15 MINUTES CITY CONCEPT AND ITS APPLICATION

Megh Patel[1], Priyank Kadecha[2], Vatsal Ramani[3] and Manthan Shukla [4]

[1]Department of Civil and Infrastructure Engineering, Adani Institute of Infrastructure Engineering, Ahmedabad, Gujarat, India

[2]Department of Civil and Infrastructure Engineering, Adani Institute of Infrastructure Engineering, Ahmedabad, Gujarat, India

[3]Department of Civil and Infrastructure Engineering, Adani Institute of Infrastructure Engineering, Ahmedabad, Gujarat, India

[4]Department of Civil and Infrastructure Engineering, Adani Institute of Infrastructure Engineering, Ahmedabad, Gujarat, India

Abstract

Today's world is growing with technological evaluation. In present era, especially after the COVID-19 pandemic, the life has become health and family oriented which was money and work oriented. People started redefining the term "Wealth". Considering the current and future lifestyle of the people a new concept i.e., the 15-minute city has been thoroughly studied, in this paper. This concept introduces new city planning which contributes to the betterment of health and lifestyle of people and functioning efficiency of a city. It tries to set a balance between need of fast-growing world and need of a common man. Along with the study, a model is proposed which can be taken as a reference for planning a new city.

The 15-minute city model

The model prepared by Prof. Carlos Moreno at the Sorbonne in Paris, is a model for urban development and urban mobility. The 15-minute city is the contemporary synthesis of the renaissance "ideal city", where the classical "human measure" has now been interpreted, far away from a geometrical perspective, in the framework of current health and environmental risks. [1]

15 Minute city is a concept which is basically developed for reducing carbon emission by reducing the use of cars and motorized commuting time. In this concept the city is planned in such a way that all the residents

can reach daily necessities within a short walk or bicycle ride. In this all the residents can get everything that they require only in 15-Minutes. The main aim of the 15 minute is to provide essential amenities, residential area and more green spaces within a 15-minute walking and cycling distance.

Traditionally, cities evolved with a clear dissociation between various zones for residential, commercial and for industries. With this in effect residential area specifically could benefit in cleaner air, a green environment, and a less crowded living conditions. With this as a lifestyle in this modern era today the cities have progressed even much further where the industries have totally moved out of the town planned schemes and the living area of the people. 15-minute model is a type of urban planning scheme where it helps in changing the lifestyle of people as cleaner and greener as possible with all the amenities of a typical modern era

society/community have. Also, the primary social goal of New Urbanism is to foster a sense of community. This goal operates on the premise that the organization of space influences the quality of social interaction. [2]

The success of this concept, as it has been shown in the city of Paris under the leadership of Mayor Anne Hidalgo, has been hailed as a potent urban planning concept that will lead to an economic boost, while bringing about social cohesion and interaction and help create sustainable ecosystems in cities, more so after the experiences of COVID-19 and associated containment measures. [1], [5]

It is a very innovative model indeed but rooted in history, able to answer to the primary deep demand of community and sense of place, of which the historic centre is the icon. [4] The city is in fact both polyrhythmic (individuals have different daily life rhythms) and polychromic (how places are used varies according to various schedules); the proposal reconceptualization therefore shifts the lens from 'urban planning' to 'urban life planning'. [4]

The city of Ahmedabad, established in 1411 by Sultan Ahmed Shah, also known as Amdavad is the largest city in Gujarat which covers an area of 464 km^2 with an elevation of 53m. [8] This city is recognized as one of the fastest growing cities of India. With population of 7,214,225, Ahmedabad has been emerging as an important economic & Industrial hub in the country and hence is suitable for the study of the 15 min city concept. [11]

Developing and planning of a new city having the integration of the 15 minute city is comparatively very easy then integrating the same concept in any existing areas. New planning can be efficiently be converted into real life, but there might be many challenges to change the existing areas as they have been planned with a different planning approach and mind-set.

The main aim of the study was to know whether Ahmedabad (or any area of Ahmedabad) emphasizes integrating idea of 15 minute city or not. A successful 15 minute city would consists of all the necessary amenities such as proper living facilities, schools, shopping centres, hospitals, recreational places, restaurants, hotels, gardens, etc. , for the people residing in the area within a short distance which could easily be covered via walking or cycling within 15 minutes only.

Study Area

'Abhijyot Green' residency near 'IFFCO Bhavan', located in satellite area of Ahmedabad is chosen as the centre for this study. The 15 minutes are sub divided into three zones viz. 5 minute, 10 minute and 15 minute zones. Daily routine amenities and important amenities covered in these zones are searched out and listed in table 1. Fig.1 shows the area covered by the proposed zones. Fig.1 is prepared in the open-source geographic information system application; QGIS. The same points with another application; Google Earth pro is shown in fig.2. First zone, second zone and the third zone cover the amenities from 0 to 5, 6 to 10 and 11 to 15 minutes, respectively walking or cycling.

The amenities required for a well-functioning city are tabulated in table 2. In the table total 31 amenities are listed. They are categorized based on the priority i.e. high priority and low priority. High priority amenities are those which are must for a city. Low priority amenities are the additional which are there for betterment.

The fig. 3 shows the percentage of the coverage of the amenities in each zone. Zone 1,2 and 3 covers 53%, 88% and 76% high priority amenities, respectively and 7%, 14% and 36% low priority amenities, respectively.

If the implementations of this concept is done in the near future, there are various benefits not only to the current generation but also to all the upcoming generations. With the 100% implementation of the concept, there would be

better life style of people, more green spaces, a healthier life, eco system friendly city, etc.
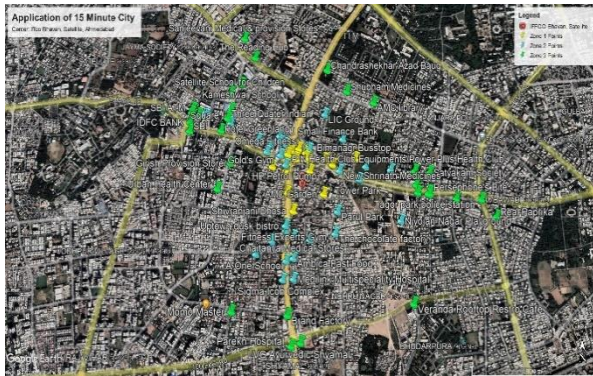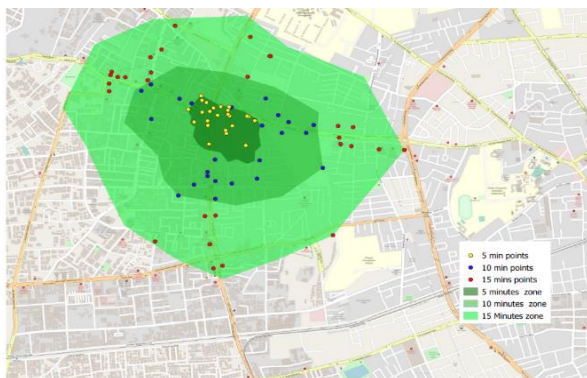

Fig.1 Amenities in the area

Fig.2 Zones (5,10 and 15 minute)

In this paper, the benefits of the proposed concept are discussed as follow.

Health benefits
The concept is emerged as a health and family oriented life. It would also lead to healthy transportation habits such as walkable and cycling paths, usage of public transport will increase, which would result in reduction of personal vehicle dependency, resulting in betterment of individual health benefits and environment sustainability [7]. Also it would help in facing the problem of extinction of the natural resources such as petrol or diesel in future. The current

health situation in fact forces us to redesign our lives and the places where we live. [3]

By walking & cycling many benefits would be achieved for the people from the purpose of health such as it would help for fighting cancer, quell depression & anxiety for avoiding heart disease, prevent diabetics, to lose obesity, cure hypotension , insomnia, boosts immunity system, improves mental health, improves joint function, decreases B.M.I and increases cardiovascular fitness as well.

Mental health
The concept of 15-minute city can improve physical health: reducing obesity, heart disease, for ex. [9]. Also, it can help promote good mental health, prevent mental illness and help prevent mental illness and help support people with mental health problems. There cannot be health without mental health. Having good mental health is essential, not only for personal wellbeing, but also to have a resilient and sustainable cites. Cities are associated with higher rate of mental health problems. Reasons why people living in cities may have increased mental health problems which may have pre-existing risk factors, social factors and environmental factors. [10] The problems related to the mental health can be improved with effectiveness of green spaces and access to nature and recreational places.
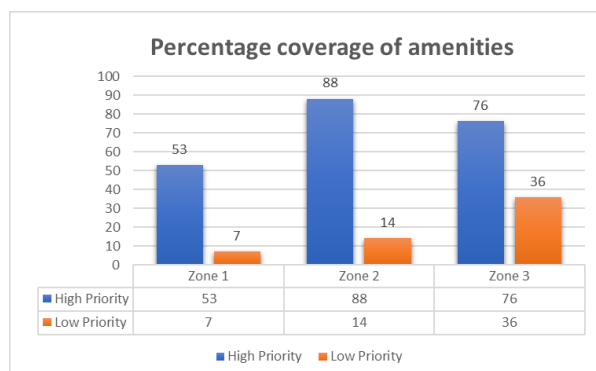

Fig. 3

Such places can improve mental health by promoting exercises, building social networks,

stress reduction and walkable green spaces. So, for having people residing in a city free from mental illness, the concept of green spaces is very crucial for the 15-minute city model.

Therefore, promoting 15-minute city help in overcoming challenges people faces nowadays in their mental health, can be overcome by implementing the concept of green city into 15 minute city.

Pollution

Some cities have seen street space previously dedicated to cars is freed up, eliminating pollution and making way for gardens, bike lanes, and sports and leisure facilities. Building cycling and pedestrian infrastructure is a way for cities to leverage the moment and reposition and focus on a sustainable future.

Active transportation plays a large part in this idea. Reducing the time spent in traveling for basic amenities, through the development of walking and cycling infrastructure, has the potential to reduce car pollution and free up more time for other activities. Mitigating the effects of pollution, any city requires a lot of green spaces. Green spaces include parks, gardens and arboriculture.

Table 1

Zone 1 (0 to 5 min.)		
Sr. No.	**Name of destination**	**Tentative time**
1	Municipal garden	2
2	Restaurant	3
3	Police station	4
4	Tea shop	4
5	Tea shop	4
6	General store	5
7	Supermarket	5
8	Bank	5
9	Commercial complex	5
10	Medical store	5
11	Gym	5
12	Health club	5
13	Gym	5
Zone 3 (11 to 15 min.)		
Sr. No.	**Name of destination**	**Tentative time**
1	Restaurant	11
2	Hotel	11
3	Petrol Pump	11
4	Grocery store	12
5	Cloth mall	12
6	Snack store	12
7	Restaurant	12
8	Hotel	12
9	Cafeteria	12
10	Jewellery shop	12
11	School	13
12	School for children	13
13	Public garden	13
14	Medical store	13
15	Public market	14
16	ATM	14
17	Hospital	14
18	Hospital	14
19	Urban health Centre	14
20	Post office	14
21	Bank	15
22	ATM	15
23	General store	15
24	Police station	15

25	Library	15
26	Hotel	15
27	Cafeteria	15
28	Tea stall	15
29	Restaurant	15
Zone 2 (6 to 10 min.)		
Sr. No.	**Name of destination**	**Tentative time**
1	Bank	6
2	Recreational park	6
3	Children playground	6
4	General store	6
5	Pharmacy store	6
6	Medical store	6
7	Medical store	6
8	Gym	6
9	Petrol pump	6
10	Ply and timber store	7
11	Fitness centre	7
12	Restaurant	7
13	Hotel	7
14	Bakery	7
15	Theatre	7
16	Pre-school	8
17	Super market	8
18	Bank	8
19	Residential apartment	8
20	Public ground	8
21	Shopping mall	8
22	Shopping mall	8
23	Fitness centre	8
24	Hospital	8
25	Bank	9
26	Food shop	9
27	Multispecialty hospital	9
28	School	10
29	Bank	10
30	Bank	10
31	Public garden	10
32	Open ground	10
33	Shopping mall	10

34	Municipal Corporation Library	10
35	Hotel	10

Green spaces help to deliver positive health, social and environmental outcomes. It doesn't only mitigate the effects of pollution but it also ensures rich biodiversity, ensures water storage and reduces the heat trapped in the built-up-areas, the heat generated by practices of people, transportation and industries which enables to escapes to the atmosphere.

Table 2

	High priority	Low priority
1	School	Movie theatre
2	Grocery stores	Gyms/ health clubs
3	Hospital	Clubs
4	Pharmacy	lake
5	Shopping	Open theatre
6	Bank	Game zone
7	Restaurant/cafes	Playground
8	Public garden	Hostel
9	Recreational areas	Public Swimming pool
10	Hotel	Worship place
11	Post office	Dog park
12	Fire station	Public parking
13	Town hall	Garage
14	Police station	Library
15	Bus station	
16	Railway station	
17	Fuel pump	

And it also makes urban area healthier. The 15-minute city model concentrates deeply on green spaces for solving the problems cause and to improve the quality of life for the people.

Terrace garden:

A terrace garden is a garden which is established on a terrace, roof, or patio, usually in a house where there is limited gardening space [6]. The trend of terrace garden is not new, for centuries it has been common to use rooftops as a living space/Recreational space. [6]. As mentioned earlier, the 15 minute city concept focuses on having more green spaces. But due to lack of open spaces in the existing city, the concept of terrace garden could be included. Advantages of having terrace garden would be; environment sustainability, increase of pure air, suitable for large areas, Low maintenance and long life, often no need for irrigation and specialized drainage systems and often suitable for retrofit projects, can leave vegetation to grow spontaneously and relatively inexpensive. [6].

Since ages mankind has not been very kind towards environment and has caused a lot of harm towards it. It is utmost important that people are cautious about the harm that they are causing and the consequences that they will face in future. So, for that it is very important that people are aware about the conservation of environment. So, it is very important that we planned the next township with conservation of environment in mind, thus the nature can be conserved.

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