The Sidewalk Transmitting Strategy As A Transit Pedestrian (Case Study: Jalan Manggarai Utara 1, Jakarta-Indonesia)

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Abstract. This study is motivated by the issue of conflicts of interest between pedestrian users and Trans Jakarta transportation service users. Current pedestrian functions aside from being a means of transferring human movements developed into a means of transit (Pedestrian Transit) of human movement. Sidewalks in the station area become a new transit point for human movement and need to be managed wisely. The existence of the Trans Jakarta shelter on Jalan Manggarai Utara 1, Manggarai Station greatly facilitates the transit of Jakarta residents who want to move to use the train facilities. On the other hand, the existence of the Trans Jakarta shelter on Jalan Manggarai Utara 1, raises problems with pedestrians. The condition of the Trans Jakarta shelter is currently taking up part of the sidewalk space, so pedestrians must go out of the sidewalk to continue their journey. This study was conducted to find out the existence of sidewalks as transit pedestrians.

From the formulation of the problem, a descriptive method will be carried out. A descriptive method is carried out to make a description, description systematically factually and accurately regarding the facts, characteristics and relationships between the phenomena investigated. This description is obtained through field observations, interviews and data from relevant agencies. The method of the approach taken to achieve the predetermined goals is the Identification of Design Norms; Identification of Comparative Studies and Identification of Potentials and Problems. The results of this study is Double Deck concept, where all TransJakarta activities (ticket purchases, waiting for buses and pedestrian circulation) are diverted to the platform on the sidewalk.

Keyword: conflicts of interest, pedestrian transit, and circulation

1. Introduction
DKI Jakarta, as the capital city of the country, needs integrated public transportation facilities from one facility to other public transportation facilities. The presence of Trans Jakarta provides many benefits, especially for users of public transportation facilities. Residents of DKI Jakarta now have convenient public transportation, which can reduce the use of private cars. TransJakarta is also expected to reduce congestion in the city of Jakarta.

The DKI Jakarta Government, through the TransJakarta management provides many facilities related to TransJakarta. One of them is by providing shelters in almost all strategic locations in the city of Jakarta. With these shelter, it makes it easy for residents to go up and down TransJakarta. In addition, the existence of the Trans Jakarta shelter also makes it easy for Jakarta residents who want to switch to other modes of public transportation. M. Hidayat Isa, explains that the transit areas that have diverse public facilities and have adequate pedestrian access are significantly able to encourage the number of commuter train users [1].

The existence of the TransJakarta shelter on Jalan Manggarai Utara 1, Manggarai Station greatly facilitates Jakarta residents who want to use railroad facilities. Users of train transportation modes who want to move to TransJakarta transportation easily use these facilities. The perception of the use of pedestrian ways is influenced by the development of activities in the corridor, especially pedestrian

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which is considered comfortable, safe, pleasant and attractive [2]. With a close distance, the TransJakarta shelter on Manggarai Utara 1 Street, Manggarai Station is very important in helping the mobility of Jakarta residents. R. M. Bagus Prakoso said, “an understanding of the characteristics of the area is very necessary so that carrying out the construction of the transit stop can be integrated with the surrounding environment and become a compact spatial structure” [3].

On the other hand, the existence of the TransJakarta shelter on Jalan Manggarai Utara 1, Manggarai Station caused problems for the sidewalk users. The condition of the TransJakarta shelter is currently taking up part of the sidewalk space so pedestrians must be willing to go out of the sidewalk to continue their journey. The arrangement of parking activities and street vendors should be supported by corridor building and environmental planning documents [4]. The behavior of people who use pedestrian lines in strategic areas is mostly for commercial activities [5]. In working hours (morning and evening), the queue of TransJakarta users snakes up to cover the sidewalk. Based on the above conditions, this study aims to redesign the sidewalk of Manggarai Utara 1 Street, Manggarai Station as a transit sidewalk that can be used by pedestrians and TransJakarta service users.

2. Problems Of The Study
2.1. Identification
The sidewalk on Jalan Manggarai Utara 1, Manggarai Station has not accommodated the transit activities of TransJakarta users and pedestrians passing in front of the TransJakarta shelter.

2.2. Scope Of The Study
In this study the problems discussed are limited to the following:
- Sidewalk design that can accommodate the transit activities of TransJakarta users and pedestrians
- The area studied in this study is the sidewalk on Jalan Manggarai Utara 1, Manggarai Station, Jakarta

2.3. Core Of Problems
Based on the research background described above, the existence of the TransJakarta bus stop on Jalan Manggarai Utara 1, Manggarai Jakarta Station has not been well planned and problems arise as follows:
- The existence of the TransJakarta bus stop takes up part of the sidewalk space, which disrupts pedestrian mobility
- Users of the TransJakarta transportation mode, use the sidewalk as a queuing place so that it disturbs pedestrian circulation

3. Methodology
This study uses a descriptive research method approach. Descriptive method is carried out to make a sytematical, factual, and accurate description regarding the facts, characteristics and relationships between phenomena investigated [6]. The results of this study are in the form of a redesign of the sidewalk, which functions as a Transit Pedestrian so that it can accommodate the safety and comfort of pedestrians and TransJakarta users. The following are the described methods of approach taken to achieve the predetermined goals:

3.1. Identification Of Design Norms
This part aims to get formulate criteria, indicators, and elements that must be considered in designing sidewalks that accommodate the safety and comfort of pedestrian users and TransJakarta users.

3.2. Identification Of The Comparative Study
This part aims to get a comparison of the criteria, indicators, and elements of pedestrian design that are already there and are considered successful.

3.3. Identification Of Potential And Problems
This identification aims to get determine the condition of the existing research area, both its potentials and problems.
3.4. The Stages Of Study
The stages of the research "Sidewalk Structuring Strategy as Transit Pedestrian" are as follows:

a. The initial stage of research is to conduct a literature study on sidewalks, sidewalk comfort standards and the concept of transit.

b. The next step is to make observations to the research location to determine the level / number of users of TransJakarta transportation modes

c. The results of these observations obtained the need for transit space (double deck) to be applied at the study site

3.5. The Factor Of Measure
In the systematic research process, research variables are used to prove hypotheses and to answer existing problems. In the research "Sidewalk Structuring Strategy as Transit Pedestrian" used the independent variable and the dependent variable. The independent variable is a variable that has an influence on other variables. The independent variable in this study is the form of sidewalks on Jalan Manggarai Utara 1. The dependent variable in this study is the safety and comfort aspects and circulation aspects.

3.6. Data Collection and The Technique Of Analysis
3.6.1. Determine the Research Area
The first step in this study is to determine the study area. The researcher determines the area to be carried out by the study is the sidewalk on Jalan Manggarai Utara 1. Primary data are obtained directly from the data source. Primary data is also referred to as original data or new data that has the nature of up to date. To get primary data, researchers must collect it directly. Techniques that researchers can use to collect primary data by visiting, observing directly to the location of study analysis.

3.6.2. Identification of Design Norms
Secondary data obtained through Books/ journals on sidewalk arrangements that accommodate pedestrian safety and comfort and aspects of circulation. The output will be in the form of criteria, indicators and design elements considered in the design of the sidewalk (pedestrian ways). Sidewalk planning standards (Departemen Pekerjaan Umum), and urban architectural design standards. The output that will be produced in the form of minimum dimensions that must be met in the arrangement and design of the pavement components.

3.6.3. Identification of Comparative Study
The comparative study cases conducted was a visit to sidewalk area of Jakarta City Station and Tanah Abang Station area. The selection of the case study site is based on the assessment that the two sidewalks are considered successful in applying the sidewalk principle that accommodates pedestrian safety and comfort and aspects of circulation (transit).

4. Discussion
4.1. The Location of Study
Based on Rencana Rinci Tata Ruang Wilayah Kecamatan Tebet Wilayah Kotamadya Jakarta Selatan Tahun 2014, the corridor of Jalan Manggarai Utara 1 is included in the area of Manggarai Sub-District of Tebet with the allocation of General and Social Services. Following are the area restrictions on Jalan Manggarai Utara 1:

North Side: Bordering by Jalan Manggarai Utara 2
South side: Bordering by Jalan Manggarai Utara 6
East Side: Bordering the Educational Zone
West side: Bordering by Manggarai Station
Manggarai Utara 1 Road is included as a strategic road where there is a Manggarai station which is a transit train station. Interesting from this station is the building includes a heritage building that was built in 1914-1918 by J. van Gendt. Right at the north end of this road there is the Manggarai terminal and the Manggarai water gate. The existence of the terminal and the station made the Manggarai Utara 1 road always passed by private vehicle users and public vehicles. To further facilitate the transit of public transport users, the government provides TransJakarta bus stops on Jalan Manggarai Utara 1. Following are the existing conditions of Jalan Manggarai Utara:
4.2. The Result of The Study
The strategy used in sidewalk structuring study as a transit pedestrian is the transfer of activities related to Transjakarta activities. The concept used is in the form of a pedestrian double deck, where all TransJakarta modal activities are diverted to the upper platform of the sidewalk. Transjakarta activities on the North Manggarai 1 road are in the form of activities waiting for Transjakarta buses and ticket purchases. With this pedestrian double deck, pedestrian activities on Jalan Manggarai Utara 1 are undisturbed and more comfortable.

Figure 4. The concept of zoning from Double Deck

Figure 5. The front side of the double deck from Jl. Manggarai Utara 1 (above). The front side of the double deck from Manggarai Station (below)

Figure 6. Perspective of the double deck from Jl. Manggarai Utara 1 (above). Perspective of the double deck from Manggarai Station with direct access (below)

Pedestrian double decks concept refers to the safety and comfort aspects of pedestrians and TransJakarta service users. The comfort aspect of pedestrian is obtained from the presence of steel construction roof wrapped with spandek. The main pillar of the roof using H-Beam Roll gives a sturdy and modern
impression. The choices of structure and construction are adjusted to the existing conditions of the structure and construction of the Manggarai station. For the comfort of the quadriplegics, the double deck is designed as a ramp. Double decks are parallel to the existing sidewalk. The width of the double deck is made as wide as the existing sidewalk line so that it functions as a pedestrian roof.

Figure 7. The concept of using materials

Figure 8. access to double decks using ramps that are friendly to the physically disable

Figure 9. Perspective of double deck on 1st floor
Double deks will be equipped with waiting rooms and Transjakarta ticket purchase counters. In addition, double decks will make direct access to the Manggarai station. TransJakarta passengers who use train transportation services can go directly to Manggarai Station without having to leave the pedestrian area. Likewise, users of railway transportation services that will use TransJakarta can directly access the double deck or just to take a break. With this condition, double deck as a transit pedestrian can be in line with the purpose of this study.

Figure 10. 2nd floor double deck facilities

Figure 11. Perspective of double deck on 2nd floor

5. Conclusions
After analyzing the aspects that affect the design of pedestrian transit arrangements is the circulation aspect is obtained from the separation of the functions of pedestrian activities with the activities of Transjakarta users through the Double Deck concept. Transjakarta activities (buying tickets and waiting for buses) will be moved up so that they do not interfere with pedestrian activities. The comfort aspect of pedestrian is obtained from the presence of steel construction roof wrapped with spandek. To accommodate the comfort of the quadriplegics, the sidewalk is made as a ramp with blind tiles.

7. References
[1] Muhammad Hidayat Isa 2014 Keterkaitan Karakteristik Kawasan Transit Berdasarkan Prinsip TOD terhadap Tingkat Penggunaan Kereta Komuter Koridor Surabaya-Sidoarjo (POMITS) vol 3 (1) p C-196 – C-201
[2] Abdurrahman ibnu Auf 2015 Pemilihan Pedestrian Ways Ditinjau Dari Persepsi Pengguna Di Koridor Jalan Gunung Sahari Jakarta Pusat (MODUL) vol 15 (1) p 39-46
[3] R M Bagus Prakoso 2016 Kesesuaian Kawasan Transit Tramstop Surabaya Mass Rapid dengan Konsep TOD (Studi Kasus: Koridor Embong-Malang) (JURNAL TEKNIK ITS) vol 5 (1) p C23-C28
[4] Alfiani Syariah 2017 Strategi Penataan Aktifitas parkir dan Pedagang kaki Lima Pada Koridor Komersial kota (EMARA Indonesian Journal of Architecture) vol 3 (1) p 43-52
[5] Rona Panduri 2015 *Perilaku Masyarakat Dalam Penggunaan Jalur Pedestrian Di Koridor Jalan Prof. H. Soedarto, S.H.* (Jurnal Teknik PWK) vol 4 (2) p 239-252

[6] Nazir 2005 *Metode Penelitian* Ghalia Indonesia