



CITIES 2015 International Conference, Intelligent Planning Towards Smart Cities, CITIES 2015,  
3-4 November 2015, Surabaya, Indonesia

## Surabaya smart subway development as an alternative mode in Ahmad Yani Corridor Surabaya by TOD concept application

Muhammad Ermando Nurman Sasono<sup>a</sup>, Santika Purwitaningsih<sup>a</sup>, Lukman Yusuf<sup>a</sup>,  
Ardy Maulidy Navastara<sup>b\*</sup>

<sup>a</sup>Student of Urban and Regional Planning Department Sepuluh Nopember Institute of Technology, Keputih Sukolilo, Surabaya 60111, Indonesia

<sup>b</sup>Urban and Regional Planning Department Sepuluh Nopember Institute of Technology, Keputih Sukolilo, Surabaya 60111, Indonesia,

---

### Abstract

One of the phenomenon occurred nowadays is the population increase. With the population raising, it will also be followed by the demand increase for transportation services. Along the corridor Ahmad Yani Surabaya evolve a linear region of Central Business District. Congestion in Jalan Ahmad Yani Surabaya according to data from a survey of Surabaya Transportation Agency in 2014, the average speed on Ahmad Yani corridor to various destinations around the connecting road only between 29.22 to 31.70 km/h. Congestion that occurs in peak hours was caused partly by high mobility, the volume of vehicles that do not fit with the capacity of the road, private car use too much, as well as the railway crossing which cause delays. Surabaya Smart Subway is the concept brought as an alternative modes of mass transportation with Transit Oriented Development theory application in Jl. Ahmad Yani in order to create a smart mobility paradigm.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of CITIES 2015

*Keywords:* Surabaya smart subway; TOD; ahmad yani corridor.

---

---

\* Corresponding author. Tel.: +62-818-022-56056; fax: +0-000-000-0000 .  
E-mail address: [ardy.navastara@urplan.its.ac.id](mailto:ardy.navastara@urplan.its.ac.id)

## 1. Introduction

An increasing number of population is become a phenomenon. Based on a census of 2010, the Indonesian population is 236.7 million. BPS's projection of the total population of Indonesia in 2019 reached 268.074.565 (www.ilo.org), and that number will increase to 288 million by 2050 and make Indonesia become the 6th most populated country in the world. Increases in population have impacts on various aspects of human needs, such as the transportation which is very influential on population mobility. The increase of population will also increases the demand for transportation services. Thus, the transportation system plan has to be guided by the concept of sustainability.

Along the corridor of Ahmad Yani in Surabaya evolve a Central Business District linearly. According to Raymond E. Murphy, CBD is the center of a city or region that is dominated by commercial activities. Corridor Ahmad Yani which is one of the primary arterial road of Surabaya should be planned a development concept with integrated transportation modes and system management which can accommodate people who require mobility in the corridor. It is important to include the other aspects such as land use to support the development concept that has been planned.

One of the problems that exist in Ahmad Yani street is traffic jam. According to data from a survey of Surabaya Transportation Agency in 2014, the average speed on Ahmad Yani street to various destinations around the connecting road is between 29.22 to 31.70 km/h. Congestion that occurs at peak hour was caused by high mobility, the volume of vehicles that do not fit with the capacity of the road, as well as the railway crossing which cause delays. Then, the public transportation availability is less feasible for the community, so that people prefer to use private transportation (Rozari and Wibowo, 2015).

Currently, the solutions that have been implemented as the respond to these problems is frontage road development. This solution was applied to overcome the problem of insufficient capacity of the road. However, the construction of frontage road will rise new problems. When the road becomes widespread, the number of vehicles will also increase. People's tendency to use private transportation will remain constant, even increasing as well. Moreover, the frontage road is frequently used by the informal trade sector which cause environmental pollution.

Surabaya Smart Subway developed by the theory of Transit Oriented Development (TOD) is an alternative solution to overcome the problem of people's mobility. The subway technology can be the first mass and rapid public transportation innovation in Indonesia. This paper has the following objective: i) to develop subway transportation concept to optimize underground space to accommodate people's mobility; ii) to apply the theory of Transit Oriented Development in mass transportation to make Surabaya become sustainable with the development of smart mobility concept. So, here is the problem that will be solved by this concept:

- There is not concept of development yet such an effective and efficient mass transportation in accommodating the mobility needs of the community in corridor Ahmad Yani Surabaya as shuttles impact on hours peak (peak hour)
- To apply theory to the Transit Oriented Development mass transport in realizing sustainable Surabaya through the development of smart mobility concept

## 2. Methods

In terms of methodology, the study took a comparative approach – it looked at what policies have been adopted and compared and analyzed the outcomes.

Download English Version:

<https://daneshyari.com/en/article/1107295>

Download Persian Version:

<https://daneshyari.com/article/1107295>

[Daneshyari.com](https://daneshyari.com)