CheckPlag-PPT-Reflection of Low Vision Students on Pedestrians Accessibility in Indonesia and Australia for People with Disabilities: Case study of Surabaya, Bandung and Brisbane

By Gunawan et al Tanuwidjaja et al

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REFLECTION OF LOW VISION STUDENTS ON PEDESTRIANS ACCESSIBILITY IN INDONESIA AND AUSTRALIA FOR PEOPLE WITH DISABILITIES: CASE STUDY OF SURABAYA, BANDUNG AND BRISBANE

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- **United Board for Christian Higher Education in Asia (UBCHEA)**
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- **Other Units in Petra Christian University:** Library@Petra, Visual Communication Design Prog. Study, English Literature Prog. Study, General Education Dept., and Interior Design Prog. Study;
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- **SCIArchitecture, and Studio Kata.**

PRESENTATION STRUCTURE – ICOC 21

- Experiencing as People with Disabilities
- Why People with Visual Disabilities are limited in accessibility during COVID-19?
- Literature Review of Accessible Pedestrian
- Pedestrians Observation of Brisbane, Surabaya and Bandung
- Accessibility Evaluation with People with Low Vision in Brisbane and Surabaya
- Conclusion

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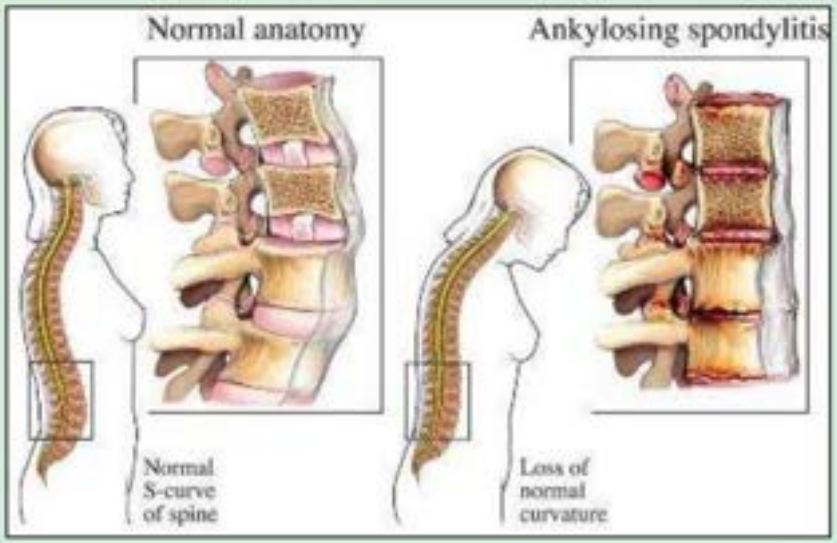
https://doschdesign.com/productdetail.php?id=17661&line=42&countryid=57

EXPERIENCING AS PEOPLE WITH DISABILITIES

As people with temporary disability in 2019,
I experienced blurry vision and difficulty to carry heavy stuffs.



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WHY PEOPLE WITH VISUAL DISABILITIES ARE LIMITED IN ACCESSIBILITY DURING COVID-19?

- Covid-19 have impacted cities and human lives related to working and transporting. The lockdowns strategies, in many countries, have controlled residents' movement within a neighbourhood or ten kilometres radius of their residence. Despite the success of lockdowns, people with disabilities face significant challenges in the Covid-19 era, even though they have equal rights to cities and livelihood, as stated by the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD).
- Lockdowns imposed limitation on disabilities because of their jobs, with high-frequency physical interactions, such as masseurs, musicians, food hawkers, online motorcycle taxi drivers, and students.
- People with visual disabilities or blind people are more challenged because they can not travel in inaccessible pedestrians and can not be assisted by strangers because of Social Distancing measures in place.

LITERATURE REVIEW OF ACCESSIBLE PEDESTRIAN

- Tanan et al. (2015) and Wibowo et al. (2015) have measured the walkability assessment in Surabaya Commercial Area and Bandung. The walkability score given by Tanan et al. (2015) is relatively high from inputs of Surabaya residents for the central area, namely Dharmawangsa road sidewalks, Pemuda road sidewalks, and sidewalks in front of Gubeng Rail Station.
- Leather et al. (2011) also argue that thirteen Asian cities were impacted by motorization and limited pedestrian facilities development access from field walkability surveys and pedestrian interviews
- United States Access Board. (2010) has and United States Access Board. (2018) has prescribed model accessible sidewalks in Chapter 5 and accessible curb ramp examples in Chapter 6.
- These accessible designs are found in Australia as prescribed in Standards Australia. (2009a). AS 1428.1-2009: Design for access and mobility.

Image Source:

PEDESTRIANS OBSERVATION OF BRISBANE, SURABAYA AND BANDUNG

https://research.qut.edu.au/designlab/ https://desaininklusiukpetra.wordpress.com/

CONTEXT OF BRISBANE, SURABAYA AND BANDUNG PEDESTRIANS: IN EDUCATIONAL INSTITUTIONS

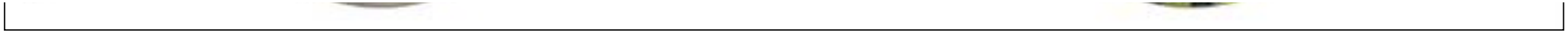
- Further, some University students with disabilities are affected by the closure of some universities. However, in some universities, disadvantaged students, including students with disabilities, could still utilise campus facilities, such as computers and the internet.
- Therefore, many students, especially those with disabilities, need accessible pedestrians to reach those campuses from nearby residential areas. We propose reflective research of three users with visual disabilities (low vision).
- The study is to measure pedestrians' accessibilities in Surabaya, Bandung, Indonesia and Brisbane, Australia. Furthermore, the study uses simple walkthrough evaluation and reflection of low vision students.

CONTEXT OF BRISBANE, SURABAYA AND BANDUNG PEDESTRIANS: IN EDUCATIONAL INSTITUTIONS

- Queensland University Technology,
in Musk Avenue, Kelvin Grove Campus, Brisbane

- Petra Christian University
in Siwalankerto, Surabaya

- Maranatha Christian University
in Surya Sumantri, Bandung



PEDESTRIANS OBSERVATION OF BRISBANE, SURABAYA AND BANDUNG

- In conclusion, two pedestrians in Bandung and Surabaya are found less accessible that pedestrian in Brisbane for the low vision students.
- The less accessible Indonesian case studies are induced by a lack of planning, limited available spaces, poor pedestrian constructions, and poor infrastructure management.
- Meanwhile, better accessibility standards, better infrastructure managements, and proper pedestrian construction are essential for a better pedestrian case study in Australia.

Image Source:

PEDESTRIAN EVALUATION IN BRISBANE (MUSK AVENUE)

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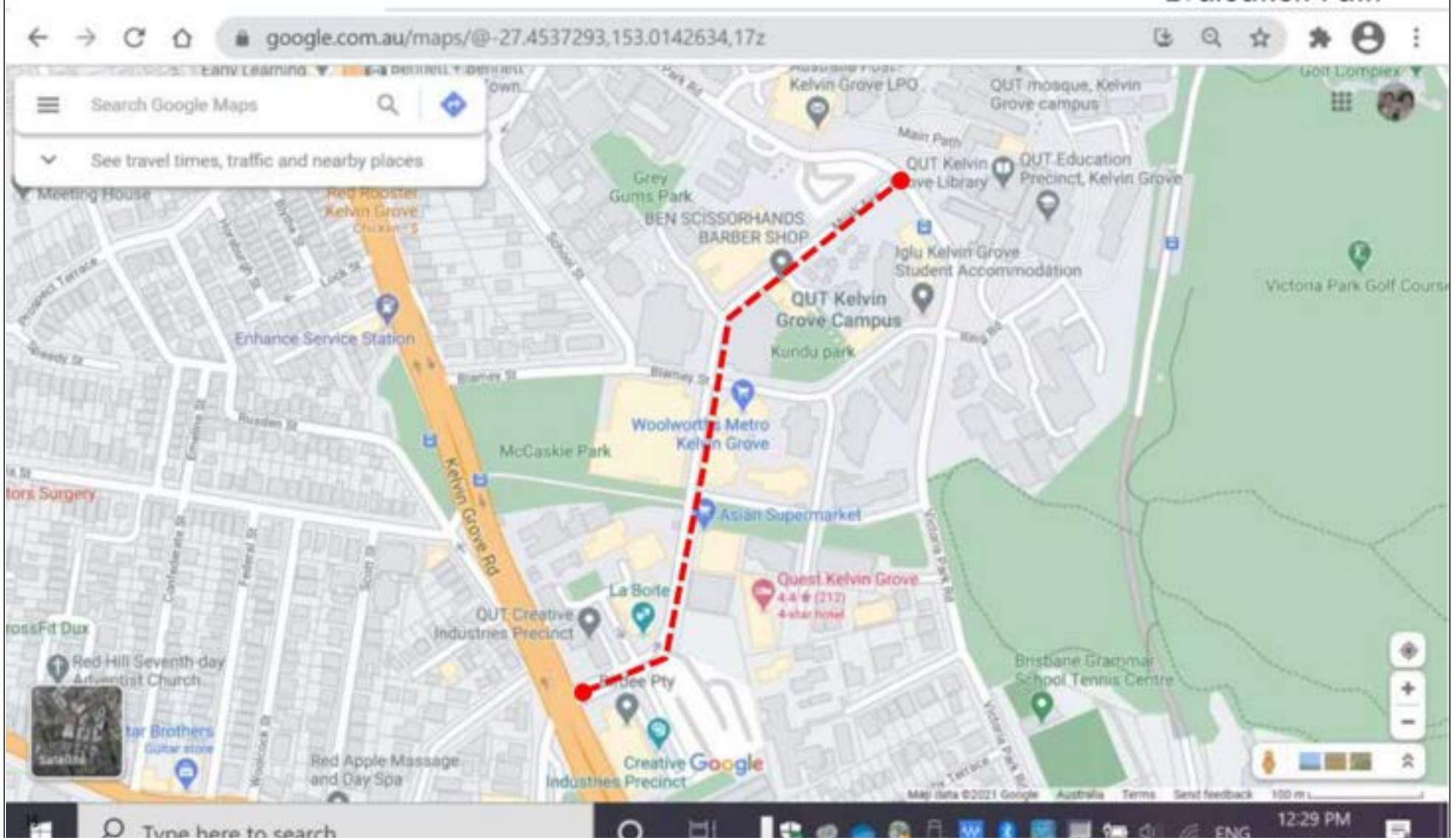
MAP OF MUSK AVENUE, BRISBANE

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PEDESTRIAN EVALUATION IN BRISBANE (MUSK AVENUE)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane
Google Streetview

PEDESTRIAN EVALUATION IN BRISBANE (MUSK AVENUE)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane

Google Streetview

PEDESTRIAN EVALUATION IN BANDUNG (SURYA SUMANTRI STREET)

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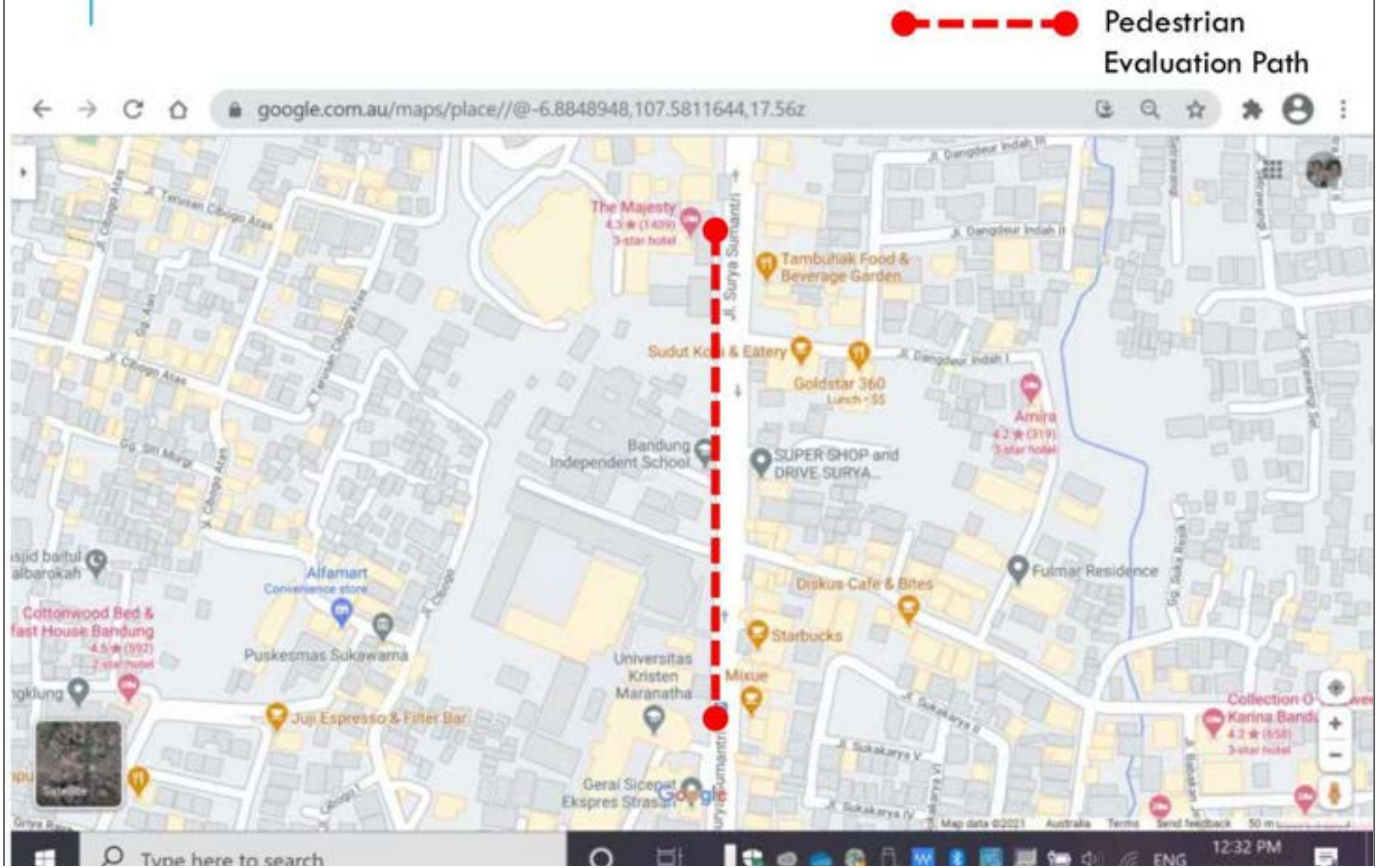
MAP OF SURYA SUMANTRI STREET

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PEDESTRIAN EVALUATION IN BANDUNG (SURYA SUMANTRI STREET)

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Google Streetview

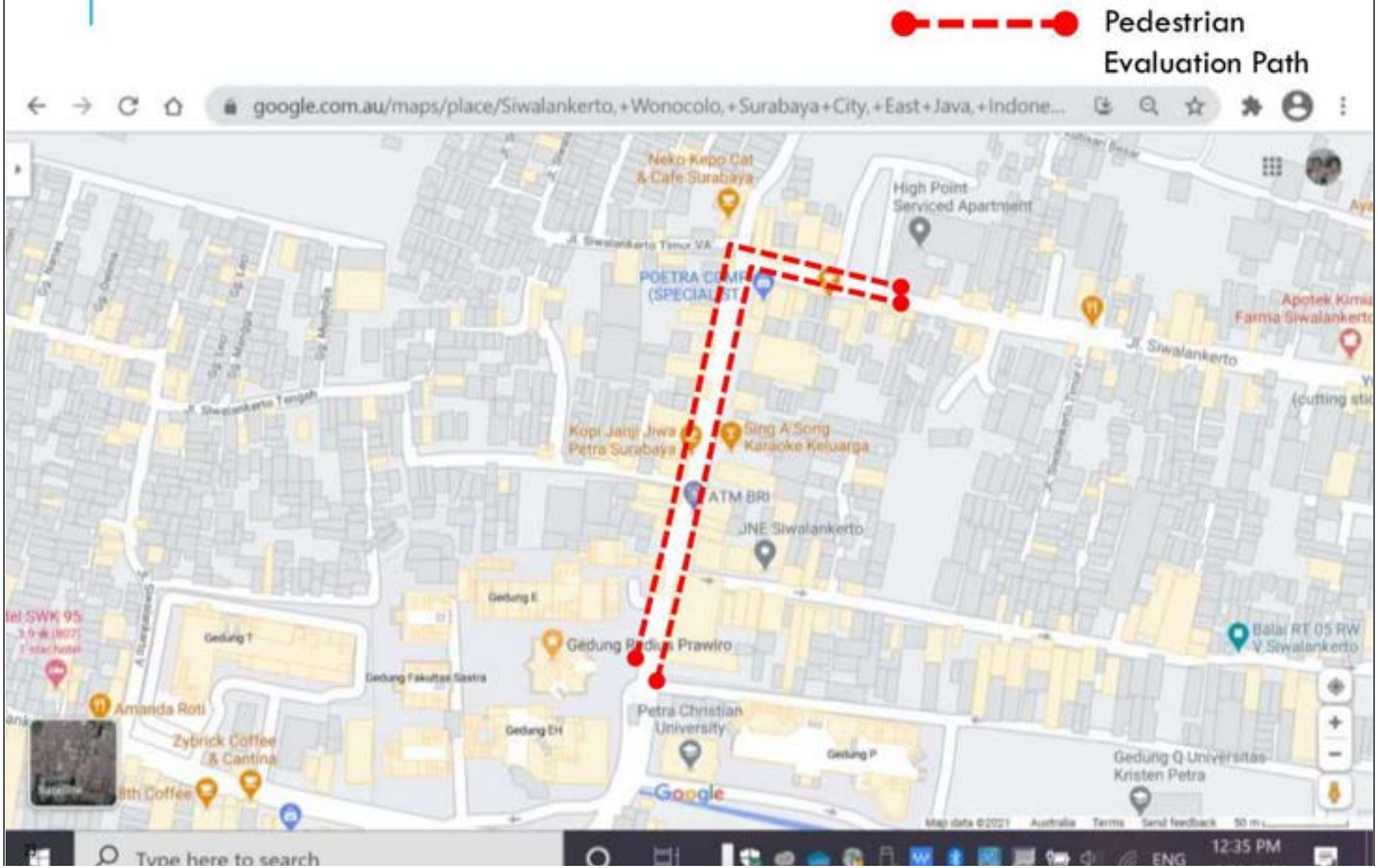
PEDESTRIAN EVALUATION IN BANDUNG (SURYA SUMANTRI STREET)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane
Google Streetview

PEDESTRIAN EVALUATION IN SURABAYA (SIWALANKERTO STREET)

https://research.qut.edu.au/designlab/ https://desaininklusiukpetra.wordpress.com/

MAP OF SIWALANKERTO STREET, SURABAYA

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PEDESTRIAN EVALUATION IN SURABAYA (SIWALANKERTO STREET)

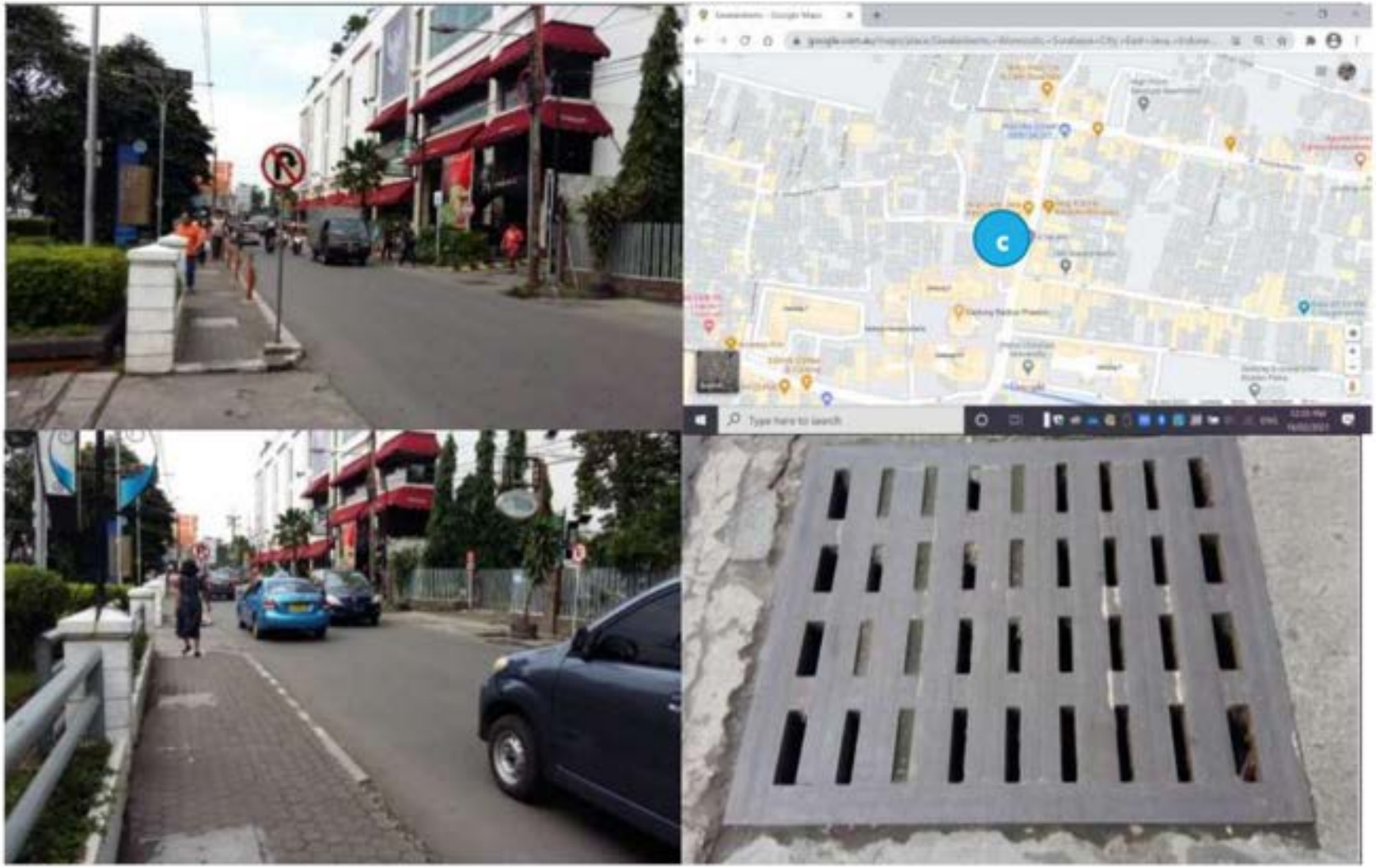

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane
Google Streetview

PEDESTRIAN EVALUATION IN SURABAYA (SIWALANKERTO STREET)

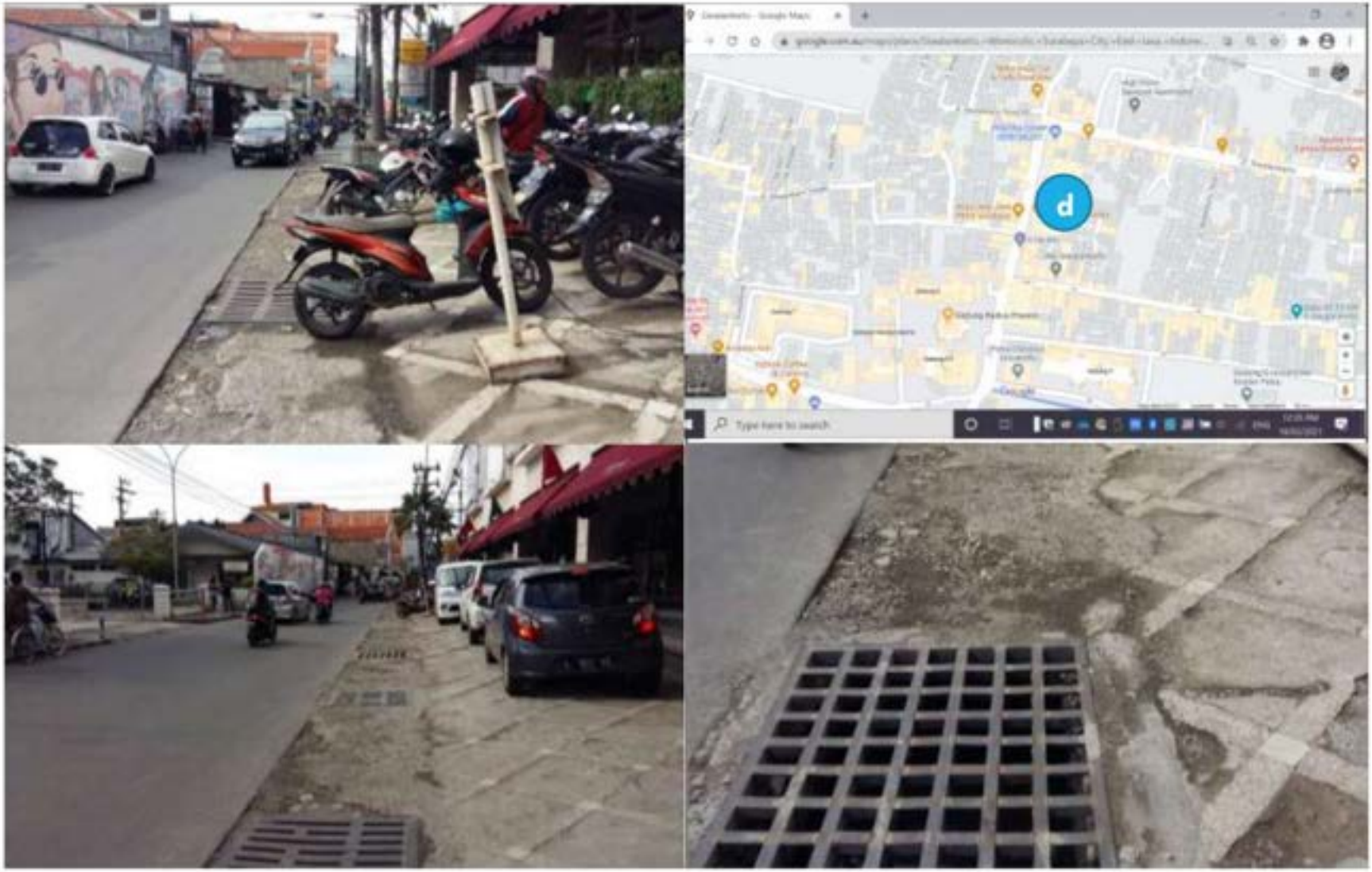

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane
Google Streetview

COMPLIANCE OF PEDESTRIANS ACCESSIBILITY TO INDONESIAN AND AUSTRALIAN STANDARDS

We measure accessibility of the pedestrian based on

- Peraturan Menteri Pekerjaan Umum dan Perumahan Rakyat No. 14/PRT/M/2017 tentang Persyaratan Kemudahan Bangunan Gedung [Regulation of the Minister of Public Works and Public Housing No. 14/PRT/M/2017 on Building Accessibility Standards], (Rep.) (Indonesia).
- Standards Australia. (2009a). AS 1428.1-2009 : Design for access and mobility - General requirements for access - New building work.
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- Standards Australia. (2014). AS/NZS 1428.4.1:2009/Amdt 2:2014 : Design for access and mobility - Means to assist the orientation of people with vision impairment - Tactile ground surface indicators.
- Standards Australia. (2017). AS 1428.1-2009/Amdt 2-2017 : Design for access and mobility - General requirements for access - New building work.

PEDESTRIAN
(JALUR PEDESTRIAN)

Ministerial Reg. of Public Works and Public Housing No 14/PRT/M/2017, Article 14.

(1) A pedestrian lane as referred to in Article 10 section (2) point d is a path used by pedestrians or wheelchair users independently which is designed based on people's needs to move safely, easily, comfortably and barrier-free.

(2) The design and provision of pedestrian lanes as a means of horizontal inter-spatial/inter-building access must take into account:

a. the distance so that building users and building visitors can reach their destination as near as possible;

b. the security, comfort and convenience of the users and visitors of the building;

c. inter-spatial/inter-building connectivity and continuity;

d. integration of building and environmental management aspects, inter-environment and area accessibility as well as access system;

PerMenPUPR 14 Tahun 2017, Pasal 14, hlm 10-11.

(1) Jalur pedestrian sebagaimana dimaksud dalam Pasal 10 ayat (2) huruf d merupakan jalur yang digunakan oleh pejalan kaki atau pengguna kursi roda secara mandiri yang dirancang berdasarkan kebutuhan orang untuk bergerak secara aman, mudah, nyaman dan tanpa hambatan.

(2) Perancangan dan penyediaan jalur pedestrian sebagai sarana hubungan horizontal antarruang/antarbangunan harus memperhatikan:

a. jarak tempuh agar Pengguna Bangunan Gedung dan Pengunjung Bangunan Gedung dapat mencapai tujuan sedekat mungkin;

b. keamanan, kenyamanan, dan kemudahan pengguna dan pengunjung bangunan gedung;

c. konektivitas dan kontinuitas antarruang/antarbangunan;

d. keterpaduan aspek penataan bangunan dan Lingkungan, Aksesibilitas antarlingkungan dan kawasan maupun sistem transportasi;

Bandung Pedestrian (in Surya Sumantri St.)

Surabaya Pedestrian (in Siwalankerto St.)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane

PEDESTRIAN
(JALUR PEDESTRIAN)

Ministerial Reg. of Public Works and Public Housing No 14/PRT/M/2017, Article 14.

(2) The design and provision of pedestrian lanes as a means of horizontal inter-spatial/inter-building access must take into account:

...

e. sloped surfaces that are easy to be passed;
f. the compliance of pedestrian facilities requirements;
g. economic, social and environmental added values;
h. support for the creation of public spaces that support social activities; and
i. physical character adjustment to the local socio-cultural conditions including habits, lifestyle, population density, and local wisdom values.

(3) Further provisions regarding the pedestrian lane complies with the provisions of the legislation.

MenPUPR 14 Tahun 2017, Pasal 14, hlm 10-11.

(2) Perancangan dan penyediaan jalur pedestrian sebagai sarana hubungan horizontal antarruang/antarbangunan harus memperhatikan

e. kemiringan permukaan jalan yang mudah dilalui;
f. kelengkapan sarana bagi pejalan kaki;
g. nilai tambah secara ekonomi, sosial dan lingkungan;
h. dukungan terhadap penciptaan ruang publik yang mendukung aktivitas sosial; dan
i. penyesuaian karakter fisik dengan kondisi sosial budaya setempat antara lain kebiasaan, gaya hidup, kepadatan penduduk, dan nilai kearifan lokal.

(3) Ketentuan lebih lanjut mengenai jalur pedestrian sesuai ketentuan peraturan perundang-undangan.

Bandung Pedestrian (in Surya Sumantri St.)

Surabaya Pedestrian (in Siwalankerto St.)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane
Google Streetview

PEDESTRIAN
(JALUR PEDESTRIAN)

Ministerial Reg. of Public Works and Public Housing No 14/PRT/M/2017, Appendix. II, pp. II.16 – II.19.

4. Pedestrian path

a. Technical Requirements

1) Surface

a) The surface of the pedestrian path must be stable, strong, weather resistant, and not slippery.

b) It is necessary to avoid the use of joints or bumps on the surface, if forced to exist, the height must not be more than 1.25 cm.

c) When using rubber, the edges must be of a permanent construction.

2) Size

• The width of the pedestrian path is not less than 150 cm for 1-way lane and not less than 160 cm for 2-way lanes.

• The width of the pedestrian path can be 180 cm - 300 cm or more to meet the need for high pedestrian intensity.

PerMenPUPR 14 Tahun 2017, Lampiran II, hlm II.16 – II.19.

4. Jalur Pedestrian

a. Persyaratan Teknis

1) Permukaan

a) Permukaan jalur pedestrian harus stabil, kuat, tahan cuaca, dan tidak licin.

b) Perlu dihindari penggunaan sambungan atau gundukan pada permukaan, apabila terpaksa ada, tingginya harus tidak lebih dari 1,25 cm.

c) Apabila menggunakan karet maka bagian tepi harus dengan konstruksi yang permanen.

2) Ukuran

• Lebar jalur pedestrian tidak kurang dari 150 cm untuk jalur 1 arah dan tidak kurang dari 160 cm untuk jalur 2 arah.

• Lebar jalur pedestrian dapat berukuran 180 cm – 300 cm atau lebih untuk memenuhi kebutuhan terhadap intensitas pejalan kaki yang tinggi.

Bandung Pedestrian (in Surya Sumantri St.)

Surabaya Pedestrian (in Siwalankerto St.)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane
Google Streetview

PEDESTRIAN
(JALUR PEDESTRIAN)

Ministerial Reg. of Public Works and Public Housing No 14/PRT/M/2017, Appendix. II, pp. II.16 – II.19.

4. Pedestrian path

a. Technical Requirements

…

3) Slope

- The width of the pedestrian path is 2 degree at most.
- The longest slope of the pedestrian path is 5degree at most.

4) Rest area

Every 900 cm distance, the pedestrian path can be equipped with a seat to rest.

5) Lighting ranges from 50-150 lux depending on the intensity of use, the level of danger and safety requirements.

6) Drainage

Pedestrian paths are provided with drainage made perpendicular to the lane with a maximum depth of 1.5 cm.

PerMenPUPR 14 Tahun 2017, Lampiran II, hlm II.16 – II.19.

4. Jalur Pedestrian

a. Persyaratan Teknis

…

3) Kelandaian

- Kelandaian sisi lebar jalur pedestrian paling besar 2 derajat.
- Kelandaian sisi panjang jalur pedestrian paling besar 5 derajat.

4) Area istirahat

Setiap jarak 900 cm, jalur pedestrian dapat dilengkapi dengan tempat duduk untuk beristirahat.

5) Pencahayaan berkisar antara 50-150 lux tergantung pada intensitas pemakaian, tingkat bahaya dan kebutuhan keamanan.

6) Drainase

Jalur pedestrian disediakan berikut drainase yang dibuat tegak lurus arah jalur dengan kedalaman paling tinggi 1,5 cm.

Bandung Pedestrian (in Surya Sumantri St.)

Surabaya Pedestrian (in Siwalankerto St.)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane Google Streetview

PEDESTRIAN
(JALUR PEDESTRIAN)

Ministerial Reg. of Public Works and Public Housing No 14/PRT/M/2017, Appendix. II, pp. II.16 – II.19.

4. Pedestrian path

a. Technical Requirements

...

7) Edge safety / low curb

a) Pedestrian paths need to be equipped with a safety edge / low curb which functions as a stop for vehicle wheels and a stick for people visually impaired to avoid dangerous areas.

b) The safety edge (low curb) is made with a minimum height of 10 cm and a width of 15 cm along the pedestrian path.

PerMenPUPR 14 Tahun 2017, Lampiran II, hlm II.16 – II.19.

4. Jalur Pedestrian

a. Persyaratan Teknis

...

7) Tepi pengaman/kanstin (low curb)

a) Jalur pedestrian perlu dilengkapi dengan tepi pengaman/kanstin (low curb) yang berfungsi sebagai penghentian roda kendaraan dan tongkat penyandang disabilitas netra agar terhindar dari area yang berbahaya.

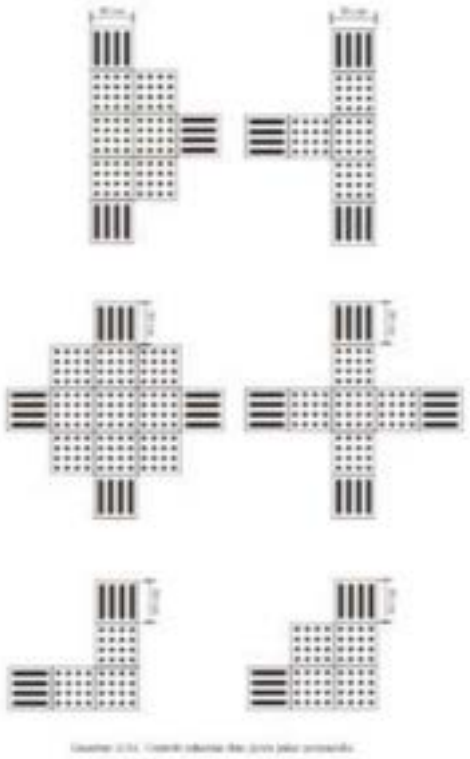
b) Tepi pengaman/kanstin (low curb) dibuat dengan ketinggian paling rendah 10 cm dan lebar 15 cm di sepanjang jalur pedestrian.

Bandung Pedestrian (in Surya Sumantri St.)

Surabaya Pedestrian (in Siwalankerto St.)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane Google Streetview

TACTILE GROUND SURFACE INDICATORS OR TGSI
(JALUR PEMANDU)



Ministerial Reg. of Public Works and Public Housing No 14/PRT/M/2017, Appendix. II, pp. II.19 – II.23.

Sizing samples and types of guiding paths.

PerMenPUPR 14 Tahun 2017, Lampiran. II, hlm II.19 – II.23.

Contoh ukuran dan jenis jalur pemandu.

Bandung Pedestrian (in Surya Sumantri St.)

Surabaya Pedestrian (in Siwalankerto St.)

Image Source:
Tanuwidjaja, et al. 2020, Data Collection of Bandung, Surabaya and Brisbane Google Streetview

ACCESSIBILITY EVALUATION WITH PEOPLE WITH LOW VISION IN BRISBANE AND SURABAYA

- We conducted two access evaluation in Brisbane and Surabaya Pedestrians with people with low vision and found dangerous features as discussed in pedestrian observation before.
- Even some areas were inaccessible at all for people with low visions because of crossing with parkings, building access, and hawkers.

Image Source:

SAMPLE LOW VISIONS CAUSING DIFFICULTIES

CONCLUSION

- In conclusion, two pedestrians in Bandung and Surabaya are found less accessible that pedestrian in Brisbane for the low vision students. The less accessible Indonesian case studies are induced by a lack of planning, limited available spaces, poor pedestrian constructions, and poor infrastructure management.
- Meanwhile, better accessibility standards, better infrastructure managements, and proper pedestrian construction are essential for a better pedestrian case study in Australia.

Image Source:

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