Jurnal KORIDOR
Journal homepage: https://talenta.usu.ac.id/koridor/

Availability Of Inclusive City Park Infrastructure (Case Study: Taman Tirto Agung Semarang)

Khoirotun Hisan[*1], Wijayanti[1]
[1]*Magister of Architecture, Faculty of Engineering, Universitas Diponegoro, Semarang, 50275, Indonesia*
[*]Corresponding Author: hisankhoirotun3@gmail.com

ARTICLE INFO

Article history:
Received 20 June 2024
Revised 11 November 2024
Accepted 19 November 2024
Available online 19 November 2024

E-ISSN: 2721-3463
P-ISSN: 2086-910X

How to cite:
Hisan, K. & Wijayanti (2024). Availability Of Inclusive City Park Infrastructure (Case Study: Taman Tirto Agung Semarang). Jurnal Koridor, 15(2), 95-104.

http://doi.org/10.32734/koridor.v15i2.16942

ABSTRACT

City parks are places that support physical and social activities/discussions for all levels of society. Therefore, city park infrastructure needs to be accessible independently, even without the help of others. This research is located in Tirto Agung Park which is located in a mix-use area (education, housing, trade) so that park users come from various levels of society both in terms of age and competence. The method used in this study is qualitative with literature studies, and field observations were carried out to assess the availability and suitability of Tirto Agung Park infrastructure with the principles of universal design and the Regulation of the Minister of Public Works Number 14 of 2017 concerning Building Ease Requirements. The results of the analysis showed that Tirto Agung Park has shortcomings in providing facilities for users, especially people with disabilities, such as ramps (low physical effort), guiding blocks (simple and intuitive use), hand rails (equitable use), zebra crossings (tolerance for error) and wayfinding/signage (perceptible information). The recommendation in this study is to add, improve and maintain park facilities and infrastructure.
Keywords: Inclusive, Infrastructure, Universal Design, City Parks.

ABSTRAK

Taman kota merupakan tempat yang mendukung adanya kegiatan/diskusi secara fisik, dan sosial bagi seluruh lapisan masyarakat. Oleh sebab itu, prasarana taman kota perlu untuk dapat diakses secara mandiri, bahkan tanpa bantuan orang lain. Penelitian ini berlokasi di Taman Tirto Agung yang berada di kawasan mix-use (pendidikan, permukiman, perdagangan) sehingga pengguna taman dari berbagai kalangan masyarakat baik dalam segi usia maupun kompetensi. Metode yang digunakan dalam penelitian ini adalah kualitatif dengan studi literatur, dan observasi lapangan dilakukan untuk mengkaji ketersediaan dan kesesuaian prasarana taman Tirto Agung dengan prinsip universal design dan Peraturan Menteri Pekerjaan Umum Nomor 14 Tahun 2017 tentang Persyaratan Kemudahan Bangunan Gedung. Hasil analisis didapatkan bahwa Taman Tirto Agung memiliki kekurangan dalam penyediaan fasilitas bagi pengguna khususnya penyandang disabilitas, seperti ramp (low physical effort), guiding block (simple and intuitive use), hand rail (equitable use), zebra cross (tolerance for error) dan wayfinding/signage (perceptible information). Rekomendasi pada penelitian ini ialah melakukan penambahan, perbaikan serta pemeliharaan terhadap fasilitas dan prasarana taman.
Kata Kunci: Inklusif, Prasarana, Universal Desain, Taman Kota.

1. Introduction

Green Open Space has a major contribution to sustainable development in terms of human welfare and social environment. The provision of city parks as a form of green open space is one of the government's strategies in improving the quality of urban spatial planning and supporting the development of livable and sustainable cities. City parks are local government assets that are managed for the benefit of people from various groups. Therefore, parks must have an inclusive concept that can be accessed, understood, and used by everyone, regardless of age, situation, ability or disability. Through an inclusive concept, users from all levels of society can use city park facilities that can be accessed independently, even without the help of others. Park facilities must cover a variety of needs and provide solutions through all inclusive design services. Inclusive design

must address design deficiencies that cause user exclusion in the public realm (Wu & Song, 2017). The importance of inclusive public open spaces in society is crucial to improving social equity and community well-being. A universal design approach to public parks will ensure accessibility and a sense of inclusiveness for diverse populations, including people with disabilities, seniors, and marginalized groups. Building this context will promote sustainable urban environments by reducing inequalities and advocating for equitable access to public spaces (Ashraf, R, et all. 2024).

Universal design in the context of inclusive parks can be defined as an approach that provides rights and services fairly to all users to access park facilities. The goal of universal design in inclusive parks is to create spaces that are adapted to humans with diverse competencies, without having to go through a long adaptation process (Meşhur & Çakmak, 2018). Inclusive city parks in behavioral architecture studies are expected to support disabled infrastructure in educational and recreational activities to be more active in socializing (Wijayanti et al., 2019). According to Carol Simon W. and Thomas G. David in Andriyansa, et al (2021), one of the principles of behavioral architecture studies is that space is able to accommodate user activities by fulfilling aspects of physical and psychological comfort. Public parks have an important role for all members of society. Therefore, it is recommended to apply universal design in building them; to create high-quality green open spaces that accommodate all community groups. In addition, there is an urgent need to apply universal design requirements to park elements to improve their quality to suit the capabilities of all users and achieve social inclusion and participation (Hussein et al., 2024).

This research is located in Tirto Agung Park, Banyumanik District, Semarang City adjacent to Tembalang District which is not only surrounded by residential areas but also educational, office, and trade areas, so that it has a diversity of visitors both in terms of age and competence. However, in several studies, Tirto Agung Park is considered not inclusive because it has facilities and infrastructure that are not child-friendly or not suitable as a place for children to play (Franestia, F., et al. 2022). There is also a study that states that Tirto Agung Park is still not suitable in providing facilities for the elderly, such as the absence of ramps for the elderly (Hetyorini, & Ngestiningsih, D. 2015). Therefore, further research on Tirto Agung Park needs to be carried out regarding the availability and suitability of inclusive city park infrastructure based on the universal design principles and standards of the Minister of Public Works Regulation Number 14 of 2017 concerning Building Facility Requirements, because this park is a recreation and social interaction area that is often accessed by various levels of society, including the disabled and the disabled.

1.1 Theory Based Study: The Seven principles of Universal Design

Universal design theory, pioneered by Ronald L. Mace, aims to create products and environments that are accessible and usable by all people, regardless of age, physical ability, or background. This concept emphasizes the importance of inclusivity in design, so that all users can interact with products and spaces without the need for special adaptations. In the context of architecture, buildings are designed with the needs of people with disabilities and other vulnerable groups in mind, creating an environment that is welcoming to all. According to Story, Mueller, and Mace (The Universal Design File, 1998), universal design is a design concept that addresses the needs of all individuals, regardless of age, ability, or status of the user. Universal design is rooted in barrier-free design, a design approach that is easily accessible. The term universal design can also be known as fair design. This is because designers must address problems from a broader perspective and must support the wider community so that spaces can be used by all individuals and without the need for special adaptations for certain groups of people.

Table 1. Principles Of Universal Design

No	Principle and Definition	Universal Design in Public Spaces	Regulation of the Minister of PUPR Number 14 of 2017 Concerning Building Construction Facility Requirements
1	Equitable use: Design for a variety of individuals with varying abilities	Making buildings, public spaces, and public facilities such as pedestrian paths, walkways, and parks universally accessible to all groups of individuals	• Minimum seating area of 120 x 60 cm with non-slippery and light textured pavement/floor material (does not cause shocks to wheelchair users) • Minimum disabled toilet area of 152.5 x 227.5 cm
2	Flexibility in use: Design should accommodate a variety of individual preferences and abilities	Public spaces that can be used for more than one purpose such as community meetings or art performances, and so on	Provide a guide path on the circulation of the site
3	Simple and intuitive use: Design should be easy to understand regardless of the user's experience, knowledge, skills, and language	A road network in a simple flow pattern for easy access	Placement of the entrance location from the parking lot no further than 60 meters
4	Perceptible information: Design should effectively convey information to be used as a means of communication with the user of the space, regardless of the user's surroundings or sensory abilities	Signage or markings that can be read clearly and placed at points that are frequently passed by the community	Signage using certain facility symbols (Braille or touch letters), can be reviewed by looking at the contrast of the writing with the background color.
5	Tolerance for Error: Design should minimize the hazards and adverse consequences of accidents or unintentional use of the space	Increasing safety by creating safety barriers between pedestrian paths and vehicle paths	Entry location of at least 70 cm that can be accessed by wheelchair users
6	Low physical effort: Design should be usable efficiently and comfortably without	Pedestrian paths are well maintained without material damage, the edges of	Provide ramps on facilities that have

No	Principle and Definition	Universal Design in Public Spaces	Regulation of the Minister of PUPR Number 14 of 2017 Concerning Building Construction Facility Requirements
	causing excessive physical effort	the pedestrian path are smooth and clearly visible	different height elevations
7	Size dan space for approach and use: Size appropriate to the use of the space by a variety of individuals, regardless of the user's body size, posture, or mobility	Avoiding building designs that can block visibility on the road; the width of the pedestrian path can accommodate pedestrians with high mobility.	Disabled parking has a width of 370 cm for single parking and 620 cm for double parking

Source: Eslami, L., & Mahmoudi, M. M. (2016), and Hanun et all (2022).

2. Method

This research method uses a descriptive qualitative approach with the steps of literature study, field observation and comparative study. Descriptive research is research that creates a picture of the situation or event at the study location. In assessing the availability of inclusive Tirto Agung Banyumanik Park infrastructure, the first step involves searching for literature related to standards for the availability of city park infrastructure in accordance with local regional regulations and SNI. In involving literature studies, this research will create a strong theoretical basis to support further empirical research. Next, field observations were carried out at Tirto Agung Park to determine the condition of the available facilities by conducting a comparative study or assessing the park's facilities and infrastructure against existing standards, whether or not they were in accordance with inclusive needs.

2.1 The Selected Case

Figure 1. Location of Tirto Agung Park
Source: Google Earth, 2024

Tirto Agung Park, located at the intersection of Tirto Agung Street and Durian Raya Street with an area of 9 hectares, has been built since 2012 by the Semarang City Cleaning and Parks Service. The boundaries of this park are to the north of the Ukhuwah Islamiah El-Azhar mosque, west of the SOS Taruna Village school, south of the Abimanyu marketing gallery, and east of the settlement. This park is located in a mixed-use area between settlements, education, and trade and provides recreational facilities between 2 sub-districts, namely Tembalang and Banyumanik, so it is widely visited by the surrounding community. Therefore, Tirto Agung Park was used as a research object because it has various users in activities in the park such as relaxing, exercising, playing, and so on, so that a study of the availability and suitability of inclusive park infrastructure is needed.

3. Discussion

3.1 Existing Infrastructure

The facilities at Tirto Agung Park include sports fields, public toilets, parking, park benches, vendor kiosks, rubbish bins, children's play facilities, and lighting (Budiarti, I., & Susanti, R. 2020).

Table 2. Availability of Tirto Agung Park Infrastructure

No	Infrastructure & Dokumentation	No	Infrastructure & Dokumentation
1	  Chair: made of cement and ceramic with a height of 50 cm	7	 The toilet consists of 4 doors
2	  Playground: there are various play infrastructure such as swings, seesaws, rock climbing, football fields and volleyball courts.	8	  Road
3	 Signage	9	  Rubbish bin
4	 Lighting	10	 The parking lot consists of 3 locations

No	Infrastructure & Dokumentation	No	Infrastructure & Dokumentation
5	 Street vendor kiosk	11	 Mosque
6	 Guiding blocks on the pedestrian outside the park		

Source: Author, 2024

3.2 Assess Conditions Based on Reference Standards

Table 3. Completeness of Tirto Agung Park Facilities

Facility	Yes	No
Open field	√	-
Basketball court unit (14x26 m)	-	√
Volleyball court unit (15x24 m)	√	-
Running track, 7m wide, 400 m long	-	√
Public toilet	√	-
Parking lot and kiosk	√	-
Open stage	-	√
Children's play area	√	-
Retention pond for water control	-	√
Chair	√	-

Source: Author, 2024

Table 4. Feasibility of Tirto Agung Park Facilities

Facility	Appropriate	Inappropriate	Information
Road Access	√	-	Available
Entrance gate	√	-	Available
Stage	-	√	Not yet available
Parking	√	-	There are 3 parking locations available
Playground	√	-	Available
Footpath	√	-	Available
Pavement	√	-	Available
Garden lamp	√	-	Distance 10 m – 15 m Maximum height 4 m
WC/Toilet	√	-	Available
Islamic Prayer Room	√	-	Available
Kiosk/ Stall	√	-	Street vendor area available
Rubbish bin	√	-	Maximum distance 20 m

Facility	Appropriate	Inappropriate	Information
Sitting Area	√	-	Distance between seats 10 m, width 40-50 cm x length 150 cm
Gazebo	-	√	Not yet available
Vegetation	√	-	Available
Safety Fence	√	-	Available
Disabled Facilities	-	√	Guiding block gray lines 30 x 30 cm
Zebra cross/crossing bridge	-	√	Not yet available
Bus stop	-	√	Not yet available

Source: Author, 2024

Table 5. Universal Design in Tirto Agung Park

No	Principle Of Universal Design	Existing Conditions
1	Equitable use	  In Tirto Agung Park, there are seats made of concrete covered with ceramics, and natural stones that are quite dangerous for users during the rainy season because they are slippery. In addition, there are toilets with poorly maintained and dirty conditions and no lighting, no special toilets for the disabled equipped with rams, and handrails for wheelchair users.
2	Flexibility in use	  There are no indoor spaces/buildings that can be used as community gathering areas. Common gathering areas are volleyball courts, as a place for gymnastics, or other activities and several children's play areas.
3	Simple and intuitive use	 

No	Principle Of Universal Design	Existing Conditions
		 The circulation pattern in Tirto Agung Park is spiral with many branches leading to the center of the park. The road material is made of natural stone paving, but there are no guiding blocks that can help blind users as a guide to navigate the park. This road area is also used as a jogging track by park users. Damaged Pedestrian Path in Enterance Park
4	Perceptible information	  Signs, maps/signboards, evacuation routes and other road elements (signage) are not found in Tirto Agung Park. There are only activity regulations in Tirto Agung Park. This makes it difficult for people with disabilities to find the locations they want to go to, such as playgrounds or toilets. However, there are different colors on the trash bins that make it easier for users to dispose of trash, such as red for organic waste, yellow for plastic waste, and green for general waste.
5	Tolerance for Error	 There is no pedestrian crossing and traffic lights for pedestrians to enter Tirto Agung Park, which is located at the intersection (Jalan Durian Raya – Jalan Tirto Agung), so it can endanger park users, especially people with disabilities, to move around with the high density of traffic around the park.  The absence of barriers in sports areas, such as volleyball courts and rock climbing, can endanger other park users.

No	Principle Of Universal Design	Existing Conditions
6	Low physical effort	  The road conditions in Tirto Agung Park are quite damaged, in some places the paving blocks are cracked and there are no ramps. This causes the road surface to be uneven and poses a tripping risk for people with disabilities such as the blind, wheelchair users and the elderly.
7	Size dan space for approach and use	  The presence of pillars as a corridor to the central area of Tirto Agung Park is quite obstructive to the visibility for people with disabilities. In addition, the parking area located inside the park (the corner of the park) has a different height level from the pedestrian path, thus providing a sense of security for park users in their activities.

Source: Author, 2024

4. Conclusion

Based on observations and analysis, it can be seen that there are several Tirto Agung Park facilities that do not meet user needs in accordance with the universal design principles and standards of the Minister of Public Works Regulation Number 14 of 2017, namely the absence of guiding blocks (simple and intuitive use), handrails (equitable use), lack of wayfinding/signage markers (perceptible information), absence of ramps at locations that have different surface levels, uneven or damaged walking surface material conditions (low physical effort), absence of crossing lanes causing lack of safety when crossing due to busy roads (tolerance for error). Recommendations from the results of the study in providing facilities at Tirto Agung Park:

1. Providing markers or location plans at the park entrance area to make it easier for visitors to find out the available points. Information markers can use symbols, letters, shapes that are contrasting in color and do not glare from the surrounding environment (perceptible information).
2. Provision of crossing signal devices and zebra crossings at crossing locations so that motorists can provide an opportunity for park users to cross and feel safe (tolerance for error). 3. Ramps are required in parking areas and access to buildings that are higher than the pedestrian path with handrails, and are wide enough to be used by more than one person at the same time with an angle of inclination <6o (low physical effort).
3. The availability of disabled toilets with a size of at least 1.5 x 1.675 m and equipped with handrails (simple and intuitive use).
4. Benches in Tirto Agung Park are actually already available and provide sufficient comfort, but the existing benches do not have back and arm rests. It is necessary to add benches that have back and arm rests in several areas and benches are also added to all sections of the pedestrian path so that they are not used as locations for street vendors to sell.

This research contributes to the development of inclusive policies in urban planning. By evaluating the implementation of universal design more systematically, this article offers policy recommendations that can

help local governments facilitate the implementation of designs that are more responsive to the needs of diverse community groups. This study focuses on the application of theory and literature review to examine infrastructure in Tirto Agung Park as an effort to realize an inclusive public park. However, the park as one of the urban public spaces is a space used to accommodate community activities. Therefore, the perception of the community as users regarding the public space, especially regarding the inclusiveness of the infrastructure, needs to be considered in further studies.

References

Andriyansa, R., Sulistyo, B. W., & Atika, F. A. (2021). Penerapan Tema Arsitektur Perilaku pada Desain Fasilitas Pendidikan Anak Berkebutuhan Khusus di Surabaya. Tekstur (Jurnal Arsitektur), 2(1), 31–36.

Ashraf, R., Michel, S., & Elshafei, M. M. (2024). Enhancing Inclusivity and Sustainability: A Comparative Analysis of Universal Design in Urban Parks.

Budiarti, I., & Susanti, R. (2020). Kajian Kuantitas dan Kualitas Taman Aktif di Kecamatan Tembalang dan Kecamatan Banyumanik . Jurnal Teknik PWK (Perencanaan Wilayah Dan Kota), 9(1), 48–59.

Eslami, L., & Mahmoudi, M. M. (2016). Universal Design and Social Sustainability in the City: The Case Study of Tehran Iran. In Universal Design 2016: Learning from the Past, Designing for the Future (pp. 263–273). IOS Press.

Franestia, F., Suratno, R. P., Ristianti, N. S., Mussadun, & Kurniati, R. (2022). Identifikasi Taman Ramah Anak di Kota Semarang. Jurnal Riptek, 16(1), 59-68.

Graham Murdock. (1999). Rights and Representations; public discourse and cultural citizenship, in J. Gipsrud (ed) Television and Common Knowledge (London, Routledge, hal. 11-12)

Hanun I.F., Purnamasari W.D., Sasongko W. (2022). Evaluasi Kesesuaian Fasilitas Dan Aksesibilitas Alun-Alun Batu Berdasarkan Konsep Ramah Difabel. Planning for Urban Region and Environment Vol. 11, No. 3

Hetyorini, & Ngestiningsih, D. (2015). Kajian Geriatri Dan Ruang Terbuka Publik Dalam Mendukung Penyediaan Taman Lansia Di Kota Semarang. Prosiding SNST ke-6

Hussein S.M., Ali S.M., & Ahmed M.E.K. (2024), An Analytical Study on Achieving Inclusive Parks in Light of Universal Design, Al-Salam & Al-Amal Parks in Aswan City as Case Studies., International Design Journal, Vol. 14 No. 1, (January 2024) pp 21-33

Kurniawan, H., Ikaputra, & Forestyana, S. (2017). Perancangan Aksesibilitas untuk Fasilitas Publik. Yogyakarta: Gadjah Mada University Press.

Meşhur, H. F. A., & Çakmak, B. Y. (2018). Universal Design in Urban Public Spaces: The Case of Zafer Pedestrian Zone / Konya -Turkey. ICONARP International Journal of Architecture and Planning ISSN: 2147-9380, 6, 15–40. https://doi.org/10.15320/ICONARP.2018.47

Peraturan Menteri Pekerjaan Umum dan Perumahan Rakyat Nomor 14 Tahun 2017 tentang Persyaratan Kemudahan Bangunan Gedung.

Story, Molly Follette; Mueller, James L.; Mace, Ronald L. (1998). The Universal Design File: Designing for People of All Ages and Abilities. Revised Edition. *Center for Universal Design, NC State University, Box 8613, Raleigh*

Wijayanti, A.C., Iswati, T.Y., & Nirawati, M.A. (2019). Penerapan Pendekatan Arsitektur Perilaku Pada Taman Inklusif Di Surakarta. Jurnal Senthong

Wulanda, R. P., Suryaning, S. (2023). Evaluasi Pedestrian Bagi Pengguna Jalan Pada Kawasan City Walk Jalan Kawi Malang. SIAR IV: Seminar Ilmiah Arsitektur

Wu, K. C., & Song, L. Y. (2017). A case for inclusive design: Analyzing the needs of those who frequent Taiwan's urban parks. Applied ergonomics, 58, 254-264