

## The Correlation of Parcel shape and Dimensions with Regulation in Creating Commercial Corridor Character

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### -----ABSTRACT-----

*Commercial corridor in areas surround Jakarta has been rapidly growth. Some of this commercial corridor grows without any proper planning. Commercial corridor is created from available infrastructure that was used to connect some developed area. The rapid growth of commercial corridor shows irregularity and heterogeneity. The difference shape and dimension of parcel get similar treatment of building code. The characteristic of this commercial corridor created from the relationship of parcel shape and dimensions with building code as the controller. Relationship of parcel shape and dimensions with regulation can be analyzed easier using parametric simulation tools. The result of parametric simulation tools shows the characteristic of corridor as correlation between all variable. This paper uses one representative segment of corridor commercial in Serpong Tangerang.*

**Keywords** – Corridor commercial, regulation, parcel

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## I. INTRODUCTION

The role of regulation in addition to control physical growth of commercial area at urban fringe, sometimes are not effective. The need of controlling to create regularity, in several cases are not be met by building regulation. This phenomenon occurs on commercial corridor which is connecting two development areas surround Jakarta. The heterogeneity of form, can be seen along the commercial corridor without any proper planning. Municipality should able to create physical harmony through a pattern of rhythm and balance in the process of “form and massing” [1]. The physical harmony can be achieved by the present of diversity without any dominant element. Regularity and harmony do not only potential to increase the space quality, furthermore, it will give an effect to the density.

The differences of subdivision pattern can be observed from the existing case study. The subdivision pattern of development area seemed well design and show some regularity, while the subdivision pattern on the unplanned corridor show heterogeneity on shape and dimension. The differences of parcels dimensions not only affect the physical appearance but also the treatment of regulation. Government has set some regulation base on zoning and the area of each parcel. The regulation include Building Coverage ratio which control the area available to build and Floor Area Ratio that control the total built area of building. The implementation of these regulations creates certain form and massing on the commercial corridor. Further elaboration is needed to observe how the regulation control the form and mass according to existing parcels. This research attempt to observe more detail about the irregularity along the commercial corridor between two new development areas. The objective also include an explanation of regulation role on controlling the corridor.

## II. METHODS

Data is collected through field observation, interviews, documents examination and mapping. Data regarding regulations is mainly collected directly from local authorities. The interviews are conducted with the Head of South Tangerang City Government and Tangerang National Land Agency (*Badan Pertanahan Nasional*, a part of the Indonesian Agrarian Ministry).

Parametric approach is an interesting method to use in examining an existing urban condition with existing field [2]. In the case of commercial corridor that connects two new developed areas, a corridor is a physically existing condition and it develops quickly. Unlike the structured new area development, the

development in commercial corridor is unplanned does not begin from an empty area. In urban design, supporting components can also be defined parametrically because there are a lot of similarities among them. These supporting components include: density, mass, utilization, shape, space and typology. Regulation aspects that apply to a city include: utilization, percentage and maximum and minimum number criteria. These components will in turn control the design supporting components. Thus, parametric approach (whose purpose is to reach efficiency through different simulations) is suitable to examine the application of regulations and to predict its outcome.

### **III. LITERATURE SURVEY**

Urban zone has three dimensions: pattern, use, and form. Each of these dimensions can be affected by regulations on zoning, subdivision and public facility standards [3]. "Pattern takes into account the two dimensional arrangement and location of an area. This arrangement includes lot, block, and street. Pattern is affected by regulations that organize land subdivision, street width, layout, and spatial arrangement of a zoning district." [3]. Regulation will affect form and massing along commercial corridor. The tendency of form and massing is a result of regulation implementation on the parcel.

Masses is three dimensional character of building volume. With this character, volume control is one of building regulation objective. The volume control are made by a set of code such as Building Coverage ratio (BCR), Floor Area Ratio (FAR) and Building setback Hence these codes still need further regulation to control the form [4]. Density as a result of building massing can be achieved by stacking vertically or increase built area horizontally [5] (Uytenhaak et al. 2008).

### **IV. DISCUSSION**

The location of case study is a corridor that connects two development area around Jakarta. The corridor has growth as commercial corridor and used as main access to the two developed area Alam Sutera, dan Sumarecon Serpong. The parcels lie along the two segments of the corridor is used as samples. The two segments are as follow:

- a. First Segment: Gading Serpong – Jl. Bhayangkara
- b. Second Segment: Jl. Bhayangkara – Alam Sutera

. This study uses recent regulation that implemented along the corridor. Zoning regulation is part of Government regulation for Jakarta Greater Area. There are some differences between commercial block and commercial strip. Government sets an indication that the area belong to new development area is commercial block and the other area along the corridor will be the commercial strip. Location, function, total square meters and ownership are some factors that differentiate various types of parcels. Based on its location, a parcel can be in a structured areas periphery or in an existing corridor. Based on its total square meters, a parcel can be categorized into: smaller than 1.500m<sup>2</sup>, 1.501-3.000m<sup>2</sup>, 3.003-5.000m<sup>2</sup>, 5.001-10.000m<sup>2</sup> and bigger than 10.000m<sup>2</sup>. Based on its function, a parcel is categorized into: industrial, residential, commercial, military, public service, government and multifunction parcels.

The two segments are commercial corridors that connect Gading Serpong and Alam Sutera as two big new development areas This corridor has some different zones such as commercial strip, commercial block, and industrial area. Some of them are used as warehouses, multiple use building and medium scale industry. There are two nodes as an alternative access to the new development areas. Small size parcels look like dominate the west side of commercial corridor. This type of parcels has an area below 1500sqm. The east side of commercial corridor contains quite diverse type of parcels. There are some parcels with different zoning type, size, and form.

Different zoning type between commercial strip and commercial block affects more on Floor Area Ratio of parcels with area more than 3000sqm. Parcels with areas 3001-5000sqm implement Floor Area Ratio twice bigger than lower categories and so the does the bigger parcels. Parcel with area more than 5000sqm can implement 7.2 of Floor Area Ratio. This is the significant ratio that makes significant differences of building stories as well.

The analytical processes begin by creating a parametric simulation model of the corridor. This simulation uses building regulation as parameter, including Building Coverage Ratio and Floor Area Ratio. The simulation is used to predict the form and massing of the two segments.

Figure 1. Form and Massing Simulation of First Segment

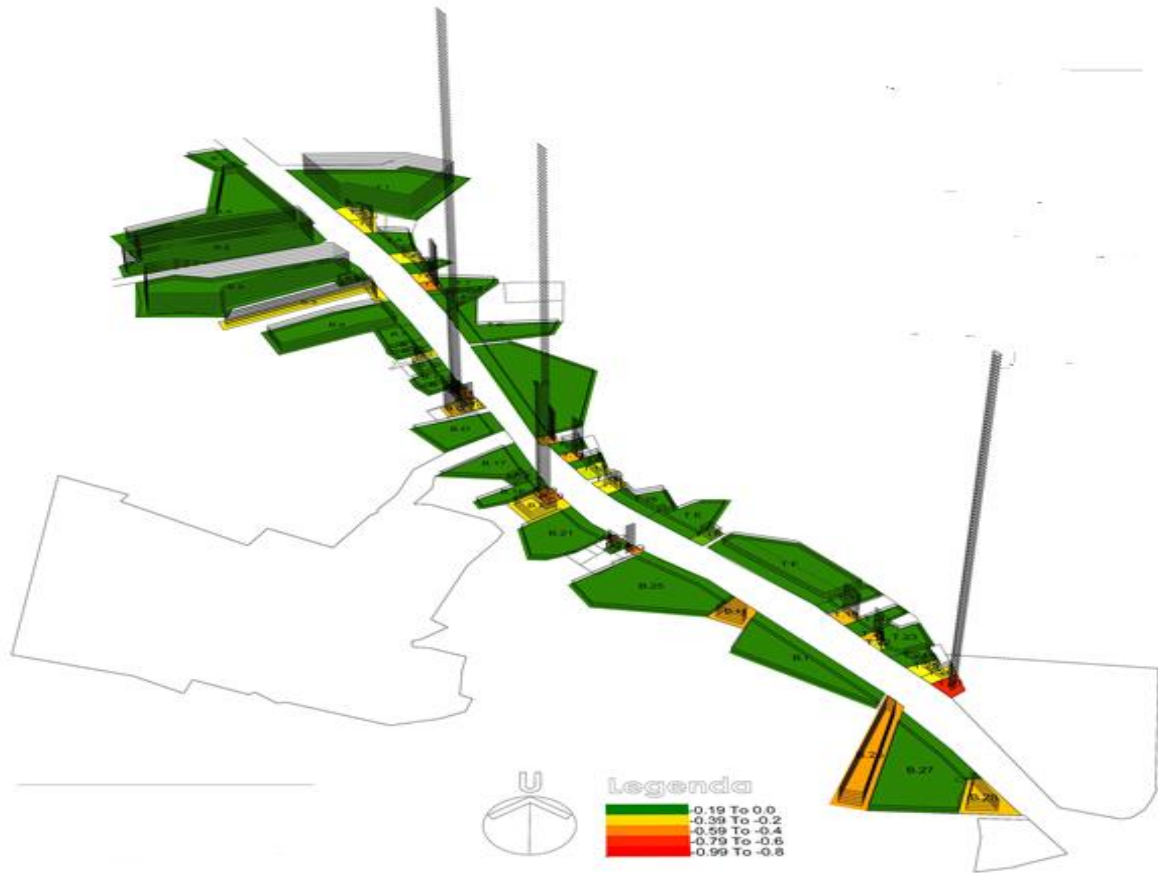
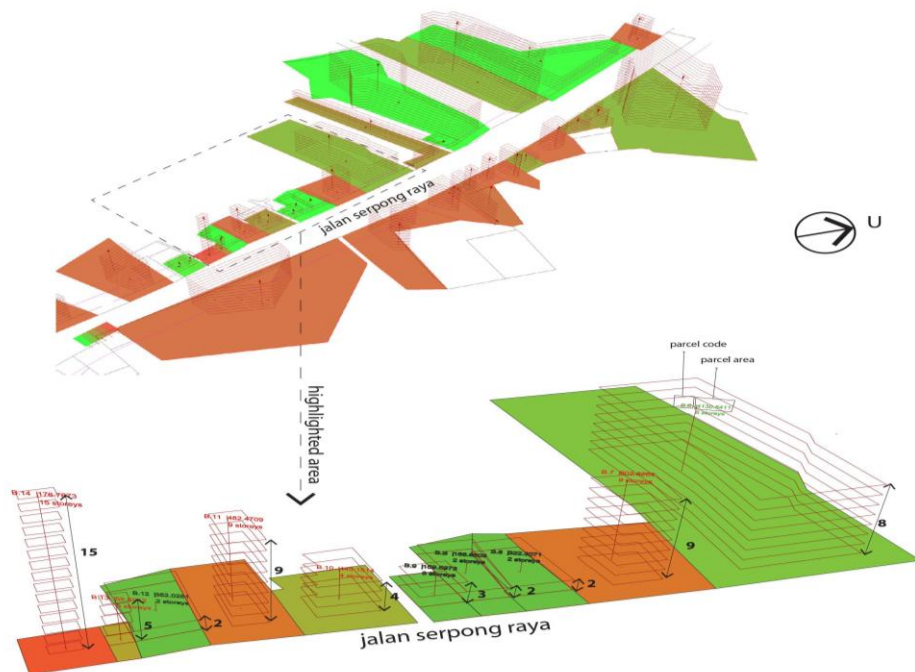
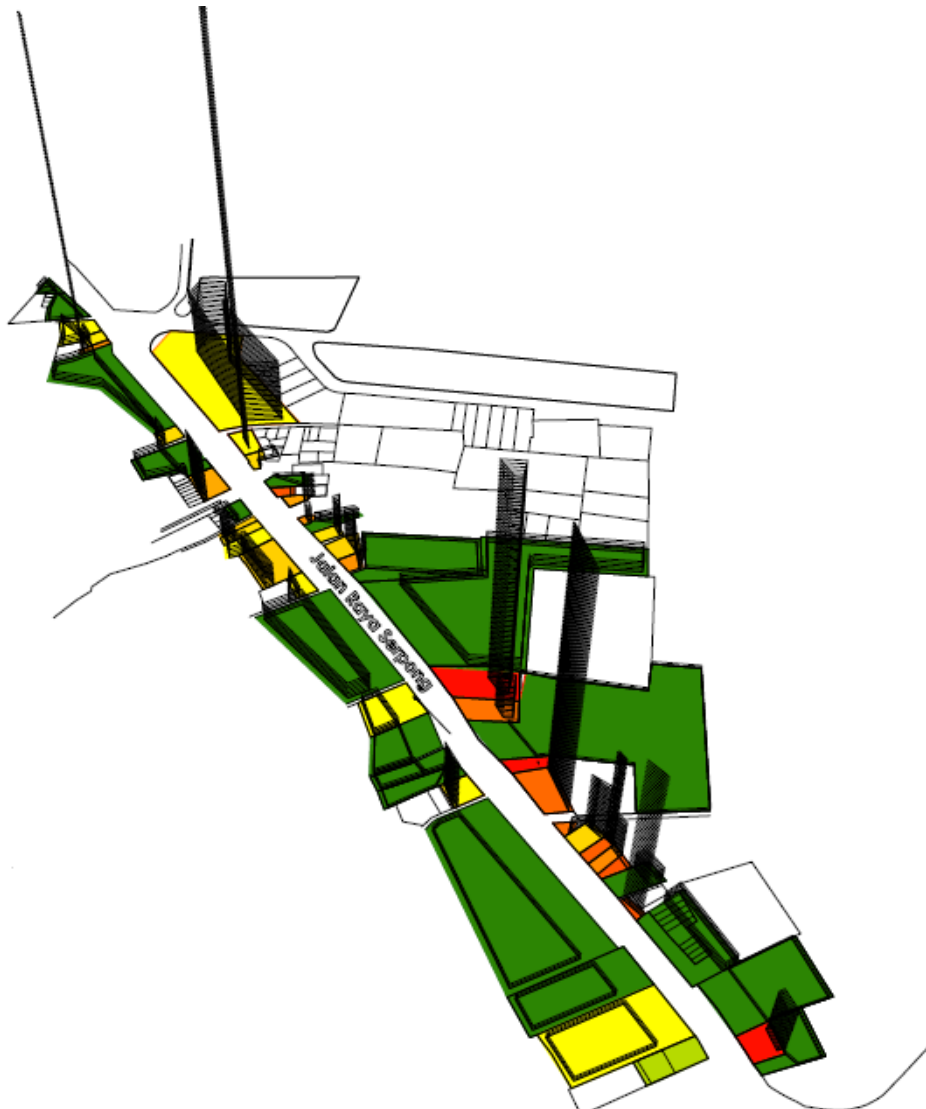


Figure 2. Result of First Segment



Simulation model shows uneven height differences within mass configuration. This case occurs as an effect of small area and the dimension of some parcels. This type of parcel unable to get regulation treatment since it has limited available area to be built. If the building setback decreases, the available area to build will increase and affect the building height. There is significant difference of form and massing especially the building height, according to the orientation of parcels and parcel's irregular shape. In the case of the first segment, the gradients of masses are not in good proportion. This case basically can be seen while there are many variant of parcel area and dimensions. The most affected regulation is building setback which is implemented on all of parcels side. There should be different treatment for parcels with narrow width.

Figure 3. Simulation of Second Segment



The elaboration of the second segment finds a lot of parcel size and dimensions. Parcels with different character are distributed along the segment. This condition result to heterogeneity of form and massing along the second segment. The simulation also shows that parcel with unbalance proportion of width and depth will loss an effective of area to build.

Figure 4. Result of Second Segment



## V. CONCLUSION

The three-dimensional simulation of Serpong-Tangerang corridor segment shows some indications of irregular mass. It does not seem to be possible to regulate building mass simply by the regulations in the Building and Environment Development Plan. Here are some findings of relationship between parcel and regulation as found in parametric simulation:

- Effectiveness of built area will be changed according to the building setback code. The most effective will be achieved of regular parcel with perpendicular position to the street.
- Fluctuation in building height is mainly caused by the total area of the lot. The probable reason for this condition is the application of a much different KLB for lots bigger than 3000m<sup>2</sup>.
- Such fluctuation is also related to the function and usage, which gives more demanding KLB for commercial blocks.
- This fluctuation also causes uneven building proportion gradient, which is affected by the widths of the lot. Narrow widths make it impossible to allow some distance between buildings.

The application of these regulations appears to be more effective to control lots with structured geometric shapes. Shapes that are not structured (that form up polygons less or more than four angles) require a different approach in applying the Building Set Back, Building Coverage Ratio and Floor Area Ratio regulations.

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Studied architecture in Parahyangan Catholic University and got Bachelor Degree in 1995. In 2006 got Master Degree with thesis title Morphological Transformation as Result of Sites Amalgamation in Urban Development. It was a case study of Kebayoran Baru that was planned as satellite town of Jakarta. Since urban issues is my interest, in 2011 I started my postgraduate study in Architectural Doctoral Program of Parahyangan Catholic University. Recently work as Lecturer at Faculty of Design and Planning Pelita Harapan University since 2008.