.

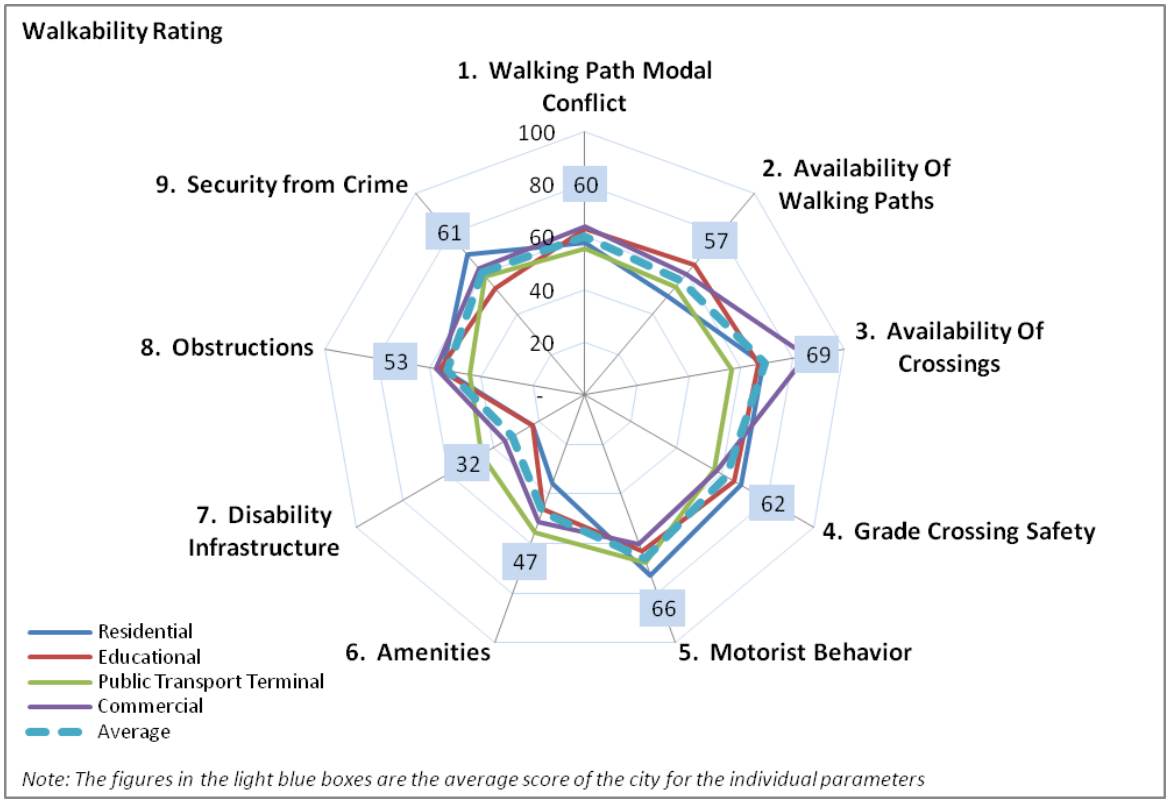

Figure 4. Web Chart of Walkability Parameters for Olongapo City

Table 4. Pedestrian Counts and Surveyed Lengths

	Pedestrian Count (15-min)	Length Surveyed (km)
Residential	1,808	14.56
Educational	757	3.15
Public Transport Terminal	4.037	2.46
Commercial	1,214	3.60

4. ASSESSMENT

An absolute value for the desired level of walkability score for a city has not been defined, but the scores could find more meaning if compared with walkability scores of other cities. The findings of the walkability study for Asian cities was conducted by ADB and CAA in 2011 are reflected in Table 5 and Table 6, vis-à-vis the scores for Olongapo City.

Table 5. Walkability scores for Olongapo City compared with 3 other cities in the Philippines

City	Commercial	PT Terminal	Educational	Residential	WALKABILTY SCORE (Average)
Olongapo City	59.17	54.94	55.69	55.47	56.32
Manila	78.52	49.44	53.89	- no data -	60.62
Davao City	69.07	59.63	58.89	51.11	59.68
Cebu City	68.18	57.04	64.44	46.53	59.05

Table 6. Average Rating by Parameter for the 13 Asian Cities compared with Olongapo City

Parameter	Other Asian Cities	Olongapo City
1. Walking path modal conflict	64.39	60
2. Availability of walking paths	57.83	57
3. Availability of crossings	68.11	69
4. Grade crossing safety	59.49	62
5. Motorist behavior	58.10	66
6. Amenities	48.58	47
7. Disability infrastructure	39.17	32
8. Obstructions	55.98	53
9. Security from crime	62.63	61
WALKABILITY SCORE	**57.14**	**56.32**

The 13 Asian cities included in the average in the preceding Table 6 are Cebu (Philippines), Colombo (Sri Lanka), Davao (Philippines), Ha Noi (Viet Nam), Ho Chi Minh City (Viet Nam), Hong Kong, China (People's Republic of China [PRC]), Jakarta (Indonesia), Karachi (Pakistan), Kathmandu (Nepal), Kota (India), Lanzhou (PRC), Manila (Philippines), and Ulaan Baatar (Mongolia). Table 6 shows that Olongapo City's average rating is slightly lower than the average of other Asian cities. However, Olongapo City obtained higher score in the "motorist behavior" parameter.

5. CONCLUSION

It is a general condition in Asian local cities that there is a lack of clear policies and political advocacy that cater to the needs of pedestrians (and non-motorized transport or NMT in general). This seems to be true also for the case of Olongapo City.

The draft strategy for the Philippines states that: "Reserving and reclaiming space for pedestrian traffic is as important as providing lanes for cars." (Presidential Administrative Order No. 254) It identified the promotion of effective accessibility and efficient mobility for all as a strategy toward achieving environment and people-friendly infrastructure development. Also, it identifies the provision of pedestrian lanes and bike lanes as a strategy for social equity and gender perspective. It also promotes walking as a utilitarian mode.

Olongapo City must have clearer pedestrian-focused strategies to echo the Philippine policy stated above. The specific measures that could be undertaken to improve walkability are as follows:

- Pedestrian walkways should have a minimum of 1.0 meter to 1.5 meters clearance and this can be done by removing obstacles or by widening the path, to provide a clear passageway for wheelchair users.
- Pedestrian crossings should include a) removing the slight drop (25 millimeters) from the footpath to the road and providing tactiles to indicate the edge of the road for the visually impaired; b) thickening road crossing lines to guide the visually impaired to walk within the designated crossing; c) installing vibrating push button (with audio alert) at traffic signal posts to help the visually impaired; and d) providing at-grade i.e., road-level crossings where traffic conditions permit.
- Traffic signs should be made out of higher reflectivity materials to improve visibility.

Walkability scores are particularly low in "amenities," "disability infrastructure," and "obstruction." Suggested improvements for the city are the following:

- Provide facilities that would enhance comfort, convenience, and attractiveness of pedestrian environment such as benches, streetlights, public toilets, and trees.
- Enforce standards pertaining to disability infrastructure like effective sidewalk width that must accommodate the width of a standard wheelchair (i.e., 0.815m minimum passage width). Dropped curbs at intersections and crossings must be provided to ensure smooth and seamless path for the physically challenged. Sidewalks should be 1.525m width to accommodate two wheelchairs passing opposite each other as well as allow 180-degree turn.
- Sidewalks must be cleared from permanent obstructions (e.g. posts, abutting structures, shanties, etc.) and temporary obstructions (e.g., vendors, stalls, parked vehicles, etc.) such that the effective width available for walking is at least 1.0m. For areas with heavy pedestrian volume, sidewalks must be wider to ensure desirable levels of service.

Such recommendations for Olongapo City are likely similar to those that can be extended to other medium-sized cities in the Philippines. As more cities and people become more aware of sustainable transport, there is also a growing demand for transport systems in Philippine cities to become more environment-friendly. However, few cities have paid attention to the needs of pedestrians, often sacrificing sidewalks in order to widen roads or allowing for poor street designs where space is very limited for the purpose of walking or cycling. As such, there is a need to encourage more appreciation among local governments and people not just for walking as a mode of transport but also the standards that need to be applied to be able to achieve walkable communities in these cities.

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