

Applying Urban Livability indicators in gated communities

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Abstract

The main goal of cities is creating a context for people to engage with each other. As the Public realm forms a vital conduit for the exchange of ideas, friendships, skills, and even material goods. Public spaces are the basis and content for the public life of cities; thus, the livability of spaces is crucial for boosting and promoting the social life of cities and improving its quality of life. Today's cities are struggling to cope with the changes that are depleting urban life. Streets are overcrowded with vehicles, scarifying pedestrians on streets and open areas that are gradually being replaced by parking lots. In general, urban open space is becoming increasingly disconnected from sustainability, accessibility, and pedestrian friendliness, all of which are important criteria for making a city livable. However, the city's livability requirements are an essential aspect in inhabitants' general well-being, and they can be practiced and advanced where required. A modernized city should have qualities that improve the quality of life of its residents as much as feasible. This paper provides indicators that, in theory, improve the quality of life in a livable city. Two urban qualities sustainability and accessibility are described including pedestrian friendliness through layers of networks such as pedestrian routes, open spaces, facilities, and greenery. According to analysis of different precedents livability indicators extracted to be applied on a case study to arouse the livability and quality of urban life. Once the measures are devised, they are tested through a case study (compound El Yasmin in Zayed City, Giza, Egypt).

Introduction

The urban environment is constantly changing as a result of new technologies, transportation modes, and lifestyles on streets and public spaces, as well as population and building growth. These changes appear to create a challenge for urban planners and architects to create a better and healthier urban life. Many aspects of urban planning today are based on the concept of livability. The concept of livable city arose as an extension of urban quality and sustainability seeking after the 1980s in North America as a response to car-dependent urban sprawl. The primary goal of this concept is to create a high quality of life and a sense of belonging on a human scale in a sustainable urban environment. In terms of "quality of life and well-being," the terms "livability" and "sustainability" are used interchangeably. "Livability is regarded as a subset of a sustainable city" because the two are inextricably linked. (Abley, S and S Turner 2011) (Woolcock 2009). Sustainability is referred as the ability to maintain the standard of living. In terms of operation, it is frequently considered as improving current and future people' economic, social, cultural, and environmental well-being. Environmental performance, urban context, and change drivers such as technology, climate change, resource consumption, and global urbanization are all factors that influence the relationship between sustainability and livability. A livable city asserts to require a sustainable urban environment.

A livable city is a sustainable city; one that meets the requirements of its current inhabitants without compromising the capacity of future generations to meet their own needs... In a livable city, both social and physical aspects must work together for the community's well-being and advancement, as well as the individual's well-being and progress as a part of the community (Salzano 1997) (Timmer, V. & Seymoar, N 2005). A neighborhood is a multi-layered organism in which residents seek long-term quality of life, which livability concerns can provide. This part works on a new settlement livable compound proposal and discusses the variables of this proposal on a master's degree student application in terms of livable community pedestrian-friendly concept in a mid-scale neighborhood located at sheikh Zayed city in the Great Cairo, Giza Governorate, northern Egypt.

Livable Gated Community Approach

Livability refers to an urban system that supports all urban residents' physical, social, and mental well-being as well as personal development. It's about creating exceptional and desirable urban spaces that reflect and offer cultural and religious. Livability is a broad term that refers to a variety of aspects of urban living. People's ability to access infrastructure such as communication and transportation modes, food, clean air, housing, networks of paths, open spaces, facilities, greenery, and parks is linked to their quality of life. In general, livability can be defined as the quality of life and daily routine that residents of gated communities can experience. (Timmer, V. & Seymoar, N 2005) (Southworth 2005)

Livability indicators (Pedestrian-Friendly)

Livability rating is higher When a city is designed to be pedestrian friendly. Networks of pedestrian paths, cycling paths, open spaces, and greenery should be provided to improve livability and pedestrian friendliness in the city. Pedestrian and cycling paths promote walking and movement, open public spaces promote interpersonal interactions, and finally, greenery throughout the city provides recreational opportunities.

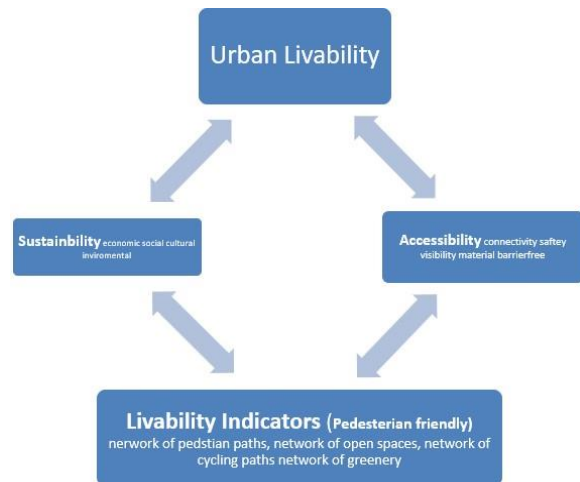


Figure 1 Framework of Urban livability indicators attained by the research

Pedestrian (walkable, cycling) network

A well-organized network of pedestrian paths promotes walkability, cycling, and vehicle free paths with a high livability index. The term walkability refers to how pedestrian-friendly the built environment is. It is a useful criterion for assessing an area's characteristics. Some key characteristics of a walkable community include being connected, clear, comfortable, convenient, pleasant, safe, secure, universal, and accessible (Ceccon & Zampieri 2016).

Providing pedestrian amenities such as street lighting and street signage, as well as designing crosswalks where possible, are minimum requirements for creating paths and public spaces that are pleasurable, comfortable, and appealing. The paths' connectivity should be enabled so that they can be used throughout the year. Wherever possible, different shadow elements should be provided, and a specific type of greenery should be chosen to protect users from unpleasant weather influences. Choosing the right materials for pavements or other urban elements is also crucial in adjusting the space to seasonal changes. Paths should be advanced in its program, which will improve its utility (Shrestha 2011).

Paths should be advanced in its programme to increase its utility. "We need to address more than connectivity, land use patterns, safety, and the quality of the path itself if we want to encourage walking." In a monotonous physical setting, a safe, continuous path network will not attract pedestrians. The path network must pique the user's interest". To summaries', important public spaces and people-oriented activity nodes should be connected via continuous and convenient pedestrian paths on a large scale. Stops and stations for public transportation should be in convenient locations and connected to the main pedestrian movement pattern and pedestrian activity nodes. Street vendors should be kept off of sidewalks. (Shrestha 2011) (Christopher Kost, Naomi Mwaura, Advait Jani, Christopher Van Eyken July 2018) (Fig. 2 & 3).



Figure 2 Brugge, Belgium (htt5).



Figure 3 Stroget, Denmark (htt6).

Network of Open Public Area

A livable city is one in which public spaces serve as social hubs and focal points for the entire community. A livable city must be built, or restored, as a continuous network – from the city Centre to outlying settlements – with pedestrian and bicycle paths connecting all sites of social quality and community life (Salzano 1997).



Figure 5 National square Zadar, Croatia(htt4)



Figure 4 Place d'armes, Luxembourg (htt3)

Open spaces are hubs of public activity and social interaction. They can be viewed as a city's comfort zones, or, from another perspective, as the neighborhood's outer living rooms. It is critical to give open spaces a function and a value in order for them to exist and thrive. These types of spaces should house a variety of programmes and be occupied by specific usage in order to engage the interest of users. An open space network should encourage more active lifestyles by providing a variety of safe and attractive spaces that are well distributed throughout a neighborhood and meet the community's various needs. Preferably, public open space should make an effort to attract and invite a diverse range of users. A sporting area, for example, could be designed to attract athletes, walkers, and children through landscaping and the addition of facilities (Auckland City Council 2008) (Maria Androulaki, Evangelia Frangedaki, Panayiotis Antoniadis, 2020,).

The Green Area Network

Greenery has always been an important part of urban life. Since ancient times, cities have felt the need for green spaces. The addition of greenery to the street profiles, squares, and path intersections will improve the space on multiple levels. Greenery improves the quality of the city in a variety of ways, including providing a shadowing solution, cleaner air,

improved heating insulation, inducing a cooling effector, and simply providing visually more pleasing surroundings. These characteristics, which more nature in the town provides, are more welcomed and desired, especially in the context of a pedestrian-friendly city. Green spaces play an important role in the promotion of an urban image and citizens' confident perception of the urban space, which is justified by the visual interest that nature provides; hiding aesthetically uninteresting surfaces and valuing the property. Greenery promotes a positive environmental image at the city scale by providing extensive spaces that evoke the presence of nature on a built context. Furthermore, as an icon of modernity in a competitive city that typifies contemporary society, it can be used in urban rehabilitation actions (Virtudes 2016) (Verdú-Vázquez, A., Fernández-Pablos, E., Lozano-Diez, R.V. et al. Green 2021).

Livability Consecutive with Egyptian Culture

Egyptian culture is one of the most socially interactive. People are spending their free time outside, getting to know one another and sharing their daily routines. In addition to the adult population, youth are eager to interact.

Children participate in neighborhood group games, whereas youth socialize in open areas or closed social places.

This culture is characterized by a vibrant outdoor cafe and tea culture. Outdoor cafe seating contributes significantly to the vibrancy and spirit of the public realm. The ability to sit outside and enjoy a meal or a cup of tea while also being a part of the public street life has a strong appeal to people all over the world (Gehl et al., 2013). To summarize, Egyptian people are willing to use social places that are open, semi-open, or closed. The important thing is that it provides interaction, shelter, or interest for a person. (Gehl Architects 2013)

Application

Compound El Yasmin, it's one of the gated communities of the new settlements of Egypt. It is one of Sheikh Zayed gated compounds, as it is sorted to be one of the high qualities of life experience. On the other side it lacks most of the urban livability meanings, it depends on private villas, private cars, and roads for cars only there isn't any lanes for walking or cycling. Even though there isn't any livable public spaces. Finally, the researcher is one of the place residents as it gives priority for the place so all the urban livable defects are felt very well.

Problem of the place

We've arrived at a point where public space design assumes very little of the user, other than the ability to sit, walk, and be young. The design of public spaces has become shaped by our expectations of standard figures in the environment; it is a deterministic response that ignores our growing understanding of individual and group needs. A broader approach to public space design could undoubtedly meet the needs and interests of a much wider range of

residents and users. Teenagers, for example, require sitting and talking areas that are visible to the public but lack the delicate detailing that designers adore. Their spaces are tough, easy to clean, and necessary for personal development within, rather than outside, the urban context. The elderly, on the other hand, require secluded but secure spaces that are well protected and well-detailed. Spaces for teenagers are not the same as spaces for the elderly. The researcher's experience is instructive here not because it revealed sensitivity to design for various age or interest groups, but because it has generated such diversity in contemporary public space that there are lessons for everyone.

Proposal for Applying livability indicators framework El-Yasmine

Compound, sheikh Zayed city



Figure 7 Compound El Yasmin layout (goo)

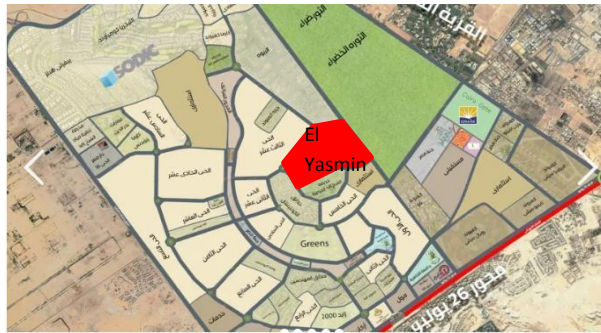


Figure 6l Yasmin compound location on the city map (htt9)

In this applied proposal, the gated community "Compound El Yasmin" is going to be examined from the viewpoint of proposed qualities of a livable community framework. The analysis is based on data gathered in the field as well as information presented in the literature. Proposals will be implemented in order to raise the compound's livability level in relation to its current values.

Location

El-Yasmine Compound is strategically located in the 14th neighborhood of Sheikh Zayed, west of Sheikh Zayed Road, at the middle of Sheikh Zayed city so the compound has easily access to all the services and places in the city. It is close to 6th of October City, Hyper One, the Canadian University, and Sheikh Zayed's largest park (the Central Park), as well as major roads like the 26th of July Axis. All of these feature's appeal to those who want to live in a quiet environment relatively far from Cairo's heart while still having easy access to any place in the capital. It is conveniently located near Hyper One, the Canadian Institute, and Cairo University, as well as many important services such as: Plazas, Cafes, Restaurants, Plazas, Sports Clubs, and Nurseries.

Urban Development and Architectural Features of the compound

The construction of the El-Yasmine project in Sheikh Zayed began after the City Authority allocated the lands. Construction licenses were only available for villas, including the construction of 1159 villas on 500 m² of land per villa, buildings on 250m² and 250m² private garden for each villa.

El-Yasmine Compound supposed to be one of Sheikh Zayed City's best and finest compounds. It has a distinct architectural style and many services, including pharmacies, supermarkets, and laundry, as well as green areas and 24-hour security.



Figure 9 illustrates Architectural Features of the compound and the luxury villas each with private garden

The main feature of El-Yasmine Compound is that there are no high-rise buildings; instead, there are only villas, making it ideal for those seeking sophistication, excellence, tranquility, and independence. It also has extensive gardens and green spaces that are useless. The occupation now is 90 % of the compound. The compound is surrounded with network of main lively streets that are enriched with moderate traffic of private vehicles despite various transportation that are eligible in the city from buses, minibuses, and taxis hold you any destination all over the city. The compound also walled with constructed fence with four access gates are spread all over the fence.

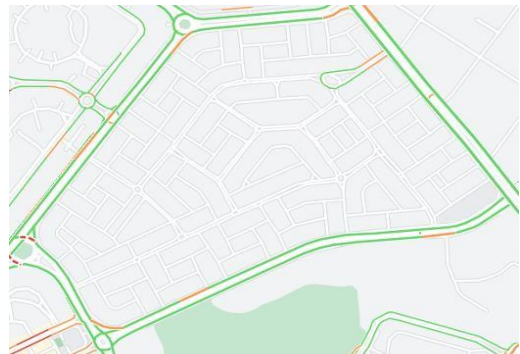


Figure 8 illustrates the main streets surrounding the compound. (htt7)

El Yasmin Gate 4 is the main gate as it is located on the most central access in the city which is Nozha street, linked between 26th of July Axis and gate 1 the main access to Zayed city as you can see “Hyper One” shopping center which considered one of the significant land marks of the city on the other side Cairo Alex desert gate and Al Ahly club.

Livability Analysis of El Yasmin Compound

A detailed analysis of the compound macro scale is required in order to make recommendations and proposals. The data gathered on the site has been presented through various mapping and interpreted in accordance with the proposal of livable compound.

1. Pedestrian (walkable, cycling) network current condition and proposal

Walking is the primary mode of human movement and is required to experience urban space. Walking transforms one into an observer and judge of the urban landscape. Although pedestrian tracks are the primary mode of transportation within the compound.

Current condition

By looking at the compound streets, it is clear that all of them allow vehicles. Regardless of the insufficient width or poor pavement conditions. The car park is dispersed throughout the compound's streets and public open areas. The uncontrolled parking area prevents residents from using appropriate circulation or open space, whether they are pedestrians, cyclists, or drivers. Vehicles, cars, and smaller trucks are passing through the streets, disrupting residents' daily activities. The following figure shows the current network of paths that is designed for only cars leading for separation and segregation of the neighborhood.

The current position for the network of street

As an observer there isn't any means for walking in a such luxurious neighborhood, as the residents are looking forward to find their needs from walking to enjoy the targeted quality of life. These needs most arouse after covid-19 disaster and the quarantine, while all the residents had no choices for any activities but only activities thereabouts in the public areas inside their safe gated and secured compound. As shown in the taken pictures there is paved lanes street with green texture trees at both sides of the street lacking any means of livability, as if it were land for cars only with no life for people.



Figure 10 illustrates the network of main streets inside the compound

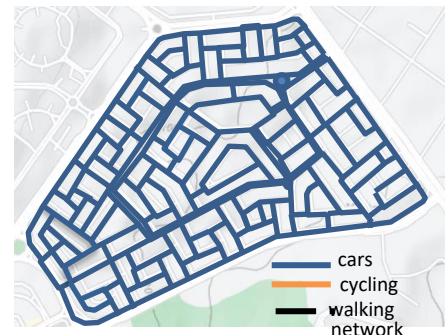


Figure 11 illustrates Network of current paths which are designed for cars only



Figure 12 main street with four car lanes

The proposed pedestrian (walkable, cycling) network

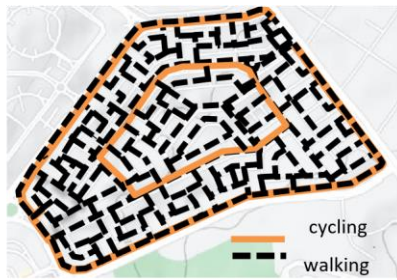


Figure 16 illustrates the proposed walkable and cycling paths in conjunction with the current designed streets.

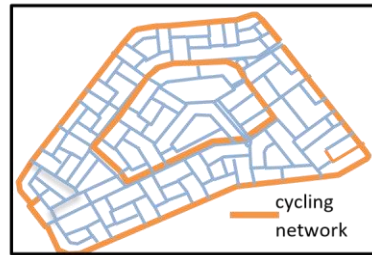


Figure 15 illustrating two main cycling tracks proposed by the researcher

To increase walkability, the researcher recommends to make walking paths beside the pavement that are safe and shaded with trees for the residents for all ages children, teenager, youth, moms with their babies and also old aged. Regardless most of the residents' walkable activities is on the road side by side with movement of cars with random paths and random steps as there isn't any means of livability in the compound. There will be two main cycling tracks, the first will surround the whole compound side by side with the fence and it will be the huge one as it will be along the length of perimeter of the compound, and the second



Figure 14 illustrating the current condition of the compound central main street and its position

track will be in the central main street and it will be shorter in length. By this vision we can say that we meet the needs of all different aged residents from children to old aged.

Visualization of pedestrian (walkable, cycling) network proposal

Central main street

Proposal of the central main street which will be two direction as it is, with smaller pavement than the current illegal one to leave space for walkable path, parked cars and cycling lanes on both sides in different directions. The following is sliced mock up to be applied on the whole main network. Figure 16



Figure 13 Sliced mock up to be applied on the whole main network

2. Open Spaces Network Current State and Proposed Solution

El Yasmin compound has a good urban pattern. Buildings aren't built one next to each other, leaving the streets a good percentage of useless urban spaces and void spaces inside a good built urban pattern. Existing public open areas are deserted or lately planted with grass or used for parking areas, and are generally in a bad physical condition. Pavements are of a good quality. The open or public spaces in the compound are already located and left as land space some of them are planted with grass and the others are deserted. It supposed to be a social club in the compound but in reality, it doesn't exist. There are only two sporting play grounds, football yard, and tennis yard. The current condition for the public open spaces

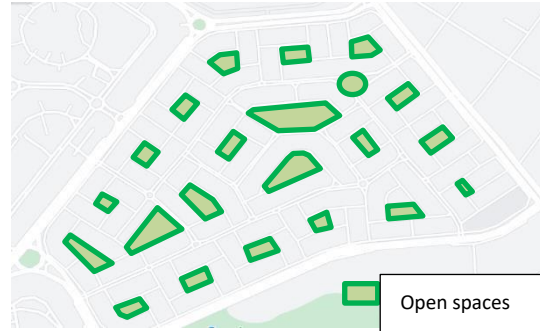


Figure 17 illustrates the current urban open spaces in the compound



Figure 19 illustrates the compound open areas some are deserted and others are only surrounded with trees.

Figure 18 illustrates the compound open spaces that are planted with grass. And still useless.

As an observer there isn't any livable spaces

equipped for people to engage, socialize although for children's activities such as kids' area, open area for skating, gathering and also old aged people to engage. The public spaces are rarely used by almost the entire surrounding community. This including various age groups, for rarely gathering in different occasions or events by self-efforts such as iftar Ramadan gathering, making event for orphans in childhood day, Eid al-Fitr and Eid al-Adha prayer. Thus, they use only one space in the compound for all the previous that is somewhat well planted with grass. So, the residents are looking forward to achieve this quality of life.

The proposed network of open spaces

To improve the livability of the El Yasmin compound or to make it more pedestrian friendly, it is highly recommended that the number of useful public open spaces in the compound

will be increased, as well as the number of pedestrian paths that connect them. The compound proposal will demonstrate how open spaces with the pedestrian paths compromises will result in attractive and engaged public spaces.

These open spaces will be connected by the proposed pedestrian, cycling network. It will be easily accessible by directional signage to destinations and also by the safe crossing roads.

These open spaces should be visible within the compound structure and provide opportunities for social interaction. They should also be able to accommodate a variety of programmes, such as local and seasonal events. Pavements should be renovated while retaining the traditional element of block grey stone. The area should be designed in an inviting and appealing manner for residents and visitors.



Figure 20 illustrates the public spaces which all connected by the proposed pedestrian network.

Visualization the proposal of network of livable urban spaces

According to the theoretical and analytical studies for this research creating places for people is the aim to create livable urban spaces or livable public spaces for people to engage with each other. There must be parking for bikes at each livable urban space to be easy accessed by pedestrians. There are many examples for bikes parking that are implemented in many livable cities around the world. livable urban space must contain seats for all aged residents for laying, gathering, also the spaces attached to the markets and shopping area.



Figure 23 examples for livable public spaces seats for gathering for all ages Gehl architects 2013

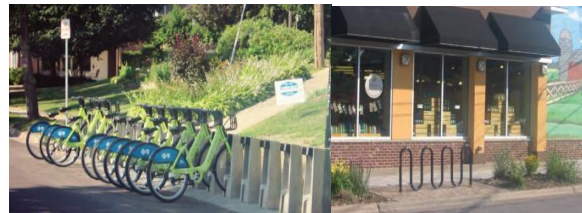


Figure 22 Linden Hills Bicycle Parking

Recommend to have a wide area with shaded part and other without. This wide area will be among the green grass and some wide trees.

Although the compound lacks for livability but also, it has two playgrounds for sports activity one for football and other for tennis. So that we recommend increasing the playgrounds in the compound for basketball, volley ball, squash, swimming and skating area.



Figure 21 layout from compound El Yasmin planted area recommended wide area and example photo for open from Kentland's, Gaithersburg, MD (photo courtesy of Kentland downtown/ Flickr n.d.

Young children zone

The compound must have area for children and kids in each urban livable space to have fun and joy. This area must offer a landscape environment with a variety of natural features that may accommodate a wide range of activities, such as



Mike Lanza's playborhood, Menlo Park, California (MIT Department)

parks with playing areas (Zalloom July 2017)

Figure 24 illustrates recommended examples for young children zone

outdoor bridges and playing fields. These parks include playgrounds, strolling paths, ornamental landscaping, and distinctive elements such as riding routes.

3. The Green Area Network

It is proposed that greenery be incorporated into possible open space network design. Such greenery can help to improve the impression of a location while also providing shelter from inclement weather. A shadowing problem may be seen in the compound's streets. When we consider the demand for sun in the winter and shade in the summer, a planting solution is more convenient. This shading solution should be supplied at all street areas that face directly into the sun. The amount of greenery in the compound should be increased. The surrounded



Figure 25 The green area nnetwork current state(goo)

Figure 26 proposed green area network

green line has been extended for mor privacy for the compound along the fence in this study, and further green shadowing features are proposed.

By the end of this paper, the residents of compound El Yasmin can Go for a walk. Cross streets easy and safely. Ride a bike. Get around without a car. Live safely and comfortable.

Enjoy public spaces. Socialize, engagement, connecting people to their neighbors. Spend time outdoors. Be entertained. Finally livable community is a life-long home.

Conclusion

Livability strategies are the path to the better quality of living.

1. For the general well-being of people, small things which form a daily routine are essential. To be able to pleasantly going to the work, school or recreation, or ease to participate in social interactions in outdoors implements a quality of city on a higher level is needed to sustain and to improve the benefits which are enjoyed in every day's life.
2. Resistance to a change is usually present due to the already established patterns. But to provide a sustainable, accessible and pedestrian friendly place, changes should be pushed forward. To make it possible, the transformation should be made gradually; from an easier implementation towards the tougher ones.

In this paper, a method for advancing the community towards a higher livability index is investigated through the case of compound El Yasmin.

1. Attention on pedestrian paths, open spaces, and greenery are applied on the existing urban tissue which upgrade the overall urban quality.
2. Contribution to inhabitant's life is made when these layers are overlapped and enriched. To show the interventions in more detail, a transformation of Compound El Yasmin will be done.
3. The space is enhanced in open space quality, programs, greenery, and the pedestrian friendliness.
4. The residents can gain a place for recreation, leisure, education, culture or entertainment. The potential of a transformation of other areas in the compound can gradually regenerate and revise the compound to a livable one.

As a conclusion, enhancing an urban community in a livable one is a complex process. With the modern developments and new lifestyles, if the city is left behind at the time, it will lose its possibility of healthy and contemporary living. It is important to cope with the changes and think of solutions.

References

Abley, S and S Turner. 2011. *Predicting walkability*. technical report, Auckland: NZ Transport Agency.

2008. "Auckland City Council." Annual report.

Billie Giles-Corti 1, Melissa H Broomhall, Matthew Knuiman, Catherine Collins, Kate Douglas, Kevin Ng, Andrea Lange, Robert J Donovan. 2005. "Increasing walking: how important is distance to, attractiveness, and size of public open space?"

Ceccon & Zampieri. 2016. *Paths, Tracks and Trails designed for pedestrians and cyclists*.

- Christopher Kost, Naomi Mwaura, Advait Jani, Christopher Van Eyken. July 2018. *Streets for walking and cycling*. Germany: Urban Pathways.
- Gehl Architects. 2013. "Istanbul an accessible city - a city for people." *Istanbul-public*, issuu_998. https://issuu.com/gehlarchitects/docs/issuu_998_istanbul-public-spaces-pu.
- Maria Androulaki, Evangelia Frangedaki, Panayiotis Antoniadis, 2020, "Optimization of public spaces through network potentials of communities," *Procedia Manufacturing* 44 (23519789): 294-301. <https://doi.org/10.1016/j.promfg.2020.02.234>.
- Salzano, E. 1997. "Seven Aims for the Livable City." *17th, International making cities livable conference*. Carmel, CA; Gondolier Press. 18-20.
- Shrestha, B. 2011. "Street typology in Kathmandu and street transformation." *Urbani Izziv* 107121. <http://www.jstor.org/stable/24920582>.
- Southworth, M. 2005. "Designing the Walkable City." *Journal of Urban planning and development*. 131:4(246).
- Timmer, V. & Seymoar, N. 2005. "The livable city. The world urban forum 2006 Vancouver." (Discussion paper). http://www.cscd.gov.bc.ca/lgd/intergov_relations/library/wuf_the_livable_city.pdf.
- Verdú-Vázquez, A., Fernández-Pablos, E., Lozano-Diez, R.V. et al. Green. 2021. "Green space networks as natural infrastructures in PERI-URBAN areas." *Urban Ecosyst* 24: 187–204. <https://doi.org/10.1007/s11252-020-01019-w>.
- Virtudes, A. 2016. "Benefits of Greenery in Contemporary City." *Conf. Ser.: Earth Environ. Sci.* 44 032020.
- Woolcock, G. 2009. "Measuring up? assessing the livability of Australian cities." *Promaco Conventions*. Australia: Perth. 1-19.