

Creating Better Environment by Implementing The Concept Of Walking and Cycling Within Historical Area of Kota Tua Jakarta

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ABSTRACT

This research is part of multi-year research undertaken for two years. This research is second-year research, which should be done at the end of 2020. This research aims to analyze the possibility of applying two principles of Transit-Oriented Development's concept. Those two principles are walking and cycling. By analyzing the option of applying those principles, we have tried to propose the best solution to issues and problems within the historical area of Kota Tua Jakarta. This research's significance is the existence of a pedestrian way and bicycle way within the historical district of Kota Tua Jakarta. Since the historical area of Kota Tua Jakarta has become the most important place to be visited, the need for pedestrian facilities as a public open space and the bicycle way facilities has also increased due to the adjustment of lifestyle and standard of living. This research has conducted the qualitative method using a case study as a way of thinking to get a clear description and fact. We have conducted Kota Tua Jakarta as a case study because it is one of Jakarta's significant historical regions. This research results by proposing an idea and design that implemented the concept of walking and cycling. The idea and design as the conclusion have covered the proposed plan of a pedestrian way and bicycle way within the historical area of Kota Tua Jakarta. Hopefully, this research will support another study about the historical district and Transit-Oriented Development's concept.

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Keywords: Bicycle Way, Cycling, Historical Area, Kota Tua Jakarta, Pedestrian Way, TOD Concepts, Walking

1. Introduction

As a historical area, Kota Tua Jakarta has been regarded as an area of urban heritage in Indonesia that has suffered from the impact of globalization [1]. Together with the central government, local governments are willing to deliver any activities related to conservation and preservation. One of the efforts is to preserve and conserve all historic buildings within the historical area of Kota Tua Jakarta. As mentioned by Purwantiasning et al. [1], those efforts aim to enhance and upgrade the quality of the historic buildings themselves. Many historical buildings within the historical area of Kota Tua Jakarta have been abandoned

for years. Still, on the other hand, many historical buildings have been adapted into new uses and functions.

This research has discussed the existing condition of the historical area of Kota Tua Jakarta, which is related to the public facilities within it, particularly the infrastructure of the area. The particular infrastructure is the pedestrian way and bicycle way within the historical district of Kota Tua Jakarta. Afterward, this research has identified the issues and problems within the historical area of Kota Tua Jakarta related to those two infrastructures. This research has analyzed the identified problems and concerns and solved

them by proposing a better plan and design of implementing two principles of Transit-Oriented Development's concept: walking and cycling.

Since that historical area had existed years ago, many problems have arisen within it, particularly issues related to the lack of utilities. Purwantiasning [2] have mentioned that Kota Tua Jakarta, which has started to revitalize the area since 2010, still needs more community improvement activities. The condition of Kota Tua Jakarta itself is enhancing gradually since the area has become a significant tourist destination, mainly domestic tourists. The central government itself is keen to improve; some private or government sector institutions have supported each other to enhance the built environment within Kota Tua Jakarta. Sholihah [3] mentioned that the atmosphere of heritage offers a unique experience for visitors away from their daily lives. They also have said that the heritage-built environment becomes a strategy to secure authenticity. Those statements have supported that Kota Tua Jakarta, as a heritage area, should be enhanced from time to time to provide a better environment for visitors and the local community within the surrounding area.

Mauliani [4][5] have stated that a pedestrian line should be an excellent facility provided by the government or private institution as a tool for pedestrians. They have also mentioned that pedestrian facilities' need as public open spaces has also increased due to an adjustment of lifestyle and standard of living for the Indonesian community and Jakarta's society. Usually, pedestrian areas have many functions, such as a tool for pedestrians to do their daily activities and an open space for the community to fulfill their social needs. Orbon [6] mentioned that providing comfortable outdoor public spaces within a particular area has become a vital need; thus, it should be designed and planned appropriately. According to the concept of Transit-Oriented Development,

distance is the most significant concept that should be done; for example, a distance between residence to the workplace should be well planned as easy access. This access should be reached quickly for all people by walking distance or using a bicycle. According to this concept, a pedestrian way or pedestrian line and bicycle way are essential to enhance the quality of the built environment. This explanation has become a background of why pedestrian and bicycle ways are necessary in public areas such as historical areas. But in fact, the existing pedestrian path and bicycle route are far from optimal in planning, design, or use. To see how far the implementation of pedestrian way within Kota Tua Jakarta, we have analyzed the pedestrian path's existing condition and a bicycle way within the area.

Purwantiasning [2] have mentioned that one of the best solutions to enhance the quality of Kota Tua Jakarta is by delivering a new concept that is synergized to improve and improve the quality of the built environment as well as the quality of the local community who live within the historic area. This new concept has been known in many countries that have delivered it in their metropolitan cities—this concept is known as Transit-Oriented Development. Theoretically, the idea of Transit-Oriented Development itself could be explained as a concept to integrate all functions within one area. As mentioned in ITDP [7], TOD, which stands for 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.....*"

To conclude the definition of TOD, Purwantiasning [2] also explained that a district of an area that implemented the concept of TOD is an area or a neighbourhood that could be said as an area or a zone which could accommodate the community in doing many activities within

it. In other words, this area or region should have various zones for residential and commercial, public use, and green space.

Purwantiasning [2] also have mentioned that the need for a better place and a pleasant built environment will become a particular attachment for the local community. In this case, historical attachment for the local community's historic area is essential in enhancing or improving the historic district. Using this approach, the local community's need to strengthen and improve the quality of the environment of the historical area and the quality of life of the local community could be revealed—this approach to determining the sustainability of the historic district.

One of the principles in Transit-Oriented Development is to upgrade the quality of infrastructure within the historic area. The significance of infrastructure itself could be reached by applying the concept of Transit-Oriented Development, which prioritizes the need for comforts and safeness for the community. As Taki [8] mentioned, a well-regulated and well-planned city is characterized by land use and transportation system conditions, and it indicates economic prosperity. Two principles of Transit-Oriented Development that cover the infrastructure for comfort and safeness for the community are walking and cycling. Both concepts have been provided to encourage people to walk and cycle within the area. These activities will enhance the community's quality of life, and the efforts to provide a better pedestrian way and bicycle ways will improve the quality of the built environment.

As mentioned before, enhancing the quality of the built environment and quality of life community provides a better environment, particularly within a historical area such as Kota Tua Jakarta. To provide a better environment is by implementing two central ideas of Transit-Oriented Development. Those

two principles are known as Walking and Cycling, as mentioned before. Those two principles of Transit-Oriented Development have been implemented in some districts in Jakarta as a solution to reduce pollution in Jakarta. Berawi [9] have mentioned that Transit-Oriented Development is often perceived as an effective means to combat the problems caused by automotive use. With the emphasis on transit, Transit-Oriented Development usually reduces the use of non-renewable vehicles. In Jakarta, the principles of walking and cycling have been implemented by many people. Many people have used a bicycle as their mode of transportation; they have called it Bike to Work or BTW because they need to go cycling from home to their workplace for an hour or two hours. The idea of cycling and walking has been implemented within an area that could provide all activities within one place. This idea will encourage people to use a bicycle and walk from home to their workplace.

The main problem is that the existing infrastructure is far from well-planned as a standard used to be fulfilled. However, the local and central governments are still willing to improve and enhance the built environment's quality by providing the facilities phase by phase.

According to the above explanation, we have designated the historical area of Kota Tua Jakarta as a case study. We believe that the development of the area Kota Tua Jakarta could cover all aspects of economic, social, and activities based on the community's needs. This research aims to analyze the existing condition of Kota Tua Jakarta using a qualitative method and mapping analysis to reveal the issues and problems behind it. At the end of the research, we have proposed a design solution for the pedestrian way to answer the walking principle and a design solution for bicycling to answer the cycling principle.

Bahri [10][11] have mentioned that Transit-Oriented Development has been regarded as the best alternative solution to be conducted within the historical area of Kota Tua Jakarta. The reason is that the core zone area has been considered a particular area with significant character and has more appreciation for the past's memory in the colonial era. The core zone also functions as a central orientation and center of the living heritage. Hopefully, by delivering two principles of Transit-Oriented Development's concept, the quality of the built environment and the local community's quality of life will be enhanced and improved.

2. Material and Methods

To obtain the right solution and conclusion, we have utilized a qualitative method. We have designated a historical area of Kota Tua Jakarta as a case study. We have chosen this area because this area has a significant historical value, which could become the city's identity and has excellent value in the past. Some mapping analyses have been done to identify the existing condition of Kota Tua Jakarta. Some mapping analyses also have been done to describe the possibility of implementing two principles of TOD's concept: walking and cycling. Some activities also have been done to support the research. Those are literature studies, surveys, observations, and questionnaire distribution. At the end of this research, we have provided some recommendations to answer this research's aim.

3. Results and Discussions

This research aimed to analyze the possibility of applying the two principles of Transit Oriented Development's concept within the historical area of Kota Tua Jakarta. Those principles are walking and cycling. Thus, to obtain the right solution and result, we need to identify issues and problems within the historical district of Kota Tua Jakarta. Also, some analyses of the existing condition have

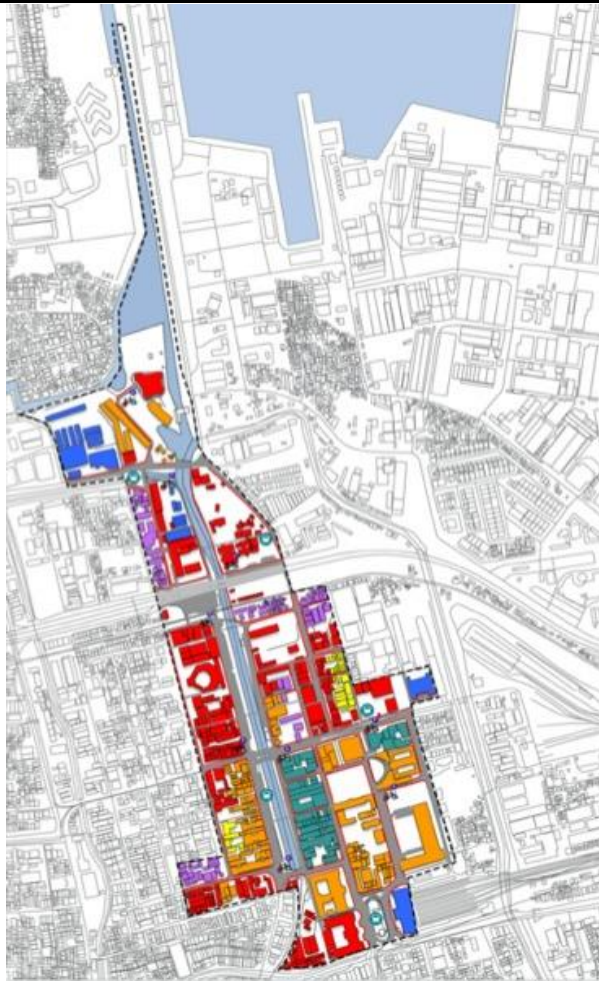
been obtained to support the research. We have conducted three steps in this research:

1. Identifying issues and problems within the historical area of Kota Tua Jakarta by exploring the district and interviewing some respondents
2. Mapping the existing condition within the historical district of Kota Tua Jakarta with some approaches from existing pedestrian ways and existing bicycle ways.
3. Identifying from mapping analysis the possibility of applying the two principles of the Transit-Oriented Development concept.

3.1. Kota Tua Jakarta

Describing the historical area of Kota Tua Jakarta is a first step before starting to identify issues and problems. As a historical area within DKI Jakarta, Kota Tua Jakarta has five zones (see Figure 1). Two zones of the historical site have been designated as a case study of this research because these two zones are located in the core zone. Those five zones are: Zone 1- Sunda Kelapa, Zone 2- Fatahilah Square, Zone 3- Pecinan or China Town, Zone 4- Pekojan or Kampung Arab, and the last one is Zone 5- Kawasan Peremajaan or rejuvenation area.

Figure 1 also shows the core zone of the historical area of Kota Tua Jakarta, which is shown with black line boundaries. Kota Tua Jakarta has many historic buildings (see Figure 2); therefore, Kota Tua Jakarta has been designated as a historical area. Some buildings within the core zone have been abandoned for years. On the other hand, some buildings have been adapted with a new function (such as rental exhibition space in Toko Merah) to support tourism activities (see Figure 3).



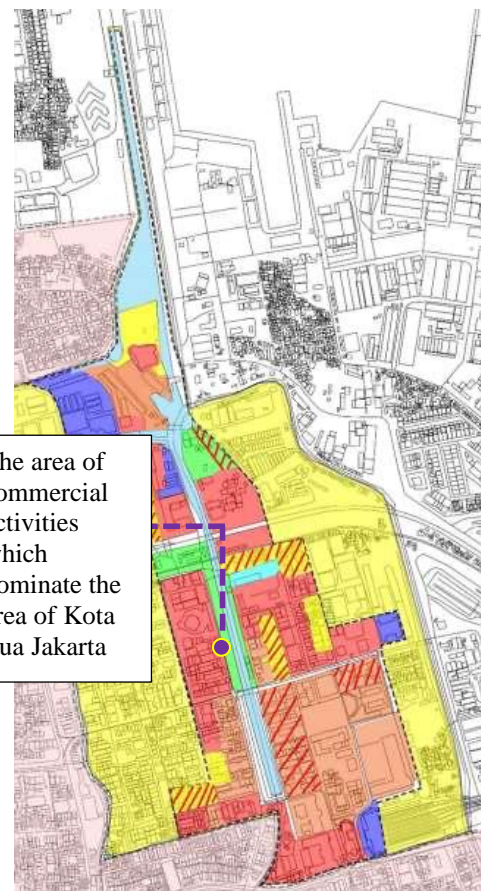
Source: Authors, 2020
Figure 1. Kota Tua Jakarta: Core Zone is the one with black line boundaries



Source: Authors, 2019
Figure 2. Kota Tua Jakarta: Canal Batavia-many historical buildings within the area



Source: Authors, 2019
Figure 3. Kota Tua Jakarta: Toko Merah or Red Shop, it is one of vacant building in Kota Tua Jakarta which becomes a rental exhibition space, and it is one of historical buildings



Source: Authors, 2019
Figure 4. Kota Tua Jakarta: some buildings that have been adapted with new function as museums and restaurants which dominate the activities within Kota Tua Jakarta

3.2. Identifying Issues and Problems

Since the historical area of Kota Tua Jakarta consists of many historical buildings, the community, either the local community or visitors, usually chose this area to become their destination for tourist activities during the weekend. Many people use the activity of cycling and walking from home to this area just for exercise. They call it "GoWes" for cycling and "JJS or Jalan-Jalan Santai" for walking. Those activities should be not only for the weekend if Kota Tua Jakarta, with a particular character and unique value, becomes a significant destination for visitors. The local and central governments should be encouraged to provide proper pedestrian and bicycle ways to complete the community's needs. For the future, Kota Tua Jakarta might be proposed as a sustainable environment that provides all activities within the area and will support the area's activities. Kota Tua Jakarta might be a perfect area to be promoted as a historical area with a Transit-Oriented Development's concept. There are some steps that we have studied in this research to answer the aim of this research.

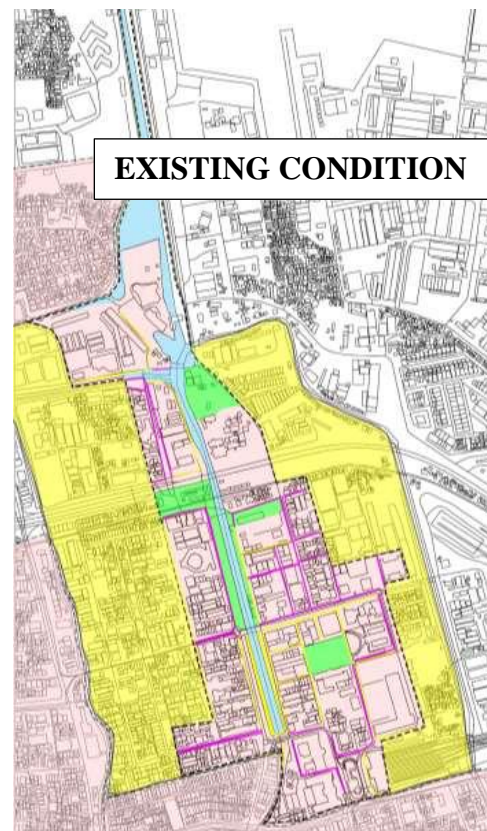
The first one is to identify issues and problems related to the walking concept within the historical area of Kota Tua Jakarta. According to the principle of walking, a well-planned area should have an environment friendly to the pedestrian. But from direct surveys and observations, we have determined and defined issues and problems as follow:

1. Some pedestrian ways within Kota Tua Jakarta are not feasible to the pedestrian because the pedestrian's size (the width) is less than 150 cm. Since that the standard says that the minimum width of pedestrian ways is 150 cm; thus, these pedestrian ways within Kota Tua Jakarta is not friendly to use for pedestrian (see Figure 6)
2. Almost all pedestrian ways within Kota Tua Jakarta are not friendly for disabled people. Since that, the standard says that pedestrian ways should be a universal design; thus,

those pedestrian ways within Kota Tua Jakarta are not friendly for disabled people. (See Figure 7).

3. Pedestrian ways should not have a distraction or barrier and should be saved from vehicles. Still, from the observations, we have found many pedestrian ways within Kota Tua Jakarta, which have many barriers, such as trees and an electricity pole in the middle of pedestrian ways. This condition will generate people to feel unsafe and uncomfortable. This condition is also not friendly to use for disabled people (see Figure 8)

From the observations, we have found that the existing pedestrian ways do not cover all areas or buildings within Kota Tua Jakarta, and it will cause an uncomfortable feeling for the pedestrian (see Figure 5).



Source: Authors, 2020

Figure 5. Existing condition of pedestrian way within Kota Tua Jakarta



Source: Authors, 2020
Figure 6. Existing condition of pedestrian way within Kota Tua Jakarta, the width of pedestrian way is less than 150 cm



Source: Authors, 2020
Figure 7. Existing condition of pedestrian way within Kota Tua Jakarta, which is not user friendly for disabled people



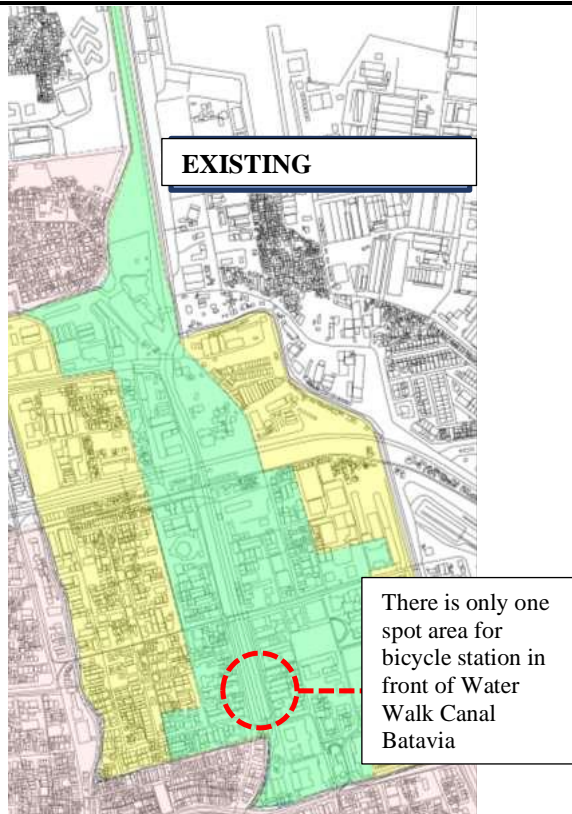
Source: Authors, 2020
Figure 8. Existing condition of pedestrian way within Kota Tua Jakarta, which is many barrier or distraction in the middle of pedestrian way

Moreover, we have identified issues and problems related to the cycling concept within the historical area of Kota Tua Jakarta. According to the cycling principle, a well-planned area should have a short distance from one activity to another. This short travel could become easy access for pedestrian or bicycle users. One solution to create a better environment within Kota Tua Jakarta is by delivering a concept of cycling within the region. Since the historical area of Kota Tua Jakarta has been known as one of the destinations for tourists, either domestic or international; thus, the idea of providing cycling ways becomes a perfect solution.

But from observation, we have determined and defined issues and problems as follow:

1. There is only a small part of Kota Tua Jakarta which has a bicycle way, and the condition is not likely bicycle way because there is no sign or a different color to separate the bicycle from the vehicle (see Figure 9)
2. There is only one spot area for bicycle station, in front of Water Walk Canal Batavia (see Figure 9)

There is a bicycle station spot within Fatahillah Square, but only for tourists. It is a rental bicycle to serve tourists to explore Kota Tua Jakarta by cycling. We have assumed this is not a cycling principle of Transit-Oriented Development (see Figure 10).



Source: Authors, 2020

Figure 9. Bicycle ways within Kota Tua Jakarta



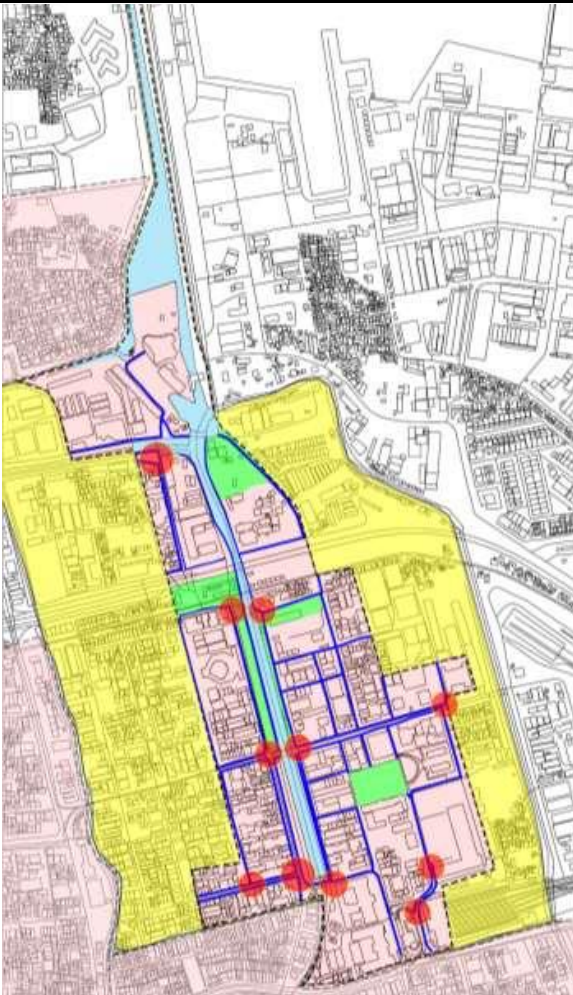
Source: Authors, 2020

Figure 10. Bicycle station within Kota Tua Jakarta, in front of Fatahillah Museum which is provided as a rental bicycle for tourist to explore Kota Tua Jakarta

3.3. Mapping Analysis

We have tried to translate the existing condition from the identification issues and problems through mapping analysis. This mapping analysis has been used to see the issues within the historical area of Kota Tua Jakarta and to see the appropriate solution. We have completed the mapping analysis of two Transit-Oriented Development's concept principles.

The first mapping analysis is about the possibility of applying the principle of walking within Kota Tua Jakarta. Since there are some pedestrian ways within Kota Tua Jakarta, we have proposed upgrading the pedestrian path's quality. We have identified some pedestrian ways that are not user-friendly and too narrow for pedestrians (see Figure 6). We have also identified pedestrian ways that provide so many barriers and distractions in the middle of the pedestrian ways, such as trees and electricity poles (see Figures 7 and 8). Pedestrian paths should be designed to make pedestrians feel safe and comfortable while using them. The challenge to providing well-design pedestrian ways is avoiding green lines (trees) and electricity poles.



Source: Authors, 2020
Figure 11. The proposed plan for pedestrian ways within Kota Tua Jakarta

We have proposed some pedestrian ways to fulfill the walking principle, using the existing pedestrian ways and enhancing them as properly as possible. The suggested pedestrian ways will connect from one bus station to another. They will connect from one activity to another, from one building to another, from one transportation mode.

The second mapping analysis is about the possibility of applying the principle of cycling. Since that, we have identified a small part of the cycling way, which is only one cycle station within Kota Tua Jakarta; thus, we have proposed some cycling ways within the area.

This proposed idea has fulfilled the cycling principle because the need to reach one building to another or one place to another within Kota Tua Jakarta should be fulfilled. We have proposed some spots for the bicycle station within Kota Tua Jakarta to complete the idea. By offering this idea, the quality of the environment within Kota Tua Jakarta will be enhanced since there is a pollution reduction within the area.



Source: Authors, 2020
Figure 12. The Proposed Design of Cycling Ways within Kota Tua Jakarta

Those two principles of Transit-Oriented Development's concept cannot be separated from one another because both pictures are related. By implementing the concept principles of walking, it also should apply the co of cycling. Using the walking and cycling principles, the proposed design of pedestrian and bicycle ways could quickly provide people access to all areas. The distance between one function to another could be reached easily.

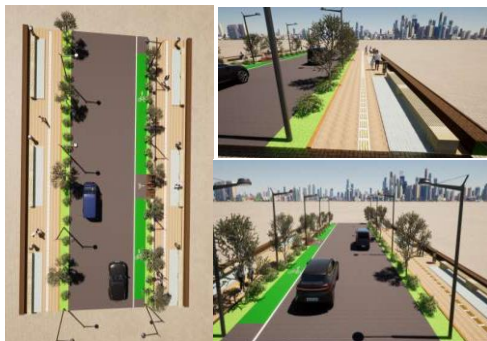
3.4. Proposed Design

The Transit-Oriented Development concept's two principles could be described as visualized in Figures 13, 14, 15, and 16. Figure 13 shows how the idea of walking has been proposed, and some facilities for pedestrians should be provided within the historical area of Kota Tua Jakarta. The facilities could be pedestrian ways or zebra cross to cross the street.



Source: Authors, 2020

Figure 13. How the Principle of Walking has been proposed, with some facilities for pedestrians



Source: Authors, 2020

Figure 14. Proposed design of pedestrian ways within Kota Tua Jakarta

Figure 14 shows how the principle of walking has been described in the proposed design of pedestrian ways within Kota Tua Jakarta. This proposed design has been formulated, referring to the minimum standard of a pedestrian path.



Source: Authors, 2020

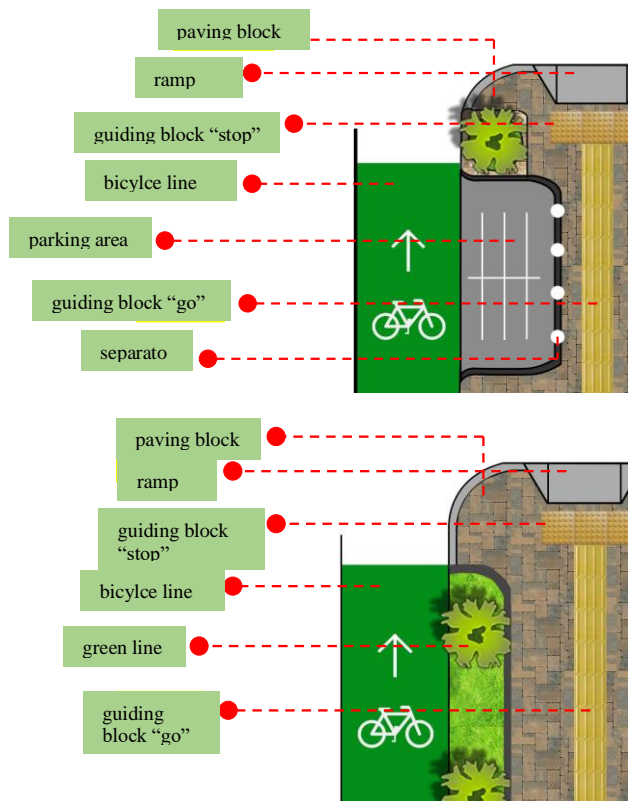
Figure 15. How the Principle of Cycling has been described, with providing some bicycle ways with some bicycle station spot within Kota Tua Jakarta

Figure 15 shows how the principle of cycling has been described in the proposed design. To meet the need of the bicycle riders, we have suggested providing some bicycle station spots within the historical district of Kota Tua Jakarta. Those bicycle station spots should have connectivity to each other in a short distance away. And finally is Figure 16, which shows the detailed proposed design of the bicycle way. According to the Transit-Oriented Development's standard, this proposed design refers to the minimum standard of bicycle way. In detail, Figures 17 and 18 show how the bicycle station spot should be designed. Two important elements should be consisted: parking area for bicycle and bicycle line itself.



Source: Author, 2020

Figure 16. The proposed design of bicycle ways within Kota Tua Jakarta



Source: Authors, 2020

Figure 17 and 18. The detail proposed design of bicycle station spot within Kota Tua Jakarta

4. Conclusion

To conclude this research, we have stated that there is a big possibility to implement the two principles of Transit Oriented Development's concept. We have proposed some pedestrian ways to apply the walking and cycling

principles and upgrade the quality of existing pedestrian ways within Kota Tua Jakarta. Also, we have offered new bicycle ways and bicycle station spots to serve all bicycle riders. This proposed design should encourage the local government to implement two principles of Transit-Oriented Development's concept. By applying the two principles of Transit-Oriented Development's concept, the historical area of Kota Tua Jakarta could become an integrated area with a specific character that provides a better environment that could be accessed easily by walking and cycling within the region. Hopefully, implementing those two principles of Transit-Oriented Development's concept could enhance the quality of the built environment to be more comfortable, safe, attractive, and sustainable.

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