

Understanding the Concept of Transit Oriented Development Through Proposed Project of Manggarai, Jakarta Selatan, Indonesia

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ABSTRACT

TOD's concept which stands for Transit Oriented Development is one of an alternative solution to tackle traffic issues within metropolitan cities generally and Jakarta particularly. By adopting the concept of TOD, many buildings with a different function could be integrated to provide an easy, safe and comfort life for users. TOD's concept usually has integrated transportation facilities such as rail station, bus terminal, commuter line terminal with other facilities such as residential and commercial's function. All those facilities will be designed integrated to create better access for the community to get an easy way from one facility to another one. This concept will linkage residential area with office area and commercial area, thus people who live within the residential area could reach their working place easily by walking using the facility of pedestrian way. This paper will discuss about how the concept of TOD will become one of an alternative solution to create a better accessible environment within Jakarta.

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1. Introduction

One of the most crucial thing in urban issue is a traffic jam within metropolitan cities in Indonesia generally, and Jakarta as capital city particularly. This issue always becomes a burden for the city, and never be handled correctly by the local government as well as central government. The problem of traffic jam has been handled with many programs, but it will be not solved maximally if the behavior of the community will not support the government's effort. One of the government programs to tackle this issue is by delivering some transportation system within the city such as upgrading the public transportation system of Commuter Line and Trans Jakarta as a popular public transportation in Jakarta.

The concerning about the above issue has not been aware by the community because the using of public transportation is not optimally use. Some part of the community still using a private vehicle to mobile from one place to another, this condition will support the status of traffic in Jakarta as a capital city. In the end, this condition indirectly will not help the government to solve the urban issue.

According to the above condition, the central government has started to think and keen in searching an alternative solution to handle one of this urban issue. One of the concepts that could be adopted and adapted from another country is by delivering and implementing the new concept of TOD which stands for Transit Oriented Development. This concept of TOD has been regarded as a perfect solution to handle an urban issue such as traffic

jam, particularly in the metropolitan city. Many developed countries that have adopted this concept of TOD, such as Malaysia, Singapore, and Hong Kong. Especially Singapore which is very succeeded in encouraging their people to use public transportation, which could reduce the use of a private vehicle.

Basically, the concept of TOD is a concept to integrate three main functions in the community's life, how to integrate the activity and function of working, living and recreation in one area. At least by integrating that three functions and activities, it could reduce the main problem of the urban issue. By implementing the concept of TOD in the urban area, the community will not use a private vehicle to go to work from their residence. The alternative is by working nearby to their place, and they could use the pedestrian way for walking, biking or use public transportation from the terminal nearby to their place. The one that should be underlined in this concept is all the public transportation should be feasible and decent to be used by the community. Thus they could feel comfortable and safe while using this facility.

It could be underlined that TOD is concept "To create an integrated area with a specific character which provide accessibility for pedestrian and transit for public transportation to enhance the quality of environment to be comfort, safe, attractive and sustain".

This paper will explore the proposed project of TOD in Manggarai District. By studying this proposed project and using the standard of TOD concept, hopefully, this paper could explain how is the TOD concept could be delivered in a metropolitan city. And in the end, this paper could support all the people to understand the basic concept of TOD

2. Material and Methods

2.1. Basic Concept of TOD

According to Institute for Transportation and Development Policy, TOD or Transit Oriented Development could be defined as "an integrated urban place designed to bring people, activities, buildings and public space together, which easy walking and cycling connection between them and near excellent transit service to the rest of the city..." [1]

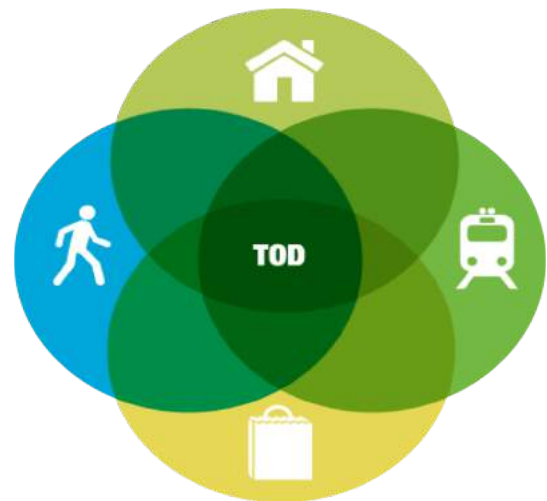


Figure 1: how the TOD's concept integrated three function in an area

Source: TOD Standard Book, 2017

From the above definition, it could be explained that a district or an area which implemented a concept of TOD is an area or a district that could be said as an area or a district which could accommodate the community in doing many activities within it. In another word, this area or district should have a variety zones, not only for residential but also for commercial, public use, and green area. An area or a district which implement Transit Oriented Development concept could be developed by thinking of the need of pedestrians and bikers.

It means that mostly the circulation way within an area of TOD from the dimension, size and numbers will be more to accommodate pedestrians and bikers compare to vehicles. From the above meaning, it could be said that an area or a district with TOD concept should be designed and planned to be near to the public transportation system that could be accessed by walking distance, and this public transportation could deliver the people to the city center comfort and safety.

2.2. Basic Principle t of TOD

According to TOD Standard Book from Institute for Transportation and Development Policy, it has been explained that there are some basic principles of Transit Oriented Development concept. These basic principles could be used to design, plan and to develop an area or a district to implement a concept of Transit Oriented Development. These basic principles could be explained as follow:

1. Walk

Developing an area or a district which promote walking as a principle is one of a basic principle in a concept of Transit Oriented Development. Walking has been regarded as a natural activity which is a healthy, a clean, an efficient, an affordable and an effective way to get from one place to another which is accessible for all people. And walking is one basic component that will be needed in almost all traveling which using the transit system.

2. Cycle

An area with Transit Oriented Development concept should have a

priority for pedestrian and bikers. According to TOD Standard, it has been mentioned that cycling is the second number that has been regarded as a healthy, an affordable and inclusive mode of mobility within an urban area.

3. Connect

Developing an area which has a crowded network for transportation with road, street and way, will encourage the urban planner to design and plan the area of TOD with smaller blocks of residential and other buildings. This will produce a good design with compact network and well connected between one function to another one.

4. Transit

The location of an area of TOD should be near to the mass or public transportation facility which has good quality. Accessible mass transportation facility for pedestrian will encourage people to walk and use the pedestrian way, and people will no longer use a private vehicle to go to work. Reliable mass transportation facility which is scheduled and fast will make user comfort and safety. This transportation system could be BRT: Bus Rapid Transit, or MRT: Mass Rapid Transit. Both are part of Transit Oriented Development's concept and become a requirement for TOD's standard.

5. Mix

Planning an area with variety function, use, need, economic level, and demography should be designed with many considering from all aspects with physically or non-physically. The different use and need of all level of the community should be considered, because it will affect the comfort and safe of the area.

6. Density

To maximize the density of the area and justify the capacity of mass transportation is one of the standard of TOD's concept. The development model of high density is an important thing to support the vision of a friendly city and smart city using TOD's concept. Particularly with good and organized mass rapid transportation system with a good schedule, fast, well connected and reliable to guarantee the independence of private vehicles.

7. Compact

Creating an area with accessible distance from residence to mass rapid transportation facility is one of the TOD's concept. Basic guidance principle of TOD's concept is compactness. An area of TOD should have all the components and facilities which area needed by the community and accessible to get. All the services should be easy to get, comfort, safe, efficient distance and reliable.

8. Shift

Enhancing the mobility of people within an area of TOD is one of the concepts of TOD. Parking area and street use should be well organized to minimalize the use of private vehicles. This condition will support the concept of TOD to be succeeded.

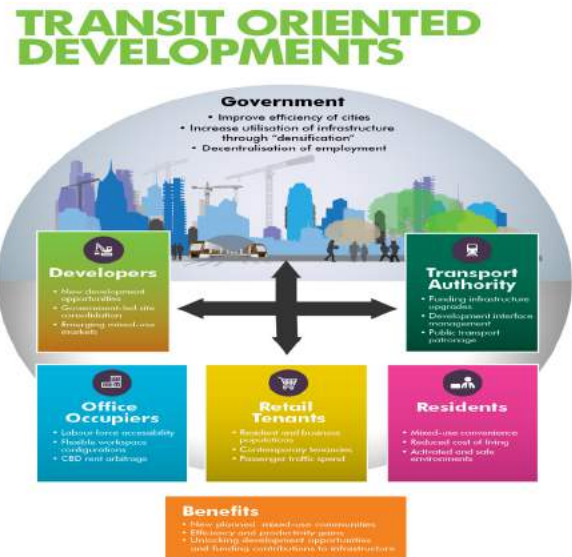


Figure 2: the relation between stakeholders in TOD's Concept
 Source: TOD Standard Book, 2017

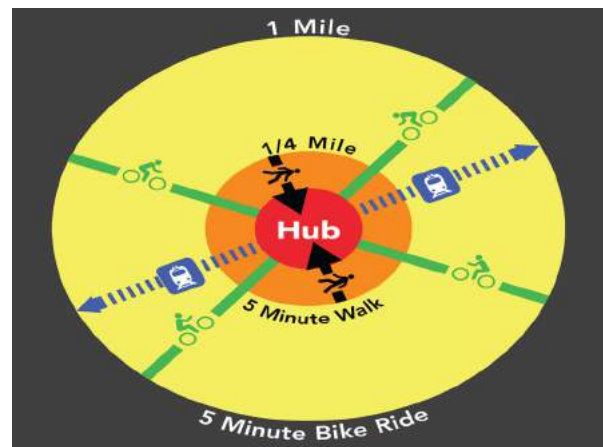


Figure 3: the basic concept of TOD
 Source: TOD Standard Book, 2017

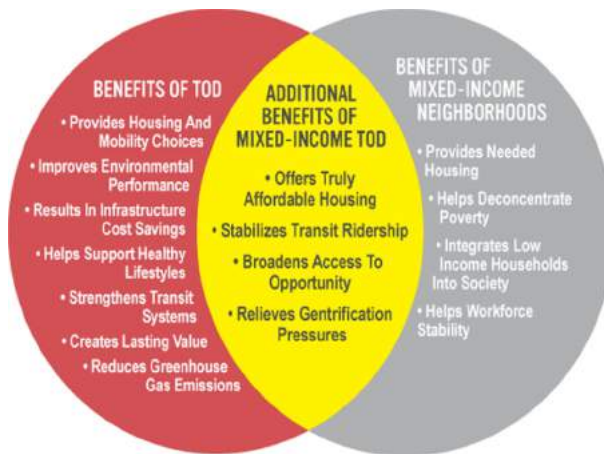


Figure 4: the benefits of concept TOD
Source: TOD Standard Book, 2017

2.3. Method

This study will conduct a descriptive narrative method, which studies a proposed project of Manggarai. This area of Manggarai has been designated to be planned and designed for Transit Oriented Development. This paper will describe and analyze one by one of the 8 basic principle of TOD that has been explained before, using the proposed project of Manggarai.

3. Discussions

Manggarai as a primary district for economic activities in Central Jakarta has been promoted to adopt TOD concept. There are some issues in the district of Manggarai, that will become a starter point to implement the concept of TOD. According to Dinas Tata Ruang DKI Jakarta, those main issues could be explained as follow:

- Manggarai will become a central primary activity and an economic strategic area within Jakarta.
- Manggarai has been designated as an area which adopts the concept of TOD and will be oriented to the public transportation system transit and mobility of pedestrian
- Manggarai rail station will become a node of Commuter Line from Bekasi, Depok, and Bogor
- There will be a development of double tracks of Rail and Commuter Line
- The existence of Balai Yasa would be needed as a rail maintenance and service
- There is a crowded settlement area which is potency to become a slum area
- There should be designed a vertical house as a support to implement a concept of Green City
- There should be a lifestyle changing from community when the area has been developed as a TOD area
- There is lack of public open space
- There should be a program to handle the problem of flooding in Kali Ciliwung

From the above main issues, a local government keen to design and plan the area of Manggarai by adopting a concept of Transit Oriented Development. This development aims to enhance and upgrade the quality of Manggarai district as a primary district in Jakarta. The design should cover the urban space planning including architecture, a landscape of the area, urban planning, utility and infrastructure of the area, preservation of the area and transportation within the district of Manggarai.

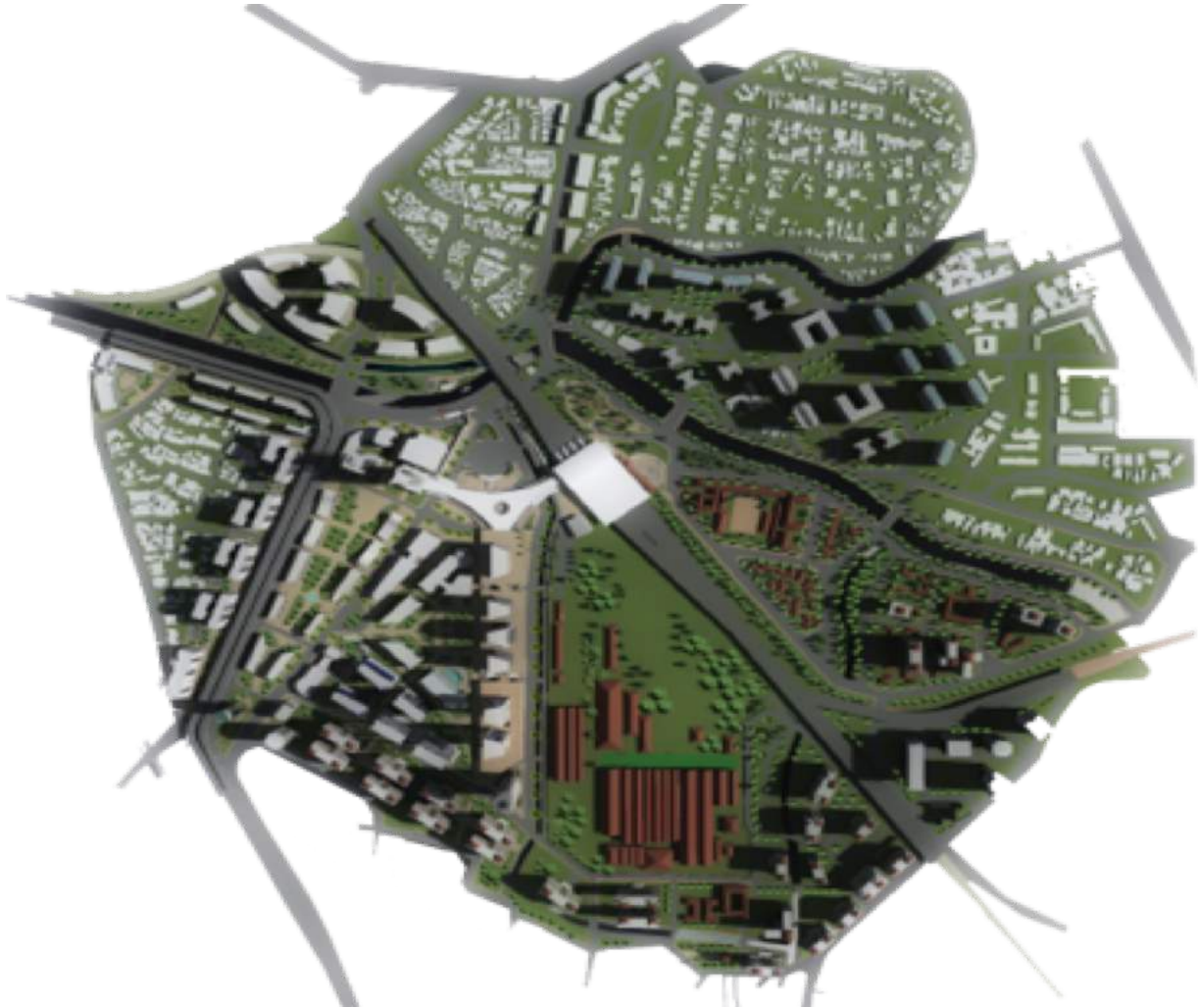


Figure 5: the area of Manggarai, Jakarta, Indonesia, which show the basic component of TOD, there is a public transportation facility: Manggarai Rail Station as a main component that should be provide for an area of TOD

Source: Dinas Tata Ruang DKI

Figure 5 shows the area of Manggarai as a proposed project of the development using Transit Oriented Development's concept. There is an existing rail station known as Manggarai Rail Station which service all the resident

within the district as well as to service all customer from Depok, Bekasi, and Bogor. All the customer from those three main stations will transit at Manggarai Rail Station, and either will continue to another destination using Commuter Line, Trans Jakarta as well as using

another public transportation at Manggarai Bus Terminal. The problem is those two public transportation facilities are not connected each other, and people have to walk uncomfortable and unsafely from Manggarai Rail Station to Manggarai Bus Terminal. According to this condition, a local government keen to propose a development project of Manggarai District to implement the TOD's concept within the area.

From the figure 5, it shows that there is an area which consists some historical buildings. Those buildings are Manggarai Rail Station

itself (Grade A), Prasasti Pintu Air Manggara (Grade A), Elementary School SDN 01 Manggarai (Grade A), Junior High School SMPN 03 Manggarai (Grade A), Water Tower Manggarai (Grade B), Balai Yasa (Grade B), Police Warehouse (Grade B), and many houses in North Manggarai (Grade B). This condition will become the main problem in the development of the area because referring to Undang-Undang Cagar Budaya RI No. 11 Tahun 2010, all buildings in Grade A and B should be preserved and conserved. It means that the development should concern about it.



Figure 6: the area of Manggarai, Jakarta, Indonesia, which show the basic component of TOD, there is a public transportation facility: Manggarai Rail Station as a main component that should be provide for an area of TOD

Source: Dinas Tata Ruang DKI

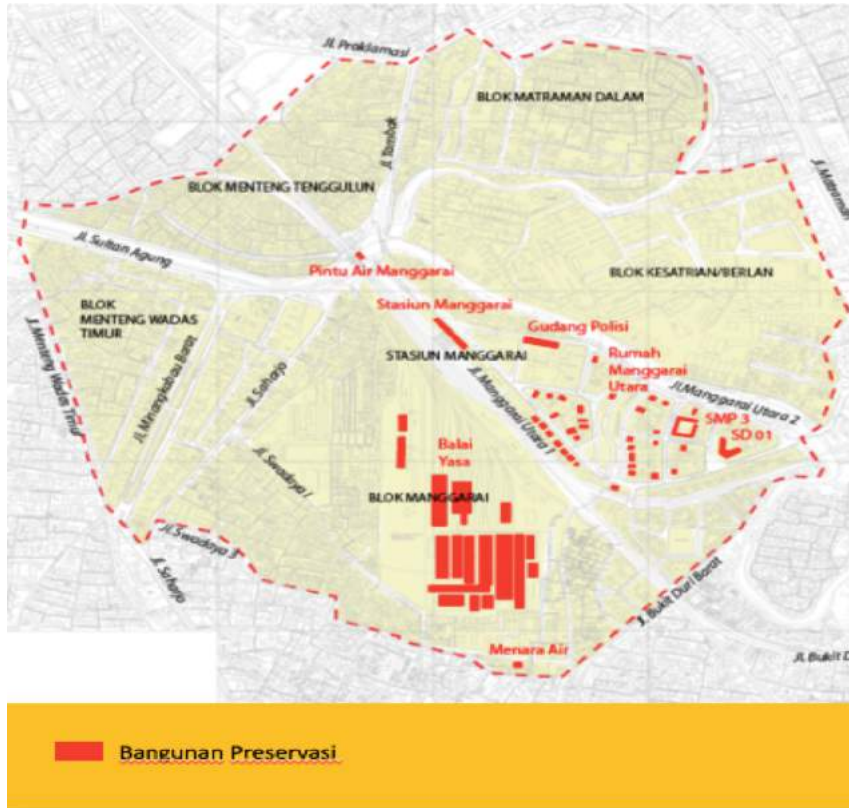


Figure 7: Blocks of historical buildings within Manggarai district, that need to be concerned in the development of area Manggarai using Transit Oriented Development concept

Source: Dinas Tata Ruang DKI



Figure 8: Historical buildings within Manggarai district, that need to be concerned in the development of area Manggarai using Transit Oriented Development concept

Source: Dinas Tata Ruang DKI

Figure 6 shows how local government will develop the area of Manggarai. Local government has set some concept within the area of Manggarai based on Transit Oriented Development's concept as follow:

- Integrated mobility and transit between public transportation facilities, which will develop a double track rail Manggarai-Cikarang, develop corridor 14 of Trans Jakarta from Manggarai to Universitas Indonesia Depok, develop the rail station of Manggarai to be double-decker to Soekarno Hatta Airport.
- Providing transit area between public transportation facilities
- Creating environment with pedestrian and bikers' oriented, with providing pedestrian way and bikers' track within area or Manggarai
- Developing mix used building which contains low-middle apartment known as Rumah Susun (Rusun Berlan by Kemenpera, Rusun Pasar Rumput). These Rusun will provide market, public open spaces and residential space. Rusun Pasar Rumput will become a low middle resident which will be provided for community from Ciliwung Bank of River.
- Developing the area become high-intensity area.
- Creating a specific character of the area
- Limiting the vehicles' movement and parking area within Manggarai District
- Creating public open space for the community



Figure 9: The Existing of Path and Road Network within Manggarai District
Source: Dinas Tata Ruang DKI



Figure 10: The Existing circulation of vehicles and parking area within Manggarai District
Source: Dinas Tata Ruang DKI

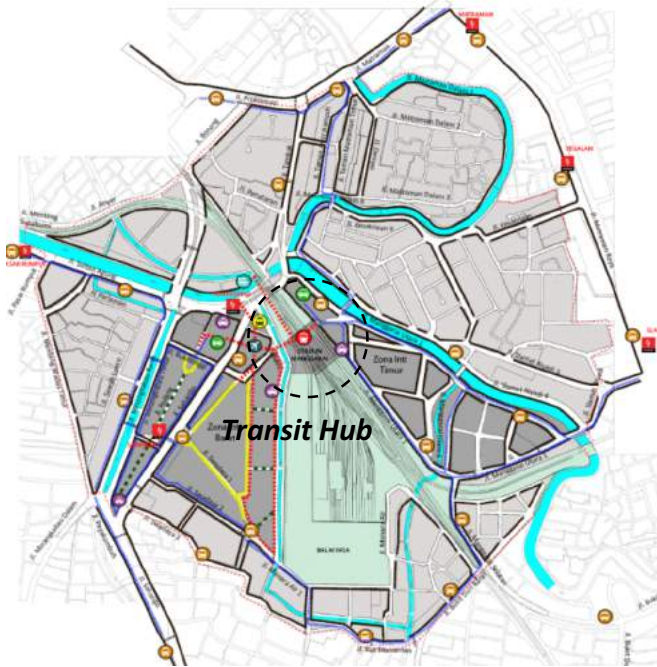


Figure 11: The Existing public transportation services and proposed transit hub area within Manggarai District
 Source: Dinas Tata Ruang DKI

Figure 9 and 10 show the existing path, road, and streets, as well as the existing circulation of vehicles either public transportation or private vehicles and parking area within Manggarai District. Using the figure 9 and 10 could be identified the existing public transportation services within Manggarai District. From figure 11, it could be seen the area of two main public transportation services: Manggarai Rail Station and Manggarai Bus Station. This point will be proposed as a Transit Hub.

Figure 12 shows the possibility of pedestrian ways and bikers' ways within Manggarai District. The possibility of pedestrian ways and bikers' ways will be used as a basic need in the Transit Oriented Development's concept which will be applied in the Manggarai District. This both facilities for the community will be designed as

comfortable as possible to encourage people to walk around in Manggarai District. The circulation of pedestrian ways and bikers' ways should follow the circulation to the proposed Transit Hub from residential or offices. This concept will provide the easy way to get access from place to live to go to place to work.



Figure 12: The possibility of the pedestrian ways and bikers' ways which will be proposed in Manggarai District to apply the concept of Transit Oriented Development
 Source: Dinas Tata Ruang DKI

The above explanation has consisted some of the standards of Transit Oriented Development's concept. They are Walk, Cycle, Transit, Connect and Shift. To apply the other standard of Transit Oriented Development concept, local government have tried to propose a mix used concept within the area of Manggarai. The standard of Density, Mix, and Compact will be applied to a mix-used building which is in this development will provide Rumah Susun which consist market and public

open space under the residential. The high density of the area will be shown from the high level of the low-middle apartment which will be designed about 24 floors. This rumah susun will be provided for the community from Ciliwung River Bank who will be located into this mix used building.



Figure 13: The existing and proposed public open spaces and green belts within Manggarai District
Source: Dinas Tata Ruang DKI

Figure 13 shows the existing and proposed public open spaces and green belts which will support the area to be more comfortable for the community. This condition will encourage people to use pedestrian way for walk and bikers' way for cycling from their place to live to go to their place to work. The successful of Transit Oriented Development's concept could be described from the public transportation use and all services which following the standard of Transit Oriented Development's concept.

Local government keen to propose this development of Manggarai District to become a

pilot project that applies Transit Oriented Development's concept by proposing the masterplan of Transit Oriented Development for Manggarai District. Figure 14 shows how the masses of the buildings within Manggarai District will be planned and design by local government to make the area become a success development area using Transit Oriented Development's concept.



Figure 14: The proposed master plan of Manggarai District using Transit Oriented Development's concept
Source: Dinas Tata Ruang DKI

4. Conclusion

By implementing a concept of TOD, hopefully, it could create an integrated area with a specific character which provides accessibility for pedestrian and bikers, transit for public transportation as an effort to enhance the quality of the environment to be more comfortable, safe, attractive and sustainable. For the success of the implementation of TOD's

concept, it becomes not only a local government or central government responsibility but also all parties such as community as a direct user, private sector as a developer, investor, as well as authority who related to the public transportation policy.

In the end, of the TOD's concept has been succeeded implemented in an area, the community could take the benefit of it. There will be an easy way for mobility without using private vehicles, the environment will be healthier, and this will affect the community directly. The community will live in a healthy environment, and the impact will be sustained for the future because it will become a high investment for the country.

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