

# ACCESSIBILITY FOR DIFABLED ON PUBLIC SPACE IN SIMPANG LIMA SEMARANG, INDONESIA

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**Abstract.** Simpang Lima is a CBD of Semarang City that has a high level of activity. Improvements have been made to the faces of the Simpang Lima area and included the provision of facilities for difabled, but not yet many difabled persons accessing the area due to difficult access to and from the area. This research aims to assess the accessibility of difable to public open space in Simpang Lima area by analyzing the application of public facilities, especially for difabled and analyzing alternative solutions in the provision of accessible public facilities based on difabled needs. The Data acquired by distributing questioner to the difabled who are members of the “*Komunitas Sahabat Difabel*” and the audit of difable facilities in Simpang Lima area based on the provision of facilities. Based on the research conducted, it is known that the accessibility in Simpang Lima Semarang area for difabled is still less accessible with the final value of 1.97 from the scale of 1 to 3. This is due to the incomplete disfigured facilities in the area as well as some facilities already available but not in accordance with the provision of difabled facilities. In addition, in this study also produce the direction of planning the area such us, connecting the guiding block there is disconnected, increasing the number of ram at each height different and on each entrance, the supply of crossing lights, the addition of signage especially for difabled, and the addition of other difabled facilities such as parking areas and toilets specially for difabled persons.

**Keyword:** Accessibility, Difabled, Public Space

## 1. Introduction

Accessibility in green open spaces is measured in various ways and the most selected green open space indicator often does not solve the problem [1]. Accessibility and local use are declined since urban public space has been neglected in the planning and development process [2]. In the Simpang Lima Semarang, there has been a relocation of street vendors and the improvement of the area's face that

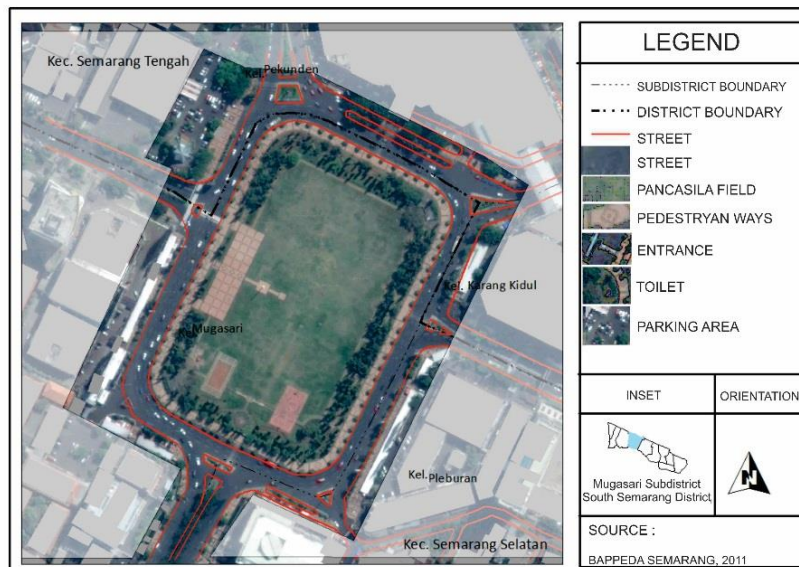
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provided ramp for wheelchair users, but not many disabled people access the area. The facility has not been accessed because of the difficult access to Simpang Lima area. The accessibility of public open space is defined as the number and proportion of public open space within 1000-m of the pedestrian home [3]. Accessibility of the poor and people with disabilities faces more challenges and difficulties while traveling and using public transport [4].

This study was conducted to assess the provision of facilities for disabled according to Ministry of Public Works Regulation no. 30/PRT/M/2006 about Facility Technical Guidance and Accessibility on Building and Environment [5]. Disabled people going to assess the accessibility based on the utility, convenience, safety and independence seen from the availability of existing facilities on the pedestrian ways, parking area, entrance and public toilets. Based on that problem, the research question is: "How is accessibility for disabled in public space in Simpang Lima?"

Selection of Simpang Lima Semarang as a research area has been through several identification process of public space in Semarang City. Simpang Lima was chosen due to several things: Simpang Lima area is a CBD from Semarang City which is surrounded by education, trade and services. Simpang Lima area has done renovation and provide supporting facilities for people with disabled. Many activity in Simpang Lima area can bring the community in large quantities for recreation. Here is an administrative boundary of Simpang Lima: North: Ciputra Hotel, Ciputra Mall, and Gajah Mada Street. East: Plaza Simpang Lima, Horison Hotel, Simpang Lima Department Store, A. Yani Street. South: Living Plaza, Telkomsel Office, SMK N 7, Pahlawan Street. West: E-Plaza, Baiturrahman Mosque, Pandanaran Street.



**Figure 1:**Administration Map of Simpang Lima Area  
*Source: Bappeda Semarang, 2014*

## 2. Research Methods

The technique of determining the sample is using cluster random sampling, where the respondent is determined based on the number of active members "*Komunitas Sahabat Difabel*" as many as 30 respondents because in one group there are some characteristics that can represent the people with disabilities in Semarang. The method used is through quantitative descriptive approach because it aims to know the perception of a problem by using scoring analysis conducted through several stages. Distribution of analysis stages along with data analysis techniques performed can be seen more clearly in the following points.

- a. Identify the application of the provision of public facilities in the Simpang Lima Semarang area, especially the accessibility of special services for the disabled.
- b. Identify non-physical conditions in the provision of accessible public facilities based on the needs of persons with disabilities.
- c. Analyze the accessibility of public facilities provided for disabled in the Simpang Lima Semarang Area. Determination of score on the physical condition of the facility: Score 1, for unavailable facilities. Score 2, for available facilities but not standard. Score 3, for available and standard facilities. Determination of score on non-physical condition of facility: Score 1, in case the facility condition is bad. Score 2, if you feel the condition of the facility is good enough. Score 3, in case the condition of the facility is good.
- d. Determine the accessibility of Simpang Lima Semarang for disabled. Here is the accessibility topology for disabled in public open space: Not Accessible, if obtaining final score  $0 < \text{score} \leq 1.00$ . Less Accessible, if obtaining final score  $1.00 < \text{score} \leq 2.00$ . Accessible, when obtaining final score  $2.00 < \text{score} \leq 3.00$ .
- e. Provide an accessible design guidance for the disabled in Simpang Lima area.

In this study there is also a discussion division based on physical condition and non-physical condition which refers to the Minister of Public Works Regulation number 30/2006 and universal design theory about providing accessibility for disabled in public open space. Physical condition seen from the pedestrian ways, parking area, entrance or entrance, and public toilets. Non-physical condition seen from the ease, usefulness, safety, and independence when accessing the area. While the physical condition of the region is seen in the following locations:



**Figure 2:** Location of Research in Simpang Lima Area

### **3. Literature Review**

Accessibility in public spaces for the disabled is very important. In the last decade there has been an increase in interest in the use of public space and the potential to improve the health and well-being of urban populations. Public space is considered as a key in an environment that can help reduce risk cardiovascular and metabolic diseases in the population. Accessibility of public space in terms of numbers public space in every 1000 m and the proportion of buffer zones covered by public space [3]. Walking to and from the terminal, dormitories, getting off public transportation is the most important part, but dissatisfaction with the facilities available because of insecurity when using facilities it actually increases. Therefore, the design of the physical environment involves the diffable must be prioritized [4]

Public Space, as one of the efforts to provide public space in Semarang City, Pancasila Square or better known as Simpang Lima Square is a substitute of Johar Square which in its development has been squeezed by the intensity of space use which is getting higher and higher and making it as a trading center Traditional and modern solid [6]. Accessibility of difabled groups, the term difabled is based on the reality that every human being is created differently and does not close the opportunity to enter the negative of disability so as to enable everyone to engage in community activities in their own way [7].

Disable facilities, accessibility for persons with disabilities consists of 2 aspects according to [8] sections, there are Physical accessibility (Accessibility to public buildings and the environment and Accessibility on means of transportation) and Non-Physical Accessibility (Accessibility in the field of legislation, Accessibility in the manpower field, Accessibility in the areas of information, communication and technology, Accessibility in education, Accessibility in the field of daily life). Implementation of Minister of Public Works Regulation No.30/PRT/M/2006 about Technical Guidance of Facilities and Accessibility on Public Buildings which regulate the size of doors, ramps, stairs, toilets, wash basins, telephones, parking, markers, for example: Kobe,Japan [9].

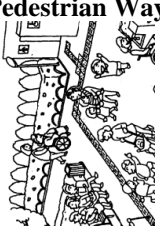
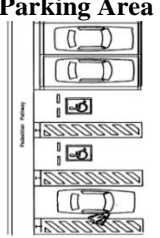
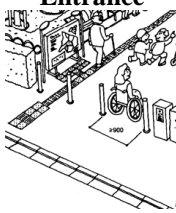
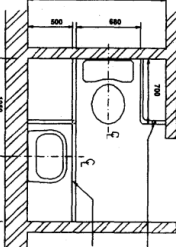
Standards of accessibility, the reference and accessibility standard according to [10] in measuring accessibility is the Minister of Public Works Regulation number 30 of 2006 about Facility Technical Guidance and Accessibility on Building and Environment, and also modify them according to measures of building accessibility. Condition of difabled facilities in Simpang Lima area, based on survey results [11] on the condition of the guideline in Simpang Lima area there are some problems that are physically seen. This guiding block is not continuous length, the surface distance of the pedestrian ways from the high road surface is 30 centimeters which is also dangerous for the visually impaired, many roads that have not provided ram that connects the pedestrian ways with the road. The principle accessibility of difabled, there are four principles that can guarantee the accessibility or accessibility of the disabled [12] should be fulfilled by the government, namely the principle of ease, the principle of usefulness, the principle of salvation, the principle of independence.

### **4. Results And Discussion**

#### *4.1 Identify the Implementation of Public Facility Provision in Simpang Lima.*

Physical condition seen from the conformity of existing condition with provision existing. In this area, the physical condition has not been accessible because some facilities have not complied with the provisions and also not all indicators are available in the area.

**Table1:Synthesis Result of Physical Condition Identification**

VARIABLE	INDICATOR	PARAMETER	SCORE	TOTAL
	Ramp	Slope 2 degrees, floor texture, width, min 120 cm	2	8
	Border	Provided at every turn	2	
	Signage	Provided information boards for the disabled	1	
	Guiding block	Interconnected, unobstructed street furniture, well groomed	2	
	Guide signs	Provided guide board for the disabled	1	
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	Distance	Max of 60 m till entrance	2	8
	Extent of parking area	Single car for difabled, min of 370 x 550 cm	1	
	Ramp	Slope 2 degrees, floor texture, width, min 120 cm	1	
	Border	Provided at every turn	1	
	Signage	Provided information boards for the disabled	1	
	Guiding block	Interconnected, unobstructed street furniture, well groomed	1	
	Guide signs	Provided guide board for the disabled	1	
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	Door	Easy to find and access	2	11
	Ramp	Slope 2 degrees, floor texture, width, min 120 cm	3	
	Border	Provided at every turn	2	
	Signage	Provided information boards for the disabled	1	
	Guiding block	Interconnected, unobstructed street furniture, well groomed	2	
	Guide signs	Provided guide board for the disabled	1	
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	Signs for disabled	Provided	1	12
	Emergency light button	Reachable and easy to use	1	
	Door	Inward	2	
	Free space	Min 160 x 160 cm	1	
	Sink	Maxheight 95 cm from the floor	1	
	Toilet cubicle	Not slippery material	2	
	Urinal	Free space in frontmin 80 cm width, without door	1	
	Hand rail	Height of handrail 85 cm from the floor, up/behindtoilet	1	
	Seated toilet	Height max 45-50 cm	1	
	Tissue container	Height min 65 cm from the floor	1	

Source: Analysis, 2018

*4.2 Identification of Non-Physical Condition of Provision of Accessible Public Facilities.*

Non-physical condition is the assessment or perception of the disabled people through questionnaires and stated that the area is already accessible although they claim to rarely visit the area. In addition to determining the value of accessibility for disabled people in Semarang Simpang Lima Area, respondents were also asked questions about the needs of the facilities they needed so can be used as input for the government in providing good disabled facilities to front of it. The question will later be given 5 choices and their answers allowed to choose more than one choice, the choice with the highest number of voters will be used as a guideline in preparing design directions. Perception is a person's judgment towards a thing while preference is the hope that someone wants.

**Table2:** Synthesis Result of Non-Physical Condition Identification

Non-Physical Condition	Easiness		Usefulness		Safety		Independence		Total Score
	Respondents	Score	Respondents	Score	Respondents	Score	Respondents	Score	
Bad	6	6	7	7	10	10	8	8	from 30 respondents
Enough	8	16	13	26	11	22	13	26	
Good	16	48	10	30	9	27	9	27	
Acquired score	70		63		59		61		253
Max Score	90		90		90		90		360

Source: Analysis, 2018

*4.3 Assessment of Accessibility to Difabled.*

Assessment is done to determine the accessibility value of the area and then determine the accessibility typology of the area. Overall the area is less accessible, this is due to physical conditions that are not in accordance with the provisions that are unable to meet accessibility needs for difabled in the area. The assessment formulas(LBH, 2015)and accessibility assessment results will be outlined below.

$$\frac{\text{Score Acquired}}{\text{Max Score}} \times 3 = \text{Total score}$$

**Table 3:** Assessment of Disabled Accessibility in the Simpang Lima area of Semarang

Variable	Question	Max Score	Score Acquired	Points
Physical	28	84	39	1.4
Non-Physical	120	360	253	2.1
TOTAL	148	444	292	1.97

Source: Analysis Result, 2018

Based on the results of these calculations it can be seen that the Simpang Lima area is less accessible because it has a value of 1.97. The lack of accessibility of this area has made Semarang's Simpang Lima area not yet accessible to persons with disabilities even though they have some facilities for the disabled are provided. The reason is because the provision of public facilities is not in accordance with applicable requirements or universal design. So people with disabilities do not feel comfortable in accessing the area independently.

#### 4.4 Direction of Designing Facilities for Disabled

The design guidance is formulated based on the provisions of the applicable provisions, namely the Minister of Public Works Regulation no. 30 year 2006 and universal design, the preference of the disabled based on the questionnaire, and the problems that occur in the existing condition. Referral arranged in the form of site plan and design of each area that is pedestrian ways, parking area, entrance, and public toilet. Most of the guidance provided is the care on the guiding line as well as connecting the disconnected guiding lane, adding ramp at every height altitude, adding signage and border at every turn. More details about the design direction can be seen in the following designs: the pedestrian pathway provides ramp, border, information, and guide signs. Available guide tiles need to be connected with each other between two or more areas, care is also taken on the texture of the tiles that begin to fade, as well as kept away from obstructing street furniture. Disabled special parking area with a maximum distance of 60 meters from the four entrances, the area of each parking block is a minimum of 370 x 550 cm with a disabled marked in the form of an image on asphalt & a signboard. The entrance is provided ramp, border, information, guide tiles and guide signs. Provision of crossing lights at each entrance and exit area with buttons that are easy to reach, especially for wheelchair users. Public toilets are provided with signs emergency button, sink, toilet cubicle, urinal, handrail, toilet seat, tissue holder, according to the supply standards.



Figure 3: Design of Simpang Lima Area Accessible To Disabled  
*Source: Analysis, 2018*

On the pedestrian ways, the improvement needs to be done is to provide the ramp with a maximum slope of 7 degrees at each location that has a height difference and has a minimum width of 120 cm. At every turn there needs to be equipped with a border for the security of the disabled. Information boards and guiding signs for disabled also need to be added for easy regional access. Existing guide tiles need to be repaired by replacing the faded texture tiles.

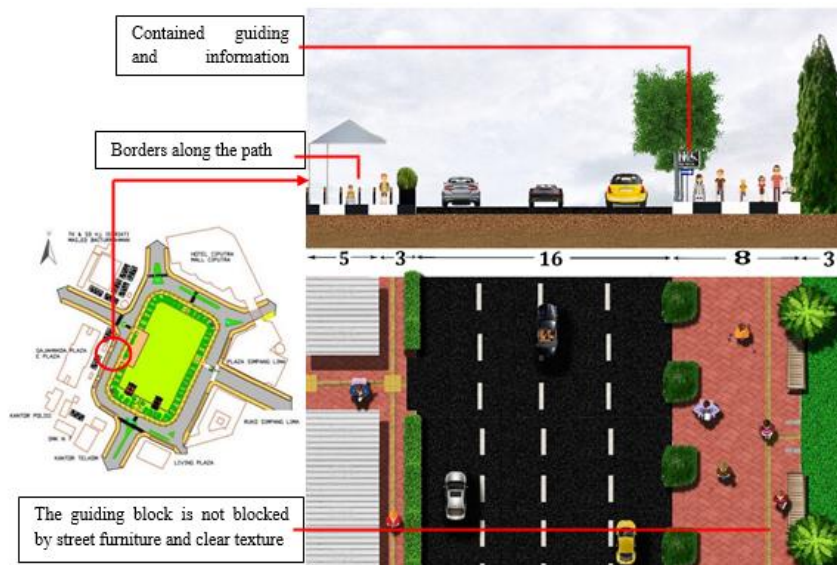


Figure 4: Guidelines for Designing Pedestrian Ways for Difabled  
 Source: Analysis, 2018

In the parking area, the necessary improvement is to build a parking area under the Pancasila Field (basement) to have a maximum distance of 60 m to the entrance. The distance of each single car for disable is 370 x 550 cm.

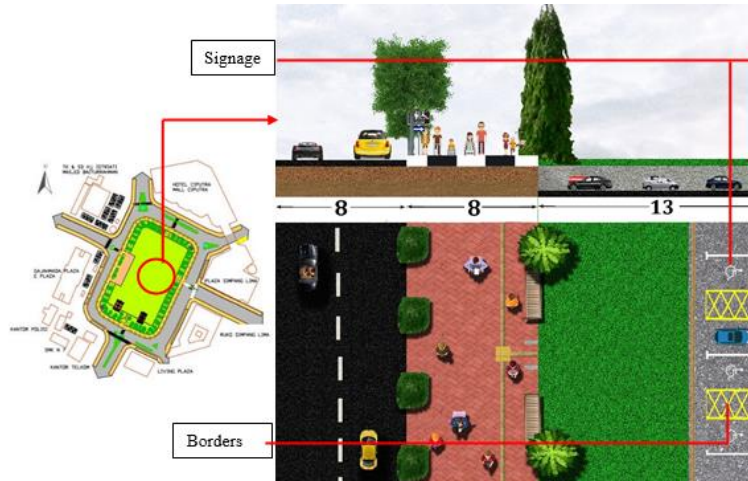


Figure 5: Guidelines for Designing Parking Area for Difabled  
 Source: Analysis, 2018

On the pedestrian ways, the improvement that needs to be done is to provide the ramp with a maxima of 7 degrees on each entrance and has a minimum width of 120 cm. At every turn there needs to be equipped with a border for the security of the disabled. Information boards and guiding signs for disables also need to be added for easy regional access. The existing guide tiles need to be repaired by replacing the tiles whose texture begins to fade and the texture distinction at every turn.



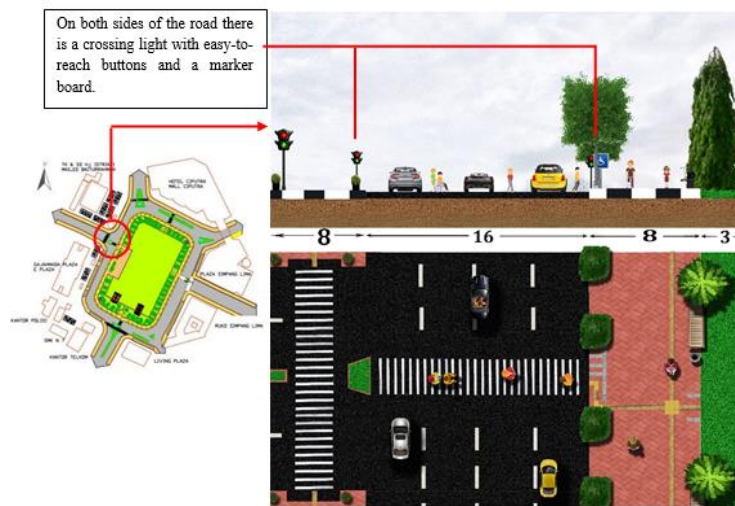


Figure 6: Guidelines for Designing Entrance for Difabled  
 Source: Analysis, 2018

In public toilets, repairs that need to be done is to provide ram at each height difference and border at every turn on access to the toilet. Information boards and guiding signs for disables outside the toilet. The toilet cubicle should have a floor that is not slippery and has enough free space especially for wheelchair users. Other facilities that need to be added in the toilet cubicle are the emergency button, the inward door, the sink, the urinal, the handrail, the toilet seat and the tissue holder. Here's the design on public toilets:

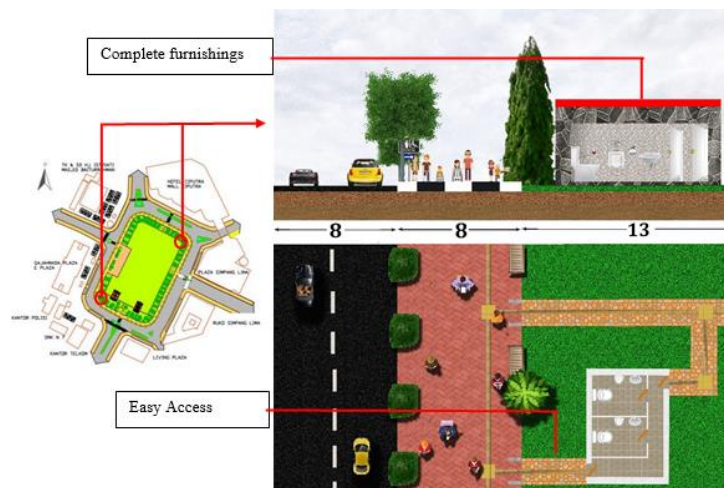


Figure 7: Guidelines for Designing Toilet for Difabled  
 Source: Analysis, 2018

## 5. Conclusion

Based on the analysis that has been done can be concluded that the level of accessibility of people with disabilities in the Simpang Lima Semarang area is still less accessible. This is due to the unavailability of public facilities in accordance with existing standards, the lack of safety and independence created in the region for the disabled, and the lack of attractiveness that is reserved for the disabled in the region.

Improvements that need to be undertaken as a whole in the Simpang Lima Semarang area to be more accessible are the guidance care for the blind on the pedestrian ways, provision of parking areas and public toilets specifically for the disabled, adding ramp at each altitudinal and funded place, providing the path for the user wheelchairs, adding signboards and information for the disabled, adding a crossing light for the disabled.

## **6. Acknowledgements**

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## **References**

- [1] Ekkel, E. D., and Vries, S. De. 2016. "Nearby Green Space And Human Health : Evaluating Accessibility Metrics". *Landscape And Urban Planning*, 157, 214–220. <https://doi.org/10.1016/j.landurbplan.2016.06.008>
- [2] Pasaogullari, N., and Doratli, N. 2004. "Measuring Accessibility And Utilization Of Public Spaces In Famagusta Measuring Accessibility And Utilization Of Public Spaces In Famagusta. *Cities*, June. <https://doi.org/10.1016/j.2004.03.003>
- [3] Paquet, Catherine et al. 2013. “Are accessibility and characteristics of public open spaces associated with a better cardiometabolic health?”. *Landscape and Urban Planning*, 118, 70–78. <http://doi.org/10.1016/j.landurbplan.2012.11.011>.
- [4] Soltani, Seyed H. K. et al. 2012. “Accessibility for Disabled in Public Transportation Terminal”. *Procedia - Social and Behavioral Sciences*, 35, December, pp 89–96. <http://doi.org/10.1016/j.sbspro.2012.02.066>
- [5] Minister of Public Works Regulation No.30/PRT/M/2006 about Facility Technical Guidance and Accessibility on Building and Environment.
- [6] Haryanti, D. T. 2008. "Kajian Pola Pemanfaatan Ruang Terbuka Publik Kawasan Bundaran Simpang Lima Semarang". Ringkasan Tesis, Program Studi Magister Perencanaan Wilayah Dan Kota, Fakultas Teknik Universitas Diponegoro, Semarang.
- [7] Difabel News Edisi XIX Th XI, 19 Mei 2011
- [8] Handoko. 2004. “Aksesibilitas Publik Bagi Penyandang Cacat Di Indonesia”. *Jurnal Desain 2D3D*. Vol.1 No.2, Juli, Hal 131-146.
- [9] Darmawan, Edy et al. 2014. “Public Facility for Diffable and Elderly Problem in Semarang-Indonesia”. *Procedia Social and Behavioral Sciences*, 135, 36–40. <http://doi.org/10.1016/j.sbspro.2014.07.322>.
- [10] Thohari, S. 2014. "Pandangan Disabilitas Dan Aksesibilitas Fasilitas Publik Bagi Penyandang Disabilitas Di Kota Malang". *Indonesian Journal Of Disability Studies*. Vol 1, 27–37
- [11] Sari, R. O. dan Diah Intan K. D. 2015. "Pemanfaatan Jalur Pemandu Tunanetra Pada Pedestrian Di Kota Semarang". *Jurnal Ruang*, Vol 1, 11–20

- [12] Rahayu, S.et al. 2015. "Pelayanan Publik Bidang Transportasi Bagi Difabel Di Daerah Istimewa Yogyakarta". *Jurusan Ilmu Administrasi Negara, FIS, UNY*